

Methodology for I-BPA Award and Dispatch Priority

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Methodology for I-BPA Award and Dispatch Priority

Purpose:

This document explains the process of developing the Choosing by Advantages (CBA) methodology used in preseason Incident Blanket Purchase Agreements (I-BPAs) and provides a historical reference for past solicitations.

The CBA methodology was adopted by agency experts representing Acquisition Management (AQM) and Fire and Aviation Management (FAM) as a means of evaluating equipment offered for use on incidents by not only price but also equipment attributes. CBA was first implemented in 2007 for water handling equipment. Beginning with the 2008 solicitations, the Contract Equipment Task Team (CETT) developed and recommended attributes and advantage points for equipment scheduled for solicitation each year. The CETT was chartered under the direction of the National Wildfire Coordinating Group (NWCG) Equipment Technology Committee (ETC), formerly known as the Fire Equipment Working Team (FEWT). The original committee as well as the CETT membership is listed in Appendix C.

Process of Methodology:

The methodology is a two step process.

STEP 1: Award the Incident Blanket Purchase Agreement (I-BPA) using a reasonable price/technically acceptable method. I-BPAs will be awarded to those vendors who offer a fair and reasonable price as determined by the Contracting Officer. In addition, the vendor must “pass” the following equipment and personnel requirements:

- Equipment meets the minimum specifications and quality standards
- Key personnel possess the minimum training qualifications
- Vendor has acceptable past performance

STEP 2: Rank the equipment on awarded I-BPAs on a dispatch priority list (DPL). All equipment on an awarded I-BPA will be ranked individually on the DPL according to the advantages the equipment has to offer. The vendor will provide their equipment information when submitting an offer in response to a solicitation. This information will be validated by the Contracting Officer, or their assistant(s), prior to awarding an I-BPA.

Each type of equipment has identified criteria that are important to the agency. Each criterion has a “relative importance” when compared to the other criteria for that equipment type, and has multiple attributes. A point value is assigned to each attribute of that criterion. The attribute point value multiplied by the criterion’s relative importance provides the advantage points for that equipment criterion. When points are assigned to all advantages of all equipment, they are added to obtain the total advantage points for the equipment. Each point total is divided by the price for that equipment, resulting in “*Total Advantage per Dollar of Cost*”. It may not be the cheapest price, it may not be the best equipment, but it will show the greatest advantage to the Government. Those pieces of equipment offering the greatest

advantage in relation to price (highest total advantage per dollar) will be ranked highest on the DPL. As stated previously, for some equipment there were no advantage points identified, price was the only factor.

This method is based on the principle of “Choosing by Advantages” (CBA), a well-tested and widely used decision making process the Forest Service utilizes extensively, as do other government agencies and private industry. In concept, the process is simple and accurate: “Decisions must be based on the importance of advantages.” (See Appendix B for background of the Choosing by Advantages process)

Inspections - If a preseason inspection is accomplished by the Government, equipment advantages listed by the vendor on the resource category form will be validated for each piece of equipment being offered. The DPL will be used to systematically mobilize, in priority order, specific vendors/equipment from the “pool” of contractors deemed to have acceptable prices and to be technically acceptable. In anticipation that there will be a range in equipment quality and various prices offered, the Forest Service has developed a method for assessing advantages that will be simple to assemble and use, fair, and defensible. An example of this method is listed below.

Example of Choosing by Advantages: Engines

Consider Three Type 6 Engines:

- **Engine 1** is a new engine (excellent condition), hauling 200 gallons, with a siphon foam applicator, and pump performance evaluated as excellent, offered by the vendor at \$2,300 / day.
- **Engine 2** is a three-year old engine in good condition with a 350 gallon tank and an automatic foam applicator, with good pump performance, offered by the vendor at \$2,000 / day.
- **Engine 3** is a 10-year old engine in good condition with a 300 gallon tank, a siphon foam system, and good pump performance, offered by the vendor at \$1,200 / day.

Using the Table Above, Calculate the Advantage Points Per Dollar for Each Engine:

1) By the above table, it is easy to determine that Engine #1 has a total **advantage point value** of 100 points (20+0+50+0+30). Assuming the Vendor is really proud of this investment and charges \$ 2,300 per day, the advantage/\$ = 100/\$2,300 = 0.0435 advantage points per dollar.

2) Similarly, Engine #2 has 94 advantage points, and an advantage point/dollar ratio of 94/ \$2,000 = 0.0470. It would then be in the government’s best interest to select the second engine over the first.

3) Finally, Engine #3 has an advantage point / dollar ratio of 55/\$1,200 = 0.0458. This engine falls between the first two engines in terms of advantages provided (value) per dollar spent. These examples are summarized below.

Engine	Advantage Points	Cost	Advantage Points per Dollar	Ranking
1	100	\$ 2,300	0.0435	3
2	94	\$ 2,000	0.0470	1
3	55	\$ 1,200	0.0458	2

Clearly, it is not necessarily in the government's best interest to select either the lowest price equipment or the newest equipment. The methodology developed here will easily rank equipment based on (1) important characteristics necessary to meet the government's requirements and (2) the cost to the government to receive those characteristics. The result is that engine 2, ranked # 1 using CBA, is in fact the ***greatest advantage*** to the government.

The committee is aware the maximum point values for each of the factors are 20, 10, 50, and 30 for Age, Foam Application System, Mechanical Condition, and Gallons Hauled, respectively. Accordingly, it can be said with confidence, that the importance of Age is twice that of the Foam Application System, the Mechanical Condition is five times as important, and Gallons Hauled is three times more important. Also, if each attribute is assigned a point value between one and ten and then multiplied by the importance factor (between one and five), an identical table would be generated.

Appendix A explains in more detail the criterion that was used to determine the attributes to include the advantage points if applicable, for each of the equipment categories included on the [National Solicitation Plan for I-BPAs](#). For some equipment categories, price was the only criteria. Equipment categories are categorized by the year they were solicited for and summarized below:

2007 Solicitations:

- Engines
- Support Water Tender
- Tactical Water Tender

2008 Solicitations:

- Single Faller and Faller Module
- GIS Unit
- Clerical Support Unit
- Tent
- Refrigerated Trailer
- Mechanic with Service Truck

2009 Solicitations:

- Mobile Laundry
- Portable Toilet, Portable Handwashing Station, and Wheelchair Accessible Portable Toilet
- Potable Water, Gray Water, and Trailer Mounted Handwashing Station
- Heavy Equipment (Dozer, Excavator, Tractor Plow, and Transport)*

*The Heavy Equipment solicitation was piloted in Region 8 in 2009 and 2010 for possible inclusion in the National Solicitation Plan for the 2011 season.

2010 Solicitations:

- Heavy Equipment with Water (Skidgines, Pumper Cats, and Softtracks)
- Water Handling (Engines, Type 3-6; Support Water Tender, Type 1-3; and Tactical Water Tender, Type 1-2)

2011 Solicitations:

- Weed Washing Unit
- Communications Trailer
- Bus, Crew Carrier*
- Heavy Equipment (Dozer, Excavator, Tractor Plow, and Transport)
- Fuel Tender
- Vehicle with Driver
- Trailer, Helicopter Operations Support

*Bus, Crew Carrier was originally solicited for in 2010, but because of protest, solicitation was extended and awarded in 2011)

Appendix A: CBA Methodology

2007 Solicitation

Engines – Support Water Tenders – Tactical Water Tenders

EQUIPMENT BEING EVALUATED: Engines

Criteria	Attributes	Value	Importance Factor	Advantage Points
Age	10+years	0	2	0
	9 years	1		2
	8 years	2		4
	7 years	3		6
	6 years	4		8
	5 years	5		10
	4 years	6		12
	3 years	7		14
	2 years	8		16
	1 years	9		18
	Current Year	10		20
Foam Application System	Siphon	0	1	0
	Manually Adjustable	5		5
	Automatic Adjustment	10		10
Mechanical Condition (See Page 13)	Acceptable	0	5	0
	Good	5		25
	Excellent	10		50
Gallons Hauled Type 6	150-225	0	3	0
	226-300	5		15
	301-399	10		30
Gallons Hauled Type 5	400-500	0	3	0
	501-625	5		15
	626-749	10		30
Gallons Hauled Type 4	750-850	0	3	0
	851-999	5		15
	1000-1200	10		30
Gallons Hauled Type 3	500-599	0	3	0
	600-749	5		15
	750-1000	10		30
Pump performance Type 4,5,6 (See Page 18)	Acceptable	0	3	0
	Good	5		15
	Excellent	10		30
Pump performance Type 3 (See Page 18)	Acceptable	0	3	0
	Good	5		15
	Excellent	10		30

NOTE: A CBA purist will note that point values overlap, when typically they would not (i.e. 10 points for a 5 year old engine and 10 points for an automatic adjustment foam application system). In the pure CBA process, one of these advantages would be considered more important than the other, and assigned more points (even if it is only one additional point). Because the intent of our process is to allow one person (rather than a CBA panel) to quickly evaluate a lot of equipment, we considered this minor deviation acceptable.

