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BROAD AGENCY ANNOUNCEMENT

IARPA-BAA-16-13



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BE THE FUTURE

Deep Intermodal Video Analytics

DIVA

IARPA-BAA-16-13

Release Date: September 13, 2016

IARPA

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DIVA

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GENERAL INFORMATION

This publication constitutes a Broad Agency Announcement (BAA) and sets forth research of interest in the area of automatic activity detection from video in a multi-camera streaming environment. Awards based on responses to this BAA are considered to be the result of full and open competition.

- **Federal Agency Name** – Intelligence Advanced Research Projects Activity (IARPA)
- **Funding Opportunity Title** – Deep Intermodal Video Analytics (DIVA)
- **Announcement Type** – Initial
- **Funding Opportunity Number** – IARPA-BAA-16-13
- **Catalog of Federal Domestic Assistance Numbers (CFDA)** – Not applicable
- **Dates**
 - Posting Date: September 13, 2016
 - Proposal Due Date for Initial Round of Selections: 5:00pm Eastern Standard Time November 7, 2016
 - BAA Closing Date: June 30, 2017
- **Anticipated individual awards** – Multiple awards anticipated
- **Types of instruments that may be awarded** – Procurement contracts, grants, cooperative agreements and other transactions
- **Agency Points of contact**
 - ATTN: IARPA-BAA-16-13
 - Office of the Director of National Intelligence
 - Intelligence Advanced Research Projects Activity
 - Washington, DC 20511
 - Electronic mail: dni-iarpa-BAA-16-13@iarpa.gov
 - Unclassified Fax: 301-851-7673
- **Program Manager** – Terrence Adams, IARPA
- **Program website** – <http://www.iarpa.gov/index.php/research-programs/diva>
- **BAA Summary** – The DIVA program seeks to develop robust automatic activity detection for a multi-camera streaming video environment. Activities will be enriched by person and object detection. DIVA will address activity detection for both forensic applications and for real-time alerting.
- **Questions** – Submit questions on administrative, technical, or contractual issues by email to dni-iarpa-BAA-16-13@iarpa.gov. All requests must include the full name and affiliation of a point of contact. Do not send questions with proprietary content. A consolidated Question and Answer response will posted on the Federal Business Opportunities website (<http://www.fbo.gov>) and linked from the IARPA website (<http://www.iarpa.gov/index.php/research-programs/diva/questions.html>). No answers will go directly to the submitter. IARPA will accept questions until **October 12, 2016**.

OVERVIEW

SECTION 1: FUNDING OPPORTUNITY DESCRIPTION

The Intelligence Advanced Research Projects Activity (IARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. The use of a BAA solicitation allows a wide range of innovative ideas and concepts. The BAA will appear first on the FedBizOpps website, <http://www.fedbizopps.gov/>, then the IARPA website at <http://www.iarpa.gov/>. The following information is for those wishing to respond to this program BAA.

This BAA (IARPA-BAA-16-13) is for the DIVA program. IARPA is seeking innovative solutions for the DIVA program in this BAA. The DIVA program is envisioned to begin April 3, 2017 and end by April 5, 2021.

1.A. Program Overview

The volume of video data collected from ground-based video cameras has grown dramatically in recent years. For mounted cameras with rigid motion, such as pan-tilt-zoom, the video data is predominantly collected for security, public safety, transportation and infrastructure monitoring, and primarily used for forensic, legal and insurance purposes. The need to guard against theft, crime or attacks continues to rise. However, there has not been a commensurate increase in the usage of intelligent analytics for real-time alerting or triaging video. In many cases, security personnel or operators of camera networks are overwhelmed with the volume of video they must monitor, and cannot afford to view or analyze even a small fraction of their video footage. Yet, the task of monitoring video in airports, at border crossings, or at government facilities becomes increasingly critical each year. In addition, when incidents do occur and officials are tasked with forensically analyzing large volumes of video, it is manually intensive, to identify relevant activities and the subjects of those activities. DIVA aims to develop technology to automate much of this analysis.

While there has been recent advancement in the development of image recognition techniques, this advancement has been predominantly limited to applications outside the security video realm. First, the focus has been on image and video from social media, and in special commercial applications such as autonomous vehicle navigation. Second, there has been little focus on understanding activities in video that depend on temporal reasoning across video frames. Third, few analytics detect activities in a *multi-camera* streaming environment and have the ability to alert in real-time. DIVA will significantly push the state-of-the-art in three areas:

- Automatic detection of activities, as well as persons and objects, in cluttered scenes,
- Temporal reasoning of video to greatly improve activity detection,
- Activity detection and scene understanding from overlapping and non-overlapping camera viewpoints.

The DIVA program will be divided into three (3) phases. Phases 1 and 2 will be 18 months in length and phase 3 will be 12 months in length. Further details on the program and each phase are provided in the following sections.

1.A.1 Program Thrusts

The primary goal of DIVA is to automatically detect activities in a multi-camera streaming video environment. The video environment will involve ground-based cameras and multiple overlapping and non-overlapping camera viewpoints. The program will also evaluate detection of persons and objects relevant to the detected activities. The program will focus on three major thrusts throughout all phases:

- Detection of primitive activities,
- Detection of complex activities, including pre-specified or newly defined activities,
- Person and object detection and recognition.

The focus for phase 1 will be on video collected with the following properties:

- Video collected within the human visible light spectrum,
- Video collected from indoor or outdoor security cameras, either fixed or with rigid motion such as pan-tilt-zoom.

In phases 2 and 3, additional data used will include:

- Video collected from handheld, body worn cameras or other ground-based cameras (e.g., vehicle mounted),
- Video collected from other portions of the electromagnetic spectrum (e.g., infrared).

The first phase of DIVA will only include pre-specified activities, but it will include both primitive activities and complex activities.

1.A.2 Primitive and Complex Activities

Activity or event detection from video is a vibrant area of research that is now seeing increased focus¹. The DIVA Program Manager (PM) and Test & Evaluation (T&E) team will determine the category of specific activities as primitive or complex. Complex activities may contain primitive activities within their event definition and/or duration. The program may also assign a level of complexity to activities as metadata for T&E. For illustrative purposes, some example activities in the DIVA domain are provided below. These activities may not necessarily be selected as activities for evaluation during the program.

Example Activities:

- A person falling down (i.e., fainting, heart attack),
- A person throwing a rock or another object,
- A person abandoning a backpack or other object,
- A person getting in or out of a vehicle,
- A person unloading a vehicle,
- People carrying or brandishing weapons,
- Two people exchanging an object (e.g., suitcase, bag, or box),
- Multiple people meeting and conversing.

1.A.3 Activity Enrichment

DIVA's primary objective is detection of activities occurring in a diverse collection of video. This objective will be evaluated using video that has ground-truth labels. A secondary objective that will be evaluated is detection of persons and objects relevant to the activities. There are

¹ We use the term "activity" in a broad sense to include segments of video that represent patterns of behavior, events or activities that can be grouped semantically using a text description.

multiple reasons for explicitly evaluating person and object detection along with activities. People and objects involved in activities are attributes that define the activities, and are important when searching for activities of interest. As an example, a user may not be interested in all activities involving a person being picked up by a vehicle. Instead, the user may be interested in a person wearing a blue shirt and a white baseball cap, being picked up by a white van. Instead of evaluating activity detection at this fine granularity, we will define broader classes of activities, and evaluate attributes returned with the detected activities as a separate evaluation.

A second reason for evaluating person and object detection separately is to motivate fundamental research in this area. Humans have a powerful ability to perform scene recognition whether from video or single still photos. There remains a significant gap between human ability to detect people or objects in a cluttered scene and the current performance of state-of-the-art algorithms. Advancement in this area is critical for the improvement of activity detection.

1.A.4 DIVA Common Framework

The DIVA program will produce software prototype(s) for activity detection, person/object detection and recognition across a multi-camera network. Performers are required to develop activity detectors and supporting person and object detectors that fit into a common Application Programming Interface (API) and overall video processing framework. The framework and API will be developed by the program T&E support team. The API will define the format for input of video and output of detected activities, persons and objects. As the program progresses, the API will include a format for outputting metadata that can serve as input to other instantiations of the API. This will allow sharing of detections between different analytics running on multiple video feeds. The framework will define a distributed architecture for plugging in the API and ingesting video from multiple cameras. This will enable multi-camera activity detection and analytics.

It is expected that each performer team will provide feedback on the design of the API and framework. An early version of the API and framework will be available at the outset of the DIVA program. Performers will be expected to work with the API and framework as it is under development and provide constructive feedback for its improvement and enrichment. However, performer teams should expect to provide initial self-reported results without the use of the DIVA API and common framework. Instead, performers should plan on using public compute services (e.g., AWS) or their own computer hardware and software for processing T&E data in the first half of phase 1.

It is expected that the framework will deploy into an open computing architecture. Details of the architecture will be determined during the program, but it is expected that all detectors, the API, the framework, and a complete system integration of these components will compile, install and run effectively on Amazon Web Services. All software components should compile readily on a Linux based OS such as CentOS, Redhat or Ubuntu. It is required that all source code developed for DIVA come with rights that include, at a minimum, U.S. Government Purpose Rights (as defined in n.3).

Each team is required to include standalone driver programs in each software delivery. The driver programs shall be capable of running outside the DIVA framework and software. It is

expected that the driver programs will implement the DIVA API, and include modules for activity detection, person and object detection from a single video stream. For detection from one or more video streams, performer teams are required to deliver libraries and other software that comply with the entire DIVA framework and API. The API and framework will be made available to the performer teams throughout the program for continuous feedback and enhancements.

Performers may incorporate commonly used open source libraries, if these libraries may be utilized legally in the same manner by any other researchers in the DIVA program. Also, the Government prefers that any third-party software performers incorporate in deliverables not have restrictive licensing, copyright, nor patent infringement that prevents the U.S. Government (USG) from receiving and using the software. It is not required that performer teams distribute third-party software directly to the USG, but any software that is used should be readily and legally available for use.

1.A.5 Team Expertise

Collaborative efforts and teaming among potential performers is encouraged. It is anticipated that teams will be multidisciplinary, and might include expertise in one or more areas listed below. This is not an exhaustive list, and it is not a requirement that teams comprise specialized expertise in all the areas listed.

- Machine learning, deep learning or hierarchical modeling
- Artificial intelligence
- Object detection and recognition
- Person detection and re-identification
- Person action recognition
- Event detection in video
- Tracking across multiple overlapping and non-overlapping camera viewpoints
- 3D reconstruction from video, super-resolution
- Distributed processing, stream processing
- Statistics, probability and mathematics

1.A.6 Out of Scope

Development of hardware or sensors is out-of-scope for DIVA.

Research on audio processing is out-of-scope for DIVA. The program is focused on the computer vision aspects of activity detection, and there are no plans to base evaluation on data that includes other modalities such as text captions, metadata or audio.

Evaluations will be based on detection from ground-based video, and will not evaluate algorithms on overhead video or image as part of DIVA performance. In particular, DIVA will not evaluate detection on video collected from Unmanned Aerial Vehicles (UAVs) or imagery from satellites.

Person tracking without identification is expected to be an active area of research in DIVA. DIVA will not evaluate person identification, for instance from a gallery.

Basic research on face recognition is out-of-scope for DIVA. Performers in DIVA may use face recognition as an enabling technology in their systems. In the offeror's proposal, a face recognizer should be identified that gives the performer rights to using the face recognizer in the performer's system without restriction and for research purposes, and also gives the T&E team and USG usage rights.

1.A.7 Offeror Data

Offerors are encouraged to describe how their teams will collect and utilize data for development and training of algorithms. Innovative methods for performing transfer learning, as well as initialization of probabilistic or algorithmic state may be described in the proposal. Machine learning from data might incorporate any of the following, but need not be limited by this list.

