Traveler Information Kiosk Model Deployment Initiative Acceptance Test Plan

Version 1.1

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Acronym List

ATM	Automated Teller Machine
ATMS	Advanced Traffic Management System
ATP	Acceptance Test Plan
BMP	Bit Map Picture
CD-ROM	Compact Disk-Read Only Memory
CPU	Central Processing Unit
FCC	Federal Communications Commission
FM	Frequency Modulation
FMSTIC	FM Subcarrier Traffic Information Channel
GB	Gigabyte
GIF	Graphics Interchange Format
GUI	Graphical User Interface
ITS	Intelligent Transportation Systems
IVN	In-Vehicle Navigation
JPEG	Joint Photographic Experts Group
MB	Megabyte
MHz	MegaHertz
MPH	Miles per Hour
NavTech	Navigation Technologies
NT	New Technology
RAM	Random Access Memory
RFO	Request for Offer
RISC	Reduced Instruction Set Computer
SCSI	Small Computer Systems Interface
SwRI	Southwest Research Institute
TxDOT	Texas Department of Transportation
UL	Underwriters Laboratories

Traveler Information Kiosk System
Acceptance Test Plan

1. Scope

The Traveler Information Kiosk Project involves the development and deployment of interactive traveler information Kiosk Field Units throughout the City of San Antonio. The principal function of these field units is to provide multi-modal traffic information to assist users who travel in San Antonio. Additionally, the project includes the development of a Kiosk Master Computer that provides periodic updates to the multi-modal traffic information. The Kiosk Field Units are deployed to fixed locations such as shopping malls, tourist attractions, or businesses and the Kiosk Master Computer is installed at the TransGuide Operations Center.

The main purpose of the Kiosk System is to provide the public with readily accessible, useful and timely travel information that has been obtained from a variety of sources. Users of the Kiosk System are able to request area maps, route guidance information, real-time travel conditions, weather updates, VIA schedules and fares, and information relating to the San Antonio International Airport.

1.1 Identification

This Acceptance Test Plan (ATP) is developed to provide the acceptance criteria and tests for the Traveler Information Kiosk Project of the Model Deployment Initiative. The basis for the development of this ATP document is the Traveler Information Kiosk Model Deployment Initiative System Design Document, Version 1.0. The ATP is developed for testing the Traveler Information Kiosk applications of the Kiosk Master Computer, Version 1.0 and the Kiosk Field Units, Version 1.0.

1.2 System Overview

The Traveler Information Kiosk System is composed of two primary systems; the Kiosk Master Computer and the Kiosk Field Unit. The Traveler Information Kiosk System was developed to disseminate information from a wide variety of data sources to the traveling public. The Kiosk System provides a focal point for the acquisition of this information and a convenient and easily used medium for its distribution. Users interact with the Kiosk System using touch-screen monitors and are able to request informative computer generated displays as well printed hard copies of the requested information. Figure 1 shows the basic flow of information from the individual data sources to users of the Kiosk System.

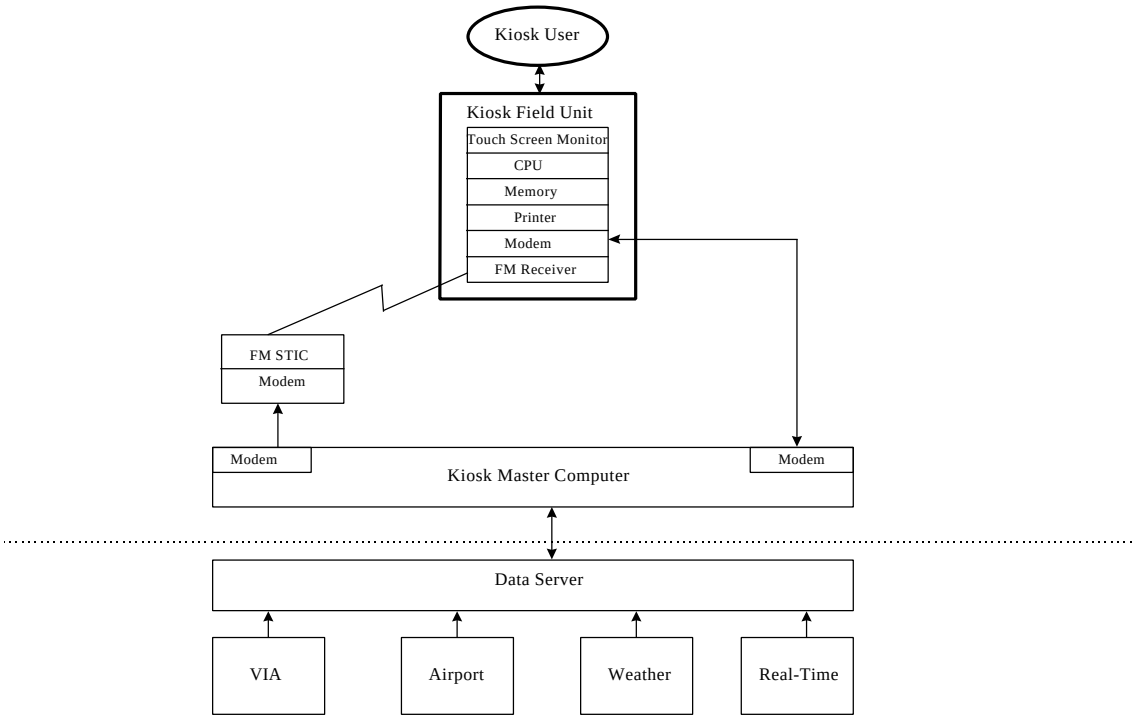

Figure 1. Kiosk System Architecture

1.3 Goals and Objectives

The goal of the Kiosk System is to provide the traveling public with computer generated displays or printed hard copies of the following types of information:

- San Antonio street map,
- route guidance,
- real-time traffic conditions,
- weather,
- VIA, and
- airport.

1.4 Referenced Documents

Southwest Research Institute, *Proposal for the Model Deployment Initiative System Integration*, SwRI Proposal No. 10-20352, December, 1996.

Texas Department of Transportation, *Request for Offer (RFO) for the Model Deployment Initiative System Integration, 60115-7-70030*, Specification No. TxDOT 795-SAT-01, October 1996.

Southwest Research Institute, *TransGuide In-Vehicle Navigation System Design*, February 14, 1997.

Southwest Research Institute, *TransGuide San Antonio Area Wide Database System Design*, February 14, 1997.

Southwest Research Institute, *Traveler Information Kiosk Model Deployment Initiative Preliminary Design Document*, Version 1.0, February 1997.

Southwest Research Institute, *Traveler Information Kiosk Software Development Plan*, Version 1.0, January 1997.

Southwest Research Institute, *Traveler Information Kiosk Model Deployment Initiative System Design Document*, Version 1.0, October, 1997.

Southwest Research Institute, *Data Server Model Deployment Initiative Acceptance Test Plan*, Version 1.0, October, 1997.

2. Acceptance Test Methods and Procedures

This section describes the test methods and procedures for executing the Traveler Information Kiosk ATP. The test cases to be completed during execution of this ATP have been designed to demonstrate that the Traveler Information Kiosk System satisfies the specified requirements. Each of these requirements are further documented in Section 3 in the traceability matrix. For each requirement, the matrix contains traceability information to show the relationship between the requirements and the ATP test cases.

2.1 Test Identification

The ATP is divided into individual test cases that are grouped by function. Each test case will include a synopsis of the function being tested, the requirements being verified, a description of the Kiosk System components and special test configurations, the test protocol, and an appropriate space for recording test results. The tests will be identified with a project unique identifier. This identifier will have the following format:
<System Mnemonic>-<Subsystem Mnemonic>-<Test Number>

System Mnemonic
The system mnemonic uniquely identifies the Traveler Information Kiosk System to distinguish its acceptance tests from the tests of the other systems. The system mnemonic for the Traveler Information Kiosk System is *KSK*.

Subsystem Mnemonic
The mnemonic for each set of subsystem tests are:

PYS - Physical configuration

SU - Start-up procedures

WEA - Weather

AIR - Airport

VIA - VIA Mass Transit

SS - Screen saver

MAP - Map function

ROUTE - Route guidance

MAINT - Maintenance, diagnostics and usage statistics

DEPLOY - Kiosk Field unit deployment

Test Number
The tests are numbered sequentially within a given test.

2.2 Test Case Design

The goal of this ATP is to demonstrate the capability of the Kiosk System in its operational environment and to validate that it meets Texas Department of Transportation (TxDOT) requirements. Test cases contained in this ATP have been derived from the requirements contained in the *Traveler Information Kiosk Model Deployment Initiative Preliminary Design Document.* This "black box" testing strategy is designed to discover faults of omission by identifying which requirements have and have not been fulfilled. Execution of test cases will follow the order defined in the ATP. Individual test cases will be executed during regression testing and deployment of the Kiosk Field Units.

Plausible use testing will be employed to ensure that frequently used operations and scenarios are robust and thoroughly tested. Boundary value analysis will be employed to ensure test cases exercise boundary values within each defined set of input values. The Kiosk System will be tested with real-world data when available.

Test cases will be implemented using one or more of the following qualification methods:

- Inspection. The visual examination of computer code, documentation, hardware, data files, etc.
- Demonstration. The operation of the system, or a part of the system, that relies on observable functional operation not requiring the use of instrumentation, special test equipment, or subsequent analysis.
- Test. The operation of the system, or a part of the system, using instrumentation or other special test equipment to collect data for later analysis.
- Analysis. The process of accumulating data obtained from other qualification methods. Examples are reduction, interpretation, or extrapolation of test results.

2.3 Problem Reporting

Problems detected during execution of the Kiosk ATP will be classified by category as follows:

- Software problem. The software does not operate according to the specified requirements and the requirements are correct.
- Hardware problem. The hardware does not operate according to the specified requirements and the requirements are correct.
- Documentation problem. The software/hardware does not operate according to the specified requirements but the software/hardware operation is correct.
- Design problem. The software/hardware operates according to the specified requirements but a design deficiency exists. The design deficiency may not always result in a direct observable operational problem but possesses the potential for creating further problems.

Problems detected during execution of the Kiosk ATP will be classified by priority as follows:

- Priority 1: A problem that prevents the accomplishment of a specified requirement.

- Priority 2: A problem that results in user/operator inconvenience or annoyance but does not affect a specified requirement.
- Priority 3: Any other effect.

Priority one problems will be resolved prior to acceptance of the ATP. Priority two and three problems will be documented for resolution at a later time. Retesting will consist of repeating a subset of the test cases after software corrections have been made to correct problems found in previous testing. Retesting will be considered complete if the test cases that revealed problems in the previous testing have been repeated and the results have met acceptance criteria, and the test cases that revealed no problems during the previous testing, but tests functions affected by the corrections, have been repeated and the results have met acceptance criteria.

2.4 KSK-PYS

This test verifies physical requirements for the Kiosk System.

2.4.1 Hardware Preparation

- Kiosk Master Computer running in normal operating configuration.
- Kiosk Field Unit(s) running in normal operating configuration.

2.4.2 Software Preparation

Software installed in normal operating configuration.

2.4.3 Other Pre-Test Preparation

None.

2.4.4 Test Descriptions

The following test cases are implemented under this test:

KSK-PYS-1 Verifies physical requirements of the Kiosk Master Computer.
KSK-PYS-2 Verifies the physical requirements for the Indoor Kiosk Field Unit.
KSK-PYS-3 Verifies the physical requirements for the Outdoor Kiosk Field Unit.

2.4.4.1 KSK-PYS-1

This test case verifies the physical requirements for the Master Computer.

2.4.4.1.1 Requirements Addressed

KSK-PY-1 The Kiosk Master Computer shall be a Sun Microsystems Ultra SPARCStation with the following configuration:

- 167 MHZ SPARC (RISC) CPU,
- 4.2 Gigabyte hard disk,
- 128 Megabytes RAM,
- Floppy Disk,
- CD-ROM,
- Turbo GX+ Graphics,
- 20 Inch color monitor,
- 8 port modem server (SCSI) attached,
- Dual Ethernet Interface, and
- Dual SCSI Channels.

2.4.4.1.2 Prerequisite Conditions

- Hardware and software preparation complete.
- Kiosk Master Computer running in normal operating configuration.

2.4.4.1.3 Test Inputs

None.

2.4.4.1.4 Test Results Evaluation

Results will be validated through inspection and demonstration. Since TxDOT procured the Kiosk Master Computer hardware, TxDOT will be responsible for resolving any issues that arise if the equipment does not meet the physical requirements.

2.4.4.1.5 Test Procedure

1. Open a window on the Kiosk Master Computer.

2. Enter the UNIX command *dmesg* in the window.

3. Inspect the output of the command, and verify that the line starting with 'cpu…' specifies a 167MHz SPARC CPU or better.

4. Inspect the same output, and verify that the line starting with 'mem…' specifies at least 128 MB of memory.

5. Login as root, and type the UNIX command *format*. The output of this command lists the existing Hard Disk drive(s). Verify that the size(s) of the disk(s) add up to at least 4.2 GB. Specify a disk drive number as requested by the prompt. Then enter '*quit*' after the format menu has been displayed. (Do NOT format the disk).

6. Enter the UNIX command *prtconf* in the window. Inspect the output of the command, and verify that there are at least 2 SCSI channels (lines that contain the string 'fas').

7. Visually inspect and verify the floppy drive.

8. Visually inspect and verify the cdrom drive.

9. Visually inspect and verify two Ethernet interfaces (one cable for red rail and one cable for blue rail).

10. Visually inspect and verify an attached 8 port modem server (scsi).

11. Visually inspect the monitor and verify that it is a 20" Sun color monitor, or better.

2.4.4.1.6 Assumptions and Constraints

None.

2.4.4.1.7 Test Results

Yes	No	
❒	❒	Is the required hardware present?

❒ PASS **❒ FAIL** **SwRI:_____ Date:_____**

TxDOT:_____ Date:_____

2.4.4.2 KSK-PYS-2

This test case verifies the physical requirements for the Indoor Kiosk Field Units. There are thirty-six (36) Indoor Kiosk Field Units.