EQUIPMENT BEING EVALUATED: Support Water Tender

Criteria	Attributes	Value	Importance Factor	Advantage Points
Age	16+ years	0	1	0
	12 years to 15 years	1		1
	8 years to 11 years	3		3
	4 years to 7 years	6		6
	Current year to 3 years	10		10
Suspension	Air Bag	0	2.5	0
	Walking Beam or Single Rear Axle	10		25
Mechanical Condition	Acceptable	0	5	0
	Good	5		25
	Excellent	10		50
Spray Bar Configuration	Gravity F or R	0	3	0
	Gravity F & R	3		9
	Pressure F or R	7		21
	Pressure F & R	10		30
Gallons Hauled Type 3	1000-1500	0	5	0
	1501-2000	5		25
	2001-2499	10		50
Gallons Hauled Type 2	2500-3000	0	5	0
	3001-3500	6		30
	3501-4000	8		40
	More than 4000	10		50
Gallons Hauled Type 1	Trailer >5000	0	5	0
	Single Unit > 5000	10		50

Support and Tactical Water Tenders were given values based on operational characteristics that would make the equipment more valuable for supporting fire fighting efforts. For Support Water Tenders, age was the least important factor followed by axle configuration (suspension), spray bar configuration, gallons hauled and mechanical condition. Gallons hauled and mechanical condition was given the most weight in the rating criteria because the task of delivering water to support fire operations is the most important.

Tactical Water Tenders were rated very similarly to Support Water Tenders with the exception of less value being placed on the ability to transport larger quantities of water. The committee decided that having a more maneuverable apparatus was more valuable than having the ability to transport more water (suspension was added as a criterion). Values were also given to monitors and foam, with monitors having more value than the foam device due to the tactical use of running attacks and being able to place large amounts of water at precise locations. Spray bar values were expanded to give more value to pressurized side sprays for use during running attack or wet lines to aid in burn out.

EQUIPMENT BEING EVALUATED: Tactical Water Tender

CBA: Simplifying Equipment Evaluation

Criteria	Attributes	Value	Importance Factor	Advantage Points
Age	16+ years	0	1	0
	12 years to 15 years	1		0
	8 years to 11 years	3		3
	4 years to 7 years	6		6
	Current year to 3 years	10		10
Foam Application System	Siphon	0	1	0
	Manually Adjustable	5		5
	Automatic Adjustment	10		10
Monitor	None	0	2	0
	Manual	5		10
	Remote	10		20
Suspension	Airbag	0	2.5	0
	Walking Beam or Single Rear Axle	10		25
All wheel drive	No	0	3	0
	Yes	10		30
Spray Bar Configuration	Gravity any combination	0	3	0
	Pressure F or R	3		9
	Pressure F & R	7		21
	Pressure F, R & Side	10		30
Mechanical Condition	Acceptable	0	5	0
	Good	5		25
	Excellent	10		50
Gallons Hauled Type 3	1000-1500	0	2	0
	1501-2000	5		10
	2001-2499	10		20
Gallons Hauled Type 2	2500-3000	0	2	0
	3001-3500	6		12
	3501-3999	8		16
	More than 4000	10		20

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The evaluation of many of the criterion in the tables above, (including age, foam application system, gallons hauled, suspension, and spray bar configuration, monitors, and all wheel drive) is evident after a quick inspection. Detailed criteria have been developed to ensure that the remaining criteria in the CBA analysis are easily quantifiable. The process for quantifying these criteria is explained in **Mechanical Condition Rating** and **Pump Performance Rating**. Mechanical Condition and Pump Performance are based on an independent inspection, using criteria published in the solicitation and included in these appendices.

The ultimate result is that no technical knowledge is required to assign point values to attributes of specific equipment. Given a spreadsheet or database with an input form for easy entry, two pieces or 2,000 pieces of equipment can be quickly, easily and accurately ranked from most value per dollar to least value per dollar by anyone.

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for engines and water tenders, and the relative advantages of the attributes that make up each criterion.

Criteria	Attributes	Advantage	Criterion Advantage
Age (Engines)	10+years	None	Age limit of 10 years is based on USFS historical data of engine replacement cycles and is based on the year-model on the registration certificate. Past experience demonstrates that newer equipment is less problematic and more efficient.
	9 years	1+ years newer	
	8 years	2+ years newer	
	7 years	3+ years newer	
	6 years	4+ years newer	
	5 years	5+ years newer	
	4 years	6+ years newer	
	3 years	7+ years newer	
	2 years	8+ years newer	
	1 years	9+ years newer	
	Current Year	10+ years newer	
Age (Tenders)	16+ years	None	Age limit of 16 years is based on USFS historical data of heavy truck replacement cycles and is based on the year-model on the registration Past experience demonstrates that newer equipment is less problematic and more efficient.
	12 years to 15 years	1-4 years newer	
	8 years to 11 years	5-8 years newer	
	4 years to 7 years	9-12 years newer	
	Current year to 3 years	13-16 years newer	
Foam Application System	None (R6 only)	None	Automatic application systems maintain a more accurate range of foam concentrate flow, improving performance and economy compared to manual system and siphon systems.
	Siphon	Little Control	
	Manually Adjustable	Manual Control	
	Automatic Adjustment	Automatic	
Mechanical Condition	Acceptable	Marginal Condition- Expect Some Breakdowns	Past experience demonstrates that equipment in better mechanical condition breaks down less and is more reliable.
	Good	Fewer Breakdowns	
	Excellent	Like New Condition or Extremely well maintained	
Pump Performance	Acceptable	None	Wildland firefighting historically uses less volume and more pressure. Higher pressures allow firefighters to move water through hoses to locations further from the engine, which increases productivity.
	Good	Greater PSI	
	Excellent	Greatest PSI	

Methodology for I-BPA Award and Dispatch Priority

Criteria	Attributes	Advantage	Criterion Advantage
Suspension	Airbag	Not as stable over rough terrain	Large deviations in the road surface or terrain, such as unimproved Forest roads, can cause unstable load changes while driving, possibly creating a hazardous driving situation. Therefore, walking beam or single rear axle suspension is preferred.
	Walking Beam or Single Rear Axle	Suspension can flex or move and maintain a uniform load over each wheel which then promotes maximum traction on rough surfaces	
Spray Bar Configuration	Gravity F or R	Minimally acceptable	Gravity is acceptable for watering roads, but the coverage of the watering bar changes as the head pressure of the load increases or decreases. Pressurized water applications are easy to regulate and historically provide better coverage.
	Gravity F & R	More water, but variable coverage	
	Pressure F or R	Consistent coverage	
	Pressure F & R	Most acceptable - More water and consistent coverage	
Gallons Hauled	Low Capacity	Minimum Capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	Medium Capacity	Greater Capacity	
	Large Capacity	Greatest Capacity	
Monitor	None	None	Monitors may help knock down flames for a more direct attack. Remotely operated monitors are more responsive to running attack and can be aimed from the operators chair while seated in the cab which is preferred for safety reasons.
	Manual	Manual control	
	Remote	Remote control	
All Wheel Drive	No	None	All Wheel drive is a tactical advantage over two wheel drive vehicles due to the ability to travel over rougher terrain.
	Yes	Greater ability to travel on rough terrain	

Mechanical Condition Rating

Mechanical Condition Rating for Engines

Rating	Rating Criteria	Yes	No
Excellent	No visual leaks from main seals (Front and Rear).		
	Transmission/ transfer case (External housing is oil free).		
	Front and rear differentials are oil free.		
	All tires have 11/32" or greater tire tread depth.		
	Storage boxes are tightly secured. Equipment complement is readily accessible in compartments and/or tool boxes.		
	Vehicle has a maximum of 75,000 miles.		
	* 0 Safety Item deficiencies are noted on the <u>initial inspection</u> (See pre-award inspection form and notice below).		
Good	Seep may occur from a maximum of two main seals.		
	Transmission/Transfer case (external housing is not oil free, but cause no pooling of fluids).		
	Differentials are not oil free, but cause no pooling of fluids.		
	All tires have between 6/32" to 10/32" tire tread depth.		
	Storage boxes are tightly secured. Equipment complement is accessible in compartments and/or tool boxes. Organization of complement is minimal.		
	Vehicle has a maximum of 100,000 miles.		
	* 1-2 Safety Item deficiencies may be noted on the <u>initial inspection</u> (See pre-award inspection form and notice below)		
Acceptable	Main seals, transmission or differentials have drips with accumulation of dirt and pooling on the ground while vehicle is parked or running		
	Fire Apparatus meets minimum standards. Storage compartments are not sufficiently sized to hold all equipment or the bottom of any compartment is lower than the bottom of the rear differential. Complement and equipment is not readily found or retrieved due to poor organization.		
	Mileage exceeds 100,000		
	All tires have the between the minimum specified depth and 6/32" depth.		
	* 3+ Safety Item deficiencies may be noted on the <u>initial inspection</u> (See pre-award inspection form and notice below)		

- A seep is a wet area on any seal, and has light dust collected on the fluid.
- A leak is a wet area with fluid that is running down the housing but not pooling under vehicle.
- Pooling is a leak that is dripping more than a few drops of fluid during the inspection period. A pool larger than 2" diameter is not acceptable OR more than 10 drops in a minute is not acceptable and must be repaired prior to award.
- Tire tread requirements apply to the spare tire(s) as well as mounted tires.

