



## KENTUCKY TRANSPORTATION CENTER

**BEST PRACTICES FOR PROVIDING TRAVELER INFORMATION  
SERVICES TO MOTORISTS AT REST AREAS AND  
WELCOME CENTERS**



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Research Report  
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# **Best Practices for Providing Traveler Information Services to Motorists at Rest Areas and Welcome Centers**

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<b>16. Abstract</b>  The objective of this study was to look at what Kentucky and other states are doing to provide wireless Internet connectivity (i.e., Wi-Fi service) for motorists at rest areas, weigh stations, and truck rest havens, and to identify technologies and best practices that may have applicability to Kentucky. A secondary objective was to look at the use of kiosks to provide traveler information in rest areas and welcome centers. Information was gathered through a literature review, Internet searches, and telephone interviews with public officials in numerous states. The study identified 18 states that are providing (or have provided) Wi-Fi service to travelers at rest areas and/or welcome centers. Four states were identified for Case Studies on the use of Wi-Fi. With regard to the use of kiosks, six states were selected for case studies. Based on the information gathered and analysis of the case studies, conclusions and recommendations for Kentucky were developed and presented.			
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## **EXECUTIVE SUMMARY**

One way to improve the travel experience for motorists (and other travelers) in Kentucky is to provide them with accurate and timely information. This information may consist of road and weather conditions, road closures, traffic reports, detours, travel times, availability (and location) of services, and information on regional attractions. Various technologies are available for providing en-route information to travelers, including dynamic message signs, highway advisory radio, telephone systems, websites, and informational kiosks. The Kentucky Department of Tourism has worked with a private company to provide “wireless fidelity,” or Wi-Fi service, at selected Kentucky Welcome Centers. The Kentucky Transportation Cabinet (KYTC) is considering implementing Wi-Fi service at all state rest areas, weigh stations, and truck rest havens. The objective of this study was to look at what Kentucky and other states are doing to provide Wi-Fi service for motorists at rest areas, weigh stations, and truck rest havens, and to identify technologies and best practices that may have applicability to Kentucky. A secondary objective (added to the project) was to examine the use of informational kiosks to provide traveler information in rest areas and welcome centers, with the intent of identifying best practices.

Information for this study was gathered through an extensive literature review, Internet searches, and telephone interviews with public officials in numerous states. Information was gathered on the methods used by states to provide en-route traveler information. The primary focus of the study was on states providing Wi-Fi service and/or using informational kiosks at rest areas and/or welcome centers. With regard to Wi-Fi services, the study focused on identifying the specific reason or purpose that the state had in mind when implementing Wi-Fi, along with the business model to implement and fund the Wi-Fi service. When gathering information on the business model, primary questions included who paid for the system and whether the service was provided free to users or supported by user fees.

The study identified 18 states that are providing (or have provided) Wi-Fi service to travelers at rest areas and/or welcome centers. The reasons states listed for providing Wi-Fi service included providing it as a traveler amenity, regarding it as the best method to disseminate current travel information, promoting economic development, meeting a perceived demand by the public, encouraging drivers to take more breaks, and enhancing roadway safety. Business models varied widely; some states provided Wi-Fi service free, with the state bearing the full cost of the service. Other states partnered with private sector providers, with the costs being shared. Others required private sector providers or a third party to bear the full cost. In those cases where private companies were bearing some or all of the costs, opportunities were provided for them to recoup their expenses through advertising sales, user fees, other revenue-generating endeavors, or some combination.

Four states were identified for case study on the use of Wi-Fi for providing traveler information at rest areas and/or welcome centers: California, Texas, Iowa, and Kentucky. For the case studies, additional phone interviews were conducted and more detailed



information was gathered on the background, purpose, business model, fee structure, system perception, and usage statistics of the Wi-Fi service.

With regard to the use of informational kiosks, this study relied on earlier surveys (in 2004, 2006, and 2007) conducted by the Research and Innovative Technology Administration (RITA). States were contacted and phone interviews were conducted to verify, augment, and update the information from the RITA surveys. Based on the updated information, six states were selected for case study: Tennessee, Illinois, Indiana, Arizona, Wisconsin, and Ohio. For these case studies, interviews were conducted and more detailed information was gathered. This information focused primarily on the types of kiosks being used (static versus interactive), the types of information being provided via the kiosks, the usage and perception of the kiosks, and system maintenance and reliability.

Based on the information gathered for this study, the following conclusions were formed:

- Wi-Fi service at rest areas and/or welcome centers will not be utilized significantly by travelers.
- Recreational travelers are the most likely to use Wi-Fi services at rest areas and/or welcome centers. Business travelers and commercial vehicle drivers are unlikely to use such services.
- It is unlikely that the cost of providing Wi-Fi service can be recovered through subscriptions and user fees.
- When free Wi-Fi service is provided at rest areas and welcome centers, it is regarded as a valuable service by those travelers who use it.
- Options exist for a third party to cover the costs of providing Wi-Fi service at rest areas and/or welcome centers (Illinois provides an example of this).
- Kiosks can provide an effective, reliable, and affordable solution for providing traveler information to motorists at rest areas and welcome centers.
- The experience of states with static kiosks has been generally positive. By contrast, states with interactive kiosks have experienced maintenance and reliability issues.
- Private sector providers are playing an increasingly important role in the provision of traveler information.
- The proliferation of web-enabled mobile phones and other digital devices, automated subscription-based systems for phone calls, text messages, e-mails, etc., offers substantial promise for providing traveler alerts.

These conclusions resulted in the following recommendations:

- KYTC should not pursue the implementation of Wi-Fi service at rest areas, weigh stations, or truck rest havens.
- KYTC should pursue the implementation of static kiosks or kiosk-type displays at rest areas and welcome centers.

- KYTC should pursue the implementation of subscription-based systems to push real-time traffic alerts to motorists.
- KYTC should take full advantage of existing web-based services, such as Twitter, Facebook, etc., to push real-time traffic alerts to motorists.

## **CHAPTER ONE: BACKGROUND AND OVERVIEW**

### **1.1 Background**

One way to improve the travel experience for motorists (and other travelers) in the Commonwealth of Kentucky is to provide those travelers with accurate and timely information. This information may consist of road and weather conditions, road closures, traffic reports, detours, travel times, availability (and location) of services, and information on regional attractions. A major challenge in providing such information to traveler's en-route is determining how to do so in an effective and timely manner. Various technologies have been utilized for this purpose, including dynamic message signs (DMS), highway advisory radio (HAR), telephone systems, websites, and informational kiosks in rest areas.

Another technology that has potential for providing information to travelers is "wireless fidelity," or Wi-Fi. Wi-Fi is defined as a local area network that uses high frequency radio signals to transmit and receive data using Ethernet protocol. The Kentucky Department of Tourism has recently been working with a private company to provide Wi-Fi service at selected Kentucky Welcome Centers. Through the provision of Wi-Fi, travelers are able to use personal Wi-Fi enabled devices to access up-to-date highway construction, traffic, weather, and tourism-related information. The Kentucky Transportation Cabinet (KYTC) is considering implementing a similar type of service in all state rest areas, weigh stations, and truck rest havens. The primary reason KYTC is interested in providing Wi-Fi services at these locations is to provide current traffic conditions to en-route travelers.

Another option for providing current traffic and weather information to travelers is through the use of interactive and static kiosks. KYTC has been using interactive kiosk systems at rest areas and welcome centers for several years. Unfortunately, the kiosks that are currently in use have become unreliable and costly to maintain. Therefore, KYTC has a desire to identify the best technologies and best practices for providing traveler information at rest areas, weigh stations, and truck rest havens.

### **1.2 Objectives**

The objective of this study was to look at what Kentucky and other states are doing to provide Wi-Fi service for motorists at rest areas, weigh stations, and truck rest havens and to identify technologies and best practices that may have applicability to Kentucky. A secondary objective (added late in the project) was to look at the use of kiosks to provide traveler information in rest areas and welcome centers, with the intent of identifying best practices.

