FINAL REPORT

TRAVELER INFORMATION SERVICES IN RURAL TOURISM AREAS

Appendix D: System/Historical Data Analysis

Prepared for:

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1.0 SYSTEM/HISTORICAL DATA ANALYSIS - RESULTS FOR I-40 TTIS

The objectives of the System/Historical Data Test are three-fold:

1. To document the functioning of the data collection and information dissemination functions of the TTIS. This will be done by presenting statistics documenting the type of information that has been input to the TTIS, when and by whom, and the use of TTIS user interfaces. If little information is being input to the TTIS, or if the system is not being utilized by travelers, it would suggest that the data collection and information dissemination functions are not being satisfactorily accomplished.

2. To provide a descriptive context for interpretation of traveler survey results, in terms of the information available on the system and the utilization of the system by travelers. This will be done by providing detailed information on what information was available, and which devices were consulted during the week of the main survey session, August 3-10, 1998.

3. To compare current evaluation results to relevant information collecting through previous, pre-TTIS deployment activities. Since the results of the I-40 traveler survey are still being analyzed, this comparison cannot be made for this report of findings.

Results relative to each of the first two objectives are presented below.

1.1 DATA COLLECTION AND DISSEMINATION FUNCTIONS

1.1.1 Data Collection

ADOT (Highway Closures and Restrictions System)

The Highway Closures and Restrictions System (HCRS) serves as the central data base for the TTIS and supplies all of the traffic information available through the TTIS user interfaces. Information is entered into the HCRS via workstations located at public and private organizations throughout Arizona. Information is input to the HCRS manually by workstation operators in the form of "events." For the purposes of this document the terms "HCRS input," "HCRS event" and "HCRS entry" are synonymous. Each event entered into the HCRS will appear as a traveler advisory via each of the TTIS user interfaces. Each HCRS event includes the following elements:

- International Traveler Information Interchange Standard (ITIS) "category" and "description" - The ITIS category classifies roadway information into one of 21 standard categories, such as "incidents/accidents," or "weather." Each ITIS

category has dozens of potential descriptions that can be entered, such as, in the case of the "incidents/accidents" category, "accident. Stopped traffic," or "closed due to accident."

- Location - Identifies the type of roadway (e.g., "interstate"), name of roadway, direction of travel and mile post limits.

- Duration - Identifies the estimated duration of whatever "event" is being entered.

The HCRS system came on-line in October 1997 and new workstations have been added at regular intervals since that time. Many HCRS workstations, such as those operated by ADOT Districts located outside of the I-40 Corridor, do not contribute information relevant to the I-40 Corridor, and are not considered in this analysis. Although the Phoenix Traffic Operations Center (TOC) does enter some information relevant to the I-40 Corridor, the vast majority of information entered by the Phoenix TOC pertains to areas outside the I-40 Corridor. For this reason, the Phoenix TOC workstation entries have not been included in this analysis.

Table 1 presents HCRS entries by ITIS category for the period June 1998 - March 1999, for the 16 HCRS workstations that have been identified as I-40 Corridor workstations for the purposes of this analysis. Table 1 indicates that most (77%) of the advisories posted to the HCRS pertain to either lane restrictions or road closures. In practice, both types of information are often associated with construction activities. Ten percent of the advisories posted to the HCRS pertained to road conditions. Information related to level of service (congestion), incidents, travel time and weather together account for less than 13% of the HCRS inputs. Table 1 also shows that the vast majority (97%) of HCRS inputs were made by the three ADOT Districts located within the I-40 Corridor.

Table 2 presents HCRS entries by month for June 1998 - March 1999. Overall, use of the HCRS system was relatively static. Table 2 does not indicate that the usage of the HCRS system increased during the winter months (October - March), the time when weather conditions are worst and the need for traveler advisories would appear to be greatest. One possible explanation for this finding is that the entries for June and July are artificially increased, reflecting testing of the system and initial experimentation by the workstation operators. Under this scenario, if the numbers for August and September are used to represent the summer months, use of the system did increase about 20% during the winter months.

TABLE 1
HCRS EVENT ENTRIES BY ITIS CATEGORY - June 1, 1998- March 31, 1999

	Inputs by International Traveler Information Interchange Standard (ITIS) Category																					
HCRS Client Workstation	1 - Level of Service	2 - Incidents/Accidents	3 - Closures	4 - Lane Restrictions	5 - Road Maintenance	6 - Obstructions Hazards	7 - Road Conditions	8 - Weather	9 - Winds	10 - Environment	11 - Temperature	12 - Activities	13 - Delays/Cancellations	14 - Dangerous Vehicles	15 - Exceptional Loads	16 - Trafic Equipment Status	17 - Traffic Regulations	18 - Headways	19 - Travel Times	20 - Parking	21 - Information	**Total**
Bullhead City 911 Operators	1	1																			2	4
National Weather Service																						0
Arizona Department of Public Safety - Flagstaff Dispatch		1																				1
Grand Canyon National Park																					1	1
Navi-Hopi Tours																					6	6
Apache-Sitgreaves National Forest																					3	3
CALTRANS	1	1	2																		8	12
New Mexico DOT																						0
Utah DOT																					8	8
Nevada DOT				1																	4	5
Navajo Nation DOT																						0
Winslow Chamber of Commerce																						0
Arizona DOT - Flagstaff Traffic Operations Center	5	10	11	386	82	1	126	6		7			1		2						3	640
Arizona DOT - Kingman Traffic Operations Center	12	22	41	130	371	5	7	1		2			2								2	595
Arizona DOT - Holbrook Traffic Operations Center	2	9	12	146	79	1	27	3	2				3									284
Arizona Department of Emergency Management																						0
Total	21	44	66	663	532	7	160	10	2	9	0	0	6	0	2	0	0	0	0	0	37	1,559

Note: Each HCRS event entry identifies a specific condition, such as "incident/accident", occurring on a specific portion of a specific roadway for a specified duration. Each event is reported through the ADOT phone system and web site user interfaces.

TABLE 2

HCRS EVENT ENTRIES BY MONTH - JUNE 1, 1998 - MARCH 31, 1999

	Inputs by Month										
HCRS Client Workstation	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	**Total**
Bullhead City 911 Operators		4									4
National Weather Service											0
Arizona Department of Public Safety - Flagstaff Dispatch				1							1
Grand Canyon National Park		1									1
Navi-Hopi Tours	5					1					6
Apache-Sitgreaves National Forest	3										3
CALTRANS	8								4		12
New Mexico DOT											0
Utah DOT					8						8
Nevada DOT					5						5
Navajo Nation DOT											0
Winslow Chamber of Commerce											0
Arizona DOT - Flagstaff Traffic Operations Center	89	93	21	81	76	60	136	14	16	54	640
Arizona DOT - Kingman Traffic Operations Center	76	65	51	35	57	61	68	36	48	98	595
Arizona DOT - Holbrook Traffic Operations Center	74	42	30	19	23	38	20	6	3	29	284
Arizona Department of Emergency Management											0
Total	255	205	102	136	169	160	224	56	71	181	1,559

Note: Each HCRS event entry identifies a specific condition, such as "incident/accident", occurring on a specific portion of a specific roadway for a specified duration. Each event is reported through the ADOT phone system and web site user interfaces.

