DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON, DC 20350-2000

IN REPLY REFER TO
OPNAVINST 3502.6
OP-59
06 DECEMBER 1991

OPNAV INSTRUCTION 3502.6

From: Chief of Naval Operations

Subj: NAVAL AIR TRAINING COMMAND PLANNING FACTORS MANUAL

1. Purpose. To promulgate the official naval air training command planning factors. Includes a guide to their application with the approved methodology to be used for all appropriate production and resource requirements planning.

2. Background. The requirement for a documented, coherent and consistent planning process in the control and management of the naval air training command has necessitated the derivation of various factors and formulas over many years. The resulting planning factors have evolved into acceptable, accurate planning tools which will continue to be refined in the future. The need for a compendium of accurate and approved planning factors for use in management and support of naval aviation undergraduate training has necessitated this directive. Planning factors, by their very nature, must be developed under a steady state context; application to a transient circumstance will inevitably involve adaptation of the factors and reevaluation of the givens under which factors were initially determined. Among other objectives, this manual is intended to provide a measure of flexibility in application of the basic factors.

3. Action. The planning factors contained in this manual shall be used where applicable in all management and resource determinations and planning for the naval air training command. Where required planning information is not contained herein, is unsuitable, or is inaccurate, notify Chief of Naval Operations (OP-59). The Chief of Naval Air Training (CNATRA) will review the contents of this instruction annually and recommend any update or revision to CNO as may be appropriate.

4. Forms. The forms prescribed in this directive may be obtained from CNATRA.

R. M. DUNLEAVY
Assistant Chief of Naval
Operations (Air Warfare)

Distribution:
(see page 2)

Distribution:
SNDL FT1 (Chief of Naval Education and Training)(6)
FT2 (Chief of Naval Air Training)(12)
FT90 (Training Air Wing)(4)
FT91 (Training Squadron)(2)

OP-59 (25 copies)

Copy to:
SNDL C25A (OPNAV Support Activity Detachment)(Fort Ritchie, only)

SECNAV/OPNAV Directives Control Office
Washington Navy Yard, Building 200
Washington, DC 20374-5074 (25 copies)

Stocked:
Navy Aviation Supply Office
Physical Distribution Division Code 103
5801 Tabor Avenue
Philadelphia, PA 19120-5099 (25 copies)

RECORD OF CHANGES

CORRECTION OR CHANGE NO.	DATE OF CHANGE	DATE ENTERED	BY WHOM ENTERED

TABLE OF CONTENTS

INTRODUCTION

The mission of the Chief of Naval Air Training is, in part, "to conduct Naval Aviation Training in order to produce Naval Aviators.." The mere training of aviators is not enough. It is mandatory that the training be conducted as safely, efficiently and economically as possible. The Navy is not striving to produce the cheapest aviator - rather to produce the best aviator in the most economical way.

Over the past several years constant effort has been made to improve planning factors, flow plans and methods of production and performance measurement in order to keep abreast of all the advances in training procedures. This manual is intended as a guide for personnel directly concerned with the training of Naval Aviators. It is designed to foster a better understanding of planning factors, their derivation and use. Through knowledgeable use of this manual the mission of Naval Aviation Training can be accomplished efficiently and economically.

BACKGROUND OF THE PLANNING PROCESS

A thorough understanding and appreciation of planning factors by all personnel concerned with naval aviation training matters will considerably aid in the accomplishment of the mission -- that of training naval aviators and naval flight officers. The planning factors cover every stage and phase of pilot and naval flight officer (NFO) training. These factors are used as standard measurements against which training flow and performance are judged and by which requirements for aircraft, instructors, support personnel and facilities are determined. It is, therefore, most important that these factors accurately reflect capabilities.

The Naval Air Training Command has used a planning factor methodology for determining program requirements since 1950. The factors have undergone frequent modifications, annual updates and validations. The system has been thoroughly and frequently scrutinized by the Chief of Naval Operations, Office of the Secretary of Defense, Office of Management and Budget, Government Accounting Office, various auditors, and other analytical groups. Most have suggested improvements (that have been incorporated), and have approved this planning methodology.

Planning factors can be a very effective tool of management to provide more efficient program planning and requirements determination. Weather factors, availability, scheduled days, turn around time for both aircraft and instructor, instructor contact time, sortie lengths, etc., all drive the planned utilization of flight instructors, aircraft and simulators. From these factors the number of total instructors, aircraft, simulators and flight hours required to successfully complete a given training rate can be determined. Enlisted manning requirements for training squadrons are provided in the appropriate Squadron Manning Document (OPNAV Form 5320 series). Requirements for squadron training department yeomen should be updated annually based upon the pilot training rate and staffing standards set forth in NAVMACLANT Work Center Staffing Standards Report, Student Control Training Yeomen, of March 1982.

Planning factors are constantly being revised to insure their accuracy. Annually the Chief of Naval Air Training (CNATRA) formally reviews the planning factors, and forwards recommended changes through the chain of command to the Chief of Naval Operations (OP-59) for approval and publication.

The factors include consideration of the approved curricula and cover all aspects of student training exposure, e.g., flight time, brief/debrief time, flight support lectures, academics, simulator time, drills, etc. The planned student availability to fly and daily student utilization throughout the entire curriculum span determine the planned time to train. From this data the planned student inputs and load, or average on board (AOB), can be derived.

Given an annual training production quota, it is possible to derive from these planning factors the following information:

Student loads and on-board time, expected attrition, and planned output; aircraft and instructor requirements; utilization and availability of students, instructors and aircraft; flow plans over an extended period of time by applying

weather, input and utilization factors; the weekly operational efficiency; and many other important facts.

The undergraduate pilot and NFO training flow begins with inputs to the Naval Aviation Schools Command (NAVAVSCOLSCOM) (twelve weeks for aviation officer candidate and six weeks for commissioned officers). The student will then enter the program as either a student naval aviator (SNA) or as a student naval flight officer (SNFO).

The student naval aviator begins with the Primary phase of flight training at either NAS Whiting Field (North), Florida, or NAS Corpus Christi, Texas. This phase of training is designed to introduce the SNA to naval aviation, teach the basics and determine the general capabilities of each student. After successful completion of Primary, the SNA is assigned to one of four specific pipelines.

The student selected for Strike (Jet) training proceeds to the base where he will receive both Intermediate and Advanced phases of jet training. This training is conducted at bases located at NAS Kingsville, Texas, NAS Chase Field at Beeville, Texas, and NAS Meridian, Mississippi.

Students selected for the Maritime (Propeller) pipeline continue their Intermediate training at either NAS Whiting or NAS Corpus Christi, then move into the Advanced training phase at NAS Corpus Christi, Texas.

Students selected for Rotary (Helicopter) training complete Intermediate training at their Primary base similar to the Maritime students. Advanced training is conducted at NAS Whiting Field (South), Florida.

Students selected for the E-2/C-2 pipeline are transferred to NAS Pensacola, Florida, where they receive both Intermediate and Advanced training.

The student Naval Flight Officer, after completion of NAVAVSCOLSCOM, reports to Training Squadron TEN at NAS Pensacola for Basic Training. After successful completion of Basic, the student is assigned to one of five specific pipelines.

Students selected for Navigator Training pipeline receive interservice advanced training at Mather Air Force Base, California.

Students selected for Tactical Navigation (TN), Radar Intercept Operator (RIO), Overwater Jet Navigation (OJN) and Airborne Tactical Data Systems (ATDS) continue Intermediate Training at Training Squadron TEN, NAS Pensacola.

RIO, OJN and TN Advanced training is conducted at Training Squadron EIGHTY-SIX located at NAS Pensacola, Florida.

ATDS advanced training is conducted at RVAW-110 of RVAW-120 (Fleet Readiness Squadrons) located at NAS Miramar, California and NAS Norfolk, Virginia.

PLANNING FACTOR DEFINITION, RESPONSIBILITY & DERIVATION

The following is a listing of the principal elements used in planning factor methodology. They are grouped by major category and include an example, the definition of the term, who has responsibility for performing the annual review/validation, where the data can be obtained from or how to calculate the item, and the formula to use, if necessary.

X. MAJOR CATEGORY OF PLANNING FACTOR

A. Individual Planning Factor(***ABBREVIATION***) . . . . . Example
1. Definition
2. Responsibility
3. Source and/or computation
4. Formula if necessary

I. FACTORS FOR AIRCRAFT HOURS PER COMPLETION:

A. TYPE OF AIRCRAFT (***A/C***) . . . . . T-??
1. Type and model of aircraft currently employed in the syllabus for stage/phase of training.
2. Chief of Naval Air Training
3. Master Curriculum Guide.

B. AIRCRAFT SYLLABUS FLIGHTS (X's) (***ASX***) 0
1. Number of aircraft flights called for by the syllabus
2. Chief of Naval Air Training
3. Master Curriculum Guide

C. AIRCRAFT SYLLABUS HOURS PER STUDENT (***SYL***) . . . . . 0.0 HRS
1. Approved curriculum flight hours exclusive of Extra Time (ET) or Warm-up (WU) and other overhead events.
2. Chief of Naval Air Training
3. Master Curriculum Guide

D. FLIGHT SYLLABUS WEEKS (***TTT***) 0.0
1. Ideal number of weeks to complete the prescribed syllabus
2. Chief of Naval Air Training
3. Master Curriculum Guide

E. TOTAL TRAINING WEEKS (***TTW***) 0.0
1. Ideal total number of weeks to complete a phase of training including travel time from previous phase of training.
2. Chief of Naval Air Training
3. Master Curriculum Guide

F. AIRCRAFT STUDENT OVERHEAD AS A PERCENTAGE (**AOP**) . . . . . 0.0 %

1. Percent of Aircraft Syllabus Hours Per Student allotted for student Extra Time Flights, Warm-up Flights, Unsatisfactory Flight Events and Incomplete Flight Events.
2. TRAWING
3. Obtained by dividing total of Extra Time Flight Hours (ETH), Warm-up Flight Hours (WUH), Incomplete Flight Hours (INC) and Unsatisfactory Syllabus Flights or "Downs" (USF) flown during the last five years by total Syllabus Hours Flown (SHF) flown over the same period.
4. $$AOP = \frac{ETH + WUH + INC + USF}{TFH}$$

G. CHASE HOURS PER STUDENT (**ACH**) . . . . . 0.0 HRS

1. Prorata share of total chase flight hours prescribed by syllabus for chasing of student solo events and Carrier Qualification Lead/Safety, exclusive of Extra Time and Warm-Up events.
2. CNATRA
3. Obtained from Master Curriculum Guide and computed by dividing each chased flight's syllabus hours by the number of aircraft chased for that event and summing the results for the entire curriculum.
4. $$ACH = \frac{Chase\ Hours_1}{No.\ of\ Acft\ Chased_1} \ldots + \ldots \frac{Chase\ Hours_n}{No.\ of\ Acft\ Chased_n}$$

H. CHASE OVERHEAD AS A PERCENTAGE (**COP**) . . . . . 0.0 %

1. Percent of chase aircraft hours allotted for student Extra Time Flights, Warm-up Flights, Unsatisfactory Flight Events and Incomplete Flight Events.
2. Training Air Wing
3. Computed by dividing the last five years' total Chase Extra Time Hours (CET), Chase Warm-up Hours (CWU), Chase Incomplete Hours (CIN) and Chase Unsatisfactory Syllabus Flight Hours for "Downs" (CUF) by Total Chase Hours (CTH) flown during the same period.
4. $$COP = \frac{CET + CWU + CIN + CUF}{CTH}$$

I. STUDENT ATTRITION AS A PERCENTAGE (***ATR***) . . . . . 0.0 %

1. Percentage of students who fail to complete the syllabus.
2. Training Air Wing
3. Obtained from Aviation Statistical Report (ASR) data and computed by dividing the last 5 years' total number of Student Attritions (ATT) by the sum of the Student Completions (COM) and Student Attritions (ATT) for the same PERIOD.
4. $$ATR = \frac{ATT}{COM + ATT}$$

J. PERCENT OF SYLLABUS COMPLETED BY THE AVERAGE ATTRITE (***PSC***) 0.0 %

1. The average percentage of syllabus that was completed at the time of attrition.
2. Training Air Wing
3. Obtained from ASR data and computed by dividing the last five years' Total Flights (X's) Completed By Attritions (ASX) by the product of Total Aircraft Syllabus X's Required (ASX) times Student Attritions (ATT) for the same period.
4. $$ASC = \frac{AXC}{ASX \times ATT}$$

K. AVERAGE INSTRUCTOR TOUR LENGTH (***ITL***) . . . . . 0.0 MONTHS

1. Average number of months an instructor is assigned to a training squadron.
2. Training Air Wing
3. Computed by dividing the sum of all instructor tour months for the last five years by the total number of instructors.
4. $$ITL = \frac{Instructor\ Tour\ Months}{Instructors\ Assigned}$$

L. IUT SYLLABUS LENGTH (***USL***) . . . . . 0.0 Wks

1. Total length of Instructor Under Training (IUT) syllabi that apply to the flight training phase.
2. Chief of Naval Air Training.
3. Master Curriculum Guide for IUT syllabi.

M. AVERAGE INSTRUCTOR INSTRUMENT & NATOPS REQUAL HOURS (***AIN***) . . . . . 0.0 HRS

1. Average annual Instrument Check and Naval Aviation Training and Operations Procedures (NATOPS) Check hours flown by each instructor.
2. Training Air Wing
3. Actual data is obtained from last five years' yellowsheet data and calculated by dividing total Instructor Instrument & NATOPS Requal Hours Flown (INF) by Average Assigned Instructors (AAI).

4. $AIN = \frac{INF}{AAI}$

N. AVERAGE INSTRUCTOR STANDARDIZATION HOURS (***ASH***) . . . . 0.0 HRS

1. Average annual standardization check and preparation hours flown.
2. Training Air Wing
3. Actual data is obtained from last five years' yellowsheet data and calculated by dividing total Instructor Standardization Hours Flown (ISF) by Average Assigned Instructors (AAI).

4. $ASH = \frac{ISF}{AAI}$

O. MAINTENANCE OVERHEAD AS A PERCENTAGE (***MOP***) . . . . . 0.00 %

1. Percentage of total flight hours flown that was required for all categories of maintenance related flights.
2. Training Air Wing
3. Obtained from last five years' yellowsheet data and computed by dividing total Maintenance Flight Hours (MFH) flown by Total Flight Hours (TFH) flown.

4. $MOP = \frac{MFH}{TFH}$

P. LOGISTICS OVERHEAD AS A PERCENTAGE (***LOP***) . . . . . 0.00 %

1. Percentage of total flight hours flown that was required for logistics flights.
2. Training Air Wing
3. Obtained from last five years' yellowsheet data and computed by dividing total Logistics Flight Hours (LFH) flown by Total Flight Hours (TFH) flown.

