Request for Information (RFI)
Travel Midwest / IDOT Advanced Traveler Information System (ATIS)

Please Respond by Sending Your Information to Agency Contact by:

December 20, 2017
1:30 P.M. CST

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1. Overview

This Request for Information (RFI) seeks information on data management, sharing strategies, and priorities in order to identify potential solutions for the future administration, development, and operations of the Gateway Traveler Information System (GTIS)/Travel Midwest.

The purpose of this RFI is to:

- Solicit feedback from industry experts how best to use the data being collected, future potential uses of data, and to better understand how existing data can add value to Illinois Department of Transportation (IDOT) and Illinois stakeholders;

- Understand how digital traffic data generated from various transportation sources is or should be used, received, managed, and disseminated by GTIS/Travel Midwest;

- Solicit suggestions from industry on potential traveler information system improvements and features that should be included in any potential solicitations or requests for proposal;

- Identify changes to public use of GTIS data, and whether the existing system accommodates technological advances in the provision of traveler information;

- Explore opportunities for public-private partnerships related to shared data, use of data, and software;

- Solicit input from industry on a variety of issues, including scope and schedule to allow for seamless transition of data collection, GTIS and Travel Midwest websites at the conclusion of the current agreement;

- Gather information on available options and opportunities related to the management and operations of Advanced Traveler Information Systems (ATIS), and the use of the data being collected;

- Provide an opportunity for potential respondents to articulate their interest in participating in the procurement process;

- Assist IDOT in evaluating next steps;

- Solicit input as to how to address the GTIS/Travel Midwest System goals and capabilities outlined below in Section 5 of this RFI.

The GTIS/Travel Midwest is managed and administered by the Illinois Department of Transportation (IDOT) under an existing Intergovernmental Agreement (IGA) with the University of Illinois at Chicago (UIC). Potential procurement is anticipated to provide needed services to IDOT at the conclusion of the existing UIC IGA, which is currently scheduled to expire January 1, 2019.

Well-organized and concise responses are encouraged in order to facilitate IDOT's review process. Responses must follow the order specified in the Response Criteria section below. IDOT expects that the system, solutions, technologies, and services described in response to this RFI are all generally available, have been successfully implemented, and/or will be in production at a reference-able time frame. Any exceptions must be documented (e.g., the functionality is in beta, or is currently being piloted).

2. Background

The concept for GTIS/Travel Midwest was conceived in 1993, when USDOT identified the Gary-Chicago-Milwaukee Corridor (GCM) as an Intelligent Transportation Systems (ITS) High Priority Corridor. Initial membership included a coalition of Illinois, Indiana, and Wisconsin transportation agencies and other interested parties. The primary focus of GCM was corridor planning and development of coordinated responses to traffic congestion. In late 2006, the focus of the GCM Corridor was reoriented towards interstate highway operations, and the name changed to reflect the new focus. The Lake Michigan Interstate Gateway Alliance (LMIGA) was born, and its corridor boundaries were expanded to include southwest Michigan and the area east and south of Madison, Wisconsin.

The Great Lakes Regional Transportation Operations Coalition (GLRTOC) was formed in May 2010. It seeks to improve cross-regional transportation operations including incident management, reliability and mobility strategies, and traffic incident management/emergency transportation operations. With its recent expansion in 2015, GLRTOC includes active member participation from the:

- Chicago Skyway
- Illinois Department of Transportation (IDOT)
- Illinois Tollway
- Indiana Department of Transportation (InDOT)
- Indiana Toll Road
- Iowa Department of Transportation (IowaDOT)
- Kansas Department of Transportation (KDOT)
- Kentucky Transportation Cabinet (KYTC)
- Michigan Department of Transportation (MDOT)
- Minnesota Department of Transportation (MnDOT)
- Missouri Department of Transportation (MoDOT)
- Ohio Department of Transportation (ODOT)
- Ontario Ministry of Transportation
- Wisconsin Department of Transportation (WisDOT)

The primary goal of GTIS/Travel Midwest is to collect and integrate traveler information data from the GLRTOC area to display to end users real-time traveler information (travel times, speed, congestion, construction, incident, special event, dynamic message signs (DMS), camera images, and hazardous weather, etc.).

The GTIS also performs the important function of facilitating automated connections with the major traffic management and operations centers in the GLRTOC coverage area.

GTIS/Travel Midwest has a long history of serving as a central travel information repository for Illinois and other Midwestern states. The GTIS collects and processes data from embedded in-roadway sensors, above-roadway sensors, as well as many types of vehicle sensors. In addition, data is entered by GTIS operators at the IDOT District 1 ComCenter. This data is sent to TravelMidwest.com for distribution to the public.

In 2015, the GTIS was expanded to cover the entire State of Illinois. The goal of this Illinois Statewide expansion was to make the Travel Midwest website the foundation traveler information resource for the Illinois Department of Transportation Getting Around Illinois (www.gettingaroundillinois.com) website.

Today, the GTIS covers the entire Interstate 94 corridor from Minneapolis, Minnesota to Detroit, and Port Huron, Michigan. The expansion of the coverage area was completed in collaboration with the GLRTOC, and includes transportation agencies responsible for operations on major transportation routes stretching from Minneapolis, Minnesota to Toronto, Ontario (Canada). GTIS includes Chicago, Milwaukee as well as all interstates in the Minneapolis/St. Paul and Detroit metropolitan areas in addition to providing coverage along Interstate 69 and Interstate 96 in Michigan.

Over the years, the site has been mentioned in numerous academic and government research projects including Massachusetts Institute of Technology, Harvard University, University of Chicago, Northwestern University, and the Federal Reserve Bank of Chicago. Data from the site has been featured in the Chicago Tribune, other media outlets, and numerous websites. Members of the motoring public have used the site millions of times to help them plan their trips.

3. Current System

3.1 Existing Capabilities and Staffing

Under the IGA between IDOT and UIC, improvements and changes to the system are taking place regularly. The description that follows is a snapshot as of the issuance of this RFI.

The GTIS senior staff from UIC includes three developers, two Senior System Engineers and one Project Coordinator, assisted by several developers from an outside consulting firm. This team is responsible for the system development and maintenance.

