

MARINE CORPS SYSTEMS COMMAND

EQUIPPING THE WARFIGHTER TO WIN



Jim Smerchansky
Chief Engineer
Marine Corps Systems Command



OBJ

FBHL

FBHL

WHAT WE DO TODAY



FOB

Forward Operating Base

CAMP

FOB / COP

Combat Outpost

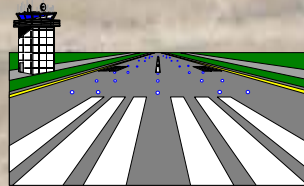
PB / OP

Patrol Base / Observation Point

**ENTRY
POINT**



**BUILD-UP OF
FORCES**



**EXTEND
FORWARD
PRESENCE**



**TAKE THE
FIGHT TO THE
ENEMY**





- Large areas of operation
- Long duration patrols (8-10 days)
- Critical dependence on radios
- Carry 1-2 days + of supply
 - chow / ammo / batteries / water
- Battery resupply every 48 hours
- Re-supply ties patrols to convoys, stalling operational momentum





MRAP pushes a mine roller during a five-day convoy to provide resupply. During one resupply convoy it took nearly 40 hours to travel a 70 miles.

OBJ

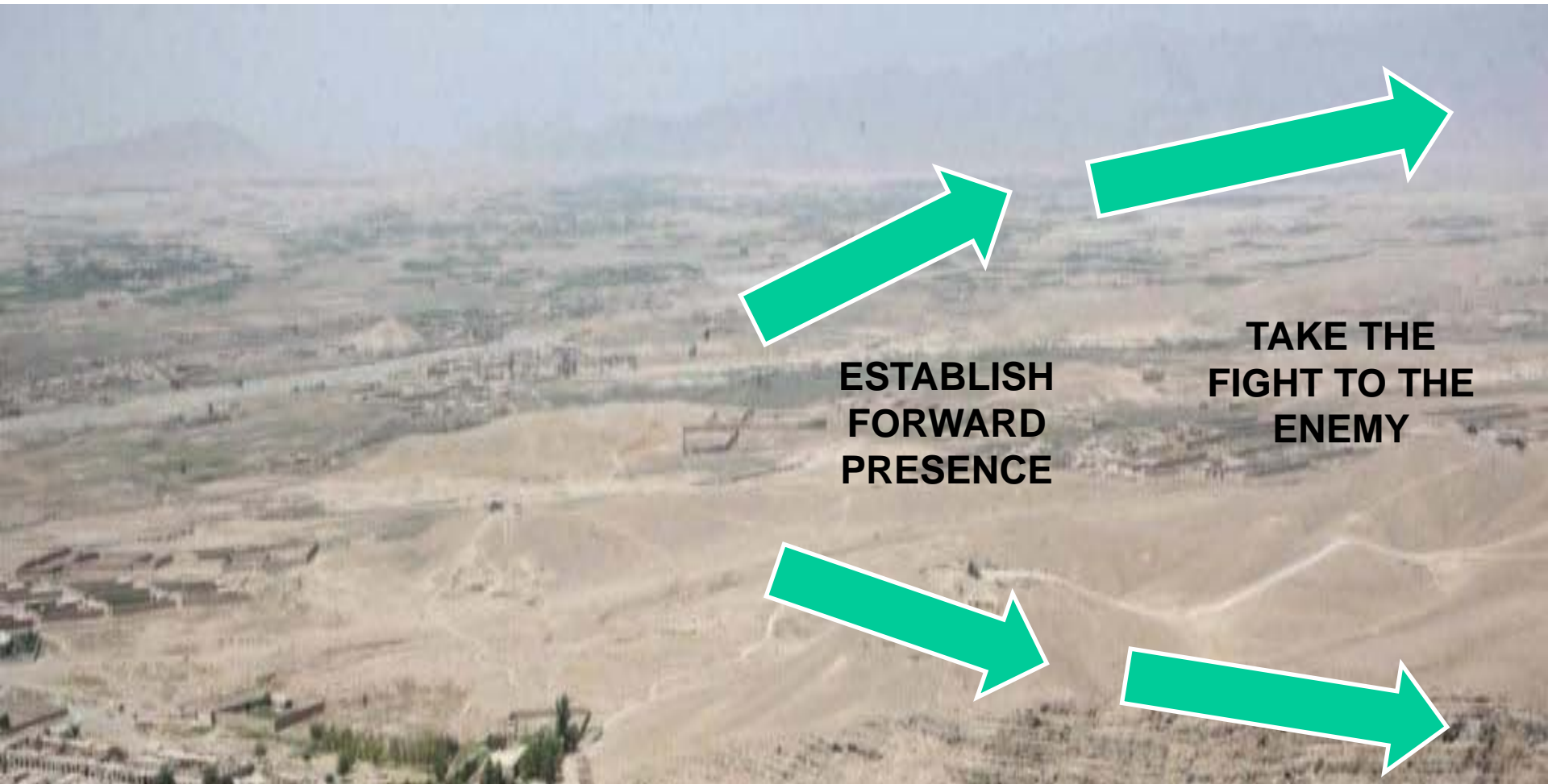
WHAT WE WILL DO TOMORROW





FOB / COP

PB / OP



**ESTABLISH
FORWARD
PRESENCE**

**TAKE THE
FIGHT TO THE
ENEMY**



- **Space and Weight are at a premium due to lift restrictions**
 - Air
 - Sea
 - Land
- **Unique transportation requirements**
 - All equipment must be capable of deploying via ship, air or tactical vehicle
 - Equipment must survive coming through surf and cross-deck loading
 - Electromagnetic interference from shipboard systems
 - Special restrictions for shipboard stowage / transport (Lithium Batteries)
 - Supply / resupply is from the Naval / Pre-Positioned Forces



