

2020 AMA Body Armor System Working Group Report

Final Recommendations



January 7, 2021

Director Ondocin,

The Air Marshal Association (AMA) membership has identified the need for more modern, functional, and effective body armor. The following is a summary of the findings and recommendations of the AMA Body Armor working group. We hope this information will inform agency decision makers about the challenges our current armor system creates, and offers a cost effective solution based upon the expressed needs of Federal Air Marshals.

Executive Summary:

- *Current issued vest ensemble does not meet protective thresholds for today's environment, is costly, slow to deliver, and is not usable across all mission spaces.*
- *The proposed systems would provide better coverage, eliminate need for custom sizing, and rapidly outfit FAMs to meet evolving requirements. (Used by FBI, HSI, USSS, and SOCOM)*
- *Armor alone Option 1 @ \$420.00 / Option 2 @ 1010.00 (approx.)*
- *Body armor and helmet system Option 1 @ \$1270.00 / Option 2 @ \$1860 (approx.)*
- *Fire resistant uniform (shirt and pant) @350.00 (approx.)*
- *The AMA has acquired the soft armor LVS (Option 2) ensemble, and it can be delivered for your examination in HDQ (Vest, Helmet, Uniform, accessories) at you convenience.*

As better technology becomes available, combat tested after action reports have shaped armor design. The proposed systems offer better protection for less money.

The Air Marshal Association is committed to working collaboratively with the agency to achieve our critical goals. Please contact me to discuss any of the information contained herein.

Respectfully,

[Redacted Signature]

4 [Redacted] – Chairman
2020 AMA Body Armor Working Group

[Redacted]

On behalf of, and with the authorization of

AMA Board of Directors

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General PPE Considerations:

- To quickly outfit the FAM Service for our rapidly changing environment.
- Implement a better armor cut to increase mobility, decrease user fatigue.
- Allow for the most advantageous configurations for the end user to scale up or scale down at their discretion.

Current Issued System:

Currently the standard issue vest is an antiquated full soft armor system with a rifle plate sleeve covering over the chest cavity.

The system consists of the following components (costs are assumptions – insert actual costs):

- Armor Express 3A NIJ Soft Armor - \$500
- OCX Model Bravo MOLLE Outer Carrier \$300
- LTC Level 3 Plates NIJ Rated to 762x51 AP \$500
- Accessory Pouch Suite \$200

We estimate that the agency spends approximately \$1500 per FAM on these torso components alone, and there is a wait time of roughly 3~ months for delivery. There is also an order minimum which requires a bulk number before they proceed.

This ordering process typically delays VIPR personnel from deploying and forces FAMs into improper fitting and often cumbersome body armor.

The current system is an antiquated and cumbersome system. The combination of rifle plates over 3A soft armor is heavy, lacks the ability to breathe, and results in accelerated operator fatigue.

Proposed Systems Benefits:

This following system suggestions will effectively:

- Increase workforce efficiency by offering a lighter, more breathable system while still maintaining excellent coverage or better than current issued
- Eliminate need for custom sizing and streamline logistical supply chain.
- Increase system lifespan (plate carrier only option).
- Rapidly outfit the agency to address and combat current mission trends.
- Reduce torso protective system costs from roughly \$1500 (assumption) to \$420 for Option 1 and \$1010 for option 2 (approx.).

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Option 1 - Plate Carrier Proposal without soft armor - *keep the plates we currently have, and eliminate the full soft 3A panels entirely.*

The FAMS can modernize and future proof our armor system by implementing plate carrier systems. These systems will work with our current rifle plate, and provide full coverage simply by adding a cummerbund systems of 3A inserts. Many law-enforcement agencies across DHS and Dept. of Justice have adopted plate systems and no longer use soft armor.

Unlike soft armor, which requires a backing to evenly distribute energy and prevent bullets from punching through the fibers, hard armor remains viable without any backing or support whatsoever.

A plate carrier system rapidly and effectively outfits the entire workforce as plate carrier systems are a commercial off-the-shelf item (COTS).

Plates have a much longer usable life compared to soft armor, and will reduce costs long term.

By salvaging our current issued plates and adding a 3A soft cummerbund, FAMS can have better ballistic coverage at a fraction of the weight with none of the time constraints we've been experiencing with custom fitted armor.

