THE

AIR TRAFFIC CONTROLLER WORKFORCE PLAN

2020 | 2029

Federal Aviation Administration

This 2020 report is the FAA's fifteenth annual update to the controller workforce plan. The FAA issued the first compre-hensive controller workforce plan in December 2004. It provides staffing ranges for all of the FAA's air traffic control facilities and actual onboard controllers as of September 28, 2019.Section 221 of Public Law 108-176 (updated by Public Law 115-141) requires the FAA Administrator to transmit a report to the Senate Committee on Commerce, Science and Transportation and the House of Representatives Committee on Transportation and Infrastructure that describes the overall air traffic controller workforce plan.

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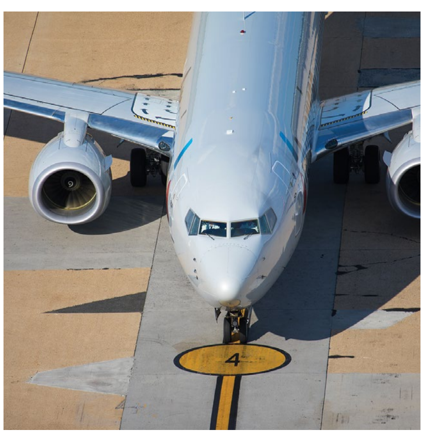
Executive Summary

Safety is the **top priority of the Federal Aviation Administration (FAA) as it manages America's National Airspace System (NAS). The NAS is the common network of U.S. airspace—air navigation facilities, equipment and services; airports or landing areas; aeronautical charts, information and services; rules, regulations and procedures; technical information; and manpower and material. Thanks to the expertise of people and the support of technology, tens of thousands of aircraft are guided safely and expeditiously every day through the NAS to their destinations.**

While safety is the top priority of the FAA as it manages the NAS, efficiency **is also an important priority for the Agency. The FAA utilizes internal policies and procedures to provide Air Traffic Control (ATC) services in an efficient manner.**



WORKLOAD

An important part of managing the NAS involves actively aligning controller resources with demand. The FAA "staffs to traffic," matching the number of air traffic controllers at its facilities with traffic volume and workload. The FAA's staffing needs are dynamic due to the dynamic nature of the workload and traffic volume.

TRAFFIC

For the purposes of this plan, air traffic includes aircraft that are controlled, separated and managed by air traffic controllers. This includes commercial passenger and cargo aircraft, as well as general aviation and military aircraft. The peak year for traffic occurred in the year 2000. System-wide, air traffic declined 24 percent between 2000 and 2013. In 2019 it remained 19 percent lower than in 2000. While there were decreases year over year for system-wide traffic counts from 2000 to 2013, we have been slowly recovering. We expect the growth to continue, but traffic is not expected to return to 2000 levels during the period of this plan.

The FAA incorporates location-specific traffic counts and forecasts in its staffing standards process to account for these changes.

Unmanned Aircraft Systems (UAS) are changing the way we see the future of flight. Keeping pace with the technological advances in this growing industry presents unique challenges and innovative opportunities for the FAA and the aviation community. The FAA is taking an incremental approach to safe UAS integration. The impact of UAS on air traffic control will continue to evolve as the FAA pursues its vision for fully integrating unmanned systems into the NAS.

The FAA's goal is to ensure that the Agency has the flexibility to match the number of controllers at each facility with traffic volume and workload. Staffing to traffic is just one of the ways we manage America's NAS.

HEADCOUNT

In many facilities, the current Actual on Board (AOB) number may exceed the facility's target staffing ranges. This is because many facilities' current AOB numbers (all controllers at the facility) include many developmental controllers in training to offset expected future attrition. While the FAA strives to keep Certified Professional Controllers (CPCs) and Certified Professional Controllers in Training (CPC-ITs) within the range, individual facilities can be above the range due to advance hiring. The FAA hires and staffs facilities so that trainees, once fully certified, are prepared to take over responsibilities when senior controllers leave.

RETIREMENTS

The long-anticipated wave of controller retirements peaked more than a decade ago, in 2007, at 828 retirements. Over the past five years, the FAA has averaged 570 controller retirements per year. However, due to the shifting demographics of the workforce, controller retirements are expected to continue to decline for the next six years to a new average of 246 per year through 2029. In the last five years, 2,848 controllers have retired. Cumulative retirement eligibility has also fallen. More than 10,000 controllers were hired after the 1981 strike, and at the end of FY 2019 only 17 controllers remain from those who were hired before 1984. By the end of FY 2020, fewer than 1,000 controllers will be eligible to retire, which is the lowest number since the 2005 Controller Workforce Plan. **This clearly demonstrates that the controller retirement wave that peaked more than a decade ago is over.**

The FAA carefully tracks actual retirements and projects losses to ensure its recruitment and training keep pace.

HIRING

Over the past five years, the FAA has hired over 7,700 new air traffic controllers. In FY 2019, we exceeded our target with 1,010 controller hires versus a plan of 907.

The anticipated number of new controller hires in FY 2020 is 910. This represents a slight reduction to the FY 2020 target of 1,077 stated in the FY 2019 Controller Workforce Plan. The decrease is mostly driven by improvement in continued FAA Academy training success rates. This would be the lowest number of new controller hires since 2013.

In FY 2016, Public Law 114-190 – the FAA Extension, Safety and Security Act (FESSA) of 2016 – was enacted. The law established two hiring tracks totaling three distinct hiring pools. It included pool-balancing requirements. The National Defense Authorization Act of 2020 replaced the balancing requirements with requirements to prioritize certain pools. This will give the FAA better access to the best-qualified candidates.

During FY 2020, the FAA will continue to recruit and hire air traffic control specialists to meet staffing requirements through the use of the two-track announcement process.

TRAINING

As the FAA brings these new employees on board, training continues to be closely monitored at all facilities. We must carefully manage the process to ensure that our trainees are hired in the places we need them and progress in a timely manner to become CPCs. The FAA's National Training Initiative (NTI) was implemented in July 2019, providing minimum training hours per week for all trainees. NTI is critical to our continued efforts to build a stable trainee pipeline and develop our workforce.

Ongoing hiring and training initiatives, as well as increased simulator use, are helping the FAA meet its goals. While the FAA is managing today's air traffic, we must also integrate new technologies into air traffic operations. From state-of-the-art simulators to satellite technology, air traffic is evolving into a more automated system. The FAA is working diligently to ensure well-trained controllers continue to uphold the highest safety standards as we plan for the future.

Over the past five years, the FAA has hired over 7,700 new air traffic controllers.

Ch. 1 Introduction

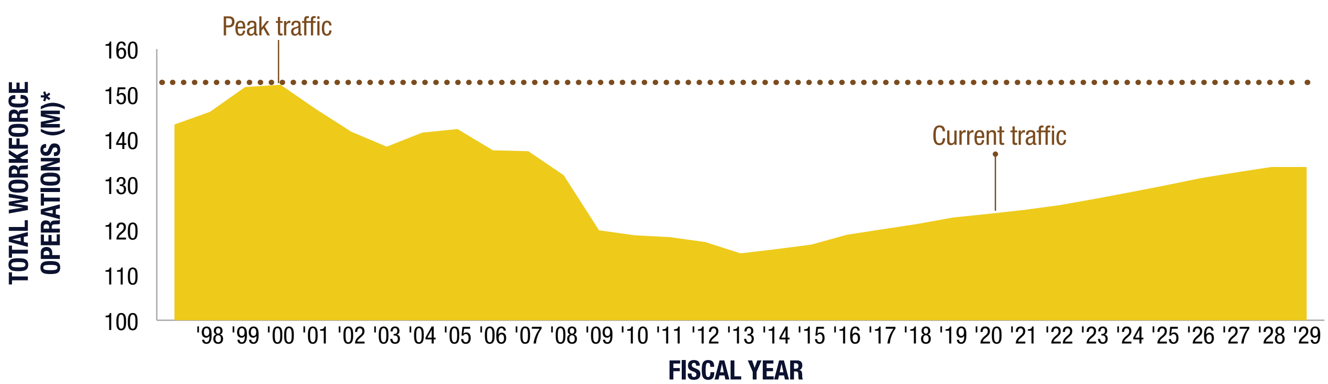
STAFFING TO TRAFFIC

Air traffic controller workload and traffic volume are dynamic, and so are the FAA's staffing needs. A primary factor affecting controller workload is the demand created by air traffic, encompassing both commercial and non-commercial activity. Commercial activity includes air carrier and commuter/air taxi traffic. Non-commercial activity includes general aviation and military traffic.

Adequate numbers of controllers must be available to cover the peaks in traffic caused by weather and daily, weekly or seasonal variations, so we continue to "staff to traffic." Although the FAA generally staffs to traffic counts, it is not a one-to-one relationship.

Safety rules and hours of operation require watch schedules that establish staffing during low-volume periods or in facilities with low traffic counts. This practice gives us the flexibility throughout each day to match the number of controllers at each facility with traffic volume and workload.

FIGURE 1.1 TRAFFIC TRENDS

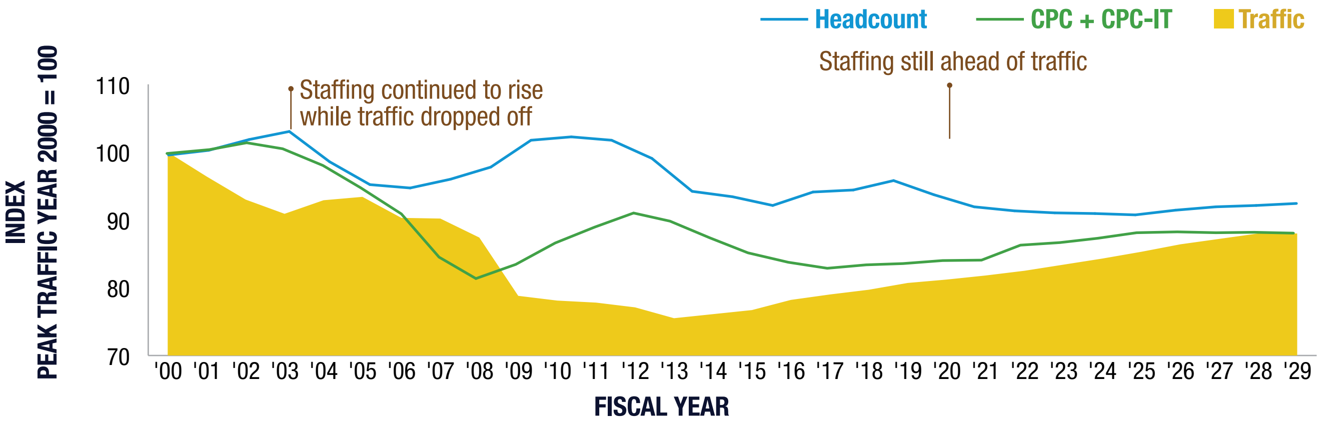


*Total Workforce Operations = Tower + TRACON + Aircraft Handled by En Route Centers

Although air traffic has grown slowly each of the last 5 years, system-wide, air traffic is still down by 19 percent since peak year 2000. The chart in Figure 1.1 shows that air traffic volume is not expected to return to peak levels in the near term. Although there have been decreases for system-wide traffic counts, some facilities have experienced traffic increases. The FAA's staffing standards incorporate location-specific traffic counts and forecasts to account for these changes.

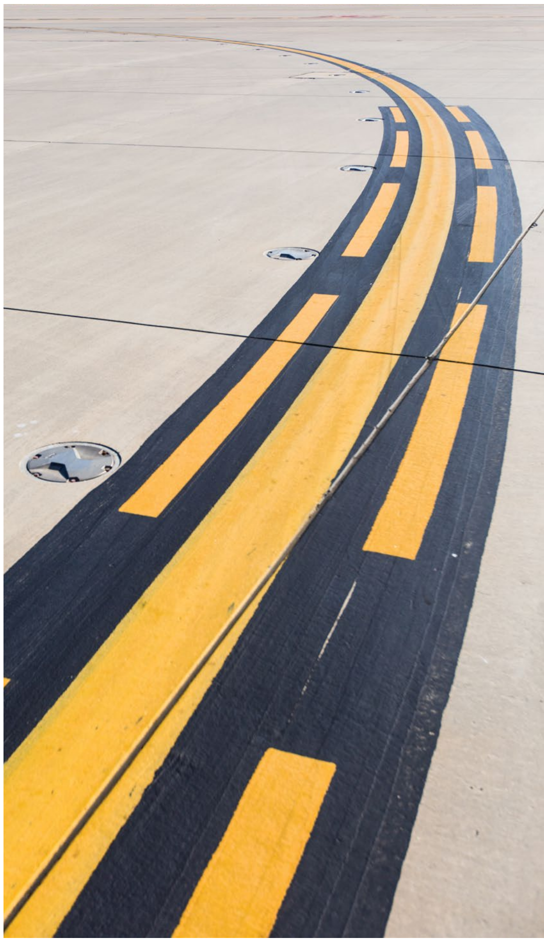
Figure 1.2 shows system-wide controller staffing and traffic, indexed from FY 2000 and projected through FY 2029. Indexing is a widely used technique that compares the change over time of two or more data series (in this case, total controller headcount, CPC plus CPC-IT and traffic). The data series are set equal to each other (or indexed) at a particular point in time (in this case, FY 2000, a high mark for traffic)

FIGURE 1.2 SYSTEM-WIDE TRAFFIC AND TOTAL CONTROLLER TRENDS



and measured relative to that index point in each successive year. This way we know how much growth or decline has occurred compared with the base value.

Staffing to traffic not only applies on a daily basis, but also means that we staff to satisfy expected needs two to three years in advance. We do this to ensure sufficient training time for new hires. Despite the decline in air traffic shown in Figure 1.2, "staffing to traffic" requires us to anticipate controller attrition so that we plan and hire new controllers in advance of need. This is one reason that staffing remains ahead of traffic. The gap between the blue line (Headcount) and the green line (CPC and CPC-IT staffing) is the advance hire trainee pipeline and is projected to close significantly by 2025. The headcount and CPC+CPC-IT lines converge due to reduced retirements and other losses.



The FAA periodically validates its staffing models to check for fundamental changes in the nature of the air traffic control job. The Agency will update its staffing models when there are significant changes in air traffic controller workload. Future workload shifts could be driven by increased UAS activity and increases in commercial space launch activity.