- Supervised learning
- Unsupervised learning
- Reinforcement learning
- Semi-supervised learning from partially annotated data
- Transfer learning
- Refinement learning
- Curriculum learning
- Continuous learning

As described in greater detail below, proposals must describe how the offeror will ensure the process by which it collects and uses data for DIVA complies with applicable laws and regulations, including privacy laws and regulations, and laws and regulations governing the use of human subjects for research. Such compliance may require performers to obtain the review and approval of research protocols by an Institutional Review Board (IRB) (in the case of human subjects research). The USG will be providing data for performers to test and evaluate their systems. Offerors must include with their proposals a plan for obtaining necessary approvals for their legal use of the USG-provided data, including compliance with privacy laws and regulations, and laws and regulations governing the use of human subjects for research.

All data collected by offerors under the DIVA program, for algorithm training or any other purpose, will be a deliverable to the USG with the expectation that the data will be shared within the DIVA program, including with other DIVA performers.

Performers should not expect that the USG will provide sufficient data for algorithm development and training. The USG may provide example videos illustrating specific activities.

1.A.8 Test and Evaluation (T&E)

Phase 1 will have two T&E cycles (Eval 1.A & Eval 1.B). At eight months after program kickoff, each team will be required to submit self-reported results on evaluation data identified by the USG (i.e., Eval 1.A). The evaluation data will include video from at most 20 cameras and contain at most 30 hours of video. Any single activity will be captured by at most three cameras, and have a duration of at most 20 minutes. Primitive activities will likely have a much shorter duration. The evaluation data will be made available to the performer teams at least 1 month prior to the due date of self-reported results. A description of this data will be provided to the performer teams prior to the evaluation. It is expected that this description will include sample

clips from the same or a similar setting. The description is expected to be provided within three months after kickoff.

The second T&E cycle in phase 1 (i.e., Eval 1.B) will include both self-reported results and an independent evaluation of the performer’s capability. This second set of evaluation data may or may not overlap with the first set. Please see Table 1 below for a summary of statistics related to all evaluation data used for self-reported results. At month 15, each performer team must distribute or make available source code for compiling, installing and running their system on the video files to output activities and associated person and object detections. The software must comply with the distributed API and evaluation protocols as set forth by the DIVA T&E team.

In phase 2, evaluations will continue with both 6-month and 15-month evaluations (i.e., Eval 2.A and Eval 2.B, respectively). Each evaluation will include self-reported results, as well as an independent evaluation of software. These evaluations may take place on different data. The self-reported evaluations will include at most 50 cameras and contain at most 50 hours of video. The independent evaluation may include more or less cameras. Details on the evaluations will be provided during the program.

Table 1: Self-reported Evaluation Data

	Eval 1.A	Eval 1.B	Eval 2.A	Eval 2.B	Eval 3.A
Max # of cameras	20	20	50	50	100
Max # of cameras for any activity	3	5	10	20	50
90% of primitive activity occurrences have shorter length	5 minutes	5 minutes	10 minutes	10 minutes	10 minutes
Max duration of any complex activity	10 minutes	20 minutes	4 hours	8 hours	8 hours
Max hours of total video collection	30 hours	30 hours	50 hours	50 hours	100 hours

In phase 3, there will be a single evaluation at 7 months that includes both self-reported results as well as an independent evaluation (i.e., Eval 3.A). Details on the evaluation will be provided after program kickoff. Section 1.C shows the program timeline including evaluations and software deliveries.

Independent evaluations in all phases of the program may involve sequestered datasets available only to the T&E team, which are not disclosed or shared with the Performers.

The DIVA program anticipates evaluating performance under multiple paradigms. There will be cases where detectors are given multiple video streams or files and tasked with finding all activities of a certain type. The detectors may not be given prior information concerning the video streams, or the cameras from which the video was collected. In this case, performer software may be able to infer the relative locations of overlapping or nearby cameras via activity detection and tracking. The DIVA program will also evaluate performance when detectors have access to camera locational information or some metadata concerning the cameras. Also, performance will be evaluated when performer systems are able to develop prior knowledge of activities, persons and objects from sample videos of the same scene. Measuring performance under different paradigms is a goal of the DIVA program.

1.B. Program Milestones and Metrics

The Government will use the Program Milestones and Metrics listed below to evaluate the effectiveness of proposed solutions in achieving the stated program objectives, and to determine whether satisfactory progress is being made to warrant continued funding of the program. The metrics and constraints are intended to bound the scope of effort, while affording maximum flexibility, creativity, and innovation in proposing solutions to the stated problem.

Phase 1 will focus on detection of pre-specified activities, while phases 2 and 3 will include pre-specified activities as well as surprise activities. Surprise activities are activities that are presented to a system at the time of query using either exemplars or a semantic description. Pre-specified activities will be known to the performer teams in advance. The advance notice for the description of pre-specified activities is expected to be at least one month prior to delivery of self-reported results, or prior to delivery of detectors for independent evaluation. This lead time will be determined during the program.

Phase 1 will focus on video collected from ground-based video cameras that are either fixed or have rigid motion, such as pan-tilt-zoom. The program will focus on video throughout, and will only include image data either to augment video data or as reference imagery.

The video frame rate may vary depending on data collected throughout the program. It is expected that common frame rates will be used such as 24, 25 or 30 frames per second². Other frame rates including higher rates (e.g., 60 fps), lower rates (e.g., 2 fps) or a variable frame rate may be used for test and evaluation. Video could be collected as interlaced, progressive or other scanning patterns. Also, video will be stored and distributed in compressed formats (e.g., H.264, H.265). It is a goal of DIVA to avoid unnecessary loss due to double compression, etc.

For the purposes of DIVA, real-time processing of video refers to processing video at the same rate as the input video. During test and evaluation, the latency of video processing will be measured. In the case of real-time processing, this will be measured and may be assigned an upper bound, such as 2 minutes.

All phases of the program will include primitive and complex activities. Test video data may include both unscripted activities as well as scripted activities. The DIVA T&E team may choose a subset of activities as a basis for scoring evaluations. Evaluations may be based on video that is public, program-only video, and/or sequestered video. It is likely that evaluations will include video that is distributed under a data release agreement. DIVA will abide by proper data handling rules including the protection of privacy, obtaining consent of actors or subjects, and approval by IRBs for human subjects research. Performer teams should budget and plan to obtain separate IRB approvals for using T&E data, or for collecting data separately for training and development.

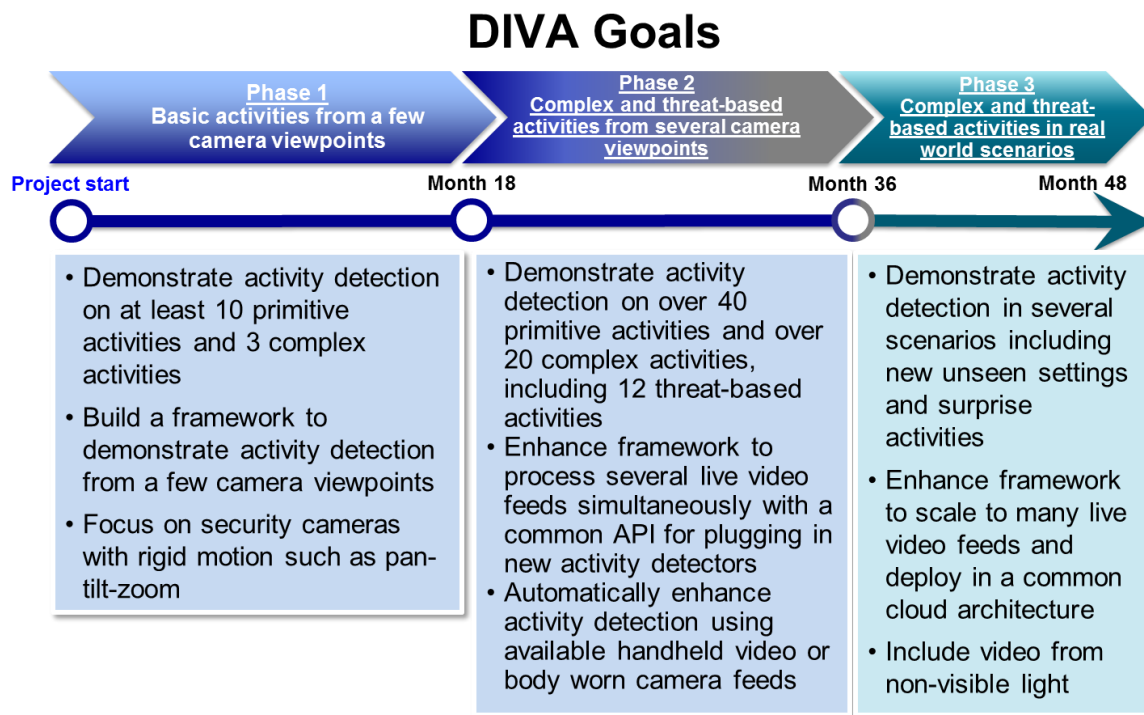
Phases 2 and 3 will incorporate more complex scenarios, and will utilize other ground-based video such as video collected from handheld, body-worn, or vehicle mounted cameras. It is possible that key elements for detecting activities could appear in these types of video. These other types of video will be incorporated into evaluations starting in phase 2. Video collected

² Frame rates are rounded off to the nearest integer; actual frame rate may be 29.97 fps.

within the human visible spectrum will be used in phase 1. Non-visible light video will be incorporated in phase 3 of the program. Below is a graphic that shows how DIVA will significantly advance the state-of-the-art in the area of real-time activity detection in a multi-camera streaming environment.

The impact will be the development of tools for forensic analysis, as well as real-time alerting for user-defined threat scenarios.

Table 2: DIVA Goals



1.B.1 Metrics

IARPA research programs include rigorous evaluations using carefully designed metrics. These metrics and performance against the metrics are used in decision making throughout IARPA research programs. In the case of DIVA, two common types of *detection* metrics will be utilized: (1) activity detection metrics and (2) person/object detection metrics. Listed below are the individual metrics used to measure two types of errors associated with each *detection* metric.

1. Activity detection measured for each activity category (e.g., Primitive, Complex)
 - a. Rate of false alarms per minute of video (RFA)
 - b. Probability of missed detection
2. Person and object detection
 - a. Average false alarm rate
 - b. Average probability of missed detection

If an activity is detected, but it is labeled as an incorrect activity, then the penalty in (1.a) and (1.b) may be weighted to reflect the similarity between the correct activity and the detected activity. IARPA will be working closely with a T&E partner to implement these metrics, as well as implementing all protocols for submitting self-reported results.

At each evaluation cycle in Table 1 above, evaluation data will be fully annotated for occurrences of all activities to be evaluated. This will include a starting time and frame number, as well as a stopping time and frame number for each activity as determined by the set of videos containing evidence of that activity. Videos will be time synched as much as possible, but it is expected that there will be a temporal forgiveness collar, which may be one second in length. Detected activities will be matched to activities from the ground-truth with the same activity class using a matching algorithm such as the Kuhn-Munkres assignment algorithm.

For detection of persons and objects, results will be measured only during the ground-truth activity segments, or a moderately larger segment containing the ground-truth segment. For each activity, the primary subjects or objects of the activity will be determined and annotated with bounding boxes, or other bounding shapes. Other objects that are relevant to the activities may not be annotated with bounding boxes or shapes. Some objects will receive a descriptive annotation instead. As an example, a white hat might be annotated as “white hat” worn by subject A. Another example might be, “hockey stick carried by subject A in left hand”. Objects such as vehicles may be viewed as primary objects or subjects of an activity. For primary subjects or objects, missed detections or false alarms will be determined by comparing the intersection of the detected shape and ground-truth shape with the union of both shapes.

