NYSDOT 255NAE SUBMITTAL FORM	**Non-Architectural / Engineering Services Questionnaire for Specific Project** **THIS FORM SHALL NOT BE ALTERED AND IT SHALL BE SUBMITTED IN BLACK AND WHITE.**	Revised 2/20/2008

1A. Contract D or C Number	C030588			2. NYS Contract Reporter Advertisement Publication Date	
B. Project Name	Commercial Vehicles Infrastructure Integration Development Program			2/26/2008	
3A.	Prime Firm (or Joint-Venture) Name & Address for Correspondence		3D.	Firm Name & Address of office through which project activities will be **coordinated**, if **different** from item 3A.	
	Volvo Technology of America, Inc.			Project will be coordinated through Volvo's North American headquarters in	
	Att: Emily Williams			Greensboro, North Carolina	
	7825 National Service Road				
	Greensboro, NC 27409				
3B.	8-digit NYSDOT Consultant Identification Number (CIN)	(not available at this time)		8-digit CIN, if **different** from item 3 A.	(N/A)
3C.	Firm Name/Location/CIN of **All** Additional Offices Performing Work	Development work centered in Greensboro	3E.	For office through which project activities will be coordinated: Name, Title, Telephone and E-Mail Address of Principal/Officer to Contact: Thomas Richter, Vice President Phone: (336)393-2371 Email: thomas.richter@volvo.com	
			3F.	Prime / JV's Percentage of Work Allocation:	44%

4.	Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total #of employees in Column B.																			
(A)	4	(B)	59	Software Development Engineering	(A)		(B)	22	Information & Communication Engineering	(A)		(B)			(A)		(B)		
(A)	2	(B)	70	Project, Product & Line Management	(A)		(B)	16	Structures & Surfaces Engineering	(A)		(B)			(A)		(B)		
(A)	2	(B)	38	Systems Engineering	(A)		(B)	14	Environmental Engineering	(A)		(B)			(A)		(B)		
(A)	1	(B)	21	Human System Engineering	(A)		(B)	14	Transport & Logistics Engineering	(A)		(B)			(A)		(B)		
(A)	1	(B)	7	Vehicle Engineering	(A)		(B)	10	Industrial Engineering	(A)		(B)			(A)		(B)		
(A)		(B)	41	Combustion, Catalysis & Electrochemical Engineering	(A)		(B)	8	Fluid & Heat Transportation Engineering	(A)		(B)			(A)		(B)		
(A)		(B)	38	Mechatronic & Electromechanical Engineering	(A)		(B)	3	Customer Management Engineering	(A)		(B)							
			37	Innovation, Quality & Commonality Management				3	Virtual Engineering										

5.	**For JOINT VENTURES only:** This NYSDOT 255 MUST reflect the composite of firms **NO JOINT VENTURE IS BEING PROPOSED**				
5A.	Does the proposed joint venture have a written agreement outlining specific areas of responsibility for each participating entity?	Yes	**N/A**	No	**N/A**
5B.	Has this Joint-Venture previously performed contractual services?	Yes	N/A	No	N/A

6. List all of the proposed **Subconsultants** anticipated to perform work on this contract; the type of services to be performed; the percent of work; and if the Prime/Joint Venture has worked with the subconsultant before. If more than two subconsultants attach additional sheets with required information.

(A) Firm Name, Address, County and 8-Digit CIN:	(C) Category of Firm's Responsibility	D) Percent of Work	(E) Percent of Participation	(F) Worked With Prime/JV Before (Yes or No)
Booz | Allen | Hamilton **Transportation Team*** **8283 Greensboro Drive** **McLean, VA 22102** *the Transportation Team is a unit within Booz Allen Hamilton				
(B) Indicate if firm meets the DBE requirements NO	Lead development of wireless inspection application; Assist with program management: VII network interface designs	24%	NOT REQUIRED	YES

	(G) Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total # of employees in Column B.																			
(A)		(B)	10	Administrative Specialists	(A)		(B)	30	Electrical Engineers	(A)	1	(B)	20	Safety and Operations Specialists	(A)	2	(B)	5	Vehicle Systems Specialists
(A)		(B)	1	Architects	(A)		(B)	11	Fare Collection Specialists	(A)		(B)	9	Signaling Engineers	(A)		(B)		
(A)		(B)	1	Chemical Engineers	(A)		(B)	6	Industrial Engineers	(A)		(B)	11	Specification Writers	(A)		(B)		
(A)		(B)	14	Civil Engineers	(A)		(B)	42	Mechanical Engineers	(A)		(B)	7	Structural Engineers	(A)		(B)		
(A)		(B)	10	Communications Engineers	(A)		(B)	14	Operations Analysts	(A)	2	(B)	15	System Design/Integrators/Developers	(A)		(B)		
(A)		(B)	8	Construction Inspectors	(A)		(B)	15	Planners: Urban/Regional	(A)	1	(B)	12	Transportation Engineers	(A)		(B)		
(A)		(B)	3	Digital Comm./Network Specialists	(A)		(B)	2	Public Relations Specialists	(A)		(B)	14	Vehicle Engineers					
(A)		(B)	5	Economists	(A)		(B)	10	RMSH Engineers	(A)		(B)	8	Vehicle Inspectors	(A)		(B)		

6. List all of the proposed **Subconsultants (cont'd):**

(A) Firm Name, Address, County and 8-Digit CIN: **Cambridge Systematics, Inc.** 100 CambridgePark Drive, Suite 400 Cambridge MA 02140 USA 0161435 CIN	(C) Category of Firm's Responsibility	(D) Percent of Work	(E) Percent of Participation	(F) Worked With Prime/JV Before (Yes or No)
(B) Indicate if firm meets the DBE requirements No	Assist with development of wireless inspection, safety, and security related applications: "back-end" system integration as required	9%	NOT REQUIRED	Yes

	(G) Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total # of employees in Column B.																			
(A)		(B)	52	Administrative	(A)	2	(B)	107	Transportation Planners	(A)		(B)			(A)		(B)			
(A)	4	(B)	25	Computer/ Management Systems	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	3	Design/ Graphics	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	5	Economists	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	7	GIS Specialist	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	22	Planners: Urban/ Regional	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	32	Transportation Engineers	(A)		(B)			(A)		(B)								

(A) Firm Name, Address, County and 8-Digit CIN **TechnoCom Corporation** 16133 Ventura Blvd. Suite 640 Encino, CA 91436:	(C) Category of Firm's Responsibility	(D) Percent of Work	(E) Percent of Participation	(F) Worked With Prime/JV Before (Yes or No)
(B) Indicate if firm meets the DBE requirements **No**	OBE and RSE integration and DSRC link demonstration and testing	9%	NOT REQUIRED	Yes

	(G) Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total # of employees in Column B.																			
(A)	2	(B)	15	Senior Engineer/Architect	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	15	Network/Software Engineer	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	5	Field/Test Engineer	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)			(A)		(B)			(A)		(B)			(A)		(B)			

6. List all of the proposed **Subconsultants (cont'd):**

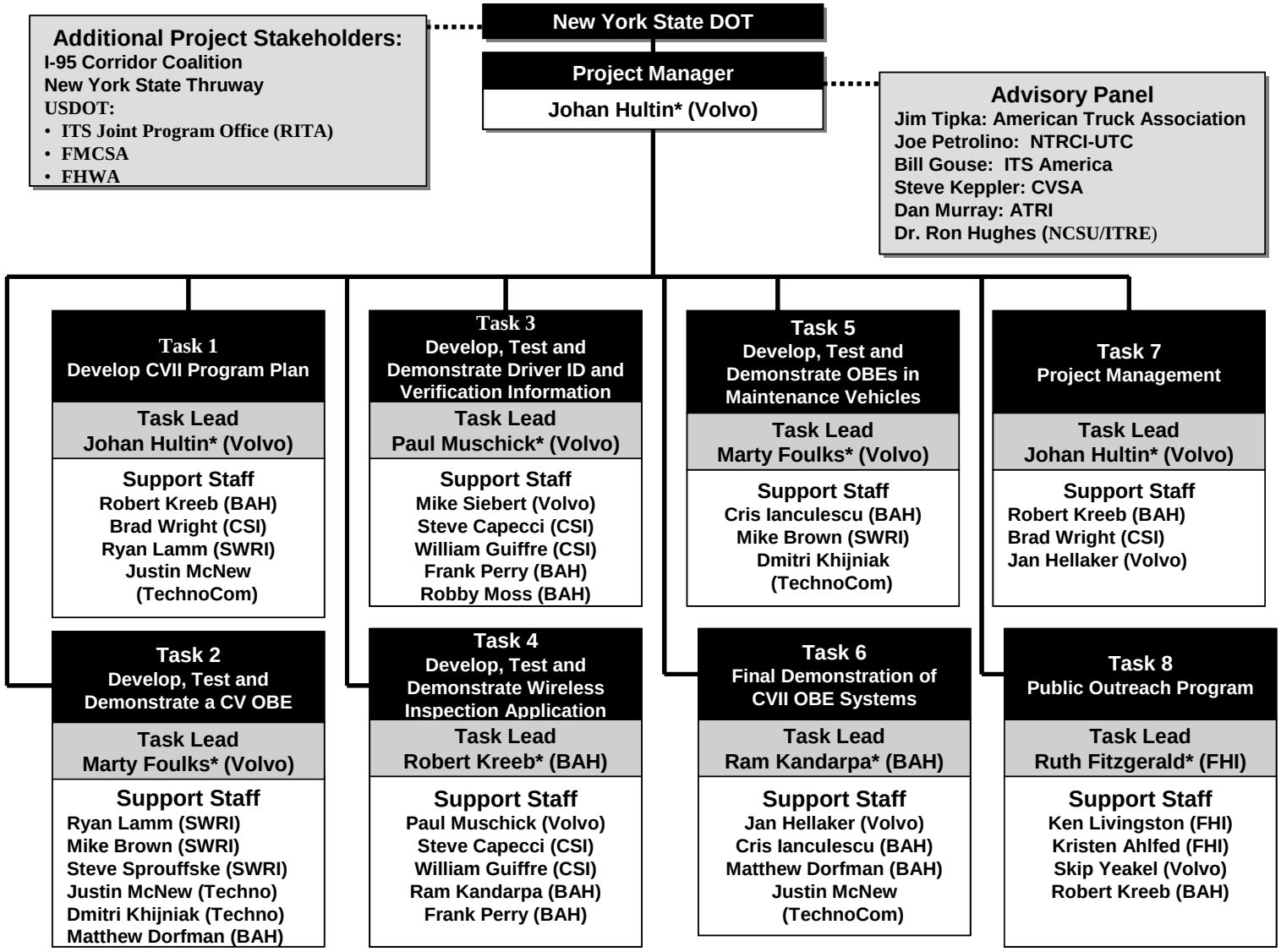
(A) Firm Name, Address, County and 8-Digit CIN: **Southwest Research Institute** 6220 Culebra Rd. San Antonio, TX 78238	(C) Category of Firm's Responsibility	(D) Percent of Work	(E) Percent of Participation	(F) Worked With Prime/JV Before (Yes or No)
(B) Indicate if firm meets the DBE requirements **No**	OBE Application Development	12%	NOT REQUIRED	Yes

	(G) Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total # of employees in Column B.																			
(A)	1	(B)	92	Principal Engineer	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	49	Sr. Research Analyst	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	96	Manager	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	48	Administrative Assistant	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	4	Quality Assurance Engineer	(A)		(B)			(A)		(B)			(A)		(B)			

(A) Firm Name, Address, County and 8-Digit CIN: **Fitzgerald & Halliday, Inc. 72 Cedar Street, Hartford, CT 06106 CIN 04000345**	(C) Category of Firm's Responsibility	(D) Percent of Work	(E) Percent of Participation	(F) Worked With Prime/JV Before (Yes or No)
(B) Indicate if firm meets the DBE requirements NYSDOT Certified DBE **YES**	Strategic Stakeholder Involvement, Public Outreach	2%	NOT REQUIRED	No

	(G) Personnel by Discipline: (List each person only once, by primary function.) List # of employees to be utilized **on this project** in Column A, and total # of employees in Column B.																			
(A)	1	(B)	2	Senior Advisor	(A)	0	(B)	1	Technician I	(A)		(B)			(A)		(B)			
(A)	1	(B)	4	Principal Planner II	(A)	1	(B)	4	Clerical/Administrative	(A)		(B)			(A)		(B)			
(A)	1	(B)	5	Principal Planner	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)		Senior Planner	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	3	Planner II	(A)		(B)			(A)		(B)			(A)		(B)			
(A)		(B)	1	Planner	(A)		(B)			(A)		(B)			(A)		(B)			
(A)	1	(B)	1	Technician II	(A)		(B)			(A)		(B)								

7. Use this space to provide a project organizational chart depicting the key individuals (including their name, firm affiliation and project title) that make up your proposed team. This must be limited to one page in length, with a font size no smaller than 10 point. NO OTHER INFORMATION SHOULD BE INCLUDED ON THIS PAGE.



*-- Key Staff

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Johan Hultin**, Project Manager

b. Assignment Title for this project (from Attachment #4): Project Manager

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ Hire date 10-1-05, 3 years as consultant With Other Firms ☒ 18 years

e. Education: Degree(s)/Year/Specialization: MS, 1986, Chalmers University, Electrical Engineering

f. Licenses / Certifications/Training: N/A

g. Availability Date: August 1, 2008

h. Person's Experience & Qualifications:

Mr Hultin has worked full-time as a Project Manager for Volvo Technology since the fall of 2005, leading publicly funded projects in the areas of telematics, and wireless inspections. In this capacity, Mr. Hultin's has led some of the most innovative projects that have tested the transfer of data from moving commercial vehicles to stationary roadside readers. Mr. Hultin's relevant experience includes:

- **I-95 Corridor Coalition's Wireless Communication of Driver and Vehicle Message Data Set from En-Route CMV to a Stationary Roadside Reader—**Mr. Hultin served as Project Manager responsible for all Volvo activities in this award winning effort to demonstrate the technical feasibility of utilizing 802.11b (WiFi) technology to wirelessly communicate selected driver and vehicle data elements from a commercial motor vehicle (CMV) operating at highway speed to a stationary 'reader' located at the 'roadside.' The data elements communicated from the vehicle to the roadside consisted of (a) driver information read from a simulated Transportation Worker's Identification Credential (TWIC) smartcard, (b) the results of an onboard process that verified a real time scan of the driver's fingerprint against an image of the fingerprint stored on the smart card, and (c) the real time status of the vehicle's brake system derived from information on the vehicle data bus.
- **Trusted Truck Project--**Mr. Hultin leads all Volvo related efforts as Project Manager for this continuing multi-year project to demonstrate a system that helps to maximize customer uptime by providing real-time truck brake data over wireless networks. The tested system allows the government inspection station to reduce time-intensive, manual brake inspection, and get data from the many trucks they do not have time to inspect. The main deliverable from this project was the configuration of the vehicle, and proof of the concept. The main application, as well as the software modules for WLAN, GPS, and J1939, were all based on the Rapid Prototyping Toolbox developed at Volvo Technology of America . The hardware deliverables included the Trusted Truck ECU, and an in-vehicle configuration that included the WLAN antenna, and GPS receiver. The responsibility of Volvo Technology of America included project management & reporting, all technical development, verification and final demonstration
- **TSA HAZMAT Truck Security Project—**Mr. Hultin led the Volvo contribution to this project as part of a team to provide TSA with technology and system concepts moving towards a national truck tracking center (TTC) that will allow the government to continually track high HAZMAT truck locations and load types in all 50 states; and develop a set of protocols capable of interfacing with existing truck tracking systems, state and local government intelligence operations centers, and federal law enforcement agencies and first responders. The responsibility of Volvo Technology of America included project management & reporting, the vehicle and central communication systems, system development, co-development of common/standard safety and security data message set, test platform, Universal Communications Interface (UCI), adaptation and overall system integration and final demonstration.

