Operations and Travel Information Integration Sharing (OTIIS) Project

Corridor-wide Traveler Information Website Requirements

by

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REVISION HISTORY

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1.0	Jan 16, 2014	Draft	Initial draft
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ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

API	Application Programming Interface
CCTV	Closed Circuit Television
CVO	Commercial Vehicle Operator
DMS	Dynamic Message Sign
DOT	Department of Transportation
HAR	Highway Advisory Radio
MCOM	Multistate Corridor Operations and Management
NOAA	National Oceanic and Atmospheric Administration
N/WP	North/West Passage
OTIIS	Operations and Travel Information Integration Sharing
RWIS	Road Weather Information System
WTI	Western Transportation Institute

1   INTRODUCTION

The Operations and Travel Information Integration Sharing (OTIIS) project's Concept of Operations document provided a broad overview of the corridor-wide website's operation and a conceptual graphical presentation of its design. This document provides detailed requirements for the corridor-wide North/West Passage (N/WP) traveler information website, especially the data sets required.

2   PROJECT HISTORY

The North/West Passage corridor follows I-90 and I-94 from Washington to Wisconsin through eight states and nearly 2000 miles. These two interstate highways comprise a major east-west corridor for commercial and recreational travel passing through Washington, Idaho, Montana, Wyoming, North Dakota, South Dakota, Minnesota and Wisconsin. This project will develop a traveler information platform to assist planning of long-distance trips, collecting and housing operational data, understanding messaging to modify driver behavior, and investigating how operational data might be used by the private sector to create a more sustainable business model. The emphasis of the OTIIS Project is to provide traveler information at the corridor-wide scale. Figure 1 shows the North/West Passage Corridor.

Figure 1: North/West Passage Corridor

The N/W Passage coalition has identified and completed a number of tasks including a corridor-wide traveler information website. The current corridor-wide website (http://www.i90i94travelinfo.com/) provides a central site for accessing links to a limited number of state cameras and weather conditions. The website is hosted by Open Roads Consulting, but currently there is no maintenance contract for the website.

Technical Memorandum No. 1 reported current trends in traveler information and technology through a literature review and closer look at current systems. A Steering Committee survey was also performed and input was obtained to help determine the desired information layers for the system.

The concept of operations gave a high-level description of the capabilities of the proposed corridor-wide traveler information website and its look. It was written for a broad audience of stakeholders, including Commercial Vehicle Operator (CVO), business traveler, tourist, state Department of Transportation (DOT) personnel and website staff.