NOTICE TO EQUIPMENT INSPECTORS AND VENDORS:
Any and all safety item deficiencies MUST be corrected prior to award.

Mechanical Condition Rating for Water Tenders

Rating	Rating Criteria	Yes	No
Excellent	No visual leaks from main seals (Front and Rear)		
	Transmission (External housing is oil free)		
	Front and rear differentials are oil free		
	All tires have 9/32" or greater tire tread depth		
	Storage boxes are tightly secured. Equipment complement is readily accessible in compartments and/or tool boxes		
	* 0 Safety Item deficiencies are noted on the <u>initial inspection</u> (See pre-award inspection form and notice below).		
Good	Seep may occur from a maximum of two main seals.		
	Transmission/Transfer case (external housing is not oil free, but cause no pooling of fluid).		
	Differentials are not oil free, but cause no pooling of fluids		
	All tires have between 6/32" to 8/32" tire tread depth.		
	Storage boxes are tightly secured. Equipment complement is accessible in compartments and/or tool boxes. Organization of complement is minimal.		
	* 1-2 deficiencies on Safety items noted on <u>initial inspection</u> (See pre-award inspection form and notice below)		
Acceptable	Main seals, transmission or differentials have drips with accumulation of dirt and some seeps or pooling on the ground while vehicle is parked or running		
	Storage compartments are not sufficiently sized to hold all equipment or the bottom of any compartment is lower than the bottom of the rear differential. Complement and equipment is not readily found or retrieved due to poor organization.		
	All tires have the between the minimum specified depth and 5/32" depth.		
	* 3+ deficiencies on Safety items noted on <u>initial inspection</u> (See pre-award inspection form and notice below)		

- **A seep is a wet area on any seal, and has light dust collected on the fluid.**
- **A leak is a wet area with fluid that is running down the housing but not pooling under vehicle.**
- **Pooling is a leak that is dripping more than a few drops of fluid during the inspection period. A pool larger than 2" diameter is not acceptable OR more than 10 drops in a minute is not acceptable and must be repaired prior to award.**
- **Tire tread requirements apply to the spare tire(s) as well as mounted tires.**

NOTICE TO EQUIPMENT INSPECTORS AND VENDORS:
Any and all safety item deficiencies MUST be corrected prior to award.

Determination of Equipment Mechanical Condition

The following table shows how the pre-award inspection marks determine the mechanical condition (Excellent, Good, or Acceptable), which is the attribute rated in the evaluation table.

Minimum Number of Positive Marks Required to Obtain Stated Overall Ratings			Maximum Safety Item Deficiencies to Obtain Stated Overall Ratings**		Maximum Number of Marks in Below Category to Reduce Overall Rating at Left One Level
Overall Rating	Positive (Yes) Marks		Engines	Water Tenders	
	Engines	Water Tenders			
Excellent	4	4	0	0	1 Acceptable
Good	4	4	2	2	2 Acceptable
Acceptable	3	3	3	3	

**** NOTICE TO EQUIPMENT INSPECTORS AND VENDORS:**
Maximum Safety Item Deficiencies to Obtain Stated Overall Ratings refers to deficiencies found during the initial inspection. Any and all safety item deficiencies MUST be corrected prior to award.

Pump Performance Rating

Pressure and Flow Testing of Pumps

Flow may be tested with a flow meter or a simple sharp edged orifice. A simple testing kit will contain a 1.5 inch threaded pipe cap for type 4-6 engines, while a 2.5 inch threaded cap will be used for type 3 engines. Testing devices will have a designated size opening cut through the center of the cap. Testing will be conducted as close to the pump as possible and the pump's pressure gauge may be used or an auxiliary testing gauge may be mounted in front of the sharp edged orifice.

The following flows will result:

.520 diameter sharp edged orifice:

<u>Pressure</u>	<u>Flow</u>
100 psi	50 gpm
125 psi	56 gpm
150 psi	61 gpm

.716 diameter sharp edged orifice:

<u>Pressure</u>	<u>Flow</u>
250 psi	150 gpm
312.5 psi	167 gpm
375 psi	183 gpm

The Resultant figures will be applied to the pump ratings as follows:

Type 3 Engines

Pressure measured with .716 diameter sharp edged orifice installed.

PSI	Rating
250 to 312 psi	Acceptable
312.5 to 374 psi	Good
375 psi or more	Excellent

Type 4, 5, 6 Engines

Pressure measured with a .520 diameter sharp edged orifice installed.

PSI	Rating
100 to 124 psi	Acceptable
125 to 149 psi	Good
150 psi or more	Excellent

2008 Solicitations

Single Faller and Faller Module – GIS Unit – Clerical Support Unit – Tent – Refrigerated Trailer – Mechanic with Service Truck

EQUIPMENT BEING EVALUATED: Single Faller and Faller Module

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate, with the lowest price being ranked highest on the DPL. Separate DPLs will be generated for single fallers and faller modules.

EQUIPMENT BEING EVALUATED: GIS Unit

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the DPL. Mobilization/demobilization and GIS Specialist rates will not be considered in the calculation.

EQUIPMENT BEING EVALUATED: Clerical Support Unit

Within each small business program category, priority will be given according to the lowest price using the following calculation considering both the daily rate and cost per copy offered (see calculation below), with the lowest price being ranked highest on the DPL. Plotted sheets, laminating, faxing, binding and mobilization/demobilization will not be included in the calculation.

B&W: $(8.5 \times 11 (\text{cost/copy}) \times 70\%) + (11 \times 17 (\text{cost/copy}) \times 30\%) \times 95\%$

Color: $(8.5 \times 11 (\text{cost/copy}) \times 70\%) + (11 \times 17 (\text{cost/copy}) \times 30\%) \times 5\%$

B&W + Color = Score

Price = (Score x 1000 x 70%) + (Daily Rate x 30%)

EQUIPMENT BEING EVALUATED: Tent

Within each small business program category, priority will be given according to the price offered for the type of resource. The following calculation will be used to determine the lowest price, with the lowest price being ranked highest on the DPL: (Daily Rate + Weekly Rate + Monthly Rate/38). The daily, weekly, monthly rate for Type 1 and 2 canopies will be calculated by adding the canopy (sf) and sidewall (lf) prices. Delivery/Pickup fee and optional items will not be considered in the calculation.

EQUIPMENT BEING EVALUATED: Refrigerated Trailer

Within each small business program category, priority will be given according to the price offered for the type of resource. The following calculation will be used to determine the lowest price, with the lowest price being ranked highest on the DPL. (Daily Rate + Weekly Rate + Monthly Rate/38). Separate priority lists will be generated for each Type of Refrigerated Trailer Unit.

EQUIPMENT BEING EVALUATED: Mechanic with Service Truck

Within each small business program category, priority will be based on the advantages the resource has to offer. Information on the advantages shall be submitted by the Contractor with their quote. A separate DPL will be generated for each type of mechanic.

The following criteria have been developed to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each resource's advantage are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the DPL. The following is a list of the advantages and associated points for each category. A complete breakdown is on the following page.