4. $LOP = \frac{LFH}{TFH}$

Q. FERRY OVERHEAD AS A PERCENTAGE (***FOP***) . . . . . 0.00 %

1. Percentage of total flight hours that were flown in support of ferry flights.
2. Training Air Wing
3. Obtained from last five years' yellowsheet data and computed by dividing total Ferry Flight Hours (FFH) flown by Total Flight Hours (TFH) flown.
4. $$FOP = \frac{\overline{FFH}}{TFH}$$

R. AIRCRAFT FLIGHT HOURS REQUIRED PER IUT (***AHU***) . . . . . 0.0 Hrs

1. The weighted average number of IUT flight hours flown in each training phase.
2. Training Air Wing
3. Actual data is computed by dividing the actual total IUT Hours Flown (UHF) for the last five years by the total number of instructors trained during the same period. Planned data is computed by multiplying the number of Instructor Under Training Syllabus Hours (IUH) in each stage's syllabus by the planned percentage of IUTs expected to receive that qualification for each stage of the syllabus, then totalling the results for all stages.
4. $$AHU_{Actual} = \frac{UHF}{Instructors\ Trained}$$

$$AHU_{Planned} = (IUH_1 \times \%\ of\ IUT_1) \ldots + \ldots (IUH_n \times \%\ of\ IUT_n)$$

II. FACTORS FOR INSTRUCTOR HOURS PER COMPLETION - AIRCRAFT

A. AIRCRAFT SYLLABUS INSTRUCTOR HOURS PER STUDENT (***AIH***) . 0.0 Hrs

1. Planned instructor hours required to support minimum prescribed syllabus exclusive of Extra Time, Warm-up and other overhead events (Dual Syllabus Time).
2. Chief of Naval Air Training
3. Obtained from Master Curriculum Guide.

B. AIRCRAFT INSTRUCTOR STUDENT OVERHEAD AS A PERCENTAGE (***IOP***) . . . . . 0.0 %

1. Percent of total instructor hours allotted for student Extra Time Flights, Warm-up Flights, Unsatisfactory Flight Events and Incomplete Flight Events.
2. Training Air Wing.
3. Calculated by dividing the total of Instructor Extra Time Hours (IET), Instructor Warm-up Hours (IWU), Instructor Incomplete Hours (IIH), plus Instructor Hours for Unsatisfactory Flights (IUF) flown over the last five years by Total Instructor Flight Hours (IFH) flown for the same period.
4. $$IOP = \frac{IET + IWU + IIH + IUF}{IFH}$$

C. INSTRUCTOR CHASE HOURS PER STUDENT (***ICH***) . . . . . 0.0 Hrs

1. Instructor hours required for chase of solo student syllabus flights and CQ Lead/Safe.
2. Training Air Wing.
3. Actual data is computed by dividing the Chase Total Hours (CTH) flown for the last five years by the total Student Completions (COM) for the same period. Planned data is obtained from the Master Curriculum Guide and is computed by dividing each chase flight's instructor hour requirement by the number of aircraft chased for that event and summing the results for the entire curriculum.
4. $$ICH_{Actual} = \frac{CTH}{COM}$$

$$ICH_{Planned} = \frac{Instr\ Chase\ Hrs_1}{No.\ of\ Acft\ Chased_1} \ldots + \ldots \frac{Instr\ Chase\ Hrs_n}{No.\ of\ Acft\ Chased_n}$$

D. INSTRUCTOR FLIGHT HOURS PER IUT (*IHU*) 0.0

1. Instructor hours expended in training IUTs for each IUT syllabus.
2. Training Air Wing
3. Actual data is computed by dividing the last five years' total Instructor Hours flown in support of IUTs by the average number of IUTs trained for the same period. Planned data is computed by multiplying the hours for each stage by the percentage of instructors that will receive that qualification and then summing the results for all stages.

4. $$IHU_{Actual} = \frac{Instuctor\ Hours\ Flown\ for\ IUTs}{IUTs\ Trained}$$

$$IHU_{Plan} = (IHU_{Stg_1} \times \%\ of\ IUT_{Stg_1}) \ldots + \ldots (IHU_{Stg_n} \times \%\ of\ IUT_{Stg_n})$$

III. FACTORS FOR INSTRUCTOR HOURS PER COMPLETION - CPT

A. DESIGNATION OF COCKPIT PROCEDURES TRAINER (**CPT**) XXXX
1. Self explanatory.
2. Chief of Naval Air Training
3. Obtained from Master Curriculum Guide.

B. CPT SYLLABUS INSTRUCTOR HOURS PER STUDENT (**TIH**) ..... 0.0 Hrs
1. Planned hours required to support minimum prescribed syllabus exclusive of Extra Time and Warm-up events.
2. Chief of Naval Air Training
3. Obtained from Master Curriculum Guide.

C. CPT STUDENT OVERHEAD AS A PERCENTAGE (**TOP**) ..... 0.0 %
1. Percent of total CPT allotted for student Extra Time, Warm-up, Unsatisfactory and Incomplete Events.
2. Training Air Wing
3. Computed by dividing the last five years' total CPT Extra Time Hours (TET), CPT Warm-up Hours (TWU), CPT Incomplete Hours (TIC) plus CPT Unsatisfactory Events (TUE) by CPT Total Hours (TTH) flown during the same period.
4. $$TOP = \frac{TET + TWU + TIC + TUE}{TTH}$$

D. INSTRUCTOR CPT HOURS PER IUT (**ITU**) ..... 0.0 Hrs
1. CPT Instructor hours expended in training IUTs for each IUT syllabus.
2. Training Air Wing
3. Actual data is computed by dividing the actual total CPT Instructor Hours flown in support of IUTs for the last five years by the total average number of IUTs trained over the same period. Planned data is computed by multiplying the number of CPT Syllabus Hours Per IUT (THU) in each syllabus by the planned number of IUTs for each syllabus, totalling the products and dividing by the total number of IUTs.
4. $$ITU_{Actual} = \frac{Instructor\ CPT\ Hours\ Flown}{IUTs\ Trained}$$

$$ITU_{Planned} = \frac{(THU_1 \times IUT_1) ... + ... (THU_n \times IUT_n)}{IUT_n}$$

IV. FACTORS FOR INSTRUCTOR HOURS PER COMPLETION - SIMULATOR

A. DESIGNATION OF SIMULATOR (**SIM**) XXXXX
1. Self explanatory.
2. Chief of Naval Air Training
3. Obtained from Master Curriculum Guide.

B. SIMULATOR SYLLABUS INSTRUCTOR HOURS PER STUDENT (**SIH**) 0.0 Hrs
1. Planned hours required to support minimum prescribed syllabus exclusive of Extra Time and Warm-up events.
2. Chief of Naval Air Training
3. Obtained from Master Curriculum Guide.

C. SIMULATOR STUDENT OVERHEAD AS A PERCENTAGE (**SOP**) . . . . 0.0 %
1. Percent of total Simulator hours allotted to Extra Time, Warm-up, Incomplete and Unsatisfactory events.
2. Training Air Wing
3. Computed by dividing the last five years' total Simulator Extra Time Hours (SET), Simulator Warm-up Hours (SWU), Simulator Incomplete Hours (SIC), plus Simulator Unsatisfactory Events' Hours (SUE) by Total Simulator Hours (STH) flown during the same period.
4. $$SOP = \frac{SET + SWU + SIC + SUE}{STH}$$

D. INSTRUCTOR SIMULATOR HOURS PER IUT (**ISU**) . . . . . 0.0 Hrs
1. Simulator Instructor hours expended in training IUTs for each IUT syllabus.
2. Training Air Wing
3. Actual data is computed by dividing the actual total Simulator Instructor Hours flown in support of IUTs for the last five years by the total average number of IUTs trained over the same period. Planned data is computed by multiplying the number of Simulator IUT Syllabus Hours (USH) in each syllabus by the planned number of IUTs for each syllabus, totalling the products and dividing by the total number of IUTs.
4. $$ISU_{Actual} = \frac{Instructor\ Simulator\ Hours\ Flown}{IUTs\ Trained}$$

$$ISU_{Planned} = \frac{(USH_1 \times IUT_1) \ldots + \ldots (USH_n \times IUT_n)}{IUT_n}$$

V. CPT SYLLABUS HOURS PER STUDENT PER IUT

A. CPT SYLLABUS HOURS PER STUDENT (***THS***) . . . . . 0.0 Hrs
   1. Planned hours required to support minimum prescribed syllabus exclusive of Extra Time and Warm-up events.
   2. Chief of Naval Air Training
   3. Obtained from Master Curriculum Guide.

B. CPT SYLLABUS HOURS PER IUT (***THU***) . . . . . 0.0 Hrs
   1. Planned hours required to support minimum prescribed syllabus for IUT.
   2. Chief of Naval Air Training
   3. Obtained from Master Curriculum Guide for IUT Syllabus.

VI. SIMULATOR SYLLABUS HOURS PER STUDENT PER IUT

A. SIMULATOR SYLLABUS HOURS PER STUDENT (***SHS***) . . . . . 0.0 Hrs
   1. Planned hours required to support minimum prescribed syllabus exclusive of Extra Time and Warm-up events.
   2. Chief of Naval Air Training
   3. Obtained from Master Curriculum Guide.

B. SIMULATOR SYLLABUS HOURS PER IUT (***SHU***) . . . . . 0.0 Hrs
   1. Planned hours required to support minimum prescribed syllabus for IUT.
   2. Chief of Naval Air Training
   3. Obtained in IUT Syllabus

VII. SORTIE LENGTH/CONTACT TIME/INSTRUCTOR AVAILABILITY/WEATHER FACTORS

A. STUDENTS PER SORTIE (**SPS**) 0

1. Number of students possible on a syllabus sortie
2. Chief of Naval Air Training
3. Determined by type of aircraft

B. AVERAGE SYLLABUS FLIGHT SORTIE LENGTH (***ASL***) . . . . . 0.0 Hrs

1. Average sortie length for all successful (X-producing) student flights.
2. CNATRA
3. Planned data is obtained from Master Curriculum Guide and calculated by dividing Aircraft Syllabus Hours Per Student (SYL) by Aircraft Syllabus Flights (X's). Actual data is obtained from the Aviation Statistical Report and is computed by dividing the total Syllabus Hours Flown (SHF) by the total Syllabus X's Flown (SXF).
4. $ASL_{Planned} = \frac{SYL}{ASX}$ $\quad ASL_{Actual} = \frac{SHF}{SXF}$

C. INSTRUCTOR STUDENT CONTACT TIME (***ICT***) . . . . . 0.0 Hrs

1. The average time the Instructor time actually spends with a student for all syllabus events exclusive of actual flight time flown. This is includes time for brief, yellowsheet review, pre-flight, man-up, taxi, deplane, yellowsheet completion, debrief and ATF completion. In other words, start of brief to takeoff plus landing to completion of debrief and all paperwork.
2. Training Air Wing.
3. Planned data is obtained from the Training Time Analysis section of the curriculum for each phase (CNATRA INST 1542.xx series). Actual data is obtained from empirical data at the training squadrons using time study techniques. Actual data will be the average of such studies for the last 5 years.

D. INSTRUCTOR AVAILABILITY FACTOR (***IAF***) . . . . . 0.0 %

1. Percentage of assigned effective instructors expected to be available to be scheduled to fly. Leave, sickness, watches, courts, boards, collateral and administrative requirements reduce the total work hours that an instructor is available to perform instructional duties.
2. Training Air Wing.
3. Obtained from the Aviation Statistical Report and is calculated by dividing the sum of the last five years' Average Instructors Available (AIA) by the Average Assigned Instructors (AAI).
4. $IAF = \frac{AIA}{AAI}$

E. WEATHER FACTOR (**WXF**) . . . . . 0.0 %

1. Annual percentage of flyable weather days and is based upon historical observations as well as mission/stage of training.
2. CNATRA
3. Obtained from Aviation Statistical Report data and calculated by dividing the number of flyable days by the number of scheduled days, then averaged over the past 10 years.
4. $$WXF = \frac{Flyable\ Days_{ASR}}{Scheduled\ Days_{ASR}}$$

F. CPT SORTIE LENGTH (**TSL**) . . . . . 0.0 Hrs

1. Average sortie length for all student CPT sorties.
2. CNATRA
3. Obtained from Master Curriculum Guide and calculated by dividing CPT Syllabus Hours Per Student (THS) by CPT Syllabus Sorties (X's)
4. $$TSL = \frac{THS}{TSX}$$

G. CPT INSTRUCTOR STUDENT CONTACT TIME (**TCT**) . . . . . 0.0 Hrs

1. The average time the instructor actually spends with a student for all syllabus events exclusive of actual CPT time flown. This includes time for brief, debrief and ATF completion.
2. Training Air Wing.
3. Planned data is obtained from the Training Time Analysis section of the curriculum for each phase (CNATRA INST 1542.xx series). Actual data is obtained from empirical data at the training squadrons using time study techniques. Actual data will be the average of such studies for the last 5 years.

H. CPT INSTRUCTOR AVAILABILITY FACTOR (**TIA**) . . . . . 0.0 %

1. Percentage of total time that an Instructor is available to perform instructional duties.
2. Training Air Wing
3. Obtained from contractor data and is calculated by dividing the average Instructors Available by average Instructors Assigned, then averaged over 5 years.
4. $$TIA = \frac{Avg\ No.\ of\ CPT\ Instructors\ Available}{Avg\ No.\ of\ CPT\ Instructors\ Assigned}$$

I. SIMULATOR SORTIE LENGTH (**SSL**) . . . . . 0.0 Hrs

1. Average sortie length for all student Simulator sorties.
2. CNATRA
3. Obtained from Master Curriculum Guide and calculated by dividing Simulator Syllabus Hours Per Student (SHS) by Simulator Syllabus Sorties (X's) (SSX).
4. $$SSL = \frac{SHS}{SSX}$$

J. SIMULATOR INSTRUCTOR STUDENT CONTACT TIME (**SCT**) . . . . . 0.0 Hrs

1. The average time the instructor actually spends with a student for all syllabus events exclusive of actual simulator time flown. This includes time for brief, debrief and ATF completion.
2. Training Air Wing
3. Planned data is obtained from the Training Time Analysis section of the curriculum for each phase (CNATRA INST 1542.xx series). Actual data is obtained from empirical data at the training squadrons using time study techniques. Actual data will be the average of such studies for the last 5 years.

K. SIMULATOR INSTRUCTOR AVAILABILITY FACTOR (**SIA**) . . . . . 0.0 %

1. Percentage of total time that an instructor is available to perform instructional duties.
2. Training Air Wing
3. Obtained from contractor data and is calculated by dividing the average number of simulator instructors available by average number of simulator instructors assigned over the past 5 years.
4. $$SIA = \frac{Avg\ No.\ of\ Simulator\ Instructors\ Available}{Avg\ No.\ of\ Simulator\ Instructors\ Assigned}$$

VIII. WORKING CONDITIONS / TURN AROUND TIME / HARDWARE AVAILABILITY

A. WORKING DAYS AVAILABLE-PEACETIME (**DYP**) 237

1. Nominal workdays per year. Based on a 50 week work year (52 less two weeks Christmas/New Years) and a 5-day workweek.
2. Chief of Naval Air Training
3. Calculated by subtracting all non-flying days from the total number of days available. Holidays include: Martin Luther King Day, Presidents Day, Memorial Day, Independence Day, Veterans Day, Labor Day, Columbus Day, and Thanksgiving.
4.

