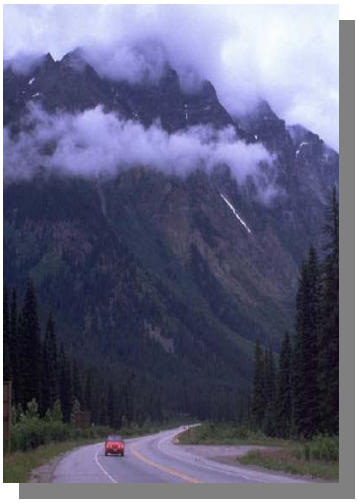

Deployment Assistance Report #5: *Public Transportation Content on 511 Services*

June 2003

Published by the 511 Deployment Coalition

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1. Background

What is 511?

On March 8, 1999, the U.S. Department of Transportation (U.S. DOT) petitioned the Federal Communications Commission (FCC) to designate a nationwide three-digit telephone number for traveler information. On July 21, 2000, the FCC designated 511 as the United States' national travel information telephone number. The FCC ruling leaves nearly all implementation issues and schedules to state and local agencies and telecommunications carriers. In 2005, the FCC will review our progress in implementing 511.

What is the 511 Deployment Coalition?

In early 2001, mindful of both the opportunity and challenge that 511 presents, the American Association of State Highway and Transportation Officials (AASHTO), in conjunction with many other organizations including the American Public Transportation Association (APTA) and the Intelligent Transportation Society of America (ITS America), with the support of the U.S. DOT, established the 511 Deployment Coalition (Coalition). An executive-level Policy Committee and a supporting Working Group were established to conduct the work of the Coalition. Membership of the Coalition draws from all levels and types of government agencies, various segments of the telecommunications industry and the fields of consulting, system integration and information service provision.

The Coalition has made its goal – "the timely establishment of a national 511 traveler information service available to a majority of Americans by 2005 that is sustainable and provides value to users." The Coalition recognizes that 511 services will be developed in a bottom-up fashion with state and local transportation agencies establishing services in areas and timeframes determined by them.

As of February 28, 2003, 511 was available statewide in nine states – Arizona, Kentucky, Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, Utah and on a limited basis in the State of Washington – and in Cincinnati; the I-81 Corridor in Virginia; Orlando, Miami and Dade, Broward and Palm Beach Counties in Florida; and San Francisco. With these deployments, 511 serves ten of the top 60 metropolitan markets in the United States. Some implementers are already providing public transportation information via 511.

511 services are also expected to launch in 2003 in Alaska, Boston, Kansas, Maine, Missouri, Nevada, New Hampshire, New Mexico, North Carolina, Oregon and Vermont. In total, thirty-nine states and the District of Columbia have received federal grants to begin planning their 511 deployments.

The Coalition has developed "Implementation Guidelines for Launching 511 Services" to assist implementers in their efforts to develop quality systems and to lay the foundation for ultimately establishing a consistent nationwide 511 service. The Implementation Guidelines are comprised of both Content and Consistency Guidelines. 511 deployers' use of these Guidelines will lead to a certain level of expectation where users will understand the level of highway, public transportation and weather information that they will receive.

The Guidelines are available at http://www.its.dot.gov/511/511ver11.htm

What is a Deployment Assistance Report?

The Guidelines cover both content and consistency for 511 systems and this Deployment Assistance Report (DAR) is a further examination and refinement of the guidelines relating to public transportation. This DAR also looks at the public transportation information currently offered by 511 deployers and attempts to share their body of knowledge and experience.

This DAR is the fifth in a series published by the Coalition:

- DAR #1: 511 Business Models and Costs Considerations http://www.its.dot.gov/511/511_Costs.htm
- DAR #2: Transfer of 511 Calls to 911 http://www.its.dot.gov/511/511to911.htm
- DAR #3: 511 and Homeland Security http://www.its.dot.gov/511/511secur.htm
- DAR #4: Regional Interoperability Issues http://www.itsa.org/511.html
- DAR #5 Public Transportation Content on 511 Services http://www.itsa.org/511.html
- DAR #6 Weather and Environmental Content on 511 Services http://www.itsa.org/511.html
- DAR #7 Roadway Content Quality.doc http://www.itsa.org/511.html

DARs result from the focused efforts of Coalition volunteers. While in each prior case, these efforts originated to support development of the Guidelines; the Coalition members determined that much was learned in exploring each area that should be shared with the broader deployment community. Thus, each volunteer effort has concluded its activity by electronically publishing an information report.

Purpose of this Deployment Assistance Report

The Coalition recognizes that 511 services will be developed in a bottom-up fashion with state and local transportation agencies – with the close collaboration of the private sector – establishing services in areas and timeframes determined by them.

The purpose of this DAR is to share information regarding the types of public transportation data that can be provided via 511 and the issues associated with this provision. This DAR's main audience is the transit community, 511 planners and implementers.

The rationale for this DAR is to produce a "511 basics" guide for transit agencies to both address getting started with 511 and also planning for evolving basic services as experience and demand warrant. The transit community is very interested in playing an important role in 511 without increasing the number of calls to already busy customer service centers. There may be some misconceptions about what 511 has to be to be considered "successful." Some agencies may believe that if they cannot provide certain types of information, then they cannot participate in 511. 511 and the provision of public transportation information on it is *not* only about real-time information. It is about providing the public with information about your agency and its services so that travelers may make informed decisions as they travel through the transportation system.

There is hope of reducing the number of calls to transit customer service centers and 511 is another outlet for the information required by those callers. 511 may not reduce the number of calls to customer service centers overall, but it may enable transit agencies to provide their public transportation information to a new audience. With the increasing coverage of 511 systems, more sophisticated marketing, growing brand awareness and continually improving content, overall usage of 511 is likely to soar in the future.

Where to Find More Information on 511?