### **1.3 Methodology**

The data for this study was collected in three basic ways: (1) through an extensive literature review of recent studies pertaining to the provision of traveler information service, (2) through several in-depth case studies for states that were identified through the literature as providing Wi-Fi specifically as a traveler information service, and (3) through telephone interviews with officials in states that have used or are currently utilizing kiosk systems to provide traveler information. The acknowledgements section of this report contains a full listing of interview participants. The complete list of interview questions is presented in Appendix A. Based on the findings from the literature review, the case studies, and the interviews, several recommendations were developed.

### **1.4 Structure of the Report**

This report is organized into six chapters. Chapter 1 describes the background, purpose, and methodology of the project. Chapter 2 provides information on which states are providing Wi-Fi to travelers, along with details on how the technology has been implemented in each state. Chapter 2 also provides a brief overview of those states that are using kiosks to disseminate traveler information and how this has changed over the last several years. Chapter 3 provides an in-depth analysis of four states (California, Texas, Iowa, and Kentucky) that are providing Wi-Fi services as a mechanism for disseminating traveler information. Chapter 4 provides information on the experience of six states (Arizona, Illinois, Tennessee, Ohio, Indiana, and Wisconsin) that are using kiosks to disseminate traveler information. Chapter 5 focuses on methods other than Wi-Fi and kiosk systems for providing advanced traveler information services. Finally, Chapter 6 presents the conclusions and recommendations.

## **CHAPTER TWO: REVIEW OF STATES PROVIDING TRAVELER INFORMATION SERVICES THROUGH THE USE OF WI-FI AND KIOSK SYSTEMS**

### **2.1 Existing Methods for Providing Traveler Information Services**

There are many reasons why states provide en-route traveler information services. One important reason is to enable travelers to make better en-route decisions (1). For example, if travelers are aware that there is a traffic incident on their chosen route, they may be able to choose a different route. The provision of current traffic information can be particularly important to commercial vehicle drivers, as delays and road closures have direct economic impacts for those drivers, their companies, and their customers. In order for motorists to fully utilize en-route travel information provided by state agencies, this information must be timely and accurate.

There are several different mechanisms that have been used by states to provide real-time traffic information to en-route travelers. One method has been to use dynamic message signs (DMS), which display traffic information as travelers proceed along the highway. These signs provide an effective means of communicating with travelers, but they are expensive, limited in the amount of information they can display, and typically located only in urban areas. Many states also use highway advisory radio (HAR) to provide traffic information to motorists. HAR can be a useful tool for disseminating traffic information, yet, like DMS, HAR tends to be expensive and is primarily located in urban areas. In order for HAR to be effective, motorists must be made aware that HAR is available in the area in which they are traveling. This is typically accomplished through the use of signage along the corridor covered. Another mechanism currently being used to disseminate en-route traffic information is the 511 Traveler Information Telephone Number. For states that have deployed a 511 system, motorists can call 511 and receive general traffic information for the area in which they are traveling. Although the 511 system is available in many states, there are several drawbacks to using this service. First, there is a limited amount of information that is generally available through the 511 phone system. Secondly, it can be difficult to obtain the exact information the caller is looking for concerning a specific route. Lastly, it can be dangerous to encourage motorists to utilize cell phones while driving.

Although DMS, HAR, and 511 are useful mechanisms for providing traveler information, newer sources of information dissemination, such as traffic websites on the Internet, have been increasing in popularity among motorists (2). It is expected that awareness and usage of traveler information through Internet-based traffic information services will continue to increase. Therefore, to meet the expected demand for en-route traveler information, states must find an efficient way to provide travelers with access to such information. Many states have already started providing this information using Internet-enabled devices (kiosks) or by simply providing Internet access through Wi-Fi technologies at specific traveler-oriented locations around the state.

## 2.2 Review of States using Wi-Fi to provide Traveler Information Services

To meet the demand for traveler information via the Internet, states have begun offering Wi-Fi access in rest areas and welcome centers. Providing Internet access is one way for motorists to access current traffic and traveler-related information. How states offer Internet service for traveler information varies; some states offer Wi-Fi accessibility if motorists have their own devices, while other states offer interactive and non-interactive internet-enabled kiosks for motorists to use. The following section focuses on how states are currently providing Wi-Fi services in rest areas and welcome centers. Section 2.3 focuses on states offering traveler information through the use of kiosks.

### *Why States Provide Wi-Fi at Rest Areas and Welcome Centers:*

States providing Wi-Fi services to travelers in rest areas and welcome centers are implementing this service for different reasons. Connecticut, Illinois, New York, and New Mexico have decided to provide Wi-Fi services because they consider Wi-Fi a “traveler amenity” much like restrooms and telephones in their public rest areas. Six states (Florida, Iowa, Kansas, North Dakota, Oregon, and Vermont), are providing Wi-Fi services at rest areas because they believe Wi-Fi is the best mechanism for disseminating current travel information to motorists. Other reasons for offering Wi-Fi services at rest areas and welcome centers include economic development, to meet a perceived demand by the public, and to enhance roadway safety.

### *Business Models for Providing Wi-Fi:*

Determining why states are providing Wi-Fi services is important in understanding the types of business and revenue models that are chosen to finance the provision of Wi-Fi. If states are providing Wi-Fi at rest areas because they hope to encourage drivers to take driving breaks more frequently (thus enhancing roadway safety), then those states may choose to pay for all aspects of the Wi-Fi system. For this business model, Wi-Fi is viewed as a public good that should be provided free to users. Other states have stated that they are simply trying to meet a perceived demand by the public or believe that Wi-Fi is a traveler amenity for which users are willing to pay. States that are providing Wi-Fi for these reasons have typically contracted with a private partner to pay for all costs, and the private partner is allowed to sell advertising and/or charge a fee for use of the service. There are other business models that fall somewhere between a purely public provision and a purely private provision of Wi-Fi. Previous research has identified four primary business models: (1) Costs are paid by the Wi-Fi provider, (2) Costs are paid by a third party, (3) Costs are paid by the state, and (4) Costs are shared between the state and the private sector provider (3). Each of these models is summarized below, along with information from several states that have implemented the different models.

Under the first business model, the Wi-Fi provider pays for the equipment, installation, and operating costs. Revenues are obtained by the provider through the sale of advertisements or by charging user fees for the service. Several states, such as Michigan and Washington, have opted for this type of business model. In Michigan, the Wi-Fi provider pays for all costs associated with providing Wi-Fi service in rest areas, welcome centers, and seven state parks and harbors. They offer free access to several of Michigan’s governmental websites, but charge for access to all other sites. Usage of Wi-

Fi in Michigan's rest areas and welcome centers has been low since implementation. However, usage has been higher at the state parks and harbors. Although this model has been successful in Michigan and service is still available, it was not successful in Washington and has been discontinued. Wi-Fi was provided in Washington at 28 rest areas along I-5 and I-90. Users were permitted to access traffic and tourism sites for free, but were charged additional fees if they wanted to view websites outside of the traveler information sites. The Wi-Fi program was implemented in 2006, but was discontinued in 2008 due to a lack of use and lack of profit for the private provider. North Carolina has also attempted to offer Wi-Fi using this type of business model. In December 2007, the North Carolina Department of Transportation issued a request for proposals (RFP) for a private partner to provide Wi-Fi at no cost to the state. They did not receive any proposals (3).

The second type of business model available to states implementing Wi-Fi services is where costs are paid by a third party. In this business model, revenues to the provider are typically not sufficient to cover costs, so Wi-Fi is provided along with other revenue-generating endeavors. This model has been successful in Illinois because the private partner responsible for providing Wi-Fi service also provides food services, retail services, and other driver conveniences at their road pavilions and service plazas. The Wi-Fi service is offered at no cost to users and is offered as an additional service to draw in customers to the existing services.

The third type of business model is where all costs are paid by the state. If the service generates any revenues, either from the sale of advertisement or user fees, these revenues are retained by the state. Florida, North Dakota, Texas, Oregon, and Vermont are examples of states that pay a private partner to provide Wi-Fi access. These states provide Wi-Fi because they want to provide current traffic information to users or they believe the free provision of Wi-Fi encourages drivers to take breaks more frequently, thus improving roadway safety. Although it is difficult to determine exactly how successful these programs are in meeting the states' goals, these programs remain operational. Oregon is a particularly interesting case. When they started offering Wi-Fi services, costs were shared between the private provider, the Oregon Department of Transportation, and the Oregon Department of State Parks. When their initial contract ended in 2007, the private provider declined to extend the contract under the same terms. Rather than discontinuing the service, Oregon has opted to pay for the costs until a new private partner can be found (3).