At present, the GTIS operations effort is staffed by UIC with a Project Coordinator and nine GTIS operations staff at IDOT's District 1 ComCenter. These positions are responsible for the following functions:

- Entering incident information into the GTIS;
- Entering construction data into the GTIS;
- Entering information on special events (parades, festivals, sporting events, etc.) that have the potential to impact traffic;
- Placing important messages on the Travelmidwest.com website banner;
- Answering or re-directing e-mail inquiries to the webmaster account;
- Monitoring data feeds and other GTIS components, troubleshooting and correcting system problems, and notifying appropriate support staff of any outages detected;
- Answering the GTIS information line and forwarding calls to appropriate personnel;
- Preparing reports such as system performance reports and other tasks as directed by IDOT or UIC senior personnel;
- Monitoring incident response and distributing information for major incidents whose impacts cross jurisdictional boundaries;
- Monitoring various outlets for traffic information that has not been provided through normal channels;
- Monitoring data sources for items of particular interest to commercial vehicle operators (CVO) and forwarding this information to the appropriate trucking associations;
- Monitoring the traffic patterns for unusual activity that could signal an unreported incident;
- Monitoring road condition information provided by various state police departments and posting this information as Announcements or Banner messages during periods of inclement weather; and
- Current GTIS operator tasks are currently:
    - Data Entry is approximately 40%
    - Inquiries are approximately 8%
    - Preparing reports is approximately 2%
    - Troubleshooting is approximately 10%
    - Monitoring is approximately 40%

3.2 Types of Data Supported

Data is supplied by several IDOT Districts and IDOT Station One, the Illinois Tollway Traffic and Incident Management System (TIMS), Chicago Skyway, Chicago Department of Transportation and Chicago Office of Emergency Management and Communications, the Chicago Transit Authority (CTA) Bus Tracker System, Lake County (IL), WisDOT, MDOT, MnDOT, InDOT, Indiana Toll Road, and Iowa DOT. Unless indicated otherwise, all of this information is available 24/7.

The following types of data are received and utilized by the GTIS:

A. Construction Data

The GTIS has automated interfaces to receive, process, and save construction data and create construction reports. The GTIS also receives some construction reports via e-mail. GTIS staff in using these reports is responsible for placing construction icons and boundaries on the Travel Midwest map and detailed construction information is placed in the construction report. Construction reports for each individual project are available for each interstate including location, mile marker(s), severity (minor, medium, or high), closure details (lanes, shoulders, ramps closed), start time, end time, data source, and description.

B. Travel Times

The GTIS receives or calculates travel time data from automated interfaces. There are currently over 300 travel time reports for specific roadway segments available on Travel Midwest. The roadway segments are defined segments depicted on the map, and have corresponding travel time reports available for these same segments. The individual travel time reports include the color-coded congestion status (none, light, medium, or heavy), the start point, end point, actual travel time, average historical travel time, distance, and speed for each segment. There are travel time graphs to show various comparisons of current travel times vs. the average historic times with standard deviations.

C. Congestion Data

The GTIS receives data from external sources to calculate congestion. The detector data received is automatically converted into congestion information by the GTIS. The GTIS also receives congestion information for arterials within the City of Chicago that is generated based upon travel time data received from the Chicago Transit Authority (CTA) Bus Tracker System deployed on CTA buses. The GTIS currently has approximately 4,900 congestion reports covering approximately 3,400 miles of roadway. These reports enable the Travel Midwest map to display the color-coded congestion and the congestion report includes this same color-code along with the start point and end point for each interstate segment. GTIS operators can also manually enter congestion data that results from incidents or weather events on non-instrumented roadways.

D. Incidents

One of the most important functions of the GTIS/Travel Midwest is to gather, process, and disseminate incident information. Many data sources provide incident information to the GTIS via automated interfaces. The GTIS processes the incident information, and disseminates the information via travelmidwest.com, the trip alert email system, its XML feed, and the TravelMidwest.com Incident Notification System (TINS). All incident information received for IDOT expressways that impacts at least one lane of traffic is entered into the GTIS on a 24/7 basis. The GTIS operators enter these incidents into the GTIS database. Authorized users can also enter incident data into the GTIS for display on the Travel Midwest website.

E. Travel Midwest Incident Notification System (TINS)

The TINS provides incident updates to registered TINS users for any incidents detected within the GTIS coverage area. During an incident with serious impacts, the notification suggests a list of Dynamic Message Signs (DMS) that could be activated to display information about the incident. The incident notifications are filtered so that only incidents that affect a given user are sent to that user. Likewise, the list of DMS is filtered to those that a motorist might possibly view when impacted by a nearby incident. A link to an incident response web page is also provided that displays all active incidents, the DMS response that is in effect, and the agencies that have been notified.

F. Detectors

The GTIS receives detector data via automated interfaces. The detector report includes the status, nearest cross street, speed, occupancy, volume, and source for each detector location.

G. Dynamic Message Signs (DMS)

The GTIS receives message sign text via automated interfaces. The information contained in the message sign report includes the sign status, location, the text contained on the message, and source.

H. Special Events / AMBER Alerts

The GTIS can receive and display special event information on the Travel Midwest website. Currently, AMBER alerts are received by an automated interface with IDOT and are displayed in the website banner.

I. Cameras

The GTIS currently receives snapshot images from over 1,600 cameras from various agencies, usually via file transfer protocol (ftp). The snapshot images are available on Travel Midwest and in in the camera report, which contains information on the location, description, image age, and thumbnail aerial view for each camera. The cameras provide multiple directional views at each location. For Illinois, there are 189 IDOT cameras, 20 Illinois Tollway cameras, and 349 Lake County cameras that are displayed. The sources for the remaining cameras are from MnDOT, WisDOT, Iowa DOT, and InDOT. Images, however, are not stored on the website.

3.3 GTIS Geographic Coverage and Functionality

A. **Geographic Coverage**: The GTIS geographic coverage is as follows:

- Minneapolis/St. Paul metropolitan area in Minnesota;
- I-94 and Southern Wisconsin from the Wisconsin Dells to Milwaukee and down to the Illinois border;
- The State of Illinois;
- Northern Indiana from Gary to the Ohio state line;
- Southern Michigan including Grand Rapids, Detroit and Port Huron;
- Iowa along I-80 from the Illinois border to Des Moines; and
- Northern Ohio from Indiana border to the Toledo area.