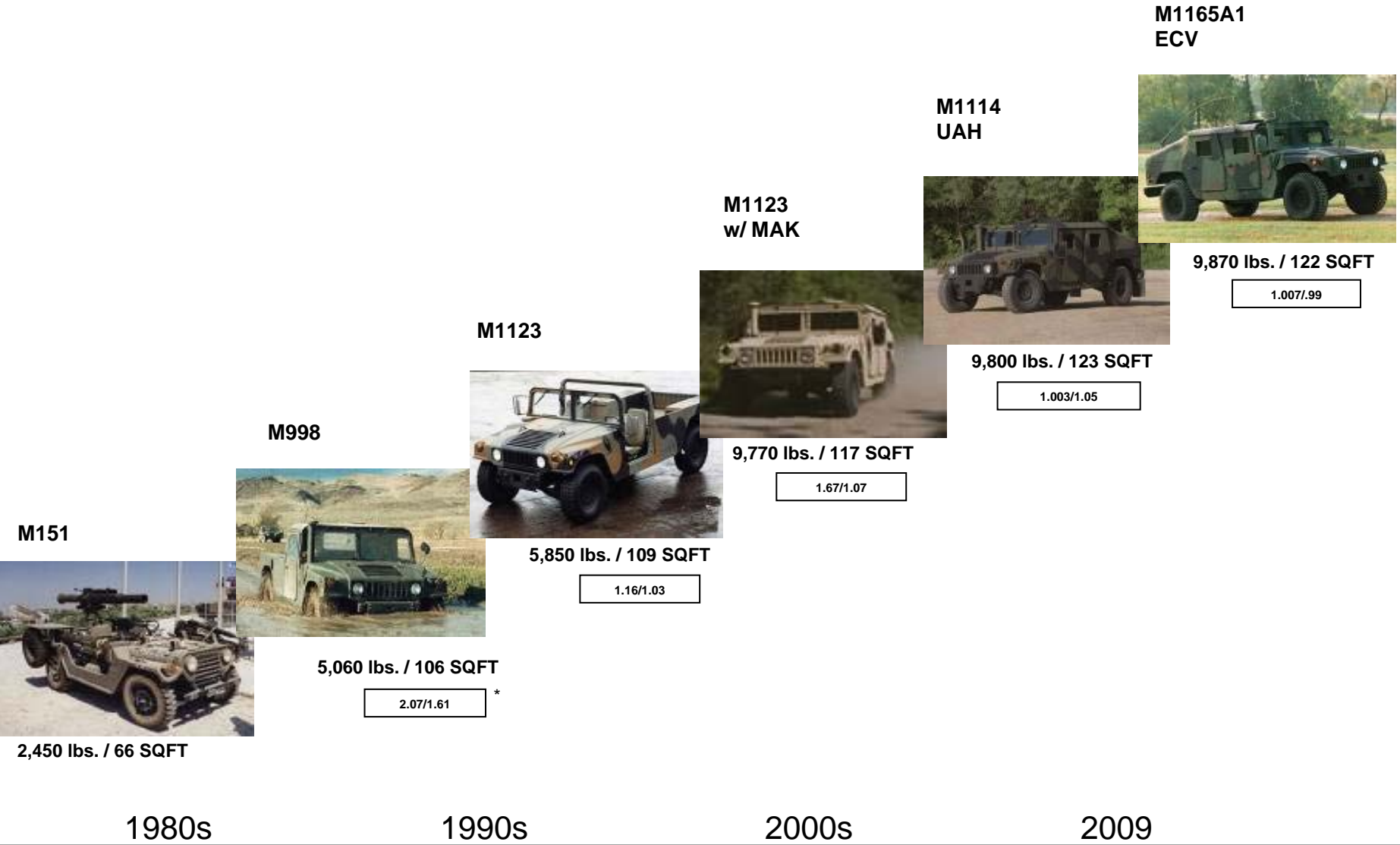
<u>Individual Marine (carried):</u>	Assault Load < 75#, Existence < 150#
<u>Lifted by Marines / Loose Cargo:</u>	One person lift – 44 pounds
<u>Requiring Forklift / Material Handling:</u>	> 400 pounds
<u>HMMWV Trailer Towable:</u>	> 2700 pounds
<u>Medium Tactical Truck Carried:</u>	< 7 tons (off road), 10 tons (on road)
<u>Heavy Tactical Truck Carried:</u>	< 16 tons (on road)
<u>MV-22 Tilt-Rotor Lift:</u>	< 4 tons (internal)*, 7.5 tons (external)
<u>CH-53 Helicopter Lift:</u>	< 5 tons (internal)*, 14 tons (external) * psi limitations apply

MARINE CORPS SYSTEMS COMMAND Framing the Problem



EQUIPPING THE WARFIGHTER TO WIN

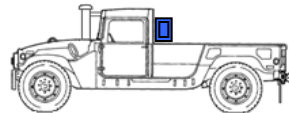
Growth



* Box shows growth in weight/square from previous vehicle.



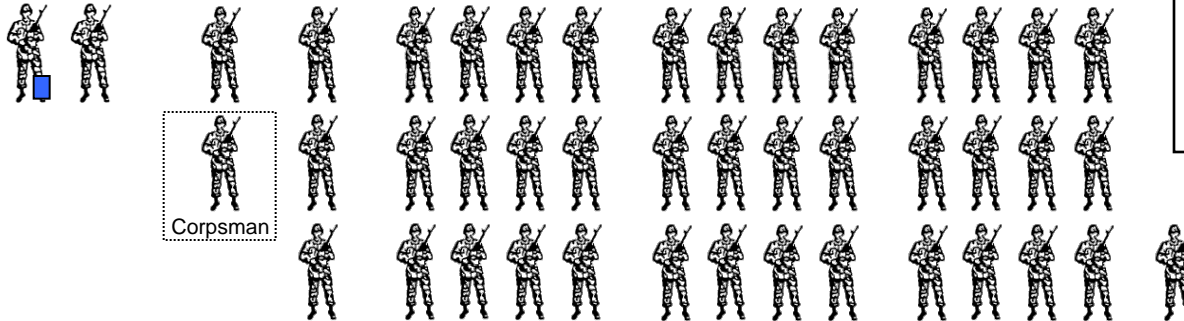
Co HQ (x3/Bn)



Mounted in M998A1

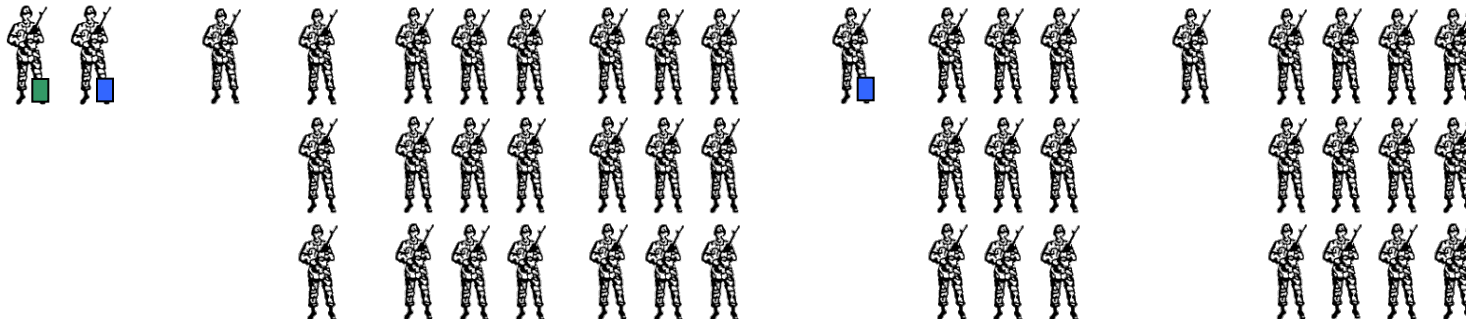
T/O	6 Officer/176 Enlisted
VHF-V (VRC-88):	1
VHF-M (PRC-119):	7
UHF-M (PRC-113):	1