2.4.4.2.1 Requirements Addressed

KSK-PY-2 The Indoor and Outdoor Kiosk Field Unit computers shall have, at a minimum, the following configuration:

- Windows 95,
- 120 MHz processor clock speed,
- 32 MB RAM,
- 1.6 GB hard disk drive,
- 3.5 inch 1.44 MB floppy drive,
- 8X CD-ROM drive,
- 1 RS-232 asynchronous communication port,
- 1 bi-directional parallel port,
- 101 key enhanced keyboard,
- 2 button mouse, and
- an internal modem.

KSK-PY-4 The Indoor Kiosk shall include the following:

- Antenna/receiver assembly,
- Processor with keyboard,
- Touch-screen monitor,
- Speakers,
- Printer,
- Power strip,
- Cooling fan,
- UL & FCC certification,
- Rated to operate at an ambient temperature range from 60 to 85 degrees Fahrenheit, and
- Rated to operate at a non-condensing humidity range from 35 to 85 percent relative humidity.

KSK-PY-6 The Indoor Kiosk enclosure shall be rated at the following environment specifications:

- Ambient temperature range of 60 to 85 degrees Fahrenheit and
- Non-condensing humidity range from 35 to 85 percent relative humidity.

2.4.4.2.2 Prerequisite Conditions

- Hardware and software preparation complete.
- Kiosk Field Unit running in normal operating configuration.

2.4.4.2.3 Test Inputs

Supplier documentation.

2.4.4.2.4 Test Results Evaluation

Requirements will be verified through review of vendor supplied documentation and visual

inspection of the Kiosk Field Unit(s).

2.4.4.2.5 Test Procedure

1. Select an Indoor Kiosk Field Unit.
2. Using Factura documentation, verify that the Indoor Kiosk is:
    - UL & FCC certified
    - Rated to operate at an ambient temperature range from 60 to 85 degrees Fahrenheit
    - Rated to operate at a non-condensing humidity range from 35 to 85 percent relative humidity
3. Using Factura documentation, verify that the Indoor Kiosk enclosure is rated at the following environment specifications:
    - Ambient temperature range of 60 to 85 degrees Fahrenheit
    - Non-condensing humidity range from 35 to 85 percent relative humidity
4. Using applicable manufacturer documentation or, through physical inspection, verify that the Indoor Kiosk Field Unit has the following components:
    - Windows 95
    - 120 MHz processor clock speed
    - 32 MB RAM
    - 1.6 GB hard disk drive
    - 3.5 inch 1.44 MB floppy drive
    - 8X CD-ROM drive
    - 1 RS-232 asynchronous communication port
    - 1 bi-directional parallel port
    - Internal modem
5. Open the Indoor Kiosk Field Unit enclosure and verify installation of the following components:
    - Antenna/receiver assembly
    - Processor with keyboard
    - Touch-screen monitor
    - Speakers
    - Printer
    - Power strip
    - Cooling fan
    - 2 button mouse

2.4.4.2.6 Assumptions and Constraints

Kiosk Field Unit were inspected when they arrived from the Kiosk manufacturer.

2.4.4.2.7 Test Results

Yes	No	
❒	❒	Are certificates and rating documentation complete and do they demonstrate compliance to specified requirements?
❒	❒	Is the required hardware present and installed?

❒ PASS ❒ FAIL SwRI:_____ Date:_____

TxDOT:_____ Date:_____

2.4.4.3 KSK-PYS-3

This test case verifies the physical requirements for the Outdoor Kiosk Field Unit. There are four (4) Outdoor Kiosk Field Units.

2.4.4.3.1 Requirements Addressed

KSK-PY-2 The Indoor and Outdoor Kiosk Field Unit computers shall have, at a minimum, the following configuration:

- Windows 95,
- 120 MHz processor clock speed,
- 32 MB RAM,
- 1.6 GB hard disk drive,
- 3.5 inch 1.44 MB floppy drive,
- 8X CD-ROM drive,
- 1 RS-232 asynchronous communication port,
- 1 bi-directional parallel port,
- 101 key enhanced keyboard,
- 2 button mouse, and
- an internal modem.

KSK-PY-5 The Outdoor Kiosk shall include the following:

- Antenna/receiver assembly,
- Processor with keyboard,
- Touch-screen monitor,
- Speakers,
- Printer,
- Modem,
- Heating/cooling system,
- UL & FCC certification,
- Rated to operate at an ambient temperature range from –10 to 115 degrees Fahrenheit, and
- Rated to operate at a non-condensing humidity range from 20 to 100 percent relative humidity.

KSK-PY-7 The Outdoor Kiosk enclosure shall be rated at the following environment specifications:

- Ambient temperature range of –10 to 115 degrees Fahrenheit, and
- Non-condensing humidity range from 20 to 100 percent relative humidity.

2.4.4.3.2 Prerequisite Conditions

- Kiosk Hardware and software preparation complete.
- Kiosk Field Unit running in normal operating configuration.

2.4.4.3.3 Test Inputs

Supplier documentation.

2.4.4.3.4 Test Results Evaluation

Requirements will be verified through review of vendor supplied documentation and visual inspection of the Kiosk Field Unit(s).

2.4.4.3.5 Test Procedure

1. Select an Outdoor Kiosk Field Unit.
2. Using Factura documentation, verify that the Outdoor Kiosk is:
    - UL & FCC certified
    - Rated to operate at an ambient temperature range from -10 to 115 degrees Fahrenheit
    - Rated to operate at a non-condensing humidity range from 20 to 100 percent relative humidity
3. Using Factura documentation, verify that the Outdoor Kiosk enclosure is rated at the following environment specifications:
    - Ambient temperature range of –10 to 115 degrees Fahrenheit
    - Non-condensing humidity range from 20 to 100 percent relative humidity
4. Using applicable manufacturer documentation or, through physical inspection, verify that the Outdoor Kiosk Field Unit has the following components:
    - Window 95
    - 120 MHz processor clock speed
    - 32 MB RAM
    - 1.6 GB hard disk drive
    - 3.5 inch 1.44 MB floppy drive
    - 8X CD-ROM drive
    - 1 RS-232 asynchronous communication port
    - 1 bi-directional parallel port
    - Internal modem
5. Open the Outdoor Kiosk Field Unit enclosure and verify installation of the following components:
    - Antenna/receiver assembly
    - Processor with keyboard
    - Touch-screen monitor
    - Speakers
    - Printer
    - Modem
    - Heating/cooling system
    - 2 button mouse

2.4.4.3.6 Assumptions and Constraints

Kiosk Field Units were inspected when received from the Kiosk manufacturer.

2.4.4.3.7 Test Results

Yes	No	
❒	❒	Are certificates and rating documentation complete and do they demonstrate compliance to specified requirements?
❒	❒	Is the required hardware present and installed?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.5 KSK-SU

This test verifies the startup requirements for the Kiosk System.

2.5.1 Hardware Preparation

- Kiosk Master Computer running in normal operating configuration.
- Kiosk Field Unit(s) running in normal operating configuration.
- Work station with access to the Kiosk Master Computer.

2.5.2 Software Preparation

Software installed in normal operating configuration.

2.5.3 Other Pre-Test Preparation

None.

2.5.4 Test Descriptions

The following test cases are implemented under this test:

KSK-SU-1 Verifies the monitoring of Kiosk applications by the Kiosk System.
KSK-SU-2 Verifies the startup of the Kiosk Field Units.

2.5.4.1 KSK-SU-1

This test case verifies the monitoring and restarting of Kiosk applications by the Kiosk System.

2.5.4.1.1 Requirements Addressed

KSK-FN-10 Kiosk System Startup.
KSK-FN-10.2 The Master Computer subsystem shall provide monitoring and restarting of its applications.

2.5.4.1.2 Prerequisite Conditions

None.

2.5.4.1.3 Test Inputs

None.

2.5.4.1.4 Test Results Evaluation

The Kiosk Master Computer will monitor its applications and restart its applications. Kiosk Master Computer applications include:

- Kiosk
- Heartbeat
- Status Logger
- Data Server Interface
- Field Unit Interface

When the Kiosk Master Computer detects an inactive process it immediately initiates a restart of the process. A change in process time, date, and identification will signify the restarting of a previously inactive process.

2.5.4.1.5 Test Procedure

1. Login to the work station.

2. Open a window on the work station.
3. Move the mouse to the work space.
4. Using the right mouse button, select the Kiosk Process Status GUI from the Work Space Menu.
5. Using the Kiosk Process Status GUI, review the status of the Kiosk Master Computer applications. Note the time, date, and process identification for each process displayed.
6. Open a window on the work station.
7. Enter the command telnet ivn.
8. Enter the command ps -ef | grep kiosk. This command will display all Kiosk processes.
9. Enter the command kill ####. #### represents the process identification.
10. Using the Kiosk Process Status GUI, note the change in date, time, and process identification.

2.5.4.1.6 Assumptions and Constraints

- The Kiosk Master Computer will be unattended.
- A constant power supply is guaranteed.

2.5.4.1.7 Test Results

Yes	No	
❒	❒	Does the Master Computer subsystem provide monitoring and restarting of its applications?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.5.4.2 KSK-SU-2

This test case verifies the startup of the Kiosk Field Unit(s).

2.5.4.2.1 Requirements Addressed

KSK-FN-10 Kiosk System Startup

KSK-FN-10.3 The Kiosk Field Unit subsystem unattended applications shall automatically startup at boot-up.

KSK-FN-10.4 The Kiosk Field Unit subsystem shall provide monitoring and restarting of its applications.

2.5.4.2.2 Prerequisite Conditions

Kiosk Field Unit powered down.

2.5.4.2.3 Test Inputs

None.

2.5.4.2.4 Test Results Evaluation

The Kiosk Field Unit(s) and its applications are expected to startup without error in compliance with referenced requirements. The Kiosk Field Unit applications include:

- Kiosk
- Real-time data process
- Modem communication
- Error logger

2.5.4.2.5 Test Procedure

1. Power-up the Kiosk Field Unit(s).
2. Verify that the Kiosk Field Unit main menu is displayed. This will take approximately ten (10) minutes.
3. Open the Kiosk Field Unit.
4. Press the Windows key on the keyboard.
5. Verify that the Kiosk Field Unit applications are active as displayed at the bottom of the screen. Error logger will be the last process displayed.
6. Using the mouse, select the modem communications process.
7. Using the mouse, close the selected process.
8. Wait for approximately ten (10) minutes for the process to restart. An out of service message will be displayed when the process initiates it's restart.
9. Verify that the Kiosk Field Unit main menu is displayed.
10. Press the Windows key on the keyboard.
11. Select shutdown.
12. On the Shutdown menu, select Restart the Computer.
13. Wait for computer to shutdown and reboot.
14. Verify that the Kiosk Field Unit main menu is displayed.
15. Press the Windows key on the keyboard.
16. Verify that the Kiosk Field Unit applications are active as displayed at the bottom of the screen.

2.5.4.2.6 Assumptions and Constraints

- The Kiosk Field Units will be unattended.
- Constant power supply is not guaranteed.

2.5.4.2.7 Test Results

Yes	No	
❒	❒	Did the Field Unit subsystem unattended applications automatically startup at boot-up?
❒	❒	Does the Kiosk Field Unit subsystem provide monitoring and restarting of its applications?

❒ PASS **❒ FAIL** **SwRI:_____ Date:_____**

TxDOT:_____ Date:_____

2.6 KSK-WEA

This test verifies that the Kiosk System is capable of retrieving and displaying weather data. Weather data will consist of the current conditions, a local forecast, and a radar map.

2.6.1 Hardware Preparation

- TransGuide Web Server running in normal operating configuration.
- Data Server running in normal operating configuration.
- Kiosk Master Computer running in normal operating configuration.
- Two (2) Kiosk Field Units running in normal operating configuration.
- Work station with access to the TransGuide Web Server.

2.6.2 Software Preparation

- Test files for the current conditions, a five-day forecast, and a radar map prepared.
- Kiosk software installed in normal operating configuration.
- Netscape Navigator or xv installed on a work station with access to the TransGuide Web Server.

2.6.3 Other Pre-Test Preparation

None.

2.6.4 Test Descriptions

The following test cases are implemented under this test:

KSK-WEA-1 Verifies that the Kiosk System is capable of moving weather data from the weather data source to the Kiosk Field Units.

KSK-WEA-2 Verifies that the Kiosk Field Units have the capability to display and print weather data.

2.6.4.1 KSK-WEA-1

This test case verifies that the Kiosk System is capable of moving weather data from the weather data source to the Kiosk Field Units. Data is retrieved from the weather data source and stored on the Data Server by an application that resides on the Data Server Master Computer. The Kiosk System will transmit weather data from the Data Server to the Kiosk Field Units.

2.6.4.1.1 Requirements Addressed

KSK-IF-1 The Kiosk System shall interface with the Data Server.

KSK-IF-1.1a The Kiosk System shall be capable of submitting the San Antonio area weather conditions to the Data Server.

KSK-IF-1.1b The Kiosk System shall be capable of submitting the San Antonio area weather forecast to the Data Server.

KSK-IF-1.1c The Kiosk System shall be capable of submitting the current San Antonio area radar map to the Data Server.

KSK-IF-1.1d The Kiosk System shall be capable of retrieving the San Antonio area weather conditions from the Data Server.

KSK-IF-1.1e The Kiosk System shall be capable of retrieving the San Antonio area weather forecast from the Data Server.

KSK-IF-1.1f The Kiosk System shall be capable of retrieving the current San Antonio area radar map from the Data Server.

KSK-IF-3 The Kiosk System shall interface with the weather data source.