Information on the 511 Deployment Coalition, including DARs, educational and marketing materials, supporting resource materials and additional useful references for 511 implementers may be found at the following websites:

- http://www.deploy511.org
- http://www.its.dot.gov/511/511.htm
- http://www.itsa.org/511.html
- http://511.transportation.org/511/site.nsf/HomePage/Overview
- http://www.apta.com/services

Join the 511 listserv at: http://groups.yahoo.com/group/511WG

Acknowledgements

The Coalition Working Group established a task force with the purpose of developing this DAR to examine public transportation content on 511 services. All members of the task force contributed their time, expertise and energy to enable the assembling of this report:

- Ronald E. Boenau, FTA

- Sandra Check, New Jersey Transit *(Leader)*
- Matt Coogan, Transportation Consultant
- Pete Costello, PBS&J
- Melanie Crotty, Metropolitan Transportation Commission (CA)
- David Fierro, SmartRoute Systems
- Garry Glazebrook, Glazebrook & Assoc.
- Gary Googins, RTD-Denver
- Art Handman, Greater Hartford Transit District
- Richard Hodges, Utah Transit Authority
- Randy Isaacs, Greyhound
- Les Jacobson, PB Farradyne
- Duana Love, Chicago RTA
- Jim Macrae, Metropolitan Transportation Commission (CA)
- Bob Major, Central Arkansas Transit Authority
- Mike Nevarez, Phoenix Transit
- Sari Radin, U.S. DOT Volpe Center
- Terry Russell, Valley Metro (VA)
- Lou Sanders, APTA
- Hallie Smith, ITS America
- Jerry Strigari, New Jersey Transit

2. Implementer Self-Assessment Checklist

Please check off the types of information your agency currently provides to the public:

- ☐ General Agency Information
- ☐ Schedule / Timetable
- ☐ Website
- ☐ Fare Information
- ☐ Information Phone Number
- ☐ Toll Free Information Number
- ☐ Customer Service Center
- ☐ Customer Service Center Hours
- ☐ Automated Messages
- ☐ Interactive Voice Response System
- ☐ Service Description
- ☐ Service Hours
- ☐ Service Disruption Information
- ☐ Service Change Information
- ☐ Service Notices
- ☐ Service Alerts
- ☐ Special Event Information
- ☐ Real-time Information
- ☐ Special Pass Information
- ☐ Parking Information
- ☐ Elevator / Escalator Information
- ☐ Bike Information
- ☐ Accessibility Information
- ☐ Paratransit Information
- ☐ Quality Checked Information
- ☐ Trip Planning
- ☐ Bus / Train Arrival Times

If you checked off at least one of the above, your agency has information that it can begin sharing with the public via 511.

3. Why is Public Transportation Content on 511 an Issue?

Along with highway and travel-related weather information, public transportation information is one of the basic categories in the Implementation Guidelines related to content that should be available on 511 systems.

All transit agency staff from executives, senior level decision makers, 511 implementers and those with traveler information or technology responsibilities are interested in serving the needs of the traveling public in their area. They may not have received a phone call or visit from a colleague in their region letting them know what 511 is and what it can do for their agency and those it serves. This DAR hopes to accomplish that task and enable them to incorporate 511 into their planning process, so that they may provide their information on an existing system or consider initiating the service with their region's transportation partners.

There is an abundance of public transportation information available today in many forms and in many places and 511 is another outlet for that information. The U.S. DOT's Volpe Center regularly looks at transit agency websites to determine what types of information are provided and how it is portrayed. In 2002, they examined over 600 agency websites and only a few offered real-time information, temporary notices or special events, alerts and trip planning. Most transit websites though did have some data, information and static timetables on the Web and this data, by itself, may be enough to start providing information to a 511 service.

The Volpe Center did not assess the accuracy of information on transit websites, though, only its availability. The accuracy, timeliness and reliability of information on 511 is an important issue for the 511 community and consumers as well. ITS America in its national consumer research on 511 determined that "those surveyed said that if they used 511 and found the information to be inaccurate in their first few uses, they would be unlikely to give the service another chance."

Consumers do not care about political boundaries and jurisdictions, they want information to make their commutes and travels more bearable and predictable. Through this DAR, the Coalition encourages all transit agencies to actively pursue 511 as a means to give consumers the information that they desire.

4. Overview of Implementation Guidelines

Content Guidelines Applying to Public Transportation Content

Regardless of the size and nature of a 511 service area, there are likely to be one or more public transportation service providers in operation. In many cases, these public transportation operators already have established methods of communicating to the public about their services, including web sites and customer service centers accessible by telephone. If properly utilized and coordinated with these existing communications methods, 511 can assist public transportation operators in better serving their customers and possibly even attract new customers. The following guidelines should be considered when developing the public transportation information component of a 511 service. There are many different approaches public transportation operators could take to implement their portion of 511 services. These guidelines are intended to maintain this implementation flexibility.

Principles

Information access via telephone has proven to be extremely important in transit customer service. The principal purposes for these services are for general agency and service information, communicating service disruptions and changes, and trip planning. At the basic content level, 511 can assist in providing callers general agency and service information, and communicating service disruptions and changes. Also, callers could be directed to where they can obtain more detailed information and trip planning. The following basic principles should be followed:

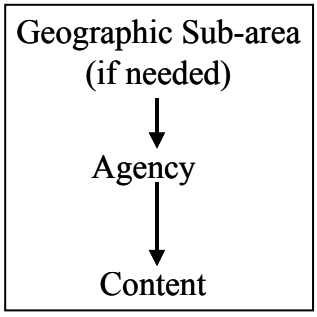
- Information on all transit agencies in area should be available – Often, one or two dominant public transportation agencies exist in an area, but many more exist that collectively provide a region's public transportation system. All of these operators should be accessible via 511. In complex or large geographic areas, it may be necessary to subdivide areas before identifying specific agencies.
    - The San Francisco Bay Area does not use sub-regions, which is one of the benefits of having a voice recognition system. Their system asks callers to say the name of the transit agency that they want and if they do not know, then the system asks them to say the name of the city or county from which they are traveling. The 511 system returns with the agencies serving that city / county. If the caller still does not know which agency to say, the system takes the caller to the menu of the largest transit agency for the selected city or county.
- 511 works in conjunction with transit customer service centers – 511 is not intended to replace these operations, but to provide compatible and supplemental information, usually in the form of recorded scripts. Further, the vision is that callers would have direct access to customer service centers via 511 and how this occurs is an agency decision.

- 511 should minimize additional customer service center overload via automated messages – Collective wisdom is that 511 access could increase the number of callers seeking public transportation information. If 511 were merely designed as a shorter number to access the service center, this could significantly increase total calls to the customer service center. However, 511 systems can and should be designed to provide automated messages described in these guidelines that will answer many callers' questions prior to seeking assistance from customer service center operators. Ideally, thoughtful design will reduce the number of calls to be fielded by operators, while increasing the total number of calls successfully managed.
- Each agency responsible for their information – To ensure information quality and agency autonomy, any information provided via 511 for a particular public transportation operator must be provided or quality-checked by that operator. Callers will perceive agency specific information as coming from that agency, thus the agency must either directly provide or ensure the accuracy of the information.
- Provide sufficient "context" for an unfamiliar user of the service – If one asked for information from one 511 system to another, would that service provide sufficient "context" for the information to an unfamiliar user of the service? Are there transportation terms and locations such as "The Mixing Bowl" in Northern Virginia and "The Stack" in Phoenix that an unfamiliar user would not recognize? If so, have alternate designations that would make sense to unfamiliar travelers. This would also be the case on your 511 system if there are "locals" and through travelers accessing the system.