RFL Plt (x3/Co x9/Bn)



<u>Radio Weights</u>	
PRC-119	- 22.5 lbs
PRC-113	- 16.7 lbs
* w/batteries	

WPNS Plt (x3/Bn)



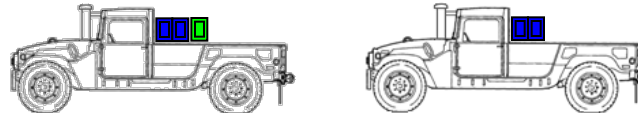
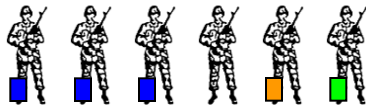
MG Sect

Mortar Sect

Assault Sect



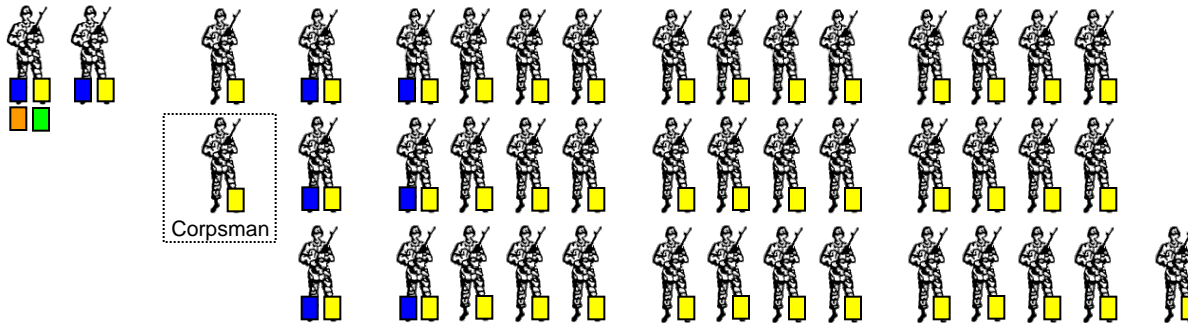
Co HQ (x3/Bn)



Mounted in M1123A2s

□	T/O 6 Officer/176 Enlisted	
■	MBR-V (VRC-103):	1
■	MBR-M (PRC-117):	6
■	HFMR (PRC-150):	5
■	DVA (VRC-110):	2
■	THHR (PRC-148/152):	35
■	IISR (PRC-153):	176

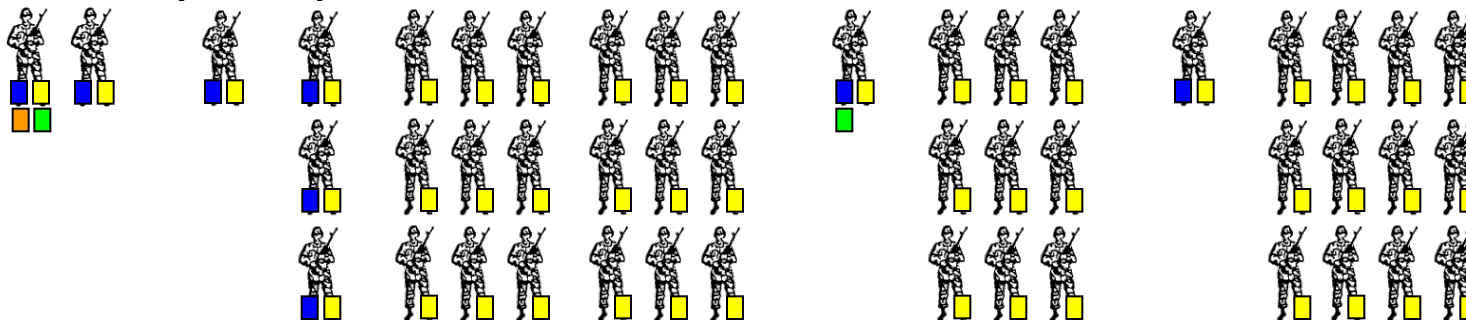
RFL Plt (x3/Co x9/Bn)



Radio Weights

- PRC-150 - 15.7 lbs
- PRC-117 - 15.9 lbs
- PRC-152 - 2.4 lbs
- PRC-153 - 1 lbs
- * w/batteries

WPNS Plt (x3/Bn)