The AMA believes either **Crye Precision** JPC 2 (with side soft 3A inserts and LVS cummerbund), or Crye AVS (with side soft 3A Inserts and LVS cummerbund) are the two best options for plate carriers for the FAMS.

- JPC 2.0 @ \$186.30 - <https://www.cryeprecision.com/ProductDetail/BLC06600LG0>
- JPC MOLLE Flap @ \$30.10 - https://www.cryeprecision.com/ProductDetail/avsdf102000_avs-detachable-flap-molle
- LVS 6X9 Side Armor Set 2 \$133.60 - https://www.cryeprecision.com/ProductDetail/lvssa336000_lvs-6x9-side-panel-set
- JPC Long Side Armor Pouch Set @ \$67.30 - https://www.cryeprecision.com/ProductDetail/blc04802001_jpc-long-side-armor-pouch-set
- **System conversion cost = \$417.30**

Other good choices are **Qore Performance** IcePlate EXO with side soft 3A armor, or **Spiritus Systems** LV119 Overt with side soft 3A armor; however, Crye Precision provides complimentary PPE for a full ensemble which would eliminate multiple contracts (and may further reduce pricing).

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Option 2 – Modernize current soft armor system – *if the agency wants to continue to utilize soft armor panel systems.*

To operate across varying mission spaces, the FAMs would benefit from a scalable system that allows the individual operator to individually configure their system based on mission requirements.

The ability to convert from covert undetectable protection, to overt placarded response as the mission requires.

Modern cuts take into consideration areas of exposure created by shouldered weapons, and varying postures.

The two* leading companies offer these features. The AMA recommends **Crye Precision LVS System** :

- Patrol cut \$662 - https://www.cryeprecision.com/ProductDetail/lvsbv236md0_lvs-base-vest-patrol-cut
- Tac cover \$245.60 - <https://www.cryeprecision.com/ProductDetail/LVSCV400MD0>
- Covert cover \$74.30 (\$113 with magazine pouch) - https://www.cryeprecision.com/ProductDetail/lvscva00md0_lvs-covert-cover
- Molle flap \$30.10 - https://www.cryeprecision.com/ProductDetail/avsdf102000_avs-detachable-flap-molle

This system:

- Offers covert and overt capabilities.
- The thinnest most modern cut NIJ rated 3A panels of its kind
- Not a custom item
- Rapid delivery – company has many components in stock, claims they can deliver the majority of 2000 full systems rapidly.
- Measurements are simplified and roll out to the field can be handled quickly
- Accommodates side armor cummerbund to close any armor gaps (if necessary).
- **Approx. \$1010 for vest and both carriers** (overt and covert) agency price (\$662 vest alone).

**The other soft vest product is made by Velocity Systems, specifically their ULVS Vest System.*

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Helmet – no longer optional:

The current issued PASGT helmet rapidly acquired in 2020 is an antiquated design. Further, the company selected is not on the list of tested law-enforcement/military approved helmets for duty use.

A helmet needs to pass a 'back face' deformation test that is necessary for safety of the wearer.

Although the speed at which the agency acquired these helmets was impressive, the end result is an antiquated system with an inferior design, improper suspension system for proper fit, and lackluster protective qualities that may ultimately endanger the wearer.

With the decreased cost of a new plate carrier system, realized savings should be adequate to purchase appropriate duty rated helmets. New helmets with modern cuts are best suited for a current mission spaces, are adaptable to future threats due to their modular nature, and can adapt to the individual needs of the wearer.

Helmet Considerations:

The agency should procure one of the various lightweight high cut modern helmets that allow for the following necessary aspects of field use:

- Communications Integration
- Riot Shield Adaptors
- PID/IFF Designation
- Night Vision Integration

There are 4 leading companies who offer helmets meeting these requirements, and the AMA recommends **Crye Precision Airframe**. The complete helmet system is approximately **\$850.00**.

Other manufacturers offer similar products, and excellent helmets are Ops Core/Gentex High Cut, the Team Wendy Exfil SL, and the Galvion Caiman.

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Uniform Replacement:

An individual ensemble should aim to provide head to toe protection across all layers. The agency must view the uniform as an extension of PPE *not an aesthetic presence*.

The issued 5.11 ensemble is made of antiquated materials. It does not meet the current protective thresholds, and is not adequate to meet today's threats.

