

**Next Generation Squad
Automatic Rifle
(NGSAR)**

(Version 1.2)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY MANEUVER CENTER OF EXCELLENCE
1 KARKER STREET
FORT BENNING, GEORGIA 31905-5000

ATZK-TD

JUN 19 2015

MEMORANDUM FOR RECORD

SUBJECT: Next Generation Squad Automatic Rifle System Training Plan

1. References:

- a. TRADOC Regulation 350-70, Army Learning Policy and Systems, 6 December 2011.
- b. Next Generation Squad Automatic Rifle Capability Development Document, 17 Nov 2014.
- c. Army Regulation 350-1, Army Training and Leader Development, 18 December 2009.

2. I hereby approve this Next Generation Squad Automatic Rifle System Training Plan. A copy of the plan will be posted to the Central Army Registry within 5 days of the approval date.

3. Point of contact is Mr. Stephen Searles, Systems Training Branch, Training Development Division, Directorate of Training and Doctrine at DSN 835-8010, Com (706) 545-8010, or e-mail stephen.w.searles.ctr@mail.mil.

FOR 
JAMES E. RAINEY
Brigadier General, USA
Chief of Infantry

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This System Training Plan (STRAP) is preliminary. Front end analysis (mission, task, and job) is ongoing. MCoE - Infantry School will amend and update this STRAP as details emerge.

MCoE - Infantry School is the proponent for this STRAP. Send comments and recommendations directly to:

Stephen Searles
Comm: 706-545-8010
DSN: 835-8010
Email: stephen.w.searles.ctr@mail.mil

1.0 System Description

Upon development, the Next Generation Squad Automatic Rifle (NGSAR) will replace the M249 Squad Automatic Weapon. The NGSAR will combine firepower of a machine gun, with the accuracy and range of a carbine. Significant improvements include an extended barrel life, sound and flash signature reduction, shot counter, and an advanced fire control system with range finder. The NGSAR will have the ability to be fired from a stabilized mounted, or dismounted (ground) platform. The concept for NGSAR is based on the requirement to engage and defeat modern body armor in a close fight out to 1200 meters.

NOTE: First Unit Equipped (FUE) FY20

2.0 Target Audience

The target audience includes any Soldier assigned by duty position to operate, employ, or maintain (MOS 91-F) the NGSAR within a Combat, Combat Support, or Combat Service Support unit.

3.0 Assumptions

- a. Fielding the NGSAR will impact both individual and collective training requirements.
- b. The Material Developer (MATDEV) will provide Instructor and Key Personnel Training (I&KPT) for the New Equipment Training Team (NETT) prior to system fielding.
- c. The Program Manager-Crew Served Weapons (PM-CSW) will fund all aspects of New Equipment Training (NET), to include development and concurrent fielding of applicable Training Aids, Devices, Simulators, and Simulations (TADSS).
- d. The NGSAR will serve as a direct fire weapon and will be employed by Combat, Combat Support, and Combat Service Support Soldiers conducting offensive, defensive, stability and support, and contingency operations.
- e. Fielding the NGSAR will not require changes to current MOS Structure.
- f. The NGSAR will be capable of firing ammunition of a caliber currently in the Army inventory.
- g. Training and Qualification with the NGSAR will require no modifications to existing ranges (including Surface Danger Zones) and targetry.

4.0 Training Constraints

Constraint Type	Probable Impact	Mitigating Efforts
Training Facility/Ranges Requirements	Target feedback	Area Targets out to 1200 meters that provide feedback hits.
Ammunition Requirements	Current dud producing ammunition	Experimental, non-dud producing ammunition
Training Equipment Availability	Untrained Soldiers	TADSS
Urban Mock-Ups	Training shortfall	Analysis with ranges to refine the range requirements

Table 1. Training Constraints

5.0 System Training Concept

a. Operator and Maintainer training for the NGSAR will be provided to the total force (active and reserve components). This includes NET, Institutional, Operational, and Self-Development domains which directly support approved Combined Arms Training Strategies (CATS). Training will be developed and implemented IAW TRADOC Regulation 350-70, *Army Learning Policy and Systems*.

b. New equipment and Institutional training will focus on teaching Soldiers how to:

- Operate the NGSAR and ancillary equipment
- Maintain the NGSAR and ancillary equipment
- Engage targets with a NGSAR and ancillary equipment
- Tactically employment the NGSAR

c. TADSS will be fielded concurrently with NET, and will be available to support Institutional training as well as sustainment training in the Operational force.

5.1 New Equipment Training Concept (NET)

- a. Operator training. The PM-CSW will conduct NET training in accordance with the New Equipment Training Plan (NETP). NET shall be conducted at the fielding unit's home station and will utilize existing training ranges and facilities when feasible. The PM shall provide all resources required to conduct training.
- b. Maintainer training. The 91F - Small Arms Repairer course will be conducted under the auspices of the U.S Army Ordnance Center and School. The Sustainment Center of Excellence (SCoE) will validate the Field Level Maintenance TSP. Maintainer NET should occur simultaneously with Operator NET.
- c. At the conclusion of unit NET, a NET Training Support Package (TSP) will be left behind for the unit to reference when conducting sustainment training.
- d. NET training products will be used as the foundation for developing institutional and unit sustainment training products, such as lesson plans and Training Support Packages (TSPs).
- e. The Maneuver Center of Excellence (MCoE), Directorate of Training and Doctrine (DOTD), Systems Training Branch will assist PM-CSW with oversight on all aspects of NET.