In December 2015, the FAA began registration of all UAS. To date, UAS initially operated on a limited basis in the NAS and mainly supported public operations, such as military and border security operations. In recent years, UAS operations have significantly increased in number, technical complexity and application, but they have not had much impact on controller workload yet. The list of uses has rapidly expanded to encompass a broad range of activities, including aerial photography, surveying, communications and broadcast, as well as hobby and recreation.

In 2017, the FAA launched a prototype version of the Low Altitude Authorization and Notification Capability (LAANC). It provides UAS with access to controlled airspace near airports through near real-time processing of authorization requests. LAANC is a partnership in which FAA supplies the source data and technical requirements, and industry builds mobile applications for commercial drone operators to plan their flights and access controlled airspace.

In December 2019, the FAA issued a notice of proposed rulemaking regarding remote identification of remote unmanned aircraft systems. This new regulation would continue the safe integration of drones into the nation's airspace by requiring them to be identifiable remotely.

As policy and technology updates allow widespread use of UAS for commercial applications, the impact on the ATC workload will be incorporated into our models and forecasts. Oversight of UAS is aided by the FAA's compliance program, which is designed to help identify and correct potential hazards before they result in an incident or accident.

Commercial space launch activity is growing in the United States. There continues to be strong investment in startup space ventures. The level of activity from air traffic controllers to coordinate airspace closures to support launch and re-entry will likely grow in areas of the country where commercial space activity is concentrated. The FAA will continue to monitor controller workload associated with commercial space activities and adjust our models and forecasts accordingly.

MEETING THE CHALLENGE

The FAA's hiring plan is designed to phase in new hires as needed over time. To do so, the FAA plans its hiring vacancy announcement strategy to provide a sufficient pipeline to meet the hiring need. The hiring process is prolonged from announcement to onboarding, as it includes various screening activities that can take time (e.g., medical, security, aptitude). The primary goal of the agency's hiring pipeline strategy is to ensure the pipeline of in-process candidates is sufficient to replace controllers who retire and leave due to other sources of attrition. Annual retirements are leveling off and still well below those experienced in 2007, when the long-anticipated wave of retirements peaked. Retirements are expected to fall and remain at relatively low levels for the next decade.

The overall controller headcount in Figure 1.2 shows the impact of several external and internal challenges to controller hiring in the last few years. The FAA missed its controller hiring target from fiscal years 2009 through 2015 due to a series of internal and external factors. The primary drivers were:

- The sequestration in 2013 and subsequent hiring freeze resulted in the FAA not hiring any new controllers for nearly 9 months across FY 2013 and FY 2014. The effects of this disruption on the hiring pipeline, as well as the FAA Air Traffic Academy's operations, were substantial.
- Another contributing factor was a security breach at the Office of Personnel Management in FY 2015. This shut down the automated ability to process clearances to applicants and resulted in disruption to the controller hiring pipeline.

In order to catch up from these challenges, the FAA increased its hiring plan from FY 2016 to FY 2018 to near-capacity levels and met or exceeded the elevated hiring targets in each of those years. By the end of FY 2018, the FAA had essentially caught up from the prior disruptions and projected a more steady-state hiring target for the next 10 years.

However, the FAA Extension, Safety and Security Act (The FESSA) of 2016 introduced a new challenge to controller pipeline management. FESSA established hiring tracks for candidates with 52 weeks of relevant ATC experience (Track 2) and for those without experience (Track 1). Within Track 1, two pools were established: Pool 1 for Collegiate Training Initiative the (CTI) candidates and certain other military veterans and Pool 2 for the general public. The FESSA required that the selection of candidates from these pools be balanced within 10 percent of each other. In FY 2018 and particularly in FY 2019, the limited number of Pool 1 candidates prevented the FAA from selecting a substantial number of otherwise well-qualified candidates from Pool 2.

Recognizing this challenge, the FAA began implementing an aggressive plan to maintain the hiring pipeline, including additional hiring announcements and other measures. However, the disruptions caused by the partial government shutdown in early FY 2019 limited the agency's ability to implement the mitigations before FY 2019 hiring was impacted.

Hiring, however, is just one challenge. Other challenges involve controller placement, controller training and controller scheduling. It is important that newly hired and transferring controllers are properly placed in the facilities where we will need them. Once they are placed, they need to be effectively and efficiently trained, and assigned to efficient work schedules.

To address these challenges, the FAA has:

- Revamped its placement process for ATC trainees, allowing increased flexibility for the agency and improved efficiency in both hiring and initial training of air traffic controllers;
- Introduced a collaborative and centralized process to balance the controller ranks by revamping the employee requests for reassignments, matching employee requests with the agency's needs and establishing a national release policy aimed at expediting requests into facilities with the greatest staffing needs; and
- Took advantage of legislation that allows the FAA to target recruitment for the New York Terminal Radar Approach Control Facility (TRACON to address specific recruiting challenges to that facility.

Effective and efficient training, as well as properly placing new and transferring controllers, are two important factors in the agency's success.

Systematically replacing air traffic controllers where we need them, as well as ensuring the knowledge transfer required to maintain a safe NAS, is the focus of this plan.

Ch. 2 Facilities & Services

En Route controllers use surveillance methods to maintain safe distances among aircraft.

America's NAS is a network of people, procedures and equipment. Pilots, controllers, technicians, engineers, inspectors and supervisors work together to make sure millions of passengers move through the airspace safely every day.

More than 14,000 federal air traffic controllers in airport traffic control towers, TRACON and air route traffic control centers guide pilots through the system. An additional 1,400 civilian contract controllers and over 10,800 military controllers provide air traffic services for the NAS.

These controllers provide air navigation services to aircraft in domestic airspace, in addition to 24.6 million square miles of international oceanic airspace delegated to the United States by the International Civil Aviation Organization.

TERMINAL AND EN ROUTE AIR TRAFFIC SERVICES

Controller teams in airport TRACONs watch over all aircraft traveling through the Terminal airspace. Their main responsibility is to organize the flow of aircraft into and out of airports. Relying on visual observation, radar and satellite navigation, they closely monitor each aircraft to ensure safe distances among all aircraft and to guide pilots during takeoff and landing. In addition, controllers keep pilots informed about changes in weather conditions.

Once airborne, aircraft quickly depart the Terminal airspace surrounding the airport. At this point, controllers in the radar approach control notify En Route controllers, who take charge in the vast airspace between airports. There are 21 air route traffic control centers around the country. Each En Route center is assigned a block of airspace containing many defined routes. Aircraft fly along these designated routes to reach their destinations.

En Route controllers use surveillance methods to maintain a safe distance between aircraft. En Route controllers also provide weather advisory and traffic information to aircraft under their control. As aircraft near their destinations, En Route controllers transition them to the Terminal environment, where Terminal controllers guide them to a safe landing.

FAA AIR TRAFFIC CONTROL FACILITIES

As of October 1, 2019, the FAA operated 313 air traffic control facilities, plus the Air Traffic Control System Command Center. Table 2.1 lists the type and number of these FAA facilities. More than one type of facility may be co-located in the same building.

TABLE 2.1 TYPES AND NUMBER OF FAA AIR TRAFFIC CONTROL FACILITIES

NAME	NUMBER OF FACILITIES	DESCRIPTION
Tower	139	An ATC tower that provides traffic advisories, spacing sequencing and separation services to visual flight rules (VFR) and instrument flight rules (IFR) aircraft operating in the vicinity of the airport, using a combination of satellite, radar and visual observations.
Approach Control*	25	An ATC facility that provides approach and departure services to IFR and VFR aircraft arriving or departing an airport and to aircraft transiting the terminal airspace using satellite, radar and/or non-radar separation. *These facilities are also known as Terminal Radar Approach Control or TRACON
Tower and Approach Control	124	An ATC facility divided into two functional areas, tower and approach and departure control, that provides services to IFR and VFR aircraft, including aircraft traffic advisories, spacing sequencing and separation services to aircraft operating in the vicinity of the airport, arriving or departing an airport, and transiting the terminal airspace using satellite, radar and/or non-radar separation.
Combined Control Facility	4	An ATC facility that provides approach control services for one or more airports, as well as En Route ATC (center control) for a large area of airspace. Some may provide tower services along with approach control and en route services. Also includes Combined Center/Radar Approach (CERAP) facilities.
Air Route Traffic Control Center En Route	21	An ATC facility that provides service to aircraft operating on IFR flight plans within controlled airspace and principally during the En Route phase of flight. When equipment capabilities and controller workload permit, certain advisory/assistance services may be provided to VFR aircraft.

313 Total Facilities

Ch. 3 Staffing Requirements

The FAA issued the first comprehensive controller workforce plan in December 2004. "A Plan for the Future: 10-Year Strategy for the Air Traffic Control Workforce" detailed the resources needed to keep the controller workforce sufficiently staffed. This report is updated each year to reflect changes in traffic forecasts, retirements and other factors.

Staffing to traffic requires the FAA to consider many facility-specific factors. They include traffic volumes based on FAA forecasts and hours of operation, as well as individualized forecasts of controller retirements and other non-retirement losses. In addition, staffing at each location can be affected by unique facility requirements such as temporary airport runway construction, seasonal activity and the number of controllers currently in training. Staffing numbers will vary as the requirements of the location dictate.

The FAA also tracks a number of indicators as part of its continuous staffing review. Some of these indicators are overtime, time on position, leave usage and the number of trainees. Time on position is defined as the amount of cumulative time controllers spend while "plugged in" to their position controlling live traffic. When not on position, controllers are on periodic breaks, in training or performing other assigned duties.

In FY 2019, the system average for overtime was 4.6 percent, a slight increase from the FY 2018 level. Meanwhile, cumulative average time on position per 8-hour shift was 4 hours and 1 minutes, unchanged from 2018.

FIGURE 3.1 PROJECTED CONTROLLER TRENDS

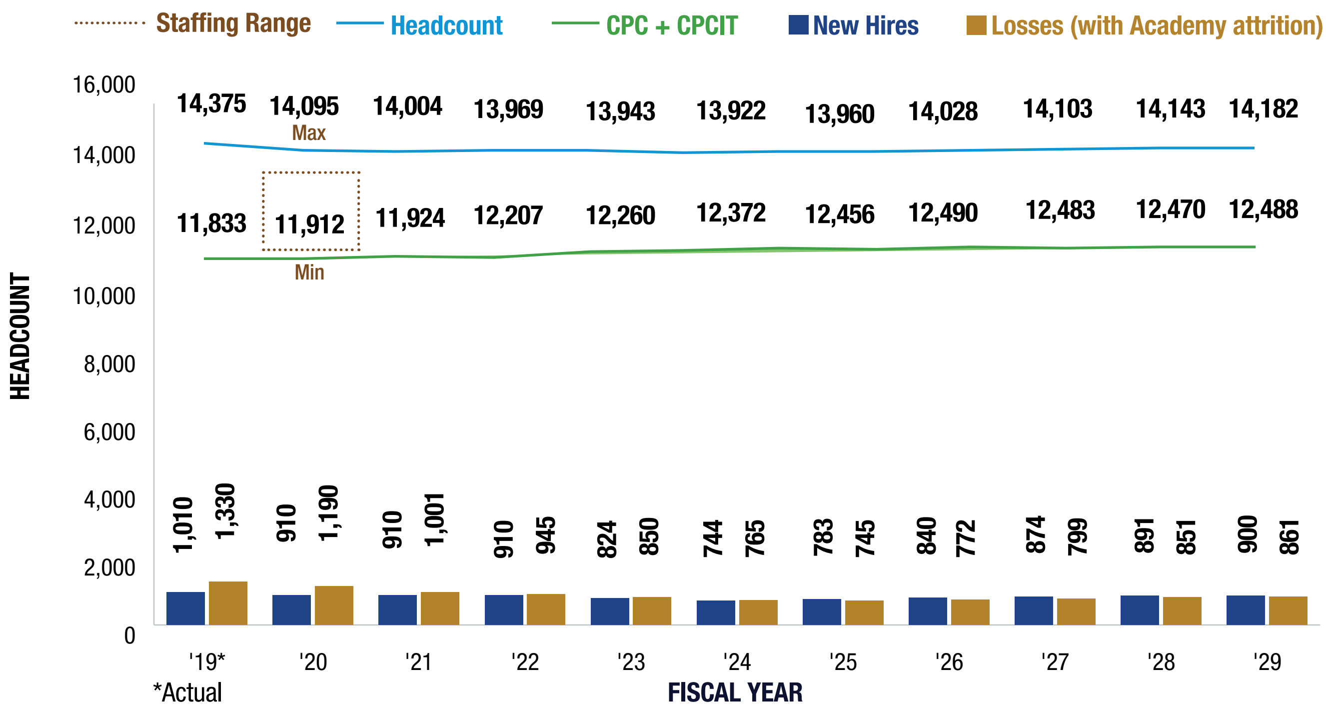


Figure 3.1 shows the expected end-of-year total headcount (blue line), CPC & CPC-IT headcount (green line), and new hires and losses (blue and gold bars) by year through FY 2029.

Figures for FY 2019 represent actual end-of-year headcount, losses and hires. Losses include retirements, promotions and transfers, resignations, removals, deaths, developmental attrition, and Academy attrition. The FAA ended FY 2019 with 103 controllers above the 2019 headcount plan. Because the FAA is targeting CPC + CPC-ITs headcount to be in the middle of the staffing range, the annual headcount forecast should not be viewed as a "target." Rather, it is a byproduct of the number of CPC + CPC-ITs in the system, as well as the developmental pipeline hired in advance of future needs.

In general, the FAA strives to keep the number of CPCs and CPC-ITs near the middle of the calculated staffing range. Figure 3.1 shows that FY 2020 staffing values are within the calculated staffing range shown by the "min" and "max" dotted lines. However, a facility's total staffing levels are often above the defined staffing range because new controllers are typically hired two to three years in advance of expected attrition to allow for sufficient training time. The total expected end-of-year headcount number shown in Figure 3.1 reflects this projected advanced hiring.

The FAA hires and staffs facilities so that trainees, once fully certified, are prepared to take over responsibilities when senior controllers retire.