Guidelines

The fundamental structure of a 511 telephone system design matches public transportation operations. Telephone systems are usually accessed through a "menu tree" that is navigated by voice commands or by touching a phone's keypad. Eventually, a caller reaches their desired destination in the system and gets either a recorded or digitized voice message or possibly a live operator. In complex or large areas, the 511 service area may be segmented in sub-areas to simplify agency identification. Sub-areas may be dealt with by using voice recognition as described in San Francisco above.

Figure 1



Once the 511 service knows the specific public transportation agency that the caller is interested in, it then provides the caller a report of the relevant basic content. This process is graphically illustrated in Figure 1, with "geographic sub-area," "agency" and "content" serving as the key descriptors of the content guidelines.

- Geographic Sub-area – In large or complex 511 service areas, the service area can be subdivided for navigating and providing transit reports. This subdivision should be developed locally and represent a logical characterization of the service

area, such as by travel corridor, geography (e.g., "The Northwest Suburbs" the "Southeastern Part of the State") or common name or nickname of a given sub-region (e.g., "Long Island"). Of course, 511 services that utilize sub-areas in their menu will require callers to make at least two navigating commands to select their agency, thus care should be taken so callers can reach their desired report as swiftly as possible.

- Agency – Each agency that provides public transportation services in the 511 service area or sub-area should be accessible. A single report for each agency is the basic guideline. Agencies have the option to add more layers and depth to their content. For public transportation agencies with large or complex operations, a single automated report may either be too long and cumbersome or potentially confusing for callers. Therefore, basic content as described in the following section should be provided in a logically segmented fashion (e.g., by mode or by region).
- Content – For each public transportation agency, the 511 system should have at least a single automated report that provides:
    - A brief description of the agency's operations – Quickly address the type of transportation services provided and the geographic area served by the system. For example, "XYZ Transit agency, providing bus service in the greater ACME region." This element must be brief to minimize caller wait time.
    - Major service disruptions, changes or additions – Provide information on temporary changes in services (specific routes, vehicles or access), alerts and/or summaries of scheduled services changes, and details of extra services being used for current or upcoming special events.
    - Where appropriate, an option to be transferred to the agency's customer service center.
        - Convey the hours of operation of a customer service center before transferring a caller to it, since it may not be operational at the time.
        - It is recommended that direct transfer options be established so that callers will directly transfer to an agency's customer service center without hanging up, essentially creating a seamless system from the caller's perspective. (Note: Care should be taken to understand the call volume of the centers to which the 511 system will transfer calls. It may be necessary to segregate outbound lines that the 511 system will use for this purpose and allocate unique outbound lines for each center. This will help avoid the traffic destined to one call center from saturating the capacity of the 511 system and therefore blocking any additional calls from being directly transferred to other centers.)
    - Other broadcast information at discretion of agency – Static information such as fare and pass information, real-time parking availability information, and the agency's Internet address are a few of the examples of the information an agency could provide via automated messages on 511.

- Agencies may add more "layers" to reports at their option

Content Quality

In an increasingly advanced information society, callers are generally accustomed to high quality information. 511 content must be no different. Specifically, 511 implementers must focus on the following quality parameters:

- Accuracy – Reports must contain information that matches actual conditions. If the system reports service disruptions are not occurring (or worse, does not report a service disruption), callers will come to distrust the information provided. If inaccuracies persist, callers will discontinue their use of 511.
- Timeliness – Closely related to accuracy, information provided by 511 must be up-to-date. While it is recognized that smaller agencies will have more difficulty inserting and updating information quickly, every attempt must be made by both large and small agencies to update information as soon as there is a known deviation from the current report.
- Reliability – Methods must be developed to provide callers a reliable stream of information 24 hours a day, seven days a week. Also, the inherent reliability of the 511 system needs to minimize the amount of time that callers will be unable to obtain a report along a route segment due to equipment or process failures.
- Quality—Information quality is a major concern to the 511 Deployment Coalition. The quality of basic content information will largely determine the success of 511. 511 services should give callers the ability to gauge the quality of the reported information to enable them to properly weigh the information in their decision-making (e.g. "there is an unconfirmed report of delays on bus routes 7, 12, and 15…" vs. "because of a street blockage on Maple, bus routes 7, 12, and 15 are experiencing delays…"). However, the Coalition has not included specific quality parameters as part of this version of the guidelines. This is for two reasons:
  - More collective deployment experience and user feedback is needed prior to determining optimal quality parameters.
  - The Coalition hopes that a special focus on information quality by implementers will lead to quality services.

Implementation Recommendations

The following "implementation recommendation" addresses a content topic that has been demonstrated to provide value to callers, but is recognized as difficult to uniformly implement. Thus, providing the following content is recommended if possible, but not explicitly part of the basic content package for public transportation.

- Regional or corridor specific transit information – The basic content guideline for public transportation indicates that each public transportation agency should have automated reports. As technical capabilities and information collection techniques improve, it is desirable in areas served by multiple public

transportation providers to allow 511 callers to request information based on location, instead of by public transportation provider. Infrequent users may not be familiar with the transit properties that serve their area and allowing them to request the availability and status of services based on location would permit them to make wiser travel choices. In addition, frequent users may be able to access status information about their usual routes more quickly than hearing a report for the entire transit property.

- Where multiple agencies operate, enable search / sort by region or corridor in addition to by agency.
- In complex areas, callers may not know what agency they are seeking information from.
- May result in additional complexity to the 511 system in some regions.

5. Consumer Research Findings

Deployer Consumer Research Results

The Utah 511 efforts; led by a 511 Advisory Group whose members included the Utah Department of Transportation (lead agency), Utah Transit Authority, two local Metropolitan Planning Organizations, Salt Lake City, Utah Department of Public Safety, the Utah Motor Trucking Association and others; produced design specifications in the spring of 2001. Working simultaneously with the National 511 Policy Committee and Working Groups, the Utah 511 Advisory Group developed multi-modal design under the umbrella of Utah's CommuterLink ITS Partnership. Based on the design and some preliminary technology demonstrations, the group held four focus groups in June 2001 to talk directly with auto commuters, transit customers and leisure travelers to guide the content of the system. In the focus groups, the participants were asked about their expectations and concerns about traveler information and 511 and who they thought that primary users would be. They also reviewed several types of automated and recorded information from established systems both in Utah and outside the state. Initially, the groups thought that a live operator must answer the call, but after hearing a concatenated voice response system, they indicated that such a system would be acceptable as well. The primary messages that the focus groups provided were that they wanted more than the traditional DOT road conditions phone number typically provided and that, more importantly, the information must be accurate and up-to-date.

