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March 30, 2017
B-H020-REG-17-TLM-14

Ms. Lirio Liu
Director, Office of Rulemaking, ARM-1
Federal Aviation Administration
800 Independence Avenue, SW.
Washington, D.C. 20591

Subject: Air Traffic Controller Basic Qualification Training Working Group Interim Report

Reference: Federal Register Tasking Notice (Vol. 80, 2015-23433, September 18, 2015)

Dear Ms. Liu,

On behalf of the Aviation Rulemaking Advisory Committee (ARAC), I am pleased to submit the enclosed interim report from the Air Traffic Controller Basic Qualification Training Working Group. Sid McGuirk, the working group chair, summarized the report and recommendations during the March 16, 2017 ARAC meeting in Washington, DC. The thorough report addresses the first phase of the tasking and the working group stands ready to complete the next phase should the FAA deem it necessary.

ARAC members present at the March 16th meeting accepted the report, with the exception of Airlines for America, Air Line Pilots Association and National Air Disaster Foundation. ARAC members noted, and respect, the report's dissenting opinion from National Air Traffic Controllers Association. The majority of ARAC did, however, view the working group as having met the tasking's initial requirement and would expect some of NATCA's concerns be addressed should the FAA decide to engage the working group to complete the tasking.

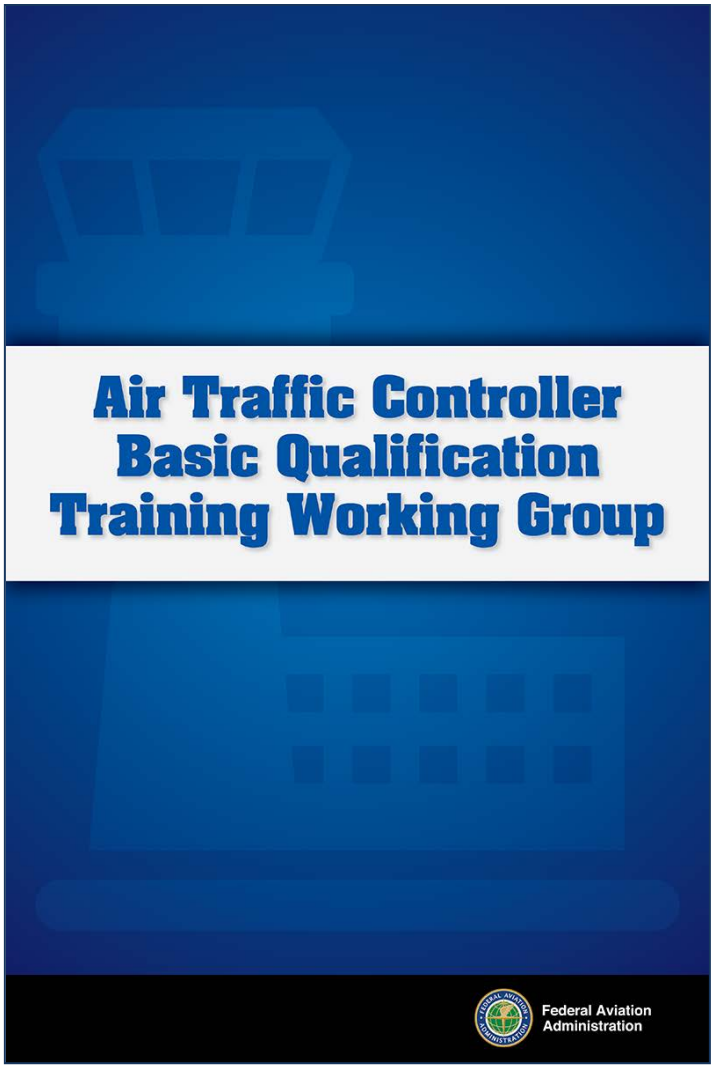
I want to thank the members of the working group for their dedication and delivering a thorough, well organized report.

Sincerely,

Todd Sigler
ARAC Chair

Enclosure

Aviation Rulemaking Advisory Committee
Air Traffic Controller Basic Qualification Training Working Group
Phase 1 (Training) Interim Report



March 16, 2017

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1.0 WORKING GROUP MEMBERS

Name	Organization
Sid McGuirk	Embry Riddle Aeronautical University, **Chair**
Scott Nutter	Delta Air Lines, **Vice Chair**
Tony Price	Safety and Technical Training, **FAA Representative**
Margaret Browning	Hampton University
Dan Cunningham	Advanced ATC, Inc.
Brian Dempsey	FlightSafety International, Inc.
Paul Drechsel	University of North Dakota
Pete Dumont	Air Traffic Control Association
Sam Fischer	Association of Collegiate Training Institutions
George Tracy	Vaughn College
Nicole Vitale/Greg Shoemaker	National Air Traffic Controllers Association
Stephen West	University of Oklahoma

2.0 TASKING

The Working Group was tasked with the following, in accordance with the Federal Register, Vol. 80, No. 181 (Sept. 18, 2015):

The Air Traffic Controller Basic Qualification Training Working Group will provide to the ARAC an analysis on options for external training provider solutions that restructure the FAA air traffic controller candidate pipeline.

Additional considerations include whether a certificated external training program modeled after Part 141 or Part 142 of Title 14 of the Code of Federal Regulations is a way to accomplish agency goals. The recommendations may propose additional alternatives that result in a candidate pipeline with knowledge and skills above the current basic qualification requirements. The Working Group should provide an initial report summarizing the analysis. If the FAA concurs with the recommendation, the tasking may be extended to include a cost and benefit analysis and an evaluation of any necessary rulemaking requirements for implementation.

1. *For background information on the topic, the Working Group should review:*
    a. *Air traffic technical training and credentialing programs (for example, FAA Order 3000.22, FAA Order 3120.4, FAA Order 7210.3, and FAA Order 8000.90).*
    b. *Guidance on airman testing, airmen certification, designated examiners, and the FAA Flight Standards Service covered in FAA Order 8900.1, to evaluate the concept of air traffic certified training centers.*

    c. *Title 14 of the Code of Federal Regulations (for example, Parts 61, 65, 141, and 142) for regulatory guidance on various aviation licenses, to include air traffic controllers, flight dispatchers, and pilots.*
    d. *Associated training guidance materials to include course descriptions, lesson outlines, and training handbooks.*
    e. *FAA hiring regulations (for example, as covered in the FAA Human Resources Policy Manual, Office of Personnel Management job standard for Series 2152, and Equal Employment Opportunity Commission guidance) as needed to integrate a proposed solution into the FAA hiring process.*
2. *The Working Group is tasked to identify possible external training provider solutions. At a minimum, students who complete the program must meet the current standard for Air Traffic Control Basic Qualification Training (solutions may contain options to train students to a higher level of competency).*
3. *The Working Group may consider rulemaking and/or advisory materials as the solution.*
4. *Provide initial qualitative and quantitative costs and benefits for each recommendation.*
5. *Develop an interim report containing recommendations on the findings and results of the tasks explained above.*
    a. *The recommendation report should document both majority and dissenting positions on the findings and the rationale for each position.*
    b. *Any disagreements should be documented, including the rationale for each position and the reasons for the disagreement.*
6. *The Working Group may be reinstated to assist the ARAC by responding to the FAA's questions or concerns after the interim recommendation report has been submitted.*

In addition to the Task prescribed to the Aviation Rulemaking Advisory Committee (ARAC) from the Federal Register Notice, the Air Traffic Controller Basic Qualification Training Working Group (ATCWG), also referred to as the 'Working Group', reviewed and considered the guidance provided by the ATO's Safety and Technical Training Organization, titled *Technical Training Initiatives Guidance Document for the Air Traffic Controller Basic Qualification Training Working Group* (GD-AJI-02-ATCWG-2016-001, Feb. 26, 2016). The Working Group would like to recognize the thoughtfulness and hard work that went into creating the Guidance Document and would like to thank the individuals who contributed to that document.

3.0 EXECUTIVE SUMMARY

The Federal Aviation Administration (FAA) assigned the Aviation Rulemaking Advisory Committee a task to provide recommendation(s) on how the FAA can utilize external training providers (ETPs) for its new-hire air traffic control (ATC) training program. The FAA seeks to transform the ATC training structure by shifting its focus from Air Traffic Initial Qualification Training (IQT) to training the certified controller workforce on advanced Next Generation Air Transportation System (NextGen) tools and procedures. The FAA is seeking options to utilize ETP training capabilities that would provide a level of training commensurate or better than the current IQT presently performed at the FAA Academy, located on the campus of the Mike Monroney Aeronautical Center in Oklahoma City, Oklahoma. The ARAC accepted this task and established the Air Traffic Controller Basic Qualification Training Working Group to provide an analysis on options for ETP solutions that restructure the FAA controller pipeline. Additionally, the Working Group was asked to consider the viability of a new training program modeled after the Part 141 and Part 142 pilot training providers.

The ATCWG divided the Tasking into two phases.[1] Phase 1 entails training. Phase 2 will address hiring concerns. The conclusions in this Interim Report may change based upon findings during Phase 2.

The Working Group held seven meetings during Phase 1. Subject matter experts (SMEs) and stakeholders from various FAA organizations provided briefings to the Working Group. One meeting was held at the FAA Academy, which allowed group members a firsthand view of the training activities and requirements being considered for ETPs to provide.

The ATCWG developed several options for consideration. After significant discussion and the evaluation of existing regulatory frameworks, the Working Group concluded that an ETP is capable of providing IQT. In particular, the Part 142 training model provides a useful roadmap for establishing certification and oversight of ETPs. The ETP regulatory framework is addressed in the body of the report and the appendices.