THE FAA USES MANY METRICS TO MANAGE ITS FACILITIES

TIME ON POSITION

PRODUCTIVE TIME

STAFFING RANGES

TRAINEES

OVERTIME

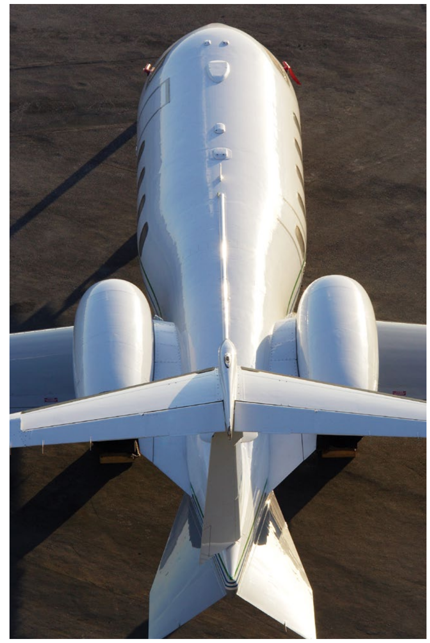
RETIREMENTS

FIELD INPUT

TRAFFIC

SIMULATORS & INSTRUCTORS

STAFFING RANGES



Air traffic facilities staff open positions with a combination of certified controllers and developmentals, who are proficient, or checked out, in specific sectors or positions. Because traffic and other factors are dynamic at these facilities, the FAA produces facility-level controller staffing ranges. These ranges are calculated to ensure that there are enough controllers to cover operating positions every day of the year.

Ensuring that we have enough controllers is not only important on a daily basis but also means that we staff to satisfy expected needs two to three years in advance. We do this to ensure sufficient training time for new hires. The uptick caused by hiring two to three years ahead of time is one reason that staffing remains well ahead of traffic.

The FAA uses four inputs to calculate staffing ranges. Three are data driven; the other is based on field judgment. They are:

1. Staffing standards – output of mathematical models used to relate controller workload to air traffic activity.
2. Service unit input – the number of controllers requested to staff the facility, typically based on past position utilization and other unique facility operational requirements. The service unit input is provided by field management.
3. Past productivity – the headcount required to match the historical best productivity for the facility. Productivity is defined as operations per controller. Facility productivity is calculated using operations and controller data from the 10-year period of 2010 to 2019. If any annual point falls outside +/- 5 percent of the 2010 to 2019 average, it is eliminated from the analysis. From the remaining data points, the highest productivity year is then used.
4. Peer productivity – the headcount required to match peer group productivity. Like facilities are grouped by type, level and part-time or full-time status, and their corresponding productivity is calculated. If the facility being considered is consistently above or below the peer group, the peer group figure is not used in the overall average and analysis.

The average of this data is calculated, multiplied by +/- 10 percent and then rounded to determine the high and low points in the staffing range.

Exceptional situations or outliers are removed from the averages (for example, if a change in the type or level of a facility occurred over the period of evaluation). By analyzing the remaining data points, staffing ranges are generated for each facility.

FIGURE 3.2 CONTROLLER STAFFING

FACILITY STAFFING

CHARACTERISTICS/DRIVERS OF HIGH STAFFING LEVELS

- Inefficient scheduling
- Fewer losses than projected
- Less overtime
- Reduction in traffic volume
- Decrease in hours of operation
- Temporary airport construction
- Higher number of position-qualified controllers
- Higher number of advance hire trainees

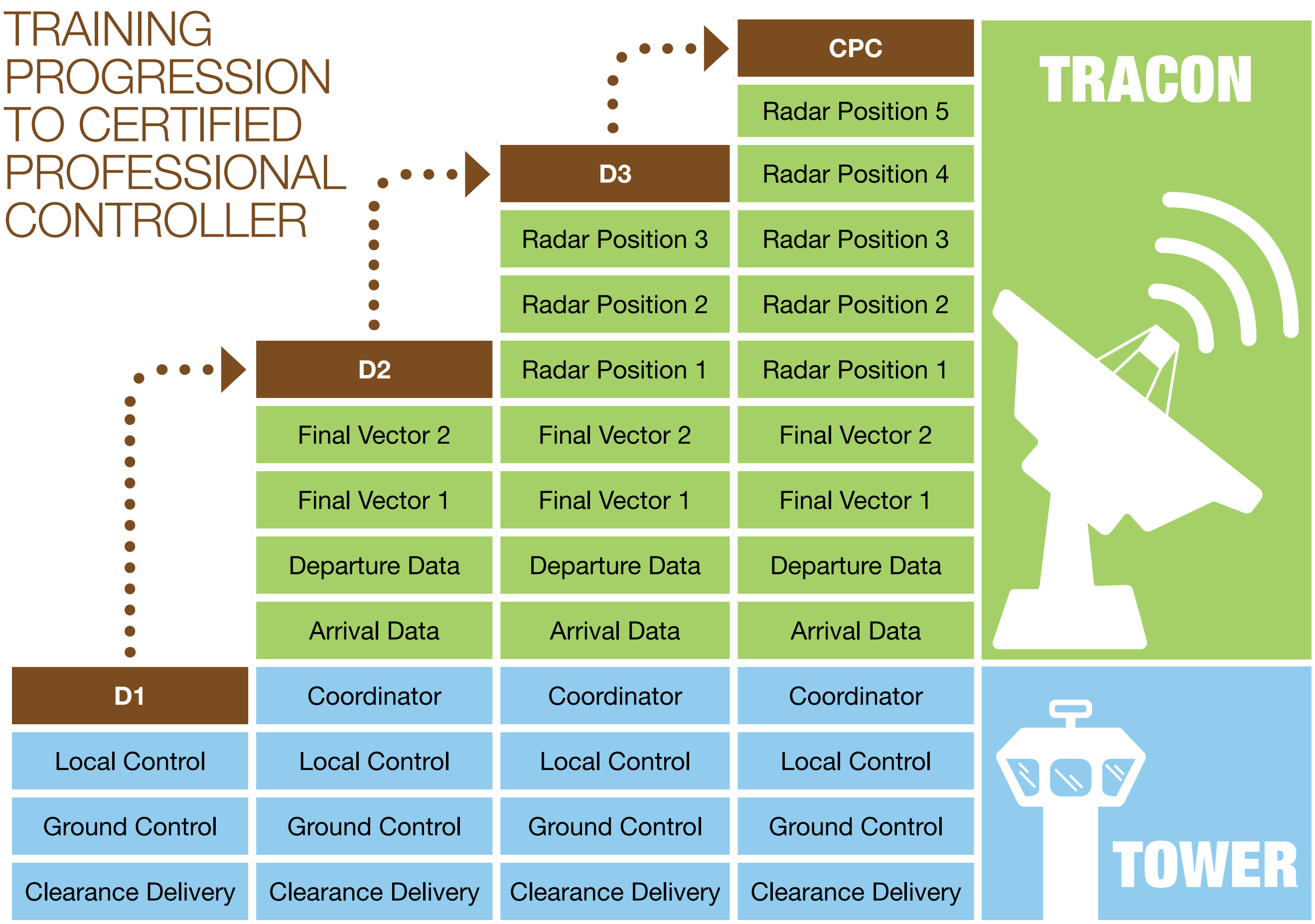
CHARACTERISTICS/DRIVERS OF LOW STAFFING LEVELS

- Higher than expected attrition
- Greater use of overtime
- Increase in traffic volume
- Increase in hours of operation
- Temporary airport construction
- Lower number of position-qualified controllers
- Lower number of advance hire trainees

The 2020 staffing ranges for controllers are published by facility in the appendix of this report. In many facilities, the current AOB number may appropriately exceed the range. This is because many facilities' current AOB numbers (all controllers at the facility) include larger numbers of developmental controllers in training to offset expected future attrition. Individual facilities can be above the range due to advance hiring. Facilities may also be above the range based upon facility-specific training and attrition forecasts.

In the longer term, the number of new hires and total controllers will decline. This is because the surge of developmental controllers that were hired to replace the long-expected retirement wave over the past decade will have become CPCs. In the future, the vast majority of the controllers will be CPCs and CPC-ITs, and more facilities will routinely fall within the ranges.

FIGURE 3.3 EXAMPLE OF CONTROLLER TRAINING PROGRESSION



NOTE: All ATC facilities have individualized training progression to CPC based upon their type and level of complexity

Figure 3.3 depicts an example of a large Tower and Approach Control facility. To be CPCs in these types of facilities, controllers must be checked out on all positions in both the tower and the TRACON.

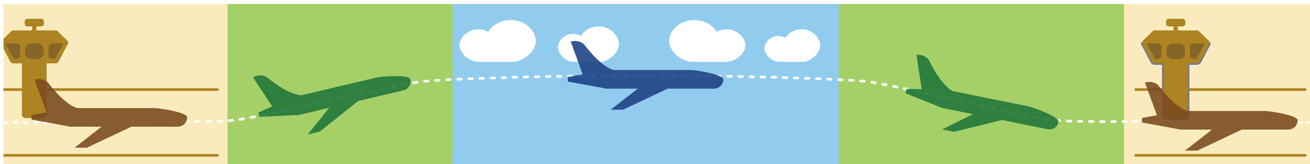
Trainees achieve “D1” status (and the corresponding increase in pay) after being checked out on several positions. The levels of responsibility (and pay) gradually increase as the trainees progress through training. Once developmental controllers are checked out at the D1 level, they can work several positions in the tower independently and without training supervision (Clearance Delivery, Ground Control and Local Control). Once checked out on the Runway Crossing Coordinator position, developmental controllers would be tower-certified and able to work any position in the tower cab independently and without training supervision. They would still not be a “D2” however, as there are also several positions in the TRACON to be checked out on (Arrival Data, Departure Data, Final Vector 1 and Final Vector 2). A controller in Figure 3.3 must be certified on all positions in the tower and TRACON to become a CPC.

The levels of responsibility continue to increase as one progresses toward CPC status, but trainees can and do control traffic much earlier in the training process. Historically, the FAA has used these position-qualified controllers to staff operations and free up CPCs for more complex positions, as well as to conduct training.

Having the majority of the workforce certified as CPCs makes the job of scheduling much easier at the facility. CPCs can cover all positions in their assigned area, whereas position-qualified developmentals require the manager to track who is qualified to work which positions independently. This task becomes much easier with a scheduling tool.

Trainees include both developmental controllers and CPC-IT. A CPC-IT is a controller who moves to another area within a facility or to a new facility and must be trained to the qualifications of that new environment. CPC-ITs are different from developmentals in that developmentals have never been fully checked out and certified as CPCs anywhere.

FIGURE 3.4 AIR TRAFFIC CONTROL POSITION AND FACILITY OVERVIEW



	DEPARTURE	EN ROUTE	DESCENT APPROACH	POST FLIGHT + LANDING
AIRPORT TRAFFIC CONTROL TOWER	TERMINAL RADAR APPROACH CONTROL	AIR ROUTE TRAFFIC CONTROL CENTER	TERMINAL RADAR APPROACH CONTROL	AIRPORT TRAFFIC CONTROL TOWER
Ground Controller Issues approval for push back from gate and issues taxi instructions and clearances. **Local Controller** Issues takeoff clearances, maintains prescribed separation between departure aircraft, provides departure aircraft with latest weather/field conditions. **Clearance Delivery** Issues IFR and VFR flight plan clearance. **Flight Data** Receives and relays weather information and Notices to Airmen.	**Departure Controller** Assigns headings and altitudes to departure aircraft. Hands off aircraft to the En Route radar controller. **Flight Data-Radar** Issues IFR flight plan clearances to aircraft at satellite airports, coordinates releases of satellite departures.	**Radar Controller** Ensures the safe separation and orderly flow of aircraft through En Route center airspace (includes oceanic airspace). **Radar Associate** Assists the radar controller **Radar Associate (Flight Data)** Supports the En Route radar controller by handling flight data.	**Arrival Controller** Assigns headings and altitudes to arrival aircraft on final approach course.	**Local Controller** Issues landing clearances, maintains prescribed separation between arrivals, provides arrival aircraft with latest weather/ field conditions. **Ground Controller** Issues taxi instructions to guide aircraft to the gate.

AIR TRAFFIC STAFFING STANDARDS OVERVIEW

The FAA has used air traffic staffing standards to help determine controller staffing levels since the 1970s, and they are periodically updated to reflect changes in workload, equipment and procedures.

FAA facilities are currently identified and managed as either Terminal facilities where airport traffic control services are provided, including the immediate airspace around an airport, or En Route facilities where high-altitude separation services are provided using computer systems and surveillance technologies. Terminal facilities are further designated as tower cabs or TRACONs. These Terminal facilities may be co-located in the same building, but because of differences in workload, their staffing requirements are modeled separately. Figure 3.4 provides an overview of FAA facilities and air traffic control positions.

Ch. 3 Staffing Requirements

The dynamic nature of air traffic controller workload coupled with traffic volume and facility staffing needs are all taken into account during the development of FAA staffing models and standards.

All FAA staffing models incorporate similar elements:

- Controller activity data is collected and processed, commensurate with the type of work being performed in the facilities.
- Models are developed that relate controller workload to air traffic activity. These requirements are entered into a scheduling algorithm.
- The modeled workload/traffic activity relationship is forecast for the 90th percentile (or 37th busiest) day for future years for each facility. Staffing based on the demands for the 90th percentile day assures that there are adequate numbers of controllers to meet traffic demands throughout the year.
- Allowances are applied for off-position activities such as vacation, training and additional supporting activities that must be accomplished off the control floor.

All staffing models go through similar development processes. Some components of the model-development phase vary as a function of the work being performed by the controllers. For example, a crew-based approach was used to model tower staffing requirements because the number and type of positions in a tower cab vary considerably as traffic changes, compared with those of a single sector in a TRACON or En Route center. All staffing models reflect the dynamic nature of staffing and traffic. Controller staffing requirements can vary throughout the day and throughout the year.

FAA FACTOID

At any given moment there are approximately **5,000** aircraft traversing the U.S. skies.

TOWER CAB OVERVIEW

Air traffic controllers working in tower cabs manage traffic within a radius of a few miles of the airport. They instruct pilots during taxiing, takeoff and landing, and they grant clearance for aircraft to fly. Tower controllers ensure that aircraft maintain minimum separation distances between landing and departing aircraft, transfer control of aircraft to TRACON controllers when the aircraft leave their airspace, and receive control of aircraft for flights coming into their airspace.

- There are a variety of positions in the tower cab, such as Local Control, Ground Control, Flight Data, Coordinator. Depending on the airport layout and/or size of the tower cabs (some airports have more than one tower), there can be more than one of the same types of position on duty.
- As traffic, workload and complexity increase, more or different positions are opened; as traffic, workload and complexity decrease, positions are closed or combined with other positions. In practice, minimum staffing levels may be determined by hours of operation and work rules.

Important factors that surfaced during the tower staffing model development included the availability, accessibility and increased reliability of traffic data and controller-on-position reporting systems. The FAA is now able to analyze much larger quantities of tower data at a level of granularity previously unattainable. Staffing data and traffic volumes are collected for every facility.

