ENTERPRISE Transportation Pooled Fund Study TPF-5 (231)

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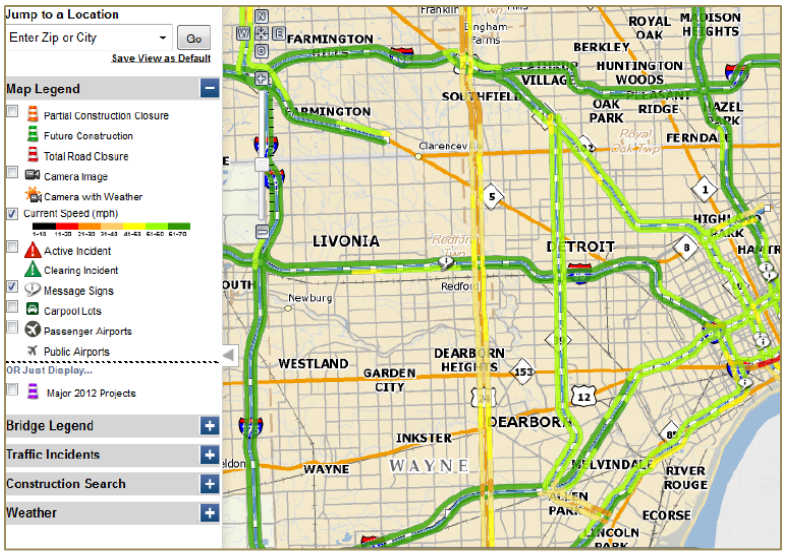

Understanding Utilization of Third Party Data and Information

FINAL REPORT

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16. Abstract

There are a number of private vendors today who sell and provide third party data for a variety of transportation purposes. Data may be oriented to commercial freight companies, personal navigation systems, transportation agencies and many more. Speed, travel time, volume and occupancy data is important in maintaining the safety and mobility of the transportation network. Some transportation agencies use this type of data from third party providers to deliver traveler information, manage traffic, and conduct studies.

ENTERPRISE initiated this project to better understand what providers are offering, how states are using the data and what their options might be for future use of such data.

This report summarizes the information gathered during the project and is written in a format to accommodate easy future reference by the ENTERPRISE members. The information summarized in this report includes:

1. ENTERPRISE member survey of third party data needs and uses
2. Third party data provider information
3. Public agency experiences with using third party data

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Members

Arizona Department of Transportation

Federal Highway Administration

Georgia Department of Transportation

Idaho Transportation Department

Illinois Department of Transportation

Iowa Department of Transportation

Kansas Department of Transportation

Maricopa County, Arizona

Michigan Department of Transportation

Minnesota Department of Transportation

Mississippi Department of Transportation

Oklahoma Department of Transportation

Ministry of Transportation Ontario

Dutch Ministry of Transport (Rijkswaterstaat)

Texas Department of Transportation

Transport Canada

Virginia Department of Transportation

Washington (State) Department of Transportation

Contents

1. Introduction 1
2. ENTERPRISE Member Needs and Uses 2
3. Third Party Data Providers 4
4. Public Agency Experiences 6
5. Conclusion 15

Appendices

Appendix A – ENTERPRISE Member Survey of Third Party Data Needs and Uses A-1
Appendix B – List of Third Party Data Providers and Public Agency Contacts B-1
Appendix C – Discussion Guides for Third Party Data Providers and Public Agencies C-1

1. Introduction

There are a number of private vendors today who sell and provide third party data for a variety of transportation purposes. Data may be oriented to commercial freight companies, personal navigation systems, transportation agencies and many more. Speed, travel time, volume and occupancy data is important in maintaining the safety and mobility of the transportation network. Some transportation agencies use this type of data from third party providers to deliver traveler information, manage traffic, and conduct studies.

Recognizing the role that information plays in transportation, the United States Department of Transportation (USDOT) published final rule 23 CFR 511 on November 8, 2010. The final rule defines the minimum parameters and requirements for states to make available traffic and travel conditions information via real-time information programs. The Real-Time System Management Information Program establishes the provisions and parameters for State DOTs, other responsible agencies, and partnerships with other commercial entities in establishing real-time information programs that provide accessibility to traffic and travel conditions information by other public agencies, the traveling public, and by other parties who may deliver value-added information products. USDOT is actively developing additional guidance to assist states in meeting the provisions for Interstate highways by November 8, 2014 and provisions for state-designated metropolitan area routes of significance by November 8, 2016. The role between public and private entities in meeting these provisions and other data needs varies significantly from state to state. Some states have extensive transportation infrastructure, particularly in urban areas and on the state highway system, that collect the data necessary for meeting provisions established by USDOT. Other states have little or no infrastructure for data collection and may rely heavily upon private, third party providers for the data they need.

ENTERPRISE initiated this project – Understanding Utilization of Third Party Travel Data and Information – to better understand what providers are offering, how states are using the data and what their options might be for future use of such data. The approach for this project involved an initial survey of ENTERPRISE member needs and uses for third party data. SurveyMonkey was used to administer the survey of nine questions designed to understand who is currently using third party data, the agencies' needs are for real-time and historical data, the agencies needs for sharing data, and the accuracy and availability of third party data. A copy of the survey is included in Appendix A.

Following the member survey, a list was compiled of private sector data providers and corresponding public agencies that use the data. The list was produced using ENTERPRISE members' knowledge of states, countries and provinces that are using or have used private sector data. Once the list was compiled, key individuals were identified for further contact. For the public agencies, emphasis was placed in identifying staff responsible for setting up the contracts and using private sector traffic data to get firsthand knowledge of the agency's experience. The list is included in Appendix B and it contains contact information to support further communication as desired by the ENTERPRISE members.

Finally, an interview guide was developed to support interviews with each public agency and third party data provider. Appendix C contains a copy of the discussion guides used during interviews with the providers and agencies.

This report summarizes the information gathered during this project and is written in a format to accommodate easy future reference by the ENTERPRISE members. The report is also available on the ENTERPRISE project web page accessible through www.enterprise.prog.org. The information summarized in this report includes:

- ENTERPRISE member survey of third party data needs and uses
- Third party data provider information
- Public agency experiences with using third party data

2. ENTERPRISE Member Needs and Uses

Using a systems engineering perspective, the initial step in this project was to collect information on ENTERPRISE member needs and uses of third party data. Assessing needs provided an understanding of the extent to which member agencies may utilize third party data, as well as an understanding of any specific needs such as sharing data with other organizations.

To collect and assess member needs, an online survey was administered through SurveyMonkey. A copy of the survey is available in Appendix A of this report. The survey questions were designed to gather information about data content, uses, accuracy and availability. They were also intended to help the states articulate the type of transportation network coverage that may be needed (e.g. urban state highways, select highway, etc.). Eleven of the ENTERPRISE members responded and five of them currently use some form of third party data.