The last type of business model that is available for states implementing Wi-Fi service is where costs are shared between the public and private sector. Revenues generated through this type of partnership may be shared between the provider and the state, or the provider may retain all revenues generated from ad sales or user fees. There are several states, including California and Iowa, providing Wi-Fi services following this business model. The business models for both California and Iowa are covered in more depth as case studies in Chapter 3.

Table 1 below provides a summary of the states that have implemented Wi-Fi in their rest areas and/or welcome centers. The table includes each state's rationale for providing Wi-

Fi, whether they are charging user fees for the service, and who bears the financial responsibility for the service. Figure 1 provides a map of the states providing Wi-Fi service.

Table 1. Summary of States providing Wi-Fi Services in Rest Areas and/or Welcome Centers.

<b>State</b>	<b>Rationale</b>	<b>Fees</b>	<b>Financial Responsibility</b>
California	To meet traveler demand for Internet access.	Free	Shared between California DOT and private partner.
Connecticut	Considered a “traveler amenity.”	Undetermined	Undetermined
Florida	To provide current traffic conditions.	Free first 15 minutes, then modest fee.	Florida DOT
Illinois	Considered a “traveler amenity.”	Free	Third party private partner.
Iowa	To provide current traffic conditions and to help drivers stay connected while on the road.	Free first 30 minutes, then \$2.99 per hour.	Shared between Iowa DOT and private provider.
Kansas	To provide current traffic conditions and Internet connectivity to safety and emergency personnel.	Free to travel sites, all other uses require a fee.	Private partner.
Kentucky	Considered a “traveler amenity.”	Free first 15 minutes, then \$9.95 for 4 hours, \$15.00 for 24-hours, and \$50.00 for 30 days.	Private partner.
Michigan	To meet traveler demand for Internet access.	Free to travel sites, all other uses require a fee of \$7.95 for 24-hours.	Private partner.
Minnesota	To create a revenue stream through the “Rest Area Sponsorship, Advertising, and Wireless Internet Program.”	Undetermined	Private partner—but still under negotiation.
Nevada	To encourage users to access traveler information on the splash page and provide general Internet access.	Free first 30 minutes, then a fee for additional usage.	Private partner.



Table 1. (Continued) Summary of States providing Wi-Fi Services in Rest Areas and/or Welcome Centers.

New Mexico	Considered a “traveler amenity.”	Free 15-20 minutes, then a fee for additional usage.	Undetermined
New York	Considered a “traveler amenity.”	Free	Undetermined
North Carolina	Undetermined	Undetermined	Undetermined
North Dakota	To provide current traffic conditions.	Free	North Dakota DOT
Oregon	To provide current traffic conditions.	Free to travel sites, all other uses require a fee of \$1.99 for 20 minutes, \$3.99 for 24 hours, \$7.99 for 7 days, and \$31.99 for monthly service.	Initially shared between Oregon DOT and private partner. Due to lack of profit for private provider, Oregon now pays for all costs.
Texas	To encourage drivers to take breaks more frequently.	Free	Texas DOT
Vermont	To provide current traffic conditions.	Free	Vermont
Washington*	To enhance roadway safety (help prevent road fatigue) and emergency preparedness. Also to offer resources to promote economic development.	Free to travel sites, all other uses required a fee of \$2.95 for 15 minutes, \$6.95 for 24 hours, or \$29.95 for a monthly subscription.	Private partner.

\* Washington is no longer offering Wi-Fi at their Highway Safety Rest Areas due to lack of use and revenue stream.

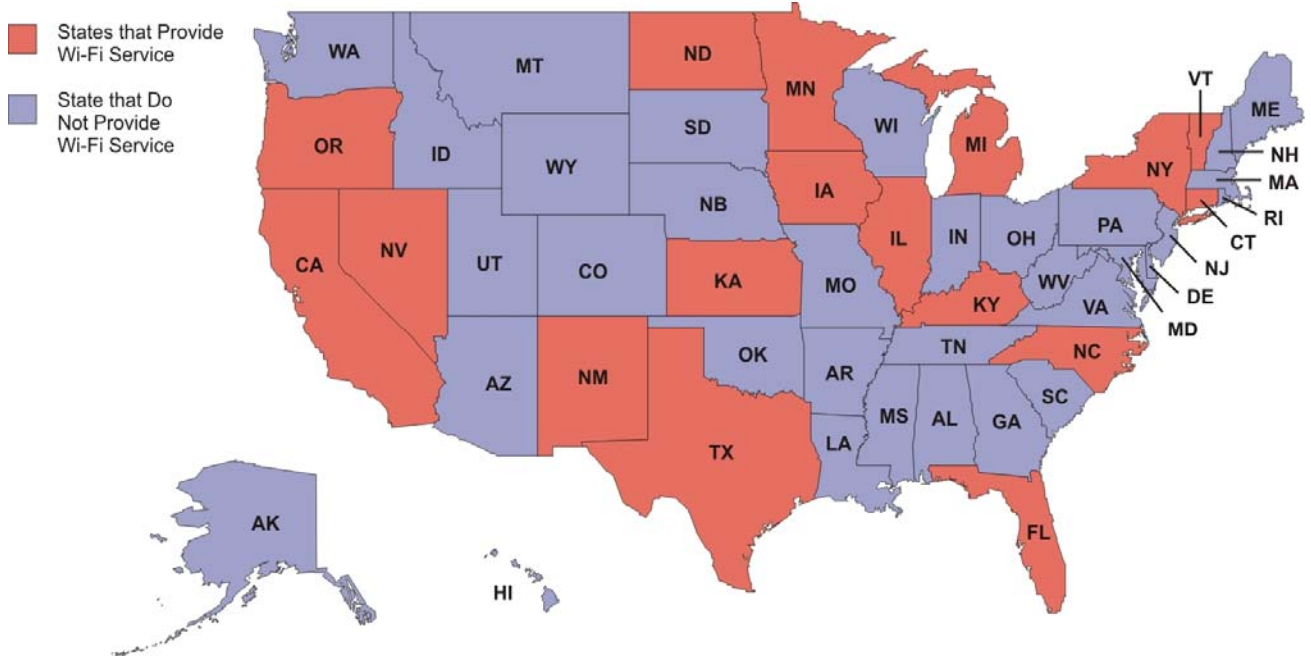


Figure 1. Wi-Fi Availability in Rest Areas and/or Welcome Centers

### 2.3 Review of States using Kiosks to provide Traveler Information Services

Some states have been using kiosks to provide traveler information in rest areas and welcome centers for several years. Through advances in information technologies, it is now possible to provide current traffic information to kiosks. However, it is unclear if any states are utilizing these technological advances to provide such data. The Research and Innovative Technology Administration (RITA) has collected data on the number of states that are providing traveler information through kiosks. As previous research suggests, states do have experience in providing traveler information through kiosks, although it is not clear if they are providing this information in real-time.

In 2004, RITA conducted a survey to determine the different technologies that states were using to disseminate traveler information. During this 2004 survey, they specifically asked which states were using interactive kiosks to deliver traveler information. As of 2004, there were 10 states that were using some form of this technology. These states are listed below in Table 2.

Table 2. States Using Interactive Kiosks in 2004 (4).

California	North Carolina
Colorado	North Dakota
Delaware	South Dakota
Montana	Utah
New York	Vermont

In 2006 and 2007, RITA administered additional state surveys regarding the use of any type of kiosks to disseminate pre-trip traveler information. Although these surveys are useful, they are also somewhat problematic (with regard to this study) in that they only asked states if they were using kiosks to disseminate pre-trip information. The states were not asked if they were using kiosks to disseminate en-route information to travelers in places such as rest areas, welcome centers, or truck stops. Despite the drawbacks in the RITA surveys, they do provide a good starting position for determining which states are using kiosks to disseminate traveler information and how the usage of these kiosks has changed over the last five years. The states using kiosks in 2006 and 2007 are listed in Table 3.

