

| AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT | | | | 1. CONTRACT ID CODE U | PAGE OF PAGES 1 20 |
|--|--|----------------------------------|--|--------------------------|---------------------------------|
| 2. AMENDMENT/MODIFICATION NO. P00022 | | 3. EFFECTIVE DATE 17-Jul-2014 | 4. REQUISITION/PURCHASE REQ. NO. SEE SCHEDULE | | 5. PROJECT NO.(If applicable) |
| 6. ISSUED BY INSTAL & VEHICLE SUP CONTRACTING DIV 6501 E. 11 MILE ROAD WARREN MI 48397-5000 | | CODE W56HZV | 7. ADMINISTERED BY (If other than item 6) INSTAL & VEHICLE SUP CONTRACTING DIV SFC JOHN E MCDONALD CCTA-HDC-DWMS350 JOHN.E.MCDONALD30.MIL@MAIL.MIL WARREN MI 48397-5000 | | CODE W56HZV |
| 8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code) DCS CORPORATION TOM SGROI 6909 METRO PARK DR STE 500 ALEXANDRIA VA 22310-0000 | | | 9A. AMENDMENT OF SOLICITATION NO. | | |
| | | | 9B. DATED (SEE ITEM 11) | | |
| | | | X 10A. MOD. OF CONTRACT/ORDER NO. W56HZV-11-C-L727 | | |
| | | | X 10B. DATED (SEE ITEM 13) 01-Apr-2011 | | |
| CODE 1P418 | | FACILITY CODE 1P418 | | | |
| 11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS | | | | | |
| <input type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified. | | | | | |
| 12. ACCOUNTING AND APPROPRIATION DATA (If required) See Schedule | | | | | |
| 13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14. | | | | | |
| A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A. | | | | | |
| B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B). | | | | | |
| X C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF: FAR Part 43.103(a)(3) bilateral agreement between both parties. | | | | | |
| D. OTHER (Specify type of modification and authority) | | | | | |
| E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input checked="" type="checkbox"/> is required to sign this document and return <u>1</u> copies to the issuing office. | | | | | |
| 14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Modification Control Number: mcdonalj14602 Purchase Request Numbers: 0010528120, 0010537704-0001, 0010519917, 0010542241, and 0010542219 1.) The purpose of this modification is to create and add funding to SUBCLINS 3006 AA and 3006AB in support of CLIN 3006 (Work Directive FY 14-04); SUBCLIN 3007AA in support of CLIN 3007 (Work Directive FY 14-05) for option year three. 2.) Exercise option year four with creating and funding SUBCLINS 4001AA and 4001AB in support of CLIN 4001 (Work Directive FY 14-06); SUBCLINS 4002AA and 4002AB in support of CLIN 4002 (Work Directive FY 14-07). 3.) The total cost of this contract was increased by \$543,351.52 from \$2,690,334.71 (EST) to \$3,233,686.23 (EST). 4.) As a result of this modification, the total funded amount for this document was increased by \$543,351.52 from \$2,690,334.71 to \$3,233,686.23. 5.) Added all related work directives to section C of this contract 6.) All other terms and conditions remain unchanged and in full force and effect. | | | | | |
| Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect. | | | | | |
| 15A. NAME AND TITLE OF SIGNER (Type or print) | | | 16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) JEFFREY B. YEAGER / CONTRACTING OFFICER TEL: 586-282-6200 EMAIL: jeffrey.b.yeager2.civ@mail.mil | | |
| 15B. CONTRACTOR/OFFEROR (Signature of person authorized to sign) | | 15C. DATE SIGNED | 16B. UNITED STATES OF AMERICA BY <i>Jeffrey B. Yeager</i> (Signature of Contracting Officer) | | 16C. DATE SIGNED 17-Jul-2014 |

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION A - SOLICITATION/CONTRACT FORM

The total cost of this contract was increased by \$543,351.52 from \$2,690,334.71 (EST) to \$3,233,686.23 (EST).