KSK-IF-3.1a	The Kiosk System shall be capable of retrieving the San Antonio area weather conditions from the weather data source.
KSK-IF-3.1b	The Kiosk System shall be capable of retrieving the San Antonio area weather forecast from the weather data source.
KSK-IF-3.1c	The Kiosk System shall be capable of retrieving the current San Antonio area radar map data from the weather data source.
KSK-IF-7	The Kiosk System shall interface with the Kiosk Field Units.
KSK-IF-7.1a	The Kiosk Master Computer shall be capable of transmitting the San Antonio area weather conditions to the Kiosk Field Units.
KSK-IF-7.1b	The Kiosk Master Computer shall be capable of transmitting the San Antonio area weather forecast to the Kiosk Field Units.
KSK-IF-7.1c	The Kiosk Master Computer shall be capable of transmitting the current San Antonio area radar map data to the Kiosk Field Units.
KSK-FN-2.4	The Kiosk Field Unit's current weather conditions shall be updated when updates are provided by the weather data source.
KSK-FN-2.5	The Kiosk Field Unit's San Antonio area radar map shall be updated when updates are provided by the weather data source.
KSK-FN-2.6	The Kiosk Field Unit's local San Antonio forecast shall be updated when updates are provided by the weather data source.
KSK-FN-6.6	The Kiosk Master Computer shall have the capability to download data and screen saver files.
KSK-FN-6.10	The Kiosk Field Unit diagnostic software shall accept non real-time file updates from the Kiosk Master Computer.

2.6.4.1.2 Prerequisite Conditions

- Test files loaded into temporary directory on TransGuide Web Server.
- Connection to external data source on TransGuide Web Server disabled.

2.6.4.1.3 Test Inputs

Current Conditions	currcond.jpg
Five-day Forecast	fiveday.jpg
Radar Map	radar.jpg

2.6.4.1.4 Test Results Evaluation

Netscape Navigator or xv will be used to examine the weather data test files located on the TransGuide Web Server. An application running on the Data Server will retrieve and store the test files on the Data Server. The Kiosk Master Computer will retrieve the test files and transmit them to the Kiosk Field Unit(s). The weather data files displayed on the TransGuide Web Server and the weather data files displayed on the Kiosk Field Unit(s) will be the same. The Data Server file handling capabilities were verified through the Data Server ATP. Refer to the cross reference matrix located in Section 3 for applicable Data Server test case(s).

2.6.4.1.5 Test Procedure

1. Login to the work station.
2. Enter the command telnet www.
3. Login to the TransGuide Web Server as kiosk.
4. Enter the command netscape -install

5. Examine the test files.
6. Open a window on the work station.
7. Enter the command telnet www.
8. Login to the TransGuide Web Server as weather.
9. Enter the command cd testfiles
10. Enter the command “cp *.* ..” .
11. Allow adequate time for the transfer of files to the Kiosk Field Unit(s). This should occur within ten minutes.
12. Following the Kiosk Field Unit on-screen directions, display the S.A. weather map, five-day forecast, and current conditions.
13. Compare the Kiosk-displayed weather data to the weather data displayed on the TransGuide Web Server.

2.6.4.1.6 Assumptions and Constraints

- Files received from the weather data source are assumed to be Joint Photographic Experts Group (JPEG) format.
- Accuracy of weather data is the responsibility of weather data source.

2.6.4.1.7 Test Results

Yes	No	
❒	❒	Current conditions moved from TransGuide Web Server to the Kiosk Field Unit(s)?
❒	❒	Five-day forecast moved from TransGuide Web Server to the Kiosk Field Unit(s)?
❒	❒	S.A. weather map moved from TransGuide Web Server to the Kiosk Field Unit(s)?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.6.4.2 KSK-WEA-2

This test case verifies that the Kiosk Field Units have the capability to display and print weather data.

2.6.4.2.1 Requirements Addressed

KSK-IF-8	The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.
KSK-IF-8.4	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Weather Display.
KSK-FN-2	The Kiosk System shall display weather data.
KSK-FN-2.1	The Kiosk Field Unit shall display the current San Antonio weather conditions.
KSK-FN-2.2	The Kiosk Field Unit shall display the local San Antonio forecast.
KSK-FN-2.3	The Kiosk Field Unit shall display a San Antonio area radar map.
KSK-FN-8	The Kiosk System shall be capable of printing user selected items.
KSK-FN-8.5	The Kiosk Field Unit shall be capable of printing the local weather conditions, the local forecast, and the radar map.
KSK-FN-9	The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.
KSK-FN-9.1	The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.6.4.2.2 Prerequisite Conditions

- Kiosk Field Unit(s) in normal operating configuration.
- Weather data loaded on Kiosk Field Unit(s).

2.6.4.2.3 Test Inputs

None.

2.6.4.2.4 Test Results Evaluation

Weather data will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may differ in format. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.6.4.2.5 Test Procedure

1. Select WEATHER on Kiosk Field Unit Main Menu.
2. Select HELP button.
3. Verify that help provides information on how to use the currently displayed GUI.
4. Select PREVIOUS SCREEN.
5. Select PRINT button.
6. Verify that the printed image and the image displayed on Kiosk Field Unit are the same.
7. Select CURRENT CONDITIONS.
8. Select HELP button.
9. Verify that help provides information on how to use the currently displayed GUI.

10. Select PREVIOUS SCREEN.
11. Select PRINT button.
12. Verify that the printed image and the image displayed on Kiosk Field Unit are the same.
13. Select PREVIOUS SCREEN.
14. Select FIVE DAY FORECAST.
15. Select HELP button.
16. Verify the help provides information on how to use the currently displayed GUI.
17. Select PREVIOUS SCREEN.
18. Select PRINT button.
19. Verify that the printed image and the image displayed on Kiosk Field Unit are the same.
20. Select PREVIOUS SCREEN.
21. Select MAIN MENU.
22. Enter and then exit CURRENT CONDITIONS and FIVE DAY FORECAST using the MAIN MENU button.

2.6.4.2.6 Assumptions and Constraints

None.

2.6.4.2.7 Test Results

Yes	No	
❒	❒	Are current conditions, five day forecast, and the S.A. weather map displayed?
❒	❒	Do printed images match displayed images?
❒	❒	Does the help provide information on the operation of the Kiosk application?
❒	❒	Does the help provide information on how to use the currently displayed GUI?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.7 KSK-AIR

This test verifies that the Kiosk System is capable of retrieving and displaying airport data.

2.7.1 Hardware Preparation

- Data Server running in normal operating configuration.
- Kiosk Master Computer running in normal operating configuration.
- Two (2) Kiosk Field Units running in normal operating configuration.
- Work station with access to the Kiosk Master Computer.

2.7.2 Software Preparation

Kiosk System software installed in normal operating configuration.

2.7.3 Other Pre-Test Preparation

None.

2.7.4 Test Descriptions

The following test cases are implemented under this test:

KSK-AIR-1	Verifies that the Kiosk System is capable of editing airport data and capable of transmitting airport data to the Kiosk Field Units.
KSK-AIR-2	Verifies that the Kiosk Field Units have the capability to display and print airport data.

2.7.4.1 KSK-AIR-1

This test case verifies that the Kiosk System is capable of editing airport data and is capable of transmitting airport data to the Kiosk Field Units. Data is edited using an application on the Kiosk Master Computer. When airport data is saved it is stored on the Data Server by an application that resides on the Data Server Master Computer. The Kiosk System will transmit airport data from the Data Server to the Kiosk Field Units.

2.7.4.1.1 Requirements Addressed

KSK-IF-4	The Kiosk System shall interface with the airport data source.
KSK-IF-4.1	The Kiosk Master Computer shall be capable of receiving airport terminal, airport rental agency, and airport parking lot data from the airport data source.
KSK-IF-1	The Kiosk System shall interface with the Data Server.
KSK-IF-1.2a	The Kiosk System shall be capable of submitting airline and airport terminal information to the Data Server.
KSK-IF-1.2b	The Kiosk System shall be capable of submitting airport rental agency information to the Data Server.
KSK-IF-1.2c	The Kiosk System shall be capable of submitting airport parking lot information to the Data Server.
KSK-IF-1.2d	The Kiosk System shall be capable of retrieving airline and airport terminal information from the Data Server.
KSK-IF-1.2e	The Kiosk System shall be capable of retrieving airport rental agency information from the Data Server.
KSK-IF-1.2f	The Kiosk System shall be capable of retrieving airport parking lot information from the Data Server.
KSK-IF-7	The Kiosk System shall interface with the Kiosk Field Units.

KSK-IF-7.2a The Kiosk Master Computer shall be capable of transmitting airport terminal data to the Kiosk Field Units.

KSK-IF-7.2b The Kiosk Master Computer shall be capable of transmitting airport rental agency data to the Kiosk Field Units.

KSK-IF-7.2c The Kiosk Master Computer shall be capable of transmitting airport parking lot data to the Kiosk Field Units.

KSK-FN-6.6 The Kiosk Master Computer shall have the capability to download data and screen saver files.

KSK-FN-6.10 The Kiosk Field Unit diagnostic software shall accept non real-time file updates from the Kiosk Master Computer.

2.7.4.1.2 Prerequisite Conditions

None.

2.7.4.1.3 Test Inputs

Airport Terminal	airline.txt
Airport Rental Agency	rental.txt
Airport Parking Lot	parking.txt

2.7.4.1.4 Test Results Evaluation

The addition, deletion, and modification of airport data is done through the Kiosk System Maintenance GUI which resides on the Kiosk Master Computer. A Kiosk System application running on the Data Server will retrieve the airport data files and store them on the Data Server. Airport data files are transmitted to the Kiosk Field Units when saved to the Data Server. The Data Server file handling capabilities were verified through the Data Server ATP. Refer to the cross reference matrix located in Section 3 for applicable Data Server test case(s).

2.7.4.1.5 Test Procedure

1. Login to the work station.
2. Move the mouse to the work space.
3. Using the right mouse button, select the Kiosk System Maintenance GUI from the Work Space Menu.
4. Select File.
5. Select Tables.
6. Select Airline.
7. Select Edit.
8. Select Add.
9. Modify airline data.
10. Select File.
11. Select Save.
12. Select File.
13. Select Tables.

14. Select Rental Cars.
15. Select Edit.
16. Select Add.
17. Modify rental car data.
18. Select File.
19. Select Save.
20. Select Airport Parking.
21. Select Edit.
22. Select Add.
23. Modify airport parking lot data.
24. Select File.
25. Select Save.
26. Select Exit.
27. Allow approximately ten minutes for the Kiosk Field Unit(s) to be updated.
28. Following the on-screen directions, inspect airline, rental car, and parking lot data.
29. Compare airline, rental car, and parking lot data displayed on Kiosk Field Unit and data displayed on Kiosk Master Computer.
30. Verify changes in airline, rental car, and parking lot data.
31. Using steps 1 - 30, add and delete airport data.

2.7.4.1.6 Assumptions and Constraints

None.

2.7.4.1.7 Test Results

Yes	No	
❒	❒	Can airport data be modified using the Kiosk Master Computer?
❒	❒	Is airline data sent to the Kiosk Field Unit(s)?
❒	❒	Is rental car data sent to the Kiosk Field Unit(s)?
❒	❒	Is parking lot data sent to the Kiosk Field Unit(s)?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.7.4.2 KSK-AIR-2

This test case verifies that the Kiosk Field Units have the capability to display and print airport data.

2.7.4.2.1 Requirements Addressed

KSK-IF-8	The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.
KSK-IF-8.3	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Airport Display.
KSK-FN-3	The Kiosk System shall display airport data.
KSK-FN-3.2	The Kiosk Field Unit shall display a listing of local airline names, their phone numbers and the terminal in which they are located.
KSK-FN-3.3	The Kiosk Field Unit shall display a listing of local rental car agencies and their phone numbers located at the San Antonio International Airport.
KSK-FN-3.4	The Kiosk Field Unit shall display a listing of the location and cost of airport parking lots.
KSK-FN-8	The Kiosk System shall be capable of printing user selected items.
KSK-FN-8.4	The Kiosk Field Unit shall be capable of printing the airport information.
KSK-FN-9	The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.
KSK-FN-9.1	The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.7.4.2.2 Prerequisite Conditions

- Kiosk Field Unit(s) in normal operating configuration.
- Airport data installed on Kiosk Field Unit(s).

2.7.4.2.3 Test Inputs

None.

2.7.4.2.4 Test Results Evaluation

Airport data will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may be of a different format. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.7.4.2.5 Test Procedure

1. Select AIRPORT on Kiosk Field Unit Main Menu.
2. Select HELP button.
3. Verify that help provides information on how to use the currently displayed GUI.
4. Select PREVIOUS SCREEN.
5. Select PRINT button.
6. Verify that the printed image and the image displayed on the Kiosk Field Unit are the same.
7. Select AIRLINE CARRIERS.

8. Select HELP button.
9. Verify that help provides information on how to use the currently displayed GUI.
10. Select PREVIOUS SCREEN.
11. Select PRINT button.
12. Verify that the printed data and the data displayed on Kiosk Field Unit are the same.
13. Select PREVIOUS SCREEN.
14. Select RENTAL CARS.
15. Select HELP button.
16. Verify that help provides information on how to use the currently displayed GUI.
17. Select PREVIOUS SCREEN.
18. Select PRINT button.
19. Verify that the printed data and the data displayed on Kiosk Field Unit are the same.
20. Select PREVIOUS SCREEN.
21. Select AIRPORT PARKING.
22. Select HELP button.
23. Verify that help provides information on how to use the currently displayed GUI.
24. Select PREVIOUS SCREEN.
25. Select PRINT button.
26. Verify that the printed data and the data displayed on Kiosk Field Unit are the same.
27. Select PREVIOUS SCREEN.
28. Select MAIN MENU.
29. Exit AIRLINE CARRIERS, RENTAL CARS, and AIRPORT PARKING using the MAIN MENU button.

2.7.4.2.6 Assumptions and Constraints

None.

2.7.4.2.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Field Unit display a listing of local airline names, their phone numbers and the terminal in which they are located?
❒	❒	Does the Kiosk Field Unit display a listing of local rental car agencies and their phone numbers located at the San Antonio International Airport?
❒	❒	Does the Kiosk Field Unit display a listing of the location and cost of airport parking lots?
❒	❒	Do images/data displayed on the Kiosk Field Unit match images/data displayed on the work station?
❒	❒	Does printed images/data match displayed images/data?
❒	❒	Does help provide information on the operation of the Kiosk application?
❒	❒	Does help provide information on how to use the currently displayed GUI?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.8 KSK-VIA

This test verifies that the Kiosk System is capable of retrieving and displaying VIA data.