Summary of Key Findings

Members were initially asked to describe their current data needs for speed, travel time, volume-occupancy and historical data. They were presented with four types of data coverage – urban state highways; urban local arterial roads; non-urban highways and key (select) highways. Members were then asked to describe their data needs in one of the following ways:

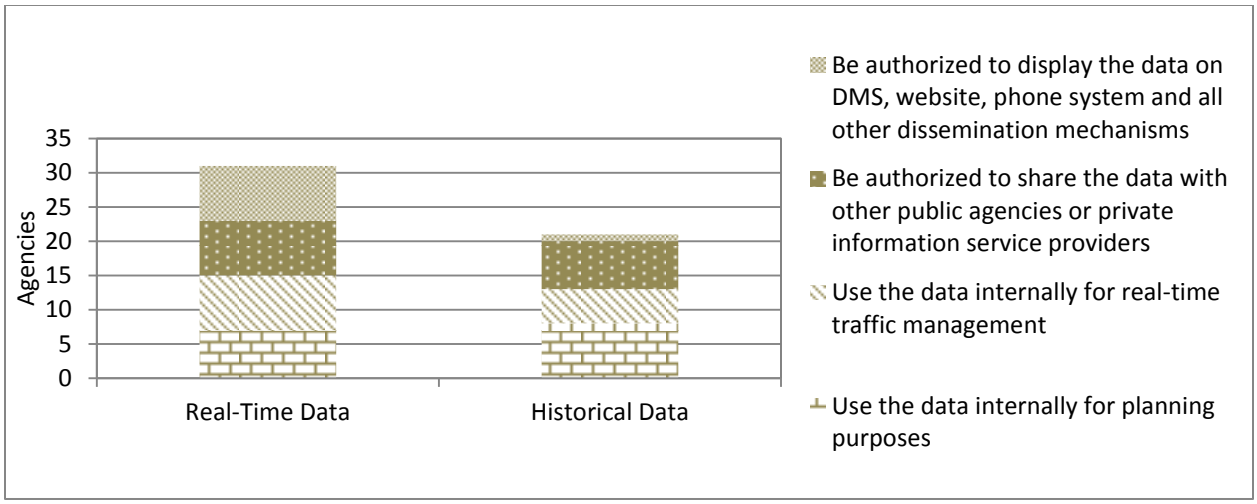
- Need it – Currently have a source for it
- Need it – Currently have a source that meets some needs but not all
- Need it – Currently do NOT have a source that meets this need
- Don't need it at this time

Based on the survey responses, data for **urban state highways** seems well covered as most members indicated they have a source that meets their needs. Data for **urban local arterial roads** appears to be an area of need as most agencies need the data but currently don't have a source or a source that meets all their needs. It is possible that data for **non-urban highways** could be an area of need; however, some members indicated no need for the data at this time. Finally, only a couple agencies indicated need for travel time and speed on **key (select) highways**, specifically in work zones.

Members were next asked to describe how they would (or currently do) use third party data. As illustrated in Figure 1, several of the states need to be authorized to share both real-time and historical

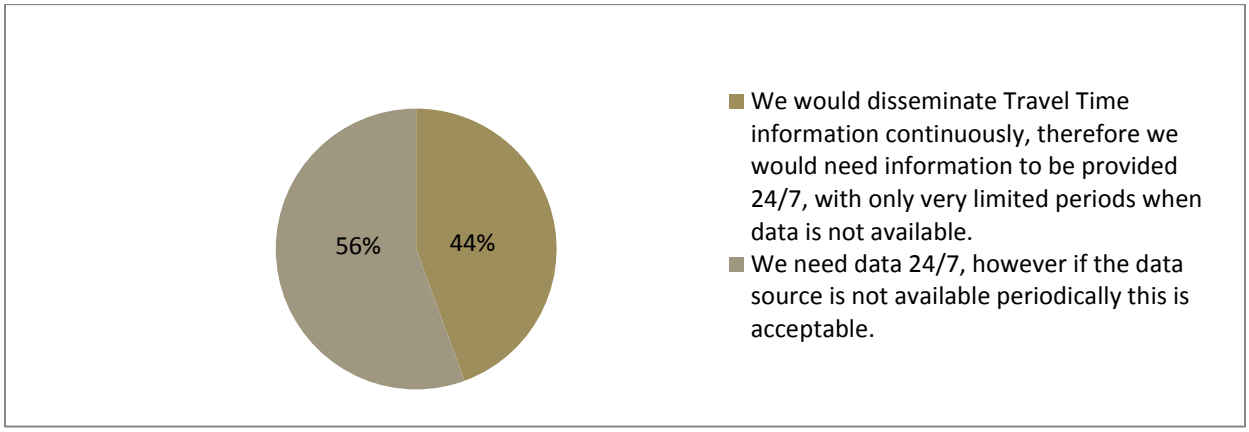
data with external parties (e.g. other agencies or private parties). The figure also illustrates that historical data is naturally more important for planning vs. traveler information oriented purposes.

Figure 1 Real-Time and Historical Data Use



The survey concluded with questions about accuracy and availability of data from third party providers. Members were asked to describe any accuracy requirements. Responses ranged from references to 23 CRF 511 to 95% or greater accuracy and latency. There were also responses in relation to speed data ranging from 5-10 MPH of actual speeds and travel times within two minutes. The variability in responses suggests that this could be an area for future discussion among agencies. Such a discussion could better determine if accuracy should vary among agencies and if there is an opportunity to establish more consistent parameters and targets. Finally, members were asked to describe how their preferences for the availability of third party data. As illustrated in Figure 2, most of the agencies believe data should be available 24/7 but they can tolerate the data source being periodically unavailable. None of the agencies would accept data only during select times when traffic may be heavier than normal as a result of peak periods or special events.

Figure 2 Data Availability Needs



3. Third Party Data Providers

Once the ENTERPRISE members were surveyed regarding their current and potential future use of third party data, several providers of such data were contacted. This section presents basic information gathered from those providers that were interviewed during the project. The information is presented in a table format for easier future reference by ENTERPRISE members. For each provider, the following information is presented:

- Provider name, contact information and web address
- Type of data available
- Data source(s)
- Typical business model
- Data sharing preferences

Three providers that use primarily probe-based data sources were interviewed for this project – INRIX, NAVTEQ and AirSage.