Table 3. States using Kiosks to Disseminate Pre-Trip Traveler Information in 2006 and 2007 (4).

<b>States with Kiosks in 2006</b>	<b>States with Kiosks in 2007</b>
Colorado	Colorado
Delaware	Delaware
Georgia	Illinois
Iowa	Kentucky
Kentucky	Nebraska
Nebraska	North Dakota
North Dakota	Oregon
South Dakota	Tennessee
Tennessee	Virginia
Wisconsin	Washington
	Wisconsin
*5 States did not respond to the survey: Massachusetts, Mississippi, New York, Ohio, and Washington.	*8 States did not respond to the survey: Arizona, Iowa, Kansas, Massachusetts, New York, Ohio, Rhode Island, and Vermont.

According to RITA's 2007 survey, 11 states were using some form of kiosk system to distribute pre-trip traveler information. Eight states did not respond to the survey administered by RITA. Further investigation of those eight states revealed that (as of 2009) some of them do employ kiosks to disseminate some form of traveler information. Arizona, Iowa, Massachusetts, and New York are utilizing some form of kiosk to disseminate traveler information. Both Vermont and Kansas are planning on adding

kiosks as a component of their traveler information systems as they implement Wi-Fi in their rest areas. At least one state, Wisconsin, stopped providing traveler information through kiosks since the 2007 RITA survey was conducted. Based upon the research conducted by RITA and the follow-up research conducted for this study, six states were selected for further study to determine what type of kiosk each state is using (static or interactive) and if their kiosks provide current traffic conditions in rest areas and/or welcome centers.

## CHAPTER THREE: CASE STUDIES FOR STATES PROVIDING WIFI

### 3.1 California

#### *Rationale for Providing Wi-Fi*

California launched a pilot project for the provision of Wi-Fi at two of their Safety Roadside Rest Areas (SRRA) along State Road 99 in July 2007. The purpose of this pilot project was to evaluate the perceived demand for Internet access by the traveling public (3). The initial splash page (i.e. the first page that appeared when a person logged on to the site) included current road conditions, emergency information, weather conditions, and general transportation and safety information. During the pilot demonstration, users were provided with free, unlimited access to the Internet.

#### *Wi-Fi Provider*

The vendor responsible for providing Wi-Fi to the California Safety Roadside Rest Areas and along State Route 99 was Coach Connect.

#### *Business Model*

During the pilot project, the California Department of Transportation (Caltrans) entered into an agreement with Coach Connect to deploy Wi-Fi at two SRRAs and along State Road 99. Under this agreement, the installation and operational costs were shared between Caltrans and Coach Connect. Coach Connect was responsible for any other periodic costs. Neither Caltrans nor Coach Connect charged any type of access fee to Wi-Fi users during the pilot. Although Coach Connect had the option to sell ads to help cover the costs incurred during the pilot project, they did not do so.

#### *Usage Statistics*

Researchers from the California Partners for Advanced Transit and Highways (PATH) Program collected data from July 2007 to April 2008. During this time period there were 15,629 Wi-Fi login events at the two SRRAs. Most users of the Wi-Fi system (89.2 percent) logged in only once or twice during the ten-month study period and utilized the system for approximately 15 minutes or less. Figure 2 provides the distribution of logins at the two SRRAs over the ten-month study period.

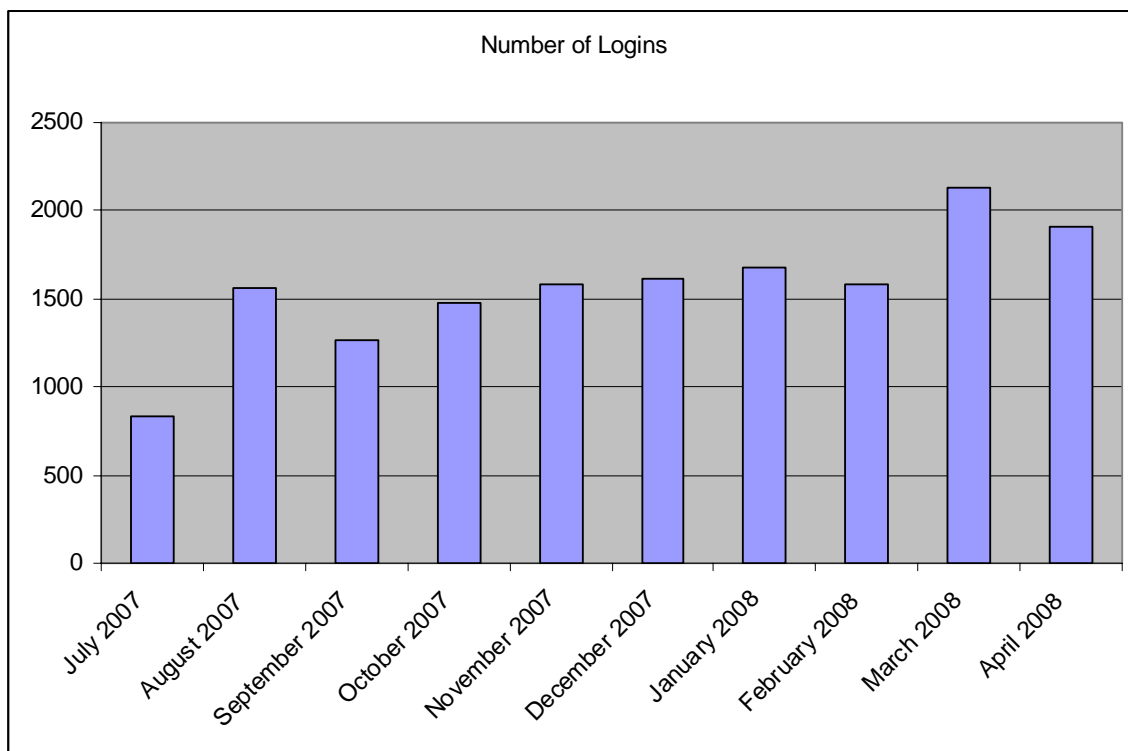


Figure 2. Monthly distribution of logins at the California Safety Roadside Rest Areas (3).

Over the course of the study period, users of the Wi-Fi system were required to answer several questions about the service before they were given general access to the Internet. One question pertained to their reason for accessing the Internet at the SRRAs. Most users stated that they were using the Wi-Fi to check their email. A significant number of users also accessed the traveler information link that was provided. It is important to note that only a small percentage of rest stop visitors accessed the Wi-Fi when they stopped. PATH researchers estimated that the percentage of rest stop visitors that used the Wi-Fi service was approximately 0.3 percent.

Researchers from the PATH Program also conducted several focus groups with travelers from the following categories: (1) recreational travelers, (2) business travelers, and (3) commercial vehicle drivers. Research on the focus groups composed of recreational travelers suggested that these participants would use Wi-Fi at the SRRAs if it were available. However, the majority of these participants changed their minds when security issues were discussed, stating that they would feel like targets for thieves if they were to use their laptops at the SRRAs. Other members of the recreation focus groups stated that they would prefer to use a state-provided kiosk to access the Internet rather than their own personal devices. Participants were also asked if they would be willing to pay a minimal charge (approximately \$2.00) for an additional half-hour of Internet usage, after the expiration of the initial free half hour. Most participants stated that this sounded like a reasonable price, but doubted that they would need access longer than the initial half-

hour. Participants also commented that the service should be provided free of charge, as it is in libraries, restaurants, and coffee shops. Lastly, participants were concerned about paying for Wi-Fi service with a personal credit card, because of identity theft concerns.

Focus groups were also conducted with business travelers that used the SRRAs. The majority of business travelers stated that they would be very unlikely to access Wi-Fi if it were offered at the SRRAs. Several participants in the business traveler focus groups stated that they usually travel with a wireless air card and would have no need of the service. Some of the participants did say that they would use the Wi-Fi service in the event that their wireless air card stopped working, but they would not feel comfortable paying for the service using their credit card. Similar to the recreational traveler focus groups, the business travelers were concerned about identity theft. Overall, many of the participants in the business traveler focus groups thought that the provision of Wi-Fi in SRRAs would not be utilized by a significant number of travelers.