2.8.1 Hardware Preparation

- VIA NT Server in normal operating configuration.
- Data Server running in normal operating configuration.
- Kiosk Master Computer running in normal operating configuration.
- Two (2) Kiosk Field Units running in normal operating configuration.
- Personal computer capable of displaying VIA test files.

2.8.2 Software Preparation

- Test files prepared.
- Kiosk software installed in normal operating configuration.
- Netscape Navigator or xv installed on work station with access to VIA NT Server.

2.8.3 Other Pre-Test Preparation

None.

2.8.4 Test Descriptions

The following test cases are implemented under this test:

KSK-VIA-1	Verifies that the Kiosk System is capable of retrieving data from the VIA data source and is capable of transmitting VIA data to the Kiosk Field Units.
KSK-VIA-2	Verifies that the Kiosk Field Units have the capability to display and print VIA bus route information.
KSK-VIA-3	Verifies that the Kiosk Field Units have the capability to display and print VIA information.

2.8.4.1 KSK-VIA-1

This test case verifies that the Kiosk System is capable of retrieving data from the VIA data source and is capable of transmitting VIA data to the Kiosk Field Units.

2.8.4.1.1 Requirements Addressed

KSK-IF-1	The Kiosk System shall interface with the Data Server.
KSK-IF-1.3a	The Kiosk System shall be capable of submitting route schedules to the Data Server.
KSK-IF-1.3b	The Kiosk System shall be capable of submitting standard and special fares to the Data Server.
KSK-IF-1.3c	The Kiosk System shall be capable of submitting park & ride locations to the Data Server.
KSK-IF-1.3d	The Kiosk System shall be capable of submitting special bus events and the associated schedules to the Data Server.
KSK-IF-1.3e	The Kiosk System shall be capable of submitting VIA handicapped bus dispatch (VIATrans) services to the Data Server.
KSK-IF-1.3f	The Kiosk System shall be capable of submitting general VIA information to the Data Server.
KSK-IF-1.3g	The Kiosk System shall be capable of submitting graphical displays of selected bus routes data to the Data Server.

KSK-IF-1.3h	The Kiosk System shall be capable of retrieving route schedules from the Data Server.
KSK-IF-1.3i	The Kiosk System shall be capable of retrieving standard and special fares from the Data Server.
KSK-IF-1.3j	The Kiosk System shall be capable of retrieving park & ride locations from the Data Server.
KSK-IF-1.3k	The Kiosk System shall be capable of retrieving special bus events and the associated schedules from the Data Server.
KSK-IF-1.3l	The Kiosk System shall be capable of retrieving VIA handicapped bus dispatch (VIATrans) services from the Data Server.
KSK-IF-1.3m	The Kiosk System shall be capable of retrieving general VIA information from the Data Server.
KSK-IF-1.3n	The Kiosk System shall be capable of retrieving displays of selected bus routes data from the Data Server.
KSK-IF-5	The Kiosk System shall interface with the VIA data source.
KSK-IF-5.1a	The Kiosk Master Computer shall be capable of receiving route schedules from the VIA data source.
KSK-IF-5.1b	The Kiosk Master Computer shall be capable of receiving standard and special fares from the VIA data source.
KSK-IF-5.1c	The Kiosk Master Computer shall be capable of receiving park & ride locations from the VIA data source.
KSK-IF-5.1d	The Kiosk Master Computer shall be capable of receiving special bus events and the associated schedules from the VIA data source.
KSK-IF-5.1e	The Kiosk Master Computer shall be capable of receiving VIA handicapped bus dispatch (VIATrans) services from the VIA data source.
KSK-IF-5.1f	The Kiosk Master Computer shall be capable of receiving general VIA information from the VIA data source.
KSK-IF-5.1g	The Kiosk Master Computer shall be capable of receiving graphical displays of selected bus routes from the VIA data source.
KSK-IF-7	The Kiosk System shall interface with the Kiosk Field Units.
KSK-IF-7.3a	The Kiosk Master Computer shall be capable of transmitting route schedules to the Kiosk Field Units.
KSK-IF-7.3b	The Kiosk Master Computer shall be capable of transmitting standard and special fares, park & ride locations to the Kiosk Field Units.
KSK-IF-7.3c	The Kiosk Master Computer shall be capable of transmitting special bus events and the associated schedules to the Kiosk Field Units.
KSK-IF-7.3d	The Kiosk Master Computer shall be capable of transmitting VIA handicapped bus dispatch (VIATrans) services to the Kiosk Field Units.
KSK-IF-7.3e	The Kiosk Master Computer shall be capable of transmitting general VIA information to the Kiosk Field Units.
KSK-IF-7.3f	The Kiosk Master Computer shall be capable of transmitting graphical displays of selected bus routes data to the Kiosk Field Units.
KSK-IF-7.3g	The Kiosk Master Computer shall be capable of transmitting park & ride locations to the Kiosk Field Units.
KSK-FN-6.6	The Kiosk Master Computer shall have the capability to download data and screen saver files.
KSK-FN-6.10	The Kiosk Field Unit diagnostic software shall accept non real-time file updates from the Kiosk Master Computer.

2.8.4.1.2 Prerequisite Conditions

None.

2.8.4.1.3 Test Inputs

Bus route information	###.txt	Bus route graphics	###.gif
Fare information	FP##.gif	General VIA information	GI##.gif
Special bus events	SE##.gif	Handicapped services	DS##.gif

2.8.4.1.4 Test Results Evaluation

This test case verifies that the Kiosk System is capable of moving VIA data from the VIA NT Server to the Kiosk Field Units. Data is retrieved from the VIA NT Server and stored on the Data Server by an application that resides on the Data Server Master Computer. The Kiosk System will transmit VIA data from the Data Server to the Kiosk Field Units. The Data Server file handling capabilities were verified through the Data Server ATP. Refer to the cross reference matrix located in Section 3 for applicable Data Server test case(s).

2.8.4.1.5 Test Procedure

1. Examine VIA test files on a personal computer.
2. Load test files on 3.5 inch floppy disk.
3. Login to the VIA NT Server.
4. Using the mouse, open the Kiosk folder.
5. Using the mouse, open the data folder.
6. Copy the test files onto the VIA NT Server.
7. Allow adequate time for the transfer of files to the Kiosk Field Unit(s). This should occur within ten minutes.
8. Following the Kiosk Field Unit on-screen directions, display the VIA data.
9. Compare the Kiosk-displayed route information to the bus route information displayed on the VIA NT Server.
10. Compare the Kiosk-displayed bus route graphics to the bus route graphics displayed on the VIA NT Server.
11. Compare the Kiosk-displayed fare information to the fare information displayed on the VIA NT Server.
12. Compare the Kiosk-displayed special bus events to the special bus events displayed on the VIA NT Server.
13. Compare the Kiosk-displayed handicapped services information to the handicapped services information displayed on the VIA NT Server.
14. Compare the Kiosk-displayed general VIA information, including Park & Ride information, to the general VIA information displayed on the VIA NT Server.

2.8.4.1.6 Assumptions and Constraints

- File format is expected to be CompuServe GIF or text.

- Validity of the VIA data is the responsibility of the VIA data source.

2.8.4.1.7 Test Results

Yes	No	
❒	❒	Is bus route information retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Are bus route graphics retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Is fare information retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Are park & ride locations retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Are special bus events retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Are handicapped services retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?
❒	❒	Is general VIA information retrieved from the VIA data source and transmitted to the Kiosk Field Unit(s)?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.8.4.2 KSK-VIA-2

This test case verifies that the Kiosk Field Units have the capability to display and print VIA route information.

2.8.4.2.1 Requirements Addressed

KSK-IF-8	The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.
KSK-IF-8.2	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Transit Display.
KSK-FN-4	The Kiosk System shall display VIA data.
KSK-FN-4.1	The Kiosk Field Unit shall display route schedules and graphical displays of the routes that are available.
KSK-FN-4.2	The Kiosk Field Unit shall provide scheduled times for major bus stops on a selected route.
KSK-FN-8	The Kiosk System shall be capable of printing user selected items.
KSK-FN-8.3	The Kiosk Field Unit shall be capable of printing the transit information.
KSK-FN-9	The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.
KSK-FN-9.1	The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.8.4.2.2 Prerequisite Conditions

- Kiosk Field Unit(s) in normal operating configuration.
- VIA data files loaded on Kiosk Field Unit(s).

2.8.4.2.3 Test Inputs

None.

2.8.4.2.4 Test Results Evaluation

VIA data will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may be of a different format. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.8.4.2.5 Test Procedure

1. Select VIA MASS TRANSIT on Kiosk Field Unit Main Menu.
2. Select HELP button.
3. Verify that help provides information on how to use the currently displayed GUI.
4. Select PREVIOUS SCREEN.
5. Select BUS ROUTE SCHEDULES.
6. Select HELP button.
7. Verify that help provides information on how to use the currently displayed GUI.
8. Select PREVIOUS SCREEN.
9. Select PRINT button.

10. Verify that the printed data and the data displayed on Kiosk Field Unit are the same.
11. Following the on-screen directions, select a bus symbol.
12. Select VIEW ROUTES. A list will appear for multiple routes.
13. Following the on-screen directions, select a route.
14. Select PRINT.
15. Verify that the printed data and the data displayed on Kiosk Field Unit are the same.
16. Select PREVIOUS.
17. Enter and then exit VIA BUS ROUTE SCHEDULES using the MAIN MENU button.

2.8.4.2.6 Assumptions and Constraints

None.

2.8.4.2.7 Test Results

Yes	No	
❒	❒	Are route schedules and graphical displays of the routes that are available displayed?
❒	❒	Are scheduled times for major bus stops on a selected route provided?
❒	❒	Can selected transit information be printed?
❒	❒	Is information on how to use the GUI currently displayed provided?
❒	❒	Is touchscreen interaction for users to interface with the Transit Display provided?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.8.4.3 KSK-VIA-3

This test case verifies that the Kiosk Field Units have the capability to display and print VIA information.

2.8.4.3.1 Requirements Addressed

KSK-IF-8	The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.
KSK-IF-8.2	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Transit Display.
KSK-FN-4	The Kiosk System shall display VIA data.
KSK-FN-4.3	The Kiosk Field Unit shall display a description of standard and special fares.
KSK-FN-4.4	The Kiosk Field Unit shall display a description of park & ride locations.
KSK-FN-4.5	The Kiosk Field Unit shall display a description of special bus events and the associated schedules.
KSK-FN-4.6	The Kiosk Field Unit shall display information about VIA handicapped bus dispatch (VIATrans) services.
KSK-FN-4.7	The Kiosk Field Unit shall display general VIA information.
KSK-FN-8	The Kiosk System shall be capable of printing user selected items.
KSK-FN-8.3	The Kiosk Field Unit shall be capable of printing the transit information.
KSK-FN-9	The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.
KSK-FN-9.1	The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.8.4.3.2 Prerequisite Conditions

Kiosk Field Unit(s) in normal operating configuration.

2.8.4.3.3 Test Inputs

None.

2.8.4.3.4 Test Results Evaluation

VIA data will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may be of a different format. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.8.4.3.5 Test Procedure

1. Select VIA MASS TRANSIT on Kiosk Field Unit Main Menu.
2. Select FARES & PASSES.
3. Select HELP button.
4. Verify that help provides information on how to use the currently displayed GUI.
5. Select PREVIOUS SCREEN.
6. Select PRINT button.

7. Select PREVIOUS SCREEN.
8. Select SPECIAL EVENTS.
9. Select HELP button.
10. Verify that help provides information on how to use the currently displayed GUI.
11. Select PREVIOUS SCREEN.
12. Select PRINT button.
13. Select PREVIOUS SCREEN.
14. Select GENERAL INFORMATION.
15. Select HELP button.
16. Verify that help provides information on how to use the currently displayed GUI.
17. Select PREVIOUS SCREEN.
18. Select PRINT button.
19. Select PREVIOUS SCREEN.
20. Select DISABILITY SERVICES.
21. Select HELP button.
22. Verify that help provides information on how to use the currently displayed GUI.
23. Select PREVIOUS SCREEN.
24. Select PRINT button.
25. Select PREVIOUS SCREEN.
26. Select MAIN MENU.
27. Select VIA MASS TRANSIT.
28. Select and then exit FARES & PASSES, SPECIAL EVENTS, GENERAL INFORMATION, and DISABILITY SERVICES using the MAIN MENU button.

2.8.4.3.6 Assumptions and Constraints

Accuracy of data is verified by the data source.

2.8.4.3.7 Test Results

Yes	No	
❒	❒	Is a description of standard and special fares displayed?
❒	❒	Is a description of park & ride locations displayed?
❒	❒	Is a description of special bus events and the associated schedules displayed?
❒	❒	Is information about VIA handicapped bus dispatch (VIATrans) services displayed?
❒	❒	Is general VIA information displayed?
❒	❒	Can selected transit information be printed?
❒	❒	Is information on how to use the GUI currently displayed provided?
❒	❒	Is touchscreen interaction for users to interface with the Transit Display provided?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.9 KSK-SS

This test verifies that the Kiosk System is capable of retrieving and displaying screen saver data.

2.9.1 Hardware Preparation

- Kiosk Master Computer running in normal operating configuration.
- Two (2) Kiosk Field Units running in normal operating configuration.
- Computer capable of displaying selected input test files (i.e., Bitmap, Wave, Video).

2.9.2 Software Preparation

- Screen saver test files prepared.
- Kiosk software installed in normal operating configuration.

2.9.3 Other Pre-Test Preparation

None.

2.9.4 Test Descriptions

There is one test case implemented under this test:

KSK-SS-1	Verifies that the Kiosk Master Computer is capable of retrieving data from the screen saver data source(s) and is capable of transmitting screen saver data to the Kiosk Field Units.

2.9.4.1 KSK-SS-1

This test case verifies that the Kiosk Master Computer is capable of retrieving data from the screen saver data source(s) and is capable of transmitting screen saver data to the Kiosk Field Units.