5.2 Displaced Equipment Training (DET)

Displaced equipment training is not required at this time.

5.3 Doctrine and Tactics Training (DTT)

The MCoE, DOTD, System Training Branch will develop the DTT as applicable to support NET and sustainment training which will be published in the appropriate Soldier Training Publications (STPs).

5.4 Training Test Support Package (TTSP)

The MCoE, DOTD, System Training Branch will develop the initial TTSP after receipt of the New Equipment Training Plan from the Material Developer (MATDEV). The final TTSP will be provided to the Operational Test Command (OTC) In Accordance With TR 350-70 and supplemental pamphlets.

6.0 Institutional Training Domain

The individual and collective tasks associated with the NGSAR weapon system will be incorporated into existing Programs of Instruction (POIs). Training will focus on operational employment techniques and procedures, and be conducted in classroom

and field environments.

6.1 Institutional Training Concept and Strategy

a. Concept: The generating force training concept includes fundamental skills necessary to operate and maintain the weapon system. Individual tasks will be introduced to Soldiers under various training conditions and reinforced as required. A final evaluation will measure the Soldier's ability to perform required tasks. If the final evaluation indicates a deficiency in the Soldier's skills or knowledge, trainers will automatically analyze the deficiency and recommend remedial training. Qualified trainers can ensure Soldier proficiency through supervised practice.

b. Strategy: The training program will establish initial individual marksmanship i.e., target acquisition and integrated shooting proficiency/engagements skills which maximize the capabilities of the weapon system. The training will be conducted with a combination of classroom instruction, simulations and live-fire, engagement decision skills. Maintainer training will include tasks necessary to perform direct support and general support maintenance and repairs and diagnose and troubleshoot malfunctions of the weapon system. Instruction will include classroom discussion as well as hands-on exercises and evaluations.

6.1.1 Product Lines

The following product lines will support the NGSAR:

- Soldier Training Publications
- Training Circulars
- System Training Plan
- Range scenarios

6.1.1.1 Training Information Infrastructure

NGSAR training materials will conform to Joint, and Army architectures and standards. This will allow for the proper management, development, delivery, storage, and retrieval, of all Training Support System (TSS) products to Soldiers and units worldwide. NGSAR training materials such as tasks, Lesson Plans, IMI, and TSPs will be developed using the Training Development Capability (TDC) database. All IMI products will be Shareable Content Object Reference Model (SCORM) compliant.

6.1.1.1.1 Hardware, Software, and Communications Systems

Hardware, software, and communication systems for the NGSAR TSS products include the following:

- TDC
- Scenario Development Tools
- Interactive Courseware

- Army Learning Management Systems (ALMS)

6.1.1.1.2 Storage, Retrieval, and Delivery

- Digital Training Management System (DTMS)
- ALMS
- Central Army Registry (CAR)
- TDC
- Army Training Network (ATN)

6.1.1.1.3 Management Capabilities

- Training Support-Materiel Army-wide Tracking System (TS-MATS)
- Individual Training Resource Management (ITRM)

6.1.1.1.4 Other Enabling Capabilities

- Army Knowledge Online (AKO)
- Army Training Network (ATN)
- Warrior University

6.1.1.2 Training Products

The following sub-paragraphs from section 6.1.1.2 will describe the training products required for the NGSAR.

6.1.1.2.1 Courseware

Formal courseware for the NGSAR required as follows:

- IMI (SCORM compliant)

6.1.1.2.2 Courses

Courses that will receive NGSAR instruction include Initial Entry Training (IET), Officer Education System (OES), and Maintainer Courses.

- One Station Unit Training (OSUT)
- Infantry- Basic Officer Leadership Course (I-BOLC)
- Armor- Basic Officer Leadership Course (A-BOLC)
- 91F - Small Arms Repairer Course

6.1.1.2.3 Training Publications

Training publications will include the following:

- TC 3-22.68 *Crew Served Machine Guns*
- TC 3-20.4 *Training and Qualification, Individual and Crew Served Weapons*
- Technical manuals (TM) (hard copy and electronic versions) for the system components will be required for the -10 and -23P
- Applicable Soldier Training Publications

<https://armypubs.us.army.mil/index.html>

6.1.1.2.4 Training Support Package (TSP)

The MATDEV will prepare the TSP IAW TRADOC Regulation 350-70 and the ADDIE process, along with appropriate Subject Matter Experts (SMEs). Content of the TSP will be validated by MCoE during Operational Testing.

6.1.1.3 TADSS

The PM-CSW will provide funding for development and fielding of all TADSS associated with the NGSAR. TADSS will be fielded concurrently with live-systems during NET.

6.1.1.3.1 Training Aids

PM-CSW will ensure funding and availability to support NGSAR training to include the following:

- Graphic Training Aids (GTA) for Weapon Assembly and Disassembly
- Mock-up Weapons for 91F-Small Arms Weapons Repairer
- Dummy ammunition
- Digital Applications (APPS) for operator and maintainer individual tasks

6.1.1.3.2 Training Devices

PM-CSW will integrate the NGSAR into all applicable training devices to support marksmanship and FoF (Force-on-Force) training. The PM-CSW will integrate the NGSAR into relevant Live, Virtual, Constructive, and Gaming- Integrated Training Environment (L, V, C&G- ITE) and networks to enable effective Home-station and CTC (Combat Training Center) Force-on-Force (FoF) training.