Private Partner

The private partner portion of the TTIS consists of a travel planning web site and several kiosks. These systems were developed, marketed, implemented and are operated by Castle Rock Consultants. The kiosks provide free Internet access to the travel planning site, "Arizona TripUSA" (arizona.tripusa.com), and pay access to e-mail and other Internet sites at the cost of 25 cents per minute. Three kiosks have been deployed: at the Flagstaff Visitors Center, Meteor Crater (a commercially operated attraction located in the eastern portion of the corridor along I-40) and the Flagstaff KOA Campground. Both the web site and kiosk are envisioned as financially self-supporting using revenues from kiosk Internet access, advertisements and web page development services. A Castle Rock summary of their TTIS effort, including example web site page views and lessons learned is included in Appendix A.

The Arizona TripUSA web site generally includes only information relevant to Northern Arizona (I-40 Corridor), although it does include a few links to Phoenix area information. The information provided by the site consists entirely of links to other web sites, with the exception of five page views of "advertorials" (described below). The links information is organized into the following four categories:

- Lodging
- Restaurants
- Travel conditions
- Attractions/Activities
- General Information

From the home page, the user may go directly into any of these categories to receive information relevant to all of Northern Arizona, or click on one of five subregions shown on a map to receive information for a specific Northern Arizona subregion. If a subregion is selected, an "advertorial" is displayed highlighting some of the destinations within the subregion, along with buttons for the same five categories of information noted above. When selected, these buttons present links to other sites specific to the subregion.

From both the home page and the subregions, the "travel conditions" section includes a link to the HCRS (closures) map portion of the ADOT web site. For the home page only, this section also includes links to four other travel information sites: ADOT traffic cameras for the Phoenix region, Channel 5 (Phoenix), Rand McNally Statewide Road Maintenance Information and the Weather Channel.

Table 3 identifies the type and amount of information accessible through the Arizona TripUSA web site.

TABLE 3. PRIVATE WEB SITE INFORMATION

Portion of the Web Site	Type of Information					
	Number of Links to Other Web Sites [1]					
	Lodging	Restaurants	Travel Conditions [5]	Attractions/ Activities	General Info	Number of Advertorials [2]
Home Page [3]	14	3	5	14	19	0
Subregional Pages [4]						
North	22	4	1	35	8	1
East	7	1	1	11	6	1
South	13	4	1	16	3	1
West	6	3	1	11	2	1
Central	55	10	1	31	4	1
Subtotal (subregions)	103	22	5	104	23	4
Site Total	117	25	10	118	42	4

(1) With the exception of the advertorials, the information presented on the site consists of links to other web sites.
(2) Each advertorial describes two or three destinations and includes links to them.
(3) Contains information for all of Northern Arizona.
(4) Contains information for subregions within Northern Arizona.
(5) From both the home page and the subregions, includes a link to the HCRS (closures) map portion of the ADOT web site. For the home page only, includes links to four other travel information sites: ADOT traffic cameras for the Phoenix region, Channel 5 (Phoenix), Rand McNally Statewide Road Maintenance Information and the Weather Channel.

1.1.2 Information Dissemination

The various TTIS user interfaces came on-line at various intervals, starting in 1997 and continuing through the main survey test in August 1998. Table 4 identifies when the individual TTIS user interfaces came on-line.

TABLE 4. USER INTERFACE DEPLOYMENT STATUS

User Interface	Operating Since
Phone System	March 1998
ADOT Web Site	October 1997
Private Web Site	June 1998
ADOT Kiosks	
Flagstaff - Little America Truck Stop	Late June 1998
Kingman - Port of Entry	Late June 1998
Lupton - Painted Cliffs Welcome Center	Late June 1998
Williams - Visitor Center	January 1999
Private Kiosks	
Flagstaff Visitor Center	Mid-July 1998
Flagstaff KOA Campground	Mid-July 1998
Grand Canyon Railroad Depot	December 1998
Grand Canyon Valle Airport	November 1998
Havasu English Village	November 1998
Meteor Crater	Mid-July 1998(1)
Variable Message Signs (5)	Early June 1998

(1) Moved to Grand Canyon Valle Airport in October 1998.

Tables 5 through 16 present information summarizing the utilization of the various TTIS user interfaces over the period June 1 through March 1999. In the case of variable message signs, only the content and availability of the information is documented, since the number of travelers who actually observed the various messages is unknown.

Variable Message Signs

ADOT has installed, and continues to add, permanent roadside electronic variable message signs throughout Arizona. Five of these signs located in the I-40 Corridor were identified by ADOT as part of the TTIS. Two of the signs are located on I-40 to the east and to the west of Flagstaff, facing travelers headed toward Flagstaff. One sign is located on I-17 south of Flagstaff, facing travelers headed toward Flagstaff. The other two signs are located at the far western end of the corridor to the west and northwest of Kingman on US 93 and SR 68, facing

travelers headed east.

Table 5 categorizes the messages displayed on the five TTIS variable message signs during the period June 1998 through March 1999, by IT IS code. It should be noted that the categories have been assigned by the author and that some messages could be placed in any of several possible categories. Table 6 identifies the content and timing of individual messages.

Table 5 indicates that road closures, almost always related to weather/pavement conditions, and weather/pavement condition advisories were the most common types of messages displayed, accounting for 57% of the messages displayed. Messages related to roadway congestion and delays accounted for 12% of the messages displayed.

Table 6 indicates that the usage of the signs varied considerably by location, ranging from 41 days (13% of the total) with at least one message displayed to 277 days (91% of the total), out of a possible 304 days over the period June 1, 1998 - March 31, 1999.

TABLE 5. VMS MESSAGES BY SUBJECT, JUNE 1998-MARCH 1999

Message Subject	Number of Messages	Percentage of Total Messages
Wildlife	1	1%
Environment (e.g., fire danger, pavement conditions))	26	38%
Road Maintenance	4	6%
Incidents/Accidents	5	7%
Level of Service (congestion)	8	12%
Information	7	10%
Closures	13	19%
Public Service	5	7%
TOTAL	**69**	**100%**