The workload portion of the tower cab staffing models were updated in early 2008. The revised tower cab staffing models were developed using regression analysis as the primary method for modeling the relationship between staffing and workload drivers. The models relate observed, on-position controllers to the type and amount of traffic they actually handle. Regression analysis allows us to relate modeled controller staffing requirements with traffic activity and then use this relationship to predict future staffing requirements (standards) based on traffic projections. The FAA has begun plans to update the workload portion of the tower staffing models in FY 2020.

TRACON OVERVIEW

Air traffic controllers working in TRACONs typically manage traffic within a 40-mile radius of the primary airport; however, this radius varies by facility. They instruct departing and arriving flights, and they grant clearance for aircraft to fly through the TRACON's airspace. TRACON controllers ensure that aircraft maintain minimum separation distances between landing and departing aircraft, transfer control of aircraft to tower or En Route center controllers when the aircraft leave their airspace, and receive control of aircraft for flights coming into their airspace.

- TRACON airspace is divided into sectors that often provide services to multiple airports. Consolidated or large TRACONs in major metropolitan areas provide service to several primary airports. Their airspace is divided into areas of specialization, each of which contains groups of sectors.
- Controllers are assigned to various positions such as Radar, Final Vector and Departure Data to work traffic within each sector. These positions may be combined or de-combined based on changes in air traffic operations.
- As traffic, workload and complexity increase, the sectors may be subdivided (de-combined) and additional positions opened, or the sector sizes can be maintained with an additional controller assigned to an assistant position within the same sector.
- Similarly, when traffic, workload and complexity decline, the additional positions can be closed or the sectors recombined. In practice, minimum staffing levels may be determined by hours of operation and work rules.

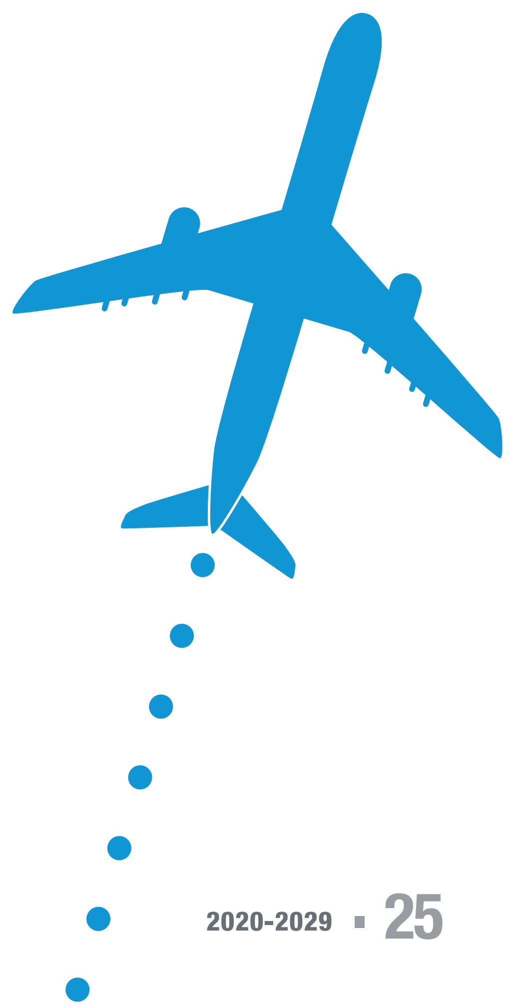
Like the tower analysis, the FAA is able to analyze much larger quantities of TRACON data at a level of granularity previously unattainable. Important factors surfaced during the TRACON staffing model review, including the availability, accessibility and increased reliability of traffic data and controller-on-position reporting systems. Staffing data and traffic volumes were collected for every facility.

The TRACON staffing models were updated in early 2009. These revised TRACON models were developed using regression analysis as the primary method for modeling the relationship between staffing and workload drivers. The models relate observed, on-position controllers to the type and amount of traffic they actually handle. Regression allows us to relate modeled controller staffing requirements with traffic activity and then use this relationship to predict future staffing requirements (standards) based on traffic projections. The FAA intends to update the workload portion of the TRACON staffing models once revisions to the tower standards are completed.

EN ROUTE OVERVIEW

Air traffic controllers assigned to En Route centers guide aircraft flying outside of Terminal airspace. They also provide approach control services to small airports around the country where no Terminal service is provided. As aircraft fly across the country, pilots talk to controllers in successive En Route centers.

- En Route center airspace is divided into smaller, more manageable blocks of airspace called areas and sectors.
- Areas are distinct and rarely change based on changes in traffic. Within those areas, sectors may be combined or de-combined based on changes in air traffic operations.
- Controllers are assigned to positions within the sectors (e.g., Radar, Radar Associate, Tracker). As traffic increases, sectors can be decombined and additional positions opened, or the sector sizes can be maintained but additional controllers added to assistant positions within the sectors.
- Similarly, when traffic declines, the additional positions can be closed or the sectors recombined. In practice, minimum staffing levels may be determined by hours of operation and work rules.



The FAA's Federally Funded Research and Development Center (FFRDC) developed a model to generate data needed for the FAA's En Route staffing models. Like the tower and TRACON standards models, this approach incorporated actual traffic and more facility-specific data.

The modeling approach reflects the dynamic nature of the traffic characteristics in a sector. It estimates the number of controllers, in teams of one to three people, necessary to work the traffic for that sector in 15-minute intervals. Differences in traffic characteristics in a sector could require different numbers of controllers to handle the same volume of traffic. For example, at one time most traffic might be cruising through a sector toward another location requiring minimal controller intervention. At another time, traffic might be climbing and descending through the same sector, a more complex scenario requiring more controllers. The same modeling techniques were applied uniformly to all sectors, providing results based on a common methodology across the country.

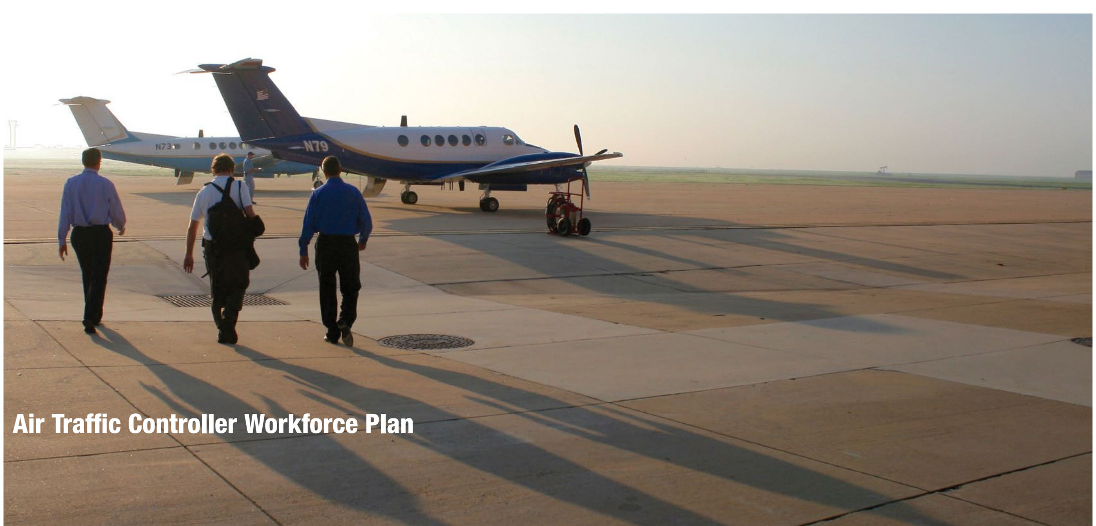
During FY 2013 and FY 2014, the FFRDC collaborated with the FAA and the National Air Traffic Controllers Association (NATCA) to conduct an evaluation of the En Route on-position staffing model at the request of the National Academy of Sciences to validate its core assumptions and parameters via empirical data collection. The evaluation, completed in the field and in a controlled laboratory setting, established values for model parameters, identified additional controller tasks for coverage by the model, and informed other enhancements to the model. In FY 2015, these updates were made and the on-position staffing model was recalibrated. The evaluation results were shared with the FAA, NATCA and the National Academy of Sciences. In FY 2016, the evaluation results were incorporated into the on-position staffing model.

SUMMARY

The FAA's staffing models incorporate output provided by the Tower, TRACON and En Route workload models, which is run through a shift-scheduling algorithm. Next, factors are applied to cover vacation time, break time, training, etc. Lastly, traffic growth forecasts are applied to provide the annual staffing standards that are incorporated into the staffing ranges presented in this plan for each facility.

AIR TRAFFIC CONTROLLER SCHEDULING

Operating the NAS safely and efficiently are key objectives of the FAA. There is little doubt the FAA's ATC professionals safely operate the world's largest airspace. The FAA facilities currently use a variety of nonstandard scheduling methods that do not fully incorporate the



complex resource management requirements that exist in today's environment. This could result in inefficient scheduling practices such as sub-optimal shift start times and guidelines. Inefficient scheduling practices may lead to increased overtime costs and/or excess staffing requirements.

Most large, professional, shift-based workforces utilize centralized schedule policies and systems. They generally use software-based scheduling programs to develop more efficient schedules. For example, commercial air carriers such as Southwest and JetBlue use commercially available software to schedule flight and ground crews. Similar systems are also in use by air navigation service providers worldwide, like Nav Canada and Airservices (Australia).

The FAA developed the Operational Planning and Scheduling tool (OPAS) to support local schedule and annual leave negotiations. Its capabilities incorporated a fully functioning planning tool, including day-to-day scheduling. System-wide implementation was negotiated as part of the 2016 air traffic controller collective bargaining agreement. To date, OPAS has been implemented at the 34 largest facilities, primarily to support local scheduling and leave planning negotiations.

The FAA will use OPAS in the near-term to analyze efficiency of negotiated and actual schedules created by field facilities. Going forward the FAA will continue the pursuit of standardized, software-based scheduling programs to aid in annual schedule and leave planning and to assist schedulers in making day-to-day scheduling decisions.

TECHNOLOGICAL ADVANCES

A new foundational infrastructure along with transformational programs continue to modernize the NAS as part of the Next Generation Air Transportation System (NextGen). These contribute to the NextGen goal of Trajectory Based Operations (TBO), which will manage traffic with the knowledge of where an aircraft will be at critical points during its flight.

TBO allows for more strategic planning and execution of flights. It provides controllers decision support tools through Time Based Flow Management (TBFM) to deconflict flows of traffic using time based management. This will reduce controllers' need for manual deconfliction and vectoring of aircraft.

En Route Automation Modernization (ERAM), Automatic Dependent Surveillance-Broadcast (ADS-B) and System Wide Information Management (SWIM) have been fully implemented and are being used by controllers. ERAM and SWIM will continue to evolve with technology refreshes and enhancements. Standard Terminal Automation Replacement System (STARS), Terminal Flight Data Manager (TFDM) and Data Communications (Data Comm) are in various stages of implementation. STARS will complete the deployment of its baseline programs in 2020.

Air navigation service providers "in other countries including Australia, Canada and Germany have replaced their legacy scheduling tools with sophisticated software capable of incorporating all constraints while generating efficient controller schedules."
– National Academy of Sciences

Two examples of advances for terminal controllers come from the Data Comm and Terminal Automation Modernization and Replacement (TAMR) programs. Data Comm's departure clearance service was delivered to the initial commitment of 55 airport towers 29 months ahead of schedule and significantly under budget. The TAMR program completed the installation of STARS at the 11 large TRACON facilities ahead of schedule. In all, the FAA has deployed STARS to more than 96 percent of all U.S. TRACONS.

Data Comm provides a digital data communication link between air traffic controllers and pilots. As of November 2019, about 62,000 Data Comm operations were conducted per week. This continues to grow as more aircraft become equipped. The FAA is realizing the benefits of fewer communication errors and improved pilot and controller efficiency credited to less time spent communicating by voice. Data Comm tower service benefits as of the end of October 2019 include:

- More than 1.28 million minutes of reduced delay
- More than 1.92 million minutes of communications time saved
- 12.1 million kilograms of carbon dioxide emissions prevented
- More than 105,300 readback errors prevented

Now that tower service is in full operation, the rollout of initial En Route Data Comm has begun, with services at Kansas City and Indianapolis centers now fully operational. En Route services enable controllers to reroute, hand off aircraft to the next center and send messages to change altitude all without time-consuming voice transmissions. Pilots also will be able to send requests to controllers using the data link. Initial En Route Services are scheduled to be deployed to the remaining continental U.S. En Route centers in the FY 2020-FY 2021 timeframe. Full En Route services, slated for deployment during the FY 2022-FY 2023 timeframe, will provide an even more robust message set, including full holding instructions, crossing restrictions, direct-to-fix messages, controller-initiated routes and advisory messages. Data Comm also enables future NextGen services, including TBO.

TAMR upgrades multiple legacy ATC systems to a single, state-of-the-art platform: STARS. This platform, along with the ERAM system, form the FAA foundational technology supporting NextGen. They enable ADS-B and other NextGen capabilities, giving air traffic controllers a more complete airspace picture that will be necessary for TBO.

STARS offers new features that make the system easier for controllers to use than the aging systems it is replacing. Keyboard backlighting is adjustable to improve visibility for easier data entry, while flat-panel LED displays increase the traffic picture quality. Controllers can assign a color to an aircraft to make it easier to follow. With a recall capability, individual controllers can save and retrieve their preferred workstation settings at the touch of a button.

Weather displays show six different levels of weather intensity to provide better situational awareness for controllers as they work with pilots to steer aircraft around hazardous weather. Using multiple radars and ADS-B, STARS can track 3,000 aircraft in a 512x512 nautical mile area to provide controllers with a clearer view of overall operations.

STARS also assists with terrain avoidance and conflict alerts. The Automatic Terminal Proximity Alert tool gives controllers significant visual cues to enable maximum landing rates while still maintaining safety margins. A minimum separation capability enables controllers to select two aircraft and ensure the required separation is maintained. A data block feature automatically lists the number of aircraft in a formation — a function that previously had to be performed manually.

ADS-B is bringing the precision and reliability of satellite-based navigation to track aircraft and provide a new level of situational awareness. ADS-B Out, which is mandatory as of January 1, 2020, for aircraft operating in most controlled U.S. airspace, has been integrated into automation platforms at all En Route air traffic control facilities and all terminal radar approach control (TRACON) facilities. Full TRACON deployment was completed in 2019. The FAA completed the nationwide deployment of ADS-B ground stations in 2014, and ADS-B traffic and weather broadcasts are available nationwide. As of December 2019, more than 102,000 aircraft have been equipped with properly installed ADS-B avionics. As more aircraft are equipped, ADS-B increases safety and efficiency that will help meet the predicted increase in air traffic in coming years.