6.1.1.3.3 Simulators

The PM-CSW will provide funding for, and ensure the NGSAR is integrated into all existing and new (future) simulators systems.

6.1.1.3.4 Simulations

The PM-CSW will provide funding for, and ensure the NGSAR is integrated into all existing and new (future) simulations systems.

6.1.1.3.5 Instrumentation

PM-CSW will provide funding for, and ensure the NGSAR is integrated into the Home-station Instrumentation, all Tactical Engagement Simulation Systems (TESS), and the Combat Training Center's (CTCs) Instrumentation System (IS). This will be accomplished by communicating requirements to the Program Executive Office Simulation Training and Instrumentation (PEO STRI) for implementation.

6.1.1.4 Training Facilities and Land

No modifications to existing or additional (new) training facilities/land are required.

6.1.1.4.1 Ranges

Installations scheduled to receive fielding of the NGSAR can accommodate and support firing of the NGSAR at specified distances. Maneuver ranges, such as a Digital Multi-Purpose Range Complex (DMPRC), and Infantry Platoon Battle Courses can support the line of sight distance required by the NGSAR. In the event that an installation cannot support the increased throughput of the NGSAR on existing ranges, a request to modify an existing range, or construction of a new one should be communicated through the Sustainable Range Program.

6.1.1.4.2 Maneuver Training Areas (MTA)

No additional maneuver training areas are required.

6.1.1.4.3 Classrooms

Fielding of the NGSAR does not require new, or modifications to existing classroom(s).

6.1.1.4.4 CTCs

No additional combat training centers are required.

6.1.1.4.5 Logistics Support Areas

Fielding of the NGSAR does not require new, or modification to existing logistical support areas.

6.1.1.4.6 Mission Command Training Complex (MCTC)

Fielding of the NGSAR does not require connectivity to the MCTC.

6.1.1.5 Training Services

The NGSAR will require services as described in the following sub-paragraphs:

6.1.1.5.1 Management Support Services

The MCoE, DOTD, System Training Branch will provide the following management support services for the NGSAR:

- Ammunition requirements as detailed by Standards in Training Commission (STRAC)
- TADSS requirements documentation
- Range modernization and standardization requirements

The Army Training Support Center (ATSC) and subordinate installation Training Support Centers will provide the following management support services for the NGSAR:

- Fielded devices inventory/sustainment and management
- TS-MATS
- Tactical Engagement System (TES) management
- Targetry support program

6.1.1.5.2 Acquisition Support Services

Acquisition support services for all training, and training support products are the responsibility of PM-CSW, to include development and sustainment of all IMI products.

6.1.1.5.3 General Support Services

TADSS development, procurement, and distribution are the responsibility of PM-CSW. Sustainment funding for all TADSS is the responsibility of the PM-CSW.

6.1.2 Architectures and Standards Component

Architectures for the NGSAR are covered in the following sub-paragraphs.

6.1.2.1 Operational View (OV)

Key Capability Gaps

- Soldiers lack ability to achieve desired effects on personnel targets at 0-500M
- Soldiers lack ability to achieve desired effects on point targets out to 600M
- Lack ability to produce effective volume fire and desired effects out to 1200M
- Current weapon requires too much maintenance
- Current weapon presents a prominent visual and aural signature
- Current weapon with basic load is too heavy

M249

Ammunition	5.56mm
Ammunition Weight	6.92LB per 200 RD Drum
Weapon Weight	16.41 LB
Max Range	3,600M
Effective Range Area	800M with Bipod
Effective Range Point	600M with Bipod
Suppression	1,000M

M4

Ammunition	5.56
Ammunition Weight	30 Round Magazine Loaded: 1, 95 LB
Weapon Weight	7.6-8.1 Lbs with 30 Round Magazine
Max Range	3,600M
Effective Range Area	600M
Effective Range Point	500M

NGSWAR

Ammunition	TBD
Ammunition Weight	30% Less Than Current (1, 50% (O))
Weapon Weight	No More Than 13.5 (1), 11 LB (O)
Max Range	TBD
Effective Range Area	1,200M
Effective Range Precise	8" Mean Radius at 600M
Suppression	1,200M

Operational Roles

Combat OPNS Stability OPNS Homeland Security

CLAWS

- Increases lethality and desired effects due to better weapon accuracy at extended ranges
- Reduces Soldier load due to decreased weights in both weapon and ammunition
- Increases reliability and decreases the maintenance requirements
- Decreases the aural and visual signature providing increased survivability
- Will include an integrated modular design to enable using future technologies
- Will increase lethality with improved fire control system

Key

- Current M249 SAW
- Current M4 Carbine

OV-1 to display employment consistent with its design capabilities

6.1.2.2 Systems View (SV)

The NGSAR does not interconnect with any other system.

6.1.2.3 Technical View (TV)

There are no technical standards, implementation conventions, business rules and/or criteria that govern the architecture for the NGSAR.

6.1.3 Management, Evaluation, and Resource (MER) Processes Component

The MER process for the NGSAR is covered in the following sub-paragraphs 6.1.3.1 to 6.1.3.1.7.