This requirements document details the specific functionality of the software to create the envisioned website. See Figure 2.
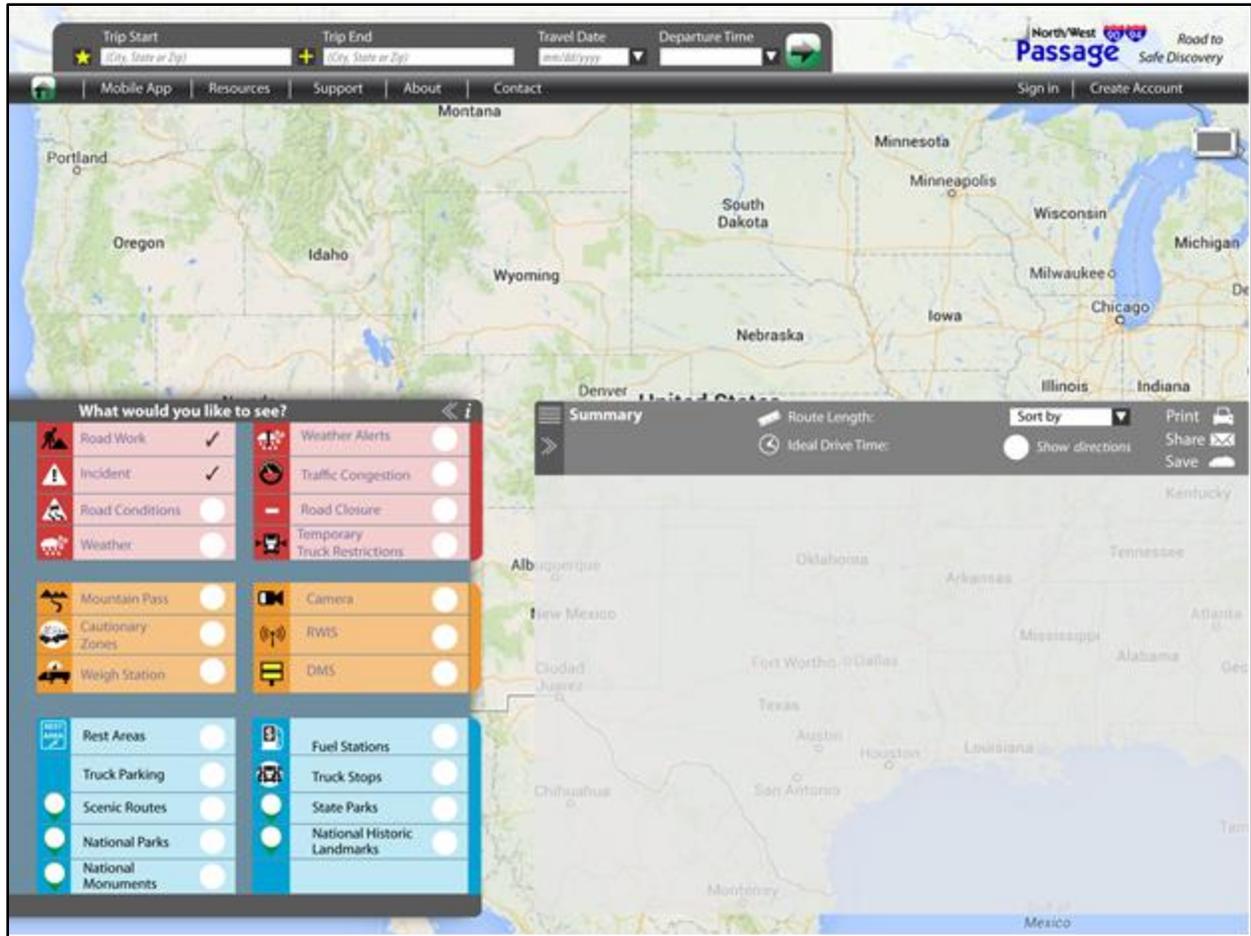
Figure 2: Envisioned OTIIS Website

3 SYSTEM OVERVIEW

A diagram of the OTIIS system is shown in Figure 3. Most of the data for the website is ingested from N/WP state's data, where the state DOTs control it. Weather data and non-state data originate from National Oceanic and Atmospheric Administration (NOAA) and other commercial/tourist sources.
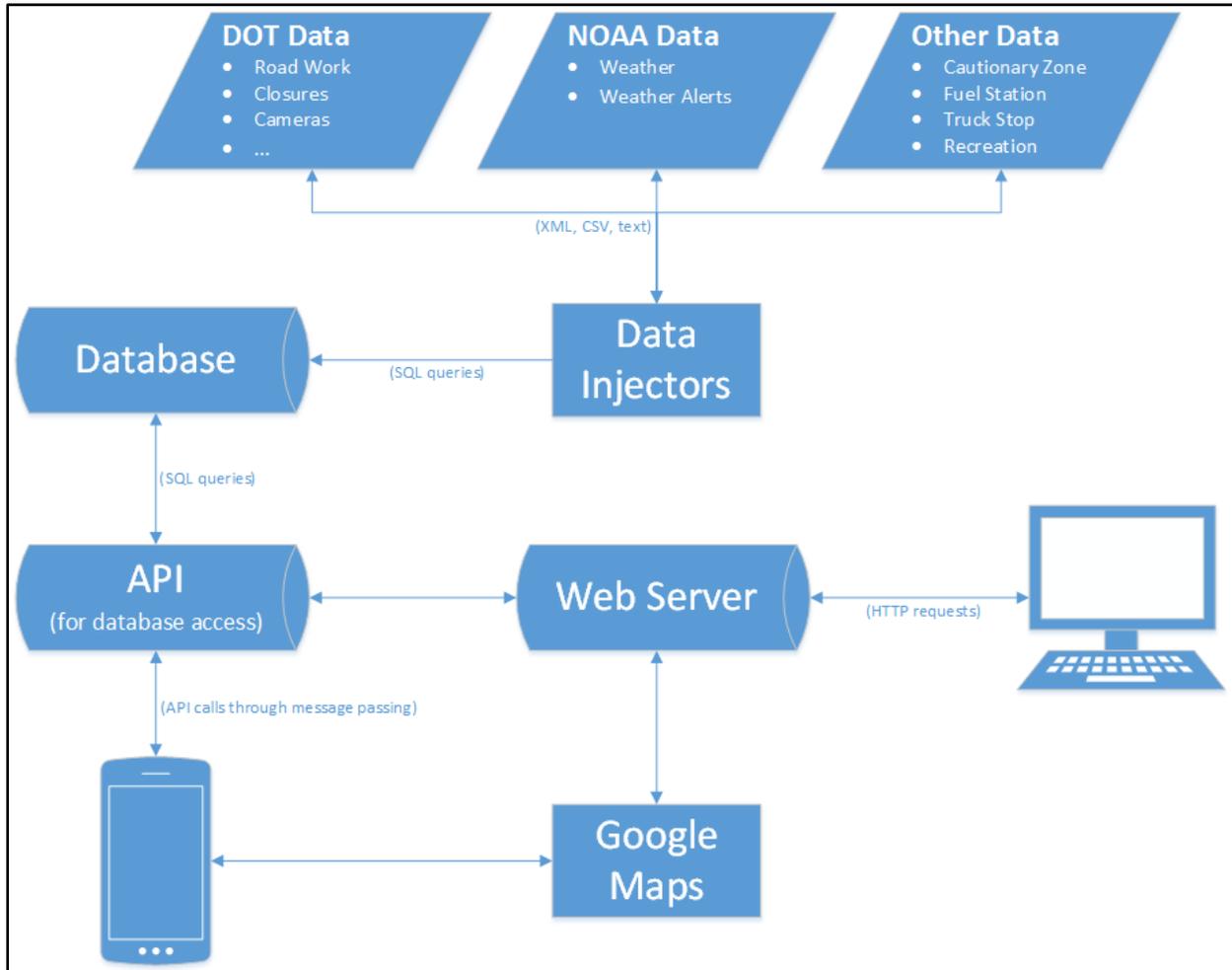
Figure 3: OTIIS System Architecture