2.9.4.1.1 Requirements Addressed

KSK-IF-6	The Kiosk System shall interface with screen saver data source(s).
KSK-IF-6.1	The Kiosk Master Computer shall be capable of receiving screen saver files.
KSK-IF-7	The Kiosk System shall interface with the Kiosk Field Units.
KSK-IF-7.4	The Kiosk Master Computer shall be capable of transmitting screen saver files to the Kiosk Field Units.
KSK-FN-5	The Kiosk System shall display screen saver (advertisements) files when the Kiosk is not being accessed by a user.
KSK-FN-5.1a	The Kiosk Master Computer shall accept bitmap (.bmp) files for the displaying of graphical displays on the Kiosk Field Unit.
KSK-FN-5.1b	The Kiosk Master Computer shall accept wave (.wav) files for the playing of audio files on the Kiosk Field Unit.
KSK-FN-5.1c	The Kiosk Master Computer shall accept audio video interleaved (.avi) files for playing video clips on the Kiosk Field Unit.
KSK-FN-5.2	The Kiosk Field Units shall be capable of receiving screen saver files from the Master Computer and updating the existing screen saver.
KSK-FN-5.3	The Kiosk Field Units shall be capable of executing the screen saver.

KSK-FN-6.6 The Kiosk Master Computer shall have the capability to download data and screen saver files.

KSK-FN-6.10 The Kiosk Field Unit diagnostic software shall accept non real-time file updates from the Kiosk Master Computer.

2.9.4.1.2 Prerequisite Conditions

None.

2.9.4.1.3 Test Inputs

Bitmap File *.bmp
Wave File *.wav
Video File *.avi

2.9.4.1.4 Test Results Evaluation

The Kiosk Master Computer will receive bitmap, wave, and video screen saver files. These screen saver files will be transmitted to the Kiosk Field Units by an application running on the Kiosk Master Computer. If received in the proper format, screen saver files will be displayed on the Kiosk Field Unit(s) when the Kiosk Field Unit(s) is not in use. Variations in color, size, picture clarity, text, and sound can be expected since these properties depend heavily on the quality of the screen saver data source.

2.9.4.1.5 Test Procedure

1. Using a suitable personal computer, inspect the screen saver bitmap test file.
2. Copy the screen saver test file to an area accessible to Kiosk Master Computer.
3. Login to the work station.
4. Move the mouse to the work space.
5. Using the right mouse button, select the Kiosk System Maintenance GUI from the Work Space Menu.
6. Select File.
7. Select Tables.
8. Select Screen Saver.
9. Select Edit.
10. Select Add.
11. Select the directory containing the screen saver test file.
12. Select Type. Type will either be bmp, wav, or avi.
13. Using the mouse, select the test file.
14. Enter the display time in seconds.
15. Select OK. The file name, file type, and display time will be displayed.
16. Select Save.
17. Select Exit.

18. Allow approximately ten minutes for the file to be transferred to the Kiosk Field Unit(s).
19. Inspect the screen saver test file displayed on the Kiosk Field Unit(s).
20. Compare the displayed screen saver file.
21. Repeat steps 1 - 20 for the wave and video test files.
22. Touch the screen on Kiosk Field Unit.
23. Wait for Kiosk Field Unit to display the screen saver files.

2.9.4.1.6 Assumptions and Constraints

- Data is received in video (.avi), bitmap (.bmp), or wave (.wav) format.
- Display size, color, and quality of screen saver data is the responsibility of the screen saver data source.

2.9.4.1.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Master Computer accept bitmap (.bmp) files?
❒	❒	Does the Kiosk Master Computer accept wave (.wav) files?
❒	❒	Does the Kiosk Master Computer accept audio video interleaved (.avi) files?
❒	❒	Does the Kiosk Master Computer transmit bitmap (.bmp) files to the Kiosk Field Unit(s)?
❒	❒	Does the Kiosk Master Computer transmit wave (.wav) files to the Kiosk Field Unit(s)?
❒	❒	Does the Kiosk Master Computer transmit audio video interleaved (.avi) files to the Kiosk Field Unit(s)?
❒	❒	Does the Kiosk Field Unit(s) execute the screen saver when not being accessed by the user?

❒ PASS **❒ FAIL** **SwRI:_____ Date:_____**

TxDOT:_____ Date:_____

2.10 KSK-MAP

This test verifies the map display requirements of the Kiosk System Field Units.

2.10.1 Hardware Preparation

- Two (2) Kiosk Field Units in normal operating configuration.
- In-Vehicle Navigation (IVN) Master Computer set up to receive simulated real-time data.

2.10.2 Software Preparation

Software installed in normal operating configuration.

2.10.3 Other Pre-Test Preparation

None.

2.10.4 Test Descriptions

The following test cases are implemented under this test:

KSK-MAP-1 Verifies that the Kiosk Field Units have the capability to display streets and highways, automated teller machines (ATMs), shopping centers, restaurants, gas stations, tourist attractions, hospitals, schools, parks, airports, and bus stops.

KSK-MAP-2 This test case verifies that the Kiosk Field Units have the capability to integrate data from the Navigation Technologies database with real-time data from the Data Server and display traffic conditions using color-coding and icons.

KSK-MAP-3 Verifies that the Kiosk Field Unit map real-time traffic conditions are updated at least once every five (5) minutes.

2.10.4.1 KSK-MAP-1

This test case verifies that the Kiosk Field Units have the capability to display streets and highways, ATMs, shopping centers, restaurants, gas stations, tourist attractions, hospitals, schools, parks, airports, and bus stops.

2.10.4.1.1 Requirements Addressed

KSK-IF-8 The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.

KSK-IF-8.1 The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Map Display.

KSK-FN-1.8 The Kiosk Field Unit map shall identify city streets, residential streets, and highways.

KSK-FN-1.9 The Kiosk Field Unit map shall have the capability to zoom in and out of the San Antonio Street Map Display utilizing touch screen input.

KSK-FN-1.10 The Kiosk Field Unit map shall have the capability to pan the San Antonio Street Map Display utilizing touch screen input.

KSK-FN-1.11 The Kiosk Field Unit map shall display icons indicating locations of ATMs, shopping centers, restaurants, gas stations, tourist attractions, hospitals, schools, parks, airports, and bus stops.

KSK-FN-8 The Kiosk System shall be capable of printing user selected items.

KSK-FN-9 The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.

KSK-FN-9.1 The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.10.4.1.2 Prerequisite Conditions

None.

2.10.4.1.3 Test Inputs

None.

2.10.4.1.4 Test Results Evaluation

Streets names and point of interest icons will be displayed and printed in a readable and usable format. Densely populated areas may cause street names and icons to be overlaid and more detail may be required. Icons that represent each point of interest will be unique. The ability to provide more and less detail is limited.

Map data will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may be of a different format. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.10.4.1.5 Test Procedure

1. Select S.A. MAP on Kiosk Field Unit Main Menu.
2. Select HELP button.
3. Verify that help provides information on how to use the currently displayed GUI.
4. Select PREVIOUS SCREEN.
5. Select MORE DETAIL.
6. Record selected location and touch area of map where more detail is desired.
7. Verify that area displayed is the same as the area selected.
8. Select MOVE MAP.
9. Touch map and drag map to the south.
10. Select MOVE MAP and drag map east, west, and north.
11. Select LESS DETAIL.
12. Record selected location and touch area of map where less detail is desired.
13. Verify that area displayed is the same as the area selected.
14. Select RESET SA MAP.
15. Select POINTS OF INTEREST.

16. For each entry on the points of interest list do the following:
    - Select DISPLAY.
    - Randomly select and record a point of interest. MORE DETAIL may be necessary for highly populated points of interest.
    - Select PRINT.
    - Verify name and location of selected point of interest.
    - Select POINTS OF INTEREST.
17. Select RESET & CLEAR SA MAP.
18. Select POINTS OF INTEREST.
19. For each entry on the points of interest list do the following:
    - Select SHOW LIST.
    - Using the on-screen directions, select and record a point of interest.
    - Select DISPLAY.
    - Select PRINT.
    - Verify name and location of selected point of interest.
    - Select POINTS OF INTEREST.

2.10.4.1.6 Assumptions and Constraints

Accuracy of the displayed data is the responsibility of the data source.

2.10.4.1.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Field Unit map identify city streets, residential streets, and highways?
❒	❒	Does the Kiosk Field Unit map zoom in, zoom out, and pan the San Antonio Street Map Display utilizing touch screen input?
❒	❒	Does the Kiosk Field Unit map display icons indicating locations of ATMs, shopping centers, restaurants, gas stations, tourist attractions, hospitals, schools, parks, airports, and bus stops? (See KSK-VIA-1 and KSK-VIA-2 for bus stop information.)
❒	❒	Does the Kiosk Field Unit provide help to assist the user in the operation of the Kiosk application and to provide information on how to use the GUI currently displayed?
❒	❒	Does the Kiosk Field Unit provide touchscreen interaction for users to interface with the Map Display?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.10.4.2 KSK-MAP-2

This test case verifies that the Kiosk Field Units have the capability to integrate data from the Navigation Technologies database with real-time data from the Data Server and display traffic conditions using color-coding and icons.

2.10.4.2.1 Requirements Addressed

KSK-FN-1	The Kiosk System shall display the real-time traffic conditions of the highways/roadways monitored by TransGuide.
KSK-FN-1.2	The Kiosk Field Unit shall be capable of displaying real-time traffic data using a San Antonio Map Display.
KSK-FN-1.3	The Kiosk Field Unit map shall display traffic conditions using color-coding.
KSK-FN-1.4	The Kiosk Field Unit map shall display incidents and lane closures utilizing icons.
KSK-FN-1.5	The Kiosk Field Unit shall provide additional information about an incident or lane closure when the respective icon is touched.
KSK-FN-1.7	The Kiosk Field Unit map shall display current airport traffic conditions for instrumented sections of highway around the San Antonio International Airport.
KSK-FN-1.12	The Kiosk Field Unit San Antonio Street Map Display software shall integrate data from the Navigation Technologies San Antonio Region database with real-time data from the Data Server.
KSK-FN-3.1	The Kiosk Field Unit shall display the traffic conditions for the sections of instrumented highway that surround the airport.

2.10.4.2.2 Prerequisite Conditions

Kiosk Field Unit receiving real-time data.

2.10.4.2.3 Test Inputs

Simulated TransGuide real-time data.

2.10.4.2.4 Test Results Evaluation

Simulated real-time data will be transmitted to the Kiosk Field Unit(s). This simulated data will include predetermined speeds on selected roadways and the location of incidents and lane closures. A color will be displayed for a given speed by link class. Roads with a maximum speed greater than 50 miles per hour (mph) are classified as link class 1 roadways. Roads with a maximum speed of 40 - 50 mph are classified as link class 2 roadways and roads with a maximum speed of 30 - 39 mph are classified link class 3 roadways. A red circle with the letter "i" will be displayed for lane closures and incidents. Color codes are described in the table below.

Color	Link Class 1, mph	Link Class 2, mph	Link Class 3, mph
Dark Green	>= 45	>= 30	>= 20
Green	37 - 44	N/A	N/A
Yellow	29 - 36	15 - 29	10 - 19
Maroon	20 - 28	N/A	N/A
Red	< 20	< 15	< 10

2.10.4.2.5 Test Procedure

1. Inject the simulated real-time data into the real-time data steam.
2. Select S.A. MAP on Kiosk Field Unit Main Menu.
3. Compare the speeds represented by the displayed color codes to the speeds provided by the simulated real-time data.
4. Compare the displayed lane closure and incident locations to those provided by the simulated real-time data.
5. Select a lane closure or incident icon.
6. Compare the displayed lane closure and incident information to that provided by the simulated real-time data.
7. Using MORE DETAIL, examine the area surrounding the S.A. Airport.
8. Compare the speeds represented by the displayed color codes to the speeds provided by the simulated real-time data.

2.10.4.2.6 Assumptions and Constraints

None.

2.10.4.2.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Field Unit map display traffic conditions using color-coding?
❒	❒	Does the Kiosk Field Unit map display incidents and lane closures utilizing icons?
❒	❒	Does the Kiosk Field Unit provide additional information about an incident or lane closure when the respective icon is touched?
❒	❒	Does the Kiosk Field Unit map display current airport traffic conditions for instrumented sections of highway around the San Antonio International Airport?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.10.4.3 KSK-MAP-3

This test case verifies that the Kiosk Field Unit map real-time traffic conditions are updated at least every five (5) minutes.

2.10.4.3.1 Requirements Addressed

KSK-FN-1 The Kiosk System shall display the real-time traffic conditions of the highways/roadways monitored by TransGuide.

KSK-FN-1.13 The Kiosk Field Unit map real-time traffic conditions shall be updated at least every five (5) minutes.

2.10.4.3.2 Prerequisite Conditions

- Test case KSK-MAP-2 successfully executed.

2.10.4.3.3 Test Inputs

Three (3) sets of TransGuide simulated real-time data.

2.10.4.3.4 Test Results Evaluation

The Kiosk map will be updated within five (5) minutes from receiving a change in real-time. The change in real-time data must represent a speed that is outside a currently displayed color range or a change in status of a lane closure or incident.

2.10.4.3.5 Test Procedure

1. Select S.A. MAP on Kiosk Field Unit Main Menu.
2. Inject the simulated real-time data into the real-time data steam.
3. Record the time.
4. Compare the speeds represented by the displayed color codes to the speeds provided by the simulated real-time data. Refer to section 2.10.4.2.4.
5. Wait up to five (5) minutes.
6. Select S.A. MAP on Kiosk Field Unit Main Menu if the map is not currently being displayed.
7. Compare speeds, incidents, and lane closures locations to those provided by the simulated real-time data. Select MORE DETAIL as appropriate.
8. Record the time when speeds and incidents are updated on the applicable road segments as displayed on the Kiosk Field Unit.
9. Repeat steps 1 - 8, two (2) times.

2.10.4.3.6 Assumptions and Constraints

None.

