



CURTIS E. LEMAY CENTER

FOR DOCTRINE DEVELOPMENT AND EDUCATION



ANNEX 3-60 TARGETING

WEAPONEERING AND ALLOCATION

Last Updated: 10 Jan 14

Purpose of the Phase. Weaponneering is the process of determining the quantity of a specific type of lethal or nonlethal means required to create a desired effect on a given target.¹ Allocation, in the broadest sense, is the distribution of limited resources among competing requirements for employment. There are two aspects relevant to the air tasking cycle: allocation of targets and allocation of forces. Weaponneering and allocation function together to produce the [master air attack plan](#) (MAAP). These efforts commence before the JIPTL is approved and continue past MAAP production into execution planning. They are integral to all aspects of targeting.

Weaponneering considers such things as the desired effects against the target (both direct weapons effects and indirect desired outcomes the second and third order effects), target vulnerability, delivery accuracy, damage criteria, and weapon reliability. Targeteers quantify the expected results of lethal and nonlethal capabilities employment against prioritized targets to produce desired effects. It results in probable outcomes given many replications of an event. It does not predict the outcome of every munitions delivery, but represents statistical averages based on modeling, weapons tests, and real-world experience. With modern weapons, however, the probabilities of accurate delivery and of achieving intended direct effects are high and steadily increasing. Weaponneering is normally done by TGT/TA team prior to TET using validated data and methodologies automated by the Joint Technical Coordinating Group for Munitions Effectiveness and the Defense Threat Reduction Agency, as well as appropriate data and methodologies for specialized/emerging capabilities associated with space and cyberspace capabilities. Weaponneering for space (non-terrestrial) and cyberspace targets is conducted by the Joint Space Operations Center (JSpOC) and 624th Operations Center (OC), through their parent combatant commands respectively, using applicable tools and methods. The final weaponneering solution is chosen by the MAAP Team. The output of weaponneering is a recommendation of the quantity, type, and mix of lethal and nonlethal weapons needed to achieve desired effects while avoiding unacceptable collateral damage. All approved targets are weaponneered to include at least the following:

- ★ Target identification and description.

¹ JP 3-60.

- ★ Recommended aim points/joint desired point of impact (JDPI).
- ★ Desired scope, level(s) and duration of damage, destruction, degradation, denial, disruption, deterrence, suppression, corruption, usurpation, neutralization, delaying, influence, exploitation, or other planned effects.
- ★ Weapon system and munitions recommendations.
- ★ Fuzing requirements (if required).
- ★ Probability of achieving desired direct effect(s).
- ★ Target area terrain, weather, and threat considerations.
- ★ Collateral damage considerations.
- ★ Collateral effects.

Precautions must be taken to avoid or minimize civilian casualties and damage to civilian infrastructure, and nonlethal collateral effects to civilian property which may also inadvertently affect civilian property outside the area of operations. The danger of collateral damage and effects varies with the type of target, terrain, weapons used, weather, the proximity of civilians and their structures, and the level of integration or shared communication infrastructures among the military, civil, government, private, and corporate environments.

According to LOAC, incidental damage to civilian objects must not be excessive in relation to the expected military advantage to be gained. Collateral damage criteria were established on this foundational principle.²

Collateral damage methodologies are aids to the decision-maker when approving targets for military action. They provide logical and repeatable methods to ensure due diligence in limiting civilian suffering while enabling the commander to assess risk in the accomplishment of military objectives. Collateral damage estimates are not designed to limit military action, but to mitigate, to the best of our ability, the unintended consequences of that military action. Military objectives are limited to those objects which, by their nature, location, purpose, or use make an effective contribution to obtaining the established end state. Only those targets whose total or partial destruction, capture, or neutralization, in the circumstances ruling at the time, offer a definite military advantage.

If an attack is directed against dual-use objects that might be legitimate military targets but also serve a legitimate civilian need (e.g., electrical power or telecommunications), then this factor should be carefully balanced against the military benefits when making a weapons selection, as must reconstruction and stabilization considerations following the end of hostilities. Thus, those conducting weaponeering should always keep commander's objectives and the end state in mind, as should those in other AOC teams and divisions who review weaponeering solutions and the MAAP. This includes the

² CJSCI 3160.01, *No Strike and Collateral Damage Estimation Methodology*.

non-AOC weaponeering and attack planning processes for nonlethal operations. The methodologies and data used for weapon effectiveness estimation are also capable of producing estimations of collateral damage risk to noncombatants and non-targeted facilities. Established ROE and LOAC also address collateral damage concerns (see [Appendix A](#)). Targeteers must comply with Joint Chiefs of Staff (JCS) CD estimation directives and instructions. For example, it may sometimes be necessary to strike a target more precisely than would otherwise be necessary in order to avoid collateral damage. Certain levels of collateral damage estimation require expertise that lies outside of the COMAFFOR's or even the JFC's control and should be coordinated through the TGT/TA Team via federated and reachback relationships. External organizations should also comply with the same strict guidance on CDE that is imposed under ROE, LOAC, and current CJCS instructions.

It is critical to stress that all estimates generated during this phase are situation-specific, reflecting the pairing of a particular capability against a particular target, under a particular condition of employment. As such, users of this information should be cautioned against assuming that the estimated effectiveness of a force capability under one set of circumstances is broadly applicable to other circumstances. Relatively minor targeting variations may have an exaggerated impact on effects estimates. It is equally important to stress that these estimates of performance are not designed to take into account considerations outside of the realm of weapon-target interaction (e.g., they do not address whether or not the delivery system may survive to reach the target.).