SWIM streamlines shared information for improved planning and execution. Airlines and other users are able to access more efficiently the most current information affecting their areas than they were able to using legacy systems, thereby improving decision-making. The SWIM Visualization Tool (SVT) is in use at 17 air traffic control facilities across the country and was enhanced to include traffic flow management data, specifically gate assignment information that airline partners started to publish into SWIM.

SVT deployment is supporting early implementation of TFDM. Another component of TFDM early implementation is the prototype Advanced Electronic Flight Strips (AEFS) system, which replaces traditional paper flight strips and manual tracking of incoming and outgoing flights with an electronic flight data display. The prototype AEFS was implemented in the Phoenix, Charlotte and Cleveland towers to provide feedback and lessons learned into the TFDM design and implementation. Phoenix is set to receive production TFDM in June 2020, the first of 89 sites.

For other decision-support systems, the FAA will continue to develop modeling and predicting capabilities for the Traffic Flow Management System.

Increased productivity and efficiency, and their ultimate impact on the size and composition of the FAA's workforce, depend on many factors. The scope and precise impact of NextGen enhancements are unknown as they are still under development. Final impacts are still to be determined given the complex nature of the interaction of controllers and their tools.

The relationship between pilots and air traffic controllers, as well as the relationship between controllers and automated systems, will evolve. These changes will occur gradually and require continued testing and analysis to ensure the safety of the NAS. Implementing TBO in the NAS will require the integration of multiple systems and training, and a culture change by controllers and pilots.

As these technological changes occur, the FAA will seek to understand the impact on controller workload and will validate and update its staffing standards models as needed.

Ch. 4 Losses

In total, the FAA expects to lose nearly 1,200 controllers due to retirements, promotions and other losses this fiscal year. Other controller losses include transfers, resignations, removals, deaths, developmental attrition and academy attrition.

The FAA hires and staffs facilities so that trainees, once fully certified, are prepared to take over responsibilities when senior controllers leave.

CONTROLLER LOSS SUMMARY

Table 4.1 shows the total estimated number of controllers that will be lost, by category, over the 10-year period FY 2020 through FY 2029.

TABLE 4.1 CONTROLLER LOSS SUMMARY

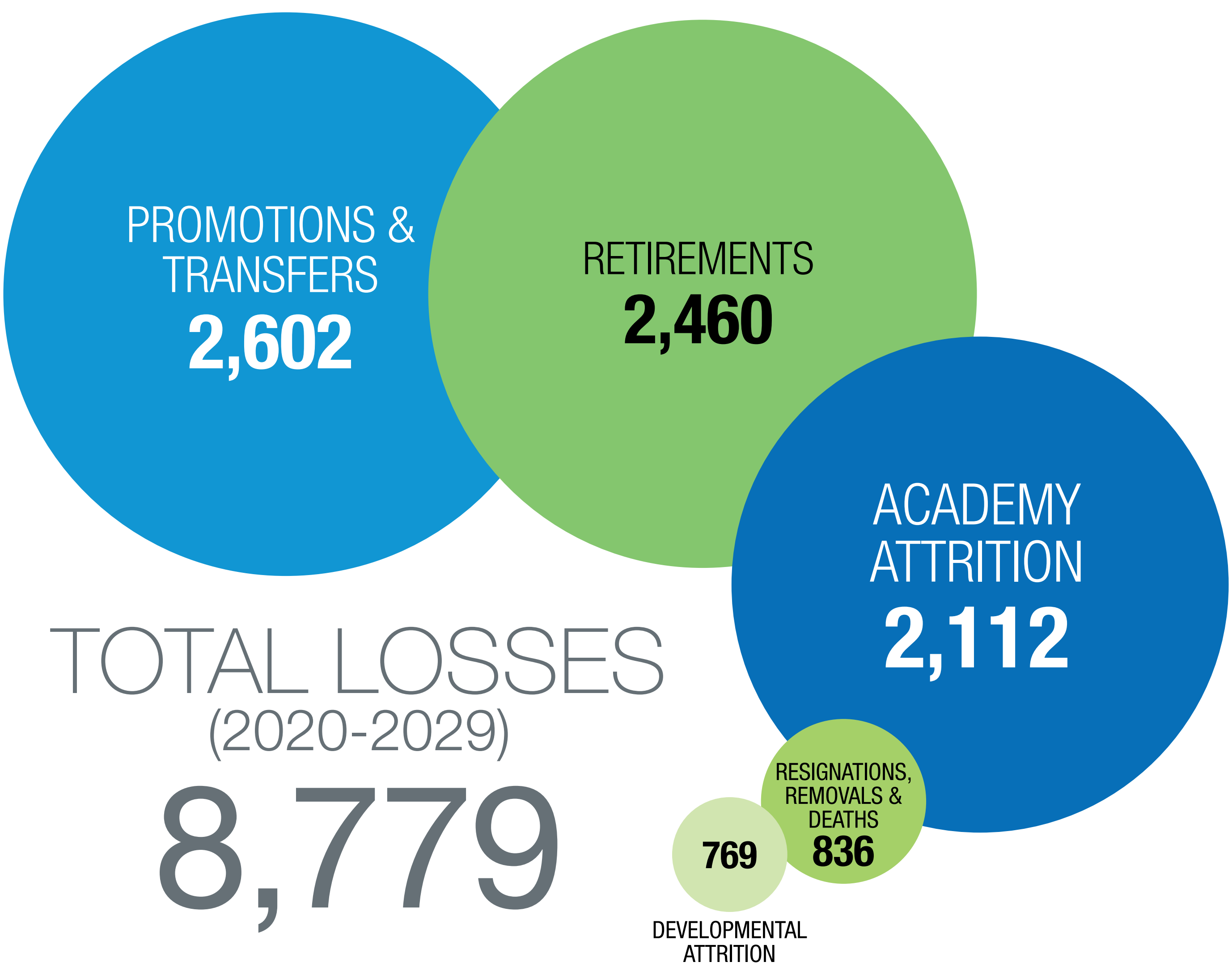
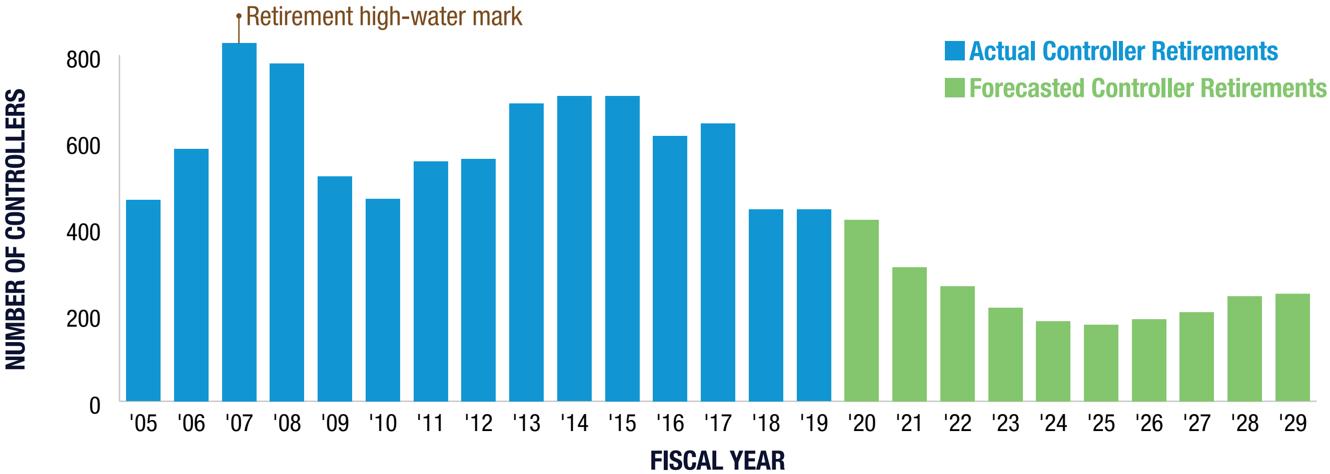


FIGURE 4.1A ACTUAL CONTROLLER RETIREMENTS



ACTUAL CONTROLLER RETIREMENTS

FY 2007 was correctly projected to be a peak year for retirements of controllers hired in the early 1980s. The long-anticipated retirement wave has passed. Annual retirements decreased for a few years then increased during FY 2010 to FY 2015, but still below the 2007 peak, and are declining through FY 2025. In the last five years, 2,848 controllers have retired, and we expect an additional 1,396 controllers will retire in the next five years. FY 2019 retirements were lower than projected, and future retirements are expected to fall over the next decade and remain at relatively low levels.

CUMULATIVE RETIREMENT ELIGIBILITY

The figure below shows historical and forecasted controller retirement eligibility from FY 2005 to FY 2029. Each bar shows the number of controllers in the entire controller workforce that were eligible to retire for each year shown. Because controllers can spend more than one year as eligible before they retire, the same individual controllers are counted in multiple years. Data shows a significant decline in the number of controllers eligible to retire from the peak in FY 2012 to FY 2025. At the end of FY 2019, only 17 controllers remain from those who were hired before 1984. By the end of FY 2020, fewer than 1,000 controllers will be eligible to retire, which is the lowest number since the 2005 Controller Workforce Plan. **This clearly demonstrates that the controller retirement wave is over**.

FIGURE 4.1B CUMULATIVE RETIREMENT ELIGIBILITY

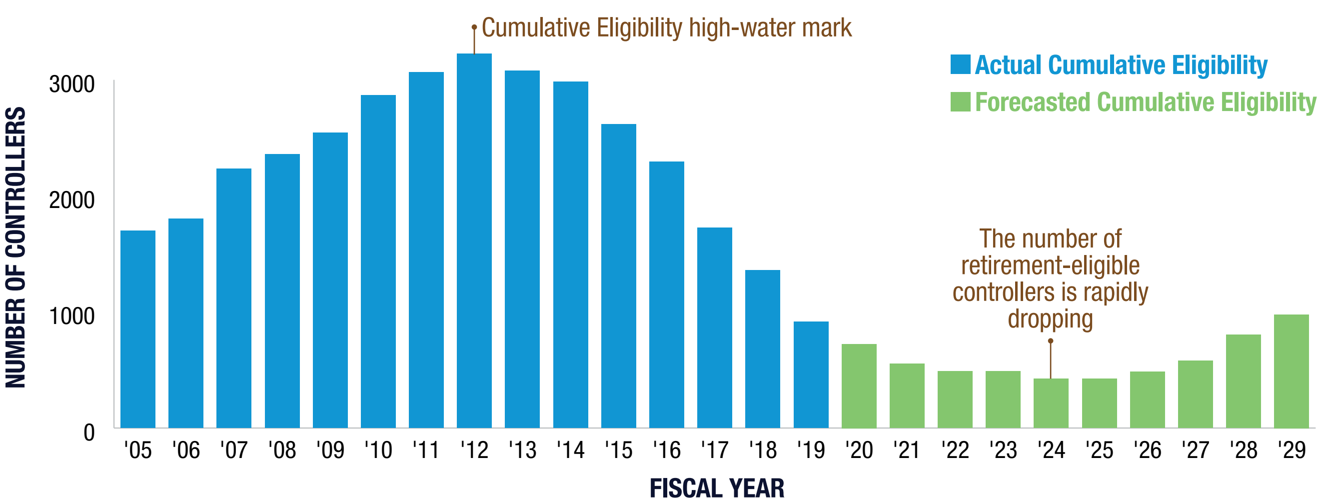
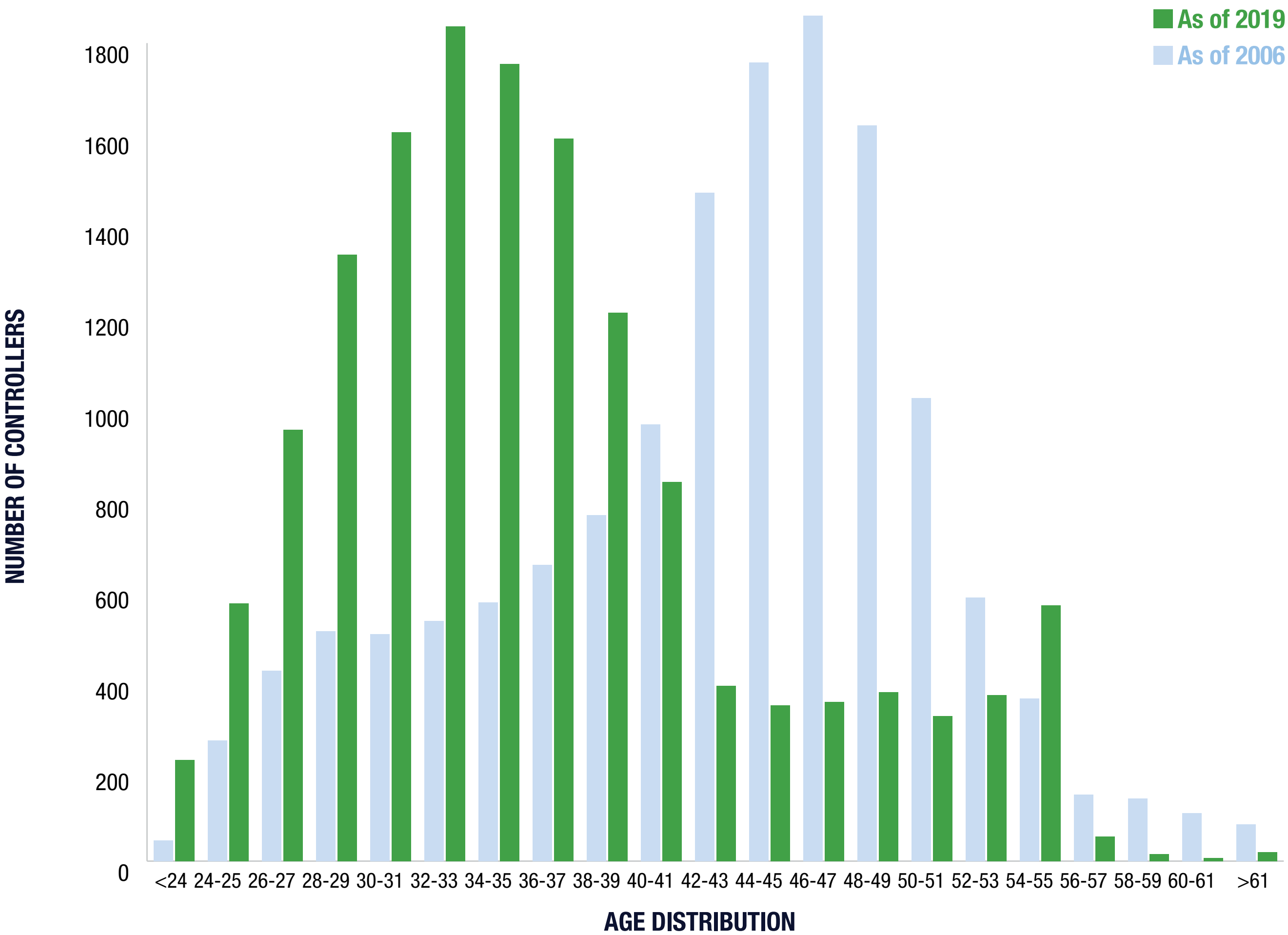


FIGURE 4.2 CONTROLLER WORKFORCE AGE DISTRIBUTION AS OF SEPTEMBER 28, 2019



CONTROLLER WORKFORCE AGE DISTRIBUTION

The agency hired a substantial number of controllers in the years immediately following the 1981 strike. This concentrated hiring wave meant a large portion of the controller workforce would reach retirement age in roughly the same time period. In September 2006, the blue shaded age distribution peak on the right side of Figure 4.2 was almost 1,900 controllers. Today, the magnitude of that remaining peak is down to 326 controllers because the majority of the controllers hired shortly after the 1981 strike have already retired and been replaced. As Figure 4.2 shows, the current FAA controller workforce is substantially younger on average than it was in 2006. This was driven by relatively high levels of hiring within the last several years.