6.1.3.1 Management

MCoE, DOTD, Systems Training Branch will participate in PM -CSW sponsored functional working groups and Integrated Product Teams (IPT) that support the NGSAR. MCoE Training & Combat Developers in close coordination with PM-CSW will manage the NGSAR's effort. MCoE Training & Combat Developers will participate in strategy development with regards to tactical operations and training. MCoE & PM-CSW will monitor, comment on, and attend concept development and experimentation meetings associated with the NGSAR. Revisions to the System Training Plan (STRAP) will be made as necessary.

6.1.3.1.1 Strategic Planning

Strategic planning associated with the NGSAR will support fire & maneuver based live fire training exercises. NGSAR Strategic planning will be conducted in accordance with:

- National Defense Strategies
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the Army Transformation Campaign Plan (ATCP)

6.1.3.1.2 Concept Development and Experimentation (CD&E)

CD&E will be associated with the NGSAR.

6.1.3.1.3 Research and Studies

Based upon the unique capabilities of the NGSAR, research projects or studies will be conducted using National Defense Strategies, Joint Vision 2020, and The Army Campaign Plan.

6.1.3.1.4 Policy and Guidance

The NGSAR training plan is prepared using the following:

- AR 350-1 – Army Training and Leader Development
- AR 350-38 – Policies and Management for Training Aids, Device, Simulators, and Simulations
- AR 73-1 – Test and Evaluation
- TRADOC Regulation 71-20 – Concept Development, Experimentation, and Requirements Determination
- TRADOC Regulation 350-70 – Army Learning Policy and Systems
- Command Guidance

<https://armypubs.us.army.mil/index.html>

6.1.3.1.5 Requirements Generation

- Capability Development Document (CDD) / NGSAR, Version 1.1, Date: 17 Nov 2014
- NGSAR STRAP 12 May 15

6.1.3.1.6 Synchronization

Synchronization of NGSAR NET, reset training and Mobile Training Team (MTT) events will be coordinated by PM-CSW, in conjunction with the MCoE. Unit fielding and TADSS distribution plan TBD.

6.1.3.1.7 Joint Training Support

There is Joint training support requirement associated with the NGSAR based on Joint Vision 2020.

6.1.3.2 Evaluation

- AAR
- CALL
- Surveys
- Limited User Test (LUTs)

6.1.3.2.1 Quality Assurance (QA)

MCoE, DOTD, Systems Training Branch will provide oversight throughout the entire analysis, design, development, implementation, and evaluation (ADDIE) process to ensure all training and training support products meet or exceed guidelines of TR 350-70 and supplemental pamphlets.

6.1.3.2.2 Assessments

MCoE, DOTD, Systems Training Branch will assess the effectiveness of the NGSAR training program and make recommendations for improvement as necessary. Individual tasks will be assessed and validated to identify changes or revision that may increase Soldier/unit proficiency.

6.1.3.2.3 Customer Feedback

- Electronic media for surveys, help desks, collaboration
- Interviews/questionnaires
- Post Operations Surveys

6.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

MCoE will leverage the lessons learned database maintained by the Center for Army Lessons Learned (CALL) as well as conducting Post Operations Surveys.

6.1.3.3 Resource

Item Resourced	FY19	FY20
Manpower-TD	IKPT, OT, Log Demos	FUE
Personnel	4	2
Trvl/Per Diem	\$25K	\$15K

Rationale: Training Developers are needed to develop and maintain the individual/collective tasks, lesson plans, and programs of instruction. Military will be used in different areas within the training program. Travel/Per Diem represents cost to attend training and reviews, IKPT.

Table 1a: ROM/ Resourced Training Costs

Item Resourced	FY19	FY20	FY21	FY22	FY23
	Yrs or \$K				

New Equipment Team					
Instructors	2	2	2	2	2
Salary	\$225K	\$225K	\$230K	\$230K	\$235K
Trvl/Per Diem	\$82K	\$82K	\$84K	\$84K	\$86K
Suppliers	\$28K	\$28K	\$30K	\$30K	\$32K

Rationale: Programmed NET for 5 Years.

Table 1b: ROM/ Resourced Training Costs

Item Resourced, Training Products	FY19 \$K	FY20 \$K	FY21 \$K	FY22 \$K	FY23 \$K
DSTS Hardware/Software/ Validation/Maintenance	TBD	TBD	TBD	TBD	TBD
GFT/VBS3/APPS Hardware/Software/ Validation/Maintenance	TBD	TBD	TBD	TBD	TBD
MILES Hardware/Software/ Validation/Maintenance	TBD	TBD	TBD	TBD	TBD
EST II Hardware/Software/ Validation/Maintenance	TBD	TBD	TBD	TBD	TBD

Rationale: Upon development of the material solution (weapon system) for the NGSAR these Costs for training products listed above will be determined by the PM CSW and annotated accordingly after

Milestone C.

Table 1c: ROM/ Resourced Training Costs

7.0 Operational Training Domain

Training in the Operational Domain will focus on sustaining skills learned during IET and train-the-trainer programs, and will offer remedial training when required. Operational training occurs at home station, combat training centers, during joint training exercises, and while deployed. Unit commanders are responsible for executing this training.