TABLE 6. VMS MESSAGES DETAIL, JUNE 1998-MARCH 1999

Sign Location	Message	Dates Displayed
I-17 Northbound at McGuireville (MP 297.5)	WATCH FOR ELK NEXT 40 MILES	6/9 - 8/30/98 (8 PM - 8 AM Daily)
	FIRE DANGER VERY HIGH	6/24 - 6/26/98
	ROAD WORK AHEAD LEFT LANE CLOSED XX MILES AHEAD	6/24/98
	FIRE DANGER EXTREME NO CAMPFIRES	7/1 - 7/5/98
	ACCIDENT AHEAD MILEPOST 308 EXPECT DELAYS	7/13/98
	7/28 - 7/30 DAILY SR 179 TO SEDONA ROAD WORK DELAY	7/28 - 7/30/98
	40 MILES AHEAD REDUCE SPEED 25 MPH HEAVY TRAFFIC	9/5 - 9/7/98
	FOG/LOW VISIBILITY AHEAD DRIVE WITH CARE	10/21/98, 11/28/98
	ICY SPOTS AHEAD DRIVE WITH CARE	10/26/98, 12/5-12/7/98, 12/21/98
	ICY ROAD USE CAUTION	11/9/98, 11/11/98, 1/27/99, 2/4/99, 2/10/99, 3/8/99, 3/16/99
	I-17 NORTH CLOSED AT SONEMAN LAKE	12/6/98
	SNOW PACKED ROADS AHEAD HEAVY TRAFFIC	12/6/98
	SNOW PACKED ROADS AHEAD USE CAUTION	12/6/98
	PLEASE - PLEASE DON'T DRINK AND DRIVE	12/23/98-1/4/99
	CAUTION, HEAVY FOG HEAVY SNOW 10 MILES AHEAD	3/7/99
	HIGH WIND ALERT USE CAUTION	3/31/99
	I-40 CLOSED EASTBOUND FROM FLAGSTAFF. HIGH WIND ALERT I-40 WEST TO KINGMAN	3/31/99
	Total # (and %) of days with at least one message displayed = 114 (38%) (out of possible 304 days over period June 1998-March 1999)	

TABLE 6. VMS MESSAGES DETAIL, JUNE 1998-MARCH 1999 (Continued)

Sign Location	Message	Dates Displayed
I-40 Eastbound at Ashfork (MP 144)	FIRE DANGER VERY HIGH	6/24 - 6/26/98
	FIRE DANGER EXTREME NO CAMPFIRES	7/1 - 7/5/98
	FOG/LOW VISIBILITY AHEAD DRIVE WITH CARE	10/21/98
	ACCIDENT AHEAD MILEPOST 151 ROADWAY CLOSED	10/25/98
	ICY SPOTS AHEAD DRIVE WITH CARE	10/30-10/31/98, 11/9/98, 11/11-11/12/98, 12/5-12/7/98, 12/21/98, 1/27/99, 2/4/99, 2/5-2/6/99, 2/10/99, 3/7-3/8/99
	PLEASE-PLEASE DON'T DRINK AND DRIVE	12/23/98-1/4/99
	NO OVERSIZE LOADS AHEAD ICE ON ROADWAY AHEAD USE CAUTION	2/5/99, 3/17/99
	HIGH WIND ALERT USE CAUTION	3/31/99
	ROAD CLOSED AHEAD ALL VEHICLES MUST EXIT AT EXIT 201.1	3/31/99
	I-40 CLOSED AT FLAGSTAFF USE I-17	3/31/99
	Total # (and %) of days with at least one message displayed = 41 (13%) (out of possible 304 days over period June 1998-March 1999)	
I-40 Westbound at Winona (MP 211.9)	FIRE DANGER VERY HIGH	6/24 - 6/26/98
	FIRE DANGER EXTREME NO CAMPFIRES	7/1 - 7/5/98
	SR 89A CLOSED AT MILE POST 528 ACCIDENT	10/9/98
	FOG/LOW VISIBILITY AHEAD DRIVE WITH CARE	10/21/98
	ICE ON ROADWAY AHEAD USE CAUTION	10/31/98, 11/9/98, 11/11-11/12/98, 12/5-12/7/98, 12/21/98, 1/27-1/28/99, 2/5-2/6/99, 2/10/99, 3/7-3/8/99, 3/17/99
	PLEASE-PLEASE DON'T DRINK AND DRIVE	12/23/98-1/4/99
	NO OVERSIZE LOADS AHEAD ICE ON ROADWAY AHEAD USE CAUTION	2/5/99
	WARNING BLACK ICE AND FOG NEXT 50 MILES	2/6/99
	HIGH WIND ALERT USE CAUTION	3/31/99
	Total # (and %) of days with at least one message displayed = 40 (13%) (out of possible 304 days over period June 1998-March 1999)	

TABLE 6. VMS MESSAGES DETAIL, JUNE 1998-MARCH 1999 (Continued)

Sign Location	Message	Dates Displayed
US 93 Southbound, northwest of Kingman (MP 66.8)	DELAYS SR 68 MP 4 TO 8.4 6A TO 7PM	6/17-6/19/98
	PORT OF ENTRY NEXT RIGHT ALL TRUCKS EXIT	6/22 - 7/21/98
	ACCIDENT AHEAD BE PREPARED TO STOP	6/23/98
	KINGMAN TRAFFIC USE SECOND EXIT	7/21/98
	TRUCK TRAFFIC USE SECOND EXIT	7/22/98
	TRUCK TRAFFIC EXIT SR 68 TO PORT OF ENTRY	7/23 - 9/1/98
	ACCIDENT AHEAD US 93 SOUTH AT MP 68 EB, RT LANE CLOSED	7/23/98
	US 93 CLOSED 30 MIN MP69-71	9/1/98, 9/3 - 9/8/98, 9/10/98, 9/15 - 9/16/98
	EXPECT DELAYS MP 68 TO 71 US 93 COYOTE PASS	9/14/98
	US 93 ROAD CONSTRUCTION AHEAD SPEED LIMIT 35	9/17 - 9/25/98 9/29-10/13/98, 10/16/98, 10/21/98, 10/26-11/9/98, 11/12-11/20/98, 11/24-11/30/98, 12/3-12/21/98, 1/5-2/8/99, 2/16-3/31/99
	BLASTING MP 69 MONDAY 6:00 PM EXPECT DELAYS	9/25 - 9/28/98
	US 93 CLOSED 5:30 PM 1 HR MP 69 MP 71"	10/13-10/15/98, 10/19-10/20/98, 11/9-11/11/98, 11/20-11/24/98, 11/30/98-12/1/98, 12/23/98
	CAUTION CAUTION I-40 EAST OF KGMN SNOW	12/6/98
	I-40 EAST CLOSED AT MILEPOST 71 USE US 93 SOUTH	12/6/98
	ACCIDENT AHEAD US 93 SOUTH MP 135 ROAD CLOSED	12/21/98
	PLEASE - PLEASE DON'T DRINK AND DRIVE SAVE A LIFE DON'T DRINK AND DRIVE	12/23/98-1/4/99
	US 93 DELAYS MP 68 TO MP 70 WED 8P-THUR 6A	2/8/99
	I-40 CLOSED MP 201, HIGH WINDS LOW VISIBILITY	3/31/99
	Total # (and %) of days with at least one message displayed = 266 (88%) (out of possible 304 days over period June 1998-March 1999)	

TABLE 6. VMS MESSAGES DETAIL, JUNE 1998-MARCH 1999 (Continued)