The last focus group session conducted by the PATH researchers involved commercial vehicle drivers. None of the participants in the commercial vehicle driver focus group indicated that they would use the Wi-Fi service at the SRRAs. The primary reason they would not use this service was because of the limited parking available for trucks at the SRRAs, the excessive amount of crime at the SRRAs, and the fact that Wi-Fi is offered for free at truck stops. Overall, the commercial vehicle drivers who participated in this focus group were not interested in accessing Wi-Fi at the California SRRAs.

## **3.2 Texas**

### *Rationale for Providing Wi-Fi*

The Texas Department of Transportation (TxDOT) began a pilot project providing free Wi-Fi access in 2003 in three rest areas in the Texas Panhandle. After receiving extremely positive feedback from users, free Wi-Fi access was expanded to 86 additional rest areas and 12 travel information centers by 2004. The primary reason TxDOT provided Wi-Fi was because they wanted to encourage drivers to take breaks more frequently, thereby reducing fatigue-related accidents (5, 6). Figure 3 provides a picture of a rest area sign in Texas advertising the availability of Wi-Fi.



Figure 3. Rest Area sign in Texas advertising the availability of Wi-Fi (7).

#### *Wi-Fi Provider*

The initial vendor responsible for providing Wi-Fi to the Texas rest areas and travel information centers was Coach Connect. Services are currently provided by Zoom Information Systems.

#### *Business Model*

Under the current business model in Texas, TxDOT is responsible for paying all costs associated with the provision of Wi-Fi. However, this was not the initial business model. In 2004, under the initial business model, Coach Connect was responsible for providing all equipment, installation, operation, and support service costs. TxDOT paid Coach Connect to develop the website portal. During this time, users were offered free Wi-Fi access for two hours and then were required to pay a fee for longer usage times. Under this model, 20 percent of the generated revenues were expected to be returned to the state. However, very few users elected to purchase additional time. By 2006, statewide usage had increased significantly and Coach Connect could no longer support the system at no charge to TxDOT. At that time, TxDOT purchased the equipment from Coach Connect and began paying them to maintain and operate the Wi-Fi system under an emergency contract (3). In May 2007, Coach Connect was sold to another company. Road Connect, the parent company of Coach Connect, agreed to continue providing Wi-Fi service while TxDOT prepared a new RFP (8). A new RFP was issued, and, in February 2008, a three-year contract was issued to Zoom Information Systems.

Under the new contract with Zoom Information Systems, TxDOT pays Zoom to provide broadband to all 86 rest areas and the 12 traveler information centers, an 800 service number, and system maintenance and upgrades. TxDOT funds this project through their maintenance budget and uses the equipment TxDOT purchased from Coach Connect. There are plans to install electronic displays and kiosks at the rest areas. Zoom will pay



for these kiosks with advertising and sponsorship. Once the initial investment is recouped by Zoom, they will begin profit sharing with TxDOT.<sup>1</sup>

### Usage Statistics

On average, there are over 600 users per day and approximately 19,000 users per month who access Wi-Fi at the Texas rest areas and traveler information centers. The average connection time for these users is 37 minutes.

## 3.3 Iowa

### Rationale for Providing Wi-Fi

The Iowa Department of Transportation (IDOT) began providing free Wi-Fi access to motorists at rest areas in June 2005. IDOT was specifically interested in providing Wi-Fi access because they believed that Wi-Fi would be beneficial in providing travelers access to highway safety information. They were also interested in helping drivers stay connected to their homes and offices while traveling on Iowa's roadways (3). To meet the goal of helping travelers to access highway safety information, the initial splash page that appears when a user accesses the system displays links to IDOT, the 511 system, weather conditions, Iowa State Patrol, and tourism information. Figure 4 provides a snapshot of the initial splash page accessible from Iowa's rest areas.



Figure 4. Splash page for Motorists that access Wi-Fi at Iowa's Interstate Rest Areas (7).

<sup>1</sup> As of October 2008, the electronic displays and kiosks had not been added to the rest areas or travel information centers (7).

### *Wi-Fi Provider*

The initial vendor responsible for providing Wi-Fi to the Iowa rest areas was I-Spot Access Networks. Services are currently provided by Zoom Information Systems.

### *Business Model*

Iowa first began providing Wi-Fi access at interstate rest areas in June 2005 as a pilot project. During the pilot project, IDOT contracted with I-Spot Access Networks to provide Wi-Fi services to the state at no cost. Although IDOT considered the pilot program a success, I-Spot Access Networks went out of business (3). In August 2006, IDOT awarded a contract to Zoom Information Systems for the provision of Wi-Fi services to all 39 rest areas in the state. Under the agreement with Zoom, IDOT pays for all costs that are incurred for the provision of Wi-Fi in rest areas and the physical equipment. These costs have included a \$72,000 startup fee and a monthly fee of \$3,000. Zoom is responsible for the costs associated with software development, technical support, and web design. Zoom is also responsible for the provision and maintenance of information screens and kiosks in the rest areas.

Wi-Fi access is available free for the first 30 minutes. After that time, Zoom has the option to begin charging users for additional use. Zoom also provides a separate wireless channel for IDOT employees to conduct state business, thus creating a remote office (9). Lastly, Zoom is permitted to sell advertisements to generate additional revenue.

### *Usage Statistics*

Usage statistics are currently unavailable.

## **3.4 Kentucky**

### *Rationale for Providing Wi-Fi*

The Kentucky Department of Tourism began providing Wi-Fi to motorists in several Kentucky Welcome Centers in September 2007. The entire implementation process took approximately 13 months and by October 2008, Wi-Fi was available at eight welcome centers, the Kentucky Horse Park, and the Kentucky Artisan Center. The primary reason for providing Wi-Fi access was to provide an amenity to motorists and a secondary reason was to provide a mechanism that would allow travelers to access current weather information, road conditions, and amber alerts.

### *Wi-Fi Provider*

The vendor responsible for providing Wi-Fi service to the Kentucky Welcome Centers, the Kentucky Horse Park, and the Kentucky Artisan Center is Foundation Telecommunications, Inc (FTI).

### *Business Model*

In 2007, an RFP was issued for providing Wi-Fi services at the Kentucky Welcome Centers, the Kentucky Horse Park, and the Kentucky Artisan Center. In July 2007, a contract was signed with FTI. FTI was responsible for the cost of installation at each of

the eight welcome centers, the Kentucky Horse Park, and the Kentucky Artisan Center. FTI was also responsible for all operations and maintenance costs. There have been no costs to the Department of Tourism.

Wi-Fi service is provided to motorists for free for the first 15 minutes. Additional service can be purchased from FTI under the following rate structure: \$9.95 for four hours access; \$15.00 for 24-hours access; and \$50.00 for one-month access. FTI will receive all revenues from paid subscriptions at the Wi-Fi enabled sites until they recoup their initial investment. According to the contract, once FTI recoups their costs, they will share a percentage of the profit with Kentucky. Based upon the current costs and sales information, it will likely take several more years for FTI to recoup their costs. The current contract with FTI will expire in July 2009. At that time, FTI can choose to not renew the current contract or they may renew it for another two years. It is unknown whether FTI will choose to renew their contract in July. According to FTI, the company is not meeting their projected sales expectations for the Wi-Fi service. The majority of users are only utilizing the free service.

#### *Usage Statistics*

Although it is unclear how many travelers are using the free 15 minutes, it is estimated that between 90 and 98 percent of users are only utilizing the free service period. FTI has noted instances where motorists have traveled from one welcome center to the next, using the 15 minutes of free Wi-Fi service in each location. Information is available about the number of paid transactions (by month) from January 2008 until May 2009. During this time, there have been a total of 1,340 sales at all locations. Thirty-two percent of the total sales have been at the Kentucky Horse Park. Figure 5 below provides a graph of the total number of sales by month in all welcome centers, the Kentucky Horse Park, and the Kentucky Artisan Center. Table 4 presents the total sales by location from January 2008 through May 2009.