Mechanic with Service Truck Type 1

Factors	Attributes	Value	Importance Factor	Advantage Points**
Current ASE Certifications	Both Truck and Auto Master	10	5	50
	Truck Master Only	8		40
	Auto Master Only	7		35
	5 or more certificates	5		25
Vocational School or Manufacture Diesel/Heavy Equipment Mechanic certificate	Yes	10	7	70
	No	0		0
Experience in years Heavy Equipment	10+	10	8	80
	6 to 9	5		40
	3 to 5	0		0

Mechanic with Service Truck Type 2 & 3

Factors	Attributes	Value	Importance Factor	Advantage Points**
Current ASE Certifications	Both Truck and Auto Master	10	5	50
	Truck Master Only	8		40
	Auto Master Only	7		35
	5 or more certificates	5		25
Current EVT Certifications	Master	10	7	70
	Level II	8		56
	Level I	6		42
Experience in years	10+	10	8	80
	6 to 9	5		40
	3 to 5	0		0
Fire Apparatus Mechanic	5+ years working primarily on fire apparatus	10	10	100
	0-4 years	0		0

NOTE: The CETT has identified an issue with the mechanic having advantage points, rather than the company. This will be something that will be reviewed and likely changed the next 3-year cycle.

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for 2008 Solicitations. The table below displays those resource categories that were based on lowest price. The next two tables summarize the criteria for the Service Truck with Mechanic, and the relative advantages of the attributes that make up each criterion.

Resource Category	Rationale for Using Price Only
Single Faller and Faller Module	<p>The solicitation requires a minimum number of years of experience for a faller to qualify for a certain type (i.e., Type 1 or 2). The CETT could not determine any measurable criteria for a faller in either resource category that would be easy to assess. If a faller meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.</p> <p>Performance once assigned to an incident will be the more critical element. Once past performance is gathered and tracked for a faller it would be difficult to use that in future awards because with past performance there is a certain element of subjectivity.</p>
GIS Unit	<p>The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If a GIS Unit meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.</p>
Clerical Support Unit	<p>The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Clerical Support Unit meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.</p>
Tent	<p>The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Tent meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.</p>
Refrigerated Trailer	<p>The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Refrigerated Trailer meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.</p>

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for Mechanics with Service Trucks (Type 1 and Type 2 & 3), and the relative advantages of the attributes that make up each criterion.

Mechanic with Service Truck, Type 1

Criteria	Attributes	Advantage	Criterion Advantage
Current ASE Certification	Both Truck and Auto Master	Training in all truck and auto categories	ASE Certification levels were used to determine the breadth of knowledge a mechanic has, the more certifications a mechanic has the more points they will get for this attribute.
	Truck Master Only	Training in all truck categories	
	Auto Master Only	Training in all auto categories	
	5 or more certificates	First level, meets minimum requirements for points	
Vocational School or Manufacture Diesel/Heavy Equipment Mechanic Certificate	Yes	Has additional training, above the ASE Certification	This is training over and above the ASE Certification. Again, demonstrating additional knowledge and breadth of experience of the mechanic.
	No	None	
Experience in years for Heavy Equipment	10+	Most experience	The more experienced the mechanic is the easier it will be for them to deal with difficult situations that may be arise on an incident.
	6 to 9	More experience	
	3 to 5	None	

Mechanic with Service Truck, Type 2 & 3

Criteria	Attributes	Advantage	Criterion Advantage
Current ASE Certification	Both Truck and Auto Master	Training in all truck and auto categories	ASE Certification levels were used to determine the breadth of knowledge a mechanic has, the more certifications a mechanic has the more points they will get for this attribute.
	Truck Master Only	Training in all truck categories	
	Auto Master Only	Training in all auto categories	
	5 or more certificates	First level, meets minimum requirements for points	
Current EVT Certifications	Master	Most experience	This is training over and above the ASE Certification. Again, demonstrating additional knowledge and breadth of experience of the mechanic.
	Level II	More experience	
	Level I	Less experience	
Experience in years	10+	Most experience	The more experienced the mechanic is the easier it will be for them to deal with difficult situations that may be arise on an incident.
	6 to 9	More experience	
	3 to 5	None	
Fire Apparatus Mechanic	5+ years working primarily on fire apparatus	Good experience	The more experienced the mechanic is in working on fire apparatus the easier it will be for them to deal with difficult situations that may be arise on an incident.
	0-4 years	None	

2009 Solicitations

Mobile Laundry – Portable Toilet, Portable Handwashing Station, and Wheelchair Accessible Portable Toilet – Trailer Mounted Handwashing Station - Potable Water, Gray Water, – Heavy Equipment (Dozer, Excavator, Tractor Plow, and Transport) [Heavy Equipment will be piloted by Region 8 in 2009 and 2010]

EQUIPMENT BEING EVALUATED: Mobile Laundry

Within each small business program category, priority will be given according to the lowest price using the following calculation considering both the daily rate and price per pound offered, with the lowest price being ranked highest on the DPL.

$$\text{Price} = (\text{Cost per pound} \times 1000 \times 50\%) + (\text{Daily Rate} \times 50\%)$$

EQUIPMENT BEING EVALUATED: Portable Toilet, Portable Handwashing Station, and Wheelchair Accessible Portable Toilet

Within each small business program category, priority will be given according to the price offered for the type of resource. The following calculation will be used to determine the lowest price, with the lowest price being ranked highest on the DPL: (Daily Rate + Weekly Rate + Monthly Rate/38). Only the rate for the portable toilets will be included in the calculation. Handwashing stations, wheelchair accessible units, Delivery/ Pickup, additional service calls, and reset fee will not be considered in the calculation. One DPL will be generated for portable toilets, wheelchair accessible portable toilets, and portable handwashing stations. Contracting Officers will determine price reasonableness for the wheelchair accessible portable toilets and portable handwashing stations.

EQUIPMENT BEING EVALUATED: Trailer Mounted Handwashing Station

Within each small business program category, priority will be given for the type of resource as shown below. Separate DPLs will be generated for each type of equipment. The following calculation will be used to determine the lowest price for handwashing stations, with the lowest price being ranked highest on the DPL: (Daily Rate + Weekly Rate + Monthly Rate/38).

EQUIPMENT BEING EVALUATED: Potable Water Truck and Gray Water Truck

Within each small business program category, priority will be given for the type of resource as shown below. Separate DPLs will be generated for each type of equipment. Criteria have been developed for the potable water truck and the gray water truck to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each piece of equipment's advantages are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the DPL. The following is a list of the advantages and associated points for each equipment category. A complete breakdown can be found on the following page.

EQUIPMENT BEING EVALUATED: Dozer, Tractor Plow

Within each small business program category, priority will be given for the type of resource as shown below. Separate DPLs will be generated for each type of equipment. Criteria have been developed for the Dozer and Tractor Plow resource categories to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each piece of equipment's advantages are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the DPL. The following is a list of the advantages and associated points for each equipment category. A complete breakdown can be found on the following page.

It was requested by the Contract Equipment Task Team (CETT) to add attributes that are not given points to the Dispatch Priority List (DPL) for the Dozer and Tractor Plow, resource categories. If this attribute was identified and ordered by the Incident Management Team (IMT) and if a vendor did not have the attribute ordered, they could be passed over for a vendor that did have the attribute. The following attributes, not given points, will be added to the DPLs:

Attribute, not given points:

- Ripper
- Grapple
- Low Ground Pressure

EQUIPMENT BEING EVALUATED: Excavator

Within each small business program category, priority will be given for the type of resource as shown below. Separate DPLs will be generated for each type of equipment. The price will be based on the daily rate, with the lowest price being ranked highest on the dispatch list.

It was requested by the Contract Equipment Task Team (CETT) to add attributes that are not given points to the Dispatch Priority List (DPL) for the Excavator resource category. If this attribute was identified and ordered by the Incident Management Team (IMT) and if a vendor did not have the attribute ordered, they could be passed over for a vendor that did have the attribute. The following attributes, not given points, will be added to the DPLs:

Attribute, not given points

- Clamshell Bucket
- Up Down Blade or Dozer Blade
- Steep Ground Excavator

NOTE: These attributes will be listed on the priority dispatch list and if the incident specifically orders the equipment with this attribute, vendors offering that attribute will be given preference as they appear on the priority dispatch list.