The data injectors receive and/or fetch data from the data sources and push it to the website database. The data base is accessed thru an Application Programming Interface (API) by the web server and mobile devices. The web server gets requests for information from desktop, laptop and tablet computers and displays the appropriate database information using Google Maps. The mobile application requests data from the database through the API and displays the appropriate information using Google Maps.

4   REFERENCED DOCUMENTS

The following documents supported the preparation of this website requirements document:

- Hayden, L. and Ewan, L., Operations and Traveler Information Integration Sharing (OTIIS) Concept of Operations, Submitted Draft Final Report for MCOM, 2013.

- ASE Consulting LLC, Knowledge Systems Design and Siemens ITS, Systems Engineering Guidebook For ITS, Version 2.0, Prepared for the California Department of Transportation, Division of Research & Innovation, January 2, 2007. Accessed at http://www.fhwa.dot.gov/cadiv/segb/files/segbversion2.pdf on February 11, 2009.

5   DATA REQUIREMENTS

The main service of the corridor-wide N/WP website is as a regional traveler information data source. The first key set of requirements relates to the data that the web server acquires, stores, manages, and disseminates. There are three types of corridor-wide data sets: impacting, informative, and service/recreational. The following sections detail the requirements for each set.

5.1   Impacting Corridor-wide Data Set

The impacting data layers will be organized together and displayed in a consistent color scheme (likely red).

5.1.1   Road Work

5.1.1.1   The web server shall acquire and disseminate all available planned and active road work in the eight-state N/WP corridor.

5.1.1.1.1   Links to planned and active road work data shall be supplied by individual state data feeds.

5.1.1.1.2   The display of planned and active road work shall include the status as active or planned.

5.1.1.1.3   The display of planned and active road work shall include a timestamp of when the source data was last updated, as well as the beginning and ending dates of the road work.

5.1.1.1.4   The display of planned and active road work shall include the location [mile posts] or [xx miles west of TOWN NAME] if provided by the state data or if easily[1] derived.

5.1.1.1.5   The display of planned and active road work shall include a description of the work [resurfacing, striping, etc.] and [delays, restrictions, detours, etc.].

5.1.1.1.6   The display of planned and active road work shall include an impact estimate if provided by the state data [low, medium, high].

