



REQUEST FOR INFORMATION FOR Eastern Transportation Coalition: Transportation Data Marketplace – 4th Edition RFI No. 48875-SA

Issue Date:	August 31, 2026
Deadline for Questions:	Monday, Sep 16, 2026 at 12:00 PM EDT
Submittal Deadline:	Monday, Sept 28, 2026 at 12:00 PM EDT
Procurement Services Contact:	Salem Alsai, CPPB Category Manager, Commodities and Services University of Maryland 2113 Chesapeake Building 4300 Terrapin Trail College Park, MD 20742 +1 (301) 405-5815 salsai@umd.edu

Note: This Request for Information (RFI) is not a solicitation for proposals or offers and does not constitute a commitment to procure any products or services. It is intended solely to gather information for planning and decision-making purposes.

1. Eastern Transportation Coalition & Transportation Data Marketplace Background

The Eastern Transportation Coalition's (ETEC) developed its first Transportation Data Marketplace (TDM) beginning in 2008. It was initially called the Vehicle Probe Project (VPP), and it had the primary goal to provide Coalition members with the ability to acquire reliable travel time and speed data for their roadways without the need for sensors and other hardware.

The original contract, referred to as VPPI, surpassed expectations. VPPI provided real-time and historical tools for operations and planning, established verifiable accuracy standards for

travel time and speed data, and under terms and conditions that allowed the data to be shared among TETC members. A second contract was awarded in 2014 to multiple vendors, creating a true marketplace. This second contract, referred to as VPPII, kept the standards-based procurement and fortified the common terms and conditions that applied to all data and all vendors in the marketplace, referred to as the Data Use Agreement (DUA). As of 2020, the two contracts, VPPI and VPPII combined, had provided traffic data to Coalition members in monetary value in excess of \$50 million dollars.

A third version of the marketplace was contracted in 2022. This third version was renamed the TDM V3. TDM V3 added various transportation data sets, expanding the VPP to a multi-product, multi-vendor marketplace. The breadth of the core data products in TDM V3 included:

- (1) Travel Time and Speed Data.
- (2) Vehicle Volume Estimation Data.
- (3) Origin and Destination Data.
- (4) Freight Data
- (5) Waypoint Data (which include Connected Vehicle, Location-Based Services, and Fleet Telematics Data).
- (6) Conflation Data/Services.

As of 2026, the TDM V3 has provided data to Coalition members in monetary value in excess of \$85 million dollars. TDM V3 retained the principles of VPPI and VPPII, building on the common terms and conditions in the DUA that allows for sharing of data among Coalition members, and a validation program that investigated the accuracy, value, and consistency of any data product in the marketplace.

The Coalition is now approaching its fourth version of the marketplace, referred to as TDM V4. In support of this effort, the Coalition is issuing this **Request for Information (RFI)** to inform and shape the anticipated Request for Proposals (RFP). TDM V4 expands the marketplace to even more transportation data categories as the Coalition anticipates increasing the data categories in TDM V4 from six to twelve. This RFI solicits feedback from potential respondents concerning products within the proposed data categories and their associated specifications.

2. RFI OVERVIEW

TETC, housed and operated from within the University of Maryland (UMD), is seeking information from qualified vendors regarding Transportation Data Products to support the TDM V4. This RFI is issued for planning purposes only and does not constitute a commitment to purchase.

This RFI is not a solicitation for proposals or offers. It is intended solely to gather information for planning and decision-making purposes. **Please note that all responses will be public record. Do not submit confidential information in your response.**

Previous VPP and TDM solicitations were specifically for data to be used by TETC members. TDM V4 anticipates a national scale marketplace, beyond the approximately 20 state geographic footprint of the TETC.

3. RFI CONTACT:

The sole point of contact at the University of Maryland, College Park (UMCP), for purposes of this RFI, is the **Procurement Services Contact**, whose contact information is provided on

page one. The RFI is intended to be conveyed electronically, and responses posted electronically.

4. RFI CONFERENCE

An optional RFI meeting will be hosted by on Wednesday, Sep 9th, 2026 at 11:00 am EST to review the purpose of the procurement, proposed product categories, technical specifications, and provide any clarifications in an open forum. The Zoom link to the meeting is:

<https://umd.zoom.us/j/6944230119?pwd=MVBhRTVSWkRBN2VhZUczV0pPV21XQT09&omn=94393842103&jst=2> or (US) +1 346-248-7799 Passcode: 627283

5. RFI TIMELINE:

The RFI timeline is conveyed below. Dates may be modified or amended by UMD, which will post an amendment to this RFI via email notifying prospective respondents of any change.

- **RFI Release Date:** August 31, 2026
- **RFI Conference:** Wednesday September 9, 2026 at 11 AM EST
- **Deadline for Questions:** Wednesday, September 16, 2026 at 12 PM EST
- **Responses Due:** Monday, September 28, 2026 at 12 PM EST

6. VENDOR QUESTIONS

Each Vendor is responsible for carefully reviewing and fully understanding the requirements of this RFI. All contact between Vendors and the University must occur in writing as outlined above, or through attendance at the Vendor Information Meeting.

Requests for Clarification

- All requests for clarification or additional information must be submitted in writing via email to the **Procurement Services Contact** as specified on page 1 of this RFI.
- Requests must be submitted no later than deadline provided on Page 1 of this RFI
- The email subject line must read: **“QUESTIONS: RFI No. 48875-SA.”**
- Only written communications related to this procurement will be considered.
- Email is the sole acceptable method for submission of questions. Vendors are responsible for verifying receipt of their questions by the University.

Responses to Questions

- All questions will be answered in writing via an Amendment and posted on eMaryland Marketplace Advantage (eMMA) website at www.eMMA.maryland.gov.
- Questions and answers will be distributed to all Vendors who are on record with the Procurement Officer as having received this RFI. Vendor identities will not be disclosed.
- Any oral communications are not official and should not be relied upon for procurement purposes.

Amendments

- If any question results in a change to the RFI, an Amendment will be issued to reflect such revisions.

7. SUBMISSION INSTRUCTIONS

Submittals to the RFI must be:

- (1) submitted in the format set forth herein.
- (2) made in the official name of the firm or individual under which the Vendor's business is conducted (including the official business address).
- (3) signed by a person duly authorized to release Information.
- (4) submitted electronically clearly marked with the assigned RFI number and Contractor name as described below
- (5) addressed to the Procurement Officer identified in Section I.

Information submittals in response to the RFI shall be submitted electronically, uploaded to the secured Box folder the University of Maryland set up for this RFI. ***Unless otherwise specified***, the file format for the submittals should be Adobe PDF.

The Information Submittal Packet should be clearly labeled as follows:

<RFI# 48875 - Company Name - Information Submittal - TDM V4>

Submit the Information documents to the following website addresses:

Information Submittal Website Address:

<https://umd.app.box.com/f/d4c67669b4a043b593990fadbcbd6990>

RFI responses should be **informational only**—no binding prices, no contractual language, and no assumptions of award.

NOTE: SUBMITTALS CONVEYED BY FAX OR E-MAIL WILL NOT BE ACCEPTED. LATE SUBMITTALS WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES.

8. TECHNICAL REQUIREMENTS AND VENDOR INFORMATION REQUEST

8.1 Objective:

The Coalition's objective is to discover and evaluate available Transportation Data Products (inclusive of Transportation Data, Data Analytics, and Data Services) within the scope of TDM V4, and to assess the associated technical specification for consideration of inclusion in TDM V4:

- TDM V4 proposes twelve data categories. Are these categories sufficient to procure the scope of transportation data products for consideration by members of TETC?
- Do the technical specifications for each core data category reflect current industry practice, standards (if they exist), and expectation of customers?
- Do the proposed terms and conditions of data use (as outlined in the TDM V4 Draft DUA) appropriately cover/address anticipated data licensing issues for TDM V4?

8.2 Scope of TDM V4 Request for Information

The scope of the TDM V4 includes Transportation Data, Transportation Data Analytics, and Transportation Data Services as defined below.

- **Transportation Data** – *Transportation Data* refers to data sets that provide infrastructure, planning, or operational data on the performance of the roadway network and/or movement of roadway users on the transportation network. For example, in previous TDMs, this included such items as travel time, speed, volume, origin & destination, waypoint data, freight information. The core data areas section below provides a description of the Transportation Data Products of interest to the Coalition within the scope of the TDM V4. Note: The TDM is for the procurement of Transportation Data Products, not for equipment or sensors.
- **Transportation Data Analytics** – *Transportation Data Analytics* refers to the electronic tools, dashboards, and web sites that provide for ease of data management, access, visualization, or interpretation of *Transportation Data*. Analytics tools are requested that accompany Transportation Data provided through TDM V4. General data analytics tools not associated with procured *Transportation Data* are not within the scope of TDM V4.
- **Transportation Data Services** – *Transportation Data Services* refers to functions needed with respect to *Transportation Data*. Examples include, but are not limited to, transforming Transportation Data into different map representations (referred to as Conflation), encoding Transportation Data into standardized Georeferencing Formats, and communicating critical traveler information data to specific audiences such as freight drivers. Transportation Data Services encompasses either the transformation, encoding, or transmission of Transportation Data for transportation specific application outcomes.

The Coalition anticipates that TDM V4 will expand to twelve (12) core data categories. An overview of these 12 core data categories is provided in the table below. The first six reflect the six (6) core areas from TDM V3. Some of these 6 core data categories have modifications from TDM V3. The remaining six data categories (7 through 12) reflect new core data categories for TDM V4.

Table 7.1 – Core Data Categories Anticipated in TDM V4

From TDM V3 – CORE DATA SETS

1. Travel Time and Speed Data – Real-Time and Historical
2. Volume Estimation Data – Real-Time and Historical
3. Origin and Destination Data – Vehicle and Freight
4. Freight Data
5. Waypoint Data (CV data, LBS data, and Fleet Telematics data)
6. Conflation and Geo-Referencing Data/Services

NEW / ADDITIONAL CORE DATA SETS

7. Active Transportation (Bike and Ped) – Estimates and Counts
8. Traffic Signal Performance Measures
9. Virtual Weather Data (Virtual Weather Stations)
10. Instrumented Vehicle Data (e.g. Dashcams / video image AI)
11. Infrastructure Advanced Sensor Data (e.g. near miss analysis)
12. Asset Management Data (e.g. friction, roughness, signs, etc.)

A table of definitions is included in Attachment 1: Definitions. This attachment provides definitions for the technical terms used throughout the material. The definitions are provided for information purposes only.

A detailed explanation of each data category is provided in Attachment 2: Draft Data Specification.

A draft copy of the data use agreement is conveyed in Attachment 3: Draft Data Use Agreement. Vendors are encouraged to thoroughly review all aspects of the draft TDM V4 DUA.

A proposed pricing framework for TDM V4 is conveyed in Attachment 4: Pricing Framework. The pricing framework conveys the anticipated pricing model that will be used in the RFP. The pricing framework has changed minimally from TDM V3. The primary differences include:

- Pricing proposals data should explicitly detail the treatment of Metropolitan Planning Organization (MPOs) with respect to any seat licensing/data portals.
- TDM V4 is anticipated to have national participation; as such, vendors will be required to provide pricing for all 50 states, or a price model that is extendable to all 50 states (in addition to the pricing provided for the Coalition member states).

8.3 RFI Feedback Requested

The following feedback is requested from RFI respondents. Some items are required (and are so marked). Some items are optional (and are so marked).

A. Vendor Contact Information and Anticipated Participation in the TDM V4 – (REQUIRED)

Each Vendor responding to the RFI should provide contact information and indicate

the core data categories the vendor anticipates responding to in the full TDM V4 RFP. Complete the matrix table as provided on the first page of Attachement 2: Draft Data Specifications.

- Contact information will be used to provide additional notification that the RFP has been posted.
- A response to this RFI does NOT place limits on the data categories that a vendor can respond to when the TDM V4 RFP is issued. Response to this RFI does not require the vendor to respond to the RFP, or respond to any specific Core Data Area of the RFP.
- The information from this RFI will be used to determine the adequacy of existing Core Data categories, assess industry capacity in each core data area, determine appropriate technical specifications, and plan appropriately for technical review.
- Vendors should fill out the 'Vendor Information Page' within the Core Data Technical Specifications Spreadsheet distributed with this RFI.

B. Product Information (REQUIRED)

For each Core Data category the Vendor anticipates submitting an RFP response, as indicated in section A above, provide a brief summary of the Transportation Data Product. Limit the summary to two pages per product. The two-page information packet may reference literature available publicly on the internet. Include in the summary any reference accounts of public agencies already using the product, along with contact information. References from agencies within the Coalition are desirable.

C. Technical Specifications Review (OPTIONAL)

For each data category the vendor anticipates providing a response, review the proposed specifications specific to the data category. The following types of comments are welcome:

- The specification's breadth and sufficiency.
- The Vendor's ability to meet mandatory specifications (such as for accuracy, availability, latency, standards compliance, etc.)
- Recommended minimum viable specifications not currently listed in the proposed specifications.
- Information on industry standards pertaining to Core Data areas.

Such comments may be entered directly into the Core Data specification spreadsheet provided via download (and include a copy of the spreadsheet in your response packet) or provided separately in a PDF response document.

D. Data Use Agreement (REQUIRED)

Attachment 3: Draft Data Use Agreement is conveyed with the RFI packet. The DUA conveys the terms and conditions for data use and licensing that will be common to all vendors. Anything that appears in the DUA will supersede any vendor specific licensing terms and conditions. This is consistent with previous versions of the TDM.

Response:

- Indicate the ability of your company to support the DUA terms and conditions to:
 - Fully support the proposed TDM V4 DUA.
 - Cannot support the proposed TDM V4 DUA.
 - Unknown at this time.
- If there are aspects of the TDM V4 DUA that are problematic, provide a written explanation. Suggested replacement language is encouraged.
- If there are any aspects of licensing terms and conditions missing from the DUA that need to be addressed, please comment.

Notes:

- Some of the wording of the DUA has evolved from TDM V3 to TDM V4 in anticipation of a national marketplace.
- The DUA was augmented with terms and conditions for portal access/seat licensing based on precedence set in TDM V3.

8.4 Vendor Response Format

Vendors should respond in the following format:

1. Executive Summary (2 page limit).
2. Company Overview. (2 page limit)
3. Summary of anticipated participation in the RFP (See section 8.3.A). Required
4. Response and Comments (if any) to the DUA (See section 8.3.D). Required - 2 page limit.
5. Response and Comments (if any) on the Pricing Framework (see Attachment 4). Optional - 2 page limit.
6. Vendor Product information (See section 8.3B). Provide a concise description (no more than two pages per product) of the anticipated products that will be proposed in response to the RFP. Include references for each product as described in 7.3B. Required.
7. (Optional) If the Vendor has a product that fits the description of Transportation Data, Transportation Data Analytics or Transportation Data Services categories that are not embodied in the 12 data categories, include a two-page description, formatted similarly to item 6 above. Optional.
8. (Optional) If the Vendor has comments on specific technical specification, include in the writeup, or attach a copy of the Data Specification Spreadsheet with comments inserted as part of the packet. Optional.
9. Final comments. The final section welcomes any overall comments with respect to the TDM V4 anticipated RFP. Optional – 2 page limit.

Note: The University will keep your information confidential. Your submission will only be shared with TETC stakeholders.