7.1 Operational Training Concept and Strategy

a. Concept: Commanders must employ the principles of Army training to sufficiently train mission-essential tasks. The NGSAR system skills learned during initial training will be sustained in the operating force by using live-fire training programs and select TADSS. Operational force training is conducted hands-on, is standards based, and should be challenging, rigorous, and performed under stressful conditions in all operational environments. Training should focus on operator/maintainer tasks, marksmanship fundamentals, and NGSAR -specific tactics, techniques, and procedures.

b. Strategy: Units are responsible for sustaining individual and collective NGSAR task proficiency, as well as training new NGSAR operators. NGSAR operators will serve as unit trainers (for sustainment and new operator), and advise commanders on employment considerations. Unit training will be based on the TSP and TADSS fielded during NET.

7.1.1 Product Lines

The following product lines will support the NGSAR:

- Soldier Training Publications
- Training Circulars
- System Training Plan
- Interactive Courseware
- Range scenarios

7.1.1.1 Training Information Infrastructure

NGSAR training materials will conform to Joint, and Army architectures and standards. This will allow for the proper management, development, delivery, storage, and retrieval, of all Training Support System (TSS) products to Soldiers and units worldwide. NGSAR training materials such as POIs, Lesson Plans, IMI, and TSPs will be developed using the TDC database. All IMI and TADSS products will be Shareable

Content Object Reference Model (SCORM) compliant.

7.1.1.1.1 Hardware, Software, and Communications Systems

Hardware, software, and communication systems for the NGSAR TSS products include the following:

- TDC
- Scenario Development Tools

7.1.1.1.2 Storage, Retrieval, and Delivery

- DTMS
- ALMS
- CAR

7.1.1.1.3 Management Capabilities

- TS-MATS
- ITRM

7.1.1.1.4 Other Enabling Capabilities

- AKO
- ATN
- Warrior University

7.1.1.2 Training Products

The following sub-paragraphs from section 7.1.1.2 will describe the training products required for the NGSAR.

7.1.1.2.1 Courseware

Formal courseware for the NGSAR required as follows:

- IMI (SCORM compliant)

7.1.1.2.2 Courses

Operating force sustainment training does not require formal courses.

7.1.1.2.3 Training Publications

Training publications will include the following:

- TC 3-22.68
- TC 3-20.4 *Training and Qualification, Individual and Crew Served Weapons*
- Technical manuals (TM) (hard copy and electronic versions) for the system components will be required for the -10 and -23P
- Applicable Soldier Training Publications

<https://armypubs.us.army.mil/index.html>

7.1.1.2.4 TSP

The MATDEV will prepare the TSP IAW TRADOC Regulation 350-70 and the ADDIE process, along with appropriate Subject Matter Experts (SMEs). Content of the TSP will be validated by MCoE during Operational Testing.

7.1.1.3 TADSS

The PM-CSW will provide funding for development and fielding of all TADSS associated with the NGSAR. TADSS will be fielded concurrently with live-systems during NET.

7.1.1.3.1 Training Aids

MCoE, DOTD, Systems Training Branch with the funding from PM-CSW will ensure that training aids to support NGSAR training are available. Training aids include the following:

- Graphic Training Aids (GTA) for Weapon Assembly and Disassembly
- Mock-up Weapons for 91F-Small Arms Weapons Repairer
- Dummy ammunition
- Digital Applications (APPS) for operator and maintainer individual tasks

7.1.1.3.2 Training Devices

PM-CSW will integrate the NGSAR into all applicable training devices to support marksmanship and FoF training. The PM-CSW will integrate the NGSAR into relevant L, V, C&G- ITE and networks to enable effective Home-station and CTC (Combat Training Center) Force-on-Force (FoF) training.

7.1.1.3.3 Simulators

The PM-CSW will provide funding for, and ensure the NGSAR is integrated into all new and existing simulators systems.

7.1.1.3.4 Simulations

The PM-CSW will provide funding for, and ensure the NGSAR is integrated into all new and existing simulations systems.

7.1.1.3.5 Instrumentation

PM-CSW will provide funding for, and ensure the NGSAR is integrated into the Home-station Instrumentation, all Tactical Engagement Simulation Systems (TESS), and the Combat Training Center's (CTCs) Instrumentation System (IS). This will be accomplished by communicating requirements to the Program Executive Office Simulation Training and Instrumentation (PEO STRI) for implementation.

7.1.1.4 Training Facilities and Land

No additional training facilities and land are required.

7.1.1.4.1 Ranges

Installations scheduled to receive fielding of the NGSAR can accommodate and support firing of the NGSAR at specified distances. Maneuver ranges, such as a Digital Multi-Purpose Range Complex (DMPRC), and Infantry Platoon Battle Courses can support the line of sight distance required by the NGSAR. In the event that an installation cannot support the increased throughput of the NGSAR on existing ranges, a request to modify an existing range, or construction of a new one should be communicated through the Sustainable Range Program.

7.1.1.4.2 Maneuver Training Areas (MTA)

No additional training areas are required.

7.1.1.4.3 Classrooms

Fielding of the NGSAR does not require new, or modification to existing classroom(s).

7.1.1.4.4 CTCs

No additional training centers are required for training.

7.1.1.4.5 Logistics Support Areas

Training will require no additional or modifications to logistical support areas.