5.1.2   Crash/Incident Data

5.1.2.1   The web server shall acquire and disseminate incident data (accidents, emergency detours, etc.) in the eight-state N/WP corridor.

5.1.2.1.1   Crash/incident data shall be supplied by individual state data feeds.

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[1] The location of events will need to be mapped using lat. and long. Most states currently provided data this way, if a state provides data as a milepost on a given roadway then we will need a systematic method (or database of lat/long for interstate mileposts) to convert these for mapping. The location shown to the user will include milepost or area/town vicinity if that information can be easily derived. Easily meaning – if we have a systematic method (or database tying lat/long to areas/towns) for converting lat/long into area/town descriptions, or if one can be created.

5.1.2.1.1.1 Based on the data provided, if a latitude and longitude are not provided or cannot be derived, an incident may not be displayed.

5.1.2.1.2 The display of crash/incident data shall include a date and timestamp of when the source data was last updated.

5.1.2.1.3 The display of crashes/incidents shall include a description [multi-vehicle collision, stalled vehicle, stopped traffic, etc.] and [lane blocked, traffic reduced to one lane westbound, etc.].

5.1.2.1.4 The display of crashes/incidents shall include an impact estimate, if provided by the state data [low, medium, high].

5.1.3   Road Closure

5.1.3.1 The web server shall acquire and disseminate road closures for the eight-state N/WP corridor.

5.1.3.1.1 The location of road closures shall be acquired from individual state data feeds.

5.1.3.1.2 The display of road closures shall include a date and timestamp of when the source data was last updated.

5.1.3.1.3 The display of road closures shall include the location [mile posts] or [xx miles west of TOWN NAME] if provided by the state data or if easily derived.

5.1.3.1.4 The display of road closures shall include a description of the closure [road closed, road blocked, lane(s) blocked, landslide, seasonal closure, etc.].

5.1.3.1.5 Road closures that apply only to specific vehicle classes (all trucks, high profile vehicles, etc.) shall be indicated with a unique closure symbol indicating the closure and accompanied with the appropriate detour information in the description, if provided by the state data.

5.1.3.1.6 The display of road closures shall include an expected duration of the closure [X hours or X days or until X], if provided by the state data.

5.1.4   Weather

5.1.4.1 The web server shall acquire and disseminate weather data for the eight-state N/WP corridor.

5.1.4.1.1 Weather data shall be obtained from NOAA data feeds.

5.1.4.1.2 The display of weather data shall include a date and timestamp of when the source data was last updated.

5.1.4.1.3 The display of weather data shall include the location [town, city, area name].

5.1.4.1.4 The display of weather data shall include a description of conditions [sunny, partly cloudy, rain, freezing rain, snow, blowing snow, drifting snow, reduced visibility, strong wind].

5.1.4.1.5 The display of weather data shall include a forecast [today, tomorrow, etc.] and [details within day: hourly or AM/PM etc.].

5.1.5   Weather Alert

5.1.5.1 The web server shall acquire and disseminate weather alert data for the eight-state N/WP corridor.

5.1.5.1.1 Weather alert data shall be obtained from NOAA data feeds.

5.1.5.1.2 The display of alert data shall include a date and timestamp of when the source data was last updated.

5.1.5.1.3 The display of the alert shall include the location [town, city, area name].

5.1.5.1.4 The display of the alert shall include a description of the alert [severe thunderstorm warning, tornado watch, flash flood warning, etc.].

5.1.6   Temporary Truck Restrictions

5.1.6.1 The web server shall acquire and disseminate temporary truck restrictions for the eight-state N/WP corridor.

5.1.6.1.1 The location of temporary truck restrictions shall be acquired from individual state data feeds.

5.1.6.1.2 The display of temporary truck restrictions shall include a date and timestamp of when the source data was last updated.

5.1.6.1.3 The display of temporary truck restrictions shall include the location [mile posts] or [XX miles west of TOWN NAME] if provided by the state data or if easily derived.

5.1.6.1.4 The display of temporary truck restrictions shall include a description of the restriction [width limit ##, height limit ##, weight limit ##, length limit ##].

5.1.6.2 The web server shall acquire and disseminate all available chain requirements in the eight-state N/WP corridor. For the purposes of this document, chain requirements include not only requiring vehicles to have chains past a specific location, but also special winter storm traffic control (screening, truck holding, closures, etc. when available).