ATTACHMENTS

1. Definitions
2. TDM V4 Draft Data Specification Tables
Due to its size, an electronic form of the Draft Specification Tables are also available at:
<https://app.box.com/s/ysq32orb40s4brq8izk9ueiz3j2hq96c>
3. TDM V4 Draft Data Use Agreement
4. TDM V4 Pricing Framework

END OF RFI

Attachment 1 – Definitions

Absolute Speed Error: The absolute value of the difference between the space mean speed reported from the data service and the space mean speed provided by validation procedures for a specified time period or polling interval.
Asset Management Data: Information specific to transportation asset management. It may include, but is not limited to, data for pavements, bridges, and signs that are derived from vehicle-sourced or crowd-sourced data. Specific examples include: (1) Pavement distress data such as cracking, faulting, fatigue, friction, and potholes. (2) Sign inventory, reflectivity, and appropriate placement. (3) Bridge inventory, clearance (height).
Average Annual Daily Traffic (AADT): The total volume of vehicle traffic of a highway or road for a year divided by 365 days.
Average Daily Traffic (ADT): The total daily volume of vehicle traffic of a highway or road for a specified time period, season, or day of week.
Base Map: A consistent, standardized method for representing a roadway or transportation system in a link-based methodology in an electronic or digital fashion.
Census Block: The smallest geographic census unit. It can be defined by visible boundaries, such as streets or invisible boundaries such as city limits, and is usually equivalent to ordinary city blocks. Census Blocks are updated every 10 years.
Census Block Group: A collection of Census Blocks that is a subdivision of a Census Tract. Typically, a block group contains between 250 and 550 housing units.
Census Tract: A statistical subdivision of a county that is intended to have a population of approximately 4,000 people. The boundaries of a tract are typically defined by visible features such as roads or rivers, but they can also follow the boundaries of federally owned land, such as national parks or military bases. Initially, tracts are created to be relatively uniform in terms of demographic and economic conditions. If a tract experiences population growth and the number of inhabitants exceeds 8,000, it is divided into smaller tracts.
Coalition: The Eastern Transportation Coalition (www.tetcoalition.org).
Coalition Organization: For this RFP, a Coalition Organization is defined as an organization that either owns or operates a major regional transportation system, and is

either a member or an affiliate member of the Eastern Transportation Coalition or is an agency of the United States Department of Transportation (U.S. DOT). (Go to www.tetcoalition.org for more information.)
Confidential Information: Confidential Information refers to University of Maryland data and other information, whether in written, oral, graphic, electronic, or physical form, including but not limited to scientific knowledge, know-how, processes, inventions, techniques, formulae, data, plans, and business practices, that are not generally known to the public and that, if tangible, are clearly marked by the disclosing party as Confidential Information at the time of disclosure and which, if oral, are summarized and identified in a writing as Confidential Information that is submitted to the receiving party within 10 days of initial disclosure.
Conflation Services: Conflation Services refers to transferring data from one link-node-based representation of the roadway (referred to as a Base Map) to an alternative Base Map, or applying data conveyed with geodetic location data (latitude, longitude, elevation, and heading) to a designated Base Map representation of the roadway.
Connected Vehicle Data (CVD): Transportation data derived directly from vehicles through the manufacturer (referred to as Original Equipment Manufacturers or OEMs). Since approximately 2014, a growing percentage of new automobiles have been equipped with cellular-based modems to report critical data to OEMs with respect to performance. In addition to location data, CVD typically contains speed and heading, and may contain attributes and events such as key on/key off, windshield wiper activation, harsh braking, and fuel consumption. CVD tends to have higher frequency Waypoint data updates and higher accuracy global positioning system (GPS) data because GPS equipment is embedded and integrated into the vehicle. However, CVD data tends to be aligned with a single brand or group of brands of automobiles. Note: This is NOT data derived or obtained by Dedicated Short Range Communication (DSRC) devices, which also is referred to as 'Connected Vehicle' data.
Coverage Area: The combined geographic areas defined by the boundaries of the Coalition Organizations. At the time of issuance of the RFP, Coalition Organizations include state members along the Eastern seaboard from Maine to Florida as well as Alabama, Tennessee, Kentucky, West Virginia, Vermont, and the District of Columbia. (Go to www.tetcoalition.org for a coverage map.)
Cross Validation: A technique in which the parameters of a machine learning estimation model (such as for roadway volume) are trained on a portion of the calibration data (for example 90%) and then tested (validated) on the remaining data (e.g., 10%). The process is iterated using different, random subsets for validation. In the preceding example, model calibration and test are repeated 10 times (n=10), each with a different and unique validation sub-sample. The validation results across the 10 sub-samples are then reported as

indicative and representative of the expected performance of the machine learning estimation model for production in real-world applications.
Data Availability: The percentage of expected traffic data records successfully delivered for the required roadway segments, time periods, and polling intervals. Data Availability is calculated by comparing the number of valid records received to the total number of records expected under the data specification. Records that are missing, unusable, or not delivered within the required update interval should not be counted as available.
Data Reliability: The ability of the Transportation Data product to produce traffic data estimates consistently for each link at all times.
Data Use Agreement (DUA): The common licensing vehicle between Data Licensor and Data Licensee that governs the responsibility of Data Licensee and use of any transportation data procured.
Derivative Works: Visualizations and summary statistics (maps, graphs, charts, tables, etc.) of Licensed Data (real-time, non-real-time, and/or archived data) for presentation and distribution.
Differential Privacy: The technique used to protect the privacy of individuals when releasing aggregate statistics or data derived from sensitive information, such as Origin-Destination data. It involves adding random noise to the data before releasing it, which makes it difficult to identify individual records in the dataset while still maintaining statistical accuracy.
Error to Maximum Flow Rate (EMFR): With respect to volume estimation, the EMFR measurement of the deviation or discrepancy between the maximum predicted flow rate and the actual flow rate. V_V represents the vendor volume and V_R represents the reference volume. $EMFR = \frac{ V_V - V_R }{\max(V_R)} * 100$
Freeway: Limited-access roadway consisting of four or more lanes (total of both directions).

Georeferencing: Georeferencing within the TDM refers to services to transform base map coordinates or references to an industry standard or protocol for spatial information. The purpose of Georeferencing is to better enable the exchange of information to/from the base map with other data sources also encoded in the industry standard/protocol. Examples of industry standard/protocols include OpenLR and the CATTWorks Georeferencing Protocol.
Interchange Ramp: Roadway section connecting a freeway to a freeway or other roadway, allowing vehicles to transfer from one road to another.
Latency: The difference between the time the traffic flow is impacted as a result of an incident and the time that the change in speed (or other traffic parameter such as volume) is reported in the transportation data product.
Licensed Data: The data that is legally protected and can only be accessed, used, or distributed by individuals or organizations who have obtained the appropriate license or permission from the data owner.
LiDAR: An optical sensing technology used to determine the position, velocity, or other characteristics of distant objects by analysis of pulsed laser light reflected from their surfaces.
Link: A logical representation of a physical segment of roadway or transportation system with defined beginning and ending locations. A Link Definition is typically based on logical breaks in facilities where one would expect the potential for differing traffic conditions, such as at an interchange or major at-grade intersection, but can also include breaks at major landmarks, jurisdictional boundaries, or periodic intervals to limit link length.
Local Road: Generally refers to the portion of the public roadway system needed to access goods, services, and residential areas for the final link. For the purposes of the TDM, a local road refers to any roadway that meets that general classification but does not qualify as a freeway, major arterial, minor arterial, or special use lane.
Location-Based Services: Location-Based Services (or LBS) is a form or source of transportation data derived from smartphone applications, transactions, and operations. Applications within smartphones either periodically record location, or record location in conjunction with some type of event such as a commerce transaction (paying by a smartphone application). This data, when aggregated, can reflect the mobility patterns of the smartphone owners (as opposed to vehicle movement), and has less frequent location updates and less accurate GPS data compared to other forms of transportation data. LBS data tends to better reflect trip purpose and points of interest that are visited than other forms of transportation data.

Major Arterial: Roadway with greater than a 20,000 AADT volume, but that does not qualify as a freeway.
Mean Absolute Percentage Error (MAPE): With respect to volume estimation, the MAPE is the average of the absolute percentage error. The absolute percentage error is given by the absolute value of the difference between the estimated volume and the measured volume divided by the measured volume. See also the Symmetric Mean Absolute Percentage Error. $MAPE = \frac{1}{N} \sum_{i=1}^N \frac{ V_i - \hat{V}_i }{V_i}$
Minor Arterial: Roadway with a volume less than 20,000 AADT but greater than 5,000 AADT, and does not qualify as a freeway.
Metropolitan Planning Organization (MPO): A metropolitan planning organization is a federally mandated and federally funded transportation policy-making organization in the United States that is made up of representatives from local government and governmental transportation authorities. They were created to ensure regional cooperation in transportation planning. MPOs were introduced by the Federal-Aid Highway Act of 1962, which required the formation of an MPO for any urbanized area with a population greater than 50,000. Federal funding for transportation projects and programs are channeled through this planning process.
Origin – Destination (or OD) Data: For the purposes of this TDM, Origin-Destination (or simply OD) Data refers to any data feed that estimates or measures trips or vehicles between nodes, segment pairs in a network, or spatial parcels (such as U.S. Census blocks, block groups, or tracts). At the micro level, OD Data may reflect turning movements at an intersection; at a medium level, OD Data may reflect the on/off movements along a major corridor; and at a macro level, OD Data may reflect traffic movement between zones or regions within a metropolitan area, state, or even nationally.
Probe-Based Technologies: Probe-based technologies encompass all methods of traffic data collection that do not require roadside infrastructure but rather rely on harvesting data from other systems that can be used to infer traffic flow. Examples (but not an exhaustive list) of probe-based technologies include GPS fleet data, crowd sourcing from/through smartphones, cellular switching data, Connected Vehicle Data reported through OEMs, and Location-Based Services through smartphones.
Proposer: The legal entity submitting a proposal under this RFP to whom a contract can be awarded. Sometimes, Proposer may be referred to as Contractor or Offeror.

Quality Control/Quality Assurance (QC/QA): Quality Control/Quality Assurance refers to methods employed to confirm that data and services conform to those either specified in the contract or represented by the vendor. Whereas validation refers specifically to meeting minimum accuracy, reliability, and timeliness specifications, QC/QA encompasses both validation exercises as well as general attributes of the data and/or service to ensure the data meets the needs of Coalition members for the intended purposes.
Roadway: Refers to all types of public roadways for which traffic data is requested. This includes multi-lane facilities such as interstates, toll roads, and freeways as well as major arterials, minor arterials, local roads, ramps, and special use lanes.
Rolling Window: With respect to volume estimates, a Rolling Window is an update of current volume based on information from defined time windows beginning at the present point in time and looking backward. For example, vehicle volumes may be estimated every 15 minutes based on the observed number of vehicles that traversed the roadway in the previous hour. At each 15-minute time boundary, the previous hourly volume is estimated (e.g., the 1:00PM volume estimate would be based on observations from the 12:00PM to 1:00PM time period, the 1:15PM volume estimate would be based on observations from 12:15PM to 1:15PM, and the 1:30PM volume estimate would be based on observations from 12:30PM to 1:30PM, etc.).
Segmentation Network: A consistent, standardized, electronic method for representing a roadway or transportation system in a link-based methodology in a digital medium. See also Base Map. Base Map and Segmentation Network are used interchangeably.
Segregated Special Use Lanes: Special Use Lanes that are separated from normal lanes with a physical structure, with a median, or with at least 6 feet of pavement marking.
Special Use Lanes: Encompass high-occupancy vehicle (HOV) lanes, high-occupancy toll (HOT) lanes, reversible flow lanes, express lanes, local lanes, and shoulder lanes.
Speed: For the purposes of the TDM RFI/RFP (unless designated otherwise), Speed is explicitly defined as the space mean speed over the specified segment or link, that is the distance of the link divided by the time to traverse the link.
Speed Error Bias (SEB): The average space mean speed error (not the absolute value) in each speed range.

Subcontractor: An entity under contract to directly support a Coalition member in good standing via a written agreement. Entities may include consultants, contractors, or universities.
Symmetric Mean Absolute Percentage Error (SMAPE): With respect to volume estimation, the SMAPE is the average of the symmetric absolute percentage error. The symmetric absolute percentage error is given by the absolute value of the difference between the estimated volume and the measured volume divided by the mean of the measured and estimated volume. See also the MAPE. $SMAPE = \frac{1}{N} \sum_{i=1}^N \frac{ V_i - \hat{V}_i }{\frac{1}{2} * (\hat{V}_i + V_i)}$
Telematics Data: Telematics Data refers to Transportation Data obtained from vehicle fleets instrumented with communications and other possible electronics and sensors. Vehicles in the fleet periodically report the vehicle position and speeds along with possibly other ancillary data to a central management system. In addition to fleet management, such data may be used to inform the status of roadway operations.
Tiling Service: A web-based service that provides pre-rendered map tiles that can be used to display maps on a website or application. Map tiles are small, rectangular images that are generated from a larger map, typically at different zoom levels, and are arranged in a grid-like pattern to cover the entire map area. These services are preferred to provide fast and efficient delivery of a map to end users.
Transportation Data: Transportation Data refers to data sets that provide infrastructure, planning, or operational data on the performance of the roadway network and/or movement of roadway users on the transportation network. For example, in previous TDMs, this included such items as travel time, speed, volume, origin & destination, waypoint data, freight information. The core data areas section below provides a description of the Transportation Data Products of interest to the Coalition within the scope of the TDM V4. Note: The TDM is for the procurement of Transportation Data Products, not for equipment or sensors.
Transportation Data Analytics: Transportation Data Analytics refers to the electronic tools, dashboards, and web sites that provide for ease of data management, access, visualization, or interpretation of Transportation Data.
Transportation Data Products: For the purposes of this TDM, Transportation Data Products include Transportation Data, Transportation Data Analytics, and Transportation Data Services.

Transportation Data Services: Transportation Data Services refers to functions needed with respect to Transportation Data. Examples include, but are not limited to, transforming Transportation Data into different map representations (referred to as Conflation), encoding Transportation Data into standardized Georeferencing Formats, and communicating critical traveler information data to specific audiences such as freight drivers. Transportation Data Services encompasses either the transformation, encoding, or transmission of Transportation Data for transportation specific application outcomes.
Trajectory Data: Trajectory Data is a form of Waypoint data derived from various types of vehicle probe sources that reflect the movement of vehicles on a roadway. Trajectory data provides the origin point, intermediate waypoints, and ending destinations in geodetic coordinates for a sample of travelers/vehicles. Whereas Connected Vehicle Data can be considered a subset of Trajectory Data, CVD is specific to data obtained from the vehicle through OEM integrated communications. Trajectory Data may be obtained through fleet telematics, cell phone applications, or other methods that provide observability into vehicle movement, and may or may not be directly integrated into the vehicle from the factory.
Transportation Data Marketplace (TDM): The Transportation Data Marketplace is the procurement vehicle issued and managed by the Eastern Transportation Coalition through the University of Maryland to offer Transportation Data Products to its members and TDM Participating Agencies through an open, competitive procurement.
Transportation Data Marketplace (TDM) Participating Agency: A TDM Participating Agency is a roadway transportation organization with responsibilities that may include operation, construction and maintenance, planning, safety, and/or asset management and wishes to participate in the Eastern Transportation Coalition's TDM, and who has executed a Data Use Agreement. A TDM Participating Agency may be a member of TETC or may be external to the TETC but desires to participate in the TDM. A TDM Participating Agency may be a State, City, or County Department of Transportation (or functional equivalent), a Metropolitan Planning Organization (MPO), or a tolling authority either within or external to TETC.
Trip Data: A subset and more granular view of OD Data. Any dataset that reflects the turning movements at an intersection and on/off movements along a corridor.
University: The University as noted in the TDM RFI and/or RFP refers to the University of Maryland, College Park.
University Data: All data, unless otherwise excluded, residing on or flowing through servers used by or in the conduct of the effort described in the Scope of Work.

Volume: For the purposes of this RFP, volume is defined as the vehicle flow per direction (not per lane) for a specified segment or link.

Waypoint Data: For the purposes of the TDM, Waypoint data refers to sources of location or position data for travelers or vehicles that are updated periodically, providing geodetic data in the form of latitude, longitude, time, and possibly speed and heading information. For the purposes of this RFP, Waypoint Data comes from either Trajectory Data, Connected Vehicle Data, or Location-Based Services Data.

Tab: Vendor Information

This page and the draft data specifications can be accessed via an Excel Spreadsheet at the following address.