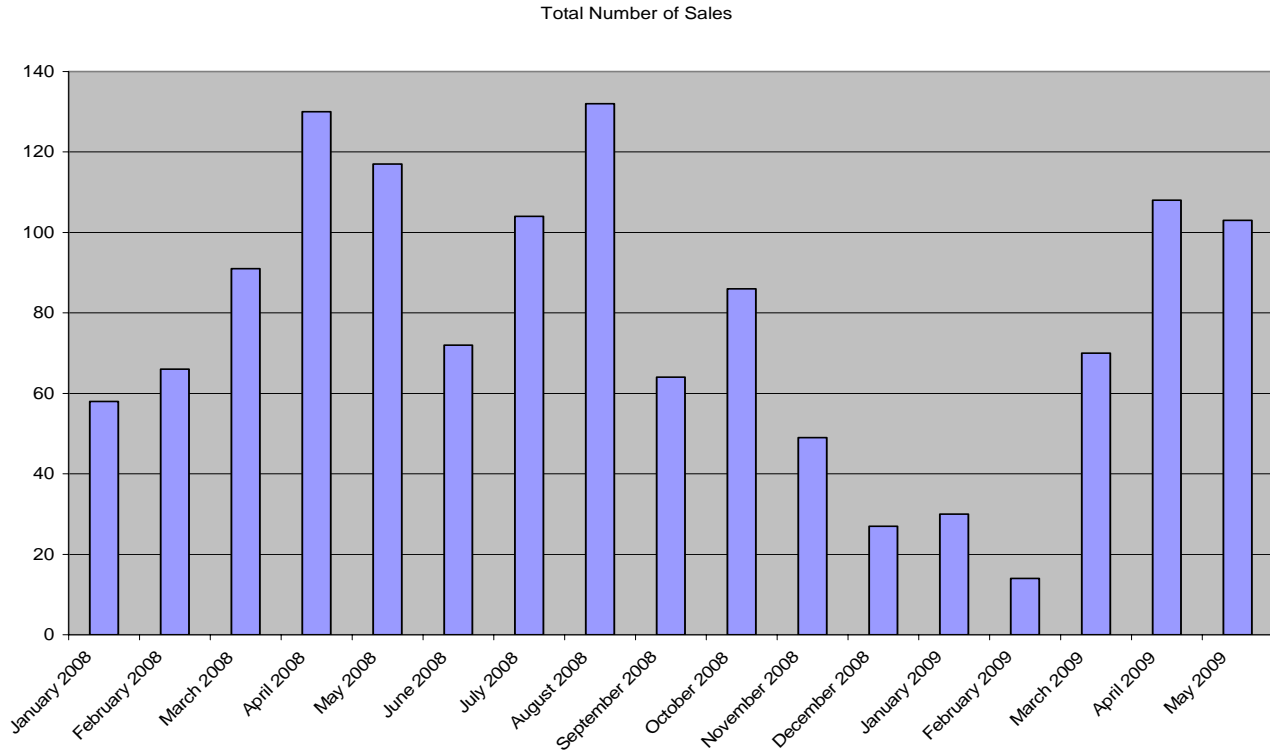


Figure 5. Total Number of Sales by Month at Kentucky Welcome Centers, the Kentucky Horse Park, and the Kentucky Artisan Center.

Table 4. Total Sales by Location from January 2008 until May 2009.

Location	Total Sales	Percentage of Total Sales
The Kentucky Horse Park	431	32.2 %
Florence Welcome Center	314	23.4 %
Whitehaven Welcome Center	112	8.4 %
Christian Co. Welcome Center	103	7.7 %
Bullitt Co. Welcome Center	96	7.2 %
Shelby Co. Welcome Center	95	7.1 %
Williamsburg Welcome Center	82	6.1 %
Franklin Welcome Center	60	4.4 %
Grayson Welcome Center	30	2.2 %
The Kentucky Artisan Center	17	1.3 %
<b>Total</b>	<b>1340</b>	<b>100%</b>

## CHAPTER FOUR: CASE STUDIES FOR KIOSK INFORMATION SYSTEMS

The RITA research only identified states that use some form of kiosk system to disseminate traveler information. It did not specify what type of traveler information is being provided or whether the kiosks are interactive or static. An interactive kiosk provides the traveler with the ability to select information that matches his or her needs, using a touch-screen or other user input device. Static kiosks or displays provide the same information to everyone, with no opportunity for user interaction. Different states meet different traveler information needs through the use of their kiosk systems. For example, some states are more interested in providing tourism information for economic development purposes, while others are focused on providing current traffic and weather information. Figures 6 and 7 provide examples of two static kiosks displaying traffic and weather information. Figure 8 provides an example of an interactive kiosk providing traveler information.



Figure 6. Example of Static Kiosk Display (7).



Figure 7. Example of Static Kiosk Displays (7).



Figure 8. Example of Interactive Kiosk Display (7).

Although the interviews contained within this chapter are focused on the use of kiosks to provide en-route traveler information, other methods to disseminate en-route traveler information are also discussed. The states selected for interviews were chosen based upon preliminary web searches on their respective state government websites that suggested that kiosks were being used as a mechanism for disseminating traveler information within that state. Some states were chosen due to their close geographical proximity to Kentucky, as these states have somewhat similar weather patterns and topographies to those in Kentucky. Selecting states with similar topographies was particularly important, since these states may have insights into how best to reach travelers in rural areas where mobile devices may not work. Table 5 provides a list of those states selected for an interview, whether or not they are currently using kiosks to disseminate en-route traveler information, and the type of system they are using.

Table 5. States Selected for Interviews about their Usage of Kiosks to Disseminate Traveler Information.

<b>State</b>	<b>Experience using kiosks for dissemination of en-route traveler information?</b>	<b>Type of Kiosk</b>
Tennessee	Yes	Static screens display current traffic information, weather conditions, weather-impacted road conditions, construction information, tourism information, and safety advisories in all state welcome centers.
Illinois	Yes	Static screens cycle through displays of weather information, major construction locations, and tourism information.
Indiana	No	Not Applicable.
Arizona	Yes	Static screens display current traffic information and travel times between various locations in the Phoenix area.
Wisconsin	Yes	Interactive Internet-enabled kiosks displayed links to state websites that provided traveler information.
Ohio	No	Not Applicable.

## 4.1 Tennessee

### *Primary Methods of Providing En-Route Traveler Information:*

The primary methods of providing traveler information to en-route motorists in Tennessee are through the use of static kiosks in the Tennessee Welcome Centers, the 511 phone system, and the Tennessee traveler information website (accessible using personal mobile devices). Tennessee has also begun using Twitter to provide traveler information to the public. Twitter is an information exchange service, where people can sign up to receive free information updates from different organizations or people. There are five regional sites for Twitter in Tennessee. When Twitter users sign up for this free service, they can elect to receive text messages from the state 511 website, and/or from one or more of the following four regional 511 websites: Memphis, Knoxville, Nashville, and Chattanooga.

### *Current or Previous use of Kiosks to Provide Traveler Information:*

In 2005, static kiosks were placed in the Tennessee Welcome Centers. Each kiosk has eight display screens. The kiosks display current traffic conditions using both graphics and text. The kiosks also display current weather information, including general weather for the state as well as specific weather events that may affect travel (e.g. flooding, snow, ice, etc.). The kiosks also have a screen that provides road construction information, using both graphics and text. There are two screens that are dedicated to providing tourism information and one screen that displays information about current road safety campaigns in Tennessee. Since the screens are static, as opposed to interactive, motorists cannot select specific information to be displayed. However, depending on the regional area in which the kiosk is located, the kiosk will display specific information relative to that region and the surrounding roadways. Lastly, no statistics are available for how frequently the kiosks are used.

The information that is provided through the traveler information kiosks is received from the Tennessee Department of Transportation's (TDOT) Tennessee SmartWay Information System (TSIS) database. As traffic information is entered into the TSIS database, it automatically sends the information to the kiosks. It takes approximately five minutes from the time the information is entered into TSIS to when it is displayed on the kiosks. It is also important to note that the Tennessee Highway Patrol has access to TSIS, thus allowing them to enter crash information directly into the system.

### *Kiosk Maintenance and Reliability:*

The kiosks in the Tennessee Welcome Centers are owned, operated, and maintained by TDOT. The kiosk equipment was built in-house by the Department's Information Technology section. The Information Technology section also developed the software that allows the kiosks to exchange information with TSIS. The continued operation and maintenance of the kiosks is funded through TDOT's maintenance budget. There is no systematic maintenance performed for the continued operation of the kiosks, although there have been some issues with the monitors. In addition, some of the equipment has become outdated since the initial implementation. Currently, some monitors are not



working and there are significant challenges associated with getting them operational again.

