

**SOLICITATION, OFFER AND AWARD**

1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CRF 700)

RATING

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2. CONTRACT NO.		3. SOLICITATION NUMBER DTRS57-04-R-20029		4. SOLICITATION TYPE <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED BID (RFP)		5. DATE ISSUED 07/23/2004		6. REQUISITION/PURCHASE NUMBER 74-3327	
7. ISSUED BY U.S. DOT/RSPA/Volpe Center 55 Broadway Cambridge, MA 02142				8. ADDRESS OFFER TO (If other than Item 7)					

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder"

**SOLICITATION**

9. Sealed offers in original and \_\_\_\_\_ copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if hand carried, in the depository located in SEE BLOCK #7 until 1500 ET local time 08/24/2004  
(Hour) (Date)

CAUTION: LATE Submissions, Modifications and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL	A. NAME Donald MacGee		B. TELEPHONE (NO COLLECT CALLS)			C. E-MAIL ADDRESS donald.macgee@volpe.dot.gov	
	AREA CODE 617	NUMBER 494-2803	EXT.				

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**OFFER (Must be fully completed by offeror)**

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within \_\_\_\_\_ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52-232-8)	10 CALENDAR DAYS (%)	20 CALENDAR DAYS (%)	30 CALENDAR DAYS (%)	CALENDAR DAYS (%)
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14. ACKNOWLEDGEMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)
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15B. TELEPHONE NUMBER		15C. CHECK IF REMITTANCE ADDRESS <input type="checkbox"/> IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.	17. SIGNATURE	18. OFFER DATE
AREA CODE	NUMBER			

**AWARD (To be completed by government)**

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION	
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304 (c) ( ) <input type="checkbox"/> 41 U.S.C. 253 (c) ( )		23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	ITEM
24. ADMINISTERED BY (If other than Item 7) CODE		25. PAYMENT WILL BE MADE BY CODE	
26. NAME OF CONTRACTING OFFICER (Type or print)		27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

**CONTINUATION SHEET**

REFERENCE NO. OF DOCUMENT BEING CONTINUED  
DTRS57-04-R-20029

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NAME OF OFFEROR OR CONTRACTOR

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
	FOB: Destination Delivery Location Code: VNTSC U.S. DOT/RSPA/Volpe Center				
0001	Vehicle Crash Tests to Support Vehicle Crashworthiness Studies Period of Performance: 10/01/2004 to 09/30/2009  Technical support services for vehicle crash tests in accordance with the Statement of Work and other terms and conditions of this contract and the contract types set forth below:				
0001AA	FIRM-FIXED-PRICE TYPE*				
0001AB	COST-PLUS-FIXED-FEE (COMPLETION TYPE)*				
0001AC	COST-PLUS-FIXED-FEE (TERM TYPE)*				
	* Possible performance-based task orders.				

## **SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS**

### **B.1 CONTRACT TYPE - COST-PLUS-FIXED-FEE (MAR 2003)**

A. This is an indefinite delivery/indefinite quantity (IDIQ) task order contract. Requirements will be placed under this contract through the issuance of task orders.

B. Due to the variety of services required under the contract and the circumstances that affect their duration and definition, task orders may be issued on a firm-fixed-price (FFP), cost-plus-fixed-fee (CPFF) completion, or cost-plus-fixed-fee (CPFF) term basis at the Contracting Officer's (CO) discretion based on the guidelines provided in Part 16 of the Federal Acquisition Regulations (FAR). Performance-based task orders will be used to the maximum extent practicable.

C. Individual CPFF orders will be issued on a completion-type basis pursuant to FAR 16.306 (d)(1) whenever possible. If a completion-type task order is not appropriate, a term-type task order may be issued pursuant to FAR 16.306(d)(2).

D. The Contract Line Item Number (CLIN) structure provided in Section B.4 below establishes a CLIN for the three contract types/pricing methods available for use under this contract. Because using a particular contract type/pricing methodology requires terms and conditions specific to that use, this contract includes terms and conditions covering FFP and CPFF completion, and CPFF term tasks. In general, these terms and conditions are clear on their face with regard to applicability.

### **B.2 CONTRACT LIMITATIONS (MAY 2003)**

A. Multiple Contract Awards: (TO BE COMPLETED AT TIME OF AWARD) contracts have been awarded under Volpe Center Solicitation DTRS57-04-R-20029.

B. Maximum Contract Value: The value of all task orders placed under all contracts awarded shall not exceed \$5,000,000. The maximum value on any single contract is not fixed. As a task order is issued to one contractor, it is subtracted from total capacity to all contractors.

C. Minimum Guarantee: The guaranteed minimum is \$2,500 for each contract. Individual task order values are tracked against total maximum capacity \$5,000,000.

### **B.3 CONTRACT SCOPE (May 1999)**

The Contractor, acting as an independent Contractor and not as an agent of the Government, shall furnish all personnel, facilities, support, and management necessary to provide the services required under this contract and its subsidiary task orders. The scope of this effort is defined in the Statement of Work (SOW). Specific requirements will be stated in individual task orders.

### **B.4 CONTRACT LINE ITEMS (MAR 2003)**

<u>ITEM NO.</u>	<u>SERVICES</u>
0001	Technical support services for vehicle crash tests in accordance with the Statement of Work and other terms and conditions of this contract and the contract types set forth below:

0001AA FIRM-FIXED-PRICE TYPE\*

0001AB COST-PLUS-FIXED-FEE (COMPLETION TYPE)\*

0001AC COST-PLUS-FIXED-FEE (TERM TYPE)\*

\* Possible performance-based task orders.

## SECTION C - DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

### SECTION C – STATEMENT OF WORK

#### C.1 Introduction

##### C.1.1 Background

The Volpe National Transportation Systems Center (Volpe Center) has been performing vehicle crashworthiness studies for the Office of Applied Vehicle Safety Research of the National Highway Traffic Safety Administration (NHTSA) in support of the Department of Transportation's goal to reduce the number of fatalities and injuries on the nation's highways. Each year more than 40,000 persons are killed and three million are injured in highway accidents. As part of this support, test data defining the responses of cars and human surrogates (dummies) subject to car-to-car, car-to-barrier, and other impacts, and the response of dummies during sled tests will be obtained. This test effort is critical to the Department of Transportation's mission to improve highway safety. The Contractor shall provide test data after the vehicles and test conditions are defined by the Government during the period of the contract by means of Task Orders (TOs).

##### C.1.2 Objectives

The objectives of the TOs shall be to obtain and analyze light duty vehicle and dummy responses during vehicle tests of various crash modes and dummy responses during sled tests. An additional objective will be to obtain and analyze data from static crush tests for the characterization of vehicle structures.

#### C.2 Scope of Work

##### C.2.1 General

The TOs that may be issued shall require the Contractor to (a) conduct dynamic crash tests, sled tests and static crush tests of late model production and/or modified vehicles, (b) reduce and evaluate for reasonableness the resulting data, (c) refurbish, repair and modify late model year production vehicles before and/or after tests, (d) analyze the data from the sensors and films and prepare test reports, and (e) perform modeling and analysis as requested to supplement the test activity. The purpose of the tests is to:

1. Measure the accelerations, velocities, displacements, forces and deformations of vehicles and dummies during impacts that are representative of real world automobile crashes.
2. Evaluate the performance of late model year production or modified vehicles with respect to their aggressivity and compatibility in various crash modes.
3. Evaluate the protection performance of various restraint devices by sled test and full-scale impact tests.
4. Obtain vehicle force-deflection characteristics at several impact speeds for evaluation of vehicle parameters and use in computer simulations of dynamic impacts.

The tests include but are not limited to: (1) full frontal, offset, oblique, rear, rollover, and side car-to-car crash tests, (2) barrier (including barrier instrumented with load cells) or pole tests, (3) moving barrier-to-car crash tests at various impact angles, (4) static car-to-barrier, car-to-car, and component crush tests, and (5) sled tests. Unless specified otherwise, the term "car" or "vehicle" implies all light duty vehicles which are defined as mini, sub-compact, compact, mid-size and large passenger cars, and vans and trucks under 8,500 pounds gross vehicle weight.

### C.2.2 Test Requirements

The Contractor shall provide all the necessary personnel, facilities, services, equipment, and materials, with the exception of Government Furnished Equipment (e.g., vehicles and dummies), for crashworthiness tests and shall conduct these tests as called for under each TO. A temporary or permanent fixture covering the test site (including any track length), which will allow year-round testing to be conducted irrespective of the weather is preferred. The types of tests that will be specified in the TOs will include:

1. Car-to-barrier and car-to-pole crash tests for various test configurations (front, side, rear, etc.). These tests will be performed at speeds up to 60 mph and impact angles up to 30 degrees. Fixed barrier tests shall require the use of the standard 36 load cell barrier (4 rows by 9 columns) unless stated otherwise in the TO (moving deformable barrier tests may require as many as 55 load cells).
2. Car-to-car and moving barrier-to-car crash tests for various test configurations (front, side, rear, etc.) with all size ranges at various impact angles or configurations with closing velocities up to 100 mph.
3. Car-to-barrier and car-to-car static crush tests in the following modes:
  - a. full-frontal and offset-frontal,
  - b. rear crush, and
  - c. side crush, normal to side and at various angles.
4. Car component static tests (e.g., seat belt anchors (similar to Federal Motor Vehicle Safety Standard (FMVSS) 210 test) and seats (similar to FMVSS 207 tests) (<http://www.nhtsa.dot.gov/cars/testing/procedures/testprocedures.html>)).
5. Sled tests to simulate light duty vehicles in frontal, oblique, rear, and side crash modes. For these tests, the Contractor shall be prepared to:
  - a. provide any vehicle crash pulse using variable deceleration profiles,
  - b. fabricate various sled bucks including automobile, small trucks, and vans,
  - c. install advanced restraint systems in the sled buck including child restraints, and
  - d. provide test data within one hour of each sled test.
6. Rollover tests to be carried out on a car test track with the test vehicle traversing a course to induce rollover conditions. The test vehicles may be equipped with outriggers to avoid actual rollover.
7. In addition, the Contractor shall be required to perform the following tasks under specific TOs:
  - a. Tests described in 1, 2, and 5 above using 50<sup>th</sup> and 95<sup>th</sup> percentile male dummies, 5<sup>th</sup> percentile female dummies, as well as 3-year old and 6-year old child dummies and infant dummies.
  - b. Refurbishing and performing minor modifications to production vehicles before or after impact tests.
  - c. Installation of advanced restraint systems; handling and instrumentation of anthropomorphic dummies.
  - d. Data acquisition procedures specified by the Society of Automotive Engineers Recommended Practice J211 entitled "Instrumentation for Impact Tests" (latest revision)([www.sae.org](http://www.sae.org)). Furthermore, the minimum sampling rate for the data acquisition must be at least 8000 Hertz.
  - e. Provide data for the NHTSA Crash Test Database in the NHTSA EV5 data format as specified in the Version 5 Test Reference Guide, Volume 1: Vehicle Tests (VTRG), which may be downloaded, along with supporting data entry

software, Entree for Windows, Version 5, from <http://www-nrd.nhtsa.dot.gov/software/entree/index.htm>. The Contractor shall submit the data in CDs/diskettes.

### C.2.3 Data Recording Requirements

The following indicates typical data requirements:

1. For each dynamic test, sled test, or signal waveform generator test (for calibration) to be conducted, the following data (when applicable) shall be recorded by the Contractor:
  - a. Time trace with event marks
  - b. Calibration levels for each transducer
  - c. Acceleration profiles of vehicles
  - d. Restraint loads on shoulder belt
  - e. Restraint loads on lap belt
  - f. Head accelerations
  - g. Chest accelerations
  - h. Chest deflections
  - i. Belt anchor loads (if transducer can be inserted)
  - j. Delay time for retractor lockup
  - k. Belt spool out and elongation
  - l. Sear back acceleration
  - m. Femur loads or foot loads
  - n. Displacement transducers
  - o. The following tire information: tire manufacturer, tire brand name, items circled in Figure 1, and the vehicle model year, make, model, and VIN
  - p. Passenger compartment geometry (e.g., instrument panel profile, steering assembly geometry and location, restraint system (belts and air bags) locations, etc.)
  - q. Any other data deemed necessary by the Government and identified within the individual TO.
2. In addition to the above, high-speed 16mm cameras (including digital cameras (see section C.3.3)) shall be used both on-board and off-board in appropriate locations to record vehicle, seat, and dummy motions throughout the acceleration event. Camera location and lens setting shall be recorded. Still photographs (digital format (JPEG)) shall be taken as necessary to document each system component to determine “before” and “after” configurations. A still color photograph (8”X10”) shall also be taken of the dynamic event at moment of impact.

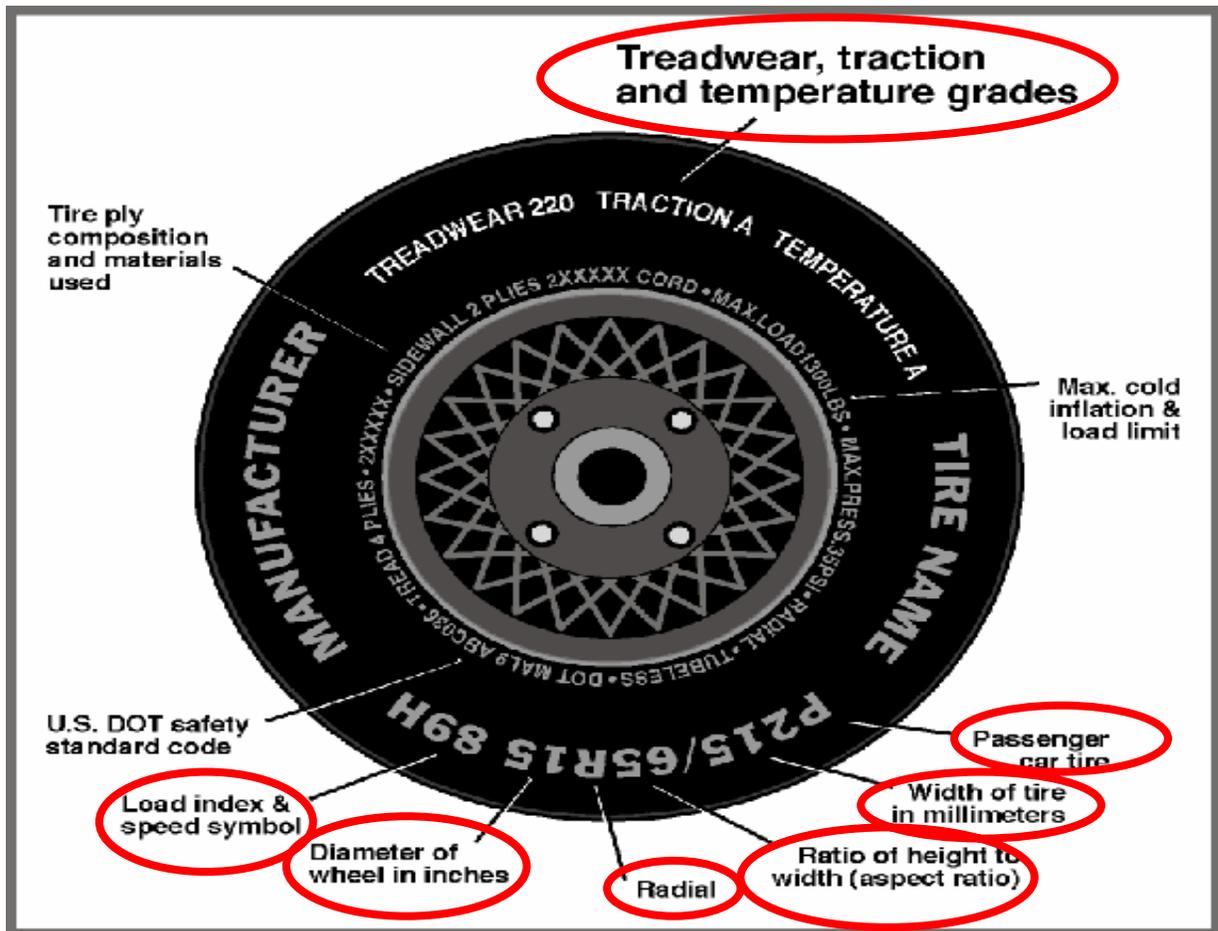


Figure 1. Required Tire Information (circled)

In addition to the tire placard information contained in the standard test report, the information circled in Figure 1 will be obtained from the actual tires with which the test vehicle is equipped:

1. Size of Tires on Test Vehicle: (e.g., P215/65R15)
2. Load Index & Speed Symbol:
3. Treadwear Grade:
4. Traction Grade:
5. Temperature Grade:

3. For each static test to be conducted, the following data shall be recorded by the Contractor:
  - a. Pre-test and post-test measurements of pertinent input clearances. (e.g., engine-firewall clearance, etc.).
  - b. Pre-test weights of pertinent structural components.
  - c. A log of significant events for each inch of total crush during the test.
  - d. Locations of load cells and strain gage straps as shown in Section J of the contract, Attachment J-7 (Vehicle-To-Vehicle Crush Test).
  - e. Load and deformation histories of load cells and strain gage straps.
  - f. Still photographs (digital format (JPEG)) from selected angles for each inch of total crush.
  - g. Sequential color movie film of the crush tests.

#### C.2.4 Data Analysis Requirements (Dynamic Crash Tests)

The following indicates typical data analyses, which shall be performed by the Contractor upon the completion of each test, or group of tests:

1. The data shall be given a "quick-look" analysis to determine system (or element) performance. Any anomalies or indications of failure shall be discussed on the same day of the test with the Contracting Officer Technical Representative (COTR).
2. The data shall be processed to obtain a digital printout of the test results. As applicable, the calculations of vehicle velocity change and displacement, Head Injury Criterion (HICs) and other injury criteria shall be included in the reporting of computer results. All results shall be processed, printed and/or plotted and available for review by the COTR within one (1) week after each test.
3. The Contractor shall provide data containing all vehicle, occupant, and test information as well as all test results for each crash test and sled test performed. It is the responsibility of the Contractor to deliver the data in the correct format (NHSTA EV5 data format as specified in the Version 5 Test Reference Guide, Volume 1: Vehicle Tests (VTRG), which may be downloaded, along with supporting data entry software, Entree for Windows, Version 5, from <http://www-nrd.nhtsa.dot.gov/software/entree/index.htm>) required in the NHTSA Crash Test Database. The time trace and the pre- and post-test calibrations for the occupant transducers are to be included in the data. It should be noted that metric units are required. The Contractor shall submit the data in CDs/diskettes.
4. A movie film including pre- and post-test panning shots of the test vehicle(s), a 24 fps panning shot of the test event, and high-speed movies of the impact. At the beginning of the film, a title sequence shall identify: the project title, test number where appropriate, test date, type of test, vehicle or product being filmed, conditions of test or product being filmed.

A minimum of six (6) (four (4) high resolution (as defined in the following paragraph) and two (2) medium resolution or six (6) high resolution) digital high-speed color video cameras shall be required to supplement the required camera coverage as specified in the statement of work.

Any digital high-speed video view having greater than 1500 mm in the horizontal plane, shall be high resolution with a lens of 50mm or longer. Any digital high-speed video view having less than 1500 mm in the horizontal plane, shall be medium resolution, having a minimum actual pixel resolution of 512 x 512 and a lens of 25 mm or greater.

Close-up digital video views are allowed with low resolution (less than 512 x 512) or medium resolution video cameras with any lens combination, if approved by the COTR. These close-up digital cameras are typically reserved for visual observation and timing only, but not for film analysis purposes.

High resolution is defined as having a minimum of 1536 CMOS sensors per every two rows of pixels, with 80% of the horizontal distance of the two rows covered by effective light sensors. There shall also be a minimum of 1024 rows of sensors.

All high-speed film cameras shall use 16mm negative film,. Double sprocket film shall be used for all 16 mm originals and copies. In addition the Contractor shall furnish an Audio Video Interleave (AVI) video compilation of the 16 mm test film.

Two (2) positive copies of the high-speed films, plus original shall be supplied to the COTR. In addition, the Contractor shall provide a minimum of two high resolution and two medium or four high-resolution digital formatted (AVI) movie files from high-speed digital cameras and any other non digital camera shall be scanned from the 16 mm negative film. Resolution of "high resolution" AVI files shall be a minimum of 1024 x 1024 pixels and resolution of "medium resolution" AVI files shall be a minimum of 512 x 512 pixels.

Attachments J-2 through J-8, which are incorporated in Section J of the contract, define typical test configurations and vehicle instrumentation, film coverage and other requirements.

***Failure of the Contractor to follow the test procedures and/or ensure test conditions within the limits specified above, or as specified in a subject TO, or as specified in the Attachments of Section J of the contract, shall cause the test to be repeated at the Contractor's expense including replacement cost of the test vehicle.***

### **C.2.5 Evaluation Test of the Data Acquisition Systems**

A Signal Waveform Generator Test of the data acquisition system, which is defined in Section J of the contract, Attachment J-8 (Signal Waveform Generator Test of Data Acquisition Systems), shall be performed within the six-month period prior to each crash test.

### **C.3 Technical Reports**

The following sections, C.3.1 - C.3.4, describe the types of deliverables, which will be specified in the TO, as required.

#### **C.3.1 Performance Plan**

For a specific TO, the Contractor may be required to prepare and submit five (5) copies of a TO Performance Plan establishing period of performance, planned completion dates, and planned labor and expenditures over time for each item of work. Government responsibilities, which impact Contractor performance, shall also be included. If a TO Performance Plan is required, the Contractor shall not commence performance of the work called for in the TO until the COTR approves the TO Performance Plan.

#### **C.3.2 Test Plan**

The Contractor shall submit and receive approval of a Test Plan, which includes transducer and camera locations, lens types, and other special requirements of a subject TO. A checklist for required instrumentation and camera coverage shall be included in the Test Plan. The Contractor shall submit the Test Plan within two (2) weeks of the TO award date.

### C.3.3 Draft of Test Report

Within two (2) weeks after a test or a series of related tests is performed for a particular TO, the Contractor shall submit a Draft Test Report (two (2) hard copies) to the COTR. This report shall include:

1. All of the following:
  - a. Pre- and post-test still color photos in digital format (JPEG) of test vehicles;
  - b. Test conditions summary;
  - c. All pertinent vehicle specification data;
  - d. Plots of all channels of recorded data;
  - e. Summary of occupant injury results;
  - f. Pre-test checklist used by test engineer; and
  - g. Additional data specified in the TO.
2. One (1) set of still color photos in digital format (JPEG) of the test vehicle in its pre-test and post-test configurations. The JPEG files shall have the same naming convention as used on the photos in the final report.
3. One 8" x 10" color photo of the vehicle(s) at the moment of impact.

The COTR will provide comments on the Draft Test Report within 7 days. These comments shall be incorporated in the Final Report.

### C.3.4 Final Reports

On or before the deliverable due date stated in each TO, the Contractor shall deliver two (2) hard copies of the Draft Final Report which includes test results and analysis as required by each TO. The Draft Final Report shall incorporate corrections and/or comments provided by the COTR on the Draft Test Reports of Section C.3.3. The Final Report (two (2) PDF formatted copies) shall be completed within one week of receipt of the COTR's review of the Draft Final Report.

The reporting format identified in Section J of the contract, Attachment J-1 (Contractor Report Exhibit (June 1, 1977)) shall be required unless a different format is specified in the TO.

### C.4 Data CDs/Diskettes and Computer Programs

All test data recorded under this contract shall consist of all data collected during the test with a means for accurately identifying each particular test and its associated pre-test and post-test calibrations. These recordings shall be accompanied by identification sheets containing all information necessary to identify the conditions of the tests and to process the associated data. Test data shall be recorded in standard format for each test for inclusion in the NHTSA Crash Test Database. The Contractor shall submit data on CDs/diskettes in the NHSTA EV5 data format as specified in the Version 5 Test Reference Guide, Volume 1: Vehicle Tests (VTRG), which may be downloaded, along with supporting data entry software, Entree for Windows, Version 5, from <http://www-nrd.nhtsa.dot.gov/software/entree/index.htm>. It should be noted that metric units shall be required. The initial electronic data submission post-test will contain specification and measurement data in this EV5 format. Subsequent submission of the digital photos (JPEG), AVI, and the PDF copy of the final report shall also be prepared in accordance with the specifications for submission of these deliverables as defined in the Guide (VTRG).

## **C.5 Management Reports**

### **C.5.1 Monthly Contract Progress Reports**

Monthly Contract Progress Reports are required and two (2) electronic copies shall be prepared and submitted in accordance with the "Contractor Report Exhibit" dated June 1, 1977, Section J, Attachment J-1 with the following exceptions.

As a minimum, the Monthly Contract Progress Report will contain the following items:

1. The work performed during the previous month;
2. Significant findings, problems, delays, events, trends, etc. of the reporting period which result from or affect the performance of the contract;
3. Detailed technical description of the work planned for the next reporting period including travel;
4. Specific action required by the Government to assist in the resolution of a problem or to effect the timely progression of the contract or TO;
5. An up-to-date schedule of the work performed and work to be performed on the contract or TO. Two charts shall be presented; one reflecting planned expenditures of man-hours for the project together with the actual expenditures of man-hours; the other reflecting planned project accomplishments versus actual accomplishments in terms of time;
6. The funds committed during the reporting period; and
7. A comparison of the actual and planned accumulated costs through the reporting period

The report shall be submitted to the COTR by the Contractor within fifteen (15) calendar days of the defined end of the reporting period.

### **C.5.2 Monthly Contract Cost Reports**

Monthly Contract Cost Reports (four (4) electronic copies) shall be submitted by the Contractor. These reports shall include monthly cumulative (1) direct labor hours by categories, and (2) elements of cost by direct labor dollars, overhead, other direct costs, etc., which have been incurred and/or committed. In these reports, the Contractor shall also make its current assessment of completing the remaining work within the time or funds remaining. The submission of these reports does not relieve the Contractor of its responsibility under Clause 52.232-22 entitled "Limitation of Funds", Section I.

## **C.6 Meetings and Oral Presentation**

The Contractor shall meet with the COTR at times and locations as specified in the TOs. It is anticipated that if such meetings are required, one (1) set of the electronic visual aid material will be provided to the COTR three (3) working days before the meeting.

### **C.7. Government Furnished Equipment (GFE)**

To be determined in each TO.

### C.8 Disposition of Government Property

Upon acceptance of the Contractor's Final Test Reports, the COTR will consult with NHTSA to determine if the TO vehicles can be released for disposition from the Contractor's facility. If so, the NHTSA Property Management Specialist will take appropriate steps to arrange for disposition of Government property.

The NHTSA Property Management Specialist shall give disposition instructions for all government furnished property through the COTR/CO. The NHTSA address and telephone number are:

DOT/NHTSA  
Property Management Office  
400 7<sup>th</sup> Street, SW  
NPO-200/Room 6123  
Washington, DC 20590  
ATTN: Property Management Specialist  
202-366-9556

If the TO vehicles are still required for project use, the COTR will notify the Contractor of an anticipated release date. On a monthly basis, the Government will re-evaluate the need for retaining these vehicles. When the vehicles are no longer required, the COTR will promptly notify the Contractor.

When the disposition date has been established, the Government will prepare a memorandum with attachments describing each vehicle by: model year, manufacturer, model, NHTSA test vehicle number, complete VIN and acquisition cost. The cover memorandum will also give the complete address of the Contractor's facility, the name and telephone number of a contact person and the Volpe Contract Number and TO Number.

For vehicles that have been crash-tested, the memorandum is to clearly state the following phrase:

**“These vehicles have been destroyed in testing and are not to be repaired for highway use; salvage sale only; no title.”**

### C.9 Contractor Acquired Property

When the Contractor is required to purchase vehicles, the COTR will provide a list of the vehicles to be purchased. The Contractor shall obtain three price quotes prior to purchasing each vehicle. After purchasing the vehicles, the Contractor shall send the documents listed below to NHTSA (see address below). The Contractor shall send these documents (along with copies to the COTR/CO) by overnight delivery service only, and not by regular mail.

1. original of the new vehicle title; signed-over to the name of the NHTSA technical initiating office at the following address:

U.S. Department of Transportation  
NHTSA  
400- 7<sup>th</sup> Street, SW, NVS-321, Room 6226  
Washington, DC 20590

2. odometer disclosure statement (from dealer);
3. copy of dealer's invoice; and
4. copy of form or documentation indicating the results of competitive bidding.

Upon receipt of the above documents, the Government will immediately:

1. assign a unique NHTSA R&D test vehicle number for each vehicle based on the model year and manufacturer; and
2. notify the Contractor by e-mail of the test vehicle numbers and which vehicles the numbers have been assigned to; The Contractor shall then affix the proper number to the proper vehicle in a location that the number can be recorded on film, and the Contractor shall also reference the vehicle number in the test report.

The entire process described above will be completed no later than twenty-five (25) working days after Contractor acquisition of the vehicles.

**SECTION D - PACKAGING AND MARKING**

**D.1 PACKAGING (MAY 1999)**

The Contractor shall ensure that all items are preserved, packaged, packed, and marked in accordance with the best commercial practices to meet the packing requirements of the carrier and ensure safe delivery at destination.

**D.2 MARKING (MAY 1999)**

All items submitted to the Government shall be clearly marked as follows:

- A. NAME OF CONTRACTOR;
- B. CONTRACT NUMBER;
- C. TASK ORDER NUMBER; (If Applicable)
- D. DESCRIPTION OF ITEMS CONTAINED THEREIN;
- E. CONSIGNEE'S NAME AND ADDRESS; and
- F. If applicable, packages containing software or other magnetic media shall be marked on external containers with a notice reading substantially as follows: "CAUTION: SOFTWARE/MAGNETIC MEDIA ENCLOSED. DO NOT EXPOSE TO HEAT OR MAGNETIC FIELDS".

## SECTION E - INSPECTION AND ACCEPTANCE

### E.1 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses, by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this /these address(es):

<http://www.dot.gov/ost/m60/tamtar>  
<http://farsite.hill.af.mil/vffar.htm>  
<http://www.arnet.gov/far>

### FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.246-2	Inspection of Supplies – Fixed-Price	AUG 1996
52.246-3	Inspection of Supplies - Cost-Reimbursement.	MAY 2001
52.246-4	Inspection of Services – Fixed Price	AUG 1996
52.246-5	Inspection of Services - Cost-Reimbursement.	APR 1984
52.246-16	Responsibility for Supplies.	APR 1984

### E.2 GOVERNMENT REVIEW AND ACCEPTANCE (DEC 2003)

A. Technical inspection and acceptance of all work, performance, reports, and other deliverables under this contract shall be performed at the location specified in an individual task order. The task order shall also designate the individual responsible for inspection and acceptance, as well as the basis for acceptance. Task order deliverable items rejected shall be corrected in accordance with the applicable clauses.

B. Unless otherwise stated in the individual task order, the Government requires a period not to exceed thirty (30) days after receipt of the final deliverable item(s) for inspection and acceptance or rejection. Final acceptance rests with the Contracting Officer or designee.

C. Inspection and acceptance of supplies/services for performance-based task orders (i.e., FFP and CPFF (completion)) shall have identifiable performance measures and metric/quality acceptable levels that will form the basis of the inspection and acceptance criteria. For each performance-based task order, the Government will develop a quality assurance plan for use in monitoring contractor performance against the performance measures and metric/quality acceptable levels that shall be clearly defined.

**SECTION F - DELIVERIES OR PERFORMANCE****F.1 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)****I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES**

This contract incorporates one or more clauses, by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.dot.gov/ost/m60/tamtar>

<http://farsite.hill.af.mil/vffar.htm>

<http://www.arnet.gov/far>

NUMBER	TITLE	DATE
52.242-15	Stop-Work Order (applies to FFP task orders)	AUG 1989
52.242-15	Stop-Work Order Alternate I (applies to CPMF task orders)	APR 1984
52.247-34	F.o.b. Destination.	NOV 1991
52.247-55	F.o.b. Point for Delivery of Government-Furnished Property	JUN 2003

**F.2 CONTRACT PERIOD OF PERFORMANCE (MAY 2003)**

The period of performance of the contract shall be four (4) years from the date the Contracting Officer signs the contract award (effective date of the contract).

**F.3 DELIVERIES (MAR 2003)**

Delivery of supplies, services, and written documents (including required formats and delivery locations) will be in accordance with the task order requirements. All correspondence and reports related to each task order shall be delivered to the cognizant Contracting Officer (CO) and/or designated CO's Technical Representative (COTR) as specified in the task order.

**F.4 CONTRACT PROGRESS REPORT (DEC 2003)**

A contractor who has been awarded one or more task orders shall provide monthly overall progress reports. The progress reports shall be provided to the CO or designee not later than the 15th of each month. The Government requires submission of reports electronically in a Microsoft Office compatible format.