Sign Location	Message	Dates Displayed
SR 68 Eastbound, west of Kingman (MP 26.3)	KINGMAN TRAFFIC USE SECOND EXIT	6/5 - 6/15/98, 6/17 - 9/1/98, 9/9/98, 9/14/98
	US 93 NORTH CLOSED AT HOOVER DAM	6/16/98
	DELAYS SR 68 MP 4 TO 8.4 6A TO 7PM	6/17/98
	US93 CLOSED 30 MIN MP69-71"	9/1/98, 9/3-9/8/98, 9/10/98, 9/15-9/16/98, 10/13-10/15/98, 10/19-10/20/98, 11/9-11/11/98, 11/20-11/24/98, 11/30/98-1/3/99, 2/9/99
	TRUCK TRAFFIC EXIT SR 68 TO PORT OF ENTRY	9/10/98
	TRUCK TRAFFIC USE POE EXIT	9/11/98
	EXPECT DELAYS MP 68 TO 71 US 93 COYOTE PASS	9/14/98
	US 93 ROAD CONSTRUCTION AHEAD SPEED LIMIT 35"	9/17 - 9/21/98, 9/29/98, 10/16/98, 10/21-11/9/98, 11/12-11/20/98, 11/24-11/30/98, 12/3-12/23/98, 1/5-2/8/99, 2/10-3/31/99
	BLASTING MP 69 MONDAY 6:00 PM EXPECT DELAYS	9/25-9/28/98
	CAUTION SNOW 1-40 EAST BOUND STARTING AT MP 80"	12/6/98
	I-40 CLOSED EAST OF KINGMAN SNOW/ICE	12/6/98
	WARNING I-40 EAST ICY ROADS/BRIDGES USE CAUTION	12/6/98
	I-40 EAST CLOSED AT MILEPOST 71 USE US 93 SOUTH	12/6/98
	PLEASE-PLEASE DON'T DRINK AND DRIVE SAVE A LIFE DON'T DRINK AND DRIVE	12/23/98-1/5/99
	I-40 CLOSED MP 201 HIGH WINDS LOW VISIBILITY	3/31/99
	Total # (and %) of days with at least one message displayed = 277 (91%) (out of possible 304 days over period June 1998-March 1999)	

Phone System

The TTIS telephone user interface consists of a menu driven, toll free telephone information line that provides information on state highways and interstate routes throughout Arizona. Callers enter the number of the route they are interested in using the telephone keypad. Callers may enter multiple routes. The information provided through the phone system comes from the HCRS, and is the same information provided on the traffic map on the ADOT and Castle Rock web sites, and accessible via the ADOT and Castle Rock kiosks.

Since the phone system provides information on routes throughout Arizona, the total number of phone calls, or sessions, overstates the I-40 Corridor-oriented usage of the phone system. The number of I-40 Corridor-oriented sessions, i.e., sessions that include a request for information on at least one I-40 Corridor route, is not available. However, the number of I-40 Corridor-oriented sessions has been estimated based on the total number of phone sessions as reported by the project partners. The key calculations underlying the estimation process are summarized in Table 7 and described below.

First, the monthly number of I-40 Corridor-oriented phone sessions was estimated for June - September 1998 by multiplying the number of individual I-40 Corridor-oriented information requests, a number reported by the project partners for the June-September period, by the estimated ratio of information requests to phone sessions. This ratio, approximately 5 requests per session, was obtained from a sample of data for the period August 3-10, 1998. Dividing the known number of I-40 Corridor-oriented information requests by the estimated number of requests per call yielded the estimated number of I-40 Corridor-oriented sessions per month, for June- September. The average percentage of total sessions that were I-40 Corridor-oriented was then calculated for the June-September period and applied to the total phone sessions for the October 1998 - March 1999 period.

TABLE 7. SUPPORTING CALCULATIONS FOR ESTIMATION OF I-40 CORRIDOR-ORIENTED PHONE SESSIONS, JUNE-SEPTEMBER 1998

Type of Session	Number of Sessions by Month				Total
	June	July	Aug	Sept	
I-40 Corridor-Oriented Route Requests	391	1,420	1,102	1,912	4,835
Estimated I-40 Corridor-Oriented Sessions[(1)]	78	284	220	382	964
Total Sessions	609	1,550	1,464	2,938	6,561
Estimated percentage of calls that are I-40 Corridor-Oriented	13	18	15	13	15

Shaded areas are estimated values.

(1) Based on a ratio of approximately 5 route requests per session, observed for the period August 3-10, 1998.

(2) As reported by the project partners.

Table 8 presents estimates of I-40-oriented phone sessions. Table 8 indicates that the total number of phone sessions fluctuates significantly from month to month, ranging from less than 1,000 calls to over 4,400 calls per month. The estimated number of I-40-oriented phone sessions ranges from about 80 to almost 700 phone calls per month. The average number of I-40-oriented calls per day for the period June 1998 - March 1999 is estimated at 13, compared to 84 calls for the entire phone system.

Table 9 presents the number of information requests for individual I-40 routes, for the period June-September 1998. This information is not available for the remainder of the analysis period (i.e., October 1998 - March 1999). Table 9 indicates that I-17 is by far the most requested route on the system with an average of 17 calls per day, followed by US 93 with 11 calls per day and SR 87 with 4 calls per day. As noted above, only a portion of I-17 is located in the I-40 Corridor and many of the calls may have been made by travelers looking for information on other portions of I-17, including the large metropolitan areas that it passes through in the central and southern portions of the state (Phoenix and Tucson). Most of US 93 is located in the I-40 Corridor and is a major route connecting Phoenix and Las Vegas. SR 87 is similar to I-17 in that it includes significant mileage within the I-40 Corridor as well as the area surrounding Phoenix.

TABLE 8. ESTIMATED I-40 CORRIDOR PHONE SESSIONS BY MONTH, JUNE 1998 - MARCH 1999

Type of Session	Month									
	June	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
(Estimated) I-40 Sessions	78	284	220	382	509	386	681	664	273	357

TABLE 9. PHONE SYSTEM INFORMATION REQUESTS FOR I-40 CORRIDOR ROUTES, JUNE-SEPTEMBER 1998

I-40 Corridor Route	Information Requests by Month					
	June	July	Aug	Sept	TOTAL	% of Total
I-17	79	450	771	798	2,098	43%
I-40	45	69	59	123	296	6%
US 93	141	418	100	695	1,354	28%
US 160	1	2	5	3	11	0%
US 180	8	5	3	7	23	0%
US 191	6	5	3	2	16	0%
US 666	0	1	1	4	6	0%
SR 61	2	0	2	1	5	0%
SR 64	0	2	1	10	13	0%
SR 67	1	1	5	2	9	0%
SR 69	3	5	13	22	43	1%
SR 77	8	30	9	36	83	2%
SR 87	30	303	58	91	482	10%
SR 89	27	56	44	55	182	4%
SR 96	2	0	0	0	2	0%
SR 97	0	1	2	0	3	0%
SR 98	1	1	3	0	5	0%
SR 99	1	3	2	2	8	0%
SR 169	1	0	0	3	4	0%
SR 179	1	8	2	6	17	0%
SR 260	21	51	14	51	137	3%
SR 264	2	0	0	1	3	0%
SR 277	9	3	2	1	15	0%
SR 377	2	6	3	7	18	0%
SR 389	0	0	0	2	2	0%
TOTAL I-40 ROUTE REQUESTS	**391**	**1,420**	**1,102**	**1,912**	**4,835**	**100%**

ADOT and Private Web Sites

As with the phone system, the most appropriate measure of web site utilization is "number of sessions (denoted by a log on/log off), which include utilization of I-40 Corridor specific information." Since both the ADOT phone system and web site include information for the entire state of Arizona, qualifying the utilization according to the specific information utilized is essential.