MG Sect

Mortar Sect

Assault Sect

MARINE CORPS SYSTEMS COMMAND

EQUIPPING THE WARFIGHTER TO WIN

Individual Power Requirements



AN / PVS-17
AA Battery



AN / PVS-14
AA Battery



AN / PAS-13D
AA Battery



AN / PEQ-16A
DI-123A Battery



Hand-held flashlight
AA Battery



MIOX Water Purifier
AA Battery



AN / PSC-13 D-DACT
Unique or AA Battery



DAGR
AA Battery



AN / PRC - 148 or 152
Unique Batteries



AN / PRC-153
Unique Battery



Quiet Pro Headset
Unique Battery



Squad Digital Camera
Unique Battery



AN / PRC-117F
BA-5590 / BA-5390 / BB-2590 Batteries



Rugged Laptop
Unique Battery

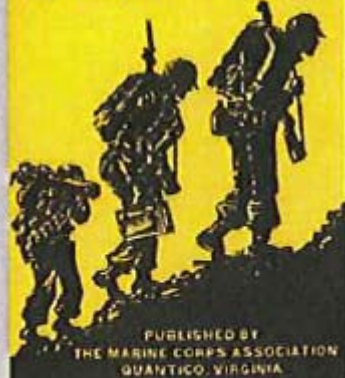
MARINE CORPS SYSTEMS COMMAND

EQUIPPING THE WARFIGHTER TO WIN

Combat Weight of Marines



The SOLDIER'S LOAD
AND
The MOBILITY of a NATION



NRAC

NAVAL RESEARCH ADVISORY COMMITTEE
REPORT

Lightening the Load

September 2007



MARINE CORPS SYSTEMS COMMAND

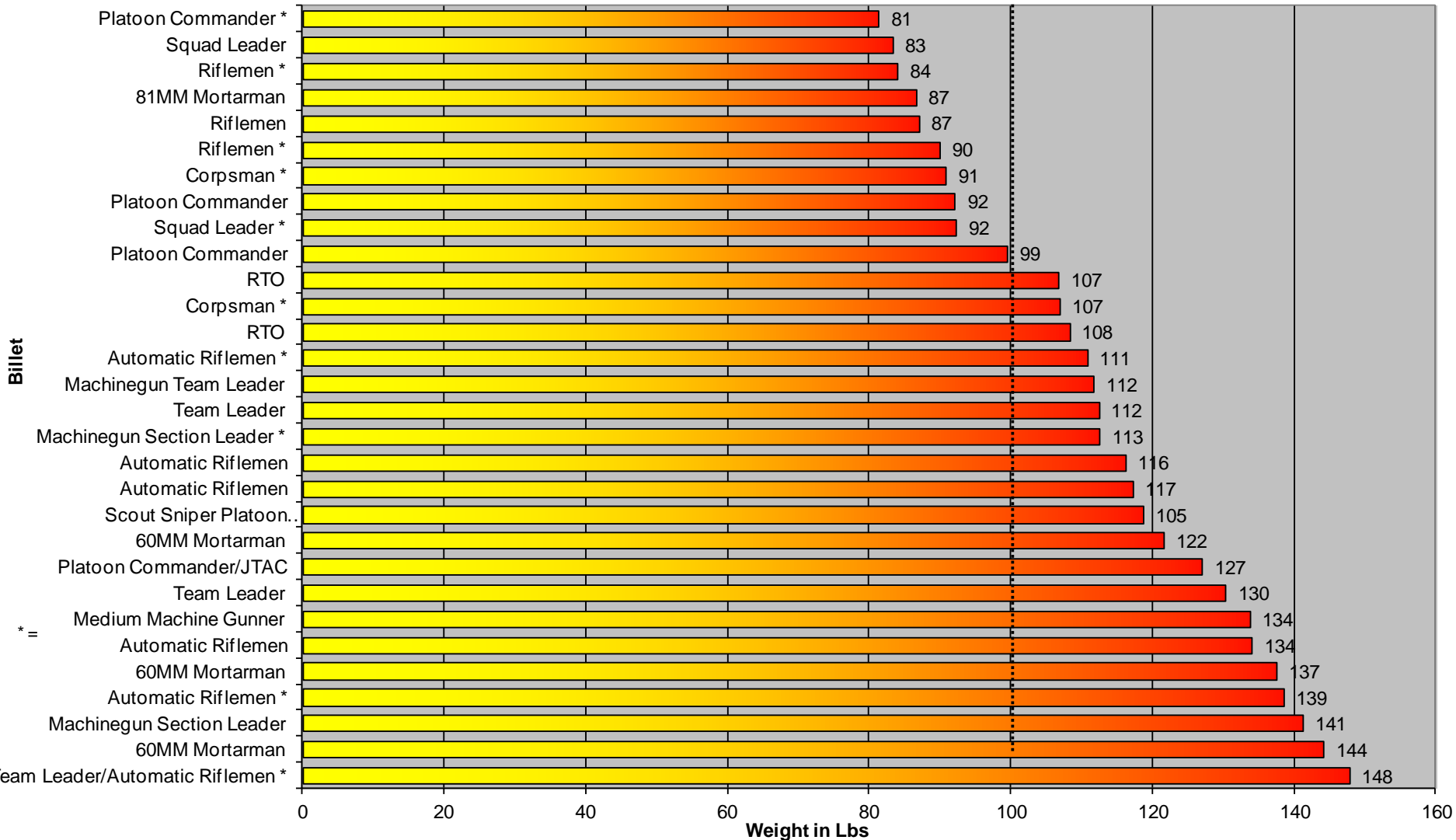
EQUIPPING THE WARFIGHTER TO WIN

2nd Bn
7th Marines



2/7 April 2008 Equipment Weight by Billet

Average Weight 112 lbs



MARINE CORPS SYSTEMS COMMAND

EQUIPPING THE WARFIGHTER TO WIN

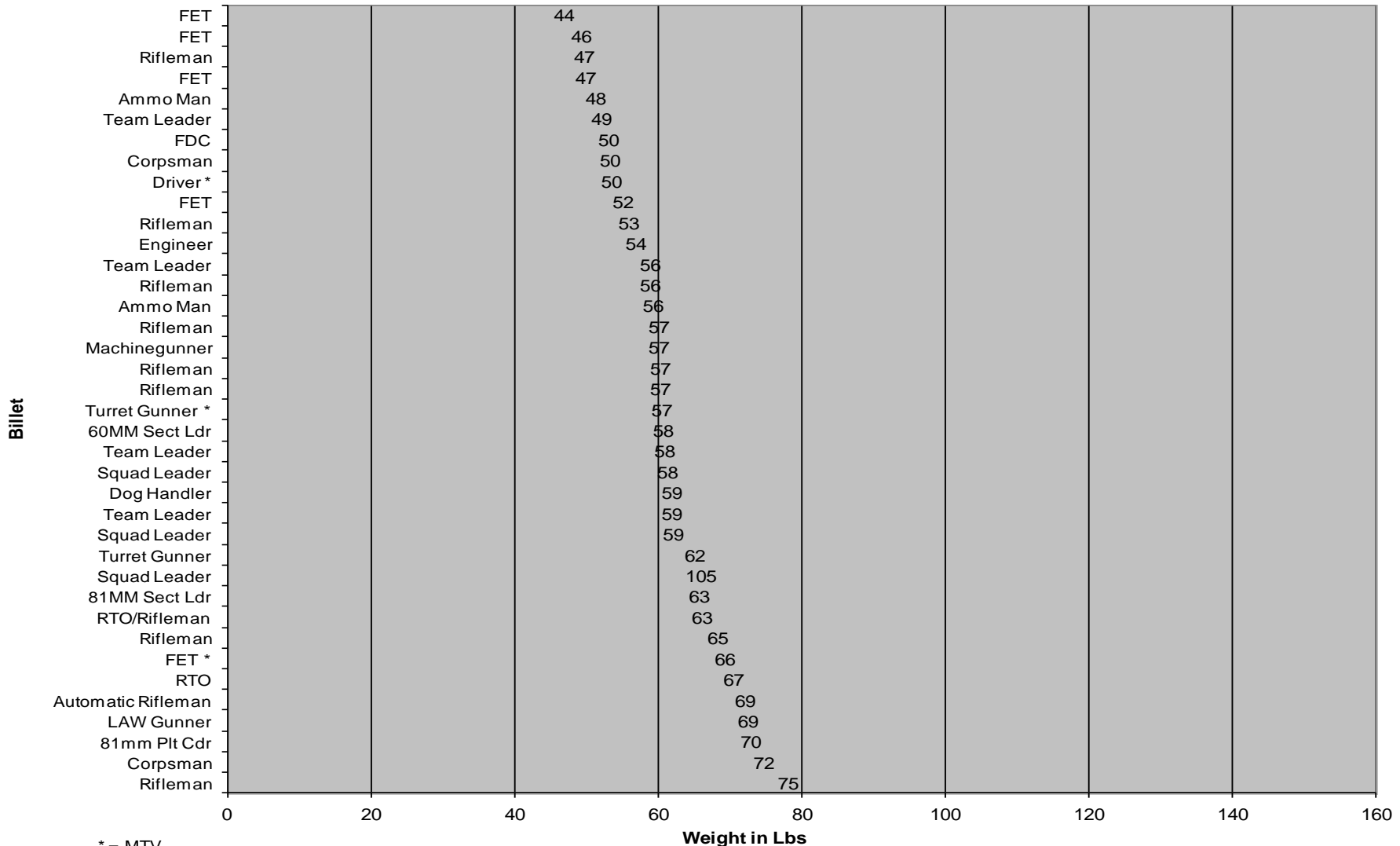
2nd Bn
2nd Marines

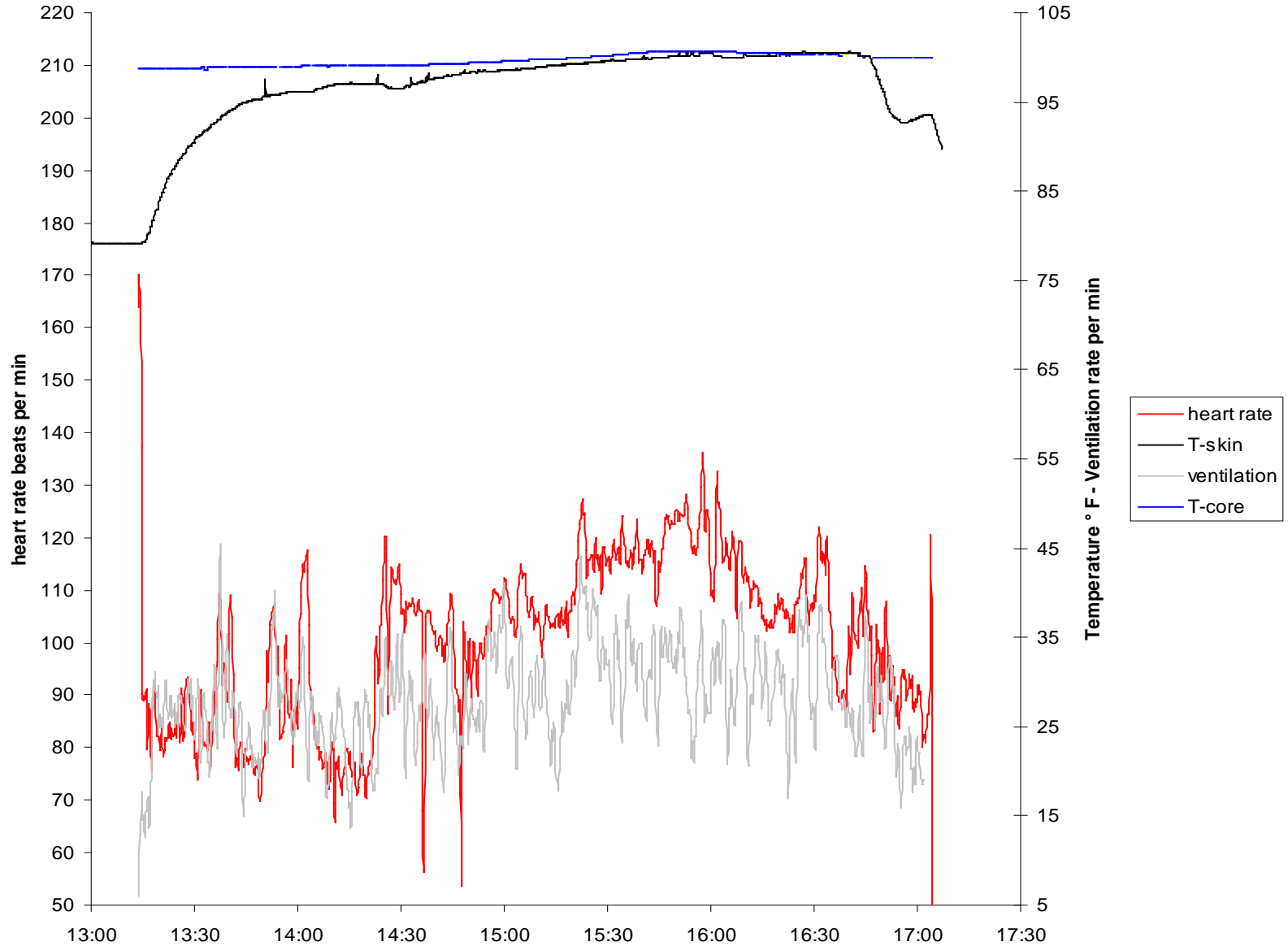