The monthly progress reports shall address all activity under the contract through the last day of the previous month. The monthly progress report shall contain the following information:

1. A listing of all new task orders accepted for the preceding month, including for each:
  - a. Task order number and date of issuance;
  - b. Brief description of work covered by task order, including estimated hardware/software amounts (if applicable);
  - c. Amount obligated under task order;
  - d. Total number of hours ordered by the Contracting Officer, if applicable; total number of hours incurred by the contractor by labor category; and total number of hours incurred by labor category regardless of task order type;
  - e. Key milestones (including date of deliverables);
  - f. Subcontractor information, if applicable, including name(s), classification of subcontractor (i.e., small, disadvantaged, large, etc.), type of effort being performed, estimated amount/percentage of work to be done by subcontractor(s), and success in meeting

- Subcontracting Plan goals;
  - g. Type of task order (i.e., FFP, CPFF, Performance Based); and
  - h. Key personnel assigned to each task order, including Prime contractor contact point and phone number for each task order.
2. A listing of all ongoing task orders (excluding those from Paragraph 1 above), including:
    - a. Task order number and date of issuance;
    - b. Any modifications to the task order;
    - c. Summary of dollars expended to date per task order;
    - e. Estimated percentage of work yet to be completed on the task order; progress in meeting subcontracting goals and performance measures under the task order (if applicable); and
  3. A listing of all completed task orders, including:
    - a. Task order number and date of issuance;
    - b. Number and value of modifications issued for the task order;
    - c. Completion date of task order and whether or not inspection and acceptance has been performed by Government;
    - d. Total dollar amount of task order, including modifications;
    - e. Success/failure in meeting subcontracting goals and performance measures under the task order (if applicable); and
    - f. Status of performance evaluation comments.
  4. Significant findings, problems, delays, events, and trends during the reporting period which result from or affect the performance of any task order and any perceived problems.

Any data submitted in the contract progress reports, along with other relevant information, may be included in a past performance database developed and maintained by the Government.

#### **F.5 MONTHLY TASK ORDER PROGRESS REPORTS (DEC 2003)**

A monthly progress report shall be submitted for each task order. The Volpe Center requires that the report be submitted electronically in a Microsoft Office compatible format. Unless otherwise prescribed in the task order, the report will cover the following items:

1. The work performed during the previous month.
2. Significant findings, problems, delays, events, trends, etc. during the reporting period which result from or affect the performance of the task order.
3. Detailed technical description of the work planned for the next reporting period.
4. Specific action requested of the Government to assist in the resolution of a problem or to effect the timely progression of the task order.
5. An up-to-date schedule of the work performed and work to be performed under the task order. A chart shall be presented reflecting planned project accomplishments versus actual accomplishments in terms of time.
6. Report on accomplishments against any identified performance metrics if applicable.

## F.6 MONTHLY TASK ORDER COST REPORTS (DEC 2003)

Monthly cost reports will be submitted by the contractor, except for fixed-price tasks, setting forth monthly and cumulative (1) direct labor hours by categories as set forth in the task, including subcontract hours; and (2) elements of cost by direct loaded dollars, subcontracts, and other direct costs, etc. that have been incurred and/or committed. Proprietary rate information should not be discussed. The costs that have been committed but are unpaid to date will be noted. Where cumulative amounts on the monthly reports differ from the aggregate amounts contained in the request(s) for contract financing payments covering the same period, the contractor must provide a reconciliation of the difference as part of the monthly report. In these reports, the contractor shall also make its current assessment of completing the remaining work within the remaining funds. A graph shall be prepared by the contractor using the vertical axis for dollars and the horizontal axis for time that shows actual and projected rates of expenditures for the task order. Within thirty (30) days after completion of work under the task order, the contractor shall include in its monthly report its estimate of the total allowable cost incurred under the task order, and in the case of a cost underrun, the amount by which the estimated cost of the task may be reduced to recover excess funds pending final closeout of the task order. **The submission of these reports does not relieve the contractor of its responsibility under the limitation of costs or funds clauses applicable to each task order and identified in Section I of this contract.** The Volpe Center requires that the report be submitted electronically in a Microsoft Office compatible format (See Attachment J.1 - MONTHLY TASK ORDER COST REPORT FORMAT).

## F.7 TECHNICAL REPORTS - TASK ORDER CONTRACTS (DEC 2003)

Task orders that identify technical reports as a deliverable will culminate in one of two types: letter type or technical. The letter type will be used primarily for smaller tasks such as data validation, field support, task planning documents, literature searches, analysis plans, conference planning documents, and schedules. A formal technical report(s) may be used for major tasks and may include earlier letter-type reports as subsections. The task order will specify the type of reports as well as the formatting and the number of copies required. The reports submitted shall be subject to review and approval by the Volpe Center COTR or Task Order COTR and, if necessary, will be modified and resubmitted. The contractor shall submit a final report incorporating the COTR's and/or Task Order COTR's comments on the draft final report. The number and delivery schedule will be specified in each task order. Most final reports shall be submitted on disks and in hard copy in a format specified in the task order.

## F.8 REPORTS OF WORK - REPORT DISTRIBUTION - (DEC 2003)

Nothing set forth herein regarding number of copies shall be construed as authority to disregard the provisions of the clause of this contract (see Section H.2. – “GPO Printing Requirement”).

### A. Contract Progress Report:

1 copy CO or designee  
1 copy COTR

### B. Monthly Task Order Progress Reports:

1 copy CO or designee  
1 copy COTR  
1 copy Task Order COTR (TOCOTR)

### C. Monthly Task Order Cost Reports:

1 copy CO or designee  
1 copy COTR  
1 copy TOCOTR

#### D. Technical Reports

The number of copies and recipients will be determined in each task order. The contractor shall provide a copy of the cover letter transmitting final submission of technical deliverables to the CO or designee.

#### **F.9 RIGHTS IN DATA (DEC 1998)**

All data first produced in the performance of this contract, including software, shall be delivered with unlimited Government rights, unless otherwise agreed to in writing by the CO when granting permission to establish claim to copyright as required by FAR 52.227-14(c).

#### **F.10 WARRANTIES - (MAY 1999)**

With respect to equipment or supplies acquired under this contract, title of which will pass to the Government, the Contractor shall ensure that any warranties, together with rights to replacement, service, or technical assistance, shall run to or automatically be assigned to the Government.

#### **F.11 LICENSES - (SEP 1999)**

With respect to any computer software, databases or other licensed product, acquired for use by to the Government, the Contractor shall ensure that the license, together with any associated rights, shall run to or automatically be assigned to the Government.

#### **F.12 ELECTRONIC AND INFORMATION TECHNOLOGY ACCESSIBILITY**

All electronic and information technology deliverables rendered under this Contract must comply with Section 508 of the Rehabilitation Act and the Electronic and Information Technology Accessibility Standards issued by the Architectural and Transportation Barriers Compliance Board in response to Section 508 of the Rehabilitation Act of 1973, 1998 Amendments (Access Board Standards) available for viewing at <http://www.section508.gov>. Exceptions to this requirement are available under limited circumstances, as described in FAR Subpart 39.4.

If fully compliant commercial items are not available in time to meet the delivery requirements or would otherwise impose an undue burden on the Government, the Contractor, with the approval of the COTR, is required to purchase the commercial products that provide the greatest degree of compliance while satisfying other functional requirements. Depending on the planned use of the subject products, the technical evaluation values of compliance with the various Board standards will vary. Consequently, no pre-assigned technical evaluation weight can be given to compliance with the Access Board Standards. Evaluation of the degree of compliance must be considered among all other procurement requirements in reaching a decision on equipment acquisition, including technical specifications, cost, availability, and risk of failure. Section 508 standards constitute an additional set of requirements to be evaluated.

## SECTION G - CONTRACT ADMINISTRATION DATA

### G.1 1252.242-73 CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (OCT 1994)

A. The Contracting Officer may designate Government personnel to act as the Contracting Officer's Technical Representative (COTR) to perform functions under the contract such as review and/or inspection and acceptance of supplies and services, including construction and other functions of a technical nature. The Contracting Officer will provide a written notice of such designation to the Contractor within five working days after contract award or for construction, not less than five working days prior to giving the Contractor the notice to proceed. The designation letter will set forth the authorities and limitations of the COTR under the contract.

B. The Contracting Officer cannot authorize the COTR or any other representative to sign documents (i.e., contracts, contract modifications, etc.) that require the signature of the Contracting Officer.

### G.2 RESPONSIBILITY FOR CONTRACT ADMINISTRATION (MAR 2003)

Contracting Officer: The Contracting Officer (CO) has the overall responsibility for this contract. The CO alone, without delegation, is authorized to take actions on behalf of the Government to amend, modify, or deviate from the contract terms, conditions, requirements, specifications, details and/or delivery schedules. However, the CO may delegate certain other responsibilities to his/her authorized representatives.

Administrative Contracting Officer: An Administrative CO (ACO) may be designated by the CO. The duties of an ACO include but are not limited to analyzing and making recommendations on the contractor's proposals, offers, or quotations upon request of the CO and approving contractor's invoices in accordance with the terms of the contract.

Contracting Officer's Technical Representative: A Contracting Officer's Technical Representative (COTR) will be designated by the CO. The responsibilities of the COTR include but are not limited to inspecting and monitoring the contractor's work, determining the adequacy of performance by the contractor in accordance with the terms and conditions of this contract, acting as the Government's representative in charge of work at the site to ensure compliance with contract requirements in so far as the work is concerned, and advising the CO of any factors which may cause delay in performance of the work. The COTR does not have the authority to make new assignments of work or to issue directions that cause an increase or decrease in the price of this contract or otherwise affect any other contract terms.

Task Order Contracting Officer's Technical Representative: The CO may designate a Task Order Contracting Officer's Technical Representative (TOCOTR). The TOCOTR will perform the duties of the COTR in connection with the technical oversight of an individual task order. The TOCOTR does not have the authority to make new assignments of work or to issue directions that cause an increase or decrease in the price of this contract or otherwise affect any other contract terms.

### G.3 ORDERING - (DEC 2003)

- A. During the period of performance of the contract, the CO or the ACO may issue task orders in accordance with Section I.1. (FAR 52.216-18 and 52.216-22)
- B. The Government will order any supplies and services to be furnished under this contract by issuing task orders on Optional Form 347 or an agency-prescribed form by mail, facsimile, or electronically. In addition to the CO, the following individuals are authorized ordering officers: Designated ACOs.
- C. The performance period of the contract is not synonymous with the performance period of any task order issued under the contract. The period of performance for a given task order shall be specified in that task order.
- D. A Standard Form 30 will be used to modify task orders.
- E. A representative authorized by the contractor shall acknowledge receipt of each task order within three (3) business days of receipt.

- F. Each task order issued may incorporate the contractor's technical and/or cost proposals and will include an estimated cost and fixed fee or award fee or a total fixed price in the case of a fixed price task order, set forth as a ceiling price. If the task order is incrementally funded, the amount available for payment and allotted to the task will also be specified. The Limitation of Funds and/or the Limitation of Cost clauses will control notification requirements when the contractor has reason to believe it will experience an overrun of the estimated cost or allocated funds specified in a cost reimbursable type task order.

Under no circumstances will the contractor start work prior to the issue date of the task order unless specifically authorized to do so by the CO or designee.

#### **G.4 TASK ORDERS ISSUED UNDER MULTIPLE AWARD CONTRACTS (MAR 2003)**

- A. All contractors shall be provided a fair opportunity to be considered pursuant to the procedures set below for each task order to be issued unless:
1. The Government's need for the services ordered is of such unusual urgency that providing such opportunity to all contractors would result in unacceptable delays in fulfilling that need;
  2. Only one contractor is capable of providing the services required at the level of quality required because the services ordered are unique or highly specialized;
  3. The task order should be issued on a sole source basis in the interest of economy and efficiency because it is a logical follow-on to a task order already issued under this contract, provided that all awardees were given a fair opportunity to be considered for the original order;
  4. It is necessary to place the order with a particular contractor in order to satisfy a minimum order; or
  5. It is necessary to limit competition to meet preference program goals identified in FAR Part 19.
- B. The Government's objective is to keep the task order procedures simple and inexpensive for all parties to the contract. Unless the procedures in paragraph (A) are used for awarding individual orders, multiple award contractors will be provided a fair opportunity to be considered for each order using the following procedures:
1. The Government will examine existing information already in the Government's possession such as an awardee's original proposal and proposals in response to Task Order Requests for Proposal (TORFP) (labor rates, indirect rates, technical/management approaches, etc.) and current past performance report records. The Government's examination of existing information will be conducted in light of the functional and/or technical areas of the requirement and used to determine which awardees will be requested to submit a proposal for the requirement. Brief surveys may also be conducted to determine which awardees have interest and capability in a particular requirement.
  2. Once the Government determines which awardees will be asked to submit a proposal for the requirement, the CO may contact contractors to identify resource availability and price/cost for well-defined tasks. The CO may issue written requests to the contractors requesting the submission of written and/or oral technical offers for complex tasks where a technical approach, as well as resource availability and price/cost, need to be considered.
  3. A written cost proposal will be required for all task orders to be issued under this contract. The cost proposal shall include detailed cost/price information for all resources required to accomplish the task (i.e., labor hours, rates, travel, equipment, etc.). Proposals submitted for cost-type task orders will be based on average category rates or current salary rates (whichever method the contractor customarily uses), as indicated by the contractor's or the subcontractor's current payroll data, and the current provisional indirect rates, as indicated by the latest indirect rate negotiation from the cognizant auditor of the contractor. Offerors shall provide current, up-to-date copies of the negotiated provisional indirect rates for the contractor and any subcontractors with their offers for individual task orders unless this information has previously been provided to the CO. Offerors shall also provide an

- explanation of any significant difference (10 percent or more) between any labor rate proposed and the rate proposed under the base contract. Any significant difference between the ratio of administrative hours to professional hours proposed for the task order versus the ratio of administrative hours proposed to professional hours for the master contract must be explained. Any significant inconsistency between the type and amount of other direct costs (ODCs) proposed for the task and the type and ODCs proposed under the master contract must also be justified.
4. Offerors who are not small businesses shall submit a Small Business Subcontracting Plan for each task order equal to or exceeding \$500,000. For those Offerors that have an approved Master Subcontracting Plan under the contract, only subcontracting information relating to the particular task order will be required. The Subcontracting Plan submitted must be acceptable to the CO in order for a contractor to be considered for award of a task.
  5. Each TORFP will include the following: (a) the Statement of Work (SOW); (b) the evaluation criteria that will be used to evaluate the offers; (c) the components of the offer (technical and/or price/cost or other factors) to be submitted; (d) the format for submission; (e) the timeframe for submission of the offer; (f) any other relevant instructions to the contractor.
  6. Upon receipt of a TORFP, the contractor may submit an offer to the CO that must include the technical, cost, and any other information requested. The proposal must be submitted by the time specified in the request.
  7. The method of evaluation and selection of an awardee for a task order will be identified in the TORFP.
  8. The Government shall have the right to select the contractor based on initial offers without discussions, but the Government reserves the right to hold discussions after evaluation of initial offers.
  9. If the Government determines that certain personnel are key to successful completion of a task order, they shall be designated as Key Personnel for the task order pursuant to TAR 1252.215-70, Section I.
  10. Upon request, the Government will debrief unsuccessful Offerors on a TORFP. Requests must be made within five (5) days of the notice of award for a specific task order.

#### **G.5 TASK ORDER OMBUDSMAN - (JULY 2000)**

Contractors wishing to issue complaints regarding the solicitation or award of individual task orders shall submit such complaints to the Task Order Ombudsman, Research and Special Programs Administration, 400 7th Street SW, Washington, DC 20590, Attn: Edward A. Brigham; fax: (202) 366-7432; e-mail: [Edward.Brigham@rspa.dot.gov](mailto:Edward.Brigham@rspa.dot.gov). It should be noted that in accordance with FAR 16.505(a)(7), no protest is authorized in connection with the issuance of a task order except for a protest on the grounds that the task order increases the scope, period of performance, or maximum value of the contract.

#### **G.6 TECHNICAL DIRECTION (MAR 2003)**

Performance of the work hereunder shall be under the technical direction of the COTR and TOCOTR on a specific task order. As used herein, "technical direction" is limited to directions to the contractor that fill in details or otherwise complete the specific description of work set forth in the task order. This direction may not include new assignments of work, or may not be of such a nature as to cause an increase or decrease in the estimated cost of the contract or task order, or otherwise affect any other provision of this contract.

#### **G.7 ACCOUNTING AND APPROPRIATION DATA - (MAY 1999)**

Each individual TO shall specify the Accounting and Appropriation Data from which payment shall be made.

**G.8 PAYMENT AND CONSIDERATION (JULY 2000)**

Contract clauses regarding payment processes and consideration will differ depending on the contract type/pricing methodology used in the task order, and on the socio-economic status of the firm performing the task order. Specific clauses to be used in each case are provided below.

A. The following clause is applicable to Fixed-Price task orders:

**CONSIDERATION - FIXED PRICE**

Upon delivery and acceptance of the required services, the Contractor shall be paid at the fixed price specified on the face of the task order.

B. The following clauses are applicable to Cost-Plus-Fixed-Fee task orders:

**CONSIDERATION - COST-PLUS-FIXED-FEE**

(1) Subject to the clauses Limitation of Cost (FAR 52.232-20), Allowable Cost and Payment (FAR 52.216-7), and Fixed Fee (52.216-8), the total allowable cost of this task shall not exceed \$(TO BE COMPLETED AT TIME OF AWARD OF TASK), which is the total estimated cost of the Contractor's performance hereunder exclusive of fixed fee. In addition, the Government shall pay the Contractor a fixed fee of \$(TO BE COMPLETED AT TIME OF AWARD OF TASK) for the performance of this task.

(2) The Contractor shall be provisionally reimbursed indirect expenses on the basis of billing rates approved by the Cognizant Federal Agency (CFA) pending establishment of final indirect rates.

(3) The final indirect expense rate pertaining to the contract shall be those determined for the appropriate fiscal year in accordance with FAR 42.705 and FAR 52.216-7.

**G.9 PAYMENTS UNDER COST REIMBURSEMENT CONTRACTS (MAR 2003)**

***NOTE: Under no circumstances can funds obligated under one task be used to pay costs incurred or fee earned under another task.***

One original and five copies of an invoice or contract financing requests or invoices shall be submitted, covering the amount claimed to be due, services rendered, and cost incurred thereunder. Under indefinite delivery/indefinite quantity contracts, separate invoices or contract financing requests must be submitted for each task.

However, all interim payment requests for tasks under the contract must be submitted concurrently. The contractor shall submit a last interim invoice for each task order. This shall include a complete list of invoices previously tendered under the task order. The last interim invoice shall consist of the completion invoice (clearly identified in accordance with FAR 52.216-7) prior to the establishment of final annual indirect rates. The last interim invoice shall be submitted within six (6) months of the task order's physical completion. If changes to this invoice become necessary as a result of Government review, the contractor shall submit a corrected last interim invoice. The contractor shall submit this invoice, along with the contractor's release form, DOT F 4220.4, to the Contracting Officer, following the final adjustment of its annual indirect rates per FAR 52.216-7.

In addition to the information required by FAR 52.216-7 and FAR 52.232-25 incorporated by reference in Section I, an invoice or contract financing payment request must meet the following requirements:

- ( 1 ) Consecutively number each interim payment request beginning with No. 1 for each task.
- ( 2 ) The voucher shall include current and cumulative charges by major cost elements such as direct labor, overhead, subcontracts, and other direct costs. Cite direct labor hours incurred by the prime contractor and each subcontractor. Other direct costs must be identified, e.g., travel, per diem, material, and equipment.

- (3) Requests for contract financing or invoices must clearly indicate the period of performance for which payment is requested and the Volpe Center accounting information necessary to process payments. When contracts or task orders contain multiple lines of accounting data, charges that cannot be assigned to a single line of accounting information should be allocated based on the percentage of total dollars unless otherwise specified.
- (4) When the contractor submits vouchers on a monthly basis, the period covered by invoices or requests for contract financing payments must be the same as the period for monthly progress reports reported under the contract or tasks. If, in accordance with FAR 52.216-7, the contractor submits requests for invoices or contract financing payments more frequently than monthly, one payment request per month must have the same ending date as the monthly progress report.
- (5) Pending settlement of the final indirect rates for any period, the contractor shall be reimbursed at billing rates approved by the Cognizant Federal Agency (CFA). The contractor shall ensure that any change in the identity of the CFA responsible for establishment of its indirect rate factors is made known to the Volpe Center ACO. These rates are subject to appropriate adjustments when revised by mutual agreement or when the final indirect rates are settled either by mutual agreement or unilateral determination by the CFA (see FAR 42.704). In accordance with FAR 52.216-7, the contractor shall submit to the CFA a proposal for final indirect rates based on the contractor's actual costs for the period, together with all supporting data. In addition, contractors are required by the CFA to submit billing rate proposals, usually no later than thirty (30) days after the close of its fiscal year for the ensuing fiscal year to the CFA. Copies of the cover letter submitting the proposal must be provided to the Volpe Center ACO. The contractor's failure to provide the rate proposal in a timely manner may impact payment of financing request and could ultimately result in suspension of the indirect expense portion. The contractor shall provide copies of all rates established by the CFA to the Volpe Center ACO. It is imperative that the ACO be provided signed copies of all rate agreements since these rate agreements must be in the possession of the Volpe Center before any rates contained therein can be used by the contractor for cost reimbursement. The contractor should note that absence of a final rates determination does not relieve the contractor of its responsibility under the Limitation of Funds or Limitation of Costs clauses to report in a timely manner to the CO when it has reason to believe its costs may exceed the total estimated cost or funds allotted to the task order.

#### **G.10 PAYMENT OF FEE - COST-PLUS-FIXED-FEE - (DEC 2003)**

The Government will issue task orders, which will include one of two methods by which the contractor can earn total fixed fee. Requests for provisional fee payment must be based on and be consistent with the information stated in the contract or task financing request. However, the request must be submitted separately.

For **term-type task orders**, a portion of any fixed fee specified in the task order will be paid on a provisional basis. The amount of such payments will be based on the ratio of direct professional labor hours expended during the covered period to the direct professional labor hours specified in the task order. Direct professional labor hours include only the labor categories specified for the task order such as engineers, scientists, technicians, statisticians, and programmers, and not administrative or support personnel such as company management, typists, and data entry operators, even though such administrative personnel are normally treated as direct labor by the contractor. At the time of issuance, a term-type task order will state the requirements for earning full fixed fee by including the following clause:

*The total fee for each term-type task shall be payable upon acceptance of the work by the Government and upon receipt of a written certification from the contractor that the level-of-effort specified in the task order has been expended. If fewer direct labor hours are provided than set forth in the task order, the fee will be adjusted downward for each hour not provided.*

On a **completion-type task order**, if performance is considered satisfactory, the Government may make provisional fee payments subject to FAR 52.216-8 on the basis of percentage of work completed, as determined by the CO. The contractor shall be required to complete the specified end product (e.g., a final report or working system) within the estimated cost as a condition for payment of the entire fixed fee. In the event the work cannot be completed within the estimated cost, the Government may require more effort without any increase in fee, provided the Government increases the estimated cost. If the Government chooses not to increase the estimated cost, the fixed fee payable will be based on the CO's determination of the percentage of completion of the specified end product(s).

Provisional payment of fee will be subject to other relevant clauses of the contract including retainage.

#### **G.11 VOUCHER REVIEW - (MAR 2003)**

The Government may at its sole discretion utilize a contractor to review vouchers and supporting data submitted for payment under the provisions of this contract. The contractor reviewing vouchers and supporting data will perform this function in accordance with contract provisions which prohibit disclosure of proprietary financial data or use of such data for any purpose other than to perform accounts payable services.

#### **G.12 COST ACCOUNTING SYSTEMS - (DEC 2003)**

##### **Cost Accounting System**

The Contractor shall maintain a job order cost accounting system that will accumulate costs incurred for each task order separately.

##### **Task Order Proposal Preparation Cost**

Submission of proposals in response to task order RFPs is not mandatory. Bid and proposal expenses incurred in connection with the preparation of task order proposals will be reimbursed in accordance with established practices; however, bid and proposal costs will not be reimbursed as direct costs.

##### **Uncompensated Overtime**

(The term "contract proposals" as used in this clause refers to proposals, which may result in initial contract award. "Task order proposals" refers to proposals received in response to task order RFPs.)

Uncompensated overtime is defined as hours worked by Fair Labor Standards Act exempt employees in excess of 40 hours per week for which no compensation is paid in excess of normal weekly salary. A contractor/subcontractor may include uncompensated overtime in its cost proposal only if the practice is consistent with its established accounting practices.

The Contractor/subcontractor's accounting system must record all direct and indirect hours worked, including uncompensated overtime.

Only those Contractors/subcontractors who included uncompensated effort in their contract proposals may utilize this accounting practice in a task order proposal or during performance. Similarly, task order proposals must include uncompensated effort consistent with contract cost proposals. Task order proposals, which deviate from contract proposals must include an explanation for the deviation for the Contracting Officer's consideration.

The following clause will be included in each task order when the awardee or subcontractors included uncompensated overtime in their task order proposals:

This task order is based upon the Contractor's task order proposal dated     TBD     in which, of the total     TBD     hours required,     TBD     hours are estimated to be uncompensated as shown below.

**Prime Contractor Workweek**

Prime Contractor: TBD

Division: TBD

Task order Labor Category	Total <u>Hours</u>	Compensated <u>Hours</u>	Uncompensated <u>Hours</u>
	TBD	TBD	TBD

**Subcontractor Workweek**

Subcontractor Name: TBD

Division: TBD

Task order Labor Category	Total <u>Hours</u>	Compensated <u>Hours</u>	Uncompensated <u>Hours</u>
	TBD	TBD	TBD

During performance, the Contractor must provide compensated and uncompensated hours in at least the same ratio as shown in the above schedule by labor category. If the Contractor anticipates that the ratio will not be achieved by the completion of the task order, the Contractor shall notify the Contracting Officer in writing, identifying the expected shortfall. The Contractor must offer to furnish the total level-of-effort included in the task order at no additional cost or fee. The notice shall be provided sufficiently in advance of the completion of the task order to allow the performance of all such hours within the task order term and within the total estimated cost and fixed fee for the task order. If the Contractor fails to provide such notice sufficiently in advance, the Contracting Officer at his/her sole discretion shall have the option of:

- (1) extending the term of the task order and requiring that the Contractor provide the total level of effort at no extra cost to the Government, or
- (2) reducing the cost to be reimbursed by an amount calculated by multiplying the number of hours of unworked uncompensated overtime by the average burdened labor rate for those labor categories and reducing the fixed-fee proportionately. The Contractor shall indicate on his invoices and on any contract data items for cost/schedule status all hours worked, both compensated and uncompensated.

**G.12 INCREMENTAL FUNDING OF TASK ORDERS (DEC 2003)**

Pursuant to FAR 52.232-22, Limitation of Funds (APR 1984), incorporated by reference herein, task orders issued under this contract may be incrementally funded.

- A. When a **term-type task order** is incrementally funded, the following clause will be set forth in full in the task order modification:

**LIMITATION OF LIABILITY - INCREMENTAL FUNDING (TERM FORM)**

- (1) The amount available for payment for this incrementally funded task order is hereby increased from \$ TBD by \$ TBD to \$ TBD. The amount allotted to the estimated cost is increased from \$ TBD by \$ TBD to \$ TBD. The amount obligated for the fixed fee/award fee is increased from \$ TBD to \$ TBD. This modification involves no change in the total level-of-effort, estimated costs or fixed fee/award fee of this contract, unless otherwise specified herein. The Limitation of Funds clause, FAR 52.232-22, applies to the amount allotted to cover the estimated costs only. The fixed-fee will be payable in accordance with other clauses of the contract.

- (2) The estimated level-of-effort applicable to the incremental funding provided herein is \_\_\_\_\_ professional labor-hours.
- (3) The incremental funding provided herein is estimated to be adequate for services performed through \_\_\_\_\_.
- (4) The funding must be tracked and billed accordingly. The funds obligated in block 12 of the SF 30 are available only for work performed on or after the effective date of this modification.

B. When a **completion-type task order** is incrementally funded, the following clause will be set forth in full in the task order modification:

LIMITATION OF LIABILITY - INCREMENTAL FUNDING (COMPLETION FORM)

- (1) The amount available for payment for this incrementally funded task order is hereby increased from \$ TBD by \$ TBD to \$ TBD. The amount allotted to the estimated cost is increased from \$ TBD by \$ TBD to \$ TBD. The amount obligated for the fixed fee/award fee is increased from \$ TBD to \$ TBD. This modification involves no change in the total level-of-effort, estimated costs or fixed fee/award fee of this contract, unless otherwise specified herein. The Limitation of Funds clause, FAR 52.232-22, applies to the amount allotted to cover the estimated costs only. The fixed-fee will be payable in accordance with other clauses of the contract
- (2) The incremental funding provided herein is applicable to the tasks and deliverables specified in TBD.
- (3) The funding must be tracked and billed accordingly. The funds obligated in block 12 of the SF 30 are available only for work performed on or after the effective date of this modification.

**G.13 PERFORMANCE EVALUATIONS (MAR 2003)**

Performance evaluations shall be completed for each completed task order over \$100,000 and for selected tasks for lower amounts as determined by the CO. Performance evaluations shall also be completed at least annually for task orders that have a performance period in excess of one year. (The performance evaluation form at <http://cps.od.nih.gov/files/standardreport.doc>, or equivalent form, shall be used.)

The CO or designee will submit the completed evaluation to the contractor for comment. The contractor shall have 30 days in which to respond. The Government will consider any comments provided by the contractor before finalizing a Performance Evaluation Report and the contractor's comments will be attached to the Report.

## **SECTION H - SPECIAL CONTRACT REQUIREMENTS**

### **H.1 NON-PERSONAL SERVICES (DEC 1998)**

A. No personal services as defined in Part 37 of the FAR shall be performed under this contract. No Contractor employee will be directly supervised by the Government. All individual employee assignments and daily work direction shall be given by the Contractor's supervisor. If the Contractor believes any Government action or communication has been given that would create a personal services relationship between the Government and any Contractor employee, the Contractor shall promptly notify the Contracting Officer of this communication or action.

B. The Contractor shall not perform any inherently Governmental functions under this contract. No Contractor employee shall hold him or herself out to be a Government employee, agent, or representative. In all communications with third parties in connection with this contract, Contractor employees shall identify themselves as Contractor employees and specify the name of the company for which they work. In all communications with other Government Contractors in connection with this contract, the Contractor employee shall state that they have no authority to in any way change the contract and that if the other Contractor believes this communication to be a direction to change their contract, they should notify the Contracting Officer for that contract and not carry out the direction until a clarification has been issued by the Contracting Officer.

C. The Contractor shall ensure that all of its employees working on this contract are informed of the substance of this clause. Nothing in this clause shall limit the Government's rights in any way under any other provision of the contract, including those related to the Government's right to inspect and accept the services to be performed under this contract. The substance of this clause shall be included in all subcontracts at any tier.

### **H.2 GPO PRINTING REQUIREMENT (DEC 1998)**

All printing funded by this contract will be accomplished in conformance with Title 44, United States Code, regulations of the Joint Committee on Printing, applicable provisions of appropriation acts, and applicable regulations issued by the Government Printing Office and the Department of Transportation.

### **H.3 INSURANCE (MAR 2003)**

See Section I - Contract Clause FAR 52.228-7, "Insurance-Liability to Third Persons (MAR 1996)."

A. The Contractor shall secure, pay the premiums for and keep in force until the expiration of this contract, and any renewal thereof, adequate insurance as provided below, such insurance to specifically include liability assumed by the contractor under this contract.

- (1) Workman's compensation insurance as required by law of the State.
- (2) Comprehensive bodily injury liability insurance with limits of not less than \$500,000 for each accident.
- (3) Property damage liability with a limit of not less than \$100,000 for each accident.
- (4) Automotive bodily injury liability insurance with limits of not less than \$200,000 for each person and \$500,000 for each accident, and property damage liability insurance, with a limit of not less than \$40,000 for each accident.

B. Each policy of insurance shall contain an endorsement that any cancellation or material change in the coverage adversely affecting the Government's interest shall not be effective unless the insurer or the Contractor gives written notice of cancellation or change to the Contracting Officer at least thirty (30) calendar days prior to the aforementioned actions. When the coverage is provided by self-insurance, the Contractor shall not change or decrease the coverage without the Administrative Contracting Officer's prior approval.

C. A certificate of each policy of insurance shall be furnished to the Contracting Officer within ten (10) days after notice of award certifying, among other things, that the policy contains the aforesaid endorsement. The insurance companies providing the above insurance shall be satisfactory to the Government. Notices of policy changes shall be furnished to the Contracting Officer.

#### **H.4 MAXIMUM FEE/PROFIT (DEC 2003)**

Contractors shall propose an appropriate rate of fixed fee depending on the risk associated with a **cost-plus-fixed-fee** contractual arrangement and the nature of the work in the task order. However, the proposed task order fixed fee cannot exceed an amount that is the sum of (1) TBD \* percent of the subcontract, equipment, and travel costs, and (2) TBD \* percent of all other costs. For term-type tasks, an overall hourly fee will be determined by dividing the total fixed fee proposed by the direct professional labor hours required. (Direct professional hours exclude administrative hours.)

For task orders issued on **firm-fixed-price** basis, contractors shall propose an appropriate profit based on the risk associated with that contract type and the nature of the work in the task order. The proposed profit included in the firm-fixed-price cannot exceed an amount that is the sum of (1) TBD \* percent of the subcontract, equipment, and travel costs, and (2) TBD \* percent of all other costs.