Prior to his work at Volvo, Mr. Hultin operated as an independent consultant for 2 years serving clients in the areas of project and engineering management and 16 years working for other leading technology firms. His skills span the areas of telematics, wireless vehicular communications, automation, autonomous vehicles, laser guidance as well as general management and engineering in an international environment.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Jan Hellaker**, Vice President, Business Development & Government Programs

b. Assignment Title for this project (from Attachment #4): Senior Advisor

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 22 years With Other Firms ☒ 7 years

e. Education: Degree(s)/Year/Specialization: MSc, 1979, Chalmers University, Electrical Engineering

f. Licenses / Certifications/Training: N/A

g. Availability Date: August 1, 2008

h. Person's Experience & Qualifications:

- After 7 years with Ericsson Radio Systems, Mr. Hellaker has been employed by various companies in the Volvo Group since 1986.
- Mr. Hellaker was the Director of Traffic & Transport Systems at Volvo Technology from 1986 to 1999, being in charge of all advanced R&D work related to ITS for the entire Volvo Group out of its corporate headquarters in Gothenburg, Sweden. In 1997, he founded and became the non-resident President of Volvo Technology of America.
- Between 1999 and 2003, Mr. Hellaker was the CEO of WirelessCar, a Volvo-owned company with a business mission to establish a global backbone infrastructure for ITS/telematics to serve automotive OEM applications.
- Mr. Hellaker moved to the US in 2003, initially as Chief Telematics Officer at Volvo Penta, and since July 2007, as Vice President, Business Development & Government Programs of Volvo Technology of America.

Specific career highlights;

1986-1994	International Project Manager in the *Prometheus* ITS R&D program, sponsored by the European automotive industry and its suppliers. Projects involved car-to-car and car-to-infrastructure communications, most of which resulted in real-traffic demonstration deployments.
1991-1999	Volvo's Project Manager in several ITS R&D programs funded by the European Commission as part of the DRIVE framework program.
1995-1998	Volvo's Project Manager in the TRILOGY Operational Test of real-time travel information services, sponsored by the Minnesota DoT.
1991-1999	Intimately involved in the creation of several ITS products such as Volvo OnCall, Dynaguide and Dynafleet; Europe's best selling fleet management product for commercial vehicles.
1995-1998	Represented the Volvo Group on the Supervisory Board of ERTICO/ITS Europe.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title**:** **Marty Foulks**, Technology Area Manager / Senior Software Engineer

b. Assignment Title for this project (from Attachment #4): Task Lead

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 9 years With Other Firms ☐

e. Education: Degree(s)/Year/Specialization: B.S., Computer Science, East Tennessee State University

f. Licenses / Certifications/Training:

g. Availability Date: August 1, 2008

h. Person's Experience & Qualifications:

Mr. Foulks has been with Volvo Technology for 9 years as an automotive embedded software engineer. He is experienced in vehicle data and collection algorithms, specializing in commercial vehicle data bus technologies (J1587, J1939).

During his tenure with Volvo Technology, Mr. Foulks has also gained experience in various wireless technologies used in ITS systems. This includes the development of the telematics systems for Volvo Car, Volvo Truck, Volvo Penta using wireless technologies such as Orbcomm Satellite, WiFi, AMPS, D-AMPS, and GSM. The software developed in these projects has been deployed in commercialized automotive embedded products.

In the TSA Hazmat safety demonstrator, Mr. Foulks was responsible for design, integration and validation of the shutdown software developed as an integral part of the Volvo Truck vehicle ECU software. He worked with the engineers in Sweden to develop the algorithms to safely bring a Volvo Class 8 truck to stop on command from the software developed by Mr. Foulks.

Mr. Foulks is currently the Technology Area Manager for ITS Soft Products and Services representing Volvo Technology in North America.

Work History:

- 2007 – Present: NTRCi Trusted Truck® - Technology Area Manager responsible for project and customer impact analysis. Software engineer responsible for vehicle integration.
- 2006 – 2007: Transportation Security Administration – Hazardous materials safety demonstrator. Software engineer responsible for vehicle integration and system design.
- 2005 – 2006: Volvo Trucks Europe – Software engineer responsible for vehicle network integration and software programming.
- 2004 – 2005: NTRCi Trusted Truck® - Software engineer supporting the vehicle network integration and wireless protocols.
- 2003 – 2004: Volvo Trucks NA Technology Demonstrator – Software engineer developing navigation, wireless communication and system vehicle network integration.
- 2002 – 2003: Volvo Penta NA Telematics Product Seakey – Software engineer supporting the development of the wireless communication and protocols.
- 2001 – 2002: Volvo Truck NA Telematics Product Volvo Link – Software engineer supporting the development and testing of the Orbcomm wireless link for the product.
- 1999 – 2001: Volvo Car Telematics Product – Volvo On Call Plus – Software engineer engaged in developing cellular communications for NA.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Paul Muschick**, Senior Engineer

b. Assignment Title for this project (from Attachment #4): Task Lead

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☐ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 8 years With Other Firms ☒ 0.5 years

e. Education: Degree(s)/Year/Specialization: B.S. Computer Science, 1999, Clemson University

f. Licenses / Certifications/Training:

g. Availability Date: August 1, 2008
(If currently working on a NYSDOT project, indicate name of NYSDOT Project Director who has been notified of this person's submission for this project)

h. Person's Experience & Qualifications:

During the past 8 years, Mr. Muschick has worked for Volvo Technology as an experienced engineer specializing in real-time embedded software development of vehicular telematics systems. Mr. Muschick has extensive experience with development of asynchronous communications protocols transmitted over various wireless technologies including cellular, satellite and WiFi. The software developed by Mr. Muschick has been used in several commercial automotive embedded products for various Volvo companies including Volvo Car, Volvo Penta, and Volvo Truck.

Mr. Muschick has performed extensive work modifying commercial vehicle telematics systems, both on-board embedded software and off-board communications software. The software developed by Mr. Muschick has also been used for various proof-of-concept demonstrations, including the integration of external transceivers for testing different communication technologies and the modification of the Human Machine Interfaces in numerous products. He is experience in the development of software using C, C++ and C# .NET as well as system modeling languages such as Rhapsody, Rapid, and UML.

Work History:

- 2007 – Present: NTRCi Trusted Truck® - Technical Lead responsible for end to end system design, development, and integration of both on-board and off-board software.
- 2006 – 2007: Transportation Security Administration – Hazardous materials safety demonstrator. Technical Lead responsible for end to end system design, development, and integration of both on-board and off-board software.
- 2005 – 2006: Volvo Trucks Europe – Software engineer responsible for Human Machine Interface design, development and integration.
- 2004 – 2005: NTRCi Trusted Truck® - Software engineer responsible for data collection and transmission over WiFi technology
- 2002 – 2003: Volvo Penta NA Telematics Product Seakey – Software engineer responsible for the interface to the Vistar satellite communication network.
- 2001 – 2002: Volvo Truck NA Telematics Product Volvo Link – Software engineer supporting the development and testing of the Orbcomm wireless link for the product.
- 1999 – 2001: Volvo Car Telematics Product – Volvo On Call Plus – Software engineer responsible for development of the Orbcomm wireless link and the Human Machine Interface specific to the North American Market.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title**:** **Mike Siebert**: Chief Software Engineer

b. Assignment Title for this project (from Attachment #4): Chief Software Engineer

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 8 years With Other Firms ☒ 22 years

e. Education: Degree(s)/Year/Specialization: B.S., Electrical and Computer Engineering, Clemson University, 1977.

f. Licenses / Certifications/Training:

g. Availability Date: August 1, 2008

h. Person's Experience & Qualifications:

For the past 9 years, Mr. Siebert has worked for Volvo Technology as the Chief Software Engineer in a variety of projects centered around commercial/personal vehicle ITS systems providing both system architectural design, embedded software design, and specification writing.

Mr. Siebert has had extensive experience in the selection and implementation of wireless communications systems including cellular (GSM, CDMA, TDMA, and analog), satellite (Orbcomm, Vistar, Iridium, etc.), WiFi, Bluetooth, and Zigbee. This experience also extends to the related area of global positioning technologies.

He has worked with the design, implementation, and utilization of both proprietary and standard communications protocols throughout his career. During his time with Volvo, he has focused on over-the-air protocols and vehicle networks (J1708, J1587, CAN, LIN).

Mr. Siebert has a solid background in hardware design which enhances his embedded software design abilities. Earlier in his career, He leveraged this background to design a full-featured, proprietary embedded kernel which was used successfully in multiple projects.

Work History:

- 1999-Present: Volvo Technology of America – Chief Software Engineer – Responsibilities include technical leadership, architectural design, and software quality.
- 1995-1999: Harris Corporation, Network Support Systems – Group Leader – Responsibilities included technical leadership and embedded software design.
- 1985-1995: Micro Computer Systems, Inc. – Engineering Manager, Software Systems – Responsibilities included technical leadership and both PC and embedded software design.
- 1977-1985: Harris Corporation, Government Systems Group – Group Leader – Responsibilities included project management, specification writing, and digital hardware design.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Paul T. Piamonte**, MD, PhD, Eur.Erg

b. Assignment Title for this project (from Attachment #4): Chief Ergonomics Scientist

c. Firm this person will work for on this project: **Volvo**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 8 years With Other Firms ☒ 13 years

e. Education: Degree(s)/Year/Specialization: PhD – Ergonomics, Luleå University of Technology, Luleå, Sweden, March 2000, M.Sc. Ergonomics, Luleå University of Technology, Luleå, Sweden, May 1995; M.D. (Doctor of Medicine), University of the East-RMMC, Quezon City Philippines, April 1987; B.Sc. Biology, Ateneo de Manila University, Quezon City Philippines, April 1983

f. Licenses / Certifications/Training: Registered European Ergonomist (*Eur. Erg.*) by the European Center for Registration of European Ergonomists (CREE) since 2007
Full member – Human Factors and Ergonomics Society USA (HFES-USA) since 2000

g. Availability Date: August 1, 2008

h. Person's Experience & Qualifications:

- Gives human factors (HF) and ergonomics courses to different target groups both within and outside Volvo Group
- Designs and implements R&D as well as Advanced Engineering projects in automotive ergonomics (internal Volvo projects, National projects, EU projects); see also profiles on major projects
  - Product and production development ergonomics
  - Driver environment (working and living)
  - Human-Machine-Interaction (HMI) of active safety systems
  - Information and warning systems – in-vehicle and nomadic devices
  - Graphical user interfaces, usability

Academic research

2000 - present: Human Factors & Ergonomics, Volvo Technology
- Different Human-Machine Interaction –related projects sponsored by Government of Sweden, European Union (EU)
- Supervised and participated in conducting Masters of Science courses in Ergonomics sponsored by Volvo Technology in cooperation with certain Swedish universities as partners (work physiology, biomechanics, HMI)

1996 - 1999: Industrial Ergonomics Div., Luleå University, Sweden
Position: Doctoral student
- Developed, tested different memory & usability tests for IT applications, icons & pictograms.
- Assisted in conducting Masters of Science courses in Ergonomics (work physiology, biomechanics, HMI)

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Skip Yeakel**: Principal Engineer

b. Assignment Title for this project (from Attachment #4): Principal Engineer

c. Firm this person will work for on this project: **Volvo**.

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 23.5 With Other Firms ☐ 21.5

e. Education: Degree(s)/Year/Specialization: B.S. The Pennsylvania State University/1967/Mechanical Engineering

f. Licenses / Certifications/Training: Registered Professional Engineer/Commonwealth of Pennsylvania (continuous since 1980)

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Skip Yeakel is a Principal Engineer of Volvo Group North America with a broad background in American trucking dating back to June 12, 1963. He has specialized knowledge in the areas of Intelligent Transportation Systems (ITS) for Commercial Vehicle Operations (CVO), Wireless Truck Inspection, and commercial vehicle Efficiency, Safety, and Security Systems.

Mr. Yeakel has represented Volvo Trucks North America (VTNA) for many years within the Intelligent Transportation Society of America (ITSA). Mr. Yeakel convinced the American Trucking Associations (ATA) to establish an associate membership in ITSA under which he has served as an ad-hoc representative.

Mr. Yeakel played an active role in inaugurating a "Trusted Truck™ " demonstration in conjunction with the National Transportation Research Center Incorporated (NTRCI). He remains active with the NTRCI University Transportation Center (NTRCI-UTC) in executing a four year R&D program focusing on wireless inspection.

In Feb 2008 Mr. Yeakel completed a three year term on the Board of Directors of the American Trucking Associations (ATA) during which time he simultaneously served as Chairman of ATA's Technology and Engineering Policy Committee. He also served an active three year term on the Research Advisory Council (RAC) of ATA's American Transportation Research Institute (ATRI).

Mr. Yeakel continues to serve on the Board of Directors of the Truck Manufacturers Association (TMA) as he has done for the past decade, having served a term as Chairman of the Board from 2002-2003.

Mr. Yeakel has been a Society of Automotive Engineers (SAE) member continuously since 1963 and has served in a multitude of positions both locally (in the Carolina and Philadelphia Sections) and at the national level.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Michael Brown,** Principal Engineer

b. Assignment Title for this project (from Attachment #4): Senior Vehicle Systems Engineer

c. Firm this person will work for on this project: **Southwest Research Institute**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: With This Firm: 11 With Other Firms: 1

e. Education: Degree(s)/Year/Specialization:

- M.S. Software Engineering, Southern Methodist University, 2003
- B.S. Computer Engineering, Iowa State University, 1997

f. Licenses / Certifications/Training: Mr. Brown participates in ongoing development of processes/procedures and training for the management of process improvement in accordance with the SEI CMMI-DEV Level 5 Rating.

g. Availability Date: September 1, 2008

h. Person's Experience & Qualifications:

Mr. Brown has performed concept of operations development, requirements development, design, implementation, testing, integration, and maintenance of Intelligent Transportation Systems (ITS) software for over eleven years. This includes software for operating systems including Windows, Linux, Solaris, OS/2, and VMS and for computer architectures including Sun Sparc, Intel x86, and DEC VAX. Mr. Brown has developed a wide variety of ITS software including device drivers, database access software, application server software, testing software, Center-to-Center software, On-Board Vehicle software, and Graphical User Interfaces. He currently serves as a Principal Engineer for the Intelligent Vehicle Systems and Networks Section within the Intelligent Transportation Systems Department.

Mr. Brown is currently the Software Architect for the development of the On-Board Equipment (OBE) that will provide probe data from the demonstration busses for the 2008 ITS World Congress in New York. This OBE utilizes a TechnoCom Multiband Configurable Networking Unit (MCNU) R1500 as the base platform which collects data from the J1939 bus and the internal GPS receiver and transmits the J2735 formatted probe data to the Road Side Equipment (RSE) along the World Congress VII Network. The OBE will also demonstrate Vehicle-to-Vehicle (V2V) communication, as well as Infrastructure-to-Vehicle (I2V) communication, during the 11th Avenue Theatre Autonomous Vehicle Demonstrations. The OBE's probe data capabilities were previously demonstrated in the Long Island VII test bed in Hauppauge, NY in February, 2008.

Mr. Brown is also the Systems Lead for the Texas Department of Transportation (TxDOT) ITS Statewide Development and Integration project. In this capacity, he has created a Statewide Software Architecture that can be used in Traffic Management Centers (TMC) of varying size and complexities and in Border Safety Inspection Facilities (BSIF). Mr. Brown oversees the development and maintenance of software under this project to ensure consistency and reusability for the various ITS systems deployed in Texas.