2.10.4.3.7 Test Results

Yes	No	
❒	❒	Are the Kiosk Field Unit map real-time traffic conditions updated at least every five (5) minutes?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.11 KSK-ROUTE

This test verifies route guidance requirements for the Kiosk System Field Units.

2.11.1 Hardware Preparation

- Two (2) Kiosk Field Units in normal operating configuration.
- IVN Master Computer in normal operating configuration.

2.11.2 Software Preparation

Software installed in normal operating configuration.

2.11.3 Other Pre-Test Preparation

None.

2.11.4 Test Descriptions

The following test cases are implemented under this test:

KSK-ROUTE-1 Verifies that the Kiosk Field Unit has the capability to display and print route guidance information.

KSK-ROUTE-2 Verifies that the Kiosk Field Unit has the capability to interface with the IVN data stream and utilize real-time data to calculate travel time.

2.11.4.1 KSK-ROUTE-1

This test case verifies that the Kiosk Field Unit has the capability to display and print route guidance information.

2.11.4.1.1 Requirements Addressed

KSK-IF-8 The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.

KSK-IF-8.5 The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Route Guidance Display.

KSK-FN-7 The Kiosk System shall provide route guidance.

KSK-FN-7.2 The Kiosk Field Unit shall be capable of displaying route guidance using the Navigation Technologies database.

KSK-FN-7.3 The Kiosk Field Unit shall provide a graphical display of the route from the kiosk's location to the selected destination.

KSK-FN-7.4 The Kiosk Field Unit shall allow the user to select a route from the Kiosk Field Unit's location to a selected Point of Interest.

KSK-FN-7.5 The Kiosk Field Unit shall allow the user to select their destination from a list of the points of interest retrieved from the Navigation Technologies database.

KSK-FN-7.6 The Kiosk Field Unit shall allow the user to enter the address of the destination.

KSK-FN-7.7 The Kiosk Field Unit shall utilize a color-coded line segment on the San Antonio Street Map to indicate the calculated route.

KSK-FN-7.9 The Kiosk Field Unit shall display the estimated travel time and speed for the selected route.

KSK-FN-7.10 The Kiosk Field Unit shall display turn-by-turn instructions for a calculated route.

KSK-FN-8 The Kiosk System shall be capable of printing user selected items.

KSK-FN-8.2 The Kiosk Field Unit shall be capable of printing the route map and

instructions.

KSK-FN-8.6 The Kiosk Field Unit shall be capable of printing the route instructions and map.

KSK-FN-9 The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.

KSK-FN-9.1 The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.

2.11.4.1.2 Prerequisite Conditions

None.

2.11.4.1.3 Test Inputs

None.

2.11.4.1.4 Test Results Evaluation

Route information will be displayed and printed in a readable and usable format. Printed data will contain the same content as the displayed data but may be of a different format. Detailed routes will require multiple moves and prints. The Kiosk Field Unit(s) will provide user help (i.e., on-screen directions or help screens) that is designed to assist the user in the operation of the Kiosk.

2.11.4.1.5 Test Procedure

1. Select S.A. MAP from main menu.
2. Select FIND ADDRESS.
3. Following the on-screen instructions, enter a selected street name and number. An error message will be displayed for an invalid street number.
4. Select DISPLAY.
5. Select CONFIRM.
6. Select HOW DO I GET THERE.
7. Select NO when asked "DO YOU WANT TO INCLUDE CURRENT TRAFFIC CONDITIONS?" This option will appear only if real-time data is being received.
8. Select PRINT.
9. Compare the printed turn-by-turn instructions to the color-coded route displayed on map. MORE DETAIL and MOVE MAP may be required.
10. Verify that the estimated travel time and speed is displayed and printed.
11. Repeat steps 4 - 11 for three (3) valid street names and numbers. Addresses should be selected from multiple regions of the San Antonio area.
12. Following the on-screen instructions, enter a street name and an invalid street number.
13. Verify that an error message appears.
14. Select Cancel.
15. Select POINTS OF INTEREST.
16. Following the on-screen directions, select a point of interest from the listed points of interest.

17. Select DISPLAY.
18. Select a point of interest. MORE DETAIL may be necessary for highly populated points of interest.
19. Select HOW DO I GET THERE.
20. Select NO when asked "DO YOU WANT TO INCLUDE CURRENT TRAFFIC CONDITIONS?" This option will appear only if real-time data is being received.
21. Review the turn-by-turn instructions.
22. Select PRINT.
23. Verify that the estimated travel time and speed is displayed and printed.
24. Compare the printed turn-by-turn instructions to the color-coded route displayed on map. MORE DETAIL and MOVE MAP may be required.
25. Select PRINT.
26. Verify that the printed image and the image displayed on Kiosk Field Unit are the same.
27. Repeat steps 18 - 28, for three (3) points of interest. Select Points of Interest from multiple regions of the San Antonio area.

2.11.4.1.6 Assumptions and Constraints

- Accuracy of the data (i.e., distance and time) is the responsibility of the data source.
- Incorporation of real-time data is verified in test case KSK-ROUTE-2.

2.11.4.1.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Field Unit allow the user to enter the address of the destination or select their destination from a list of the points of interest?
❒	❒	Does the Kiosk Field Unit provide a graphical display of the route from the kiosk's location to the selected destination or point of interest?
❒	❒	Does the Kiosk Field Unit display the estimated travel time, speed, and turn-by-turn instructions for the selected route?
❒	❒	Does the Kiosk Field Unit utilize a color-coded line segment on the San Antonio Street Map to indicate a calculated route?
❒	❒	Does the Kiosk Field Unit print the route map and instructions?
❒	❒	Does the Kiosk Field Unit provide help to assist the user in the operation of the Kiosk application and to provide information on how to use the GUI currently displayed?
❒	❒	Does the Kiosk Field Unit provide touchscreen interaction for users to interface with the Map Display?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.11.4.2 KSK-ROUTE-2

This test case verifies that the Kiosk Field Unit has the capability to interface with the IVN data stream and utilize real-time data to calculate travel time.

2.11.4.2.1 Requirements Addressed

KSK-IF-2	The Kiosk System shall interface with the In-Vehicle Navigation system data stream being transmitted utilizing the STIC communication system for real-time traffic conditions data.
KSK-IF-2.1	The Kiosk Field Unit shall receive the real-time traffic condition data broadcast from the STIC communication network.
KSK-FN-7.1	The Kiosk Field Units shall convert the real-time traffic condition data stream into data that can be interpreted by the Navigation Technologies database and the Route Guidance application.
KSK-FN-7.8	The Kiosk Field Unit shall utilize real-time speed information to calculate travel time to the selected destination.

2.11.4.2.2 Prerequisite Conditions

- Kiosk Field Unit(s) receiving real-time data.
- Test cases KSK-MAP-2 and KSK-ROUTE-1 successfully executed.

2.11.4.2.3 Test Inputs

TransGuide simulated real-time data.

2.11.4.2.4 Test Results Evaluation

Travel time will increase for routes that use roadways that are displayed with speeds that are less than normal. Highly congested areas may be bypassed and an alternate route provided if the calculated travel time for the alternate route is shorter.

2.11.4.2.5 Test Procedure

1. Select S.A. MAP from main menu.
2. Select POINTS OF INTEREST.
3. Following the on-screen instructions, display a point of interest.
4. Select HOW DO I GET THERE.
5. Select NO when asked "DO YOU WANT TO INCLUDE CURRENT TRAFFIC CONDITIONS?" This option will appear only if real-time data is being received.
6. PRINT turn-by-turn instructions.
7. Select POINTS OF INTEREST.
8. Following the on-screen instructions, display the same point of interest from step 3.
9. Select HOW DO I GET THERE.
10. Select YES when asked "DO YOU WANT TO INCLUDE CURRENT TRAFFIC CONDITIONS?" This option will appear only if real-time data is being received.
11. PRINT turn-by-turn instructions.
12. Select RESET S.A. MAP.

13. Compare the travel times.

14. Repeat steps 1 - 13 for routes that span areas with and without congestion.

2.11.4.2.6 Assumptions and Constraints

The Kiosk S.A. Map display accurately represents traffic speeds.

2.11.4.2.7 Test Results

Yes	No	
❒	❒	Does the Kiosk Field Unit utilize real-time speed information to calculate travel time to the selected destination?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.12 KSK-MAINT

This test verifies the diagnostics and maintenance requirements for the Kiosk System.

2.12.1 Hardware Preparation

- Kiosk Master Computer in normal operating configuration.
- Two (2) Kiosk Field Units in normal operating configuration.
- Work station with access to the Kiosk Master Computer.

2.12.2 Software Preparation

Kiosk System software installed in normal operating configuration.

2.12.3 Other Pre-Test Preparation

None.

2.12.4 Test Descriptions

The following test case is implemented under this test:

KSK-MAINT-1 Verifies that the Kiosk System has the capability to provide Kiosk Field Unit statistics.

2.12.4.1 KSK-MAINT-1

This test case verifies that the Kiosk System has the capability to provide Kiosk Field Unit statistics.

2.12.4.1.1 Requirements Addressed

KSK-FN-6 The Kiosk System shall provide system diagnostics.

KSK-FN-6.1 A Kiosk Master Computer shall be implemented that displays the last known status of the Kiosk Field Units.

KSK-FN-6.2 The Kiosk Master Computer shall automatically interrogate the Kiosk Field Units.

KSK-FN-6.3 The Kiosk Master Computer shall provide the capability to manually interrogate individual Kiosk Field Units.

KSK-FN-6.4 The Kiosk Master Computer shall store the interrogation status results.

KSK-FN-6.7 The Kiosk Master Computer shall upload Kiosk Field Unit usage statistics.

KSK-FN-6.7a The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times the Kiosk is used.

KSK-FN-6.7b The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times the San Antonio Map is accessed.

KSK-FN-6.7c The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Airport information is accessed.

KSK-FN-6.7d The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Weather information is accessed.

KSK-FN-6.7e The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times VIA Transit information is accessed.

KSK-FN-6.7f The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Route Guidance is accessed.

KSK-FN-6.9 The Kiosk Field Unit shall be capable of reporting status to the Kiosk Master Computer.

KSK-FN-6.12 The Kiosk Field Unit shall keep usage statistics.

KSK-FN-6.12a	The Kiosk Field Unit shall keep statistics on the number of times the Kiosk is used.
KSK-FN-6.12b	The Kiosk Field Unit shall keep statistics on the number of times the San Antonio Map is accessed.
KSK-FN-6.12c	The Kiosk Field Unit shall keep statistics on the number of times Airport information is accessed.
KSK-FN-6.12d	The Kiosk Field Unit shall keep statistics on the number of times Weather information is accessed.
KSK-FN-6.12e	The Kiosk Field Unit shall keep statistics on the number of times VIA Transit information is accessed.
KSK-FN-6.12f	The Kiosk Field Unit shall keep statistics on the number of times Route Guidance information is accessed.

2.12.4.1.2 Prerequisite Conditions

The Kiosk Field Unit(s) displaying a screen saver.

2.12.4.1.3 Test Inputs

None.

2.12.4.1.4 Test Results Evaluation

Kiosk Field Unit usage statistics will be collected and maintained by the Kiosk Master Computer. The Kiosk Master Computer will display the last known status of the Kiosk Field Units. Kiosk Field Unit status is as follows:

- Download Manual download of data files.
- Failed Unable to communicate.
- Active Operational.
- Inactive Manually taken out of service.
- Dialing Initiating communication.
- Problem Failed to acquire heartbeat/usage files.
- On-line Uploading or downloading files.

The Kiosk Master Computer automatically interrogates the Kiosk Field Units on a periodic basis. The "Ping" command provides the capability to manually interrogate an individual Kiosk Field Unit.

2.12.4.1.5 Test Procedure

1. Login to the work station.
2. Open a window on the work station.
3. Move the mouse to the work space.
4. Using the right mouse button, select the Kiosk Process Status GUI from the Work Space Menu.
5. From the Kiosk Process Status GUI Select View.
6. Select Detailed Status.
7. Verify that the Kiosk Detailed Status GUI displays the status of each Kiosk Field Unit.
8. From the Kiosk Detailed Status GUI, select an "Active" Kiosk Field Unit. Record the selected Kiosk's detailed statistics in section 2.12.4.2.7 below.
9. Select WEATHER from the Kiosk Field Unit(s) main menu.
10. Select MAIN MENU.
11. Select AIRPORT from the Kiosk Field Unit(s) main menu.
12. Select MAIN MENU.
13. Select VIA MASS TRANSIT from the Kiosk Field Unit(s) main menu.
14. Select MAIN MENU.
15. Select S.A. MAP from the Kiosk Field Unit(s) main menu.
16. Select MAIN MENU.

17. Select S.A. MAP from the Kiosk Field Unit(s) main menu.
18. Select POINTS OF INTEREST.
19. Select a point of interest.
20. Select "HOW DO I GET THERE?"
21. Select YES or NO.
22. Select PRINT.
23. Select MAIN MENU.
24. The Kiosk Detailed Status GUI will display an "On-line" status while updating the heartbeat/usage file. There may be a delay for up to one (1) hour for the Kiosk Field Unit to update it's statistics file and for the Kiosk Master Computer to poll each Kiosk Field Unit.
25. From the Kiosk Detailed Status GUI, select the sampled Kiosk Field Unit. Record the selected Kiosk's detailed statistics in section 2.12.4.2.7 below.
26. Verify usage statistics are incremented by one (1).
27. Remove a Kiosk Field Unit process from service. Refer to test case KSK-SU-2 for details.
28. Manually interrogate the out of service Kiosk Field Unit by selecting "Ping" from the Kiosk Details GUI.
29. The Kiosk Detailed Status GUI will display an "On-line" status while updating the heartbeat/usage file. There may be a delay for up to one (1) hour for the Kiosk Field Unit to update it's statistics file and for the Kiosk Master Computer to poll each Kiosk Field Unit.
30. Verify that process restarts is incremented by one (1).

2.12.4.1.6 Assumptions and Constraints

None.