\* to be filled in at the time of award of the contract, based on contractor's proposal Schedule 5 (see Section L of this Request for Proposal (RFP)).

#### **H.5 SUBCONTRACT APPROVAL (MAR 2003)**

The contractor's Subcontracting Plan dated [**to be completed at time of award for other than small business concerns**] in support of this contract, is hereby approved and incorporated herein. The contractor is granted consent to enter into subcontracting agreements with those companies identified in the Subcontracting Plan, or, for small business firms, the companies originally proposed as subcontractors.

Since this is an indefinite delivery/indefinite quantity (IDIQ) contract, most subcontracts for professional labor shall also be placed on an IDIQ basis. Only first-tier subcontractors are allowed unless the contractor can provide a strong technical rationale for inclusion of a second-tier subcontract and demonstrate what steps have been taken to prevent layering of costs and profit.

The contractor shall follow the procedures specified in Part 44 of the FAR and FAR Clauses 52-244-2, and 52.244-5 when providing advance notification or requesting consent to new subcontracts. New subcontracts may be necessary for professional labor in cases where it is clearly evident to the CO that the proposed new subcontract will provide a capability that is both required to perform work described in the contract and is not available from any of the contractor's existing team of subcontractors. In such cases, task order proposals must include at least 75 percent (labor hours) of the contractor's current team (the Prime and previously authorized subcontracts). The remaining 25 percent may include new subcontracts which have not been previously consented to. Task order proposals failing to comply with this minimum will be rejected.

#### **H.6 CONFERENCES (DEC 1998)**

The Contracting Officer, or his duly authorized representative, may hold a conference from time to time as deemed necessary to discuss any phase of performance under a task. All discussions, problems encountered, solutions reached, and evaluations made during any conference shall be documented in the next Monthly Status Report for the current reporting period. In any case, such reporting shall not, in and of itself, constitute formal direction to and/or Contracting Officer acceptance of the topics discussed.

#### **H.7 SALES TAX EXEMPTION - (SEP 1999)**

A. The Volpe National Transportation Systems Center, as part of the Department of Transportation, an agency of the United States, is an exempt purchaser. Accordingly, all purchases of personal property by this organization are exempt from state and local taxation.

B. The Contractor may be provided with Tax Exemption certificates for the purpose of obtaining an exemption under this procurement for materials and equipment purchased under this procurement. Notwithstanding the terms of the Federal, State, and Local Taxes clause, the Contractor shall state separately on its vouchers the amount of state sales tax, and the Government agrees to either to pay the amount of the tax to the Contractor or, where the amount of the tax exceeds \$250.00 to provide evidence necessary to sustain the exemption.

**H.8 LEVEL-OF-EFFORT NOTIFICATION (MAR 2003)**

The contractor shall notify the CO or designee immediately in writing whenever it has reason to believe that:

- (1) The level-of-effort that the contractor expects to incur under any term-type task in the next thirty days, when added to the level-of-effort previously expended in the performance of that task order, will exceed 75 percent of the level established for that task order;
- (2) The level-of-effort required to perform a particular task order will be greater than the level-of-effort established for the task order.

Either the "Limitation of Cost" or the "Limitation of Funds" clause, depending on whether the task order is fully funded or not, applies independently to each task order under this contract and nothing in this clause amends the rights or responsibilities of the parties hereto under either of these two clauses. The notifications required by this clause are separate and distinct from any specified in the "Limitation of Cost" or "Limitation of Funds" clause.

**H.9 HANDLING OF DATA - (MAY 1999)**

A. The Contractor and any of its subcontractors in performance of this contract may have need for access to and use of various types of data and information in the possession of the Government which the Government obtained under conditions that restrict the Government's right to use and disclose the data and information, or which may be of such a nature that its dissemination or use other than in the performance of this contract would be adverse to the interests of the Government or other parties. Therefore, the Contractor and its subcontractors agree to abide by any restrictive use conditions on such data and not to:

- (1) Knowingly disclose such data and information to others without written authorization from the Contracting Officer, unless the Government has made the data and information available to the public; nor
- (2) Use for any purpose other than the performance of this contract that data which bears a restrictive marking or legend.

B. In the event the work required to be performed, under this contract requires access to proprietary data of other companies, the Contractor shall obtain agreements from such other companies for such use unless such data is provided or made available to the Contractor by the Government. Two copies of such company-to-company agreements shall be furnished promptly to the Contracting Officer for information only. These agreements shall prescribe the scope of authorized use or disclosure, and other terms and conditions to be agreed upon between the parties. It is agreed by the Contractor that any such data, whether obtained by the Contractor pursuant to the aforesaid agreement or from the Government, shall be protected from unauthorized use or disclosure to any individual, corporation, or organization so long as it remains proprietary.

C. Through formal training in company policy and procedures, the Contractor agrees to make employees aware of the absolute necessity to maintain the confidentiality of data and information, as required above, and further aware of the sanctions which may be imposed for divulging either the proprietary data of other companies or data that is obtained from the Government to anyone except as authorized. The Contractor shall obtain from each employee engaged in any effort connected with this contract an agreement, in writing, which shall in substance provide that such employee will not during his/her employment by the Contractor, or thereafter, disclose to others or use for his/her own benefit or the future benefit of any individual any trade secrets, confidential information, or proprietary/restricted data (to include Government "For Official Use Only") received in connection with the work under this contract. The Contractor shall furnish a sample form of this agreement to the Contracting Officer promptly after award.

D. The Contractor agrees to hold the Government harmless and indemnify the Government as to any cost/loss resulting from the unauthorized use of disclosure of third party data or software by the Contractor, its employees, subcontractors, or agents.

E. The Contractor agrees to include the substance of this provision in all subcontracts awarded under this contract. The Contracting Officer will consider case-by-case exceptions from this requirement for individual subcontracts in the event that

- (1) the Contractor considers the application of the prohibitions of this provision to be inappropriate and unnecessary in the case of a particular subcontractor;
- (2) the subcontractor provides a written statement affirming absolute unwillingness to perform absent some relief from the substance of this prohibition;
- (3) use of an alternate subcontract source would reasonably detract from the quality of effort; and
- (4) the Contractor provides the Contracting Officer timely written advance notice of these and any other extenuating circumstances.

F. Except as the Contracting Officer specifically authorizes in writing, upon completion of all work under this contract the Contractor shall return all such data and information obtained from the Government, including all copies, modifications, adaptations, or combinations thereof, to the Contracting Officer. Data obtained from another company shall be disposed of in accordance with the Contractor's agreement with that company, or, if the agreement makes no provision for disposition, shall be returned to that company. The Contractor shall further certify in writing to the Contracting Officer that all copies, modifications, adaptations or combinations of such data or information, which cannot reasonably be returned to the Contracting Officer (or to a company), have been deleted from the Contractor's (and any subcontractor's) records and destroyed.

G. These restrictions do not limit the Contractor's (or subcontractor's) right to use and disclose any data and information obtained from another source without restriction.

H. As used herein, the term "data" has the meaning set forth in Federal Acquisition Regulations, clause 52.227-14, "Rights in Data - General," and includes, but is not limited to, computer software, as also defined in Clause 52.227-14.

## SECTION I - CONTRACT CLAUSES

### I.1 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses, by reference, with the same force and effect as if they were given in full text. Upon request, the CO will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.dot.gov/ost/m60/tamtar>  
<http://farsite.hill.af.mil/vffar.htm>  
<http://www.arnet.gov/far>

### I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

NUMBER	TITLE	DATE
52.202-1	Definitions	JUN 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions on Subcontractor Sales to the Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity	JAN 1997
52.203-12	Limitation on Payments to Influence Certain Federal Transactions	JUN 2003
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	OCT 2003
52.209-6	Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment.	JUL 1995
52.211-5	Material Requirements	AUG 2000
52.215-8	Order of Precedence-Uniform Contract Format	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-13	Subcontractor Cost or Pricing Data - Modifications	OCT 1997
52.215-14	Integrity of Unit Prices	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	JAN 2004
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other Than Pensions	OCT 1997
52.216-7	Allowable Cost and Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.216-18	Ordering	OCT 1995
	For the purposes of this clause the blank(s) are completed as follows: (a) <u>from date of award through 4 years from date of award</u>	
52.216-19	Order Limitations For the purposes of this clause the blank(s) are Completed as follows: (a)\$2,500 (b)(1)\$5,000,000. (b)(2)\$5,000,000. (b)(2) Not applicable (b)(3) Not applicable	OCT 1995
52.216-22	Indefinite Quantity For the purposes of this clause the blank(s) are Completed as follows: (d) five (5) years from date of award	OCT 1995
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9	Small Business Subcontracting Plan, Alternate II	JAN 2002
52.219-16	Liquidated Damages—Subcontracting Plan	JAN 1999

<b>NUMBER</b>	<b>TITLE</b>	<b>DATE</b>
52.219-23	Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns	JUN 2003
52.219-25	Small Disadvantaged Business Participation Program Disadvantaged Status and Reporting	OCT 1999
52.222-1	Notice to the Government of Labor Disputes	FEB 1997
52.222-2	Payment for Overtime Premiums For the purpose of this clause the blank is Completed as follows: (a) zero	JUL 1990
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition of Segregated Facilities.	FEB 1999
52.222-26	Equal Opportunity Alternate I (FEB 1999)	APR 2002
52.222-35	Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans.	DEC 2001
52.222-36	Affirmative Action for Workers with Disabilities	JUN 1998
52.222-37	Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-48	Exemption from Application of Service Contract Act Provisions for Contracts for Maintenance, Calibration, and/or Repair of Certain Information Technology, Scientific and Medical and/or Office And Business Equipment – Contractor Certification	AUG 1996
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-1	Buy American Act – Supplies	JUN 2003
52.225-3	Buy American Act - Free Trade Agreements - Israeli Trade Act	JAN 2004
52.225-8	Duty-Free Entry	FEB 2000
52.225-13	Restrictions on Certain Foreign Purchases	DEC 2003
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice and Assistance Regarding Patent and Copyright Infringement	AUG 1996
52.227-3	Patent Indemnity	APR 1984
52.227-12	Patent Rights - Retention by the Contractor (Long Form)	JAN 1997
52.227-14	Rights in Data - General	JUN 1987
52.227-16	Additional Data Requirements	JUN 1987
52.227-19	Commercial Computer Software - Restricted Rights	JUN 1987
52.228-7	Insurance - Liability to Third Persons	MAR 1996
52.230-2	Cost Accounting Standards	APR 1998
52.230-3	Disclosure and Consistency of Cost Accounting Practices	APR 1998
52.230-6	Administration of Cost Accounting Standards	NOV 1999
52.232-2	Payments Under Fixed-Price Research and Development Contracts	APR 1984
52.232-9	Limitation on Withholding of Payments	APR 1984
52.232-17	Interest	JUN 1996
52.232-20	Limitation of Cost “task order” is to be substituted for “Schedule” whenever that word appears in the clause.	APR 1984
52.232-22	Limitation of Funds task order” is to be substituted for “Schedule” whenever that word appears in the clause.	APR 1984
52.232-23	Assignment of Claims	JAN 1986

<b>NUMBER</b>	<b>TITLE</b>	<b>DATE</b>
52.232-25	Prompt payment	OCT 2003
52.232-33	Payment by Electronic Funds Transfer - Central Contractor Registration	OCT 2003
52.233-1	Disputes Alternate I (DEC 1991)	JUL 2002
52.233-3	Protest after Award	AUG 1996
52.233-3	Protest after Award Alternate 1	JUN 1985
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.243-1	Changes-Fixed Price Alternate II (APR 1984)	AUG 1987
52.243-2	Changes-Cost-Reimbursement Alternate II(APR 1984)	AUG 1987
52.244-2	Subcontracts Alternate II (AUG 1998)	AUG 1998
52.244-5	Competition in Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	MAY 2004
52.245-1	Property Records	APR 1984
52.245-2	Government Property (Fixed-Price Contracts)	MAY 2004
52.245-4	Government-Furnished Property (Short Form)	JUN 2003
52.245-5	Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts)	MAY 2004
52.245-19	Government Property Furnished "As Is"	APR 1984
52.246-25	Limitation of Liability – Services	FEB 1997
52.247-63	Preference for U.S.-Flag Air Carriers	JUN 2003
52.247-64	Preference for Privately Owned U.S. Flag Commercial Vessels	APR 2003
52.249-2	Termination for the Convenience of the Government (Fixed Price)	MAY 2004
52.249-6	Termination (Cost-Reimbursement)	MAY 2004
52.249-9	Default (Fixed-Price Research and Development)	APR 1984
52.249-14	Excusable Delays	APR 1984
52.251-1	Government Supply Sources	APR 1984
52.253-1	Computer Generated Forms	JAN 1991

## **II TRANSPORTATION ACQUISITION REGULATION (48 CFR CHAPTER 12)**

<b>NUMBER</b>	<b>TITLE</b>	<b>DATE</b>
1252.223-71	Accident and Fire Reporting	OCT 1994
1252.237-70	Qualifications of Employees	OCT 1994
1252.242-72	Dissemination of Contract Information	OCT 1994
1252.245-70	Government Property Reports	OCT 1994

### **I.2 52.215-19 Notification of Ownership Changes. (OCT 1997)**

(a) The Contractor shall make the following notifications in writing:

- (1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.
- (2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall -

- (1) Maintain current, accurate, and complete inventory records of assets and their costs;

- (2) Provide the ACO or designated representative ready access to the records upon request;
- (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
- (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.

(c) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

### **I.3 TAR 1252.209-70 DISCLOSURE OF CONFLICTS OF INTEREST (OCT 1994)**

The following is applicable to all task order RFPs:

It is the Department of Transportation's (DOT) policy to award contracts to only those Offerors whose objectivity is not impaired because of any related past, present, or planned interest, financial or otherwise, in organizations regulated by DOT or in organizations whose interests may be substantially affected by Departmental activities. Based on this policy:

- (a) The Offeror shall provide a statement in its proposal which describes in a concise manner all past, present or planned organizational, financial, contractual or other interest(s) with an organization regulated by DOT, or with an organization whose interests may be substantially affected by Departmental activities, and which is related to the work under this solicitation. The interest(s) described shall include those of the proposer, its affiliates, proposed consultants, proposed subcontractors and key personnel of any of the above. Past interest shall be limited to within one year of the date of the Offeror's technical proposal. Key personnel shall include any person owning more than 20% interest in the Offeror, and the Offeror's corporate officers, its senior managers and any employee who is responsible for making a decision or taking an action on this contract where the decision or action can have an economic or other impact on the interests of a regulated or affected organization.
- (b) The Offeror shall describe in detail why it believes, in light of the interest(s) identified in (a) above, that performance of the proposed contract can be accomplished in an impartial and objective manner.
- (c) In the absence of any relevant interest identified in (a) above, the Offeror shall submit in its proposal a statement certifying that to its best knowledge and belief no affiliation exists relevant to possible conflicts of interest. The Offeror must obtain the same information from potential subcontractors prior to award of a subcontract.

### **I.4 1252.215-70 Key personnel and/or facilities (OCT 1994)**

- (a) The personnel and/or facilities as specified below are considered essential to the work being performed hereunder and may, with the consent of the contracting parties, be changed from time to time during the course of the contract by adding or deleting personnel and/or facilities, as appropriate.
- (b) Prior to removing, replacing, or diverting any of the specified individuals or facilities, the Contractor shall notify, in writing, and receive consent from, the Contracting Officer reasonably in advance of the action and shall submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on this contract.
- (c) No diversion shall be made by the Contractor without the written consent of the Contracting Officer. The Contracting Officer may ratify, in writing, the change and such ratification shall constitute the consent of the Contracting Officer required by this clause.

The Key Personnel and/or Facilities under this Contract:

Project Manager (to be specified at time of award of contract)

**I.5 1252.219-70 Small Business and Small Disadvantaged Business subcontracting reporting. (JUN 1997)**

(a) The Contractor shall submit the Summary Subcontract Report (Standard Form 295 (SF-295)) to the Department of Transportation, Office of the Secretary, Office of Small and Disadvantaged Business Utilization (S-42), 400 7th St., SW, Washington, DC, 20590.

(b) The Contractor shall include this clause in all subcontracts that include the clause at [\(FAR\) 48 CFR 52.219-9](#).

(End of Clause)

**SECTION J - LIST OF ATTACHMENTS**

<b>ATTACHMENT</b>	<b>TITLE</b>	<b>Page No.</b>
NO.		
J-1	Contractor Report Exhibit (June 1, 1977)	26
J-2	Frontal Barrier Impact Test	14
J-3	Vehicle-to-Vehicle Frontal Impact Test	3
J-4	Vehicle-To-Vehicle Side Impact	7
J-5	Sled Test	1
J-6	Vehicle-To-Barrier Crush Test	2
J-7	Vehicle-To-Vehicle Crush Test	6
J-8	Signal Waveform Generator Test of Data Acquisition Systems	7
J-9	Staff Qualifications	1

**SECTION K - REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS OR QUOTERS**

**K.1 SIGNATURE - (MAY 1999)**

By execution and submission of this statement, the undersigned acknowledges that he/she has reviewed and, where appropriate, has fully and accurately completed each of the certifications and/or representations contained in Section K of this solicitation for the purpose(s) set forth therein, and that he/she has been authorized to do so on behalf of the Offeror.

\_\_\_\_\_ Signature  
 \_\_\_\_\_ Typed Name, Title  
 \_\_\_\_\_ Offeror  
 \_\_\_\_\_ Date

**K.2 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)**

NUMBER	TITLE	DATE
52.203-11	Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions	APR 1991
52.204-5	Women-Owned Business (Other Than Small Business)	MAY 1999

**K.3 52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (DEC 2001)**

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that -

(i) The Offeror and/or any of its Principals -

(A) Are [ ] are not [ ] presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have [ ] have not [ ], within the three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property;

(C) Are [ ] are not [ ] presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision; and

(ii)(A) The offeror, aside from the offenses enumerated in paragraphs (a)(1)(i)(A), (B), and (C) of this provision, has [ ] has not [ ] within the past three years, relative to tax, labor and employment, environmental, antitrust, or consumer protection laws--

(1) Been convicted of a Federal or state felony (or has any Federal or state felony indictments currently pending against them); or

(2) Had a Federal court judgment in a civil case brought by the United States rendered against them; or

(3) Had an adverse decision by a Federal administrative law judge, board, or commission indicating a willful violation of law.

(B) If the offeror has responded affirmatively, the offeror shall provide additional information if requested by the Contracting Officer; and

(iii) The Offeror has  has not , within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

**K.4 52.215-6 Place of Performance. (OCT 1997)**

(a) The offeror or respondent, in the performance of any contract resulting from this solicitation,  intends,  does not intend [*check applicable block*] to use one or more plants or facilities located at a different address from the address of the offeror or respondent as indicated in this proposal or response to request for information.

(b) If the offeror or respondent checks "intends" in paragraph (a) of this provision, it shall insert in the following spaces the required information:

Place of Performance (Street Address, City, State, County, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other than Offeror or Respondent
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**K.5 52.219-1 Small Business Program Representations. (MAY 2004)**

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 541690.

(2) The small business size standard is \$6 Million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) *Representations.* (1) The offeror represents as part of its offer that it [ ] is, [ ] is not a small business concern.

(2) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, for general statistical purposes, that it [ ] is, [ ] is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents as part of its offer that it [ ] is, [ ] is not a women-owned small business concern.

(4) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents as part of its offer that it [ ] is, [ ] is not a veteran-owned small business concern.

(5) [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.] The offeror represents as part of its offer that it [ ] is, [ ] is not a service-disabled veteran-owned small business concern.

(6) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that—

(i) It [ ] is, [ ] is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It [ ] is, [ ] is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. [The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: \_\_\_\_\_.] Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(c) *Definitions.* As used in this provision -

“Service-disabled veteran-owned small business concern” -

(1) Means a small business concern -

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

“Small business concern” means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (a) of this provision.

“Veteran-owned small business concern” means a small business concern -

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

“Women-owned small business concern” means a small business concern -

(1) That is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) *Notice.* (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall -

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

iii) Be ineligible for participation in programs conducted under the authority of the Act.

#### **K.6 52.219-22 - Small Disadvantaged Business Status(Oct 1999)**

(a) *General.* This provision is used to assess an offeror's small disadvantaged business status for the purpose of obtaining a benefit on this solicitation. Status as a small business and status as a small disadvantaged business for general statistical purposes is covered by the provision at FAR 52.219-1, Small Business Program Representation.

(b) Representations.

(1) *General.* The offeror represents, as part of its offer, that it is a small business under the size standard applicable to this acquisition; and either-

\_\_\_(i) It has received certification by the Small Business Administration as a small disadvantaged business concern consistent with 13 CFR 124, Subpart B; and

(A) No material change in disadvantaged ownership and control has occurred since its certification;

(B) Where the concern is owned by one or more disadvantaged individuals, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and

(C) It is identified, on the date of its representation, as a certified small disadvantaged business concern in the database maintained by the Small Business Administration (PRO-Net); or

\_\_\_(ii) It has submitted a completed application to the Small Business Administration or a Private Certifier to be certified as a small disadvantaged business concern in accordance with 13 CFR 124, Subpart B, and a decision on that application is pending, and that no material change in disadvantaged ownership and control has occurred since its application was submitted.

(2) \_\_\_ *For Joint Ventures.* The offeror represents, as part of its offer, that it is a joint venture that complies with the requirements at 13 CFR 124.1002(f) and that the representation in paragraph (b)(1) of this provision is accurate for the small disadvantaged business concern that is participating in the joint venture. [*The offeror shall enter the name of the small disadvantaged business concern that is participating in the joint venture: \_\_\_\_\_.*]

(c) *Penalties and Remedies.* Anyone who misrepresents any aspects of the disadvantaged status of a concern for the purposes of securing a contract or subcontract shall:

- (1) Be punished by imposition of a fine, imprisonment, or both;
- (2) Be subject to administrative remedies, including suspension and debarment; and
- (3) Be ineligible for participation in programs conducted under the authority of the Small Business Act.

(End of provision)

**K.7 52.222-22 Previous Contracts and Compliance Reports. (FEB 1999)**

The offeror represents that -

- (a) It [ ] has, [ ] has not participated in a previous contract or subcontract subject the Equal Opportunity clause of this solicitation;
- (b) It [ ] has, [ ] has not filed all required compliance reports; and
- (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

**K.8 52.222-25 Affirmative Action Compliance. (APR 1984)**

The offeror represents that -

- (a) It [ ] has developed and has on file, [ ] has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2); or
- (b) It [ ] has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

**K.9 52.223-13 Certification of Toxic Chemical Release Reporting. (AUG 2003)**

- (a) Executive Order 13148, of April 21, 2000, Greening the Government through Leadership in Environmental Management, requires submission of this certification as a prerequisite for contract award.
- (b) By signing this offer, the offeror certifies that-

- (1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or
- (2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: [*Check each block that is applicable.*]
- (i) The facility does not manufacture, process, or otherwise use any toxic chemicals listed in 40 CFR 372.65;
- (ii) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);
- (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);
- (iv) The facility does not fall within the following Standard Industrial Classification (SIC) codes or their corresponding North American Industry Classification System sectors:
- (A) Major group code 10 (except 1011, 1081, and 1094).
- (B) Major group code 12 (except 1241).
- (C) Major group codes 20 through 39.
- (D) Industry code 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce).
- (E) Industry code 4953 (limited to facilities regulated under the Resource Conservation and Recovery Act, Subtitle C (42 U.S.C. 6921, *et seq.*), or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis); or
- (v) The facility is not located in the United States or its outlying areas..

**K.10 52.226-2 Historically Black College or University and Minority Institution Representation. (MAY 2001)**

(a) Definitions. As used in this provision--

“Historically black college or university” means an institution determined by the Secretary of Education to meet the requirements of 34 CFR 608.2. For the Department of Defense, the National Aeronautics and Space Administration, and the Coast Guard, the term also includes any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

“Minority institution” means an institution of higher education meeting the requirements of Section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1067k, including a Hispanic-serving institution of higher education, as defined in Section 316(b)(1) of the Act (20 U.S.C. 1101a)).

(b) Representation. The offeror represents that it--

is  is not a historically black college or university;

is  is not a minority institution.

**K.11 52.227-6 Royalty Information. (APR 1984)**

(a) *Cost or charges for royalties.* When the response to this solicitation contains costs or charges for royalties totaling more than \$250, the following information shall be included in the response relating to each separate item of royalty or license fee:

(1) Name and address of licensor.

(2) Date of license agreement.

- (3) Patent numbers, patent application serial numbers, or other basis on which the royalty is payable.
- (4) Brief description, including any part or model numbers of each contract item or component on which the royalty is payable.
- (5) Percentage or dollar rate of royalty per unit.
- (6) Unit price of contract item.
- (7) Number of units.
- (8) Total dollar amount of royalties.

(b) *Copies of current licenses.* In addition, if specifically requested by the Contracting Officer before execution of the contract, the offeror shall furnish a copy of the current license agreement and an identification of applicable claims of specific patents.

**K.12 52.227-15 Representation of Limited Rights Data and Restricted Computer Software. (May 1999)**

(a) This solicitation sets forth the work to be performed if a contract award results, and the Government's known delivery requirements for data (as defined in FAR 27.401). Any resulting contract may also provide the Government the option to order additional data under the Additional Data Requirements clause at 52.227-16 of the FAR, if included in the contract. Any data delivered under the resulting contract will be subject to the Rights in Data-General clause at 52.227-14 that is to be included in this contract. Under the latter clause, a Contractor may withhold from delivery data that qualify as limited rights data or restricted computer software, and deliver form, fit, and function data in lieu thereof. The latter clause also may be used with its Alternates II and/or III to obtain delivery of limited rights data or restricted computer software, marked with limited rights or restricted rights notices, as appropriate. In addition, use of Alternate V with this latter clause provides the Government the right to inspect such data at the Contractor's facility.

(b) As an aid in determining the Government's need to include Alternate II or Alternate III in the clause at 52.227-14, Rights in Data-General, the offeror shall complete paragraph (c) of this provision to either state that none of the data qualify as limited rights data or restricted computer software, or identify, to the extent feasible, which of the data qualifies as limited rights data or restricted computer software. Any identification of limited rights data or restricted computer software in the offeror's response is not determinative of the status of such data should a contract be awarded to the offeror.

(c) The offeror has reviewed the requirements for the delivery of data or software and states [offeror check appropriate block]-

o None of the data proposed for fulfilling such requirements qualifies as limited rights data or restricted computer software.

o Data proposed for fulfilling such requirements qualify as limited rights data or restricted computer software and are identified as follows:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: "Limited rights data" and "Restricted computer software" are defined in the contract clause entitled "Rights in Data-General."

**K.13 52.230-1 Cost Accounting Standards Notices and Certification. (JUN 2000)**

Note: This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III.

Offerors shall examine each part and provide the requested information in order to determine Cost Accounting Standards (CAS) requirements applicable to any resultant contract.

If the offeror is an educational institution, Part II does not apply unless the contemplated contract will be subject to full or modified CAS coverage pursuant to 48 CFR 9903.201-2(c)(5) or 9903.201-2(c)(6), respectively.

#### I. Disclosure Statement - Cost Accounting Practices and Certification

(a) Any contract in excess of \$500,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except for those contracts which are exempt as specified in 48 CFR 9903.201-1.

(b) Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR Chapter 99 must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR 9903.202. When required, the Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation unless the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this provision.

Caution: In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.

(c) Check the appropriate box below:

(1) *Certificate of Concurrent Submission of Disclosure Statement.* The offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows:

(i) Original and one copy to the cognizant Administrative Contracting Officer (ACO) or cognizant Federal agency official authorized to act in that capacity (Federal official), as applicable; and

(ii) One copy to the cognizant Federal auditor.

(Disclosure must be on Form No. CASB DS-1 or CASB DS-2, as applicable. Forms may be obtained from the cognizant ACO or Federal official and/or from the loose-leaf version of the Federal Acquisition Regulation.)

Date of Disclosure Statement: [Name and Address of Cognizant ACO or Federal Official Where Filed:]

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

(2) *Certificate of Previously Submitted Disclosure Statement.* The offeror hereby certifies that the required Disclosure Statement was filed as follows:

Date of Disclosure Statement: [ ]

Name and Address of Cognizant ACO or Federal Official Where Filed: [ ]

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

(3) *Certificate of Monetary Exemption.* The offeror hereby certifies that the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contracts and subcontracts subject to CAS totaling \$50 million or more in the cost accounting period immediately preceding the period in which this proposal was submitted. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

(4) *Certificate of Interim Exemption.* The offeror hereby certifies that (i) the offeror first exceeded the monetary exemption for disclosure, as defined in (3) of this subsection, in the cost accounting period immediately preceding the period in which this offer was submitted and (ii) in accordance with 48 CFR 9903.202-1, the offeror is not yet required to submit a Disclosure Statement. The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the offeror will immediately submit a revised certificate to the Contracting Officer, in the form specified under subparagraph (c)(1) or (c)(2) of Part I of this provision, as appropriate, to verify submission of a completed Disclosure Statement.

Caution: Offerors currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of \$50 million or more in the current cost accounting period may not claim this exemption (4). Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

## II. Cost Accounting Standards - Eligibility for Modified Contract Coverage

If the offeror is eligible to use the modified provisions of 48 CFR 9903.201-2(b) and elects to do so, the offeror shall indicate by checking the box below. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than \$50 million in awards of CAS-covered prime contracts and subcontracts. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

Caution: An offeror may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a CAS-covered contract of \$50 million or more or if, during its current cost accounting period, the offeror has been awarded a single CAS-covered prime contract or subcontract of \$50 million or more.

## III. Additional Cost Accounting Standards Applicable to Existing Contracts

The offeror shall indicate below whether award of the contemplated contract would, in accordance with subparagraph (a)(3) of the Cost Accounting Standards clause, require a change in established cost accounting practices affecting existing contracts and subcontracts.

yes  no

(End of provision)

## SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS OR QUOTERS

### L.1 FAR 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

<http://www.dot.gov/ost/m60/tamtar>

<http://farsite.hill.af.mil/vffar.htm>

<http://www.arnet.gov/far>

### FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) - SOLICITATION PROVISIONS

NUMBER	TITLE	DATE
52.214-34	Submission of Offers in the English Language	APR 1991
52.214-35	Submission of Offers in U.S. Currency	APR 1991
52.215-1	Instructions to Offerors – Competitive Acquisitions	JAN 2004
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.216-27	Single or Multiple Awards	OCT 1995
52.219-24	Small Disadvantaged Business Participation Program-Targets	OCT 2000
52.232-38	Submission of Electronic Funds Transfer Information with Offer	MAY 1999
52.237-10	Identification of Uncompensated Overtime	OCT 1997

### L.2 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (OCT 1997) ALTERNATE IV (OCT 1997)

Submission of cost or pricing data is not required.

Provide information described below: See Cost/Business Proposal Instructions below.

### L.3 52.216-1 Type of Contract. (APR 1984)

The Government contemplates award of one or more indefinite-delivery/indefinite-quantity contracts under this solicitation with task orders to be issued on a Firm Fixed Price and a Cost-Plus-Fixed-Fee basis.

### L.4 52.233-2 Service of Protest. (AUG 1996)

- (a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from:

U.S. Department Of Transportation  
 RSPA/Volpe National Transportation Systems Center  
 Attn: Kathleen Regan, DTS-853  
 55 Broadway  
 Cambridge, MA 02142-1093

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

## **L.5 GENERAL INFORMATION**

### **L.5.A. PROPOSAL IDENTIFICATION**

For ease of reference, that part of an Offeror's submission covering factors other than cost; i.e., Staff Qualifications, Management Program, Relevant Test Experience, Response to Hypothetical Task, and Past Performance, will be referred to in this RFP as the "Technical Proposal."

### **L.5.B AWARD WITHOUT DISCUSSIONS**

The Government intends to evaluate proposals and award contracts based on the initial offer, in accordance with FAR 52.215-1(f)(4). It is particularly important that each Offeror be fully responsive in providing its best offer initially, since there may be no opportunity to revise proposals at a later date.

Offerors' initial proposals shall be reviewed to determine whether they satisfy the formal requirements of the solicitation. Those proposals determined by the Government to be so grossly and obviously deficient as to be totally unacceptable on their face may be eliminated from further consideration before the initial evaluation.

Failure of Offerors to respond to or follow the instructions regarding the organization and content of the proposal volumes may result in the entire offer being eliminated before initial evaluation.

An incomplete or deficient cost and price proposal will impede the CO from performing a cost analysis to determine probable cost to the Government and reasonableness of proposed costs. If an Offeror's initial cost/business proposal is grossly deficient or ambiguous, or if proposed costs are not supported or do not track to the supporting data required by the cost exhibit, to the extent that a meaningful Government analysis cannot be performed, the offer may be excluded from evaluation.

### **L.5.C CONSISTENCY BETWEEN TECHNICAL AND COST/BUSINESS PROPOSALS**

Offerors are required to demonstrate consistency between the labor cost shown in the cost proposal and the labor resources included and evaluated in the technical proposal.

First, the cost proposal must reflect realistic hours proposed for individuals identified in the technical proposal. Second, the labor rate proposed for the labor category on Schedule 5 must be consistent with the rates of persons whose resumes are submitted for technical evaluation.