Mr. Brown is also the Software Architect for the Southwest Safe Transport Initiative Project. This is an Internal Research Project that is focusing on the investigation and development of technologies that could be utilized to augment a commercial-off-the-shelf vehicle platform to provide autonomous vehicle capabilities that can operate and perform specific tasks and improve safety in urban and trafficked environments. The software for the vehicle implements a 4D/Realtime Control System (RCS) architecture to process sensor data from high resolution cameras, LIDAR, and a high precision GPS/INS unit and utilizes this data to intelligently command the vehicle and share information with an intelligent infrastructure and other vehicles.

Mr. Brown has experience working with various distributed computing architectures including CORBA, J2EE, .NET, Java RMI, DATEX, and inter-process communication using TCP/IP sockets in various programming languages. He has also worked on an internal research project to study alternative Center-to-Center protocols. Under this project, he developed software that provides a communications bridge for DATEX, CORBA, and XML based protocols. He is currently a voting member of the National Transportation Communications for ITS Protocols (NTCIP) Center-to-Center communications working group where he has utilized his knowledge to help define the NTCIP standard for Center-to-Center communications using XML (NTCIP 2306).

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Ryan Lamm**, Section Manager

b. Assignment Title for this project (from Attachment #4): Senior Vehicle Systems Engineer

c. Firm this person will work for on this project: **Southwest Research Institute**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: With This Firm: 11 With Other Firms:

e. Education: Degree(s)/Year/Specialization:

- M.S. in Management of Technology, The University of Texas at San Antonio, 2005
- B.S. in Electrical Engineering, The University of Texas at San Antonio, 2000

f. Licenses / Certifications/Training: Mr. Lamm participates in ongoing development of processes/procedures and training for the management of process improvement in accordance with the SEI CMMI-DEV Level 5 Rating.

g. Availability Date: September 1, 2008

h. Person's Experience & Qualifications:

Mr. Lamm's expertise is focused in the area of intelligent vehicle systems and communication system design. He is currently managing the Intelligent Vehicle Systems and Networks Section which is focused primarily on cooperative vehicle-highway systems and inter-vehicle applications involving vehicle-to-infrastructure and vehicle-to-vehicle communication and data exchange. Additionally, the section is pursuing intra-vehicle active safety systems, multi-agent mobile robotic systems, Telematics, and vehicular autonomy. Mr. Lamm is a technical lead in the design and development of a fully autonomous vehicle as part of the Southwest Research Institute® Southwest Safe Transport Initiative (SSTI). This program is charged with the investigation and development of sensor, computing and mobile technologies and the application of these technologies in the augmentation of a commercial-off-the-shelf vehicle platform to provide autonomous vehicle functions in urban and trafficked environments. He is also responsible for domestic and international collaboration in the pursuit of intelligent vehicle systems research and development.

Mr. Lamm is currently managing the development of standards conformance test methods for the IEEE 1609.2-.4 Dedicated Short Range Communications (DSRC) standards for the OmniAir Consortium, Inc. He is participating in OmniAir's development of a device certification program, which is focused on achieving interoperability of the communications hardware envisioned in the Federal Highway Administration Vehicle Infrastructure Integration (VII) program.

Mr. Lamm has extensive experience with communication infrastructures, most recently in terms of Intelligent Transportation Systems (ITS). He has interacted with system users to define requirements, conceptualized system architectures, and participated in the system redesign and integration of several major ITS networks. He has successfully translated ambiguous communication needs into standards-based, fault tolerant, and manageable network infrastructures that support various hybrid services. He has developed international interoperability tests to attain bi-directional interoperability between various manufacturers of MPEG2-over-ATM video CODECs. This effort led to a competitive procurement process, which resulted in substantial equipment cost savings to the major ITS network. Mr. Lamm has experience dealing with network security aspects of various network and system infrastructures.

Mr. Lamm has been involved in several system engineering projects that implemented wireless network distribution of video and data. On one of these projects, LifeLink™, Mr. Lamm participated in the design of a spread spectrum Ethernet network to provide bi-directional communication from ambulances to a hospital in the form of video, audio, and vital data. Mr. Lamm also implemented a system that utilized cellular transmission to send video images from inside a public transit bus (along with GPS data) to the bus dispatcher in the event of an emergency situation. He also researched the application of high-bandwidth satellite communication to provide a wireless link to be used for remote incident management. He has researched applications of MPEG-2 over IP, Mobile IP/Routing, wireless Ethernet backbones, and analyzed their impact to network performance characteristics. Mr. Lamm has investigated the use of fiber optics in hybrid communication schemes and analyzed networks such as 10/100/1000 Mbps Ethernet, T1, DSL, SONET, and ATM. Mr. Lamm has experience with various video compression schemes including H.261, MJPEG, MPEG-1, MPEG-2, and MPEG-4.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Steven J. Sprouffske,** Project Engineer

b. Assignment Title for this project (from Attachment #4): Senior Vehicle Systems Engineer

c. Firm this person will work for on this project: **Southwest Research Institute**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: With This Firm: 4 With Other Firms: 16

e. Education: Degree(s)/Year/Specialization:

- B.S. Computer and Information Science, Univ. of Maryland-University College, 2002
- A.A. Applied Science, Community College of the Air Force, 1997

f. Licenses / Certifications/Training: Mr. Sprouffske participates in ongoing development of processes/procedures and training for the management of process improvement in accordance with the SEI CMMI-DEV Level 5 Rating.

g. Availability Date: September 1, 2007

h. Person's Experience & Qualifications:

Mr. Sprouffske has worked in the Intelligent Transportation Systems (ITS) Department at Southwest Research Institute® (SwRI®) since August 2004. Prior to his work here, he had a successful career in the U.S. Air Force. Mr. Sprouffske brings 16 years of experience in a wide range of technical areas, including web and Graphical User Interface (GUI) development, networking, network security and defense tactics development, satellite communications, SATCOM/Global Positioning System (GPS) threat analysis, signal generation, and aircraft support equipment mechanics. Throughout his career he has managed a wide array of programs and departments.

At SwRI, Mr. Sprouffske has been involved with several ITS projects, which include the Texas Department of Transportation Statewide Developer and Integrator and the Florida Department of Transportation SunGuide℠ software projects. His ITS focus has been developing projects for the Center-to-Center Infrastructure, ramp metering, and various GUI interfaces. Mr. Sprouffske has managed numerous programs and has been responsible for the conceptualization, proposal development, and project management of three research and development projects. As part of one research and development program, Mr. Sprouffske is managing the development and integration of the On-Board Equipment that will provide probe data from the demonstration busses for the 2008 ITS World Congress in New York. The OBE also will demonstrate Vehicle-to-Vehicle (V2V) communication, as well as Infrastructure-to-Vehicle (I2V) communication, during the 11th Avenue Theatre Autonomous Vehicle Demonstrations. The OBE's probe data capabilities were previously demonstrated in the Long Island VII test bed in Hauppauge, NY in February, 2008. He is an active member of the ITS World Congress (WC) Demonstration Planning Committee for which he is coordinating system integration on the demonstration busses. Mr. Sprouffske also has helped to develop an application capable of running on a handheld device that collects probe vehicle data from a J1939 bus and transmits J2735 formatted data over a cellular network for use in a Traffic Management System. He currently serves on SAE and ISO committees related to VII and Cooperative Vehicle systems.

As a full-time US Air Force reservist at Schriever AFB, Colorado, Mr. Sprouffske participates in many projects to complement the mission of the 26th Space Aggressor Squadron. His main focus is as a communications-computer operations technician to provide network and computer support. In addition, he performs as an aggressor team member for electronic warfare to emulate adversary GPS/SATCOM threats. These programs analyze, assess, emulate and train on the threat to GPS and SATCOM assets. Requirements include knowledge of the space environment, RF fundamentals, signal generation, GPS fundamentals, SATCOM theory, Field Terminal/Satellite terminal operations and familiarity with adversary techniques.

During his 15 years in the US Air Force, Mr. Sprouffske managed many programs and filled numerous roles including supervisor, manager, trainer, assessor, and mechanic. As a Production Supervisor, Mr. Sprouffske managed departments of up to 25 people in support of aircraft support equipment maintenance operations.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Robert Kreeb,** Senior Associate

b. Assignment Title for this project (from Attachment #4): Task Lead

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: 27
With This Firm ☐ 23 With Other Firms ☐4

e. Education: Degree(s)/Year/Specialization: Master of Business Administration, 1984; Bachelor of Science, 1979, Mechanical Engineering

f. Licenses / Certifications/Training: None

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Mr. Kreeb is a nationally recognized expert in the areas of VII and wireless truck and bus inspections. A sample of his relevant experience, includes:

- ***Commercial Vehicle Wireless Inspections Study. FMCSA*** Mr. Kreeb led a comprehensive study to examine the technical, cost, and institutional issues associated with implementing wireless inspections of commercial vehicles. This study profiled the existing inspection programs that are implemented by states and supported by USDOT. This profile included a detailed analysis of violation rates, crash data, and cost information associated with completing inspections. Mr. Kreeb's team then developed a variety of alternative concepts involving wireless technologies and advanced on-board sensor systems with the goal of improving the quality and efficiency of the inspection process. As part of the effort, Mr. Kreeb and his team interviewed numerous stakeholders including fleets, enforcement personnel, technology suppliers, vehicle OEMs and telematic service providers. Under Mr. Kreeb's direction, the study team also outlined a deployment plan for moving forward with these concepts that included both regulatory and market-based options.

- ***Vehicle Infrastructure Integration (VII) Initiative***. **FHWA.** Booz Allen is supporting the FHWA Joint Program Office (JPO) with design, development and testing efforts related to the VII initiative. The VII program involves establishing a standardized technology and protocol for wireless communications between the vehicle and the infrastructure, and between vehicles themselves. Booz Allen's role on the project includes design and development of the landside network architecture that would enable communications to and from the vehicles. Mr. Kreeb's role on the project includes coordinating the development of various "use cases" or applications that would be enabled by the VII technology. Such use cases include leveraging "probe data" from vehicles to develop traffic, incident and congestion information and then report such information back to the vehicles. Several other safety and mobility applications that would leverage this wireless communications concept also are being developed. Mr. Kreeb is leading an effort to solicit input from stakeholders in the transportation industry to help define the technical details and concepts of operation for these safety and mobility applications.

- ***CVO Sensors Study***. **FMCSA** Mr. Kreeb is the program manager for FMCSA's Safety Technologies Diagnostics and Performance Enhancement Program. This project is focused on identifying and testing new sensor and transducer technologies that can be applied to commercial motor vehicles to diagnose faults, improve safety performance, and/or reduce costs of safety-critical systems. Tasks completed or underway include: a) testing of various new brake sensing technologies to provide input to advanced stability control and ECBS; b) conducting a market review, technical analyses, and cost-benefit assessment of tire pressure monitoring and automatic inflation system; and c) developing and laboratory testing of a complete commercial vehicle high-speed databus network (J1939), including the integration of Advance Collision Warning systems, adaptive cruise control, electronic controlled braking, and engine and automatic transmission ECUs . The focus of the work is to assess compatibility, integrity, and performance of advanced safety systems likely to be integrated into new truck designs. A comprehensive market survey, technical review, and use-case scenario analysis of Vehicle Data Recorders (VDRs) also was completed under Mr. Kreeb's direction.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Ram Kandarpa**, Associate

b. Assignment Title for this project (from Attachment #4): Task Lead

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status: FULL-TIME

Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: 13

With This Firm 2 With Other Firms 11

e. Education: Degree(s)/Year/Specialization: M.S. TRANSPORTATION ENGINEERING/1996/INTELLIGENT TRANSPORTATION SYSTEMS

f. Licenses / Certifications/Training: NONE

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Mr. Kandarpa has nearly 13 years of experience in the analysis, planning, design, development, deployment, operations, and evaluation of Intelligent Transportation Systems (ITS).

Mr. Kandarpa is currently engaged in Booz Allen's Vehicle Infrastructure Integration (VII) project. In particular, Mr. Kandarpa is leveraging his many years of experience in the travel information, traffic management, and electronic toll collection application areas, to develop and implement VII-based applications. Mr. Kandarpa is currently working on developing the next generation traveler information, traffic management, and tolling applications, developing roadmaps for deploying these applications nationwide, and exploring opportunities that VII offers for new traveler information delivery options, connected-vehicle electronic payment options, road-user charging schemes, and operating models.

Prior to joining Booz Allen, Mr. Kandarpa worked as an Associate at Castle Rock Consultants. While at Castle Rock, as part of the Tri-State Rural Advanced Travel Information System (TRIO) project in the Northern New England Region, Mr. Kandarpa was engaged in the design and development of a commercial vehicle oversize/overweight (OS/OW) permitting and routing system. As part of this effort, Mr. Kandarpa coordinated with various motor carrier permitting agencies in the Northern New England region to assess the potential for interfacing the routing system with their legacy as well as planned systems that support permitting. In addition, Mr. Kandarpa provided technical guidance in the evaluation of the Safety and Fitness Electronic Records (SAFER) system. He conducted interviews with the SAFER evaluation subcommittee state contacts to gather information on the then participating states' (Virginia, Maryland, Delaware, Pennsylvania, New Jersey, New York, and Connecticut) prevailing commercial vehicle enforcement practices including their specific plans for using the SAFER data mailbox. He was responsible for preparing detailed state profiles of commercial vehicle enforcement practices and plans. Mr. Kandarpa also served as the National Evaluation Coordinator for the evaluation of Commercial Vehicle Information Systems and Networks (CVISN) pilot and prototype deployments. In this role, he was responsible for coordinating evaluation efforts between the Federal Highway Administration's (FHWA) Intelligent Transportation Systems Joint Program Office (JPO), Federal Motor Carrier Safety Administration's (FMCSA) Office of Motor Carriers (OMC), and the evaluation team. In addition, Mr. Kandarpa served as the lead coordinator for the CVISN Deployment Tracking Initiative conducted through the Volpe Center. In this role, he coordinated efforts to disseminate a survey to state points of contact and was responsible for data management and reporting of the survey results. Mr. Kandarpa was also responsible for preparing an evaluation strategy for the SAFER Data Mailbox project. This strategy was used as a basis for the design, development, and implementation of a detailed evaluation plan.

Prior to joining Castle Rock Consultants, Mr. Kandarpa worked as a research fellow at the Federal Motor Carrier Safety Administration (FMCSA). During his fellowship, he developed an expert system for understanding and interpreting the Federal Motor Carrier Safety Regulations (FMCSR). The architecture of the expert system is transportable to any set of transportation regulations. The system was intended to be distributed to FMCSA's regional offices for in-house use and training.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Cristian Ianculescu**, Associate

b. Assignment Title for this project (from Attachment #4): Senior Software Engineer

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 4.5 With Other Firms ☒ 13

e. Education: Degree(s)/Year/Specialization: MSEE / 1990 / Digital Signal Processing

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Booz Allen Hamilton 2003 – Present
Mr. Ianculescu currently is leading software development efforts under the USDOT's Vehicle Infrastructure Integration (VII) project. He is the Software Development Lead for the Road Side Equipment (RSE) Software, for the development of the VII Public Applications – a transportation management solution, and for a suite of simulation tools required by the VII Application development group. In these capacities, Mr. Ianculescu has been responsible for managing the requirements definition, software design and software implementation processes. Mr. Ianculescu interfaces directly with the software development teams from Raytheon, and with the network management, testing, and security teams within Booz Allen.

Mr. Ianculescu supported the U.S. Coast Guard in developing the Nationwide Automatic Identification System (NAIS) in the latter part of 2006. As a subject matter expert in wireless data communications, software development for tracking and monitoring, and Service Oriented Architectures (SOA), he participated in the development of the Statement of Work and Performance Specification for the Increment 2 of the NAIS system acquisition.

In 2005-2006 he supported the U.S. Census Bureau in developing a very large workforce automation project for the 2010 Census that involves over 500,000 wireless handheld devices. As part of this project, he developed methodologies to evaluate technical proposals during the acquisition process. Specifically, he provided in-depth analysis of proposed mobility technologies (e.g., GIS, wireless communication technologies, augmented GPS). Additionally, Mr. Ianculescu assisted in planning the evaluation process of the prototype handheld computers to be used in this project.