50 Weeks @ 5 Days/Week	*250 Days*
8 Holidays	*- 8 Days*
Change Of Command	*- 1 Day*
Safety Standowns	*- 4 Days*
Work Days Available	*237 Days*

B. WORKING DAYS AVAILABLE-MOBILIZATION (**DYM**) 310

1. Nominal workdays per year. Based on a 52 week work year and a 6-day workweek.
2. Chief of Naval Air Training
3. Calculated by subtracting all non-flying days from the total number of days available. Holidays are Independence Day and Christmas Day.
4.

52 Weeks @ 6 Days/Week	*312 Days*
2 Holidays	*- 2 Days*
Change Of Command	*0 Day*
Safety Standowns	*0 Days*
Work Days Available	*310 Days*

C. WORK EFFICIENCY FACTOR-PEACETIME (**WEP**) 0.0%

1. This factor is to compensate for scheduling efficiency and is normally 100% for peacetime operations.
2. CNATRA

D. WORK EFFICIENCY FACTOR-MOBILIZATION (**WEM**) 0.0%

1. This factor is to compensate for scheduling efficiency and is normally 91% for mobilized Operations.
2. CNATRA

E. INSTRUCTOR WORK HOURS-PEACETIME (**IWP**) . . . . . 0.0 Hrs

1. Number of hours that an instructor would normally work per day.
2. CNATRA

F. INSTRUCTOR WORK HOURS-MOBILIZATION (***IWM***) . . . . . 0.0 Hrs
1. Number of hours that an instructor would normally work per day.
2. CNATRA

G. AIRCRAFT WORK HOURS-PEACETIME (***AWP***) . . . . . 0.0 Hrs
1. Number of hours that an aircraft would normally be available per day.
2. CNATRA

H. AIRCRAFT WORK HOURS-MOBILIZATION (***AWM***) . . . . . 0.0 Hrs
1. Number of hours that an aircraft would normally be available per day.
2. CNATRA

I. CPT WORK HOURS-PEACETIME (***TWP***) . . . . . 0.0 Hrs
1. Number of hours that a CPT would normally be available per day.
2. CNATRA

J. CPT WORK HOURS-MOBILIZATION (***TWM***) . . . . . 0.0 Hrs
1. Number of hours that a CPT would normally be available per day.
2. CNATRA

K. SIMULATOR WORK HOURS-PEACETIME (***SWP***) . . . . . 0.0 Hrs
1. Number of hours that a simulator would normally be available per day.
2. CNATRA

L. SIMULATOR WORK HOURS-MOBILIZATION (***SWM***) . . . . . 0.0 Hrs
1. Number of hours that a simulator would normally be available per day.
2. CNATRA

M. AIRCRAFT TURN AROUND TIME (***TAT***) . . . . . 0.00 Hrs
1. Average time between a completed flight (chocks) and the next flight (takeoff). Accounts for maintenance, man-up, turn-up and taxi of an aircraft <u>without</u> downing discrepancies.
2. Training Air Wing
3. Obtained from empirical data and averaged over last 5 years.

N. AIRCRAFT AVAILABILITY FACTOR (***AAF***) . . . . . 0.0 %
1. Average percentage of assigned A-3 status aircraft which can be maintained in operational condition (Up-status or X producer)
2. Training Air Wing
3. Obtained from 3-M data and calculated by dividing the average number of X-producing aircraft by the total A-3 aircraft, then averaged over the last 5 years.
4. $$AAF = \frac{X\ Producer\ Aircraft}{A\text{-}3\ Aircraft\ Assigned}$$

and requirements of State/Territory Military activities on Seaab

O. AIRCRAFT EFFICIENCY FACTOR (***AEF***) . . . . . 0.0 %

1. A scheduling efficiency factor, dependent on aircraft configuration versus mission specific requirements.
2. Training Air Wing
3. Calculated by dividing the number of missed sorties for configuration by total number of X's completed then subtracting from 1. Averaged over 5 years.
4. $$AEF = 1 - \frac{\textit{Missed Sorties Due To Configuration}}{\textit{Total X's Completed}}$$

P. CPT TURN AROUND TIME (***TTA***) . . . . . 0.0 Hrs

1. Average time between a completed CPT (Unmanning) and the next flight (Man-up).
2. Training Air Wing
3. Obtained from empirical data and averaged over last 5 years. Can be estimated by subtracting actual CPT sortie length from scheduled time between events on same CPT.

Q. CPT AVAILABILITY FACTOR (***TAF***) . . . . . 0.0 %

1. Average percentage of assigned CPTs which can be maintained in operational condition (Up-status).
2. Training Air Wing
3. Calculated by dividing the number of canceled CPTs for facilities by the total scheduled CPTs, then subtracting from 1. Averaged over the last 5 years.
4. $$TAF = 1 - \frac{\textit{CPT Events Canceled Due To Facilities}}{\textit{Total CPT Events Scheduled}}$$

R. CPT EFFICIENCY FACTOR (***TEF***) . . . . . 0.0 %

1. A scheduling efficiency factor.
2. Training Air Wing
3. Calculated by dividing the number of missed sorties for schedules by total number of X's completed then subtracting from 1. Averaged over 5 years.
4. $$TEF = 1 - \frac{\textit{Missed Sorties Due To Schedules}}{\textit{Total X's Completed}}$$

S. SIMULATOR TURN AROUND TIME (***STA***) . . . . . 0.00 Hrs

1. Average time between a completed simulator event (un-manning) and the start of the next event (man-up).
2. Training Air Wing
3. Obtained from empirical data and averaged over last 5 years. Can be estimated by subtracting actual simulator sortie length from scheduled time between events on same simulator.

T. SIMULATOR AVAILABILITY FACTOR (**SAF**) . . . . . 0.0 %

1. Average percentage of assigned simulators which can be maintained in operational condition ("UP" status).
2. Training Air Wing
3. Calculated by dividing number of simulator events canceled for facilities by the total simulator events scheduled, then subtracting from 1. Averaged over the last 5 years.
4. $$SAF = 1 - \frac{\textit{Simulator Events Canceled Due To Facilities}}{\textit{Total Simulator Events Scheduled}}$$

U. SIMULATOR EFFICIENCY FACTOR (**SEF**) . . . . . 0.0 %

1. A scheduling efficiency factor.
2. Training Air Wing
3. Calculated by dividing the number of missed sorties for schedules by total number of X's completed then subtracting from 1. Averaged over 5 years.
4. $$SEF = 1 - \frac{\textit{Missed Sorties Due To Schedules}}{\textit{Total X's Completed}}$$

ANNUAL REVIEW PROCESS FOR PLANNING FACTORS

I. **GENERAL**. Every planning factor is required to be reviewed on an annual basis. This is a long process unless accurate records are maintained during the year. Chapter 3 was designed to help ease the task by defining the data and explaining where to obtain it. This chapter is designed to explain how to submit changes through the chain of command for approval.

II. **TIME TABLE FOR REVIEW**. This basic time table provides guidelines to ensure that sufficient time is available for an comprehensive review.

A. **INITIATION**. CNATRA (N-3) will initiate the review by letter to all six Training Air Wings, NAVAVSCOLSCOM and the Naval Air Training Unit, Mather AFB. This letter is due no later than **1 October**.

B. **Training Air Wing SUBMISSIONS**. Each Training Air Wing, NAVAVSCOLSCOM and NATU will then have until **1 December** to review each of their planning factors, collect supporting data and submit their recommended changes to CNATRA (N-32).

C. **CNATRA SUBMISSION**. CNATRA will then collect this data, review and analyze the Training Air Wing submissions and submit all the proposed changes to the Chief of Naval Education and Training (CNET) for endorsement. The package is due to CNET by **1 March**.

D. **CNET SUBMISSION**. CNET will then endorse the Planning Factor Review Submission and forward it to the Chief of Naval Operations (CNO) for approval by **1 April**.

III. **SUBMISSION FORMAT**. The submission package from CNATRA to CNO, via CNET, will consist of the following as a minimum:

A. **COVER LETTER**. The cover letter, signed by CNATRA, will list all factors that are being recommended for change as well as the basis for the change. Any additional information concerning the review process will also be included.

B. **PROPOSED FACTORS**. The "Proposed Peacetime Planning Factors for Undergraduate Pilot and Naval Flight Officer Training" is attached as enclosure (1). See Appendix B.

C. **IMPACT ON ASSETS**. The "Proposed Planning Factors Impact on Asset Requirements" is attached as enclosure (2). See Appendix C.

D. **COMPOSITION**. A "Computation of Planning Factors" worksheet for each phase is attached as enclosure (3). See Appendix D.

E. **COMPARISON**. A comparison of the current planning factors and the proposed factors is attached as enclosure (4). See Appendix E.

F. **RESOURCE REQUIREMENTS**. A list of the required resources with the new planning factors is attached as enclosure (5). See Appendix F.

G. **MISCELLANEOUS**. Any additional enclosures necessary may then be added.

APPLICATION OF PLANNING FACTORS

I. **ASSET UTILIZATION**. From the basic planning factors an annual utilization of each of our assets can be calculated as FOLLOWS:

A. AIRCRAFT ANNUAL UTILIZATION (***ACU***). Divide Aircraft Work Hours-Peacetime by the sum of Aircraft Syllabus Flight Sortie Length and Aircraft Turn Around Time. Then multiply this by Aircraft Syllabus Flight Sortie Length, Aircraft Availability Factor, Weather Factor, Aircraft Efficiency Factor and Working Days Available-Peacetime.

$$ACU = \left(\frac{AWP}{ASL + TAT}\right) \times ASL \times AAF \times WXF \times AEF \times DYP$$

B. INSTRUCTOR ANNUAL UTILIZATION (***IPU***). Divide Instructor Work Hours-Peacetime by the sum of Aircraft Syllabus Flight Sortie Length and Instructor Student Contact Time. Then multiply this by Aircraft Syllabus Flight Sortie Length, Instructor Availability Factor, Weather Factor, Instructor Efficiency Factor and Working Days Available-Peacetime.

$$IPU = \left(\frac{IWP}{ASL + ICT}\right) \times ASL \times IAF \times WXF \times AEF \times DYP$$

C. CPT ANNUAL UTILIZATION (***CPU***). Divide CPT Work Hours-Peacetime by the sum of CPT Sortie Length and CPT Turn Around Time. Then multiply this by CPT Sortie Length, CPT Availability Factor, CPT Efficiency Factor and Working Days Available-Peacetime.

$$CYU = \left(\frac{TWP}{TSL + TTA}\right) \times TSL \times TAF \times TEF \times DYP$$

D. SIMULATOR ANNUAL UTILIZATION (***SMU***). Divide Simulator Work Hours-Peacetime by the sum of Simulator Sortie Length and Simulator Turn Around Time. Then multiply this by Simulator Sortie Length, Simulator Availability Factor, Simulator Efficiency Factor and Working Days AVAILABLE-PEACETIME.

$$SMU = \left(\frac{SWP}{SSL + STA}\right) \times SSL \times SAF \times SEF \times DYP$$

II. **ASSET PER STUDENT RATIOS**. Given the annual utilization rates and the total hours (explained later) an asset:student ratio can be calculated as Follows:

a. Aircraft:Student Ratio $$ASR = \frac{TFH}{ACU}$$

b. Instructor:Student Ratio $$ISR = \frac{IFH}{IPU}$$

c. Cpt:Student Ratio $$TSR = \frac{TTH}{CTU}$$

d. Simulator:Student Ratio $$SSR = \frac{TSH}{SMU}$$

III. **IUT OVERHEAD CALCULATIONS**. Using these ratios, the Average Instructor Tour Length and the asset Aircraft Flight Hours Required Per IUT, Instructor Flight Hours Per IUT, Instructor CPT Hours Per IUT, and Instructor Simulator Hours Per IUT the following IUT Overhead can be calculated:

A. Instructor/IUT Aircraft Overhead Hours $$UOA = ISR \times \left(\frac{12\ Months}{ITL}\right) \times AHU$$

b. Instructor/IUT Instructor Overhead Hours $$UOI = ISR \times \left(\frac{12\ Months}{ITL}\right) \times IHU$$

c. Instructor/IUT CPT Overhead Hours $$UOT = ISR \times \left(\frac{12\ Months}{ITL}\right) \times ITU$$

d. Instructor/IUT Simulator Overhead HOURS $$UOS = ISR \times \left(\frac{12\ Months}{ITL}\right) \times ISU$$

IV. DETERMINING TOTAL ASSET REQUIREMENTS.

With the previous calculations the following can be determined:

A. AIRCRAFT AND AIRCRAFT FLIGHT HOURS

STEP 1 DETERMINE NUMBER OF FLIGHT HOURS ALLOCATED TO EACH STUDENT

Start with:
Aircraft Syllabus Hours Per Student
Add: Student Overhead Hours
Add: Chase Hours Per Student
Add: Chase Overhead Hours
This gives us our first Subtotal

$$\begin{aligned} & SYL \\ & +(SYL \times AOP) \\ & + ACH \\ & +(ACH \times COP) \\ \hline & SUB_1 \end{aligned}$$

With this subtotal, we can calculate the hours for student attrition that are prorated to each student completion. This is done by multiplying SUB_1 divided by (1 minus the Student Attrition) minus SUB_1, by the Percent Syllabus Completed. These hours are then added to SUB_1 to get SUB_2.

$$\begin{aligned} & + \left(\frac{SUB_1}{(1 - ATR)} - SUB_1 \right) \times PSC \\ \hline & SUB_2 \end{aligned}$$

Instructor Overhead Calculations
Add: IUT Overhead Hours
Add: Instrument & NATOPS Requal Hours
Add: Standardization Hours
This gives us our third subtotal

$$\begin{aligned} & + UOA \\ & + (INS \times ISR) \\ & + (ISH \times ISR) \\ \hline & SUB_3 \end{aligned}$$

If there were no Maintenance Overhead, Logistics Overhead or Ferry Overhead, SUB_3 would be the total aircraft hours required for each student completing the phase. These overhead hours are normally presented as a percentage of the total hours. Therefore, we must first determine the total flight hours and then calculate each of the overhead hours as a percentage of the total.

We do this by Summing
Maintenance Overhead As A Percentage
Logistics Overhead As A Percentage
Ferry Overhead As A Percentage
This gives us a total overhead percentage

$$\begin{aligned} & MOP \\ & + LOP \\ & + FOP \\ \hline & SUB_4 \end{aligned}$$

Subtracting SUB_4 from 100% gives us the percentage that SUB_3 is of the grand total. Then the total Aircraft Hours Per Completion are calculated by dividing SUB_3 by (1 - SUB_4).

$$AHC = \frac{SUB_1}{(1 - SUB_4)}$$

The flight hours for each individual overhead can then be calculated as Follows:

Maintenance Overhead Hours	$MOP \times AHC$
Logistics Overhead Hours	$LOP \times AHC$
Ferry Overhead Hours	$FOP \times AHC$

STEP 2 DETERMINE TOTAL FLIGHT HOURS REQUIRED BASED ON AVIATION TRAINING RATE

Multiplying the assigned PTR or NFOTR by the Aircraft Hours Per Completion gives the Total Flight Hours required.

$$TFH = PTR \times AHC$$

STEP 3 DETERMINE TOTAL NUMBER OF AIRCRAFT REQUIRED

By dividing the Total Flight Hours by the Aircraft Annual Utilization gives us the number of A-3 aircraft required. This is the average number of aircraft required. It is a bare minimum and does not account for any surge capacity or aircraft attrition.

$$A\text{-}3\ Aircraft = \frac{TFU}{ACU}$$

B. **INSTRUCTORS AND INSTRUCTOR FLIGHT HOURS**

This process is very close to the one we just did for aircraft.