Any attempt to have the technical proposal evaluated with a higher priced, highly qualified team and the cost proposal evaluated with a lower priced, less skilled team will result, at a minimum, in the Offeror's proposal being adjusted or evaluated at the higher cost, or at worst, being removed from consideration for award for failure to follow solicitation instructions.

#### **L.5.D EVALUATED LABOR LEVEL**

Since the Government contemplates award of one or more indefinite delivery/ indefinite quantity (IDIQ) contracts under this solicitation, the amount of business that any one contractor will receive is not certain. Based on the Volpe Center's experience in administering groups of contracts awarded under multiple award programs, it is not anticipated that a single contractor will receive task order awards approaching the maximum of \$5 million. In addition, the value of awards under each multiple award contract can vary widely. The level-of-effort required for proposal purposes in L.7.A should not be considered as either a limit or expected amount of business by any Offeror.

#### **L.5.E. INQUIRIES**

Any inquiries or correspondence pertaining to the Request for Proposal (RFP) must be received not later than 14 calendar days after issuance of this RFP. Address all written inquiries to:

U.S. Department of Transportation  
RSPA/Volpe National Transportation Systems Center  
Attn: Kathleen Regan DTS-853  
55 Broadway,  
Cambridge, MA 02142-1093

The envelope must reference the solicitation number and the mail code. Questions may also be submitted by e-mail to [regan@volpe.dot.gov](mailto:regan@volpe.dot.gov) or by fax at (617) 494-3024. Any questions received after this date will be answered only if determined by the CO to be in the best interest of the Government. **NO ORAL INQUIRIES WILL BE ANSWERED.** No question of any nature or form is to be directed to technical personnel. Any additions, deletions, or changes to this procurement will be made by amendment to the RFP.

Each amendment will be identified by number and receipt thereof will be acknowledged by each Offeror. Consistent with the dissemination of the RFP, **any amendment will be posted on the Volpe Center Acquisition Management Division Internet Home Page** (<http://www.volpe.dot.gov/procure/index.html>) and no paper copies will be mailed to prospective Offerors.

#### **L.5.F COST/BUSINESS PROPOSAL REVIEW**

The Government may at its sole discretion arrange for a contractor to assist in the review of cost/business proposals. Contractors reviewing proposals and supporting documentation are required to safeguard all proprietary data, complete non-disclosure statements, and complete conflict of interest statements.

#### **L.5.G. PROPOSAL SUBMISSION.**

1. Mailing and Addressing Instructions. To facilitate proper handling, the outermost envelope/packaging, which contains the offer, must be addressed to Kathleen Regan, DTS-853, to the address shown in the "Issued by" Block on page 1 of this solicitation. Packages must be clearly labeled "PROPOSAL DATA, TO BE OPENED BY ADDRESSEE ONLY", and must include the solicitation number DTRS57-04-R-20029.
2. The Offeror's proposal must be prepared in two (2) separate volumes entitled, respectively, "Technical Proposal" and "Cost/Business Proposal". Each volume of the proposal should be complete in itself so that evaluation of both parts may be accomplished concurrently and evaluation of the technical proposal may be made strictly on the basis of technical merit.
3. The number of copies of proposals to be submitted is six (6) for the technical proposal and four (4) for the cost proposal. The cost proposal must also be submitted on a 3 ½ inch floppy disk or compact disc in a virus-free format compatible with Microsoft Excel version 2000. Offerors should ensure that their subcontractors also submit the required number of copies even if the subcontractor sends its proprietary proposal data directly to the Government.
4. The attached Standard Form 33 and all representations, certifications, and acknowledgments contained in Section K must be completed and signed by an authorized official of the Offeror's organization and be attached to the cost/business proposal.

**L.5.H FORMAT****L.5.H. 1. Introduction and Purpose**

This section specifies the format that Offerors shall use in their proposals. The intent is to ensure a certain degree of uniformity in the format of the responses to facilitate evaluation.

**L.5.H. 2. Binding**

The volumes must be loose leaf and in binders which can be easily opened and closed.

**L.5.H. 3. Cover**

The cover shall indicate the following:

- a. Title of proposal
- b. Volume number and title
- c. RFP number
- d. Name and address of the Offeror
- e. Copy number

**L.5.H 4. Title Page**

The title page, which shall not count against the page limitation of the proposal of each volume, shall include the following:

- a. Title of proposal
- b. Volume number and title
- c. RFP number
- d. Name, address, and telephone number of the Offeror
- e. Authorized signatures (The title page for each volume shall be signed by an official authorized to bind the Offeror.)
- f. Index

**L.6 INSTRUCTIONS FOR TECHNICAL PROPOSAL****INTRODUCTION**

Proposals must be structured in accordance with the instructions contained herein.

**Content**

Your technical proposal should be comprehensive and explicit. Elaboration of general corporate or company experience in non-related activities will detract from the quality of your proposal. All qualifications, experience, and capability should relate to the services required by the Statement of Work. Legibility, conciseness, completeness, clarity of content, coherence, and brevity are important since they will facilitate the Government's evaluation procedure and will also assure maximum credit being properly assigned to the various aspects of your proposal.

The Technical Proposal will be the most important factor in the evaluation of your offer and in the selection of Contractors. Therefore, it must be specific and complete. It must contain no reference to cost/prices in order to permit strict evaluation of technical merits alone. While all the technical factors cannot be detailed in advance, the proposal must demonstrate a thorough understanding of the test requirements, and fully describe the test capabilities. A detailed description of the Offeror's facilities and experience required to satisfy the requirements shall also be included.

The Offeror's technical proposal shall consist of two (2) Parts as follows:

**TECHNICAL PROPOSAL:**

Part I - Past Performance

Part II - (1) Staff Qualifications/ Education and Experience

(2) Facilities

(3) Relevant Test Experience

(4) Management Program

**PART I - PAST PERFORMANCE.**

Offerors shall submit past performance information as a separate part of the proposal for both the Offeror and major (over 20% of the hours in the cost proposal) proposed subcontractors. Offerors shall submit this past performance data as a separate part of their proposal, which is clearly marked and identifiable.

Each Offeror will be evaluated on its performance under existing and prior contracts for similar products or services. Performance information will be used both for responsibility determinations and as an evaluation factor. The Government may contact references other than those provided by the Contractor and the information received will be used in the evaluation of the Offeror's past performance.

The Offeror must provide a list of contracts that it is currently performing or has completed within the past three years. The Offeror must make a good faith effort to insure that the list includes all prime contracts with a value over \$100,000 with the Federal Government. If the Offeror can demonstrate that including information on all prime contracts with the Federal Government over \$100,000 would create an undue burden on the Offeror because of the large number of applicable contracts, then the list may be reduced to reflect contracts that are most relevant and for which data is readily available. The Offeror must describe in its proposal what types of contracts were excluded, and what process was utilized to insure that all prime contracts with the Federal Government over \$100,000 relevant to the Statement of Work were included. However, the list must include all contracts that are clearly relevant such as those applicable contracts reflecting the involvement of the proposed project manager or principal investigators. If performance is evaluated for each Task Order under a contract, the list may be modified accordingly. The list may also include other contracts considered relevant by the Offeror including those with customers other than the Federal Government. Information regarding the Offeror's performance as a subcontractor with the Federal Government will be obtained from the prime Contractor. Include the following information for each contract:

- 1) Name and address of customer
- 2) Contract number
- 3) Contract type
- 4) Total contract value
- 5) Description of contract work
- 6) Contracting Officer address, voice and facsimile telephone numbers, and e-mail address
- 7) Contracting Officer's Technical Representative's address, voice and facsimile telephone numbers and e-mail address
- 8) Administrative Contracting Officer, if different from Contracting Officer, address, voice and facsimile telephone numbers and e-mail address
- 9) List of major subcontractors
- 10) Assessment of relevance to requirements identified in this solicitation.
- 11) Whether any final or interim contract past performance report was or has been issued by the contracting agency. Copies of the final or most current past performance report must be submitted for the five most relevant contracts. Copies of reports on other than the five contracts considered most relevant by the Offeror should not be submitted as part of the proposal, but will be obtained by the Government if the Government considers the contracts relevant.

From the above list, the Offeror must select no more than five contracts that it considers the most relevant in demonstrating its ability to perform the proposed effort described in Section C herein. This list of most relevant contracts must be separated from the above list. However, the list must include all contracts that are clearly relevant, such as those applicable contracts reflecting involvement of the proposed program manager and other proposed key personnel. The list may also include other contracts considered relevant by the Offeror, including

those with customers other than the Federal Government. Offerors may also include information on problems encountered on the five identified contracts and the Offeror's corrective actions.

The Offeror is responsible for making all reasonable efforts to ensure that a completed evaluation report is provided for each of the five cited contracts no later than the due date for receipt of proposals. If the contracting activity has completed a Contractor evaluation report and provided a copy to the Offeror, particularly those completed in accordance with Subpart 42.15 of the FAR, a copy of this report is sufficient. If not, the Offeror is responsible for making all reasonable efforts to ensure that a copy of the performance evaluation report is provided directly to the Volpe Center Contract Specialist by the appropriate customer responding official no later than the due date for receipt of proposals. If the customer has not developed its own past performance evaluation report form, please refer that customer to the Contractor Performance Report format found at National Institutes of Health Contractor Performance System website at: <http://cps.od.nih.gov/files/standardreport.doc> .

This format, including the associated numeric ratings and criteria, should be used to submit the required past performance information for the proposal. Information contained in the evaluation reports shall be considered sensitive and shall not be released to other Offerors. Failure of the Offeror to demonstrate that it has made all reasonable efforts to provide the required past performance reports will result in an unacceptable rating for this criterion. The Government reserves the right to obtain additional information from any of the referenced contract contacts and from other Government sources. If the Government receives negative past performance information (indicating that performance was less than satisfactory) which is not accompanied by a response from the Offeror, a copy of the adverse information will be provided to the Offeror, which will be given a limited period in which to provide a response. If no response is received within the specified timeframe, the negative past performance information will be evaluated as submitted.

Offerors must send a Client Authorization Letter, included as Exhibit A, to all non-Federal Government references listed in their proposal to assist in the timely processing of past performance evaluations. Client Authorization Letters must be mailed to individual references no later than the proposal submission date. The Offeror shall include a copy of all completed Client Authorization Letters as part of the Past Performance submission.

**If the Offeror has no relevant past performance history, it must affirmatively so state. Offerors with no relevant past performance history or Offerors that are unable to provide past performance reports after making all reasonable efforts will not be evaluated favorably or unfavorably under this criteria, in accordance with FAR 15.305.**

In the case of a relatively new firm (i.e., established within the last 18 months), the Offeror may submit past performance information for contracts on which its corporate management has performed, to supplement any past performance information for the firm itself; this shall be specifically noted in the proposal submission.

**If the Offeror does not either include past performance history or affirmatively state that no past performance history exists or can be obtained, the Offeror's proposal will be ineligible for award.**

**EXHIBIT A - CLIENT AUTHORIZATION LETTER.**

[Company Name]  
[Street Address]  
[City, State/Province/Zip/Postal Code]  
[Date]

[Recipient Name]  
[Address]  
[City, State/Province Zip/Postal Code]

Dear [Client]:

We are currently responding to the Volpe Center RFP No. DTRS57-04-R-20029 for the procurement of Technical Support Service for Vehicle Crash Tests. The Volpe Center is placing increased emphasis in their acquisitions on past performance as a source selection evaluation factor. The Volpe Center requires Offerors to inform references identified in proposals that the Volpe Center may contact them about contract performance information.

If you are contacted by the Volpe Center for information on work we have performed under contract for your company/agency/state or local Government, you are hereby authorized to respond to Volpe Center inquiries.

Your cooperation is appreciated. Please direct any questions to \_\_\_\_\_.  
(Offeror's point of contact)

Sincerely,  
[Your name]  
[Your position]

[Typist's initials]  
Enclosure: [Number]

cc: [Name]

**PART 2 – TECHNICAL PROPOSAL**

**(1) Staff Qualifications/ Education and Experience**

The purpose of this section is to evaluate the Education and experience, relevant to the functional area requirements of this contract. Resumes shall be submitted in accordance with the requirements outlined below. This section must include the following:

1. Letters of intent from subcontractors and/or consultants named in the proposal indicating their intentions to perform work under this contract and specifying the staffing level of commitment.
2. Names and detailed education and experience of the Offeror's staff and sub-Contractors and/or consultants who will perform the work.
3. Detailed discussion of the technical and managerial experience of the Offeror's proposed Project Manager, and of his/her counterparts in sub-Contractor organizations.

The Offeror must include a matrix detailing how the Offeror has allocated the level-of-effort by RFP category, between itself and its subcontractors. It should also show the hours appropriated to persons whose resumes were submitted. The matrix must be consistent with Schedules 5, 6, and 7.

Offerors shall submit, at a minimum, the number of resumes specified for the following categories:

<b>Labor Category (Minimum)</b>	<b>No. of Resumes</b>
Program Manager	1
Senior Engineer	2
Engineer	2
Technician	2

Required Staff Education and Experience for each professional labor category are as follows:

Program Manager identified under the Key Personnel clause in SECTION I - A B.S. in engineering or science with a minimum of five years management experience in vehicle crash testing. Knowledgeable and experienced in vehicle crash testing, test instrumentation, occupant kinematics, occupant crash simulation models, and highway accident data.

Senior Engineer - An M.S. or equivalent to an M.S. (consider two years related experience after B.S. equivalent to M.S.) in engineering with a minimum of three years experience in dynamics, vehicle crash testing, instrumentation, test data collection and analysis, dummy certification, and highway accident data. Knowledgeable of recent occupant crash simulation models and familiar with Federal Motor Vehicle Safety Standards (FMVSS).

Engineer - A B.S. in science or engineering is required. A minimum of two years experience in the general field of test fixture design, test setup, instrumentation, test data collection and analysis. A minimum of five years of experience in test and evaluation with at least two years of college education may be substituted for the degree requirement.

Technician - A high school graduate with a minimum of one year of experience in testing and data collection. Experienced in the use of tools and laboratory equipment.

Resumes for the proposed Program Manager and the technical staff must be representative of, and consistent with, the Offeror's proposed labor cost presented in the cost proposal. Resumes shall show demonstrated experience in areas similar to the requirements of the Statement of Work. Resumes must also be verifiable, in that relevant dates and names and addresses of educational institutions and employers must be provided for all experience, education, and specialized training claimed.

## **(2) Relevant Test Experience**

In this section, the Offeror shall address and illustrate his/her ability to support the Statement of Work by demonstrating relevant experience and expertise. The Offeror must identify previous test experience by crash mode, range of speeds and other relevant factors such as:

- a. Ability to meet the data acquisition procedures specified by the Society of Automotive Engineers Recommended Practice J211 entitled "Instrumentation for Impact Tests", Mar95, or its latest revision. Furthermore, the minimum sampling rate for the data acquisition must be at least 8000 Hertz.
- b. Experience in selection, use and understanding of instrumentation devices (accelerometers, load cells, potentiometers, gyros, strain gages, etc.) as to their application to static and dynamic testing.
- c. Ability to furnish data in the format specified by the NHTSA Crash Test Database requirements (NHSTA EV5 data format specified in the Version 5 Test Reference Guide, Volume 1: Vehicle Tests (VTRG), which may be downloaded, along with supporting data entry software, Entree for Windows, Version 5, from <http://www.nrd.nhtsa.dot.gov/software/entree/index.htm>.
- d. Experience in performing engineering analyses, comparisons and interpretations of test data (static and dynamic).
- e. Ability to recognize data anomalies and to explain these anomalies.

## **(3) Management Program**

In proposing a Management Program, the Offeror shall fully describe the system to be used for receiving, planning, administering, and coordinating specific work assignments, and for selecting subcontractors and/or consultants.

The Offeror shall also describe the system and procedures to be used to track and control costs at the TO and contract level. Offerors shall explain how potential cost overrun situations shall be identified. Offerors shall explain accountability within their organization for tracking and controlling costs.

## **(4) Facilities**

In this section the Offeror shall discuss the facilities, knowledge of test protocols available to him/her for the performance of this contract. The following items shall be addressed:

- a. A description of the facilities available to conduct load-cell barrier or pole crash tests with all light duty vehicles, including:
  1. The ability to impact a barrier or pole at a speed up to 60 mph (plus or minus 1/2 mph) with a 6,000 pound vehicle, and
  2. The ability to impact a barrier with the vehicle at a 30-degree angle.
- b. A description of the facilities available to conduct car-to-car and moving barrier-to-car crash tests for all size ranges at various impact angles and test configurations with a closing velocity up to 100 mph, hitting the target point within three inches.

- c. A description of the facilities available to conduct barrier-to-car and car-to-car static crush tests with all light duty vehicles, including:
  - 1. The ability to perform full frontal and offset-frontal crush tests (barrier-to-car and car-to-car configurations),
  - 2. The ability to perform rear crush tests (barrier-to-car and car-to-car configurations), and
  - 3. The ability to perform a side crush tests (barrier-to-car and car-to-car configurations) straight on (90-degree), as well as, angled.
- d. A description of the facilities available to conduct simulated vehicle tests (sled tests) with various sized sled bucks from all light duty vehicles in frontal and frontal oblique collision modes, including:
  - 1. The ability to provide any vehicle crash pulse using variable or programmable deceleration profiles,
  - 2. The ability to fabricate various sled bucks including automobile, small trucks, and vans,
  - 3. The ability to install advanced restraint systems in the sled buck including child restraints,
  - 4. The ability to provide test data within one hour of each sled test, and
  - 5. The ability in testing with 50th and 95th percentile male dummies, 5th percentile female dummies, as well as three year old and six year old child dummies and infant dummies.
- e. The ability to refurbish and perform minor modifications to production vehicles before and/or after impact tests.
- f. The ability to install advanced restraint systems and its ability to handle and instrument anthropometric dummies.
- g. The maximum number of data channels (dummy and vehicle) the Offeror's equipment is capable of recording.
- h. A description of the Offeror's current facilities, which will allow year-round testing to be conducted irrespective of the weather conditions (rain, snow, etc.).
- i. A description of the facilities available to conduct vehicle component static tests (e.g., seat belt anchors, seats, etc.).

## L.7 INSTRUCTIONS FOR COST/BUSINESS PROPOSAL

### L.7.A. INTRODUCTION

The cost/business proposal will permit the Government to determine whether the proposed costs demonstrate cost realism and will provide the Government with cost and fee/profit information that will facilitate task order issuance.

“Cost realism” as defined in FAR 15.401 means the costs in an Offeror’s proposal are:

1. Realistic for the work to be performed;
2. Reflective of a clear understanding of the requirements; and
3. Consistent with the various elements of the Offeror’s technical proposal.

All information relating to cost or pricing must be included in this volume of the proposal; under no circumstances shall cost or pricing data be included elsewhere.

The cost/business proposal should be prepared in sufficient detail to permit thorough and complete evaluation by the Government without additional correspondence or communication. During its evaluation, the Government may request clarifications, answers to questions that assist in the Government’s understanding of information contained in the cost/business proposal, or the correction of minor omissions or errors that do not alter the offer. However, the Government anticipates making award on initial offers and does not expect to hold discussions. Consequently, the Offeror is advised that failure to provide the required schedules and supporting documentation may result in the rejection of its offer if it is in the Government’s best interest, rather than opening discussions.

The Offeror’s cost/business proposal will be evaluated for compliance with the RFP instructions. Proposed costs will be evaluated for reasonableness and realism. The Government will calculate probable cost that will be used for best value determination.

To facilitate cost/business proposal preparation, a checklist is provided for use by the Prime Offeror and each subcontractor. The checklist should be completed and submitted as part of the proposal.

For evaluation purposes, Offerors are required to propose estimated costs using the hours provided below. Hours should be apportioned between the prime and its subcontractors in a manner consistent with the Offeror’s technical proposal. The Administrative Staff hours must be estimated by each Offeror and subcontractor because different accounting practices will impact the hours required.

<b>Labor Category</b>	<b>Hours</b>
Program Manager	525
Senior Engineer	4,150
Engineer	7,675
Technicians	8,450
Subtotal	20,800
Administrative Staff	Estimated by Offeror/Subcontractor
Total	

**Although the task ordering period is four years, the cost/business proposal instructions require that labor be priced out for evaluation purposes assuming a performance period of only one year, October 1, 2004 to September 30, 2005.** This is done because escalation is difficult to project accurately for a four-year period; actual escalation during performance is not likely to be significantly different among Offerors during performance if calculated in the same way; and escalation is not considered a discriminator for selection purposes.

**RFP-stipulated amounts for Travel and Other Direct Cost (ODC) are provided in the detailed instructions.**

Costs that Offerors classify as “other direct costs” (ODCs) also vary from firm to firm. Therefore, in addition to the RFP-stipulated ODC, which is specifically for travel costs incurred during performance, each Offeror and subcontractor must include an amount for ODCs based on its own accounting system and experience and provide rationale for the estimates. The categories of cost must be identified.

If any of the cost/business proposal instructions appear incompatible with established/approved accounting practices, Offerors shall notify the CO within 14 calendar days of the issuance date of the RFP.

**L.7.B. FORMAT**

In addition to the requirements set forth in Section L.4, the cost/business proposal shall be submitted in three sections as follows:

- Section I - Solicitation Documents
- Section II - Information Other Than Cost and Pricing Data
- Section III - Business Proposal

**L.7.C. SECTION I - SOLICITATION DOCUMENTS**

In this section, Offerors shall submit a completed and signed SF 33 (page 1 of the solicitation), including acknowledgment of any amendments; and Representation, Certifications, and Other Statements of Offerors (Section K of the solicitation).

**L.7.D. SECTION II - INFORMATION OTHER THAN COST AND PRICING DATA**

In this section, Offerors will be provided with detailed instructions (Part 1) and an explanation of the cost/business proposal checklist and schedules (Part 2).

**PART 1 - DETAILED INSTRUCTIONS**

The Offeror shall submit a signed Proposal Cover Sheet (Schedule 1) and information other than cost and pricing data as set forth below. Summary data shall be placed on the Proposal Cover Sheet and Schedules 2 through 9 should support it. In addition, as discussed in Paragraph L.4.C, Offerors should ensure consistency between the technical and the cost/business proposals. **All costs, rates, factors, and calculations must be shown and supporting rationale and documentation included.**

**Accounting System Approval**

The Government does not anticipate requesting accounting system reviews before contract award. However, Offerors are ineligible to receive task orders until their accounting system has been approved by the Defense Contract Audit Agency (DCAA) or other cognizant audit agency.

The Volpe Center cannot approve a cost-type subcontract to a proposed subcontractor which does not have an approved accounting system.

As the Government intends to make award without negotiations, an Offeror must indicate how it will accommodate the inclusion of a subcontractor that does not have an approved accounting system without involvement of the Volpe Center.

**Labor**

Provide the proposed unloaded hourly labor rates for the labor categories defined in L.6. Show calculations used to compute the proposed direct labor rates. Provide the basis and rationale for the labor rates proposed; for example, company-wide bidding rates, current salary data for named individuals, survey data, or anticipated new-hires, etc. Show how company categories are mapped to the RFP categories. Explain

your approach and show how the educational and experience requirements in the RFP relate to your company categories.

Provide the current labor rates from payroll records and show those labor rates escalated to the cost proposal performance period for individuals whose resumes are provided in the technical proposal. If any individual's labor rate is 5 percent more or less than the proposed labor rate for that category, show calculations and provide a narrative addressing cost-realism for the proposed labor cost.

### **Uncompensated Overtime**

**All Offerors should state clearly whether or not uncompensated overtime is included in the proposal.** Uncompensated overtime is defined in FAR 52.237-10 as "the hours worked without additional compensation in excess of an average of 40 hours per week by direct charge employees who are exempt from the Fair Labor Standards Act. Compensated personal absences such as holidays, vacations, and sick leave shall be included in the normal work week for purposes of computing uncompensated overtime hours."

If uncompensated overtime is used in this proposal, the Offeror must have an accounting system to record all hours worked. Show how it is incorporated into the proposal and its cost impact. Provide an explanation of your cost accounting treatment of uncompensated overtime and a copy of your policy.

If uncompensated overtime is proposed at the task order level, Offerors will be required to provide uncompensated overtime hours during performance.

### **Administrative Labor**

The Administrative Staff hours must be estimated by each Offeror and subcontractor because different accounting practices will impact the hours required. The rationale for the estimate must be included.

Administrative labor that is not described and priced out will not be billable during performance without prior CO approval.

Offerors should describe the accounting treatment of the following labor functions: contract administration, subcontract administration, clerical and secretarial activity, work status reporting, financial reporting, and project reporting.

### **Bid and Proposal Costs**

Bid and proposal costs for task order proposal preparation will not be reimbursed as direct costs.

### **Indirect Rates**

Offerors are required to provide a table of their indirect rates and explain the allocation bases on Schedule 8.

Include all rates that the Offeror maintains in its accounting records that may be used during performance of this contract. Disregard those rates that the contractor does not maintain, and use continuation sheets for additional rates whenever necessary.

Identify indirect rates that a Government audit agency has approved for forward pricing. If not approved, state the basis of the proposed rate (e.g., previous year's actuals, current fiscal year-to-date, business plan, etc.). Provide historical rate information, rationale, and other factors used to develop the proposed indirect rates used to cost the proposal. Also, provide actual expense pool amounts, allocation bases, and rates which have been submitted to the Defense Contract Audit Agency (DCAA) (or other cognizant Government audit agency) in your overhead rate proposal for establishing final indirect rates.

Cost ceilings may be required under this contract for the prime or one or more subcontractors. Offerors should review the situations described in FAR 42.707(b)(1) to determine whether or not ceilings should be utilized and, when appropriate, propose ceilings.

### **Other Direct Costs (ODCs)**

#### 1. RFP-Stipulated ODCs for Travel

The Offeror will be required to travel during performance to Cambridge, Massachusetts, and Washington, D.C. The RFP-stipulated amount of \$10,000 for travel should be split between Cost-Plus-Fixed-Fee in the amount of \$9,000 and Fixed Price in the amount of \$1,000. Travel cost should be burdened in accordance with established accounting practice.

#### 2. RFP-Stipulated ODCs

The Offeror may also be required to purchase vehicles, materials and equipment, computer time, outside machining, and special test dummies. For evaluation purposes, a total of \$1,600,000 must be included in the prime Offeror's proposal (and not apportioned to subcontractors) for these costs. These costs should be burdened in accordance with established accounting practice.

#### 3. Offeror-Estimated ODCs

Offerors should identify, and estimate amounts for, any additional ODCs which are anticipated to support the proposed effort. ODCs not identified and priced in the Offeror's proposal will not be billable during performance without prior CO approval.

### **Subcontracts**

Government anticipates that subcontracts will be predominantly cost-plus-fixed-fee except for consultants, which will be either time-and-material or labor hour. Subcontractors must submit a cost proposal in accordance with the cost proposal instructions in this section. Subcontracts estimated to exceed \$500,000 should be supported by a Proposal Cover Sheet. All subcontractors must follow the same cost proposal instructions as the prime, except where noted. Regardless of dollar value, subcontract proposals must be adequately documented to facilitate an evaluation of proposed costs.

Offerors that enter into subcontracts other than on a cost-reimbursement type basis may make appropriate adjustments to the instructions and schedules. Information as to the type of subcontract contemplated and documentation to show why their subcontract type is anticipated must be included. The guidance in FAR Part 16 should be followed. For example, those Offerors contemplating time-and-material or labor-hour subcontracts shall follow the procedures specified in FAR Subpart 16.6. The following information should also be provided for time-and-material or labor-hour agreements (such as those with consultants): (1) details of what cost elements are included in the rate and what costs, if any, will be charged in addition to the rate; (2) the result of the Offeror's analysis of invoices submitted to other clients by the subcontractor or consultant which support the proposed rate or rates; (3) a signed statement from the consultant or the subcontractor that the proposed rate is a "Most Favored Customer Rate," or the reason it was not offered; and (4) a rate comparison from the Offeror which indicates that the rate proposed is comparable to the rates other consultants or subcontractors receive for performing similar types of work. The Offeror shall provide the names of the other consultants or subcontractors used in the comparison.

It is the responsibility of the prime contractor to review and evaluate the subcontract proposals and accompanying cost or pricing data and furnish the results of such review to the Government as part of the cost submission, regardless of whether the details are provided to the prime Offeror or separately to the Government. The prime's review should be as detailed as the information provided by the subcontractor directly to the prime permits. A subcontractor whose evaluation is considered insufficient by the Government, either because the data submitted to the Government is incomplete or because the prime fails to conduct and document a comprehensive evaluation, will be deleted from technical consideration and the prime's technical proposal will be evaluated without it.

**Escalation**

State clearly the escalation rate used to develop the labor rates used on Schedule 6 and provide rationale.

**Cost of Money**

Attach supporting calculations.

**Fee Objectives**

The individual cost elements factors used in task order proposals preparation during performance may be less than, but may not exceed, the factors shown in Schedule 4 and used to develop fixed fee amounts in Schedule 2. (See paragraph H.4).

The Government considers fee and profit a function of competition, but may utilize the weighted guidelines method in TAM 1215.9 and Appendix E to evaluate them for reasonableness. The Offeror’s cost/business proposal should contain adequate data and rationale for any consideration it wants included for Contract Risk and Special Factors. Offerors are encouraged to visit the following TAM website:

<http://www.dot.gov/ost/m60/earl/chap1215.htm#appen15a>.

**Subcontracting Plan**

In accordance with FAR 52.219-9, Offerors who are not small business concerns shall submit a Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan. The plan must be submitted in accordance with FAR Part 19 and must comply with FAR 19.704. The Offeror shall show the subcontractor’s business size, and the percentage and type of workload estimated to subcontracted out. All cost and technical information must be included in the appropriate sections of the Offeror’s proposal in addition to the submission of the subcontracting plan. The Small Business Administration (SBA) and Volpe Center socio-economic goals are currently as follows:

Subcontract Awards	Percent of Dollars Awarded
Awards to Small Businesses	30%
Awards to Small disadvantaged Businesses	10%
Awards to Women-Owned businesses	5%
Awards to HUBZone Businesses	3%
Awards to Service-disabled Veteran-Owned Businesses	3%

These goals are not intended to be mandatory but Offerors are encouraged to keep these goals in mind when developing their subcontracting plan. Please note that these goals must be proposed as a percentage of total dollars being subcontracted. A business may count toward more than one of the goals shown above. For example, a small disadvantaged business owned by a women, may count toward each of the three goals.

**PART 2 - EXPLANATION OF COST/BUSINESS PROPOSAL****CHECKLIST AND SCHEDULES**

**NOTE:** Offerors may modify these schedules (font size, portrait or landscape orientation, etc.) provided the requested information is furnished in similar format.

Cost/Business Proposal Checklist: Prime Offerors and subcontractors should complete and include the checklist in the proposal package.

Schedule 1: "Proposal Cover Sheet." Prime Offerors and subcontractors should complete.

Schedule 2: "Summary of Proposed Costs and Fixed Fee ." The schedule should be completed consistent with the Offeror's accounting practices and may be revised accordingly. The figures on this schedule must agree with the Proposal Cover Sheet.

Schedule 3: "Summary of Proposed Costs and Profit." The schedule should be completed consistent with the Offeror's accounting practices and may be revised accordingly. The figures on this schedule must agree with the Proposal Cover Sheet.

Schedule 4: "Establishment of Maximum Factors and Calculation of Proposed Amounts for Fixed Fee." Schedule 2 must be completed first in order to fill in required cost information.

Schedule 5: "Summary of Proposed Labor Cost and Distribution of Labor Cost Between Cost Plus Fixed and Firm Fixed Price." The amounts on those schedules should correspond to the amounts for labor in Schedule 2. The hours used to develop the prime Offeror's labor cost must correspond with the allocation of hours shown on Schedule 6.

Schedule 6: "Labor Cost Realism Information." This schedule shows how realistic the labor category rates proposed are, given the rates of the persons whose resumes are provided and the hours each is expected to provide.

Schedule 7: "Allocation of Labor Hours." This schedule shows how the hours are apportioned between the prime and subcontractors.

Schedule 8: "Indirect Rates and Factors." This schedule should be completed consistent with the Offeror's accounting practices, and may be revised as needed.

Schedule 9: "Subcontract Information." Complete the matrix for subcontractor data.

