



Armored Brigade Combat Team Panel Discussion



facilitated by:

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TRADOC Capability Manager
Armored Brigade Combat Team
and Reconnaissance/Surveillance Brigade



Agenda



- Fleet Readiness: A Review of Engineering Change Proposals**
- ABCT Network Integration and Mobile Command Post**
- ABCT Force Design Update**
- Restoration of ABCT Core Competencies**



Fleet Readiness

“A Review of Engineering Change Proposals”





Abrams ECP1



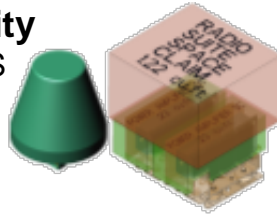
Benefits

- Additional electrical power margin (ECP 1 adds 7840 watts) supports power demands of future technologies
- Enables network upgrades, improved radios and situational awareness, providing joint interoperability
- Upgraded Armor protection
- Enables improved IED detection
- Provides ability to interface with new large caliber ammunition
- Increases energy efficiency with incorporation of an auxiliary power unit
- Reduction in operational support costs

Network Enabled

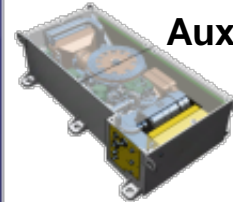
Network Compatibility

- JTRS HMS
- JBC-P



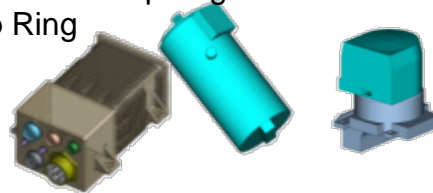
Sustainment

Auxiliary Power Unit



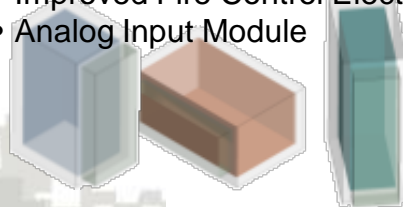
Power Generation/Distribution

- Battery Monitoring System
- Increased Amperage Alternator
- Slip Ring



Line Replaceable Modules (LRM)

- Improved Commander's Display Unit
- Improved Commander's Electronics Unit
- Improved Hull Mission Processor Unit
- Improved Turret Mission Processor Unit
- Improved Driver's Integrated Display
- Improved Gunner's Control Display Panel
- Improved Fire Control Electronic Unit
- Analog Input Module



Lethality

Ammunition Data Link



Protection

CREW/Duke v3 Armor Upgrade





Abrams ECP 2 Proposed Technologies



Improved Mobility

- **Fuel Efficiency Improvements**
 - AGT1500 Engine Upgrades
 - Transmission Upgrades
- **Improved Suspension**



Improved Force Protection

- **Laser Warning Receiver**
- **Environmental Control System**
- **Directional Smoke Grenade Launchers**
- **Fire Suppression (Halon replacement)**
- **Armor Upgrades**

Improved Lethality

- **Commander's Independent Thermal Viewer**
 - Next Generation FLIR
 - Laser Range Finder
 - Color Camera
- **Gunner's Primary Sight**
 - Next Generation FLIR



Bradley ECP I-II Changes



ECP-1 – FY15



ECP-2 – FY17

ECP 1*

Suspension and Track

- Extended Life Track
- Heavy Weight Torsion Bars
- Dampers and Road Arms

*All other technologies are ECP 2

Enabled Capabilities

- Counter RCIED (Remote Control Improvised Explosive Device) Electronic Warfare (CREW) v3
- Embedded Training (CETS)

Power Train

- 675 HP Power Pack Upgrade
- 800 HP Transmission Efficiencies
- Cooling System Modification
- Upgraded Final Drives

ECP 3 Accelerated Technologies

- Automatic Fire Extinguishing System (AFES) Optimization – Phase One
- Third Scout Bench
- Lightweight BRAT/Armor (Trade Study)

Electrical System (28 Vdc)

- Electrical Power Upgrade (from 400 amps to 1000 amps)
- High Speed Slip Ring Upgrade
- 1 G Ethernet Switch
- Vehicle Health Management System (VHMS), Phase I
- Battery Management
- Begins VICTORY architecture compliance
- Electrical Cooling

Protection

- BUSK IV Improved Underbelly



Situational Awareness

- Improved FBCB2 Integration
 - Data Distribution Unit (DDU)
 - Joint Battle Command - Platform (JBC-P)
- Common Intelligent Display
- KGV-72 (Programmable Encryption Device)
- Blue Force Tracker (BFT) 2
- Joint Tactical Radio System (JTRS)
 - Mid-Tier Networking Vehicular Radio (MNVR)
 - Handheld Manpack Small Form Fit (HMS)
- New Central Processor Unit

Intent: Address space, weight, power, cooling and computing limitations to enable Army inbound technologies.