EQUIPMENT BEING EVALUATED: Transport

Within each small business program category, priority will be given for the type of resource as shown below. Separate DPLs will be generated for each type of equipment. The price will be based on the daily rate, with the lowest price being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: Potable Water Trucks

Potable Water Trucks

Factors	Attributes	Value	Importance Factor	Advantage Points
Gallons Hauled Type 4	400-999	5	2	10
Gallons Hauled Type 3	1000-1500	5	2	10
	1501-2000	5.5		11
	2001-2499	6		12
Gallons Hauled Type 2	2500-3000	5	2	10
	3001-3500	5.5		11
	3501-3999	6		12
Gallons Hauled Type 1	4000-5000	5	2	10
	>5000	5.5		11

EQUIPMENT BEING EVALUATED: Gray Water Trucks

Gray Water Trucks

Factors	Attributes	Value	Importance Factor	Advantage Points
Gallons Hauled Type 4	400-999	5	2	10
Gallons Hauled Type 3	1000-1500	5	2	10
	1501-2000	5.5		11
	2001-2499	6		12
Gallons Hauled Type 2	2500-3000	5	2	10
	3001-3500	5.5		11
	3501-3999	6		12
Gallons Hauled Type 1	4000-5000	5	2	10
	>5000	5.5		11
Pump Type	Centrifugal (Drafting)	0	1	0
	Vacuum	1		1

EQUIPMENT BEING EVALUATED: Dozer/Tractor Plow

Type 3 Dozer/Tractor Plow

Factors	Attributes	Value	Importance Factor	Advantage Points**
Horsepower	50-74	1	3	3
	75-99	2		6
Winch	No	0	1	0
	Yes	1		1
Blade Type	Straight	0	2	0
	Manual Angle	1		2
	6-Way Hydraulic	3		6

Type 2 Dozer/Tractor Plow

Factors	Attributes	Value	Importance Factor	Advantage Points**
Horsepower	100-132	1	3	3
	133-165	2		6
	166-199	3		9
Winch	No	0	1	0
	Yes	1		1
Blade Type	Straight	0	2	0
	Manual Angle	1		2
	6-Way Hydraulic	3		6

Type 1 Dozer

Factors	Attributes	Value	Importance Factor	Advantage Points**
Horsepower	200-241	1	3	3
	242-281	2		6
	281-350	3		9
Winch	No	0	1	0
	Yes	1		1
Blade Type	Straight	0	2	0
	Manual Angle	1		2
	6-Way Hydraulic	3		6

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for 2009 Solicitations. The table below displays those resource categories that were based on lowest price. The next two tables summarize the criteria for the Potable Water Truck and Gray Water Truck, and the relative advantages of the attributes that make up each criterion.

Resource Category	Rationale for Using Price Only
Mobile Laundry	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Mobile Laundry vendor unit meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Portable Toilet, Portable Handwashing Station, and Wheelchair Accessible Portable Toilet	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Portable Toilet, Portable Handwashing Station, and Wheelchair Accessible Portable Toilet meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Trailer Mounted Handwashing Station	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Trailer Mounted Handwashing Station meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Excavator	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Excavator meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Transport	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Transport meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.

Potable Water Trucks

Criteria	Attributes	Advantage	Criterion Advantage
Gallons Hauled Type 4	400-999	Greatest capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a potable water source.
Gallons Hauled Type 3	1000-1500	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a potable water source.
	1501-2000	Greater capacity	
	2001-2499	Greatest capacity	
Gallons Hauled Type 2	2500-3000	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a potable water source.
	3001-3500	Greater capacity	
	3501-3999	Greatest capacity	
Gallons Hauled Type 1	4000-5000	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a potable water source.
	>5000	Greatest ability to remove gray water	

Gray Water Trucks

Criteria	Attributes	Advantage	Criterion Advantage
Gallons Hauled Type 4	400-999	Greatest capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a disposal site.
Gallons Hauled Type 3	1000-1500	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a disposal site.
	1501-2000	Greater capacity	
	2001-2499	Greatest capacity	
Gallons Hauled Type 2	2500-3000	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a disposal site.
	3001-3500	Greater capacity	
	3501-3999	Greatest capacity	
Gallons Hauled Type 1	4000-5000	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent driving to and from a disposal site.
Pump Type	Centrifugal (Drafting)	None	The vacuum pump offers greater efficiency over the centrifugal pump (drafting).
	Vacuum	Greatest efficiency	

Dozers/Tractor Plow

Criteria	Attributes	Advantage	Criterion Advantage
Horsepower Type 3	50-74	Minimum Performance	Increased horsepower offers greater equipment performance and capability.
	75-99	Greater Performance	
Horsepower Type 2	100-132	Minimum Performance	Increased horsepower offers greater equipment performance and capability.
	133-165	Greater Performance	
	166-199	Greatest Performance	
Horsepower Type 1	200-241	Minimum Performance	Increased horsepower offers greater equipment performance and capability.
	242-281	Greater Performance	
	281-350	Greatest Performance	
Winch	No	None	A winch allows for more capacity for this equipment, offering an advantage.
	Yes	More Capacity	
Blade	Straight	Minimum Performance	Increased blade capability offers an advantage with increased performance of the equipment.
	Manual Angle	Greater Performance	
	6-Way Hydraulic	Greatest Performance	

2010 Solicitations

Heavy Equipment with Water: Skidgines, Pumper Cats, and Softtracks – Water Handling: Engines, Type 3-6; Support Water Tender, Type 1-3; and Tactical Water Tender, Type 1-2

EQUIPMENT BEING EVALUATED: Heavy Equipment with Water (Skidgines, Pumper Cats, Softtracks)

Within each small business program category, priority will be given as shown below.

Criteria have been developed for each category of equipment to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each piece of equipment's advantages are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the DPL. The following is a list of the advantages and associated points for each equipment category. A complete breakdown can be found on the following pages.

EQUIPMENT BEING EVALUATED: Water Handling (Engines Type 3-6, Support Water Tenders Type 1-3, Tactical Water Tenders Type 1-2)

Within each small business program category, priority will be given as shown below.

Criteria have been developed for each category of equipment to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each piece of equipment's advantages are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the DPL. The

following tables provide a list of the advantages and associated points for each equipment category. A complete breakdown can be found on the following pages.

NOTE: Water handling is a re-solicitation of equipment. Based on experiences with the 2007 solicitation and the advantage points assigned the attributes, the Government was paying more for some attributes than the value being received. Therefore, advantage points were reevaluated and changed to give a better value for the benefit received for this equipment. Mechanical condition was removed as an advantage because it was found to be too subjective.

NOTE: The 2007 Solicitations section in this document is included as it was originally written in the "Methodology for EERA Award and Dispatch Priority" in April 2007.

EQUIPMENT BEING EVALUATED: Skidgines

Skidgine Advantages

Factors	Attributes	Value	Importance Factor	Advantage Points**
Gallons Hauled Type 1	1200-1499 gallons	95.5	2	191
	1500-2499 gallons	116		232
	2500+ gallons	137		274
Gallons Hauled Type 2	800-999 gallons	97	2	194
	1000-1199 gallons	118		236
Gallons Hauled Type 3	400 to 599 gallons	65	2	130
	600 to 799 gallons	75		150
Gallons Hauled Type 4	200 to 299 gallons	65	2	130
	300 to 399 gallons	75		150
Foam Proportioner System (Type 1 and 2)	None	21	1	21
	Manually Regulated Proportioner	24		24
	Automatic Regulating Proportioner	27		27
Foam Proportioner System (Type 3 and 4)	None	52	1	52
	Manually Regulated Proportioner	56		56
	Automatic Regulating Proportioner	60		60
Monitor (Type 1 and 2 only)	No	22	1	22
	Yes	27		27
Winch or Grapple that is usable (Type 3 and 4 only)	No	104	1	104
	Yes	118		118

EQUIPMENT BEING EVALUATED: Pumper Cats

Pumper Cat Advantages

Factors	Attributes	Value	Importance Factor	Advantage Points**
Gallons Hauled Type 1	500-649 gallons	47	2	94
	650 gallons +	63.5		127
Gallons Hauled Type 2	325-399 gallons	47	2	94
	400-499 gallons	63.5		127
Gallons Hauled Type 3	200-274 gallons	47	2	94
	275-324 gallons	63.5		127
Angle Blade	Straight Blade	94	1	94
	Manual Angle	110		110
	6 way Hydraulic	127		127
Winch that is usable	No	36	1	36
	Yes	47		47
Foam Proportioner System	None	19	1	19
	Manually Regulated Proportioner	23		23
	Automatic Regulating Proportioner	27		27

EQUIPMENT BEING EVALUATED: Softrack

Softrack Advantages

Factors	Attributes	Value	Importance Factor	Advantage Points**
Gallons Hauled Type 1	600-1199 gallons	85	2	170
	1200 gallons +	118		236
Winch that is usable	No	32	1	32
	Yes	44		44
Monitor	No	17	1	17
	Yes	24		24
Foam Proportioner System	None	18	1	18
	Manually Regulated Proportioner	21		21
	Automatic Regulating Proportioner	24		24
Monitor	No	17	1	17
	Yes	24		24

EQUIPMENT BEING EVALUATED: Water Handling Equipment

All equipment on an awarded Agreement will be ranked on the dispatch list according to the advantages the equipment has to offer. During the preseason inspection, information on each piece of equipment's advantages will be collected. Those pieces of equipment receiving an award will then be moved to the next step of ranking for the dispatch priority list.