A number of risks and concerns related to the Tasking are identified and discussed throughout this report. The Working Group believes rulemaking will provide the FAA and ETPs with the stability needed to mitigate the risks associated with transitioning IQT to the ETPs. Based on the assumptions and considerations of the ATCWG, and after careful analysis outlined throughout this document, the Working Group's general consensus is that ETPs can assume the responsibilities of providing the IQT currently being conducted at the FAA Academy for AT Basics, Initial En Route, and Initial Tower Cab excluding Terminal Basic Radar Training and the TRACON Skill Enhancement Workshop (TSEW). One dissenting position is noted in this report.

The ATCWG will await feedback from the ARAC and the Air Traffic Organization (ATO) before starting Phase 2.

[1] See appendix B.

4.0 BACKGROUND

On June 18, 2015, the FAA tasked the ARAC to provide recommendations for utilizing ETPs for the FAA's new hire air traffic controller training program. The ATO Office of Safety and Technical Training, the office of primary responsibility for the tasking, began the process of establishing the ATCWG. On September 18, 2015, a 30-day solicitation for Working Group members was published in the Federal Register. The Working Group Chair was selected in February 2016 and the Vice Chair in March of 2016. The remaining members were identified thereafter, with the last of the members joining in June 2016.

The Working Group members were selected to represent university, industry, union, and government agencies. Members were chosen as SMEs from their field. SMEs from various FAA offices provided guidance to the Working Group on a wide range of topics; the SMEs were invited to the meetings as guest lecturers. These offices included the FAA Academy, Office of Rulemaking, ATO Office of Safety and Technical Training, Office of Aviation Policy and Plans, Office of Human Resource Management, ATO Management Services, Flight Standards Services Airmen Training and Certification Branch, Civil Aerospace Medical Institute, National Simulator Program Office, and the Air Traffic Safety Oversight Service.

The ATCWG met seven times in person and seven times virtually between May 2016 and February 2017 to analyze the options surrounding the FAA's use of ETPs within the new hire air traffic controller training program.[2] The Working Group approached the task from many angles and consulted experts on:

- The current initial qualification process for Air Traffic Controllers;
- The current hiring process for air traffic control specialists (ATCS);
- The selection and placement of ATCSs;
- Curriculum architecture of the Air Traffic Training process;
- A high-level overview on the Barrier Analysis of the ATCSs;
- Various potential models of ETPs, including models based on Part 141 and Part 142 pilot training providers;
- Policy implications of modeling the ATCWG plan after a Part 141 or Part 142 pilot training provider;
- The implementation of an ETP to deliver IQT using the model of a Part 141 or Part 142 pilot training provider;
- Potential oversight of the ETP and the current air traffic controller credentialing process;
- The recommendations made by the Independent Review Panel (IRP) in 2011 on the selection, assignment, and training of ATCSs;
- Functions of the Academy, including Student Services, Technical Support, Human Resources functions, and Curriculum Development and Maintenance;
- The data surrounding the training and success of air traffic controller candidates, focusing on research related to ATCS age, mandatory retirement rules, controller recruitment and selection, and the training and retention of ATCSs;
- The difference in approaches to ATC education of Working Group member colleges, universities, and training providers, including the lack of simulation devices and length of program;

[2] See appendix C.

- The intricacies of flight simulators, their use in ATC simulation, and the requirements of simulation;
- The training costs, success/failure rates, simulation usage, and resilience training for those trainees who feel overwhelmed by the enormity of their tasks and responsibility; and
- The data collection phase given by the FAA Air Traffic Safety Oversight Service, the organization that credentials ATCSs and airway transportation systems specialists.[3]

HUMAN RESOURCES/OFFICE OF PERSONNEL MANAGEMENT (OPM) QUALIFICATIONS

Individuals must meet the following minimum requirements in order to be eligible to apply for an Air Traffic Controller Bid:

- Be a United States citizen
- Be under the age of 31
- Pass a medical examination
- Pass a security investigation
- Pass the FAA air traffic pre-employment tests
- Speak English clearly enough to be understood over communications equipment
- Have three years of progressively responsible work experience, or a Bachelor's degree, or a combination of post-secondary education and work experience that totals three years
- Be willing to relocate to an FAA facility based on agency staffing needs[4]

CURRENT IQT REQUIREMENTS FOR FAA ATCS

Prior to arriving for Stage 1 Training at the FAA Academy, candidates with no prior experience are assigned either the Tower Cab or the En Route Training Track. Successful completion of training is a condition of continued employment with the FAA. ATCSs hired with 52 weeks of consecutive ATC post-certification experience bypass IQT at the FAA Academy and report directly to the FAA Facility to begin Stage 2 training.

Air Traffic (AT) Basics is the first course in the IQT sequence. Individuals hired with no previous experience or those who have not graduated from an Air Traffic Collegiate Training Initiative (CTI) school are required to take AT Basics. Individuals who have completed courses that cover the required AT Basics objectives or individuals who hold, or have previously held, an FAA-recognized Air Traffic Certification may elect to skip AT Basics per FAA Order JO 3120.4, Air Traffic Technical Training. The vast majority of newly hired ATCSs opt to take the AT Basics portion of the training. The course is 25 class days in length.[5]

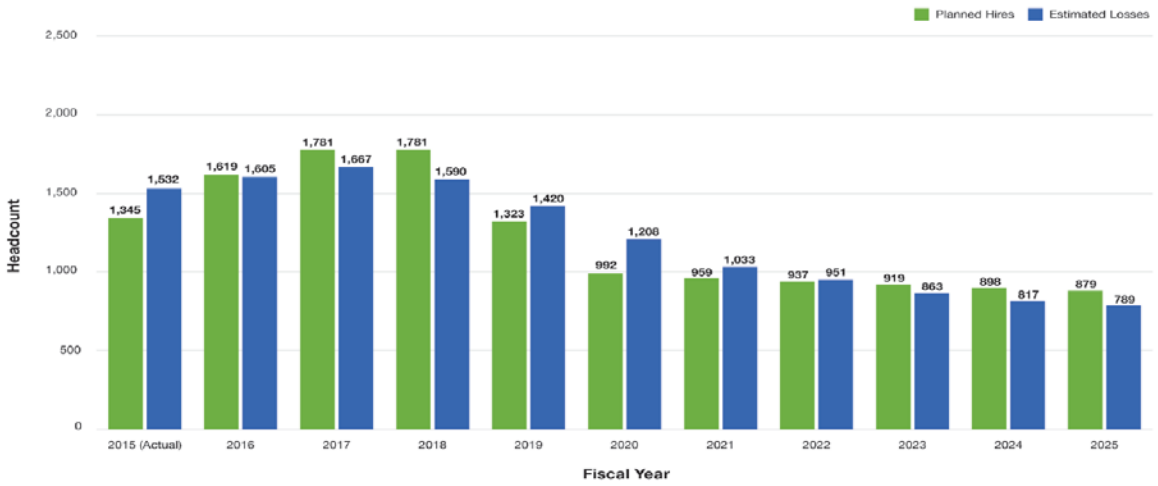
[3] See appendix D.
[4] Applicants with at least 52 weeks of on-the-job ATC experience may be exempt from some of the minimum requirements.
[5] FAA Academy Air Traffic Division, May 25, 2016.

The Initial Tower Cab Training class is 36 class days in length and the Initial En Route Training class is 59 class days.[6] The Air Traffic Division of the FAA Academy and the ATO Management Services has provided the Working Group with a cost breakdown.

Course Number	Course Name	Average Per Diem Cost Per Student[7]	FAA Catalog Cost of Attendance Per Student[8]	Salary and Benefits Per Student[9]	Total Cost (Per Diem + Attendance)
50043/50143	Air Traffic Basics	$ 4,617.74	$ 2,846.79	$3,157.65	$ 10,622.18
50046	Initial Tower Cab Training	$ 5,941.19	$ 19,680.21	$4,420.71	$ 30,042.11
50148001	Initial En Route Qualification Training	$ 8,529.57	$ 28,873.05	$7,578.36	$ 44,980.98

Using hiring projections from the FAA's Controller Workforce Plan (CWP) 2016-2025, the Working Group notes that the FAA plans to hire 12,088 controllers over the next 10 years. The FAA Aviation Careers Branch reported 1,680 ATC hires for FY16 and 605 thus far for FY17.[10]

FIGURE 5.1 CONTROLLER HIRING PROFILE



[6] FAA Academy Air Traffic Division, May 25, 2016.
[7] FAA Academy Air Traffic Division, September 6, 2016.
[8] FAA Academy Reimbursable Course Price Listing for FY17, October 1, 2016.
[9] ATO Management Services, February 2, 2017.
[10] FAA Office of Labor Analysis, October 1, 2016.

For purposes of this report, FAA ATO Management Services Technical Requirements & Forecasting Group estimates that 55% of the new hires will be assigned to the En Route track, 45% will be assigned to the Tower track, and the Working Group assumes that all newly hired employees will take the AT Basics course.[11] Given the aforementioned assumptions, and acknowledging that a comprehensive cost analysis remains to be accomplished, the Working Group estimates the 10-year cost for IQT under the current training process at the FAA Academy will be $590,878,484[12]. *Note: The number of prior experience new hires who bypassed Academy IQT was 21% for FY16 and 19% thus far in FY17.*[13] *Although the projected number of future prior experience new hires is an unknown variable, the cost above could be reduced by $118,209,888 if the 20% trend continues. In addition, the cost associated with establishing and maintaining an ATO oversight office will further reduce the 10-year projection above.*

In addition to the aforementioned courses, the Academy offers Terminal Basic Radar Training for FAA employees who have certified in an Air Traffic Control Tower with a Terminal Radar Approach Control (TRACON) and are ready to begin training on the TRACON portion of their job.[14] The course is 21 class days in length.[15] [16]

The Academy also delivers the TSEW. The workshop provides advanced training for individuals assigned to the busiest TRACONs (Level 9-12 radar facilities).