STEP 1 DETERMINE NUMBER OF INSTRUCTOR FLIGHT HOURS ALLOCATED TO EACH STUDENT

Start with:
Aircraft Syllabus Instructor Hours
Add: Instructor Overhead Hours
Add: Instructor Chase Hours
Add: Chase Overhead Hours
This gives us our first Subtotal

$$\begin{aligned} & AIH \\ +(AIH \times AOP) & \\ & + ICH \\ + (ICH \times COP) & \\ \hline & SUB_1 \end{aligned}$$

With this subtotal, we can calculate the hours for student attrition that are prorated to each student completion. This is done by multiplying SUB_1 divided by (1 minus the Student Attrition) minus SUB_1, by the Percent Syllabus Completed. These hours are then added to SUB_1 to get SUB_2.

$$\begin{aligned} & + \left(\frac{SUB_1}{(1 - ATR)} - SUB_1 \right) \times PSC \\ \hline & SUB_2 \end{aligned}$$

Instructor Overhead Calculations
Add: IUT Overhead Hours
Add: Instrument & NATOPS Requal Hours
Add: Standardization Hours
This gives us our third subtotal

$$\begin{aligned} & + UOI \\ & + 2 \times (INS \times ISR) \\ & + 2 \times (ISH \times ISR) \\ \hline & SUB_3 \end{aligned}$$

If there were no Maintenance Overhead, Logistics Overhead or Ferry Overhead, SUB_3 would be the total instructor hours required for each student completing the phase. These overhead hours are normally presented as a percentage of the total hours. Therefore, we must first determine the total instructor hours and then calculate each of the overhead hours as a percentage of the total.

We do this by summing
Maintenance Overhead As A Percentage
Logistics Overhead As A Percentage
Ferry Overhead As A Percentage
This gives us a total overhead percentage

$$\begin{aligned} & MOP \\ & + LOP \\ & + FOP \\ \hline & SUB_4 \end{aligned}$$

Subtracting SUB_4 from 100% gives us the percentage that SUB_3 is of the grand total. Then the total Instructor Hours Per Completion are calculated by dividing SUB_3 by (1 - SUB_4).

$$IHC = \frac{SUB_3}{(1 - SUB_4)}$$

The instructor hours for each individual overhead can then be calculated as follows:

Maintenance Overhead Hours	$MOP \times IHC$
Logistics Overhead Hours	$LOP \times IHC$
Ferry Overhead Hours	$FOP \times IHC$

STEP 2 DETERMINE TOTAL INSTRUCTOR HOURS REQUIRED BASED ON AVIATION TRAINING RATE

Multiplying the assigned PTR or NFOTR by Instructor Hours Per Completion gives the Total Instructor Flight Hours required.

$$IFH = PTR \times IHC$$

STEP 3 DETERMINE TOTAL NUMBER OF INSTRUCTORS REQUIRED

By dividing the Total Instructor Flight Hours by the Instructor Annual Utilization gives us the number of pit instructors required. This is the minimum number of instructors required and does not account for any instructor support provided by any administrative billets (i.e. CO, XO, Ops, etc.).

$$Pit\ Instructors = \frac{IFH}{IPU}$$

. The loading activity shall provide an ... used for stock fund item...

C. **COCKPIT PROCEDURES TRAINER (CPT) AND CPT HOURS**
This process is similar to the one we just did, but it is simpler.

STEP 1 DETERMINE NUMBER OF CPT HOURS ALLOCATED TO EACH STUDENT

Start with:
CPT Syllabus Hours
Add: CPT Student Overhead Hours
This gives us our first Subtotal

$$\frac{THS}{+ (THS \times TOP)}$$
$$SUB_1$$

With this subtotal, we can calculate the hours for student attrition that are prorated to each student completion. This is done by multiplying SUB_1 divided by (1 minus the Student Attrition) minus SUB_1, by the Percent Syllabus Completed. These hours are then added to SUB_1 to get SUB_2.

$$\frac{+ \left(\frac{SUB_1}{(1 - ATR)} - SUB_1 \right) \times PSC}{SUB_2}$$

Instructor Overhead Calculations
Add: IUT Overhead Hours
This gives us CPT Hours Per Completion

$$\frac{+ UOT}{THC}$$

STEP 2 DETERMINE TOTAL CPT HOURS REQUIRED BASED ON AVIATION TRAINING RATE

Multiplying the assigned PTR or NFOTR by the CPT Hours Per Completion gives the CPT Total Hours required.

$$TTH = PTR \times THC$$

STEP 3 DETERMINE TOTAL NUMBER OF CPTs REQUIRED

By dividing the CPT Total Hours by the CPT Annual Utilization gives us the number of CPT's required. This is the minimum number of CPT's required.

$$CPTs_{Required} = \frac{TTH}{CPU}$$

D. **SIMULATORS AND SIMULATOR HOURS**

This process is exactly like the one for the CPTs.

STEP 1 DETERMINE NUMBER OF SIMULATOR HOURS ALLOCATED TO EACH STUDENT

Start with:
Simulator Syllabus Hours — SHS
Add: Simulator Student Overhead Hours — $+ (SHS \times SOP)$
This gives us our first Subtotal — SUB_1

With this subtotal, we can calculate the hours for student attrition that are prorated to each student completion. This is done by multiplying SUB_1 divided by (1 minus the Student Attrition) minus SUB_1, by the Percent Syllabus Completed. These hours are then added to SUB_1 to get SUB_2.

$$+ \left(\frac{SUB_1}{(1 - ATR)} - SUB_1 \right) \times PSC$$

$$SUB_2$$

Instructor Overhead Calculations
Add: IUT Overhead Hours — $+ UOS$
This gives us Simulator Hours Per Completion — SHC

STEP 2 DETERMINE TOTAL SIMULATOR HOURS REQUIRED BASED ON AVIATION TRAINING RATE

Multiplying the assigned PTR or NFOTR by the Simulator Hours Per Completion gives the Total Simulator Hours required.

$$STH = PTR \times SHC$$

STEP 3 DETERMINE TOTAL NUMBER OF SIMULATORS REQUIRED

By dividing the Total Simulator Hours by the Simulator Annual Utilization gives us the number of simulators required. This is the minimum number of simulators required.

$$SIMULATORS_{Required} = \frac{STH}{SMU}$$

HYPOTHETICAL EXAMPLE OF PLANNING FACTORS

I. **GENERAL**. This hypothetical example is provided to show a practical application of the planning factors. We will be looking at VT-Advanced at Training Air Wing ZERO where the T-99A aircraft is used for flight training. Given the planning factors for VT-Advanced and a PTR of 150 for the squadron, we will determine the following:

A. The total flight hours to support the PTR.
B. The A3 status aircraft required.
C. The number of instructors required.
D. CPT requirements.
E. The total simulator hours required.

II. **PLANNING FACTORS FOR VT-ADVANCED**.

A. Factors For Aircraft Hours Per Completion:

1.	Type Of Aircraft	T-99A
2.	Syllabus Flights (X's)	84 X's
3.	Syllabus Hours Per Student	100.0 Hrs
4.	Flight Syllabus Weeks	25.0 Wks
5.	Total Training Weeks	26.0 Wks
6.	Aircraft Student Overhead As A Percentage	10.0%
7.	Chase Hours Per Student	30.0 Hrs
8.	Chase Overhead As A Percentage	10.0%
9.	Student Attrition As A Percentage	10.0%
10.	Percent Syllabus Completed By The Average Attrite	50.0%
11.	Average Instructor Tour Length	21.5 Mos
12.	Average IUT Syllabus Length	12.0 Wks
13.	Instructor Instrument & NATOPS Requal Hours	15.0 Hrs
14.	Instructor Standardization Hours	3.0 Hrs
15.	Maintenance Overhead As A Percentage	1.0%
16.	Logistics Overhead As A Percentage	2.0%
17.	Ferry Overhead As A Percentage	1.0%
18.	Aircraft Flight Hours Required Per IUT	50.0 Hrs

B. Factors For Instructor Hours Per Completion - Aircraft

1.	Aircraft Syllabus Instructor Hours Per Student	70.0 Hrs
2.	Instructor Student Overhead As A Percentage	10.0%
3.	Instructor Chase Hours Per Student	30.0 Hrs
4.	Instructor Flight Hours Per IUT	40.0 Hrs

C. Factors For Instructor Hours Per Completion - CPT

1.	Designation Of Cockpit Procedures Trainer	NONE
2.	CPT Syllabus Instructor Hours Per Student	0.0 Hrs
3.	CPT Student Overhead As A Percentage	0.0%
4.	Instructor CPT Hours Per IUT	0.0 Hrs

D. Factors For Instructor Hours Per Completion - Simulator

1.	Designation Of Simulator	2F99
2.	Simulator Syllabus Instructor Hours Per Student	0.0 Hrs
3.	Simulator Student Overhead As A Percentage	15.0%
4.	Instructor Simulator Hours Per IUT	0.0 Hrs

E. CPT/Simulator Syllabus Hours Per Student/IUT

1.	CPT Syllabus Hours Per Student	0.0 Hrs
2.	CPT Syllabus Hours Per IUT	0.0 Hrs
3.	Simulator Syllabus Hours Per Student	65.0 Hrs
4.	Simulator Syllabus Hours Per IUT	15.0 Hrs

F. Sortie Data / Contact Time /Instructor Availability / Weather Factors

1.	Syllabus Flight Sortie Length	1.2 Hrs
2.	Students Per Sortie	1
3.	Instructor Student Contact Time	2.0 Hrs
4.	Instructor Availability Factor	80.0%
5.	Weather Factor	85.0%
6.	Syllabus CPT Sortie Length	0.0 Hrs
7.	CPT Instructor Student Contact Time	0.0 Hrs
8.	CPT Instructor Availability Factor	0.0%
9.	Simulator Sortie Length	2.0 Hrs
10.	Simulator Instructor Student Contact Time	0.0 Hrs
11.	Simulator Instructor Availability Factor	0.0%

G. Working Days / Turn Around Time / Hardware Availability

1.	Working Days Available-Peacetime	237 Days
2.	Working Days Available-Mobilization	312 Days
3.	Work Efficiency Factor-Peacetime	100.0%
4.	Work Efficiency Factor-Mobilization	91.0%
5.	Instructor Work Hours-Peacetime	8.0 Hrs
6.	Instructor Work Hours-Mobilization	12.0 Hrs
7.	Aircraft Work Hours-Peacetime	10.0 Hrs
8.	Aircraft Work Hours-Mobilization	24.0 Hrs
9.	CPT Work Hours-Peacetime	0.0 Hrs
10.	CPT Work Hours-Mobilization	0.0 Hrs
11.	Simulator Work Hours-Peacetime	16.0 Hrs
12.	Simulator Work Hours-Mobilization	24.0 Hrs
13.	Aircraft Turn Around Time	1.4 Hrs
14.	Aircraft Availability Factor	75.0%
15.	Aircraft Efficiency Factor	100.0%
16.	CPT Turn Around Time	0.0 Hrs
17.	CPT Availability Factor	0.0%
18.	CPT Efficiency Factor	0.0%
19.	Simulator Turn Around Time	0.25 Hrs
20.	Simulator Availability Factor	80.0%
21.	Simulator Efficiency Factor	94.0%

III. **HYPOTHETICAL REQUIREMENTS FOR VT-ADVANCED**. From the basic planning factors we are ready to tackle each of our asset requirements.

A. AIRCRAFT FLIGHT HOURS

STEP 1 DETERMINE THE NUMBER OF AIRCRAFT FLIGHT HOURS ALLOCATED TO EACH COMPLETION

Start with the Aircraft Syllabus Hours Per Student	100.00
Add: Student Overhead Hours (100.0 * 10%)	+ 10.00
Add: Chase Hours Per Student	+ 30.00
Add: Chase Overhead Hours (30.0 * 10%)	+ 3.00
This gives us our first subtotal (SUB_1)	143.00

With this subtotal we can calculate the hours for attrites that are prorated towards each student. This is done by dividing SUB_1 by (1 minus the Student Attrition percentage).

$$\frac{143.00}{(1 - 10\%)} = \frac{143.00}{.90} = 158.89$$

Then subtract SUB_1 from this.

$$158.89 - 143.00 = 15.89$$

This result is then multiplied by the Percent Syllabus Completed By The Average Attrite.

$$15.89 \times 50.0\% = 7.94$$

Then adding this to SUB_1 gives us SUB_2.

	+ 7.94
	150.94

Instructor/IUT Overhead is calculated by dividing the Instructor Tour Length into 12 months then multiplying that by the Aircraft Flight Hours Per IUT and by the Instructor:Student Ratio (explained later).

$$\frac{12.0}{21.5} \times 50.0 \times .28951 = 8.08$$

Instrument & NATOPS Requal Hours that are allocated to each student is calculated by multiplying it by the Instructor:Student Ratio.

$$15.0 \times .28951 = 4.34$$

Instructor Standardization Hours that are allocated to each student is calculated by multiplying it by the Instructor:Student Ratio.

$$3.0 \times .28951 = 0.87$$

These three values are then added to SUB_2.

IUT Overhead	+ 8.08
Instrument & NATOPS Requal Hours	+ 4.34
Instructor Standardization Hours	+ 0.87
This gives us our third subtotal (SUB_3)	164.23

If there were no Maintenance Overhead, Logistics Overhead or Ferry Overhead, 164.23 would be the total aircraft hours required for each student completing the phase. These overhead hours are normally presented as a percentage of the total hours. Therefore, we must first determine the total flight hours and then calculate each of the overhead hours as a percentage of the total.