SECTION B - SUPPLIES OR SERVICES AND PRICES

CLIN 4000

The unit of issue Job has been added.

The option status has changed from Option to Option Exercised.

SUBCLIN 400001

The unit of issue Job has been added.

The option status has changed from Option to Option Exercised.

The cost constraint has changed from EST to NSP.

The total cost of this line item has changed from \$0.00 (EST) to \$0.00.

SUBCLIN 400002

The unit of issue Job has been added.

The option status has changed from Option to Option Exercised.

CLIN 5000

The unit of issue Job has been added.

CLIN 3006 is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------|-------------------|----------|------|------------|--------|
| 3006 | | | Job | | \$0.00 |

OPTION

Work Directive FY14-04

CPFF

GVSL PST Test Support

The Contractor shall provide mechanical, electrical, and hydraulic services to support the performance of durability testing and vehicle system characterization in the Ground Vehicle Simulation Laboratory on the following vehicle systems: MTRV Trailer, HMMWV Ambulance, MATV, M1151 and SOCOM antenna, MEDCOM litter carrier.

Period of Performance: 24 months

Scope Ref: C.4.1, C.4.2, C.4.6, C.4.9, C.4.12

The work directive is located in section C of this contract.

This work directive is to add 2,080 labor hours.

The loaded hourly rate for Option Year 3 is \$97.90

For invoicing instructions see clause 52.232-4007, Wide Area Workflow

FOB: Destination

| | |
|----------------------|--------|
| ESTIMATED COST | \$0.00 |
| FIXED FEE | \$0.00 |
| TOTAL EST COST + FEE | \$0.00 |

SUBCLIN 3006AA is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------|-------------------|----------|------|------------|--------------|
| 3006AA | | | Job | | \$105,943.46 |

technician Support GVSL
CPFF

Work Directive FY14-04 GVSL PST Test Support
SUBCLIN 3006AA is in the support of CLIN 3006
SUBCLIN 3006AA is to funds \$105,943.46 in support of CLIN 3006.

Fix Fee percentage is 6.25%
The loaded hourly rate for Option Year 3 is \$97.90
Estimated Cost/Hr: \$91.78 X 1082.16Hrs = \$99,320.64
Fixed Fee/Hr: \$6.12 X 1082.16Hrs = \$6,622.82

TOTAL AMOUNT: \$105,943.46
Estimated Cost/Hr & Fixed Fee/Hr total amounts for SUBCLIN 3006AA
&3006AB equals Work Directive FY14-04 total cost.
For invoicing instructions see clause 52.232-4007, Wide Area Workflow
FOB: Destination
PURCHASE REQUEST NUMBER: 0010528120

| | |
|--------------------------|--------------|
| ESTIMATED COST | \$99,320.64 |
| FIXED FEE | \$6,622.82 |
| TOTAL EST COST + FEE | \$105,943.46 |
| ACRN BB | \$105,943.46 |
| CIN: GFEB001052812000010 | |

SUBCLIN 3006AB is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------|--|----------|------|------------|-------------|
| 3006AB | Technician Support GVSL CPFF Work Directive FY14-04 GVSL PST Test Support SUBCLIN 3006AB is in the support of CLIN 3006 SUBCLIN 3006AB is to funds \$97,688.54 in support of CLIN 3006. Fix Fee percentage is 6.25% The loaded hourly rate for Option Year 3 is \$97.90 Estimated Cost/Hr: \$91.78 X 997.84Hrs = \$91,581.76 Fixed Fee/Hr: \$6.12 X 997.84Hrs = \$6,106.78 TOTAL AMOUNT: \$97,688.54 ALL estimated cost/hr & fixed fee/hHr total amounts for SUBCLIN 3006AA & 3006AB equals Work Directive FY14-04 total cost. For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010537704-0001 | | Job | | \$97,688.54 |

| | |
|--------------------------|-------------|
| ESTIMATED COST | \$91,581.76 |
| FIXED FEE | \$6,106.78 |
| TOTAL EST COST + FEE | \$97,688.54 |
| ACRN BG | \$97,688.54 |
| CIN: GFEB001053770400010 | |