Per the Tasking Notice dated September 18, 2015, if the FAA concurs with the recommendation, the tasking may be extended to include a cost and benefit analysis.

5.0 OPTIONS

ETP MODELS

Scope

As documented in Section 4.0, current IQT at the FAA Academy is costly and demands significant resources. The ARAC tasked the ATCWG to identify possible ETP solutions, with the understanding that those who complete the program must meet the current standard for Basic ATC qualifications. (See Section 2.0 Tasking.)

[11] FAA Air Traffic Division and ATO Management Services, November 7, 2016, and February 9, 2017.
[12] See appendix E.
[13] FAA Aviation Careers Branch, January 27, 2017.
[14] Not every student takes Terminal Basic Radar Training.
[15] Over the past six years, the FAA Academy Air Traffic Division reports that 2,795 students returned to the Academy for this course. The yearly average number of students for that period was 466. If we project that average over the next 10 years, we find that approximately 4,660 students will return to the Academy for Terminal Basic Radar Training for an estimated cost of $76,788,039.00. Calculated as follows: Average Per Diem Cost Per Student= $3,905.86; FAA Catalog Cost of Attendance Per Student= $ 12,572.26; Total Cost (Per Diem + Attendance)= $ 16,478.12. The salary and benefit costs vary per employee and are not included in this estimated cost.
[16] FAA Academy Air Traffic Division, May 25, 2016.

The following two ETP training models were developed based on the model of Part 142 Training Centers for pilot training. Through rulemaking, ETPs would be established and certified to conduct ATC training. Both models would require high-fidelity simulation equipment that is at least functionally equivalent to what is being used in the field for day-to-day ATC operations.

Model 1

- Candidates that apply for training at the ETPs would be self-funded (See Funding Alternatives below).
- ETPs would provide the training track(s) (i.e. Initial Tower Cab Training/ Initial En Route Training) with the ultimate decision resting with the candidate. Note: If the ETP were to teach the TRACON track, it would need to be taught concurrently with the Initial Tower Cab Training.
- Upon completion of training, students would receive an examination from an FAA Examiner or FAA-approved Designated Examiner.
- Students would apply to FAA vacancy announcements.
- FAA would conduct Aptitude and Behavior testing.
- FAA would issue successful students a Tentative Offer Letter pending completion of medical and security requirements.
- FAA would issue Firm Offer Letter to students for direct hire to their designated facility.

Model 2

- Candidates for the training would be self-funded (See Funding Alternatives below).
- Candidates would apply to FAA vacancy announcement. The vacancy announcement would identify the track (i.e. Initial Tower Cab/ Initial En Route).
- FAA would conduct Aptitude/Behavior testing and Medical/Security clearance.
- FAA would issue a Tentative Offer Letter.
- Candidates would select an Approved ETP.
- Students would complete training and successful examination from an FAA Examiner or FAA-authorized Designated Examiner.
- Pending successful completion of IQT at a certified ETP, students would be issued a Firm Offer Letter and assignment to his/her designated ATC facility.

Implementation

Transition from the current training model provided at the FAA Academy to a model provided by ETPs raises concerns with continuity of available graduates to supply the demand to FAA Facilities. The group currently believes the ETP and the Academy would need to produce students concurrently until such time as the ETP can consistently meet the FAA's hiring needs. At that point, the Academy can teach-out and cease delivering the IQT courses. A concern with this transition plan is the potential that students at the ETPs would be paying for their training while students at the Academy would not. Although not yet researched, this problem might be mitigated by issuing separate hiring announcements. The Working Group will explore further during Phase 2.

Currently, there is no FAA infrastructure to support ETP oversight. For proper ETP implementation, development, and support, the following activities must be considered:

- ETP application and approval process (the FAA must certify the ETP)
- Curriculum development and approval process
- Coordination and implementation of curriculum updates and changes
- Facility, equipment, and personnel approval process
- Training program courseware and simulation approval process
- Recordkeeping of students and instructors
- FAA periodic inspections and ongoing oversight
- The ATO Oversight Office would be responsible for providing information on NAS technology and procedure changes to the ETP's.

Note: With no existing mechanism in place, the FAA must develop such a program and would incur the expense of creating this body.

The Working Group has discussed whether the FAA would conduct all student performance assessments (PA) "check rides" or allow the ETPs to conduct the PA with their own Designated Examiners. Valuable lessons can be learned from the Part 141 Pilot Schools, Part 142 Training Centers, and Part 147 Aviation Maintenance Schools. Based on several decades of experience, and the expanding role and number of Part 141 and 142 FAA Designated Examiners, there is ample history to indicate that training center quality has not been of concern, and that using Designated Examiners would be a viable solution. The successful implementation of either ETP Model would require the development of a system to qualify Designated Examiners to ensure students are properly trained at ETPs.

Advantages/Benefits

As referenced in Section 4.0 Background- Current IQT Requirements for FAA ATCS, the cost reduction to the FAA in using ETPs to conduct IQT is substantial. The utilization of ETPs could also expand the potential for innovation with curriculum development and delivery.

Risks

The Working Group identified the following risks when developing the ETP models.

1. Depending on the implementation rate of ETPs, there could be an insufficient supply of ETPs and/or learning tracks to fulfill FAA hiring needs.
2. ETPs may or may not offer all IQT tracks. This could result in an insufficient number of trainees to meet the demand of the FAA in each track.
3. Student track selection in Model 1 could cause a misalignment between track graduations and FAA hiring needs.
4. ETP Investment costs could require significant capital from the ETP depending on training track(s) being offered.
5. The return on investment for the ETP could require an extensive amount of time.

6. Long-term assurances from the FAA could be needed to ensure the ETPs that their investment will not be put in jeopardy by a change in administration, policy, or a new process.

Funding Alternatives

Funding provided by the student would be a key component to this innovative approach to train the next generation of air traffic controllers. However, concerns were raised that self-funding could create barriers in employment for some applicants.

To mitigate this concern for needs-based applicants, the Working Group discussed alternative funding sources:

- The availability of grants, vouchers, or other financial aid.
- Scholarship reimbursement of tuition (i.e. Agency reimburses student) to the ETP when a needs-based applicant successfully completes IQT training.
- Government payment to the ETP for the tuition cost when the needs-based applicant successfully completes training. This incentive would create the need for the ETP to be fully engaged in providing above-average trained graduates.

Issues

Graduate Availability (Pipeline): The hiring demands and the throughput of the ETPs must be balanced. If ETPs exceed the throughput of demand, there would be a loss of proficiency of the recent graduate. ETPs must be able to graduate students on time based on the needs of the FAA. An ETP under Model 1 would likely be required to have some type of refresher training available to graduates who are not hired by the FAA within 30 days of graduation.

Curriculum Development and Management: The Working Group identified possible avenues for the future in course development. A concern is who would bear the responsibility for future course development, the FAA or the ETPs?

In a model consistent with Part 142 Training Center requirements, the FAA would determine the required training outcomes and the ETPs would develop their course curriculum to meet the FAA requirements. Through rulemaking or policy guidance, the FAA would certify the ETP's courseware meeting the outcomes of the FAA policy.

Requiring providers to be accountable for course curriculum development could incentivize competition and yield a better program through creative teaching.

FAA Oversight through Rulemaking or by Policy: As stated, there is no current infrastructure to support ETP oversight. With no existing mechanism in place, the FAA must develop such a program and could incur the expense of creating this body.

A concern is the lengthy timeline often involved in rulemaking and implementation (three to five years). While the expediency of FAA policy is worth considering, rulemaking has demonstrated to be a worthwhile effort for continuity in aviation safety and efficiency.

OPTIONS FOR ETP/FAA ACADEMY "BLENDED" ROLES IN INITIAL TRAINING

Scope

Although it may be feasible for ETPs to conduct the entirety of IQT currently taught at the FAA Academy, the Working Group also explored options that merged aspects of the FAA's current training model with ETP training. Shifting the FAA's focus from that of primary training to a complimentary role alongside the ETP structure would decrease the cost and resource demand associated with IQT. Options explored include:

- The FAA retaining instructional responsibility for Terminal Basic Radar Training and TSEW;
- Maintaining an FAA cadre of Performance Evaluators to administer Performance Assessments (PAs) to ETP students; and/or
- Maintaining a parallel initial training course at the FAA Academy as an option for needs-based ATCS candidates.

Three blended alternatives were developed by the Working Group.

Alternative 1

The FAA Academy would continue to provide training for Terminal Basic Radar and TSEW while the ETPs provide IQT for new students. Currently the FAA does not place ATCS new hires, with no prior ATC experience, in the large "stand alone" TRACON facilities for a variety of practical reasons, such as complexity and trainee success rates. Thus, students attending Terminal Basic Radar and TSEW at the FAA Academy are already non-probationary FAA bargaining unit employees; they have completed Initial Tower Training, reported to their field facilities, and were successfully certified in the Tower. As employees of the FAA, trainees in Terminal Basic Radar and TSEW classes are not subject to job jeopardy pending the outcome of the courses. Keeping Terminal Basic Radar and TSEW training at the FAA Academy would clarify the role of ETPs in training ATCS candidates who are not FAA employees. Finally, the relatively low volume of training associated with Terminal Basic Radar and TSEW courses, in comparison to Initial Tower and En Route training programs, should be relatively inexpensive for the FAA to continue performing and similarly may not be cost efficient for the ETPs to pursue.