2.12.4.1.7 Test Results

Statistic	Sample #1	Sample #2
Status		
Last Contact		
Failed Attempts		
Files Pending		
Process Restarts		
Main Access		
Map Access		
VIA Access		
Route Access		
Weather Access		
Airport Access		
Pages Printed		
Paper Level		
Disk Space		

Yes	No	
❒	❒	Does the Kiosk Master Computer display the last known status of the Kiosk Field Units?
❒	❒	Does the Kiosk Master Computer automatically interrogate the Field Units?
❒	❒	Does the Kiosk Master Computer provide the capability to manually interrogate individual Kiosk Field Units?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times the Kiosk is used?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times the San Antonio Map is accessed?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times Airport information is accessed?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times Weather information is accessed?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times VIA Transit information is accessed?
❒	❒	Does the Kiosk Master Computer upload Kiosk Field Unit statistics on the number of times Route Guidance is accessed?

❒ PASS **❒ FAIL** **SwRI:_____Date:_____**

TxDOT:_____Date:_____

2.13 KSK-DEPLOY

This test verifies proper installation of the Kiosk Field Units at deployment.

2.13.1 Hardware Preparation

- Kiosk Field Unit installed and power connected to the Kiosk Field Unit.
- Telephone line installed.
- Telephone with telephone jack.
- Keys to Kiosk Field Unit.

2.13.2 Software Preparation

Software and data files installed.

2.13.3 Other Pre-Test Preparation

None.

2.13.4 Test Descriptions

The following test case is implemented under this test:
KSK-DEPLOY-1 Verifies installation requirements of a Kiosk Field Unit.

2.13.4.1 KSK-DEPLOY-1

This test case verifies that a Kiosk Field Unit has been installed properly and is in normal operating configuration.

2.13.4.1.1 Requirements Addressed

Refer to specific test cases listed in the test procedure.

2.13.4.1.2 Prerequisite Conditions

Previous test cases complete.

2.13.4.1.3 Test Inputs

Current/real-time data will be used during this test case.

2.13.4.1.4 Test Results Evaluation

Test results will verify that the Kiosk Field Unit hardware and software components are installed, real-time data is being received, communication is established with the Kiosk Master Computer, the touch screen displays selected data, and selected data can be printed.

2.13.4.1.5 Test Procedure

1. Using a telephone, verify dial tone on the Kiosk Field Unit telephone line.
2. Contact Kiosk Master Computer operator to initiate communication with the Kiosk Field Unit.
3. Connect the telephone line to the Kiosk Field Unit modem.
4. Power up the Kiosk Field Unit and verify startup of the Kiosk Field Unit processes. Refer to test case KSK-SU-2.
5. Following on-screen directions, verify display and print capability of weather data, airport data, VIA data, and route guidance.
6. Verify modem communications as follows:

- Open the Kiosk Field Unit.
- Press the Windows key on the keyboard.
- Using the mouse, select the modem communications process.
- A pop-up window will display modem communications.

7. Select S.A. MAP on Kiosk Field Unit Main Menu and verify that the Kiosk Field Unit is receiving real-time data. Refer to test case KSK-MAP-2.
8. Verify display of screen saver data.

2.13.4.1.6 Assumptions and Constraints

Kiosk Field Unit interface and functional requirements were verified during execution of previous test case implementation.

2.13.4.1.7 Test Results

Test results will be documented for each Kiosk Field Unit deployed. See Appendix A.

3. REQUIREMENTS TRACEABILITY

The traceability matrix for the Kiosk System is presented in this section. It lists the requirements of the system that were presented in Section 2 of this document. Along with each requirement is the source of the requirement and the test case that verifies the requirement. This table is based on the traceability matrix from the Kiosk Software Design Document. This table was used throughout the design, development, and test of the system to ensure that the requirements have been met. It was continually updated as requirements and design elements were refined. The requirements in the traceability matrix are organized by requirement number. The physical requirements are presented first, followed by the interface and functional requirements. Test cases annotated with the system mnemonic *DS* are contained in the Data Server ATP.

Requirement Number	**Requirement**	**Source**	**Test Case(s)**	**Verification Method**
KSK-PY-1	The Kiosk Master Computer shall be a Sun Microsystems Ultra SPARCStation with the following configuration: • 167 MHZ SPARC (RISC) CPU, • 4.2 Gigabyte hard disk, • 128 Megabytes RAM, • Floppy Disk, • CD-ROM, • Turbo GX+ Graphics, • 20 Inch color monitor, • 8 port modem server (SCSI) attached, • Dual Ethernet Interface, and Dual SCSI Channels.	P-2.3.2.4.1	KSK-PYS-1	Demonstration Inspection

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-PY-2	The Indoor and Outdoor Kiosk Field Unit computers shall have, at a minimum, the following configuration: • Windows 95, • 120 MHz processor clock speed, • 32 MB RAM, • 1.6 GB hard disk drive, • 3.5 inch 1.44 MB floppy drive, • 8X CD-ROM drive, • 1 RS-232 asynchronous communication port, • 1 bi-directional parallel port, • 101 key enhanced keyboard, • 2 button mouse, and • an internal modem.	P-2.3.2.4.2	KSK-PYS-2 KSK-PYS-3	Demonstration Inspection
KSK-PY-4	The Indoor Kiosk shall include the following: • Antenna/receiver assembly, • Processor with keyboard, • Touch-screen monitor, • Speakers, • Printer, • Power strip, • Cooling fan, • UL & FCC certification, • Rated to operate at an ambient temperature range from 60 to 85 degrees Fahrenheit, • Rated to operate at a non-condensing humidity range from 35 to 85 percent relative humidity.	P-2.3.2.4.3	KSK-PYS-2	Inspection