Electronic File: <https://app.box.com/s/ysq32orb40s4brq8izk9ueiz3j2hq96c>

VENDOR INFORMATION

Vendor Name:

Vendor Address:

Vendor Web Site:

Vendor Point of Contact:

Email Address:

Phone Number

Anticipated Transportation Data Products Response

Data Categories		Intend to Respond (Y/N)	Name of Product
1	Travel Time and Speed		
2	Volume Data		
3	Origin and Destination Data		
4	Freight Data		
5	Waypoint Data (CV, LBS, Telematics)		
6	Conflation Data and Services		
7	Active Transportation Data		
8	Traffic Signal Performance Measures		
9	Virtual Weather Stations		
10	Instrumented Vehicle Data		
11	Infrastructure Advanced Sensor Data		
12	Asset Management Data		

Tab Travel Time and Speed

Significant changes from TDM V3 are marked in **RED**

Item	Description	Priority		Vendor Response	
		RT	Hist		
CORE TRAFFIC DATA – ITEM 1					
REAL TIME TRAFFIC SPEED AND TRAVEL TIME DATA REQUIREMENTS					
Objective: Speed and Travel Time data are at the heart of the Traffic Data Marketplace (formerly the Vehicle Probe Project), providing both real-time and historic travel time and speed estimates on a link basis for various roadway types in the coverage area. Speed refers to the space-mean speed, NOT the instantaneous vehicle speed. Speed, for the purpose of this RFI, refers to the observed time rate of traversal of a segment, defined as the length of the segment divided by the travel time.					
New in TDM Version 4.0 is the inclusion of HISTORIC travel time and speed data distinct from Real-Time. Previous version of the TDM specified an archive of travel time and speed data that was delivered in real time (and may have been referred to as 'historic'). In TDM V4 the following definitions are used to differentiate between Real-Time, Archive, and Historic. Real-Time Data (RT) - data that is delivered for use in real-time applications, with minimal latency. Latency requirements are specified Archive Data - a recording and storage of the Real-Time Data delivered. An Archive Data set may be considered Historic Datam. Historic Data (Hist) - travel time and speed data that reflects conditions in the past. Historic Data may be an Archive Data of a real-time data feed. However, historic travel time and speed may also include data that arrives 'after the fact' - that is data with latency too large to be included in a real-time data feed.					
Directions: Vendors proposing Travel Time and Speed products to this RFP should provide reponses in 'Vendor Response Area'. The first column is either 'Y' - Yes, the proposed product conforms to the specification, 'P' - the proposed project Partially conforms to the specification, or 'N' - the proposed product does not conform to the specification. Vendors are encouraged to provide descriptive or explanatory comments to assist reviewers and Coalition members understand the product relative to the specification. Referencing technical material in accompanying documents, or publically available, is also acceptable.					
1.1. Base Real-Time Data Elements of Travel Time & Speed for all Roadways		RT	Hist	Y/P/N	Explanation
1.1.1	Mean Travel Time The Vendor shall report Travel Time to the nearest whole second (or equivalent such as decimal minutes)	M	M		No Change
1.1.2	Mean Speed The Vendor shall report Speed to a precision of the nearest 1 mph or greater.	M	M		No Change
1.1.3	Status Flag The Vendor shall provide a status flag(s) per segment for each reported Travel Time / Speed record to indicate the following: - Normal system operations with sufficient probe density to estimate travel times accurately. - Periods of low-traffic flow, during which travel time may need to be imputed from a combination of real-time data combined, historical data, and adjacent roadway segments - Real-time probe data is not available, travel time is imputed based on historical data and/or adjacent roadway segments - An example of existing status flag are scores of '30', '20' and '10' to indicate whether data feed is based on real-time data ('30'), combinations of real-time and historical data ('20') and assumed free flow ('10'). This is only an example. Any status flag that reflect similar information is acceptable.	M	M		No Change
1.1.4	Standardized Status Flag / Quality Indicator The Vendor may provide a standardized status flag(s) / quality indicator per segment for each reported Travel Time / Speed record (similar to 1.1.3 and/or 1.1.6), which conforms to a prescribed standard designated by TETC. At this time, no industry standard has been identified, however, the TETC intends to actively pursue standardizing this aspect of a transportation data feed. Acknowledgement of this requirement infers that the Vendor will actively conform to the requirement once the standard is defined, and a member agency requests data that adheres to this stanard format.	HD	HD		New Requirement
1.1.5	Travel Time and Speed Profiles The Vendor may provide anticipated travel time and speed based on historic travel time and speed data representative for the <u>time of day and day of week</u> .	HD	HD		No Change
1.1.6	Quality Indicator The Vendor may provide a numerical score that reflects the confidence or anticipated error in the estimate of the <u>mean Travel Time & Speed</u> . Vendor should provide an explanation of the quality metric, how it is derived, and how it should be interpreted.	HD	HD		Condensed
1.1.7	Probe Counts The Vendor may provide the number of observed probes over a rolling 15 minute or other defined period from which the speed and/or travel time was estimated.	D	HD		Clarified
1.2. Additional Data Feed Elements or APIs for all Roadways		RT	Hist	Y/P/N	Explanation
1.2.1	Posted speed limit for the roadway segment. The Vendor may provide this attribute as part of the travel time data feed or as static information as part of the Base Map.	HD	HD		No Change

1.2.2	85th Percentile Speed. The Vendor may provide this attribute as part of the travel time data feed or as static information as part of the Base Map.	HD	HD		No Change
1.2.3	Freeflow Speed or Travel Time The Vendor may provide this attribute as part of the travel time data feed or as static information as part of the Base Map. Specify Method of determining Freeflow Speed or Travel Time.	HD	HD		No Change
1.2.4	Congestion alerts/alarms The Vendor may provide a configurable data feed to inform members when a <u>specified segment</u> exceeds a <u>defined maximum travel time</u> or <u>minimum speed</u> threshold	D	N/A		No Change
1.2.5	Congestion alerts/alarms The Vendor may provide a data feed to inform members when a <u>group of segments</u> exceed a <u>customizable maximum travel time</u> or <u>minimum speed</u> threshold.	D	N/A		No Change
1.2.6	Incident alerts/reporting The Vendor may provide a data feed to inform members when roadways within a specified region are exhibiting customizable abnormal travel characteristics (such as slowdowns or congestion)	D	N/A		No Change
1.4. Travel Time and Speed Data Quality and Latency on Freeways and Arterials See document the Eastern Transportation Coalition Data Validation Program, available at https://tetcoalition.org/wp-content/uploads/2015/02/2021-ETC_TDM_Validation_Attachment_V2-00_FINAL.pdf		RT	Hist	Y/P/N	Explanation
1.4.1	Average Absolute Speed Error (AASE) for Freeways Speed data for shall have a maximum average absolute error of 5 MPH in each of the following speed ranges: (all in MPH) 0-30, 30-45, 45-60 and > 60	M	M		No Change
1.4.2	Speed Error Bias for Freeways Error bias is defined as the average speed error (not the absolute value) in each speed range. Speed data for Freeways shall have a maximum average error of +/- 4 MPH in each of the following speed ranges: 0-30 MPH, 30-45 MPH, 45-60 MPH and > 60 MPH.	M	M		No Change
1.4.3	Average Absolute Speed Error (AASE) for Arterials Major Arterials (arterials with flow exceeding 20,000 AADT) shall have an AASE of 8 mph or less in the speed ranges defined as 0-15 MPH, 15-25 MPH, 25-35 MPH and > 35 MPH.	M	M		No Change
1.4.4	Speed Error Bias for Arterials Major Arterials shall have a maximum speed error bias of +/- 4 MPH in each of the speed ranges defined as 0-15 MPH, 15-25 MPH, 25-35 MPH and > 35 MPH.	M	M		No Change
1.4.5	Accuracy requirements shall be in effect for hours when vehicle flows exceed 300 VPH (directional) for Freeways.	M	M		Adjusted and Clarified directional flows
1.4.6	Accuracy requirements shall be in effect for hours when vehicle flows exceed 300 VPH (directional) of through traffic for Arterials.	M	M		Adjusted and Clarified directional flows
1.4.7	Maximum data latency shall be less than or equal to eight (8) minutes.	M	N/A		No Change
1.4.8	Maximum data latency may be less than or equal to five (5) minutes.	HD	N/A		No Change
1.4.10	Arterial data may be subject to 'Slowdown Analysis' as outlined in the Eastern Transportation Coalition Data Validation Program, with Fully Captured > 70%.	M	M		Mandatory for RT
1.4.11	Vendor shall support the CATT Works Georeferencing Protocol (CWGP) for submission of data to the validation program. The CWGP can be accessed Coalition Web Site at: https://tetcoalition.org/wp-content/uploads/2015/02/2021-ETC-TDM-CWGP_V1.10-FINAL.pdf	M	M		Standardized on CWGP for validation
1.5. Temporal Reporting		RT	Hist	Y/P/N	Explanation
1.5.1	Traffic data shall be provided 24 hours per day, 7 days per week.	M	M		No Change
1.5.2	Allowance shall be made for up to 40 hours of scheduled system maintenance per year during off-peak hours.	M	N/A		No Change
1.5.3	The Vendor shall report/update traffic conditions at least once every 1 minute.	M	HD		No Change
1.6. Spatial Reporting and Link Definitions Procurement of data shall be implemented via task orders specific to the requested area. Based on the Coverage Area, Proposers shall indicate the extents to which data can be provided on the roadway types listed below. Vendor shall provide maps, direct Coalition to electronic web resources, or describe in sufficient detail the extent of coverage for each roadway type in the Coverage Area. See Definitions for description of roadway types. Vendors shall/map provide Travel Time & Speed Data on :		RT	Hist	Y/P/N	Explanation
1.6.1	Freeways	M	M		No Change
1.6.2	Major Arterials (arterials and state highways > 20000 AADT)	M	M		No Change
1.6.3	Minor Arterials (arterials and state highways between 5000 and 20000 AADT)	M	M		Changed to Mandatory for RT
1.6.4	Interchange Ramps	M	M		
1.6.5	Segregated Special Use Lanes (See Definitions)	M	M		
1.6.6	Non-Segregated Special use lanes (See Definitions).	HD	HD		
1.6.7	Local roads	HD	HD		
1.7. Spatial Referencing					

These specifications refer to the encoding of information relative to a Base Map or other Georeferencing system		RT	Hist	Y/P/N	Explanation
The Vehicle Probe Project originally standardized on Traffic Message Channel (TMC) codes for the delivery of Travel Time & Speed data. Later, proprietary Base Maps were used from vendors to convey data in a more highly granular formats. Open Street Maps (OSM) and Overture Maps have emerged as an open source Base Map standard that rivals or exceeds that of TMCs, and is non-proprietary requiring no license fee.					
1.7.1	Traffic Data shall be reported using Traffic Message Channel (TMC) codes as specified by the Traveler Information Services Association (TISA), including both internal and external nodes reported separately. More information on TMC codes are available at: http://tetcoalition.org/wp-content/uploads/2015/02/TMC_White_Paper-Final.pdf	M	M		No Change
1.7.2	Traffic Data may be reported using Open Street Map (OSM) segmentation. It is highly desirable for vendor to natively support OSM. At a minimum, vendor data shall be licensed to be conflated to OSM segmentation. Vendors should provide documentation with respect to OSM segmentation support (either current or planned) as part of the RFP response. If OSM conflation creates issues with respect to data ownership, provide explanation/documentation.	HD	HD		No Change
1.7.3	Traffic Data may be reported using General Entity Referencing System (GERS) segmentation, the referencing system that underpins Overture Maps. It is highly desirable for vendor to natively support GERS.	HD	HD		New Requirement
1.7.4	The Vendor may provide finer granularity link definitions – suggested granularity of one mile for freeways, and up to 0.3 miles for complex urban arterials. Vendor response should fully describe any higher definition segmentation and the extent to which such segmentation is open-source, uses static or dynamic referencing, and frequency of map updates.	HD	HD		No Change
1.7.5	The Vendor may provide data in a member provided Base Map or Linear Referencing System that conforms to the CWGP or the OpenLR protocol	HD	HD		See changes
1.7.6	The Vendor may provide data for segments requested in either CWGP or the OpenLR protocol. For example, a state may provide their LRS segment in the CWGP or Open LR georeferencing standards, and the Vendor would provide Travel Time and Speed data for the defined segments.	HD	HD		New Requirement
1.7.7	Ramps shall be reported as separate links	M	M		No Change
1.7.8	The Vendor shall provide traffic data for new or improved facilities within six (6) months of roadway open to traffic. Vendor shall describe process for obtaining/reporting such data as part of RFP response.	M	M		No Change
1.7.9	The Vendor may provide traffic data for new or improved facilities within four (4) weeks of roadway open to traffic. Describe process for obtaining.	HD	HD		Changed to Mandatory
1.7.10	The Vendor may provide traffic data for new or improved facilities when roadway opens to traffic. Describe process for obtaining.	D	D		Changed to HD
1.7.11	The Vendor shall provide Link definitions for any network segmentation supported which shall, at a minimum, contain - Beginning and ending latitude and longitude, identifying the centerline of the lane (or group of lanes) being reported. Freeway / Interstate class roadway segments will report separately for each direction of travel. - Beginning and ending heading of roadway to nearest degree from North - Segment length in miles to at least two decimals - Direction of travel (unidirectional or bi-directional) - Common name or route number - A unique identifier.	M	M		Minor Edits
1.7.12	The Vendor may provide Link definitions which shall contain preceding and following segment/s	HD	HD		No Change
1.7.13	The Vendor may provide Link definitions containing the number of lanes	HD	HD		New Requirement
1.7.14	The Vendor may provide a GIS shapefile of any base map supported by the vendor	HD	HD		No Change
1.7.15	The Vendor shall not update base map more frequently than once every quarter (three (3) months). Note: Reporting on new roadways as per specification 1.7.6 or 1.7.7 may be accomplished in separate API	M	M		No Change
1.7.16	Any Base Map update provided by the Vendor shall contain deltas from the previously supported Base Map. Segments shall be identified that have changed. Traffic Message Channel (TMC) updates shall contain a list of TMCs that have changed	M	M		No Change
1.7.17	The Vendor shall support a base map for at least 12 months from issuing a subsequent base map update.	M	M		No Change
1.7.18	Base map updates may be no more frequent than once every six months	HD	HD		No Change
1.7.19	Base map updates may be no more frequent than once per year	D	D		No Change
1.8. Availability and Reliability					

Reliability refers to the ability of the system to produce real-time traffic data estimates consistently for each link at all times. Data reliability is measured simply as the percentage of measurement intervals (combination of space and time) when traffic data estimates are delivered in real-time.		RT	Hist	Y/P/N	Explanation
1.8.1	The Vendor shall provide Traffic data for at least 98 percent of all covered links at all required time reporting intervals..	M	N/A		Simplified
1.8.2	Availability: The Vendor shall provide Data subscription services that shall maintain at least 99.5 percent availability, determined as percent uptime of the data service excluding any scheduled system maintenance (as per 1.5.2).	M	N/A		No Change
1.8.3	The Vendor shall document and report Availability on a monthly basis.	M	N/A		No Change
1.9. Data Formatting, Packaging and Access		RT	Hist	Y/P/N	Explanation
1.9.1	The Vendor shall provide Data as a fully documented API interface consistent with industry standards. Vendor to fully document.	M	D		No Change
1.9.2	The Vendor shall allow for selective content subscription so that various states and road authorities may subscribe only to the state geographic area of interest.	M	D		No Change
1.9.3	The Vendor may allow for selective content subscription so that various states and road authorities may subscribe only to the county geographic area of interest.	D	D		No Change
1.9.4	The Vendor shall provide hardware, software and network capacity sufficient to initially support up to 50 concurrent data subscriptions, with the capability to scale to 100 data subscriptions as needed. It is the responsibility of the contractor to provide sufficient capacity to service all subscription demands.	M	N/A		No Change
1.9.5	Vendors shall archive real-time data purchased by Coalition members for a minimum of one (1) year. The archive must contain data in the same format (same fields reported in the live feed and same temporal and spatial granularity) as it was originally delivered in real-time and accessible via an API, FTP site, S3 bucket, or equivalent interface.	M	N/A		No Change
1.9.6	The Vendor may provide a tiling service for real-time travel time and speed for integration into agency traveler information websites, apps, or ATMS platforms as an alternative data access method.	D	N/A		No Change
1.9.7	The Vendor may provide a tiling service of historical speed (expected speed for the current time of day and day of week) as an alternative data access method. User may specify color, pen width and speed ranges.	D	D		No Change
1.9.8	The Vendor may provide a tiling service of the <u>comparative speed</u> (current speed as compared to historical speed for time of day and day of week) as an alternative data access method.	D	N/A		No Change
1.10 Visualization Tools and Analytics		RT	Hist	Y/P/N	Explanation
1.10.1	The Vendor may provide a password-protected web-based tool to view real-time traffic data delivered to Coalition Member (not the general public) for the purpose of monitoring the traffic data feed, and validation of conformance to contract specifications. The monitoring service is for use only by the Coalition and its members primarily for administrative purposes. Preferences for the service includes: - Capacity to support up to five (5) concurrent users - Viewing of live traffic data in map based format - Viewing of archive traffic data in map based format - Segments can be selected and data viewed	D	D		No Change
1.10.2	Other analytic tools and software Although the primary purpose of this procurement is to obtain the highest quality traffic data for the Coalition and its Members, Vendors may, and are encouraged to, provide value added products available through this contract. These product may be part of the core data offering (if they do not add substantially to core data pricing) or as ancillary products which are separately priced. This may include visualizations and analytics that utilizes the core data, archive and historic data tools for viewing and retrieval, and other types of analytics software that leverages the core data.	D	D		No Change