INRIX, Ted Trepanier, 425.284.3811, ted@inrix.com, www.inrix.com	
Type of Data Available	Real-time and historical; speed and travel time
Data Source(s)	Use unique Smart Driver Network to aggregate data from more than two million GPS-enabled vehicles and mobile devices, traditional road sensors and other sources
Typical Business Model	Per mile, per year cost; any mileage where the agency has data at no charge as long as that data is provided to INRIX
Data Sharing Preferences	INRIX typically retains ownership and licenses the agency to disseminate to travelers, archive, analyze, but not to give away or sell data
Other Notes	INRIX announced in May 2012 a quality assurance program for their transportation clients; program is based on validation methods used by the I-95 Corridor Coalition over the past several years of using INRIX data

NAVTEQ (Nokia), Terri Johnson, 570.470.4075, terri.johnson@nokia.com, www.navteq.com	
Type of Data Available	Real-time and historical; average speed and travel time
Data Source(s)	Use combination of sources including proprietary sensors, probes (commercial/commercial GPS and cellular based), data validation and data processing (Smart Traffic Processor™)
Typical Business Model	Pricing based on formula for the incremental cost of their global network; may be higher with unique requirements
Data Sharing Preferences	Can accommodate most use cases except freely resending data to others
Other Notes	Product of Nokia Location and Commerce

AirSage, Bill King, 770.329.0863, bking@airsage.com, www.airsage.com	
Type of Data Available	Real-time and historical; speed and travel time
Data Source(s)	Use anonymous mobile phone handoff data from cellular towers through the Sprint and Verizon (added January 2012) networks
Typical Business Model	Pricing is done on a per mile basis; discounts are given for higher mileage and longer term contracts
Data Sharing Preferences	License data like a book – can be owned and handed off to others but it cannot be freely republished; higher pricing allows greater flexibility in distribution
Other Notes	Emphasis on historical data for planning related origin/destination studies; emerging products being developed for advertising will also be useful for traffic studies

Three additional third party data providers that utilize infrastructure based data sources were also interviewed for this project.

BlueToad (TrafficCast), Paul Misticawi, 678.575.0958, pmisticawi@trafficcast.com, www.trafficcast.com	
Type of Data Available	Real-time and historical; processed speed and travel time
Data Source(s)	BlueToad™ roadside units gather anonymous Bluetooth signals from mobile devices and matched MAC addresses
Typical Business Model	Pricing based on per unit purchase of roadside unit • Includes hardware, software, analysis and data • Can lease equipment but purchase is preferred
Data Sharing Preferences	Allow clients to freely use data among themselves but prefer them not to give it away to others
Other Notes	Product of TrafficCast; also offer Dynaflow 2.) as a predictive traffic information product using historical road speed trends and anticipated traffic impacts

Digital Traffic Systems (DTS), David Ludwig, 804.237.9380, david.ludwig@dtsits.com, www.dtsits.com	
Type of Data Available	Real-time and historical; volume, classification, travel time and speed
Data Source(s)	Use variety of field based equipment owned by DTS or agency but operated/maintained by DTS; outgrowth of traffic data collection program to provide accurate real-time and historical data for planning and operations, including special events and all agency critical traffic data parameters supplemented with weather information
Typical Business Model	Fixed cost pricing with performance based parameters
Data Sharing Preferences	No restrictions on data; delivered to agencies via device polling, aggregated real-time and FTP; tailed to agency specifications and needs

SpeedInfo, Doug Finlay, 408.446.7660, dfinlay@speedinfo.com, www.speedinfo.com	
Type of Data Available	Real-time and historical; speed and roughly calculated travel times based on reported speeds by segments
Data Source(s)	Use roadside solar-powered, Doppler radar devices; designed to be mounted on existing agency infrastructure; transmit data via AT&T Wireless data network in samples vs. continuous flow;
Typical Business Model	Typically charge per sensor on monthly basis; includes hardware, installation, operation, maintenance and data provision; establish performance measures for up-time
Data Sharing Preferences	Data may be freely used internally; may share externally, but price will be higher and lump sum contract may be requested
Other Notes	Aim to keep product in-expensive and easy to install/maintain along roadside

4. Public Agency Experiences

Following the interviews with third party data providers, several transportation agencies were contacted for information about their experiences with and approaches to using third party data. The members of ENTERPRISE who indicated some level of past or current experience with third party data were interviewed and then asked to share their information during the March 28-29, 2012 ENTERPRISE meeting in Kansas City.

Their experiences, as well as the experiences of other agencies that were interviewed, are summarized in this section. Similar to the summaries of third party data providers presented in the previous section, the following information is presented for each agency in a table format designed for easy future reference. Each aspect of the information is further defined to educate and maintain consistency in its gathering.

- *Intended use.* This may be as simple as coloring web-based maps or disseminating real-time speeds or travel times via 511 telephone service or dynamic message signs. It could involve the use of more detailed real-time data such as volume and occupancy for traffic management operations. The intended use could also be planning or performance oriented which may not require real-time data.

- *Coverage.* This can be defined according to geographic (e.g. statewide/select urban areas, freeways, arterials) parameters or availability (e.g. 24/7, peak periods).

- *Procurement and funding.* This pertains to what is being procured and how. Data may be procured as a service, equipment or both depending on the intended use and provider options. Depending on agency contracting requirements and what is being procured, it may also be possible to use construction or operations funding.

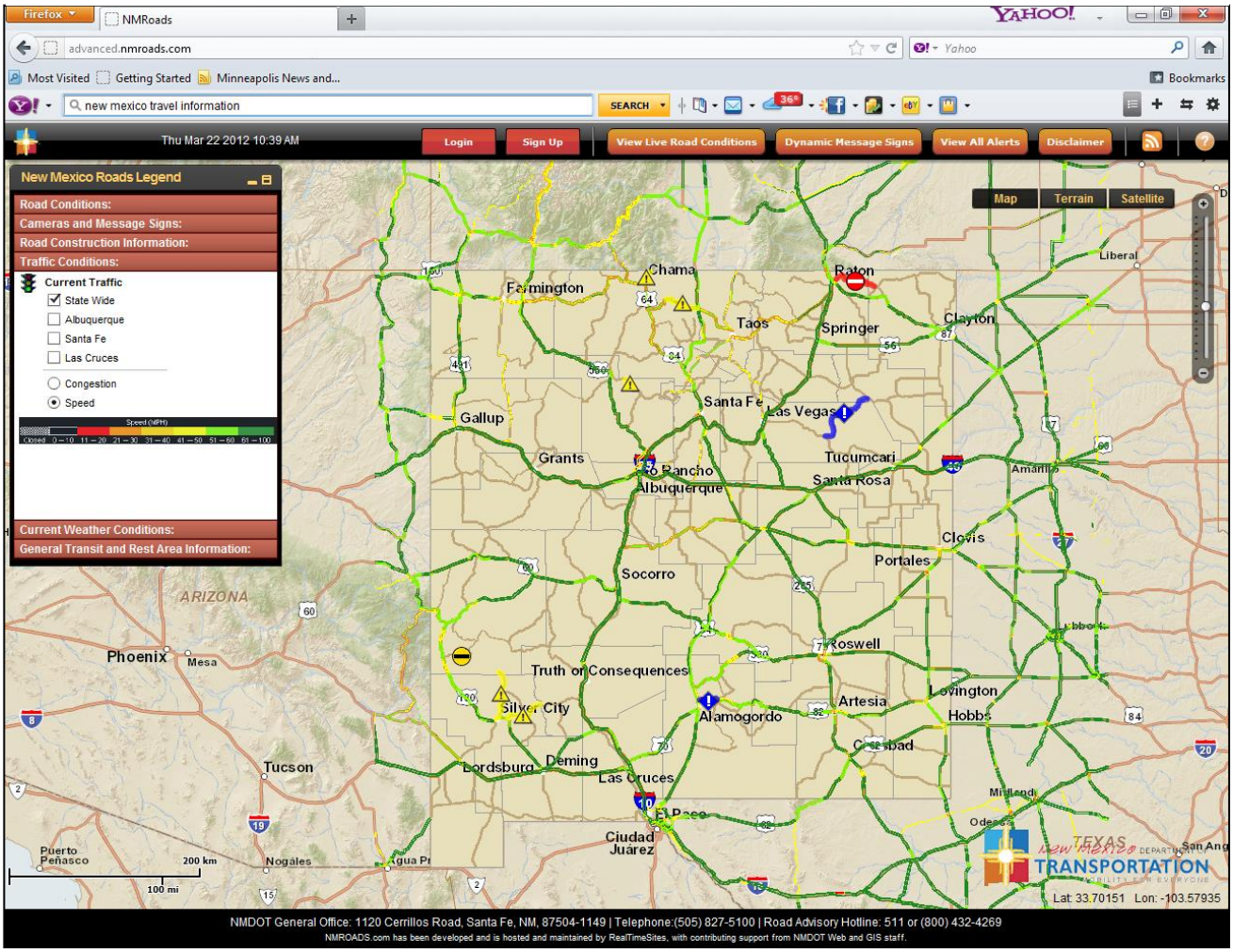
- *Integration and use.* It is important to understand how locations are defined as some data may be offered in pre-defined Traffic Message Channel (TMC) segments and other data may allow custom locations based on user-selected start and end points. It is also important is know what the data includes real-time, historical or combinations thereof, speed, travel times, etc. This also includes understanding the accuracy and reliability of the data so it can be treated accordingly.
- *Data sharing and ownership.* This is one of the most challenging aspects of third party data. It is essential that the agency and provider have a clear understanding and agreement on how data may be shared – across functional areas internally, with other public agency partners, with travelers or other service providers.