Proposed Bradley ECP 3



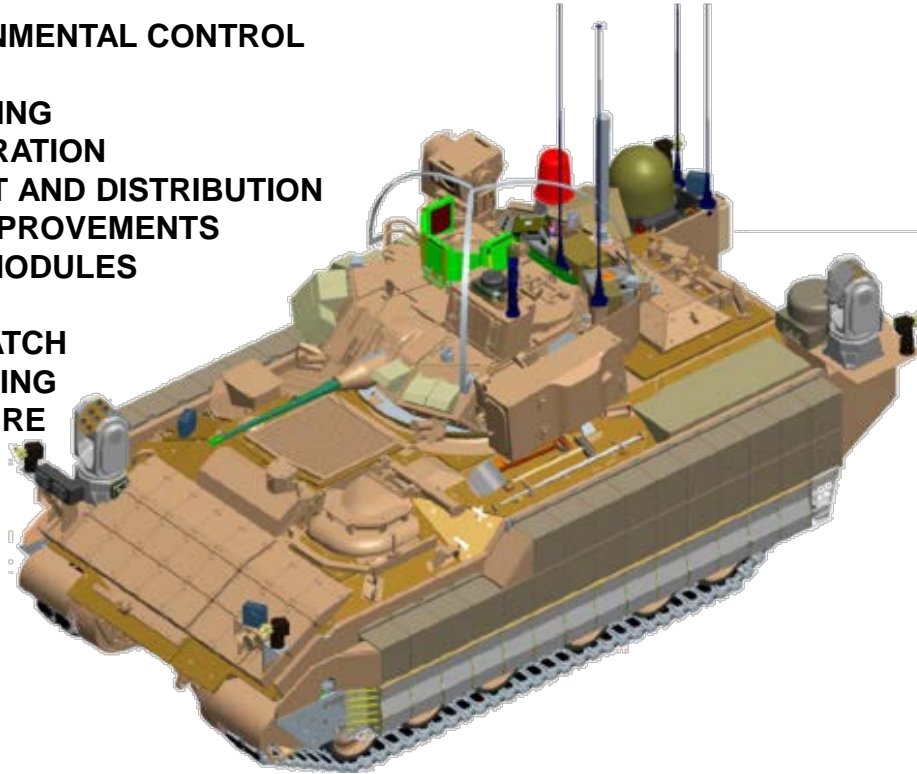
ECP-3 FY25

NETWORK

- INTEGRATED ENVIRONMENTAL CONTROL SYSTEM
- COMPUTER PROCESSING
- 160 kW POWER GENERATION
- POWER MANAGEMENT AND DISTRIBUTION
- FUTURE NETWORK IMPROVEMENTS
- LINE REPLACEABLE MODULES
- GROWTH MARGIN
- EXTENDED SILENT WATCH
- AUDIO/VIDEO CAPTURING
- VICTORY ARCHITECTURE
- VHMS II

MOBILITY

- MOBILITY SUITE
- 800+ HP ENGINE
- 800+ TRANSMISSION
- COOLING SYSTEM
- EFFICIENCIES
- POWER MANAGEMENT
- DISTRIBUTION



LETHALITY

- INCREASED COAX READY
- LASER POINTING/ TARGETING
- AIRBURST MUNITIONS
- EXTENDED RANGE RESOLUTION
- CANNON UPGRADE
- COMMANDER'S WEAPON SYSTEM
- NON-LETHAL EFFECTS
- REDUCED TIME OF FLIGHT
- FIRE AND FORGET

PROTECTION

- BUSK IV IMPROVED UNDERBELLY
- OBSCURANTS
- LIGHT WEIGHT BRAT
- LIGHT WEIGHT ARMOR
- HIT AVOIDANCE
- FUEL/AMMO COMPARTMENT
- 360 SA
- SIGNATURE MANAGEMENT



System Description of LRIP Vehicle (SPH and CAT)



Self-Propelled Howitzer (SPH)

Carrier, Ammunition, Tracked (CAT)