Tab Volume Data

Significant changes from TDM V3 are marked in RED

Item	Description	Priority		Vendor Response	
		HIST	RT		
CORE TRAFFIC DATA – ITEM 2					
VOLUME DATA REQUIREMENTS					
Objective:					
Traffic Volume data is the second dimension of traffic vital to obtain a complete understanding of traffic flow, and is a priority in the Traffic Data Marketplace (formerly the Vehicle Probe Project). The Coalition intends to procure both historic and real-time traffic volume data on a link basis (or point basis indicative for a link) for various roadway types in the coverage area.					
The Coalition has been a leader in research and development of methods to obtain accurate volume estimates from probe based data, as well as validating volume estimates based on probe data. The results of that research indicate that probe density and consistency have evolved to the point to support various traffic volume products. The Coalition expects the extent of available products to continue grow into the future to cover more road classes, and to evolve from aggregated historic measures such as AADT and ADT, to real-time estimates across the entire network. Based on experience in the previous edition of TDM, the Coalition has separated Volumes into Historic (HIST), and Real-Time (RT), similar to the distinction for real-time and historic travel time and speed data.					
Volume refers to the number of vehicles that traverse a segment in a specified time frame, NOT the number of observed traffic probes. However, particularly for real-time, the number of observed traffic probes, or even the relative number of observed traffic probes (i.e. number of observed traffic probes/average number of observed traffic probes) can be useful information for particularly for operational purposes, but also informs planning applications. Both observed traffic probes and relative number of traffic probes are included in the volume section for this purpose.					
Note: The various traffic volume estimates below marked mandatory (M) reflect the products for which the Coalition desires service. A vendor intending to propose a historic volume product must be responsive to one (1) or more of the historic data products marked as ‘M’ in section 2.1 in the HIST column. A vendor intending to propose a real-time volume product must be responsive to one (1) or more of the real-time data products marked as ‘M’ in section 2.1 in the RT column.					
2.1.0 Base Data Elements for all Roadways		Hist	RT	Y/P/N	Explanation
2.1	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM.	Y/N	Y/N		If ‘No’ proceed to section 3.0. If ‘Yes’, respond to all cell entries that follow
2.1 Base Data Elements for Historic Volume Estimates					
2.1.1	Vendor shall provide historic estimated volume data reported as estimated Average Annual Daily Traffic (AADT)	M	N/A		No Change
2.1.2	Vendor shall provide historic estimated volume data reported as estimated Average Daily Traffic (ADT) for - day of week, - month of year, - season, - weekday/weekend,	M	N/A		Refined
2.1.3	Vendor shall provide historic estimated volume data reported as hourly (as opposed to daily) estimated Average Hourly Daily Traffic (AHDТ) - for day of week, - month of year, - season, - weekday/weekend Example – estimated volume for Mondays from 2-3 PM is 3468 vehicles	M	N/A		No Change
2.1.4	Vendor shall provide estimated volume data reported as estimated Hourly and Daily Volume Flows specific - Day of year for Daily Volume estimates - Day of year and hour of the day for Hourly Volume estimates Example – estimated volume for June 5, 2019 from 2-3 PM is 3468 vehicles	M	N/A		Refined
2.1.5	NOTE: For any mandatory historical traffic volume estimates, vendor shall provide date range for which traffic volume estimates are available. Example: ‘Historic AADT estimates are available for calendar year 2018 forward.’	M	N/A		No Change
2.1.6	Vendor may provide Sub-Hourly historics volume flows (ex: 5, 15, 30 minutes) specific - to the day of the year and - to the hour of the day. Example – estimated volume for June 5, 2019 from 2:00-2:15 PM is 900 vehicles	HD	N/A		No Change
2.1.7	Vendors shall provide Hourly Volume Flows available in real-time.	N/A	M		No Change
2.1.8	Vendors may provide real time Sub-Hourly volume flows	N/A	HD		No Change
2.1.9	Observed Probe Vehicle counts - Vendor may provide counts of actual observed vehicle probes as reflective of roadway volume for the reporting interval.	N/A	M		New
2.1.10	Realative Probe Vehicle counts - Vendor may provide the relative number of observed vehicle probes (observed vehicle probes / average vehicle probes) as reflective of roadway volume for the reporting period.	N/A	M		New
2.2. Status Flag and Error Estimates					
2.2.1	Status Flag or Quality Indicator The Vendor may provide a status flag(s) or Quality Indicator per segment for each reported Traffic Volume record to indicate whether sufficient data is available to estimate traffic volumes.	N/A	HD		Combined Status Flag and Quality Indicator into a single spec, only applicable to RT
2.2.3	Vendor may provide a flag for low traffic volume situations, such as below 100 vph, insufficient to esimtate exact volume in RT	N/A	HD		Clarification
2.3. Additional Data Feed Elements or Services for all Roadways					
2.3.1	The Vendor may report estimated volume separately by vehicle class	D	D		No Change
2.3.2	The Vendor may report estimated volume separately by groupings of vehicle class (i.e. light duty, heavy duty).	D	D		No Change
2.4. Volume Data Quality					

It is the intent of the Coalition to perform validation of Traffic Volume data provided through this TDM similar in scope and extent as the validation of travel time and speed data. From 2022 through 2026 (during the previous edition of the TDM), volume validation averaged once per year and only for historical volume estimates. This yearly cadence is anticipated for TDM V4. The Technical Advisory Committee of the ETC will provide overall guidance and review. Any vendor that provides volume data to the ETC or any of its Members, will be required to participate in the Traffic Volume validation program. The methods and practice used for historic volume validation are available through the TETC website, which provides volume validation reports spanning activities in North Carolina, Georgia, and Massachusetts. Vendors are referred to these reports as reflective of expectations for historic volume validation moving forward.

No Real-Time volume validation has been performed to date, as there has been no real-time volume data products available to the Coalition through the TDM. Real-time volume validation will follow the principles set forth both by the Travel Time and Speed as well as the Historical Volume validation practices, applied and customized as appropriate for real-time volume estimation.

NOTE: All accuracy specifications below are designated as Highly Desirable or Desirable, not Mandatory. This acknowledges that traffic data volume services is an emerging field, and established metrics for quality are still evolving.

2.4.1	For AADT, accuracy specifications, at a minimum, may be consistent with findings from the FHWA pooled fund project titled ' Non-Traditional Methods to Obtain Annual Average Daily Traffic Evaluation and Analysis Project ', as well as consistent with Industry Capacity as revealed through TDM V3 validation activities.	HD	N/A		
2.4.2	Minimum Accuracy Hourly Volume Specification: MAPE – Minimum accuracy may be expected in the following ranges : 10-15% for High Volume roadways (Freeways) 20-25% for Mid Volume roadways (Arterials) 30-50% for Low Volume roadways (Local Roads)	HD	HD		
2.4.4	Error to Capacity Ratio (ETCR) – Freeways of less than 10%	HD	HD		
2.4.5	Error to Max Flow Ratio (EMFR) – Non-Freeways of less than 15%	HD	HD		Adjusted
2.4.6	Error to Max Flow Ratio (EMFR) – Local Roads of less than 20%	HD	HD		Adjusted
2.4.7	The Vendor shall report performance using Cross Validation with the number of training bins (n) greater than or equal six, and less than or equal to ten, chosen at random.	M	D		No Change
2.4.8	Specification 1.4.11 is included by reference for the submission of Traffic Volume validation data	M	M		

2.5. Spatial Reporting and Link Definitions

The Vendor shall provide volume estimates on the following facilities denoted as 'M'. The Vendor may provide volume estimates on the following facilities marked at 'HD' or 'D'

2.5.1	Freeways	M	HD		
2.5.2	Major Arterials (arterials and state highways > 20000 AADT)	M	HD		
2.5.3	Minor Arterials (arterials and state highways between 5000 and 20000 AADT)	M	HD		Changed Minor arterials to Mandatory.
2.5.4	Interchange Ramps	HD	HD		
2.5.5	Segregated Special use lanes	HD	HD		
2.5.6	Non-Segregated Special use lanes	D	D		
2.5.7	Intersection Turning Movements	HD	HD		
2.5.8	Local Roads	HD	HD		

2.6. Spatial Referencing – See section 1.7

Section 1.7 is included by reference for Volume Estimates - if Vendor responses under 1.7 are applicable to Volume estimates, indicate so and no other information is needed. If vendor did not respond to Travel Time and Speed, or if the responses to Travel Time and Speed under section 1.7 are not applicable to Volumes, cut and paste section 1.7 below, and respond.

2.7. Data Formatting, Packaging and Access

2.7.1	The Vendor shall provide Data using prevailing industry standard formats, packaging, etc. (e.g. APIs, FTP site, S3 bucket, or similar). Vendor to provide description in response.	M	M		
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2.8. Visualization Tools and Analytics

2.8.1	Other analytic tools and software Although the primary purpose of this procurement is to obtain the highest quality traffic data for the Coalition and its Members, Vendors may, and are encouraged to, provide value added products available through this contract. These product may be part of the core data offering (if they do not add substantially to core data pricing) or as ancillary products which are separately priced. This may include visualizations and analytics that utilizes the core data, archive and historic data tools for viewing and retrieval, and other types of analytics software that leverages the core data.	D	D		No Change
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Tab Origin & Destination Data

Significant changes from TDM V3 are marked in RED

Description		Respondent Comments	
CORE TRAFFIC DATA – ITEM 3			
3.0 ORIGIN-DESTINATION DATA REQUIREMENTS			
Objective: For the purposes of this RFP, Origin-Destination (or simply OD) data refers to any data feed that estimates or measures trips (either person or vehicle) that traverses between nodes, segment pairs in a network, or spatial parcels (such as US Census blocks, block groups, or tracts). At the smallest scale, OD Data may reflect turning movements at an intersection, at a medium scale OD Data may reflect the on/off movements along a major corridor, and at the largest scale OD Data may reflect traffic movement between zones or regions within a metropolitan area, state or even nationally.			
3.1 Base Data Elements for all Roadways			
3.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM	Y/N	If ‘No’ proceed to section 4.0. If ‘Yes’, respond to all cell entries that follow
3.2 Source Data, Processing and Use Cases			
3.2.1	Vendor shall describe the source data used to estimate Origin-Destination Data (OD) information such as but not limited to: - Waypoint Data - Trajectory Data - LBS - Telecommunications data - Other	M	No Change
3.2.2	Vendor shall describe method used for OD table creation: - Does the vendor report counts from the source data? - Does the vendor extrapolate or expand the data to reflect entire population? If so, describe the method used	M	No Change
3.2.3	Vendor shall describe type of OD trips reported: Do reported OD trips reflect person-trips or vehicle trips?	M	New
3.2.4	Vendor shall describe type of OD vehicle modes/types reported/supported: - Do reported vehicle trips reflect mixture of all types of vehicles, freight only, passenger only? - Can reported trips distinguish between transit, private vehicles, ride-sharing, or other modes? - If reporting Freight, can OD trips distinguish between light/med/heavy duty? Can long-haul be reported separately from local delivery?	M	New
3.3 Space and Time Aggregation, Granularity, and Extent			
3.3.1	Vendor shall describe the spatial areas and granularity of the data, including: - Census blocks - Census Tracts - Census Block groups - Counties - Zip codes - User defined geo-fences - Other	M	No Change
3.3.2	Vendor shall describe extents of OD data including the following: If O-D data is procured for a region, will Origins or Destinations procured for the region be truncated to the region boundary? For example, if O-D data for Maryland is procured, and the true origin is Harrisburg, PA for a trip, will the data set reflect Harrisburg as the origin, or will the origin be reflected at the state line of Maryland?	M	No Change
3.3.3	Vendor shall describe available OD functions/analytics including the following: Is segment level OD supported? This is sometimes referred to as ‘select link’ analysis?	M	No Change
3.3.4	The Vendor shall describe available OD data for intersection level analysis including the following: - Are interchange and intersection turning movements supported? (Note that this is similar to Volume estimates for roadway intersections and interchanges – please provide consolidated response discussion if responding to both areas.) - Are interchange OD analysis similar to ‘select link’ available?	M	No Change
3.3.5	Vendor shall describe OD data specific to the following: Is O/D data reported from home location, or from beginning of trip location? Or both?	M	No Change
3.3.6	Vendor shall describe OD produces specific to the following time availability questions: - What date range is supported for OD analysis? - How far back in time (historic) is OD Data available? - When is the most recent OD Data available? Or what is the latency of available data? For example – when is OD Data available for December 2020? Is it available Jan 1, of 2021, March of 2021, or December of 2021?	M	No Change
3.3.7	Vendor shall describe OD time aggregation specific to the following questions: - What typical time period is support (yearly, seaonsal)? - Is OD reported separately for various periods of the day?	M	New

	Is OD reported separately for weekdays vs weekends? For example – [Perhaps need an example or two?]		
3.4 OD Processing Methodology			
3.4.1	Vendor shall describe OD data processing specific to the following questions: - Is any modeling performed to derive OD estimates? Is so, provide or reference description. - Is any data fusion performed to derive OD estimates? Is so, provide or reference description.	M	Minor edits
3.4.2	Vendor shall describe method of processing trajectories/waypoint for OD information: Describe how waypoint data is processed into OD trips. What triggers and end or beginning of a trip?	M	New
3.4.3	Vendor shall describe person/vehicle trip types supported: Can reported OD trips be classified as home/work/other? Home Based Work (HBW), Based Other (HBO), Non-Home Based (NHB)?	M	New
3.4.4	Vendor shall describe trip distance and duration attributes supported: Can reported OD trips be classified by distance and/or time?	M	New
3.4.5	Vendor may describe vehicle fuel type supported: For example, is vehicle internal combustion engine, fully electric, hybrid, plug-in hybrid?	D	New
3.5 Formatting, Privacy, Licensing Restrictions			
3.5.1	Vendor shall describe format for delivery of OD data such as: - File Type - Data Schema - Transport Mechanism - What is typical size of one year of OD data for a state for one year (measured in GB)? Provide example of a specific state if available (North Carolina for example).	M	No Change
3.5.2	Vendor shall describe any privacy protection incorporated into the OD data including: - Truncation of geodetic coordinates - Minimum spatial resolution - Obscuring home location - Industry standard or practices that the vendor adheres to - Government policy or regulations that the vendor adheres to	M	No Change
3.5.3	Vendor shall describe any use restrictions including: - Are there any inherent use restrictions as part of the data licensing? - Any limit on the license preventing perpetual use of the data?	M	
3.6 Visualization Tools and Analytics			
3.6.1	Analytic tools and software Although the primary purpose of this procurement is to obtain the highest quality traffic data for the Coalition and its Members, Vendors may, and are encouraged to, provide value added products available through this contract. These product may be part of the core data offering (if they do not add substantially to core data pricing) or as ancillary products which are separately priced. This may include visualizations and analytics that utilizes the core data, archive and historic data tools for viewing and retrieval, and other types of analytics software that leverages the core data.	D	

Tab Travel Time and Speed

Significant changes from TDM V3 in **RE**

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 4			
4.0 FREIGHT DATA REQUIREMENTS			
Objective: The Coalition seeks to provide freight data to support planning and operations within the Coalition. The Coalition’s understanding and perspective on freight data is summarized in its August 2020 publication ‘Demystifying Freight Data: Theory, Terms, and Practical Recommendations’ available at https://tetcoalition.org/wp-content/uploads/2020/08/TETC-Demystifying-Freight-Data-8-4-2020.pdf. Though dated before the pandemic, vendors are encouraged to review this document and to provide data solutions consistent with the specification below and within the freight data context shared in the document. Two major developments have occurred since the last edition of the TDM, the global pandemic which brought the term 'Supply Chain' to everyday lexicon, and the emergence and initial scaling of vehicle automation for freight movement. Both have heightened the need for DOTs to better understand, document, and analyse freight movement. The collapse of the Francis Scott Key Bridge, a primary freight pathway through the Baltimore region was another instance where freight data was brought to the forefront. New in TDM V4 is additional emphasis on Truck Parking, as well as any AV freight specific data - former categories of freight data remain similar to TDM V3. Vendors may respond to one or more inquiries for various freight data types as discussed and specified below. Note even though these are presented as proposed specifications, prospective vendors are encouraged to provide comment on products and services that may provide the requested information.			
Base Data Elements for all Roadways			
4	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM	Y/N	If ‘Yes’, respond to cell entries that follow.
4.1 Data Items – Travel Time & Speed			
4.1	Is Vendor providing Travel Time & Speed data for freight	Y/N	In No, proceed to 6.2.0
4.1.1	Vendor shall describe how the Vendor provides <u>Travel Time</u> and Speed Data of various classes of freight movement (heavy duty, medium duty, light duty, micro-freight, etc.) freight movements. Be as specific as possible to vehicle class.	M	
4.1.2	For the class of freight movement/s from above (6.1.1), describe how the Vendor provides <u>Travel Time</u> and Speed Data.	M	
4.1.3	Vendor shall describe how the granularity of Vendor provided Travel Time data (for example, travel time data is delivered to the nearest second.)	M	
4.1.4	Vendor shall describe the granularity of Vendor provided Speed data (for example, speed data is delivered to the nearest one MPH.)	M	
4.1.5	Is the travel time and speed data delivered in real-time, or as historical data sets?	M	
4.2 Data Items – Volume			
4.2.0	Is Vendor providing Estimated Volume data for freight vehicles?	Y/N	In No, proceed to 6.3.0