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------|--|----------|------|------------|--------|
| 3007 | CLIN 3007 is added as follows: FFP GVSL Engineering Technical Support The contractor shall implement a disciplined systems engineering approach to provide technical services to support the TARDEC's Ground Vehicle Simulation Lab. These services include the definition and streamlining of laboratory operations to include ISO 17025 compliance, scheduling, operations, maintenance, communications, and customer engagements. The contractor shall be responsible for evaluating current operations, identifying inefficiencies and the subsequent recommendation and implementation of process improvements. Period of Performance: 24 months Scope Ref: C.4.2, C.4.3 The work directive is located in section C of this contract. This work directive is to add 2,080 labor hours. The loaded hourly rate for Option Year 3 is \$97.90 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination | | Job | | \$0.00 |
| OPTION | | | | | |

NET AMT \$0.00

SUBCLIN 3007AA is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------|---|----------|------|----------------------|--------------|
| 3007AA | GVSL CPFF Work Directive FY14-05 GVSL Engineering Technical Support SUBCLIN 3007AA is in the support of CLIN 3007 SUBCLIN 3007AA is to funds \$203,632.00 in support of CLIN 3007. Fix Fee percentage is 6.25% The loaded hourly rate for Option Year 3 is \$97.90 Estimated Cost/Hr: \$91.78 X 2080hrs = \$190,902.40 Fixed Fee/Hr: \$6.12 X 2080hrs = \$12,729.60 TOTAL AMOUNT: \$203,632.00 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010519917 | | Job | | \$203,632.00 |
| | | | | ESTIMATED COST | \$190,902.40 |
| | | | | FIXED FEE | \$12,729.60 |
| | | | | TOTAL EST COST + FEE | \$203,632.00 |
| | ACRN BD CIN: GFEB001051991700010 | | | | \$203,632.00 |

CLIN 4001 is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------------------|--|----------|------|------------|---------------|
| 4001 | Work Directive FY14-06 | | Job | | \$0.00 EST |
| EXERCISED OPTION | FFP FY14 Bradley APOP Support The contractor will implement a disciplined systems engineering approach to provide technical services to support the Bradley APOP Duty Cycle effort. These services include developing a Bradley driver's station on the Ride Motion Simulators (RMS) cab and providing realtime dynamic modeling support. Period of Performance: 24 months Scope Ref: : C.4.1, C.4.2, C.4.6, C.4.9, C.4.12 The work directive is located in section C of this contract. This work directive is to add 504 labor hours. The loaded hourly rate for Option Year 4 is \$99.38 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination | | | | |
| NET AMT | | | | | \$0.00 (EST.) |

SUBCLIN 4001AA is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|----------------------|---|----------|------|------------|--------------------|
| 4001AA | FY14-06 Bradley APOP SPT | | Job | | \$50,087.52 |
| EXERCISED OPTION | CPFF Work Directive FY14-06 GVSL Engineering Technical Support SUBCLIN 4001AA is in the support of CLIN 4001 SUBCLIN 4001AA is to funds \$50,087.52 in support of CLIN 4001. Fix Fee percentage is 6.26% The loaded hourly rate for Option Year 4 is \$99.38 Estimated Cost/Hr: \$93.16 X 504hrs = \$46,952.64 Fixed Fee/Hr: \$6.22 X 504hrs = \$3,134.88 TOTAL AMOUNT: \$50,087.52 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010542241 | | | | |
| ESTIMATED COST | | | | | \$46,952.64 (EST.) |
| FIXED FEE | | | | | \$3,134.88 |
| TOTAL EST COST + FEE | | | | | \$50,087.52 (EST.) |
| ACRN BE | | | | | \$50,087.52 |