ELECTRICAL SYSTEM

- o CMPS Including 600V, 70 kW Integrated Starter/Generator
- o 600V-28V Bi-Directional Conversion
- o Cable Management System for Power and Reliable High-Data Transmission Capability Between Cab and Chassis

GUN DRIVES

- o 600V Electric Elevation Drive
- o 600V Electric Traverse Drive
- o Electric Joysticks
- o Manual Gun Drive Backups

PRIMARY ARMAMENT

- o 39 caliber/155 mm
- o Travel Lock
- o 600V Electric Rammer
- o Manual Rammer Backup

SECONDARY ARMAMENT

- o M2 0.50 caliber Machine Gun or 40 mm MK19 Grenade Launcher

CREW 2

ELECTRONIC SYSTEMS

- o PFCS
- o DASH
- o PESA
- o Digital Backbone
- o 10/100 Ethernet Switch
- o JTRS HMS Man pack
- o BLUE FORCE TRACKING BFT2

Micro-climatic Cooling System

Improved Force Protection and Survivability
•Two-Tier Threshold
•CROWS at T2

CHASSIS (NEW STRUCTURE)

- o Additional Ground Clearance
- o Structural Integrity (110k lbs GVW)
- o Provisions for Mine Blast Kit and Side Armor

DRIVER'S COMPARTMENT

- o Shift Tower
- o Brakes
- o Steering
- o Driver's Comp designed to meet T2 requirements w/ pop up hatch
- o Composite Armor
- o Instrument Panel
- o Driver's Vision Enhancer

POWER TRAIN

- o Engine 675 HP
- o Transmission HMPT 800
- o Final Drive
- o PTO
- o New Cooling System
- o AFES Sensors

SUSPENSION AND TRACK

- o Six Road Arm Stations
- o Torsion Bars
- o Four Rotary Dampers
- o Track 19.1"

■ BRADLEY COMMON	■ NLOS-C DERIVED
■ BRADLEY SIMILAR	■ OTHER
■ PALADIN	■ PIM SPECIFIC

ELECTRICAL SYSTEM

- o CMPS Including 600V, 70 kW Integrated Starter/Generator
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CREW 2

ELECTRONIC SYSTEMS

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- o 10/100 Ethernet Switch
- o JTRS HMS Manpack
- o BLUE FORCE TRACKING BFT2



DVE

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CROWS



Assault Breacher Vehicle (ABV)



Tracked Combat Engineer vehicle for the Army Armored Brigade Combat Team and Marine Air Ground Task Force. Designed to breach minefields and complex obstacles, provide in-stride breaching capability. New capability in ABCT Engineer Companies.

Major Components:

- M1A1 chassis, with TIGER Engine
- Linear Demolition Charge systems (capable of firing two MICLICs)
- Lane Marking Systems (LMS)
- Front End Equipment (Full Width Mine Plow, Combat Dozer Blade)
- Integrated Vision System (IVS) for day and night operations

Acquisition Strategy

- USMC is Lead Service; Army is Participating Service
- USMC approved Full Rate Production in FY07, began fielding FY08
- Army Acquisition Strategy updated Jul 10
- Lead management will transition to Army when current USMC contracts expire & Army assumes contracting responsibilities 1QFY14



Basis of Issue

- Army Acquisition Objective: 123; USMC: 52
- 6 per ABCT Engineer Company; 3 per BEB/ABCT Engineer Company (2 companies)
- 6 at Engineer School, 2 at Ordnance School (Ft. Benning)

Fielding (6 ABVs except as noted)

- Engineer School (Ft. Leonard Wood, MO)
- Ordnance School (2, Ft Benning, GA)
- 3/3 ID Ft. Benning fielded 2QFY12
- 2/3 ID Ft. Stewart fielded 3QFY12
- 1/3 ID Ft. Stewart fielded 3QFY12
- 1/34 ID (MN ARNG) fielded 3QFY13
- 1/2 ID (Korea) fielded 3QFY13
- 155th ABCT (MS ARNG) fielded 4QFY13
- Fielding 1/1 CD Ft. Hood 1QFY14
- Fielding 3/1 CD Ft. Hood 2QFY14

- Production on schedule (AABV001-AABV054 complete, 55-57 inducted)
- Producing 23 systems with FY12 funds/3 with FY13 funds
- All major and minor sub-systems hardware contracts have transitioned from USMC to Army
- Type Classification-Limited Procurement obtained due to unknown outcome of follow-on reliability testing. Reliability testing has been completed and ABV has, to date, met the 32 hr MTBOMF requirement
- Conditional Materiel Release approved for FORSCOM, TRADOC, and USARNG
- Maintenance TM Verification was completed successfully in 3QFY13
- LOG DEMO completed successfully in 2QFY13
- ABV Lead Service shifts from USMC to Army in 1QFY14