In the case of the ADOT web site, the only I-40 corridor specific information is available on only some of the several subregion detail maps on the statewide HCRS map. So, the ideal measure is the number of sessions which included page views of the portions of the HCRS map covering Northern Arizona. In which case it is necessary to eliminate both the sessions which did not include utilization of the HCRS map, and the sessions which did not utilize the I-40 Corridor portions of the HCRS map. Unfortunately, this data was unavailable for this report. This information will be included in the final evaluation report if possible.

Table 10 presents a surrogate measure of ADOT I-40 Corridor web site utilization: total number of HCRS map "page views" (included views of the portions of the map that do not include I-40 Corridor routes) and total site "page views." Since a user may view many pages during a single session, the number of page views overstates the utilization of the interface. Since many of the page views to the HCRS map may be for areas other than the I-40 Corridor, this measure also overstates the utilization of the I-40 information. Table 10 does indicate that the utilization of the HCRS map accounts for a very small percentage of the total utilization of the site.

A rough estimate of the number of ADOT web site sessions involving utilization of I-40 Corridor information can be made using the data in Table 10. Two estimates have been made, using both optimistic and conservative assumptions, yielding a low-high range of estimated I-40 oriented web sessions. These estimates are shown in Table 11. As indicated in Table 11, the number of I-40 oriented sessions over the period June-September 1998 can be estimated to be between about 3,500 and 11,600, or between 29 and 95 sessions per day.

TABLE 10

ADOT WEB SITE PAGE VIEWS, JUNE 1998 - MARCH 1999

	Number of Page Views by Month										
Portion of the Site Accessed	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**TOTAL**
HCRS Map	5,573	10,641	10,913	7,640	10,521	14,586	27,533	15,394	15,451	18,596	136,848
% of total web site page views	1.8%	2.8%	2.9%	2.1%	2.9%	3.7%	7.4%	3.7%	3.6%	4.0%	3.5%
Overall web site	316,631	376,814	371,774	366,418	357,148	399,420	373,658	417,954	425,203	466,619	3,871,639

TABLE 11. ESTIMATED I-40 CORRIDOR-ORIENTED ADOT WEB SITE SESSIONS, JUNE 1998-MARCH 1999

	Estimated Total I-40 Sessions	Estimated Average I-40 Sessions Per Day
High (optimistic) estimate [1]	68,424	225
Low (conservative) estimate [2]	22,808	75

[1] Assumes an average of 2 page views per session and that every HCRS map user obtains I-40 Corridor information. (The average for the private web site is 5 page views per session).

[2] Assumes an average of 3 page views per session and that half of all HCRS map users obtain I-40 Corridor information.

Table 12 documents utilization of the Northern Arizona traveler information web site operated by the I-40 TTIS private partner. As explained in Section 1.1.1, the entire web site is devoted to information pertinent to the I-40 Corridor. Table 12 indicates that the usage of the private web site increased dramatically over the June 1998 - March 1999 evaluation period, from an average of a few hundred sessions in June to over 15,000 sessions in March. The average number of sessions per day over the entire evaluation period was 246.

TABLE 12
PRIVATE WEB SITE SESSIONS,
JUNE 1998 - MARCH 1999

	Month									
	June	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Sessions	423	4,333	4,148	6,421	7,826	7,118	7,723	10,684	10,367	15,106

ADOT and Private Kiosks

Table 13 presents the number of user sessions by month for each of the ADOT kiosks. As explained in the footnotes to Table 13 data is not available for some kiosks and time periods either because the kiosk was not operational or because usage data was unavailable. Over the course of the ten-month evaluation period, nearly 4,000 user sessions occurred on the four ADOT kiosks. Usage of the individual kiosks ranged from an average of 3 sessions per day (Kingman Port of Entry) to 29 sessions per day (Flagstaff Little America Truck Stop). The overall average number of sessions per day for all of the kiosk sites was 9.

Table 14 presents the number of user sessions by month for each of the privately operated kiosks. Over the course of the ten-month evaluation period, nearly 5,000 user sessions occurred on the five kiosks. Usage of the individual kiosks ranged from an average of two sessions per day (Meteor Crater and Grand Canyon Valle Airport) to 12 sessions per day (Flagstaff Visitor Center). The overall average number of sessions per day for all of the kiosk sites was 7.

TABLE 13

ADOT KIOSK SESSIONS BY MONTH, JUNE 1998 - MARCH 1999

	Month										
Kiosk	**Jun**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**TOTAL**
Flagstaff - Little America Truck Stop											
# days operating									26	19	**45**
# of sessions (sessions/operating day)									689 (27)	651 (34)	**1,340 (29)**
Lupton - Painted Cliffs Welcome Center											
# days operating	13	29	31	30	31	26	29	5			**194**
# of sessions (sessions/operating day)	245 (19)	147 (5)	306 (10)	253 (8)	267 (9)	334 (13)	186 (6)	19 (4)			**1,757 (9)**
Williams - Visitor Center											
# days operating								2	26	30	**58**
# of sessions (sessions/operating day)								14 (7)	197 (8)	179 (6)	**390 (7)**
Kingman - Port of Entry											
# days operating	9	13	19	14	10	15	8	12	26	28	**154**
# of sessions (sessions/operating day)	19 (2)	38 (3)	62 (3)	67 (5)	45 (5)	44 (3)	22 (3)	29 (2)	72 (3)	93 (3)	**491 (3)**
TOTAL											
# of sessions (sessions/operating day)	**264 (12)**	**185(4)**	**368 (7)**	**320 (7)**	**312 (8)**	**378 (9)**	**208 (6)**	**62 (3)**	**958 (12)**	**93 (12)**	**3,978 (9)**

= kiosk not installed, inoperable or data unrecoverable

Notes: 1. The Flagstaff kiosk operated intermittently between June 1998 and January 1999. The hard drive failed in late January and usage data for June-January were lost.

2. The Lupton kiosk was operational for the entire period June - March, but usage statistics for February and March could not be recovered due to communications systems problems.

3. The Williams kiosk was installed in became operational in January 1999.

TABLE 14

PRIVATE KIOSK SESSIONS BY MONTH, JUNE 1998 - MARCH 1999

	Month										
Kiosk	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**TOTAL**
Flagstaff Visitor Center											
# days operational		15	29	30	31	30	31	31	27	31	**255**
# of sessions (sessions/operating day		361 (24)	265 (9)	486 (16)	576 (19)	391 (13)	353 (11)	262 (8)	203 (8)	265 (9)	**3162 (12)**
Flagstaff KOA Campground											
# days operational		15	29	30	31						**105**
# of sessions (sessions/operating day		146 (10)	173 (6)	59 (2)	22 (1)						**400 (4)**
Meteor Crater											
# days operational		8	12	10	15						**45**
# of sessions (sessions/operating day		18 (2)	36 (3)	34 (3)	22 (2)						**110 (2)**
Grand Canyon Valle Airport											
# days operational						30	31	31	28		**120**
# of sessions (sessions/operating day						78 (3)	49 (2)	19 (1)	40 (1)		**186 (2)**
Havasu English Village											
# days operational						16	22	20	26		**84**
# of sessions (sessions/operating day						191 (12)	64 (3)	140 (7)	197 (8)		**592 (7)**
Grand Canyon RR Station											
# days operational							8	28	26		**62**
# of sessions (sessions/operating day							54 (7)	79 (3)	274 (11)		**407 (7)**
TOTAL											
# of sessions (sessions/operating day		**525 (14)**	**474 (70)**	**579 (8)**	**620 (77)**	**660 (9)**	**520 (6)**	**500 (5)**	**714 (7)**	**265 (9)**	**4,857 (7)**

= kiosk not installed, inoperable or data unrecoverable

Notes: 1. For March 1999, the only usage data available was that from the kiosk that is owned by the private partner.