CIN: GFEB001054224100010

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|-------------------------------|--|----------|------|----------------|-------------------|
| 4001AB EXERCISED OPTION | Material COST Work Directive FY14-06 GVSL Engineering Technical Support SUBCLIN 4001AB is in the support of CLIN 4001 SUBCLIN 4001AB is to funds \$5,000.00 in support of CLIN 4001. For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010542241 | | Job | | \$5,000.00 |
| | | | | ESTIMATED COST | \$5,000.00 (EST.) |
| | ACRN BE CIN: GFEB001054224100020 | | | | \$5,000.00 |

SUBCLIN 4001AB is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|-----------------------------|---|----------|------|----------------------|---------------|
| 4002 EXERCISED OPTION | Work Directive FY14-07 CPFF ARPI-PSF Laboratory Experiment Support TARDEC is collaborating with ARL-HRED and AFRL on the DoD Autonomy Research Pilot Initiative (ARPI) project entitled "A Privileged Sensing Framework (PSF): Revolutionizing Human-Autonomy Integration". This project looks to revolutionize the interaction between humans and autonomy by creating a PSF that seeks to strike a balance between the human operator and autonomy. PSF will enable the integration of the human ability to adapt to complex and dynamic conditions with autonomy that offsets human limitations, thereby revolutionizing human autonomy interaction and resulting in a major technology push affecting a broad range of DoD applications. Period of Performance: 24 months Scope Ref: C.4.4 The work directive is located in section C of this contract. This work directive is to add 764 labor hours. The loaded hourly rate for Option Year 4 is \$99.38 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination | | Job | | \$0.00 |
| | | | | ESTIMATED COST | \$0.00 (EST.) |
| | | | | FIXED FEE | \$0.00 |
| | | | | TOTAL EST COST + FEE | \$0.00 (EST.) |

CLIN 4002 is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------------------|---|----------|------|----------------------|---------------------------|
| 4002AA | | | Job | | \$75,926.32 |
| EXERCISED OPTION | FY14-07 ARPI Experiement Spt CPFF Work Directive FY14-07 ARPI-PSF Laboratory Experiment Support SUBCLIN 4002AA is in the support of CLIN 4002 SUBCLIN 4002AA is to funds \$75,926.32 in support of CLIN 4002. Fix Fee percentage is 6.26% The loaded hourly rate for Option Year 4 is \$99.38 Estimated Cost/Hr: \$93.16 X 764hrs = \$71,174.24 Fixed Fee/Hr: \$6.22 X 764hrs = \$4,752.08 TOTAL AMOUNT: \$75,926.32 For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010542219 | | | | |
| | | | | ESTIMATED COST | \$71,174.24 (EST.) |
| | | | | FIXED FEE | \$4,752.08 |
| | | | | TOTAL EST COST + FEE | <u>\$75,926.32 (EST.)</u> |
| | ACRN BF | | | | \$75,926.32 |
| | CIN: GFEB001054221900001 | | | | |

SUBCLIN 4002AA is added as follows:

SUBCLIN 4002AB is added as follows:

| ITEM NO | SUPPLIES/SERVICES | QUANTITY | UNIT | UNIT PRICE | AMOUNT |
|---------------------|---|----------|------|----------------|------------|
| 4002AB | | | Job | | \$5,073.68 |
| EXERCISED OPTION | MATERIALS COST Work Directive FY14-07 ARPI-PSF Laboratory Experiment Support SUBCLIN 4002AB is in the support of CLIN 4002 SUBCLIN 4002AB is to funds 5,073.68 in support of CLIN 4002. For invoicing instructions see clause 52.232-4007, Wide Area Workflow FOB: Destination PURCHASE REQUEST NUMBER: 0010542219 | | | | |
| | | | | ESTIMATED COST | \$5,073.68 |
| | ACRN BF | | | | \$5,073.68 |
| | CIN: GFEB001054221900002 | | | | |

SECTION C - DESCRIPTIONS AND SPECIFICATIONS

The following have been added by full text: ARPI-PSF LAB EXPERIMENT SUP

Contract #: W56HZV-11-C-L727

Work Directive #: FY14-07

| | | |
|------------------------------------|---------------|---|
| Contractor: DCS Corporation | | Contract #: W56HZV-11-C-L727 |
| Work Directive: FY14-07 | Rev: 0 | Date: 20 March 2014 |
| Scope Ref: C.4.4 | | Period of Performance: 24 months |