One hundred eighty-six (186) counties are part of the GTIS coverage area and they include:

Illinois

All 102 counties

Michigan

Allegan County
Barry County
Berrien County
Branch County
Calhoun County
Cass County
Clinton County
Eaton County
Genesee County
Ingham County
Ionia County
Jackson County
Kalamazoo County
Kent County
Lapeer County
Livingston County
Macomb County
Monroe County
Muskegon County
Oakland County
Ottawa County
St. Claire County
St. Joseph County
Shiawassee County
Van Buren County
Washtenaw County
Wayne County

Iowa

Scott County
Cedar County
Johnson County
Iowa County
Poweshiek County
Jasper County
Polk County

Wisconsin

Columbia County
Dane County
Dunn County
Eau Claire County
Green County
Jackson County
Jefferson County
Juneau County
Kenosha County
La Crosse County
Lafayette County
Milwaukee County
Monroe County
Ozaukee County
Racine County
Rock County
St. Croix County
Sauk County
Trempealeau County
Walworth County
Washington County
Waukesha County

Indiana

Elkhart County
LaGrange County
Lake County
LaPorte County
Porter County
St. Joseph County
Steuben County

Ohio

Fulton County
Williams County
Paulding County
Wood County
Erie County
Huron County
Lucas County
Hancock County
Defiance County
Sandusky County
Ottawa County
Henry County

Minnesota

Anoka County
Chisago County
Dakota County
Hennepin County
Ramsey County
Scott County
Stearns County
Washington County
Wright County

B. **TravelMidwest.com Functionality**

The descriptions that follow are a brief introduction of the functional aspects of the Travelmidwest.com website. Interested parties are encouraged to explore the website and become familiar with contents and functionalities.

Users can click on any map to obtain more detailed information about travel times, congestion, construction, incidents, message signs, cameras, etc. There are also icons on the map that link to external websites such as O'Hare Airport. The Travelmidwest.com website provides a version of its maps for customers that possess mobile devices with limited screen sizes (e.g., smart phones). Android and iPhone users can use pan and zoom features on the map within the map page.

The www.travelmidwest.com website includes:

- Map Information Viewer
- Map with pan/zoom multiple layers
- Mobile Map
- Notice Menu
- Readable and attractive reports such as DMS and camera reports that are ADA (Americans with Disabilities Act of 1990) compliant
- Trips Menu
- Projects Menu
- Help Menu
- About Menu
- Customization with My Travel Preferences and cookies
- Highlighted travel time alerts on map and reports
- A page with links to important traffic information resources
- Multi-line banner message
- Construction announcements
- News items
- Transit incidents
- Weather advisories
- Notification banner

3.4 Reports, Data, and Messages

The website contains detailed reports for the traffic data collected, which is accessible by a drop down menu. Existing reports include: travel times, congestion, incidents, construction, cameras, truckers, message signs, special events, detectors, weather stations, and Chicago Quick Traffic. Users are also able to access a "My Travel" Preferences page, which allows frequent visitors to choose the report locations they are most interested in. The website trip functions allow the user to view, create, and receive e-mail alerts for customized trips spanning multiple expressways.

Messages that are displayed on the top (right corner) of every web page of www.travelmidwest.com are referred to as banner messages. Both the GTIS and the Gateway operations staff place important information in the website banner. The GTIS will automatically place important incidents and heavy congestion information in the website banner. Heavy congestion messages are displayed if the detected speed is less than 50% of the average speed for the given time of day and day of week and the speed is less than 15 miles per hour. The segment of expressway affected by the heavy congestion must be at least two miles long before it is displayed in the website banner.

The Travel Midwest Truckers Report provides a single location where commercial carriers operating vehicles over both interstates and arterials in the Travel Midwest area can access information to address their unique needs. The Truckers Report includes travel time watch zones which flag road segments that are experiencing higher than average travel times, a table displaying high severity or long duration incidents, a table for major construction, winter road conditions, an announcements section to display major events, and a table of links to web sites for additional trucker services. The process of registering to receive data from or send data to the GTIS is automated. Note that a written agreement with IDOT will be necessary if entities are redistributing or earning revenue from the provided traffic information.

3.5 Travel Midwest Mobile App

Travel Midwest Mobile App (the App) is the official application of the www.travelmidwest.com website for use on personal digital assistants (PDAs) or smartphones, subject to the application terms and conditions. Travel times, congestion, construction, incidents, weather, and camera images are shown on a scrollable, zoom-able, tiled map on iOS and Android mobile devices. Important messages such as major closures due to accidents and inclement weather alerts are displayed and updated in real-time on the bottom of the screen.

Several preset map views are bundled with the App including for Illinois: the Chicago area, City of Chicago, Bloomington/Normal, Champaign/Urbana, Effingham, Kankakee, Lake County (Illinois), Peoria, Quad Cities, Rockford, Springfield; for Missouri: St. Louis Metro; for Indiana: East, NW Indiana (Gary); for Michigan: Detroit, Grand Rapids, Lansing; for Minnesota: Minneapolis/St. Paul; and for Wisconsin: Madison and Milwaukee. In addition to these presets, the map can be centered anywhere in the covered geographic area, or on the user's current GPS location, and tracked in real-time via the *Follow Me* feature. The last viewed map position and zoom level are automatically stored and recalled each time the App is restarted. Users can opt in or out of participation in the *traffic tracker system*, anonymously transmitting their speed and location for use in better calculating travel times and congestion.

Announcements on future construction or special events, newly-enacted legislation, and general information are available, as well as detailed reports about travel times and incidents. National Weather Service Watches and Warnings and major alerts which might affect travel or routing plans are linked to the announcements. Each individual state road condition report is linked to make accurate pavement reports easy to access.

3.6 GTIS/Travel Midwest Statistics

The www.travelmidweststats.com website is currently maintained by Roadstats, LLC through the IDOT/UIC Intergovernmental Agreement. The website allows users to view historical travel time statistics. Over ten years' worth of historical information is available on this website. Statistics available include the average travel time by time of day, the overall average for a given weekday, and the deviation by time of day. Custom reports are also available that allow one to view statistics for a specific range of dates and to also compare statistics for two travel time routes and/or two sets of weekdays.

The Travelmidwest.com website is fully integrated with the travelmidwesttravelstats.com website. For instance, users can click on a travel time icon on any of the Travelmidwest.com maps to view its historical information on travelmidweststats.com. Figure 1 provides a comparison of current and historical travel times for the Kennedy Expressway. The red lines represent the historical average and the green lines represent travel times for the current day.