Alternative 2

Performance Evaluators would visit ETP sites to conduct PAs for ATCS students who have completed the training course and have been recommended by the ETP for candidacy. The FAA Academy would hold responsibility for the student's final PA in Initial Tower Cab Training and Initial En Route Training, providing an additional layer of oversight for the FAA and added motivation for ETPs to maintain consistent standards of training. To avoid skill degradation, the student's PA should ideally be scheduled no later than 30 calendar days after training is completed. Otherwise, the ETP could be required to administer "refresher" training to the student. Determining whether this solution would create additional costs for the student, the ETP, the FAA, or all three was beyond the scope of the Working Group for Phase 1.

Alternative 3

The FAA would continue to operate a reduced capacity IQT program at the Academy as a cost-free alternative to ATCS candidates who cannot otherwise afford to pay for their own training at an ETP. Two disadvantages were found with this alternative. The potential could exist for a stigma to be attached to those individuals who attended training at the FAA Academy, if the FAA Academy were to be used as the alternative for candidates who have a financial need. Additionally, the presence of a training program facilitated by the FAA could cause political and industry backers to abandon the ETP model. This model could lead to instability for the ETPs by lowering the likelihood that anyone would be willing to invest in a training program and partner with the FAA.

CURRENT STATE

Candidates are hired by FAA and placed in either the Initial Tower Cab Training or Initial En Route Training track based on staffing needs and training capacity at the FAA Academy in Oklahoma City, OK. Upon assignment to a training track, the student is assigned a slot at the Academy for IQT. Those who successfully complete training are assigned to a facility and placed based upon Agency needs and class standing.

Training is overseen by FAA instructors and supervisors, but is primarily led by contract employees, most of whom are former air traffic controllers. The PA is performed by FAA employees. Student-instructor ratios are one-to-one and sometimes one student to two instructors.

OUTSOURCE TO A CONTRACT VEHICLE

A final consideration is to contract IQT in its current state to a separate entity, as opposed to establishing ETPs. According to the Tasking Notice dated September 18, 2015:

The FAA seeks to transform the air traffic controller training structure by shifting the Agency's focus from basic air traffic control qualification training to training the certified controller work force on advanced NextGen tools and procedures.

In order to accomplish this, the Agency would need to repurpose the funds saved from transitioning IQT to the ETPs. The Working Group believes outsourcing to a contract vehicle keeps the Agency in the business of IQT and undermines the purpose of the Tasking.

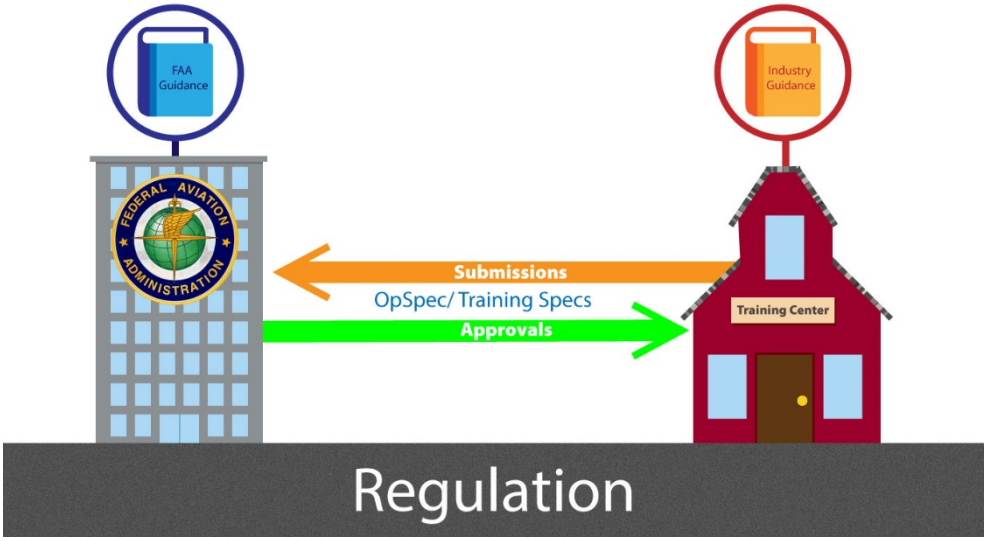
6.0 ETP REGULATORY FRAMEWORK OVERVIEW

Organizations authorized by the FAA to train pilots, mechanics, dispatchers and other aviation disciplines operate using a framework that includes:

- Regulation
- FAA Guidance
- Industry Guidance
- Operations Management Process

- FAA Oversight[17]

This framework ensures that regulators and industry work together using common rules and guidance. As a result, each aviation training provider is held to consistent standards of performance.



The Working Group acknowledges that IQT requirements are currently governed by FAA Order. While it may be possible to modify existing FAA orders to permit the use of ETPs, such a system would provide less long-term stability to companies and schools interested in becoming FAA-approved ETPs. Implementation of FAA regulations similar to those used for other aviation disciplines would ensure that IQT enjoys an equally solid foundation upon which a lasting system can be built, creating stability for the FAA, the National Airspace System, and ETPs.

OVERSIGHT

Oversight of a Part 141 or Part 142 pilot training provider, and training departments within a Part 121 air carrier, is accomplished by the FAA. When considering the resources dedicated to oversight, the size and scope of the organization dictates the oversight required. Many smaller Part 141 and Part 142 organizations require only one FAA inspector to provide oversight whereas a large training provider requires a dedicated team of FAA inspectors attached to a Certificate Management Office.

Oversight of a Part 142 Training Center is managed by a Training Center Program Manager (TCPM). The TCPM has regulatory oversight responsibility for the training center and is responsible for overall FAA technical administration, certification, surveillance, and investigation. TCPMs are the primary FAA focal point for relations with training centers and are responsible for coordinating FAA activity at training centers, satellites, and remote training sites. The TCPM verifies that the training, testing, and checking conducted by the center continually meets regulatory standards as well as the terms and conditions of the center's training specifications (TSpecs), and that the center complies with established FAA policy and guidance.

[17] See appendix F.

7.0 RISKS

Although the Working Group was not tasked to prepare a full implementation plan, certain risks were identified that may affect the implementation of an ETP model. The timing of implementation could result in a limited number of providers interested in or able to participate due to the low number of projected hires. Additionally, the FAA Academy "teach out" transition would have to overlap with ETP. Lastly, the hiring pipeline must be addressed in a manner that does not create hiring gaps or bottlenecks in order to accommodate the FAA hiring needs, ETP output, and learning degradation, while mitigating potentially volatile external variables that could affect supply and demand of controller candidates to ETPs.

8.0 RECOMMENDATION

ETP MODEL 2

General Consensus

The Working Group recommends ETP Model 2 for the FAA to utilize ETPs for its new-hire ATC program. Based on the following assumptions and considerations of the ATCWG, and after careful analysis outlined throughout this document, it is agreed that ETPs can assume the responsibilities of providing the IQT currently being conducted at the FAA Academy for AT Basics, Initial En Route, and Initial Tower Cab excluding Terminal Basic Radar Training and TSEW.

Working Group Assumptions and Considerations

The Working Group has made the following assumptions:

- The FAA would not be the future provider of IQT.
- The FAA training budget would not increase and cost savings would be used to transform Certified Professional Controller training.
- ETP training quality would, at a minimum, be commensurate with FAA Academy training. Students who complete the program must meet the current standard for IQT (solutions may contain options to train students to a higher level of competency).
- The ETPs would be required to train students using high-fidelity simulation equipment that is at least functionally equivalent to what is being used in the field for day-to-day ATC operations.
- OPM qualifications (unless changed) must be followed.
- Graduates from ETP programs would report to his/her FAA-designated facility within 30 days of graduation.
- Students would fund their own training.
- The ETP framework is viable under FAA rulemaking similar to pilot programs.
- Curriculum management and development would be maintained by the ETP, with approval from the FAA.
- The FAA would set the criteria for certification of an ETP, but would not ultimately control the number of ETPs.

The ARAC and FAA Leadership should consider the following, or, if reinstated, the Working Group may consider some of these items during Phase 2:

- Would the ETPs be able to meet the demand of the FAA hiring quotas?
- Would FAA hiring needs be sufficient to sustain ETP business models over time?
- Would the transition plan allow for seamless transition without impacting the availability of graduates?

Issues as a Result of Findings

The following issues were identified by the Working Group:

1. Unless financial assistance is provided, student self-funding could create barriers for hiring for some applicants.
2. ETP investment costs could be significant. ETP assumes large monetary risk.
3. Does the FAA allow the ETPs to have examining authority for student PAs similar to Part 142 Training Center programs?

Using FAA rulemaking similar to current pilot training programs (Part 141/Part 142), the framework and foundation exists today and makes it viable for ETPs to assume responsibilities to conduct this training equal to or better than FAA Academy training.

Further, the Working Group believes that through the use of rulemaking, ETPs would have the long-term stability needed in order to invest in the development of a training program. The method of utilizing FAA regulation and FAA guidance is similar to the structure used by Part 142 Training Centers where FAA Order 8900.1 provides guidance on how to comply with the Code of Federal Regulations (CFR), while offering potential deviations when needed.