QUALCOMM 1998-2003
Before joining Booz Allen Hamilton, Mr. Ianculescu managed the Bethesda, MD based development group of QUALCOMM. During his five years at QUALCOMM, Mr. Ianculescu built his core competency in wireless application development, with emphasis on secure data distribution, GIS integration for geofencing and other location-based services, asset management and logistics. He managed a team of 10 software developers that designed and developed a geofencing and alerting solution (monitoring unauthorized movement across predefined geographic boundaries). This system was evaluated by the Federal Motor Carrier Safety Administration for the transport of certain categories of hazardous material. Mr. Ianculescu was the chief architect and managed the development of a wireless web application for heavy equipment management. As part of this project, he was instrumental in creating a consortium of heavy equipment manufacturers and designing the consortium's data retention, sharing, distribution and enterprise integration policies.

Mr. Ianculescu established and developed common mapping components across applications, hardware platforms, and QUALCOMM's business partners worldwide. Mr. Ianculescu was also instrumental in developing QUALCOMM's Web application architecture blueprint.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title**: Frank Perry**, Associate

b. Assignment Title for this project (from Attachment #4): Communications Engineer

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status:
Current Employee X Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 1 With Other Firms ☐ 17

e. Education: Degree(s)/Year/Specialization: Bachelors of Engineering Technology\Electronics, Masters of Engineering Technology

f. Licenses / Certifications/Training: N\A

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Booz Allen Hamilton, Associate **2/2007 – Present**

Mr. Perry is currently leading the deployment of 57 Roadside Equipment (RSE) units, including backhaul, in the Detroit Development Test Environment for the VII Proof-of-Concept. The deployment requires coordination with the Road Commission for Oakland County (RCOC), Michigan Department of Transportation, Booz Allen personnel in Herndon Va, as well as several equipment vendors.

As the Vice Chair of the SAE DSRC Technical Committee, Mr. Perry is leading the development of DSRC Message Sets for both the VII POC as well as the Industry Standard.

Ford Motor Company, Sr. Research Engineer-Wireless **6/ 2001–2/2007**

Mr. Perry was the Ford Technical Lead to the Vehicle Infrastructure Integration Consortium for developing Proof-of-Concept Applications and the Liaison to SAE for developing SAE-DSRC Message Set Standards for vehicle-to-vehicle and vehicle-to-infrastructure wireless communications.

Mr. Perry also organized and managed a field trial consisting of 500 Police vehicles, a customer call center, and hardware and software suppliers in the development of a Telematics based Enhanced Crash Notification System.

Other Ford Motor Company experience includes:

- Integrate Bluetooth and 802.11 wireless communications protocols into automotive architectures for delivering Telematics based services
- Develop Bluetooth Security requirements for in-vehicle applications

Alltel, Staff Manager RF Engineering **4/1989 – 6/2001**

Mr. Perry managed 8 Radio Frequency (RF) Engineers in the design, build-out, and optimization of 800MHz AMPS, NAMP, and CDMA wireless networks in a 5 state region. In accordance with this responsibility, Mr. Perry hired and trained RF and Project Engineers, created and staffed a Regional RF Engineering Department, including policies, procedures, and training requirements, and controlled an Annual Design Budget of $50+ Million.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Matthew Dorfman**, Senior Consultant

b. Assignment Title for this project (from Attachment #4): Transportation Engineer

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status:
Current Employee X Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm 1 With Other Firms 3

e. Education: Degree(s)/Year/Specialization: M.S./2002/Electrical Engineering (Control Systems), S.M./2007/Technology & Policy (Transportation Policy)

f. Licenses / Certifications/Training:

g. Availability Date: 7/1/2008

h. Person's Experience & Qualifications:

Mr. Dorfman recently completed a two-year Master's degree program at MIT in technology and policy with a focus in transportation planning and policy. Before attending graduate school, he worked for three years as an automotive systems engineer for Robert Bosch GmbH, developing onboard software for engine control and CAN communications. He is a key staff member providing technical and policy support to the Department of Transportation's Vehicle Infrastructure Integration (VII) program testing end-to-end applications including software and communications links.

Booz Allen Hamilton, McLean, VA, July 2007–Present, Senior Consultant

Mr. Dorfman planned vehicular field tests of software that will utilize data from the VII system in public sector applications. The public sector applications use vehicular data to create useful traffic measures. He created high-level test planning documents and designed vehicular test cases for public sector applications, and helped refine these high-level documents into low-level test procedures. He has coordinated test planning with local and state authorities where the tests will be conducted. He has presented testing plans to project officials at the U.S. DOT, and incorporated feedback from DOT into the test plans. In addition to test planning, Mr. Dorfman has helped refine communication protocols between roadside and onboard computers. He has also assisted the project leadership in the planning of development timelines for VII applications.

Mr. Dorfman has worked on several other projects, including assisting an international commercial client who wishes to enter the U.S. intelligent transportation systems (ITS) market and assisting in the design of an electronic toll collection based congestion charging project proposed for Manchester, U.K.

Robert Bosch GmbH, Stuttgart, Germany, July 2002 – July 2005, Automotive Systems Engineer

Mr. Dorfman worked in teams developing engine control units (ECUs) for passenger vehicles. He was responsible for hardware and software interaction of ECU and all connected electronic components, including those connected directly through ports and those connected through the CAN bus. He developed a Start/Stop (mild hybrid) system with Bosch ECU. He guided SW development and hardware validation on the first Bosch project with Nissan. He planned and oversaw software development to harmonize Bosch ECU system with GM interface specifications, including the electrical connections with the throttle and the CAN connections with the transmission control unit and other electrical components. He solved issues arising at the hardware-software interface on first GM direct fuel injection vehicles.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Robby Moss**, Senior Associate

b. Assignment Title for this project (from Attachment #4): Senior Transportation Specialist

c. Firm this person will work for on this project: **Booz Allen Hamilton**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: 14
With This Firm ☐ 1 With Other Firms ☐13

e. Education: Degree(s)/Year/Specialization: Master of Business Administration, 2000, Management; Bachelor of Business Administration, 1993, Transportation; Bachelor of Arts, 1991, English

f. Licenses / Certifications/Training: None

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Mr. Moss has over 14 years of experience in operations management or consulting related to transportation security, logistics management, less-than-truckload (LTL) operations, program management, and process improvement. With Booz Allen, he is focusing on the areas of freight, commercial vehicle operations, trucking and logistics operations, and transportation security. Mr. Moss is currently supporting the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA) in furthering the adoption of Electronic Freight Management (EFM) concepts by commercial enterprises through planning for and performing case studies, developing operating models, and providing business case analysis. Mr. Moss is also supporting the USDOT Federal Transit Administration (FTA) in an advisory role related to the Asia Pacific Economic Cooperation (APEC) Transportation Working Group's Intermodal & Intelligent Transportation Systems (ITS) Experts Group as well as the APEC Secure Trade Evaluation Project in the areas of acquisition support and project management.

From January, 2005 to February, 2006, Mr. Moss served as the Branch Chief for Highway Infrastructure and Systems within the Highway and Motor Carrier Division of the Transportation Security Administration. Mr. Moss was also the program manager for the Hazmat Truck Security Pilot related to evaluation of truck tracking solutions and deployment of prototype truck tracking operations center. He was responsible for the acquisitions cycle, operational strategy and program management throughout the post-acquisition term. He managed a project team that included 10 contractors. His responsibilities related to the pilot included management of 3 separate contracts and task orders totaling $6 million and acquisition strategy for the remaining $7.5 million in program funds. Mr. Moss also managed a staff of 5 analysts covering highway infrastructure security issues and programs including security awareness and security reviews. Mr. Moss held a Top Secret clearance during his last two years with TSA – from 2004 to 2006.

During his time with TSA, Mr. Moss also served as National Operations Manager for the Transportation Worker Identification Credential (TWIC) program, a smart card pilot project. He was responsible for operations strategy, vendor management, enrollment center deployment, installation oversight related to access control systems, and representation of the program to federal government and industry stakeholder groups. He managed operations-related activity for the national implementation of prototype in 3 regions – West, East, and Florida – covering 37 prototype facilities and card issuance for up to 100,000 transportation personnel, leading up to the successful Initial Operating Capability (IOC) milestone of the program in November 2004.

Before joining TSA, Mr. Moss was with KPMG Consulting and advised clients across a range of industries on transportation and information technology issues. Representative projects included developing business requirements for providing supply chain execution services through a digital marketplace servicing large, global petroleum companies and their suppliers and assisting with the development of an e-business strategy and strategic information technology plan for a top nationwide less-than-truckload carrier.

Mr. Moss has also served in operations management roles with Ryder Integrated Logistics, American Freightways, and Dupre Transport.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Brad Wright**, Vice President/Manager Freight Transportation Business Line

b. Assignment Title for this project (from Attachment #4): Senior Advisor

c. Firm this person will work for on this project: **Cambridge Systematics, Inc.**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐16 With Other Firms ☐ 2

e. Education: Degree(s)/Year/Specialization: B.S. Northeastern University/1992/Business Management

f. Licenses / Certifications/Training:

g. Availability Date: Immediately
Currently serving as Principal-in-Charge of NYSDOT OS/OW Permit Outsourcing Contract NYSDOT project director is Joseph Lee-Civalier

h. Person's Experience & Qualifications:

Brad W. Wright is a Vice President and the Manager of Cambridge Systematics' Freight Transportation business line. Mr. Wright has worked with the U.S. Department of Transportation (DOT) and states to improve the efficiency and effectiveness of state and Federal motor carrier regulatory programs.

Mr. Wright has more than 15 years of information technology and freight transportation experience. Currently, he is the Project Director for Connecticut's Commercial Vehicle Information Systems and Networks (CVISN)/Performance Registration Information Systems and Management (PRISM) architecture that supports the electronic exchange of commercial vehicle regulatory and enforcement data between regulatory agencies, motor carriers, and roadside enforcement personnel. This multimillion-dollar project included the development of a detailed system design for Connecticut's deployment of the architecture, development and modification of software, systems integration, and the deployment of roadside electronic screening. This project currently is in the operations and maintenance phase.

Mr. Wright also currently is serving as the Principal-in-Charge for a contract with the New York State DOT under which Cambridge Systematics provides staff on-site to support the issuance of oversize/overweight (OS/OW) truck permits. Mr. Wright's role on this project to oversee CS' work on this contract, recruit and train project staff, and to work closely with Cambridge Systematics' on-site manager and the NYSDOT management team to evaluate opportunities to streamline operations and improve safety and customer service to industry.

Mr. Wright has worked extensively with the I-95 Corridor Coalition – a Coalition comprised of states stretching from Maine to Florida. Specifically Mr. Wright has supported the Coalition's CVO program, working with Coalition members to improve the safety and efficiency of motor carrier operations in the corridor. Mr. Wright has played a similar role on corridor-level CVO projects in the Gary-Chicago-Milwaukee corridor and the I-10 corridor.

In addition to the specific projects identified above, Mr. Wright has worked in more than 20 states to identify opportunities to automate and streamline motor carrier administrative and enforcement processes, and develop strategies to support the deployment of advanced technology. Prior to joining Cambridge Systematics, Mr. Wright worked at the United Parcel Service, where he was responsible for training pre-load personnel in the use of voice recognition technology and other advanced technologies.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Steven Capecci**, Principal

b. Assignment Title for this project (from Attachment #4): CVO Specialist

c. Firm this person will work for on this project: **Cambridge Systematics, Inc.**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 9 With Other Firms ☐ 3

e. Education: Degree(s)/Year/Specialization: M.A. University of Southern California/1996/International Relations; B.A. Holy Cross/1994/Political Science

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Steven A. Capecci is a Principal of Cambridge Systematics and a specialist in the areas of intelligent transportation systems (ITS) for commercial vehicle operations (CVO), Commercial Vehicle Information Systems and Networks (CVISN), advanced traveler information systems (ATIS), and commercial vehicle safety.

Mr. Capecci oversees a series of three tasks and a team of 10 consultants that are providing ongoing support to the Federal Motor Carrier Safety Administration's (FMCSA) ITS/CVO program. The Cambridge Systematics' team currently is supporting the FMCSA's efforts to document the motor carrier industry's perceptions/opinions about the government's use of emerging vehicle tracking/monitoring technology. Mr. Capecci also is supporting FMCSA and the Federal Highway Administration (FHWA) in their efforts to develop a new ITS/CVO program, the Smart Roadside Initiative. This program is being designed to advance the use of advanced technologies in roadside regulatory activities. In support of the Smart Roadside Initiative, Mr. Capecci is leading a team of consultants that are helping to define the Smart Roadside vision and to identify how existing and future roadside enforcement technologies could support freight planning, improve operations of the nation's freight infrastructure, and provide private-sector asset tracking solutions.

Mr. Capecci also is serving as Principal-in-Charge for a project that is investigating how ITS/CVO technologies can be combined and deployed to enhance the efficiency and effectiveness of states' truck size and weight enforcement programs. Cambridge Systematics is working with the FHWA's Office of Freight Management and stakeholder groups including FMCSA, Association of American State Highway and Transportation Officials (AASHTO), Commercial Vehicle Safety Alliance (CVSA), and State transportation and law enforcement agencies to: 1) identify roadside technologies that can be used in size and weight enforcement programs; 2) document the applicable technologies' technical requirements; 3) examine challenges that could impact the deployment of the technologies; 3) develop guidance for states in deploying weigh-in-motion (WIM) technology; and 4) determine the feasibility of sharing data collected from roadside enforcement systems with motor carriers. Cambridge Systematics also will prepare an implementation plan that recommends strategies to encourage the deployment of roadside technologies to improve truck size and weight enforcement.

Mr. Capecci also has supported the planning or deployment of ITS/CVO and CVISN programs in five states. Mr. Capecci served as the Deputy Project Manager for the Connecticut CVISN/PRISM project. In this capacity, he led numerous requirement gathering sessions, and documented end-user and state personnel needs for ITS/CVO services. Mr. Capecci also drafted a series of requirements and design documents that detailed the requirements for electronic credentialing and safety information exchange systems. Mr. Capecci also led an evaluation of the Maryland CVISN program and a feasibility study regarding electronic credentialing in Florida. Mr. Capecci currently is serving as the CVISN State Advisor to the State of Mississippi, a role that he also played for the State of Illinois. Mr. Capecci also has supported numerous I-95 Corridor Coalition technical studies regarding oversize/overweight (OSOW) permitting and the sharing of credentialing data between member jurisdictions.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **William Giuffre**, Principal

b. Assignment Title for this project (from Attachment #4): Technical Lead

c. Firm this person will work for on this project: **Cambridge Systematics, Inc.**

Employment Status:
Current Employee ☒ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 13 With Other Firms ☐ 8

e. Education: Degree(s)/Year/Specialization: M.S. Northwestern/1985/Journalism – B.S.Massachusetts Institute of Technology/1984/Aeronautical Engineering

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

William L. Giuffre is a Principal of Cambridge Systematics with extensive experience in managing multideveloper, multiagency software integration projects and designing and implementing systems using rapid application development tools, fourth-generation languages, and relational databases.

Mr. Giuffre served as the Project Manager for the full CVISN/ PRISM implementation for the State of Connecticut. He led a project team consisting of representatives from multiple Connecticut agencies as well as two other vendors. The deployed system includes a customized version of Cambridge Systematics' CVIEWcs product and PORTALcs credential interface web application. For Connecticut, PORTALcs provides a single point of access and authentication for all CVISN/PRISM activities, including account management, query interfaces and credentialing operations. CVIEWcs includes an extensible markup language (XML) interface to SAFER that has been certified as CVISN-compliant by the Federal Motor Carrier Safety Administration (FMCSA). Mr. Giuffre continues to oversee all maintenance and support services associated with CS' solutions deployed in Connecticut. Mr. Giuffre also is supporting the Connecticut's implementation of Expanded CVISN functionality.