Title: ARPI-PSF Laboratory Experiment Support

Work Directive Objective: TARDEC is collaborating with ARL-HRED and AFRL on the DoD Autonomy Research Pilot Initiative (ARPI) project entitled "A Privileged Sensing Framework (PSF): Revolutionizing Human-Autonomy Integration". This project looks to revolutionize the interaction between humans and autonomy by creating a PSF that seeks to strike a balance between the human operator and autonomy. PSF will enable the integration of the human ability to adapt to complex and dynamic conditions with autonomy that offsets human limitations, thereby revolutionizing human autonomy interaction and resulting in a major technology push affecting a broad range of DoD applications.

Description of Efforts: The contractor shall provide software development, experiment, integration and data reduction support for ARPI-PSF systems and experimentation in FY14 & FY15. Support shall be given in the following areas: Software development and integration, database development, scenario authoring, Data acquisition design, data acquisition hardware setup and execution, RMS cab fixture design, fabrication and setup, data reduction and analysis. The contractor shall, over the course of regular, informal reviews, provide Mr. Victor Paul of TARDEC's Motion Base Technologies team the ongoing status of the contractor's progress. The reviews shall occur not less than once monthly nor more than weekly commencing within 30 days after award of this directive. The reviews shall identify progress and/or problem areas on the contractor's current work along with overall progress on the contract.

1. Development software to implement algorithms and integration techniques for intelligent human-machine interfacing between the operator and the vehicle through the WMI (to include task automation and management).
2. Perform systems analysis through instrumentation, data logging, and monitoring to verify and validate ARPI-PSF algorithms for enhancing Soldier-Machine teaming.
3. Modify project-related hardware and software to incorporate sensors and algorithms to support achievement of ARPI-PSF objectives; modifications will include crew station hardware for integration of the physiological monitoring system (eye tracker and EEG), WMI software, the operating environment and data analysis.
4. Integrate TBD EEG collection system into real-time simulation environment.
5. Integrate other ARL physiological measurement devices into real-time simulation environment.
6. Modify existing GVSL visual/terrain databases in order to facilitate ARPI-PSF experimentation.
7. Use existing GVSL software to create simulation scenarios for ARPI-PSF experiments.
8. Create ground vehicle simulations by integrating existing GVSL vehicle models, terrain/visual databases and scenarios. Modify each as necessary.

9. Execute real-time ground vehicle simulations during ARPI-PSF experiments.
10. Provide experiment and integration support for ARPI-PSF experiments. Support shall be given in the following areas: data acquisition, analysis, reporting/documentation, and experiment execution.

Deliverables:

1. Monthly management report per C.6.1.1.
2. Monthly progress reports per C.6.1.2

| | | | |
|----------------------------------|-------------------------------|------------------------------|----------------------------------|
| <u>LOE Hrs Prev Rev:</u> | <u>Mat'l Prev Rev:</u> | <u>Trvl Prev Rev:</u> | <u>Maint. Prev Rev:</u> |
| 0 | \$0.00 | \$0.00 | \$0 |
| <u>LOE Hrs This Rev:</u> | <u>Mat'l This Rev:</u> | <u>Trvl This Rev:</u> | <u>Maint. This Rev:</u> |
| 764 | \$5,073.68 | \$0.00 | \$0 |
| <u>Total Auth LOE Hrs</u> | <u>Total Mat'l:</u> | <u>Total Trvl:</u> | <u>Total Maintenance:</u> |
| 764 | \$5,073.68 | \$0.00 | \$0 |
| <u>Total Cost</u> | | | |
| \$81,000.00 | | | |