<u>COST/BUSINESS PROPOSAL CHECKLIST</u>	
	Page Number
Solicitation Documents	
Schedule 1: "Proposal Cover Sheet"	
Schedule 2: "Summary of Proposed Costs and Fixed Fee"	
Schedule 3: "Summary of Proposed Costs and Profit"	
Schedule 4: "Establishment of Maximum Factors and Calculation of Proposed Amounts for Fixed Fee"	
Schedule 5: "Summary of Proposed Labor Cost and Distribution of Labor Cost Between Costs Plus fixed Fee and firm Fixed Price"	
Schedule 6: "Labor Cost Realism Information"	
Schedule 7*: "Allocation of Labor Hours"	
Schedule 8: "Indirect Rates and Factors" plus rationale and supporting documentation	
Schedule 9: "Subcontract Information"	
Supporting Documentation for labor rates including current salary information, escalation to perform period, road mapping in J-9 Labor Category Qualifications	
Rationale for administrative labor hours, if adjusted	
Estimate and rationale for Offeror-estimated Other Direct Costs	
Information describing accounting treatment of administrative and clerical labor	
Statement concerning uncompensated overtime and additional information if proposed	
Cost of Money supporting calculations, if proposed	
*Evaluations of subcontractor proposals	
*Factors for CO's consideration in weighted guidelines fee objective	
*Contract Cost Control Plan	
*Small Business subcontracting Plan in accordance with FAR 52.219-9	

\*Not applicable to subcontractors

**SCHEDULE 1**

<b>PROPOSAL COVER SHEET</b>			<b>1. SOLICITATION/CONTRACT/MODIFICATION NUMBER</b>			
2a. NAME OF OFFEROR			3a. NAME OF OFFEROR'S POINT OF CONTACT			
2b. FIRST LINE ADDRESS			3b. TITLE OF OFFEROR'S POINT OF CONTACT			
2c. STREET ADDRESS			3c. TELEPHONE		3c. FACSIMILE	
2d. CITY	2e. STATE	2f. ZIP CODE	AREA CODE	NUMBER	AREA CODE	NUMBER
4. TYPE OF CONTRACT OR SUBCONTRACT ( <i>Check</i> )			5. <input type="checkbox"/> PRIME OFFEROR			
<input type="checkbox"/> FFP	<input type="checkbox"/> CPIF	<input type="checkbox"/> OTHER	<input type="checkbox"/> CPAF	<input type="checkbox"/> SUBCONTRACTOR _____		
<input type="checkbox"/> FPI FFPOI	CPIF	PRIME OFFEROR'S NAME				
<input type="checkbox"/> CFFF	<input type="checkbox"/> OTHER ( <i>Specify</i> )					
6. ESTIMATED COST, FEE AND PROFIT INFORMATION						
A. ESTIMATED COST						
B. FIXED FEE						
C. PROFIT						
D. TOTAL PRICE						
7. PROVIDE THE FOLLOWING						
NAME OF COGNIZANT CONTRACT ADMINISTRATIVE AGENCY			NAME OF COGNIZANT GOVERNMENT AUDIT AGENCY			
STREET ADDRESS			STREET ADDRESS			
CITY	STATE	ZIP CODE	CITY	STATE	ZIP CODE	
TELEPHONE	NUMBER		TELEPHONE	AREA CODE	NUMBER	
FACSIMILE	NUMBER		FACSIMILE	AREA CODE	NUMBER	
CONTACT			CONTACT			
PROPERTY	<input type="checkbox"/> Reviewed and determined acceptable agency and determined acceptable		APPROX. DATE OF LAST AUDIT			
SYSTEM	<input type="checkbox"/> Reviewed and determined not acceptable agency and determined not acceptable		PURPOSE OF AUDIT (e.g. proposal review, establishment of billing rates, finalize indirect rates, etc.)			
	<input type="checkbox"/> Never reviewed					
PURCHASING SYSTEM	<input type="checkbox"/> Reviewed and determined acceptable		ACCOUNTING SYSTEM <input type="checkbox"/> Audited and determined acceptable; <input type="checkbox"/> Audited and determined not acceptable; <input type="checkbox"/> Never audited			
	<input type="checkbox"/> Reviewed and determined not acceptable					
	<input type="checkbox"/> Never reviewed		OFFEROR'S FISCAL YEAR			
8a. NAME OF OFFEROR ( <i>Typed</i> )			9. NAME OF FIRM			
8b. TITLE OF OFFEROR ( <i>Typed</i> )						
10. SIGNATURE				11. DATE OF SUBMISSION		

**Schedule 2 - SUMMARY OF PROPOSED COSTS AND FIXED FEE**

Prime or Subcontractor Name: \_\_\_\_\_

Direct Labor		\$ _____
Fringe Benefits	Rate _____	\$ _____
Overhead	Rate _____	\$ _____
Subcontracts:		\$ _____
Subcontract Burden:	Rate _____	\$ _____
Other Direct Costs:		
RFP-Travel		\$ <u>2,250.00</u>
RFP-Supplies		\$ <u>360,000.00</u>
Offeror-Estimated ODC		\$ _____
ODC Burden	Rate _____	\$ _____
Subtotal		\$ _____
G & A	Rate _____	\$ _____
Cost of Money		\$ _____
Total Costs and COM		\$ _____
Fixed Fee (From Schedule 4)		\$ _____
Total Proposed Cost and Fixed Fee		\$ _____

**Schedule 3 - SUMMARY OF PROPOSED COSTS AND PROFIT**

Prime or Subcontractor Name: \_\_\_\_\_

Direct Labor		\$ _____
Fringe Benefits	Rate _____	\$ _____
Overhead	Rate _____	\$ _____
Subcontracts:		\$ _____
Subcontract Burden:	Rate _____	\$ _____
Other Direct Costs:		
RFP-Travel		\$ <u>250.00</u>
RFP-Supplies		\$ <u>40,000.00</u>
Offeror-Estimated ODC		\$ _____
ODC Burden	Rate _____	\$ _____
Subtotal		\$ _____
G & A	Rate _____	\$ _____
Cost of Money		\$ _____
Total Costs and COM		\$ _____
Profit		\$ _____
Total Proposed Cost and Fixed Fee		\$ _____

**Schedule 4**  
**ESTABLISHMENT OF MAXIMUM FACTORS AND CALCULATION OF PROPOSED**  
**AMOUNTS FOR FIXED FEE**

Offeror or Subcontractor Name: \_\_\_\_\_

Fixed Fee				
	Estimated Cost	Range	Assigned Weight	Fixed Fee Dollars
Other Direct Costs (Including Subcontracts, Equipment, Material, and Travel)	\$	0-4%	%	\$
All Other Costs	\$	0-8%	%	\$
TOTAL	\$			
TOTAL FIXED FEE DOLLARS				\$

Fixed fee on Schedule 2 should be calculated on the table above.

**See Section H.4 Maximum Fee/Profit (Dec 2003)**

**Schedule 5  
SUMMARY OF PROPOSED LABOR COST AND DISTRIBUTION OF LABOR COST BETWEEN COST  
PLUS FIXED FEE AND FIRM FIXED PRICE**

Offeror or Subcontractor Name: \_\_\_\_\_

Category	Hours	Unburden Rate	Labor Cost
Program Manager			
Senior Engineer			
Engineer			
Junior Staff			
Technician			
Administrative (specify)			
Administrative (specify)			
Total Direct Labor			
Cost Plus Fixed Fee Labor	To Schedule 2	90% of Total Direct Labor	
Firm Fixed Price Labor	To Schedule 3	10% of Total Direct Labor	

**Schedule 6  
LABOR COST REALISM INFORMATION**

Prime or Subcontractor Name: \_\_\_\_\_

Labor Category: <b>Program Manager</b>		Labor Rate from Schedule 5: \$	
Resumed Person(s) Name(s)	Hours Proposed	Current Labor Rate	Escalated* Labor Rate

Labor Category: <b>Senior Engineer</b>		Labor Rate from Schedule 5: \$	
Resumed Person(s) Name(s)	Hours Proposed	Current Labor Rate	Escalated* Labor Rate

Labor Category: <b>Engineer</b>		Labor Rate from Schedule 5: \$	
Resumed Person(s) Name(s)	Hours Proposed	Current Labor Rate	Escalated* Labor Rate

**Schedule 6 (continued)**

Labor Category: <b>Technician</b>		Labor Rate from Schedule 5: \$	
Resumed Person(s) Name(s)	Hours Proposed	Current Labor Rate	Escalated* Labor Rate

\* Escalated to cost proposal performance period.

**Schedule 7**  
**ALLOCATION OF LABOR HOURS**

Prime Name: \_\_\_\_\_

	Program Manager	Senior Engineer	Engineer	Technicians
Prime				
Subcontractor A				
Subcontractor B				
Subcontractor C				
Subcontractor D				
Subcontractor E				
Subcontractor F				
Total				
Per RFP	<b>525</b>	<b>4,150</b>	<b>7,675</b>	<b>8,450</b>

**Schedule 8**

**INDIRECT RATES AND FACTORS**

Prime or Subcontractor Name: \_\_\_\_\_

Cost Element	Proposed Rate/Factor	Allocation Base
Labor Escalation		Not applicable
Fringe Benefits		
Home Office Overhead		
Subcontract Burden		
ODC Burden		
Other (specify)		
G & A		
Cost of Money		

Contractor Fiscal Year Ends:

**Schedule 9**

**SUBCONTRACT INFORMATION**

Prime Name: \_\_\_\_\_

Subcontractor Name	Subcontract Type	Subcontract Value Including Fee/Profit	Total Technical Hours	Total Admin Hours	RFP-Stipulated ODC Allocated to Sub-contractor
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		\$			\$
		Total \$			

## SECTION M - EVALUATION FACTORS FOR AWARD

### M.1 GENERAL

#### A. Basis for Award.

It is the Government's intent to make award based upon initial offers without entering into discussions or negotiations. Award(s) will be made to one or more responsive and responsible Offerors whose offers provide the greatest overall value to the Government, based on the technical proposal, the cost/business proposal, and other factors. While it is the Government's intent to make award based upon initial offers, the Government may, nevertheless, determine during the evaluation period that it is necessary to conduct discussions. In that case, the Contracting Officer will proceed to establish a competitive range and conduct negotiations with the firms in that range. The Government intends to make a total of two to three awards, but reserves the right to make fewer or more awards, in the best interests of the Government

#### B. Order of Importance.

The technical evaluation factors that are addressed in the Technical Proposal, when combined are significantly more important than cost in the selection of a Contractor for award. Notwithstanding this fact, Offerors are cautioned not to minimize the importance of the Cost Proposal. As the difference in ratings of submitted Technical Proposals amongst offerors decreases, the importance of evaluated cost will increase. When the Technical Proposals are evaluated as essentially equal, evaluated cost may become the determining factor in making an award.

### M.2 TECHNICAL PROPOSAL EVALUATION

The Offeror's Technical Proposal will be evaluated in accordance with the criteria described below.

The criteria below are weighted in descending order. The first factor (Staff Qualifications/Education and Experience) is the most significant factor. The second factor (Facilities) is slightly higher than the third factor (Relevant Test Experience). The third factor (Relevant Test Experience) is slightly higher than the fourth factor (Past Performance) and the fifth factor (Management Program). The fourth factor (Past Performance) and the fifth factor (Management Program) are of equal importance.

The technical criteria are:

M.2.1 Staff Qualifications/Education and Experience - The applicable experience, qualifications, and depth and soundness of the technical background of the offeror's technical staff including the program manager.

M.2.2 Facilities - Ability to perform tests that simulate real world crash events, barrier tests, sled tests and crush tests with sensing systems that maximize the value of the tests. Ability to modify and refurbish test specimens. Ability to install advanced restraint systems and to instrument anthropomorphic dummies. Ability to conduct year-round testing irrespective of the weather conditions.

M.2.3 Relevant Test Experience - Ability to comply with required procedures and standards, experience in instrumentation, capability to acquire and transfer data electronically, and experience in engineering analyses relevant to the tests described in the Statement of Work. Ability to recognize data anomalies in a timely manner.

M.2.4 Past Performance - The purpose of the criterion is to assess the ability of the Offeror to perform successfully based upon an evaluation of its relevant past performance history on work of the type and complexity described in Section C, the Statement of Work (SOW). The Offeror's relevant past performance history will be evaluated for the following subfactors, which are of equal importance:

- (1) Quality of Product or Service;
- (2) Cost Control;
- (3) Timeliness of Performance and
- (4) Business Relations.

**Only relevant Past Performance history will be considered.** If an Offeror has affirmatively stated that it has no relevant past performance history, and there is no evidence to the contrary, the Offeror will not be rated favorably or unfavorably on past performance.

M.2.5 Management Program - Ability to quickly assign qualified staff and facilities to an approved task order (TO), and adequacy of management controls to accomplish the objectives of this procurement.

### **M.3 COST/BUSINESS PROPOSAL EVALUATION**

1. The cost proposal will not be numerically scored. Proposed costs and fee or profit will be evaluated to establish that they are fair and reasonable, and that they demonstrate cost realism. Cost realism, as discussed in FAR 15.404-1(d), will be conducted on all contract line items (CLINS). The Government will calculate probable cost for CLINS 0001AA through 0001AC. Probable cost shall be used to determine best value and will be used in the selection decision.
2. The results of the cost proposal evaluation will increase in importance if the technical proposal results are similar.
3. The following factors are some Cost/Business Proposal considerations, not necessarily in order of importance.
  - a. Competitiveness of the proposed fee, which may be evaluated using weighted guidelines techniques as described in the Transportation Acquisition Manual (TAM). (A proposal that includes fee in excess of the statutory limits may be eliminated from consideration.);
  - b. Compensation of professional employees will be evaluated in accordance with Section L, FAR 52.222-46;
  - c. Uncompensated overtime, if any, will be evaluated in accordance with Section L, FAR 52.237-10;
  - d. Acceptability of the cost control plan;
  - e. Risks associated with a proposal that fails, or partially fails, to satisfactorily and convincingly support its proposal; and
  - f. Acceptability of the Small Business Subcontracting Plan, if applicable (Section I, FAR 52.219-9).

**U.S. DEPARTMENT OF TRANSPORTATION**  
**VOLPE NATIONAL TRANSPORTATION SYSTEMS CENTER**  
**KENDALL SQUARE, CAMBRIDGE, MA 02142**

June 1, 1977

**CONTRACTOR REPORT EXHIBIT**

**TYPE OF REPORTS**

Unless otherwise specified in the schedule of the contract, VNTSC Contractor Reports fall into the four basic categories defined below:

1. Monthly Progress Reports – Monthly Progress Reports summarize highlights of the contractor's monthly effort, briefly cover problem areas and proposed solutions, present a brief technical discussion, comment on the scheduled progress of the study, and conclude with the anticipated work to be covered in the succeeding month. The presentation of the data is informal.

2. Quarterly Progress Reports – Quarterly Progress Reports summarize work accomplished during each 3-month period of the contract. In addition to factual data, these reports should include a technical analysis section which interprets results obtained, recommends further actions, and relates occurrences significant to the ultimate objectives of the contracted work. A sufficient number of diagrams, sketches, curves, photographs, and other visual aids shall be included to accentuate results and to make the presentation more intelligible and meaningful.

3. Interim Reports – Defined in Paragraph 4(c) of the attached DOT-TST-75-97, dated May 1975.

4. Final Technical Reports – Defined in Paragraph 4 (d) of attached DOT-TST-75-97.

**REQUIREMENTS FOR REPORTS**

Unless otherwise specified in the schedule of the contract, Monthly Progress and Quarterly Progress Reports shall be informal in nature and not subject to the provisions of the attached DOT-TST-75-97.

**TECHNICAL REPORTS**

a. Unless otherwise specified in the contract schedule, Interim and Final Technical Reports shall be prepared and submitted in accordance with the specifications of DOT-TST-75-97 'Standards for the Preparation and Publication of DOT Scientific and Technical Reports' dated May 1975, consisting of twenty (20) pages, attached hereto and made a part hereof.

b. In addition to the requirements set forth in DOT-TST-75-97, attached, Interim and Final Technical Reports shall contain an Appendix entitled "Report of New Technology Appendix" containing the following for each "subject invention" as defined in the Patent Rights clause of the contract.

- (1) An appropriate title;
- (2) An identification of the page or pages in the report wherein the “subject invention” is described; and
- (3) Other comments, if any, the writer wishes to make.

In the event no “subject inventions” are achieved during the performance of work under this contract, a Report of New Technology Appendix is still required to be included in any interim or final technical report to identify the page(s) wherein improvements made under the contract are described.

The foregoing “Report of New Technology Appendix” is intended to be brief and does not replace the reporting requirements under the clause of the General Provisions of the contract entitled “Patent Rights.”

**TECHNICAL MONITOR**

The VNTSC engineer monitoring the contract is referred to as the Technical Monitor. The Technical Monitor is the VNTSC spokesman in all technical matters relating to the contract and is ultimately responsible for VNTSC technical management of the contract. The Technical Monitor as Contracting Officer’s Representative for technical matters within the scope of the contract, is the final VNTSC technical approval authority for Contractor Reports.

**NUMBER OF REPORTS TO BE PROVIDED**

Unless otherwise specified in the contract schedule, the Contractor shall provide the number set forth below to the activities indicated:

<b><u>Reports</u></b>	<b><u>No. of Copies</u></b>	<b><u>Forward to</u></b>
Monthly Progress	8	Technical Monitor
Quarterly Progress	15	Technical Monitor
Interim (Manuscript)	4 (clean)	2 to Technical Monitor 1 to VNTSC Patent Counsel, TSC-141 1 to TSC Organization & Management Branch, VNTSC-831
Interim	1 reproducible & Up to 250 copies*	VNTSC Organization & Branch, VNTSC-831
Final (Manuscript)	4 (clean)	2 to Technical Monitor 1 to VNTSC Patent Counsel, VNTSC-141 1 to VNTSC Organization & Management Branch, VNTSC-831
Final	1 reproducible Up to 250 copies*	VNTSC Organization & Management, VNTSC-831

A copy of the letter transmitting all reports shall be sent to the Administrative Contracting Officer.

The Technical Monitor will review all reports and notify the Contracting Officer in writing, of the results of the review specifically whether approved or disapproved. The notification of the results of the review of Interim (Manuscript) and Final (Manuscript) shall be within ninety (90) days after submission.

\*Not to exceed 25,000 pages in the aggregate (See Title 1, Paragraph 2-1 of Government Printing & Binding Regulations, October 1974).

# **STANDARDS FOR THE PREPARATION AND PUBLICATION OF DOT SCIENTIFIC AND TECHNICAL REPORTS**

**Appendix to Order DOT 1700.18B, "Acquisition,  
Publication and Dissemination of DOT  
Scientific and Technical Reports."**



**May 1975**

**R & D Management Report**

**Document is available to the U.S. public through the  
National Technical Information Service,  
Springfield, Virginia 22161.**

**U.S. DEPARTMENT OF TRANSPORTATION**

**Office of Assistant Secretary for  
Systems Development and Technology  
Washington, DC 20590**

Technical Report Documentation Page

1. Report No. <b>DOT-TST-75-97</b>	2. Government Accession No. <b>PB 245400</b>	3. Recipient's Catalog No.	
4. Title and Subtitle <b>STANDARDS for the Preparation and Publication of DOT Scientific and Technical Reports</b>		5. Report Date <b>May 1976</b>	6. Performing Organization Code <b>DOT/TST</b>
		8. Performing Organization Report No. <b>DOT-TST-75-97</b>	
7. Author (s)	10. Work Unit No. (TRAIS)  11. Contract or Grant No.  13. Type of Report and Period Covered  <b>N/A</b>  14. Sponsoring Agency Code <b>TST</b>		
9. Performing Organization Name and Address <b>Office of R&amp;D Plans and Resources Office of the Assistant Secretary for Systems Development and Technology U.S. Department of Transportation</b>			
12. Sponsoring Agency Name and Address  <b>SAME AS ABOVE</b>			
15. Supplementary Notes <b>This document is used as performance exhibit in all DOT R&amp;D contracts and grants.</b>			
16. Abstract  <b>The document provides standards for the preparation, publication, and distribution of scientific and technical reports issued by DOT and DOT contractors. The standards do not apply to technical or training manuals, journal articles, brochures or pamphlets. The document contains guidelines for report formats, title pages and covers, metric conversions, use of illustrations and physical layout requirements. Report review and acceptance procedures are specified, as are the rules for assignment of document numbers and distribution of accepted reports.</b>			
17. Key Words  <b>technical documentation R&amp;D management information processing</b>		18. Distribution Statement  <b>This document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia, 22161.</b>	
19. Security Classif. (of this report)  <b>Unclassified</b>	20. Security Calssif. (of this page)  <b>Unclassified</b>	21. No. of Pages  <b>21</b>	22. Price

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1. PURPOSE. This document establishes standards for scientific and technical reports prepared by or for the Department of Transportation (DOT). The application of these standards aids in the interchange of scientific and technical information and in the reduction of costs in the preparation, publication, and dissemination of such information. This document is reviewed periodically by a DOT R&D Information Working Group convened to ensure its compatibility with Congressional and DOT requirements and conformance to national documentation standards. It also is included as Appendix 1 to Order DOT 1700.18B, "Acquisition, Publication, and Dissemination of DOT Scientific and Technical Reports," and as an exhibit in all DOT R&D procurement contracts, as applicable.
2. EXCLUDED DOCUMENTS. These standards do not apply to operational instructions and directives, technical or training manuals, journals and journal article manuscripts, preprints or reprints, brochures or pamphlets. Also excluded are Technical Sharing, management and administrative documents. However, at the discretion of the Sponsoring organization, those documents which contain significant technical information may be, included.
3. REFERENCES:
  - a. American National Standards Institute (ANSI) document, Writing Abstracts, Z39.14-1971; \$3.50; Available from the American National Standards Institute, 1430 Broadway, New York, NY 10018
  - b. Bibliographic Procedures and Style: A Manual for Bibliographers in the Library of Congress. \$0.70. Available from the Superintendent of Documents, U.S. Government Printing Office, D.C. 20402.
  - c. ANSI document, Guidelines for Format and Production of Scientific and Technical Reports, Z39.18-1974, \$4.00i Available from the American National Standards Institute, 1430 Broadway, New York, NY 10018
  - d. U.S. Congress Joint Committee on Printing, Current Government Printing and Binding Regulations; Available from the Joint Committee on Printing, U.S. Congress, Committee Room S-151, U.S. Capitol, Washington, D. C. 20510.
  - e. Department of Defense/Engineers Joint Council, Thesaurus of Engineering and Scientific Terms, 1967. Available from the Engineers Joint Council, 345 East 47th Street, New York, NY 10017.
  - f. Department of Commerce, List of Business and Economic Terms, COM-73-12000, December 1973, AD-641092; Available from the National Technical Information Service, Springfield, Virginia 22161.
  - g. ASTM document Metric Practice Guide, Z210.1 - 1973. Available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103, designation E380-72.
  - h. Department of Commerce, Units of Weights and Measures, National Bureau of Standards Miscellaneous Publication 286, SD Catalog No. C13.10.286, \$2.25; Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

4. DEFINITIONS.

a. Sponsoring Agency: The DOT organizational element having program responsibility for scientific or technical effort. A public body (state, city, commission, etc.) also may be a sponsoring agency in cooperation with a DOT element.

b. Performing Organization: The DOT element (either headquarters, field, or laboratory), contractor, grantee or recipient of DOT R&D funds reporting specific scientific or technical research findings which result from investigations, demonstrations, tests or experiments.

c. Interim Report: A report issued during the course of a project, or a major part thereof, to reflect completion of a specific phase of a project assignment. This method of reporting can also be used where a periodic report of progress is of interest to the transportation community at large. Interim reporting, for example, can be the communications medium for early reporting under a project of considerable duration or relative complexity.

d. Final Report: A report issued at the completion of a project, or a major portion thereof, to signify the accomplishment and formal "closeout" of a project.

e. Transportation Research Information Services Network (TRISNET): TRISNET is sponsored by DOT to improve the efficiency and effectiveness of the transportation-related information services. It includes such services as the Highway Research Information Service (HRIS), Railroad Research Information Service (RRIS), Maritime Research Information Service (MRIS), TRISNET Repository at NTIS, and other services still under development.

5. REQUIREMENTS. DOT-sponsored scientific and technical reports shall conform to the requirements of Document DOT-TST-75-97, security regulations, and implementing instructions of the sponsoring organization.

6. LEGAL CONSIDERATIONS. The Government may be subject to liability for misuse of the literary or intellectual property (patents, trademarks, "proprietary information") of others. To ensure that technical reports can receive the widest possible dissemination, report writers and editors should observe the following guidelines:

a. Copyright. No copyrighted material may be incorporated into a report unless written permission of the copyright owner has been obtained. Prior use of copyrighted material in another Government publication does not necessarily constitute permission to use it in a DOT publication. Where permission has been obtained and the material is used in a report, it shall be identified by a statement substantially as follows:

Reprinted from (title of publication) by (name of author) by permission of (name of copyright owner). Year of first publication \_\_\_\_\_

b. Courtesy requires that acknowledgment or credit be given (by footnote, bibliographic reference, or a statement in the text) for the use of the material contributed or assistance rendered by someone else though no copyright notice is involved.

c. Unpublished work may be protected under common law or equity even though there is no copyright notice. Problems relating to the protection given to unpublished work will be referred to the Office of the General Counsel.

d. Privately Owned Information: To avoid restriction on availability of reports, every effort should be made to avoid the use of proprietary information accepted by the Government for limited purposes. Such proprietary information will be used only if it is essential to the understanding of a report and only after approval by the Office of the General Counsel. Reports containing such proprietary information will bear a statement restricting availability and handling, as required (Paragraph 7b(9)).

e. Data Use Restriction: In the event that the Contractor furnishes any information or data which the Contractor considers to be proprietary under the terms of the contract, the Contractor shall affix the following use restriction legend to such proprietary data, shall mark such data with the number of the prime contract, and subcontract, if applicable; and shall deliver such proprietary data directly to the Government. No other legend is authorized and the Government will thereafter treat the data in accordance with such legend.

#### DATA USE RESTRICTION

These data, furnished under U.S. Government Contract No. \_\_\_\_\_, may be duplicated and used by the Government with the express limitations that the data may not be disclosed outside the government, nor be used for purposes of manufacture, without prior permission of the contractor. These restrictions do not limit the Government's rights to use or disclose any data obtained from another source without restriction. This legend shall be marked on any reproduction of these data in whole or in part.

f. Trademarks: The term "trademark" includes any word, name, symbol, device or any combination thereof, adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured and/or sold by others. It is improper to use a "trademark" to identify goods not manufactured or sold by the owner of a trademark or his licensee. In general, the use of trademarks is discouraged. Where feasible, goods should be identified by a type designation or a structural feature that distinguishes them from other goods.

g. Trade Names and Manufacturer's Names:

(1) Under Section 522 of Title 5, United States Code, as implemented by DOT Public Affairs Management Manual, DOT Order 1210.5, 2-6-74, reports which once were not available to the public, may be obtained by anyone who wants them. Particularly to be avoided is the appearance of endorsing or favoring a commercial product, commodity or service. Trade names or the names of manufacturers will not be given unless the report will not contain meaningful information without them.

(2) When trade names or manufacturers names are used in a report, this fact will be specifically brought to the attention of the reviewing office before the report is approved. Such reports shall contain the front cover (no border required):

NOTICE

The United States Government does not endorse products or manufacturers. Trade or manufacturer's names appear herein solely because they are considered essential to the object of this report.

(3) DOT operating elements should first refer all legal considerations to their appropriate General Counsels before seeking legal advice at the Departmental level.

7. FORMAT.

a. Order of Elements. When some or all of the following elements are appropriate for a report, they will be included and the standard order will be as follows:

	Self Cover
	Inside Self Cover
	Technical Report Documentation Page
Front Matter	Preface
	Metric Conversion Factors
	Table of Contents, List of Illustrations, List of Tables, List of Abbreviations and Symbols
Body of Report	Introduction
	Main Text
	Conclusions
	Recommendations
Reference Material	Appendices
	Glossary
	References
	Bibliography
	Index
	Self Cover

b. Self Cover.

(1) Description. Whenever possible, use self covers (of the same weight paper as the text) for all reports. Include on the cover the information shown in groupings plus special markings (such as security classification) as specified by the sponsoring operating elements. Recommended group related items are shown in Figure 1A. A sample of dual-sponsored cover is shown in Figure 1B. Items on self covers also may be prepared by standard typewriter.

(2) Report Number. Each report shall carry a unique alphanumeric designation provided by the sponsoring operating element (for example, CG-D-14-74; FAA-RD-75-10; or FHWA-PA-RD-75 for a state-sponsored report in cooperation with a DOT element). When a report is prepared in more than one volume, repeat the report number on all volumes and add the appropriate volume number in Roman numerals (for example, FAA-RD-75-10,I and FAA-RD-75-10,II).

(3) Title and Subtitle. Display the title prominently and use words which indicate clearly and briefly the substance of the report. Set subtitle, if used, in smaller type or otherwise subordinate it to the main title. When a report is prepared in more than one volume, repeat the primary title and report number and identify each separate volume. On reports documenting computerized models use the term "Computerized Model" as the major subtitle.

(4) Author(s). The Government Printing and Binding Regulations permit the use of the author's name on self covers. The author's name shall be subordinated in appropriately smaller type than the title. Give the name(s) of the author(s) in conventional order (for example, John R. Doe, or if author prefers, J. Robert Doe). The author's name shall not be placed on the cover if the publication is bound with a separate cover (index stock).

(5) Performing Organization and Address. Give name, street, city and zip code. List no more than two levels of an organizational hierarchy.

(6) DOT Insignia. Place the DOT insignia on all reports as shown in Figures 1A and 1B. In cases where a public body (state, city, commission, university, etc.) is a sole sponsoring agency, the DOT insignia may be deleted and appropriate public body substitution made. Dual sponsorship may be recognized by inclusion of appropriate insignias and identifying information.

(7) Date. Each report shall carry a date by month and year. The sponsoring element may specify the basis for dating. If it does not, the originator will provide a date.

(8) Type of Report. Indicate nature of report, i.e., interim or final. If the report is a revision, state whether it supersedes the previous edition.

(9) Distribution Statement. Each DOT sponsoring operating element shall assign a distribution statement, which is placed on the self cover and printed on all copies. The statement that appears on the cover must also appear in Block 18 of the Technical Report Documentation Page. Refer to Order DOT 1210.5, DOT Public Affairs Management Manual of 2-6-74 for additional information concerning availability of documents. Use one of the following as appropriate:

**GROUP I**

**Report No. CG-D-14-74**

**GROUP II**

Title

**REMOTE SENSING OF  
OIL SLICKS**

Subtitle (if any)

Author (s)

Performing  
organization  
name and address

**John R. Doe  
ABC Laboratories, Inc.  
405 Main Street  
Zedburg, TN 37000**

DOT  
insignia



Date

**September 1974**

Type of report

**FINAL REPORT**

Distribution  
statement

**Document is available to the U.S. public through the  
National Technical Information Service,  
Springfield, Virginia 22161.**

**GROUP III**

**Prepared for**

DOT  
Operating element  
DOT  
headquarters element  
and address

**U.S. DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD  
Office of Research and Development  
Washington, DC 20590**

**FIGURE 1A. SAMPLE, SELF COVER (Items on cover also may be prepared by  
standard typewriter).**

Report No. FAA-RD-74-144

**EVALUATION OF THE STRUCTURAL INTEGRITY OF AN AIRCRAFT  
LOADING WALKWAY UNDER SEVERE FUEL-SPILL  
FIRE CONDITIONS**

**George B. Geyer  
Lawrence M. Neri  
Charles H. Urban**

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
National Aviation Facilities Experimental Center  
Atlantic City, New Jersey 08405**



**OCTOBER 1974**

**FINAL REPORT**

Document is available to the U.S. public through the  
National Technical Information Service,  
Springfield, Virginia 22161.

Prepared for

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
Systems Research & Development Service  
Washington, D.C. 20590**

**AIR TRANSPORT ASSOCIATION OF AMERICA  
Washington, D.C. 20006**

**FIGURE 1B. SAMPLE, SELF COVER - DUAL SPONSORS (Items on cover also  
may be prepared by standard typewriter).**

(a) Document is available to the U.S. public through the National Technical Information Service, Springfield., Virginia 22161.

(b) Approved for U.S. Government only. This document is-exempted from public availability because (fill in reason). Transmittal of this document outside the U.S. Government must have prior approval of the (fill in DOT sponsoring element).

(c) Approved for (fill in DOT sponsoring operating element) only. This document is exempted from public availability because (fill in reason). Transmittal of this document outside the (fill in sponsoring operating element), Department of Transportation must have prior approval of the (fill in responsible office).

(10) Sponsoring Name and Address. Give name, city, state, and zip code of the sponsoring agency. When a public body (state, city, commission, university, etc.) is a sponsoring administration in cooperation with the DOT, grouping will reflect this cooperation, such as:

Prepared for  
DEPARTMENT OF TRANSPORTATION  
Atlanta, GA 30334

in cooperation with  
(DOT Headquarters element, address)

c. Inside Self Cover. Special notices, such as reproduction, safety precautions, sponsor's disclaimer, and statement of compliance with special regulations are placed on the inside self cover as required by the sponsoring agency. Place the following notice on the inside self cover of all DOT reports:

NOTICE

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The-United States Government assumes no liability for the contents or use thereof.

d. Front Matter.

(1) Technical Report Documentation Page (DOT F 1700.7). Include one completed Technical Report Documentation Page as the first right-hand page after the cover in each report or volume. The documentation page replaces the traditional front title page and abstract page. A model completed page is shown in Figure 2A, with instructions for completing the documentation page for the author's use. Adequate and accurate completion of this page will assist documentation of a report. The documentation page also may be distributed in lieu of copies of the published report. This form is available for DOT operating elements from the DOT Warehouse, Publications and Forms, TAD-443-1. For contractors and grantees, the documentation page is available from the Contracting Officers of the sponsoring operating elements. The information presented on the documentation page is the basis for input into the TRISNET and the National Technical Information Service (NTIS).