Lastly, the Working Group recommends that the ETPs be established using processes that mirror those used by Part 142 Training Centers.

Dissenting Position

At this time, there are insufficient details for the National Air Traffic Controllers Association (NATCA) to endorse the Aviation Rulemaking Advisory Committee (ARAC) Air Traffic Controller Basic Qualification Training Working Group's (ATCWG) Phase 1 (Training) Interim Report. NATCA has several concerns that are not addressed and/or resolved in this report. Further, there are far too many variables that have yet to be determined. We hope all of these issues will be addressed in Phase 2.

NATCA has serious questions about the accuracy of the cost savings assumptions and calculations stated in the Report in Section 4.0. First, the calculations are based on projected hiring numbers found in the FAA's FY 2016 Controller Workforce Plan (CWP). The CWP is fundamentally flawed and misleading, as it is based on numbers developed by the FAA's Financial Services office, as opposed to using real-world operations-driven staffing numbers found in the FAA's Priority Placement Tool.

Moreover, the 10-year cost savings calculations in the report use the hiring numbers from FY16 and FY17, but that funding has already been allocated and/or spent. If replaced by hypothetical FY26 and

FY27 hiring numbers that do not currently exist in any FAA document, the projected hiring in those years would be much lower, which would reduce the overall cost savings. In addition, the report recommends and proposes an external training provider (ETP) model that would require the FAA to retain substantial oversight over the training providers. However, none of that oversight structure currently exists. Standing up an oversight branch within the FAA would be costly and time-consuming, and would significantly reduce any hypothetical cost savings.

NATCA also has significant concerns with the unanswered issues and under-addressed questions of how the FAA is going to transition to and implement an ETP model without adversely affecting the hiring pipeline and flow of developmental trainees into its field facilities. In fact, the FAA struggles to manage this issue today despite having complete control over the pipeline from the announcement of vacancies to on-boarding of new employees, to scheduling at the FAA Academy, to placement in FAA field facilities. Often the FAA will have inadequate student numbers to fill seats at the Academy because the Agency waits too long to schedule candidates or there are delays in medical and background investigations. These issues will only be exacerbated if the Agency moved to an ETP model.

Moreover, without proper development and implementation of FAA oversight—which does not currently exist—there is a chance that there will be students who complete an ETP program without meeting the current/established standard. This risk is aggravated by one of the options discussed in the recommendation that the ETPs will control their own performance assessment process onsite. NATCA would consider supporting a cadre of FAA examiners who would conduct the performance assessments.

NATCA is also concerned about the scheduling of medical and security clearances for ETP students, depending on which ETP model is chosen in the outcome of Phase 2 of this process. We have significant concerns about the order of screening versus education. Students who cannot meet the qualifications to be hired will have wasted time, money, and course slots. Yet meeting the medical and background screening qualifications before coursework could lead to ripeness issues, meaning a second screening of candidates would be required.

NATCA also foresees another risk in the time it will take to implement and transition to an ETP model. During, the estimated three to five years it will take to go through rulemaking, what would happen if the projected hiring numbers start to decline? Once the Academy closes, what would happen if one or more ETPs discontinue their programs because they are not operating at the scale they anticipated? If the ETP model falls apart due to external economic pressures, the FAA will be faced with a significant hiring gap in the intervening time that it takes to get the Academy back online. The result of such a collapse would disproportionally affect rank-and-file controllers who will be faced with another staffing crisis. NATCA has, in other documents, explained how a staffing shortage negatively affects the National Airspace System.

For all of the above reasons, as well as all of the unanswered questions and under-addressed issues that are to be attended to by the Working Group in its Phase 2 Report, NATCA is unable to concur in the recommendation at this time.

APPENDIX A: LIST OF ACRONYMS

AC	*Advisory Circular*
ARAC	*Aviation Rulemaking Advisory Committee*
ASI	*Aviation Safety Inspector*
ASP	*Aviation Safety Program*
AT Basics	*Air Traffic Basics*
ATC	*Air Traffic Control*
ATCS	*Air Traffic Control Specialist*
ATCWG	*Air Traffic Controller Basic Qualification Training Working Group*
ATM	*Air Traffic Management*
ATO	*Air Traffic Organization*
CAA	*Civil Aviation Authority*
CFR	*Code of Federal Regulations*
CTI	*Collegiate Training Initiative*
CWP	*Controller Workforce Plan*
DGCA	*Directorate General of Civil Aviation*
ETP	*External Training Provider*
FAA	*Federal Aviation Administration*
FAR	*Federal Aviation Regulations*
FSIMS	*Flight Standards Information Management System*
ICAO	*International Civil Aviation Organization*
IRP	*Independent Review Panel*
IQT	*Initial Qualification Training*
NATCA	*National Air Traffic Controllers Association*
NextGen	*Next Generation Air Transportation System*
OJT	*On-the-Job Training*
OPM	*Office of Personnel Management*
OpSpecs	*Operations Specifications*
OPSS	*Operations Safety System*
PA	*Performance Assessment*
PTS	*Practical Test Standard*
SME	*Subject Matter Expert*
TCPM	*Training Center Program Manager*
TRACON	*Terminal Radar Approach Control*
TSEW	*TRACON Skill Enhancement Workshop*
TSpecs	*Training Specifications*
WebOPSS	*Web-based Operations Safety Systems*

Accomplishing the Tasking

Goals/Objectives/Expectations

Phase 1: Interim Report - Training

- Conduct a review and analysis of the assigned task and any other related materials or documents.
- Draft and submit a work plan for completion of the task, including the rationale supporting such a plan, for consideration by the ARAC.
- Provide a status report at each ARAC meeting.
- Draft and submit the Interim Report based on the review and analysis of the assigned tasks related to training.
- Present the Interim Report at the March 16, 2017 ARAC meeting.

Phase 2: Interim Report - Training and Hiring

- Identify additional changes that may be needed to enable Stage 1 training to be taught by an ETP.
- Once the ATCWG finalizes the recommendations from Phase 1 (Training), evaluate the impact to the hiring process and complete the Phase 2 Interim Report (Training and Hiring). (See p. 56533 of FR notice, 1(e).)
- ATCWG will work in consultation with the Office of Human Resource Management and the Office of Civil Rights to ensure the final recommendations are in compliance with Federal Sector Guidelines.

Note: Substantive work also will be done between plenary ATCWG meetings.
The ATCWG may provide historical information, including secondary research on data yielded from previous qualitative and quantitative studies.
The ATCWG is utilizing a KSN for information-sharing purposes.

APPENDIX C: MEETING DATES

Date	Meeting
May 24 – 26, 2016	Washington, DC
June 14 – 16	McLean, VA
June 28	Webinar
July 11	Webinar
August 2 – 4	Oklahoma City, OK
September 20 – 22	Arlington, VA
October 25 – 27	Arlington, VA
November 18	Webinar
December 6 – 8	Arlington, VA
January 19, 2017	Webinar
January 24 – 26	Atlanta, GA
February 3	Webinar
February 10	Webinar
February 14	Webinar

APPENDIX D: LIST OF BRIEFINGS

14 CFR Part 142: Training Centers- John Farmer, *FAA Flight Standards Service (Aviation Safety Inspector of Aircraft Operations)*

Airmen Training- Neil Rose, *FAA Flight Standards Service (Certification and Flight Training Branch)*

ATCS Hiring Process- Lamont Virgil, *FAA Office of Human Resource Management*

ATCS Selection Training Historical Overview- Dr. Dana Broach, *Civil Aerospace Medical Institute*

Barrier Analysis- Mamie Mallory, *FAA Office of Civil Rights*

Credentialing- Donald Colbert and Scott Gilson, *FAA Aviation Safety (Operations Support Branch)*

Curriculum Architecture- Greta Ballentine, *FAA ATO Safety and Technical Training*

Economic Evaluation: Why are Regulatory Analyses Done?- Peter Ivory, *FAA Office of Aviation Policy and Plans*

FAA Academy Overview- *FAA Academy*

Flight Simulator Qualification- Jeff Schroeder*, FAA Aviation Safety (Chief Scientific Technical Advisor)* and Joel Seidband, *FAA Flight Standards Division (National Simulator Program)*

IRP- Anthony Chu, *FAA ATO Safety and Technical Training*

Management Services Staffing, Onboarding, and Facility Placement- Terry Craft, *FAA ATO Management Services*

National Air Traffic Controllers Association's (NATCA) Concerns with Off-loading Training from the FAA Academy-Tom Adcock, *NATCA*

NATS, provider of air traffic control services in the United Kingdom, Training- Dr. Jenny Ludford, *NATS*

NAV CANADA Operational Training- Margaret Martin, *NAV CANADA*

Stage 1 IQT- Jim Doskow, *FAA Academy (Air Traffic Division)*

Stage 1 IQT Overview (Air Traffic Basics, Initial Tower Cab, Initial En Route, and Initial Terminal Radar) - *FAA Academy*

Update on the Air Traffic Controller Hiring Process- Lamont Virgil, *FAA Office of Human Resource Management*

APPENDIX E: MATH

Cost for IQT at the FAA Academy calculations (See Section 4.0 Background- Current IQT Requirements for FAA ATCS):

AT Basics

- The total cost per student is $10,622.18 and the 10-year controller hiring projection is 12,088 controllers.
- $10,622.18 x 12,088 = *$128,400,912*

Initial Tower Cab Training

- The total cost per student is $30,042.11 and the projected number of Tower new hires (45% x 12,088) is 5,439 students.
- $30,042.11 x 5,439 = *$163,399,036*

Initial En Route Training

- The total cost per student is $44,980.98 and the projected number of En Route hires (55% x 12,088) is 6,649 students.
- $44,980.98 x 6,649 = *$299,078,536*

Total Cost

- $128,400,912 + $163,399,036 + $299,078,536 = *$590,878,484*

APPENDIX F: ETP REGULATORY FRAMEWORK OVERVIEW

Appendix F includes detailed explanations of the five framework elements listed in Section 6.0 ETP Regulatory Framework Overview.