The FAA's hiring plan is designed to phase in new hires as needed. Figure 4.2 shows that the majority of the FAA controller workforce has been hired in the last 10-15 years and are ages 24-37. There are a relative small number of controllers approaching mandatory retirement at age 56 over the next 15 years.

The FAA's hiring plan is designed to phase in new hires as needed.

FIGURE 4.3 RETIREMENT ELIGIBILITY

CONTROLLER RETIREMENT ELIGIBILITY

In addition to normal civil service retirement criteria, controllers can become eligible under special retirement criteria for air traffic controllers (age 50 with 20 years of "good time" service or any age with 25 years of "good time" service). "Good time" is defined as service in a covered position in Public Law 92-297. Under Public Law 92-297, air traffic controllers are usually required to retire at age 56.

After computing eligibility dates using all criteria, the FAA assigns the earliest of the dates as the eligibility date. Eligibility dates are then aggregated into classes based on the fiscal year in which eligibility occurs.

Figure 4.3 shows the number of controllers who are currently retirement-eligible as of September 28, 2019 and those projected to become retirement-eligible each fiscal year for the next 10 fiscal years. Agency projections show that an additional 139 controllers will become eligible to retire in FY 2020. The number of retirement-eligible controllers has been in decline in recent years from the peak and should continue to decline for the next few years. Figure 4.3 also clearly shows that the current number of retirement-eligible controllers is substantially below the level in 2006 and below 2012 high-water mark. It further shows, based on the profile of the current controller workforce, that the number of additional controllers becoming retirement-eligible in each of the next few years is substantially below those incremental values from 2006.

Due to advance hiring, we have sufficient new hires in place to replace controllers currently eligible to retire when they do retire. The FAA strives to minimize retirement, hiring and training spikes through the process of examining trends and proactively planning years in advance of expected activity.

CONTROLLER RETIREMENT PATTERN

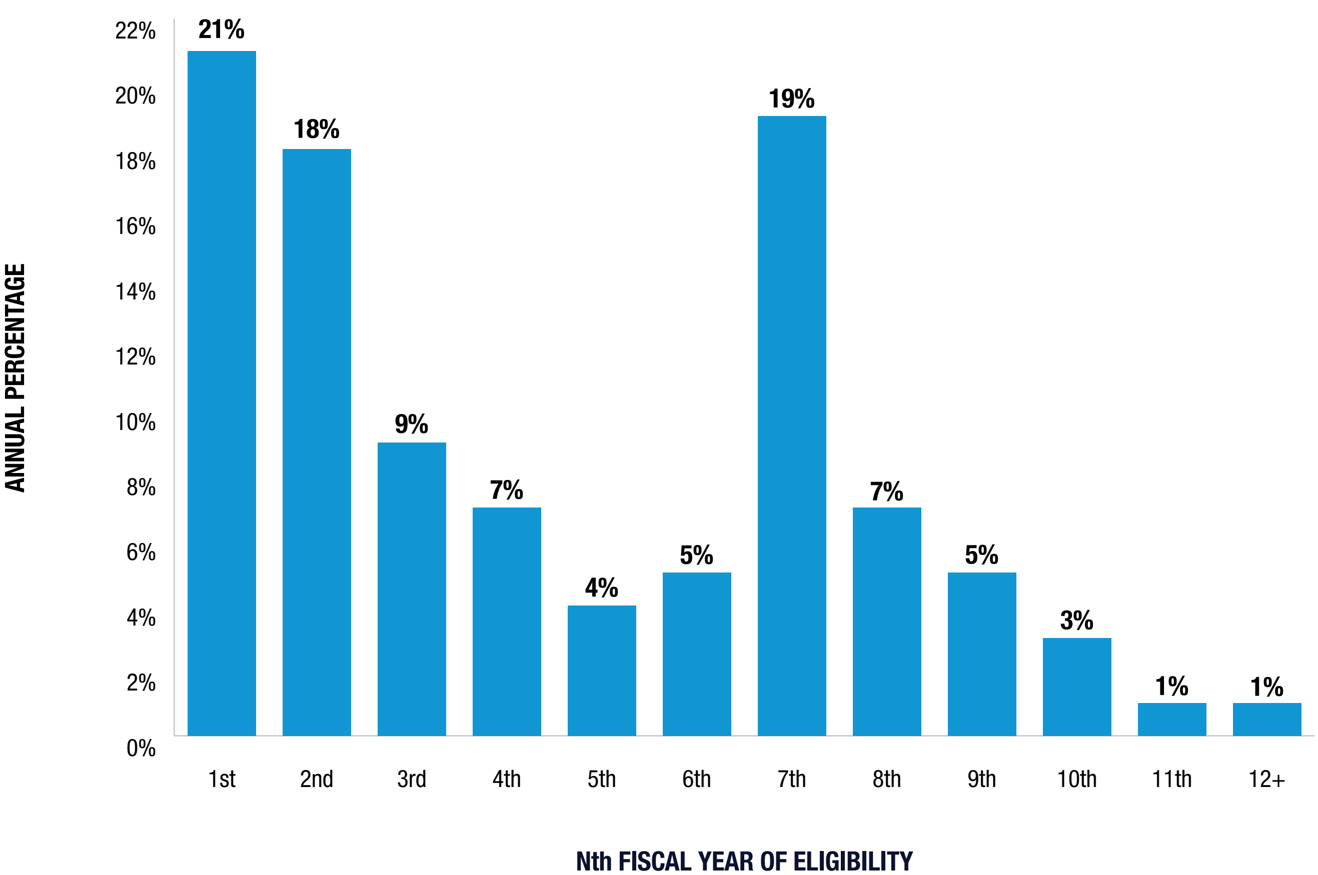
History shows that not all controllers retire when they first become eligible. Recent data shows that 21 percent of controllers who first became eligible actually retired that year.

The FAA has observed that many controllers delay retirement until they get closer to the mandatory retirement age of 56. Because most controllers are retirement-eligible at the age of 50, they typically reach mandatory retirement age in their seventh year of eligibility.

These trends are seen in Figure 4.4 below, which shows fewer controllers are retiring earlier in their eligibility and are waiting until closer to their mandatory retirement age.

Despite the increased likelihood of delayed retirement, the majority of controllers still leave the controller workforce prior to reaching the mandatory age.

FIGURE 4.4 PERCENT OF CONTROLLERS RETIRING IN THE NTH FISCAL YEAR OF THEIR ELIGIBILITY



FY 2007 was the high-water mark for controller retirements. Annual retirements are expected to continue to decline for the next several years.

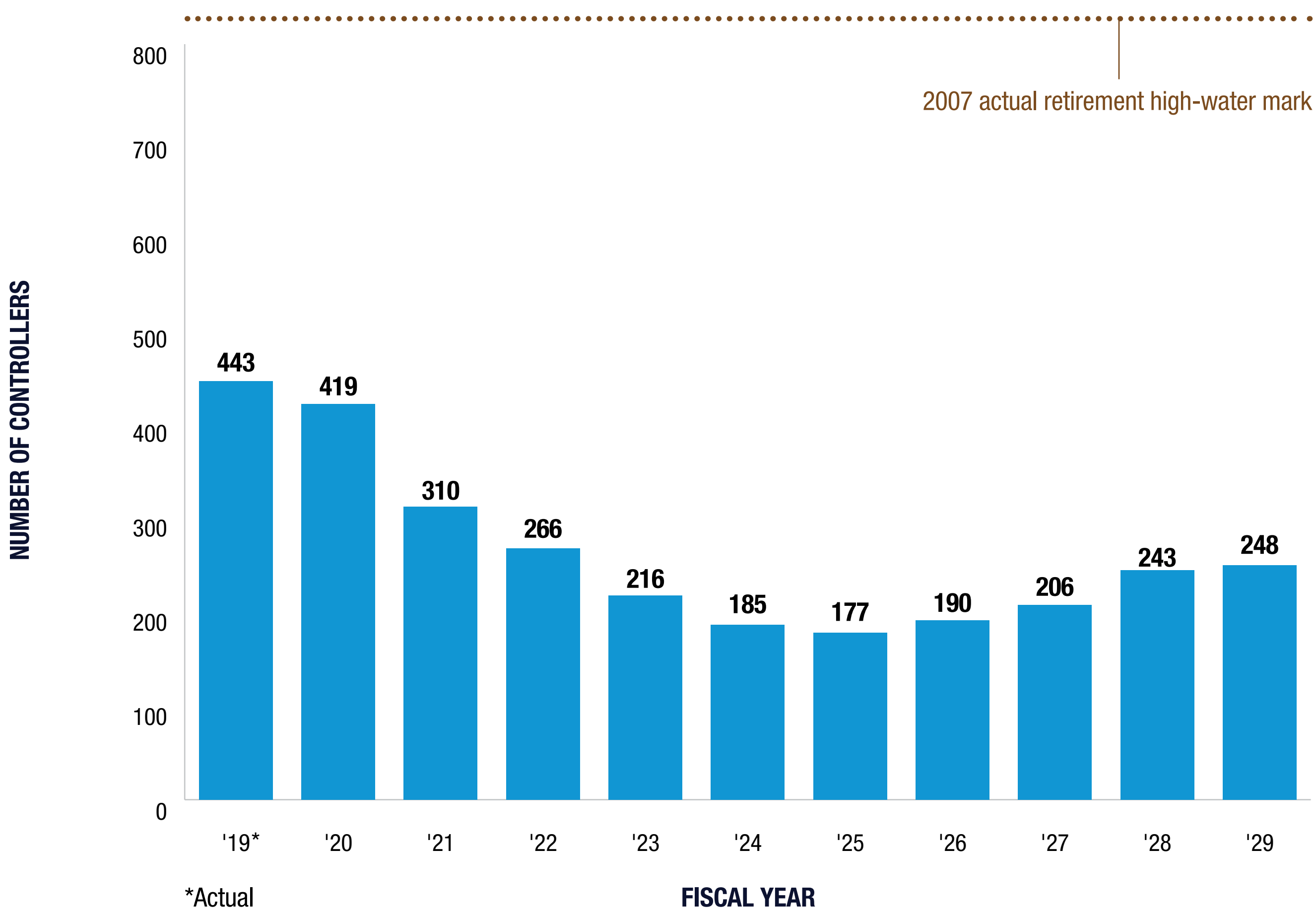
CONTROLLER LOSSES DUE TO RETIREMENTS

For the current plan, the agency incorporated FY 2019 retirement data into the retirement histogram used for future retirement.

As in prior years, the FAA projected future retirements by analyzing both the eligibility criteria of the workforce (Figure 4.3) and the pattern of retirement based on eligibility (Figure 4.4).

For each eligibility class (the fiscal year the controller first becomes eligible to retire), the agency applied the histogram percentage in Figure 4.3 to the retirement pattern in Figure 4.4 to estimate in Figure 4.5 the retirements for each class by year.

FIGURE 4.5 RETIREMENT PROJECTION



CONTROLLER LOSSES DUE TO RESIGNATIONS, REMOVALS AND DEATHS

Estimated controller losses due to resignations, removals (excluding developmental attrition) and deaths are based on historical rates and shown in Table 4.2.

TABLE 4.2 CONTROLLER LOSSES DUE TO RESIGNATIONS, REMOVALS AND DEATHS

Fiscal Year	2019 (actual)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Number of Controllers	88	82	82	83	83	83	84	84	85	85	85

DEVELOPMENTAL ATTRITION

Estimated losses of trainees who terminate from the FAA while still in developmental status are shown in Table 4.3. Hiring from FY 2013 to FY 2015 was lower than projected, which caused the need for increased hiring from FY 2016 through FY 2018. Correspondingly, this plan incorporates an increased number of developmental failures through 2022 as hires from those years progress through their training program.

TABLE 4.3 DEVELOPMENTAL ATTRITION

Fiscal Year	2019 (actual)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Number of Controllers	87	106	81	85	81	73	65	64	67	72	75

ACADEMY ATTRITION

Estimates of losses from new hires that are not successful in the FAA Academy training program are based on both historical rates and projections, and are shown in Table 4.4. The FAA will continue to monitor academy failure rates moving forward for the impact of these changes and adjust future projections accordingly.

TABLE 4.4 ACADEMY ATTRITION

Fiscal Year	2019 (actual)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Number of Controllers	297	235	216	215	209	187	190	209	216	217	218

CONTROLLER LOSSES DUE TO PROMOTIONS AND OTHER TRANSFERS

This section presents FAA estimates of controller losses due to internal transfers to other positions (staff support specialists, traffic management coordinators, etc.) and controller losses due to promotions to operations supervisor (OS) or other air traffic management/supervisory positions.

Over the past five years, we've observed an average of 186 net promotions each year from CPC to supervisory positions. The majority of these promotions replace retiring supervisors. We expect total net transfers and promotions to decrease for several years and then level off in future years as seen in Figure 4.6.