7.1.1.4.6 Mission Command Training Complex (MCTC)

NGSAR will not have connectivity to the MCTC.

7.1.1.5 Training Services

The NGSAR will require services as described in the following sub-paragraphs:

7.1.1.5.1 Management Support Services

The MCoE, DOTD, System Training Branch will provide the following management support services for the NGSAR:

- Ammunition requirements as detailed by Standards in Training Commission (STRAC)
- TADSS requirements documentation
- Range modernization and standardization requirements

The Army Training Support Center (ATSC) and subordinate installation Training Support Centers will provide the following management support services for the NGSAR:

- Fielded devices inventory/sustainment and management
- TS-MATS
- Tactical Engagement System (TES) management
- Targetry support program

7.1.1.5.2 Acquisition Support Services

Acquisition support services for all training, and training support products are the responsibility of PM-CSW, to include development and sustainment of all IMI products.

7.1.1.5.3 General Support Services

TADSS development, procurement, and distribution are the responsibility of PM-CSW. Sustainment funding for all TADSS is the responsibility of the PM-CSW.

7.1.2 Architectures and Standards Component

Architectures for the NGSAR are covered in the following sub-paragraphs.

7.1.2.1 Operational View (OV)

Key Capability Gaps

- Soldiers lack ability to achieve desired effects on personnel targets at 0-500M
- Soldiers lack ability to achieve desired effects on point targets out to 600M
- Lack ability to produce effective volume fire and desired effects out to 1200M
- Current weapon requires too much maintenance
- Current weapon presents a prominent visual and aural signature
- Current weapon with basic load is too heavy

M249	
Ammunition	5.56mm
Ammunition Weight	6.92LB per 200 RD Drum
Weapon Weight	16.41 LB
Max Range	3,600M
Effective Range Area	800M with Bipod
Effective Range Point	600M with Bipod
Suppression	1,000M

M4	
Ammunition	5.56
Ammunition Weight	30 Round Magazine Loaded = 1.06 LB
Weapon Weight	7.6-8.1 Lbs with 30 Round Magazine
Max Range	3,600M
Effective Range Area	600M
Effective Range Point	500M

NGSWAR	
Ammunition	TBD
Ammunition Weight	30% Less Than Current (T), 50%(O)
Weapon Weight	No More Than 13LB (T), 11 LB (O)
Max Range	TBD
Effective Range Area	1,200M
Effective Range Precise	8" Mean Radius at 600M
Suppression	1,200M

Operational Roles

Combat OPNS Stability OPNS Homeland Security

CLAWS

- Increases lethality and desired effects due to better weapon accuracy at extended ranges
- Reduces Soldier load due to decreased weights in both weapon and ammunition
- Increases reliability and decreases the maintenance requirements
- Decreases the aural and visual signature providing increased survivability
- Will include an integrated modular design to enable using future technologies
- Will increase lethality with improved fire control system

Key

- Current M249 SAW
- Current M4 Carbine

OV-1 to display employment consistent with its design capabilities.

7.1.2.2 Systems View (SV)

The NGSAR does not interconnect with any other system.

7.1.2.3 Technical View (TV)

There are no technical standards, implementation conventions, business rules and criteria that govern the architecture for the NGSAR.

7.1.3 Management, Evaluation, and Resource (MER) Processes Component

The MER process for the NGSAR is covered in the following sub-paragraphs The MER process for the NGSAR is covered in the following sub-paragraphs 7.1.3.1 to 7.1.3.1.7.

7.1.3.1 Management

MCoE, DOTD, Systems Training Branch will participate in PM -CSW sponsored functional working groups and Integrated Product Teams (IPT) that support the NGSAR. MCoE Training & Combat Developers in close coordination with PM-CSW will manage the NGSAR's effort. MCoE Training & Combat Developers will participate in strategy development with regards to tactical operations and training. MCoE & PM-CSW will monitor, comment on, and attend concept development and experimentation meetings associated with the NGSAR. Revisions to the System Training Plan (STRAP) will be made as necessary.

7.1.3.1.1 Strategic Planning

Strategic planning associated with the NGSAR will be to support fire & maneuver based live fire training exercises. NGSAR Strategic planning will be conducted in accordance with:

- National Defense Strategies
- The Army Plan and other Service plans
- Future force documentation
- TRADOC supporting plan to the ATCP

7.1.3.1.2 Concept Development and Experimentation (CD&E)

CD&E will be associated with the NGSAR.

7.1.3.1.3 Research and Studies

Based upon the unique capabilities of the NGSAR, research projects or studies will be conducted IAW National Defense Strategies, Joint Vision 2020, and The Army Campaign Plan.

7.1.3.1.4 Policy and Guidance

The NGSAR training plan is prepared using the following:

- AR 350-1 – Army Training and Leader Development
- AR 350-38 – Policies and Management for Training Aids, Device, Simulators, and Simulations
- AR 73-1 – Test and Evaluation
- TRADOC Regulation 71-20 – Concept Development, Experimentation, and Requirements Determination
- TRADOC Regulation 350-70 – Army Learning Policy and Systems
- Command Guidance

<https://armypubs.us.army.mil/index.html>

7.1.3.1.5 Requirements Generation

- Capability Development Document (CDD) / NGSAR, Version 1.1, Date: 17 Nov 2014
- NGSAR STRAP, 12 May 15

7.1.3.1.6 Synchronization

Synchronization of NGSAR NET, reset training and Mobile Training Team (MTT) events will be coordinated by PM-CSW, in conjunction with the MCoE. Unit fielding and TADSS distribution plan TBD.