Technical Report Documentation Page

1. Report No. <b>FAA-RD-74-74, I</b>		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle <b>ANALYSIS OF PREDICTED AIRCRAFT WAKE VORTEX TRANSPORT AND COMPARISON WITH EXPERIMENT Volume I - Wake Vortex Predictive System Study</b>				5. Report Date <b>April 1974</b>	
				6. Performing Organization Code	
7. Author (s) <b>M.R. Brashears, N.A. Logan, S.J. Robertson, K.R. Shrider and C.D. Walters</b>				8. Performing Organization Report No. <b>LM-74-2B</b>	
9. Performing Organization Name and Address <b>Lockheed Missiles &amp; Space Company, Inc.* Huntsville Research &amp; Engineering Center 4800 Bradford Drive Huntsville, AL 35807</b>				10. Work Unit No. (TRAIS) <b>FA405/R4115</b>	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address <b>U.S. Department of Transportation Federal Aviation Administration Systems Research and Development Service Washington, DC 20590</b>				13. Type of Report and Period Covered <b>Final Report April to December 1973</b>	
				14. Sponsoring Agency Code <b>FAA/ARD-500</b>	
15. Supplementary Notes <b>*Under contract to:</b>		<b>U.S. Department of Transportation Transportation Systems Center Kendall Square Cambridge, MA 02142</b>			
16. Abstract  <b>A unifying wake vortex transport model is developed and applied to a wake vortex predictive system concept. The fundamentals of vortex motion underlying the predictive model are discussed including vortex decay, bursting and instability phenomena. A parametric and sensitivity analysis is presented to establish baseline uncertainties in the algorithm to allow meaningful comparison of predicted and measured vortex tracks. A detailed comparison of predicted vortex tracks with photographic and groundwind vortex data is presented. Excellent agreement between prediction and measurement is shown to exist when sufficient wind data are available. Application of the Pasquill class criteria is shown to be an effective technique to describe the wind profile in the absence of detailed wind data. The effects of wind shear and the Ekman spiral on vortex transport are discussed. It is shown that the combination of wind shear and ground plane may be possible mechanisms underlying vortex tilting and a theoretical explanation is advanced that is somewhat supported by comparison with the experimental data. Finally, recommendations for further vortex data collection in the vicinity of an airport are presented. Volume II, 246 pages, contains appendices.</b>					
17. Key Words <b>Vortices                      Ground Plane Aircraft Wakes              Vortex Tilting Wake Turbulence          Vortex Transport Wind Shear Wake Vortex Predictive System</b>			18. Distribution Statement <b>Document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia, 22161.</b>		
19. Security Classif. (of this report) <b>Unclassified</b>		20. Security Calssif. (of this page) <b>Unclassified</b>		21. No. of Pages <b>256</b>	22. Price

Form DOT F 1700.7 (8-72)

Reproduction of form and completed page is authorized

FIGURE 2A. SAMPLE, COMPLETED TECHNICAL REPORT DOCUMENTATION PAGE

Make items 1, 4, 5, 7, 9, 12, 13, and 18 agree with the corresponding information on the report cover. Use all capital letters for main title (item 4). Leave items 2, 6, and 22 blank. Complete the remaining items as follows:

3. Recipient's Catalog No. Reserve for use by report recipient.
8. Performing Organization Report No. Insert if performing organization wishes to assign this number.
9. Performing Organization Name and Address (include zip code).
10. Work Unit No. (TRAIS). Use the number code from the applicable research and technology resume which uniquely identifies the work unit in the Transportation Research Activity Information Service. For Highway Planning and Research (HP&R) Program reports, include the FPC Code assigned in the study.
11. Contract or Grant No. Insert the number of the contract or grant under which the report was Prepared. For Highway Planning and Research (HP&R) Program reports, include also the State study number.
15. Supplementary Notes. Enter information not included elsewhere but useful, such as: Prepared in cooperation with.... Translation of (or by).... Presented at conference of.... To be published in..., Other related reports.
16. Abstract. Include a brief (not to exceed 200 words) factual summary of the most significant information contained in the report. An abstract should state the purpose, methods, results, and conclusions of the work effort. For the purpose, include a statement of goals (objectives, aims). For methods, include experimental techniques or the means by which the results were obtained. Results (findings) are the most important part of the abstract and selection should be based on one, or several of the following: new and verified events, findings of permanent value, significant findings which contradict previous theories, or findings which the author knows are relevant to a practical problem. Conclusions should deal with the implications of the findings and how they tie in with studies in related fields. Do not repeat title or other items provided on this page. When a report consists of a number of volumes, include the title of each of the other volumes in each abstract.

Reports presenting the results of computerized model development will use the following structure for the preparation of abstracts:

1. Technical Model description (Nature of the model or simulator)
2. Areas of model application
3. Special model requirements
  - a. Areas of model application
  - b. Other special considerations.
17. Key Words. Select specific and precise terms or short phrases that identify the principal subjects covered in the report. The sponsoring element may specify that key words shall conform to standard terminology, such as that given in the Department of Defense/Engineers Joint Council Thesaurus of Engineering and Scientific Terms, or a Thesaurus of Terms established by the sponsoring element.
18. Distribution Statement. Enter one of the authorized statements (Paragraph 7b(9)) used to denote releasability to the public or a limitation on dissemination for reasons other than security of defense information. Refer questions on the statements to the sponsoring element.
19. Security Classification (of report). Note: Reports carrying a security classification will require additional markings giving security and downgrading information as specified by the sponsoring element.
20. Security Classification (of this page). Note: Because this page may be used in preparing announcements, bibliographies, and data banks, it should be unclassified, if possible. If a classification is required, identify the classified items on the page by an appropriate symbol.
21. No. of Pages. Insert the number of pages having printed material, including front and inside covers.

**FIGURE 2B. INSTRUCTIONS FOR COMPLETING TECHNICAL REPORT DOCUMENTATION PAGE.**

(2) Preface. Among possible uses, a preface may show the relation of the work reported on to associated efforts, give credit for the use of copyrighted material, and acknowledge significant assistance received.

(3) Metric Conversion Factors. Include a Metric Conversion Factors page (Figure 3) in the report to provide the reader with information for converting to metric measures. Additional units may be included as they apply to the contents of the report. The Metric Conversion Factors page may be obtained from the DOT Warehouse, Publications and Forms, TAD-443.1, or copied from this document. Include page on reverse side of Preface or form.

(4) Table of Contents. In the Table of Contents (not suggested for a report of less than ten pages), list principal headings as they appear in the report with the page numbers on which the headings occur. Do not list items from the front matter. Start the Table of Contents on a right-hand page.

(5). List of Illustrations. Furnish a list of illustrations only if it is considered essential. List figure number, legend, and page number of each illustration. Abbreviate lengthy legends.

(6) List of Tables. Furnish a list of tables only if it is considered essential. List table number, caption, and page number of each table. Abbreviate lengthy captions.

(7) List of Abbreviations and Symbols. Define symbols and abbreviations where first introduced in the text. When symbols and abbreviations are numerous, furnish a separate list with definitions. If list is used, include organization symbols, e.g., IEEE, ANSI, etc.

NOTE: To save space, items (5), (6), and (7) should follow on at the end of the Table of Contents. Do not present each of these on a new page.

e. Body of Report.

(1) General. The contents and organization of the body of a report shall be determined by the nature of the work. However, limit the contents to that information required by the sponsoring organization to inform the reader. Eliminate unnecessary details and appendixes. To reduce primary and secondary reproduction costs and to expedite review, approval, printing and distribution, keep the number of pages to a minimum. Start the first section on a right-hand page. This section usually provides work objectives and background information. Succeeding sections describe work procedures, apparatus involved, tests performed, results achieved, and related matters, as appropriate. The terminal sections usually present conclusions and recommendations. Start new sections or chapters at the top of the next succeeding page, be it left- or right-handed.

(2) Headings. Headings shall stand out from the text with their relative importance apparent.

(3) Numbering System. Number headings and paragraphs only when the numbers are needed for clarity or when extensive cross-references are used.

# METRIC CONVERSION FACTORS

## Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
<b>AREA</b>				
in <sup>2</sup>	square inches	6.5	square centimeters	cm <sup>2</sup>
ft <sup>2</sup>	square feet	0.09	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.8	square meters	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.6	square kilometers	km <sup>2</sup>
	acres	0.4	hectares	ha
<b>MASS (weight)</b>				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
<b>VOLUME</b>				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l <sub>3</sub>
ft <sup>3</sup>	cubic feet	0.03	cubic meters	m <sub>3</sub>
yd <sup>3</sup>	cubic yards	0.76	cubic meters	m <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
° F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	° C

## Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
<b>LENGTH</b>				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
<b>AREA</b>				
cm <sup>2</sup>	square centimeters	0.16	square in	in <sup>2</sup>
m <sup>2</sup>	square meters	1.2	square yards	yd <sup>2</sup>
km <sup>2</sup>	square kilometers	0.4	square miles	mi <sup>2</sup>
ha	hectares (10,000 m <sup>2</sup> )	2.5	acres	
<b>MASS (weight)</b>				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
<b>VOLUME</b>				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m <sup>3</sup>	cubic meters	35	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	cubic meters	1.3	cubic yards	yd <sup>3</sup>
<b>TEMPERATURE (exact)</b>				
° C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	° F

\*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price \$2.25, SD Catalog No. C13.10:286

FIGURE 3. METRIC CONVERSION FACTORS

f. Reference Material.

(1) Appendixes. Start an appendix on a right-hand page. Do not use a separate page to announce an appendix; rather, the -appendix identification should appear at the top of the page with the content starting immediately on the same page. Each appendix shall be cited in the table of contents and from the appropriate position in the body of the report. When more than one appendix is used, designate them Appendix A, Appendix B, etc. When only one appendix is used, no designation is necessary.

(2) Glossary. Define special terms where first introduced in the text. When such terms are numerous, list them as a glossary in alphabetical order.

(3) References, Bibliography, and Footnotes. Include complete identification of references as footnotes on bottom of page where first cited to aid in reading from microform. When references are numerous, they should be included in a reference list in the back of the report. Entries should be presented in a uniform style, with complete identifying data, in accepted bibliographic format. Each entry should include authors, title, sources, identifying numbers, pagination, and dates. Abbreviations are not recommended and should be used sparingly. Refer to Paragraph 3b, REFERENCES.

(4) Index. If an index is included for a lengthy report, make it as complete as the nature of the report and its probable usage requires.

g. Illustrations.

(1) General. Treat illustrations consistently throughout a report. Prepare them so that details and callouts (labels) will be clearly legible after final reproduction. Crop or mask photographs to eliminate insignificant detail. Do not add border frames to outline illustrations or use backdrop tones in line drawings unless they contribute substantially to clarity. For reproducible copy, submit only clean line art and only original photographs (or other types of tone art) rather than screened (halftone) reproductions and indicate smallest size acceptable.

(2) Placement. Locate illustrations near the first text reference made to them except in special situations, such as when a report contains only a few text pages and many illustrations; in such cases, place the illustrations in numerical sequence in the back of the report. It is preferable that illustrations be placed so that they may be viewed without turning the page sideways. If an illustration has to be placed sideways on a page, orient it so that the top of the illustration is at the left side of the page.

(3) Callouts (Labels). So far as practicable, place **callouts** horizontally, unboxed and near the item called out, as shown in Figure 4. Make **callouts** in upper case lettering and consistent in size and typeface throughout a report. Use a typewriter of headliner type size. Strive for high contrast and readability.

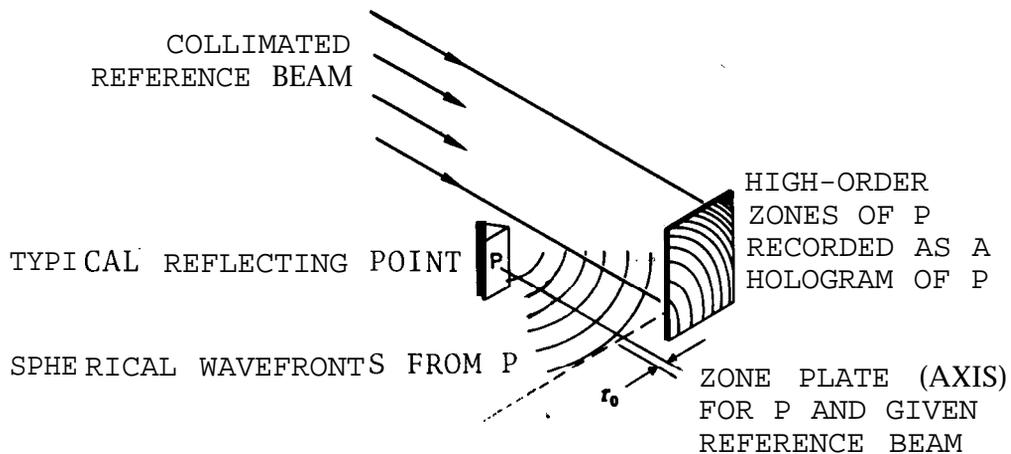


FIGURE 4. SAMPLE PLACEMENT OF CALLOUTS (LABELS).

(4) Color. Color must not be used unless specifically authorized by the sponsoring agency. Often screens, cross-hatching, pattern lines, reverses, dots, or similar techniques can be used as effective substitutes for color (Figure 5). Refer to Government Printing and Binding Regulations for general provisions concerning color printing,

(5) Fold-ins. Wherever possible, avoid the use of oversize illustrations that must be folded. Often most large illustrations can be planned for facing pages. When used, fold-ins should be presented on a right-hand page.

(6) Numbering. Number illustrations to which reference is made in the text consecutively in Arabic numeral, preceded by the word "FIGURE", for example, FIGURE 1, FIGURE 2, or FIGURE 1-1, FIGURE 1-2, FIGURE 2-1, etc. Number illustrations within appendixes in a manner consistent with the appendix letter, such as Figure A-1, Figure B-2, etc. If only one appendix, use Figure A-1, etc.

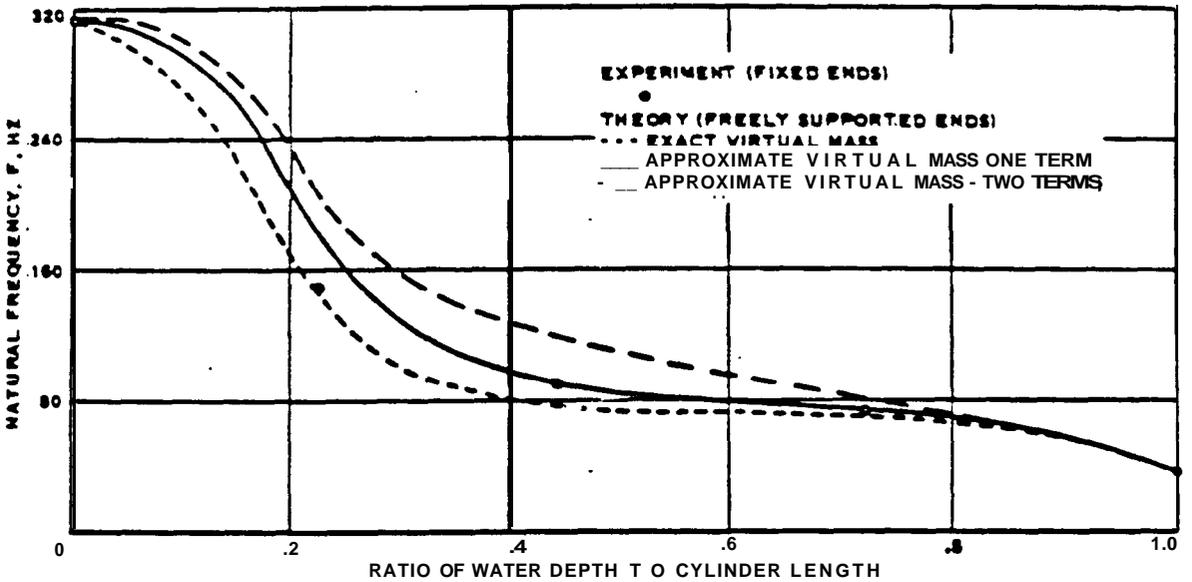
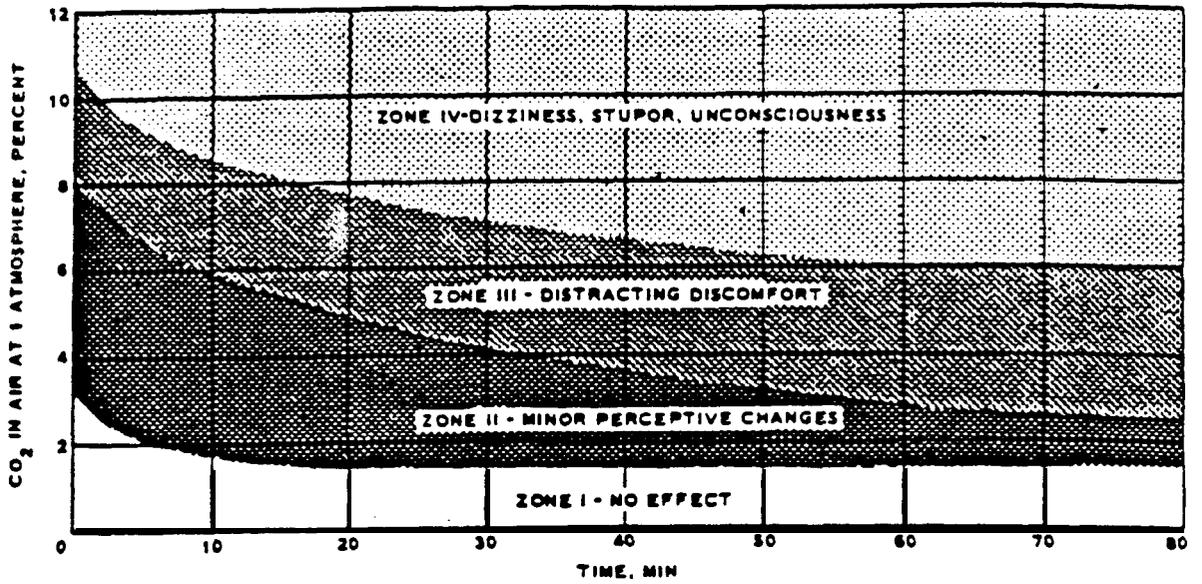


FIGURE 5. SAMPLE SCREENING (TOP) AND CODING (BOTTOM) USED AS SUBSTITUTES FOR COLOR.

(7) Figure Titles. Accompany each illustration, except for self-explanatory sketches, by a descriptive legend. The legend is ordinarily placed under the illustration and follows the figure number. Figure titles should appear as upper case and of the same type style as used for the text.

h. Tables.

(1) General. Tables should be as simple as possible so that the reader can easily grasp the meaning of the data. Use letters and numbers in tables that will be at least 6-point or larger in the final reproduced report, If tables are to be reproduced **directly from** a computer generated printout, the characters on such printout should be sharp and unbroken. A sample table is shown in Figure 6.

**TABLE 1. - SHORT-TIME XXXXXXXXXXXXXXXXXXXXXXXX ← Caption**

*Boxhead*

Temperature, K	Specimen type (a)	Ultimate tensile strength. N/m <sup>2</sup>	Elongation between buttonheads, cm	Reduction of area, percent
<i>Footnote reference</i> ↙		Tungsten		
1700	1	2200 × 10 <sup>3</sup>	1.57	95
1900	1	1312	1.60	75
2060	1	967	.69	36
2260	1	674	.51	25

<sup>a</sup> Recrystallized at 2370 K for 1/2 hour in vacuum. ← *Footnote*

**FIGURE 6. SAMPLE TYPICAL TABLE LAYOUT. For more complete information on tables, see the Government Printing Office Style Manual.**

(2) Placement. Locate tables near the first text reference made to them, except in special situations such as when a report contains only a few text pages and many tables. In such cases, place the tables in numerical sequence in the back of the report. It is preferable that tables be placed so that they may be viewed without turning the page sideways. If a table has to be located sideways on a page, orient it so that the top of the table is at the left side of the page.

(3) Headings and Columns. Give repetitive unit of measure or degree in the column headings of tables. (Example %; \$; oF.) Do not repeat in the columns. When tables continue on two or more pages, note the continuation and repeat the table and column headings and rulings on each page.

(4) Numbering. Number tables to which reference is made in the text consecutively in Arabic numerals, preceded by the word "TABLE", for example, TABLE 1, TABLE 2, or TABLE 1-1, TABLE 1-2, TABLE 2-1, etc. Number tables within appendixes in a manner consistent with the Appendix letter, such as "TABLE A-1, TABLE B-2," etc.

(5) Captions. Give each table, except short ones which run in with the text, a descriptive caption following the table number. Place caption above the table.

i. Equations.

(1) General. Prepare mathematical matter with extreme care. Use machine or transfer-type composition when available. Identify symbols after first use to aid in reading from microform or in a separate list. Make opening and closing parentheses, brackets, and braces the same height as the tallest expression they enclose. Separate numerator from the denominator with a line as long as the longer of the two. Center both numerator and denominator on the line.

(2) Placement. Indent or center a displayed equation in the line immediately following the first text reference made to it. Break equations before an equal, plus, or multiplication sign. Align a group of separate but related equations by the equal signs and indent or center the group as a whole. Short equations not part of a series may be placed in the text rather than displayed.

(3) Numbering. Number equations which are part of a series or which are referred to in the text consecutively in Arabic numerals; for example, (1), (2), or (1-1), (1-2), (2-1), etc. Enclose each number in parentheses at the right margin on the last line of the equation numbers. Number equations within appendixes in a manner consistent with the appendix letter, such as (A-1), (B-2), etc.

j. Distribution List. Do not include a distribution list in a DOT report.

8. PRODUCTION

a. Composition

(1) Type Size. Use a minimum 8-point type size or typewriter for the main text of the report.

(2) Final Camera-Ready Copy. For maximum page coverage, do not use block paragraphs. Rather, return all succeeding lines to the left margin.

Unless a report is classified, do not use: "This page left blank intentionally." This increases the number of pages to be printed and increases the cost and time required to make pages ready for printing, i.e., sizing pages, making plates or negatives, etc. Note blank pages to the printing specialist by circle folio, or number pages, for example 7/8, which instructs the printer and reader that page 8 is blank. Do not include two and three line pages, noting, "Chapter and Title" only or "Appendix and Title" only. Place this information at top of page containing the start of text. This eliminates the cost and time to make pages ready for printing.

(3) Line Spacing. Use a single or 1 1/2 spacing for reports prepared by typewriter for reproduction, except when extra spacing between lines is necessary to assure clarity of run-in equations, symbols, etc.

(4) Margins. Use margins of no more than 1 inch on all sides of text pages.

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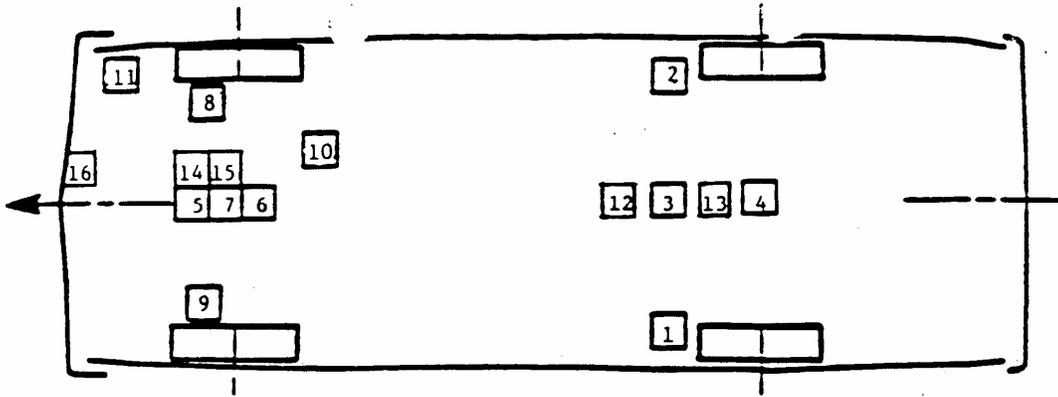
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## ATTACHMENT J-2

### FRONTAL BARRIER IMPACT TEST

Labor-hour estimates for this type of test shall be based on the following:

1. vehicle instrumentation as described on Figure J-2.1,
2. two fully instrumented and certified Hybrid III dummies, Figure J-2.2,
3. fully instrumented 36 load-cell barrier, Figure J-2.8,
4. camera coverage as described in Figure J-2.4,
5. Pre and post-test measurements from Figures J-2.3, J-2.5, J-2.6, and J-2.7,
6. still photographs of vehicle and occupants, pre- and post-test (8"x10" color, 2 copies),
7. plots of all data channels with integrated data from occupant compartment accelerometers and calculations of occupant injury parameters,
8. complete test report,
9. data CD/diskette for NHTSA Crash Test Database.



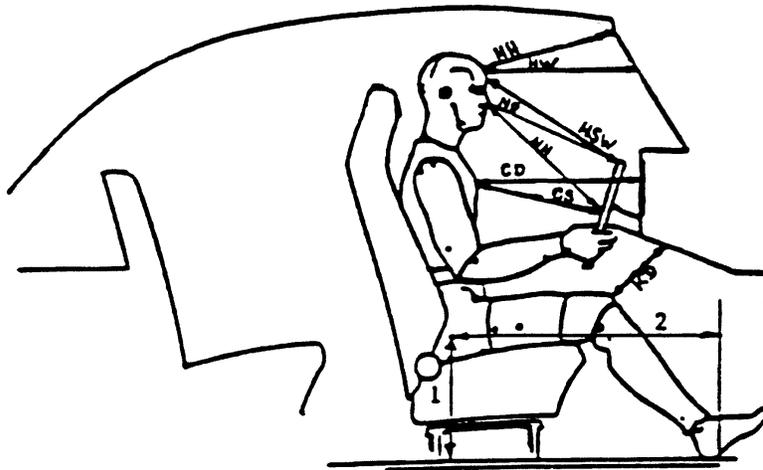
Vehicle: \_\_\_\_\_

Loc. No.	Description	Direction	Maximum value	
			"-" msec	"+" msec
1	Rear seat X-member - left side primary	X		
2	Rear seat X-member - right side primary	X		
3	Rear seat X-member - centerline	X		
3	Rear seat X-member - centerline	Y		
3	Rear seat X-member - centerline	Z		
4	Rear axle centerline	X		
4	Rear axle centerline	Z		
5	Top of engine block	X		
5	Top of engine block	Z		
6	Front suspension X-member	X		
6	Front Suspension X-member	Z		
7	Bottom of engine	X		
8	Right front brake caliper	X		
9	Left front brake caliper	X		
10	Instrument panel	X		
10	Instrument panel	Z		
11	Air bag sensor	X		
12	MHD ARS-01 pitch rate sensor - rear seat X-member	R <sub>y</sub>		
13	MHD ARS-01 yaw rate sensor - rear seat X-member	R <sub>z</sub>		
14	MHD ARS-01 pitch rate sensor - engine	R <sub>y</sub>		
15	MHD ARS-01 yaw rate sensor - engine	R <sub>z</sub>		
16	Low cost crush zone sensor (if required in TO)	X		

Figure J-2.1 Test Vehicle Accelerometer Locations for Frontal Impacts

Body Region	Instrumentation	Data Channels		
		50 <sup>th</sup> % Hybrid III	95 <sup>th</sup> % Hybrid III	5 <sup>th</sup> % Hybrid III
Head	Triaxial Accelerometer (CG) Nine Accelerometer Array	3 9	3	3
Neck	Upper Neck Load Cell - Forces - Moments	3 3	3 3	2 1
	Lower Neck Load Cell - Forces - Moments	3 3	3 3	
Chest	Triaxial Accelerometer	3	3	3
	Sternal Deflection Potentiometer	1	1	1
Pelvis	Triaxial Accelerometer	3	3	3
Femur	Load Cell	2 (1 ea)	2 (1 ea)	2 (1 ea)
Knee	Displacement Transducer	2 (1 ea)	2 (1 ea)	2 (1 ea)
Lower Leg	Upper Tibia Load Cell - Moments	4 (2 ea)	4 (2 ea)	4 (2 ea)
	Lower Tibia Load Cell - Forces - Moments	4 (2 ea) 2 (1 ea)	4 (2 ea) 2 (1 ea)	4 (2 ea) 2 (1 ea)
	Total	45	36	27

Figure J-2.2 Hybrid III Dummy Instrumentation for Frontal Barrier Impacts



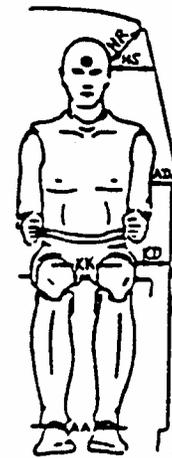
1=Floorboard (level with toe-board/floorboard intersection) to H-point  
 2=Toeboard/Floorboard intersection to H-point

HH=Head to Windshield Header  
 HW=Head to Windshield  
 HSW=Head to Steering Wheel Rim  
 NR=Nose to Steering Wheel Rim  
 NH=Nose to Steering Wheel Hub  
 CD=Chest to Dash  
 CS=Chest to Steering Wheel  
 KD=Knees to Dash  
 HIP=Head to Instrument Panel  
 Torso, seat back, and leg angles are relative to vertical.

HR=Head to Side Roof  
 HS=Head to Side Window  
 AD=Arm to Door  
 HD=Hip to Door  
 KK=Knee to Knee  
 AA=Ankle-to Ankle

REMARKS: Dummies positioned with ref. to OVSC recommended procedure for positioning Part 572 dummies in test vehicle.