Certain activities will be inherently more subtle than others, and as a result, performance is expected to vary based on the type of activity. Other factors such as scene complexity, resolution of video and camera angles will impact the confidence of the detectors. This is important information for users, and as a result, it should be measured during T&E. In the DIVA program, activities will be separated into two categories, based on the confidence of automatically detecting those activities. We will refer to the categories as class A and class B activities. Class A activities are easier, and class B are more difficult. Activities will be binned into class A and B, based on a combination of three measures:

- Inter-annotator agreement,
- Performance of baseline algorithms,
- Performance of DIVA detectors.

Table 3 shows the goals for DIVA for each phase.

Table 3: Activity Detection Metric Goals

Activity Detection	RFA Class A	RFA Class B	Probability of Missed Detection Class A	Probability of Missed Detection Class B
Phase 1	0.15	1	0.33	0.80
Phase 2	0.03	0.20	0.20	0.50
Phase 3	0.01	0.10	0.10	0.25

Table 4 indicates the goals for subject/object detections. Green columns 2 and 3 indicate performance goals at one operating point and red columns 4 and 5 indicate goals at a second operating point.

Table 4: Person and Object Enrichment Goals

Object Detection	Probability of False Alarm	Probability of Missed Detection	Probability of False Alarm	Probability of Missed Detection
Phase 1	0.500	0.500	0.500	0.500
Phase 2	0.200	0.200	0.100	0.400
Phase 3	0.100	0.100	0.033	0.300

Table 5 lists goals for the processing speed of multiple activity detectors on a per video stream basis. This includes sharing of metadata between activity detectors for different streams of video. Also, this metric applies to a maximum of 5 activity detectors. If 10 different activities are to be detected, then multiply the resources by a factor of two.

Table 5: Speed Metrics

Activity Detection	Processing speed per video stream	Hardware Basis (CPU or GPU based processing)
Phase 1 (15 months)	5x slower than real-time ¹	\$10,000 ²
Phase 2 (6 months)	2x slower than real-time	\$10,000
Phase 2 (15 months)	Real-time	\$10,000
Phase 3 (7 months)	2x faster than real-time	\$7,000
Phase 3 End	4x faster than real-time	\$5,000

1. For the purposes of DIVA, real-time processing of video refers to processing video at the same rate as the input video.
2. Computer hardware with a commodity cost at the time of testing.

1.C. Program Timeline and Deliverables

In addition to the milestones in Table 2, the Government will use the timeline shown in Table 6 with programmatic gates to help the program maintain its 48-month program schedule.

Deliverables include monthly technical and financial status reports, end-of-phase technical and financial reports, as well as presentation materials for PI Workshops, Site Visits and the Program Kickoff. The following Table 7 includes a schedule for other key deliverables that each performer shall provide. Also, included in this table is a schedule of major events such as PI Workshops and Site Visits. The offeror may add other deliverables in addition to the minimum set listed in this section.

Table 6: Evaluation Timeline

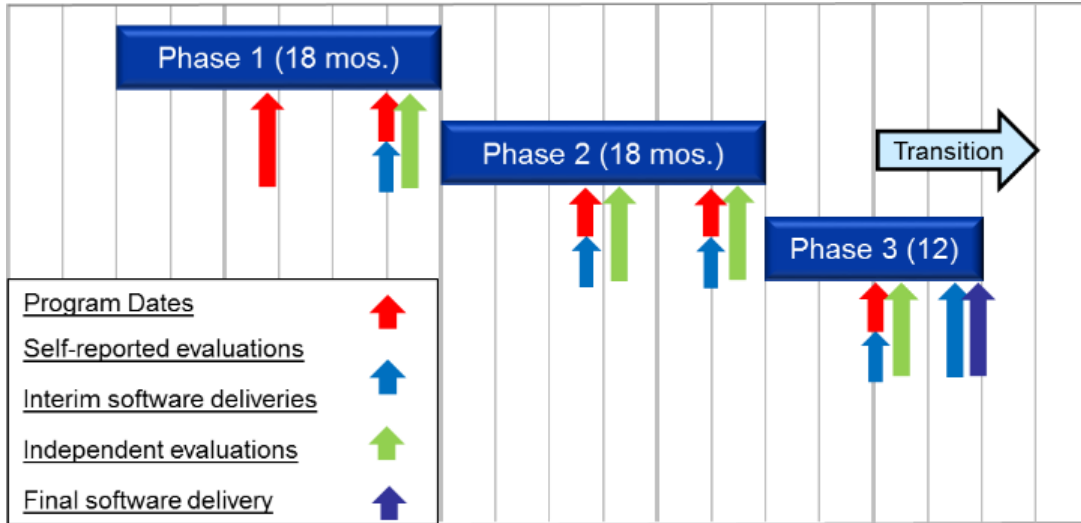


Table 7: Program Review and Deliverable Timeline

Phase 1 timeline in months after kickoff	Deliverable or Program Event	Comments
1 month	DIVA Program Kickoff	Kickoff is likely to be held in Washington D.C. metro area
6 months	Site Visits	Government reps visit prime and potentially subcontractors
8 months	Self-reported results submitted to T&E team	Protocols for submitting results will be determined by T&E team
13 months	PI Workshop	Workshop is likely to be held in the Washington D.C. metro area
15 months	Self-reported results submitted to T&E team	Protocols for submitting results will be determined by T&E team
15 months	Interim software delivery	Software must include source code, libraries compliant to the DIVA API and framework, and driver programs and documentation
18 months	Final phase 1 Software and Deliveries	Source code, libraries compliant to API and framework, driver programs, documentation
Phase 2 timeline in months after kickoff	Deliverable or Program Event	Comments
20 months	Site Visits	Government reps visit prime and potentially subcontractors
24 months	Self-reported results submitted to T&E team	Protocols for submitting results will be determined by T&E team
24 months	Interim software delivery	Source code, libraries compliant to API and framework, driver programs, documentation
26 months	PI Workshop and Demos	Workshop is likely to be held in the Washington D.C. metro area
30 months	Site Visits	Government reps visit prime and potentially subcontractors
33 months	Self-reported results submitted to T&E team	Protocols for submitting results will be determined by T&E team

33 months	Interim software delivery	Source code, libraries compliant to API and framework, driver programs, documentation
36 months	Final phase 2 Software and Deliveries	Source code, libraries compliant to API and framework, driver programs, documentation
Phase 3 timeline in months after kickoff	Deliverable or Program Event	Comments
37 month	PI Workshop	Workshop is likely to be held in the Washington D.C. metro area
41 months	Site Visits	Government reps visit prime and potentially subcontractors
43 months	Self-reported results submitted to T&E team	Protocols for submitting results will be determined by T&E team
43 months	Interim software delivery	Source code, libraries compliant to API and framework, driver programs, documentation
47 months	Final PI Workshop and Demos	Workshop is likely to be held in the Washington D.C. metro area
48 months	Final phase 3 Software and Deliveries	Source code, libraries compliant to API and framework, driver programs, documentation

1.D. Meeting and Travel Requirements

Performers are expected to assume responsibility for administration of their projects and to comply with contractual and Program requirements for reporting, attendance at Program workshops, and availability for site visits. Performers should expect to accommodate site visits as specified in Table 7 by USG personnel to performer team locations. Also, it is expected that the USG will hold an annual two-day PI Workshop where stakeholders from the USG will be invited to attend. Performer teams should plan to send their PI as well as other key personnel. On the second day of the PI Workshops in phases 2 & 3, performers will be asked to support a demo of their capabilities along with integration into the DIVA framework. This will include a live demo. Performers should expect to send at least 1 technical staff to the location where the live demo will take place for 3 work days prior to the workshop.

1.D.1 Workshops

The DIVA program intends to hold a Program-level Kick-Off Workshop by the third month of the Program and then similar Workshops annually thereafter. The Workshops will facilitate technical exchange between performer teams as well as exchange with government partners. It is expected that performer teams will present their status, provide posters or serve on panels. The PI Workshop in phase 2 and the second workshop in phase 3 will include both posters and demos on the second day. The demos will be based on the previous software delivery and any updates that performer teams make prior to the workshop. Also, a live demo will be given using the DIVA framework and performer capabilities. Performer teams should expect to have at least one technical staff available to travel for three work days prior to the PI Workshop to assist with installation and testing of the live demo. The dates and location of these are to be specified at a later date by the Government. Program participants will be expected to present the technical status and progress of their projects to other participants and invited guests.

1.D.2. Site Visits

Site visits by the Contracting Officer Representative and the DIVA Program Manager will occur during the life of the Program and are expected to take place as scheduled in Table 7. These

visits will occur at the prime contractor's facility and possibly at a subcontractor's facility. Reports on technical progress, details of successes and issues, contributions to the Program goals, and technology demonstrations will be expected at such visits.

1.E. Place of Performance

Performance will be conducted at contractor or subcontractor sites. There may be cases when performance is conducted at a site specified by the Government such as an installation location for giving a demonstration.

1.F. Period of Performance

The DIVA program is envisioned as a 4-year effort that is intended to begin in April 2017. Phase 1 of the program will last 18 months, phase 2 will last 18 months, and phase 3 will last 12 months. The Base Period is 18 months with two possible Option Periods of 18 months and 12 months, respectively.

SECTION 2: AWARD INFORMATION

The BAA will result in awards for all phases of the program. Funding for the Option Period(s) will depend upon performance during the Base Period (and succeeding Option Periods), as well as program goals, the availability of funding, and IARPA priorities. Funding of Option Periods is at the sole discretion of the Government.

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation and to make awards without discussions with offerors. The Government also reserves the right to conduct discussions if the Source Selection Authority determines them to be necessary. Additionally, IARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for negotiations for award. In the event that IARPA desires to award only portions of a proposal, negotiations may be opened with that offeror.

Awards under this BAA will be made to offerors on the basis of the Evaluation Criteria listed in Section 5, program balance, and availability of funds. Proposals selected for negotiation may result in a procurement contract. However, the Government reserves the right to negotiate the type of award instrument it determines appropriate under the circumstances.

The Government will contact offerors whose proposals are selected for negotiations to obtain additional information required for award. The Government may establish a deadline for the close of fact-finding and negotiations that allows a reasonable time for the award of a contract. Offerors that are not responsive to Government deadlines established and communicated with the request may be removed from award consideration. Offerors may also be removed from award consideration should the parties fail to reach agreement within a reasonable time on contract terms, conditions, and cost/price.

SECTION 3: ELIGIBILITY INFORMATION

3.A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas for exclusive competition among these entities. Other Government Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), Government-Owned, Contractor-Operated (GOCO) facilities, Government Military Academies, and any other similar type of organization that has a special relationship with the Government, that gives them access to privileged and/or proprietary information or access to Government equipment or real property, are not eligible to submit proposals under this BAA or participate as team members under proposals submitted by eligible entities. An entity of which only a portion has been designated as a UARC may be eligible to submit a proposal or participate as a team member subject to an organizational conflict of interest review described in section 3.A.1.

Foreign entities and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws and other governing statutes applicable under the circumstances. Proposers are expected to ensure that the efforts of foreign participants do not either directly or indirectly compromise the laws of the United States, nor its security interests. As such, offerors should carefully consider the roles and responsibilities of foreign participants as they pursue teaming arrangements.

3.A.1. Organizational Conflicts of Interest (OCI)

“Organizational conflict of interest” means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with IARPA and submit a notification by e-mail to the mailbox address for this BAA at dni-iarpa-baa-16-13@iarpa.gov. All notifications must be submitted through the prime offeror, regardless of whether the notification addresses a potential OCI for the offeror or one of its subcontractor teammates. A potential conflict of interest includes, but is not limited to, any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to IARPA. In all cases, the offeror shall identify the contract under which the SETA or consultant support is being provided. Without a waiver from the IARPA Director, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to IARPA and compete or perform as a Performer under this solicitation.