The TravInfo® system in the San Francisco Bay Area conducted consumer research which determined that callers typically want to know about the trip that they are on vs. planning a trip, which is less important to have via the phone. Travelers in the Bay Area heavily use the traveler information service on Monday morning, Friday afternoon, when it rains, during special events and on weekends for traffic information, as they want to make the unfamiliar familiar. The needs for transit information are for out of ordinary trips, during a service disruption and when taking trips for leisure purposes, a job change or to the airport. Rideshare inquirers want to save time and money, are concerned about safety and want an online ride match service. Bicyclists want information on bike parking, bikes on transit and terrain. The primary association with 511 for the consumers is a phone number and awareness of the previous phone-based traveler information number (817-1717) is under 10%.

Focus groups were conducted in November, 2001, among Bay Area residents who take transit and access transit information over the phone or Web. The purpose of this research was to understand attitudes and behaviors related to transit information usage, in general, and with respect to their current Internet service and potential enhancements. The research findings and other learning was applied primarily to marketing communications planning and product development in preparation for the launch of a new website. A secondary application of these findings was for planning 511 phone services, which offers transit information as a key component.

The focus groups' agenda applicable to 511 covered these areas of discussion:

- Category definition, salience and options – a discussion of how participants define transit information, its importance, what their options are for this type of information and how they choose between those options.

- Usage occasion / relevance – an exploration of the specific factors that trigger awareness and usage of any / all sources of transit information, with emphasis on when these triggers occur, how they may vary and how they influence information search / selection.

Respondents defined "transit information" in terms of seven categories of information in order of importance to them:

- Schedules and on-time status
- Transit news / updates
- Routes and maps
- Conveniences (such as elevators and bike racks)
- Fares
- Contact information for transit operators
- System regulations

The focus groups indicated that there were three situations that create a strong need for transit information:

- "Out-of-the-ordinary" – how respondents referred to transit trips other than their routine commutes – trips to the airport, for example. Such trips trigger a need for transit information because they might require travel on an unfamiliar system, to an unfamiliar part of the Bay Area or occur during nights, weekends or Holidays when services are less regular and predictable. Respondents currently plan out-of-the-ordinary trips with multiple information sources and indicated that a single source for any / all transit trip planning would be a great convenience.

- Service disruptions during routine commutes – transit strikes, mechanical problems, power outages and other emergencies seemed quite top-of-mind as occasions when transit information is particularly important. Respondents said that they hear about service disruptions from traditional news media and word-of-mouth, but indicated a desire for more reliable, timely or in-depth information.

- Next bus or train location and arrival – an indication of where the next bus or train is and when it will arrive is important when consumers are trying to "time" a bus or train. Respondents advocated systems to time the next train or bus as it seems that the next bus always arrives just as one has given up waiting and started to walk away. The respondents did not want to "just miss" a train or bus and then be "trapped" for 30-40 minutes until the next one arrived and agreed that real-time

next train and information should be available especially before entering a train station.

FTA Sponsored Research

The FTA has sponsored a study that conducted 12 workshops in 4 cities (Seattle, Salt Lake City, Columbus, OH, and Providence, RI) with about 300 transit riders in late 2002. The study seeks to understand from these customers what their information needs are – what do they want in the way of information, where do they want to get it and how do they want to get it. The study will be focusing more on the newer information technologies seeking guidance for transit agencies as they consider implementing these systems. The study asks transit travelers:

- What kinds of transit information do customers want and expect agencies to provide?
- Where should the information be made available to transit travelers?
- What are the preferred alternative ways to provide the information?
- When should the information be made available to be most useful to transit travelers?
- What are the critical human factors issues in presenting and displaying transit information?

Among the findings are:

- Riders want basic information before they felt that they would want more complex information. They want the information to be "solid" (quality, reliability, usability) and they want to have it with them.
- Effective marketing is critical as rider awareness of high tech information is not high (e.g., Internet trip planners).
- Customers want information for pre-trip planning of most trips; there is less of a demand for en route information (wayside and on-board).
- Real time vehicle status at the wayside is valued.
- On-board, riders want to know when they reach their stop and where to get off by visual / auditory means.
- Cost is a concern with new, wireless technologies.
- Automated phone information systems are viewed as complicated, especially for unfamiliar riders.
- Count down arrival signs were deemed to be useful – riders do not have reliable watches and they also want accurate clocks at the wayside.

ITS America 511 Consumer Market Research Results

In late 2001, ITS America conducted 511 consumer research during August – October 2001 consisting of a national telephone survey, a mail-in survey of Landstar long-haul truck drivers and focus groups in November 2001 in Philadelphia, Minneapolis / St. Paul,

Lincoln, NE and Los Angeles. The respondents to the research were commuters, through travelers and commercial vehicle operators.

Transit users comprised 20% of the respondents with 7% using bus and rail, 7% using rail only and 6% using bus only. 54% of the respondents were aware of telephone-based traveler information services and almost 10% were aware of 511. 34% of the bus users said that they had called a telephone-based traveler information service. 58% of the commuters surveyed said that they were extremely or somewhat likely to use 511. Extremely likely users of 511 want speech recognition (68%) and believe that consistency is critical (51%).

The public transportation users thought that it was critical or useful to have 511 offer: public transportation delays (70%); travel time estimates (65%); a connection to a live operator (63%); and information on the level of crowding on trains or buses (51%).

Respondents said that information provided by 511 would effect change in their travel behavior with 89% changing their time of departure and 77% changing their travel route. Rail users would: change their time of departure (98%); change their travel route (90%); and use another mode (44%). 50% of the bus riders surveyed would use another mode.

Customer Expectations for 511

The Coalition used the findings from the ITS America 511 consumer research to develop its Customer Expectations for 511:

1. Over one-half of consumers are aware of advanced traveler information systems' telephone numbers and websites. 10% of consumers have heard of 511.
2. Over one-half of consumers would use 511 daily, weekly or a few times a month.
3. Commercial vehicle operators, commuters with commutes of 30 minutes or more and consumers making longer trips or trips to unfamiliar areas are most likely to use 511.
4. Public transportation users want to know about Transit Delays, Travel Time Estimates and Crowded Trains or Buses.
5. Motorists want to know about Weather Related Road Surface Conditions, Accident or Road Incident Reports, Construction Updates, Freeway and Arterial Traffic Congestion, Special Events, Travel Time and Speed Estimates and Parking Information.
6. Consumers want 511 information to be updated at least every 10 to 15 minutes.
7. Consumers feel that consistency of service is a critical aspect of a national 511 system.
8. Consumers would like 511 to use voice response technology.
9. Consumers are more comfortable with the phrase "travel information" and encourage its use in 511 signage.
10. Over one-half of consumers are willing to listen to a short advertising message for the call to be free.
11. Consumers are open to additional premium, value-added 511 services.

