

TELVENT

Software Functional Requirements Specification Document

TravInfo[®] 511 System

Regional Real-Time Transit Hub Signs

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Revision History

Date	Author	QC	Notes
12/07/2007	Karl Barnes		Initial Draft
12/17/2007	Karl Barnes		Addition of new requirements; modification of existing requirements
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TABLE OF CONTENTS

1	INTRODUCTION	5
1.1	Purpose	5
1.2	Scope	5
1.3	Acronyms.....	5
1.4	References	6
2	FUNCTIONAL REQUIREMENTS.....	7

LIST OF FIGURES

FIGURE 1. SAMPLE TRANSIT HUB SIGN DISPLAY	9
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1 Introduction

1.1 Purpose

The purpose of this document is to describe the software requirements for the Transit Hub signs of the TravInfo[®] 511 system, a product of Telvent/Farradyne. This document of the Software Requirements Specification (SRS) describes what is included in the software and how it is implemented. This SRS is the agreement between Telvent/Farradyne and the purchaser of the system with regards to what the software will and will not do. The Acceptance Test Plan, a separate document that will be delivered later, will test that the system meets this SRS. The audience for the SRS is the purchaser, Telvent/Farradyne software development and systems engineering staff, and the Telvent/Farradyne project manager.

1.2 Scope

The software will include the basic TravInfo[®] 511 Windows 2000 Server or later based software with the following modules:

- TransitAgencyApplication service
- Transit Hub Sign website
- Real-Time Transit Database

1.3 Acronyms

The acronyms that appear throughout this document are defined in the table below.

Acronym Definitions	
ASCII	American Standard Code for Information Interchange
API	Application Program Interface
MTC	Metropolitan Transportation Commission
GUI	Graphical User Interface
ITS	Intelligent Transportation Systems
UML	Unified Modeling Language
SRS	Software Requirements Specification

OI	Operator Interface
SQL	Structured Query Language
XML	Extensible Markup Language
URL	Uniform Resource Locator

1.4 References

- *MTC TravInfo[®] Contractor, Detailed Design for DYNTRANS, Dynamic Transit Data Interface (NextBus) (Final #3), Deliverable 2-14, Functional Requirement 2.3.2.8, Telvent Farradyne, March 30, 2005*
- *Real-Time Transit Information System Architecture, Regional Real-Time Signs Technical Requirements and Specifications, Version 0.5, Kimley-Horn and Associates Inc., January 23, 2007*
- *Real-Time Transit Information System Architecture, Logical and Physical Architectures DRAFT, Kimley-Horn and Associates Inc., June 19, 2006*
- *Real-Time Transit Information System Architecture, High Level Requirements, FINAL DRAFT, Kimley-Horn and Associates Inc., June 20, 2006*
- *Real-Time Transit Information System Architecture, Concept of Operations, Version 2.1, Kimley-Horn and Associates Inc., October 12, 2006*

2 Functional Requirements

This section covers the requirements of the system.

Requirement ID	Requirement
THS100.01	Regional real-time transit signs will provide, at a minimum, the following content: <ul style="list-style-type: none"> a) Agency name or icon b) Route code c) Route name with direction d) Estimated departure time e) Route's departure location
THS100.02	Page alternation will be used to display content that does not fit on a single page. When displaying multiple pages, the amount of time each page is displayed will be configurable. The bottom of the first page will display "1 of x" with each successive page adding 1 to the first number until the last page displays, "x of x".
THS100.03	Predictions will be listed alphabetically by agency name, then by route name in ascending order with letter-named routes listed before numbers (or if no number or letter exists, alphabetically by route name).
THS100.04	Each sign or combination of signs must be capable of showing no more than three predictions per route not to exceed a configurable time limit. If the data feed is only providing one or two predictions per route, the sign will display those predictions.
THS100.05	Once the prediction is less than two minutes, the regional sign will display "<2".
THS100.06	Predictions will be shown in whole minutes.
THS100.07	If there are no transit service predictions available for a particular route, the sign will provide no information for that route. The space within the "Departing in:" column for that route will remain blank.
THS100.08	The station name will be displayed in the header of the web page.
THS100.09	If the sign web server encounters a technical error processing the page or there is a communications failure between the sign and the database, the sign will display "NO DATA AVAILABLE". The cause of the failure will be embedded as a hidden field in the sign display for use in debugging. There should be a notification sent to the administrator of the technical error.
THS100.10	Signs will allow for the keyboard entry of text messages to be displayed instead of the automatic predictions. For messages less than 80 characters, the display font size will be the same as the predictions. If the message is greater than eighty (80) characters but less than 120 characters, the display font size will be reduced to force the message to fit within the space designated for prediction times. Messages greater than 120 characters are not permitted. The message will display across the "Departing in" and "Departing from" columns.

Requirement ID	Requirement
THS100.11	All regional real-time signs will connect to the Internet to display real-time transit web pages hosted by an MTC web server. The web page residing on the web server will periodically retrieve prediction updates from the system database. The update rate will be adjusted via a configuration parameter.
THS100.12	The sign will not display data that has not been updated in the RTT database within a configurable period of time. If no updated data exists for a particular route, the sign will provide no information and the space within the “Departing in:” column for that route will remain blank
THS100.13	The sign display will emulate as closely as possible, the color schemes of the design in appendix A.
THS100.14	The routes and stops that comprise each transit hub will be stored in the real-time transit database.
THS100.15	The number of routes displayed per page will be adjustable via a configuration parameter.
THS100.16	The footer message displayed at the bottom of the page will be adjusted via a configurable parameter.
THS100.17	Database connection parameters will be stored in a configuration file on the web server.
THS100.18	The current time will be displayed in the footer of the web page.
THS100.19	The 511 logo will be displayed in the header of the web page.
THS100.20	The size of the display will be configurable via a cascading style sheet (CSS) file.
THS100.21	A tool will be developed to allow operators to enter text messages to be displayed instead of the automatic predictions

Appendix A. Transit Hub Sign Sample Display

A sample transit hub sign display design is shown below.

511		Embarcadero Area:	Departing in:	Departing from:
	Daly City	3, 48, 55 min	BART Platform	
	Dublin/Pleasanton	8 min	BART Platform	
	Fremont	14 min	BART Platform	
	Millbrae	8, 22, 29 min	BART Platform	
	Pittsburg/Bay Point	10, 24, 39 min	BART Platform	
	Richmond	19, 49 min	BART Platform	
	SF Airport	8, 21, 36 min	BART Platform	
	F to Castro and Market	9, 16, 22 min	Market & Drumm	
	F to Fishermans Wharf	16, 19, 24 min	Main & Market	
	J to Balboa Park	10, 18, 28 min	Muni Platform	
	K to Balboa Park	14, 26, 35 min	Muni Platform	
	L to San Francisco Zoo	12, 18, 33 min	Muni Platform	

Figure 1. Sample Transit Hub Sign Display