All facts relevant to the existence of the potential conflict of interest, real or perceived, should be disclosed in the notification. The request should also include a proposed plan to avoid, neutralize or mitigate such conflict. The offeror, or subcontractor teammate as appropriate, shall certify that all information provided is accurate and complete, and that all potential conflicts, real or perceived, have been disclosed. Offerors may submit this notification after release of the BAA, however, the Government may not respond prior to the proposal due date. Submission of a proposal is not dependent on a Government response. If, in the sole opinion of the Government, after full consideration of the circumstances, the conflict situation cannot be resolved or waived, any proposal submitted by the offeror that includes the conflicted entity will be excluded from consideration for award.

As part of their proposal, offerors who have identified any potential conflicts of interest shall include either an approved waiver signed by the IARPA Director, an IARPA Determination letter stating that no conflict of interest exists, or a copy of their notification. Otherwise, offerors shall include in their proposal a written certification that neither they nor their subcontractor teammates have any potential conflicts of interest, real or perceived. A sample certification is provided in APPENDIX D.

If, at any time during the solicitation or award process, IARPA discovers that an offeror has a potential conflict of interest and no notification has been submitted by the offeror, IARPA reserves the right to immediately withdraw the proposal from further consideration for award.

Offerors are strongly encouraged to read “Intelligence Advanced Research Projects Activity’s (IARPA) Approach to Managing Organizational Conflicts of Interest (OCI)”, found on IARPA’s website at: <http://www.iarpa.gov/index.php/working-with-iarpa/iarpas-approach-to-oci>.

3.A.2 Multiple Submissions to the BAA

Organizations may participate in more than one submission to the BAA, IARPA-BAA-16-13. However, if multiple submissions to the BAA which include a common team member are selected, IARPA will, at contract negotiation, ensure that there is no duplicative funding, i.e., no one entity can be paid twice to perform the exact same task.

3.B. US Academic Organizations

According to Executive Order 12333, as amended, paragraph 2.7, “Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution.”

It is **highly** recommended that offerors submit with their proposal a completed and signed Academic Institution Acknowledgement Letter for each U.S. academic institution that is a part of their team, whether the academic institution is serving in the role of prime, or a subcontractor or consultant at any tier of their team. A template of the Academic Institution Acknowledgement Letter is enclosed in APPENDIX A of this BAA. It should be noted that an appropriate senior official from the institution, i.e., typically the President, Chancellor, Provost, or other appropriately designated official, must sign the completed form. Note that this paperwork **must**

be received before IARPA can enter into any negotiations with any offeror when a U.S. academic organization is a part of its team.

3.C. Other Eligibility Criteria

3.C.1. Collaboration Efforts

Collaborative efforts and teaming arrangements among potential performers are strongly encouraged. Specific content, communications, networking and team formations are the sole responsibility of the participants.

SECTION 4: PROPOSAL AND SUBMISSION INFORMATION

This notice constitutes the total BAA and contains all information required to submit a proposal. No additional forms, kits, or other materials are required.

4.A. Proposal Information

Interested offerors are required to submit full proposals in order to receive consideration for award. All proposals submitted under the terms and conditions cited in this BAA will be reviewed. Proposals must be received by the time and date specified in section 4.C.1 in order to be assured of consideration during the initial round of selections. IARPA may evaluate proposals received after this date but prior to BAA closing. Selection remains contingent on the evaluation criteria, program balance and availability of funds. The typical proposal should express a consolidated effort in support of one or more related technical concepts or ideas. Disjointed efforts should not be included in a single proposal.

The Government intends to use employees of Booz Allen Hamilton, SCITOR Corporation, TASC, Vencore, Welkin Associates, BRTC Federal Solutions, Comtech Telecommunications Corporation and Ops Consulting LLC to provide expert advice regarding portions of the proposals submitted to the Government and to provide logistical support in carrying out the evaluation process. These personnel will have signed and be subject to the terms and conditions of non-disclosure agreements. By submission of its proposal, an offeror agrees that its proposal information may be disclosed to employees of these organizations for the limited purpose stated above. Offerors who object to this arrangement must provide clear notice of their objection as part of their transmittal letter. If offerors do not send notice of objection to this arrangement in their transmittal letter, the Government will assume consent to the use of contractor support personnel in assisting the review of submittal(s) under this BAA.

Only Government personnel will make evaluation and award determinations under this BAA.

All administrative correspondence and questions regarding this solicitation should be directed by email to dni-iarpa-baa-16-13@iarpa.gov. Proposals must be submitted in accordance with the procedures provided in Section 4.C.2.

4.B. Proposal Format and Content

All proposals must be in the format given below. Non-compliant proposals may be rejected without review. Proposals shall consist of two volumes: “Volume 1 - Technical and Management Proposal” and “Volume 2 - Cost Proposal.” All pages shall be printed on 8-1/2 by 11 inch paper and IARPA desires that the font size not be smaller than 12 point. IARPA desires that the font size for figures, tables and charts not be smaller than 10 point. All contents must be clearly legible with the unaided eye. Excessive use of small font, for other than figures, tables, and charts or unnecessary use of figures, tables, and charts to present information may render the proposal non-compliant. Foldout pages shall not be used. The page limitation for full proposals includes all figures, tables, and charts. All pages should be numbered. Unnecessarily elaborate brochures or presentations beyond what is sufficient to present a complete and effective proposal are not acceptable and will be discarded without review

The Government anticipates proposals submitted under this BAA will be UNCLASSIFIED.

Each proposal submitted in response to this BAA shall consist of the following:

Volume 1 – Technical & Management Proposal (Limit to 25 Pages)

Section 1 - Cover Sheet & Transmittal Letter

Section 2 – Summary of Proposal (Estimated not to exceed 25 pages)

Section 3 – Detailed Proposal

Section 4 – Attachments (Not included in page count, but number appropriately for elements included)

- 1 – Academic Institution Acknowledgment Letter Template, if required
- 2 – Restrictions on Intellectual Property Rights
- 3 – OCI Waiver, Determination, Notification or Certification
- 4 – Bibliography
- 5 – Relevant Papers (up to three)
- 6 – Commercialization Plan (see section 4.B.1.c.L)
- 7 – Consultant Letters of Commitment
- 8 – Human Use Documentation, if applicable (see Section 6.B.3)
- 9 – A Three Chart Summary of the Proposal (see APPENDIX H)

Volume 2 – Cost Proposal

Section 1 – Cover Sheet

Section 2 – Estimated Cost Breakdown

Section 3 – Supporting Information

4.B.1. Volume 1, Technical and Management Proposal {Limit of 25 pages}

Volume 1, Technical and Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach on which the proposal is based. Copies of not more than three relevant papers can be included with the submission. The submission of other supporting materials along with the proposal is strongly discouraged and will not be considered for review. Except for the cover sheet, transmittal letter, table of contents (optional), and the attachments

included in Volume 1, Section 4. Volume 1 shall not exceed **25** pages. Any pages exceeding this limit will be removed and not considered during the evaluation process. Full proposals should be accompanied by an official transmittal letter, using contractor format. All full proposals must be written in English.

4.B.1.a. Section 1: Cover Sheet & Transmittal Letter

A. Cover sheet: (*See APPENDIX B for Cover Sheet Template*)

B. Official Transmittal Letter.

4.B.1.b. Section 2: Summary of Proposal (Estimated not to exceed 25 pages)

Section 2 shall provide an overview of the proposed work as well as introduce associated technical and management issues. This section shall contain a technical description of technical approach to the research as well as a succinct portrayal of the uniqueness and benefits of the proposed work. It shall make the technical objectives clear and quantifiable and shall provide a project schedule with definite decision points and endpoints. Offerors must address:

- A. A technical overview of the proposed research and plan. This section is the centerpiece of the proposal and must succinctly describe the proposed approach and research. The overview must provide an intuitive understanding of the approach and design, technical rationale, and constructive plan for accomplishment of technical goals and deliverable production. The approach must be supported by basic, clear calculations. Additionally, proposals must clearly explain the innovative claims and technical approaches that will be employed to meet or exceed each program metric and provide ample justification as to why approaches are feasible. The use of non-standard terms and acronyms should be avoided. This section will be supplemented with a more detailed plan in Volume 1, Section 3 of the proposal.
- B. Summary of the products, transferable technology and deliverables associated with the proposed research results. Define measurable deliverables that show progress toward achieving the stated Program Milestones. All proprietary claims to the results, prototypes, intellectual property, or systems supporting and/or necessary for the use of the research, results, and/or prototype shall be detailed in Attachment 2. If there are no proprietary claims, this should be stated. Should no proprietary claims be made, Government rights will be unlimited.
- C. Schedule and milestones for the proposed research. Summarize, in table form and clearly legible for all activity, the schedule and milestones for the proposed research. Do not include proprietary information with the milestones.
- D. Related research. General discussion of other research in this area, comparing the significance and plausibility of the proposed innovations against competitive approaches to achieve Program goals.
- E. Project contributors. Include a clearly defined and clearly legible organizational chart of all anticipated project participants, organized under functional roles for the effort, and also indicating associated task number responsibilities with individuals.

F. Technical Resource Summary:

- Summarize total level of effort by labor category and technical discipline (i.e. research scientist/chemist/physicist/engineer/administrative, etc.) and affiliation (prime/subcontractor/consultant). Key Personnel shall be identified by name. Provide a brief description of the qualifications for each labor category (i.e. education, certifications, years of experience, etc.)
- Summarize level of effort by labor category and technical discipline for each major task, by affiliation
- Identify software and intellectual property required to perform, by affiliation (List each item separately)
- Identify materials and equipment (such as IT) required to perform, by affiliation (List each item separately)
- Identify any other resources required to perform (i.e. services, data sets, facilities, government furnished property, etc., by affiliation, list each item separately)
- Estimated travel, including purpose of travel and number of personnel per trip, by affiliation

The above information shall cross reference to the tasks set forth in the offerors statement of work, as described in BAA section 4.B.1.c, and shall be supported by the detailed cost and pricing information provided in the offeror's Volume 2 Cost Proposal.

4.B.1.c. Section 3: Detailed Proposal Information

This section of the proposal shall provide the detailed, in-depth discussion of the proposed research as well as supporting information about the offeror's capabilities and resources. Specific attention must be given to addressing both the risks and payoffs of the proposed research and why the proposed research is desirable for IARPA to pursue. This part shall provide:

- A. Statement of Work (SOW) - In plain English, clearly define the technical tasks and sub-tasks to be performed, their durations and the dependencies among them. For each task and sub-task, provide:
- A general description of the objective;
 - A detailed description of the approach to be taken, developed in an orderly progression and in enough detail to establish the feasibility of accomplishing the goals of the task;
 - Identification of the primary organization responsible for task execution (prime, subcontractor, team member, etc.) by name;
 - The exit criteria for each task/activity, i.e., a product, event or milestone that defines its completion;
 - Definition of all deliverables (e.g., data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.

Note: Do not include any proprietary information in the SOW.

At the end of this section, provide a Gantt chart, showing all the tasks and sub-tasks on the left with the performance period (in years/quarters) on the right. All milestones shall be clearly labeled on the chart. If necessary, use multiple pages to ensure legibility of all information.

- B. A detailed description of the objectives, scientific relevance, technical approach and expected significance of the work. The key elements of the proposed work should be clearly identified and related to each other. Proposals should clearly detail the technical methods and/or approaches that will be used to meet or exceed each program milestone, and should provide ample justification as to why the proposed methods/approaches are feasible. Any anticipated risks should be described and possible mitigations proposed. General discussion of the problem without detailed description of approaches, plausibility of implementation, and critical metrics will result in an unacceptable rating.
- C. State-of-the-art. Comparison with other on-going research, highlighting the uniqueness of the proposed effort/approach and differences between the proposed effort and the current state-of-the-art. Identify advantages and disadvantages of the proposed work with respect to potential alternative approaches.
- D. Data sources. Identification and description of data sources to be utilized in pursuit of the project research goals.