The table below offers an at-a-glance view of procurement approaches for the agencies that will be presented in further detail. The experiences of all the agencies contacted are then presented in the remaining tables using aspects of the information defined above.

Third Party Data Procurement Approach	Other Agencies			ENTERPISE Member Agencies			
	New Mexico	TransLink Vancouver, B.C.	I-95 Corridor – North Carolina	Washington	Idaho	Virginia	Michigan
Data as a service			X	X	X		X
Color overlays for map displays as a service	X			X			
Agency owns hardware, software and data		X					
Hybrid – Agency owns some hardware, software and data					X	X	

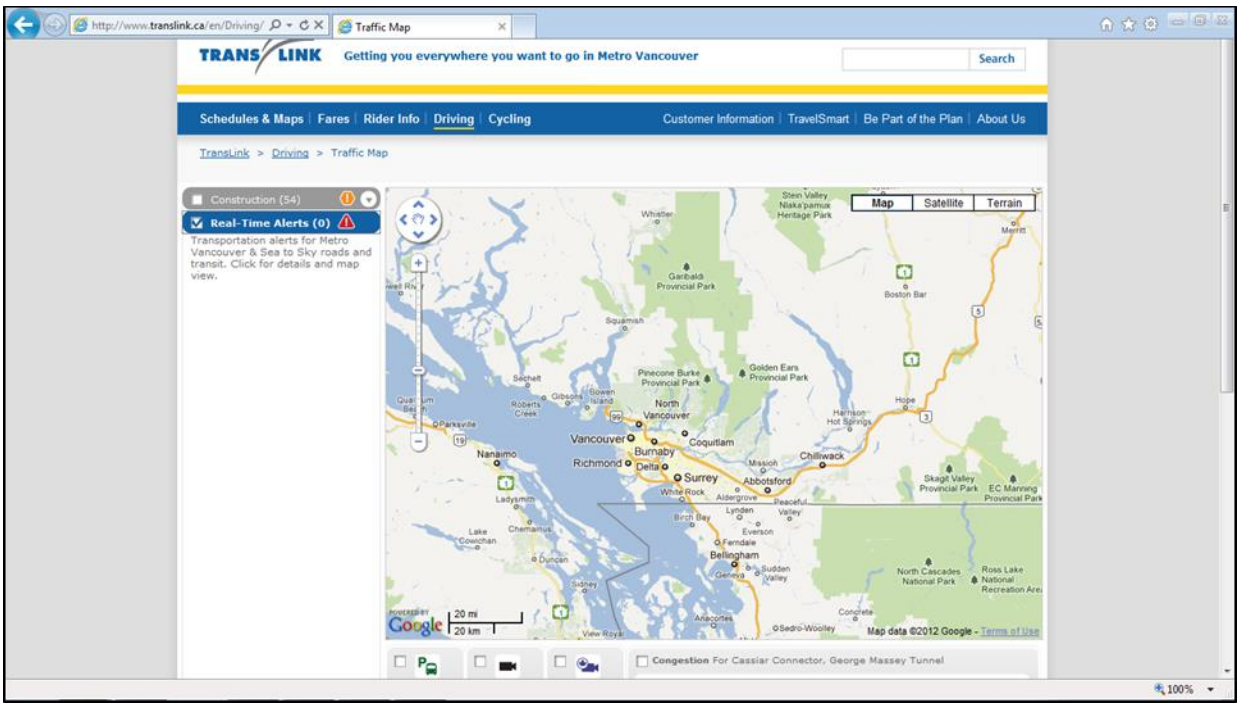
New Mexico: INRIX Data	
Intended Use	Web display of traffic speeds statewide; see www.nmroads.com illustrated in Figure 3.
Coverage	All state highways throughout New Mexico
Procurement and Funding	Procured only color-coded tile overlays for web displays; now raw data
Integration and Use	NMDOT receives color-coded tile overlays in TMC segments; if data reverts real-time to historical, overlay is turned off for that segment
Data Sharing and Ownership	Data can only be displayed on the NMDOT public web page
Other Notes	NMDOT has other sources for travel times in urban areas for 511 telephone service