Mr. Giuffre served as the Project Manager and System Architect for the Arkansas implementation of CVIEW, as well as the Minnesota implementation of the CVISN architecture. Both of these projects involved the deployment of a customized CVIEWcs installation, as well as a customized interface for authorized users to query and view data stored in CVIEW. Mr. Giuffre continues to support these states' systems.

Mr. Giuffre is a recognized national expert in the areas of CVISN, CVIEW, and data exchange with SAFER. Mr. Giuffre will be leading an assessment of day-to-day SAFER operations on behalf of the FMCSA and will be recommending operational improvements regarding this national data repository. Mr. Giuffre also is an active participant in the CVISN Architecture Configuration Control Board.

For the Florida Department of Transportation (DOT), Mr. Giuffre served as the CVISN System Architect. He participated as a member of the Florida team in the year 2000 round of CVISN deployment workshops. In addition to advising Florida on the full spectrum of CVISN issues, Mr. Giuffre reviewed all project plans developed by Florida agencies, created the project plan for the CVIEW implementation and helped to produce and present the Florida CVISN Program Plan. He also authored a series of technical memoranda in conjunction with the Florida CVO Business Plan.

Mr. Giuffre was the Technical Lead and Software Project Manager for Cambridge Systematics' CVIEWcs portion of the California Highway Patrol CVISN implementation. He coordinated the CVIEWcs design and development effort, including interfaces between CVIEWcs and each state legacy system, an Electronic Data Interchange (EDI) link to SAFER, support for the on-line credential application process, and an interface with the PrePass® electronic screening system.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Justin McNew,** System Architect

b. Assignment Title for this project: Senior DSRC Engineer

c. Firm this person will work for on this project: **TechnoCom**

Employment Status:
Current Employee X | Seasonal ☐ | Unemployed ☐ | Employed by a Different Firm ☐

d. Years of experience:
With This Firm 10 years | With Other Firms 2 years

e. Education: Degree(s)/Year/Specialization: M.S. Electrical Engineering from Clemson University in 1996, BS Degree in Physics in 1994

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Director of Mobility Solutions, Justin P. McNew has established a firm background in wireless systems engineering, prototype and product development and applied technology solutions. His greatest interests include broadband wireless and cellular technology, wireless LANs, radiolocation, mobile data applications, and applying various wireless technologies to transportation solutions. McNew currently manages TechnoCom's Mobility Solutions Business Unit and is also responsible for corresponding standards development, technology and product strategies, and system architecture and integration.

Since joining TechnoCom in 1998, McNew has worked on a wide variety of projects. These have typically involved cellular/PCS, wireless LAN systems (802.11), Phase 2 Enhanced 911 and location based services (LBS), wireless data applications, and Dedicated Short Range Communications (DSRC) and Vehicle Infrastructure Integration.

McNew is a key contributor to ongoing 802.11 and 5.9 GHz DSRC or standards activities, primarily involving the application of wireless LAN technology, namely protocols such as IEEE 802.11, IEEE 1609 and IPv6, to vehicular communications and DSRC at 5.9 GHz. McNew has presented numerous studies and research results within the DSRC standards bodies regarding the DSRC system architecture, performance and capacity, and he authored a significant portion of the 802.11 and 1609 standards. McNew has leveraged this experience and knowledge into the development of prototype products culminating in commercial solutions, including TechnoCom's Multiband Configurable Networking Unit (MCNU) platform.

Throughout his standards development, prototyping and product development, and other industry efforts, McNew has helped turn the VII concept into reality. He was responsible for launching the MCNU platform, which is used in the VII Proof of Concept Network and it is now the leading solution for 5.9 GHz DSRC and VII on the market today. McNew is also the co-chairman of the ITS World Congress 2008 Demonstration Subcommittee which will showcase the MCNU platform as the infrastructure equipment for the upcoming conference in New York City.

From 1996 to 1998, as a Systems Engineer at Motorola, McNew participated in efforts to design and deploy some of the first commercial IS-95 CDMA networks in the US. He has developed several patents, and industry journal and conference publications while at TechnoCom, as well as being invited to speak several times per year at various industry conferences and trade shows. He received his MSEE from Clemson University in 1996 and his BS degree in Physics.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Dmitri Khijniak,** Systems Engineer

b. Assignment Title for this project: Senior DSRC Engineer

c. Firm this person will work for on this project: **TechnoCom**

Employment Status:
Current ☒ Employee Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ **2 years** With Other Firms ☒ **11 years**

e. Education: Degree(s)/Year/Specialization: B.S./M.S. 1993 – Radiophysics, Master of Business Administration 2004 – General Management

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Dmitri Khijniak is a Director of Mobility Services at TechnoCom where he leads strategic product planning, project management and system engineering on major customer programs. Dmitri's experience spans over 11 years in automotive, transportation and communication markets where he solved challenging technical problems and managed product development from "cradle to grave".

Since joining TechnoCom in 2006, Dmitri was on the forefront of the Vehicle Infrastructure Integration (VII) program, responsible for the TechnoCom innovation in the vehicle communication and VIIC system integration. Dmitri possesses deep understanding of the VII architecture and Dedicated Short Range Communications (DSRC) communication technology, including the new suite of 5.9GHZ DSRC communication and security standards IEEE 1609. Dmitri led TechnoCom development of the 5.9GHz DSRC products integrated into the VII OBE device, development of the 1609.2 security hardware, and VII communication validation solution. He also led the successful launch of the TechnoCom flagship 5.9GHz DSRC RSE MCNU. Recently, Dmitri assumed leadership of the system integration activities for the 5.9GHz DSRC roadside equipment deployment and application integration for the 2008 ITS World Congress in New York.

Before joining TechnoCom, Dmitri worked at Networkcar, leading provider of the automotive vehicle location (AVL) technologies. There, Dmitri headed the product management and developed customer solutions for commercial fleet tracking and compliance reporting. He also managed several new product development and customer deployment projects.

Earlier at RainBird, Dmitri developed and launched new product line of wireless sensors which are used to improve landscaping and conserve irrigation water resources. Dmitri prepared business plan for several new products and managed the development of new products from early conceptual work, through development and manufacturing and into the market launch and sustainment.

Dmitri worked at Visteon, large Tier 1 automotive supplier, for 7 years on various engineering and management assignments developing driver human-machine-interfaces (HMI) and vehicle control software. Also, he was closely involved in commercial technology sales and technology licensing.

Dmitri holds Master of Science degree in Radiophysics from the Kiev State University, Ukraine, and Master of Business Administration from the University of Michigan, Ann Arbor.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Reza Salehi,** Software Engineer

b. Assignment Title for this project: Systems/Software Engineer

c. Firm this person will work for on this project: **TechnoCom**

Employment Status:
Current ☒ Employee Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience: 18
With This Firm ☒ 7 With Other Firms ☒ 11

e. Education: Degree(s)/Year/Specialization: M.S. Computer Engineering from San Diego State University in 2007, B.S. from Shaid Bahonar University (Kerman, Iran) in 1989

f. Licenses / Certifications/Training:

g. Availability Date: Immediately

h. Person's Experience & Qualifications:

Software Development Engineer, Reza Salehi, is a seasoned design engineer whose eighteen years of experience has spanned software, hardware, embedded microprocessors, and systems design. His greatest passion is in the development of real-time software for wireless communication systems. Mr. Salehi currently leads the development of Dedicated Short Range Communications (DSRC) based applications utilizing the 5.9GHz DSRC WAVE protocol.

Since joining TechnoCom in 2000, Salehi has worked on a wide variety of projects including design and development of company's Mobility and Enterprise product lines, integration and testing of E-911 and LBS systems, and performance analysis of variety communication systems. These efforts have typically involved cellular/PCS, wireless LAN systems (802.11), wireless data applications, and DSRC and Vehicle Infrastructure Integration.

The following projects highlight some of the Mr. Salehi capabilities:

- Performed system engineering, design and implementation of an FMCSA Proof of Concept commercial vehicle wireless roadside inspection communication system. This system utilized 5.9GHz DSRC wireless network for the vehicle-to-vehicle and vehicle-to-roadside communications.
- Designed and implemented 5.9GHz DSRC communication monitor used in VII program for wireless performance measurements and characterization of the DSRC network, between moving vehicle, stationary roadside equipment and backend network system.
- Designed and implemented an SNMP-based monitor and control software for management of distributed network devices.
- Evaluated use of RTCM protocol to distribute GPS augmentation data to vehicles using the 5.9GHz DSRC communication. Wrote an application to synchronies device system time with that of a GPS high-precision clock.
- Developed strong expertise in IEEE 1609 WAVE DSRC communication standards. Provided expert support to various customers utilizing 5.9GHz DSRC communications.
- Performed system design and analysis of TCP performance over wireless network and recommended improvements to achieve higher data throughput.

Prior to joining the Mobility team, Mr. Salehi was a key member of the TechnoCom Enterprise group focusing on AVL. Prior to TechnoCom he worked on the development of control centers for residential and industrial alarm systems. Mr. Salehi received a Master of Science in Computer Engineering from San Diego State University in 2007. Mr. Salehi also holds a BS degree in Electrical Engineering with an emphasis on analog and digital hardware design.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Jesus Ruiz,** Test Engineer

b. Assignment Title for this project: Field/Test Engineer

c. Firm this person will work for on this project: **TechnoCom**

Employment Status:
Current ☒ Employee Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☒ 5 With Other Firms ☒ 7

e. Education: Degree(s)/Year/Specialization: RF Communications Technician, Ground Radio Repair, U.S. Marines (honorable discharge 1999)

f. Licenses/Certifications/Training:

g. Availability Date: **Immediately**

h. Person's Experience & Qualifications:

RELEVANT EXPERIENCE:

Communications Operations:
- 5.9 GHz DSRC site installation, verification and performance testing
- RF signal strength and interference testing
- Site surveys using WAAS/Differential GPS (Global Positioning System), laser range finder, and altimeter
- Cellular location based services accuracy testing
- Development of test plans to conduct calibration, performance verification and drive tests

Communications Testing and Repair:
- Site tests utilizing DVM's, watt-meters, oscilloscopes, signal generators, frequency analyzers, differential GPS and diagnostic programs.
- Analysis of vendor schematics to troubleshoot to board level combinations of radio sets, terminals, and related devices to ensure quality service.
- Bit error rate (BER) testing of T1s from the channel spans
- TX tests on Base Station Radios using a spectrum analyzer with supporting software and VSWR/Watt meters
- Quality assurance on radio modifications and repairs

Installation:
- Road side equipment (RSE) and on board equipment (OBE) installation, including mounting, cables, antennas, power, etc.
- Pre-wired, terminated and tested CAT-5e, CAT-6, Fiber Optic, Coaxial, 25 pair Tel co, I.R., control and audio cables.
- Fabrication of custom communication cables and wiring harnesses from vendor schematics.
- Cellular sites installation including mounting of 19"cabinets and punched down alarm block terminations, running power cable up to 1/0 AWG, wire wrapping the T1 on DSX panel and interconnecting cables.
- Complete AVL (Automatic Vehicle Location) in-vehicle installation including inputs/outputs to/from the vehicle

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **A. Ruth Fitzgerald**, AICP, President

b. Assignment Title for this project (from Attachment #4): Task Lead

c. Firm this person will work for on this project. **Fitzgerald & Halliday, Inc.:**

Employment Status:
Current Employee ☑ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm 21 ☐ With Other Firms 13 ☐

e. Education: Degree(s)/Year/Specialization Iowa State, M.S. Urban and Regional Planning, 1974, Iowa State, B.S. History, 1971:

f. Licenses / Certifications/Training: American Institute of Certified Planners, American Society of Civil , Engineers, American Planning Association, Institute of Transportation Engineers, New England Association of Environmental Professionals, Connecticut Society for Historic Preservation, Transportation Research Board, American Public Association

g. Availability Date: 3/25/08

h. Person's Experience & Qualifications:

Ms. Fitzgerald is the founding principal of Fitzgerald & Halliday, Inc. and serves as Principal-in-Charge for many of FHI's projects. She has over 30 years of experience in the planning field with specialization in transportation planning, environmental documentation and public outreach. Her strengths include project management, quality assurance, knowledge of the planning and environmental documentation processes, expertise in the design and implementation of public outreach programs, and meeting facilitation. Ms. Fitzgerald has taught several University-level planning courses and has served as Adjunct Professor in a university planning curriculum.

Ms. Fitzgerald has a career-long involvement and interest in public outreach. She has facilitated numerous public meetings, group working sessions and focus groups and specializes in working with client and community toward consensus. Her role often involves tailoring public outreach programs to meet the needs and resources of individual clients and projects. She is adept at using a variety of outreach tools to communicate project objectives to stakeholders and to solicit and incorporate input. Further, she has been involved in the development of public involvement guidelines and practices and in training others in the concepts and objectives of public involvement.

Ms. Fitzgerald has been responsible for the management of numerous transportation studies for planning agencies at all levels and involving all modes. Projects have included highway and multimodal corridor studies, regionwide planning analyses, regional and state transportation policy plans, travel demand estimation, design and application of travel surveys, transit analysis, including both short-range bus studies as well as light rail and BRT fixed guideway corridor studies, station area analyses, pedestrian and bikeway planning, intermodal facility studies, freight systems analyses and rest area/truck stop studies.

In the environmental field, Ms. Fitzgerald has managed many large environmental impact statements and assessments. Her technical expertise includes socio-economic, land use, and community impact analyses; environmental justice evaluations; and secondary and cumulative impact analyses. Her area of particular specialty, however, is her in-depth knowledge of the environmental documentation process and her strength in document preparation.

Ms. Fitzgerald has participated in many planning studies for communities as well as feasibility assessments for both public and private facilities. Typical projects have included feasibility and impact analyses for large public works projects as well as municipal plans of development (POD) and impact evaluations for commercial and industrial facilities.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Kenneth M. Livingston**, AICP, Principal Planner II

b. Assignment Title for this project (from Attachment #4): Senior Outreach Planner

c. Firm this person will work for on this project: **Fitzgerald & Halliday, Inc**.

Employment Status:
Current Employee ☑ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 8 With Other Firms ☐ 7

e. Education: Degree(s)/Year/Specialization: State University of New York, M.S. Environmental Science, 1995, University of New Hampshire, B.S. Environmental Science, 1992, University of New Hampshire, B.S. Political Science, 1992

f. Licenses / Certifications/Training: American Planning Association

g. Availability Date: 3/25/08

h. Person's Experience & Qualifications:

Mr. Livingston's expertise is focused in the area of multi-modal transportation planning, environmental documentation and analysis, public involvement, land use studies, and, GIS and related applications of technology to the planning profession. His experience includes a wide variety of projects such as: intermodal transportation centers, transit studies, comprehensive land use and master plans, pedestrian and bicycle planning, large-scale corridor studies and environmental impact studies. He specializes in incorporating technological solutions and advances into the planning process to enhance outcomes.

Mr. Livingston has extensive experience on a wide variety of transportation and land use linked projects such as corridor studies, major investment studies, downtown revitalization plans, travel surveys, and long range transportation plans. His recent work efforts have focused on bicycle and pedestrian planning projects, including policy and program evaluations, network development and physical route planning. He has also directed a wide variety of transit planning studies, including: welfare to work analyses, intermodal transportation center feasibility and planning studies, short-range transit plans, and corridor studies. Mr. Livingston has worked on a wide variety of statewide transportation planning projects, including goods movement studies, freight studies, safe routes to school, and highway policy planning.

Mr. Livingston has been involved with the development of municipal planning regulations, station area planning studies, and comprehensive plans of development. His work has focused on community development issues and the linkage between transportation and "livable communities". Mr. Livingston recent projects include long-term land use planning projects that seek to guide development to be more transit friendly. Additionally, Mr. Livingston previously worked as a municipal planner and as a regional planner, adding a wealth of experience in land use planning and site impact analysis.