4.2.1	Vendor shall describe how volume data is provided for the various classes of freight movement (heavy duty, medium duty, light duty, micro-freight, etc.) freight movements. Be as specific as possible to vehicle class. (vehicle classification) freight movements are obtained and/or estimated.	M	
4.2.2	Are the Estimated Volumes for freight delivered in real-time, or as historical data sets?	M	
4.2.3	Vendor shall describe how volume of heavy duty (vehicle classification) freight movements are obtained and/or estimated.	M	
4.2.4	Vendor shall describe how volume of freight movements by FHWA vehicle type are obtained and/or estimated.	M	
4.3 Data Items – Origin & Destination of Freight Vehicles			
4.3.0	Is Vendor providing Origin & Destination data for freight vehicles	Y/N	In No, proceed to 6.4.0
4.3.1	Vendor shall describe how Origin / Destination for the following are obtained and/or estimated: • Long haul freight vehicles • Regional freight vehicles • Last mile parcel delivery • Other associated fleets. • Parcel Delivery	M	
4.4 Data Items – Truck Parking			
4.4.0	Is Vendor providing Truck Parking data	Y/N	In No, proceed to 4.5.0
4.4.1	Describe your primary data source/s of data for tool/data product category? (Non-ELD fleet telematics, GPS: ELD or ELD-derived, Other -specify)	M	
4.4.2	Vendor shall describe how truck parking information including but not limited to following are obtained and/or estimated. Note such data is for operational analysis. The Coalition is not requesting a real-time system for directing drivers to specific lots or spaces. • Capacity • Utilization • Dwell Times	M	
4.5 Data Items – Origin & Destination of Freight Cargo/Commodity Movement			
4.5	Is Vendor providing Origin & Destination for Freight Cargo	Y/N	In No, proceed to 4.6.1
4.5.1	Vendor shall describe how Origin / Destination of commodity movement (actual freight) through sampling of 'Bills of Laden' is obtained and/or estimated. • Include Mode • Include Value	M	
4.5.2	Vendor shall describe representativeness of Freight O&D data. • What percentage of all freight is captured in the O&D data? • What evidence is there that it is representative of actual freight O&D flows?	M	
4.6 AV Freight Movement			
4.6.0	Is Vendor providing data specific to Automated Freight Movement?	Y/N	In No, proceed to 6.7.1
4.6.1	Vendor shall describe type type of AV Freight data available, and its utility to a State DOT. • Does data include miles of AV Freight delivered by technology provider / carrier / by state?	M	

	Does data include any safety issues/ crashes/ or other instances requiring intevention by either industry (tech provider or carrier) or by emergency response?		
6.7 Visualization Tools and Analytics			
4.7.1	Specification 1.10.2 is included by reference	D	

Tab Waypoint Data

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 5			
WAYPOINT DATA REQUIREMENTS			
Objective: This core data category covers three types of data - Connected Vehicle Data, Location Based Services Data, and Fleet Telematics Data Connected Vehicle Data (CVD) refers to sources of location or position data from a traveler or their vehicle that are updated periodically, providing geodetic data in the form of latitude, longitude, time, and possibly speed and heading information. Connected Vehicle Data (CVD) often contains additional information, such as information about the vehicles (sudden stops, seat belt usage, key on, key off), referred to as event data, or locations visited (type of trip, point of interest). It may also contain data that the vehicle senses, such as road friction or other attributes of the infrastructure. CVD data was previously termed Waypoint data in TDM V3. CVD can be delivered after-the-fact or in real-time or near real-time. Location Based Services (or LBS) data is derived from smart phone applications, transactions and operation. Applications within smart phones either periodically record location, or record location in conjunction with some type of event such as a commerce transaction (paying by a smart phone application). This data, when aggregated, can reflect the mobility patterns of the smart phone owners (as opposed to vehicle movement), has less frequent location updates, and less accurate GPS data compared to other forms of transportation data. LBS data tends to better reflect trip purpose and points of interest that are visited than other forms of transportation data. Fleet Telematics Data (FTD) data is derived from systems that track vehicle movement from and manage large fleets for commercial purposes. Fleets may include rental fleets, service fleets, or delivery fleets. Like CVD, fleet telematics provide location of the vehicle at a high space and time granularity - typically from GPS positioning equipment. Fleet telematics may also provide additional information specific to the type of telematics equipment included in the vehicle fleet. The ETC solicits vendors providing Connected Vehicle Data, Location-Based Service Data and/or Fleet Telematics Data. Respondents are encouraged to provide separate documentation of their CVD, LBS Data, or FTD as well as any analytics tools, and associated/ancillary products and services.			
5.1 Base Data Elements for all Roadways			
5.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to at least one type of WayPoint data below (Connected Vehicle Data, Location Based Services Data, Fleet Telematics Data)	Y/N	
5.2 Connected Vehicle Data Complete section 4.2 if providing Connected Vehicle Data			
5.2.1	For the purposes of this RFP response vendor shall describe the following: - Type of fleet/vehicles included in the data - Data schema - Ping rate - Consistency of ping rate - Any data obscurity methods to protect privacy	M	
5.2.2	Vendor shall provide information on the penetration rate of the Trajectory Data for various sectors of the vehicle mix including but not limited to: - Light Duty - Medium Duty - Long Haul Freight - Urban Freight - Other as appropriate to data	M	
5.2.3	Vendor shall provide information on data attributes available with the trajectory data, such as: - Home location / work location - Event data such as - Key on, Key off - Hard braking (see also 5.2.4) - Weather, use of windshield wiper - Occupancy, seat belt usage - Make, model, year - Vehicle class - Type of Power Train - Point of interest (place visited)	M	

	Any other available data attributes, events, or ancillary data associated with trajectory data		
5.2.4	If the vendor provides safety surrogate information (such as hard braking or hard acceleration), the Vendor shall provide information on the data generated including: - Kinematic thresholds for hard braking/acceleration, including whether they are fixed or able to be modified by the user - Method used to determine hard braking/acceleration (e.g., derived from vehicle CAN BUS or determined from GPS locations), including time horizon over which this is calculated - Proportion of vehicle fleet generating safety surrogate data, if not all vehicles	M	
5.3 Location Bases Services Data: Complete section 4.3 if providing LBS Data.			
5.3.1	Vendor shall describe Location Based Services data attributes including: - Type of users, traveler information obtained - Type of location information provided (geodetics, street addresses, census block, census block group, census tract) - Data schema - Ping rate or reporting triggers - Any data obscurity methods to protect privacy - Penetration rate (and how it is measured for LBS data) - Other critical attributes of LBS data The Vendor shall attach a data schema or attribute table as part of response to the RFP for the information in response to 4.3.1	M	
5.3.2	In addition to Waypoint Data location data, vendor shall describe additional attributes that may accompany LBS data. Examples include - Inferred home location - Inferred work location - Point of interest that was visited - Dwell time at location - Imputed mode The Vendor shall attach a data schema or attribute table as part of response to the RFP for the information in response to 4.3.2		
5.4 Fleet Telematics Data Complete section 4.4 if providing Fleet Telematics Data			
5.4.1	For the purposes of this RFP response vendor shall describe the following: - Type of fleet/vehicles included in the data - Data schema - Ping rate - Consistency of ping rate - What geographic area does the fleet serve? - What is the penetration rate of the FTC, or what frequency of traversal do fleet vehicles make over their route?	M	
5.4.2	Decribed the nature of the fleet, and mixture: - Light Duty - Medium Duty - Long Haul Freight - Urban Freight - Rental or lease fleets - Other as appropriate to data	M	
5.4.3	Vendor shall provide information on data attributes available with the FTD, such as: - Home location / work location - Event data such as - Key on, Key off - Hard braking (see also 5.4.4) - Weather, use of windshield wiper - Occupancy, seat belt usage - Make, model, year	M	

	- o Vehicle class - o Type of Power Train · Point of interest (place visited) · Communications quality, availability, bandwidth · Any other available data attributes, events, or ancillary data associated with trajectory data		
5.4.4	If the vendor provides safety surrogate information (such as hard braking or hard acceleration), the Vendor shall provide information on the data generated including: · Kinematic thresholds for hard braking/acceleration, including whether they are fixed or able to be modified by the user · Method used to determine hard braking/acceleration (e.g., derived from vehicle CAN BUS or determined from GPS locations), including time horizon over which this is calculated · Proportion of vehicle fleet generating safety surrogate data, if not all vehicles	M	

5.5 Licensing, Timeliness and Persistence of ID

Any vendor responding to any form of Waypoint Data shall provide information as requested in 5.5

5.5.1	Vendors shall describe data availability with respect to time including: · Is WayPoint data available in real-time, or as historical data sets? · If historical data, what is the delay for availability of waypoint data (Ex. waypoint data information is available within 30 days of field collection) · How far back in time can waypoint data be delivered (Ex. Waypoint data is available from Jan 2018 forward)	M	
5.5.2	Vendor shall provide information related to vehicle/traveler trip identifiers. · Are vehicle or traveler IDs persistent, or anonymized/randomized? · Can trips by a vehicle/traveler be linked to reveal daily patterns? · How often are trip IDs assigned/randomized? · What triggers a new trip ID?	M	
5.5.3	Vendor shall describe licensable uses of the data, as well as limitations of use.	M	
5.5.4	Vendor shall describe license time frame: · Once licensed, can licensee retain a copy of the data in perpetuity? · If data license is not perpetual, what is the longest time period for which data can be licensed? · If data license is not perpetual, describe any licensing requirements related to expungement of original data, ability to keep derived, aggregated, or transformed versions of the original data.	M	

5.6 Specifications / Questions for any type of Waypoint Data

5.6.1	Vendor shall provide information responsive to the following questions related to geo-referencing of data: · Is waypoint data snapped to an existing roadway system, if so what Base Map is used? · Are the geodetic coordinates (latitude, longitude, altitude) conveyed with each data item? · How is data provided (data file type, data format, transfer mechanism, etc.)?	M	
5.6.2	Vendor shall provide information responsive to the following questions related to historical archive data sets: · How far back is archive/historical data available? · Is the archive/historical data to the same level of sampling and accuracy as current data? What is typical size of the Waypoint data set as delivered for a state for the time period of a year? (use North Carolina as an example state if possible)	M	

5.6.3	With respect to consistency of penetration rate: - Does penetration rate vary significantly across Coalition States? For example, is data better in Florida, then in the Northeast? - Does penetration rate vary by roadway class? - Does penetration rate vary by time of day? - Does penetration rate vary for different years? - Does penetration rate vary by other known factors?	M	
5.6.4	Personal Privacy Protection: Vendor shall provide information related to protection of Personally Identifiable Information (PII): - What methods or policies does the Vendor employ relative to PII? - What industry standards, or government regulations is Vendor data compliant with?	M	
5.6.5	Vendor shall describe their quality assurance process, including providing a description of how errors in the raw data are identified and corrected. If Vendor is providing LBS data, what methods are used to ensure that LBS data are not being falsified.	M	
5.7 Access, Analytics, and Tools			
5.7.1	Data Format For any type of Waypoint data, how is the data accessed? Is data made available through a portal? Through downloadable files?	M	
5.7.2	Data analytic tools Is data is made available through some type of online portal, what analytic tools accompany the data? What functions do these tools support?	M	

Tab Conflation and Georeferencing Data and Services Significant changes from TDM V3 are marked in **RED**

Item	Description	Priority	Respondent Comments
CORE TRAFFIC DATA – ITEM 6			
CONFLATION AND GEOREFERENCING DATA AND SERVICES REQUIREMENTS			
Objective: To secure access to high quality, reasonable cost Conflation Data Sets for Coalition members. As the Coalition spans many jurisdictional organizations, there are numerous Base Maps created and maintained by these organizations with custom linear referencing systems. These Base Maps must exchange data with industry sourced Base Maps (such as TMCs, Open Street Maps, Overture, and vendor specific Base Maps), as well as Base Maps used at the federal level such as ARNOLD. The fiscal overhead associated with the numerous transformations of data as a result of various Base Maps was identified by Coalition members as a critical area to resolve. This is compounded by the numerous map updates produced by vendors (with or without underlying geometric changes in the roadway). Recent literature associated with Overture maps suggests that the costs of conflation may rival the cost of the licensed data. In TDM V4, this area is expanding to include data and services for georeferencing, referring to the normalization of various maps to communicate information. Conflation Services: Conflation Data Sets refers to translation of data or segment from one link-based representation of the road way (referred to as a Base Map) to an alternative Base Map, or applying data conveyed using geodetic location data (latitude, longitude, elevation, and heading) to a designated Base Map representation of the roadway. Unless otherwise stated, conflation refers to a one-way translation, from A to B. Conflation from B to A would be a separate conflation activity.			
6.0. Base Data Elements for all Roadways			
6	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM	Y/N	
6.1 Base Maps Supported			
6.1.1	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from any Coalition organization custom Base Map/linear referencing system.	M	
6.1.2	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from Traffic Management Channel (TMC) Base Map for any vendor variety of TMC codes.	M	
6.1.3	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from federally sponsored Base Map systems such as the All Roads Network of Linear Referenced Data (ARNOLD) Base Map.	M	
6.1.4	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from any vendor specific Base Maps, provided that the roadway Base Map is provided with full geodetic referencing as specified in section 1.7.8.	M	
6.1.5	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from any version of Open Street Map version.	M	
6.1.6	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from any version of Overture Map version.	M	
6.1.7	The Vendor shall be able to support transfer of roadway segments, locations , and associated data to/from any Base Map system which meets the minimum segmentation reporting as specified in section 1.7.8, and encode the segments, locations and data using the GWCP and Open LR protocols.	M	
6.2 Process Description			
6.2.2	Vendor shall describe the Conflation/Georeferencing process with respect to expected time, needed collaboration (meetings), and available training available to Coalition members to understand data and information needed for a successful Conflation/Georeferencing engagement. Vendors are to provide a narrative of 'what to expect' and 'how to prepare'. This should include expectations for duration of project and deliverables.	M	
6.3 Quality of Conflation and Georeferencing Quality			
6.3.1	Vendor shall describe in detail any quality metrics associated with completeness and accuracy currently in use for the Conflation/Georeferencing process.	M	

6.3.2	Vendors shall provide an overview of acceptance metrics for Conflation Processing • Reversible lanes where some maps have one feature representing the pavement, while others have two features representing the traffic flow direction • General purpose and express lanes in the same direction in close proximity on the same road • Frontage roads and freeways traveling in the same direction • Collector-distributor roads and freeways traveling in the same directions • Making sure segments are not mapped to the opposite direction of the road • Ensuring multipart segments do not have unnecessary breaks	M	
6.4 Submission Requirements			
6.4.1	For the purposes of responding to this RFP, Vendors shall provide an overview of their conflations services, including • process, • inputs, • outputs, • data formats, • standardized analysis packages, • post-processing, • validation, • One-way versus two-way conflation	M	
6.4.2	Vendors shall provide an overview of acceptance metrics for Conflation Processing • To what accuracy of conflation are various road categories (Interstates, Freeways, Major Arterials, Minor Arterial, Ramps, and Local Road) processed? • What accuracy measures used, and how are they defined? • To what level of accuracy is the vendor guaranteeing conflation services work? • What process in place to fix any conflated road segments identified to be in error?	M	
6.4.3	Vendors shall provide an overview of acceptance metrics for Conflation Processing • Reversible lanes where some maps have one feature representing the pavement, while others have two features representing the traffic flow direction • General purpose and express lanes in the same direction in close proximity on the same road • Frontage roads and freeways traveling in the same direction • Collector-distributor roads and freeways traveling in the same directions • Making sure segments are not mapped to the opposite direction of the road • Ensuring multipart segments do not have unnecessary breaks	M	
6.4.4	Vendor shall provide a minimum of three organizational references for which conflation data sets of the nature requested by the ETC have been provided in the previous 24 months.	M	

Tab Active Transportatin Data

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 7			
ACTIVE TRANSPORTION DATA REQUIREMENTS			
Objective: Active Transportation Data (ATD) refers to Data Product reflecting information from modes such as pedestrian, bicycle, electric bicycle, scooter, electric scooters, and various other types of micro-mobility devices including wheel-chairs, walkers, etc. This has previously gone by the name of 'Bicycle and Pedestrian' or 'Non-motorized' data. In TDM V3, this type of data was included as ancillary services or sub-categories of various core data product such as Origin & Destination data. In TDM V4 ATD is identified as a unique core data category and includes Data Products such as activity estimation from Big Data sources, count data from devices placed on active transportation facilities, data on active transportation infrastructure such as bike lanes, trails, sidewalks, etc, and data services such as archiving and 'data wrangling'. ATD may include various attributes including (but not limited to), speed of flow, volume of flow, origin and destination of flow, spatial attributes such as density of activity, composition (travel modes) within the flow and location and condition of active transportation facilities. Prospective vendors should respond to the information requested below with respect to their data and analytics that address Active Transportation Data. The ETC solicits vendors providing transportation data, data services, and data analytics. Four types of data products are requested. (1) Big Data Products: This refers to estimates of Active Transportation derived from sources such as Location Based Services data, smart-phone applications, agent-based modeling. Big-data products are anticipated to provide Active Transportation data that scales geographically. (2) Count Services: Count services refers to the physical collection of Active Transportation data, typically counts and classifications. No hardware can be produced, only services. Any Count Services shall comply with the Coalition's Active Transportation Count Specification (ATCS), available at: https://tetcoalition.org/wp-content/uploads/2026/03/CAPABLE-II-Report-20260228.pdf (3) Infrastructure Data: Infrastructure refers to the collection of active transportation facilities such as availability, width and conditions of sidewalks, pedestrian paths, bicycle paths, and various other attributes associated with the physical environment of active transportation. (4) Data Archiving and 'Data Wrangling' Services: This refers to the services that normalize, store and provide both analytics and import/export functions for active transportation data. ----- Respondents are encouraged to provide separate documentation of their Active Transportation Data Products as well as any associated/ancillary products and services, and reference such data in their response as appendices.			
7.1 Active Transportation Data Products			
7.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
Active Transportation Big Data			
7.2 Source Data & Methodology			
7.2.1	Source Data: What are your primary data sources in this tool/product category? (Modeling, LBS, Specific SmartPhone Apps, Agent Based Modeling, Other)	M	
7.2.2	If possible, provide company names for source data.	M	
7.2.3	Is your source data available nationwide? (Yes/No) - Explain.	M	
7.2.4	Describe the methodology used to develop Active Transportation data from source data.	M	
7.2.5	For how many years is your source data available (going back in time)?	M	