Criteria have been developed for each category of equipment to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each piece of equipment's advantages are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the dispatch list. The following tables provide a list of the advantages and associated points for each equipment category. A complete breakdown can be found on the following pages.

EQUIPMENT BEING EVALUATED: Engines

Engine Advantages

Criteria	Attributes	Value	Importance Factor	Advantage Points
Gallons Hauled Type 6	150-225	97	2	194
	226-300	106		212
	301-399	115		230
Gallons Hauled Type 5	400-500	97	2	194
	501-625	106		212
	626-749	115		230
Gallons Hauled Type 4	750-850	97	2	194
	851-999	106		212
	1000-1200	115		230
Gallons Hauled Type 3	500-599	97	2	194
	600-749	106		212
	750-1000	115		230
Pump Performance Type 3,4,5,6	Acceptable	23.5	2	47
	Good	26.5		53
	Excellent	28		56
Age	10+years	25	1	25
	8-9 years	26		26
	6-7 years	27		27
	4-5 years	28		28
	2-3 years	29		29
	Current Year to 1 year	30		30
Foam Proportioner System	Manually Regulated Proportioner	11	1	11
	Automatic Regulating Proportioner	12		12

Pressure and Flow Testing of Pumps

Testing will be conducted as close to the pump as possible using a calibrated, liquid-filled pressure gauge.

The following flows will result:

.520 diameter sharp edged orifice.

<u>Pressure</u>	<u>Flow</u>
100 psi	50 gpm
125 psi	56 gpm
150 psi	61 gpm

.716 diameter sharp edged orifice.

<u>Pressure</u>	<u>Flow</u>
250 psi	150 gpm
312.5 psi	167 gpm
375 psi	183 gpm

The resultant figures will be applied to the pump ratings as follows:

Type 3 engines

Pressure with .716 diameter sharp edged orifice installed

- 250 to 312 psi is a rating of "Acceptable"
- 312.5 to 374 psi is a rating of "Good"
- 375 psi or more is a rating of "Excellent"

Type 4, 5, 6 engines

Pressure measured with a .520 diameter sharp edged orifice installed

- 100 psi to 124 psi is a rating of "Acceptable"
- 125 psi to 149 psi is a rating of "Good"
- 150 psi or more is a rating of "Excellent"

EQUIPMENT BEING EVALUATED: Support Water Tenders

Support Water Tender Advantages

Criteria	Attributes	Value	Importance Factor	Advantage Points
Gallons Hauled Type 3	1000-1499	94.5	2	189
	1500-1999	102.5		205
	2000-2499	111.5		223
Gallons Hauled Type 2	2500-2999	94.5	2	189
	3000-3499	102.5		205
	3500-3999	111.5		223
Gallons Hauled Type 1	4000-4499	94.5	2	189
	4500-4999	102.5		205
	5000 +	111.5		223
Suspension Type 1 & 2	Air Bag	23.5	2	47
	Vocational Duty	28		56
Suspension Type 3	Single Rear Axle	23.5	2	47
	Single Rear Axle with E-locker or Interlock	28		56
Age	16+ years	29	1	29
	12 years to 15 years	30		30
	8 years to 11 years	31		31
	4 years to 7 years	32		32
	Current year to 3 years	33		33
Spray Bar Configuration	Gravity F or R	13	1	13
	Gravity F & R	14		14
	Pressure F or R	15		15
	Pressure F & R	16		16

EQUIPMENT BEING EVALUATED: Tactical Water Tenders

Tactical Water Tender Advantages

Criteria	Attributes	Value	Importance Factor	Advantage Points
Gallons Hauled Type 2	1000-1499	61.5	2	123
	1500-1999	69		138
Gallons Hauled Type 1	2000-2499	61.5	2	123
	2500 +	69		138
Monitor	None	57	1	57
	Manual	62		62
	Remote	66		66
Suspension	Air Bag	28.5	2	57
	Vocational Duty	33		66
Age	16+ years	22	1	22
	12 years to 15 years	23		23
	8 years to 11 years	24		24
	4 years to 7 years	25		25
	Current year to 3 years	26		26
Spray Bar Configuration	Gravity F or R	17	1	17
	Gravity F & R	18		18
	Pressure F or R	19		19
	Pressure F & R	20		20
Foam Proportioner System	Manually Regulated Proportioner	11	1	11
	Automatic Regulating Proportioner	12		12

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for 2010 Solicitations. The table below displays the resource category that will be based on lowest price. The next several tables summarize the criteria for the Heavy Equipment with Water (Skidgines, Pumper Cats, and Softracks) and Water Handling Equipment (Engines, Type 3-6; Support Water Tenders, Type 1-2; and Tactical Water Tenders, Type 1-2), and the relative advantages of the attributes that make up each criterion.

Skidgines

Criteria	Attributes	Advantage	Criterion Advantage
Gallons Hauled Type 1	1200-1499	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	1500-2499	Greater capacity	
	2500+	Greatest capacity	
Gallons Hauled Type 2	800-999	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	1000-1199	Greatest capacity	
Gallons Hauled Type 3	400-599	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	600-799	Greatest capacity	
Gallons Hauled Type 4	200-299	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	300-3999	Greatest capacity	
Foam Proportioner System	None	None	Automatic proportioners regulate foam concentrate at a more constant rate therefore providing a constant foam percentage and use less foam concentrate than a manually regulated system. Saves money, less foam concentrate is used.
	Manually Regulating Proportioner	Manual control	
	Automatic Regulating Proportioner	Automatic control	
Monitor (Type 1 and 2 only)	No	None	A monitor will be an advantage.
	Yes	Has Monitor	
Winch or Grapple that is usable (Type 3 and 4 only)	No	None	A winch or grapple offers an advantage.
	Yes	Grapple or Winch	

Pumper Cats

Criteria	Attributes	Advantage	Criterion Advantage
Gallons Hauled Type 1	500-649	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	650+	Greatest capacity	
Gallons Hauled Type 2	325-399	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	400-499	Greatest capacity	
Gallons Hauled Type 3	200-274	Minimum capacity	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	275-324	Greatest capacity	
Angle Blade	Straight Blade	None	The 6 way hydraulic blade offers the greatest efficiency, the manual blade offers some efficiency, and the straight blade offers none.
	Manual Blade	Greater efficiency	
	6 way Hydraulic	Greatest efficiency	
Winch that is usable	No	None	Having a winch that is usable allows for more capacity for this equipment
	Yes	Greatest capacity	
Foam Proportioner System	None	None	Automatic proportioners regulate foam concentrate at a more constant rate therefore providing a constant foam percentage and use less foam concentrate than a manually regulated system. Saves money, less foam concentrate is used. Automatic offers an advantage over the manual and manual offers an advantage over none.
	Manually Regulating Proportioner	Manual control	
	Automatic Regulating Proportioner	Automatic control	

Sofftrack

Criteria	Attributes	Advantage	Criterion Advantage
Gallons Hauled Type 1	600-1199	None	The more water hauled is a more efficient use of the equipment and to the incident; and, the less time spent looking for an acceptable water source.
	1200+	Greatest capacity	
Winch that is usable	No	None	Having a winch that is usable allows for more capacity for this equipment
	Yes	Greatest efficiency	
Monitor	No	None	A monitor will be an advantage.
	Yes	Greatest capacity	
Foam Proportioner System	None	None	Automatic proportioners regulate foam concentrate at a more constant rate therefore providing a constant foam percentage and use less foam concentrate than a manually regulated system. Saves money, less foam concentrate is used. Automatic offers an advantage over the manual and manual offers an advantage over none.
	Manually Regulating Proportioner	Manual control	
	Automatic Regulating Proportioner	Automatic control	