Mr. Livingston's extensive GIS application experience has encompassed visual impact assessments, and environmental impact analysis for a wide variety of planning projects, ranging from utility corridors to airport expansions, economic development, and environmental justice analysis utilizing Census 2000 data. He has conducted 3D-model visual impact assessments for historic buildings and landscapes and has led project teams integrating global positioning systems into GIS databases, including inventories of historic properties, park and ride facilities, transit routes, and natural resources, such as wetlands. Additionally, he has been involved with 3D-modeling of corridor projects and before and after simulation efforts of proposed development projects.

Mr. Livingston specializes in bringing diverse interest groups together to address issues in consensus building efforts. His work has included identifying stakeholders, orchestrating and moderating public or stakeholders meetings, charrette workshops, newsletters, leadership of stakeholder groups, and project websites, as well as a variety of other public outreach applications.

8. Brief resume of key staff identified in Item #7 of the NYSDOT 255NAE (minimum 10 point font, no more than one page per resume.)

a. Name & Title: **Kristen D. Ahlfed**, AICP, Principal Planner

b. Assignment Title for this project (from Attachment #4): Outreach Planner

c. Firm this person will work for on this project: **Fitzgerald & Halliday, Inc.**

Employment Status:
Current Employee ☑ Seasonal ☐ Unemployed ☐ Employed by a Different Firm ☐

d. Years of experience:
With This Firm ☐ 4 With Other Firms ☐ 6

e. Education: Degree(s)/Year/Specialization: M.C.P. Environmental and Land Use Planning, University of Rhode Island, 1997, B.A. Marine Affairs, University of Rhode Island, 1994

f. Licenses / Certifications/Training: American Institute of Certified Planners, Virginia and New Jersey Chapters of the American Planning Association, Women's Transportation Seminar

g. Availability Date: 3/25/08

h. Person's Experience & Qualifications:

Ms. Ahlfeld's expertise is focused in the area of transportation planning, environmental planning/analysis, and public outreach. Her experience includes a variety of projects such as corridor studies, traffic impact studies, environmental impact studies and environmental assessments. Ms. Ahlfeld has provided technical and management support for projects throughout Virginia, Maryland, Delaware, and Connecticut.

Ms. Ahlfeld has experience in traffic impact analysis, parking studies, and travel survey/data collection. Her primary responsibilities have included the preparation and review of traffic impact studies including the collection/compilation of data, trip generation, traffic forecasting, level of service analyses using HCS 3.2, turn lane warrants, traffic mitigation, report writing, and presentation of findings to both private and municipal clients. In related work, Ms. Ahlfeld served as the Transportation Manager for the Dulles Corridor Rapid Transit Project. Ms. Ahlfeld managed the traffic impact and transportation modeling tasks for more than 60 intersections in 15 proposed transit station areas, for three different transit alternatives.

Ms. Ahlfeld has participated in transportation planning and corridor studies in several congested areas in Northern Virginia. More recently, Ms. Ahlfeld spent more than one year on-site with the Virginia Department of Rail and Public Transportation developing a Congestion Management Program that could be implemented during the four-year construction phase of the Dulles Corridor Metrorail Project. She worked closely with federal, state and local agencies to develop strategies for TDM, transit, communications, incident management, and local network operations with the goal of easing commuter congestion for the more than 115,000 employees in Tysons Corner, Virginia. Additionally, Ms. Ahlfeld is working with Spotsylvania County on a TDM tool-kit and is also preparing a land use and zoning evaluation for the I-270/US 15 Multimodal Corridor Study.

Ms. Ahlfeld has experience in transit and rail planning and analyses. She has participated in several transit and rail corridor studies, transit needs assessments, welfare-to-work studies, alternatives analyses, and transit feasibility studies. Ms. Ahlfeld is currently preparing a park and ride lot demand estimation evaluation for the Intercounty Connector Project in Maryland.

Ms. Ahlfeld has participated in public information workshops and made presentations to county planning commissions, Boards of Supervisors, neighborhood advisory committees, and the general public as part of the transportation planning process. Ms. Ahlfeld has been involved in consensus-building exercises as part of agency coordination as well as meeting planning and the preparation of presentation materials such as scripts, power point presentations, and presentation boards and handouts.

9. Approach to Scope of Services: Describe your approach for implementing the Scope of Services as outlined in Section III of this RFP. Limited to FOUR pages in length, with a font size no smaller than 10 point, unless otherwise specified in the RFP.

Overview. Volvo Technology of America, along with its partners Booz Allen Hamilton (BAH), Southwest Research Institute (SWRI), Cambridge Systematics (CS), TechnoCom, and Fitzgerald and Halliday (FHI) are pleased to submit this proposal to NYSDOT to conduct a first of its kind demonstration of how the Vehicle Infrastructure Integration (VII) technology (i.e., on-board equipment [OBE], roadside equipment [RSE], 5.9 GHz DRSC) can be applied to commercial vehicles, and pave the way for commercial vehicle safety, security, and mobility applications. Our proposed approach leverages each Team member's respective capabilities and real-world experience in delivering the required components of NYSDOT's CVII program. This experience includes: commercial vehicle design (Volvo); VII on-board equipment (Volvo and SWRI); VII infrastructure (Booz Allen and Technocom); as well as with state and Federal commercial vehicle "back end" safety and credentialing information systems (CS). FHI, a registered DBE in New York State, will be supporting the project's outreach and marketing campaign.

Our Team's solutions have been tested and demonstrated in conjunction with VII, wireless inspection, and CVO safety projects for the I-95 Corridor Coalition, Federal Motor Carrier Safety Administration (FMCSA), USDOT, and Department of Homeland Security as well as several states' commercial vehicle enforcement programs. These solutions also will be part of the upcoming ITS World Congress demonstrations in New York City. We will modify our existing systems or develop new hardware, software and systems to meet NYSDOT's specific needs and requirements. When developing new systems and services, we will do so in a manner that supports cost effective integration in both the vehicle and infrastructure. In this context, we propose to use off-the-shelf and proven solutions whenever possible. Further, the Volvo Team believes that it will be important to incorporate the perspectives of a wide range of stakeholders beyond NYSDOT, including: state enforcement personnel, FMCSA, the United States Department of Transportation ITS Joint Program Office (JPO), I-95 Corridor Coalition, and truck manufacturers, fleets, and drivers. As such, with NYSDOTs input and approval, we propose to develop a "Blue Ribbon" advisory committee with representatives from these stakeholder groups. If approved by NYSDOT, this committee will be briefed on project progress at key milestones, and the Volvo Team will solicit their input on key design and demonstration issues throughout the project. Proposed members of the advisory committee are identified in the organization chart under Section 7. As part of this project, the Volvo Team will submit all deliverables required by the NYSDOT RFP. The following task descriptions provide additional detail about how the Volvo Team will go about developing these deliverables and meeting the requirements outlined in the RFP.

Task 1. CVII Program Plan. In this key first task, the Volvo Team will work with NYSDOT and project sponsors to develop a comprehensive Program Plan that encompasses the requirements listed in the RFP, our response to the RFP, and other key components including: a statement of the overall work scope; a detailed work breakdown structure; program schedule; high level design; test plan; demonstration plan; management approach; and staffing plan. The following are examples of some of the key scoping questions that we would work with NYSDOT to resolve/detail during this first task:

- Location of development and testing activities (we are proposing such activities be completed at Volvo's North America's headquarters in Greensboro, North Carolina);
- High-level driver interface design guidelines and direction (HVI design);
- Processes and technology solutions for identifying the commercial driver operating a vehicle (e.g., should biometrics, PIN type solutions, or other technologies be used to identify a driver at the time of vehicle ignition, confirm whether our proposed approach is acceptable for addressing situations when the commercial vehicle is out of range of an RSE beacon and the driver's license status cannot be verified in real-time);
- Selection of the radio platform around which to build the OBE. Technocom is in the process of developing a much smaller, more economical device than the traditional Multiband Configurable Networking Unit (MCNU). This presents an important opportunity for the program to use an OBE with much more commercial feasibility. During this task the Volvo Team will identify the advantages and disadvantages (e.g., cost, schedule, reliability) of using Technocom's proven MCNU solution, versus using its newer technology and engage NYSDOT in a dialogue regarding its preferred solution for the demonstration.
- If and how to incorporate high accuracy differential GPS signal information into the test demonstration plans—and if such information will be available from the "VII network".
- Definition of the type of "public sector" trucker-friendly information (e.g., traffic, weather, incidents, roadwork, etc.) that will be broadcast by the VII network, and that therefore must be received and displayed by the vehicle. In other words, the specific "public sector" applications to be demonstrated (Task 2) will be solidified.
- Identification of CVII demonstration site, as well as expectations for the demonstration

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- Conceptual design details related to how information collected from the vehicle would be integrated with "back-end" safety and credentialing data stored in Federal and state information systems will be finalized. For example, the Volvo Team could simulate how VII could support automated credentialing and permitting verification, as well as various enforcement related actions. Issues related to what functionality will be simulated versus what could be accomplished with "live/actual" data will be detailed in this first task. While not required in the RFP, it may be possible to exchange information with Federal databases as well as NYSDOT's commercial vehicle information systems.

These and other design details, as well as project management procedures, reporting, communications and other process issues will be documented in the Program Plan.

Task 2. Research, Develop, Test and Demonstrate VII compliant on-board communication equipment (an OBE) in a commercial vehicle. In this task, the Volvo team will utilize a radio platform from Technocom that is compliant with IEEE P1609 WAVE standards and fully compatible with USDOT's National VII program. Our Team members, SWRI, Booz Allen and Technocom, are already working together to develop VII systems and hardware for test efforts in Detroit, Michigan as well as for the ITS World Congress in New York City. As such, the components developed as part of this project will be compatible with the VII network and associated communication services being assembled in the New York City area. Further, we will leverage our Team's experience and lessons learned from other projects (particularly SWRI and Technocom's experience in installing OBEs in motor coaches being configured for World Congress demonstrations) to complete the commercial vehicle installation in an efficient and reliable manner.

The vehicle system integration work will be completed at Volvo's North American headquarters in Greensboro, North Carolina. This facility provides all Volvo's truck brands (Volvo Trucks, Mack Trucks, Renault, Prevost Motor Coach and NovaBus Transit coach,) with the design and development services needed to manufacture complete class 8 heavy duty vehicles. The facility includes a variety of labs required for testing trucks, and also has an on-site test track. We propose to install at least two MCNU-based RSEs at Volvo's facilities, which will allow testing on Volvo's test track, as well as one additional RSE on Intestate 40, which is located within 50 meters of the Volvo campus. We also propose to link these RSEs to the USDOT's VII Service Delivery Node (SDN) and Enterprise Network Operations Center (ENOC) currently being operated and maintained by Booz Allen at its facilities in Herndon, Virginia. This will effectively link the Greensboro test site with other national VII network compatible test sites including those in Detroit, Palo Alto, and the selected CVII demonstration site in New York, thus ensuring the compatibility of hardware/software solutions developed on the prototype commercial vehicle, and reducing the integration risks under Task 6.

Our baseline plan is to utilize a TechnoCom Multiband Configurable Networking Unit (MCNU) R1500 as the platform for the Commercial Vehicle Infrastructure Integration (CVII) On-Board Equipment (OBE). This platform is fully compliant with New York State Department of Transportation (NYSDOT) OBE requirements for size, performance, and security. However, during Task 1, we will explore, with NYSDOT and other project sponsors, the potential for utilizing a newly developed embedded WAVE radio device being developed by Technocom that promises to significantly reduce the size, complexity, and most importantly the cost of an OBE. This unit is roughly the size of typical home-based WiFi modem and is representative of what production OBEs might look like. Utilizing such a unit would provide a proof-of-concept of a truly commercial OBE, and could help to accelerate the market appeal and deployment of CVII. Key OBE integration tasks will include: 1) providing an interface to the J1939 network as well as other peripherals (e.g., driver identification apparatus, EOBR) to be detailed during the design phase; 2) linking the OBE with the HVI display and driver interface device; 3) loading and testing all operating and security systems software; and, 4) positioning the OBE within the cab and providing power and antenna connections. OBE integration will be led by Volvo with support from SWRI and Technocom.

Task 2.1 CV VII OBE to VII RSE. Upon successful integration of the OBE in the cab, the Volvo Team will develop and demonstrate the capability of transmitting "probe data" (e.g., vehicle location, speed, heading, VIN, air and road temperature, windshield wiper activation, etc.) to the RSE installed at the test track. There are two options for doing this: one is to transmit probe data that is identical to that being transmitted by light-duty vehicles, and then develop a separate application that transmits additional commercial-vehicle-only data when prompted by an RSE; the other is to develop probe data that is unique to commercial vehicles. There are pros and cons to both of these options, including cost, network bandwidth, and performance tradeoffs (e.g., if probe data from heavy-duty versus light-duty vehicles is different, it will require new software at the VII network level). We will investigate these issues, discuss options with project sponsors, and recommend an approach during Task 1. In either case, we will utilize data elements and/or message sets already defined in SAE J2735 standard, or, as necessary, we will create new messages that adhere to the structure and syntax defined by J2735.

Task 2.2 VII RSE to CV VII OBE. In this task, the Volvo Team will develop and demonstrate on-board applications that allow the OBE to receive and display a variety of trucker-friendly traveler information messages. Booz Allen has already developed public sector applications as part of their work for USDOT's VII program. These applications will be used to help develop and test the on-board counterpart application that would reside on the OBE. SWRI is already engaged in similar OBE application development work for World Congress and this effort will leverage that work in order to minimize risk in this task.

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Task 2.3 Human-Vehicle Interface (HVI). In this task, Volvo engineers will work with project sponsors to develop a driver display and interface that compliments VII's capabilities for receiving information from the roadside and other vehicles. Volvo has tremendous experience in this area having developed and refined *Volvo Link*, a satellite based in-vehicle telematic system offered on all Volvo trucks. Volvo will apply their substantial human factors expertise in developing the HVI for this project. Our work will focus on developing a driver interface that delivers messages at the appropriate time, location, and circumstances, and in a manner that does not add to driver distraction.

Task 2.4. Testing. Testing of vehicle-to-infrastructure communications will be completed at Volvo's test track, as well as along I-40 in Greensboro, NC. The I-40 activities will allow for testing of the vehicle-to-infrastructure communication link at highway speeds, in different lanes, and under varying traffic and environmental conditions. The test matrix will include roadside-to-vehicle and vehicle-to-roadside communications, and will demonstrate communications using both the Wave Short Message (WSM) and IPV6 communication paths/protocols.

Task 3. Wireless Driver Identification. In this task, the Team will develop and demonstrate a solution for authenticating the driver using an off-board validation process. We will research a variety of technologies and concepts for meeting NYSDOT requirements, and we will leverage the lessons learned on Volvo's Wireless Inspection project (Qual#2) for the I-95 Corridor Coalition that involved using biometrics and a simulated Transportation Workers Identification Credential (TWIC) card to positively identify the driver. Our preliminary concept includes a real-time off-board validation process when the vehicle is in range of an RSE. When not in range, a previously downloaded "black list" of CDL numbers could be used to control vehicle access and privileges. If the driver's CDL is inactive, revoked, or suspended, the pilot test will demonstrate that the driver is unable to start the commercial vehicle. If the driver's CDL status is active and without revocation or suspension, the pilot test will demonstrate that the commercial vehicle will be able to start and operate normally. During Task 1 of the project, the Volvo Team also would like to discuss whether an in-vehicle notification message also should be part of the CDL verification. This message would be displayed when the ignition has been disengaged and will inform the driver that there is a problem with his/her CDL.