Figure 3 New Mexico Traffic Conditions



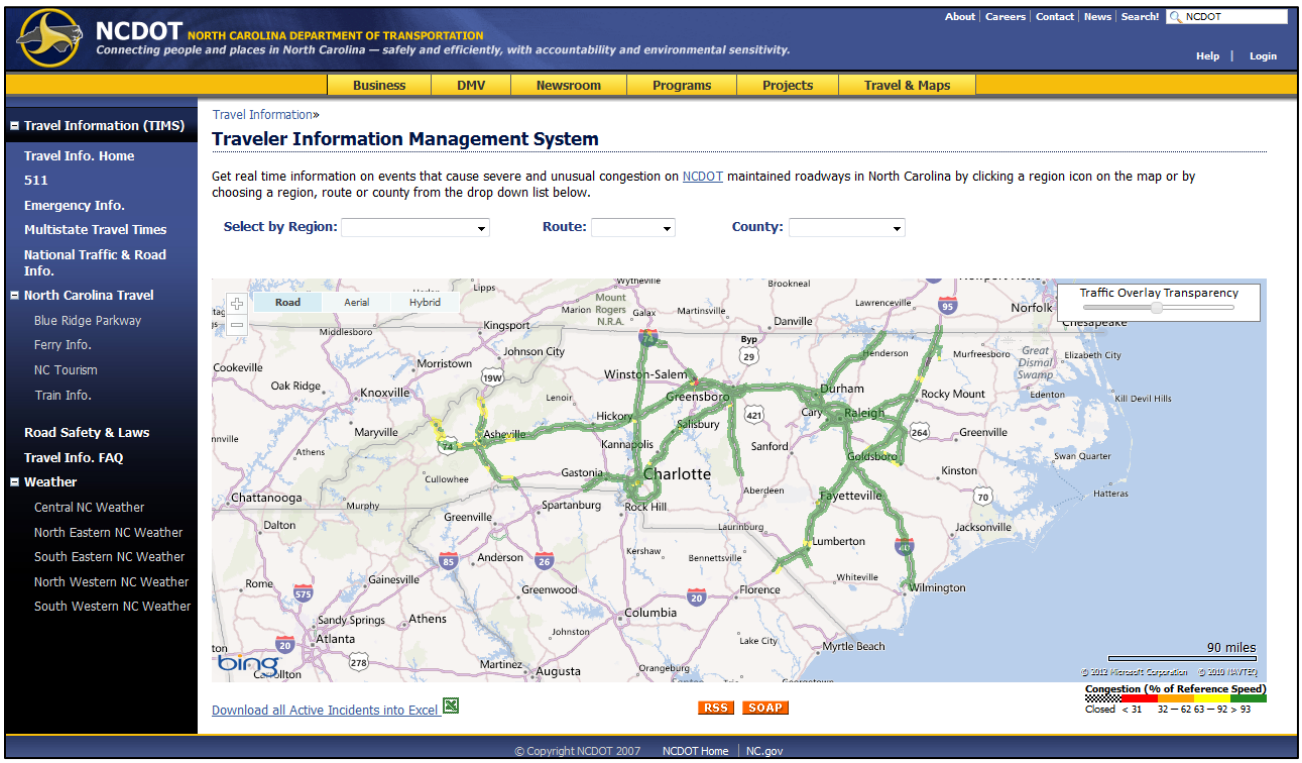
TransLink – Vancouver, B.C.: Agency Owned Infrastructure Data (To be deployed in 2012)	
Intended Use	Traveler information; traffic management; data sharing with other information providers; historical data to monitor performance
Coverage	1,400 km of roads from Whistler to Fraser Valley; includes all major road segments in Metro Vancouver, all highways and key arterials
Procurement and Funding	Funded as capital program (not operational budget); needed to procure assets that would be owned by the agency to meet capital criteria and that allowed access to additional funding sources; also could not procure data delivery solely as a service
Integration and Use	Uses cell phone based infrastructure solution; agency owned hardware installed in Rogers (Canadian cell provider) towers; cell phone signatures captured to locate signals; information privacy addressed in system design; Cellint contracted to process data; IBI Group contracted to integrate data for dissemination; real-time and historical data
Data Sharing and Ownership	Agency owns and shares all data with partners and other information providers to encourage app development and other uses of the data; private providers are required to register and authenticate who they are prior to receiving data
Other Notes	TransLink is Metro Vancouver's regional transportation authority responsible for regional transit, cycling and commuting options, regional roads and bridges, as well as AirCare and ITS programs; TransLink traffic map is illustrated in Figure 4

Figure 4 TransLink Traffic Map



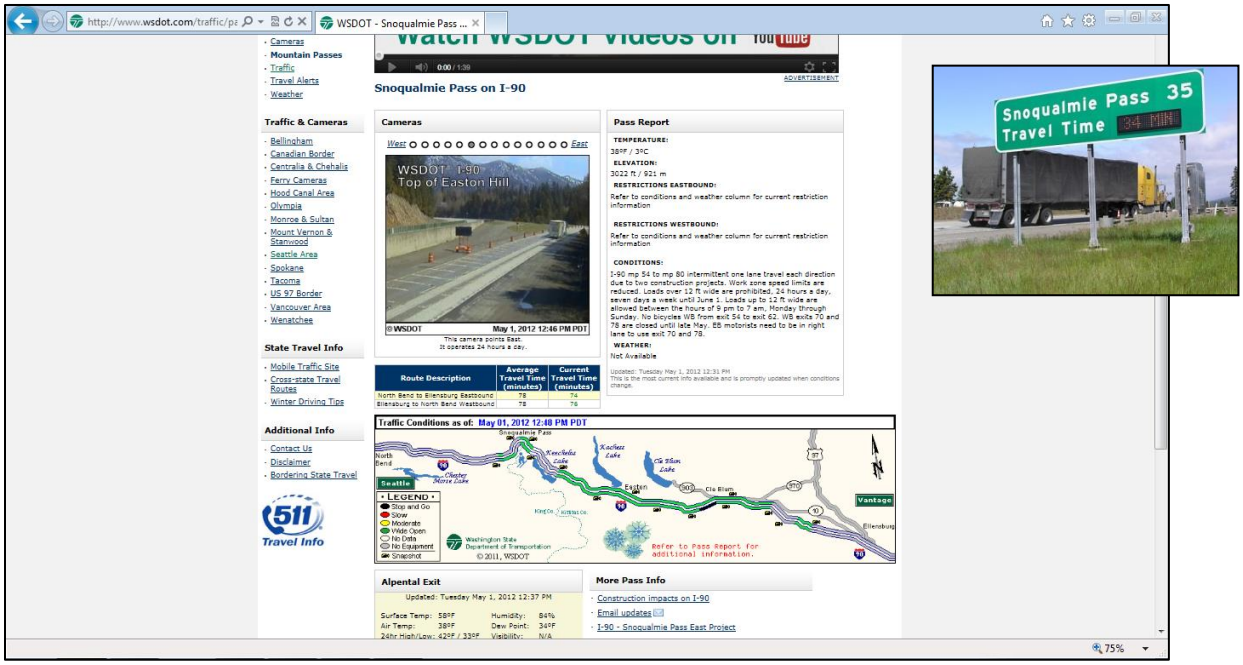
I-95 Corridor Coalition – North Carolina: INRIX Data	
Intended Use	Traveler information (phone, web, DMS); traffic management; incident detection
Coverage	15,000 (of 80,000 total) miles of Interstates and arterials; NCDOT has a total of 80,000 miles
Procurement and Funding	Procured through the University of Maryland jointly with I-95 Corridor Coalition
Integration and Use	Color 'tiles' overlay on website; travel times on 511 telephone (automated); travel times for DMS (operator viewing data); operators viewing website display of data; combination of real-time probe data and historical; when viewing historical data, can see the confidence factor (e.g. when probes were low and historical was used)
Data Sharing and Ownership	Data use agreement negotiated as part of I-95 Corridor Coalition; do not serve up data for others to disseminate; can share with public partners and for sake of research or analytics; believed having data outweighed desire to share with others