7.1.3.1.7 Joint Training Support

There is Joint training support requirement associated with the NGSAR based on Joint Vision 2020.

7.1.3.2 Evaluation

- AAR
- CALL
- Surveys

- Limited User Test (LUTs)

7.1.3.2.1 Quality Assurance (QA)

MCoE, DOTD, Systems Training Branch will provide oversight throughout the entire analysis, design, development, implementation, and evaluation (ADDIE) process to ensure all training and training support products meet or exceed guidelines of TR 350-70 and supplemental pamphlets.

7.1.3.2.2 Assessments

MCoE, DOTD, Systems Training Branch will assess the effectiveness of the NGSAR training program and make recommendations for improvement as necessary. Individual tasks will be assessed and validated to identify changes that may increase unit proficiency.

7.1.3.2.3 Customer Feedback

- Electronic media for surveys, help desks, collaboration
- Interviews/questionnaires
- Post Operations Surveys

7.1.3.2.4 Lessons Learned/After-Action Reviews (AARs)

MCoE will leverage the lessons learned database maintained by the Center for Army Lessons Learned (CALL) as well as conducting Post Operations Surveys.

7.1.3.3 Resource Processes

The NGSAR life-cycle cost estimate is based on the production costs. The total required NGSAR fielding quantity is based on current Life Cycle Cost Estimate (LCCE), prepared by PM-CSW.

LCC or TOC (\$M, BYxx)	
Objective	Threshold
\$1,684,056,728	\$1,871,174,142

Program Affordability

(\$M, FY, UFR)	FY 15	FY 16	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28-52	FYDP Total
RDT&E	10.0	13.8	16.6	17.3	10.0										67.1
Procurement						104.3	101.3	92.8	89.0	87.0	86.2	86.0	44.8		691.4
Operating and Sustainment	16.0	16.3	16.6	17.0	17.3	17.8	19.7	20.3	21.7	23.6	25.5	27.6	29.7	843.1	1112.2

Total	26	30.1	33.2	34.3	27.3	122.1	121	113.1	110.7	110.6	111.7	113.6	74.5	843.1	1871.2
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8.0 Self-Development Training Domain

Self-development training may be accessed through Army Training Network (ATN) such as Army Knowledge Online (AKO), Central Army Registry (CAR), Distributed Learning (dL) repositories, or Center for Army Lessons Learned (CALL).

8.1 Self-Development Training Concept and Strategy

Self-development training for the operator and maintainer will support the CATS. This will provide a clear plan for achieving developmental goals as follows:

- Immediate goals will focus on correcting weaknesses that adversely impact the individual's performance in their current duty position.
- Near-term goals focus on attaining and refining the skills, knowledge, and experience needed for the next higher level duty position or operational assignment.
- Long-range goals focus on preparing the individual for career-long service. Goals are supported by progressive and sequential actions to improve performance.

ANNEX A – MILESTONES

Training Development Milestone Schedule – Sheet A		Page 1 of 2 pages	Requirements Control Symbol	
System NGSAR	ACAT III	TRADOC Symbol	As of Date 12 May 2015	
Proponency		Agency	Office Symbol	Telephone
Materiel Command		Program Executive Office- Crew served Weapons	SFAE	(973) 724-7861
TRADOC Proponent		United States Army Infantry School	ATSH	(706) 545-5796
System Manager		N/A		
Combat Developer:		Soldier Division, Capabilities Development & Integration Directorate (Mr. Robert Jones)	ATZB-CIS	(706) 545-4867
Training Developer:		Systems Training Branch, Directorate of Training & Doctrine	ATZK-TDT	(706) 545-8010
Supporting Proponents:				
Item	Date	Responsible Agency/POC	Office Symbol	Telephone
MNS:		SD, CDID	ATZB-CIS	(706) 545-4867
SMMP:				
CPD:		SD, CDID	ATZB-CIS	(706) 545-4867
ILSMP:				
TTSP:		STB, DOTD	ATZK-TDT	(706) 545-8010
QQPRI:				
BOIP:		Office of Infantry Proponency	ATZB-CIC	(706) 545-3311
NETP:		SD, CDID	ATZB-CIS	(706) 545-4867
STRAP		STB, DOTD	ATZK-TDT	(706) 545-8010
COMMENTS: (Continue on reverse side if necessary)				

Training Development Milestone		Page 2 of 2 pages		Requirements Control Symbol													
Schedule - Sheet B																	
System	ACAT	TRADOC Symbol		As Of Date													
NGSAR	III			12 May 2015													
Training Package Element/Product		Milestones By Quarter															
		FY 19				FY 20				FY 21				FY 22			
		1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4Q
TTSP complete		X															
POI OT complete				X													
Milestone C Decision					X												
POI revision complete						X											
Individual and Collective Tasks			X														
Net Begins					X												
Training Pub Change Submitted				X													
TADSS Requirements Incorporated				X													
Courseware Developed/Validated				X													
FUE					x												
Comments:																	

ANNEX B – REFERENCES

Capability Development Document (CDD) / NGSAR, Version 1.1, Date: 17 Nov 2014

AR 70-1, Army Acquisition Policy, 31 December 2003.