## **4.2 Illinois**

### *Primary Methods of Providing En-Route Traveler Information:*

The primary method for providing en-route traveler information to motorists in Illinois is through static kiosks located in rest areas. The Illinois Department of Transportation (IDOT) also provides traffic information alerts via email. Illinois has an agreement with a private vendor that provides traveler information. The private vendor utilizes sensor data provided by IDOT to provide traveler information to their subscribers.

### *Current or Previous use of Kiosks to Provide Traveler Information:*

The kiosk systems installed in the Illinois rest areas contain a scrolling screen with basic weather information, as well as custom screens showing Illinois road construction and weather-related road conditions in the state. The kiosks do not provide information on current traffic conditions. The kiosks are owned and operated by the company DTN Meteorlogix (DTN). IDOT pays DTN a contracted fee for the kiosk equipment and services.

### *Kiosk Maintenance and Reliability:*

Kiosk maintenance is the responsibility of DTN. According to IDOT, the kiosks have been reliable.

## **4.3 Indiana**

### *Primary Methods of Providing En-Route Traveler Information:*

The primary methods for providing en-route traveler information to motorists in Indiana are through roadside dynamic messaging signs (DMS) and highway advisory radio (HAR). Information is available through Indiana's traffic information website, which can be accessed through personal mobile devices. The Indiana Department of Transportation (INDOT) also has an agreement with a third party to distribute INDOT's traffic camera images to mobile devices. Under this agreement, INDOT provides the images to the third party and the third party then sends them out to their subscribers. In the future, travelers in Indiana will be able to utilize the 511 system to obtain traveler information, as it is expected that this system will be operational within a few months. Overall, Indiana does not provide any type of traffic information specifically to travelers at rest areas or welcome centers.

### *Current or Previous use of Kiosks to Provide Traveler Information:*

Indiana does not currently provide, and has not previously provided, traveler information through the use of kiosks.

*Kiosk Maintenance and Reliability:*

Indiana does not provide, and has not previously provided, traveler information through the use of kiosks.

#### **4.4 Arizona**

*Primary Methods of Providing En-Route Traveler Information:*

The primary method for providing traveler information to en-route motorists in Arizona is through the 511 phone system. However, for travelers that use the car rental facility at the Sky Harbor Airport, there are static kiosks that provide current traffic information and travel times between various points in the Phoenix Metropolitan area. The kiosks are provided through the AZTech program, which is responsible for the regional management of the Intelligent Transportation Systems (ITS) in the Phoenix Metropolitan area. AZTech operates through a partnership between the Arizona Department of Transportation, Maricopa County, and many other public and private partners.

*Current or Previous use of Kiosks to Provide Traveler Information:*

In 2006, static kiosks were installed at the Sky Harbor airport in Phoenix. There are four screens that provide current traffic information. On each screen, three-fourths of the screen displays a map of the Phoenix metropolitan area, with clocks on the different roadways to indicate current travel times between selected points. This portion of the screen also contains information about current road construction. The other one-fourth of the screen contains text information related to any current traffic incidents. This portion of the screen also directs travelers to the 511 phone system.

The information displayed on the kiosks is continuously updated. When traffic and incident information is entered into the Highway Conditions Reporting System at the Traffic Management Center (TMC) the information is automatically sent to the Regional Archived Data System where it is then integrated into the Freeway Management System and the travel times for the roadways are processed. The data is then sent to the kiosks at the airport. Travel times are updated every three minutes. The information that is displayed on the kiosks is also displayed at the TMC and all the operators at the TMC can access and update the kiosk system. This ensures that the information displayed on the kiosks is accurate and up-to-date and provides a mechanism to ensure that the kiosks are performing properly.

After the kiosks were activated, the Maricopa County Department of Transportation commissioned WestGroup Research of Phoenix to conduct an intercept study to evaluate the experience of travelers who had the opportunity to view the kiosk screens (10). They observed travelers who walked through the Sky Harbor car rental center during a seven hour period. During the observation period, 37 percent (239 out of 647) of travelers looked at the kiosk display. Of those 239 individuals who looked at the display, 100 were randomly selected for interviews. Twenty-five individuals who did not interact with the display were also interviewed. Among those individuals who bypassed the display, 84 percent stated that they did not notice the display. The other 16 percent said that they noticed the display but were in a hurry, or that they had already received

directions from another source. Among the 100 individuals who looked at the kiosk display and were selected for an interview, 91 percent stated that the visual clarity of the displayed information was excellent. However, many of their comments suggested that the screens should be displayed more prominently and that there should be a legend on the screen to help viewers better understand the information being presented.

*Kiosk Maintenance and Reliability:*

Kiosk maintenance is provided by both the Sky Harbor Airport and Maricopa County. The airport is responsible for cleaning and providing power to the kiosk. Maricopa County is responsible for the hardware and software that render information to the screen and communications to the airport rental car center. The vendor responsible for the kiosk equipment is Delta Diversified, and OZ Engineering developed the kiosk software. The software is owned by Maricopa County. Overall, the kiosks have been extremely reliable. During the three years that they have been operational, there has been only one maintenance issue.

## **4.5 Wisconsin**

*Primary Methods of Providing En-Route Traveler Information:*

The primary methods for providing traveler information to en-route motorists in Wisconsin are through the 511 phone system and the traveler information website (accessed via personal mobile devices). Traffic information is also available through an email subscription that provides information on specific routes by region. However, this option is not heavily used. The Wisconsin Department of Transportation will be instituting a statewide text messaging subscription service in the near future, so motorists can receive specific information by route, day, and time of day.

*Current or Previous use of Kiosks to Provide Traveler Information:*

In September 2002, Wisconsin installed interactive internet-enabled kiosks at several Wisconsin Welcome Centers. Travelers using the kiosks were able to access the Department of Tourism's website, the Department of Transportation's website, some internet email server accounts (e.g., yahoo), and weather information. Road construction information was also readily available through the kiosks. However, real-time traffic information was not. The kiosks were used for approximately three years before they were shut down. Although the kiosks were well liked by travelers, they only worked approximately 50 percent of the time and required a high level of maintenance. The kiosks were permanently removed from the Wisconsin Welcome Centers in approximately 2007.

*Kiosk Maintenance and Reliability:*

The kiosks in the Wisconsin Welcome Centers were owned and operated by the Wisconsin Department of Tourism. The Department of Tourism was also responsible for kiosk maintenance. When software and/or hardware problems occurred with the kiosks, the Welcome Center manager and/or the staff in the Department's Information Technology section were responsible for handling those situations. Prominent maintenance issues that occurred with the internet-enabled kiosks included (1) an

unreliable internet connection, (2) the print option frequently did not work, and (3) the mouse device used to navigate through the sites broke several times. The Wisconsin Department of Tourism did not have a kiosk software vendor; instead they developed the software internally using a Windows platform. Overall, the internet-enabled kiosks were functionally unreliable, resulting in their removal from the Wisconsin Welcome Centers.

## **4.6 Ohio**

### *Primary Methods of Providing En-Route Traveler Information:*

The primary methods for providing en-route traveler information in Ohio are through the use of dynamic messaging signs (DMS) and highway advisory radio (HAR). The 511 phone system is available in the Cincinnati area. The Ohio Department of Transportation is considering implementing some type of subscription system that would provide traffic information to travelers in the Cincinnati, Columbus, and Dayton areas. However, it is unclear what type of subscription service they will ultimately select.

### *Current or Previous use of Kiosks to Provide Traveler Information:*

The Ohio Department of Transportation does not provide any traveler information via kiosks in rest areas or welcome centers. There are some informational kiosks at the rest areas and welcome centers, but these kiosks are not operated by the Ohio Department of Transportation, and they do not provide any type of traffic information.

### *Kiosk Maintenance and Reliability:*

The Ohio Department of Transportation does not provide any traveler information via kiosks in rest areas or welcome centers.