AMPV Program Background



- The M113 Family of Vehicles (FoV) program was terminated in 2007.
- The M113 FoVs has inadequate survivability and force protection, lacks the Size, Weight and Power-Cooling (SWaP-C) to incorporate future technologies and the Army's inbound network.
- The M113 FoVs account for 32 percent of the Armored Brigade Combat Team's (ABCT) tracked vehicle fleet.
- The Armored Multi-Purpose Vehicle (AMPV) is intended to be an immediate materiel solution to support the ABCT across the Spectrum of Conflict.
- The increased capability of the AMPV will allow the ABCT to take full advantage of its Agility, Versatility, Survivability, Sustainability, and Trainability by providing a highly survivable and mobile platform to accomplish operational support missions.
- Five variants: Mission Command (MCmd), General Purpose (GP), Mortar Carrier (MC), Medical Evacuation (ME), and Medical Treatment (MT)



Armored Multi-Purpose Vehicle Capabilities



Candidate Vehicles (AMPV AoA)

GAP: Lethality

- Flexible Mounted Crew-Served Weapon on all Variants (5.56 Medical Variants)
- M121 Mortar Mission Equipment Package

GAP: Protection

- Increased Soldier Protection
- Increased Under Body Protection
- Increased Kinetic Protection
- Increased Protection Shape Charged Warheads
- All Weather/ Visibility Driving Capability
- Increased Gunner Protection
- Increased IED Mitigation Capability
- Higher Efficiency Litter Kit and Medical MEP
- Environmental Cooling System (Medical Variants)



BFV Derivative



MTVL+FP



Stryker-DVH



CMTV

GAP: Network Enabled

- Smart Display Unit/FBCB2 Display
- Current/ Future Radio A-kit Integration
- Increased Power Generation
- Mounted Soldier System A-kits
- Current MCmD System A-kits
- Future MCmD System Integration



Questions



Next Topic:
“ABCT Network Integration”