Engines

Criteria	Attributes	Advantage	Advantage Points
Gallons Hauled Type 6	150-225	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	226-300	Greater capacity	
	301-399	Greatest capacity	
Gallons Hauled Type 5	400-500	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	501-625	Greater capacity	
	626-749	Greatest capacity	
Gallons Hauled Type 4	750-850	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	851-999	Greater capacity	
	1000-1200	Greatest capacity	
Gallons Hauled Type 3	500-599	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	600-749	Greater capacity	
	750-1000	Greatest capacity	
Age	10+ years	None	Value given for newer vehicles is limited to 10 years. This rationale is based on USFS historical data and depreciation cycles. Older Engines are acceptable, but no given advantage points. Engine age is based on the model year referenced on the registration certificate. Past experience demonstrates that newer equipment is less problematic and more efficient.
	9 years	1+ years newer	
	8 years	2+ years newer	
	7 years	3+ years newer	
	6 years	4+ years newer	
	5 years	5+ years newer	
	4 years	6+ years newer	
	3 years	7+ years newer	
	2 years	8+ years newer	
	1 year	9+ years newer	
	Current Year	10+ years newer	
Pump Performance Type 3,4,5,6	Acceptable	None	Wildland firefighting historically uses less volume and more pressure. Higher pressures allow firefighters to move water through hoses to locations further from the engine, which increases productivity.
	Good	Greater PSI	
	Excellent	Greatest PSI	
Foam Proportioner System	Manually Regulating Proportioner	Manual Control (none)	Automatic proportioners regulate foam concentrate at a more constant rate therefore providing a constant foam percentage and use less foam concentrate than a manually regulated system. Saves money, less foam concentrate is used.
	Automatic Regulating Proportioner	Automatic	

Support Water Tenders

Criteria	Attributes	Advantage	Advantage Points
Gallons Hauled Type 3	1000-1499	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	1500-1999	Greater capacity	
	2000-2499	Greatest capacity	
Gallons Hauled Type 2	2500-2999	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	3000-3499	Greater capacity	
	3500-3999	Greatest capacity	
Gallons Hauled Type 1	4000-4499	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	4500-4999	Greater capacity	
	5000+	Greatest capacity	
Spray Bar Configuration	Gravity F or R	Minimal acceptable	Gravity is acceptable for watering roads, but the coverage of the watering bar changes as the head pressure of the load increases or decreases. Pressurized water applications are easy to regulate and historically provide better coverage.
	Gravity F & R	More water, but variable coverage	
	Pressure F or R	Consistent coverage	
	Pressure F & R	Most acceptable. More water and consistent coverage	
Suspension	Air Bag	Not as stable over rough terrain	Large deviations in the road surface or terrain, such as unimproved Forest roads, can cause unstable load changes while driving, possibly creating a hazardous driving situation. Therefore, walking beam or single rear axle suspension is preferred.
	Vocational Duty	Suspension can flex or move and maintain a uniform load over each wheel which then promotes maximum traction on rough surfaces	
Age	10+ years	None	Value given for newer vehicles is limited to 10 years. This rationale is based on USFS historical data and depreciation cycles. Older Engines are acceptable, but no given advantage points. Engine age is based on the model year referenced on the registration certificate.
	12 to 15 years	1 to 4 years newer	
	8 to 11 years	5 to 8 years newer	
	4 to 7 years	9 to 12 years newer	
	Current Year to 3 years	13 to 16 years newer	Past experience demonstrates that newer equipment is less problematic and more efficient.

Tactical Water Tenders

Criteria	Attributes	Advantage	Advantage Points
Gallons Hauled Type 2	1000-1499	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	1500-1999	Greatest capacity	
Gallons Hauled Type 1	2000-2499	Minimum capacity	The more water hauled is a more efficient use of the fire crew with less time spent driving to and from a water refill site.
	2500+	Greatest capacity	
Spray Bar Configuration	Gravity F or R	Minimal acceptable	Gravity is acceptable for watering roads, but the coverage of the watering bar changes as the head pressure of the load increases or decreases. Pressurized water applications are easy to regulate and historically provide better coverage.
	Gravity F & R	More water, but variable coverage	
	Pressure F or R	Consistent coverage	
	Pressure F & R	Most acceptable. More water and consistent coverage	
Suspension	Air Bag	Not as stable over rough terrain	Large deviations in the road surface or terrain, such as unimproved Forest roads, can cause unstable load changes while driving, possibly creating a hazardous driving situation. Therefore, walking beam or single rear axle suspension is preferred.
	Vocational Duty	Suspension can flex or move and maintain a uniform load over each wheel which then promotes maximum traction on rough surfaces	
Foam Proportioner System	Manually Regulating Proportioner	Manual Control (none)	Automatic proportioners regulate foam concentrate at a more constant rate therefore providing a constant foam percentage and use less foam concentrate than a manually regulated system. Saves money, less foam concentrate is used.
	Automatic Regulating Proportioner	Automatic	
Age	16+ years	None	Value given for newer vehicles is limited to 10 years. This rationale is based on USFS historical data and depreciation cycles. Older Engines are acceptable, but no given advantage points. Engine age is based on the model year referenced on the registration certificate. Past experience demonstrates that newer equipment is less problematic and more efficient.
	12 to 15 years	1 to 4 years newer	
	8 to 11 years	5 to 8 years newer	
	4 to 7 years	9 to 12 years newer	
	Current year to 3 years	13 to 16 years newer	
Monitor	None	None	Monitors may help knock down flames for a more direct attack. Remotely operated monitors are more responsive to running attack and can be aimed from the operators chair while seated in the cab which is preferred for safety reasons.
	Manual	Manual Control	
	Remote	Remote Control	

2011 Solicitations

Weed Washing Unit, Communications Trailer, Bus, Crew Carrier
Heavy Equipment, Fuel Tender, Vehicle with Driver
Helicopter Operations Support Trailer; Resolicitation for GIS Unit, Tent and Canopy,
Mechanic with Service Truck, Clerical Support Unit, Single Faller and Faller Module

EQUIPMENT BEING EVALUATED: Weed Washing Unit

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: Communications Trailer

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: Bus, Crew Carrier

Within each small business program category, priority will be given according to the lowest price using the following calculation, considering both the minimum daily guarantee and the mileage rate offered, with the lowest price being ranked highest on the DPL.

$$(\text{Minimum Daily Guarantee} \times 80\%) + (\text{Mileage Rate} \times 20\%) = \text{low price}$$

Note: It was determined by the CETT that price is the only CBA attribute to be used to determine dispatch priority for Crew Carrier, Bus. Other attributes related to the quality of the equipment were discussed (vehicle age, mileage, useful life, and mechanical condition) however, none of these attributes were deemed to be a definitive, objective indicator of an advantage. Rather, they represent criteria required to be met by the vendor when adhering to the required equipment specifications. The minimum requirements were developed to ensure that equipment can perform acceptably to meet incident needs, and take into consideration safety concerns (e.g., buses must be 1977 or newer).

EQUIPMENT BEING EVALUATED: Heavy Equipment

Within each small business program category, priority will be given as shown below. The minimum daily guarantee and mileage for the transport will not be considered in the ranking.

NOTE: For some equipment there will be attributes identified on the dispatch priority list that may be required by the Government. These attributes will not be given points but if the attribute is specifically ordered by the Incident Management Team, a vendor that offers the attribute on their equipment shall be given preference for the order.

The following criteria have been developed to assess the advantages for dispatch priority, and each advantage is given a point value. The total points for each resource's advantage are then divided by the daily rate resulting in dispatch priority with the highest total advantage per dollar being ranked highest on the dispatch list. The following is a list of the advantages and associated points for each category

Dozer (Type 1)

- a. Horsepower - 9 possible points
- b. Blade - 6 possible points
- c. Winch - 1 possible point

Dozer/Tractor Plow (Type 2)

- a. Horsepower - 9 possible points
- b. Blade - 6 possible points
- c. Winch - 1 possible point

Dozer/Tractor Plow (Type 3)

- a. Horsepower - 6 possible points
- b. Blade - 6 possible points
- c. Winch - 1 possible point

Attribute, not given points

- a. Ripper
- b. Grapple
- c. Low Ground Pressure
- d. Horsepower, 282 and greater

Excavators: Price offered for the type of resource. The price will be based on the daily rate, with the lowest price being ranked highest on the dispatch list. Separate priority lists will be generated for each Type of excavator.

Attribute, not given points

- a. Clamshell Bucket
- b. Up Down Blade or Dozer Blade
- c. Steep Ground Excavator

Transports: Within each small business program category, equipment will be dispatched based on the attributes that best meet the needs of the government. The following criteria have been developed to assess the advantages for dispatch priority, and each advantage is given a point value. The total points for each resource's advantage are then divided by the daily rate resulting in dispatch priority with the highest total advantage per dollar being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: Fuel Tender

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: Vehicle with Driver

Within each small business program category, priority will be given according to the lowest price using the following calculation, considering both the daily rate and the mileage rate offered, with the lowest price being ranked highest on the DPL.

$$(\text{Daily Rate} \times 80\%) + (\text{Mileage Rate} \times 20\%) = \text{low price}$$

EQUIPMENT BEING EVALUATED: Helicopter Operations Support Trailer

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the dispatch list.