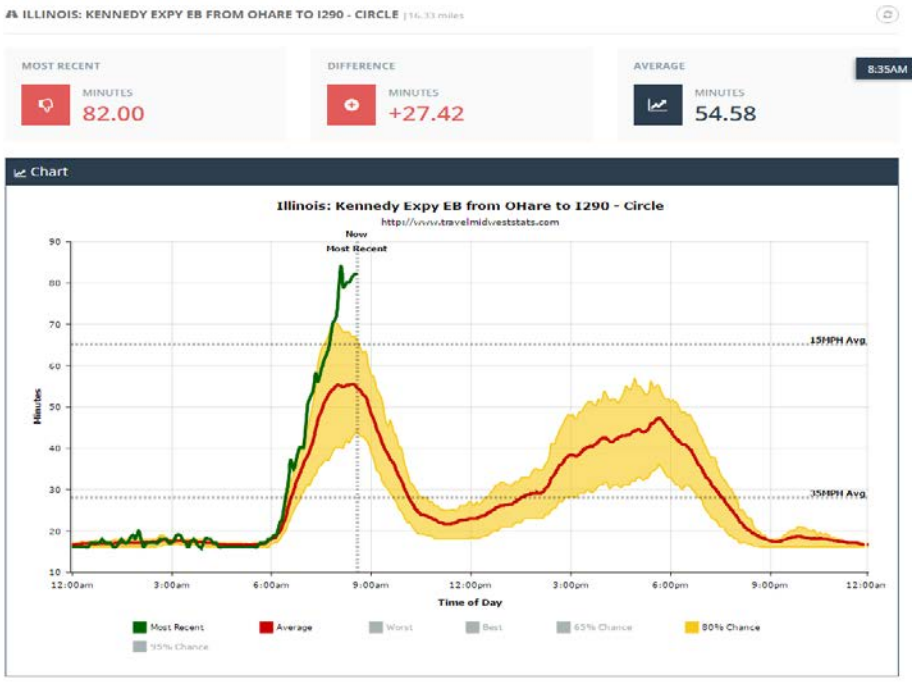


Figure 1. TravelMidwestStats.com web site showing historical travel times

Historical data is available dating back to 2004, which includes nearly 500 million individual travel times. This information is housed on Travel Midwest Stats website (www.travelmidweststats.com) and provides real time and historical travel / drive time statistics for area roadways in Illinois, Indiana, Michigan, Minnesota, and Wisconsin. This includes roads in Chicago, Milwaukee, and Minneapolis.

The official repository for data collected by the GTIS will be the Chicago Metropolitan Agency for Planning's (CMAP) Data Archive. This archive (https://datahub.cmap.illinois.gov/) will include Gateway data compiled and archived by CMAP as per the Regional ITS Architecture. A feed from UIC to CMAP provides data on:

- Detectors: Information about the detector's location, status, speed, volume and occupancy;
- Incidents: Information about traffic accidents such as time, location, impact, etc.;
- Construction: Information about closures due to construction. It describes the location, the time period, the impact on the roadway, and other information about the closure;
- Congestion: Information about congestion levels for routes on major roads across the Gateway corridor;
- Travel Times: Congestion level, travel time, and speed for routes on major roads across the Gateway corridor; and
- Message Signs: Dynamic message sign (DMS) data describes messages being displayed at various locations.

3.7 Other Connected Web Resources

In addition to TravelMidwest.com, there are two other web portals, discussed below, that are integral to the functionality of the TravelMidwest.com website, as well as used by the Department to support internal Department needs in northeastern Illinois. The lane closure data collected via these two web portals are incorporated into the Travel Midwest website. The functionalities of these web portals must be continued in the future GTIS.

3.7.1 IDOTLCS.com Portal

This web based Lane Closure System (LCS) allows electronically registered and approved contractors to enter closure requests via the www.IDOTLCS.com web portal. Such requests are reviewed and vetted by IDOT staff, and approved where appropriate. Approved, merged, rejected and cancelled closure requests are emailed to the contractors, traffic control and IDOT staff. A summary report of approved closures is also automatically emailed to a list of interested parties including media and other agencies.

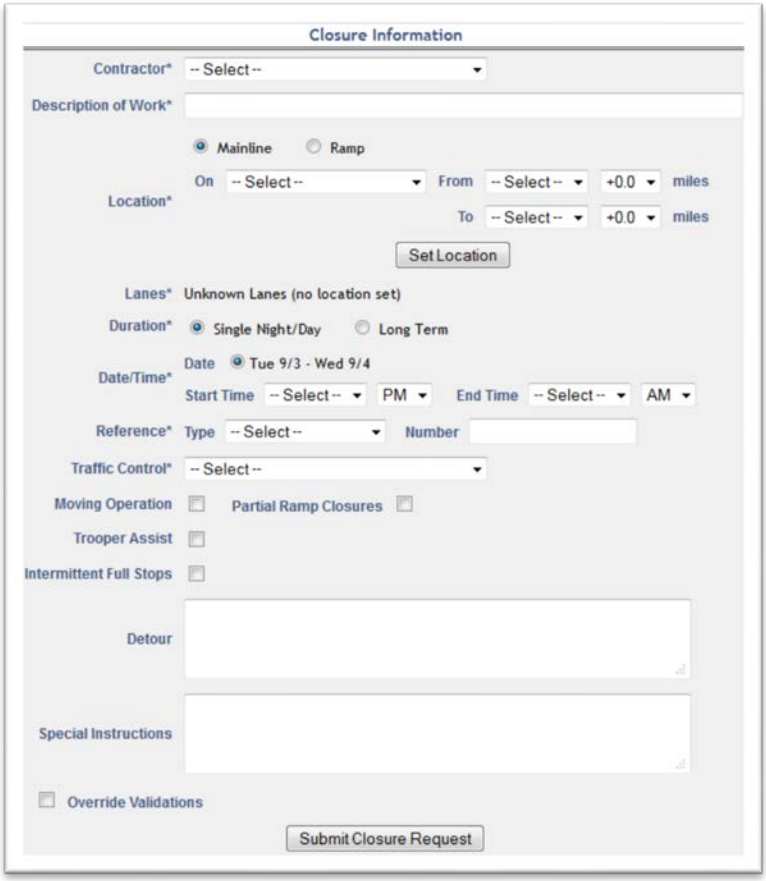


Figure 2. Closure request screen on www.IDOTLCS.com

3.7.2 IDOTACTS.com Portal

A web based Arterial Construction Tracking System (ACTS) was deployed to help engineers at IDOT District 1. Once registered by the system administrator, resident engineers can use this web portal to enter construction project information into a central database. The database and associated system generates forms needed to ensure notification of pending work within IDOT, and to other local agencies. This portal also integrates with IDOT's website and uploads construction data to TravelMidwest.com for display in the GTIS maps and reports.