Offerors proposing to use existing data sets must provide written verification that all data were obtained in accordance with U.S. laws and, where applicable, are in compliance with End User License Agreements, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Offerors shall identify any restrictions on the use or transfer of data sets being used, and, if there are any restrictions, the potential cost to the Government to obtain at least Government Purpose Rights in such data sets.³

Offerors proposing to obtain new data sets must ensure that their plan for obtaining the data complies with U.S. Laws and where applicable, with End User License Agreement, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons.

³ “Government Purpose Rights” (or “GPR”) means the rights to use, modify, reproduce, release, perform, display, or disclose technical data and computer software within the Government without restriction; and to release or disclose technical data and computer software outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose that data or software for any United States Government purpose. United States Government purposes include any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes include competitive procurement, but do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data or computer software for commercial purposes or authorize others to do so.

Offerors anticipating using human subjects for research should include the documentation required in 6.B.3 (Human Use). Documentation must be well written and logical; claims for exemptions from Federal regulations for human subjects protection must be approved by the offeror's IRB. The Human Use documentation and the written verification are not included in the total page count.

The Government reserves the right to reject a proposal if it does not appropriately address all data issues.

E. Deliverables. Deliverables are identified in Section 1.C.

The Government requires at a minimum Government Purpose Rights for all deliverables; anything less will be considered a weakness in the proposal. However, if limited or restricted rights are asserted by the offeror in any deliverable or component of a deliverable, the proposal must identify the potential cost associated with the Government obtaining Government Purpose Rights in such deliverables. Proposals that do not include this information will be considered non-compliant and may not be reviewed by the Government.

In Attachment 2 of the proposal, offerors must describe the proposed approach to intellectual property for all deliverables, together with a supporting rationale of why this approach is in the Government's best interest. This shall include all proprietary claims to the results, prototypes, intellectual property or systems supporting and/or necessary for the use of the research, results and/or prototype, and a brief explanation of how the offerors may use these materials in their program. To the greatest extent feasible, offerors should not include background proprietary technical data and computer software as the basis of their proposed technical approach.

If offerors (including their proposed teammates) desire to use in their proposed approach, in whole or in part, technical data or computer software or both that is proprietary to offeror, any of its teammates, or any third party, in Attachment 2 they should: (1) clearly identify such data/software and its proposed particular use(s); (2) identify and explain any and all restrictions on the Government's ability to use, modify, reproduce, release, perform, display, or disclose technical data, computer software, and deliverables incorporating such technical data and computer software; (3) identify the potential cost to the Government to acquire GPR in all deliverables that use the proprietary technical data or computer software the offeror intends to use; (4) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered; and (5) provide possible nonproprietary alternatives in any area in which a Government entity would have insufficient rights to transfer, within the Government or to Government contractors in support of a Government purpose, deliverables incorporating proprietary technical data or computer software, or that might cause increased risk or cost to the Government under the proposed proprietary solutions.

Offerors also shall identify all commercial technical data and/or computer software that may be embedded in any noncommercial deliverables contemplated under the research

effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or computer software. If offerors do not identify any restrictions, the Government will assume that there are no restrictions on the Government's use of such deliverables. Offerors shall also identify all noncommercial technical data and/or computer software that it plans to generate, develop and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights. If the offeror does not submit such information, the Government will assume that it has unlimited rights to all such noncommercial technical data and/or computer software. Offerors shall provide a short summary for each item (commercial and noncommercial) asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

Additionally, if offerors propose the use of any open source or freeware, any conditions, restrictions or other requirements imposed by that software must also be addressed in Attachment 2. Offerors should leverage the format in APPENDIX G for their response. (See also section 6.B.2. Intellectual Property). The technical content of Attachment 2 shall include only the information necessary to address the proposed approach to intellectual property; any other technical discussion in Attachment 2 will not be considered during the evaluation process. Attachment 2 is estimated not to exceed 4 pages.

For this solicitation, IARPA recognizes only the definitions of intellectual property rights in accordance with the terms as set forth in the Federal Acquisition Regulation (FAR) part 27, or as defined herein. If offerors propose intellectual property rights that are not defined in FAR part 27 or herein, offerors must clearly define such rights in Attachment 2 of their proposal. Offerors are reminded of the requirement for prime contractors to acquire sufficient rights from subcontractors to accomplish the program goals.

- F. Cost, schedule, milestones. Cost, schedule, and milestones for the proposed research, including estimates of cost by task, total cost, and company cost share, if any. The milestones must not include proprietary information.
- G. Offeror's previous accomplishments. Discuss previous accomplishments and work in this or closely related research areas and how these will contribute to and influence the current work.
- H. Facilities. Describe the facilities that will be used for the proposed effort, including computational and experimental resources.
- I. Detailed Management Plan. The Management Plan should identify both organizations and individuals within organizations that make up the team, and delineate the expected duties, relevant capabilities, and task responsibilities of team members and expected relationships among team members. Expected levels of effort (percentage time or fraction of an FTE) for all key personnel and significant contributors should be clearly noted. A description of the technical, administrative and business structure of the team and the internal communications plan should be included. Project/function/sub-contractor relationships

(including formal teaming agreements), Government research interfaces, and planning, scheduling, and control practices should be described. The team leadership structure should be clearly defined. Provide a brief biography of the key personnel (including alternates, if desired) who will be involved in the research along with the amount of effort to be expended by each person during the year. Participation by key personnel and significant contributors is expected to exceed (**25%**) of their time. A compelling explanation is required for any variation from this figure.

If the team intends to use consultants, they must also be included in the organizational chart. Indicate if the person will be an “individual” or “organizational” consultant (i.e., representing themselves or their organization), and organizational affiliation.

A table such as the following (**Table 8**) is recommended.

Table 8: Key Personnel

Participants	Org	Role	Unique, Relevant Capabilities	Role: Tasks	Time Commitment
Jane Wake	LMN Univ.	PI/Key Personnel	Electrical Engineering	Program Mgr & Electronics: 10	100%
John Weck, Jr.	OPQ Univ.	Key Personnel	Mathematical Physics	Programming: 1-5	50%
Dan Wind	RST Univ.	Key Personnel	Physics	Design, Fab, and Integration: 6-8	90%
Katie Wool	UVW Univ.	Contributor	Quantum Physics	Enhancement witness design: 4	25%
Rachel Wade	XYZ Corp.	Co-PI/Key Personnel	Graph theory	Architecture design: 6	55%
Chris West	XYZ Corp.	Significant Contributor	EE & Signal Processing	Implementation & Testing: 8-9	60%
Julie Will	JW Cons.	Consultant (Individual)	Computer science	Interface design: 10	200 hours
David Word	A Corp.	Consultant (A. Corp.)	Operations Research	Applications Programming: 2-3	200 hours

Proposals may involve human subjects research which must comply with the applicable laws and regulations on research on human subjects. As the amount of time required to complete an Institutional Review Board (IRB) review/approval process may vary, the Management Plan should identify any past experience with obtaining IRB approvals for human subjects experimentation and outline how IRB approval will be obtained for this proposal. An IRB submission or approval is not required prior to submission of a proposal, provided your timeline can meet the needs of the program. However, no IARPA funding may be used towards human subjects research until ALL approvals are granted. Some example items to cover in the Management Plan regarding human subjects research compliance include the following:

- What IRB will you be using and what is your relationship to that IRB (internal, external, commercial, etc.).
- Have you worked with this IRB before? How regularly?
- When do you anticipate submitting for and receiving IRB approval in your project timeline and how does that fit within your research plan?
- If time is tight, what is your contingency plan for a delay?
- If the work you propose is classified, has this IRB handled classified protocols before, and is it authorized to do so currently?

J. Resource Share. Include the type of support, if any, the offeror might request from the Government, such as facilities, equipment or materials, or any such resources the offeror is willing to provide at no additional cost to the Government to support the research effort. Cost sharing is not required from offerors and is not an evaluation criterion, but is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

K. The names of other federal, state or local agencies or other parties receiving the proposal and/or funding the proposed effort. If none, so state.

L. Commercialization Plan. Assuming success in the research and development effort, describe plans for commercializing the technology after phase 2. Estimate the cost of commercialization and potential sources of funding that will be pursued (venture capital, internal funding, other Government funding, etc.), or provide a description of potential transition partners if the technology will be commercialized by someone else. Give examples of previous successes at commercializing technology if applicable. (Add as an attachment, 2 page limit)

4.B.1.d. Section 4: Attachments

[NOTE: The attachments listed below must be included with the proposal, if applicable, but do not count against the Volume 1 page limit.]

Attachment 1: Signed Academic Institution Acknowledgement Letter(s) (if applicable). Template provided as APPENDIX A. See paragraph 3.B, US Academic Institutions.

Attachment 2: Restrictions on Intellectual Property Rights (if applicable). Template provided as APPENDIX G. This attachment is estimated not to exceed 4 pages.

Attachment 3: OCI Waiver/Determination/Notification or Certification. Template, provided as APPENDIX D. See paragraph 3.A.1., Organizational Conflicts of Interest (OCI).

Attachment 4: Bibliography. A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas on which the proposal is based.

Attachment 5: Relevant Papers. Copies of not more than three relevant papers may be included in the submission. The proposers should include a one page technical summary of each paper provided, suitable for individuals who are not experts in the field.

Attachment 6: Commercialization Plan (see section 4.B.1.c.L).

Attachment 7: Consultant Commitment Letters. If needed.

Attachment 8: Human Use Documentation, if applicable (see sections 4.B.1.c.I and 6.B.3).

Attachment 9: A Three Chart Summary of the Proposal. A PowerPoint that quickly and succinctly indicates the concept overview, key innovations, expected impact, and other unique aspects of the proposal. The format for the summary slides is included in APPENDIX H to this BAA and does not count against the page limit. Slide 1 should be a self-contained, intuitive description of the technical approach and performance. These slides may be used during the evaluation process to present a summary of the proposal from the proposers view.

4.B.2. Volume 2: Cost Proposal {No Page Limit}

The Offeror's proposal shall contain sufficient factual information to establish the offeror's understanding of the project, the perception of project risks, the ability to organize and perform the work and to support the realism and reasonableness of the proposed cost.

IARPA recognizes that undue emphasis on cost may motivate offerors to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. IARPA discourages such cost strategies. Cost reduction approaches that will be received favorably include innovative management concepts that maximize direct funding for technology and limit diversion of funds into overhead.

4.B.2.a. Section 1: Cover Sheet.

See APPENDIX C, Cover Sheet Template.

4.B.2.b. Section 2: Estimated Cost Breakdown.

Offerors shall submit numerical cost and pricing data using Microsoft Excel. The Excel document, in the format provided in APPENDIX E, shall include intact formulas and shall not be hard numbered. The base and option period cost data should roll up into a total cost summary. The Excel files may be write-protected but must not be password protected. The Cost/Price Volume must include the following:

- A. Completed Cost/Price Template - Offerors must submit a cost element breakdown for the base period, each option period and the total program summary in the format provided in APPENDIX E⁴.

⁴ **NOTE:** Educational institutions and non-profit organizations as defined in FAR Part 31.3 and 31.7, respectively, at the prime and subcontractor level may deviate from the cost template in APPENDIX E and APPENDIX F when estimating the direct labor portion of the proposal to allow for OMB guided accounting methods (2 CFR Part 220)

- B. Subcontractor/Inter-organizational Transfers (IOTs) and Consultants summary in the format provided in APPENDIX F. (After selection, offerors may be required to submit full cost proposals, see 4.B.2.c. Subcontracts.)
- C. Total cost broken down by major task
- D. Major program tasks by fiscal year
- E. A summary of projected funding requirements by month
- F. A summary table listing all labor categories used in the proposal and their associated direct labor rates, along with escalation factors used for each base and option period of the acquisition.
- G. A summary table listing all indirect rates used in the proposal for each for each base and option period of the acquisition.