COTR Approval: Victor Paul**Date:** 30 April 2014

| |
|--------------------------|
| PAUL.VICTOR.J.1230519729 |
|--------------------------|

FY14 BRADLEY APOP SUPPORT

Contract #: W56HZV-11-C-L727

Work Directive #: FY 14-06

| | |
|--|--|
| Contractor: DCS Corporation | Contract #: W56HZV-11-C-L727 |
| Work Directive: FY14-06 | Date: 03 April 2014 |
| Scope Ref: : C.4.1, C.4.2, C.4.6, C.4.9, C.4.12 | Period of Performance: 24 months |

Title: FY14 Bradley APOP Support

Work Directive Objective: The contractor will implement a disciplined systems engineering approach to provide technical services to support the Bradley APOP Duty Cycle effort. These services include developing a Bradley driver's station on the Ride Motion Simulators (RMS) cab and providing realtime dynamic modeling support.

Description of Efforts:

1. The contractor shall develop a Bradley driver's station upon the Ride Motion Simulator's reconfigurable cab. The driver's station shall consist of a Bradley steering yoke with a spring (resistive/feedback) that will act as a HID with a USB interface. The driver's station shall also consist of accelerator and brake pedals (modify existing Todd Cannon pedal set by lengthening and adding new pedal covers). These control devices shall provide a realistic sense of feel, to include some tactile feedback to the operator. The controls shall interface back into the simulation environment via USB cable, similar to how the RMS BUC currently does, providing plug and play.
2. The contractor shall provide realtime dynamic modeling support to TARDEC. The contractor shall focus on the development/assistance of a Bradley dynamic model using the SimCreator modeling software. The model shall accurately reflect the mass properties of the Bradley along with the power-train. The model shall incorporate parasitic energy losses due to steering a tracked vehicle. The contractor shall provide TARDEC with the list of required data to scale the existing RTI track vehicle model into a Bradley Fighting Vehicle to include accurate accounting for parasitic track losses. The contractor shall scale existing RTI track vehicle model into Bradley Fighting Vehicle using TARDEC provided parameter data. The contractor shall integrate TARDEC GT-Drive Bradley Powertrain model. The contractor shall compare model to TARDEC provided test data. The contractor shall deliver model with complete Vehicle Description Document in TARDEC format.

Deliverables:

1. The Contractor shall provide the COTR with a monthly Status Report of the work performed listed in this work directive.
2. The contractor shall attend meetings and key discussions related to the RMS Bradley driver's station and Bradley Powertrain model.

| | | | |
|----------------------------------|-------------------------------|------------------------------|----------------------------------|
| <u>LOE Hrs This Rev:</u> | <u>Mat'l This Rev:</u> | <u>Trvl This Rev:</u> | <u>Maint. This Rev:</u> |
| 504 | \$5,000.00 | \$0.00 | \$0 |
| <u>Total Auth LOE Hrs</u> | <u>Total Mat'l:</u> | <u>Total Trvl:</u> | <u>Total Maintenance:</u> |
| 504 | \$5,000.00 | \$0.00 | \$0 |
| <u>Total Cost</u> | | | |
| \$55,087.52 | | | |

COTR Approval:

Date: 6 May 2014

PAUL.VICTOR.J.1230519729

PCO Approval:

Date: 10 July 2014

E-Signed by YEAGER.JEFFREY.B.1384738229
VERIFY authenticity with ApproveIt

YEAGER.JEFFREY.B.1384738229

GVSL ENGINEERING TECH SUPPORT

Contract #: W56HZV-11-C-L727

Work Directive #: FY14-05

| | |
|--------------------------------|----------------------------------|
| Contractor: DCS Corporation | Contract #: W56HZV-11-C-L727 |
| Work Directive: FY14-05 Rev: 0 | Date: 05 March 2014 |
| Scope Ref: C.4.2, C.4.3 | Period of Performance: 24 months |

Title: GVSL Engineering Technical Support

Work Directive Objective: The contractor shall implement a disciplined systems engineering approach to provide technical services to support the TARDEC's Ground Vehicle Simulation Lab. These services include the definition and streamlining of laboratory operations to include ISO 17025 compliance, scheduling, operations, maintenance, communications, and customer engagements. The contractor shall be responsible for evaluating current operations, identifying inefficiencies and the subsequent recommendation and implementation of process improvements.