Driver
HH
HW
HSW
NR
NH
CD
CS
KDL
KDR
Torso Angle
Seat Back Angle
1
2
Upper Leg Angle
Lower Leg Angle



Driver
HR
HS
AD
HD
KK
AA

Figure J-2.3 Dummy Measurements for Front Seat Passengers

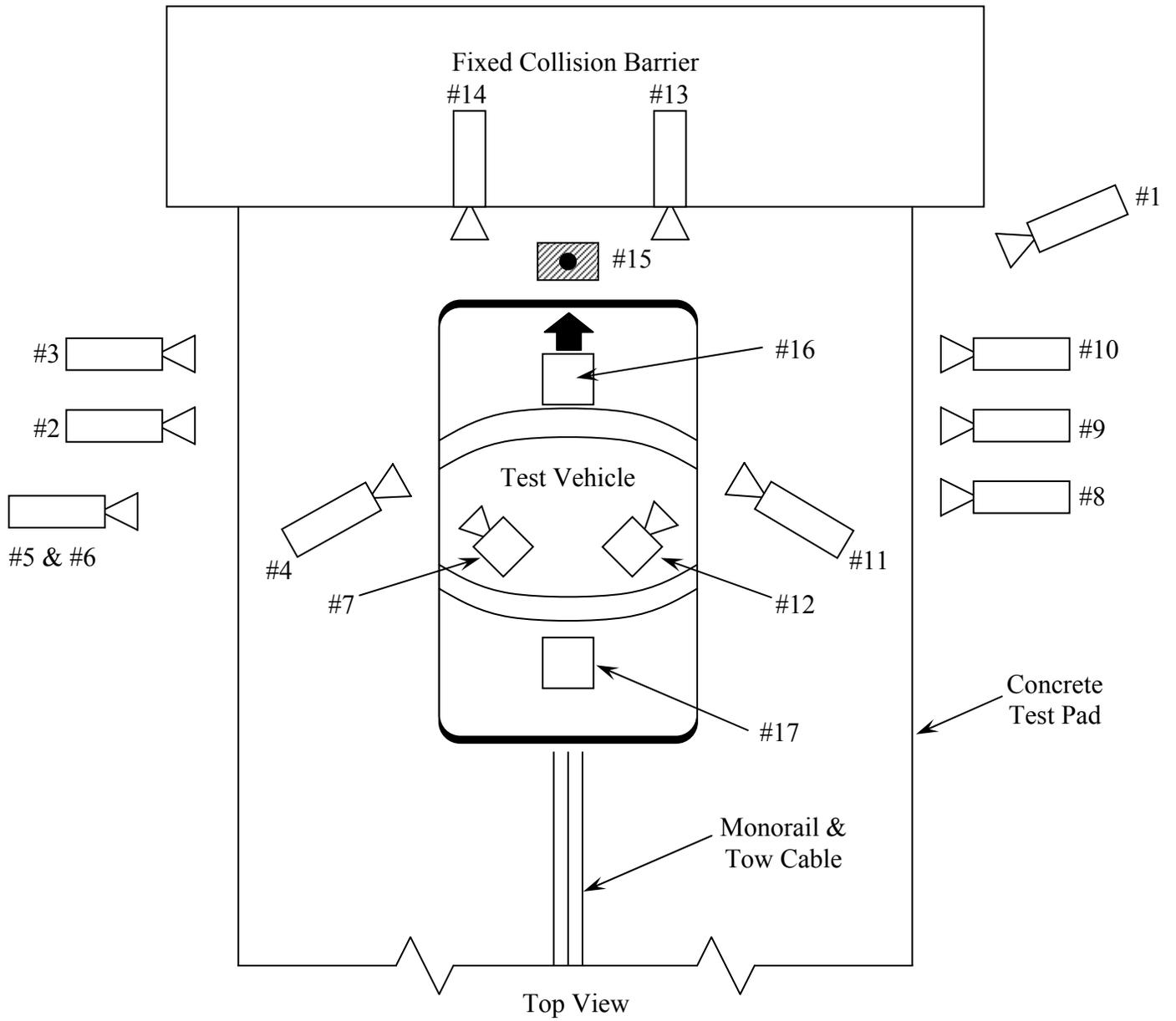


Figure J-2.4 Camera positions for Frontal Barrier Impacts

<u>CAMERA NUMBER</u>	<u>VIEW</u>
1	Real-Time Camera
2	Overall Left Side
3	Left Side View
4	Driver and Interior View
5	Steering Column (Bottom)
6	Steering Column (Top)
7	Left Belt
8	Overall Right Side
9	Right Side View
10	Right Passenger View
11	Passenger and Interior View
12	Right Belt
13	Passenger Front View
14	Driver Front View
15	Windshield View
16	Pit View of Engine
17	Pit View of Fuel Tank

Figure J-2.4 Camera Positions for Frontal Barrier Impacts (Continued)

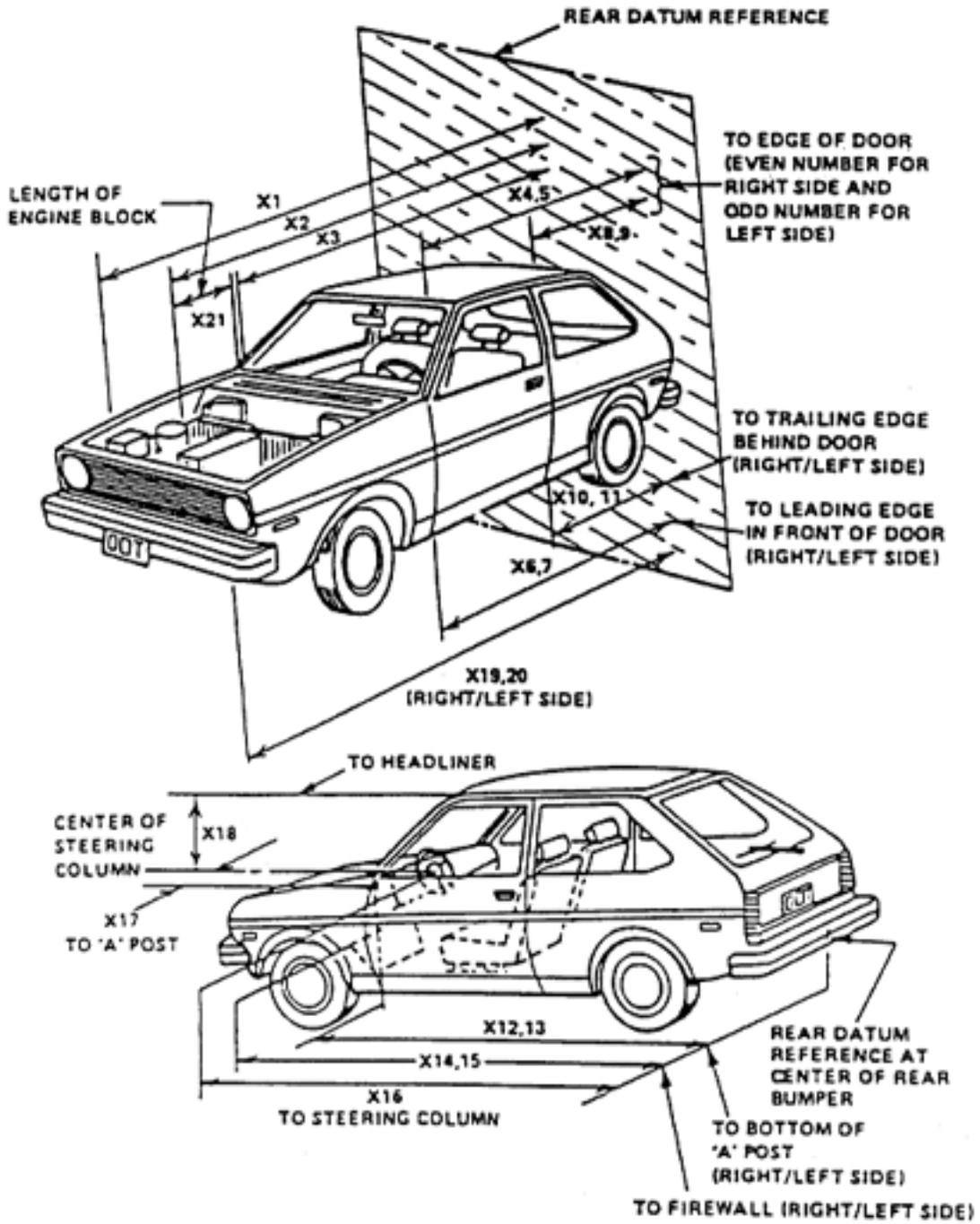


Figure J-2.5 Pre and Post-test Measurements

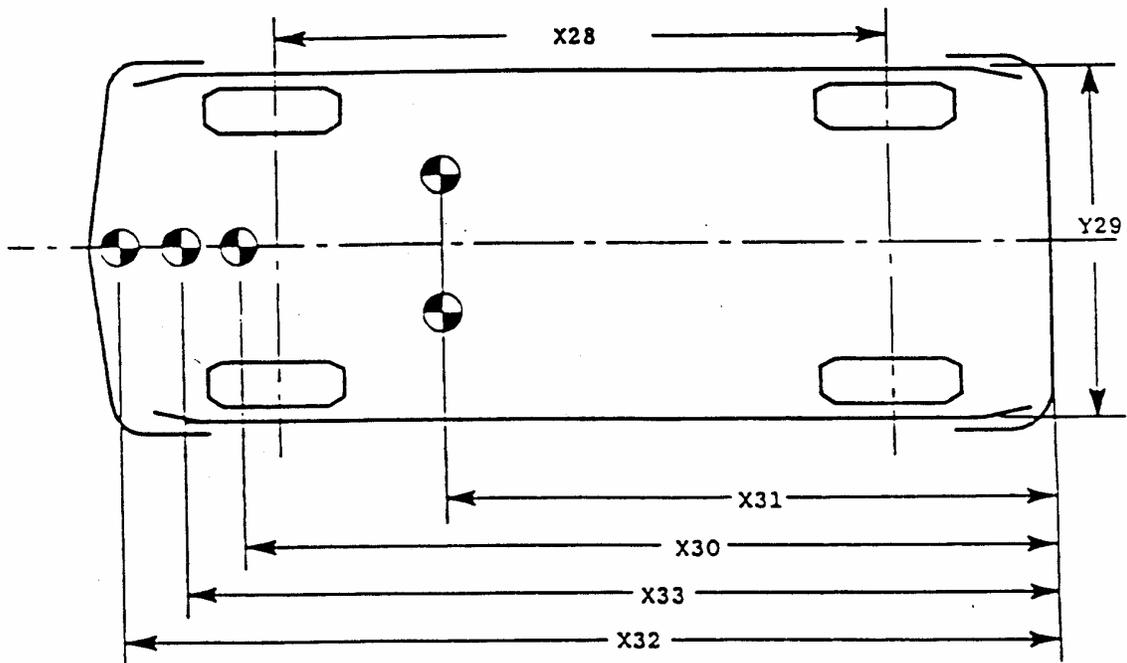
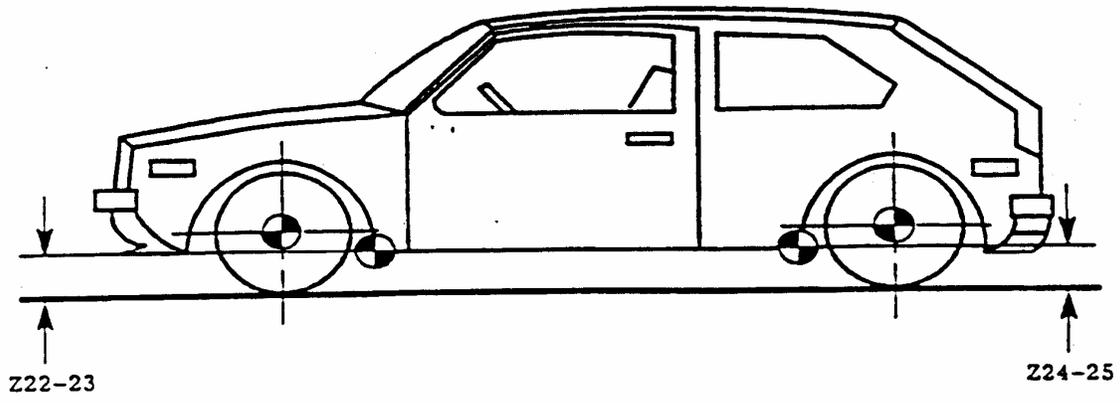


Figure J-2.5 (Continued)

VEHICLE MEASUREMENTS

No.	TYPE OF MEASUREMENT	All Dimensions in millimeters	
		Pre-Test	Post-Test
X1	Total Length of Vehicle at Centerline		
X2	Rear Surface of Vehicle to Engine at Centerline		
X3	Rear Surface of Vehicle to Firewall		
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door		
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door		
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door		
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door		
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door		
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door		
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door		
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door		
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side		
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side		
X14	Rear Surface of Vehicle to Firewall - Right Side		
X15	Rear Surface of Vehicle to Firewall - Left Side		
X16	Rear Surface of Vehicle to Steering Wheel Center		
X17	Steering Column to "A" Post		
X18	Steering Column to Headliner		

Figure J-2.5 (Continued)

VEHICLE MEASUREMENTS (Continued)

No.	TYPE OF MEASUREMENT	All Dimensions in millimeters	
		Pre-Test	Post-Test
X19	Rear Surface of Vehicle to Right Side of Front Bumper		
X20	Rear Surface of Vehicle to Left Side of Front Bumper		
X21	Width of Engine Block		
Z22	Right Front Sill to Ground Plane		
Z23	Left Front Sill to Ground Plane		
Z24	Right Rear Sill to Ground Plane		
Z25	Left Rear Sill to Ground Plane		
X26	Firewall to Engine or Transaxle		
Z27	Vertical Dim. from Door Sill to Centerline of Steering Column		
X28	Wheelbase of Vehicle		
Y29	Width of Vehicle at Maximum Width Point		
X30	Rear Surface of Vehicle to Engine Target		
X31	Rear Surface of Vehicle to Compartment Target		
X32	Rear Surface of Vehicle to Bumper Target		
X33	Rear Surface of Vehicle to Frame Crossmember		

Figure J-2.5 (Continued)

X-axis measurements referenced to a plane 430 cm. forward of the rear bumper centerline. Y-axis measurements are left and right of the original vehicle centerline. Y-axis measurements (6 points) should divide the width of the car and be clearly indicated on the form. Z-axis (height) measurements are from the ground.

		PRE-TEST PROFILE					
		<u>Vehicle Left</u>			<u>Vehicle Right</u>		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X						
	Y						
	Z						
Top of front bumper	X						
	Y						
	Z						
Center of grille	X						
	Y						
	Z						
Front of Hood	X						
	Y						
	Z						

		POST-TEST PROFILE					
		<u>Vehicle Left</u>			<u>Vehicle Right</u>		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X						
	Y						
	Z						
Top of front bumper	X						
	Y						
	Z						
Center of grille	X						
	Y						
	Z						
Front of Hood	X						
	Y						
	Z						

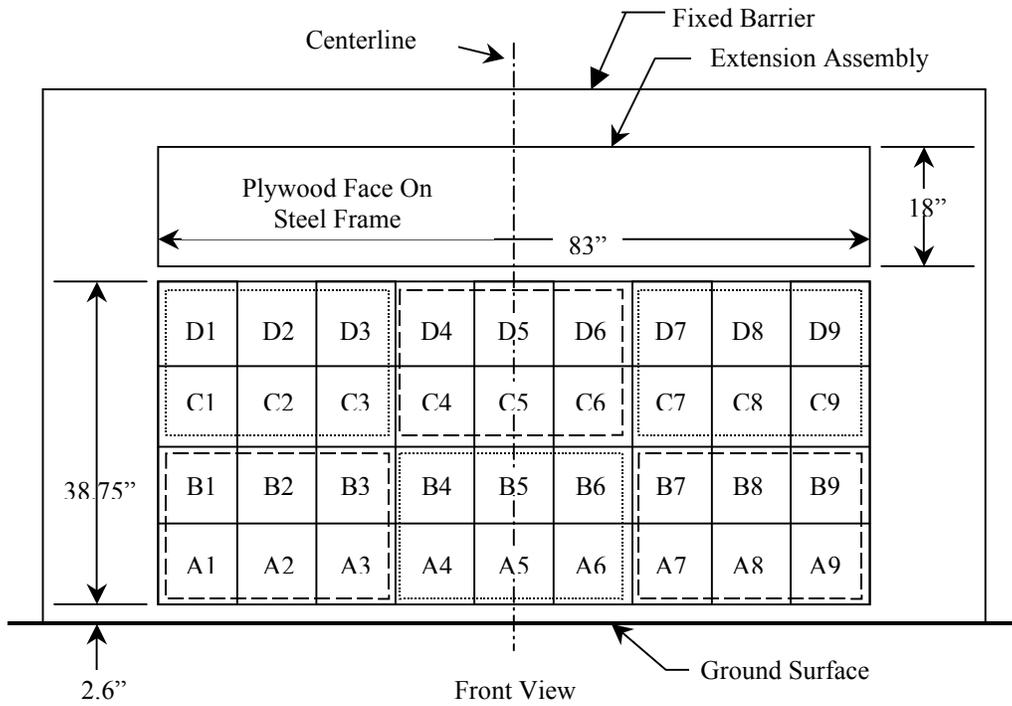
Figure J-2.6 Test Vehicle Frontal Profile Data

		CHANGE					
		<u>Vehicle Left</u>			<u>Vehicle Right</u>		
		pt. 1	pt. 2	pt. 3	pt. 4	pt. 5	pt. 6
Bottom of front bumper	X						
	Y						
	Z						
Top of front bumper	X						
	Y						
	Z						
Center of grille	X						
	Y						
	Z						
Front of Hood	X						
	Y						
	Z						

Figure J-2.6 Test Vehicle Frontal Profile Data (Continued)

<u>Accelerometer Description</u>	<u>Longitudinal Location*</u>		
	<u>Pre-Test</u>	<u>Post-Test</u>	<u>Change</u>
Rear seat X-member – left side primary			
Rear seat X-member – left side redundant			
Rear seat X-member – right side primary			
Rear seat X-member – right side redundant			
Rear seat X-member - centerline			
Rear axle centerline			
Top of engine block			
Steering wheel hub			
Front suspension X-member			
Bottom of engine			
Right front brake caliper			
Left front brake caliper			
Instrument panel			
Air bag sensor location			
Pitch rate sensor			
*Reference Plane: Vertical plane at rear bumper			

Figure J-2.7 Pre and Post-Test Position of Vehicle Accelerometer Mounting Locations



### 36 Load Cell Barrier Mounted on Fixed Barrier

- |                     |                     |
|---------------------|---------------------|
| 4 Rows              | Group 1: A1 thru B3 |
| 9 Columns           | Group 2: A4 thru B6 |
| 6 Groups of 6 Cells | Group 3: A7 thru B9 |
|                     | Group 4: C1 thru D3 |
|                     | Group 5: C4 thru D6 |
|                     | Group 6: C7 thru D9 |

Figure J-2.8 36 Load Cell Barrier

## ATTACHMENT J-3

### VEHICLE-TO-VEHICLE FRONTAL IMPACT TEST

Labor-hour estimates for this test shall be based on the following:

1. impact test with both vehicles moving at same velocity;
2. instrumentation for both vehicles shown in Figure J-2.1;
3. two fully instrumented and certified Hybrid III dummies in each vehicle, Figure J-2.2;
4. camera coverage shown in Figure J-3.1 to include:
  - a. one real time side view camera,
  - b. four close-up side view high speed cameras,
  - c. two on-board high speed cameras on each vehicle,
  - d. one overhead view high speed camera;
5. Pre and post-test measurements for each vehicle and dummy from Figures J-2.3, J-2.5, J-2.6, and J-2.7;
6. still photographs of vehicle and occupant pre and post-test (8" x 10" color, 2 copies);
7. plots of all data channels with integrated occupant compartment traces and calculations of occupant injury parameters;
8. complete test report;
9. data CD/diskette for NHTSA Crash Test Database.

NOTE: Figures. J-2.1 through J-2.3 and J-2.5 through J-2.7 from Attachment J-2 apply to both vehicles and all dummies in VTV tests.

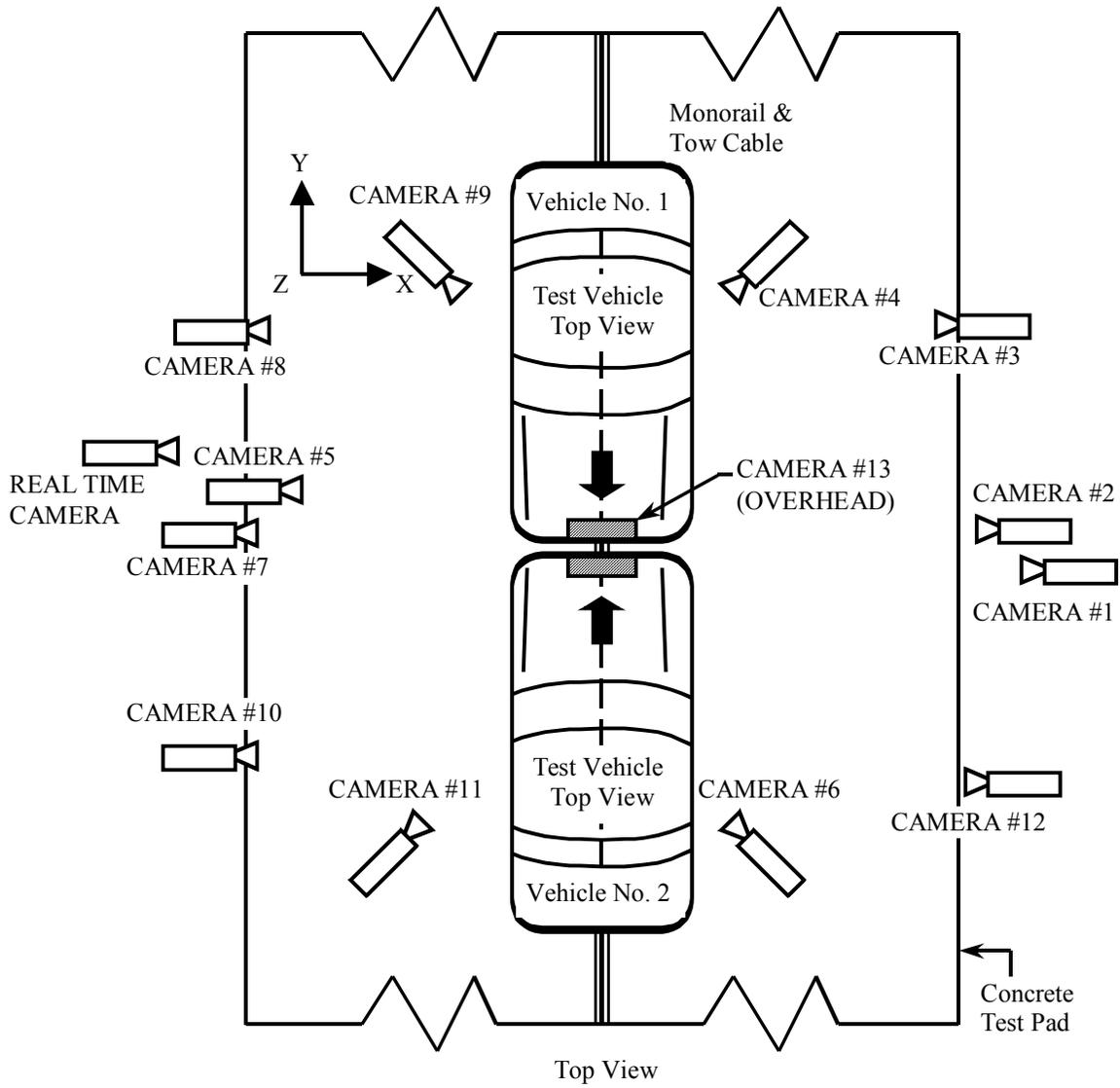


Figure J-3.1 Camera Positions for VTV Frontal Impacts

CAMERA  
NUMBER

VIEW

1	Overall of Vehicles No. 1 and 2
2	Front of Vehicles No. 1 and 2
3	Driver Vehicle No. 1
4	Driver Vehicle No. 1
5	Front of Vehicles No. 1 and 2
6	Right Front Passenger-Vehicle No. 2
7	Overall of Vehicles No. 1 and 2
8	Right Front Passenger-Vehicle No. 1
9	Right Front Passenger-Vehicle No. 1
10	Driver Vehicle No. 2
11	Driver Vehicle No. 2
12	Right Front Passenger-Vehicle No. 2
13	Overhead Vehicles No. 1 and 2

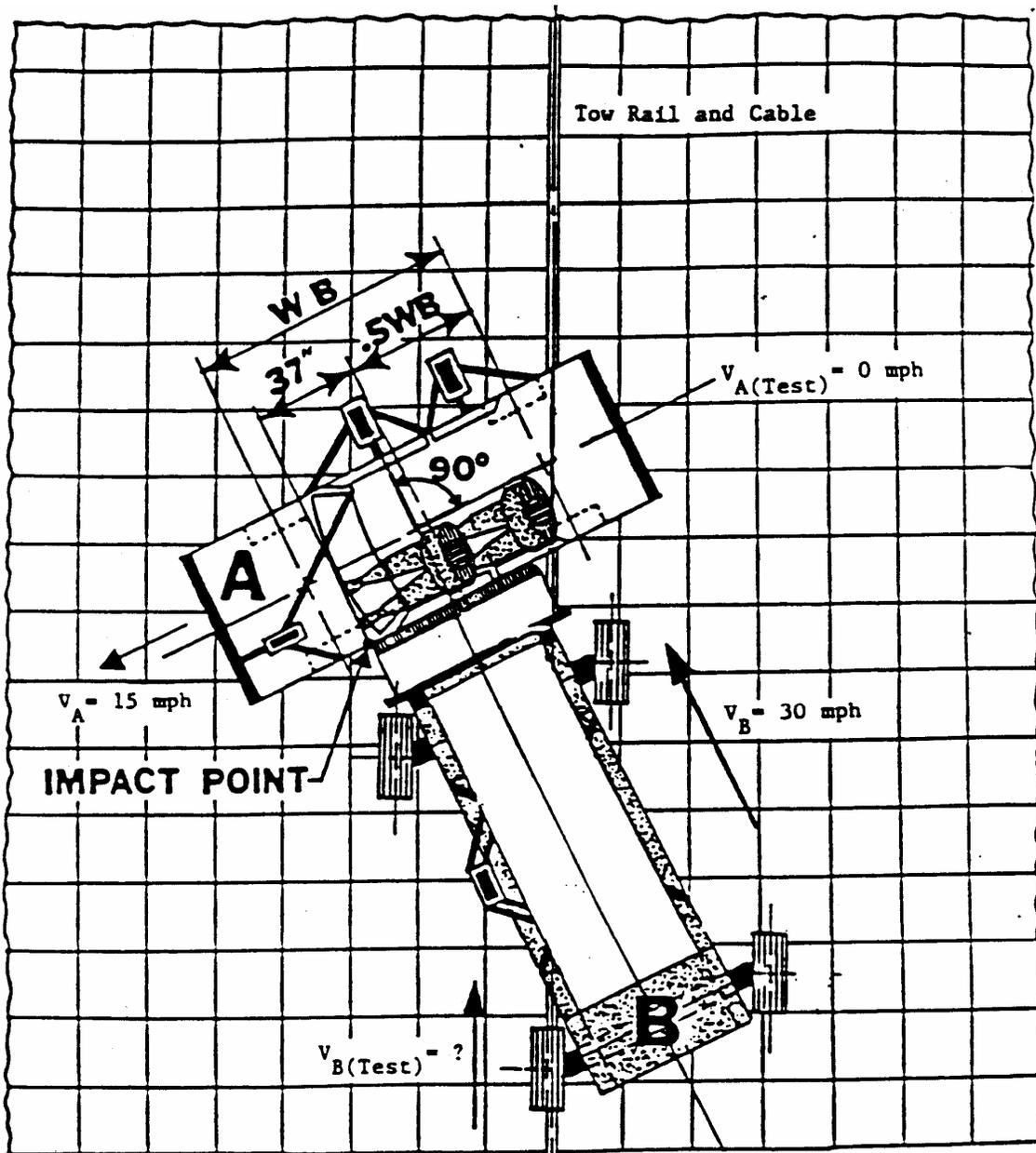
Figure J-3.1 (Continued)

## ATTACHMENT J-4

### VEHICLE-TO-VEHICLE SIDE IMPACT

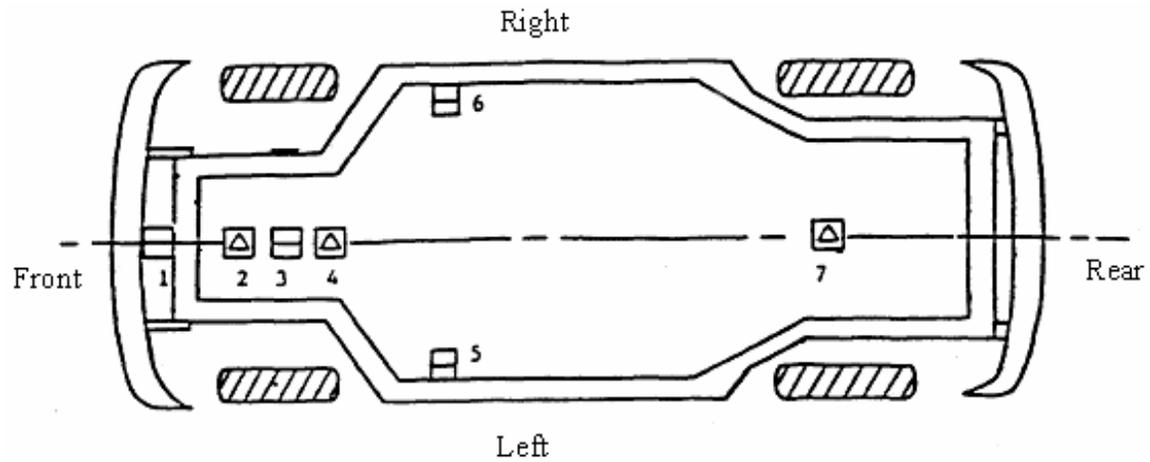
Labor-hour estimates for this test shall be based on the following:

1. test configuration simulating a 90-degree, 30 mph/15 mph, VTV impact as shown on Figure J-4.1 (offeror must determine  $V_b$  (test) and crab angle),
2. vehicle instrumentation as specified on Figures J-4.2, J-4.3, and J-4.4,
3. two fully instrumented and calibrated NHTSA Side Impact Dummies (SIDs) in the struck vehicle (driver's seat and left rear seat),
4. camera coverage as shown on Figure J-4.5,
5. pertinent pre- and post -test measurements from both vehicles and all dummies,
6. Pre and post-test still photographs of both vehicles and occupants (8"x10", color, 2 copies),
7. plots of all data channels with integrated occupant compartment acceleration traces for the striking vehicle and all door and occupant compartment acceleration traces on the struck vehicle,
8. occupant injury criteria calculations,
9. complete test report,
10. data CD/diskette for the NHTSA Crash Test Database.



NOTE: For the Hypothetical Task the Proposer must state the crab angle and the test velocity to be used for vehicle B,  $V_{B(\text{Test})}$ , assuming  $V_{A(\text{Test})} = 0$  mph, to simulate the above impact velocities.

Figure J-4.1 Test Configuration for VTV Side Impact  
 Simulating  $V_A = 15$  mph and  $V_B = 30$  mph.



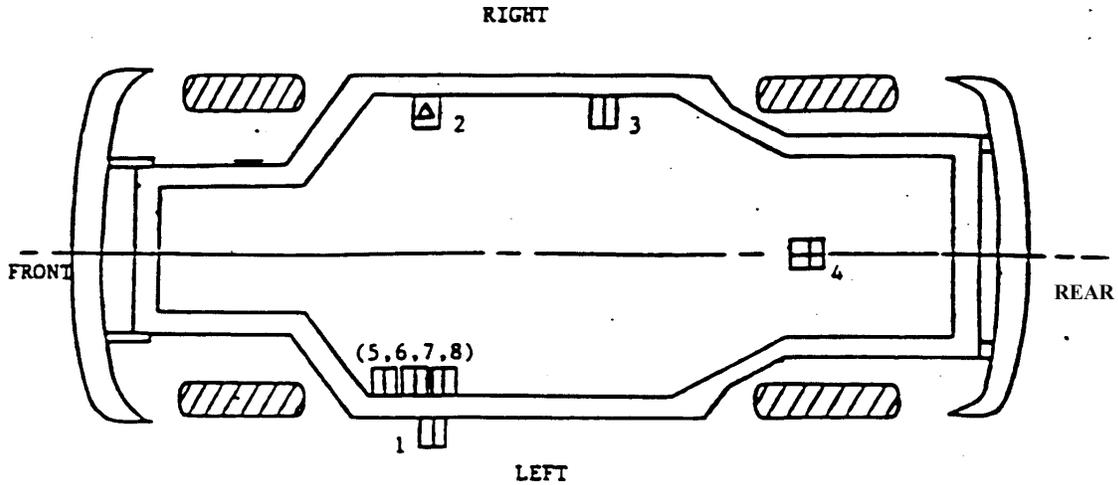
VEHICLE TRANSDUCER LOCATIONS

LINEAR  
ACCELEROMETERS

- Longitudinal
- ▤ Lateral
- Vertical
- △ Triaxial

NO.	DESCRIPTION OF LOCATION	X	Y	Z
1	Behind front bumper	x	-	-
2	Engine	x	x	x
3	Front suspension	x	-	-
4	Firewall on vehicle centerline	x	x	x
5	Left rocker panel inside car	x	-	-
6	Right rocker panel inside car	x	-	-
7	Vehicle centerline, trunk floor Right behind rear seat	x	x	x

Figure J-4.2 Striking Vehicle Accelerometer Locations for VTV Side Impacts



VEHICLE TRANSDUCER LOCATIONS

LINEAR  
ACCELEROMETERS

- Longitudinal
- ▤ Lateral
- Vertical
- △ Triaxial

NO.	DESCRIPTION OF LOCATION	X	Y	Z
ACCELEROMETERS				
1	14" Forward of B-pillar mounted on rocker panel (inside)		X	
2	Inside on rocker panel front door area	X	X	X
3	Inside on rocker panel rear door area		X	
4	Trunk Floor on vehicle CL directly behind rear seat	X	X	
5, 6 7, 8	See figure on next page		X	
Displacement (string potentiometers)				
A	Across front doors 3" above Floor on door centerline			
B	Above "A" at window ledge			
C	Across front seat back between B-pillars			

Figure J-4.3 Struck Vehicle Transducer Locations for VTV Side Impacts

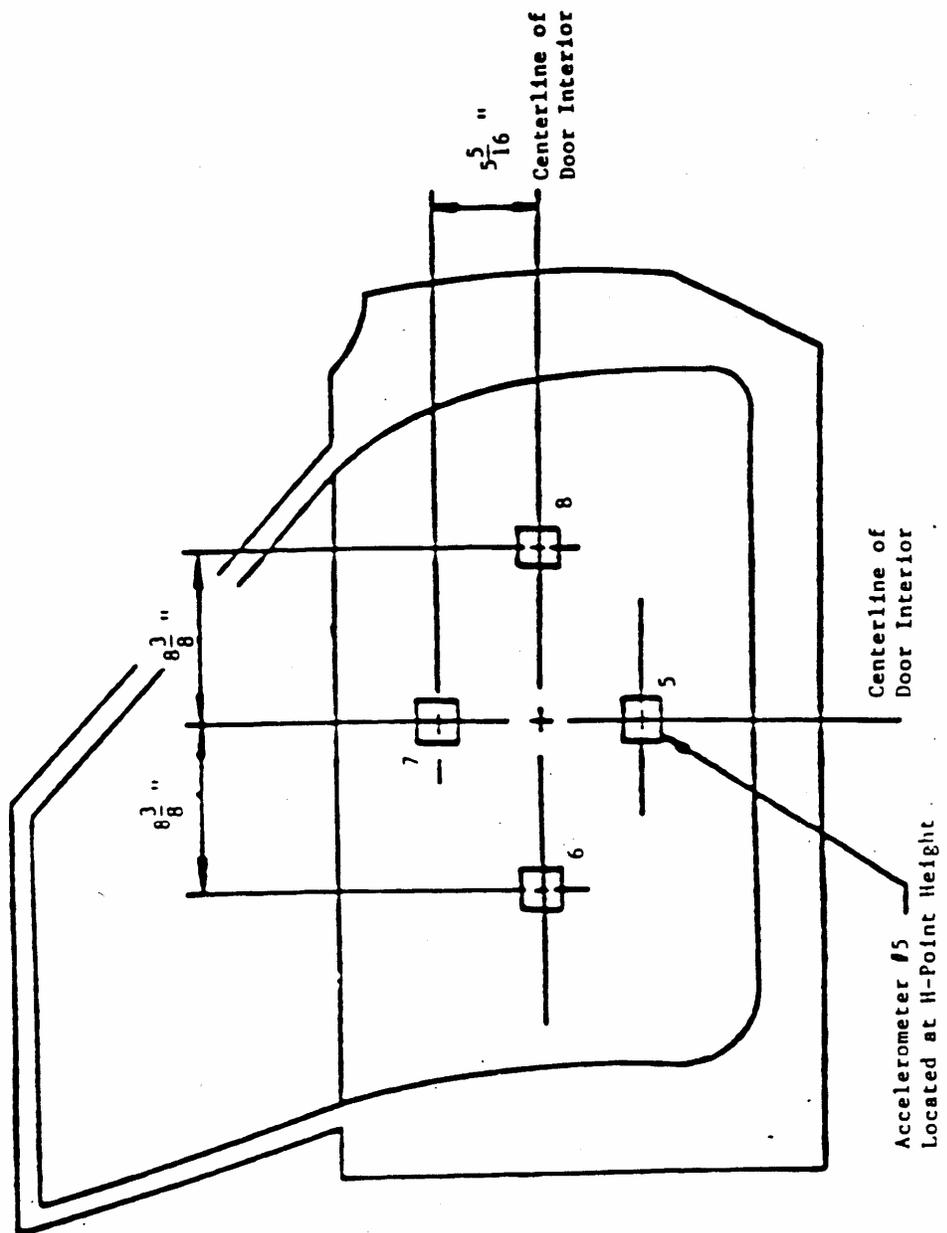


Figure J-4.3 (Continued)