Targeteers should know the capabilities of platforms, weapons, and fuses for kinetic weapons available for use and be aware of their availability. They should also be familiar with the standard conventional load platforms in their theater and delivery tactics. Weaponeering results may only be useful if the employment parameters assumed in weaponeering match those used in combat. Targeteers should work closely with the operations and logistics staff to obtain required information. As a rule of thumb, theater component targeting branches should request a copy of the [time-phased force and deployment data](#) (TPFDD) to obtain units' expected input options selected from the employed automated weaponeering programs, and to provide realistic planning data. Targeteers should also coordinate with space and cyberspace liaison officers (LNOs), and other special access programs for capabilities not available via TPFDD and weaponeering tool synchronization. Weaponeering should also take into account the availability of the various weapons being considered. Certain high value weapons, such as those capable of deep penetration or other special effects, are normally limited in number and should only be used against those targets that both require the weapon for successful attack and are of sufficiently high priority to warrant the expenditure of the resource. Finally, some weapons, particularly certain capabilities, require long lead times in planning, deployment, and approval, which means that such capabilities should be thought about early and included at the beginning of the JOPPA process.

The weaponeering phase of the planning process is also where lethal and nonlethal effects are may be planned against targets. Coordination with the information

operations team (IOT)³ is critical during this phase to ensure all operations (space, cyberspace, information, EW, etc.) are deconflicted, appropriately resourced, and phased over the battle space. There are a variety of tools available to planners to attempt to summarize and quantify the assessed impact of nonlethal operations. Since these techniques and capabilities are not fully normalized in most AOCs, it may be necessary to leverage the assistance of specialized teams in the DOD and academic communities.

Allocation is the translation of the air apportionment decision into the total number of sorties or missions by weapon system type available for each objective or task. It falls under the CPD MAAP team, which takes the final prioritized list of weaponeered targets and allocates airpower by melding available capabilities and resources, and weaponeering recommendations. The result is a translation of the total weight of air effort into the total number or sorties or missions required to achieve desired effects.

Prior to the TET target coordination meeting, the MAAP team determines how many aimpoints can be serviced on the given ATO day. The TET then reviews the lists of nominated targets and determines which “make the cut” on that day’s proposed JIPTL. The TET should work closely with the SD and the MAAP Team to ensure that the prioritized list ties into the JAOP and AOD appropriately. The SD should ensure that the TET understands how effects and objectives are prioritized, how they are to be achieved over time, and that it has a macro-level idea of the number of targets associated with each objective. The TET then collects target nominations from other sources and works a daily allocation of targets that have been planned against the effects and objectives to build the daily JIPTL. Approaching JIPTL construction in this way helps avoid an ad hoc, target-servicing approach.

Each air capable joint force component submits an [allocation request](#) (ALLOREQ) message to the COMAFFOR (timed to coincide with the beginning of the MAAP part of the tasking process, usually not later than 36 hours prior to the start of a given ATO day). ALLOREQs contain requests for air and space component support and information on sorties from other components not required for organic component support that are available for COMAFFOR tasking. The MAAP team works with the TET to take the approved JIPTL (to include weapon restrictions, timing issues, and other restraints) and inputs from the component liaisons, the AMD (especially concerning tanker availability), and others to produce the MAAP. They determine an overall sortie flow for the ATO period and determine how that flow should be divided into packages—discrete sets of missions and sorties designed to complement each other or provide required support (for example, tankers and [electronic warfare](#) assets packaged with the strike assets supported). They also determine required times over target or times on station. Packages are arranged in sequence and used to determine a timeline and resource requirements for the ATO period. Each package should be de-conflicted in time, space, and effect.

³ See [Air Force Instruction 13-1 AOC, Volume 3](#) for an expanded discussion on AOC divisions and teams

Part of the allocation and MAAP portions of the tasking process is the creation of an ISR collection and assessment plan. Early planning for assessments is critical to ensure that target status can be quickly determined to meet restrike recommendation criteria. Theater ISR collection assets should be carefully orchestrated to ensure optimal coverage of the operational environment. Collection assets should be positioned not only to provide assessment of targets planned for attack, but should be able to detect and collect on emerging targets and be flexible enough to collect against them as well. At the same time, ISR collection assets should continue to monitor the operational environment in order to help discern whether desired effects are being created and whether the enemy is adapting his [courses of actions](#) (COAs) to our actions. The collection assessment plan cannot be made in a vacuum and should be closely coordinated with all other planning efforts.

The AOC should establish procedures to ensure that the organizations nominating targets receive continuous feedback on the status of their nominations throughout the tasking cycle. For example, not all targets nominated may be approved for the draft JIPTL, nor may all targets on the approved JIPTL be included on the ATO. There should be a feedback mechanism to ensure that targets not attacked, for any reason, are reported to the nominating authority for consideration on future TNLs.

Products of the Phase. The MAAP is the COMAFFOR's time-phased air component scheme of maneuver for a given ATO period, synthesizing commander's guidance, desired effects, supported components' schemes of maneuver, friendly capabilities, and likely enemy COAs, and allocating friendly resources against approved targets.⁴ The MAAP is developed by CPD's MAAP team and usually presented in the form of a decision briefing for the COMAFFOR. This product is critical for the targeting personnel to provide information to the collection managers in developing their collection and assessment planning.

⁴ Note: this modifies the joint definition found in JP 3-60 ("A plan that contains key information that forms the foundation of the joint air tasking order.).