2/2 March 2010 Equipment Weight by Billet

Average Equipment

2/7 Avg Equipment Weight
112 lbs





MARINE CORPS SYSTEMS COMMAND

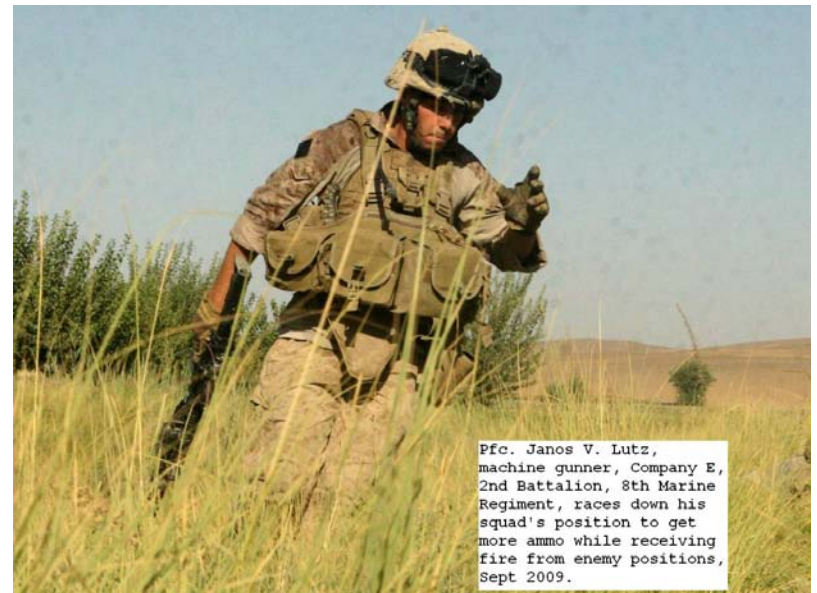
Thermal Heat Strain



EQUIPPING THE WAREFIGHTER TO WIN



1st Lt. Thomas "Tee" Tompkins with Company E, 2nd Battalion, 8th Marine Regiment, scans a possible enemy position with his rifle combat optic Aug. 10, 2009.

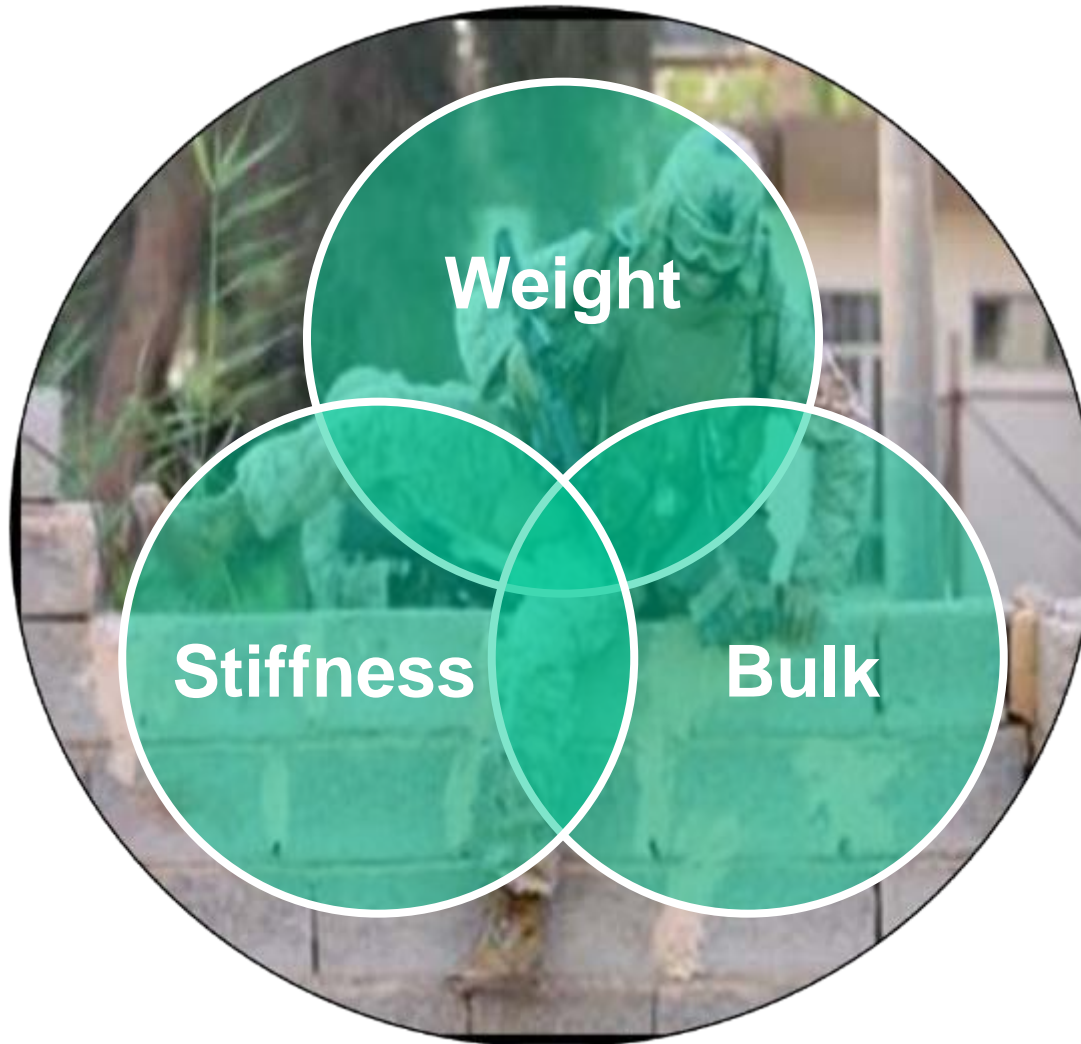


Pfc. Janos V. Lutz, machine gunner, Company E, 2nd Battalion, 8th Marine Regiment, races down his squad's position to get more ammo while receiving fire from enemy positions, Sept 2009.