- 511 will effect change in consumers' behavior by using its information to change their time of departure, travel route or to choose another mode of public transportation.

Needed Consumer Research

The Task Force recognizes that, while the ITS America research is valuable, more consumer research on 511 is needed. Rural, fixed route transit, demand responsive and paratransit customers and their concerns and needs also have to be addressed as well as more research with transit users.

Ideally, a focus group of transit 511 users would present valuable information to deployers. These individuals could be identified either in the customer service center or on an opt in basis on 511 itself. Among the topics to be addressed are: how do you use the phone / web for transit information; trip planning issues; types of questions about the current trip; and about using other modes like commuter rail, bus, ferry, vanpool, carpool, trolley and intercity bus.

Needed Transit Industry Research

The Task Force believes that a survey of transit properties is necessary as well and the Coalition and APTA are developing a survey instrument for dissemination to APTA members and possibly to the Community Transportation Association of America (CTAA).

Among the topics to be addressed are:

- Do they have a transportation information number?
    - How can that information be implemented on 511?
- Does the transit property utilize interactive voice response (IVR)?
    - Is traveler information included in its IVR?
- Is there technical expertise available to convert information to 511?
- What information is available from a small transit property?
- What are the "buts" to offering 511?
- What is the level of commitment to 511?
- Are there resources available for 511?
- What are the needs of rural and state DOT public transit divisions?
- Is there active data on their websites?

6. Current Services Scan Results: What is Being Provided?

511 Services

The following 511 services offer transit-related information to callers on both landline and cellular service. The cost of the call to consumers is no more than a local call or airtime minutes on their wireless plans. Some of the services are voice enabled, while others rely on touch tone entry, and offer recorded agency information and call transfer to agency customer service centers. Contact information is provided after each description should you have more questions for the 511 deployer.

Cincinnati / Northern Kentucky – the ARTIMIS 511 information service offers information on alternative transportation options: buses, to / from special events, carpools and airports. Information, including static arrival times, is available for Metro Bus (Cincinnati), TANK Bus (Northern Kentucky) and Jetport. Rideshare information is also available. Call Transfers are available to Butler County Regional Transit Authority, Clermont County Transportation Connection, Warren County Transit Service and Transportation Resources and Information Project (provides transportation services to low-income job seekers for whom lack of public transportation is a barrier to finding and maintaining employment). Callers wishing to call Greyhound commuter bus and other bus services in greater Cincinnati are given a long distance number and are asked to hang up and call the number. *Leon Walden, Kentucky Transportation Cabinet, (502) 564-4556, leon.walden@mail.state.ky.us*

Utah – the 511 service was implemented in December 2001 and Utah can look at the 2002 Winter Olympics as a unique, large special event for an indication of 511's impact on everyday transit during similar conditions. The Utah Transit Authority (UTA) provided transit information on 511 in time for the Olympics. In Utah, it was not that hard to get transit information on 511 with only a little "selling" of the benefits within UTA. Utah DOT, working through the joint CommuterLink ITS partnership, established an advisory group that designed and implemented the deployment of 511 statewide that included UTA from its beginnings. This partnership and the definitive Olympics deadline helped move the process along with great success.

Higher than "normal" usage of the system occurred during the Olympic Games because 511 was communicated to the public and Olympic visitors as a specific portal for transportation information. UTA and Utah DOT, however, did not want to implement any technology "just for the Olympics." This was a major event and UTA had to ensure that accurate information was available then and now as the system is working during "normal" times.

During the Olympics, the 511 system received 71,216 total calls and nearly fifteen percent (10,319) of the calls to 511 were for transit information and another 14,367 were for specific Olympic transportation information. The UTA Call Center handled almost

350,000 calls during the same period. 511, by design, was able to deliver real-time information with alerts and announcements and information on the TRAX light rail service, buses and shuttles as well as detours and additions to regular services for the Olympics. Utah also had rural event venues and with UTA's large service area, one can consider some of its services rural in nature. Through the summer of 2002, normal call volumes to the system averaged about 10,000 per month with significant peaks associated with special events and weather.

UTA tried to take advantage of and improve the integration of information available to all of its customers. The 511 system's information all runs off the same UTA database that powers multiple information outlets and the call center to ensure consistency for the customer. Successful customer acceptance depends entirely on the accuracy of the data in the database – if one knows how to operate their data system effectively, then it is not a challenge to deliver this information to the public via 511 and other methods. The agency people involved need technology skills and an openness to trying new things and ideas. UTA has kept its 1-888-RIDE-UTA phone service in place and converted critical customer information on that service to 511. This was not a massive or expensive undertaking and it actually improved the flow of useful information to the customer.

Utah felt that on a caller's first call to 511, the content and experience must be high quality and the information must have value. There were some compromises that were made due to deadlines, data and technology, but the basic design allows for the phasing in of additional information in the future. UTA feels that it is important to get quality information to its customers using the right technology tools and 511 is part of that integrated customer information delivery program. This also includes the customer service center, Internet and wireless technologies (handhelds and Wireless Application Protocol WAP site: http://www2.ut511.com) – so that the one UTA database delivers information via multiple dissemination outlets.

Utah 511 provides a wealth of transit-related information via recorded messages: schedules; Lake Powell Ferry services; carpool; information related to on-demand paratransit service; the call centers' hours of operation before transferring callers to the center; a brief description of the agency's operations; major service disruptions, changes or additions; other broadcast information; regular fares; the agency's Internet address; and public transportation trip itinerary planning where callers can obtain transit trip plans through the customer service center.

Enhancements planned for the future include: updated real-time alerts and announcements; adding information from two additional transit agencies that cover the balance of the state; increasing call volumes; airport information; National Parks and intercity bus information.

According to the UTA, 511 services have an important role in an integrated information delivery strategy, but are not a "magic bullet" for information delivery. A well designed and executed 511 system will enhance and complement existing services and provide a foundation for new services if the capability for expansion is designed in. Multi-partner

cooperation and coordination are critical for ensuring funding and content. Overall, UTA feels that if an agency manages its data well in its operations, then it is not too difficult to convert it for distribution via 511. *Richard Hodges, UTA, (801) 262-5626 x 2354, rhodges@uta.cog.ut.us*

Arizona – offers a transfer to operators at the Valley Metro (Phoenix) and Sun Tran (Tucson) transit customer service centers and wants to include Flagstaff transit information in the future as well.