Figure 5 NCDOT Travel Information



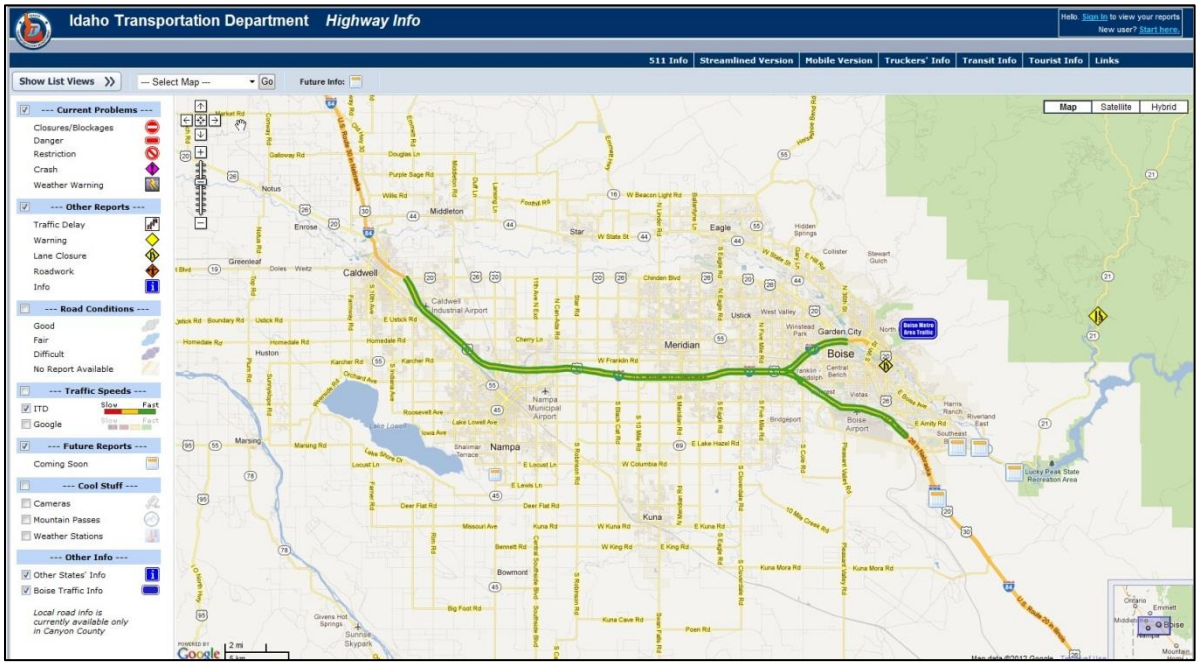
Washington State: INRIX, BlueToad (TrafficCast) and SpeedInfo Data	
Intended Use	Pre-trip and en-route information (travel times) on select corridors as illustrated in Figure 6
Coverage	I-90/Snoqualmie Pass
Procurement and Funding	Direct contract
Integration and Use	XML data feed (WSDOT approved schema); TMC segments
Data Sharing and Ownership	WSDOT can share real-time traffic data to public for traveler information
Washington State: INRIX	
Intended Use	Performance measures and planning, traveler information
Coverage	Historical and real-time data statewide, analytic tools, traffic tile overlays of speeds; recently added real-time data for Southwest Region for all freeways and arterials in Clark County plus parts of I-5 and I-205 in Oregon
Procurement and Funding	RFP for statewide data; statewide services contract with task order /amendments used to activate or add other coverage as needed; operations funding was used
Integration and Use	Data posted to secure FTP server and provided as a real-time XML data feed (WSDOT approved schema); TMC segments
Data Sharing and Ownership	WSDOT can share real-time traffic data to public for traveler information, public partners and universities for performance reporting, operational analyses, planning and data validation; WSDOT does not own contractor supplied data unless it is downloaded locally

Figure 6 Snoqualmie Traffic and Travel Time Information



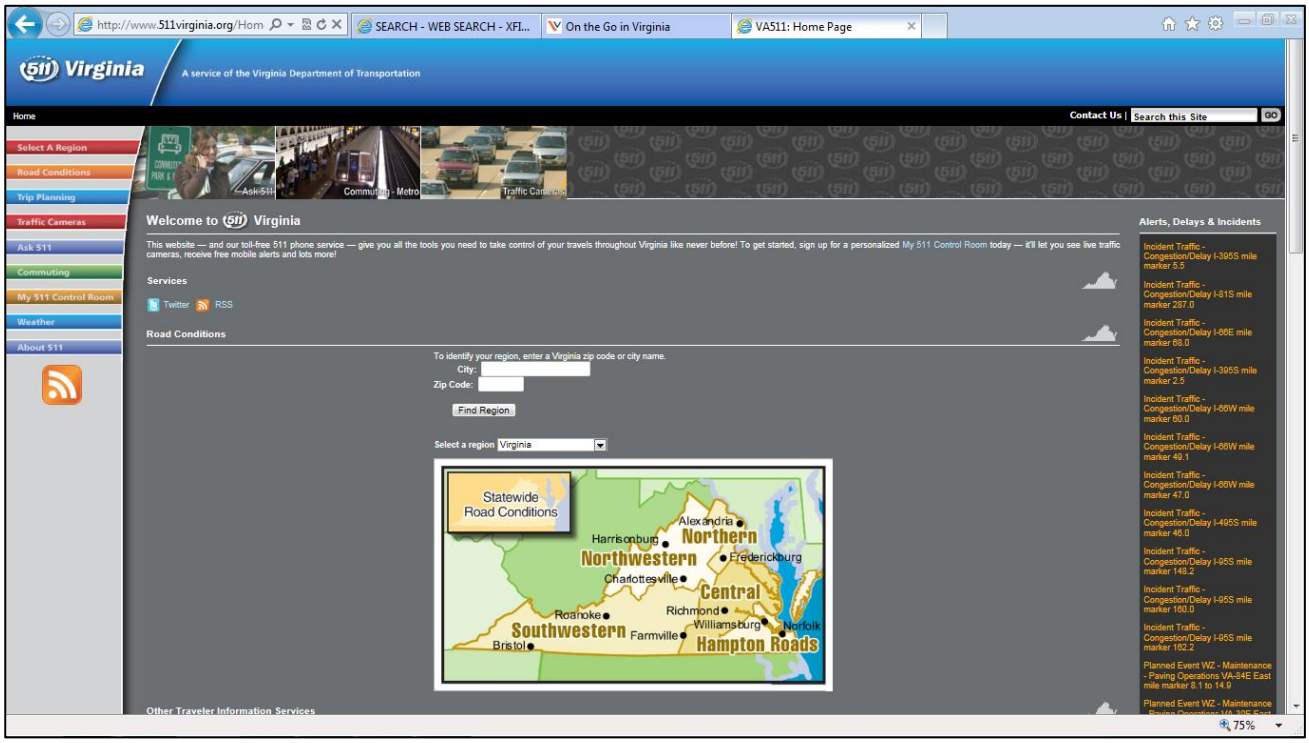
Idaho: INRIX Data	
Intended Use	Traveler information
Coverage	Initially contracted for statewide data; delivered 23 miles of I-84 around Boise
Procurement and Funding	ITD observed historical data when insufficient probes were available; decided to let contract expire
Integration and Use	Assembled speed data according to ITD segments; ITD could not mingle provider data with other data
Data Sharing and Ownership	ITD could do anything internally with data; could display color coded roads on web map; could not disseminate actual data (e.g. travel time or speeds) to travelers or others
Idaho: BlueToad (TrafficCast) Data	
Intended Use	Traveler information
Coverage	23 miles of I-84 around Boise
Procurement and Funding	ITD issued an RFP and BlueToad (TrafficCast) was lowest bid; ITD purchased and installed field hardware at $6,000/site for 10 sites (9 segments)
Integration and Use	BlueToad processes and delivers data as XML feed; ITD archives and analyzes internally; display color coded map online
Data Sharing and Ownership	ITD owns data; no restrictions on data sharing

