June 23, 2010

RFI #10ITZ0071

State of Connecticut
Department of Transportation

Request for Information

A Comprehensive Road Network Solution
(Transportation Data Model)

For the State of Connecticut
Department of Transportation

Issue Date:
June 23, 2010

Question Cutoff Date:
July 7, 2010 @ 2:00 p.m. EST

Response Deadline:
July 21, 2010 @ 2:00 p.m. EST

Issued by:
Department of Information Technology on Behalf of
Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, CT 06131-7546
State of Connecticut, Department of Transportation
Request for Information (RFI) #10ITZ0071
Development of a Comprehensive Road Network Solution

REQUIREMENTS & DEADLINES FOR QUESTIONS AND RESPONSES

This Request for Information (RFI) outlines the type of information being solicited from vendors. Vendor(s) choosing to respond to this RFI will have four (4) weeks from the date of issuance (June 23, 2010) to respond with questions.

All questions must be submitted in an electronic mail format and be addressed to: Michael.Connors@ct.gov by no later than 2:00 p.m. EST on July 7, 2010.

Parties desiring to respond to this RFI must do so in writing, providing one original and ten (10) complete copies of the submitted response. Complete responses are due no later than 2:00 p.m. EST on July 21, 2010. Late responses may or may not be considered, depending upon the needs of the Department of Transportation. The postal address for RFI responses is:

Michael Connors  
State of Connecticut Department of Transportation  
2800 Berlin Turnpike, P.O. Box 317546  
Newington, CT 06131-7546  
Attn: RFI #10ITZ0071
REQUEST FOR INFORMATION SPECIFICATIONS

1. Subject and Purpose
This Request for Information (RFI) seeks information for on a new Transportation Data Model and acquisition of the associated Road Network data for the State of Connecticut (State) and the Connecticut Department of Transportation (Department). Its purpose is to provide the Department with sufficient information and knowledge required to proceed with a formal request for proposal (RFP) for either the whole or strategic portions of the solution.

2. Description
The Department is investigating solutions for acquiring/implementing a new Road Network solution and supporting Transportation Data Model which encompass a comprehensive set of street centerlines, a fully routable network solution, a linear referencing system, a fully capable geo-coding solution, elevations and contours, and should interoperably support the use of the Department’s various transportation data. Additionally, the solution shall support the broader needs of the State’s other Agencies, which have a need for a Road Network. The Road Network solution and supporting Transportation Data Model shall conform to the following specifications:

Street Centerlines, Network and Routing Specifications
- The street centerlines shall consist of a comprehensive full hierarchy of all public and private improved and unimproved roadways including: all mainline, on and off ramps, turning roadways, collector distributors, HOV lanes, emergency median crossovers, acceleration/deceleration lanes, state institution roads and all other network linkages required to support a fully routable network solution.
- The road network shall include breaks and segments for all bridges and culverts, and the associated structure ID shall be able to be included in the segment attribution as supplied by the Department.
- Scale 1”=100’ (produce a product that is accurate to 1/40th of the mapping scale, or 2.5 feet (100/40=2.5)).
- All measures/mileages shall be provided to a minimum of a thousandth of a mile thus providing for a +/- 5ft accuracy.
- The street centerlines shall be as up-to-date as possible and should be produced from the latest sources of data and/or imagery that meet or exceed the minimum specifications described here-in.
- It shall include update capabilities for the latest roadway construction, revisions and alignments, done post date, of the source data and imagery.
- It shall include all standard metadata and data source and data date attribution by segment.
State of Connecticut, Department of Transportation  
Request for Information (RFI) #10ITZ0071  
Development of a Comprehensive Road Network Solution

- It shall include a reasonable and flexible update process capable of receiving vetted updates from Department agents (municipalities) as well as the vendors' own sources. The technology and methods used for data collection must be documented and already proven.
- All routing directions shall include where possible, a description of all actual field signage and the state highway number, its local usage name and exit numbers where appropriate.
- Time-of-day directional travel, one-way travel and roadway limitations ("no thru trucks") shall be incorporated.
- The network shall include turn restrictions, non-emergency vehicle restrictions and vehicle geometry restrictions.
- The roadway and network graphics shall be provided in a Connecticut State Plane projection North American Datum of 1983 in feet.

**Linear Referencing Specifications**
- The LRS must be calibrated to the Department’s state maintained highway and town roads Inventories, in accordance with the Department’s “Roadway Inventory Field Manual” (May 2008 revision, provided at the following link: [http://www.ct.gov/doit/lib/doit/purchase/roadway_inventory_field_man_rev_5-08.pdf](http://www.ct.gov/doit/lib/doit/purchase/roadway_inventory_field_man_rev_5-08.pdf)), utilizing best practices from other states to reconcile the mileage points.
- The LRS should include all mainline, on and off ramps, turning roadways, collector distributors and HOV lanes.

**Database Model/Schema Specifications**
- The data model/schema shall be based on National Transportation Data Standards as published by the Federal Geographic Data Committee (FGDC) and shall include all appropriate/standard metadata.
- The most effective geospatial data types shall be used, in order to ensure maximum interoperability with the Department’s application systems and data while also insuring the most effective use of the ESRI geospatial toolsets required.