7.2.6	Has the sources and composition of your source data had major changes in the past several years? If so, what documentation is provided to analysts whose use cases span multiple years? Do your analytic tools or data products provide filters that help improve data consistency for uses cases that span multiple years of data? If so, what types of filters?	M	
7.3 Analysis Setup and Parameters			
7.3.1	What is the spatial reporting unit for your Active Transportation Data Product? - Zone (trips originating from a zone) - Zone pairs (origin-destination flows between zones) - Segment (volumes)	M	
7.3.2	For products that report at the Zone level (either zone-level activity or OD flows between zones), what type of standardized and/or custom geographies are supported? - State - County - Census Tract - Census Block Group - Census Block - Custom (User-defined) - Other (please describe)	M	
7.3.3	For products that report at the Segment level, what type of map segmentation is used for reporting? - OpenStreetMap - Overture Maps - Traffic Message Channel (TMC) - Agency LRS - Custom (vendor-specific)	M	
7.3.4	For products that report at the Segment level, which of the following types of facilities are included? <i>Please clarify whether parallel facilities on a road are reported separately or consolidated into a single feature.</i> - Roadways - Paths/Trails (not open to motor vehicle traffic) - Bicycle lanes - Sidewalks - Other (please describe)	M	
7.3.5	For products that report at the Segment level, is active transportation activity reported separately by travel direction? - Yes - No	M	
7.3.6	What is the temporal granularity for reporting ATD? (check all that apply) - o Sub-hourly (e.g., 5, 15 minutes) - o Hourly - o Daily - o Average day-of-week for month (or season) - o Average weekday/weekend for month (or season) - o Average annual day	M	
	Which type of data is used for the ATD and what is the data source?		

7.3.7	Which travel modes does the A1D product include? - All Nonmotorized (combined) - Bicycles - Pedestrians - Scooters - Other (please explain)	M	
7.3.8	Does your products support the TETC Active Transportation Data Specification (ATCS)? Support for the ATCS is highly desirable for big data Active Transportation Data Products. This is specific to segment level reporting.	HD	
7.3.9	What metrics are reported in the results? o Number of observed Active Transportation users (sample counts) o Number of Active Transportation users (population estimates)? o Confidence indicators?	M	
Active Transportation Count Services			
7.4 Count Services			
7.4.1	Describe the technology used for count services (video, tubes, etc.)	M	
7.4.2	Can your count technology differentiate various types of Active Transportation (pedestrian, bicycle, scooter, wheelchair, etc.)?	M	
7.4.3	What duration count are available? - 1 day - Week - Month - Continuously (from a permanently mounted camera)	M	
7.4.4	Does your product support the TETC Active Transportation Count Specification (ATCS)? Support for ATCS is mandatory for any Count Services in TDM V4.	M	
7.4.5	What metrics are reported in the results? o Number of Active Transportation observed (counts)? o Type of Active Transportation observed (classification)? o Confidence indicators?	M	
7.4.6	What type of counting movements can be supported? - Screenline (along trail or road) - Crossing (midblock or at intersection) - Turning movement (at intersection)	M	
7.4.7	What is the level of accuracy of your counts? Please comment on the conditions under which this accuracy is expected, and how factors such weather, time of day (day/night) or other conditions impact performance.	M	
Active Transportation Infrastructure Data			
7.5 Service Description, Methodology, Output			
7.5.1	Describe your the Active Transportation Infrastructure Data Product.	M	

7.5.2	Describe the methodology to acquire, process and disseminate Active Transportation Infrastructure Data Products.	M	
7.5.3	Describe the output data, including its schema, fields, and what (if any) data standards to which it complies. Is the AT Infrastructure data product linked to any of the following map databases/standards? - OpenStreetMap - Overture Maps - GATIS	M	
Active Transportation Archive, Analytics, and 'Data Wrangling'			
7.6 Service Description, Methodology, Output			
7.6.1	Describe your the Active Transportation Archive / Analytics / 'Data Wrangling' Data Product.	M	
7.6.2	Describe the platform, user interface, and analytics tools available.	M	
7.6.3	What standardized input / output is supported? Can the system generate the Traffic Monitoring Guide (TMG) format?	M	
7.6.4	Any Archive / Analytics / 'Data Wrangling' services shall support the TETC Active Transportation Count Specification. Affirm support in the response.	M	
Common to both Active Transportation Big Data and Active Transportation Count Services			
7.7 Output Capabilities			
7.7.1	In what formats are analytic results available? o Platform-based maps o Platform-based tables/charts o Downloadable map files (e.g., shapefile, GeoJSON) o Bulk data download o Geo-Referencing methods supported	M	
7.7.2	What metrics are reported in the results? o Number of Active Transportation observed (counts)? o Type of Active Transportation observed (classification)? o Confidence indicators?	M	
7.8 References / Reference Accounts			
7.8.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
7.9 Additional Information			
7.9.1	Provide any additional information about features/capabilities the proposed Transportation Data Product.	M	
7.9.2	Data analytic tools Is data is made available through some type of online portal, what analytic tools accompany the data? What functions do these tools support?	M	

Tab Traffic Signal Performance Measures

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 8			
TRAFFIC SIGNAL PERFORMANCE MEASURES REQUIREMENTS			
Objective: Traffic signal performance measures (TSPM) refers to the use of crowdsourced vehicle data to understand traffic signal performance and operations. TSPMs were provided through ancillary products in TDM V3, and are now considered a core data area. Vendors with TSPMs based on various type of probe data are encouraged to provide solutions for our members. Analytic tools and data products based solely on agency-installed sensors and traffic signal controller hardware are not considered within scope of the TSPM core data item. Prospective vendors should respond to the information requested below with respect to their data and analytics that address TSPMs. The ETC solicits vendors providing transportation data, data services, and data analytics for Traffic Signal Performance Measures Respondents are encouraged to provide separate documentation of their TSPM Data Products as well as any associated/ancillary products and services, and reference such data in their response as appendices.			
8.1 Traffic Signal Performance Measures			
8.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
Traffic Signal Performance Measures: Traffic signal performance measures (TSPMs) derived from probe-based data represent a shift in traffic engineering from point-based infrastructure (e.g., inductive loops) to trajectory-based analytics. TSPMs are a robust suite of metrics that quantify the efficiency, safety, and reliability of signalized intersections by reconstructing the individual paths (trajectories) of vehicles through time and space. Unlike traditional Automated Traffic Signal Performance Measures (ATSPMs) which rely on hardware detectors, probe-based measures leverage high-fidelity GPS waypoints, connected vehicle (CV) data, or MAC address matching (Bluetooth/Wi-Fi). Types of TSPMS include: Mobility and Delay Metrics: This may include Control Delay (the total time lost due to the signal, including deceleration time, queue wait time, and acceleration time) From probe data, this is typically calculated as the difference between the actual travel time through the intersection and the free-flow travel time. This may include Number or Percentage of Stops (a count or percentage of instances where a probe vehicle's speed drops below a specific threshold (e.g., 5mph) within the approach), and Travel Time Reliability (metrics such as Planning Time Index (PTI) or Buffer Index, which use the distribution of probe trajectories to determine how much extra time a driver must allow for a consistent traversal of the corridor). Coordination and Progression: This includes Arrivals on Green (the percentage of vehicles that arrive at the intersection during the green interval. While traditional ATSPMs use detectors at the stop bar, probe data estimates AOG by mapping trajectory timestamps against signal phase data (if available) or by inferring "non-stop" arrivals), Platoon Ratio (a measure of the "compactness" of vehicle groups. High-fidelity probe data can identify if a platoon is being broken up by poor signal offsets), and Purdue Coordination Diagram (a visualization that plots the arrival time of probe vehicles relative to the cycle start, identifying if arrivals are concentrated in the green or red phases). Capacity and Operational Health: This includes Split Failure (when a vehicle is forced to stop more than once (multiple cycles) to clear an intersection. This indicates that the green time allocated to a specific phase is insufficient for the current volume), Queue Length (the number of vehicles or length of queue upstream from the "stop" point), and Turning Movement Percentages (an estimate of the percentage or number of vehicles that go straight, turn right, or turn left at the intersection).			
8.2 Source Data			
8.2.1	Source Data: What are your primary data sources in this tool/product category? (Telecom, LBS, GPS: Connected Vehicle, GPS: Fleet, Other)	M	
8.2.2	If possible, provide company names for probe source data	M	
8.2.3	Is your source data available nationwide? (Yes/No) - Explain.	M	

8.2.4	For how many years is your source data available (going back in time)?	M	
8.2.5	Has the sources and composition of your data had major changes in the past several years? If so, what types of documentation are provided to analysts whose use cases span multiple years? Do your analytic tools or data products provide filters that help improve data consistency for uses cases that span multiple years of data? If so, what types of filters?	M	
8.3 Analysis Setup and Parameters			
8.3.1	What is the finest temporal resolution for TSPM Data Product: o Sub-hourly (e.g., 5, 15 minutes) o Hourly o Daily o Average day-of-week for month o Average weekday/weekend for month	M	
8.3.2	Does your platform/API/data product provide aggregated results? (check all that apply) o Sub-hourly (e.g., 5, 15 minutes) o Hourly o Daily o Average day-of-week for month o Average weekday/weekend for month	M	
8.3.3	Are all signalized intersections pre-defined? Can users add locations of missing signals? Must users designate signal locations for monitoring?	M	
8.3.4	Are default groupings provided for signalized intersections (e.g., all signals in a defined corridor)?	M	
8.3.5	Can users create custom groups of traffic signals? (e.g., routes, geographic zones, etc.)	M	
8.4 Output Capabilities			
8.4.1	In what formats are analytic results available? o Platform-based maps o Platform-based tables/charts o Downloadable map files (e.g., shapefile, GeoJSON) o Bulk data download o Geo-Referencing methods supported	M	
8.4.2	What is the most detailed spatial resolution for results? o Approach o Each movement at approach o Each lane of an approach	M	
8.4.3	What performance measures are available in results? o Approach speed o Control delay o Percent arrival on green o Split failures o Other (specify)	M	
8.4.4	Does your analytic tool allow agency-installed sensor and signal controller data (i.e., traditional ATSPM with High-Resolution Controller Data) to be integrated or compared with crowdsourced traffic signal analytics?	M	

8.4.5	Does your analytic tool also provide traffic signal optimization features/capabilities that are integrated with the traffic signal performance results? If so, please elaborate on integration/ functions.	M	
8.5 References / Reference Accounts			
8.5.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
8.6 Additional Information			
8.6.1	Provide any additional information about features/capabilities with respect to TSPMs.	M	
8.6.2	Specification 1.10.2 is included by reference	HD	

Tab Virtual Weather Data Services

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 9			
VIRTUAL WEATHER DATA REQUIREMENTS			
Objective: Virtual Weather refers to the use of advance data aggregation/disaggregation and modeling tools to provide micro-weather conditinos and forecasts for specific and confined geographic areas. Micro-forecasts enable critical transportation applications. The transition of temperature from non-freezing to freezing is critical to traffic safety, determining when and where to apply de-icing agents for greatest effect. So also knowledge high-wind conditions is critical for freight safety. These and other aspects of transportation operations are dependent on accurate and highly specific geographic context. Virtual Weather Data is one method to provide such data, as opposed to phycially deploying a weather station at all critical areas in a region or state. The Coalition requests Virtual Weather Data services (sometimes referred to Virtual Weather Stations) to support a variety of transporation agency specific functions.			
9.1 Virtual Weather Station Data Products			
9.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
9.2 Source Data & Methodology			
9.2.1	Source Data: Described the source data used to generate your Virtual Weather Data Product	M	
9.2.2	If possible, provide company names for source data.	M	
9.2.3	Is your source data available nationwide? (Yes/No) - Explain.	M	
9.2.4	Describe the methodology used to devleop Virtual Weather Data Product from source data.	M	
9.2.5	What is anticipated accuracy of the weather data? Has it been verified or validated?	M	
9.2.6	Is virtual weather available for past events? Is so, how far back in time can it go?	M	
9.3 Analysis Setup and Parameters			
9.3.1	What temporals resolution is supported for Virtual Weather Data Products: o Sub-hourly (e.g., 5, 15 minutes) o Hourly o Daily	M	
9.3.2	How geographically specife is the weather data?	M	
9.3.3	What weather metrics are reported? o Temperature o Wind speed o Humidity o Precipitation o Other?	M	
9.4 Output Capabilities			

9.4.1	How is data provided to the customer? What method is used to convey spatial information? o API, electronic maps, o Geo-Referencing methods supported	M	
9.5 References / Reference Accounts			
9.5.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
9.6 Additional Information			
9.6.1	Provide any additional information about features/capabilities of the proposed Data Product.	M	
9.6.2	Specification 1.10.2 is included by reference	HD	

Tab Instrument Vehicle Data

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 10			
INSTRUMENTED VEHICLE DATA REQUIREMENTS			
Objective: Instrumented Vehicle Data refers to data from specialized vehicles in the traffic stream that can sense and record information that may be beneficial to transportation applications. It is differentiated from Connected Vehicle Data in that the instrumentation is not typical OEM equipment, but rather augmented to sense and record information not typically associated with the driving function. Known examples of such data include, (but are not limited to): (1) Images from Dash Camera Video Feeds - Dash Cams installed in a vehicle (typically after market) can be networked such that video clips or still images can be requested by transportation agencies, and then transmitted via wireless communications to the user. Such data is beneficial to extend the observability of a traffic management center to 'get eyes on the scene' be it weather, road hazard, crash or other type of incident presenting a potential driving hazard. (2) Spatial Imaging Data - A LiDAR or other advanced spatial imaging sensor may be available, and information from which may be queried by a state DOT. Such data may support verification of roadway assets, identification of a potential hazardous situation such as an edge drop off, or pavement failure (pot-hole). (3) Communications Data from Fleets - A fleet of vehicles with specialized telecommunications equipment (such as multi-carrier cellular equipment) may be able to report on the connectivity, bandwidth and reliability of wireless communications as a by-product of fleet telematics communications. Such data would inform of both the steady state robustness of the telecommunications network, as well as its response during times of severe weather. The above are some examples of known instrumented vehicle data that are of interest to the Coalition - but it is not limited to such examples.			
10.1 Instrumented Vehicle Data Products			
10.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
10.2 Source Data & Methodology			
10.2.1	Source Data: Described the vehicle instrumentation and the type of data from the instrumented vehicle.	M	
10.2.2	Is the Instrumented Vehicle Data available nationally? If not - what geographic areas are supported?	M	
10.2.3	What type of transportation applications would data from the instrumented vehicle support?	M	
10.2.4		M	
10.3 For Dash Cam Services			
10.3.1	Describe the service, the types of imagery (stills, short video) provided, color versus black and white, resolution, etc.	M	
10.3.2	How large is the fleet of Dash-Cam vehicles? If a request is made for imagery, what is the expected 'time to information'? Upon what does it depend?	M	
10.3.3	Is historic data available?	M	
10.3.4	Describe the user interface for requesting and viewing information.	M	
10.4 Spatial Imagery Data and Services			

10.4.1	What type of spatial imagery sensor is used (LiDAR, radar, video spatial analysis, etc.) What is the spacial resolution of the sensor.	M	
10.4.2	How is the data formatted, diplayed and conveyed to the end user?	M	
10.4.3	What analytics tools are included in the system?		
10.4.4		M	
10.5 References / Reference Accounts			
10.5.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
10.6 Additional Information			
10.6.1	Provide any additional information about features/capabilities of the proposed Data Product.	M	
10.6.2	Specification 1.10.2 is included by reference	HD	