2. The Flagstaff KOA Campground kiosk is disconnected during the slow season (winter)

3. The Meteor Crater kiosk was moved to Grand Canyon Valle Airport on October 15, 1999.

Summary - Information Dissemination (All User Interfaces)

Table 15 summarizes utilization of each of the TTIS user interfaces. Table 14 indicates that cumulatively, the I-40 TTIS user interfaces average 52 sessions per day of operation. The web sites were by far the most utilized interfaces, accounting for approximately 64 percent of total sessions.

TABLE 15. SUMMARY OF ESTIMATED USER INTERFACE UTILIZATION, JUNE 1998-MARCH 1999

User Interface	Estimated Total Sessions	Estimated Average Sessions Per Operating Day
Phone System (Estimated)	3,833	13
Web Sites (Estimated)	22,808	75
Kiosks	8,835	8
TOTAL	**35,476**	**52**

1.2 OPERATIONAL STATUS DURING SURVEYS

1.2.1 User Interfaces

As indicated in Table 16, by the time of the main survey test all of the user interfaces were operational. However, not all of the individual kiosk units were installed, and some kiosk locations were not functioning during the times when survey crews were on-site.

During the pilot survey, all of the user interfaces were operational with the exception of the kiosks, several of which came on-line over the weeks preceding the August main survey session. By the main survey session, all of the user interfaces were operational, although some individual kiosk locations had not been installed.

Although the Flagstaff Visitor Center and Little America Truck Stop kiosks were operational during portions of the week of the main survey, these kiosks were not operating on the day when survey crews were present at those sites. As a result, the evaluation team was unable to observe and interview kiosk users during the main survey session. Interviews with Flagstaff Visitor Center kiosk users were made during a return trip on October 16, 1998.

TABLE 16. USER INTERFACE DEPLOYMENT STATUS DURING TOURIST SURVEYS

User Interface	Operational Status		Operating Since
	Pilot Survey (June 15-20, 1998)	Main Survey (Aug. 3-10, 1998)	
Phone System	X	X	March 1998
ADOT Web Site	X	X	October 1997
Private Web Site	X	X	June 1998
ADOT Kiosks			
Painted Cliffs Welcome Center		X	Late June 1998
Little America Truck Stop		X	Late June 1998
Kingman Port of Entry		X	Late June 1998
Private Kiosks			
Flagstaff Visitor Center		X	Mid-July 1998
Meteor Crater		X	Mid-July 1998
Flagstaff KOA Campground		X	Mid-July 1998
Variable Message Signs (5)	X	X	Early June 1998

1.2.2 Information Available

The non-traffic (i.e., traveler services) information available through the private web site was discussed in Section 1.1.1. Traffic information available through the TTIS user interfaces during the week of the main tourist survey consists of the "event" information in the HCRS, which is accessed via the phone and web site, and the messages displayed on the five I-40 Corridor variable message signs.

Table 17 identifies the total number of HCRS event entries on I-40 corridor routes for the week of the main survey, by ITIS category. Table 18 identifies daily HCRS inputs for I-40 corridor routes for the same period.

TABLE 17

HCRS EVENT ENTRIES FOR WEEK OF MAIN SURVEY (AUGUST 3-10, 1998):

BY ROUTE AND ITIS CATEGORY

Route	Level of Service	Incidents/Accidents	Closures	Lane Restrictions	Road Maintenance	Obstruction Hazzards	Traffic Equipment Status	TOTAL
I-17		3		4	1	2		**10**
I-40		9		13	26	1		**49**
US 93	1	1	1	1	4	1		**9**
US 180				3				**3**
US 191				1				**1**
SR 69						2	2	**4**
SR 77				1				**1**
SR 87				5	1			**6**
SR 89	1	1			2	1	1	**6**
SR 169							1	**1**
SR 264				1	1			**2**
TOTAL	**2**	**14**	**1**	**29**	**35**	**7**	**4**	**92**

Note: Each HCRS event entry identifies a specific condition, such as "incident/accident, occurring on a specific portion of a specific roadway for a specified duration. Each event is reported through the ADOT phone system and web site user interfaces.

TABLE 18

HCRS EVENT ENTRIES FOR WEEK OF MAIN SURVEY (AUGUST 3-10, 1998): BY ROUTE AND DAY

	Mon	Tue	Wed	Thur	Fri	Sat	Sun	Mon	
Route	**08/03/1998**	**08/04/1998**	**08/05/1998**	**08/06/1998**	**08/07/1998**	**08/08/1998**	**08/09/1998**	**08/10/1998**	**TOTAL**
I-17				1	7	1	1		10
I-40	8	5	7	6	21	1		1	49
US 93	2	1	2	2		1	1		9
US 180	1		1	1					3
US 191		1							1
SR 69				2	2				4
SR 77			1						1
SR 87	2	2	1	1					6
SR 89					3	1		2	6
SR 169					1				1
SR 264	1		1						2
TOTAL	**14**	**9**	**13**	**13**	**34**	**4**	**2**	**3**	**92**

Note: Each HCRS event entry identifies a specific condition, such as "incident/accident, occurring on a specific portion of a specific roadway for a specified duration. Each event is reported through the ADOT phone system and web site user interfaces.

Table 19 summarizes the message activity on the variable message signs during the week of the main survey test. Two of the signs, I-40 eastbound at Ashfork (mile post 144) and I-40 westbound at Winona (mile post 212.1) were inactive and are not included in Table 19.

TABLE 19. VMS MESSAGES DURING MAIN SURVEY TEST

Sign Location	Message	Duration and Frequency
I-17 Northbound at McGuireville (MP 297.5)	"WATCH FOR ELK NEXT 40 MILES"	8 PM - 8 AM ; 8/3-8/20, 1998
US 93 Southbound, northwest of Kingman (MP 66.8)	"TRUCK TRAFFIC EXIT SR 68 TO PORT OF ENTRY"	Continuous
SR 68 Eastbound, west of Kingman (MP 26.3)	"KINGMAN TRAFFIC USE SECOND EXIT"	Continuous

1.2.3 User Interface Utilization

Table 20 identifies the estimated number of TTIS user interface sessions during the week of the main survey, August 3-10, 1998. As explained in Section 1.1.2, the number of I-40 oriented ADOT web site sessions was estimated based on the estimated percentage of all HCRS map users who obtained I-40 information (50%) and the estimated number of page views per overall session (5 views/session). The number of phone system sessions for the week was estimated based on the total August phone sessions.