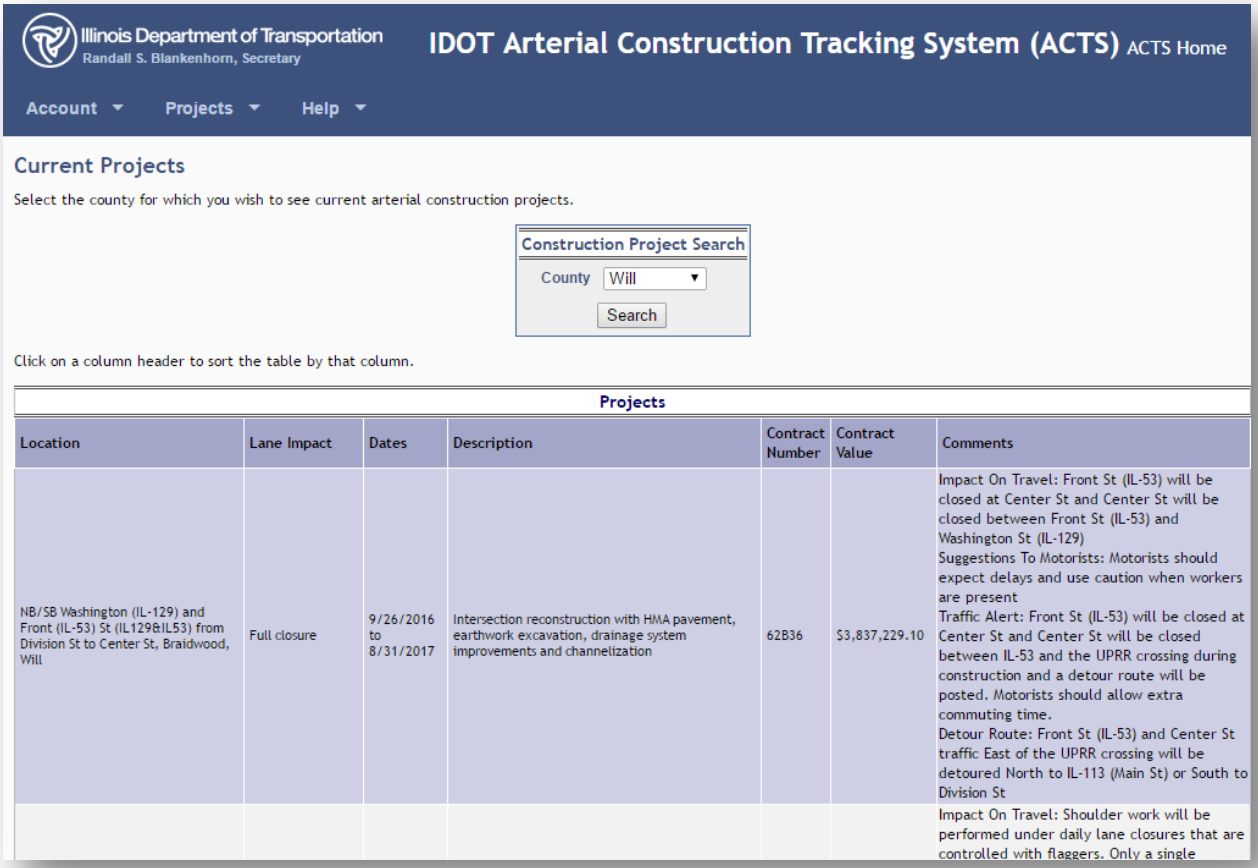
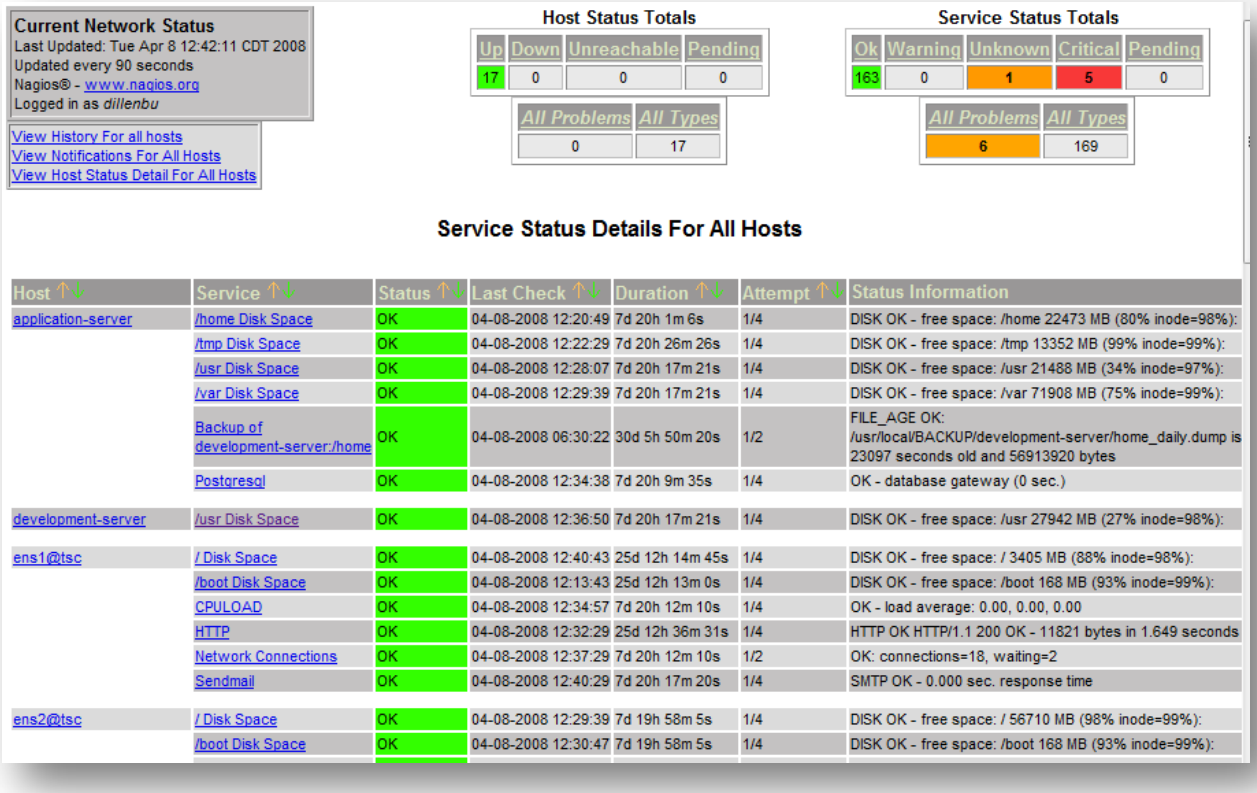


Figure 3. IDOTACTS.com Current Projects Page

3.8 Additional Operational Characteristics of the GTIS

A redundant GTIS automatically takes over for the primary GTIS should any major failures be detected by the external automated monitoring system. The system has been set up for a manual database failover and automated web server failover. Approximately thirty webservers, database servers, and other support servers are divided up in three separate geographical points of presence connected via high-speed data circuits. All three locations are secure environments with universal power supplies and generator backups.