FIGURE 4.6 CONTROLLER LOSSES DUE TO PROMOTIONS AND OTHER TRANSFERS

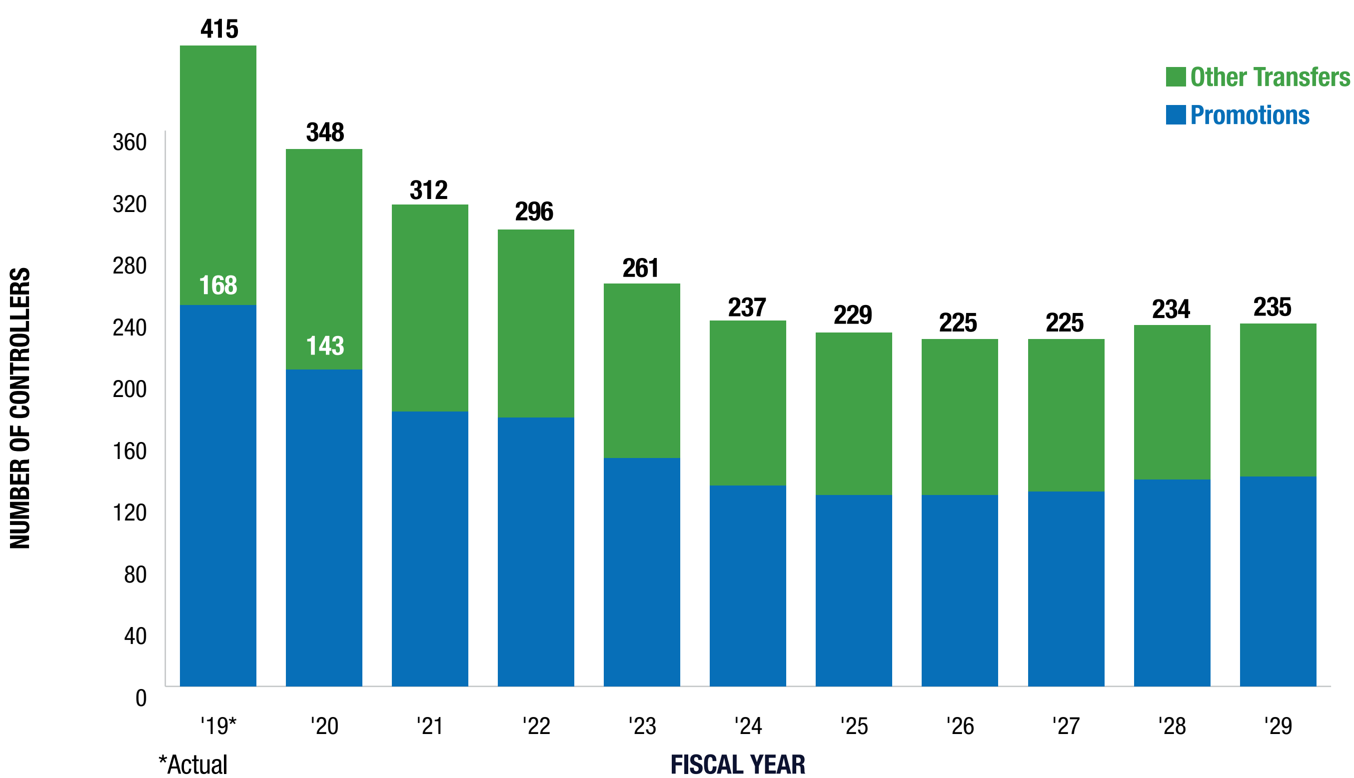
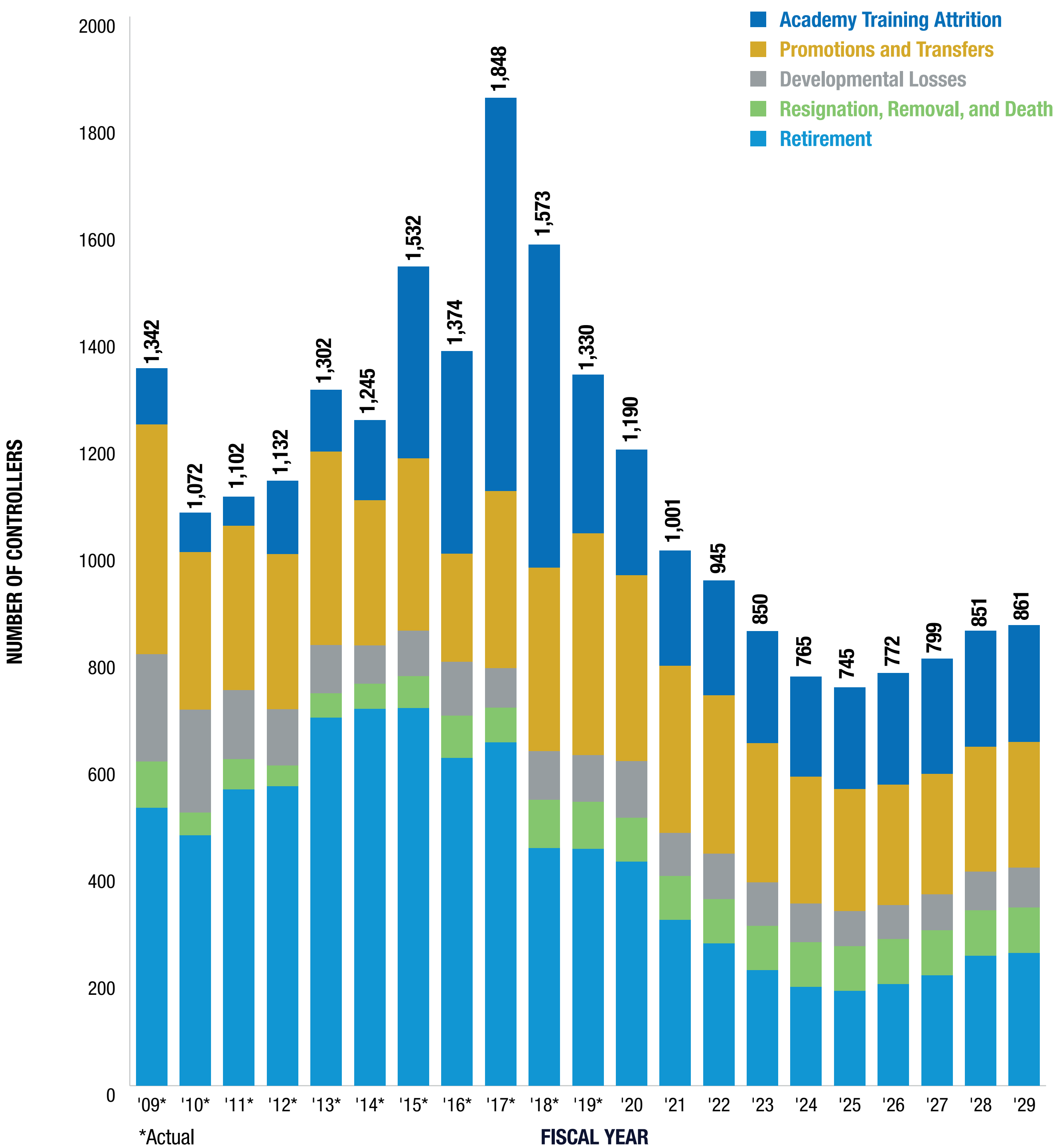


FIGURE 4.7 TOTAL CONTROLLER LOSSES



TOTAL CONTROLLER LOSSES

The FAA projects a total loss of 8,779 controllers over the next 10 years. Should losses outpace projections for FY 2020, the FAA will hire additional controllers to reach the end-of-year forecast of 14,095 air traffic controllers on board.

Ch. 5 Hiring Plan

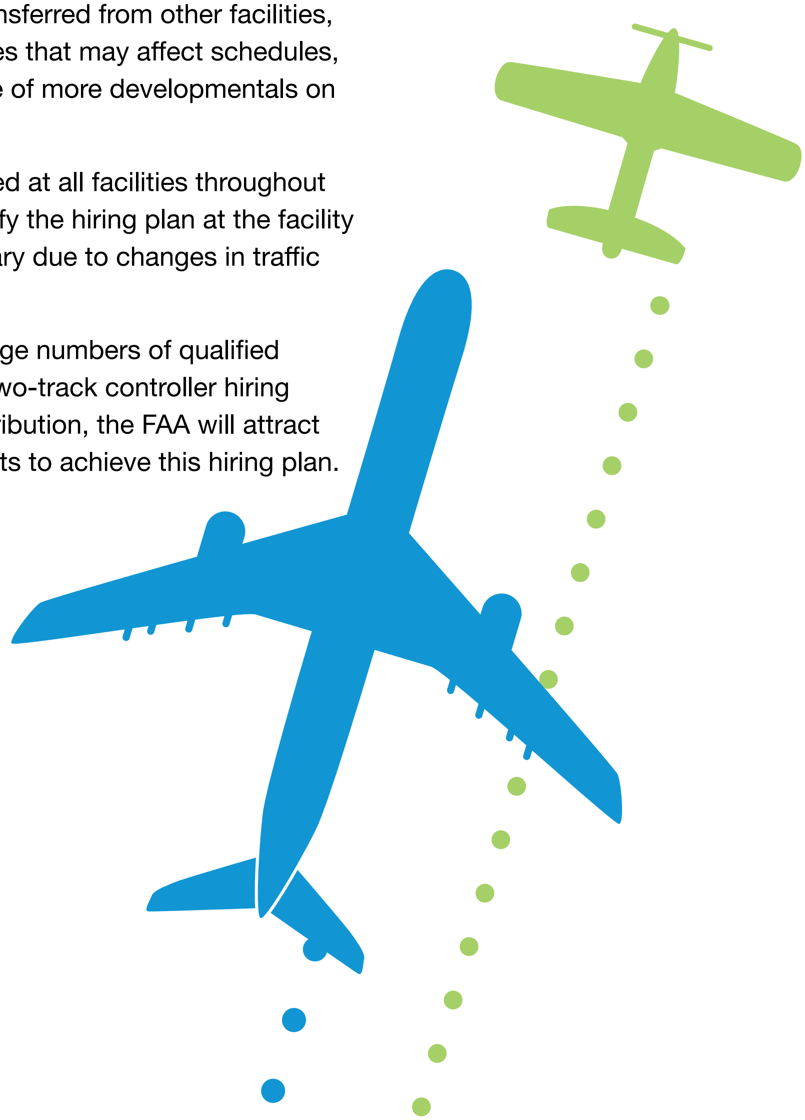
The FAA safely operates and maintains the NAS because of the combined expertise of its people, the support of technology and the application of standardized procedures. Every day tens of thousands of aircraft are guided safely and expeditiously through the NAS to their destinations.

Deploying a well-trained and well-staffed air traffic control workforce plays an essential role in fulfilling this responsibility. The FAA's current hiring plan has been designed to phase in new hires as needed. To staff the right number of people in the right places at the right time, the FAA develops annual hiring plans that are responsive to changes in traffic and in the controller workforce.

The FAA hires new developmental controllers in advance of the agency's staffing needs in order to have ample time to train them to offset future attrition, including retirements, promotions, etc. Proper execution of the hiring plan, while flexibly adapting to the dynamic nature of traffic and attrition, is critical to the plan's success. If the new developmentals are not placed correctly or if CPCs are not transferred from other facilities, shortages could occur at individual facilities that may affect schedules, increase overtime usage or require the use of more developmentals on position.

Staffing is and will continue to be monitored at all facilities throughout the year. The agency will continue to modify the hiring plan at the facility level should adjustments become necessary due to changes in traffic volume, retirements or other attrition.

The FAA continues to be able to attract large numbers of qualified controller candidates. Through a revised two-track controller hiring process, and management of staffing distribution, the FAA will attract and recruit a sufficient number of applicants to achieve this hiring plan.



CONTROLLER HIRING PROFILE

The controller hiring profile is shown in Figure 5.1. The FAA hired 1,010 controllers compared with the plan of 907 controllers in FY 2019. Missed hiring goals in prior years created a significant backlog and subsequently increased the need for new controller hiring for several fiscal years. We have largely recovered from prior hiring disruptions, and a more steady-state hiring pattern of 910 controllers hires is planned for the next three years. The number of controllers projected to be hired through FY 2029 is 8,586.