TABLE 20. SUMMARY OF ESTIMATED USER INTERFACE UTILIZATION DURING WEEK OF MAIN TOURIST SURVEY

User Interface	Sessions									% of Total
	Mon 8/3	Tue 8/4	Wed 8/5	Thur 8/6	Fri 8/7	Sat 8/8	Sun 8/9	Mon 8/10	TOTAL	
Phone System (estimated) (1)	7	7	7	7	7	7	7	6	55	4%
Web Sites (estimated) (2)	195	153	169	177	202	88	189	211	1,384	%
Kiosks (3)	2	14	14	3	6	11	18	16	84	6%
TOTAL	**204**	**174**	**190**	**187**	**215**	**106**	**214**	**233**	**1,523**	**100%**

(1) Estimated based on the total number of I-40 route requests for the month of August and the average number of routes requested per session.

(2) Consists of estimated I-40 Corridor-oriented ADOT web site sessions and total private web site sessions.

(3) Only includes data for one of the six deployed kiosks.

1.3 COMPARISON TO PREVIOUS SURVEY RESULTS

Two previous surveys were conducted of tourists or highway users in Arizona, the "Arizona Quality Initiative Survey of Highway Users and Community Leaders" and the "Arizona Welcome Center Study." Both of these surveys were conducted for different reasons, and with different methodologies, than the tourist surveys conducted for this evaluation.

The "Arizona Quality Initiative Survey of Highway Users and Community Leaders," or AQI Survey was conducted by the Arizona Department of Transportation in 1997 and was intended to determine the attitudes and opinions of residents and community leaders regarding the state's transportation system. In-depth telephone surveys were conducted between January and March 1997 with 2,035 Arizona residents. As seen in Table 21, the AQI Survey captured a limited amount of information on familiarity and use of ATIS components. This information was compared to the corresponding information from the TTIS Evaluation Survey.

In general, a similar percentage of residents in the AQI survey expressed familiarity with VMS and Internet as did tourists surveyed in the TTIS Evaluation Survey. Some differences were observed between the percentage of tourists that reported use in the TTIS survey and the percentage of residents that reported use in the AQI survey (i.e., a reported higher usage by respondents in the AQI survey). However, it should be noted that the AQI survey did not ask about actual use, rather, respondents were asked to determine their "likely use." Table 22

summarizes the percentages of respondents from each survey reporting familiarity and use of ATIS components.

TABLE 21. COMPARISONS BETWEEN TTIS SURVEY AND ARIZONA QUALITY INITIATIVE SURVEY

Comparison	TTIS Evaluation Survey Question [1]	AQI Survey Question [1][2]
Familiarity - Awareness of ITS	- Before you left on your trip, were you aware of a telephone information line or an I-40 Internet site? - While driving in Arizona on I-40 or I-17, were you aware of kiosks or variable message signs?	Are you very familiar, somewhat familiar or not familiar with variable message signs and the Internet?
Use of ITS	- Did you actually use the toll-free telephone number? - Did you actually visit or use the web site? - Did you actually use one of those kiosks? - Did you use a highway advisory radio message?	Would you be very likely, somewhat likely, or not likely to use each of the following methods to get road and weather information in Arizona (including a toll-free telephone line, the Internet and a kiosk at a local mall)?

[1] Questions have been paraphrased for brevity.

[2] Question numbers refer to the table number in the July 1997 Final Report.

TABLE 22. COMPARISON OF FAMILIARITY AND USE OF ATIS COMPONENTS WITH AQI SURVEY

ATIS Component	Survey	
	TTIS Evaluation Survey	AQI Survey
Familiarity		
VMS	55%	73%
Internet	24%	24%
Use		
Radio	13%	39%
Telephone	5%	41%
Web Site	12%	12%
Kiosk	3%	7%

The Arizona Office of Tourism conducted a study of visitors to the Painted Cliffs Welcome Center, located along I-40 near the New Mexico Border. A kiosk is being deployed at this same location as part of the TTIS. A total of 1,059 travel parties that stopped at the Welcome Center completed a one-page survey and were given a travel diary to complete and return. In addition, 321 surveys were conducted at other locations along I-40, including one location where TTIS surveying is planned: the Petrified Forest National Park.

As shown in Table 23, the demographic characteristics of respondents in the TTIS Evaluation Survey were similar to those surveyed during the Arizona Welcome Center Survey. Further, roughly similar percentages of tourists reported use of the radio as an information source during their travel. However, a higher percentage of tourists reported using VMS as information sources in the TTIS Evaluation Survey than tourists surveyed as part of the Arizona Welcome Center Survey. This result indicates that the deployment of additional VMS signs as part of the FOT has had a subsequent impact on the percentage of tourists that use this ATIS component for information.

TABLE 23. COMPARISON OF DEMOGRAPHICS AND USE OF ATIS COMPONENTS WITH ARIZONA WELCOME CENTER SURVEY

Characteristic	**Survey**	
Demographics	**TTIS Evaluation Survey**	**Welcome Center Survey**
Gender		
Male	51%	56%
Female	49%	44%
Education		
Less than College	18%	26%
Some College	82%	74%
Information Sources Used During Trip		
Radio	13%	7%
VMS	30%	3%

2.0 SYSTEM/HISTORICAL DATA ANALYSIS - RESULTS FOR BRANSON TRIP

The objectives of the System/Historical Data Test are three-fold:

1. To document the functioning of the data collection and information dissemination functions of the TRIP. This will be done by presenting statistics documenting the type of information that has been input to the TRIP, when and by whom, and the use of TTIS user interfaces. If little information is being input to the TRIP, or if the system is not being utilized by travelers, it would suggest that the data collection and information dissemination functions are not being satisfactorily accomplished.

2. To provide a descriptive context for interpretation of traveler survey results, in terms of the information available on the system and the utilization of the system by travelers during the days to aid in the interpretation of the results of other evaluation test. This will be done by providing detailed information on what information was available, and which devices were consulted during the week of the main survey session, September 21-28, 1998.

3. To compare current evaluation results to relevant information collecting through previous, pre-TRIP deployment activities. Since the results of the Branson traveler survey are still being analyzed, this comparison cannot be made for this report of findings.

TRIP system data and survey results are not available for incorporation into this report and therefore the preceding objectives cannot be evaluated. However, information identifying the operational status of the various TRIP user interfaces is included below.

2.1 FUNCTIONING OF DATA COLLECTION AND DISSEMINATION FUNCTIONS

2.1.1 Data Collection

Data was acquired by the TRIP system either through public agency infrastructure and reporting systems, or by the private partner, who operated the web site. Each data collection system is described below.

Public

The data acquired by the public sector Branson TRIP partners was acquired through a network of traffic sensors, two traffic surveillance cameras, from police field reports and from Missouri Department of Transportation, county and local roadway construction reports, and from the privately operated "FORETELL" weather information system. All of this information is compiled and entered into the Branson TRIP central information database, the "Traveler Information Center" (TIC). The TIC computer server is located at the City of Branson Police Department's 911 center and all inputs to the system are made by police department staff. All inputs to the TIC are entered as "situations" via a graphical user interface. All situations are categorized into one of 20 possible "classes," such as "level of service" or "incident."