EQUIPMENT BEING EVALUATED: GIS Unit

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate offered, with the lowest price being ranked highest on the dispatch list. GIS Specialist rates will not be considered in the calculation.

EQUIPMENT BEING EVALUATED: Tent and Canopy

Within each small business program category, priority will be given according to the price offered for the type of resource. The following calculation will be used to determine the lowest price, with the lowest price being ranked highest on the dispatch list. $((\text{Daily Rate} + \text{Weekly Rate}/8) \times 0.07) + ((\text{Monthly Rate}/30) \times 0.3)$.

EQUIPMENT BEING EVALUATED: Mechanic with Service Truck

Within each small business program category, priority will be based on the advantages the resource has to offer. The following criteria have been developed to assess the advantages for dispatch priority. Advantages will be given a point value. The total points for each resource's advantage are then divided by the price resulting in dispatch priority with highest total advantage per dollar being ranked highest on the dispatch list. The following is a list of the advantages and associated points for each category:

Advantages

1. Mechanic with Service Truck (Type 1)
 - a. Current Automotive Service Excellence (ASE) Certification - 50 possible points
 - b. Vocational School or Manufacturer Diesel/ Heavy Equipment Mechanic Certificate - 70 possible points
 - c. Years of Experience (Heavy Equipment) - 80 possible points
2. Mechanic with Service Truck (Type 2)
 - a. Current Automotive Service Excellence (ASE) Certification - 50 possible points
 - b. Current Emergency Vehicle Technician (EVT) Certification - 70 possible points
 - c. Years of Experience - 80 possible points
 - d. Fire Apparatus Mechanic - 100 possible points

EQUIPMENT BEING EVALUATED: Clerical Support Unit

Within each small business program category, priority will be given according to the lowest price using the following calculation considering both the daily rate and cost per copy offered (see calculation below), with the lowest price being ranked highest on the dispatch list. Plotted sheets, laminating, faxing, and binding will not be included in the calculation.

Black and White: $(8 \frac{1}{2}'' \times 11'' (\text{cost/copy}) \times 70\%) + (11'' \times 17'' (\text{cost/copy}) \times 30\%) \times 95\%$
Color: $(8 \frac{1}{2}'' \times 11'' (\text{cost/copy}) \times 70\%) + (11'' \times 17'' (\text{cost/copy}) \times 30\%) \times 5\%$
Black and White + Color = Score

Price (calculation for placement on dispatch priority list) = $(\text{Score} \times 1000 \times 70\%) + (\text{Daily Rate} \times 30\%)$

EQUIPMENT BEING EVALUATED: Single Faller and Faller Module

Within each small business program category, priority will be given according to the price offered for the type of resource. The price will be based on the daily rate, with the lowest price being ranked highest on the dispatch list. Separate priority lists will be generated for single fallers and faller modules.

Explanation of Criteria and Attribute Advantages to the Government

The table below summarizes the criteria that are used in evaluating CBA for 2010 Solicitations. The table below displays the resource category that will be based on lowest price.

Resource Category	Rationale for using Price Only
Crew Carrier Buses	The CETT could not determine any measurable criteria for this resource category that would be easy to assess. If the Crew Carrier Bus meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement. Age was considered but the CETT felt the vendors that are currently out there providing buses are all using an older model of bus and that adding age as an attribute would not get us anything different than what we are currently getting.
Single Faller & Faller Module	FAM could not determine any measurable criteria for this resource category that would be easy to assess. If Single Faller and Faller Module meet the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
GIS Unit & Communications Trailer, Helicopter Operations Support Trailer	FAM could not determine any measurable criteria for this resource category that would be easy to assess. If GIS Unit, Communications Trailer, and Helicopter Operations Support Trailers meet the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Weed Washing Unit	FAM could not determine any measurable criteria for this resource category that would be easy to assess. If the Weed Washing Unit meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Vehicle with Driver	FAM could not determine any measurable criteria for this resource category that would be easy to assess. If the Vehicle with Driver meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.
Fuel Tender	FAM could not determine any measurable criteria for this resource category that would be easy to assess. If the Fuel Tender meets the minimum requirements, has acceptable past performance, and their price is reasonable, the vendor will be awarded an agreement.

Appendix B: History of Choosing by Advantages

For a brief history and description of the CBA process start at this website: <http://www.decisioninnovations.com/about.html>. For convenience, excerpts from the page are displayed below.

Decades of research — sponsored by the USDA Forest Service, in cooperation with Utah State University — led to the discovery that sound methods of decision making do not base decisions on the importance of factors, criteria, goals, roles, objectives, categories, attributes, advantages and disadvantages, or pros and cons. Instead, sound methods base decisions on the importance of advantages. Therefore, "Choosing By Advantages" is the name we selected for the set of decision making concepts and methods that are being taught by the Institute for Decision Innovations, Inc. Another name that could have been selected is "Sound Decision making."

Choosing By Advantages (CBA) is not just a set of decision making concepts and methods. It is a decision making system. The CBA system includes a wide variety of decision making tools, techniques, and methods — sharing just one set of definitions, principles, and models.

Examples of CBA Definitions

The essential decision making terms are much more precisely defined in the CBA vocabulary (the sound-decision making vocabulary) than in common usage. In particular, the terms factor, criterion, attribute, and advantage are often used interchangeably in common usage, but in the CBA vocabulary they are never used interchangeably.

To illustrate the logic and simplicity of the CBA vocabulary, following are the CBA definitions of the terms attribute and advantage:

- *An attribute is a characteristic, quality, or consequence of ONE alternative.*
- *An advantage is a beneficial difference between the attributes of TWO alternatives.*

An example that is often used in CBA workshops to illustrate these definitions is the choice between two canoes: Canoe C and Canoe K. In the canoe-weight factor, the attribute of C is 65 Pounds. In this same factor, the attribute of K is 75 Pounds.

Given these attributes, the workshop participants are asked, "Assuming that the stakeholders in this decision would prefer the lighter canoe-weight (but not necessarily the lighter canoe, because other factors will need to be considered) which canoe has the advantage in weight?" Of course, the participants say that Canoe C has the advantage in this factor. This sets the stage for the following series of questions and answers:

Q: How large is the advantage of C, compared with K?

A: The participants nearly always give the following correct answer: 10 Pounds.

Q: Which canoe has the disadvantage in weight?

A: Canoe K.

Q: How large is the disadvantage of K, compared with C?

A: The participants nearly always give the same correct answer: 10 Pounds.

Notice that the 10-pound disadvantage of K is exactly the same 10 pounds as the 10-pound advantage of C.

The Fundamental Rule of Sound Decision making

In 1981, the CBA system came to life when it was discovered and verified that, without exception, a disadvantage of one alternative is an advantage of another. Decisions must be based on the importance of advantages.

Appendix C: Committee/Task Team Membership

Original EERA Methodology Committee Membership

Name	Role	Forest Service Unit
Byron Brown	Procurement Analyst, AQM	Washington Office
Carl Culham	Procurement Analyst, AQM	Washington Office
Cheryl Emch	Management Analyst, AQM	Washington Office
Cliff Northrop	Civil Engineer, National Forest Systems	Region 8
Dick Reynolds	Contract / Logistics Specialist, FAM	Region 5
Emmy Ibison	Assistant Coordinator, National Incident Administration, FAM	Washington Office
John Parsons	Acting Fire Operations Equipment Specialist, FAM	Region 6
Kevin Erickson	Fire Equipment Specialist, FAM	Region 1
Peggy Toya	Contract Specialist, AQM	Region 3
Ron Schilz	Procurement Analyst, AQM	Washington Office

Contract Equipment Task Team (CETT) Membership

Name	Role	Forest Service Unit
Shane LaValley	Procurement Analyst, AQM; CETT Co-chair	Washington Office
Laurie Sonju	Procurement Analyst, AQM	Washington Office
Dick Reynolds	Contract/Logistics Specialist, FAM; CETT Chair	Region 5
Kevin Erickson	Fire Equipment Specialist, FAM	Region 1
Richard Nieto	Director, FAM	Region 3
Steve Waters	Emergency Management Specialist, FAM	Region 4
Patrick Gallegos	Contracting Officer/Procurement Unit Leader, AQM	Region 5
LuAnn Grover	Contract Operations Assistant, FAM	Region 6
Willie Begay	Fire Operations Specialist, FAM	Region 6
Terry Eller	Forestry Technician	Region 8
Cheryl Molis	Administrative Officer, NIFC	Washington Office
Judy Dunnam	Emergency Operations Specialist, NICC (2008-2009)	BLM
Emil Magallanes	Emergency Operations Specialist, NICC	BLM