Figure 7 Boise Area Traveler Information



Virginia: Digital Traffic Systems (DTS)	
Intended Use	Traveler information, traffic management, agency performance measures, operations and planning
Coverage	Statewide; over 600 fixed sites with mix of in-pavement and non-intrusive sensors (volume, class, speed and other parameters); 22 mobile units available for temporary events (volume, speed, CCTV images and weather)
Procurement and Funding	RFP for contract with 2-3 year initial term and multiple 1-year extensions, for total of 5 years; VDOT owns fixed site infrastructure, excluding electronics equipment; DTS provides electronics and mobile units; DTS operates and maintains equipment and provides data back to VDOT within a performance-based fee structure
Integration and Use	Data formatted by TMC segments as specified by VDOT
Data Sharing and Ownership	Data delivered real-time over Internet or via FTP site; VDOT has full ownership and unrestricted use of data, but does not currently freely republish the data

Figure 8 Virginia 511 Traveler Information



Michigan: NAVTEQ (Nokia)	
Intended Use	Traveler information, traffic management
Coverage	Original scope was the 'Triangle Area' of traffic heading north for weekend / holiday traffic along US-127 / I-75 / I-94; NAVTEQ proposed to deliver speeds for freeways statewide
Procurement and Funding	RFP for initial 3 year contract with extensions up to 5 years; initial contract signed June 2009
Integration and Use	Data is average speeds (rounded to .01 MPH); speeds are reported for TMC segments; statewide ATMS software integrates speeds and calculates travel times; information posted to Mi Drive web site and DMS signs; starting to import data for performance measure analysis
Data Sharing and Ownership	MDOT can disseminate information to public and share with research partners; can NOT distribute data to other service providers

Figure 9 Mi Drive Traffic Information

In addition to these experiences with third party data, several other ENTERPISE members have interacted with third party data providers for research and construction, and specialty (commodity) data for freight planning. Texas recently completed an assessment of their state infrastructure, service provider offerings and recommendations were made to fill data gaps. Illinois has experience using BlueToad (TrafficCast) on a temporary basis during construction near Chicago. Minnesota uses commodity data from a provider for freight planning purposes. Still other members have used free traffic information and tools available from third party data providers. Iowa uses both INRIX and Google free traffic data for traffic management purposes.

5. Conclusion

Third party data offers many benefits to transportation agencies, particularly in light of the real-time traffic and travel condition requirements specified by 23 CFR 511. The broad coverage and immediate availability of probe-based data can be particularly appealing. However, there are also challenges for transportation agencies that should not be overlooked. Data ownership and long-term service contracts were commonly noted challenges during the course of this project.

Most transportation agencies have some form of data network that they own and operate, and for many years that was the only option available for traffic management systems that rely on data to function. As those agency-owned networks have been established, it has also become common – even expected – practice for agencies to make the resulting data freely available to others. The uses of that data have grown exponentially in recent years with the advent of traffic web sites or navigation applications for smartphones. Agencies and other users of the data are accustomed to this model and when contemplating new options to supplement or potentially even replace their agency-owned network, it is often difficult or impossible to separate the traditionally free distribution of such data. When considering the book publication analogy used by one provider during this project, it is possible to also understand the data providers' concerns with free redistribution of data that they have built a business model around the sale of. This challenge is also further compounded by the fact that many third party data providers use data provided by transportation agency-owned networks and the ownership of such data becomes even more complex.

The other challenge frequently referenced during this project is that of long-term service contracts. Although an agency-owned and operated network may potentially be more costly in both capital and ongoing operational dollars than procuring third party data, it is becoming increasingly difficult for agencies to add line items to operating budgets for ongoing service contracts and then successfully defend them. This is made even more difficult by the limits that agencies have on contract duration. Most agencies have 1-5 year limits on service contracts that require them to rebid such services periodically. It is not difficult to imagine a scenario where an agency enters into a 3-year data agreement, establishes valuable operational uses for that data, and then has a change in administration or a fiscal crisis that eliminates or redirects funding for the data. Suddenly, the transportation agency is left without data and the need to explain why a service is no longer available. Transportation agencies strive to provide reliable services to the public and this scenario is one they will try to avoid.

Unfortunately, there is no ideal third party data arrangement for every agency because each agency's need for data will be as unique as their requirements for sharing the data and paying for it. Transportation agencies and providers alike must strive to articulate their needs and what drives them so that they may develop arrangements that are mutually beneficial to both parties, as well as the public who is ultimately served.

ENTERPRISE initiated this project to help its members better understand what third party data providers are offering, how states are using the data and what their options might be for future use of such data. This report presented information gathered during the project, including ENTERPRISE members' data needs and uses, third party data provider information, and public agency experiences with using third party data. The report will remain available on the ENTERPRISE project web page accessible through www.enterprise.prog.org.

Appendix A – ENTERPRISE Member Survey of Third Party Data Needs and Uses

Survey Introduction

The ENTERPRISE Program is trying to understand how transportation agencies acquire and use travel information from Third party providers. The ENTERPRISE Program is a FHWA Pooled Fund Study that includes 13 state DOTs, one Canadian Province, Transport Canada, FHWA, and the Dutch DOT.

In order to gather useful information, and to help facilitate project webinars, transportation agencies are asked to complete this brief survey describing your needs for Third Party travel time and speed data. Note: this is not a request for any indication that your agency intends to buy any data, but rather solely to understand the needs.

Survey Questions

1. What is the name of the agency you are representing?
2. Does your agency currently use any traffic data provided by a Third Party Data provider? (If so, please enter the provider's name as well)
3. Please select the description that most closely describes your agency's needs for Real-time Travel Time Data. (Users check one option per row)

	Need it – Currently have a source for it	Need it – Currently have a source that meets some of our needs, but not all	Need it – Currently do NOT have a source that meets this need	Don't need it at this time
Travel Times on state highways in our urban areas	☐	☐	☐	☐
Travel Times on local arterial roads in our urban areas	☐	☐	☐	☐
Travel Times on key highways	☐	☐	☐	☐
Travel Times on highways in non-urban areas	☐	☐	☐	☐

Other: Please specify <<open ended text entry>>

4. Please select the description that most closely describes your agency's needs for Real-time Speed Data. (Users check one option per row)

	Need it – Currently have a source for it	Need it – Currently have a source that meets some of our needs, but not all	Need it – Currently do NOT have a source that meets this need	Don't need it at this time
Speed data on state highways in our urban areas	☐	☐	☐	☐
Speed data on local arterial roads in our urban areas	☐	☐	☐	☐
Speed data on key highways	☐	☐	☐	☐
Speed data on highways in non-urban areas	☐	☐	☐	☐