The GTIS automated monitoring system (Nagios) keeps statistics on system outages and conditions such as missing data flows, network and server outages, and environmental conditions, so that outage patterns can be identified then resolved. For example, Figure 4 below provides system status:



Current Network Status
Last Updated: Tue Apr 8 12:42:11 CDT 2008
Updated every 90 seconds
Nagios® - www.nagios.org
Logged in as *dillenbu*

View History For all hosts
View Notifications For All Hosts
View Host Status Detail For All Hosts

Host Status Totals

Up	Down	Unreachable	Pending
17	0	0	0

All Problems	All Types
0	17

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
163	0	1	5	0

All Problems	All Types
6	169

Service Status Details For All Hosts

Host	Service	Status	Last Check	Duration	Attempt	Status Information
application-server	/home Disk Space	OK	04-08-2008 12:20:49	7d 20h 1m 6s	1/4	DISK OK - free space: /home 22473 MB (80% inode=98%):
	/tmp Disk Space	OK	04-08-2008 12:22:29	7d 20h 26m 26s	1/4	DISK OK - free space: /tmp 13352 MB (99% inode=99%):
	/usr Disk Space	OK	04-08-2008 12:28:07	7d 20h 17m 21s	1/4	DISK OK - free space: /usr 21488 MB (34% inode=97%):
	/var Disk Space	OK	04-08-2008 12:29:39	7d 20h 17m 21s	1/4	DISK OK - free space: /var 71908 MB (75% inode=99%):
	Backup of development-server:/home	OK	04-08-2008 06:30:22	30d 5h 50m 20s	1/2	FILE_AGE OK: /usr/local/BACKUP/development-server/home_daily.dump is 23097 seconds old and 56913920 bytes
	Postgresql	OK	04-08-2008 12:34:38	7d 20h 9m 35s	1/4	OK - database gateway (0 sec.)
development-server	/usr Disk Space	OK	04-08-2008 12:36:50	7d 20h 17m 21s	1/4	DISK OK - free space: /usr 27942 MB (27% inode=98%):
ens1@tsc	/ Disk Space	OK	04-08-2008 12:40:43	25d 12h 14m 45s	1/4	DISK OK - free space: / 3405 MB (88% inode=98%):
	/boot Disk Space	OK	04-08-2008 12:13:43	25d 12h 13m 0s	1/4	DISK OK - free space: /boot 168 MB (93% inode=99%):
	CPULOAD	OK	04-08-2008 12:34:57	7d 20h 12m 10s	1/4	OK - load average: 0.00, 0.00, 0.00
	HTTP	OK	04-08-2008 12:32:29	25d 12h 36m 31s	1/4	HTTP OK HTTP/1.1 200 OK - 11821 bytes in 1.649 seconds
	Network Connections	OK	04-08-2008 12:37:29	7d 20h 12m 10s	1/2	OK: connections=18, waiting=2
	Sendmail	OK	04-08-2008 12:40:29	7d 20h 17m 20s	1/4	SMTP OK - 0.000 sec. response time
ens2@tsc	/ Disk Space	OK	04-08-2008 12:29:39	7d 19h 58m 5s	1/4	DISK OK - free space: / 56710 MB (98% inode=99%):
	/boot Disk Space	OK	04-08-2008 12:30:47	7d 19h 58m 5s	1/4	DISK OK - free space: /boot 168 MB (93% inode=99%):

Figure 4. Nagios website shows Gateway system status

Access restriction data for management of the administration menus and certain other sensitive pages are stored in the GTIS database, and a web interface is provided for making changes to the GTIS access policies.

Environmental sensors at the TSC monitor the temperature, humidity and other ambient conditions of the TSC telemetry room. Nagios periodically checks these sensors and sends warnings to appropriate personnel in the event of a problem.

Because the Gateway is continually expanding its geographic area and types of data handled, it must also scale its processing and database performance.

4. Current Site Users

4.1 Current Audiences for the System

At present, existing data is being used for traveler information, travel and transportation planning, transportation research studies, calibration of traffic models and applications, construction coordination activities, traffic and incident management, news and weather reporting. Current users include:

- Travelers
- Researchers/Academic
- Trucking Companies/Truckers
- Private Sector Traveler Information systems
- Illinois and Adjacent States ATMS/ATIS
- County and Municipal ATMS/ATIS
- Automated and Connected Vehicles/Systems and their manufacturers
- Transit Users
- Metropolitan Planning Organizations (MPOs)

4.2 Current Website User Statistics

Between January 1, 2017 and May 31, 2017, the Travel Midwest website hosted 801,811 sessions. 52% of those sessions were accessed on a desktop, and 47.8% of those sessions were accessed on a mobile device. Of the mobile device sessions, 65% were using an iOS, while 32% were using Android.

These visitors arrived by direct link, web searches, and referrals from other sites. Of the 801,811 sessions, direct link visitors comprised 483,651 (60.32%), website searches constituted 272,639 (34%), and referrals from other sites totaled 44,792 (5.59%). Of the 44,792 referrals, Table 1 lists the six main referring sites:

Table 1 – Website Page Views		
Web Page	Page Views	Sessions (%)
Gettingaroundillinois.com	10,130	22.62%
Nbcchicago.com	7,899	17.63%
Idot.illinois.gov	4,381	9.78%
Mbnet.mbfinancial.com	2,709	6.05%
Circleinterchange.org	2,352	5.25%
Michigan.gov	1,909	4.26%

During this same time period, there were 1,634,278 page views. ChicagoQuickTraffic was the most visited page during this time period with over 451,240 views. During this 6 month period, there were 57,290 monthly active users that have visited the site at least once. The Top 10 Pages visited are listed in Table 2 below:

Table 2 – Top Ten Pages by Views		
Web Page	Page Views	Sessions (%)
ChicagoQuickTraffic.jsp	451,240	27.61%
map.jsp?mapname=chicagoArea	235,355	14.40%
home.jsp	148,657	9.10%
incidents.jsp?location=GATEWAY	76,595	4.69%
traveltimes.jsp?location=GATEWAY.IL.KENNEDY	40,269	2.46%
incidents.jsp?location=GATEWAY.IL	31,072	1.9%
incidents.jsp?location=GATEWAY.IL.ARTERIALS	29,553	1.81%
traveltimes.jsp?location=GATEWAY.IL.EISENHOWER	26,021	1.59%
traveltimes.jsp	25,296	1.55%
map.jsp?mapname=home	20,919	1.28%

5. Required and Desired Capabilities and Future Needs

5.1 Operational Requirements

24/7/365 operation of the GTIS/Travel Midwest is required, either in the current Schaumburg location or in other location(s) deemed feasible. Any future system will need to meet the following mandatory requirements, and be able to expand:

- Work with integrated GTIS system
- Maximize use of current GTIS hardware and software
- Provide the capability to incorporate technologies beyond the current GTIS system
- ACTS and LCS functionalities
- Provide common project management and documentation repository
- Preserve current GTIS documentation and systems including the Traffic Information Access Registration Process
- Integrate transit operations and performance data with Traveler Information Systems
- Explore and integrate private sector Traveler Information data exchange
- Provide ability to publish maps and other data to social media sites
- Integrate IDOT District 1, District 4, District 8 and Station 1 ATMS
- Integrate with county and municipal ATMS/TMC/TOC systems such as Lake County, DuPage County, Kane County, Peoria County, Tazewell County, and City of Chicago
- Integrate with Chicago Skyway and Illinois Tollway systems
- Data collection, validation, and reporting to meet new federal traveler information performance standards/requirements
- Provide statewide construction information
- Integrate and support work zone safety and queue detection
- Connected Autonomous Vehicle (CAV) integration with Traveler Information Systems
- Infrastructure needs for CAV deployment
- Support multi-agency efforts to promote automated and connected vehicle initiatives
- Improvements in the reliability of traffic incident detection, duration, and clearance data along with algorithms that would contain predictive modeling for such events and algorithms for travel time prediction
- Analysis of archived data to evaluate operation methods and resource allocation
- Fully integrate with the Illinois Department of Transportation Getting Around Illinois website
- Disseminate real-time information along selected corridors

Comply with final rules published as 23 CFR 511 for Real-Time System Management Information Program (RTSMIP) – see Provisions for Traffic and Travel Conditions in Table 3 below:

Table 3 - FHWA Real-Time System Management Information Program Provisions for Traffic and Travel Conditions				
Category of Information	**Timeliness for Delivery (minutes)**		**Availability**	**Accuracy**
	Metropolitan Areas	Non-Metropolitan Areas		
Construction activities: closing or opening roadways or lanes on Interstate highways and metro area roadways of significance	10	20	90%	85%
Roadway or lane blocking incidents on Interstate highways and metro area roadways of significance	10	20	90%	85%
Roadway weather observations on Interstate highways	20	20	90%	85%
Travel Time information along limited access highway segments	10	N/A	90%	85%

5.2 Products of System

The future system should operate with and enhance the following products:

- Illinois Traveler Information website
- Mobile app
- Mobile website
- Multi-State Traveler Information website/map
- Information/interface with Private Sector Traveler Information systems to provide agency data
- Continued and enhanced coordination with IDOT highway districts, adjacent states, and county and municipal ATMS/ATIS
- Station One ATMS
- Travel-Statistics
- Trip and travel reports
- Archive data repository
- Computer Aided Dispatch (CAD) Integration
- Construction Information
- Lane Closure Information
- Compliance with real-time traveler information reporting requirements
- Review of ITS data availability/reliability
- Product for transit users, or integrate existing private sector apps like “Transit”
- AMTRAK data

5.3 Map Elements

At minimum, the following elements should be displayed on the improved future system map.

- DMS
- Cameras
- Weather
- Special Events
- Major Projects
- Travel Times
- Congestion levels
- Arterials
- Incidents
- Construction
- Labels
- Signs
- Sensors

6. Contact Information

Please submit question and responses via email, regular mail, or courier to:

ITS Program Office
Illinois Department of Transportation
201 W. Central Court
Schaumburg, IL 60196-1096

Email contact - terrence.heffron@illinois.gov

7. RFI Process and Timeline

7.1 RFI Process

Once this RFI is released, the process is as follows:

1. State receives questions from interested vendors for additional information to clarify points in the RFI.
2. State posts responses to all questions received before the questioning deadline.
3. RFI responses are due.
4. RFI responses are reviewed by IDOT.

7.2 RFI Timeline

Event	Date

RFI is released	**10/20/2017**
Deadline for submitting RFI clarification questions to IDOT	**11/03/2017**
State posts responses to questions	**12/17/2017**
RFI responses due	**12/20/2017 1:30 PM CST**

8. Response Criteria

This RFI does not constitute a Request for Qualifications ("RFQ"), a Request for Proposals ("RFP"), or other solicitation, nor does it constitute the commencement of any other type of procurement process for the Project. Moreover, it does not represent a commitment to issue an RFQ, an RFP or undertake any procurement for the delivery of the Project in the future. Therefore, Respondents will not, merely by virtue of providing any manner of response, be deemed to be "bidders" or "proposers" for a future procurement for the Project in any sense, and no Respondent will have any preference, special designation, advantage or disadvantage whatsoever in any subsequent procurement process related to the Project. Furthermore, submission of a response to this RFI will not be considered a prerequisite to a response to an RFQ, RFP or other solicitation document should one be issued in the future.

IDOT is cognizant of the effort it takes to put together a RFI response. As such, we will try to limit our written requirements to essential information. The following sections should be acknowledged and answered. The expectation is that a responder will address all points with thorough and relevant answers or responses. IDOT may ask those responders who meet IDOT's expectations, and who have delivered similar systems for other transportation agencies, to meet with IDOT to discuss and possibly demonstrate their product.

IDOT requests that responders submit one (1) electronic (Microsoft Word) and one (1) paper-bound response. Electronic responses can be submitted on USB drive, CD, or DVD. Submittal shall be limited to (exclusive of references of customers) 100 pages single-sided (or 50 double-sided), typed 8½ x 11" pages (larger pages are allowed for figures or tables, but they must be folded into the overall response and used sparingly). No font size smaller than 12 point is allowed. Please do not submit promotional materials as part of the RFI response.

The responses should be ordered the same as the sections below.

Your response should include the information listed below in this Section.