Task 4. Develop, test and demonstrate a Wireless Inspection Application. In this task, the Volvo Team will first leverage prior research in wireless commercial vehicle inspections, as well as solicit input from the Blue Ribbon panel, in order to detail the requirements and design concepts for a wireless inspection application. High level requirements and designs will be documented in Task 1. We recommend this approach because while we are completely familiar with FMCSA guidelines (Booz Allen developed the original guidelines for FMCSA), there remains some degree of interpretation as well as "optional" data that could be included in a Safety Data Message Set (SDMS) (e.g., whether to transmit "red/green" status versus raw data for various systems) that needs to be finalized and will be discussed during Task 1. Similarly, if and how to incorporate "conventional" roadside equipment (e.g., weigh-in-motion; laser-based vehicle size detection; infrared brake detection; and radiological material detection) into an overall conceptual solution will be reviewed early in the program. While the RFP does not call for such integration, it will be important in Task 4 to design in "sockets" that would allow for such information to be integrated if/when it is available.

In this task, the Volvo team will develop an on-board wireless inspection application that:

- Assembles an SDMS to include information such as: vehicle, driver, and carrier identification data; safety information collected from the J1939 network; as well as data that might be collected from auxiliary equipment (e.g., driver identification apparatus).
- Transmits the SDMS to an RSE that has first requested such information from the truck (through a WAVE Service Announcement (WSA) message);
- Includes a simplified (and possibly simulated) off-board application that would:
  - Parse, validate and analyze the SDMS,
  - Link the data with other information that might normally reside in state and/or federal databases (e.g., vehicle credential status, carrier out-of-service order); and
  - Transmit back to the truck an automated and/or human-in-the-loop response that adheres to VII and J2735 protocols. Such messages might include warnings, instructions, or other advisory messages.

The wireless inspection application would initially be developed and tested at Volvo's Greensboro facility. However, because the RSEs at Greensboro would be linked to the VII network, the application could access remote databases (state or federal) if necessary, and could potentially be monitored remotely from New York.

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Task 5. Install and test VII compliant OBEs in NYSDOT Maintenance Vehicles. In this task, the Volvo Team will assemble OBE "kits" based on the hardware, software and designs that were refined on the commercial tractor in Task 2. OBE kits will be installed in both the Mack and International trucks. It is anticipated that this work will occur in NYSDOT's maintenance facilities. We propose to reduce the risk associated with the integration by testing an identical installation on a Mack truck at Volvo's Greensboro facility. After successfully testing the operation of the on-board VII equipment, the Volvo team will focus on developing two distinct types of applications: *(1) Maintenance Vehicle Operational Sta*tus (vehicle-to-infrastructure)--this application will consist of transmitting a snapshot of the current vehicle location and various maintenance system operating parameters (as described in the RFP) to the RSE, and then route the data to a simplified off-board application that would log/display the results; and *(2) Dynamic vehicle-to-vehicle warnings*--this application will consist of an onboard application that broadcasts messages on the "vehicle-to-vehicle" channel that are of an emergency nature (e.g., hard braking event, flasher activation). A matching "receiving" application also will be developed that receives, prioritizes and, if appropriate, displays an appropriate message on the HVI of vehicles within range of the originating vehicle.

As part of Task 5, the Volvo Team will also refine plans for completing OBE installations on an additional 24 maintenance vehicles. These plans will reflect insights gained during completion of the first two prototypes (i.e. this task), as well as associated efficiencies and economies.

Testing and validation of the VII equipment in the maintenance vehicles will be completed in Greensboro, NC as well as New York State, and will adhere to the test plan developed in Task 1. The test plan will include provisions for documenting performance of both vehicle-to-infrastructure and vehicle-to-vehicle communications using relevant metrics such as range, latency, and error rates for all transmissions.

Task 6. Final Demonstration of CVII OBE Systems. In this task, our Team will demonstrate the VII vehicles (including the Volvo truck and the two NYSDOT provided maintenance vehicles) at a location chosen by NYSDOT under Task 1. It is our understanding that the New York State Thruway is in the process of installing a virtual weigh station at the Spring Valley location, and that a VII infrastructure will be in place in this corridor as well. As such, this would appear to be a convenient and effective location to conduct the demonstration since the capabilities and features of the Virtual WIM station may be able to be incorporated into and leveraged within the demonstration. However, our team is prepared to support demonstration at any VII compliant test location in the New York area. The demonstration vehicles will be operated for a minimum of 3 days, 10 hours per day. During this time, all of the required vehicle-to-infrastructure and vehicle-to-vehicle applications will be demonstrated. As noted earlier, while not a requirement in the RFP, it may be possible during this demonstration phase to link information being transmitted by the VII vehicles to state and/or federal safety and credentialing databases, match vehicle data with static carrier, driver and/or vehicle data that may be contained in such databases, and then make real-time (but simulated) decisions regarding advisory messages to transmit back to the vehicle. For instance, pending the outcome of Task 1, we may be able to include various scenarios in the demonstration that: 1) simulate improper credentialing of a commercial vehicle; 2) automatically update electronic credentials and permits carried on-board the vehicle; and 3) notify a commercial driver if he/she has deviated from the prescribed route for an over-size/over-weight permit.

Task 7 Project Management. The management team proposed by Volvo includes highly experienced individuals with extensive project and program management credentials. This team will maintain regular contact with the NYSDOT Project Manager and other key stakeholders to ensure that the current status of the project and any planned activities are well understood. It is our understanding that the Program Plan developed in Task 1 will lay the foundation for managing the project and will be kept up-to-date over the life of the project. As requested in the RFP, the Volvo team will provide monthly updates on the project's status; quarterly reports based on the federal fiscal year; and will participate in monthly project management meetings throughout the life of the project. The team also will produce a final report at the conclusion of the project summarizing the outcomes of the project and work completed over the life of the project.

Task 8. Public Outreach Program. For this task, we will develop a variety of promotional materials including: a CVII Program Overview document suitable for publication on NYSDOT's website; a two-page "slick sheet" (printed on front and back of a single sheet) that summarizes project vision, goals, concept of operation; technology and programmatic highlights; and project participants; and a 15-minute promotional video that can include footage of test hardware and early demonstrations. The Volvo Team also will support NYSDOT's participation at various transportation industry events (e.g., CVSA, ITS America, trucking association meeting) by developing and/or making presentations, or participating in panel discussions.

10. Firm/Team's Experience: The qualifications of the proposer are of great importance to NYSDOT. Through narrative discussion, show reason why the firm or joint venture submitting this questionnaire believes it is <u>especially</u> qualified to undertake the project. Specifically discuss the firm's experience relevant to those items stated in Section IV, Limited to <u>TWO</u> pages in length, with a font size no smaller than 10 point, unless otherwise specified in the RFP.

The Volvo Group has assembled a team of industry leaders that are at the forefront of designing and deploying the VII program and leveraging the VII infrastructure for commercial vehicle safety, security, and mobility applications. Team members have direct and practical experience with the technical and business requirements associated with NYSDOT's CVII program and will leverage this experience to meet or exceed NYSDOT's requirements for the CVII demonstration. The following paragraphs highlight our Team's experience in relation to the RFP's evaluation criteria for experience:

- **Current and prior experience with VII and wireless transportation communication, including commercial vehicle based efforts by FMCSA, and I-95 Corridor Coalition.** Members of the Volvo team have led or been involved in all of the operational/pilot tests of VII communications to/from commercial vehicles. Volvo was the technical lead for the I-95 Corridor Coalition's project that used a precursor to VII technology to pass commercial driver and commercial vehicle message set data from a moving commercial vehicle to a stationary roadside reader. Volvo currently is participating in the Trusted Truck Project, which is demonstrating a system to provide real-time truck brake data via a wireless connection to roadside enforcement personnel, in order to maximize enforcement resources and increase the number of commercial vehicles for which brake data is collected. TechnoCom's VII-compliant equipment was at the center of FMCSA's wireless truck inspection demonstration that occurred in Tennessee in 2007. SWRI recently tested its integration of VII-compatible OBEs into two motor coaches that will serve as traffic probes for a demonstration during the ITS World Congress in New York City. Booz Allen led the initial development of the Wireless Truck and Bus Inspection program for FMCSA and therefore is familiar with the proposed structure and guidelines for this type of vehicle to roadside communication. Cambridge Systematics is currently supporting FMCSA and FHWA's development of the Smart Roadside Initiative, a new ITS/CVO program designed to leverage existing roadside infrastructure (e.g., VII, CVISN, private-sector) in support of enhanced commercial vehicle safety, security, and mobility. Cambridge Systematics also supports the CVO and Intermodal Program Tracks of the I-95 Corridor Coalition.

  Our Team members also are leading the planning and deployment of the VII program. Booz Allen is serving as the system integrator for the national VII effort (for the USDOT ITS Joint Program Office) and is leading the light-vehicle test of VII technology in Detroit, Michigan. TechnoCom is a leading provider of solutions that enable wireless communication networks and assure their ongoing performance. TechnoCom recently joined NYSDOT in demonstrating the installation and functionality of a VII 5.9 GHz DSRC network along a 22-mile corridor in New York, as well as the corridor's compatibility with VII test beds in California and Michigan. TechnoCom is also providing the VII technology for the Detroit test of light-duty vehicles. As part of the OmniAir Device Certification Program, SWRI is developing a test method to assess device conformance with the Institute of Electrical and Electronics Engineers (IEEE) 1609.2-4 DSRC standards. .

- **Current and prior experience with vehicle manufacturing, equipment, and operations—**The Volvo Group is a global leader in the manufacture of trucks, buses and construction equipment. Volvo is the world's largest manufacturer of diesel engines, and second largest manufacturer of heavy-duty trucks. Volvo's products carry the brand names of Volvo Trucks, Mack Trucks, Renault Trucks, Nissan Diesel Trucks, Volvo Buses, Volvo Construction Equipment, Volvo Penta, and Volvo Aero. Several business units provide component manufacturing, research & development, information technologies, aftermarket support, transportation and logistics, and the development of advanced product technologies and transport solutions. Volvo's customers include NYSDOT and the New York State Thruway. Candidate vehicles for inclusion in Task 5 of this task were made by Volvo under the Mack nameplate. Volvo Trucks North America (USDOT # 335611) also operates a fleet of 42 power units.

Staffing: Volvo is proposing to staff this project with the same experts who have been involved in the previously described projects—thus offering NYSDOT the front-line leaders in national VII development, deployment and testing, as well as experts in CVO safety and operations at the state level. For example: our proposed project manager, **Mr. Johan Hultin** was the project manager for all of Volvo's recent wireless-related CVO projects for FMCSA, TSA, and I-95 Corridor Coalition. He is joined from Volvo by Messrs. **Jan Hellaker** and **Marty Foulks** who bring proven track records of success in implementing commercial vehicle telematic solutions. **Mr. Ryan Lamm** and **Mr. Mike Brown** of SWRI are leading the development and installation of OBEs in motor coaches for the upcoming World Congress and thus offer highly relevant OBE system integration experience. For FMCSA, **Mr. Robert Kreeb** (Booz Allen) led an analyses of alternative concepts for implementing wireless commercial vehicle inspections and helped develop the

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requirements for such systems. **Mr. Cris Ianculescu** (Booz Allen) is developing the first-ever VII-based public sector applications, while **Mr. Ram Kandarpa** (Booz Allen) is leading the end-to-end integration and testing of VII vehicles, infrastructure and applications for USDOT. **Mr. Brad Wright** and **Mr. Steve Capecci** with Cambridge are supporting FMCSA as well as several States with development and implementation of leading-edge information systems to support CVO safety and security. **Mr. Justin McNew** with TechnoCom is one of the pioneers of the VII concept and was a leading architect of the VII standards, and of the radio systems upon which the national VII development effort is based.

Combined, the Volvo Team offers NYSDOT unmatched qualifications and experience in: nationally compliant VII infrastructure; on-board VII technology and system integration; roadside inspection concepts and CVO safety and security solutions; and commercial vehicle design, development and support. More detailed information about each partner is listed below. Specific project experience is detailed in response to Section 11.

Volvo Technology of America, Inc. is the US branch of Volvo Technology Corporation headquartered in Gothenburg, Sweden. It employs close to 400 people worldwide (of which 20% have a PhD degree or similar), and is an innovation company that develops new technology, new product and business concepts for "hard" as well as "soft" products within the transport and vehicle industry. Volvo Technology participates in national and international projects. Volvo Technology has played a significant role in ITS R&D in Europe and North America for over 20 years.
Some of Volvo's relevant activities include:

- Volvo Technology was the main project partner in the $4 million Minnesota DOT project TRILOGY. The project ran between 1995-1998 and involved installation of advanced products for receiving real-time traffic information in several hundred commercial vehicles.
- Volvo Technology is responsible for system design and all embedded software design in Volvo Cars' On Call product (similar to OnStar)
- Volvo Technology is one of the key partners in two Commercial VII projects sponsored by the European Commission; CVIS and SAFESPOT
- Volvo Technology was a key partner in the 2006 I-95 Coalition project for Remote Truck Inspection using a predecessor to the VII communication technology
- Volvo Technology has a multi-year agreement with NTRCi to design, develop and demonstrate Trusted Truck® concepts for wireless inspection of heavy trucks
- Volvo Technology recently concluded an R&D project on behalf of TSA to counter attempts to use HazMat transports in terrorist actions

Booz Allen Hamilton is a multi-disciplinary technology and management consulting firm and has been assisting government and commercial clients with technology, marketplace and regulatory challenges for more than 90 years. With 19,000 employees on six continents, Booz Allen provides consulting services in strategy, operations, organization, information systems, and technology implementation. Booz Allen has over 60 offices world wide, 32 in the US, and has offices in New York City and Newark, New Jersey.

Through their Transportation and Wireless Mobility Solutions Teams, Booz Allen offers staff with directly related experience in project management, vehicle-based communications alternatives, intelligent vehicle initiative technologies, dedicated short range communications, standards development for transportation related initiatives, communication networks, and roadside inspections. Booz Allen currently is the lead systems integrator for USDOT's national VII development effort and together with the light duty automotive industry is coordinating a comprehensive Proof of Concept (POC) test in Detroit Michigan. Booz Allen's responsibilities include: installation of the VII infrastructure: development of all network hardware and software to support both public and private sector applications; development of end-to-end system testing protocols and plans; and reporting on overall performance and functionality of the VII system. Booz Allen is also leading the adaptation of the J2735 standards to support the public sector VII applications being tested in Detroit. Booz Allen has assisted FMCSA with the initial feasibility study for commercial vehicle wireless/automated roadside inspections which helped to launch their Smart Roadside Program. Booz Allen also is assisting FMCSA with the testing and evaluation of leading-edge vehicle based safety technologies including: tire pressure monitoring systems (TPMS); advance brake control and diagnostic systems; vehicle self-weighing systems; on-board data recorders; and lane departure warning technology.

Southwest Research Institute®, (SwRI®) headquartered in San Antonio, Texas is one of the original and largest independent, nonprofit, applied research and development organizations in the United States. Its mission is to develop, package, and transfer technology for industrial and government clients. Independent of commercial or governmental organizations, SwRI provides solutions based solely on the client's program requirements. With its multidisciplinary capabilities, the Institute offers a diverse set of technical skills ranging from software development to hardware engineering, including:

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- **System integration**: SwRI staff members use diverse educational, technological, and systems backgrounds to perform timely on-site integration of complex systems, including Intelligent Transportation Systems (ITS).
- **Software engineering**: Institute staff are well versed in current software technologies, using a highly structured development methodology to provide program implementation on time and within budget.
- **Communications engineering**: Institute staff design and implement both wired and wireless communication systems.