Table 24 presents TIC situations by class, based on the TIC situations input file provided by the Branson TRIP partners. Only those classes are listed that had situation entries over the time period analyzed (unknown). Table 24 shows that the vast majority of entries, approximately 84% of those in the sample file that was provided, pertain to level of service. Most of the remaining entries pertain to traffic delays. Although not reflected in Table 24, a detailed analysis of the situation entries indicates that nearly all of the "level of service" class of entries pertain to the specific situation phrase "traffic heavier than normal." Nearly all of the traffic congestion related situation entries made to the TIC are made automatically, based on traffic sensor data. In these cases, the TIC system generates an entry automatically based on the sensor data, then requests operator confirmation before entering the situation.

TABLE 24. BRANSON TRIP "TIC" SITUATION ENTRIES

Situation Class	Number of Situations Entered	Percent of Total Entries
Level of Service	487	84%
Road Closure	2	0.3%
Lane Closure	1	0.1%
Skid/Snow Hazards	1	0.1%
Weather Situation	7	1%
Environment	1	0.1%
Activity (e.g. parade, sporting event)	5	1%
Delays	75	13%
Traffic Equipment Status (e.g., lights not working)	1	0.1%
Information (e.g., turn on radio for information)	1	0.1%
TOTAL	**581**	**100%**

Private Partner

The Branson TRIP private partner collects information on lodging, restaurants and attractions and provides this information through the TRIP web site, which is accessed via the TRIP kiosks or from any computer with Internet access. As of March 1999, the private web site, "Branson TripUSA," included the following: a road map with color-coded real-time traffic condition information; a map showing construction activities; several "advertorials (brief descriptions of selected regional attractions); and links to other web sites providing information on lodging (18 links), restaurants (6 links) and attractions (21 links).

2.1.2 Information Dissemination

The various TRIP user interfaces came on-line at various intervals, starting in 1997 and continuing through the main survey test in August 1998. Table 25 identifies when the individual TRIP user interfaces came on-line, including their operational status during the tourist survey sessions in July and September 1998. By the time of the main survey test, all of the user interfaces were deployed and operating, although most of them were not operating fully as intended.

TABLE 25. USER INTERFACE DEPLOYMENT STATUS

User Interface	Operational Status		Operating Since
	Pilot Survey	Main Survey	
Phone System (IVR)		X	Late August 1998
Kiosks Branson Interactive Visitor Center		X	Mid-September
Highway Advisory Radio	X	X	Late July 1998
Changeable Message Signs (2)	X	X	Early July 1998
Web Site		X	Mid-July

Tables 26 and 27 present information summarizing the utilization of the various TRIP user interfaces over the period June 1, 1998 through March 31, 1999.

Phone System (Interactive Voice Response)

The Branson TRIP telephone information system, or "IVR" (Interactive Voice Response), allows travelers to obtain traffic condition information on roads in the Branson area. Callers can either get general area traffic condition information, or by keying in their general origin-destination (e.g., "downtown," "west I-76 area"), can get information on specific routings.

Table 26 presents the number of phone calls by month, for the period September 1998 – March 1999. Use of the phone system was very light over the course of the evaluation period, never averaging more than about 4 calls a day.

TABLE 26. BRANSON TRIP IVR PHONE CALLS, SEPTEMBER 1998 – MARCH 1999

Month	Number of Phone Calls	Average # Calls per Day
September	97	3
October	138	4
November	17	< 1
December	73 (1)	2
January	73 (1)	2
February	8	< 1
March	12	< 1
TOTAL	**418**	**2**

(1) Estimated.

Kiosks

During the evaluation period only one kiosk was deployed, located at a private tourist information storefront office. The business closed in October 1998, after only one month with the kiosk. Usage statistics for the kiosk are not available.

Highway Advisory Radio

Message posting to the highway advisory radio (HAR) system is the responsibility of the operators of the commercial radio station that provides the HAR service. Information on message content and frequency is not available.

Changeable Message Signs

Two portable changeable message signs were deployed on US 65 in early July, to the north and south of interchanges with Highway 76. The portable signs were replaced by permanent units in November 1998, with the portable units to be redeployed along Highway 76. This did not occur within the June 1998 – March 1999 evaluation period. The signs generally only displayed this welcome message advising travelers to tune to the highway advisory radio station for traveler information: "Welcome to Branson; Hope you have a great visit; Tune to radio AM 1610 for traveler info; Have fun!; Brought to you by the Branson TRIP system." The signs also displayed messages indicating the general traffic congestion on Highway 76. The signs did not provide specific alternate route instructions. More detailed information on specific message content and frequency is not available.

Web Site

The web site operated by the Branson TRIP private partner provided traffic information through a color-coded map with icons and included information on lodging, restaurants and attractions. Table 27 presents the number of web site sessions, or the number of times the site was visited, over the period June 1998 – March 1999. The web site was heavily utilized. Over the 10-month evaluation period the web site was visited over 2.2 million times, averaging about 7,500 visits a day. Usage of the web site rose steadily over the course of the evaluation period.

TABLE 27. BRANSON TRIP WEB SITE SESSIONS, JUNE 1998-MARCH 1999

Month	Number of User Sessions	Average Sessions Per Day
June	20,010	667
July	132,153	4,263
August	128,805	4,155
September	193,350	6,445
October	241,676	7,796
November	213,540	7,118
December	226,951	7,321
January	325,996	10,516
February	335,300	11,975
March	462,086	14,906
TOTAL	**2,279,867**	**7,500**

2.2 CONTEXT FOR SURVEY INTERPRETATION

2.2.1 User Interface Operational Status During Surveys

As indicated in Table 24, during the pilot survey, the highway advisory radio and changeable message signs were operating. However, neither was operating fully as intended. The highway advisory radio system provided pre-recorded, basic information on area traffic conditions and routes, but was not providing real-time traffic information and only. The two changeable message signs, both deployed outside the City of Branson on US 65, provided only the same sort of basic information as the radio system. The message signs intended for placement within the City of Branson were not yet installed.

By the time of the main survey session in late September, the changeable message signs and the highway advisory radio system were still not providing real-time information. However, the phone system, web site and kiosks were operating as intended, although only one kiosk had been deployed and it had been operating only a couple of weeks.

2.2.2 User Interface Utilization During Survey Tests

As noted in section 2.1.2, the only data available regarding utilization of the Branson TRIP user interfaces pertains to the phone system and the web site. The phone system was not operational during the first round of surveying in June, and had only just become operational during the second round in late September. The number of phone calls for the week of the September surveying are not available, although it is known that 97 phone calls were made during the entire month. The web site was operational during both the June and September sessions. During the week of the June survey, the web site was visited 1,963 times. During the week of the September survey, the web site was visited 2,326 times.

APPENDIX A:

CASTLE ROCK PROJECT SUMMARY

Final - June 30, 2000