Description of Efforts:

1. The contractor shall define and update processes to increase efficiencies in relation to the lab operations within TARDEC Physical Simulation and Test (PS&T).
2. The Contractor shall recommend upgrades to the process of ISO 17025 compliance, scheduling, operations, maintenance, communications and engagements.
3. The Contractor shall document in electronic format all developed processes.
4. The contractor shall review and assess processes and procedures associated with laboratory related products and deliverables and provide recommendations.
5. The contractor shall analyze opportunities to apply efficient processes learned from best laboratory practices throughout the TARDEC PS&T team and make specific recommendation of applicable activities.
6. The Contractor shall create standards and procedures for the laboratory operations.

Deliverables:

3. The Contractor shall provide the COTR with a monthly Status Report of the work performed listed in this work directive.
4. The contractor shall attend meetings and key discussions related to operation of the Physical Simulation & Test laboratories.

| | | | |
|----------------------------------|-------------------------------|------------------------------|----------------------------------|
| <u>LOE Hrs This Rev:</u> | <u>Mat'l This Rev:</u> | <u>Trvl This Rev:</u> | <u>Maint. This Rev:</u> |
| 2,080 | \$0.00 | \$0.00 | \$0 |
| <u>Total Auth LOE Hrs</u> | <u>Total Mat'l:</u> | <u>Total Trvl:</u> | <u>Total Maintenance:</u> |
| 2,080 | \$0.00 | \$0.00 | \$0 |
| <u>Total Cost</u> | | | |
| \$203,632.00 | | | |

COTR Approval: //s// Victor Paul

Date: 24 March 2014

PAUL.VICTOR.J.1230519729

PCO Approval:

Date: 9 July 2014

YEAGER.JEFFREY.B.1384738229

GVSL PST TEST SUPPORT

Contract #: W56HZV-11-C-L727

Contractor: DCS Corporation

Work Directive #: FY14-04

Contract #: W56HZV-11-C-L727**Work Directive:** FY14-04 **Rev:** 0**Date:** 26 February 2014**Scope Ref:** C.4.1, C.4.2, C.4.6, C.4.9, C.4.12**Period of Performance:** 24 months**Title:** Ground Vehicle Simulation Laboratory PST Test Support

Work Directive Objective: The Contractor shall provide mechanical, electrical, and hydraulic services to support the performance of durability testing and vehicle system characterization in the Ground Vehicle Simulation Laboratory on the following vehicle systems: MTRV Trailer, HMMWV Ambulance, MATV, M1151 and SOCOM antenna, MEDCOM litter carrier.

Description of Efforts:

The contractor shall perform the following tasks for six GVSL tests listed above:

1. **Instrumentation:** Design and recommend instrumentation package for each Unit Under Test (UUT). Design shall include proper placement, cabling and signal conditioning. Affix sensors onto the UUT, cable and provide proper signal conditioning. Sensors shall include but be limited to accelerometers, strain gages, linear variable displacement transducers, string potentiometers, thermocouples and rate transducers.
2. **Test Rig Set-up:** For each UUT, design, recommend and execute placement and sizing of hydraulic test rig to include hydraulic actuator placement, hosing, accumulation and connection to GVSL Hydraulic Distribution System. Provide connection of servo-hydraulic actuators to the existing GVSL closed loop servo-hydraulic controllers and perform systemic tuning of test rig. Design, recommend, assemble and weld special-function hardware such as brackets, mounting hardware, dummy mass, and other various components.
3. **Test Execution:** The contractor shall monitor tests in progress by instrumentation or computer readouts/displays. The contractor shall properly document all incidents during test execution in a Test Incident Report. The contractor shall perform periodic UUT and test-rig inspections and document findings. The contractor shall recommend and execute proper UUT and test rig Preventative Maintenance Checks and Services.