8.1 Cover Page, Responses, Attachments:

a. Cover Page that includes:
   i. Name of organization;
   ii. Name and title of organization representative;
   iii. Contact information for the organization representative; and
   iv. Signature of the organization representative;
b. Response that includes all of the following response criteria;
c. Attachments, appendices or Exhibits with any comments you may have.

8.2 Letter of Introduction and Response Page:

Provide a letter of introduction that includes all of the following:

a. Brief company profile and description;
b. Experience in ATIS development and implementation, including number of years' experience;
c. Experience in website development and management, including number of years' experience;
d. Statistics on your current client base for ATIS development and implementation
    i. Number of clients;
    ii. Type of clients (e.g. federal/state/county/local); and
e. Sample statement of work.

8.3 References: Existing Customers:

Provide three to five transportation agency references currently utilizing your product/solution/services. For each reference, include the following information:

a. Organization name
b. Contact person name and title
c. Address
d. Direct telephone number
e. Email address
f. Description of the services currently in production and being used by the reference client
g. Approximate date of initial installation and date of latest upgrade
h. Length of time from project kick off to first production use of solution
i. Indicate if implementation was 'out of the box'; or if minimal, moderate, or significant configuration was required; please provide description of configuration requirements

8.4 Gateway ATIS Solution:

List your proposed ATIS functionality and include descriptions on how you envision travelers will use the GTIS/Travel Midwest system. Include information regarding how you would address the following project procurement and technical issues:

a. ***Procurement:***
    1. What are the most significant challenges you anticipate with provisioning the services described in this RFI?

    2. What contract term do you envision would provide the best value to IDOT while ensuring adequate cost recovery for the chosen provider?

    3. What type of service level agreements and associated service level program could be implemented to cover the entire mix of services described in this RFI in such a way as to best protect IDOT and the provider (as appropriate) through the duration of the contract term?

    4. Provide your comments/recommendations for the suggested project schedule.

5. IDOT has a substantial investment in hardware and software to manage the current GTIS. Please identify any potential impacts and savings on utilizing these resources.

6. What provisions for co-sharing of IDOT facilities are envisioned, or is it suggested that the majority of the infrastructure and personnel for this contract be housed separate from IDOT facilities?

7. Based on your understanding of current capabilities and staffing, would you suggest any changes or modifications? One of IDOT's business goals and its mission for the GTIS/Travel Midwest is to provide accurate and timely information to motorists along the roadway network regarding congestion, travel time, construction, incident and conditions. How effective do you believe the GTIS/Travel Midwest system has been in achieving the mission and the goals over time?

8. What improvements, replacement or retirement do you envision to the legacy systems i.e. sensors, detection devices, website, roadway information dissemination devices, etc. to help the Department continue providing the information to the traveling public?

9. With the advancement of the information systems and the availability of various private sector data services, what role do you believe the public agency will continue to play in providing critical data for public agencies' and private uses?

10. In considering the capabilities and expertise of the respective private and public sectors as service providers, what opportunities for monetization of data/revenue generation and/or collaboration and/or partnerships do you envision for the future of connected/automated vehicles in collecting, processing and disseminating the travel information data?

11. In the context of connected vehicle and infrastructure, what future products and services would help the Department accomplish its mission for a safe and efficient transportation network within the state and the region?

b. ***Technical:***

1. As related to the services defined in this RFI, how much time would be required to implement a seamless transition of GTIS operations, GTIS software, and ITS maintenance from issuance of notice to proceed? Are there experiences or best practices in this area that you can share? How long would IDOT need to keep its existing contracts in place? Do you believe parallel operations with the current vendor are needed? If so, how long?

2. What efficiencies can IDOT expect to be gained by:
   a. Enhancing the GTIS as a service;
   b. Working directly with a single vendor versus a contract team;
   c. Using vendor-supplied software.

3. What are the risks and which party (IDOT or vendor) owns those risks for each of the following? (Note: Please provide justification for risk assessment/assignment determination)
    a. Enhancing the GTIS as a service;
    b. Working directly with a single vendor versus a contract team;
    c. Using vendor-supplied software. Because the Gateway GTIS is constantly evolving, what would be the proposed approach for handling IDOT-requested functional modifications to the system? Under such a scenario would you envision other (i.e. non-IDOT) potential users of the system?

4. In the next three to five years, what technology or industry trends do you anticipate will most impact ATIS operations and technology services?

5. Based upon your response to question 4, what future requirements are needed in the current ATIS to provide a business model that meets the IDOT short and long term ATIS approaches for fulfilling traveler needs? Can you describe the business model and provide lessons learned or key considerations to meet industry standards and best practices, and meet redundancy/expandability requirements?

6. Since GTIS serves as a hub for inter-agency traveler information, describe how the ATMS/ATIS data from current and future agencies and levels of governments (i.e. Illinois Tollway, other Illinois counties) can be best integrated with the ATIS.

7. Describe how you would foresee the ability of the ATIS to facilitate data flows between the ATIS and automated and connected vehicles.

8. Describe how gaps in traveler information data availability due to proprietary agreement limitations can be best addressed.

9. Describe your proposed approach to provide reliable real-time incident information to travelers.

8.5 Technology Architecture & Infrastructure:

Describe the technical architecture and the infrastructure that needs to be in place to support a suggested ATIS product, solution, and/or services. Please include any technical diagrams that apply. Be sure to address the following items:

- Architecture model
- Connectivity options (e.g. hosted, cloud, on premises, etc.)
- Application platform and software requirements including licensing
- Database platform and software requirements including licensing
- Development platform
- Operating system options
- Authentication
- Security – users, groups, roles, rights, profiles, administration, etc.
- Performance metrics including system availability standards (e.g. 4 nines, 5 nines, etc.)

- Client ability to configure/customize solution including tools, software requirements, and training
- End user devices supported
- Strategy for keeping pace with current technology
- Backup/restore options

8.6 Implementation Services Approach:

- Briefly describe the approach and methodology you recommend to be used in a suggested implementation, initial deployment, upgrades, and frequency of software enhancements and upgrades.
- Describe the issue management process and/or tools that you recommend may be used to address issues and problems reported by your clients.
- In general terms, describe your recommended training model for ATIS staffing.
- Describe the client support model or options you use.

Describe the role that IDOT would need to play in order to implement a suggested ATIS product, solution, and/or services.

9. Summary

Based on the information you have shared in your response to this RFI, please summarize the approach you recommend for achieving a high quality, timely, efficient, and effective ATIS.