**Geo-Coding Specifications**
- The data model shall follow the "United States Thoroughfare, Landmark, and Postal Address Data Standard" fields for storing street names (e.g. Street Name Pre Modifier, Street Name Pre Directional, Street Name Pre Type, Street Name, Street Name Post Type, Street Name Post Directional, Street Name Post Modifier).
- The data model shall include a field for the Census Feature Class Code of each line segment.
- The data model shall include four address range fields (e.g. From Address Left, To Address Left, From Address Right, To Address Right).
- The data model shall include fields for the municipality represented for each side of each line segment (e.g Town Left, Town Right).
The data model shall include fields for the primary ZIP Code represented for each side of each line segment (e.g. ZIP Left, ZIP Right).

The data model shall include fields for the primary Emergency Service Number represented for each side of each line segment (e.g. ESN Left, ESN Right).

The data model shall include fields for coding address number parity (odd parity, even parity, mixed parity) for each side of each line segment (e.g. Parity Left, Parity Right).

The data model shall accommodate alternate street names for geocoding.

The data model shall accommodate streets with a highway number for geocoding.

The data model shall store potential address ranges.

The data model shall store street names with all street elements spelled out (e.g. Road, not Rd).

3. Current Status

Agency Description –
As a state government agency, the Department is responsible for managing all modes of transportation in Connecticut from planning to design, maintenance, construction and operations for the public roads, rails, ports and airports.

Current Software and Infrastructure Environment -
The Department currently has a fully implemented ESRI based ArcGIS 9.3.1 system comprised of ESRI's ArcGIS Desktop including the 3D Analyst, Spatial Analyst, Network Analyst and the Data Interoperability extensions, ArcGIS Server environment using ArcSDE and an MS-SQL database.

Business Systems Applications and Data-
The Department has various business systems and applications, and a vast amount of data. Of these, the new road network solution shall initially support needs of the Department’s Highway Performance Monitoring System (HPMS) (see below) and Commercial Vehicle Information Systems and Networks (CVISN) project (see below). Additionally, the road network solution shall incorporate an open and interoperable design with the necessary core elements to provide for a potential future interface with any of the Department’s other priority business systems, applications and data as required.

Highway Performance Monitoring System
The HPMS is a national level highway information system that includes data on the extent, condition, performance, use, and operating characteristics of the Nation's highways. In general, the HPMS contains administrative and extent of system
information on all public roads, while information on other characteristics is represented in HPMS as a mix of universe and sample data for arterial and collector functional systems. Limited information on travel and paved miles is included in summary form for the lowest functional systems.

- **Commercial Vehicle Information Systems and Networks (CVISN) project**
  The CVISN project requires flat file XML data imports from various systems in varying formats. The Road Network, Street Centerline and Linear Reference systems shall include a flexible XML generation capability. Additionally, the Street Centerline shall include the ability to create industry standard shape file exports.

### 4. Requirements

#### General RFI Requirements
The purpose of this RFI is to gather information about the outlined requirements. To the extent simplifying assumptions are needed, respondents are encouraged to make and document such assumptions in their response. Responses to this RFI must include the following information relative to the development of a new set of street centerlines and road network and linear referencing solutions for the Department:

1. Conceptual System Alternatives - Ideas and suggestions that provide alternative approaches to designing, developing, acquiring, operating and managing the new road network solution for the Department.
2. Approximate cost information (i.e., order of magnitude, preliminary estimates, etc.) for alternatives: - Implementation; - Ongoing Maintenance
3. Time Schedule Estimates
4. Recommendations for Data Standards
5. Recommendations for System Architecture
6. Recommendations for deployment, which may include a phase approach.

#### Specific RFI Requirements
Responses to this RFI must include the following specific information relative to the development of a new set of street centerlines and road network and linear referencing solutions for the Department:

1. The State of Connecticut shall own the rights to all deliverables, including the Road Network data model and all spatial and tabular data. It should be open and accessible to all levels of government in Connecticut and the Public Domain.
2. Utilize one of the following strategies for Street Centerline, attribution and routing information:
a. Obtain the latest TIGR data and build out from there.
b. Obtain the Department’s latest data and build out from that foundation.
c. Utilize commercially available/owned data, provided that this data may be purchased in accordance with 1 (above).

3. Shall include a description of a built-in update cycle which includes:
   a. Vetting of appropriate proposed updates by appropriate Agency.
   b. Allow fast and simple submit of changes and updates by appropriate agencies.
   c. Minimum correction turn around of 3 months or better

5. **Disclaimer**

This RFI is issued solely for information and planning purposes and does not constitute a solicitation. All information in response to this RFI that is marked Proprietary will be handled accordingly. Responses to the RFI will not be returned. Responses to this notice are not considered to be an offer and cannot be accepted to form a binding contract. This solicitation of information should not be considered an opportunity to market to the Department, or to any entity for the State of Connecticut. Responders are solely responsible for all expenses associated with responding to this RFI.

6. **FREEDOM OF INFORMATION ACT**

Due regard will be given for the protection of proprietary information contained in all proposals received; however, vendors should be aware that all materials associated with the procurement are subject to the terms of the Freedom of Information Act (FOIA) and all rules, regulations and interpretations resulting therefrom. It will not be sufficient for vendors to merely state in general terms that the proposal is proprietary in nature and, therefore, not subject to release to third parties. Any proposal that makes such a general or overarching claim may be subject to disqualification. **Those particular sentences, paragraphs, pages or sections which a vendor believes to be exempt from disclosure under the Act must be specifically identified as such.**

7. **Contact Information**

Following is the Point of Contact for this RFI:

Michael Connors  
State of Connecticut Department of Transportation  
2800 Berlin Turnpike, P.O. Box 317546  
Newington, CT 06131-7546  
Michael.Connors@ct.gov  
Phone: (860) 594-2037  
Fax: (860) 594-2056