The current issued items are also a polyester blend, and are particularly poor material given the current trend of incendiary devices and explosives being used against law enforcement. Our current issued uniform does not meet the melt-drip parameters necessary to protect us from this trend. Garments not resistant to high flash flame, such as Molotov cocktails or other incendiary devices, may melt or 'drip' and stick to skin.

It is important to acquire either fire resistant (FR) garments, or issuing FR undergarments to compliment non-melt/drip garments.

The 4 current leading companies who offer FR/No Drip uniforms -

- **Crye Precision G4 FR Combat Top/Pant - \$350** (approx. agency price) – AMA choice for system consistency
- Massif Advanced Quarter Zip FR Top/Hellman Combat Pant FR
- Drifire Foretrex FR Combat Top/Pant

The 2 Leading Companies for FR undergarment layering -

- Massif Hot Johns Line
- Drifire Ultra FR Line

Accessory Pouch Suite:

The current issued pouch suite consists of heavy pouches that are often not utilized. Many forego these for better aftermarket options that are better suited to the area of operations of that individual.

It should be noted that modularity of the plate carrier option will forego the need to issue the current pouch suite, and offer an end-user driven approach to their gear. This will allow the agency to realize additional cost savings.

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Color Considerations

The agency should consider the color gray going forward.

Studies have shown that gray is a neutral color that is less agitating to the public.

Given public perception over the past few years, this could alleviate unnecessary friction for our overt missions (VIPR program has drawn media attention).

The UK CTSFO units switched to the colorway called “wolf gray” which is commercially available and issued through various companies. This gray has become synonymous with “counterterrorism” units and studies have shown that the general public tends not to engage them as their mission is distinguished from the standard police uniform.

Additionally, the public outcry for demilitarizing police, and federal agencies are removing colors and patterns such as Multicam Camo for urban operations. Neutral, less agitating colors could reduce agency friction during large scale responses.

Misc. Accessories

The AMA selections focus on Crye gear because of the full range of accessories which allow the operator to adjust armor to mission needs. Other agencies have adopted Crye setups (for example, FBI, HSI, USSS, and SOCOM), and the accessory options allow rapid acquisitions and off the shelf customization for any mission space.

Crye Precision, LLC

Quotation

Date
Dec 3, 2020Page
1Order Number
QT000US
Phone:
Fax:

Sold To:

DHS - Federal Air Marshal Service

US

Ship To:

DHS - Federal Air Marshal Service

US

Reference	PO Number	Customer No.	Salesperson	Order Date	Ship Via	Terms
		AM		Dec 3, 2020		N30

Qty. Ord.	Qty. Shp.	Qty. B/O	Item Number	Description	Unit Price	UOM	Extended Price
0	0	0	LVS-BV2-36-LG0	LVS Base Vest Patrol Cut Gray Large	662.00	EA	0.00
0	0	0	LVS-CV4-00-LG0	LVS Tactical Cover Black Large	245.60	EA	0.00
0	0	0	LVS-SC7-00-000	LVS 6X9 Tactical Soft Armor Pouch Set Black	44.50	SET	0.00
0	0	0	LVS-SA3-36-000	LVS 6X9 Side Panel Set Gray	133.60	SET	0.00
0	0	0	AVS-DF6-00-000	Stretch Detachable Flap Black	53.00	ea	0.00
0	0	0	BLC-066-00-LG0	JPC 2.0 Black Large	186.30	ea	0.00
0	0	0	AVS-DF1-00-000	AVS Detachable Flap MOLLE Black	30.10	set	0.00
0	0	0	BLC-048-00-001	JPC Long Side Armor Pouch Set Black Size 1	67.30	ea	0.00
0	0	0	HLM-AX1-00-LG0	AirFrame ATX Helmet Black Large	777.70	ea	0.00
0	0	0	HLM-AR1-00-000	AirFrame Rails 01 Black	29.20	set	0.00
0	0	0	HLM-VA1-00-000	AirFrame Velcro Kit Black	7.50	ea	0.00
0	0	0	MRB-IB2-00-LG0	Range Belt Black Large	102.40	EA	0.00
0	0	0	POU-BP2-00-000	EXP 2100 Pack Black	255.20	ea	0.00
0	0	0	POU-PI0-00-000	EXP Pack MOLLE Insert	34.70	ea	0.00
0	0	0	APR-CSE-00-LGR	Combat Shirt G3 Black Large Regular	132.70	ea	0.00
0	0	0	APR-CPE-00-34R	Combat Pant G3 Black 34 Regular	211.40	ea	0.00
0	0	0	PAD-KC5-00-000	AirFlex Impact Combat Knee Pad Black 00	36.60	pr	0.00
			HC2	Shipping TBD Upon Invoicing			0.00