5.1.6.2.1 Chain requirements shall include data for all available locations, including passes.

5.1.6.2.2 Chain control information shall be supplied from individual state data feeds.

5.1.6.2.3   The display of individual chain requirements for a location shall include a timestamp of when the source data was last updated.

5.1.7   Traffic Congestion

5.1.7.1   The web server shall acquire and disseminate traffic congestion for the eight-state N/WP corridor.

5.1.7.1.1   The location of traffic congestion shall be acquired from individual state data feeds.

5.1.7.1.2   The display of traffic congestion shall include a date and timestamp of when the source data was last updated.

5.1.7.1.3   The display of traffic congestion shall include the location [mile posts] or [entering TOWN NAME westbound, etc.] if provided by the state data or if easily derived.

5.1.7.1.4   The display of traffic congestion shall include a description [e.g. traffic moving slowly entering Spokane eastbound].

5.1.8   Road Condition

5.1.8.1   The web server shall acquire and disseminate road conditions for the eight-state N/WP corridor.

5.1.8.1.1   Road condition information shall be acquired from individual state data feeds.

5.1.8.1.2   The display of road conditions shall include a date and timestamp of when the source data was last updated.

5.1.8.1.3   The display of road conditions shall include the location [mile posts] or [xx miles west of TOWN NAME] if provided by the state data or if easily derived.

5.1.8.1.4   The display of road conditions shall include a description of conditions [dry, wet, snow covered, packed snow, ice, frost, slush] and any visibility notes also provided by the state data.

5.2   Informative Corridor-wide Data Set

The informative data layers will be organized together and displayed in a consistent color scheme (likely orange).

5.2.1   Mountain Pass

5.2.1.1   The web server shall acquire and disseminate state highway system mountain pass locations, where applicable, in the eight-state N/WP corridor.

5.2.1.1.1   The location of state highway system mountain passes shall be acquired, where applicable.

5.2.1.1.2   The display of mountain passes shall include a date and timestamp of when the source data was last updated.

5.2.1.1.3   The display of mountain passes shall include the location [pass name].

5.2.1.1.4   The display of mountain passes shall include maximum grade [XX%].

5.2.1.1.5   The display of mountain passes shall include elevation [XXXX ft.].

5.2.1.1.6   The display of mountain passes shall include camera view, if available [button to show camera view if applicable].

5.2.1.1.7   The display of mountain passes shall include RWIS data, if available [button to show RWIS data if applicable (temp., wind, precipitation, etc.)].

5.2.1.1.8   The display of mountain passes shall include weather forecast, if available [button to show weather and forecast weather data if applicable].

5.2.2   Camera

5.2.2.1   The web server shall acquire and disseminate all available camera images in the eight-state N/WP corridor.

5.2.2.1.1   Links to camera data shall be supplied from individual state camera feeds and other approved sources.

5.2.2.1.2   The display of an individual camera image shall include a date and timestamp of when the source data was last updated.

5.2.2.1.3   The display of camera images shall include the location [mile posts] or [area name] if provided by the state data or if easily derived.

5.2.3   Cautionary Zones

5.2.3.1   The web server shall acquire and disseminate all available cautionary zones in the eight-state N/WP corridor.

5.2.3.1.1   The location of state highway system cautionary zones shall be acquired initially from a state pre-approved identification effort led by WTI, then include state self-reporting of cautionary zones.

5.2.3.1.2   The display of cautionary zones shall include a date and timestamp of when the source data was last updated.

5.2.3.1.3   The display of cautionary zones shall include the location [mile posts] or [XX miles west of TOWN NAME] if provided by the state data or if easily derived.

5.2.3.1.4   The display of cautionary zones shall include a description [high deer-vehicle collision location, high involvement of large-truck in collisions, high winter-weather related crash location, etc.].

5.2.4   RWIS

5.2.4.1   The web server shall acquire and disseminate all available RWIS data in eight-state N/WP corridor.

5.2.4.1.1   Links to RWIS data shall be supplied from individual state data feeds.

5.2.4.1.2   The display of individual RWIS site shall include the location [mile posts] or [xx miles west of TOWN NAME] if provided by the state data or if easily derived.

5.2.4.1.3   The display of individual RWIS site data shall include, if applicable (temp., humidity, wind, precipitation, etc.)