4.B.2.c. Section 3: Supporting Information

In addition to the above, supporting cost and pricing information must be provided in sufficient detail to substantiate the offeror's cost estimates. Include a description of the basis of estimate (BOE) in a narrative for each cost element and provide supporting documentation, as applicable:

Direct Labor – Provide a complete cost breakout by labor category, hours and rates (APPENDIX E). Specify all key personnel by name and clearly state their labor category and proposed rate. Describe the basis of the proposed rates and provide a copy of the most recent Forward Pricing Rate Agreement (FPRA) with the Government. If offerors do not have a current FPRA with the Government, provide payroll records or contingency hire letters with salary data to support each proposed labor category, including those for key individuals, and the most recent Forward Pricing Rate Proposal Submission, if applicable. Offeror should also address whether any portion of their labor rates is attributable to uncompensated overtime.

Labor Escalation Factor – State the proposed escalation rate and the basis for that rate (e.g., based upon Global Insight indices, Cost Index or historical data). If the escalation rate is based upon historical data, provide data to demonstrate the labor escalation trend. Provide a sample calculation demonstrating application of the factor to direct labor.

Subcontracts (to include consultants and IOTs) – The offeror is responsible for compiling and providing all subcontractor proposals with the Cost Volume. Subcontractor cost element sheets shall be completed for the base period, each option period and the total summary in the format provided in APPENDIX F (Excel is not required for initial submittal, see paragraph below). Consultant letter(s) of commitment shall also be attached.

If a proposal is selected for negotiations, the prime must be prepared to present full subcontractor proposals (if applicable per subcontract type) for the base period, each option period and total cost summary including all direct and indirect costs immediately upon request by the Contracting Officer. Information shall be presented in Excel with intact formulas using the format provided in APPENDIX E and addressing the supporting

that are used by their institutions. The methodology must be clear and provide sufficient detail to substantiate proposed labor costs. For example, each labor category must be listed separately; identify key personnel, and provide hours/rates or salaries and percentage of time allocated to the project.)

cost information as outlined in 4.B.2.b. and 4.B.2.c. In addition to the full and complete subcontractor cost proposal, the offeror shall also provide its analysis of the subcontractor's proposal including justification for why the subcontractor was selected and its determination that the cost/price is fair and reasonable (Reference FAR Part 44 and FAR clause 52.244-2). If subcontractors have concerns about proprietary cost information, subcontractors can submit their detailed cost proposals directly to the Contracting Officer.

Materials and Equipment – Provide copies of quotes, historical data or any other information including offeror's analysis to support proposed costs.

Other Direct Costs (ODCs) and Travel – ODCs shall be listed separately and supported by quotes, historical data or any other information including the offeror's analysis. The proposed travel supporting detail shall include destination and purpose of the trip, number of travelers per trip and price per traveler in sufficient detail to verify the BOE. Proposed travel costs must comply with the limitations set forth in FAR Part 31.

Government Purpose Rights - If the offeror asserts limited or restricted rights in any deliverable or component of a deliverable, the cost proposal must separately identify the estimated cost associated with the Government obtaining Government Purpose Rights in such deliverables (reference sections 4.B.1.c.D. and 4.B.1.c.E).

Indirect Costs – The offeror shall show indirect cost calculations, identify the proposed indirect rate by contractor fiscal year and program period (base, option period) and provide information on indirect cost pools and allocation bases for each year and program period involved. If a Government agency recently audited the offeror's indirect rates, the offeror shall state by which agency the audit was conducted, when the rates were approved and the period for which they are effective. Include a copy of this rate agreement. Absent current Government rate recommendations, it is incumbent on the offeror to provide some other means of demonstrating indirect rate realism (e.g., 3 years of historical actual costs with applicable pools and bases). If proposed rates vary significantly from historical experience, the offeror must provide an explanation of the variance.

Cost sharing – Describe the source, nature and amount of cost-sharing, if any. Reference section 4.B.1.c.J.

Other Pricing Assumptions - Identify pricing assumptions which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.). Reference section 4.B.1.c.J.

Facilities Capital Cost of Money (FCCM) – If proposing FCCM, the offeror shall show FCCM cost calculations, identify the proposed FCCM factors by contractor fiscal year and program year and provide a copy of the FPRA, FPRS or FPRR, if available.

Profit/Fee - Identify the proposed profit/fee percentage and the proposed profit/fee base. Provide justification for your proposed fee/profit.

Systems: For the Systems listed below, provide a brief description, the cognizant federal agency and audit results. If the system has been determined inadequate, provide a short narrative of the steps your organization has taken to address the inadequacies and the current status. If a formal audit has been performed by a Government Agency, please provide a complete copy of the audit report or adequacy determination letter. If the system has never received a formal Government review/approval include a statement to that effect. Address whether your organization has contracts that are Cost Accounting Standards (CAS) covered and if so, whether they are subject to full or modified CAS coverage.

- Accounting system
- Purchasing system

Certified “cost or pricing data” may be requested after selection for procurement contract awards of \$750,000 or greater, unless the Contracting Officer approves an exception from the requirement to submit cost or pricing data. (Reference FAR Part 15.403.)

4.C. Submission Details

4.C.1. Due Dates

See BAA General Information Section for proposal due dates and times.

4.C.2. Proposal Delivery

Proposals must be submitted electronically through the IARPA Distribution and Evaluation System (IDEAS). Offerors interested in providing a submission in response to this BAA must first register by electronic means in accordance with the instructions provided on the following web site: <https://iarpa-ideas.gov>. Offerors who plan to submit proposals for evaluation in the first round are strongly encouraged to register at least one week prior to the due date for the first round of proposals. Offerors who do not so register in advance do so at their own risk, and IARPA will not extend the due date for the first round of proposals to accommodate such offerors. Failure to register as stated will prevent the offeror’s submission of documents.

After registration has been approved, offeror’s should upload proposals, including Volume 1, Volume 2, scanned certifications and permitted additional information in ‘pdf’ format. Offerors are responsible for ensuring compliant and final submission of their proposals to meet the BAA submittal deadlines. Time management to upload and submit is wholly the responsibility of the offeror.

Upon completing the proposal submission the offeror will receive an automated confirmation email from IDEAS. Please forward that automated message to dni-iarpa-BAA-16-13@iarpa.gov. IARPA strongly suggests that the offeror document the submission of their proposal package by printing the electronic receipt (time and date stamped) that appears on the final screen following compliant submission of a proposal to the IDEAS website.

Proposals submitted by any means other than IDEAS (e.g., hand-carried, postal service, commercial carrier and email) will not be considered unless the offeror attempted electronic submission but was unsuccessful. Should an offeror be unable to complete the electronic submission, the offeror must employ the following procedure. The offeror must send an e-mail to dni-iarpa-BAA-16-13@iarpa.gov, prior to the first round proposal due date and time specified in the BAA, and indicate that an attempt was made to submit electronically but that the submission was unsuccessful. This e-mail must include contact information for the offeror. Following this email contact, additional guidance will be provided.

Proposals must be submitted by the time and date specified in the BAA in order to be assured of consideration during the first round of selections. IARPA may evaluate proposals received after this date until the closing date of the BAA. Selection remains contingent on proposal evaluation, program balance and availability of funds. Failure to comply with the submission procedures may result in the submission not being evaluated.

4.D. Funding Restrictions

Facility construction costs are not allowable under this activity. Funding may not be used to pay for commercialization of technology.

SECTION 5: PROPOSAL REVIEW INFORMATION

5.A. Technical and Programmatic Evaluation Criteria

The criteria to be used to evaluate and select proposals for this Program BAA are described in the following paragraphs. Because there is no common statement of work, each proposal will be evaluated on its own merits and its relevance to the Program goals rather than against other proposals responding to this BAA. The proposals will be evaluated on the basis of the evaluation criteria listed in this section 5.A, program balance, and availability of funds. The evaluation criteria of this section 5.A, in descending order of importance, are: Overall Scientific and Technical Merit, Effectiveness of Proposed Work Plan, Contribution and Relevance to the IARPA Mission and Program Goal, Relevant Expertise and Experience, and Resource Realism. Specifics about the evaluation criteria are provided below, in descending order of importance.

Award(s) will be made to offerors on the basis of the evaluation criteria listed below in paragraphs 5.A.1 through 5.A.5, program balance, and availability of funds and subject to successful negotiations with the Government. Award recommendations will not be made to offeror(s) whose proposal(s) are determined not to be selectable. Offerors are cautioned that evaluation ratings may be lowered or proposals rejected if submission instructions are not followed.

5.A.1. Overall Scientific and Technical Merit

Overall scientific and technical merit of the proposal is substantiated, including unique and innovative methods, approaches, and/or concepts. The offeror clearly articulates an understanding of the problem to be solved. The technical approach is credible, and includes a clear assessment of primary risks and a means to address them. The proposed research advances the state-of-the-art.

5.A.2. Effectiveness of Proposed Work Plan

The feasibility and likelihood that the proposed approach will satisfy the Program's milestones and metrics are explicitly described and clearly substantiated along with risk mitigation strategies for achieving stated milestones and metrics. The proposal reflects a mature and quantitative understanding of the Program milestones and metrics, and the statistical confidence with which they may be measured. Any offeror-proposed milestones and metrics are clear and well-defined, with a logical connection to enabling offeror decisions and/or Government decisions. The schedule to achieve the milestones is realistic and reasonable.

The roles and relationships of prime and sub-contractors is clearly delineated with all participants fully documented. Work plans must demonstrate the ability to provide full Government visibility into and interaction with key technical activities and personnel, and a single point of responsibility for contract performance. Work plans must also demonstrate that key personnel have sufficient time committed to the Program to accomplish their described Program roles.

The requirement for and the anticipated use or integration of Government resources, including but not limited to all equipment, facilities, information, etc., is fully described including dates when such Government Furnished Property (GFP), Government Furnished Equipment (GFE), Government Furnished Information (GFI) or other similar Government-provided resources will be required.

The offeror's proposed intellectual property and data rights are consistent with the Government's need to be able to effectively manage the program and evaluate the technical output and deliverables, communicate program information across Government organizations and support transition and further use and development of the program results to Intelligence Community users at an acceptable cost. The proposed approach to intellectual property rights is in the Government's best interest.

5.A.3. Contribution and Relevance to the IARPA Mission and Program Goal

The proposed solution meets the letter and intent of the stated program goals and all elements within the proposal exhibit a comprehensive understanding of the problem. The offeror clearly addresses how the proposed effort will meet and progressively demonstrate the Program goals. The offeror describes how the proposed solution contributes to IARPA's mission to invest in high-risk/high-payoff research that can provide the U.S. with an overwhelming intelligence advantage over its future adversaries.

5.A.4. Relevant Experience and Expertise

The offeror's capabilities, related experience, facilities, techniques, or unique combination of these, which are integral factors for achieving the proposal's objectives, will be evaluated, as well as qualifications, capabilities, and experience of the proposed principal investigator, team leader, and key personnel critical in achieving the proposal objectives. Time commitments of key personnel must be sufficient for their proposed responsibilities in the effort.

5.A.5. Resource Realism

The proposed resources are well justified and consistent with the unique technical approach and

methods of performance described in the offeror's proposal. Proposed resources reflect a clear understanding of the project, a perception of the risks and the ability to organize and perform the work. The labor hours and mix are consistent with the technical and management proposal and are realistic for the work proposed. Material, equipment, software, data collection and travel, especially foreign travel, are well justified, reasonable, and required for successful execution of the proposed work.