In May 2002, Arizona was selected by the U.S. DOT as the site of the 511 Model Deployment that will be operational in late 2003. One component of the Model Deployment is a Bus Arrival Time Trial pilot, which will incorporate static and / or real-time schedule bus arrival information for one or more trial bus routes and multiple bus stops along the trial route(s) into the Arizona 511 System. *Tim Wolfe, ADOT, (602) 712-6622, twolfe@dot.state.az.us*

Minnesota – offers live transfer to Metro Transit (Minneapolis / St. Paul and their suburbs) and a brief description of their operations, Internet address and phone number. Minnesota is planning on adding paratransit information to describe the service's name, area, type of service (fixed vs. on-call), phone number and will also offer a call transfer to these 67 services throughout the state. *Ginny Crowson, Mn/DOT, (651) 284-3454, ginny.crowson@dot.state.mn.us*

SE Florida – offers reports on transit problems or delays in Palm Beach, Broward and Miami-Dade Counties. The 511 service offers call transfers to: the Palm Beach, Broward and Miami-Dade County transit systems; the Tri-Rail customer service center; South Florida Commuter Services; and Miami International Airport.

Later in 2003, the Consumer Information Network (CIN) will be unveiled which will feature real-time transit information through the establishment of a regional transit database. Callers using the 511 system will be able to select transit and retrieve information from the regional database or be routed to a transit call center as well. *Fred Levinson, SmartRoute Systems, (305) 914-3900, FLevinson@smartroute.com*

Washington State – offers local and toll free phone numbers for every public transportation agency throughout the state with callers identifying the major city or county through voice activation. A call transfer is also available to Washington State Ferries for information. *Eldon Jacobson, WSDOT, (206) 685-3187, eldon@u.washington.edu*

San Francisco – features the most ambitious public transportation offering to date on 511 providing either transit information or call transfers to nearly three dozen Bay Area transit operators, twenty operators of paratransit services for elderly or disabled riders and nine transit agencies outside the Bay Area.

Bay Area transit agencies were interested in the 511 concept when the Metropolitan Transportation Commission (MTC) presented it to them. The agencies were interested in 511 as it was a easy number to remember, could provide some types of information 24 hours a day and was an easy interface for customers. A few agencies are even interested in using 511 to discontinue their own information numbers and one Bay Area transit agency does use 511 as their customer service number.

The Metropolitan Transportation Commission took many steps to ensure that transit was a key element of 511 in the San Francisco Bay Area. Introductory meetings were held with the Operations / Customer Service, Information Technology and Marketing departments of some of the larger transit agencies. 511 was introduced and talks began on the specific menu options and scripts that agencies wanted in the system. Also, MTC kept two regional transit committees informed of 511's progress. The committees were the Regional Transit Marketing Committee and Partnership Transit Coordination Committee.

The transit agencies helped to develop many key transit information enhancements on the 511 system including:

- Adding extensive transit submenu options
- 511 mirroring some agency's IVR menus (This feature prevents callers from having to navigate two IVR menus. 511 provides both scripted information and transfers to backdoor phone numbers where live operators answer transfer calls.)
- Providing the option to use 511 instead of the agency's IVR
- Recorded information residing on the 511 system
- Transferring directly to the appropriate agency number
- Directing callers to the appropriate transit agency, with the caller stating their location through voice activation
- Transit service disruption information via real-time floodgate messages
- Plans to add a web-based interface to allow transit operators to enter service information
- Plans to add transit arrival times

The participating agencies saw many benefits to participating in 511 including: an easy to remember number to market; a natural speech platform for the service; an opportunity to provide service disruption information; the ability to offer a majority of the options offered currently on agency phone systems; a toll-free number; the possibility to reduce telecommunication infrastructure costs; and, in the future, the ability to add real-time bus / train arrival times.

Many agencies have many types of information (e.g., fares, recorded messages, lost and found, etc.) on the 511 platform with a call transfer available, if needed, to their staff for trip planning and other information. Pre-recorded information like fares is scripted and changed when appropriate. Real-time bus arrival information is being planned but there is no timeframe for implementation. A Web interface is coming soon that will allow

agencies to update service announcements and changes on the 511 system. Agencies can also call, fax or email in floodgate messages. With 45 transit agencies in the Bay Area on 511, the caller does not need to know what city they start their trip in as they can get a short list for that location and the predominant local carrier.

Automated transit agency information on the 511 system is available on:

- Fares
- Ticket Sales and Passes
- Service Announcements
- Bicycle Information
- Access for Persons With Disabilities
- Event Hotline
- Lost and Found
- Ferry Schedules

Additional information on 511 is available on: traffic, carpools and vanpools; airport parking; bicycling; airports; and Spare the Air. Here is a sample script for bicycles on AC Transit:

> "AC Transit has equipped nearly all buses with exterior bike racks that can accommodate up to two bicycles. No extra fare or permit is required. Bicyclists must load and unload their own bikes; the driver cannot leave the bus to provide assistance. Bicycles are allowed on the racks 24 hours a day. Between the hours of 12 midnight and 5:30am, if the bike rack is full, bicycles may be brought inside the bus if space permits."

The system also has a feature where callers can press "7 7" to leave a voicemail message. The MTC reviews all messages and if any are addressed to a specific transit agency, they are forwarded to the appropriate agency for action.

There were some implementation obstacles and lessons learned in the areas of: system design; confirmation of the system design with transit agencies (contact information, menu items, scripts, transfer numbers, hours of operation and call center greeting); and naming scenarios for transit, paratransit and rideshare agencies, cities and city-agency pairs.

Among the future enhancements for the 511 system are the placement of highway signs and an advertising campaign in early 2003 and real-time transit arrival information on the system in late 2003. The MTC is developing final maintenance plans for the 511 system in which they will be contacting all partner agencies on a quarterly basis to review their information on 511. Any changes, or planned changes, will then be incorporated into the 511 system.

For the MTC, a key to making transit a major element in 511 was to take the time and effort to include transit agencies in the decision-making process. This required much

coordination and collaboration and an openness to modify concepts somewhat to meet individual agency needs. *Jim Macrae, MTC, (510) 464-7700, jmacrae@mtc.ca.gov*

Transit Telephone-based Traveler Information Services

The following telephone-based services also offer related-related information to callers on both landline and cellular service. These descriptions are provided to illustrate other transit services that are being offered through a telephone around the country and the world.