Tab Infrastructure Advanced Sensor Data

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 11			
INFRASTRUCTURE ADVANCED SENSOR DATA REQUIREMENTS			
Objective: Infrastructure Advanced Sensor Data Products refers to information derived from sensors located along the roadside that inform safety, TSMO, or planning. Examples include (but are not limited to): (1) Near-miss analytics from advanced sensors deployed near an intersection. (2) Video analytics such as vehicle counts and speeds from existing cameras deployments. Note: This procurement is for Data Products, not physical hardware. Proposal shall not include the procurement of hardware. Services may include the temporary placement of advanced sensors for the purpose of data collection.			
11.1 Infrastructure Advanced Sensor Data Products			
11.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
11.2 Source Data & Methodology			
11.2.1	Describe the technology, what infrastructure sensors are utilized, and concept of operations.	M	
11.2.2	For any Data Product not specifically cited in 11.3 or 11.4, provide a detailed description of the Data Product, including metrics assessed, any standards to which the data is compliant, how the data is formatted and conveyed to the user, and data analytics provided.	M	
11.2.3		M	
11.3 For Near Miss Analysis at Intersections			
11.3.1	What are the camera/sensor requirements needed for near miss analysis? How many? What type?		
11.3.2	What metrics are extracted from the infrastructure sensors? How are they used to improve safety?		
11.3.3	What duration of analysis is recommended?		
11.3.4	Does the Data Product comply to any known/published standards?		
11.3.4	How is the data formatted, displayed and conveyed to the end user?		
11.3.5	What analytics tools are included in the system?	M	
11.4 Video analytics from existing cameras			
11.4.1	What type of existing video image devices are supported (analog, CCTV, IP cameras, digital formats, etc.)	M	

11.4.2	What information is extracted from the video for use in transportation management? (number of vehicles, vehicle class, number of pedestrian, number of bicycles, mode of transport, trajectory in the field of view, etc.)	M	
11.4.3	What analytics tools are included in the system?	M	
11.4.4	Has the Data Product been validated for accuracy? If so, provide a link to the publication/s.	M	
11.5 References / Reference Accounts			
11.5.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
11.6 Additional Information			
11.6.1	Provide any additional information about features/capabilities of the proposed Data Product.	M	
11.6.2	Specification 1.10.2 is included by reference	HD	

Tab Asset Management Data & Services

Item	Description	Priority	Respondant Comments
CORE TRAFFIC DATA – ITEM 12			
ASSET MANAGEMENT DATA REQUIREMENTS			
Objective: Asset Management Data Products refers to information specific to transportation asset management. It may include, but is not limited, to data for pavements, bridges, and signs that are derived from vehicles-sourced or crowd-sourced data. Specific examples include: (1) Pavement distress data such as cracking, faulting, fatigue, friction, and potholes. (2) Sign inventory, reflectivity, and appropriate placement. (3) Bridge inventory, clearance (height). Asset Management Data Products may be derived from connected vehicles, instrumented vehicles, or other sources. It is differentiated from the other core data areas in that Asset Management Data Products are processed, engineered, and delivered to satisfy typical asset management targeted metrics needed within a transportation agency asset management program.			
12.1 Infrastructure Advanced Sensor Data Products			
12.1.0	DOES VENDOR INTEND TO RESPOND TO THIS CORE TRAFFIC DATA ITEM If Vendor responds to this section, they should be responsive to information requested below.	Y/N	
11.2 Source Data & Methodology			
12.2.1	Describe the source data technology.	M	
12.2.2	Which asset management categories are addressed?	M	
12.2.3	What Asset Management metrics are provided?	M	
12.3 Pavement Performance Asset Management Metrics			
12.3.1	What pavement metrics are produced and how?	M	
12.3.2	Do the Pavement Performance metrics comply to any known standards (i.e. - IRI)?	M	
12.3.3	What location referencing system is used to convey pavement condition data?	M	
12.3.4	What data analytics tools are included in the system?	M	
12.4 Sign Inventory			
12.4.1	What type of sign inventory data is collected and reported? How is it derived?	M	
12.4.2	What metrics are estimated for each sign?	M	
12.4.3	Does sign inventory and condition comply to any	M	

	known/published standards?		
12.4.4	What location referencing system is used to convey sign information data?	M	
12.4.5	What analytics tools are included in the system?	M	
12.5 Bridge Asset Management Data			
12.4.1	What type of sign inventory data is collected and reported? How is it derived?	M	
12.4.2	What metrics are estimated for each bridge? How is clearance measured?	M	
12.4.3	Does bridge information comply to any known/published standards?	M	
12.4.4	What location referencing system is used to convey bridge information data?	M	
12.4.5	What analytics tools are included in the system?	M	
12.5 References / Reference Accounts			
12.5.1	Provide at least two references that access and use the proposed Transportation Data Product. At least one reference should be a transportation agency.	M	
12.6 Additional Information			
12.6.1	Provide any additional information about features/capabilities of the proposed Data Product.	M	
12.6.2	Specification 1.10.2 is included by reference	HD	

**The Eastern Transportation Coalition
Transportation Data Marketplace
R011
Agreement for Use of Data**

- 1.0 This Agreement for Use of Data (hereinafter “*Agreement*” or “*Data Use Agreement*”) is entered into, by and among the following vendors participating in The Eastern Transportation Coalition’s (TETC) Transportation Data Marketplace (TDM), as listed below under TDM Vendors (hereinafter “*Data Vendors*”), and [] (hereinafter “*Data Licensee*”), having an address as set forth on the signature page below. *Data Vendors* and *Data Licensee* together are hereinafter referred to as the “Parties”.
- 2.0 Definitions:
- The Eastern Transportation Coalition (TETC): TETC is an unincorporated coalition of members having jurisdictional, operational, or planning authority of a roadway network in the eastern region of the United States, an area from Maine to Florida and from the Atlantic Coast to as far west as the Mississippi River.
- Personally Identifiable Information: Personally identifiable information, or PII, is any data that can be used to clearly identify a particular person. Examples include a full name, Social Security number, driver's license number, bank account number, passport number, and email address.
- TDM Participating Agency: A TDM Participating Agency is an organization with responsibilities that may include operation, construction and maintenance, planning, safety, and/or asset management of a roadway system and wishes to participate in TETC’s TDM, and who has executed a *Data Use Agreement*. A TDM Participating Agency may be a member of TETC or may be external to the TETC but desires to participate in the TDM. A TDM Participating Agency may be a State, City, or County Department of Transportation (or functional equivalent), a Metropolitan Planning Organization (MPO), or a tolling authority either within or external to TETC.
- 3.0 Background: TETC member organizations (collectively referred to herein after as “Coalition Members” or “Coalition Member” in singular), have authorized the University of Maryland (hereinafter “UMD”), an agency and instrumentality of the State of Maryland, to act on behalf of TETC to enable TETC to continue to serve as a valuable and knowledgeable collaborative resource throughout the eastern region of the United States. Acting on behalf of TETC, UMD has executed agreements with the *Data Vendors* under which they have agreed to license one or more transportation data products, including, but not limited to, travel time and speed data, volume estimation data, origin-destination and trip data, waypoint data, freight data, conflation data and services, active transportation data, traffic signal performance measures, virtual weather data, instrumented vehicle data, infrastructure advanced sensor data, and asset management data along with complementary metrics and associated analytics and services products provided pursuant to task orders (hereinafter referred to as “Licensed Data”) to *Data Licensee* under the following agreements:

Listing of Agreements:

[References to TDM signed contracts with TDM Vendors].

This Agreement, to be executed by all *Data Vendors* and *Data Licensees*, sets forth the terms and conditions under which *Data Licensee* may access and use any *Licensed Data* purchased through the Contracts, irrespective of geography or time; for appropriate use of and liability for misuse of *Licensed Data*; and warranties regarding *Licensed Data*.

For the avoidance of doubt, *Data Licensee* acknowledges that *Data Vendors*' obligation to deliver the *Licensed Data* to *Data Licensee* is limited to the duration and the terms of active task orders under the applicable Contracts. The foregoing shall be without prejudice to *Data Licensee*'s right to use the *Licensed Data* that it has received as set forth in clause 5.0 below.

4.0 Certification: *Data Licensee* certifies that it is

An organization with responsibilities that include roadway operations, construction and maintenance, planning, safety, and/or asset management and wishes to participate in TETC's TDM. An organization may include but is not limited to a State, City, or County Department of Transportation (or functional equivalent), a MPO, a tolling authority, port authority, or other roadway management entity either within or external to TETC, (hereinafter *TDM Participating Agency*); or

An entity under contract to a *TDM Participating Agency* that directly supports a *TDM Participating Agency* via a written agreement (hereinafter referred to as 'Subcontractor') and requires and is authorized by said *TDM Participating Agency* to access and use the *Licensed Data* procured under the Contracts. Subcontractors may include but are not limited to consultants, contractors, or universities.

If *Data Licensee* is a Subcontractor, *Data Licensee* shall complete Attachment A to this Agreement, which shall be incorporated as part of this Agreement.

Data Vendors agree that *Data Licensee* is entitled to access and use *Licensed Data* under the terms of this Data Use Agreement. Notwithstanding whether *Data Licensee* elects to purchase or not purchase *Licensed Data* for its particular jurisdiction, *Data Vendors* agree that *Data Licensee* is entitled to access and use, at no cost, *Licensed Data* purchased by any TDM Participating Agency, subject to the terms of this Data Use Agreement.

5.0 Grant of License:

Data Vendors hereby grant *Data Licensee* a nonexclusive, fully paid up right and license to reproduce, use, distribute, make derivative works based on, and archive *Licensed Data* consistent with *Data Licensee*'s traffic management, operations, public safety, asset management, policy making, planning, and validation/quality control/quality assurance responsibilities.

Data Licensee who is a *TDM Participating Agency* is entitled to access all *Licensed Data* purchased by any *TDM Participating Agency* regardless of geographical or political boundaries of *Data Licensee*'s respective jurisdiction.

A *Data Licensee*, who is a Subcontractor, is entitled to access *Licensed Data* purchased by any *TDM Participating Agency* that is within the scope of said contractor's work obligation to the *TDM Participating Agency*.

Data Vendors and *Data Licensees* agree that TETC and employees of TETC (including affiliated staff at UMD) are entitled to access and use *Licensed Data* under the terms of this Data Use Agreement for data visualizations, analytics, operations, asset management, and planning tools that are sanctioned by TETC, one or more of its members, or *TDM Participating Agency*.

6.0 Rights and Limitations of License: The license granted under this Agreement is subject to the following restrictions:

- (a) *Data Licensee* shall not have the right to sell or otherwise transfer or disclose *Licensed Data* either to public or private entities that are not licensed to receive such data without prior written authorization from *Data Vendors* unless *Data Licensee* is required by applicable laws or regulations or pursuant to an order of a court of competent jurisdiction or a valid administrative or congressional subpoena to disclose *Licensed Data*. In that event, *Data Licensee* shall provide the affected *Data Vendors* prompt notice of the demand, unless prohibited by law, so they may take appropriate action to prevent disclosure, if they wish. *Data Licensee* shall provide a copy of any such notice to TETC/UMD. Nothing herein shall be deemed to authorize *Data Licensee* not to comply with any lawful order pending action by *Data Vendors*.
- (b) *Data Licensee* shall limit access to *Licensed Data* to those of its employees and subcontractors who have a need to access and use *Licensed Data* in order to fulfill their contractual duties and shall require all such persons authorized to access and use *Licensed Data* to agree to abide by the terms of this Data Use Agreement. Any *Data Licensee* that desires access to *Licensed Data* for purposes not authorized by this Agreement must negotiate directly with *Data Vendors* to acquire such additional access and rights.
- (c) *Data Licensee* may disseminate traffic data delivered by *Data Vendors* to the public, subject to the following restrictions:
 - i. This Agreement does not place any restrictions on dissemination of traffic data to the public through TDM Participating Agency's operations centers management systems, supported websites, web services, social media, and smartphone applications, including 511 information systems consistent with *Data Licensee's* responsibilities as a transportation organization.
 - ii. Direct dissemination of *Licensed Data*, or substantial duplicates of *Licensed Data*, to the public, such as retransmission of *Data Vendor's* application program interfaces, are not allowed.
- (d) The license granted by *Data Vendors* to *Data Licensee* authorizes *Data Licensee* to create visualizations and summary statistics (maps, graphs, charts, tables, etc.) of *Licensed Data*, real-time, non-real-time, and/or archived data, for presentation and distribution to the general public (hereinafter "*Derivative Works*"). *Data Licensee* shall own all copyrights in all such *Derivative Works* to the extent those works are protected by copyright.

- (e) Nothing in this Agreement shall preclude *Data Licensee* from distributing, displaying, or otherwise presenting any transportation data or *Derivative Works* deemed essential to the safety of the traveling public.
- 7.0 Right to Acquire Non-Licensed Data: Nothing in this Agreement shall prohibit *Data Licensee* from acquiring, displaying or otherwise presenting or sharing information that *Data Licensee* has obtained from sources other than *Data Vendors*.
- 8.0 Prevention of Unauthorized Use: *Data Licensee* will cooperate with *Data Vendors* to protect the commercial value of *Licensed Data* by taking such measures as:
 - (a) Retaining all proprietary or restricted use notices included on *Licensed Data* as received;
 - (b) Not obstructing or modifying proprietary or restricted use notices included on *Licensed Data* as received;
 - (c) Ensuring that all copies of *Licensed Data* include all proprietary or restricted use notices included on *Licensed Data* as received. To the extent *Data Vendors* do not include any proprietary or restricted use notices on *Licensed Data* as delivered to *Data Licensee*, *Data Licensee* shall insert, at a minimum, the following notice on any copies of *Licensed Data* that *Data Licensee* makes: “PROPRIETARY INFORMATION OF [DATA VENDOR]. USE BY ENTITIES OTHER THAN AUTHORIZED, LICENSED USERS PROHIBITED”; and
 - (d) Storing and disseminating *Licensed Data* using methods, communication mediums and technologies that provide reasonable protection against their unlawful copying and unauthorized access and use.
- 9.0 Personally Identifiable Information:
 - (a) *Data Vendor* warrants that *Licensed Data* contains no personally identifiable information.
 - (b) *Data Licensee* shall not link *Licensed Data* with other third-party data that contain personally identifiable information.
 - (c) *Data Licensee* shall not ‘reverse engineer’, or in any way attempt to extract or create personally identifiable information from *Licensed Data*.
- 10.0 Notice of Unauthorized Use: In the event *Data Licensee* becomes aware of an inappropriate use or unauthorized disclosure of *Licensed Data*, *Data Licensee* shall provide immediate verbal notice as soon as practicable and subsequent written notice within 24 hours of its verbal notice to TETC/UMD and to the *Data Vendor(s)* whose data are the subject of inappropriate use as per paragraph 6 of this agreement or unauthorized disclosure as follows:

[Points of Contact for TETC and Vendors]

Subject to the above paragraph, all notices and approvals required to be made under this Agreement shall be made by electronic mail (email) with return confirmation of delivery. Notice shall be deemed effective upon receipt.
- 11.0 Indemnification: *Data Vendors* hereby indemnify and agree to hold harmless UMD, *Data Licensees*, and their respective officers, employees, and agents from and against any and all claims, actions, costs, judgments, or damages of any type arising out of an allegation that *Licensed*

Data infringes the intellectual property or proprietary rights of any third party or a breach of the representations and warranties of *Data Vendors*.

(a) Upon becoming aware of an allegation of infringement or a breach of a *Data Vendor's* representations and warranties, *Data Licensee* shall promptly notify the affected *Data Vendor(s)* and UMD.

(b) *Data Vendors'* duty to indemnify is conditioned upon:

- i. *Data Vendors* having sole control of the defense and settlement of the claim (provided that *Data Vendors* may not settle or compromise or defend any claim unless they unconditionally release all other parties from all liability, and further provided that *Data Vendors* must obtain prior approval of any such settlement or compromise from counsel for UMD and the *Data Licensee* which shall not be unreasonably withheld or delayed);
- ii. *Data Licensee* provides, at *Data Vendors'* expense, information and reasonable assistance upon *Data Vendors'* request; and
- iii. *Data Licensee* has not already compromised or settled the claim.

12.0 Liability: Under no circumstance will *Data Licensee* be responsible for another *Data Licensee's* breach of its duties under this Data Use Agreement. Each *Data Licensee* shall be liable for its own violations of this Agreement. IN NO EVENT WILL ANY PARTY OR ITS OFFICERS, AGENTS, OR EMPLOYEES BE LIABLE TO THE OTHER PARTIES FOR ANY INCIDENTAL, SPECIAL, INDIRECT, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND, INCLUDING BUSINESS EXPENSE, MACHINE DOWN TIME, LOSS OF PROFITS, OR DAMAGE OR INJURY TO PROPERTY FOR ANY CLAIMS, DEMANDS OR DAMAGES ARISING OUT OF OR RELATED TO THE PERFORMANCE OR ITS OBLIGATIONS UNDER THIS AGREEMENT OR THE USE OF LICENSED DATA BY ANYONE EVEN IF THE PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

13.0 Term and Termination

(a) This Agreement will commence with respect to an individual *Data Licensee* as of the last date of execution by each *Data Vendor*, the *Data Licensee*, and TETC representative affirming the good standing of the *Data Licensee*.