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-PY-5	The Outdoor Kiosk shall include the following: • Antenna/receiver assembly, • Processor with keyboard, • Touch-screen monitor, • Speakers, • Printer, • Modem, • Heating/cooling system, • UL & FCC certification, • Rated to operate at an ambient temperature range from –10 to 115 degrees Fahrenheit, • Rated to operate at a non-condensing humidity range from 20 to 100 percent relative humidity.	P-2.3.2.4.3	KSK-PYS-3	Inspection
KSK-PY-6	The Indoor Kiosk enclosure shall be rated at the following environment specifications: • Ambient temperature range of 60 to 85 degrees Fahrenheit • Non-condensing humidity range from 35 to 85 percent relative humidity.	P-2.3.2.2.3.1	KSK-PYS-2	Inspection
KSK-PY-7	The Outdoor Kiosk enclosure shall be rated at the following environment specifications: • Ambient temperature range of –10 to 115 degrees Fahrenheit • Non-condensing humidity range from 20 to 100 percent relative humidity.	P-2.3.2.2.3.2	KSK-PYS-3	Inspection
KSK-IF-1	The Kiosk System shall interface with the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1 KSK-AIR-1 KSK-VIA-1	Demonstration
KSK-IF-1.1a	The Kiosk System shall be capable of submitting the San Antonio area weather conditions to the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-1.1b	The Kiosk System shall be capable of submitting the San Antonio area weather forecast to the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-1.1c	The Kiosk System shall be capable of submitting the current San Antonio area radar map to the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-1.1d	The Kiosk System shall be capable of retrieving the San Antonio area weather conditions from the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-1.1e	The Kiosk System shall be capable of retrieving the San Antonio area weather forecast from the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-1.1f	The Kiosk System shall be capable of retrieving the current San Antonio area radar map from the Data Server.	P-2.3.1	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-1.2a	The Kiosk System shall be capable of submitting airline and airport terminal information to the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.2b	The Kiosk System shall be capable of submitting airport rental agency information to the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.2c	The Kiosk System shall be capable of submitting airport parking lot information to the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.2d	The Kiosk System shall be capable of retrieving airline and airport terminal information from the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.2e	The Kiosk System shall be capable of retrieving airport rental agency information from the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.2f	The Kiosk System shall be capable of retrieving airport parking lot information from the Data Server.	P-2.3.1	DS-WV-02 KSK-AIR-1	Demonstration
KSK-IF-1.3a	The Kiosk System shall be capable of submitting route schedules to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3b	The Kiosk System shall be capable of submitting standard and special fares to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3c	The Kiosk System shall be capable of submitting park & ride locations to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-1.3d	The Kiosk System shall be capable of submitting special bus events and the associated schedules to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3e	The Kiosk System shall be capable of submitting VIA handicapped bus dispatch (VIATrans) services to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3f	The Kiosk System shall be capable of submitting general VIA information to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3g	The Kiosk System shall be capable of submitting graphical displays of selected bus routes data to the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3h	The Kiosk System shall be capable of retrieving route schedules from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3i	The Kiosk System shall be capable of retrieving standard and special fares from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3j	The Kiosk System shall be capable of retrieving park & ride locations from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3k	The Kiosk System shall be capable of retrieving special bus events and the associated schedules from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3l	The Kiosk System shall be capable of retrieving VIA handicapped bus dispatch (VIATrans) services from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3m	The Kiosk System shall be capable of retrieving general VIA information from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-1.3n	The Kiosk System shall be capable of retrieving displays of selected bus routes data from the Data Server.	P-2.3.1	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-2	The Kiosk System shall interface with the In-Vehicle Navigation system data stream being transmitted utilizing the STIC communication system for real-time traffic conditions data.	P-2.3.2.2.6	KSK-ROUTE-2	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-2.1	The Kiosk Field Unit shall receive the real-time traffic condition data broadcast from the STIC communication network.	P-2.3.2.2.9	KSK-ROUTE-2	Demonstration
KSK-IF-3	The Kiosk System shall interface with the weather data source.	P-2.3.2.2.4	KSK-WEA-1	Demonstration
KSK-IF-3.1a	The Kiosk System shall be capable of retrieving the San Antonio area weather conditions from the weather data source.	P-2.3.2.2.7	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-3.1b	The Kiosk System shall be capable of retrieving the San Antonio area weather forecast from the weather data source.	P-2.3.2.2.7	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-3.1c	The Kiosk System shall be capable of retrieving the current San Antonio area radar map data from the weather data source.	P-2.3.2.2.7	DS-WV-02 KSK-WEA-1	Demonstration
KSK-IF-4	The Kiosk System shall interface with the airport data source.	P-2.3.2.2.4	KSK-AIR-1	Demonstration
KSK-IF-4.1	The Kiosk Master Computer shall be capable of receiving airport terminal, airport rental agency, and airport parking lot data from the airport data source.	P-2.3.2.2.7	KSK-AIR-1	Demonstration
KSK-IF-5	The Kiosk System shall interface with the VIA data source.	P-2.3.2.2.4	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1a	The Kiosk Master Computer shall be capable of receiving route schedules from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1b	The Kiosk Master Computer shall be capable of receiving standard and special fares from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1c	The Kiosk Master Computer shall be capable of receiving park & ride locations from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1d	The Kiosk Master Computer shall be capable of receiving special bus events and the associated schedules from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-5.1e	The Kiosk Master Computer shall be capable of receiving VIA handicapped bus dispatch (VIATrans) services from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1f	The Kiosk Master Computer shall be capable of receiving general VIA information from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-5.1g	The Kiosk Master Computer shall be capable of receiving graphical displays of selected bus routes from the VIA data source.	P-2.3.2.2.7	DS-WV-02 KSK-VIA-1	Demonstration
KSK-IF-6	The Kiosk System shall interface with screen saver data source(s).	P-2.3.2.2.4	KSK-SS-1	Demonstration
KSK-IF-6.1	The Kiosk Master Computer shall be capable of receiving screen saver files.	P-2.3.2.2.7	KSK-SS-1	Demonstration
KSK-IF-7	The Kiosk System shall interface with the Kiosk Field Units.	P-2.3.1	KSK-WEA-1 KSK-AIR-1 KSK-VIA-1 KSK-SS-1	Demonstration
KSK-IF-7.1a	The Kiosk Master Computer shall be capable of transmitting the San Antonio area weather conditions to the Kiosk Field Units.	P-2.3.2.2.7	KSK-WEA-1	Demonstration
KSK-IF-7.1b	The Kiosk Master Computer shall be capable of transmitting the San Antonio area weather forecast to the Kiosk Field Units.	P-2.3.2.2.7	KSK-WEA-1	Demonstration
KSK-IF-7.1c	The Kiosk Master Computer shall be capable of transmitting the current San Antonio area radar map data to the Kiosk Field Units.	P-2.3.2.2.7	KSK-WEA-1	Demonstration
KSK-IF-7.2a	The Kiosk Master Computer shall be capable of transmitting airport terminal data to the Kiosk Field Units.	P-2.3.2.2.7	KSK-AIR-1	Demonstration
KSK-IF-7.2b	The Kiosk Master Computer shall be capable of transmitting airport rental agency data to the Kiosk Field Units.	P-2.3.2.2.7	KSK-AIR-1	Demonstration
KSK-IF-7.2c	The Kiosk Master Computer shall be capable of transmitting airport parking lot data to the Kiosk Field Units.	P-2.3.2.2.7	KSK-AIR-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-7.3a	The Kiosk Master Computer shall be capable of transmitting route schedules to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3b	The Kiosk Master Computer shall be capable of transmitting standard and special fares, park & ride locations to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3c	The Kiosk Master Computer shall be capable of transmitting special bus events and the associated schedules to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3d	The Kiosk Master Computer shall be capable of transmitting VIA handicapped bus dispatch (VIATrans) services to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3e	The Kiosk Master Computer shall be capable of transmitting general VIA information to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3f	The Kiosk Master Computer shall be capable of transmitting graphical displays of selected bus routes data to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.3g	The Kiosk Master Computer shall be capable of transmitting park & ride locations to the Kiosk Field Units.	P-2.3.2.2.7	KSK-VIA-1	Demonstration
KSK-IF-7.4	The Kiosk Master Computer shall be capable of transmitting screen saver files to the Kiosk Field Units.	P-2.3.2.2.7	KSK-SS-1	Demonstration
KSK-IF-8	The Kiosk System shall interface with the general public through a touchscreen, using a Graphical User Interface.	P-2.3.1	KSK-WEA-2 KSK-AIR-2 KSK-VIA-2 KSK-VIA-3 KSK-MAP-1 KSK-ROUTE-1	Demonstration
KSK-IF-8.1	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Map Display.	P-2.3.2.2.8	KSK-MAP-1	Demonstration
KSK-IF-8.2	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Transit Display.	P-2.3.2.2.8	KSK-VIA-2 KSK-VIA-3	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-IF-8.3	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Airport Display.	P-2.3.2.2.8	KSK-AIR-2	Demonstration
KSK-IF-8.4	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Weather Display.	R-27.1.5	KSK-WEA-2	Demonstration
KSK-IF-8.5	The Kiosk Field Unit shall provide touchscreen interaction for users to interface with the Route Guidance Display.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-1	The Kiosk System shall display the real-time traffic conditions of the highways/roadways monitored by TransGuide.	P-2.3.2.2.8	KSK-MAP-2 KSK-MAP-3	Demonstration
KSK-FN-1.2	The Kiosk Field Unit shall be capable of displaying real-time traffic data using a San Antonio Map Display.	P-2.3.2.2.8	KSK-MAP-2	Demonstration Analysis
KSK-FN-1.3	The Kiosk Field Unit map shall display traffic conditions using color-coding.	P-2.3.2.2.8 R-27.1.2	KSK-MAP-2	Demonstration
KSK-FN-1.4	The Kiosk Field Unit map shall display incidents and lane closures utilizing icons.	P-2.3.2.2.8	KSK-MAP-2	Demonstration
KSK-FN-1.5	The Kiosk Field Unit shall provide additional information about an incident or lane closure when the respective icon is touched.	P-2.3.2.2.8	KSK-MAP-2	Demonstration
KSK-FN-1.7	The Kiosk Field Unit map shall display current airport traffic conditions for instrumented sections of highway around the San Antonio International Airport.	P-2.3.2.2.8	KSK-MAP-2	Demonstration
KSK-FN-1.8	The Kiosk Field Unit map shall identify city streets, residential streets, and highways.	P-2.3.2.2.8	KSK-MAP-1	Demonstration
KSK-FN-1.9	The Kiosk Field Unit map shall have the capability to zoom in and out of the San Antonio Street Map Display utilizing touch screen input.	P-2.3.2.2.8	KSK-MAP-1	Demonstration
KSK-FN-1.10	The Kiosk Field Unit map shall have the capability to pan the San Antonio Street Map Display utilizing touch screen input.	P-2.3.2.2.8	KSK-MAP-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-1.11	The Kiosk Field Unit map shall display icons indicating locations of automated teller machines (ATMs), shopping centers, restaurants, gas stations, tourist attractions, hospitals, schools, parks, airports, and bus stops.	P-2.3.2.2.8	KSK-MAP-1	Demonstration
KSK-FN-1.12	The Kiosk Field Unit San Antonio Street Map Display software shall integrate data from the Navigation Technologies San Antonio Region database with real-time data from the Data Server.	P-2.3.2.2.8	KSK-MAP-2	Demonstration Analysis
KSK-FN-1.13	The Kiosk Field Unit map real-time traffic conditions shall be updated at least every five (5) minutes.	R-27.3.3	KSK-MAP-3	Demonstration Analysis
KSK-FN-2	The Kiosk System shall display weather data.	P-2.3.2.2.8	KSK-WEA-2	Demonstration
KSK-FN-2.1	The Kiosk Field Unit shall display the current San Antonio weather conditions.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-2.2	The Kiosk Field Unit shall display the local San Antonio forecast.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-2.3	The Kiosk Field Unit shall display a San Antonio area radar map.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-2.4	The Kiosk Field Unit current weather conditions shall be updated when updates are provided by the weather data source.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-2.5	The Kiosk Field Unit San Antonio area radar map shall be updated when updates are provided by the weather data source.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-2.6	The Kiosk Field Unit local San Antonio forecast shall be updated when updates are provided by the weather data source.	P-2.3.2.2.8	KSK-WEA-1	Demonstration
KSK-FN-3	The Kiosk System shall display airport data.	P-2.3.2.2.8	KSK-AIR-2	Demonstration
KSK-FN-3.1	The Kiosk Field Unit shall display the traffic conditions for the sections of instrumented highway that surround the airport.	R-27.3.3	KSK-MAP-2	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-3.2	The Kiosk Field Unit shall display a listing of local airline names, their phone numbers and the terminal in which they are located.	P-2.3.2.2.8	KSK-AIR-2	Demonstration
KSK-FN-3.3	The Kiosk Field Unit shall display a listing of local rental car agencies and their phone numbers located at the San Antonio International Airport.	P-2.3.2.2.8	KSK-AIR-2	Demonstration
KSK-FN-3.4	The Kiosk Field Unit shall display a listing of the location and cost of airport parking lots.	P-2.3.2.2.8	KSK-AIR-2	Demonstration
KSK-FN-4	The Kiosk System shall display VIA data.	P-2.3.2.2.8	KSK-VIA-2 KSK-VIA-3	Demonstration
KSK-FN-4.1	The Kiosk Field Unit shall display route schedules and graphical displays of the routes that are available.	P-2.3.2.2.8	KSK-VIA-2	Demonstration
KSK-FN-4.2	The Kiosk Field Unit shall provide scheduled times for major bus stops on a selected route.	P-2.3.2.2.8	KSK-VIA-2	Demonstration
KSK-FN-4.3	The Kiosk Field Unit shall display a description of standard and special fares.	P-2.3.2.2.8	KSK-VIA-3	Demonstration
KSK-FN-4.4	The Kiosk Field Unit shall display a description of park & ride locations.	P-2.3.2.2.8	KSK-VIA-3	Demonstration
KSK-FN-4.5	The Kiosk Field Unit shall display a description of special bus events and the associated schedules.	P-2.3.2.2.8	KSK-VIA-3	Demonstration
KSK-FN-4.6	The Kiosk Field Unit shall display information about VIA handicapped bus dispatch (VIATrans) services.	P-2.3.2.2.8	KSK-VIA-3	Demonstration
KSK-FN-4.7	The Kiosk Field Unit shall display general VIA information.	VIA	KSK-VIA-3	Demonstration
KSK-FN-5	The Kiosk System shall display screen saver (advertisements) files when the Kiosk is not being accessed by a user.	P-2.3.2.2.8	KSK-SS-1	Demonstration
KSK-FN-5.1a	The Kiosk Master Computer shall accept bitmap (.bmp) files for the displaying of graphical displays on the Kiosk Field Unit.	R-27.3.2	KSK-SS-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-5.1b	The Kiosk Master Computer shall accept wave (.wav) files for the playing of audio files on the Kiosk Field Unit.	R-27.3.2	KSK-SS-1	Demonstration
KSK-FN-5.1c	The Kiosk Master Computer shall accept audio video interleaved (.avi) files for playing video clips on the Kiosk Field Unit.	R-27.3.2	KSK-SS-1	Demonstration
KSK-FN-5.2	The Kiosk Field Units shall be capable of receiving screen saver files from the Master Computer and updating the existing screen saver.	P-2.3.1	KSK-SS-1	Demonstration
KSK-FN-5.3	The Kiosk Field Units shall be capable of executing the screen saver.	P-2.3.1	KSK-SS-1	Demonstration
KSK-FN-6	The Kiosk System shall provide system diagnostics.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.1	A Kiosk Master Computer Diagnostic Status GUI shall be implemented that displays the last known status of the Kiosk Field Units.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration
KSK-FN-6.2	The Kiosk Master Computer shall automatically interrogate the Kiosk Field Units.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration
KSK-FN-6.3	The Kiosk Master Computer shall provide the capability to manually interrogate individual Kiosk Field Units.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration
KSK-FN-6.4	The Kiosk Master Computer shall store the interrogation status results.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration
KSK-FN-6.6	The Kiosk Master Computer shall have the capability to download data and screen saver files.	P-2.3.2.2.7	KSK-WEA-1 KSK-AIR-1 KSK-VIA-1 KSK-SS-1	Demonstration
KSK-FN-6.7	The Kiosk Master Computer shall upload Kiosk Field Unit usage statistics.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration
KSK-FN-6.7a	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times the Kiosk is used.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-6.7b	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times the San Antonio Map is accessed.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis
KSK-FN-6.7c	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Airport information is accessed.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis
KSK-FN-6.7d	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Weather information is accessed.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis
KSK-FN-6.7e	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times VIA Transit information is accessed.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis
KSK-FN-6.7f	The Kiosk Master Computer shall upload Kiosk Field Unit statistics on the number of times Route Guidance is accessed.	P-2.3.2.2.7	KSK-MAINT-1	Demonstration Analysis
KSK-FN-6.9	The Kiosk Field Unit shall be capable of reporting status to the Kiosk Master Computer.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.10	The Kiosk Field Unit diagnostic software shall accept non-real-time file updates from the Kiosk Master Computer.	P-2.3.2.2.8	KSK-WEA-1 KSK-AIR-1 KSK-VIA-1 KSK-SS-1	Demonstration
KSK-FN-6.12	The Kiosk Field Unit shall keep usage statistics.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.12a	The Kiosk Field Unit shall keep statistics on the number of times the Kiosk is used.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.12b	The Kiosk Field Unit shall keep statistics on the number of times the San Antonio Map is accessed.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.12c	The Kiosk Field Unit shall keep statistics on the number of times Airport information is accessed.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.12d	The Kiosk Field Unit shall keep statistics on the number of times Weather information is accessed.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-6.12e	The Kiosk Field Unit shall keep statistics on the number of times VIA Transit information is accessed.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-6.12f	The Kiosk Field Unit shall keep statistics on the number of times Route Guidance information is accessed.	P-2.3.2.2.8	KSK-MAINT-1	Demonstration
KSK-FN-7	The Kiosk System shall provide route guidance.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.1	The Kiosk Field Units shall convert the real-time traffic condition data stream into data that can be interpreted by the Navigation Technologies database and the Route Guidance application.	R-27.3.3	KSK-ROUTE-2	Analysis
KSK-FN-7.2	The Kiosk Field Unit shall be capable of displaying route guidance using the Navigation Technologies database.	R-27.3.3	KSK-ROUTE-1	Demonstration
KSK-FN-7.3	The Kiosk Field Unit shall provide a graphical display of the route from the kiosk's location to the selected destination.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.4	The Kiosk Field Unit shall allow the user to select a route from the Kiosk Field Unit's location to a selected Point of Interest.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.5	The Kiosk Field Unit shall allow the user to select their destination from a list of the points of interest retrieved from the Navigation Technologies database.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.6	The Kiosk Field Unit shall allow the user to enter the address of the destination.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.7	The Kiosk Field Unit shall utilize a color-coded line segment on the San Antonio Street Map to indicate the calculated route.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.8	The Kiosk Field Unit shall utilize real-time speed information to calculate travel time to the selected destination.	P-2.3.2.2.8	KSK-ROUTE-2	Analysis
KSK-FN-7.9	The Kiosk Field Unit shall display the estimated travel time and speed for the selected route.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-7.10	The Kiosk Field Unit shall display turn-by-turn instructions for a calculated route.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration

Requirement Number	Requirement	Source	Test Case(s)	Verification Method
KSK-FN-8	The Kiosk System shall be capable of printing user selected items.	P-2.3.2.2.8	KSK-WEA-2 KSK-AIR-2 KSK-VIA-2 KSK-VIA-3 KSK-MAP-1 KSK-ROUTE-1	Demonstration
KSK-FN-8.2	The Kiosk Field Unit shall be capable of printing the route map and instructions.	P-2.3.2.2.8	KSK-ROUTE-1	Demonstration
KSK-FN-8.3	The Kiosk Field Unit shall be capable of printing the transit information.	P-2.3.2.4.3	KSK-VIA-2 KSK-VIA-3	Demonstration
KSK-FN-8.4	The Kiosk Field Unit shall be capable of printing the airport information.	P-2.3.2.4.2	KSK-AIR-2	Demonstration
KSK-FN-8.5	The Kiosk Field Unit shall be capable of printing the local weather conditions, the local forecast and the radar map.	P-2.3.2.4.2	KSK-WEA-2	Demonstration
KSK-FN-8.6	The Kiosk Field Unit shall be capable of printing the route instructions and map.	P-2.3.2.4.2	KSK-ROUTE-1	Demonstration
KSK-FN-9	The Kiosk Field Unit shall provide help to assist the user in the operation of the Kiosk application.	P-2.3.2.2.8	KSK-WEA-2 KSK-AIR-2 KSK-VIA-2 KSK-VIA-3 KSK-MAP-1 KSK-ROUTE-1	Demonstration
KSK-FN-9.1	The Kiosk Field Unit shall provide Help buttons to provide information on how to use the GUI currently displayed.	P-2.3.2.2.8	KSK-WEA-2 KSK-AIR-2 KSK-VIA-2 KSK-VIA-3 KSK-MAP-1 KSK-ROUTE-1	Demonstration
KSK-FN-10	Kiosk System Startup	P-2.3.2.2.7	KSK-SU-1 KSK-SU-2	Demonstration
KSK-FN-10.2	The Master Computer subsystem shall provide monitoring and restarting of its applications.	P-2.3.2.2.7	KSK-SU-1	Demonstration
KSK-FN-10.3	The Kiosk Field Unit subsystem unattended applications shall automatically startup at boot-up.	P-2.3.2.2.7	KSK-SU-2	Demonstration
KSK-FN-10.4	The Kiosk Field Unit subsystem shall provide monitoring and restarting of its applications.	P-2.3.2.2.7	KSK-SU-2	Demonstration

APPENDIX A

KIOSK FIELD UNIT DEPLOYMENT CHECKLIST
KSK-DEPLOY-1

Serial No:	**Telephone No:**	**Indoor:**	**Outdoor:**
Location:			

Yes	**No**	
		Is the hardware installed?
		Did the Kiosk Field Unit startup without error?
		Is weather, airport, VIA, and route guidance data displayed?
		Can weather, airport, VIA, and route guidance data be printed?
		Is real-time data being received?
		Can data files be received from the Kiosk Master Computer?
		Is screen saver data being displayed?

COMMENTS:

❒ PASS **❒ FAIL** **SwRI:_____ Date:_____**

TxDOT:_____ Date:_____