ABCT Network Integration

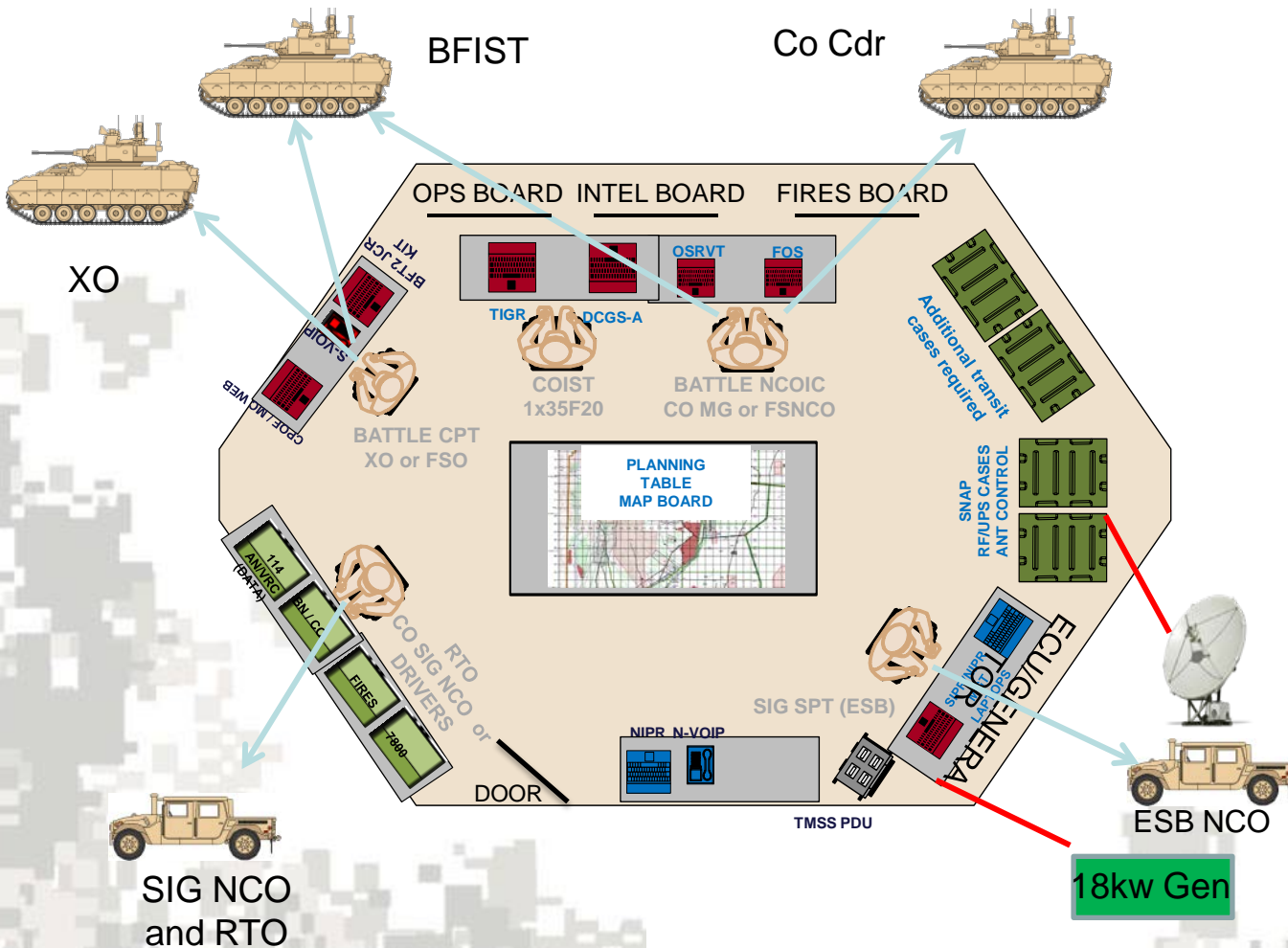


- VCSA directed Network integration into ABCT formations by FY17
 - Vehicle Mission Command capabilities includes WIN-T connectivity
 - SWAP issues with integration of WIN-T (PoP/SNE) into combat vehicles (M1/M2) in ABCT
 - Current WIN-T BOIP identifies AR and IN CO 1SG M113 to host SNE
 - Fielding a Mission Command variant of the AMPV begins ~FY21
 - Other Network components will provide ~80% of our Mission Command requirements on Command vehicles, (JBC-P, BFT 2, KGV-72)



Static Company CP Design

A Key challenge for the ABCT, is the move from static Command Posts to a Mobile capability, employed within Companies during Offensive and Defensive actions.



Co CP C3TSYSTEMS

1. BFT2 JCR KIT
2. TIGR
3. DCGS-A
4. CPOF
5. FOS
6. SIPR LAPTOP (for email)
7. NIPR LAPTOP (for email)
8. SVOIP phone
9. NVOIP phone
10. FM Radios
11. OSRVT

Co CP SHIFT PERSONNEL (12-hr)

ORGANIC

1. Battle Captain: XO or FSO
2. Battle NCO: CO MG or FSNCO
3. 2 x 35F Intel Analyst
4. 1 x 25U Commo SGT
5. 1 x RTO and/or Drivers

ATTACHMENTS

1. 2 x SIGNAL SUPPORT (from ESB)



Mobile Command Post Concept



- Facilitate the fusion of maneuver, fires, intelligence and sustainment information *on the move, at the short halt, and in a static area of operations.*
- Provide on vehicle capability to facilitate orders development/ process.
- Provide the commander useful information from near real time data to enable situational awareness allowing him to:
 - *Better plan and synchronize operations*
 - *Understand the current situation*
 - *Effectively visualize, describe and direct subordinates*
- Provide robust mission command systems during all facets of decisive action.
 - *Offensive Tasks*
 - *Defensive Tasks*
 - *Stability Tasks*



ABCT Network Integration



- Do not integrate WIN-T Increment 2 into the ABCT Formation; no viable platform exists in the ABCT until AMPV is fielded to units.
- Synchronize WIN-T INC 2 fielding in the ABCT Formation w/ AMPV fielding. Accelerate AMPV development, production and fielding in order to provide Mission Command on the Move capability to the ABCT Formation as soon as possible.
- Accelerate JCR/JBCP and the BFT2 Network fielding to ABCT formation IOT achieve partial MCOTM capability in the interim; continue Mobile CP FDU efforts.