REGULATION

Allowing ETPs to provide IQT requires a set of regulations that serve as the foundation of the system. Fortunately, regulatory frameworks exist for other aviation disciplines and could be used to develop Federal Aviation Regulations (FARs) suitable for IQT. These regulations are found in several parts of 14 CFR – Aeronautics & Space, chapter I – Federal Aviation Administration – Department of Transportation, subchapter G – Air Carriers and Operators for Compensation or Hire and subchapter H – Schools and Other Certificated Agencies. Parts describing schools certificated to conduct training for Pilots and Maintenance Technicians are:

1. Part 141 – Pilot Schools
2. Part 142 – Training Centers
3. Part 147 – Aviation Maintenance Technician Schools

Relevant parts describing the requirements for operators to train aviation disciplines include:

1. Part 121 – Operating Requirements: Domestic, Flag and Supplemental Operations
2. Part 135 – Operating Requirements: Commuter and On Demand Operations and Rules Governing Such Persons Onboard Such Aircraft

Note: Aircraft Dispatchers, Flight Attendants, Flight Navigators, Flight Engineers, Parachute Riggers, and Control Tower Operators are listed in chapter I of 14 CFR and have training requirements associated with certification. However, no regulations detailing school or operator requirements exist for these aviation disciplines.

Regulatory requirements for schools and operators listed in Parts 121, 135, 141, 142, and 147 share a great deal in common. A synthesis of these regulations results in the following generalized subject categories:

- General
  - Operating Specifications (OpSpecs)/TSpecs
  - Duration and Display of Certificate
  - Deviations, Waivers
  - Application for Issuance or Amendment
  - Management and Personnel Requirements
  - Inspections
  - Advertising Limitations
  - Training Agreements
- Training Curriculum and Syllabus Requirements
  - Approval of Training Program
  - Training Program Curriculum Requirements
  - Curriculum Development Process

    - Training Effectiveness Measurement and Evaluation
- Personnel Requirements
    - ETP Instructor Eligibility Requirements
    - ETP Instructor Privileges and Limitations
    - ETP Instructor Training and Evaluation Requirements
    - ETP Evaluator Eligibility Requirements
    - ETP Evaluator Privileges and Limitations
    - ETP Evaluator Training and Evaluation Requirements
- Examining Authority
    - Examining Authority Qualification Requirements
    - Privileges
    - Limitations
- Facility and Equipment Requirements
    - Facility Requirements
    - Training Equipment Requirements
    - Satellite Training Centers
- Operating Rules
    - Privileges
    - Limitations
    - Transcripts and Graduation Certificate
- Quality Assurance and Standardization
    - Quality Management System Requirements
- Recordkeeping
    - Recordkeeping Requirements

The list above outlines basic subject categories that should be addressed in an ETP regulatory framework.

The Working Group is concerned that the quality of students graduating from ETP-provided IQT be equal to or better than current graduates from the FAA Academy. Therefore, a set of knowledge and performance standards must be developed for use by ETPs to ensure that IQT graduates meet expectations of ATC field facilities.

FARs governing other aviation disciplines do not list performance standards within the regulations themselves. This level of detail is provided in Practical Test Standards (PTS) and Airmen Certification Standards. Examples include:

- Commercial Pilot
- Airline Transport Pilot/Type Rating
- Aviation Mechanic – General
- Aviation Mechanic – Airframe
- Aviation Mechanic – Powerplant
- Aircraft Dispatcher
- Flight Engineer
- Parachute Rigger

IQT knowledge and performance standards should be developed and aligned with appropriate regulation in a manner similar to the FARs and PTS described above.

FAA GUIDANCE

Part 121, 141, 142, and 147 operators are overseen by the FAA. The type of oversight organization is determined by the size of the operator. Inspectors working within the oversight organization use guidance published in the Flight Standards Information Management System (FSIMS), specifically FAA Order 8900.1 in the performance of their jobs.

The FAA must determine which FAA organization would oversee ETP operations. Inspectors assigned ETP oversight tasks would require guidance similar to that provided in 8900.1. FAA order 8900.1 should be used as a successful example of inspector guidance when developing ETP oversight guidance.

The purpose of FAA Order 8900.1 is described in volume 1, chapter 1, section 1:

This order directs the activities of aviation safety inspectors (ASI) responsible for the certification, technical administration, and surveillance of air carriers, certain other air operators conducting operations in accordance with the appropriate part of Title 14 of the Code of Federal Regulations (14 CFR), certificated airmen, and other aviation activities. This order also provides direction for tasks related to aircraft accidents and incidents, investigations and compliance, the aviation safety program (ASP), administrative areas, and miscellaneous tasks not related to a specific regulation. In addition, it contains regional and district office requirements for the support of ASIs responsible for those activities.

8900.1 Table of Contents (relevant sections highlighted)

- Volume 1 – General Inspector Guidance and Information
- Volume 2 - Air Operator and Air Agency Certification and Application Process
- Volume 3 – General Technical Information
- Volume 4 – Aircraft Operations and Operational Authorizations
- Volume 5 – Airman Certification
- Volume 6 – Surveillance
- Volume 7 - Investigation
- Volume 8 – General Technical Functions
- Volume 9 – Aircraft, Airports, and Security Issues
- Volume 10 – Safety Assurance System Policy and Procedures
- Volume 11 – Flight Standards Programs
- Volume 12 – International Aviation
- Volume 13 – Flight Standards Designees
- Volume 14 – Compliance and Enforcement
- Volume 15 – FAA Safety Team Policies and Procedures
- Volume 16 – Unmanned Aircraft Systems
- Volume 17 – Safety Management System

INDUSTRY GUIDANCE

Advisory Circulars (ACs) provide a single, uniform, agency-wide system that the FAA uses to deliver advisory material to FAA customers, industry, the aviation community, and the public. An AC may be needed to:

- Provide an acceptable, clearly understood method for complying with a regulation
- Standardize implementation of a regulation or harmonize implementation for the international aviation community
- Resolve a general misunderstanding of a regulation
- Respond to a request from some government entity, such as General Accounting Office, National Transportation Safety Board, or the Office of the Inspector General
- Help the industry and FAA effectively implement a regulation
- Explain requirements and limits of an FAA grant program
- Expand on standards needed to promote aviation safety, including the safe operation of airports

Relevant ACs

- 61 – Certification: Pilots and Flight Instructors
  - AC 61.65F - Certification: Pilot and Flight And Ground Instructors
  - AC 61.89E - Pilot Certificates: Aircraft Type Ratings
  - AC 61.136A - Approval of Aviation Training Devices and Their Use for Training and Experience
  - AC 61.138 - Airline Transport Pilot Certification Training Program
- 65 – Certification: Airmen Other than Flight Crewmembers
  - AC 65-2D - Airframe and Powerplant Mechanics Certification Guide
  - AC 65-5B - Parachute Rigger Senior/Master Certification Guide
  - AC 65-33 - Development of Training/Qualification Programs for Composite Maintenance Technicians
- 120 - Air Carriers, Air Travel Clubs, and Operators for Compensation or Hire Certification and Operations
  - AC 120-45A - Airplane Flight Training Device Qualification
  - AC 120-54A - Advanced Qualification Program
- 121 - Certification and Operations: Domestic Flag, and Supplemental Air Carriers and Commercial Operators of Large Aircraft
  - AC 121-39 - Air Carrier Pilot Remedial Training and Tracking Program
- 141 – Pilot Schools
  - AC 141-1A - Pilot School Certification
- 147 – Aviation Maintenance Technician Schools
  - AC 147-3B - Certification and Operation of Aviation Maintenance Technician Schools

OPERATIONS MANAGEMENT PROCESS

Safety standards established by regulation should usually have a broad application that allows varying acceptable methods of compliance. OpSpecs (OpSpecs; 121/135 operators)/TSpecs (142 operators) provide an effective method for establishing safety standards that address a wide range of variables. In

addition, OpSpecs/TSpecs can be adapted to a specific certificate holder or operator's class and size of aircraft and type and kind of operations. OpSpecs/TSpecs can be tailored to suit an individual certificate holder or operator's needs. Only those authorizations, limitations, standards, and procedures that are applicable to a certificate holder or operator need to be included.

Web-based Operations Safety Systems (WebOPSS)

As a means of applying for and issuing changes to OpSpecs/TSpecs, the automated Operations Safety System (OPSS) WebOPSS consists of standard and nonstandard templates for OpSpecs/TSpecs. All standard OpSpecs/TSpecs, and any subsequent revisions, are first coordinated within the FAA and then with appropriate industry organizations. After this coordination, the standard template authorizations are incorporated into WebOPSS, which is programmed to provide only those OpSpecs/TSpecs and other templates that are applicable to a particular type of operation under a particular 14 CFR part. When the appropriate standard templates have been selected and all the required information has been entered into WebOPSS, a complete set of OpSpecs/TSpecs can be issued to a particular certificate holder, operator, or program manager, based on the type of operation.