5.B. Method of Evaluation and Selection Process

IARPA's policy is to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy and programmatic goals. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

IARPA will only review proposals against the evaluation criteria described under section 5.A above, program balance, and availability of funds, and will not evaluate them against other proposals, since they are not submitted in accordance with a common work statement. For evaluation purposes, a proposal is the document described in Sections 4.A and 4.B. Other supporting or background materials submitted with the proposal will not be considered. Only Government personnel will make evaluation and award determinations under this BAA. Selections for award will be made on the basis of the evaluation criteria listed in paragraphs 5.A.1 through 5.A.5, program balance and the availability of funds. Selections for award will not be made to offeror(s) whose proposal(s) are determined to be not selectable.

5.C. Negotiation and Contract Award

Award of a contract is contingent on successful negotiations. After selection and before award, the contracting officer will determine cost/price realism and reasonableness, to the extent appropriate, and negotiate the terms of the contract.

The contracting officer will review anticipated costs, including those of associate, participating organizations, to ensure the offeror has fully analyzed the budget requirements, provided sufficient supporting cost/price information, and that cost data are traceable and reconcilable. Additional information and supporting data may be requested.

If the parties cannot reach mutually agreeable terms, a contract will not be awarded.

5.D. Proposal Retention

Proposals will not be returned upon completion of the source selection process. The original of each proposal received will be retained at IARPA and all other non-required copies will be destroyed. A certification of destruction may be requested, provided that the formal request is sent to IARPA via e-mail within 5 days after notification of proposal results.

SECTION 6: AWARD ADMINISTRATION INFORMATION

6.A. Award Notices

As soon as practicable after the evaluation of a proposal is complete, the offeror will be notified

that: (1) its proposal has been selected for negotiations, or, (2) its proposal has not been selected for negotiations.

6.B. Administrative and National Policy Requirements

6.B.1. Proprietary Data

It is the policy of IARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the offeror's responsibility to clearly define to the Government what the offeror considers proprietary data.

6.B.2. Intellectual Property

6.B.2.a. Noncommercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting a procurement contract shall identify in Volume 1, Attachment 2 of the proposal all noncommercial technical data and noncommercial computer software that it plans to generate, develop and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables, the basis for such restrictions, the potential cost to the Government to acquire GPR in all deliverables incorporating such noncommercial technical data and computer software, and the intended use of the technical data and noncommercial computer software in the conduct of the proposed research and development of applicable deliverables. If offerors intend to incorporate noncommercial, proprietary technical data or computer software into any deliverable, offerors should provide in Volume 1, Attachment 2 of their proposals all of the information regarding such proprietary technical data or computer software as described in sections 4.B.1.c.D and 4.B.1.c.E of this BAA.

In the event that offerors do not submit such information, the Government will assume that it automatically has unlimited rights to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed and/or delivered under any award instrument, then offerors should identify the data and software in question and that the Government will receive GPR in such data and software. The Government will automatically assume that any such GPR restriction is limited to a period of five years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. A sample format for complying with this request is shown in APPENDIX G. If no restrictions are intended, then the offeror should state "NONE."

Offerors are advised that the Government will use this information during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror's assertions.

For all technical data and computer software that the offeror intends to deliver with other than unlimited rights that are identical or substantially similar to technical data and computer software that the offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract, the offeror shall identify the contract number under which the data, software, or documentation were produced; the contract number under which, and the name and address of the organization to whom, the data and software were most recently delivered or will be delivered; and any limitations on the Government's rights to use or disclose the data and software, including, when applicable, identification of the earliest date the limitations expire.

The Government reserves the right to reject a proposal if it does not appropriately address all data issues.

6.B.2.b. Commercial Items (Technical Data and Computer Software)

Offerors shall identify in Section 4 (Attachment 2, template provided as APPENDIX G) of its proposal all commercial technical data and commercial computer software that may be incorporated in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event that offerors do not submit the list, the Government will assume that there are no restrictions on the Government's use of such commercial items. The Government may use the list during the source selection evaluation process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror's assertions. A sample format for complying with this request is shown in APPENDIX G. If no restrictions are intended, then the offeror should state "NONE."

6.B.2.c. All Offerors – Patents

Include documentation using the format provided in APPENDIX G, proving ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under the proposal for the IARPA program. If a patent application has been filed for an invention that the proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, the offeror may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: (1) a representation that the offeror owns the invention, or (2) proof of possession of appropriate licensing rights in the invention.

If offerors intend to incorporate patented technology into any deliverable, i.e., if offerors intend for any deliverable to embody any invention covered by any patent or patent application the offerors list in APPENDIX G, offerors should also provide in Volume 1, Attachment 2 of their proposals all of the information described in section 4.B.1.c.E of this BAA.

6.B.2.d. All Offerors – Intellectual Property Representations

The offeror shall provide a good faith representation that they either own or possess appropriate licensing rights to all other intellectual property that will be utilized under their proposal for the program.

6.B.3 Human Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subjects protection, namely 45 CFR Part 46, *Protection of Human Subjects* (<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>)

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subjects protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subjects research, to include subcontractors, must also have a valid Assurance. In addition to a local IRB approval, IARPA will review and approve the HSR documentation before HSR may begin. However, IARPA does not require a secondary review by a Government IRB.

For all proposed research that will involve human subjects, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) with the final proposal submission to IARPA as outlined in the management plan. (Reference section 4.B.1.c.I.)The IRB conducting the review must be the IRB identified on the institution's Assurance. The informed consent document must comply with federal regulations (45 CFR Part 46).

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. No IARPA funding can be used towards human subjects research until ALL approvals are granted.

In limited instances, human subjects research may be exempt from Federal regulations for human subjects protection, for example, under Department of Health and Human Services, 45 CFR 46.101(b). Offerors claiming that their research falls within an exemption from Federal regulations for human subjects protection must provide written documentation with their proposal that cites the specific applicable exemption and explains clearly how their proposed research fits within that exemption.

6.B.4 Animal Use

If an offeror plans to use animal subjects as a substitute for humans for learning activities from video, then the proposal should explain how data collection and research will comply with all applicable laws and regulations governing animal subject research.

6.B.5. Publication Approval

It is anticipated that research funded under this Program will be unclassified research that will not require a pre-publication review. However, performers should note that pre-publication approval of certain information may be required if it is determined that its release may result in the disclosure of sensitive intelligence information. A courtesy soft copy of any work submitted for publication must be provided to the IARPA Program Manager and the Contracting Officer Representative (COR) a minimum of 5 days prior to release in any forum.

6.B.6. Export Control

(1) The offeror shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 C.F.R. Parts 120 through 130, and the Export Administration Regulations (EAR), 15 C.F.R. Parts 730 through 799, in the performance of this contract. In the absence of available license exemptions/exceptions, the offeror shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of (including deemed exports) hardware, technical data, and software, or for the provision of technical assistance.

(2) The offeror shall be responsible for obtaining export licenses, if required, before utilizing non-U.S. persons (as defined in the ITAR and EAR, as applicable) in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including technical data or software.

(3) The offeror shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

(4) The offeror shall appropriately mark all contract deliverables controlled by ITAR and/or EAR.

(5) The offeror shall be responsible for ensuring that the provisions of this section apply to its sub-contractors.

(6) The offeror may be required to certify knowledge of and intended adherence to these requirements in the representations and certifications of the contract.

6.B.7. Subcontracting

It is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as sub-contractors to contractors performing work or rendering services as prime contractors or sub-contractors under Government contracts and to assure that prime contractors and sub-contractors carry out this policy. Each offeror that is selected for negotiation for award and is expected to be awarded a contract which exceeds the simplified acquisition threshold may be asked to submit a sub-contracting plan before award in accordance with FAR 19.702(a) (1). The plan format is outlined in FAR 19.704.

Offerors must declare teaming relationships in their proposals and must specify the type of teaming arrangement in place, including any exclusive teaming arrangements. IARPA neither promotes nor discourages the establishment of exclusive teaming agreements within offeror teams. Individuals or organizations associated with multiple teams must take care not to over-commit those resources being applied.

6.B.8. Reporting

Fiscal and management responsibility are important to the Program. Although the number and types of reports will be specified in the award document, all performers will, at a minimum, provide the Contracting Office, Contracting Officer Representative and the Program Manager with monthly technical reports and monthly financial reports. The reports shall be prepared and

submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Technical reports will describe technical highlights and accomplishments, priorities and plans, issues and concerns, evaluation results, and future plans. Financial reports will present an on-going financial profile of the project, including total project funding, funds invoiced, funds received, funds expended during the preceding month, and planned expenditures over the remaining period. Additional reports and briefing material may also be required, as appropriate, to document progress in accomplishing program metrics.

The performer will prepare and provide a research report of their work annually by month 12. The reports shall be delivered to the Contracting Officer, Contracting Officer Representative and the Program Manager. The reports will include:

- Problem definition
- Findings and approach
- System design
- Possible generalization(s)
- Information on performance limitations and potential mitigation
- Anticipated path ahead
- Final identification of all commercial, third-party, or proprietary hardware, software, or technical data integrated into any deliverable and all applicable use restrictions.

6.B.9. System for Award Management (SAM)

Selected offerors not already registered in the Systems for Award Management (SAM) may be required to register in SAM prior to any award under this BAA. Information on SAM registration is available at <http://www.sam.gov>.

6.B.10. Representations and Certifications

Selected offerors may be required to complete electronic representations and certifications at <http://www.sam.gov> and may also be required to complete additional representations and certifications prior to award.

6.B.11. Lawful Use and Privacy Protection Measures

All data gathered by the performer must be obtained in accordance with U.S. laws and in compliance with the End User License Agreement, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Before using such data, the performer must provide proof that the data was acquired in accordance with U.S. laws and regulations.

6.B.12. Public Access To Results

IARPA is committed to making the results of this research available and maximally useful to the public, industry, government, and the scientific community, in accordance with the policy set forth in the White House Office of Science and Technology Policy’s memorandum “Increasing Access to the Results of Federally Funded Scientific Research,” dated February 22, 2013⁵,

⁵ https://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp_public_access_memo_2013.pdf

consistent with all other applicable law and policy; agency mission; resource constraints; and U.S. national, homeland, and economic security.

Awardees will be required to submit to IARPA the final version of peer-reviewed publication manuscripts related to research funded under awards made under this BAA. Awardees will be required to authorize IARPA to release these manuscripts to the public no later than twelve (12) months after the manuscript's official publication date in a journal or other publication. In addition, IARPA intends to make unclassified data sets, samples, and other supporting materials developed or delivered under awards available to the public, unless IARPA stipulates otherwise or to the extent that such public release would compromise the ability to file for intellectual property protection on any invention arising from the data.

Insofar as possible, all data produced for DIVA, all reports to IARPA, and all DIVA-based publications must follow the suggestions of the Center for Open Science. Insofar as possible, all DIVA publications should qualify for Open Science's⁶ Open Data and Open Materials badges.

To the extent possible, all awardee reports to IARPA and all DIVA-based publications should be consistent with the statistical and methodological requirements for publication found in the 2014 Psychological Science editorial "Not Business as Usual"⁷. For example, wherever appropriate, effect sizes and confidence intervals (or the Bayesian equivalents) should be reported, and the data and methodology must be presented so that it is easily used for meta-analysis and independent re-analysis of the data. All offerors are encouraged to include statisticians and methodologists who are expert in these areas. All offerors must describe the plans to ensure that the above requirements are satisfied.