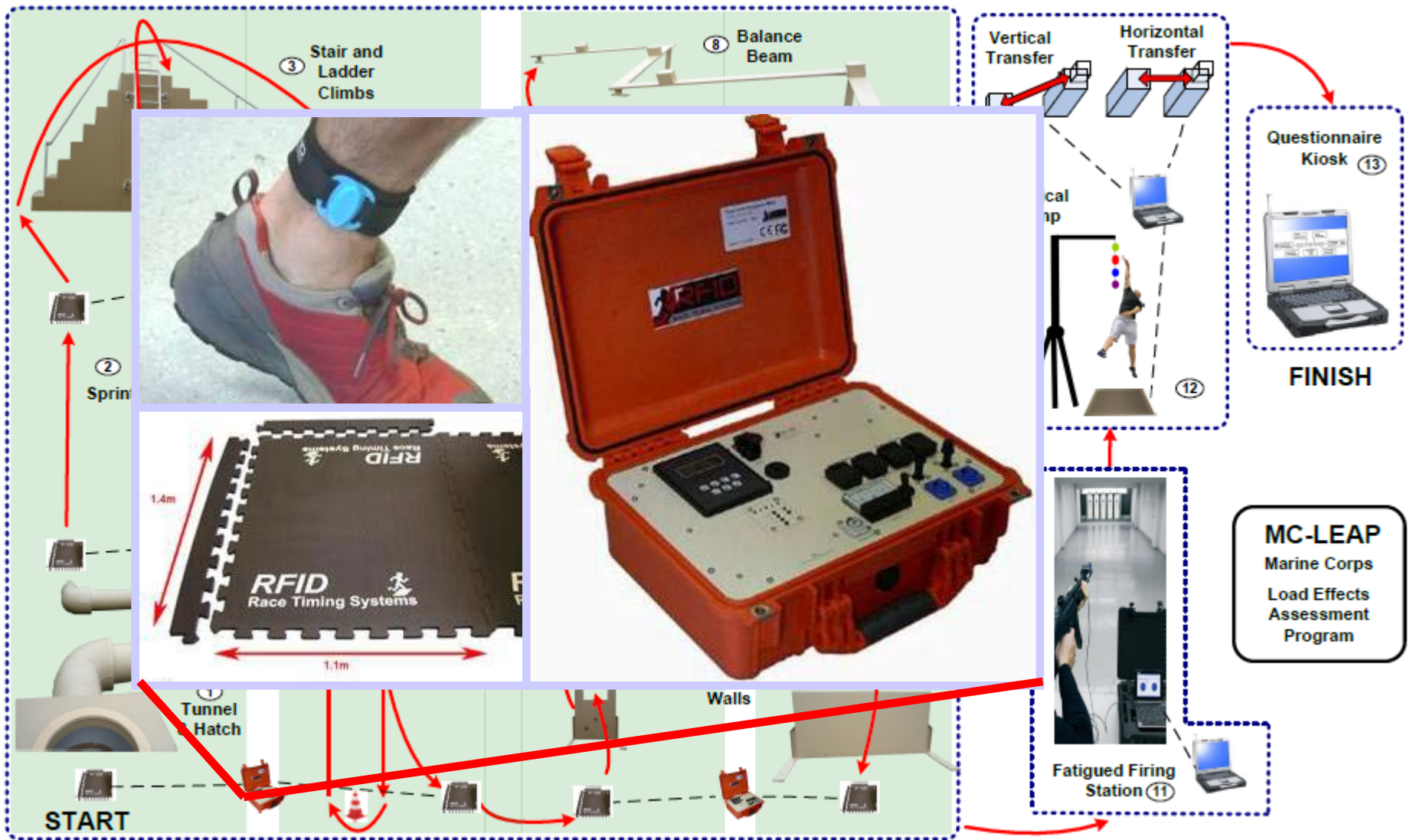


NRAC 2007:

Adequate models do not exist that incorporate combat effectiveness parameters and predict human performance effects of weight.