We do this by summing:	
Maintenance Overhead As A Percentage	+ 1.00%
Logistics Overhead As A Percentage	+ 2.00%
Ferry Overhead As A Percentage	+ 1.00%
This gives us a total percentage (SUB_4)	4.00%

Subtracting SUB_4 (4%) from 100% gives us the percentage that SUB_3 (164.72) is of the grand total Aircraft Hours Per Completion. In this example, SUB_3 represents 96% (100%-4%) of the total hours. Then the final Aircraft Hours Per Completion is calculated by dividing SUB_3 by (1 - SUB_4).

$$AHC = \frac{164.23}{(1-4\%)} = \frac{164.23}{0.96} = 171.07 \textit{ HOURS PER COMPLETION}$$

Each individual overhead can then be calculated as follows:

Maintenance Overhead Hours	(1.00% x 171.07)	1.71
Logistics Overhead Hours	(2.00% x 171.07)	3.42
Ferry Overhead Hours	(1.00% x 171.07)	1.71

STEP 2 DETERMINE THE TOTAL FLIGHT HOURS REQUIRED BASED ON PILOT TRAINING RATE

Starting with the assigned PTR	150
Multiply by the Aircraft Hours Per Completion	x 171.07
Gives us the Total Flight Hours	25,660.5

B. DETERMINE THE TOTAL NUMBER OF AIRCRAFT REQUIRED

To start with we need to know what the Aircraft Annual Utilization is, or in other words, how many hours can we expect to fly on each aircraft during the year. This is calculated by first determining the maximum events we can expect to get from an aircraft. This is done by dividing the Aircraft Work Hours-Peacetime by the sum of the Syllabus Flight Sortie Length and the Aircraft Turn Around Time.

$$\frac{10\ Hours}{(1.2 + 1.4)} = \frac{10}{2.6} = 3.85\ Events$$

This is then multiplied together with Syllabus Flight Sortie Length, Aircraft Availability Factor, Weather Factor, Aircraft Efficiency Factor, and Working Days Available-Peacetime.

$$3.85 \times 1.2 \times 75\% \times 85\% \times 100\% \times 237 = 698\ Hrs/Yr$$

By dividing the Total Flight Hours by the Aircraft Annual Utilization gives us the number of A-3 aircraft required.

$$A\text{-}3\ Aircraft = \frac{25{,}660.5}{697} = 36.82$$

Since it is impossible to have a fraction of an aircraft we will round this figure. To ensure sufficient assets, the Naval Air Training Command has adopted the convention of rounding up at .15 instead of the normal mathematical rounding point of .5. This convention is used for Aircraft, Instructors, CPTs and Simulators, but not for flight hours. Therefore, the number of T-99A's required to produce a PTR of 150 is 37. This is the average number of aircraft required and is the bare minimum and does not account for any surge capacity or aircraft attrition.

C. INSTRUCTORS REQUIRED This process is very close to the one we just did for aircraft. The hours are those for which an instructor is directly involved with training students.

STEP 1 DETERMINE THE NUMBER OF INSTRUCTOR FLIGHT HOURS ALLOCATED TO EACH STUDENT

Start with Aircraft Syllabus Instructor Hours	70.00
Add: Instructor Overhead Hours (70.0 * 10%)	+ 7.00
Add: Instructor Chase Hours	+ 30.00
Add: Chase Overhead Hours (30.0 * 10%)	+ 3.00
This gives us our first subtotal (SUB_1)	110.00

With this subtotal we can calculate the hours for attrites that are prorated towards each student. This is done by dividing SUB_1 by (1 minus the Student Attrition percentage):

$$\frac{110.00}{(1 - 10\%)} = \frac{110.00}{.90} = 122.22$$

Then subtract SUB_1 from this:

$$122.22 - 110.00 = 12.22$$

This result is then multiplied by the Percent Syllabus Completed By The Average Attrite:

$$12.22 \times 50.0\% = 6.11$$

Then adding this to SUB_1 gives us SUB_2

$$\begin{array}{r} + \ 6.11 \\ \hline 116.11 \end{array}$$

Instructor/IUT Overhead is calculated by dividing the Instructor Tour Length into 12 months then multiplying that by the Instructor Flight Hours Per IUT and by the Instructor:Student Ratio (explained later):

$$\frac{12.0}{21.5} \times 40.0 \times .28951 = 6.46$$

Calculate the Instrument & NATOPS Requal Hours; then multiply it by 2 since it requires 2 instructors for each hop.

$$15.0 \times .28951 \times 2 = 8.68$$

Calculate the Instructor Standardization Hours the same way:

$$3.0 \times .28951 \times 2 = 1.74$$

These three values are then added to SUB_2

IUT Overhead Hours	+ 6.46
Instrument & NATOPS Requal Hours	+ 8.68
Instructor Standardization Hours	+ 1.74
This gives us our third subtotal (SUB_3)	132.99

Calculate the Maintenance Overhead Hours, Logistics Overhead Hours, and Ferry Overhead Hours using the same methods that were used for aircraft hours.

We do this by summing:	
Maintenance Overhead As A Percentage	+ 1.00%
Logistics Overhead As A Percentage	+ 2.00%
Ferry Overhead As A Percentage	+ 1.00%
	4.00%

This gives us an total percentage (SUB_4)

Subtracting SUB_4 from 100% gives us the percentage that SUB_3 (132.99) is of the grand total Aircraft Hours Per Completion. In this example, SUB_3 represents 96% (100%-4%) of the total hours. Then the final Instructor Hours Per Completion is calculated by dividing SUB_3 by (1 - SUB_4).

$$IHS = \frac{132.99}{(1-4\%)} = \frac{132.99}{0.96} = 139.83 \textit{ HOURS PER COMPLETION}$$

Each individual overhead can then be calculated as follows:

Maintenance Overhead Hours	(1.00% x 132.99)	1.33
Logistics Overhead Hours	(2.00% x 132.99)	2.66
Ferry Overhead Hours	(1.00% x 132.99)	1.33

STEP 2 DETERMINE THE TOTAL FLIGHT INSTRUCTOR FLIGHT HOURS REQUIRED BASED ON PILOT TRAINING RATE

Starting with the assigned PTR	150
Multiply by the Instructor Hours Per Completion	x 139.83
Gives us the Total Instructor Flight Hours	20,974.7

STEP 3 DETERMINE THE TOTAL NUMBER OF INSTRUCTORS REQUIRED TO SUPPORT THE STUDENT TRAINING RATE

Calculate the Instructor Annual Utilization. Start by using the Aircraft Flight Syllabus Sortie Length, Instructor Student Contact Time and Instructor Work Hours-Peacetime to determine the maximum events we can expect to get from an instructor.

$$\frac{8 \textit{ Hours}}{(1.2 + 2.0)} = \frac{8}{3.2} = 2.50 \textit{ Events}$$

This is then multiplied together with Aircraft Flight Syllabus Sortie Length, Instructor Availability Factor, Weather Factor, Instructor Efficiency Factor, and Working Days Available-Peacetime.

$$2.50 \times 1.2 \times 80\% \times 85\% \times 100\% \times 237 = 483 \textit{ Hrs/Yr}$$

By dividing the Total Instructor Flight Hours by the Instructor Annual Utilization gives us the number of full-time or "Pit" instructors required.

$$\textit{Pit Instructors} = \frac{20,974.7}{483} = 43.43$$

Since it is impossible to have a fraction of an instructor we will round this figure. To ensure sufficient assets, the Naval Air Training Command has adopted the convention of rounding up at .15 instead of the normal mathematical rounding point of .5. This convention is used for Aircraft, Instructors, CPTs and Simulators,

but not for flight hours. Therefore, the number of pit instructors required to produce a PTR of 150 is 44. This is the average number of instructors required and does not include the squadrons' administrative billets (CO, XO, and Department Heads) or any non-instructor billets.

D. CPT REQUIREMENTS In our hypothetical squadron a CPT is not used. CPT requirements are calculated exactly like the Simulator requirements.

E. SIMULATOR HOURS REQUIRED Simulator hour calculations are similar to aircraft hours except that some of the overhead hours are not required.

STEP 1 DETERMINE THE NUMBER OF SIMULATOR FLIGHT HOURS ALLOCATED TO EACH STUDENT

Start with the CPT Syllabus Hours	65.00
Add: CPT Student Overhead Hours (65.0 * 15%)	+ 9.75
This gives us our first subtotal (SUB_1)	74.75

Calculate the hours for attrites that are prorated towards each student.

$$\frac{74.75}{(1-10\%)} = \frac{74.75}{.90} = 83.06$$

Then subtract SUB_1 from this:

$$83.06 - 74.75 = 8.31$$

This result is then multiplied by the Percent Syllabus Completed By The Average Attrite:

$$8.31 \times 50.0\% = 4.15$$

Then adding this to SUB_1 gives us SUB_2	+ 4.15 78.90

Calculate IUT Overhead by dividing 12 months by Instructor Tour Length, multiplying that by the Simulator Flight Hours Per Completion and by the Instructor:Student Ratio:

$$\frac{12.0}{21.5} \times 15.0 \times .28951 = 2.42$$

Instructor/IUT Overhead is then added to SUB_2	
IUT Overhead Hours	+ 2.42
This gives us Simulator Hours Per Completion	81.32

STEP 2 DETERMINE THE TOTAL STUDENT SIMULATOR FLIGHT HOURS REQUIRED BASED ON PTR

Starting with the assigned PTR	150
Multiply by the Simulator Hours Per Completion	× 81.32
Gives us the Total Simulator Hours	12,198.0

This is the actual simulator hours required but it is not necessarily the hours that need to be contracted for. There is two reasons for this; 1) The simulator contractor will charge the Navy for instructor time necessary to provide the event, not just simulator time, and 2) academic training that is provided by the contractor is billed under the same contract.

For our example let's say that the contractor charges 2.5 hours for each event and they provide 25 academic classes a year that require 19 hours of instruction and 5 hours of preparation time each.

If all that was necessary were syllabus sorties then we could multiply the number of simulator events by 2.5 to determine the number of hours necessary. This, however, does not account for attrition, overhead, or IUTs. To arrive at the necessary hours we need to adjust the TOTAL STUDENT SIMULATOR HOURS for this extra time and then add enough hours to cover the academic training.

To adjust the hours, we start by dividing the Total Simulator Hours by the Simulator Sortie Length to obtain an approximate number of sorties:

$$SORTIES = \frac{12,198.0}{2.0} = 6,099$$

We can then multiply the number of sorties by the average rate charged per sortie:

$$6,099\ Sorties \times 2.5\ Hrs/Sortie = 15,247.5\ Sortie\ Hours$$

To calculate the hours required for the academic training we must add the hours per class and the preparation time for each class together and then multiply by the number of classes held:

$$(19\ Hrs_{Instruction} + 5\ Hrs_{Preparation}) \times 25\ Classes = 600\ Academic\ Hours$$

Finally, to determine the total number of hours we need, we will add the sortie hours to the academic hours:

$$CONTRACTOR\ HOURS = 15,247.5 + 600 = 15,847.5$$

This would be the bare minimum number of simulator hours that we should contract for. Any known adjustments should be made and then the total rounded for contracting purposes.

STEP 3 DETERMINE THE TOTAL NUMBER OF SIMULATORS REQUIRED TO SUPPORT THE PTR

This is calculated in the same manner as the number of aircraft. However, since a simulator is not as mobile as an aircraft, the number of simulators tends to remain constant regardless of PTR.

Calculate the Simulator Annual Utilization. Start by using the Simulator Sortie Length, Simulator Turn Around Time and Simulator Work Hours-Peacetime to determine the maximum events we can expect to get from an simulator.

$$\frac{16\ Hours}{(2.0 + 0.25)} = \frac{16}{2.25} = 7.11\ Events$$

This is then multiplied together with Simulator Sortie Length, Simulator Availability Factor, Weather Factor, Simulator Efficiency Factor, and Working Days Available-Peacetime.

$$7.11 \times 2.0 \times 80\% \times 94\% \times 237 = 2{,}534.7\ Hrs/Yr$$

By dividing the Total Simulator Hours by the Simulator Annual Utilization gives us the number of simulators required.

$$Simulators = \frac{12{,}198.0}{2{,}534.7} = 4.81$$

IV. **ASSET PER STUDENT RATIOS**. Ratios for each asset are determined by dividing the hours required Per completion by the asset's annual utilization.

A. Aircraft:Student Ratio $\frac{171.07}{697} = 0.24544$

B. Instructor:Student Ratio $\frac{139.83}{483} = 0.28951$

C. Simulator:Student Ratio $\frac{81.32}{2{,}535} = 0.03208$

V. **COMPUTATION WORKSHEET** The computation worksheet for our hypothetical squadron would look like this.

```
COMPUTATION OF PLANNING FACTORS (PEACETIME)
CURRICULUM: ADVANCED FLIGHT TRAWING ZERO                    SERVICE: ALL SERVICES
TYPE ACFT: T-99A        PROCEDURES TRAINER: NONE            FLIGHT  SIMULATOR:
2F99
*************************************************************************
                          ACFT HRS/COMP  INSTRUCTOR HRS/COMP      SIM HRS/COMP
                              T-99A      T-99A   NONE    2F99      NONE    2F99
                              -----      -----  -----   -----     -----   -----
STUDENT SYLLABUS             100.00      70.00   0.00    0.00      0.00   65.00
STUDENT OVERHEAD
  T-99A ACFT = 10.0% /10.0%   10.00       7.00   ----    ----      ----    9.75
INSTRUCTOR CHASE              30.00      30.00   ----    ----      ----    ----
CHASE OVERHEAD        10.0%    3.00       3.00   ----    ----      ----    ----
                    SUBTOTAL 143.00     110.00   0.00    0.00      0.00   74.75

STUDENT ATTRITION     10.0%    7.94       6.11   0.00    0.00      0.00    4.15
                    SUBTOTAL 150.94     116.11   0.00    0.00      0.00   78.90
IUT OVERHEAD
T-99A .28951*.558*50.0/40.0    8.08       6.46   ----    ----      ----    ----
2F99  .28951*.558* 0.0/15.0    ----       ----   ----    0.00      ----    2.42
NATOPS/INSTRUMENT REQUAL
  15.0 HRS * .28951            4.34  x2   8.68   ----    ----      ----    ----
STANDARDIZATION FLTS
   3.0 HRS * .28951            0.87  x2   1.74   ----    ----      ----    ----
                    SUBTOTAL 164.23     132.99   0.00    0.00      0.00   81.32

MAINT OVERHEAD        1.00%    1.71       1.71   ----    ----      ----    ----
LOGISTIC OVERHEAD     2.00%    3.42       3.42   ----    ----      ----    ----
FERRY OVERHEAD        1.00%    1.71       1.71   ----    ----      ----    ----
                                        ------------------------------------------
    TOTALS                   171.07     139.83   0.00    0.00      0.00   81.32
    ROUNDED                  171.10     139.80   0.00    0.00      0.00   81.30
*************************************************************************
IUT OVERHEAD                ACFT HRS/COMP  INSTRUCTOR HRS/COMP      SIM HRS/COMP
                              T-99A      T-99A   NONE    2F99      NONE    2F99
WEIGHTED IUT SYLLABUS         50.00      40.00   0.00    0.00      0.00   15.00

IUT OVHD HRS/COMP=(INS/STUD RATIO)*(12 MO/INS AVG TOUR)*(WEIGHTED IUT SYL HRS)
*************************************************************************
INSTRUCTOR UTILIZATION COMPUTATIONS
            HRS/( SL  +  SCT) *  SL  * AVAIL *  WX  *  EI  * DAYS
IN T-99A  = 8HRS/(1.20 + 2.00) * 1.20 * 0.800 * 0.85 * 1.00 * 237 = 483 HRS/YR
*************************************************************************
                        AIRCRAFT HOURS    CPT HOURS    SIMULATOR HOURS
INSTRUCTOR/STUD RATIO   (139.8 / 483) + (  0.0 /   0) + (  0.0 /   0) = .28951
AIRCRAFT/STUDENT RATIO  (171.1 / 697)                                  = .24544
SIMULATOR/STUD RATIO                                  ( 81.3 /2535) = .03208
*************************************************************************
ANNUAL UTILIZATION COMPUTATIONS
                   HR/( SL  + TAT ) *  SL  * AVAIL *  EI  *  WX  * DAYS
T-99A ACFT UTIL  = 10/(1.20 + 1.40) * 1.20 * 0.750 * 1.00 * 0.85 * 237 =  697
2F99 FL SIM UTIL = 16/(2.00 + 0.25) * 2.00 * 0.800 * 0.94 * 1.00 * 237 = 2535
*************************************************************************
```