## **CHAPTER FIVE: ALTERNATIVE METHODS FOR PROVIDING TRAVELER INFORMATION SERVICES**

The previous chapters in this report have focused on how states are providing traveler information to en-route motorists through the use of Wi-Fi and kiosks at rest areas and welcome centers. However, some states have begun engaging in other innovative practices to provide traveler information. The following section focuses on those innovative practices and how private companies are also entering this market to provide these services.

Over the last few years, there has been a growing interest from the private sector in the provision of traveler information (11). Private companies are forming partnerships with the public sector to provide traveler information through mobile and vehicle in-dash units. Subscription models offered by the private sector have seen varying levels of interest over the last several years as companies try to find the right formula that will prompt sustained payment for subscription services. For example, TrafficGauge Mobile provides real-time traffic information to their customers in select cities through special devices they issue. If a customer does not want to purchase a device from TrafficGauge, they can still utilize the service through a web enabled 3G phone. The data TrafficGauge provides to their clients is obtained by merging data gathered by state DOTs and private vendors to produce real-time maps and traffic information (12).

DASH Navigation is another private company that provides real-time traffic information to their customers by using a combination of historical data combined with sensor data that is obtained from their customers' devices. As customers drive, the DASH device sends information to the company where it is combined with data from other customers' devices in the area as well as historical data. DASH then sends the processed data back to the customer. To use the service offered by DASH, customers must purchase a specific DASH device.

En-route traveler information is also available for travelers who simply have a web-enabled cell phone. En-route motorists with a web-enabled cell phone can check various State DOT websites to obtain current traffic information. However, this does require action on the part of the motorist, which typically does not occur until they have already encountered a traffic incident. Various states have begun offering different subscription services to help avoid this issue. As mentioned in Chapter 4, Tennessee has begun sending alerts through Twitter. Tennessee is currently offering traffic information updates through Twitter from four regional 511 sites and the state-wide 511 service. Wisconsin and Ohio are currently planning to implement a statewide text messaging, phone messaging, and email alert subscription. These subscription services will allow motorists to receive specific information by route, day, and time of day.

Perhaps one of the most interesting applications for providing current traffic and travel information to motorists is now being tested in the San Francisco Bay Area. In 2007, RITA sent a formal Request for Information to transportation technology companies and researchers, looking for applicable and viable approaches to mitigate congestion and improve safety through new technology (13). The RITA initiative is known as SafeTrip-

21. SafeTrip-21 is designed to improve safety and reduce congestion by identifying and harnessing existing technology and adapting it for transportation needs. Through SafeTrip-21, 10,000 volunteers are field testing GPS-cell phones from which travel time information based on vehicle speed is gathered from participants (14). This information is combined with data from other program participants and sent back to the driver with an estimate of their commute time as well as route guidance information to help them avoid congestion. Although motorists can currently purchase similar information services from the private sector, researchers from SafeTrip-21 are providing this information at no cost for those users who sign-up.

## CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

The following conclusions can be drawn from the experiences of Kentucky and other states with providing Wi-Fi service at rest areas and/or welcome centers:

- When Wi-Fi service is provided at rest areas and/or welcome centers, it will not be highly utilized. California's experience suggests that less than one percent of visitors to the rest area or welcome center will use the Wi-Fi service. Wi-Fi service will be more highly utilized at other locations, such as state parks.
- Recreational travelers are the most likely group to use Wi-Fi services at rest areas and/or welcome centers. Business travelers and commercial vehicle operators are unlikely to use such services. Security concerns are a significant impediment to the use of Wi-Fi services at rest areas and/or welcome centers.
- It is unlikely that the costs of providing Wi-Fi service can be recovered through subscriptions and user fees. The experiences of Washington, Oregon, Texas, and Kentucky indicate that user fees will not be sufficient to cover system costs. When some level of free Wi-Fi access is provided, with fees for additional use, most users will utilize only the free service.
- When free Wi-Fi service is provided at rest areas and welcome centers, it is regarded as a valuable service by those travelers who use it. In Texas, for example, the service was expanded from three pilot locations to 98 locations, based on positive user feedback.
- Options exist for third parties to cover the costs of providing Wi-Fi service at rest areas and/or welcome centers. Illinois provides an example where the Wi-Fi service has been combined with other revenue-generating services to provide a workable business model.

With regard to the use of kiosks to provide traveler information at rest areas and/or welcome centers, the following conclusions can be reached:

- Kiosks can provide an effective, reliable, and affordable solution for providing traveler information to motorists at rest areas and welcome centers.
- In general, those states that have implemented static kiosks have reported good performance, with relatively few maintenance problems. By contrast, those states that have implemented interactive kiosks have had significant issues with maintenance and reliability.

With regard to alternative methods for providing traveler information services:

- Private sector providers are playing an increasingly important role in the provision of traveler information (both pre-trip and en-route), and their role is likely to continue to expand at an ever-increasing pace.

- The proliferation of web-enabled mobile phones and other digital devices may revolutionize the provision of traveler information. Automated subscription-based systems for phone calls, text messages, e-mails, etc., offer substantial promise for alerting motorists to important, time-sensitive, traffic-related information.

These conclusions lead to the following recommendations:

- Due to the low usage rates reported by Kentucky and other states, it is recommended that KYTC not pursue implementation of Wi-Fi service at rest areas, weigh stations, or truck rest havens.
- KYTC should pursue the implementation of static kiosks or kiosk-type displays for the provision of traveler information at rest areas and welcome centers. If desired, this information could be provided at truck rest havens as well.
- KYTC should pursue the implementation of subscription-based systems to push real-time traffic alerts to motorists via e-mail, text messages, automated phone calls, or other mechanisms that may become available.
- KYTC should pursue expanded use of existing web-based services, such as Twitter and Facebook, to provide a simple, cost-effective way to push real-time traffic alerts to motorists with web-enabled mobile devices. They should also publicize the availability of these services.



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## APPENDIX A

State: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Number: \_\_\_\_\_

Email: \_\_\_\_\_

1) Does your state use any form of electronic kiosk, informational computer screens, or TV monitors to disseminate traveler information in rest areas, traveler welcome centers, or truck rest havens?

*If YES, complete questions #2 - #11.*

*If NO, complete questions #12 - #17.*

2) Are the kiosks interactive or static? If interactive, please describe how they are interactive.

3) What type of information is available through the kiosk?

- a. Real-time traffic information?
- b. Weather information?
- c. Road Construction information?
- d. Tourism Information?
- e. Other?

4) How often are the kiosks used? Do you have any usage statistics that you would be willing to share with us?

5) How does the kiosk receive current traffic and weather information (i.e., is the system integrated into CARS or other “real time” traffic incident database)?

6) How long does it take for the kiosk to receive information? For example, approximately how much time will pass before a kiosk will display information about a traffic incident?

7) Now we want to ask you some more in-depth questions about the reliability and maintenance of your kiosks:

- a. Who is responsible for the maintenance of the kiosk?
- b. What type of maintenance issues have you experienced?
- c. Who is the equipment vendor?
- d. Who is the kiosk software vendor?
- e. Have the kiosks been reliable?

8) How does your state pay for the maintenance and operation of the kiosks? For example, do you sell ads?

9) Does your state provide Wi-Fi access in rest areas, traveler welcome centers, and truck rest havens?

10) If yes:

- a. Why providing Wi-Fi?
- b. Are there user fees or is the service free?
- c. Who retains the financial responsibility?

11) Are there other means by which your state provides en-route traveler information? For example, does your state send travel information to any mobile devices for those that sign up for the service?

***END SURVEY (If answering yes, to #1)***

12) Is the information provided through another form in real-time (i.e., DMS, HAR, 511, etc)?

13) Do you contract any part of the provision of information out to a private contractor?

14) What type of business model does your state follow for covering the costs of providing traveler information? For example, does your state sell ads to help cover the cost of providing traveler information?

15) Does your state provide Wi-Fi access in rest areas, traveler welcome centers, and truck rest havens?

16) If yes:

- a. Why providing Wi-Fi?
- b. Are there user fees or is the service free?
- c. Who retains the financial responsibility?

17) Are there other means from which your state provides en-route traveler information? For example, does your state send travel information to any mobile devices for those that sign up for the service?

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