Denver – Pick up the phone and dial 1-888-RTD-TRIP (783-8747) to access the Denver Regional Transportation District (RTD) Talk-n-Ride system and tell it which route you want, which way you are heading and where you want to pick up the bus or light rail. The voice of retired bus driver Mickey Froid will tell you when the next three buses will pass by that very stop heading in the direction you want to go.

The Talk-n-Ride information is in real-time, so if you are standing at the bus or light rail stop and are wondering when and if the next one will ever get there, the system will tell you that too. With Talk-n-Ride, the RTD was the first mass-transit agency in the US to couple voice recognition and text-to-speech technology to a real-time global-positioning system using VoiceXML. The system's designers say that it is 95 percent accurate in recognizing words, but if the system does not understand the caller after three tries it will transfer them to a live operator. The system also uses the Internet, hooking into RTD's GPS locator system to get an up-to-date location of the bus and estimated arrival time.

RTD expects Talk-n-Ride to redirect many of the almost 5,000 calls a day that are received by its information center. Half of the calls ask about schedules or the time for the next bus or train, which is the same information that Talk-n-Ride offers.

More details at: http://denver.bizjournals.com/denver/stories/2002/01/21/story8.html

Washington, DC – Trip planning is best done on the Web or via an agent – the Washington Metropolitan Area Transportation Authority (WMATA) is doing work in this area via voice though. There is a concern that if people are not very aware of the area there can be a lot of confusion when receiving a long list of instructions. Some may be going in a different direction than the starting point assumes. San Francisco Bay Area consumer research says that a caller typically wants to know about the trip that they are on vs. planning a trip, which is less important to have via the phone. Many have access to the Web for trip planning via work, library or kiosk, but the trip planning issue is a big one for rural and statewide systems.

WMATA became the first transit agency in the United States to launch a telephone trip-planning service that uses computers that can interpret human speech and tell callers how to reach any destination in the area. Starting in November 2002, anyone trying to figure out how to get from Point A to Point B by Metrobus or subway can get help from an automated voice at the end of a telephone line. The service operates 24 hours a day,

seven days a week and can be accessed from any type of telephone: touch tone, rotary, cellular or public pay phone. It began on November 18, 2002 and the telephone number is (202) 637-7000 (WMATA's main customer service number).

Currently, Metro staffs information telephone lines 16.5 hours on weekdays and 14 hours a day on weekends. The 55 operators field about 2.7 million calls a year from people asking about bus routes and rail lines. If a caller has trouble getting directions through the automated service and three-quarters of the callers do not, the call will be routed automatically to a customer service agent. A caller can even request a live agent from the start, without using the automated system. The computerized service may eventually allow Metro to reduce the number of customer service agents that it employs.

Metro is requiring the firm that designed the service, Logic Tree Corp. of College Park, MD, to provide a system that is successful 75 percent of the time. The new telephone service is in English only and the creation of a Spanish version would double the project cost. Callers who do not speak English can get directions by talking to customer service agents, who are able to call on translators for as many as 100 languages.

In 1999, Metro rolled out the Ride Guide, a trip planner available through its Web site at www.metroopensdoors.com. The planner allows a user to type in a starting point and destination and then they receive a customized itinerary that provides several ways to make the trip by using bus or rail or a combination. In its first year, 1 million people used the Ride Guide and that number has tripled to 3 million annually. Despite its success, the Ride Guide remains out of reach for Metro riders who are not online, nut telephone access helps to address this issue. Someday, WMATA sees the service being offered on 511 in the region.

More details at: http://www.logictree.com/pr/WashPost24102002.html

The Netherlands – The Netherlands 9292 system (http://www.9292ov.nl in Dutch) or the Openbaar Vervoer Reisinformatie (OVR) system provides passenger information at approximately US$ 0.40 per minute. The information is available before journeys and via Wireless Application Protocol (WAP) and iMode during journeys.

The 9292 service receives over 19 million calls per year at 9 call centers throughout the Netherlands. The 9292 services are provided 7 days a week – between 6 AM and midnight on weekdays and between 7 AM and midnight on weekends and holidays. The average call time including waiting is almost two minutes and 15 seconds.

The call center operator provides door-to-door information on all forms of public transport including needed interchange and connections. The operators can handle the inquiry in English as well. Data is collected, processed and distributed via the phone, the Internet and also to variable message systems at railroad stations for time of arrival information. The system covers the entire country on a door-to-door basis and the information is provided on a personalized basis.

The Netherlands is planning to invest US$ 30 million over the next 5 years for enhancements to their passenger information systems. The investment proposals will include facilities for comprehensive and integrated passenger information for all transit systems nationwide including the railroads, bus, tram, metro and water transport.

The OVR system has its operators enter requests, and then an automated response is given. The Dutch, with a significant number of their population with mobile phones, utilize a 900# type of system when they realized that was the only way to charge for the information vs. it being available for free on the Web.

The Netherlands has a population of 16 million in an area less than the size of the state of West Virginia.

Scotland – A comprehensive travel hotline and website giving information on all of Scotland's buses, planes, trains and ferries was launched in September 2002 and is also available throughout the United Kingdom. According to the Transport Ministry, Traveline Scotland should help a million people a year plan their journeys on the country's public transport network.

The Scottish government has committed £1.7 million ($2.66 million) in grants for capital and set up costs with transportation operators contributing £500,000 ($0.783 million). The goal of Traveline is to attract more and more people to public transport, to improve access by opening up people's ability to travel and to make public transport a real and viable alternative to using cars. This information will provide a one-stop shop for passengers and will ensure that people can quickly access high quality, consistent information wherever they live and be able to plan visits across Scotland if they wish to use more than one mode of transportation.

The Scottish government invested in the system to deliver modern, reliable, integrated and accessible public transport and remains committed to providing this kind of service. The Scottish government believes that access to alternative travel planning tools can play a vital part in enhancing Scotland's continued and sustainable economic prosperity.

Commuters make up a large part of peak time travel with those in cars comprising up to 60 per cent of peak morning traffic with nearly 90 per cent being single occupant vehicles. This situation is not sustainable in the long term and by devising tailor-made travel plans to their job sites, commuters and businesses can address immediate problems with parking, congestion and transport-related staff recruitment.

Traveline had its official launch in September 2002 and it currently handles about 6,000 inquiries a week. The number – 011-44-0870-608-2608 – gives access to information about all rail, coach, bus, ferry and internal air services in Scotland and it can also be used from abroad. The service will operate seven days a week from 8 am to 8 pm and all calls are charged at the going national rate.