FY 14	FY 15	FY 16	FY 17
Phase 1			

Action: Field JCR / BFT1 / KGV-72

Results:

- Establishes commonality with rest of force by transitioning from EPLRs
- Creates foundation for BFT 2
- Continue NIE 14.1 and 14.2 1068/WIN-T Proof of Principle
- Continue development of the Protected Mobile Command Post FDU

FY 18	FY 19	FY 20
Phase 2		

Action: Field JBC-P/BFT 2

Results:

- 80% of M/C Solutions (lacks SIPR/Web Access, CPOF collaboration and VOIP)
- Improves latency in SA tracking
- Incorporates TIGR
- Provides collaboration tools
- Integrates Nett Warrior SA on vehicle info displays (w/ SRW)
- Integrates SRW on Bradley for MC/SA with Network

O/O - Occurs with AMPV Fielding
Phase 3

Action: Field WIN-T/3

Results:

- Integration of WIN-T with AMPV fielding
- Enhances Network capability to formation as efforts to develop technology that allows placing WIN-T on Commander platforms continues

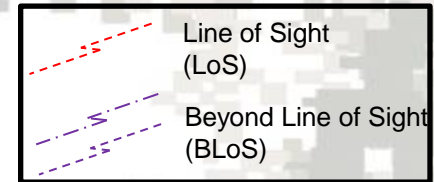


ABCT Network Concept



Mission Command Priorities

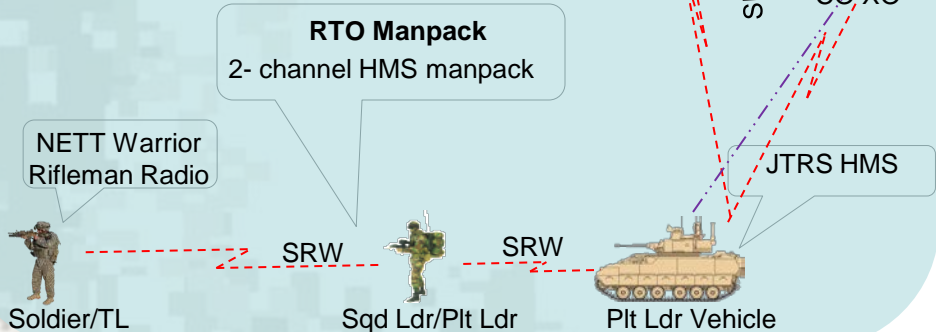
- **Voice**
 - LOS
 - BLOS
 - Secure
- **Data**
 - Secure
 - Transmit/Receive Orders
 - Transmit/Receive Reports
- **Friendly (Blue) Situational Awareness**
 - Transmit own PLI (automatic)
 - Displayed on dynamic maps
 - Display two echelons down
 - Display operational graphics
 - Secure
- **Threat (Red) Situational Awareness**
 - Current, Relevant and Accurate
 - Displayed on dynamic maps
 - Secure



Infantry Company

CO Level MCOTM:

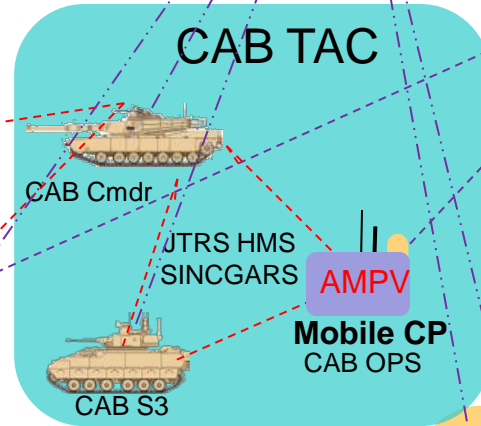
- BLOS Voice (immediate tonal inflections)
- JCR/JBC-P (Mounted S/A)
- NETT Warrior (Dismounted S/A)
- SIPR Net (classified text)
- TiGR (intel reference)