Deliverables:

1. The Contractor shall provide the COTR with a monthly Status Report of the work performed listed in this work directive.

| | | | |
|----------------------------------|-------------------------------|------------------------------|----------------------------------|
| <u>LOE Hrs This Rev:</u> | <u>Mat'l This Rev:</u> | <u>Trvl This Rev:</u> | <u>Maint. This Rev:</u> |
| 2,080 | \$0.00 | \$0.00 | \$0 |
| <u>Total Auth LOE Hrs</u> | <u>Total Mat'l:</u> | <u>Total Trvl:</u> | <u>Total Maintenance:</u> |
| 2,080 | \$0.00 | \$0.00 | \$0 |
| <u>Total Cost</u> | | | |
| \$203,632.00 | | | |

COTR Approval: Victor Paul

Date: 4 March 2014

PAUL.VICTOR.J.1230519729

SECTION E - INSPECTION AND ACCEPTANCE

The following Acceptance/Inspection Schedule was added for CLIN 3006:

| | | | |
|------------|------------|-----------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| N/A | N/A | N/A | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 3006AA:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 3006AB:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for CLIN 3007:

| | | | |
|------------|------------|-----------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| N/A | N/A | N/A | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 3007AA:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for CLIN 4001:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 4001AA:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 4001AB:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for CLIN 4002:

| | | | |
|------------|------------|-----------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| N/A | N/A | N/A | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 4002AA:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

The following Acceptance/Inspection Schedule was added for SUBCLIN 4002AB:

| | | | |
|-------------|------------|-------------|------------|
| INSPECT AT | INSPECT BY | ACCEPT AT | ACCEPT BY |
| Destination | Government | Destination | Government |

SECTION G - CONTRACT ADMINISTRATION DATA

Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$543,351.52 from \$2,690,334.71 to \$3,233,686.23.

SUBCLIN 3006AA:

Funding on SUBCLIN 3006AA is initiated as follows:

ACRN: BB

CIN: GFEB001052812000010

Acctng Data: 0212014201520400000662622251 R.0010078.19.1 6100.9000021001

Increase: \$105,943.46

Total: \$105,943.46

Cost Code: A60FL

SUBCLIN 3006AB:

Funding on SUBCLIN 3006AB is initiated as follows:

ACRN: BG

CIN: GFEB001053770400010

Acctng Data: 0212014201520400000662622251 R.0010055.37.1 6100.9000021001

Increase: \$97,688.54

Total: \$97,688.54

Cost Code: A60FL

SUBCLIN 3007AA:

Funding on SUBCLIN 3007AA is initiated as follows:

ACRN: BD

CIN: GFEB001051991700010

Acctng Data: 0212014201520400000662622251 R.0010078.19.4 6100.9000021001

Increase: \$203,632.00

Total: \$203,632.00

Cost Code: A60FL

SUBCLIN 4001AA:

Funding on SUBCLIN 4001AA is initiated as follows:

ACRN: BE

CIN: GFEB001054224100010

Acctng Data: 0212014201520400000662622255 R.0009792.1.5 6100.9000021001

Increase: \$50,087.52

Total: \$50,087.52

Cost Code: A60FL

SUBCLIN 4001AB:

Funding on SUBCLIN 4001AB is initiated as follows:

ACRN: BE

CIN: GFEB001054224100020

Acctng Data: 0212014201520400000662622255 R.0009792.1.5 6100.9000021001

Increase: \$5,000.00

Total: \$5,000.00

Cost Code: A60FL

SUBCLIN 4002AA:

Funding on SUBCLIN 4002AA is initiated as follows:

ACRN: BF

CIN: GFEB001054221900001

Acctng Data: 0212014201420200000442423255 R.0010020.35.1 6100.9000021001

Increase: \$75,926.32

Total: \$75,926.32

Cost Code: A60FL

SUBCLIN 4002AB:

Funding on SUBCLIN 4002AB is initiated as follows:

ACRN: BF

CIN: GFEB001054221900002

Acctng Data: 0212014201420200000442423255 R.0010020.35.1 6100.9000021001

Increase: \$5,073.68

Total: \$5,073.68

Cost Code: A60FL

(End of Summary of Changes)