Struck Vehicle

Instrument	Number	Total number of channels
Vehicle Accelerometers	8 Locations	11
Dummies - Head (Triax accel.), Chest (2 y-axis accels. – upper and lower ribs), Lower spine (y-axis), Pelvis (y-axis))	2 Locations	14
Load Cells – none		
Strain Gauges – none		
String Potentiometers	3 Locations (*)	3
* 1) Across front doors 3" above floor on door centerline.		
2) Inside across window ledges directly above string pot #1.		
3) Inside above front seat back across the B pillars.		
TOTAL		28

Striking Vehicle

Instrument	Number	Total number of channels
Vehicle Accelerometers	7 Locations	13
Dummies – none		
Load Cells – none		
Strain Gauges – none		
String Potentiometers – none		
TOTAL		13

Figure J-4.4 VTV Side Impact Instrumentation Summary

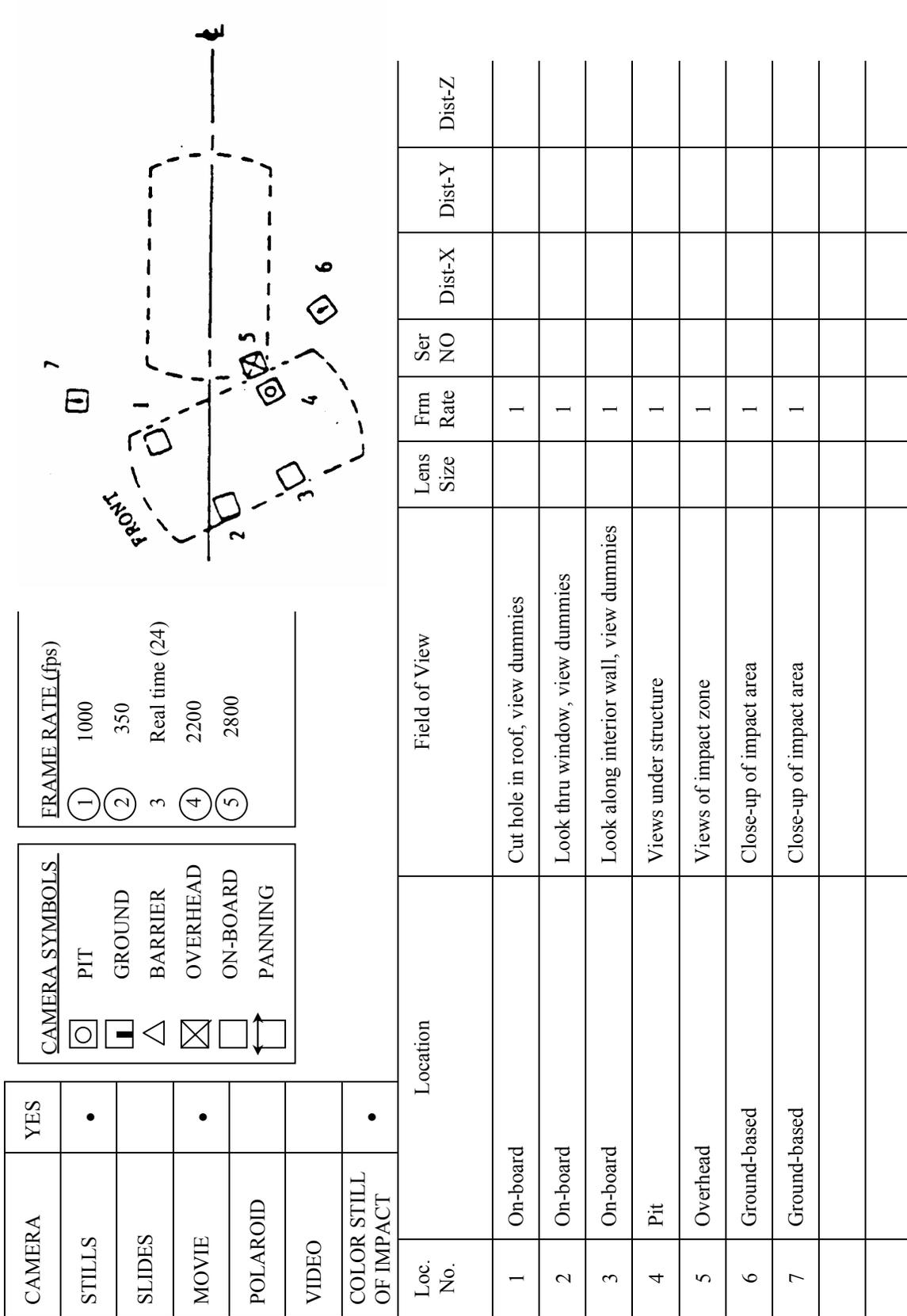


Figure J-4.5 Camera Positions for VTV Side Impacts

## ATTACHMENT J-5

### SLED TEST

Labor-hour estimates for this test shall be based on the following:

1. fabrication of sled buck built from a Government supplied vehicle,
2. one fully instrumented and certified 6 year old child dummy for each test,
3. two accelerometers (2 channels of data) mounted on sled buck,
4. three high speed motion picture cameras to document occupant motion,
5. still photographs of pre- and post-test conditions (8"x10" color, 2 copies),
6. plots of all data channels, calculations of velocity change based on occupant compartment accelerometers, and calculation of all occupant injury parameters,
7. complete test report,
8. data CD/diskette for NHTSA Crash Test Database.

The purpose of the sled tests includes, but is not limited to the simulation of vehicle crash tests, real world crashes and the determination of the repeatability of responses for given conditions. Depending on the specific purpose or requirements, the positioning of the dummies, camera locations, instrument designations and placements, and other relevant test conditions are the same as specified in the other attachments of this section to the extent applicable.

## ATTACHMENT J-6

### VEHICLE-TO-BARRIER CRUSH TEST

Labor-hour estimates for this test shall be based on the following:

1. test set-up as illustrated in Figure J-6.1,
2. Pre and post-test measurements of all structural components (e.g., engine-to-firewall distance),
3. weights of structural components to be measured,
4. log of significant events for each inch of crush during the test,
5. locations of load cells in relation to the vehicle,
6. plotted load and deformation histories of load cells,
7. still photographs from selected angles for each inch of crush,
8. sequential film of the crush test,
9. complete test report.

REACTION SYSTEM

1. First crossmember reaction - vertical and horizontal
2. Engine reaction - vertical
3. Second crossmember reaction - vertical and horizontal
4. Sill reaction - vertical and horizontal
5. A-Pillar reaction - horizontal
6. Rear frame reaction - vertical and horizontal

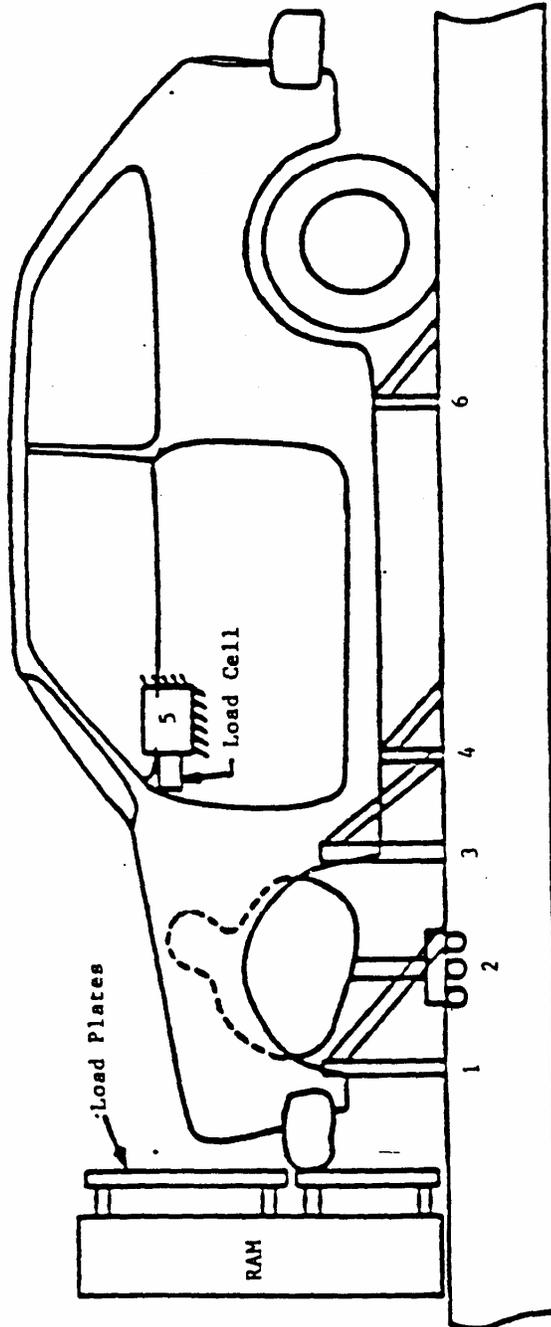
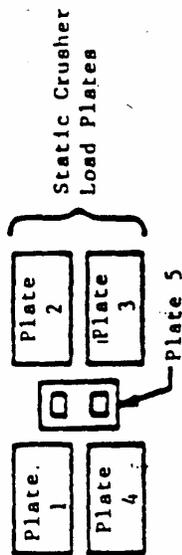


Figure J-6.1 Vehicle Attachments to the Crusher for Frontal Barrier Crush Test

## ATTACHMENT J-7

### VEHICLE-TO-VEHICLE CRUSH TEST

Labor-hour estimates for this test shall be based on the following:

1. test configuration as shown in Figure J-7.1,
2. instrumentation as specified on Figures J-7.2, J-7.3, J-7.4, and J-7.5,
3. Pre and post-test measurements of both vehicles,
4. log of significant events for each inch of crush during the test,
5. plotted load and deformation histories of all instruments in the test,
6. still photographs from selected angles for each inch of crush (8"x10", color, 2 copies),
7. sequential film of the crush test,
8. complete test report.

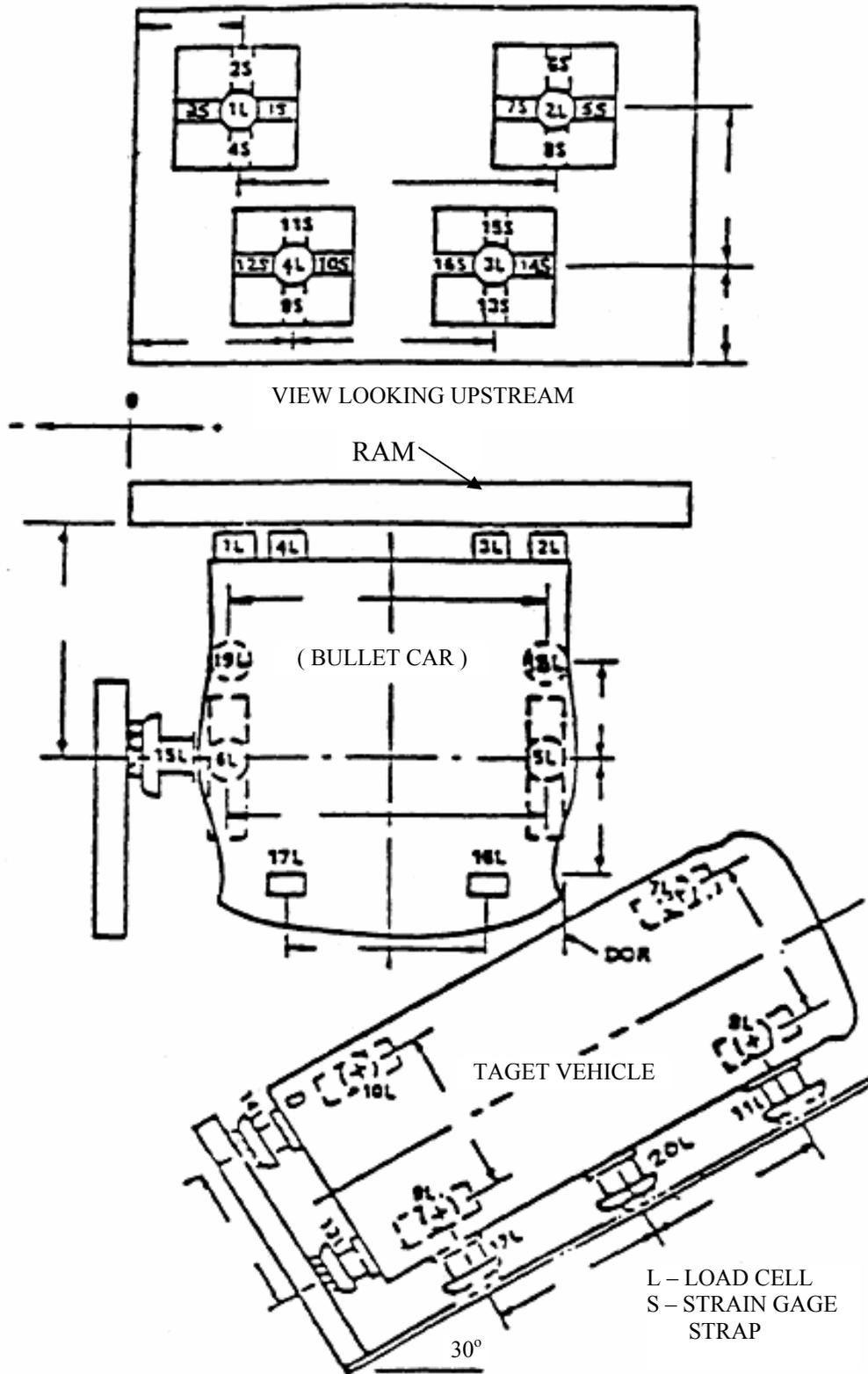


Figure J-7.1 Location of Load Cells and Strain Gage Straps for VTV Crush Test

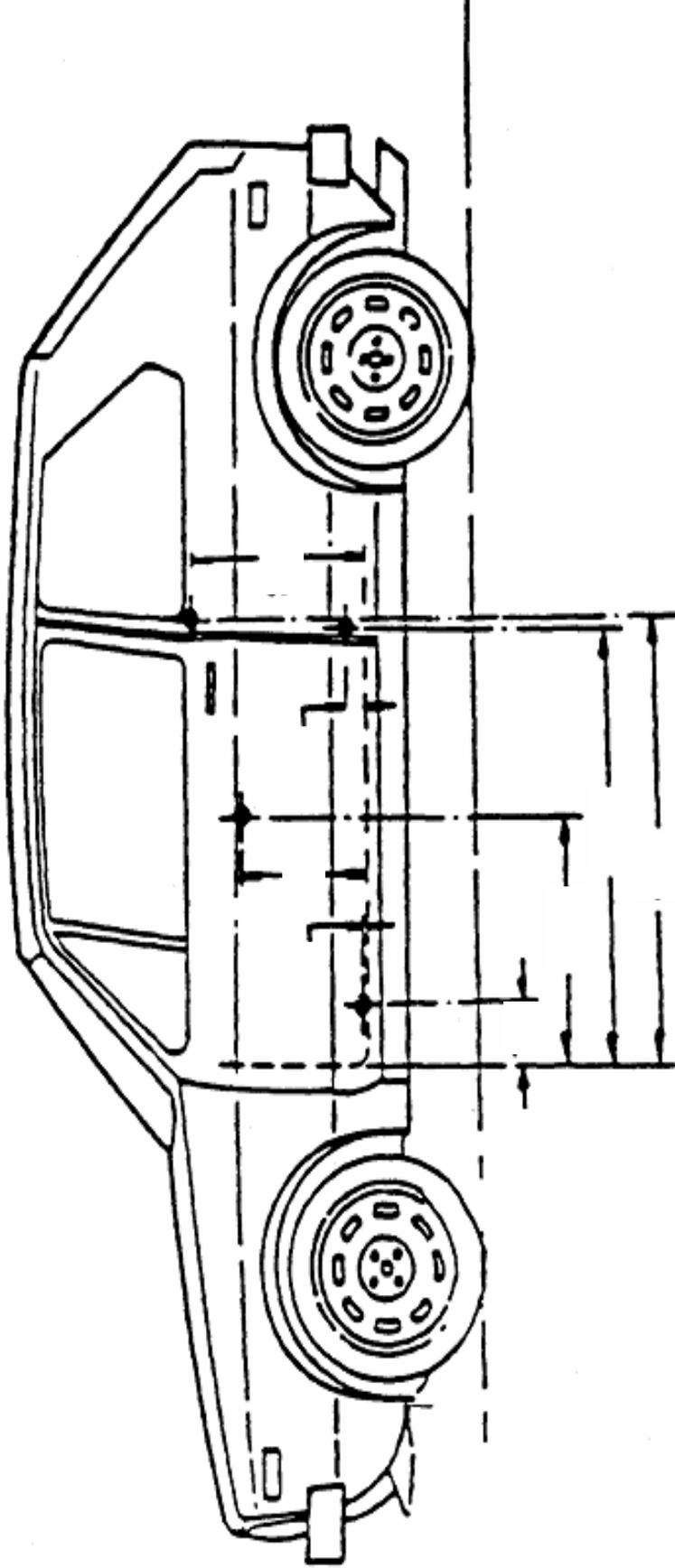


Figure J-7.2 String Potentiometer Locations for Struck Vehicle in VTV Crush Test

<u>LOAD CELL</u>	<u>LOCATION ON VEHICLES</u>	<u>LOAD CELL RANGE</u>
1	Right "A" Pillar Dash Height (Striking Vehicle)	Compression 10,000 lbs
2	Left 'A" Pillar Dash Height (Striking Vehicle)	Compression 10,000 lbs
3	Left Rail Sub Frame (Striking Vehicle)	Compression 10,000 lbs
4	Right Rail Sub Frame (Striking vehicle)	Compression 10,000 lbs
5	Vertical Left Front Crossmember (Striking Vehicle)	Tension & Compression 25,000 lbs
6	Vertical Right Front Crossmember (Striking Vehicle)	Tension & Compression 25,000 lbs
7	Vertical Left Front Wheel (Struck Vehicle)	Compression 10,000 lbs
8	Vertical Right Front Wheel (Struck Vehicle)	Compression 10,000 lbs
9	Vertical Right Rear Wheel (Struck Vehicle)	Compression 10,000 lbs
10	Vertical Left Rear Wheel (Struck Vehicle)	Compression 10,000 lbs
11	Lateral Right Front Wheel (Struck Vehicle)	Compression 10,000 lbs
12	Lateral Right Rear Wheel (Struck Vehicle)	Compression 10,000 lbs
13	Longitudinal Right Rear Bumper (Struck Vehicle)	Compression 10,000 lbs
14	Longitudinal Left Rear Bumper (Struck Vehicle)	Compression 10,000 lbs
15	Lateral Right Front Wheel (Striking Vehicle)	Compression 10,000 lbs
16	Longitudinal Left Front Bumper (Striking Vehicle)	Tension & compression 15,000 lbs
17	Longitudinal Right Front Bumper (Striking Vehicle)	Tension & Compression 15,000 lbs
18	Vertical Left Frame (Striking vehicle)	Tension & Compression 2,000 lbs
19	Vertical Right Frame (Striking Vehicle)	Tension & Compression 2,000 lbs
20	Lateral "B" Pillar Roof Height (Struck Vehicle)	Compression 10,000 lbs

Figure J-7.3 Load Cell Identification for VTV Crush Test

<u>Strain Gage No.</u>	<u>Location (Determined by Facing Downstream at Ram)</u>
1 – 3	Horizontal at Load Cell 1
2 – 4	Vertical at Load Cell 1
5 – 7	Horizontal at Load Cell 2
6 – 8	Vertical at Load Cell 2
9 – 11	Vertical at Load Cell 4
10 – 12	Horizontal at Load Cell 4
13 – 15	Vertical at Load Cell 3
14 – 16	Horizontal at Load Cell 3

Figure J-7.4 Strain Gage Strap Identification for VTV Crush Test

<u>String Potentiometer No.</u>	<u>Location</u>
1	Mid-Door
2	Bottom of Door
3	Mid B-Pillar
4	Bottom of B-Pillar

Figure J-7.5 String Potentiometer Identification

ATTACHMENT J-8

SIGNAL WAVEFORM GENERATOR TEST OF DATA ACQUISITION SYSTEMS

1. **REFERENCES**

- A. MGA Research Corporation, Operator's Manual for Waveform Generator Model RPG-6236-A, (U. S. Department of Transportation, National Highway Traffic Safety Administration, February 1988)
- B. NHTSA Data Tape Reference Guide - Volume 1. Vehicle Crash Tests, (U.S. Department of Transportation, National Highway Traffic Safety Administration, January 1994)
- C. SAE J211 Mar95 - Instrumentation for Impact Test, SAE recommended Practice, Revised March 1995.

2. **DEFINITIONS**

ATD	anthropomorphic test device
channel	the entire data path from sensor output interface, through the signal conditioner, the umbilical cable, and the DAS, to the digital data recorded on magnetic tape
Contractor	the owner(s) and operating personnel of the vehicle crash test facility
DAS	data acquisition system
DOT	U. S. Department of Transportation
NHTSA	National Highway Traffic Safety Administration
SWG	signal waveform generator
COTR	Contracting Officer's Technical Representative

3. **OBJECTIVE**

The purpose of this task is to evaluate all of the data acquisition channels used for recording signals in vehicle crash and sled tests conducted at contractor test facilities for the U.S. Department of Transportation, including signals from ATD and vehicle sensors. The primary and redundant channels used for the sensors are to be evaluated by injecting standard signals from a SWG furnished by the government into the sensor input interface

of each channel and recording these signals on magnetic tape. The data recorded on magnetic tape will be analyzed by government personnel at a government facility.

The evaluation testing shall be performed every six months at the contractor test facilities, normally before a series of tests that are scheduled to be conducted (Please see Section 6, below). The evaluation testing shall also be performed on an as needed basis if a question regarding the performance of the DAS at the contractor facilities arises during a series or part of a series of scheduled tests.

#### **4. GOVERNMENT FURNISHED EQUIPMENT**

One SWG, with three cable connectors that mate with the output jacks of the SWG, and one copy of Reference A, will be furnished to the Contractor.

#### **5. ITEMS-OF-WORK**

##### **5.1 Preparation for Testing**

**5.1.1 SHIPPING** - After unpacking the SWG and inspecting the instrument for possible shipping damage, the SWG shipping container and its foam packing should be retained in dry storage for future shipping use. When the SWG is next shipped, the Contractor shall be responsible for packing and shipping the SWG so that likelihood of damage in shipment is minimized. To accomplish this, the SWG shall be re-packed in air bubble plastic wrap and polystyrene packing peanuts as it was when shipped to the contractor. Outer package labels shall specify correct orientation, "fragile", and "do not drop". The use of shipping damage indicators, such as "Drop(N)Tell", is required.

**5.1.2 CABLE PREPARATTON** - After receiving the SWG, the Contractor shall assemble the cabling necessary to connect the SWG outputs to the sensor output/signal conditioner input interfaces. The Contractor shall supply the connectors that mate with the Contractor's signal conditioner inputs (or umbilical cable, as appropriate) and the wire or cable necessary to transmit signals from the SWG to the signal conditioner inputs. The Contractor shall verify that the SWG input power marking is appropriate for the available local power.

**5.1.3 SWG PERFORMANCE CHECK-OUT** - The Contractor shall check-out the SWG performance by displaying each waveform. and time reference output on a storage oscilloscope (of which the amplitude display has been calibrated to  $\pm 3\%$ ) and comparing the displayed waveform with Figure 5-1 on page 10 of Reference A. If significant differences such as lost of signal output from one or more channels, differences between positive and negative amplitude peaks greater than  $\pm 5\%$ , or irregularities where straight lines are shown in Figure 5-1 are observed, the Contractor shall call the COTR.

The Contractor shall notify the COTR of the test schedule at least two weeks prior to start of test in case the Government desires to witness the test.

## **5.2 Testing**

**5.2.1 OPERATING ENVIRONMENT** - The SWG shall not be operated outside the environmental limits of -10 to 50 \*C. and relative humidity of 0 to 94%. The SWG shall not be in contact with water, ice, or snow.

**5.2.2 SWG to DAS CONNECTIONS** - The  $\pm 100$  mV output level (11 piezo resistive" setting) signals from the SWG shall be connected to the facility instrumentation and DAS so that these signals pass through both the signal conditioning electronics and the crash or sled test umbilical cable, in the same sequence as is used in vehicle crash or sled testing. If the signal conditioners on any channel are designed to handle only lower level signals, resistive shunts shall be installed at the instrumentation interface to reduce the SWG signal voltage level to the full input range of the channel under test. The SWG output impedance is 348 Ohms.

In cases where the signals from two or more channels are combined during later processing, such as driver head x, y, and z accelerations, the channels used to collect these data shall be tested simultaneously. The channel used for the x-axis signal shall receive a "Group 1 waveform" input (SWG channels 1, 2, 3, 4, 9, 10, 11, and 12). The channel used for the z-axis signal shall receive a "Group 2 waveform" input (SWG channels 5, 6, 7, 8, 13, 14, 15, and 16). The channel used for the y-axis signal may be tested with either waveform input.

Each time waveform data is recorded; one channel of time synchronization data shall be recorded. The channel used for the time synchronization data shall be capable of accepting and recording a "TTL" pulse (0 to +5V), 10 milliseconds wide. It is expected that this would be the channel or channels used by the Contractor to record "time zero" signals during vehicle crash and sled testing. The Contractor shall set up to test as many channels simultaneously as is practical, up to the limit of 16 set by the SWG. The Contractor shall record the identity of each DAS input channel connected to each SWG output channel.

5.2.3      SIGNAL CONDITIONERS - For each data channel to be tested, the signal conditioner used with that channel for crash or sled testing shall be set up. Set-up and calibration of each signal conditioner shall be performed exactly as is done for a DOT contracted vehicle crash or sled test in accordance with SAE J211 October 1988 (Reference C).

5.2.4      SWG POWER - The SWG furnished for use in the United States is wired to accept 120 VAC 60 Hz electrical power. The acceptable tolerances on 120 volt input power are 120 VAC +10% -13% and frequency variation from 47 to 63 Hz. The SWG furnished for use in Europe is wired to accept 230 VAC 50 Hz electrical power. The acceptable tolerances on 230 volt input power are 230 VAC +15% -10% and frequency variation from 47 to 63 Hz. Each SWG will be marked with a label, located over the ac power input connector that identifies the input power setting for that unit. For use with input voltage levels outside the marked range, the SWG power input transformer must be re-connected in accordance with Appendix B of Reference A.

The contractor shall apply power to SWG, signal conditioners, and DAS; and allow the SWG self-test to complete as described in Section 3 of Reference A. If a failure is indicated, the Contractor shall call the COTR.

5.2.5      TEST - The Contractor shall start the DAS recording mechanism, press and release the "record" switch, and one-half to one second after the "recording" light turns "off", press the calibration switch for approximately one-half second or more.

The Contractor shall repeat steps 5.2.2 through 5.2.5 until all data acquisition channels have been tested. After each test run, the Contractor shall check the recorded data for anomalies, to assure that valid waveform data has been recorded for each channel.

The Contractor shall record SWG ambient temperature at the start and at the end of testing.

### **5.3      Data Tape Requirements**

The Contractor shall provide the digitized data on a magnetic tape written in the format specified for vehicle crash test data in References B and Section 5.4 below. Digitizing of the data that has been recorded on analog magnetic tape shall be performed in exactly the same manner as in a DOT contracted vehicle crash or sled test. If it is possible, the "Pre-time-zero" pulse in the SWG time synchronization output shall initiate the digitizing process.

During each run when waveform data are digitized, the corresponding SWG time synchronization output shall also be digitized. This time channel shall be the first in the

sequence of channels to be digitized. Channels of signals that will be combined during later processing, such as driver head x, y, and z accelerations, shall be digitized during the same run. The digital data files corresponding to the time synchronization channel and each of the waveform channels shall be identified. Waveform outputs shall be scaled so that  $\pm$  full scale corresponds to  $\pm 200$ .

In creating the data tape, the Contractor shall provide the information required for the GENERAL TEST INFORMATION and the INSTRUMENTATION INFORMATION tape headers. The exceptions to the header code assignments of Reference B, given in the next section, shall govern.

**5.4 Data Tape Header Codes for Tests Using the SWG**

**Note:** Where any of these header code assignments differ from those presented in Reference B, the assignments of this section shall govern.

VERSION NUMBER S2

TSTREF DDMMYYxxxx DDMMYY Test date where  
 DD two-digit day  
 MM two-digit month  
 YY two-digit year  
 where xxxx is four characters for contractor's reference use

TSTTYP SWG Signal waveform, generator test of the DAS.

CURNO 001 Channel 1 of DAS  
 002 Channel 2 of DAS  
 .  
 nnn Channel nnn of DAS

SENTYP LL Low level signal (Strain gage)  
 HL High level signal (Piezoresistive)  
 ET Event time indicator (Code already exists)

SENLOC 01 Driver side (Code already exists)  
 02 Passenger side (Code already exists)

SENATT The four character code for SENATT from Reference B that designates the location of the sensor to which the channel under test would normally be connected.

AXIS XL Sensitive axis of sensor that would be connected to DAS channel under test is X-axis.  
 YL Sensitive axis of sensor that would be connected to DAS channel under test is Y-axis.

ZL	Sensitive axis of sensor that would be connected to DAS channel under test is Z-axis.
INSMAN	Serial number of SWG used for the test
CALDAT	Last calibration date for instrumentation used in data acquisition channel tested.
INSCOM	Commentary field. The Contractor shall identify the SWG channel connected to the DAS channel under test. The code listed below may be used to identify the SWG channel. In addition, such information as run number, amplifier, tape recorder, tape recorder channel, or anything else required to uniquely identify the DAS channel equipment shall be included. There are only 70 characters available. Do the best that you can!
SWG01	Channel 1 of signal waveform generator
SWG02	Channel 2 of signal waveform generator
.	.
.	.
SWG16	Channel 16 of signal waveform generator
SWG1	High level signal of Group 1 waveform
SWG2	High level signal of Group 2 waveform,
SWGE1	Event time indicator (Time zero)
SWGE2	Event time indicator (Delayed time zero)
SWG11	Event time indicator (Inverted time zero)
SWG12	Event time indicator (Inverted delayed time zero)

## **5.5 Report**

A letter report on the DAS testing performed under this TO shall be prepared. The report for this test shall include the date and time of the test, the names of the test performers and the responsible supervisor, the environmental conditions during the test, a complete description of the test set-up, including a list identifying each SWG output channel connected to each DAS input channel, and a list of equipment used in the data acquisition channels tested (e.g. signal conditioners, filters, digitizing hardware).

The report shall also include plots of data from all channels tested, a description of anything that occurred during the test that might affect the data or the results of the test, and a description of any data processing algorithms (such as zero offset removal, detrending, scaling) used on the data from the digitizing through to the final recording process.

6. **DELIVERABLES AND SCHEDULE**

All deliverables shall be delivered to:

National Highway Traffic Safety Administration  
400 7th Street, S.W.  
Washington, D.C. 20590  
Attn: Ms. Randa Radwan Samaha, NVS-321

<u>Deliverable</u>	<u>Date:</u>
Evaluation test completion	Within 2 weeks before the scheduled series of tests or within 6 to 8 months after the completion of the first evaluation test for the year.
Digital data tape written in NHTSA vehicle crash test format	Within 1 week after the evaluation test.
Test report	Three copies of final report two weeks after the evaluation test.