5.2.4.1.4   The display of individual RWIS site data shall include a timestamp of when the source data was last updated.

5.2.5   Weigh Stations

5.2.5.1   The web server shall acquire and disseminate weigh station locations for the eight-state N/WP corridor.

5.2.5.1.1   Weigh station location data shall be acquired from state databases, where available.

5.2.5.1.2   The display of weigh station locations shall include the location [mile posts] or [town/area name] if provided by the state data or if easily derived.

5.2.5.1.3   The display of individual weigh station status shall include a timestamp of when the source data was last updated.

5.3   Service/Recreation Corridor-wide Data Set

The service/recreation data layers will be organized together and displayed in a consistent color scheme (likely blue).

5.3.1   Rest Areas

5.3.1.1   The web server shall acquire and disseminate rest area locations for the eight-state N/WP corridor.

5.3.1.1.1   Rest area data shall be acquired from individual state databases.

5.3.1.1.2   The display of rest areas shall include the location [mile posts] or [town/area name].

5.3.1.1.3   The display of rest areas shall include the amenities [WiFi, heated restrooms, etc.] as reported by individual state databases.

5.3.1.1.4   The display of rest area shall include truck parking [Yes/No] and [## spaces (if available)].

5.3.2   Truck Parking Areas

5.3.2.1   The web server shall acquire and disseminate truck parking area locations for the eight-state N/WP corridor.

5.3.2.1.1   Truck parking area data shall be acquired from individual state databases, where available.

5.3.2.1.2   The display of truck parking areas shall include the location [mile posts] or [town/area name].

5.3.2.1.3   The display of truck parking areas shall include the amenities [toilet, WiFi, etc.] as reported by individual state database.

5.3.2.1.4   The display of truck parking areas shall include the ## spaces (if available).

5.3.3   Fuel Stations

5.3.3.1   The web server shall acquire and disseminate fuel station locations, when available, for the eight-state N/WP corridor.

5.3.3.1.1   Fuel station data shall be acquired from commercial databases, if reliable low or no cost data is available.

5.3.3.1.2   The display of fuel stations shall include the location [mile posts] or [town/area name].

5.3.3.1.3   The display of fuel stations shall include the station name, if available [Joe's Fuel, etc.].

5.3.3.1.4   The display of fuel stations shall include the amenities, when available [WiFi, restaurant, convenience store].

5.3.4   Truck Stops

5.3.4.1   The web server shall acquire and disseminate truck stop locations, when available, for the eight-state N/WP corridor.

5.3.4.1.1   Truck stop location data shall be acquired from commercial databases, if reliable low or no cost data is available.

5.3.4.1.2   The display of truck stop locations shall include the location [mile posts] or [town/area name].

5.3.4.1.3   The display of truck stop locations shall include the name, if available [Carters, etc.].

5.3.4.1.4   The display of truck stop locations shall include the amenities, if available [WiFi, restaurant, convenience store].

5.3.4.1.5   The display of truck stop locations shall include a parking description [## truck spaces] or [S, M, L] if available.

5.3.5   Recreation

5.3.5.1 The web server shall acquire and disseminate recreation locations (scenic routes, national parks, national monuments, national historic landmarks, and state parks) for the eight-state N/WP corridor.

5.3.5.1.1 Approved recreation feature data shall be acquired from official state and national government sources (state tourism department, DOT, national park service etc.).

5.3.5.1.2 A short description of the recreation feature will be provided to the user along with website links to more detailed information from the approved official sources.

5.3.6 Missing Data

5.3.6.1 If any of the data described above is missing or the data feed becomes unavailable an indication of the missing data will be shown by the affected information layer.

5.3.6.1.1 For example, if an entire state's road work data is unavailable the state's abbreviation [XX] would be shown immediately below the road work layer label, and hovering over this abbreviation would give the user more information explaining the missing or unavailable data for that state.

5.3.6.2 If any individual piece of information is missing the popup for that piece of information will include a disclaimer stating the data is missing or unavailable.

5.3.6.2.1 For example, if an individual camera data feed becomes unavailable, the icon for that camera will remain on the map, but if that icon is selected a disclaimer for that camera will indicate the unavailable data.