Comments:

Quote for pricing purposes only

Quote valid for 60 days

Tax Summary:

AVATAX 0.00

Less

Included Tax

0.00

Order Discount

0.00

Subtotal

0.00

Total sales tax

0.00

Total order

0.00

LVS™ BASE VEST PATROL CUT

LVS-BV2



CRYE PRECISION™

FEATURES

1. Our proprietary IAV (Insert As Vest™) architecture dramatically reduces bulk and printing
2. 3D formed armor panels match the human body—delivering enhanced comfort & concealment
3. Base vest includes 2 built-in pockets suitable for radio, rifle mag, pistol, or pistol mags
4. Anti-microbial fabrics used throughout
5. Proprietary forming technique eliminates crumpling of armor
6. Wide range of optional carriers allow one system to economically cover many roles from low-vis to overtly tactical
7. Optional side and abdomen armor panels are available
8. NIJ IIIA Certified

DESIGN

This is the "Patrol Cut" version of our LVS™ BASE VEST. The Patrol Cut front panel is narrowed at the upper chest area for improved mobility. The Standard Cut Base vest is sized to provide full soft armor coverage under a standard rifle plate. The LVS™ system sets a new standard for concealable body armor. Our proprietary 3 dimensional forming technology allows us to shape the vest to directly match the contours of the human body delivering an unprecedented level of concealment and comfort that only this production process can deliver. Because it is molded, the armor will not crumple and fold up in the bottom of the carrier. In fact, the LVS™ base vest requires no external carrier at all. This is due to our unique "Insert As Vest™" architecture. This construction greatly reduces bulk and visual printing. The LVS™ system is extremely versatile. A wide range of optional covers allow the same armor panels to be quickly swapped between vest configurations. For instance a patrol vest can instantly become a tactical entry vest.. or anything in between. Additional side and abdomen armor panels are available to add even more coverage. The LVS™ armor is NIJ IIIA Certified. Made in the US from US materials.

SIZES

SM MD ML LG LL XL XXL 2XL

COLORS



GRAY



LVS™ TACTICAL COVER

LVS-CV4



CRYE PRECISION™

FEATURES

1. Easily converts your low-vis vest into full tactical vest
2. Lightweight and simple
3. Includes 3 **BAND SKELETAL™ CUMMERBUND**
4. 4 built in mag/radio pouches
5. Heavy duty aluminum shoulder hardware
6. Chest rig attachment loops on front
7. Pack attachment loops on rear
8. Ample **VELCRO®** brand loop on front and rear for agency ID patches
9. Compatible with any **AVS™** front flap

DESIGN

The **LVS™ TACTICAL COVER** lets you easily convert your low-vis vest into a full tactical rig. It's lightweight and simple yet is packed with useful features. It includes our patented **SKELETAL™ CUMMERBUND**, 4 built in mag/radio pouches, heavy duty aluminum shoulder hardware, chest rig attachment loops on front, pack attachment loops on rear, and is compatible with any **AVS™** front flap. Made in the US from US materials.

SIZES

SM MD ML LG LL XL XLL 2XL

COLORS



MULTICAM®



COYOTE



R. GREEN



BLACK



LVS™ COVERT COVER

LVS-CVA



CRYE PRECISION™

DESIGN

The LVS™ COVERT COVER gives you multiple color options for your LVS™ BASE VEST, plus it allows for easy laundering and can accept rifle plates while still being extremely low profile. For the most stable and adjustable plate integration we suggest adding the LVS™ PLATE HOLDER inside the cover. This cover is best paired with concealable plates. Plates over ¾" thick are not recommended. Made in the US from US materials.