Other: Please specify <<open ended text entry>>

5. Please select the description that most closely describes your agency's needs for Real-time Volume and Occupancy Data. (Users check one option per row)

	Need it – Currently have a source for it	Need it – Currently have a source that meets some of our needs, but not all	Need it – Currently do NOT have a source that meets this need	Don't need it at this time
Volume and/or Occupancy data on state highways in our urban areas	☐	☐	☐	☐
Volume and/or Occupancy data on local arterial roads in our urban areas	☐	☐	☐	☐
Volume and/or Occupancy data on key highways	☐	☐	☐	☐
Volume and/or Occupancy data on highways in non-urban areas	☐	☐	☐	☐

Other: Please specify <<open ended text entry>>

6. Please select the description that most closely describes your agency's needs for historical (Non Real-time) Speed and/or Travel Time data. (Users check one option per row)

	Need it – Currently have a source for it	Need it – Currently have a source that meets some of our needs, but not all	Need it – Currently do NOT have a source that meets this need	Don't need it at this time
Historical speed / travel time data on state highways in our urban areas	☐	☐	☐	☐
Historical speed / travel time data on local arterial roads in our urban areas	☐	☐	☐	☐
Historical speed / travel time data on key highways	☐	☐	☐	☐
Historical speed / travel time data on highways in non-urban areas	☐	☐	☐	☐

Other: Please specify <<open ended text entry>>

7. Please answer the following questions about your needs relating to the use and distribution of the data. You may select multiple answers per row.

	Be authorized to display it on our DMS, Website, phone system (and all other dissemination mechanisms)	Be authorized to share the data with other public agencies or private information service providers	Use the data internally for real-time traffic management	Use the data internally for planning purposes
If we procure **real-time** travel time or speed data, we need to	☐	☐	☐	☐
If we procure **historical** travel time or speed data, we need to	☐	☐	☐	☐

Other (please specify) <<Text entry>>

8. Please describe any accuracy requirements your agency has for third party traffic data.
   <Free Text Input>

9. Please select the best option that describes the availability requirements your agency has for Third Party Data:
   A. We would disseminate Travel Time information continuously; therefore we would need information to be provided 24/7, with only very limited periods when data is not available
   B. We need data 24/7, however if the data source is not available periodically this is acceptable
   C. We need data during selected times when traffic is heavy (e.g. peak periods, special events)

Appendix B – List of Third Party Data Providers and Public Agency Contacts

The following matrix notes which third party data providers the agencies have used, as well as the agency and provider contacts for further information as desired. This summarizes the states contacted during this project for information about their experience with third party data providers. The third party data providers are also grouped according to the technical approach they use to provide their data. Network based providers typically use anonymous signals from cell phones or other wireless devices which essentially serve as data probes. The infrastructure based providers use proprietary roadside products to collect data from fixed locations.

States	Network (Cellular/GPS) Based Third Party Data Providers				Infrastructure Based Third Party Data Providers		
	INRIX	NAVTEQ (Nokia)	AirSage	Cellint	BlueToad	Digital Traffic Systems (DTS)	SpeedInfo
ENTERPRISE Members							
Georgia	X	X	X				
Idaho	X				X		
Iowa	X						
Illinois					X		
Michigan		X					
Minnesota	X		X				
Virginia					X	X	
Washington	X				X		X
Other States/Provinces							
South Carolina	X						
North Carolina	X						
New Mexico	X						
Vancouver, B.C.				X			

Contacts for the third party data providers and other states/provinces are provided in this section to allow for further contact as desired. ENTERPRISE member contact information is available online upon login.

Third Party Data Providers – Network Based

- INRIX, Ted Trepanier, 425.284.3811, ted@inrix.com, www.inrix.com
- NAVTEQ (Nokia), Terri Johnson, 570.470.4075, terri.johnson@nokia.com or Keith Hangland, keith.hangland@nokia.com, www.navteq.com
- AirSage, Bill King, 770.329.0863, bking@airsage.com, www.airsage.com

Third Party Data Providers – Infrastructure Based

- BlueToad (TrafficCast), Paul Misticawi, 678.575.0958, pmisticawi@trafficcast.com, www.trafficcast.com
- Digital Traffic Systems (DTS), David Ludwig, 804.237.9380, david.ludwig@dtsits.com, www.dtsits.com
- SpeedInfo, Doug Finlay, 408.446.7660, dfinlay@speedinfo.com, www.speedinfo.com

Other States/Provinces (Non-ENTERPRISE)

- I-95 Corridor Coalition – North Carolina
- New Mexico
- TransLink – Vancouver, BC

Appendix C – Discussion Guides for Third Party Data Providers and Public Agencies

Third Party Data Provider Discussion Guide

The questions in this discussion guide were used during telephone interviews to facilitate the gathering of similar information about providers' products and services, as well as their business model and terms of data use. The providers interviewed for this project included:

- INRIX
- NAVTEQ (Nokia)
- Airsage
- Digital Traffic Systems (DTS)
- BlueToad (TrafficCast)
- SpeedInfo

Questions

After a brief overview of the ENTERPRISE project, the following questions were discussed with each provider.

1. Describe the data that is available to your subscribers (e.g. Travel times? Speed? Volume? Occupancy?).
2. Describe the overall technical approach that is used to collect and/or calculate the travel data.
3. Describe your general pricing strategy (note: pricing amounts are not needed). For example, is it per lane mile, per month?
4. Does your company provide a service (e.g. deliver data) or provide devices that DOTs purchase? Exactly how does the business model work?
5. Describe the ownership and use of the data, including any restrictions on clients for how they can use (or share) the data.
6. Does the provider benefit at all from DOT data? In other words, is there a model for DOTs sharing their data with the third party provider, possibly to reduce costs?
7. Describe typical terms of contracts that are desirable? For example, does the provider require a minimum term of service (perhaps to recover investment costs)?

Public Agency Discussion Guide

The questions in this discussion guide were used during telephone interviews with public agencies – both ENTERPRISE and non-ENTERPRISE member agencies. The agencies interviewed during the project included:

- Georgia*
- Idaho*
- Iowa*
- Illinois*
- Michigan*
- Minnesota*
- New Mexico
- North Carolina
- South Carolina
- Vancouver, B.C.
- Virginia*
- Washington*

** ENTERPRISE member*

Questions

1. What geographic coverage was needed?
2. What geographic coverage was delivered?
3. What data is provided by the Third Party Data provider? (e.g. is it actual data or map overlays? Are speeds reported in MPH? What decimal place of accuracy?)
4. What does your agency do with the data?
5. What terms of the contract for the data? Can you distribute the data to others? Are there restrictions on your dissemination of the data to the public?
6. What was the procurement process you followed? Can we get a copy of the RFP?
7. What Performance Measures do you use to assess the data?
8. What accuracy levels have you seen? Is the data meeting all your needs?
9. Can we get contact information for the Third Party Provider?