AR 70-75, Survivability of Army Personnel and Materiel, 2 May 2005.

AR 71-9, Warfighting Capabilities Determination, 28 Dec 2009.

AR 350-1, Army Training and Leader Development, 18 Dec 2009.

AR 350-38, Policies and Management for Training Aids, Device, Simulators, and Simulations, 20 Mar 2013.

AR 750-1, Army Materiel Maintenance Policy, 20 Sep 2007.

TRADOC Regulation 350-70, Army Learning Policy and Systems, 6 Dec 2011.

TRADOC Regulation 71-20, Concept Development, Experimentation, and Requirements Determination, 23 Feb 2011.

<https://armypubs.us.army.mil/index.html>

<http://www.tradoc.army.mil/Publications.asp>

ANNEX C - GLOSSARY OF TERMS

AAR	After Action Review
AKO	Army Knowledge-Online
ALMS	Army Learning Management Systems
AMTAS	Army Modernization Training Automation System
AO	Area of Operations
AOR	Area of Responsibility
APPs	Applications
AR	Army Regulation
ASI	Additional Skill Identifier
ATIA	Army Training Integrated Architecture
ATN	Army Training Network
ATCP	Army Transformation Campaign Plan
ATSC	Army Training Support Center
BCTC	Battle Command Training Centers
CAC	Combined Arms Center
CALL	Center for Army Lessons Learned
CAR	Central Army Registry
CATS	Combined Arms Training Strategy
CBA	Capabilities-Based Assessment
CBT	Computer Based Training
CD	Compact Disks
CD&E	Concept Development and Experimentation
CDRL	Contractor Data Requirements List
CITL	Critical Individual Task List
CMP	Course Management Plan
COE	Common Operating Environment
COTS	Commercial off the Shelf
CPD	Capability Production Document
CTC	Combat Training Center
DC, CD&I	Deputy Commandant, Combat Development & Integration
DET	Displaced Equipment Training
DL	Distance Learning
dL	Distributed Learning
DMPRC	Digital Multi-Purpose Range Complex
DOD	Department of Defense
DOTD-STB	Directorate of Training and Doctrine-Systems Training Branch
DT	Desktop Trainers
DTMS	Digital Training Management System
DTT	Doctrine and Tactics Training
EST	Engagement Skills Trainer
EOD	Explosive Ordnance Disposal
FoF	Force-on-Force
FORSCOM	Forces Command
FUE	First Unit Equipped
FY	Fiscal Year

GTA	Graphic Training Aids
HITS	Home-Station Instrumentation Training System
HST	Home Station Training
IMI	Interactive Multimedia Instruction
I-MILES	Instrumental-Multiple Integrated Laser Engagement System
ITRM	Individual Training Resource Management
IOT&E	Initial Operational Test and Evaluation
JCIDS	Joint Capabilities Integration and Development Systems
LMS	Learning Management System
LVCG-ITE	Live Virtual Constructive Gaming-Integrated Training Environment
MATS	Materiel Army-wide Tracking System
MCoE	Maneuver Center of Excellence
MER	Management, Evaluation, and Resource
MOS	Military Occupational Specialty
MTA	Maneuver Training Areas
MTO&E	Modified Table of Organization and Equipment
NCOES	Noncommissioned Officer Education System
NDI	Non-Developmental Item
NET	New Equipment Training Concept
NETP	New Equipment Training Plan
NGSAR	Next Generation Squad Automatic Rifle
NMIB	New Material Information Briefing
OCO	Overseas Contingency Operations
OES	Officer Education System
ONS	Operational Needs Statement
OTC	Operational Test Command
OV	Operational View
PEO-STRI	Program Executive Office Simulation Training and Instrumentation
PFE	Post Fielding Evaluations
PM	Program Manager
PM-CSW	Program Manager-Individual Weapons
POI	Program of Instruction
POM	Performing Organizational Management
QA	Quality Assurance
RC	Reserve Component
ROMO	Range of Military Operations
SCoE	Sustainment Center of Excellence
SCORM	Shareable Courseware Object Reference Model
SEP	Student Evaluation Plan
SME	Subject Matter Expert
STP	Soldier Training Publication
STRAC	Standards in Training Commission
STRAP	System Training Plan
SV	Systems View
TACOM	Tank-Automotive and Armaments Command
TADSS	Training Aids, Devices, Simulators, and Simulations
TBD	to Be Determined
TC	Training Circular

TCM	Training Capability Manager
TDA	Table of Distribution and Allowance
TDC	Training Development Capability
TEMP	Testing Evaluation Master Plan
TESS	Tactical Engagement Simulation System
TI	Tactical Internet
TII	Training Information Infrastructure
TLCSM	Total Life-Cycle Systems Manager
TM	Technical Manual
TNGDEV	Training Developer
TO&E	Tables of Organization and Equipment
TRADOC	Training and Doctrine Command
TS-MATS	Training Support- Materiel Army-wide Tracking System
TSP	Training Support Package
TSS	Training Support System
TTSP	Training Test Support Package
TV	Technical View
USACASCOM	United States Army Combined Arms Support Command
UXO	Unexploded Ordnance Disposal
VBS3	Virtual Battle Space 3rd Edition