SIZES

SM MD ML LG LL XL XLL 2XL

COLORS



MULTICAM®



BLACK



GRAY





FEATURES

1. Easy 2-step emergency doffing capability
2. Hidden vertical webbing loops on front carrier supports detachable chest rigs
3. High performance stretch material that allows for plates of varying thickness
4. VELCRO® brand panel on the front of the carrier allows detachable MOLLE or mag pouch front flap
5. Zippers along the sides of the back carrier for zip-on panels
6. Low-profile cummerbund attachment that provides maximum adjustability and allows for chest expansion as needed
7. Webbing loops on the back of the shoulder straps to support back panels
8. Drag handle that supports up to 400 lbs.

DESIGN

The JPC 2.0™ is a lightweight and minimal armor vest designed for maximum mobility, weight savings, and packability. At just over one pound for the entire carrier, the JPC 2.0™ offers a variety of configuration options to suit an operator's needs in terms of protection, modularity, and comfort. It features our SKELETAL™ CUMMERBUND system with our Integrated Attachment System that allows pouches to be mounted on both the inside and outside of the cummerbund. This system sheds unnecessary weight and bulk while improving overall ventilation.

SIZES

SM MD LG XL

NOTE:

- PLATE SIZING CORRESPONDS TO CARRIER SIZE
- SAPI PLATE CUT SHOWN, ALSO AVAILABLE IN SWIMMER PLATE CUT

COLORS



MULTICAM®

COYOTE

R. GREEN

BLACK



AVS™ DETACHABLE FLAP
SOLD SEPARATELY



AVS™ DETACHABLE FLAP, MOLLE

AVS-DF1



CRYE PRECISION™

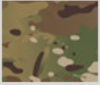
DESIGN

Attaches to front platebag (Standard or MBAV) of AVS™ to provide three rows of MOLLE webbing for attaching kit.

SIZE

One size fits all

COLORS



MULTICAM®



BLACK



R. GREEN



COYOTE



LVS™ 6X9 SIDE PANEL SET

LVS-SA3



CRYE PRECISION™

DESIGN

The LVS™ 6X9 SIDE PANEL SET adds 9 more inches of ballistic coverage to each side of the LVS™ vest. Wear with the LVS™ BASE VEST or insert into a Side Armor Carrier for use with any of the various LVS™ covers. LVS™ side armor panels are made of the same ballistic package as our LVS™ vests. Made in the US from US materials.

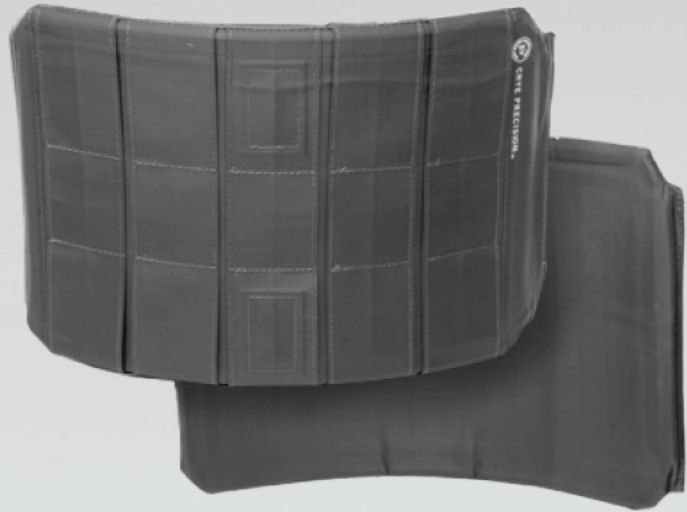
SIZE

One size fits all

COLORS



GRAY



JPC™ LONG SIDE ARMOR POUCH SET

BLC-048



CRYE PRECISION™

DESIGN

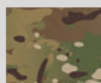
Each pouch holds one standalone 6"x 6" plate or one low-vis 6"x 6" and a soft armor backer. It attaches directly to the front plate bag or can be woven onto the **SKELETAL™ CUMMERBUND**. Stretches to fit contents. Left and right pouch included.

SIZE

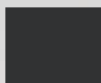
Size 1: Fits Size 1 Soft Armor Panels (6" x 10.5") as well as standard-issue 6"x 9" panels

Size 2: Fits Size 2 Soft Armor Panels (6" x 11.5")

COLORS



MULTICAM®



BLACK