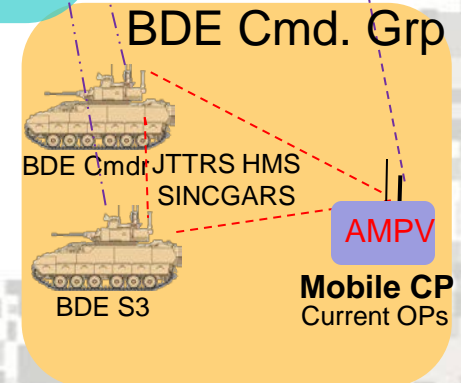
JBC-P

WIN-T

CAB TAC



BDE Cmd. Grp





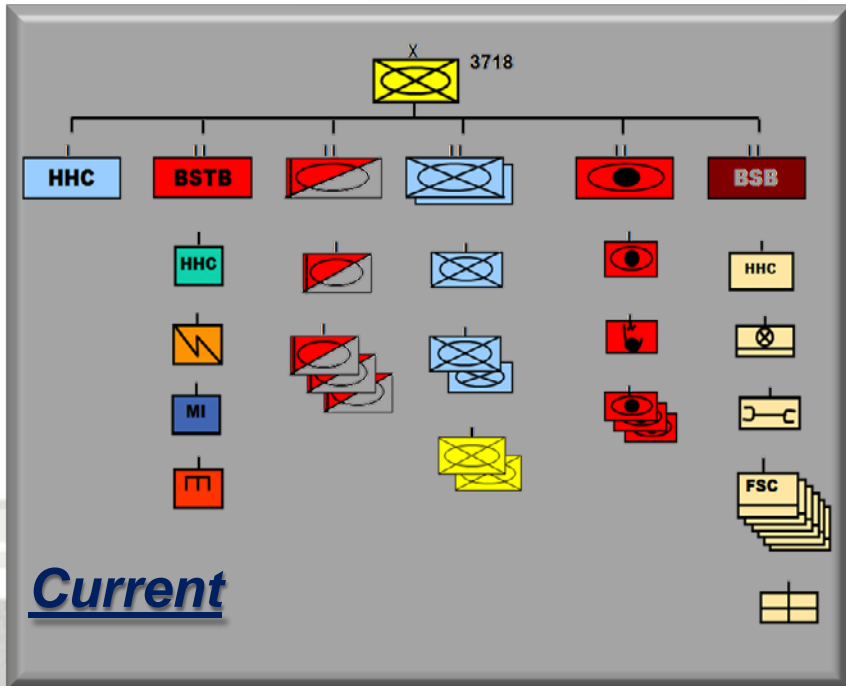
Questions



Next Topic:
“ABCT Force Design Update”

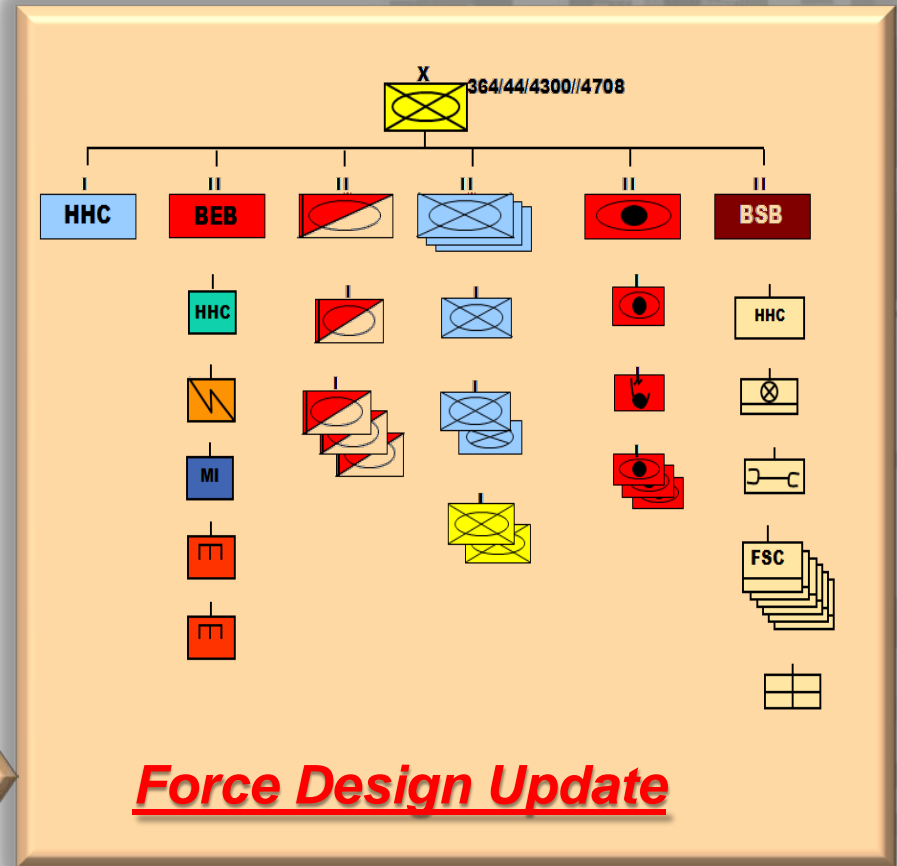


Current to Future ABCT 2020 Design



Current

Proposed

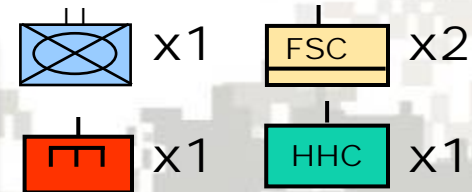


Force Design Update

ABCT:

- Adds 3rd Combined Arms Battalion to increase maneuver capability. Greatly enhances organic combat power and massing of combat power.
- Adds BEB HHC, 2nd Engineer Company and FCS. Increases maneuverability, sustainment and force protection.

Changes to BCT 2020





Significant Capabilities Adjusted



Added 3rd Maneuver Bn to ABCT & IBCT

Converted / Added BEB to BCT design (refined BEB design)

Addressed Medics in BEB (3rd Ambulance Medic)

Resourced BEB EW (EW template fully resource in BCT)

Increased COIST from 1 to 2 per maneuver company

Replaces Q-36/Q-37 Radar with 2x Q-53 Radars and adds Q-64 Radar

Retained UAV Manning at 27 personnel: 18 Hours – surge 24 Hour capacity



2020 BEB with 2 EN Companies



Element	Equipment	Work Effort Available	Examples of Work Completed (per day)
Sappers	3 PLTs / Bradleys	810 Manhours / Day, 9 Engr Sqd Msns / Day	9ea – demolitions missions, route recons, bunkers...
Breach	6 ABVs	3+ Vehicle lanes	3+ lanes 162m long
Gap Crossing	4 AVLB / JAB	4 Gaps	4 x 18m gaps
Blade Capability	6 D7 2 Graders 2 M9 ACE	75 Blade Team hours / Day	60 hull down positions, 3000m AT ditch, Route Sanitation, UAS LZs, enable BCT Logistics Support.
SEE / Backhoe	6 HMEE 2 Skid Steer	90 Equipment hours / Day	180 crew served fighting positions, HESCOs, route san
Route Clearance	2 Buffalo 4 Husky 4 MMPV	40 km / day (two lane)	Route Clearance 40 km (25 miles)



Questions



Next Topic:
“Restoration of ABCT Core Competencies”



Core Competencies

Examples of Skill Degradation



- **11B Bradley Skills:** The Bradley NET concludes in FY 14. Units lack master gunners in adequate numbers and experienced 11B NCOs to conduct sustainment training. 11B Soldiers, NCOs and officers commonly arrive to the ABCT with no Bradley experience. Commanders express that ABCTs require all 11Bs to arrive with a familiarization of Bradley skills for the unit to build upon.
- **TOW Proficiency:** First time live fire engagements with the TOW at the NTC have been ~20% successful and of those that do successfully fire, only ~50% hit the target; TOW skills not trained for gunnery skills tests.
- **Movement Techniques:** Units are not planning for transitioning from movement to maneuver. Units commonly stay in the traveling formation until contact is made. This appears to be a learned TTP from recent experiences on route security missions against ambushes, IEDs, etc.
- **Sustainment:** Equipment readiness rates during NTC rotations has reduced available combat power. Leaders and Soldiers need improvement on sustainment from operator level maintenance to BCT level planning. Units do not have repetitive experience performing this task in a decisive action training environment. Recent experience has been on hard site FOBs with contractor support.
- **Mission Command:** Units rely too heavily on contractor support for mission command systems. Units have demonstrated challenges with effective management and operations of analog and digital mission command systems.
- **Doctrine:** Leaders have been training at home station and the NTC without a solid foundation of doctrinal knowledge related to decisive actions.



TCM-ABCT Priority Training Issues (Azimuth Check)



Below are the training issues we have identified by priority. Are these the same you are tracking in your formation?

1 - 11B Bradley Skills

2 – Sustainment (Operator to BCT level)

3 – Mission Command (Analog and Digital)

4 – Movement and Maneuver of Abrams and Bradleys

5 – Scout Proficiency on Decisive Actions METL Tasks

6 – Doctrinal Knowledge IAW CATS and APD



Contact TCM-ABCT/Recon



Access TCM-ABCT on MilBook through Army Knowledge Online

<https://www.milsuite.mil/book/group/t>

TCM-ABCT Points of Contact:

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Closing Comments