FAA Order 8900.1 references related to the purpose and use of OpSpecs/TSpecs include:

- Part 121 Air Carriers – FAA Order 8900.1, volume 3, chapter 18, sections 1 and 2
- Part 141 Pilot Schools – Does not use OpSpecs or TSpecs to manage approvals. Guidance provided in FAA Order 8900.1, volume 2, chapter 9, section 1 and FAA Order 8900.1, volume 3, chapter 53, sections 1 and 2
- Part 142 Training Centers – FAA Order 8900.1, volume 2, chapter 10, section 1

APPENDIX G: OVERVIEW OF PROVIDERS[18]

ATC Training Providers in AFRICA

Egypt

- The College of Air Traffic Control at the Egyptian Aviation Academy graduates qualified air traffic controllers. The Academy was established in 1991 and the training administered meets the requirements set by the National Air Navigation Services.
- Students are provided with seven different training courses through use of modern equipment that coincides with the latest aviation systems. The training includes a basic introduction to the system as well as Approach Control, Area Control, and non-radar training.
- The training is a combination of the seven different courses lasting nine to 20 weeks each.

Kenya

- The East African School of Aviation trains ATC officers.
- Students train in a classroom environment and are supplemented with on-the-job training (OJT).
- The duration of training is not published.

South Africa

- The Air Traffic and Navigation Services at the Aviation Training Academy in Bonaero Park provide ATC training.
- Students train at the Aviation Training Academy and once the necessary time is completed, trainees receive full qualification.
- The training is four to six years long. Afterwards, trainees will become an Air Traffic Controller's Assistant. Trainees will then work as an Aerodrome Controller before being eligible for a Procedural Control position.

Zimbabwe

- The Civil Aviation Authority (CAA) of Zimbabwe provides training for air traffic controllers.
- Students complete eight courses ranging from introductory material to advanced RADAR courses. Students are trained on state-of-the-art RADAR simulators. The training meets the standards of International Civil Aviation Organization (ICAO) Annex 1: Personnel Licensing Training Requirements.
- The duration of training is not published.

ATC Training Providers in AUSTRALIA/OCEANIA

Australia

- The Airservices Australia offers world class training to civilian air traffic controllers at the Learning Academy in Melbourne. Military controllers are trained by the Air Force's School of Air Traffic Control.
- Training consists of theory and practical instruction. Both civilian and military controllers will leave training with an AVI50115 Diploma of Aviation.
- The training is 11 to 14 months.

[18] Citations available upon request

New Zealand

- Training is completed at training centers in Christchurch and Palmerston North.
- Students train in two phases; the first emphasizes theory including the basics of ATC as well as extensive simulator training. The second phase consists of OJT with an experienced ATC professional. The trainee will gradually begin to work independently as their trainer sees fit.
- The training is one year long and each phase is six months.

Papa New Guinea

- The Papa New Guinea Air Services LTD licenses the air traffic controllers and is responsible for their training.
- The training consists of theory study, practical application, and OJT.
- The training is two to three years long.

ATC Training Providers in ASIA

Azerbaijan

- The Azerbaijan Air Navigation Services Department of "Azerbaijan Hava Yollari" is responsible for ATC.
- Summary of the training sequence conducted is not published.
- The duration of training is not published.

China

- The Civil Aviation Flight University of China distributes degrees for air traffic controllers. This university is overseen by the Civil Aviation and Administration of China.
- During training, students train to receive a degree comparable to that of an American undergraduate bachelor's degree.
- The duration of training is not published.

India

- ATC training is provided by the Ministry of Civil Aviation through the Directorate General of Civil Aviation (DGCA). The Airports Authority of India, a subsidy of DGCA, runs a training facility in Allahabad known as the Civil Aviation Training College. This is the facility that provides training for ATC Officers.
- During training, students will spend 24 weeks preparing for their career in Air Traffic Management (ATM). The first 12 weeks will be spent training on Aerodrome Control. The second 12 weeks will be spent training on RADAR.
- The training is six months long.

Iran

- The Iran Airport Company is beginning to conduct air traffic controller training. The new training is compliant with the standards of ICAO.
- Summary of training conducted is not published.
- The duration of training is not published.

Japan

- The Japan Civil Aviation Bureau as a division of the Ministry of Land, Infrastructure, Transport, and Tourism oversees training at the Aeronautical Safety College. This college is an ICAO TRAINAIR PLUS full member.
- The training center is a modernized version of the American FAA Academy in Oklahoma City.
- The duration of training is not published.

Malaysia

- ATC training is provided by the Department of Civil Aviation, Ministry of Transport. The training is carried out at the Academy of Civil Aviation Malaysia.
- Training consists of classroom environment theory and practical study as well as OJT. Once training is completed and the final proficiency assessment is passed, the trainee receives an ATC License and Rating.
- The initial training course at the Academy of Civil Aviation Malaysia is 66 weeks. OJT varies depending upon the trainee's progress.

Mongolia

- The Mongolian CAA oversees all aviation safety, aviation security, and provides air traffic services to and from operating airports in the Mongolian region. Raytheon was subcontracted in 1997 to train the controllers.
- Raytheon is accredited by the FAA, and training consists of FAA-approved courses.
- The duration of training is not published.

Oman

- Oman Aircraft Control College is a joint civil and military ATC training college located in Muscat, Oman.
- Training is structured and the environment is supportive to enable students to focus on fully developing their skills to the highest standard.
- The duration of training is not published.

Pakistan

- The Civil Aviation Training Institute, Hyderabad is a member of the ICAO TRAINAIR Programme and provides training in accordance with the requirements of Pakistan CAA.
- Training includes courses in the discipline of air traffic services at the Civil Aviation Training Institute.
- The duration of training is not published.

Philippines

- The CAA of the Philippines holds training for air traffic controllers at Manila Civil Aviation Training Center.
- Candidates for ATC training must pass a qualifying examination. Thereafter the candidate will be interviewed and cleared medically. Trainees will begin Comprehensive Air Traffic Service course.
- The training is ten months long.

Saudi Arabia

- ATC is provided by the General Authority of Civil Aviation. The organization is partnered with Entry Point North to aid with training.

- Entry Point North trains Saudi trainees in two semesters of English language and Aviation English. Thereafter, trainees take courses that are fully ICAO compliant with both theoretical and intensive hands-on training using state-of-the-art simulators. The training includes Aerodrome Control, Approach Procedural and Surveillance, Area Control, and other advanced aspects of ATM.
- The training is two academic years long.

Thailand

- AEROTHAI provides air traffic services to both civilian and military flights using Automatic Dependent Surveillance System. AEROTHAI works with Pan Am International Training Center to train controllers.
- The programs at the Pan Am International Training Center are compliant with ICAO and ICAO TRAINAIR Standards and Recommended Practices. Training is updated annually as ICAO updates standards.
- The duration of training is not published.

Turkey

- Training to become a controller is done at the Anadolu University of Aeronautics and Astronautics. The school is overseen by ICAO and the Directorate General of Civil Aviation of Turkey.
- The university uses the latest technology to teach the basics of aviation, ATC methods, as well as foster students' research and problem solving skills through practical and theoretical teamwork training.
- The training is three years long.

Vietnam

- Vietnam has partnered with New Zealand to train the nation's air traffic controllers who are overseen by the Vietnam Air Traffic Management Corporation. Airways New Zealand provides ATC training and related services for Vietnam-based students.
- ATC Training is completed in New Zealand as a part of the student's overall Aviation Management degree.
- The duration of training is not published.

ATC Training Providers in EUROPE

Albania, Georgia Macedonia

- Albanian, Georgian, and Macedonian ATM is combined under Services and Studies for Air Navigation and Aero Safety based in Madrid, Spain.
- Specific training parameters are not published. Trainees are trained generally on En Route and approach subjects.
- The training is 12 weeks long.

Belarus

- Belaeronavigastia, a state owned enterprise, provides air navigation services.
- Training complies with ICAO standards and recommended practices.
- Duration of training is not published.

Belgium

- The Belgocontrol Training Centre in Steenokkerzeel trains future air traffic controllers.
- The basic aviation training is followed by specific training sessions, assessments, and refresher courses.
- Duration of training is not published.

Bosnia Herzegovina

- The Agency for the Provision of Air Navigation Services is responsible for air traffic services and the training of such personnel for ATM.
- Trainees study management of traffic flow through analysis, planning, and simulation training under the supervision of the Agency for the Provision of Air Navigation Services.
- Duration of training is not published.

Bulgaria

- The Bulgarian Air Traffic Services Authority is responsible for the training ATM personnel through the Civil Aviation Administration of the Republic of Bulgaria.
- Trainees study Aerodrome Control, Approach Radar Control, Area Radar Control Competence, Transitional courses, Pre-OJT as well as conversion training refresher courses, unusual/emergency procedures, and theoretical training courses for ratings and endorsements. After this training, trainees will complete OJT with live traffic.
- Duration of training is not published.

Croatia

- Air traffic services are provided by Croatia Control. Training for the personnel within the system takes place at Entry Point North.
- The training completed at Entry Point North includes Area and Approach Control and is completed in cooperation with Croatian instructors as well as Entry Point North's professional training staff.
- Duration of training is not published.