5.3.7 Additional Data Elements

5.3.7.1 Additional data elements may be added to the web server either during the development of the prototype or at a future date if deemed beneficial by the N/WP Steering Committee. Similarly, the proposed data elements contained within this document may be removed or altered if subsequent project tasks prove this to be a necessity and only after Steering Committee approval and/or comment. Significant additions may result in changes to the timeline and budget of the project.

5.3.8 Future Data

5.3.8.1 The web server shall be designed such that it can easily incorporate additional data in the future, post deployment, given appropriate time and budget with consultation from the Steering Committee.

6   FUNCTIONAL REQUIREMENTS

This section describes the website's functional requirements for the "users," or those who would use the system. In general, the users can be grouped into the following categories: 1) CVOs; 2) Business Travelers and 3) Recreational Travelers. The website shall function similarly for all users.

6.1   User Login

6.1.1   If the user wants their trip information saved for future access, the website shall require the user to register by entering a name, a user name, password, and email address for validation. (Note: Users may access the website without creating an account or logging in. The login feature is only for users who wish to store a profile.)

6.1.1.1   The web server shall enable the user to input the number of days to save their trip information.

6.1.1.2   The default number of days shall be 7 if no value is entered.

6.1.1.3   The web server shall save users trip information for a maximum of 120 days.

6.1.2   The user name shall **not** be case sensitive.

6.1.3   The user name shall allow use of an email address.

6.1.4   The password shall be case sensitive with a minimum of eight and a maximum of 15 characters, special characters and digits.

6.2   User Trip Information

6.2.1   The website shall be map based with textual elements as needed and display the information of the data set for the eight-state N/WP corridor.

6.2.2   The website shall present an overview map for the eight-state corridor prior to user entry of trip start and end points.

6.2.3   Data for the route generated for the specified starting and ending points and surrounding areas shall be displayed on the map.

6.2.4   When selected, an icon shall display concise textual information regarding the selected item.

6.2.4.1   In areas with multiple icons in close proximity, placing the mouse pointer over the area shall enable the icons to spread out for easier viewing (similar to Google

Earth). The development team may also propose additional visual methods for selection from among multiple icons if the spreading out of icons is not easily supported by the Google Maps API.

6.2.4.2 **In areas with overlapping icons, "impacting" icons shall be displayed on top, "informative" icons shall be displayed under impacting icons and "service/recreation" icons shall be displayed under impacting and informative icons, if available in Google Maps API.**

6.2.5   The user shall have the ability to return to the initial, corridor-wide overview map from each page.

6.2.6   The user shall have the ability to pan and zoom the map.

6.2.7   If the user adjusts the route initially presented by the website, the data displayed on screen will reset, with the relevant data for the new route displayed.

7   PERFORMANCE REQUIREMENTS

Performance requirements refer to measurable system capabilities. This section includes discussions of the updating and delivery frequency requirements for the website.

7.1 Updating and Delivery Frequency

7.1.1   The web server shall pull and receive data from specified sources.

7.1.2   The web server shall check for new data to pull in from sources.

7.1.2.1   The frequency of checks for new data made by the web server shall be similar to the frequency used by the individual data sources or every 5 minutes if state data updating frequency is undefined.

7.1.2.2   The data source providers shall maintain their traditional updating frequencies for their respective data feeds (i.e. the N/WP website shall not require changes to current procedures on the part of data providers).

7.1.2.3   The N/WP website shall be designed such that agencies may pull data from it via the interface, through re-formatted text feeds (XML).

7.1.2.4   Alternative data formats shall be discussed in later sections of this document.

7.1.3   The website shall display only the data most recently acquired from the data sources.

7.2 Quality Control

7.2.1   The website shall not serve as a quality control monitor for the data supplied by agencies.

7.2.2   Quality control will not include validating the accuracy of state provided data but, will involve a method to ensure the state provided data is translated accurately.

8   WEBSITE REQUIREMENTS

This section focuses on the requirements specific to the website.

8.1   General

8.1.1   The website shall be available via commonly available web browser software running on a desktop or laptop PC platform.

8.1.1.1   Supported web browsers shall include those currently supported by the Google Maps API – Internet Explorer 8-10, current and previous versions of Firefox, current and previous versions of Chrome, and current and previous versions of Safari.

8.1.2   The website shall initially be housed on a server, or network of servers, with investigation into cloud based options for the future if necessary.