SwRI has been an active participant in the planning, implementation, and testing of VII technologies over the last 2 years. As part of the OmniAir Device Certification Program, SwRI is developing a test method that assesses device conformance with the Institute of Electrical and Electronics Engineers (IEEE) 1609.2-4 DSRC standards. This test method will test compliance with the 5.9GHz DSRC/WAVE device standards & interoperability requirements. SwRI is leading the development and integration of the On-Board Equipment that will provide probe data from the demonstration busses for the 2008 ITS World Congress in New York. The OBE will also demonstrate Vehicle-to-Vehicle (V2V) communication, as well as Infrastructure-to-Vehicle (I2V) communication, during the 11th Avenue Theatre Autonomous Vehicle Demonstrations. The OBE's probe data capabilities were recently demonstrated in the Long Island VII test bed in Hauppauge, NY in February, 2008. This existing software and OBE development and integration experience will be leveraged in the development of the NYSDOT CVII Development Program.

Cambridge Systematics is a 250 person, employee-owned company based in Cambridge, Massachusetts. CS maintains satellite offices throughout the US - including New York City - and presently have a staff of eight employees working on-site at the New York State Department of Transportation who support the issuance of oversize/overweight permits to motor carriers operating in the State of New York. CS is a national leader in commercial vehicle regulatory and safety activities. CS has been at the forefront of a variety of commercial vehicle initiatives over the past three decades. CS currently is defining and supporting numerous ITS/CVO programs at the Federal level, and have worked with a number of states to deploy and evaluate the effectiveness of roadside and on-board technologies. For FHWA, CS also is defining a future concept of operation for the use of technology to improve states' truck size and weight enforcement. CS has implemented information systems that support the issuance and enforcement of motor carrier regulations in a number of states, as well as the exchange of commercial vehicle safety and credential data between state systems and national data repositories. CS also developed the automated truck permit system for the New York State Thruway and provides ongoing maintenance and support for this system.

TechnoCom has extensive experience in VII and DSRC wireless systems design, development, integration, deployment and testing, having worked on a variety of such activities with the US DOT, state agencies, automakers and systems integrators. TechnoCom has been an active participant in the VII program since 1999, beginning with standards development and culminating in the launch of standards compliant products. In 2006 TechnoCom formed its Mobility Solutions group to specifically address DSRC and VII products and services.

Between 2006 and the present TechnoCom demonstrated 5.9 GHz DSRC VII applications in 22 cities across 17 states. TechnoCom was also selected by the Federal Motor Carrier Safety Administration (FMCSA) for the Commercial Vehicle Wireless Roadside Inspection showcase in Tennessee in August 2007. TechnoCom is currently supplying software and systems for the VII Proof of Concept in Michigan and California, and is providing systems engineering, infrastructure and on-board systems to support DSRC and VII capabilities for the 15th ITS World Congress in November 2008.

Fitzgerald & Halliday, Inc. (FHI) is a full-service planning and public outreach consulting firm providing services to public and private sector clients since 1987. Staff include planners, engineers, and outreach specialists with expertise in transportation, community planning, and public involvement. FHI has demonstrated innovative presentation techniques and development of project promotional materials for several public sector clients. They also have led design and execution of public project feedback mechanisms in support of new capital projects. **FHI** works with clients to disseminate information, build consensus, manage constituencies and mold a successful outcome. FHI utilizes a wide range of tools for public involvement, including: public meetings and partnering sessions, group meetings and workshops, focus groups, newsletters and bulletins, multimedia displays and presentations, posters and graphics, interactive project websites, and others. FHI is certified as a disadvantaged business enterprise (DBE) in over 25 states, including New York.

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11. Project Experience - This section is a demonstration of the firm/team's experience. Individual experience with other firms is listed in Item 8 and may NOT be listed in this section. Include experience for offices proposed to work on the project. The box provided for *Description and* Na*ture of Firm's Responsibility* may be expanded to provide a more detailed description for each of the 10 projects listed. This attachment may not exceed **four** pages.

(1) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
HAZMAT Truck Security Pilot (HTSP); NC and NY	Transportation Security Administration (TSA) 601 South 12th Street, Arlington, VA 22202-4220 Michael Filiaggi Highway & Motor Carrier Programs Office, TSA Michael.Filiaggi@dhs.gov, (571) 227-4262	December 2007	$800	$670

b. Description and Nature of Firm's Responsibility

The HTSP pilot seeks to provide the TSA with technology and system concepts moving towards a national truck tracking center (TTC) that will allow the government to continually track high HAZMAT truck locations and load types in all 50 states; and develop a set of protocols capable of interfacing with existing truck tracking systems, state and local government intelligence operations centers, and federal law enforcement agencies and first responders.
The project team consisted of Northrop Grumman, CVSA, Volvo Truck North America/ Volvo Technology America, Spill Center and North Carolina State University / Institute for Transportation Research and Education (ITRE). The responsibility of Volvo Technology of America included project management & reporting, the vehicle and central communication systems, system development, co-development of common/standard safety and security data message set, test platform, Universal Communications Interface (UCI), adaptation and overall system integration and final demonstration. The wireless communication used was based on cellular technology.

(2) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Wireless (802.11 WiFi) Communication of Driver and Vehicle Message Data Set from En-Route CMV to a Stationary Roadside Reader; North Carolina	I-95 Corridor Coalition 3206 Tower Oaks Boulevard, Rockville, MD, 20852 Thomas Caves, 919- 733-2126, tcaves@nccrimecontrol.org	November 2006	$144	$120

b. Description and Nature of Firm's Responsibility

The effort successfully demonstrated the technical feasibility of utilizing 802.11b (WiFi) technology to wirelessly communicate selected driver and vehicle data elements from a commercial motor vehicle (CMV) operating at highway speed to a stationary 'reader' located at the 'roadside.' The data elements communicated from the vehicle to the roadside consisted of (a) driver information read from a simulated Transportation Worker's Identification Credential (TWIC) smartcard, (b) the results of an onboard process that verified a real time scan of the driver's fingerprint against an image of the fingerprint stored on the smart card, and (c) the real time status of the vehicle's brake system derived from information on the vehicle data bus. The project team consisted of the Commercial Vehicle Safety Alliance (CVSA), North Carolina State University/Institute for Transportation Research and Education (NCSU/ITRE), North Carolina State Highway Patrol (NCSHP)/Research and Planning, and Volvo Technology of America. The responsibility of Volvo Technology of America included project management & reporting the wireless capability, all system & software design & development, system integration & verification and the final demonstration of all functionality.

(3) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Trusted Truck Year 1; NC and TN	The University of Tennessee 219B Perkins Hall, Knoxville, TN 37996, Tom Urbanik, 865- 974-7709, turbanik@utk.edu	July 2005	$400	$400

b. Description and Nature of Firm's Responsibility

A demonstration of a system that helps to maximize customer uptime by providing real-time truck brake data over wireless networks. This allows the government inspection station to reduce time-intensive, manual brake inspection, and get data from the many trucks they do not have time to inspect.

A Volvo 660, long-haul truck was fitted with a Knorr-Bremse Electronically Controlled Brake System, a GPS receiver, and the Trusted Truck hardware and software. The Trusted Truck "ECU" provided a J1939 vehicle interface, the wireless interface and GPS interface. The inspection station was fitted with a custom server application that determines vehicle condition and automatically generates requests and directives. When entering the network, the vehicle (client) broadcasts vehicle ID, overall status, and position. The server can request detailed brake data, including brake lining remaining, brake pressure, and relative wheel speed, and can also direct the vehicle to stop or proceed.

The main deliverable was the configuration of the vehicle, and proof of the concept. The main application, as well as the SW modules for WLAN, GPS, and J1939, are all based on the Rapid Prototyping Toolbox developed at Volvo Technology of America . The HW deliverables included the Trusted Truck ECU, and an in-vehicle configuration that includes the WLAN antenna, and GPS receiver. The responsibility of Volvo Technology of America included project management & reporting, all technical development, ,verification and final demonstration

(4) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Cooperative Vehicle Infrastructure Systems (CVIS); European Union	ERTICO - ITS Europe Blue Tower 326 Avenue Louise, B-1050 Brussels Belgium Paul Kompfner, +32 (2) 400 0732, p.kompfner@mail.ertico.com	January 2010	$55,100	$4,200

b. Description and Nature of Firm's Responsibility

The objective of this (European) project is to create a wireless network between vehicles & infrastructure and to increase efficiency & safety through vehicle-infrastructure cooperation. The CVIS Router enables seamless IPv6 connectivity over multiple carriers and WAVE short message protocol (IPv6 sessions used for services and WAVE short messages used for heartbeat broadcast, Critical Safety Message broadcasts, and Service Announcement broadcasts). CVIS applications include urban [traffic control(e.g. intersection speed recommendations), traffic management (e.g. dynamic routing), and interaction between public transport and private vehicles], inter-urban [co-operative traveler assistance and enhanced driver awareness of relevant safety/traffic data], cooperative freight & fleet applications [dangerous goods route guidance/management, parking zone management, and access control for defined sensitive areas], and cooperative monitoring [merged traffic data on basis of mobile (XFCD/EFCD) and stationary detectors for all CVIS applications]. The project team is a consortium of 60 partners in 12 countries. Volvo is one of the key partners with the second largest budget among the partners (after the coordinator) and is developing 5 applications that will be demonstrated at several test sites. Volvo will integrate applications in Volvo trucks in Lyon (France) and Gothenburg (Sweden). Volvo will also play a major role in the demonstration setup at the ITS World Congress in Stockholm, Sweden in 2009.

(5) a. Project Name & Location	b. Project Owner's Name & Address and Project Manager's Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Vehicle Infrastructure Integration (VII) McLean, Virginia	Research and Innovative Technology Administration (RITA) USDOT, 1200 New Jersey Avenue, SE • Washington, DC 20590 Mike Schagrin, (202) 366-2180, Mike.Schagrin@dot.gov	July 2008	$33,767	$25,325

b. Description and Nature of Firm's Responsibility

USDOT has engaged Booz Allen to design the national VII network architecture, act as system integrator, and to implement a proof-of-concept (POC) system as part of a VII development test environment (DTE) in Michigan and California. Booz Allen is the prime contractor responsible for overall management and technical performance. Booz Allen is leading activities related to integrated schedule development, status reporting, performance management, configuration management (CM), risk management, quality assurance (QA), and stakeholder management and outreach. Booz Allen's technical roles focus on identifying use cases, specifying system requirements, performing communications analysis; defining architecture development, designing and testing the POC network subsystem, and performing POC system integration and test. Booz Allen is coordinating the integration, and testing of the three primary VII subsystems: the vehicle's on-board equipment (OBE), the roadside equipment (RSE), the supporting communications and IT network, and application software. Project requirements include a robust design and test component geared toward proving the feasibility of a nationwide VII deployment.

(6) a. Project Name & Location	b. Project Owner's Name & Address and Project Manager's Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Wireless Roadside Truck and Bus Safety Inspections McLean, Virginia	Federal Motor Carrier Safety Administration (FMCSA) USDOT, 1200 New Jersey Avenue, SE • Washington, DC 20590 Jeff Loftus, (202) 385-2363, jeff.loftus@fmcsa.dot.gov	November 2005	$435	$435

b. Description and Nature of Firm's Responsibility

This study focuses on developing and analyzing various concepts of operations that would link advanced onboard monitoring technologies together with a means of wirelessly communicating such information to inspections sites in order to improve the quality and/or quantity of commercial vehicle inspections completed annually in the United States. Booz Allen completed the following tasks as part of this project: Analysis of historical inspection and crash data to determine requirements for a wireless inspection system and a safety data message set (SDMS); Development of wireless inspection operational concepts defined by different wireless technologies, venues and methodologies for collecting the data, IT support systems, and other operating and implementation scenarios.

(7) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Statewide Intelligent Transportation Systems Development and Integration	Mr. Mel Partee, SDI Program Manager Texas Department of Transportation, TRF; 125 E. 11th St. Austin, Texas 78701-2483; Phone: 512-506-5116 Email: mpartee@dot.state.tx.us	5/22/2008	$27,400	$27,400

b. Description and Nature of Firm's Responsibility

SwRI provides CVISN program management for Texas in their efforts to move to core CVISN compliance. This support covers 3 task orders and involves overall management and coordination of the working group and steering committee composed of representatives of 6 state agencies as well as FMCSA and FHWA. Texas has been awarded CVISN grants for FY 2006 and FY 2007 that were prepared and submitted by SwRI. Texas' CVISN program is leveraging the ITS software developed under the SDI program and the work being performed for the border safety inspection facilities. SwRI provides technical support to TxDOT for the development of new border safety inspection facilities.

(8) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
Investigation into Multi-Vehicle Cooperative Vehicle System (CVS) Applications Utilizing DSRC in Complex Urban Environments.	SwRI Advisory Committee for Research (ACR) Walt Downing, Executive Vice President & ACR Chairman 6220 Culebra Road; San Antonio, TX 78238 Phone: 210-522-3186; Email: walt.downing@swri.org	1/4/2009	$185	$185

b. Description and Nature of Firm's Responsibility

This project leverages previous research work done for the Development of a Heavy-Duty Vehicle Probe Data Platform and Integrating Dynamic Vehicle Probe Data into an ATMS to more closely understand Vehicle-to-Infrastructure (V2I), Infrastructure-to-Vehicle (I2V), and Vehicle-to-Vehicle (V2V) communications utilizing DSRC in Complex Urban Environments. Utilizing the J1939 Heavy Duty Vehicle and J1979 OBD-II data message standards, algorithms were developed for the TechnoCom MCNU based OBE to package, transmit across the World Congress DSRC VII Network, and collate the probe data from passenger and heavy duty vehicles, such as busses already chartered for the event. Further research is being performed to understand the effects on the transmission of large quantities of J1939 commercial vehicle operations probe data over 5.9 GHz DSRC when the transmission is pre-empted with higher priority safety critical applications.

(9) a. Project Name & Location	b. Project Owner=s Name & Address and Project Manager=s Name, Phone Number & E-mail address.	c. Completion Date (actual or estimated)	d. Estimated Cost (In Thousands)	
			Entire Project	Work For Which Firm Was/Is Responsible
FMCSA ITS/CVO Program Support; Washington, DC	FMCSA (contracted through FHWA) 1200 New Jersey Avenue, S.E.; Washington, DC 200590 Jeff Secrist, Program Manager; P: 202-385-2367 jeff.secrist@dot.gov	Ongoing	$750	$750

b. Description and Nature of Firm's Responsibility

Cambridge Systematics has supported the national ITS/CVO program since 1992. As part of this support, CS has helped to identify user needs for public- and private-sector stakeholders and tailored the national program to meet the unique deployment needs of states and motor carriers. CS also provides technical assistance services to states, in order to help states plan and deploy their ITS/CVO-CVISN deployments. CS currently is helping FMCSA and FHWA develop and implement the Smart Roadside Initiative—a new ITS/CVO program designed to leverage existing roadside infrastructure (e.g., VII, CVISN, private-sector) in support of enhanced commercial vehicle safety, security, and mobility. CS is documenting public- and private-sector user needs and defining a new vision for improved data sharing and operations at the roadside.

12. All information provided in this Technical submission is current, true and accurate. The individual signing below certifies that the staff identified in Item 7 is available as of the date this form is submitted to NYSDOT. Although the consultant is expected to make every effort to provide the proposed key staff, if the advertised start date is delayed and key staff is no longer available, the consultant may propose alternate staff for NYSDOT approval.

(This sheet must be signed and dated by an officer/principal of the firm, or of each partner firm of the joint-venture).

Signature:_____ Printed Name _____Thomas Richter _____ Title ___Vice President, Operations ____ Date __3_/_28_/_ 2008 __

Additional signature blocks for officer/principal(s) of other partner firms in a joint-venture:

Signature:_____ Printed Name _____ Title _____ Date ____/____/_____

Signature:_____ Printed Name _____ Title _____ Date ____/____/_____

This NYSDOT 255NAE Submittal Form was prepared by: Name (please print) _____Johan Hultin_____ Telephone Number ___(336) 393-4165_____
E-mail address: _____johan.hultin@volvo.com_____