APPENDIX A - PLANNING FACTOR ABBREVIATIONS

I. Factors For Aircraft Hours Per Completion:

A. Type Of Aircraft ..... A/C
B. Aircraft Syllabus Flights (X's) ..... ASX
C. Syllabus Hours Per Student ..... SYL
D. Flight Syllabus Weeks ..... TTT
E. Total Training Weeks ..... TTW
F. Aircraft Student Overhead As A Percentage ..... AOP
G. Chase Hours Per Student ..... ACH
H. Chase Overhead As A Percentage ..... COP
I. Student Attrition As A Percentage ..... ATR
J. Percent Syllabus Completed By The Average Attrite ..... PSC
K. Average Instructor Tour Length ..... ITL
L. Average IUT Syllabus Length ..... USL
M. Instructor Instrument & NATOPS Hours ..... INF
N. Instructor Standardization Hours ..... ISH
O. Maintenance Overhead As A Percentage ..... MOP
P. Logistics Overhead As A Percentage ..... LOP
Q. Ferry Overhead As A Percentage ..... FOP
R. Aircraft Flight Hours Required Per IUT ..... AHU

II. Factors For Instructor Hours Per Completion - Aircraft

A. Aircraft Syllabus Instructor Hours Per Student ..... AIH
B. Instructor Student Overhead As A Percentage ..... IOP
C. Instructor Chase Hours Per Student ..... ICH
D. Instructor Flight Hours Per IUT ..... IHU

III. Factors For Instructor Hours Per Completion - CPT

A. Designation Of Cockpit Procedures Trainer ..... CPT
B. CPT Syllabus Instructor Hours Per Student ..... TIH
C. CPT Student Overhead As A Percentage ..... TOP
D. Instructor CPT Hours Per IUT ..... ITU

IV. Factors For Instructor Hours Per Completion - Simulator

A. Designation Of Simulator ..... SIM
B. Simulator Syllabus Instructor Hours Per Student ..... SIH
C. Simulator Student Overhead As A Percentage ..... SOP
D. Instructor Simulator Hours Per IUT ..... ISU

V. CPT/Simulator Syllabus Hours Per Completion/IUT

A. CPT Syllabus Hours Per Student ..... THS
B. CPT Syllabus Hours Per IUT ..... THU
C. Simulator Syllabus Hours Per Student ..... SSH
D. Simulator Syllabus Hours Per IUT ..... SSU

VI. Sortie Data / Contact Time / Instructor Availability / Weather Factors

A.	Aircraft Syllabus Flight Sortie Length	ASL
B.	Students Per Sortie	SPS
C.	Instructor Student Contact Time	ICT
D.	Instructor Availability Factor	IAF
E.	Weather Factor	WXF
F.	CPT Sortie Length	TSL
G.	CPT Instructor Student Contact Time	TCT
H.	CPT Instructor Availability Factor	TIA
I.	Simulator Sortie Length	SSL
J.	Simulator Instructor Student Contact Time	SCT
K.	Simulator Instructor Availability Factor	SIA

VII. Working Days / Turn Around Time / Hardware Availability

A.	Working Days Available-Peacetime	DYP
B.	Working Days Available-Mobilization	DYM
C.	Work Efficiency Factor-Peacetime	WEP
D.	Work Efficiency Factor-Mobilization	WEM
E.	Instructor Work Hours-Peacetime	IWP
F.	Instructor Work Hours-Mobilization	IWM
G.	Aircraft Work Hours-Peacetime	AWP
H.	Aircraft Work Hours-Mobilization	AWM
I.	CPT Work Hours-Peacetime	TWP
J.	CPT Work Hours-Mobilization	TWM
K.	Simulator Work Hours-Peacetime	SWP
L.	Simulator Work Hours-Mobilization	SWM
M.	Aircraft Turn Around Time	TAT
N.	Aircraft Availability Factor	AAF
O.	Aircraft Efficiency Factor	AEF
P.	CPT Turn Around Time	TTA
Q.	CPT Availability Factor	TAF
R.	CPT Efficiency Factor	TEF
S.	Simulator Turn Around Time	STA
T.	Simulator Availability Factor	SAF
U.	Simulator Efficiency Factor	SEF

VIII. Additional Abbreviations Used In Calculations

Aircraft Annual Utilization	ACU
Aircraft Hours Per Completion	AHC
Aircraft:Student Ratio	ASR
Average Assigned Instructors	AAI
Average Instructor Standardization Hours Flown	ISF
Average Instructors Available	AIA
Chase Extra Time Hours	CET
Chase Incomplete Hours	CIN
Chase Overhead Hours	COH
Chase Total Hours Flown	CTH
Chase Unsatisfactory Flight Hours	CUF
Chase Warm-up Hours	CWU
CPT Annual Utilization	CPU
CPT Extra Time Hours	TET
CPT Hours Per Completion	THC
CPT Incomplete Hours	TIC
CPT Syllabus Sorties (X's)	TSX

CPT Total Hours	TTH
CPT Unsatisfactory Events' Hours	TUE
CPT Warm-up Hours	TWU
CPT:Student Ratio	TSR
Extra Time Flight Hours	ETH
Ferry Flight Hours	FFH
Ferry Overhead Hours	FOH
Incomplete Flight Hours	INC
Instructor Annual Utilization	IPU
Instructor CPT Hours Flown	ITH
Instructor Extra Time Hours	IET
Instructor Hours Per Completion	IHC
Instructor Incomplete Hours	IIH
Instructor/IUT Aircraft Overhead Hours	UOA
Instructor/IUT CPT Overhead Hours	UOT
Instructor/IUT Instructor Overhead Hours	UOI
Instructor/IUT Simulator Overhead Hours	UOS
Instructor Standardization Syllabus Hours	ISS
Instructor Under Training	IUT
Instructor Under Training Syllabus Hours	IUH
Instructor Unsatisfactory Flight Hours	IUF
Instructor Warm-up Hours	IWU
Instructor:Student Ratio	ISR
Instrument & NATOPS Syllabus Hours	INS
IUT Hours Flown	UHF
Logistics Flight Hours	LFH
Logistics Overhead Hours	LOH
Maintenance Flight Hours	MFH
Maintenance Overhead Hours	MOH
Naval Flight Officer Training Rate	NFOTR
Pilot Training Rate	PTR
Simulator Annual Utilization	SMU
Simulator Extra Time Hours	SET
Simulator Hours Per Completion	SHC
Simulator Incomplete Hours	SIC
Simulator IUT Syllabus Hours	USH
Simulator Syllabus Sorties (X's)	SSX
Simulator Total Hours	STH
Simulator Unsatisfactory Events' Hours	SUE
Simulator Warm-up Hours	SWU
Simulator:Student Ratio	SSR
Student Attritions	ATT
Student Completions	COM
Syllabus Hours Flown	SHF
Syllabus X's Flown	SXF
Total Flight Hours	TFH
Total Flights (X's) Completed by Attritions	AXC
Total Instructor Flight Hours	IFH
Unsatisfactory Syllabus Flight	USF
Warm-up Flight Hours	WUH

APPENDIX B - NATRACOM PEACETIME PLANNING FACTORS FOR UNDERGRADUATE PILOT TRAINING

CNATRA N-3 Revised: APR 1991 Approved: CNO Ltr Ser 591B/

Location	NASC	NASC	NASC	TW-4	TW-5	TW-1	TW-2	TW-3	TW-4	TW-5
Phase	NAVY AOCS	NAVY APFL	USMC/ USCG APFL	VT-27 Primary	VT-2/3/6 Primary	VT-19 Intermed Strike	VT-23 Intermed Strike	VT-26 Intermed Strike	VT-27 Intermed Mar/Rot	VT-2/3/6 Intermed Mar/Rot
Weather				82%	78%	82%	88%	87%	82%	78%
Student Factors										
Curriculum Hours	976	287	287	66.4	66.4	89.3	89.3	89.3	26.0	26.0
Curriculum Weeks	14	6	6	22.0	22.0	22.9	22.9	22.9	5.1	5.1
Attrition Rate	9.0%	3.0%	1.0%	13.0%	13.0%	6.0%	6.0%	6.0%	1.0%	1.0%
Total Hours				77.2	78.3	106.8	106.8	106.8	26.8	26.0
Instructor Factors										
% Availability				80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Contact Time				2.60	2.25	2.00	2.00	2.00	2.60	2.00
Annual Utilization				507	524	495	531	525	541	592
Hours Per Completion				91.5	92.2	111.1	111.4	109.5	24.8	27.1
Aircraft Factors										
Aircraft				T-34C	T-34C	T-2C	T-2C	T-2C	T-34C	T-34C
% Availability				80.0%	80.0%	60.0%	60.0%	60.0%	80.0%	80.0%
Sortie Length				1.79	1.79	1.32	1.32	1.32	2.00	2.00
Turn Around Time				1.50	1.50	1.46	1.46	1.46	1.56	1.56
Annual Utilization				846	805	554	594	587	804	831
Hours Per Completion				94.7	95.7	126.7	127.1	125.3	28.7	27.9
Simulator Factors										
Simulator				2B37	2B37	2F101	2F101	2F101	2B37	2B37
% Availability				95.0%	95.0%	85.0%	85.0%	85.0%	95.0%	95.0%
Sortie Length				1.30	1.30	1.50	1.50	1.50	1.30	1.30
Turn Around Time				0.25	0.25	0.30	0.30	0.30	0.25	0.25
Annual Utilization				2840	2840	2525	2525	2525	2840	2840
Hours Per Completion				25.6	25.6	49.5	49.5	49.4	11.8	11.8
CPT Factors										
CPT				2C42	2C42					
% Availability				96.0%	96.0%					
Sortie Length				1.00	1.00					
Turn Around Time				0.17	0.17					
Annual Utilization				2925	2925					
Hours Per Completion				6.8	6.8					

NATRACOM PEACETIME PLANNING FACTORS FOR UNDERGRADUATE PILOT TRAINING

CNATRA N-3 Revised: APR 1991 Approved: CNO Ltr Ser 591B/

Location	TW-6	TW-1	TW-2	TW-3	TW-4	TW-4	TW-5
Phase	VT-4 Intermed E2/C2	VT-7 Advanced Strike	VT-21/22 Advanced Strike	VT-24/25 Advanced Strike	VT-31 Advanced Maritime	VT-31 Advanced E2/C2	HT-8/18 Advanced Rotary
Weather	89%	83%	90%	89%	91%	91%	90%
Student Factors							
Curriculum Hours	94.4	102.7	102.7	102.7	87.5	29.0	116.1
Curriculum Weeks	23.8	24.7	24.4	24.4	18.1	9.3	21.4
Attrition Rate	12.0%	8.0%	8.0%	8.0%	4.5%	1.0%	4.0%
Total Hours	111.4	145.0	145.0	145.0	83.9	29.4	126.0
Instructor Factors							
% Availability	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Contact Time	2.00	2.20	2.20	2.20	2.00	1.50	1.77
Annual Utilization	473	441	484	479	528	625	657
Hours Per Completion	123.3	154.0	141.8	146.4	92.2	30.0	140.2
Aircraft Factors							
Aircraft	T-2C	TA-4J	TA-4J	TA-4J	T-44A	T-44A	TH-57
% Availability	60.0%	62.0%	62.0%	62.0%	81.0%	81.0%	76.0%
Sortie Length	1.37	1.21	1.21	1.21	2.47	2.47	1.64
Turn Around Time	1.50	1.40	1.40	1.40	2.96	1.85	1.68
Annual Utilization	604	559	613	606	796	961	801
Hours Per Completion	134.4	183.4	172.1	176.5	95.3	32.3	147.2
Simulator Factors							
Simulator					2F129	2F129	2B24
% Availability	85.0%	80.0%	80.0%	80.0%	95.0%	95.0%	95.0%
Sortie Length	1.52	2.00	2.00	2.00	1.50	1.50	1.20
Turn Around Time	0.30	0.25	0.25	0.25	0.25	0.25	0.25
Annual Utilization	2530	2535	2535	2535	2903	2903	2802
Hours Per Completion	65.4	72.0	72.4	72.5	34.8	24.9	20.3
CPT Factors							
CPT							
% Availability							
Sortie Length							
Turn Around Time							
Annual Utilization							
Hours Per Completion							

NATRACOM PEACETIME PLANNING FACTORS FOR UNDERGRADUATE NFO TRAINING

CNATRA N-3 — Revised: APR 1991 — Approved: CNO Ltr Ser 591B/

Location	NASC	NASC	NASC	TW-6	TW-6	TW-6	TW-6	TW-6	TW-6	TW-6
Phase	NAVY AOCS	NAVY APFL	USMC APFL	VT-10 Basic	VT-10 Basic	VT-10 Basic	VT-10 Basic	VT-10 Intermed	VT-10 Intermed	VT-10 Intermed
Weather				88%	88%	100%	100%	87%	87%	100%
Student Factors										
Curriculum Hours	976	287	287	10.0	1.0	2.6	22.0	10.0	11.7	2.6
Curriculum Weeks	14	6	6	14.8	14.8	14.8	14.8	13.2	13.2	13.2
Attrition Rate	16.0%	4.0%	1.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Total Hours				11.0	1.1	2.9	22.6	11.2	13.1	3.1
Instructor Factors										
% Availability				76.0%	76.0%	70.0%	70.0%	76.0%	76.0%	76.0%
Contact Time				2.40	2.40	1.00	1.20	2.40	2.40	1.00
Annual Utilization				543	373	750	830	537	440	720
Hours Per Completion				12.9	1.3	3.1	4.7	12.6	15.0	3.3
Aircraft Factors										
Aircraft				T-34C	T-2B			T-34C	T-2B	
% Availability				80.0%	60.0%			80.0%	60.0%	
Sortie Length				1.80	1.00			1.80	1.30	
Turn Around Time				1.94	1.46			1.90	1.46	
Annual Utilization				803	509			802	583	
Hours Per Completion				12.5	1.2			12.1	14.3	
Simulator Factors										
Simulator						2B37	1D23			2F101
% Availability						95.0%	90.0%			85.0%
Sortie Length						1.30	2.00			1.00
Turn Around Time						0.25	0.50			0.25
Annual Utilization						2840	2566			2424
Hours Per Completion						3.1	23.6			3.3
CPT Factors										
CPT										
% Availability										
Sortie Length										
Turn Around Time										
Annual Utilization										
Hours Per Completion										