The number is consistent with Traveline numbers elsewhere in the UK to ensure easy access for passengers and a consistent network of call centers across the UK.

More details at: http://www.traveline.org.uk

7. Marketing Materials

Effective marketing of 511 is an essential element to successful 511 deployment. To assist implementers with this task, the Coalition's Marketing and Outreach Program has made available an initial version of a toolkit of resources. We hope that these resources will help implementers plan more effective marketing programs, more efficiently, while promoting a "national brand" image for 511.

In addition to providing marketing tools, the Coalition's Marketing and Outreach Program supports implementers by promoting communication and networking. Through workshops, conference sessions, e-mail networks and conference calls, the program brings together the public information officers who are working to make the public aware of 511 service.

Logos

The Coalition created a national 511 logo that is available to state and local agencies desiring to use the national 511 identity to support travel information services in their jurisdictions. Consumers participating in market research conducted by ITS America in November 2002 selected the logo.

Logo Description:

- The telephone is a universal, easily recognized symbol that sends the message that 511 is a telephone-based service.
- The blue double lines and dotted lines evoke transportation and transit.

511 logos are available at: http://www.deploy511.org/logo.htm

Marketing Ideas

The Coalition's website contains all the marketing materials developed by the Coalition and examples from deployers as well. There are market research reports, marketing plans, marketing materials, media kits and media relations material that will put you way ahead in planning your 511 deployment, launch and promotion. Immediately usable marketing tools from the Coalition, including the official 511 logos, colorful artwork, bus and rail advertisements, outreach presentations and road signs also are available.

511 marketing ideas are available at: http://www.deploy511.org/marketing.htm

8. So You Want to Start a 511 Service?

Step One…

You like what you have read so far and you have a question – to whom do I talk to first about offering our information on 511? The FHWA has made grants available to each state to begin their planning process for offering 511 services. As of February 2003, 40 of the 50 states, the District of Columbia and Puerto Rico have received the grants. To find out the contact from your state that has applied for the grant, please contact Bob Rupert at (202) 366-2194 or robert.rupert@FHWA.dot.gov.

511 Benefits

One of the main benefits of the 511 designation is that it is an easy to remember 3-digit number vs. the usual ten-digit phone number. 511 also may be utilized anywhere in the US to provide traveler information. It is felt that 511 will be easier to "market" to consumers and represents an opportunity for one-stop shopping for customers looking for transportation information.

In its petition to the FCC requesting an N11 number, the U.S. DOT demonstrated a need for the designation and its benefits for the transportation community. At the time, there were over 300 telephone traveler information numbers throughout the U.S. making it very difficult to "know" the appropriate number for information as one traveled from jurisdiction to jurisdiction. The petition also demonstrated the value of traveler information services to the public and noted that 10-digit dialing makes numbers harder to remember and area code expansion was making 7-digit numbers less plausible.

An N11 number has also demonstrated traveler information call volume increases:

- When Cincinnati / Northern Kentucky went from its 333-3333 number to 211, the service saw a 72% increase in the number of calls.
- Arizona has seen over a 300% increase in call volume since converting its toll free number to 511.
- Minnesota 511 has seen a tenfold increase in usage with 511, but this may be dependent upon the level of marketing of the previous service, as 511 is promoted heavily including billboards. 511 awareness increased 250% in Minnesota after its July 1, 2002 launch.
- Utah saw traveler information requests after the Olympic Games sustain an average of 10,000 calls per month through the summer of 2002 and calls increase up to 40,000 during December 2002. An average of 8-10 percent of the calls are specifically for transit information with only a very small number exiting the system to the UTA call center for further assistance.

Most of the examples above are systems that primarily provide traffic-related information. It is believed that 511 may offer transit agencies a "release valve" to

answer, in an automated fashion, inquiries that are now directed to a customer service center. More research is needed to determine if this is the case.

Sometimes, a customer does not know the information numbers or which agency serves them and smaller agencies may improve their visibility by getting information to the customer in an automated way via 511.

511 Resources

ITS Peer-to-Peer Program – the Intelligent Transportation Peer-to-Peer Program is a Federal Highway Administration, Federal Transit Administration and Federal Motor Carrier Safety Administration Technical Assistance Program that provides public sector transportation stakeholders with a convenient method to tap into the growing knowledge base of ITS experience and receive short-term assistance. Peers may be able to assist you in planning your 511 offering.

The Peer-to-Peer Program can be contacted via:

- Telephone: 1-888-700-PEER or 1-888-700-7337
- Fax: 1-410-571-6400
- Email: dotpeer@erols.com
- US Mail:
    - Intelligent Transportation Peer-to-Peer Program
      An FHWA & FTA Technical Assistance Program
      c/o Michael Baker, Jr., Inc.
      180 Admiral Cochrane Drive
      Suite 210
      Annapolis, MD 21401

More details at: http://www.its.dot.gov/peer/peer.htm

Where to Find More Information on 511? – Information on the 511 Deployment Coalition, including DARs, educational, marketing and supporting resource materials and additional useful references for 511 implementers may be found at the following web sites:

- http://www.deploy511.org
- http://www.its.dot.gov/511/511.htm
- http://www.itsa.org/511.html
- http://511.transportation.org/511/site.nsf/HomePage/Overview
- http://www.apta.com/services

Join the 511 listserv at: http://groups.yahoo.com/group/511WG

9. Implementer Self-Assessment Checklist for 511

The types of information that your agency currently provides to the public from the checklist in Section 2 may be implemented on 511 as:

Static Information	511 Menu Selection	511 Floodgate	CSC
Intro Message	x		x
General Agency Information	x		x
Service Description	x		x
Service Hours	x		x
Service Center Hours	x		x
Schedule/Timetable	x		x
Fare Information	x		x
Special Pass	x		x
Accessibility	x		x
Paratransit	x		x
Trip Planner	x		x
Scheduled Arrival Time	x		x
Dynamic Information			
Automated Messages		x	x
Service Disruptions		x	x
Service Charges		x	x
Service Notices		x	x
Service Alerts		x	x
Special Event		x	x
Predicted Arrival Time	x		x
Infrastructure			
Website	x		x
Information Phone #	x		x
Toll Free #	x		x
Customer Service Center	x		x

Your information may be conveyed to travelers over 511 either in a menu selection or a floodgate message (one that is heard by all callers or all who choose a menu selection).

Continued Development

The Coalition will continue to monitor the issue of public transportation content on 511 services. If implementers have suggestions for improvements, please provide this information electronically to 511feedback@aashto.org