(b) This Agreement will terminate upon the occurrence of any of the following:

- i. One or more *Data Vendors* or UMD gives written notice to *Data Licensee* of its breach of one or more obligations under this Agreement and *Data Licensee* fails to cure its breach within thirty (30) days of receipt of notice of breach.
- ii. TDM Participating Agency who is a *Data Licensee* fails to maintain its status as members in good standing of TETC, and *Data Licensee* fails to restore its good standing within thirty (30) days of receipt of notice.
- iii. TETC, a TDM Participating Agency, or its Subcontractor gives written notice to TETC/UMD that Subcontractor no longer has a need to access/use Licensed Data or the period of performance of the Subcontractor has expired (in which case this Agreement will terminate only with respect to the Subcontractor).

- iv. *Data Licensee* gives written notice to *Data Vendors* and TETC/UMD that it wishes to terminate this Agreement.

Notices shall be provided to the addresses listed in Section 10.0 above.

Except for the reasons stated above, this Agreement will remain in effect and will not terminate.

- (c) Termination under Section 13.0(b) (i) and (ii) will become effective upon expiration of the 30-day period if the breach has not been cured. Termination under Section 13.0(b) (iii) and (iv) will become effective immediately upon receipt of notice.
- (d) In the event of termination of this Agreement:
 - i. *Data Vendor* will cease to provide access to Licensed Data to *Data Licensee*; and
 - ii. Licensee must destroy any and all Licensed Data in its possession and certify their destruction to UMD within thirty (30) days of the effective date of termination.

14.0 Representations and Warranties

- (a) *Data Vendors* represent and warrant that all Licensed Data shall be original and unencumbered.
- (b) *Data Vendors* represent and warrant that they
 - i. Own the Licensed Data or
 - ii. Are authorized by the owner(s) of Licensed Data to grant licenses to *Data Licensees* under this Agreement or
 - iii. Licensed Data are in the public domain.

15.0 General

- (a) The validity, interpretation, and effect of this Agreement shall be governed by the laws of the state where *Data Licensee* is located, without regard to its conflicts of laws rules, when the *Data Licensee* is an agency or instrumentality of state government.
- (b) No Party may assign its rights or obligations under this Agreement, except with the prior written approval of the other Parties. Such approval will not be unreasonably withheld.
- (c) This Agreement may be modified only by written agreement of authorized representatives of all Parties.
- (d) This Agreement incorporates by reference any additional terms and conditions and flow down provisions of the contracts under Listing of Agreements (see Section 3.0) as applicable to *Data Licensee*. In the event that there is a conflict between the requirements and terms of this Agreement and any contracts under Listing of Agreements, this Agreement shall prevail.
- (e) This Agreement supersedes any previously executed agreement between *Data Licensee* and *Data Vendor/s* with respect to Licensed Data.

- (f) Nothing herein shall be construed to create a partnership, joint venture, or teaming agreement between or among the Parties and nothing herein shall be construed to imply that any Party's employees are employees of another Party.
- (g) No provision of this Agreement shall be waived unless in writing and signed by all Parties to this Agreement. The waiver of any one provision of this Agreement shall not be deemed to be a continuing waiver or the waiver of any other provision of this Agreement.
- (h) If any one or more of the provisions contained in this Agreement is held to be invalid, illegal, or unenforceable in any respect for any reason, then such invalidity, illegality, or unenforceability shall not affect any other provision hereof or any other application of the affected provision.
- (i) This Agreement, together with Attachment A (if applicable), and Attachment B (if applicable) embodies the entire understanding between and among the Parties. There are no contracts, understandings, conditions, warranties or representations, oral or written, express or implied, with reference to the subject matter hereof which are not merged herein.
- (j) This Agreement may be executed in counterparts, all of which when taken together will be deemed one original. The Parties agree to accept digital delivery of this executed Agreement.

Signature page follows

By signing below, the Parties certify that they agree to the above terms and are duly authorized to bind their respective entities.

Data Licensee (Agency, Affiliate, Subcontractor) (Name of Organization)

Authorized Manager/Official

By: _____

Date _____

Name:

Title

Address

Name and Title of Primary Contact:

Telephone/Facsimile/E-mail

[VENDOR SIGNATURES]

By: _____

Date _____

Name:

Title

UNIVERSITY OF MARYLAND CERTIFICATION

University of Maryland hereby certifies that as of the date below, *Data Licensee* is a TDM Participating Agency in good standing, or a Subcontractor of a TDM Participating Agency or affiliate in good standing.

By: _____

Date _____

TETC Transportation Data Marketplace Coordinator

ATTACHMENT A
Any Data Licensee that is
a Subcontractor must provide the following information
About its Contract with a Member/Affiliate to “Establish Need to Know”

1. Name and Address of Subcontractor/Data Licensee:

2. Contractor from whom data is requested (check all that apply)

_____ INRIX

_____ Here North America

_____ TomTom

Additional Vendor names to be inserted

3. Explain Why You Need Access to Licensed Data:

4. Prime Contract/Subcontract Source

5. Contract/Agreement Number

6. Contract/Agreement Period-of-Need for data:

From: _____ to: _____

7. Contact Information from Contracting Agency (TDM Participating Agency/Affiliate):

Name: _____ Phone: _____

E-mail Address: _____

Subcontractor's authorized official certifies that the information provided above is current and accurate.

By: _____ Date _____

Name and Title: _____

ATTACHMENT B
The Eastern Transportation Coalition Transportation Data Marketplace R011
Principles of Portal Access to Transportation Data Products

These Principles of Platform Access are supplemental to The Eastern Transportation Coalition Transportation Data Marketplace R011 Agreement for Use of Data (DUA) specifically to establish guidelines for *Data Vendors* to provide access to web portals and data analytics tools that may accompany Transportation Data Products within the Transportation Data Marketplace V4.0. These Principles of Platform Access (PPA) apply to all *Data Vendors*, Transportation Data Products, and *Data Licensees*.

WHEREAS, access to Web Portals and Data Analytics Products is not addressed in the DUA.

NOW THEREFORE the *Data Vendors* and *Data Licensees* (herein after referred to as the “Parties”) agree as follows:

"Data Analytics Products" means proprietary compilations of geospatial materials created from *Data Vendor's* transportation data analytics tools and technology which may be accessed through a web portal with access limitations managed by the Parties.

"Subscribed Output" means the materials generated as output from Data Analytics Products.

"Subscription" means *Data Licensee's* access to *Data Vendors* Data Analytics Products and the purchase and use of Subscribed Output under the terms of the DUA.

"User(s)" means a specific, named individual or individuals (e.g., an employee, Subcontractor, or other named user as designated by *Data Licensee*) designated by *Data Licensee* and permitted to access the Data Analytics Products on behalf of *Data Licensee*.

1. *Data Vendor* grants to *Data Licensee*, for the Subscription term, a non-exclusive license to access the Data Analytics Products and acquire the Subscribed Output solely for purposes as defined in the Data Use Agreement for acceptable use of Licensed Data by *Data Licensee*.
2. Use of Subscribed Output from Data Analytics Products is subject to “The Eastern Transportation Coalition Transportation Data Marketplace R11 Agreement for Use of Data (DUA).” If the provisions of this PPA are found to be in conflict with the provisions of the DUA with respect to Subscribed Output, the DUA shall prevail. This agreement is for access to Data Analytics Products and use and sharing of Subscribed Output only.
3. *Data Vendor* shall provide access for a sufficient number of Users within the organization of the *Data Licensee* to cover anticipated need throughout the life of the Subscription to *Data Licensee's* staff, consultants, and contracted staff.
 - 3.1. If the initial number of Users becomes insufficient, *Data Vendor* shall increase the number of Users for the *Data Licensee*.
 - 3.2. If *Data Licensee* is a State DOT or equivalent, *Data Vendor* shall state in writing if one or more of the following sub-jurisdictional staff are eligible for inclusion as Users with respect to Data Analytics Products: Metropolitan Planning Organizations, County DOTs, City DOTs, or other transportation organizations that are sub-jurisdictions within the respective State. If this is not specified either in the affirmative or negative, personnel from these sub-jurisdictions will be considered eligible as Users, provided the sub-jurisdiction meets all other requirements as given in the DUA.

4. *Data Licensee* shall not grant or provide access to the Data Analytics Products to anyone else, including other Coalition members or TDM Participating Agencies except as detailed above. *Data Licensee's* access to Analytics Products is limited to Users. *Data Licensee* shall not provide access to Data Analytics Products to anyone other than Users. Notwithstanding the provisions of paragraph 7 below, the *Data Licensee* may run analysis on behalf of another TDM Participating Agency provided that the purpose of analysis is consistent with the *Data Licensee's* duties as a transportation jurisdiction (as spelled out in the DUA), and the purpose of the analysis is in coordination with the *Data Licensee*. *Data Licensee* may not run analysis on behalf of another TDM Participating Agency that is not within the geographic bounds of the *Data Licensee*.
5. *Data Licensee* shall identify the Users to *Data Vendor*. *Data Vendor* acknowledges that *Data Licensee* may deliver the Subscribed Output to other TDM Participating Agencies or Subcontractors who are performing services on *Data Licensee's* behalf as per the DUA. *Data Licensee* shall limit access to Data Analytics Products to Users in accordance with the provisions of this Data Use Agreement.
6. All rights, title, and interest in and to all intellectual property rights in the Data Analytics Products are owned exclusively by *Data Vendor*. *Data Vendor* shall have an as-is, royalty-free, worldwide, non-exclusive, transferable, sub-licensable, irrevocable, perpetual right to make, use, sell, offer for sale, import, or otherwise incorporate into the Data Analytics Products, any suggestions, enhancements, recommendations or other feedback provided by *Data Licensee*.
7. *Data Licensee* shall not:
 - 7.1. Sell, lease, or sublease access to the Data Analytics Products;
 - 7.2. Copy, decompile, or reverse engineer any portion of the Data Analytics Products;
 - 7.3. Use the Data Analytics Products to provide third-party processing services to other parties, commercial timesharing, rental or sharing arrangements, or on a "service bureau" basis;
 - 7.4. Remove any titles, trademark symbols, copyright symbols, and restrictive legends;
 - 7.5. Bypass or disable any protections that may be put in place to provide security for the Data Analytics Products or to protect against unlicensed use of the Data Analytics Products;
 - 7.6. Use the Data Analytics Products to store, transmit, or produce infringing, libelous, or otherwise unlawful or tortious material, or to store or transmit material in violation of third-party privacy rights;
 - 7.7. Introduce into the Data Analytics Products, or use the Data Analytics Products to transmit viruses, Trojan horses, and other harmful or malicious code;
 - 7.8. Interfere with or disrupt the integrity or performance of the Data Analytics Products or third-party data contained therein;
 - 7.9. Use the Data Analytics Products with any products, systems, or applications for or in connection with the following, unless expressly permitted by the Vendor:
 - 7.9.1. Real-time navigation or route guidance, including but not limited to turn-by-turn route guidance that is synchronized to the position of a User's or a third party's sensor-enabled device; or
 - 7.9.2. Any systems or functions for automatic or autonomous control of vehicle behavior.

Attachment 4 – Pricing and Cost Models – Proposed Specification

Below is proposed RFP language relating to financial cost models.

Prospective vendors should review the proposed language as part of the RFI process. The proposed language is intended to inform prospective vendors of the expectations of the Coalition with respect to pricing models, as well as to allow an opportunity for vendors to provide feedback to the Coalition on the proposed language.

Transportation Data Product Price Proposals

For the purposes of pricing, the following requirements pertain to any Core Data Items noted in the pricing worksheet attached to this RFP. Transportation Data Products procured through the Transportation Data Marketplace shall be rendered to the University through the issuance of firm fixed price task orders based on the method for pricing (referred to hereafter as the Pricing Method) negotiated and accepted in the RFP.

Proposer shall provide full pricing information for any Core Data Item for which the Proposer is offering a Technical Proposal.

Travel Time and Speed Data
Volume Data
Origin-Destination Data
Freight Data
Waypoint Data
Conflation Services
Active Transportation Data
Traffic Signal Performance Measures
Virtual Weather Data
Instrumented Vehicle Data
Infrastructure Advanced Sensor Data
Asset Management Data

A sample spreadsheet is included as an attachment to this RFP to provide guidance on the pricing method and structure for each Core Data Item. The Offeror shall provide a full pricing method conveyed through the customization of the attached worksheet, referred to hereafter as the Offeror's Pricing Worksheet. The Offeror may include additional data and information as appendices; however, the core information for the pricing of Core Data Items shall be contained in the Offeror's Pricing Worksheet. The Offeror's pricing, as demonstrated within the Offeror's Pricing Worksheet, will be compared and scored against others that are providing pricing information on the same Core Data Items.

The historical pattern of data purchase from VPPI, VPPH, and TDM V3 indicate that well over 90% of all task orders were for full state/district data purchases corresponding to the geographic jurisdictional boundaries of the Coalition Full Members. As such, the primary pricing method for this RFP represents data purchases for full state/district boundaries of state level TDM Participating Agencies. Less than 10% of historical task orders were for less than full state/district geographic bounds, such as cities, metropolitan areas, counties, or even custom geo-fenced areas.

Proposer's Pricing Proposals shall contain firm fixed pricing information for the geographic bounds of Coalition Full Members, which include all states within the Coalition, as well as the District of Columbia. These prices will be the contract prices for future task orders for Transportation Data Products that encompass the complete geographic bounds of Coalition Full Members. Anticipating participation outside the geographic bounds of the Coalition, Contractors can either provide firm fixed pricing information for the balance of the remaining 50 states, or a methodology to derive firm fixed pricing.

Proposers shall also provide a pricing method for less than full state/district task orders such as cities, counties, metropolitan areas, etc. If/when a task order is generated for less than full state/district regions, the Coalition will request from the Offeror a cost estimate. The Coalition will compare the cost estimate with the Contractor's method provided in the pricing proposal in response to this RFP for reasonableness and consistency.

Proposers are encouraged (not required) to provide a pricing method for limited data in a trial capacity. This is meant for a limited duration, limited scope to encourage experimentation with the Transportation Data Product prior to committing to a full purchase.

For the Pricing Proposal, the following shall be contained in the Proposer's Pricing Worksheet:

1. Offeror shall provide pricing for data that encompass the geographic bounds of each Coalition Full Member.
2. Offeror shall provide pricing for data that encompass the balance of the remaining 50 states (as described above).
3. Offeror shall provide a description of the pricing method for any future task order that encompasses geographic regions (cities, counties, metropolitan areas, geo-referenced areas, etc.) that do not align with the geographic bounds of a Coalition Full Member.
4. If a pricing formula is dependent on referenced data (such as vehicle miles traveled [VMT], population, or roadway miles), Offeror shall provide references for any data used in a pricing formula.
5. Offeror shall provide pricing for any technical options proposed in the Technical Volume of the RFP.
6. Offeror shall provide pricing for the anticipated initial four-year funding and subsequent option years.
7. Offeror shall provide any discounts available for the purchase of multiple geographic regions, multiple data products, or multiple years in a single task order, or any other discounts that may be applied.
8. If Transportation Data Products include Portal Access and/or Seat Licenses to manage access, prices are required to be inclusive of Portal Access and/or Seat Licenses with sufficient named users to service the entirety of agency. Price Proposals must include whether access includes/excludes MPOs within the agency geographic bounds as named users.

Separate Price Proposals, each corresponding to a Core Data Set for which the Offeror has submitted a Technical Response, may be submitted. Each Technical/Price Proposal must be completed as specified herein.

The Offeror's Price Proposal may reference other information. Any such information must be either appended to the cost proposal or referenced through a URL within the cost proposal.

The Offeror's pricing proposal shall contain:

- Startup/mobilization fees (if any).
- Data subscription/license fees for the base contract term years 1 through 4.
- Data subscription/license fees for continuing coverage for optional renewal periods (years 5 through 8).
- Cost for any options, or other charges or fees.

The Price Proposal shall be fully incorporated as part of the Contractor's response and any resulting contract. Evaluation will be based on firm fixed price data rates (as established and demonstrated by Offeror's Pricing Worksheet), totaled over each year/term of what will be a proposed eight- year contract consisting of an initial four-year contract with two options each for a two-year renewal. Evaluation will be based on information entered in the Pricing Volume of the proposal, including the Offeror's Pricing Worksheet.

Ancillary Products proposed in the Technical Volume related to the Core Traffic Data categories shall be included in the Pricing Volume, with documented pricing. Ancillary Products are considered items associated with the use or integration of the Core Transportation Data Products that may benefit TDM Participating Agencies, but are not specified in this RFP as a mandatory technical requirement or specification. Ancillary Products may include data products that address desirable requirements and specifications that are not included as part of the Core Data Product. Ancillary Products may not be an element of the technical evaluation or selection process. Ancillary Product proposals shall be submitted to the University as part of the RFP response, and fully described in the Technical Proposal, as well as costed in the Price Proposal. Pricing schedules for Ancillary Products may (or may not) be added to the selected vendor's or vendors' contract.