NATRACOM PEACETIME PLANNING FACTORS FOR UNDERGRADUATE NFO TRAINING

CNATRA N-3 Revised: APR 1991 Approved: CNO Ltr Ser 591B/

Location Phase	TW-6 VT-10 Intermed	TW-6 VT-86 Advanced RIO	TW-6 VT-86 Advanced RIO	TW-6 VT-86 Advanced TN	TW-6 VT-86 Advanced TN	TW-6 VT-86 Advanced OJN	TW-6 VT-86 Advanced OJN	TW-6 VT-86 Advanced NFO	MATHER NATU Advanced NAV
Weather	93%	96%	100%	90%	100%	96%	100%	86%	
Student Factors									
Curriculum Hours	19.3	70.5	62.5	59.6	12.0	50.4	12.0	12.1	80.0
Curriculum Weeks	13.2	18.8	18.8	15.5	15.5	15.0	15.0	22.0	22.0
Attrition Rate	8.0%	12.0%	12.0%	9.0%	12.0%	10.0%	10.0%	12.0%	7.0%
Total Hours	20.3	79.0	63.4	66.2	12.3	55.9	12.3	13.6	86.4
Instructor Factors									
% Availability	70.0%	66.0%	70.0%	70.0%	70.0%	70.0%	70.0%	76.0%	
Contact Time	2.00	3.00	2.20	3.20	1.60	3.20	1.60	2.00	
Annual Utilization	647	508	706	487	737	519	737	53	
Hours Per Completion	14.9	45.2	34.4	35.3	6.5	30.0	6.5	16.7	
Aircraft Factors									
Aircraft	T-47A	T-47A		T-47A		T-47A		TA-4J	T-43
% Availability	85.0%	85.0%		85.0%		85.0%		62.0%	
Sortie Length	3.19	4.18		4.40		4.40		1.50	
Turn Around Time	2.00	2.00		2.00		2.00		1.40	
Annual Utilization	981	1013		950		1013		654	
Hours Per Completion	14.9	45.2		35.3		30.0		16.2	
Simulator Factors									
Simulator			AIRT		GMRT		GMRT		
% Availability			70.0%		95.0%		95.0%		
Sortie Length			2.50		2.00		2.00		
Turn Around Time			0.25		0.50		0.50		
Annual Utilization			3078		2709		2709		
Hours Per Completion			68.7		12.9		13.0		
CPT Factors									
CPT									
% Availability									
Sortie Length									
Turn Around Time									
Annual Utilization									
Hours Per Completion									

APPENDIX C - PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

ADVANCED STRIKE				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
ALL STRIKE WINGS:							
Student Overhead	10.7%	TO	9.4%				
Chase Overhead	10.7%	TO	9.4%				
IP Student Overhead	10.7%	TO	9.4%				
TW-1				0	-290	-1	-2
TW-2				-1	-286	0	-2
TW-3				-1	-286	0	-2
TOTAL				-2	-862	-1	-6
A/C Hours per IUT	52.5	TO	65.9				
IP Hours per IUT	46.0	TO	60.2				
TW-1				1	425	1	5
TW-2				0	378	1	4
TW-3				0	378	1	4
TOTAL				1	1,181	3	13
Simulator Hours per IUT	8.0	TO	12.0				
TW-1				0	0	0	105
TW-2				0	0	0	97
TW-3				0	0	0	94
TOTAL				0	0	0	296
Syllabus Sortie Length	1.20	TO	1.21				
TW-1				0	-12	-1	-1
TW-2				-1	-15	0	-1
TW-3				-1	-15	0	-1
TOTAL				-2	-42	-1	-3

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

ADVANCED STRIKE				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING ONE SPECIFIC:							
Maintenance Overhead	1.00%	TO	2.00%	1	294	0	3
Ferry Overhead	1.75%	TO	3.06%	1	406	1	4
Weather Factor	82.0%	TO	83.0%	0	-32	-1	-3
*TRAWING ONE COMPOSITE				1	780	1	111
TRAWING TWO SPECIFIC:							
Maintenance Overhead	1.00%	TO	1.40%	0	115	1	1
Logistics Overhead	2.00%	TO	0.01%	-1	-556	-1	-5
Ferry Overhead	1.75%	TO	1.30%	-1	-128	0	-1
Weather Factor	89.0%	TO	90.0%	-1	-29	0	-3
*TRAWING TWO COMPOSITE				-2	-535	-1	83
TRAWING THREE SPECIFIC:							
*TRAWING THREE COMPOSITE				-1	73	0	94

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

INTERMEDIATE STRIKE				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
ALL STRIKE WINGS:							
Student Overhead	10.7%	TO	11.7%				
Chase Overhead	10.7%	TO	11.7%				
IP Student Overhead	10.7%	TO	11.7%				
TW-1				0	172	0	2
TW-2				0	169	0	1
TW-3				0	169	0	1
TOTAL				0	510	0	4
A/C Hours per IUT	72.3	TO	63.6				
IP Hours per IUT	61.5	TO	60.6				
TW-1				-1	-161	0	0
TW-2				-1	-149	0	0
TW-3				-1	-149	0	0
TOTAL				-3	-459	0	0
Simulator Hours per IUT	9.5	TO	7.5				
TW-1				0	0	0	-35
TW-2				0	0	0	-33
TW-3				0	0	0	-33
TOTAL				0	0	0	-101
Syllabus Sortie Length	1.30	TO	1.32				
TW-1				-1	-18	0	-2
TW-2				-1	-21	-1	-2
TW-3				-1	-21	-1	-2
TOTAL				-3	-60	-2	-6

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

INTERMEDIATE STRIKE				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING ONE SPECIFIC:							
Maintenance Overhead	1.60%	TO	2.00%	0	92	0	1
*TRAWING ONE COMPOSITE				0	76	0	-35
TRAWING TWO SPECIFIC:							
Maintenance Overhead	1.60%	TO	1.63%	0	5	0	0
Logistics Overhead	1.50%	TO	0.50%	-1	-218	-1	-2
Ferry Overhead	0.45%	TO	1.65%	0	267	0	3
Weather Factor	87.0%	TO	88.0%	-1	-26	-1	-2
*TRAWING TWO COMPOSITE				-1	267	0	-33
TRAWING THREE SPECIFIC:							
*TRAWING THREE COMPOSITE				-1	2	0	-33

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

ADVANCED MARITIME				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING FOUR:							
Student Syllabus Hours	87.5	TO	82.55	-2	-1,786	0	-2
Student Overhead	3.8%	TO	1.6%	-1	-700	0	-1
Maintenance Overhead	0.40%	TO	1.19%	0	302	0	6
Logistics Overhead	4.00%	TO	0.60%	-2	-1,260	-2	-24
Ferry Overhead	0.00%	TO	0.14%	0	50	0	1
Average Sortie Length	2.6	TO	2.47	1	54	1	19
Weather Factor	90.0%	TO	91.0%	-1	-27	-1	-7
IP Standardization Hours	3.5	TO	4.5	0	54	0	2
Aircraft Hours Per IUT	31.0	TO	45.8				
IP Flight Hours Per IUT	35.0	TO	45.8	1	436	0	6
IP Hours Per Completion	78.8	TO	76.2	0	-64	-2	-19
Simulator Hours Per Completion	39.0	TO	30.0	0	0	0	-3,342
Simulator Hours Per IUT	22.5	TO	16.5	0	0	0	-161
IP Contact Time	1.5	TO	2.0	0	375	10	120
IP Student Overhead	4.2%	TO	1.6%	0	-50	-2	-14
*COMPOSITE IMPACT:				-3	-2,710	7	-3,510

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

ADVANCED ROTARY				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING FIVE:							
Student Overhead	4.5%	TO	7.8%				
Chase Overhead	4.5%	TO	7.8%				
IP Student Overhead	5.9%	TO	7.8%	3	2,552	2	15
Sortie Length	1.65	TO	1.64	0	23	0	3
Weather Factor	88.0%	TO	90.0%	-3	-236	-4	-21
Aircraft Hours Per IUT	87.3	TO	63.2				
IP Flight Hours Per IUT	87.3	TO	63.2	-3	-1,837	-3	-19
CPT Hours Per IUT	0.0	TO	4.0	0	0	0	0
Simulator Hours Per IUT	12.0	TO	6.0	0	0	0	-396
*TRAWING FIVE COMPOSITE				-2	530	-4	-406

Fleet Overhead As A Percentage

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

ADVANCED E2/C2				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING FOUR:							
Student Syllabus Hours	29.0	TO	27.0	0	-123	0	0
Student Overhead	3.8%	TO	9.0%				
IP Student Overhead	4.2%	TO	9.0%	0	100	0	0
Maintenance Overhead	0.40%	TO	1.19%	0	18	0	0
Logistics Overhead	4.00%	TO	0.60%	0	-73	0	0
Ferry Overhead	0.00%	TO	0.14%	0	4	0	0
Sortie Length	2.60	TO	2.47	0	3	0	0
Weather Factor	72.0%	TO	91.0%	-1	-25	0	0
IP Standardization Hours	3.5	TO	4.5	0	4	0	0
Aircraft Hours Per IUT	31.0	TO	45.8				
IP Flight Hours Per IUT	35.0	TO	45.8	0	27	0	0
IP Hours Per Completion	20.5	TO	24.0	0	19	1	0
Simulator Hours Per Completion	21.0	TO	22.5	0	0	0	96
Simulator Hours Per IUT	0.0	TO	16.5	0	0	0	26
*TRAWING FOUR COMPOSITE				-1	-58	0	121

INTERMEDIATE E2/C2				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING SIX							
Student Overhead	10.1%	TO	13.2%				
Chase Overhead	10.1%	TO	13.2%				
IP Overhead	10.1%	TO	13.2%	1	226	0	2
Aircraft Hours Per IUT	61.4	TO	44.1				
IP Hours Per IUT	49.3	TO	42.3	0	-161	-1	-1
Simulator Hours Per IUT	9.5	TO	7.5	0	0	0	-17
Sortie Length	1.30	TO	1.37	0	-32	-1	-3
Weather Factor	87.0%	TO	89.0%	0	-23	-1	-2
*TRAWING SIX COMPOSITE				0	19	-1	-20

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

PRIMARY				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING FOUR:							
Student Overhead	9.9%	TO	14.9%				
Chase Overhead	9.9%	TO	14.9%				
IP Overhead	10.8%	TO	14.9%	2	1853	3	21
IP Standardization Hours	4.0	TO	7.5	0	393	2	10
Ferry Overhead	0.00%	TO	0.07%	0	226	1	3
Aircraft Hours Per IUT	77.3	TO	59.5				
IP Hours Per IUT	77.3	TO	59.5	-2	-890	-2	-13
Simulator Hours Per IUT	13.0	TO	5.2	0	0	0	-337
Sortie Length	1.65	TO	1.79	-3	-280	-4	-30
IP Contact Time	2.25	TO	2.60	0	547	9	61
Weather Factor	76.0%	TO	82.0%	-5	-443	-7	-48
*TRAWING FOUR COMPOSITE				-5	1,144	-1	-340
TRAWING FIVE							
Student Overhead	9.9%	TO	16.6%				
Chase Overhead	9.9%	TO	16.6%				
IP Overhead	10.8%	TO	16.6%	8	5,829	10	69
IP Standardization Hours	4.0	TO	7.5	1	938	4	24
Aircraft Hours Per IUT	77.3	TO	59.5				
IP Hours Per IUT	77.3	TO	59.5	-3	-2,045	-4	-29
Simulator Hours Per IUT	13.0	TO	5.2	0	0	0	-785
Sortie Length	1.65	TO	1.79	-6	-632	-10	-70
Weather Factor	76.0%	TO	78.0%	-4	-348	-6	-40
*TRAWING FIVE COMPOSITE				-3	3,678	-7	-805

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

INTERMEDIATE MARITIME/ROTARY				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
TRAWING FOUR:							
Student Overhead	0.0%	TO	3.0%				
IP Overhead	0.0%	TO	3.0%	0	242	1	3
Chase Hours/Student	0.38	TO	0.00				
IP Chase Hours/Student	0.38	TO	0.00	0	-114	0	-1
IP Standardization Hours	4.0	TO	1.5	0	-37	0	-1
Ferry Overhead	0.00%	TO	0.07%	0	6	0	0
Aircraft Hours Per IUT	15.8	TO	15.5				
IP Hours Per IUT	15.8	TO	15.5	0	0	0	0
Simulator Hours Per IUT	13.0	TO	2.6	0	0	0	-70
IP Hours/Student	21.5	TO	24.5	0	48	2	12
Sortie Length	1.80	TO	2.00	-1	-23	-1	-5
IP Contact Time	2.25	TO	2.60	0	63	2	15
Weather Factor	76.0%	TO	82.0%	-1	-31	-1	-7
*TRAWING FOUR COMPOSITE				-1	94	0	-70
TRAWING FIVE							
Chase Hours/Student	0.38	TO	0.00				
IP Chase Hours/Student	0.38	TO	0.00	-1	-266	0	-3
IP Standardization Hours	4.0	TO	1.5	0	-87	0	-2
Aircraft Hours Per IUT	15.8	TO	15.5				
IP Hours Per IUT	15.8	TO	15.5	0	0	0	0
Simulator Hours Per IUT	13.0	TO	2.6	0	0	0	-164
IP Hours/Student	21.5	TO	24.5	0	113	5	27
Sortie Length	1.80	TO	2.00	-1	-53	-1	-12
Weather Factor	76.0%	TO	78.0%	-1	-20	0	-6
* TRAWING FIVE COMPOSITE				-2	-333	1	-163

PROPOSED PLANNING FACTOR IMPACT ON ASSET REQUIREMENTS

BASED ON A "BASELINE" TRAINING RATE OF:

	STRIKE	MARITIME	ROTARY	E2/C2
NAVY	265	226	276	59
USMC	125	27	210	0
USCG	0	45	25	0
IMT	24	35	65	0
TOTAL	414	333	576	59

AVIATION SCHOOLS COMMAND				NUMB ACFT	FLT HRS	NUMB IPS	SIM HRS
PILOT:							
AOCS (NAVY) Student Attrition	17.0%	TO	9.0%	N/A	N/A	N/A	N/A
APFI (USMC/USCG) Student Attrition	2.0%	TO	1.0%	N/A	N/A	N/A	N/A
NFO:							
AOCS (NAVY) Student Attrition	25.0%	TO	16.0%	N/A	N/A	N/A	N/A
APFI (NAVY) Student Attrition	7.0%	TO	4.0%	N/A	N/A	N/A	N/A
APFI (USMC/USCG) Student Attrition	3.0%	TO	1.0%	N/A	N/A	N/A	N/A

APPENDIX D - EXAMPLE OF COMPUTATION OF PLANNING FACTORS WORKSHEET

COMPUTATION OF PLANNING FACTORS (PEACETIME)
CURRICULUM: ADVANCED FLIGHT TRAWING ZERO SERVICE: ALL SERVICES
TYPE ACFT: T-99A PROCEDURES TRAINER: NONE FLIGHT SIMULATOR: 2F99