8.1.3   The website shall employ a database to support route queries and general data storage.

8.1.4   A throttle may be installed that limits the number of times per minute a user may update their interface data.

8.1.4.1   The throttle shall prevent the denial of service to other users as the result of a user who is tying up the server through constant refreshes.

8.1.5   The website may also make available API access to data for use by other systems.

8.1.5.1   Permissions to use the API to access data stored on the database will be determined by a policy defined by WTI and the N/WP Steering Committee.

8.1.6   Additional general operating requirements shall be discussed and finalized on an as-needed basis. Significant additions may result in changes to the timeline and budget of the project.

8.1.7   The website shall be designed to keep a record of origins and destinations entered by users.

8.1.7.1   A record of general origins and destinations entered shall be kept to allow stakeholders to observe trends in usage.

8.1.7.2   The origin and destination records shall be retained for a minimum of 2 years.

8.2   Data Format and Standards

8.2.1   The OTIIS system shall be capable of accepting state specific data in formats: direct database access, XML, CSV, and other data exchange standards, except HTML.

8.2.2   The OTIIS system shall make the data available from an API to serve as a data source for other established systems with approval from the Steering Committee (e.g. make data from one state available to feed into the other state's traveler information website(s)).

8.2.3   The API shall make data available in XML format.

8.3   Interface Display

8.3.1   The website display shall be map based.

8.3.2   The website display shall consist of an initial viewing pane that presents the region overall.

8.3.3   Once the user enters a starting and ending point for a trip, two viewing panes will be displayed.

8.3.3.1.1 The primary viewing pane shall contain a Google map with data icons displaying all available information of interest to travelers.

8.3.3.1.2 A second viewing pane shall display the information choices and trip summary.

8.3.4   The website shall allow users to view all data icons at once or selectively by layer.

8.3.5   The website shall be designed such that it is clear to the user that a data element is missing or unavailable.

8.3.6   The website shall include the capability to generate printable maps for traveler reference.

8.3.7   The development of user profiles shall be employed by the interface to allow the user to save the layers they wish to appear on their map in subsequent visits.

8.4 Control

8.4.1   The website shall require some interaction on the part of the user (i.e. enter the starting and ending points for a trip and dragging the Google-generated route to a different path if desired).

8.4.2   The website shall allow users to select specific layers of information of interest.

8.4.2.1   All layers, except those described in 8.4.2.2, are treated the same and may be toggled on and off by the user.

8.4.2.2   Some of the most important layers (road closures, weather alerts, incidents, etc.) may be preselected always or seasonally as determined by WTI and the Steering Committee.

9   ENABLING REQUIREMENTS

Requirements in this section relate to aspects of the website whose function enables it to properly fulfill its purpose.

9.1   Software

9.1.1   The website shall require no specialized, third-party software, except Google Maps API, to acquire, reformat or disseminate the available information previously detailed.

9.2   Installation Design

9.2.1   The website shall operate in a standard web browser and be designed such that access may be accomplished by the user via a website link.

9.3   Mobile Design

9.3.1   A mobile app Requirements document will be developed to define functions of the mobile app.

9.3.2   The website shall operate with a mobile application on an Android smart phone or tablet.

9.3.3   The website shall operate with a mobile application on an Apple smart phone or tablet.

10 TRAINED PERSONNEL REQUIREMENTS

10.1 Operational Support

10.1.1 Operational support personnel responsible for the N/WP corridor-wide website shall be trained on the website software.

10.1.2 Operational support personnel shall be trained to provide data quality control as specified in section 7.2.2.

10.2 Maintenance Support

10.2.1 Maintenance support personnel responsible for updating server and website software shall be trained on the server and website software.

10.2.2 Maintenance response will be during typical business hours (8:00AM to 5:00PM, Monday through Friday).

11 MATERIALS REQUIREMENTS

11.1 User Guide

11.1.1 A user guide may be developed for the eight-state corridor-wide N/WP website if one is deemed necessary by the Steering Committee.

12 FACILITIES REQUIREMENTS

12.1 Server Location

12.1.1 The website shall be hosted on a server at a location with power outage support equipment that shall keep the prototype website (website during development stages) operational for a minimum of 20 minutes and the approved website (website after public launch) operational twenty-four hours a day, seven days a week in the event of a grid outage.

12.1.2 The initial location of the server shall be determined by the Western Transportation Institute.