Czech Republic

- Training for air traffic controllers is completed by Czech Air Navigation Institute.
- The Institute is designed to offer standardized and systematic training to conform to EUROCONTROL guidelines for all ATC officers. Training includes periods that cover Aerodrome Control (instrument and visual), Approach Control Surveillance, Area Control, and RADAR.
- Basic ATC training takes a minimum of 450 periods (each period is 45 minutes). The total time for completion can vary depending upon the trainee's progress.

Denmark

- The Ministry of Transport for Denmark owns three companies – AVINOR, NAVAIR, and Luftfartsverket; these companies are responsible for ATM for the nation's airspace.
- Training for Danish air traffic personnel begins with basic aviation training; following basic aviation training students will take courses in other aspects of aviation to include TCAS E-Learning, Controller Aviation Training, VFR Practical Courses, as well as Approach Control, Aerodrome Control, and Oceanic Training.
- Training for ATM personnel is two years long.

England

- National Open College Network is responsible for training air traffic controllers; the college is accredited by NATS.
- The College works closely with UK and European regulatory bodies as well as ICAO to have the most up-to-date training for students. The college features state-of-the-art labs with training on Aerodrome and Approach Control as well as Oceanic Control. All positions can be integrated for a real-world experience.
- Training for ATM personnel is nine to 12 months long.

Estonia

- The Estonian Aviation Academy accredited by the Ministry of Education and Research holds the responsibility for training air traffic managers.
- Summary of the training sequence conducted is not published.
- Training for ATM personnel is up to 18 months long depending upon the trainee's course of training.

Finland

- The Finnish CAA oversees a specialized training institute, AVIA College, which trains ATM personnel.
- AVIA College trains students on Area Control and Centre Control as well as centralized navigational units.
- Training for ATM personnel can be completed in 18 months.

France

- The École Nationale de L'Aviatoin Civile trains ATM personnel at their location in Toulouse, France.
- Summary of the training sequence conducted is not published.
- Duration of training is not published.

Germany

- The Deutsch Flugsicherung is responsible for ATC; the entity is owned by the Federal Republic of Germany and is responsible for training of ATM personnel.
- Training begins with theory course that lasts several months followed by practical training. Trainees will begin to work live traffic with their trainer in a live tower or Centre Control facility.
- Training is a rigorous three-year-long process. OJT is typically an 18 month process.

Hungary

- Air traffic service is provided by HungroControl; this entity is also responsible for training ATM personnel. HungroControl trains both civilian and military air traffic managers.
- Summary of the training sequence conducted is not published.
- Duration of training is not published.

Iceland

- The CAA dispenses licenses for qualified ATM candidates. Once licensed, candidates are trained by the CAA.
- Candidates accepted into the training program are trained according to Icelandic CAA based upon EUROCONTROL Common Core Training.

- Duration of training is not published.

Italy

- The Italian Company for air navigation services is a major European air navigation service provider; this entity is responsible for ATM personnel.
- Summary of the training sequence conducted is not published.
- Duration of training is not published.

Latvia

- Riga Aeronautical Institute, overseen by the Ministry of Education and Science of the Republic of Latvia, is responsible for training ATM personnel.
- Students at the Riga Aeronautical Institute are trained by industry individuals; students receive valuable firsthand training.
- Training for ATM personnel can be 12-18 months long.

Netherlands

- Luchtverkeersleiding Netherland is the agency in charge of ATM personnel.
- Summary of the training sequence conducted is not published.
- Duration of training is not published.

Norway

- Norwegian ATM personnel are trained in England by NATS.
- Students are associated with AVINOR; training is a combination of tower, Approach/Departure Control, and EUROCONTROL. Students will also receive a basic overview of ATC
- Duration of training is not published.

Poland

- ATC Training Centre is a subsidy of the Air Navigation Services Agency and is responsible for training ATM personnel.
- ATM training prepares candidates for state examinations as well as ATM procedures.
- Duration of training is not published.

Portugal

- The Portuguese Air Navigation Service: NAV Portugal is responsible for certification of ATM personnel.
- Summary for the training sequence conducted is not published.
- Duration of training is not published.

Romania

- Fly Level conducts training courses for ATM personnel; this operation is overseen by the Romanian Civil Aeronautical Authority.
- Training at Fly Level is divided into two parts – first is basic training which includes theory study and the second is rating which consists of theory and simulation training.
- Training is six months long; each part is 12 weeks long.

Russia

- The Federal State Unitary Enterprise State Air Traffic Managers Corporation is responsible for air traffic services.
- Training is an ongoing process that can be divided in to two main stages. Stage one involves obtaining a higher, secondary education or basic professional education depending upon the requirements specified for a given category of aviation personnel. Stage two encompasses the whole period of the specialist's professional career. ATM related training is provided by educational institutions of secondary and higher vocational level in accordance with national and educational standards.
- Duration of training is not published.

Serbia and Montenegro

- Air traffic operations are conducted by Serbia and Montenegro air traffic services; both nations work their airspaces together and train their controllers through Serbia and Montenegro air traffic services. ATC officers are trained at the ATC Officer Training Center located in Belgrade.
- ATC Officers are trained per approved training plans and programs; these methods are approved by Serbia and Montenegro air traffic services.
- Duration of training is not published.

Slovakia

- The air traffic services of the Slovak Republic State Enterprise holds the responsibility for training ATM personnel.
- Courses at the Technical University Kosice Faculty of Aeronautics include traffic management, organization of aviation activity, as well as economic factors and airline management aspects.
- Duration of training is not published.

Spain

- FTEJerez Flight Training Europe conducts training for ATM personnel.
- Training is conducted in accordance with EUROCONTROL's Common Core Content requirements.
- Training for air traffic managers is completed over a period of 22 weeks the first phase being basic aviation training followed by a rating training phase with use of state-of-the-art simulators.

Sweden

- Air traffic service Academies in Europe, usually the Sweden location, provide training for ATM personnel.
- Training is in accordance with Point North Best Practices as well as international standards set by ICAO and EUROCONTROL ESARR 5.
- Duration of training is not published.

Switzerland

- Skyguide, a provider of air navigation-related services, is responsible for providing trained safe and efficient ATM personnel to operate towers and centres within the airspace.
- Trainees will complete theory study to include aerodynamics aircraft technology, radar and radio technology, air traffic information services, and technical English. Students will also complete simulator training, as well as, OJT.
- Training for air traffic personnel is two-and-a-half years long.

Ukraine

- The Ukrainian State Air Traffic Service Enterprise is the main air navigation service provider. The Enterprise's objective is to provide air traffic services for Ukrainian airspace.
- Summary of training sequence conducted is not published.
- Duration of training is not published.

ATC Training Providers in CENTRAL/NORTH AMERICA

Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá

- The Central American Corporation of Air Navigation Services carries out training for the nations of Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panamá through the Central American Institute of Aeronautics Trainings. The nations work together to operated Central American airspace.
- The Central American Institute of Aeronautics Trainings is a full member of the ICAO TRAINAIR PLUS Programme and training coincides with recognized training internationally.
- Duration of training is not published.

Canada

- Training is completed through a private company, NAV Canada. NAV Canada has recently partnered with Carleton University to establish an Aerospace Centre of Excellence.
- Summary of the training sequence conducted is not published.
- Training for ATM personnel is 18 months long.

Mexico

- SENEAM is the government entity that runs the air traffic services. SENEAM conducts training through their facility University Technician in Air Traffic Control.
- Summary of the training sequence conducted is not published.
- Training for ATM personnel is two years long.

SERCO

- SERCO is the only non-governmental entity that has been authorized to certify ATCS by the ICAO, a specialized agency of the United Nations. SERCO serves Federal, state, and local governments, along with the Canadian government and commercial customers. Since 1968, SERCO has been operating ATC Towers in the United States. SERCO currently manages 64 FCTs across the western United States, including Alaska, Hawaii, Guam, and Saipan. SERCO provides ATC services in the tower to support the safety of incoming/outgoing aircraft, improve the efficiency of air traffic, and provide information and support to the pilots. As part of SERCO Group, the Company is one of the largest private providers of air navigation services worldwide. SERCO is responsible for more than 960,000 miles of airspace and handles more than 6 million aircraft movements a year. SERCO employs more than 700 ATCS at over 75 airports located in the United States, United Kingdom, and Middle East.
- Summary of training sequence conducted is not published.
- Duration of training is not published; training duration will depend on the type of training a student completes.

United States (current private air traffic controller training provider)

- Advanced ATC is the only private air traffic academy in the USA. The Academy is located on the campus of Wiregrass Georgia Technical College in Valdosta, Georgia.
- Students with no previous aviation experience are trained to meet the requirements of Part 65 Control Tower Operator, resulting in the graduates being Facility rated and certified by the FAA. The three phases of training are classroom instruction, tower certification training (live traffic), and advanced ATC simulation training. Students train using Adacel MaxSim Simulators
- Training is one year long.

ATC Training Providers in SOUTH AMERICA

Brazil

- ATM is overseen by the Department of Airspace Control. Brazil's ATM is an integrated system between civilian and military control. Military air traffic personnel train through the Aeronautics Experts School and civilian air traffic personnel train through the Aerospace Control Implementation Commission.
- Training is separated into two parts; one part for the military air traffic personnel and another for civilian air traffic personnel. Military air traffic personnel are trained with emphasis on military operations and civilians train on radar and procedural operations.
- Training for air traffic personnel on the military side is two years long; training for civilians is one year long.

Chile

- Air traffic personnel are trained by the Airways New Zealand at the Airways New Zealand ATC Hub.
- Summary of training conducted is not published.
- Training is one year long – six months of classroom training and six months of OJT.