		ACFT HRS/COMP	INSTRUCTOR HRS/COMP			SIM HRS/COMP	
		T-99A	T-99A	NONE	2F99	NONE	2F99
STUDENT SYLLABUS		100.00	70.00	0.00	0.00	0.00	65.00
STUDENT OVERHEAD							
T-99A ACFT = 10.0% /10.0%		10.00	7.00	----	----	----	9.75
INSTRUCTOR CHASE		30.00	30.00	----	----	----	----
CHASE OVERHEAD	10.0%	3.00	3.00	----	----	----	----
	SUBTOTAL	143.00	110.00	0.00	0.00	0.00	74.75
STUDENT ATTRITION	10.0%	7.94	6.11	0.00	0.00	0.00	4.15
	SUBTOTAL	150.94	116.11	0.00	0.00	0.00	78.90
IUT OVERHEAD							
T-99A .28951*.558*50.0/40.0		8.08	6.46	----	----	----	----
2F99 .28951*.558* 0.0/15.0		----	----	----	0.00	----	2.42
NATOPS/INSTRUMENT REQUAL							
15.0 HRS * .28951		4.34	x2 8.68	----	----	----	----
STANDARDIZATION FLTS							
3.0 HRS * .28951		0.87	x2 1.74	----	----	----	----
	SUBTOTAL	164.23	132.99	0.00	0.00	0.00	81.32
MAINT OVERHEAD	1.00%	1.71	1.71	----	----	----	----
LOGISTIC OVERHEAD	2.00%	3.42	3.42	----	----	----	----
FERRY OVERHEAD	1.00%	1.71	1.71	----	----	----	----
TOTALS		171.07	139.83	0.00	0.00	0.00	81.32
ROUNDED		171.10	139.80	0.00	0.00	0.00	81.30

IUT OVERHEAD	ACFT HRS/COMP	INSTRUCTOR HRS/COMP			SIM HRS/COMP	
	T-99A	T-99A	NONE	2F99	NONE	2F99
WEIGHTED IUT SYLLABUS	50.00	40.00	0.00	0.00	0.00	15.00

IUT OVHD HRS/COMP=(INS/STUD RATIO)*(12 MO/INS AVG TOUR)*(WEIGHTED IUT SYL HRS)

INSTRUCTOR UTILIZATION COMPUTATIONS

HRS/(SL + SCT) * SL * AVAIL * WX * EI * DAYS
IN T-99A = 8HRS/(1.20 + 2.00) * 1.20 * 0.800 * 0.85 * 1.00 * 237 = 483 HRS/YR

	AIRCRAFT HOURS	CPT HOURS	SIMULATOR HOURS	
INSTRUCTOR/STUD RATIO	(139.8 / 483) +	(0.0 / 0) +	(0.0 / 0)	= .28951
AIRCRAFT/STUDENT RATIO	(171.1 / 697)			= .24544
SIMULATOR/STUD RATIO			(81.3 /2535)	= .03208

ANNUAL UTILIZATION COMPUTATIONS

HR/(SL + TAT) * SL * AVAIL * EI * WX * DAYS
T-99A ACFT UTIL = 10/(1.20 + 1.40) * 1.20 * 0.750 * 1.00 * 0.85 * 237 = 697
2F99 FL SIM UTIL = 16/(2.00 + 0.25) * 2.00 * 0.800 * 0.94 * 1.00 * 237 = 2535

APPENDIX E - COMPARISON OF CNO APPROVED PLANNING FACTORS vs PROPOSED FACTORS

CURRICULUM	APPROVED FACTORS	PROPOSED FACTORS	CHANGE	PERCENT CHANGE
ADVANCED STRIKE (TA-4J/2F90)				
TRAWING 1				
Flight Hours Per Completion	177.5	183.4	5.9	3.32%
"A-3" Aircraft Per Completion	0.3192	0.3283	0.0091	2.85%
Instructors Per Completion	0.3355	0.3489	0.0134	3.99%
Simulator Hours Per Completion	71.9	72.0	0.1	0.10%
TRAWING 2				
Flight Hours Per Completion	176.0	172.1	-3.9	-2.22%
"A-3" Aircraft Per Completion	0.2914	0.2807	-0.0107	-3.67%
Instructors Per Completion	0.3054	0.2927	-0.0127	-4.16%
Simulator Hours Per Completion	71.8	72.4	0.6	0.84%
TRAWING 3				
Flight Hours Per Completion	176.0	176.5	0.5	0.28%
"A-3" Aircraft Per Completion	0.2914	0.2911	-0.0003	-0.10%
Instructors Per Completion	0.3054	0.3056	0.0002	0.07%
Simulator Hours Per Completion	71.8	72.5	0.7	0.97%
INTERMEDIATE STRIKE (T-2C/2F101)				
TRAWING 1				
Flight Hours Per Completion	126.2	126.7	0.5	0.40%
"A-3" Aircraft Per Completion	0.2298	0.2288	-0.0010	-0.44%
Instructors Per Completion	0.2242	0.2247	0.0005	0.22%
Simulator Hours Per Completion	49.7	49.5	-0.2	-0.40%
TRAWING 2				
Flight Hours Per Completion	125.3	127.1	1.8	1.44%
"A-3" Aircraft Per Completion	0.2150	0.2139	-0.0011	-0.51%
Instructors Per Completion	0.2093	0.2099	0.0006	0.29%
Simulator Hours Per Completion	49.7	49.5	-0.2	-0.40%
TRAWING 3				
Flight Hours Per Completion	125.3	125.3	0.0	0.00%
"A-3" Aircraft Per Completion	0.2150	0.2133	-0.0017	-0.79%
Instructors Per Completion	0.2093	0.2087	-0.0006	-0.29%
Simulator Hours Per Completion	49.7	49.4	-0.3	-0.60%

COMPARISON OF CNO APPROVED PLANNING FACTORS vs PROPOSED FACTORS

CURRICULUM	APPROVED FACTORS	PROPOSED FACTORS	CHANGE	PERCENT CHANGE
ADVANCED MARITIME (T-44A/2F129)				
TRAWING 4				
Flight Hours Per Completion	102.9	95.3	-7.6	-7.39%
"A-3" Aircraft Per Completion	0.1274	0.1197	-0.0077	-6.04%
Instructors Per Completion	0.1533	0.1745	0.0212	13.83%
Simulator Hours Per Completion	45.0	34.8	-10.2	-22.67%
ADVANCED ROTARY (TH-57/2B24/2C67)				
TRAWING 5				
Flight Hours Per Completion	146.2	147.2	1.0	0.68%
"A-3" Aircraft Per Completion	0.1863	0.1838	-0.0025	-1.34%
Instructors Per Completion	0.2194	0.2135	-0.0059	-2.69%
CPT Hours Per Completion	5.1	5.5	0.4	7.84%
Simulator Hours Per Completion	21.0	20.3	-0.7	-3.33%
INTERMEDIATE MARITIME/ROTARY (T-34C/2B37)				
TRAWING 4				
Flight Hours Per Completion	28.4	28.7	0.3	1.06%
"A-3" Aircraft Per Completion	0.0368	0.0357	-0.0011	-2.99%
Instructors Per Completion	0.0453	0.0459	0.0006	1.32%
Simulator Hours Per Completion	12.0	11.8	-0.2	-1.67%
TRAWING 5				
Flight Hours Per Completion	28.4	27.9	-0.5	-1.76%
"A-3" Aircraft Per Completion	0.0368	0.0336	-0.0032	-8.70%
Instructors Per Completion	0.0453	0.0458	0.0005	1.10%
Simulator Hours Per Completion	12.0	11.8	-0.2	-1.67%
ADVANCED E2/C2 (T-44A/2F129)				
TRAWING 4				
Flight Hours Per Completion	33.5	32.3	-1.2	-3.58%
"A-3" Aircraft Per Completion	0.0415	0.0336	-0.0079	-19.04%
Instructors Per Completion	0.0509	0.0480	-0.0029	-5.70%
Simulator Hours Per Completion	22.9	24.9	2.0	8.73%

COMPARISON OF CNO APPROVED PLANNING FACTORS vs PROPOSED FACTORS

CURRICULUM	APPROVED FACTORS	PROPOSED FACTORS	CHANGE	PERCENT CHANGE
INTERMEDIATE E2/C2 (T-2C/2F101)				
TRAWING 6				
Flight Hours Per Completion	134.1	134.4	0.3	0.22%
"A-3" Aircraft Per Completion	0.2337	0.2225	-0.0112	-4.79%
Instructors Per Completion	0.2727	0.2605	-0.0122	-4.47%
Simulator Hours Per Completion	65.7	65.4	-0.3	-0.46%
PRIMARY (T-34C/2C42/2B37)				
TRAWING 4				
Flight Hours Per Completion	92.2	94.7	2.5	2.71%
"A-3" Aircraft Per Completion	0.1221	0.1120	-0.0101	-8.27%
Instructors Per Completion	0.1830	0.1804	-0.0026	-1.42%
CPT Hours Per Completion	6.8	6.8	0.0	0.00%
Simulator Hours Per Completion	26.4	25.6	-0.8	-3.03%
TRAWING 5				
Flight Hours Per Completion	92.2	95.7	3.5	3.80%
"A-3" Aircraft Per Completion	0.1221	0.1189	-0.0032	-2.62%
Instructors Per Completion	0.1830	0.1759	-0.0071	-3.88%
CPT Hours Per Completion	6.8	6.8	0.0	0.00%
Simulator Hours Per Completion	26.4	25.6	-0.8	-3.03%

APPENDIX F - RESOURCE DISPLAY
BASED ON PROPOSED PLANNING FACTOR CHANGES OF APR 91
PHASED FISCAL YEAR REQUIREMENTS IN PILOT TRARONS TO SUPPORT BASELINE PTR

	TRAWING 1		TRAWING 2			TRAWING 3		
ASSET	VT-7	VT-19	VT-21	VT-22	VT-23	VT-24	VT-25	VT-26
STUDENT AOB								
USN	42	45	25	25	53	25	25	54
USMC	20	22	12	12	25	12	12	25
USCG	13	12	0	0	0	0	0	0
FMS	0	0	0	0	0	0	0	0
Total	75	79	37	37	78	37	37	79
TRARON OFFICERS								
USN*	47	33	24	24	32	25	25	32
USMC	15	10	8	8	11	8	8	12
USCG	0	0	0	0	0	0	0	0
FMS	0	0	0	0	0	0	0	0
Total	62	43	32	32	43	33	33	44
AIRCRAFT A-3 RQMT	TA-4J 45	T-2C 32	TA-4J 21 #	TA-4J 21 #	T-2C 32	TA-4J 21	TA-4J 21	T-2C 33
FLIGHT HOURS			@	@				
DIRECT	20993	15840	12870	12870	19300	12570	12570	19024
REIMB	4395	3017	0	0	0	0	0	0
Total	25388	18857	12870	12870	19300	12570	12570	19024

* Includes Administrative and Ground Officers in all USN totals.
\# Includes two aircraft in support of CNATRA split between VT-21 and VT-22
@ Includes 1200 hours in support of CNATRA split between VT-21 and VT-22

RESOURCE DISPLAY
BASED ON PROPOSED PLANNING FACTOR CHANGES OF APR 91
PHASED FISCAL YEAR REQUIREMENTS IN PILOT TRARONS TO SUPPORT BASELINE PTR

	TRAWING 4			TRAWING 5					TW-6
ASSET	VT-27	VT-28	VT-31	VT-2	VT-3	VT-6	HT-8	HT-18	VT-4
STUDENT AOB									
USN	177	0	106	108	108	108	66	66	34
USMC	55	0	11	55	55	55	50	50	0
USCG	0	0	14	13	13	13	6	6	0
FMS	0	0	18	25	25	25	15	15	0
Total	232	0	149	201	201	201	137	137	34
TRARON OFFICERS									
USN*	83	9	65	66	66	66	51	51	30
USMC	24	0	6	23	23	23	26	26	0
USCG	0	0	7	6	6	6	3	3	0
FMS	0	0	0	0	0	0	0	0	0
Total	107	9	78	95	95	95	80	80	30
AIRCRAFT A-3 RQMT	T-34C 57	T-44A 1	T-44A 43	T-34C 53	T-34C 53	T-34C 53	TH-57 55	TH-57 55	T-2C 14
FLIGHT HOURS									
DIRECT	47140	620	26906	36422	36422	36422	37717	37717	8010
REIMB	0	0	7352	5881	5881	5881	6235	6235	0
Total	47140	620	34258	42303	42303	42303	43952	43952	8010

* Includes Administrative and Ground Officers in all USN totals.

AIRCRAFT & FLIGHT HOUR TOTALS FOR PILOT TRAINING

AIRCRAFT		FLIGHT HOURS		
T/M/S	**A-3 RQMT**	**DIRECT**	**REIMBURSABLE**	**TOTAL**
TA-4J	129	71,873	4,395	76,268
T-2C	111	62,174	3,017	65,191
T-44A	44	27,526	7,352	34,878
TH-57	110	75,434	12,470	87,904
T-34C	216	156,406	17,643	174,049
TOTALS	607	393,413	44,877	438,290

RESOURCE DISPLAY
BASED ON PROPOSED PLANNING FACTOR CHANGES OF APR 91
PHASED FISCAL YEAR REQUIREMENTS IN NFO TRARONS TO SUPPORT BASELINE NFOTR

ASSET	TRAWING 6					MATHER	TOTAL
	VT-10	VT-86 RIO	VT-86 TN	VT-86 OJN	VT-86 TOTAL	NATU	NFO
STUDENT AOB							
USN	238	26	30	21	77	71	386
USMC	25	7	6	0	13	0	38
USCG	1	0	0	0	0	0	1
FMS	5	0	0	0	0	7	12
Total	269	33	36	21	90	78	437
TRARON OFFICERS							
USN *							
PILOT	38	2	3	2	11	0	49
NFO #	25	10	8	5	35	29	89
GROUND	4	0	0	0	5	0	10
USMC							
PILOT	4	1	1	0	2	0	6
NFO	3	3	2	0	5	0	8
USCG	0	0	0	0	0	0	0
FMS	0	0	0	0	0	0	0
Total	75	16	14	7	58	29	162
A-3 ACFT							
T-34C	38				0	0	14
T-2C	2	(Shown in VT-86 Total)			0	0	11
T-39N	5				10	0	15
FLIGHT HOURS							
T-34C	29960				0	0	29960
DIRECT	230				0	0	230
REIMB	30190				0	0	30190
Totals							
T-2C							
DIRECT	615				5340	0	5955
REIMB	45	(Shown in VT-86 Total)			0	0	45
Totals	660				5340	0	6000
T-39N							
DIRECT	4940				9375	0	14315
REIMB	30	(Shown in VT-86 Total)			0	0	30
Totals	4970				9375	0	14345

* Includes Administrative and Ground Officers in all USN totals.
\# Includes Academic Instructors and Administrative Officers

INDEX