MARINE CORPS SYSTEMS COMMAND



Tunnel & Hatch



Agility Run

Agility Run & Ladder Job

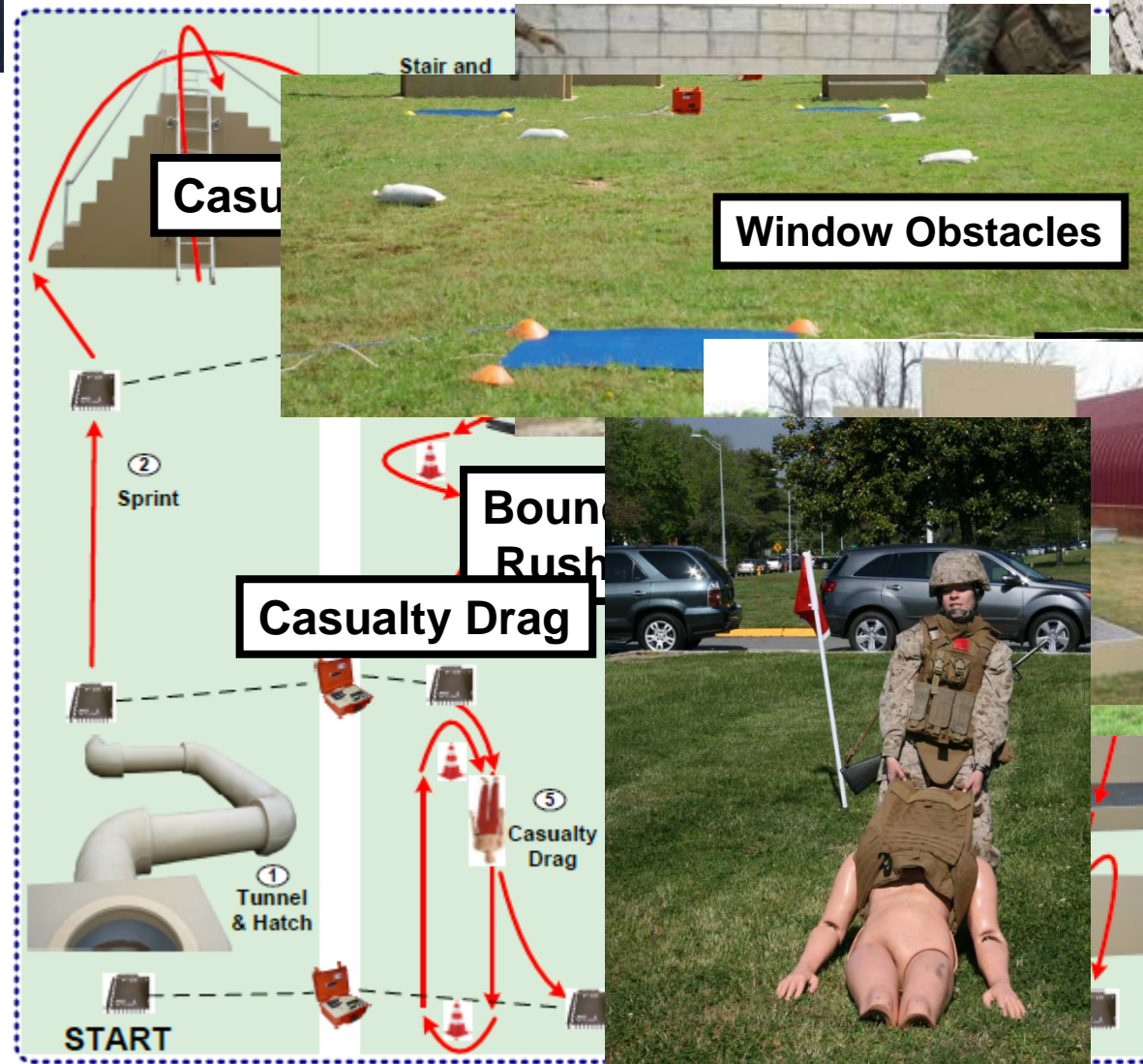
Agility Run

Agility Run

LEAP
Marine Corps
Effects Assessment
Program



MARINE CORPS SYSTEMS COMMAND



13

H

AP
ps
ts
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MA



Wall Climb

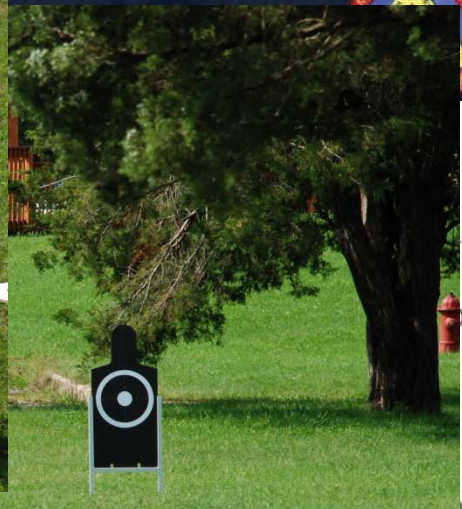


Questionnaire Kiosk 13



Wall Climb





Sensor Pad Stations

Questionnaire Kiosks

MFG Combine - Questionnaire

Instructions: On a scale of 1 to 7, with 1 being Completely Unacceptable, 4 being Borderline and 7 being Completely Acceptable, please rate your acceptability of the following...

Identification: Enter Participant # [] Select Condition []

Question 1: The stiffness of the test condition
 1 2 3 4 5 6 7

Question 2: The bulk of the test condition
 1 2 3 4 5 6 7

Question 3: The weight of the test condition
 1 2 3 4 5 6 7

Question 4: Your agility while wearing the test condition
 1 2 3 4 5 6 7

Question 5: Your speed while wearing the test condition
 1 2 3 4 5 6 7

Question 6: Your overall mobility while wearing the test condition
 1 2 3 4 5 6 7

Question 7: Your overall performance while wearing the test condition
 1 2 3 4 5 6 7

FINISH

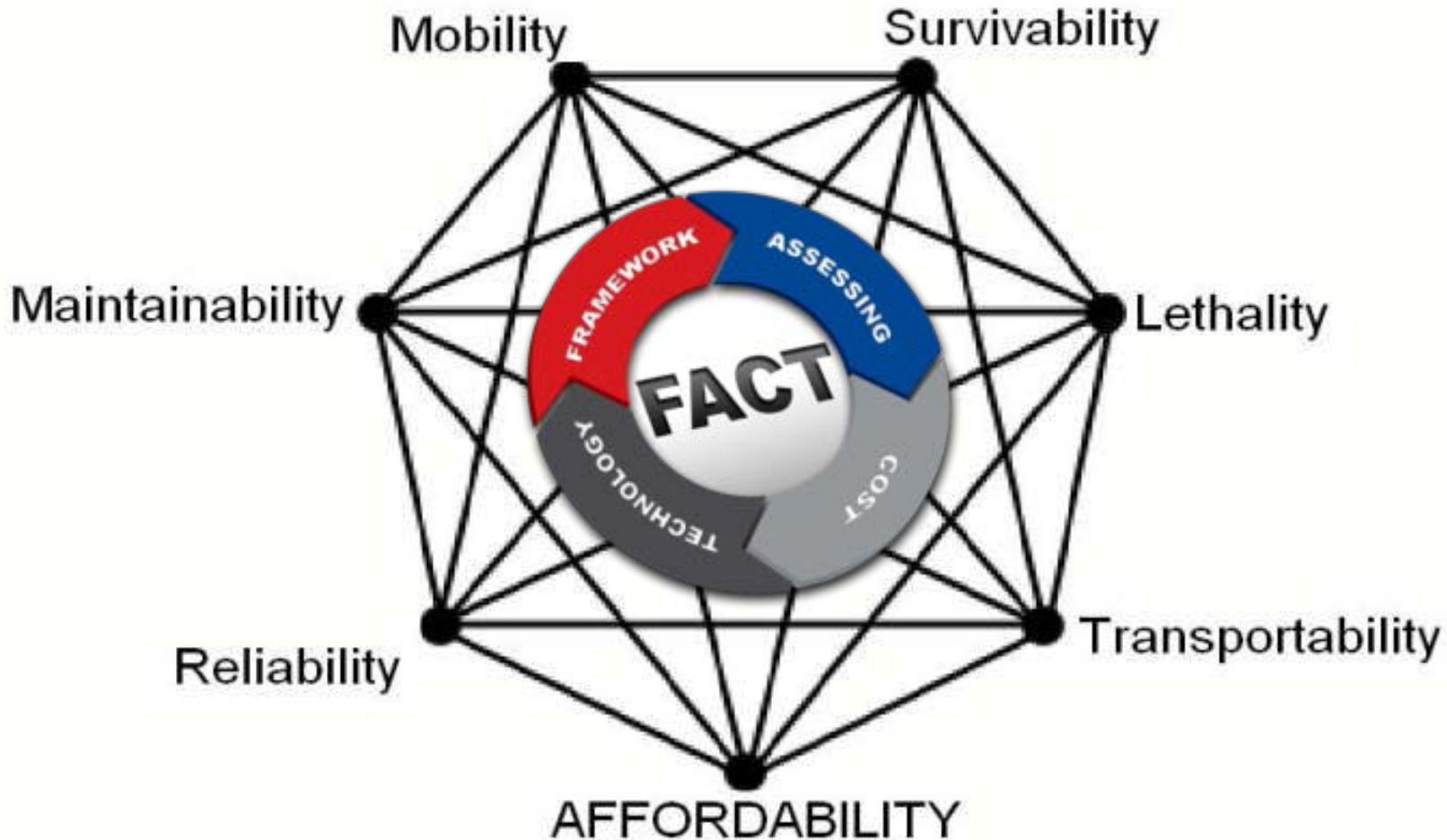


Sprint

1 Tunnel & Hatch

START







- Rapid Innovation Fund (RIF)
 - FY 11 MCSC/PEO 15 projects \$25M
 - FY 12 ONR BAA - July
 - Address JUONS and Naval Needs
 - Talk to Program Offices (Technology Leads)
- Small Business Innovation Research (SBIR)
 - \$14M for FY 12
 - Small Business Workshop

Keep the Good Ideas Coming



MARINE CORPS SYSTEMS COMMAND PROGRAM EXECUTIVE OFFICER LAND SYSTEMS