6.B.13. Cloud Compatibility

Software deliverables must be deployable to cloud platforms for testing and must be approvable for production use in the cloud. Technical approaches should generally avoid the following: requiring high-performance, special-purpose, or excessive quantities of virtual hardware not readily available in the cloud; requiring an obscure operating system, middleware, or plug-in code not readily available for use in the cloud or on the desktops used to access the cloud; leveraging inherently risky protocols, e.g., Telnet, or software packages, e.g., FOCI-relevant; or including custom code that is not inspectable by Information System Security professionals.

⁶ Open Science (2013). Badges to acknowledge open practices.

<https://openscienceframework.org/project/TVyXZ/>

⁷ Psychological Science (2014) <http://pss.sagepub.com/content/25/1/3>

APPENDIX A

**Academic Institution Acknowledgement Letter
Template**

IARPA Broad Agency Announcement

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

-- Please Place on Official Letterhead --

<Insert date>

To: Contracting Officer
ODNI/IARPA
Office of the Director of National Intelligence
Washington, D.C. 20511

Subject: Academic Institution Acknowledgement Letter

Reference: Executive Order 12333, As Amended, Para 2.7

This letter is to acknowledge that the undersigned is the responsible official of <insert name of the academic institution>, authorized to approve the contractual relationship in support of the Office of the Director of National Intelligence's Intelligence Advanced Research Projects Activity and this academic institution.

The undersigned further acknowledges that he/she is aware of the Intelligence Advanced Research Projects Activity's proposed contractual relationship with <insert name of institution> through IARPA-BAA-16-13 and is hereby approved by the undersigned official, serving as the president, vice-president, chancellor, vice-chancellor, or provost of the institution.

<Name>
<Position>

Date

APPENDIX B

SAMPLE COVER SHEET

For

VOLUME 1: Technical/Management Details

BROAD AGENCY ANNOUNCEMENT (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

(1) BAA Number	IARPA-BAA-16-13
(2) Technical Area	
(3) Lead Organization Submitting Proposal	
(4) Type of Business, Selected Among the Following Categories: "Large Business", "Small Disadvantaged Business", "Other Small Business", "HBCU", "MI", "Other Educational", or "Other Nonprofit"	
(5) Contractor's Reference Number (if any)	
(6) Other Team Members (if applicable) and Type of Business for Each	
(7) Proposal Title	
(8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(10) Volume 1 no more than the specified page limit	Yes/No
(11) Restrictions on Intellectual property rights details provided in APPENDIX G format?	Yes/No
(12) OCI Waiver Determination, Notification or Certification [see Section 3.A.1] Included?	Yes/No
(12a) If No, is written certification included (APPENDIX D)?	Yes/No
(13) Are one or more U.S. Academic Institutions part of your team?	Yes/No
(13a) If Yes, are you including an Academic Institution Acknowledgement Statement with your proposal for each U.S. Academic Organization that is part of your team (Appendix A)?	Yes/No

(14) Total Funds Requested from IARPA and the Amount of Cost Share (if any)	\$
(15) Date Proposal as Submitted.	

APPENDIX C

SAMPLE COVER SHEET

For

VOLUME 2: Cost Proposal

BROAD AGENCY ANNOUNCEMENT (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

(1) BAA Number	IARPA-BAA-16-13
(2) Technical Area	
(3) Lead organization submitting proposal	
(4) Type of Business, Selected Among the Following Categories: "Large Business", "Small Disadvantaged Business", "Other Small Business", "HBCU", "MI", "Other Educational", or "Other Nonprofit"	
(5) Contractor's Reference Number (if any)	
(6) Other Team Members (if applicable) and Type of Business for Each	
(7) Proposal Title	
(8) Technical Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(9) Administrative Point of Contact to Include: Title, First Name, Last Name, Street Address, City, State, Zip Code, Telephone, Fax (if available), Electronic Mail (if available)	
(10) Contract type/award Instrument Requested: specify	
(11) Place(s) and Period(s) of Performance	
(12) Total Proposed Cost Separated by Basic Award and Option(s) (if any)	
(13) Name, Address, Telephone Number of the Offeror's Defense Contract Management Agency (DCMA) Administration Office or Equivalent Cognizant Contract Administration Entity, if Known	
(14) Name, Address, Telephone Number of the Offeror's Defense Contract Audit Agency (DCAA) Audit Office or Equivalent Cognizant Contract Audit Entity, if Known	
(15) Date Proposal was Prepared	
(16) DUNS Number	
(17) TIN Number	
(18) CAGE Code	
(19) Proposal Validity Period [minimum of 180 days]	

(20) Cost Summaries Provided (APPENDIX E and APPENDIX F)	
(21) Size of Business in accordance with NAICS Code 541712	

APPENDIX D

Letter Template

For

**Organizational Conflicts of Interest Certification Letter
Template**

IARPA Broad Agency Announcement (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

(Month DD, YYYY)

Office of the Director of National Intelligence
Intelligence Advanced Research Projects Activity (IARPA)
Deep Intermodal Video Analytics (DIVA)
ATTN: Terrence Adams
Washington, DC 20511

Subject: OCI Certification

Reference: Deep Intermodal Video Analytics (DIVA), IARPA-BAA-16-13, (Insert assigned proposal ID#, if received)

Dear Dr. Adams,

In accordance with IARPA Broad Agency Announcement IARPA-BAA-16-XX, Section 3.A.1, *Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest (OCI)*, and on behalf of (offeror name) I certify that neither (offeror name) nor any of our subcontractor teammates has as a potential conflict of interest, real or perceived, as it pertains to the Deep Intermodal Video Analytics (DIVA) program.

If you have any questions, or need any additional information, please contact (Insert name of contact) at (Insert phone number) or (Insert e-mail address).

Sincerely,

(Insert organization name) (Must be signed by an official that has the authority to bind the organization)

(Insert signature)

(Insert name of signatory)

(Insert title of signatory)

APPENDIX E

Sample Prime Contractor Cost Element Sheet

For

VOLUME 2: Cost Proposal

IARPA Broad Agency Announcement (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

PRIME CONTRACTOR COST ELEMENT SHEET [SAMPLE]					
Complete a Cost Element Sheet for the Base Period and <u>each</u> Option Period					
COST ELEMENT	BASE	RATE	AMT		
DIRECT LABOR (List each labor category separately. Identify Key Personnel by name.)	# of Hours	\$	\$		
TOTAL DIRECT LABOR			\$		
FRINGE BENEFITS	\$	%	\$		
TOTAL LABOR OVERHEAD	\$	%	\$		
SUBCONTRACTORS, IOTS, CONSULTANTS (List separately. See below table.)			\$		
MATERIALS & EQUIPMENT (List each material and equipment item separately.)	Quantity	\$ unit price	\$		
SOFTWARE & INTELLECTUAL Property (List separately. See table below.)	\$	\$	\$		
TOTAL MATERIALS & EQUIPMENT			\$		
MATERIAL OVERHEAD	\$	%	\$		
TRAVEL (List each trip separately.)	# of travelers	\$ price per traveler	\$		
TOTAL TRAVEL			\$		
OTHER DIRECT COSTS (List each item separately.)	Quantity	\$ unit price	\$		
TOTAL ODCs			\$		
G&A	\$	%	\$		
SUBTOTAL COSTS			\$		
COST OF MONEY	\$	%	\$		
TOTAL COST			\$		
PROFIT/FEE	\$	%	\$		
TOTAL PRICE/COST			\$		
GOVERNMENT SHARE, IF APPLICABLE			\$		
RECIPIENT SHARE, IF APPLICABLE			\$		
SUBCONTRACTORS/INTERORGANIZATIONAL TRANSFERS (IOT) & CONSULTANTS PRICE SUMMARY					
A	B	C	D	E	F
SUB-CONTRACTOR IOT & CONSULTANT NAME	SOW TASKS PERFORMED *	TYPE OF AWARD	SUB-CONTRACTOR, IOT & CONSULTANT QUOTED PRICE	COST PROPOSED BY PRIME FOR THE SUBCONTRACTOR, IOT & CONSULTANT	DIFFERENCE (Column D - Column E) IF APPLICABLE

TOTALS					
*Identify Statement of Work, Milestone or Work Breakdown Structure paragraph, or provide a narrative explanation as an addendum to this Table that describes the effort to be performed.					

Software and Intellectual Property Costs		
Item	Cost	Date of Expiration
(List)		

NOTE: Educational institutions and non-profit organizations as defined in FAR part 31.3 and 31.7, respectively, at the prime and subcontractor level may deviate from the cost template in APPENDIX E and APPENDIX F when estimating the direct labor portion of the proposal to allow for OMB guided accounting methods that are used by their institutions. The methodology must be clear and provide sufficient detail to substantiate proposed labor costs. For example, each labor category must be listed separately; identify key personnel, and provide hours/rates or salaries and percentage of time allocated to the project.

APPENDIX F

Sample Subcontractor Cost Element Sheet

For

VOLUME 2: Cost Proposal

IARPA Broad Agency Announcement (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

SUBCONTRACTOR COST ELEMENT SHEET [SAMPLE]			
Complete a Cost Element Sheet for each applicable period			
COST ELEMENT	BASE	BURDENED RATE	AMT
DIRECT LABOR (List each labor category separately. Identify Key Personnel by name.)	# hrs	\$	\$
TOTAL DIRECT LABOR			\$
SUBCONTRACTORS, IOTS, CONSULTANTS			\$
MATERIALS & EQUIPMENT (List each material and equipment item separately.)	qty	\$ unit price	\$
TOTAL MATERIALS & EQUIPMENT			\$
TRAVEL (list each trip separately)	# of travelers	\$ price per traveler	\$
TOTAL TRAVEL			\$
OTHER DIRECT COSTS (List each item separately.)	qty	\$ unit price	\$
TOTAL OTHER DIRECT COSTS			\$
TOTAL PRICE/COST			\$

Software and Intellectual Property Costs		
Item	Cost	Date of Expiration
(List)		

NOTE: Educational institutions and non-profit organizations as defined in FAR part 31.3 and 31.7, respectively, at the prime and subcontractor level may deviate from the cost template in APPENDIX E and APPENDIX F when estimating the direct labor portion of the proposal to allow for OMB guided accounting methods that are used by their institutions. The methodology must be clear and provide sufficient detail to substantiate proposed labor costs. For example, each labor category must be listed separately; identify key personnel, and provide hours/rates or salaries and percentage of time allocated to the project.

APPENDIX G

Restrictions on Intellectual Property Rights

For

VOLUME 1: Technical and Management Proposal

IARPA Broad Agency Announcement (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

Noncommercial Items (Technical Data and Computer Software)

NONCOMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

Description of restrictions on Government’s ability to use, modify, reproduce, release, perform, display, or disclose technical data, computer software, and deliverables incorporating technical data and computer software listed above:

Potential cost to the Government to acquire GPR in all deliverables incorporating the technical data and computer software listed above:

Intended use of the technical data and computer software listed above in the conduct of the proposed research:

Commercial Items (Technical Data and Computer Software)

COMMERCIAL ITEMS			
Technical Data, Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

Patents

PATENTS			
Patent number (or application number)	Patent name	Inventor name(s)	Patent owner(s)
(LIST)	(LIST)	(LIST)	(LIST)

APPENDIX H

Templates for Three Chart Summary of the Proposal

For

VOLUME 1: Technical and Management Proposal; Section 2

IARPA Broad Agency Announcement (BAA)

**Deep Intermodal Video Analytics
(DIVA)**

(IARPA-BAA-16-13)

Chart 1: Overview

- Self-contained, intuitive description of the technical approach and performance
 - Avoid acronyms! Especially those that are contractor specific.

Chart 2: Key Innovations

- Innovation 1
- Innovation 2
- Innovation 3

Graphics / Data

Chart 3: Expected Impact

- Deliverable 1; Performance and Impact
- Deliverable 2; Performance and Impact
- Unique aspects of the proposal