FIGURE 5.1 CONTROLLER HIRING PROFILE

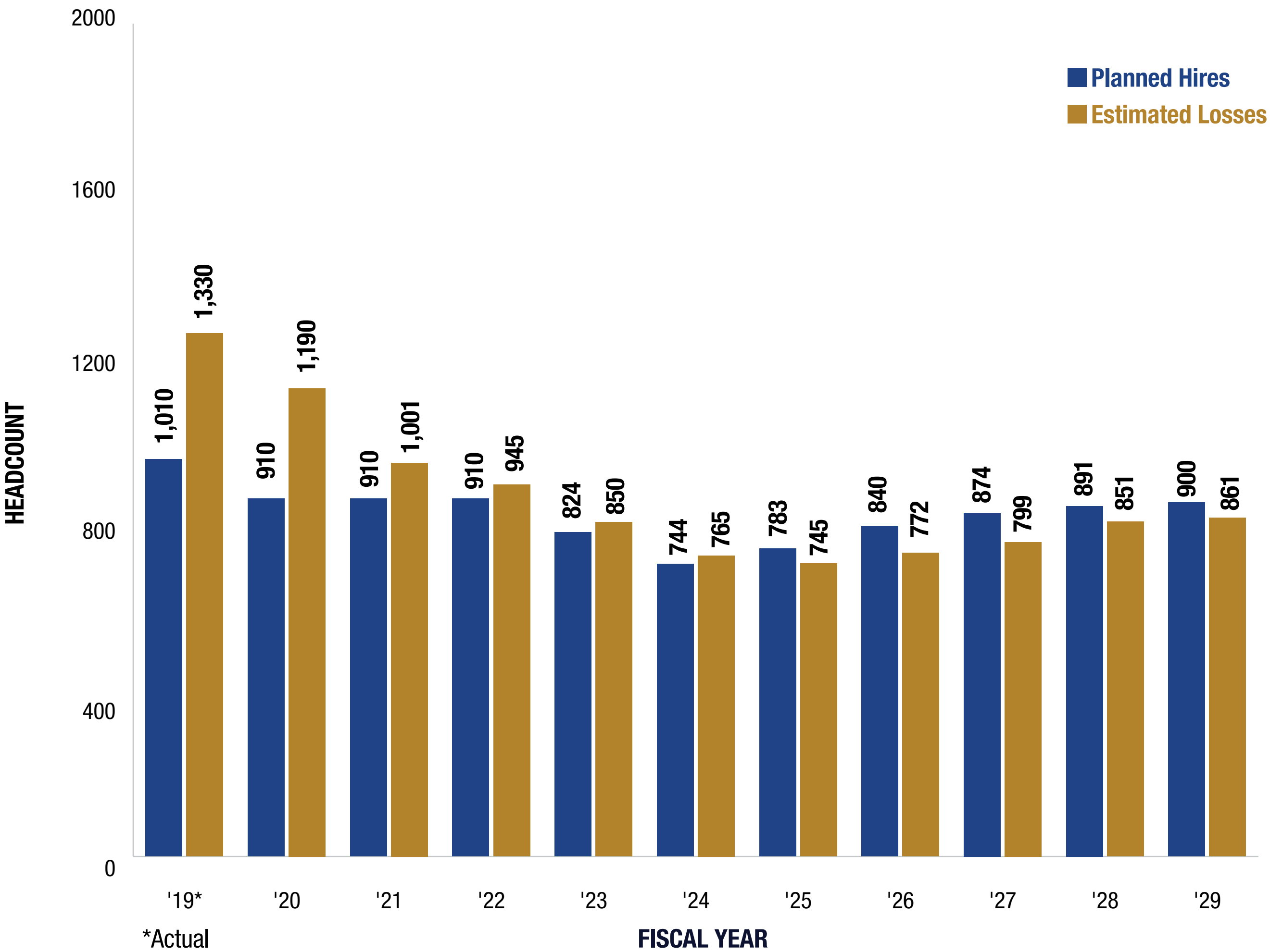
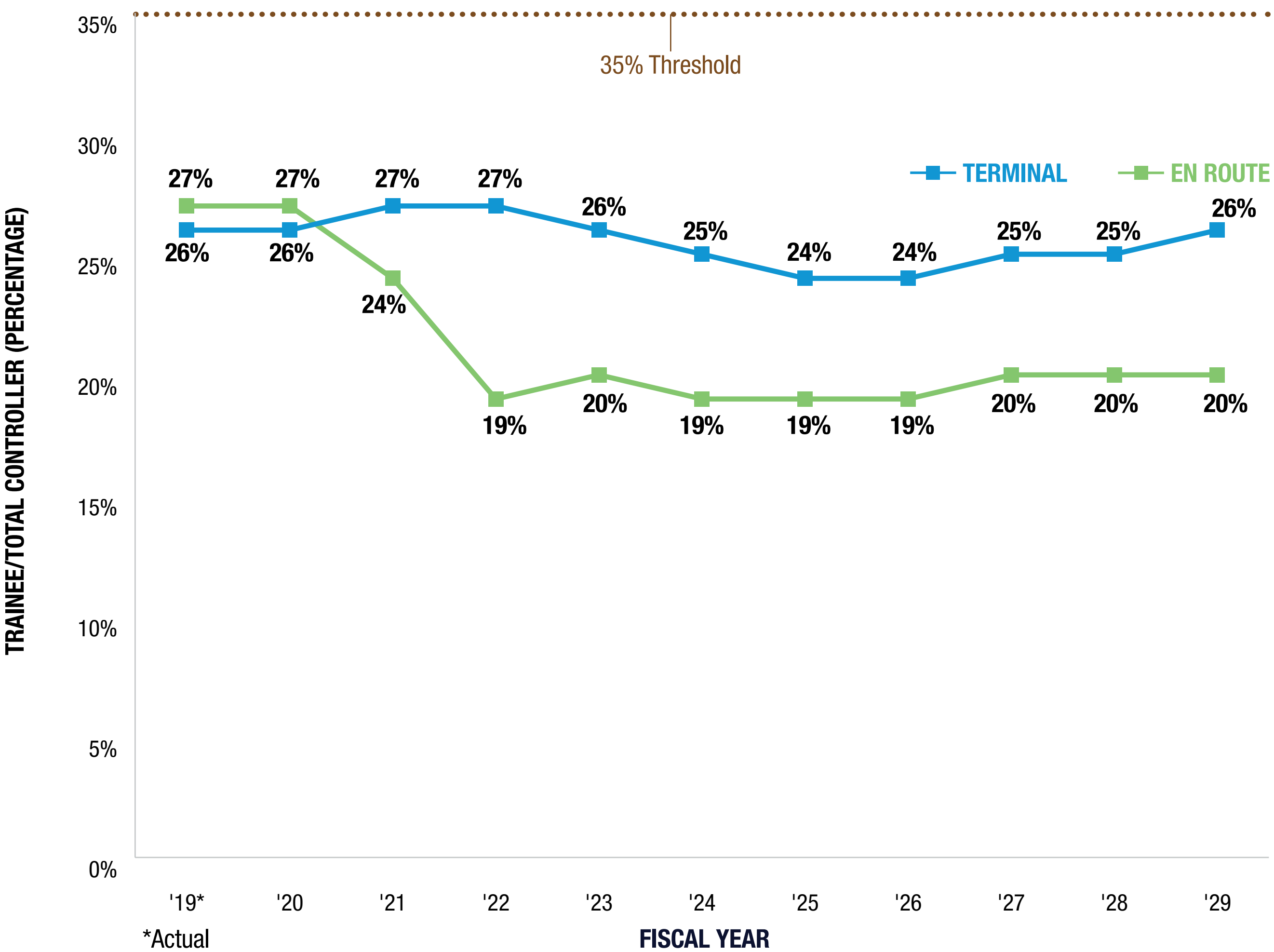


FIGURE 5.2 TRAINEE-TO-TOTAL-CONTROLLER PERCENTAGE



NOTE: The forecast assumes future CPC-IT levels are consistent with FY 2019 levels.

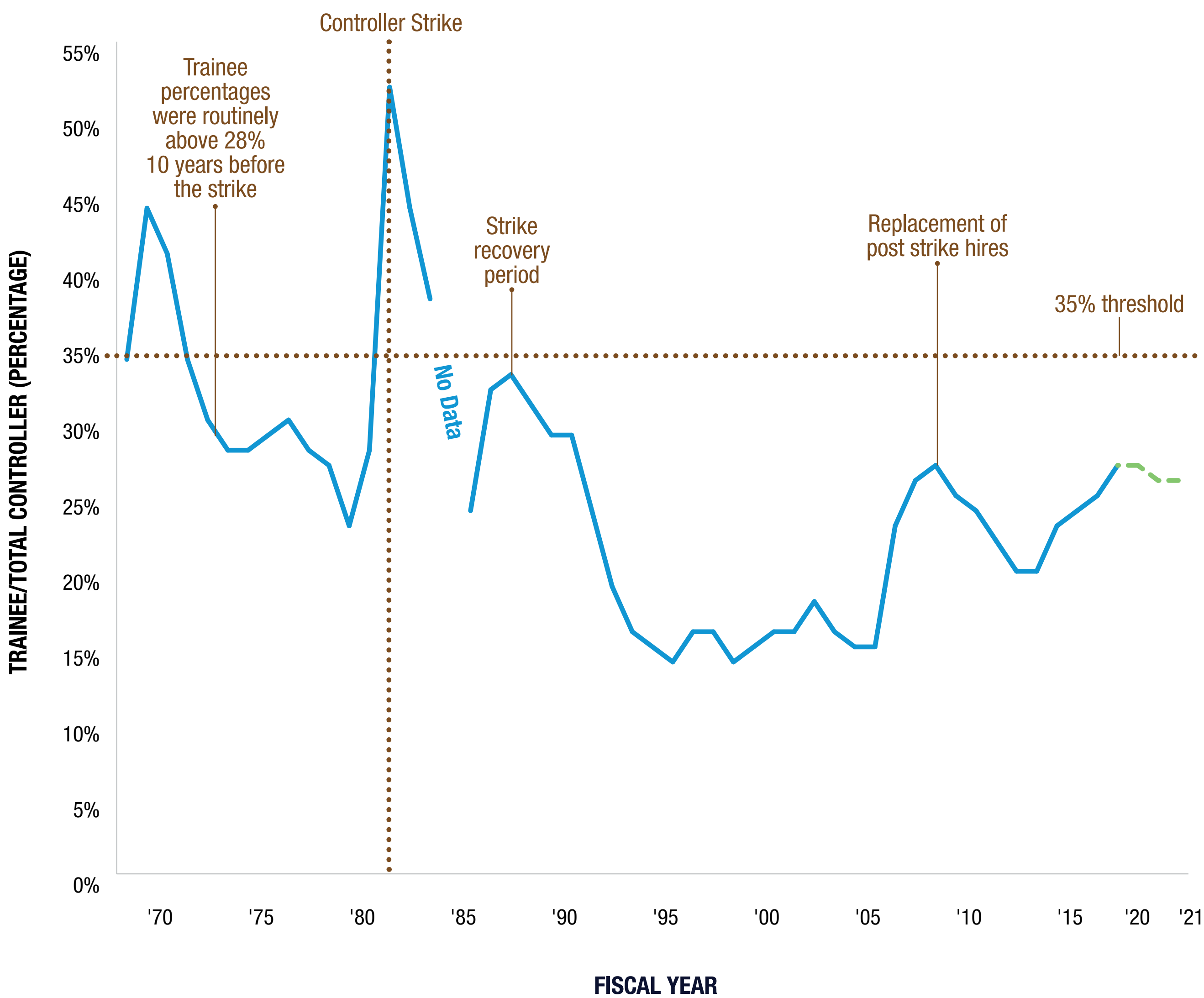
TRAINEE-TO-TOTAL-CONTROLLER PERCENTAGE

The hiring plan allows the FAA to maintain an appropriate number of trainees (developmental and CPC-IT) in the workforce. The percentage shown is calculated as the sum of CPC-ITs plus developmentals divided by all controllers. While the FAA strives to keep the trainee percentage below 35 percent for both Terminal and En Route controllers, it is not the only metric used by the agency to measure trainee progress.

Figure 5.2 shows the projected trainee-to-total-controller percentages for En Route and Terminal by year through 2029.

Note the trainee percentage for both En Route and Terminal is still well below 35 percent.

FIGURE 5.3 HISTORICAL TRAINEE PERCENTAGE



Before the 1981 strike, the FAA experienced trainee percentages ranging from 23 percent to 44 percent. Following the strike, through the end of the hiring wave in 1992, the trainee percentage ranged from 24 percent to 52 percent. When the post-strike hires became fully certified by the end of the decade, the trainee percentage declined.

As the new controllers hired en masse in the early 1980s achieved full certification, the subsequent need for new hires dropped significantly from 1993 to 2006. This caused trainee percentages to reach unusually low levels. The FAA's current hiring plans return trainee percentages to their historical averages.

By phasing in new hires as needed, the FAA will level out the significant training spikes and troughs experienced over the last 40 years. Even though there was a long-expected trainee peak in 2009, the trainee percentage remains low as thousands of trainees hired over the past decade have become certified controllers. Figure 5.3 shows historical trainee percentages from 1969 to the present.

The FAA uses many metrics (e.g., 35 percent trainee to total controllers) to manage the flow of trainees while accomplishing daily operations. Facilities meter training to coincide with a number of dynamic factors, including technology upgrades, new runway construction and recurrent proficiency training for existing CPCs. Facility training is enabled by many factors. Examples include the use of contract instructors, access to simulators, scheduled overtime, and the seasonality and complexity of operations.

In itself, the actual number of trainees does not indicate the progress of each individual in the training program or the additional utility they provide that can help to supplement other on-the-job training instruction and support operations. A key facility measure of training performance is the measurement of trainee completion time against the goals. The goal ranges from one-and-a-half years at our lower-level Terminal facilities to three years at our En Route facilities.

The FAA is striving to meet these goals by improving training and scheduling processes through increased use of simulators and better tracking of controller training using the FAA's national training database.

The FAA will continue to closely monitor facilities to make sure trainees are progressing through each stage of training while also maintaining the safe and efficient operation of the NAS.

FAACTOID

There are

43,290

average daily flights

in and out of the U.S.

Ch. 6 Hiring Process

CONTROLLER HIRING SOURCES

The FAA has two primary categories of controller hiring sources.

- No prior air traffic control specialist (ATCS) experience: These individuals are not required to have prior air traffic control experience and may apply for vacancies announced by the FAA.
- Prior ATCS experience: These individuals have at least 52 weeks of certified air traffic control experience and may apply for vacancies announced by the FAA.

RECRUITMENT

The agency continues to attract and recruit high-quality applicants into the controller workforce to meet staffing requirements.

In FY 2014, the FAA instituted an interim change to the air traffic control hiring process. The changes allowed the FAA to more efficiently compare applicants across previous hiring sources to select those candidates most likely to succeed as air traffic control specialists. The new approach included: (1) single vacancy announcement for Collegiate Training Initiative (CTI) and certain veterans and general public applicants; (2) a single set of minimum qualifications/eligibility requirements; (3) a multi-hurdle selection process with increased efficiency; and (4) elimination of the Centralized Selection Panel process and interview.

In January 2015, the FAA modified the interim changes by establishing a two-track announcement process for hiring air traffic control specialists. The first track targeted candidates without operational air traffic control experience.

The second track included an announcement targeting applicants who have at least 52 weeks of certified air traffic control experience in either civilian or military air traffic control facilities. In December 2015, the FAA launched an extended announcement for applicants with previous experience.

In FY 2016, Public Law 114-190 – FAA Extension, Safety and Security Act (FESSA) of 2016 – was enacted. The law established two hiring tracks totaling three distinct hiring pools. It included pool balancing requirements. The National Defense Authorization Act of 2020 replaced the balancing requirements with requirements to prioritize certain pools. This will give the FAA better access to the best qualified candidates.

More than 9,200 applicants responded to the June 2019 vacancy announcement. Additionally, the 10 percent variance interpretation outlined in FESSA was adjusted to reflect a 10 percent variance for referral versus selection. This adjustment still limited the total number of selections available; however, it allowed for more selections overall.

Once applicants are notified of selection and have accepted the offer, they will then be required to attain medical and security clearances. Upon successful completion of clearances, the applicants will then be scheduled for FAA Air Traffic Academy training as agency needs are identified. In FY 2020, the FAA will continue to recruit and hire air traffic control specialists to meet staffing requirements through the use of the two-track announcement process.

The agency continues to attract and recruit high-quality applicants into the controller workforce to meet staffing requirements.

Ch. 7 Training

The FAA develops the national training curriculum and learning tools that increase the knowledge of its technical workforce who serve the world's largest, most efficient and safest National Airspace System – today and for the future.

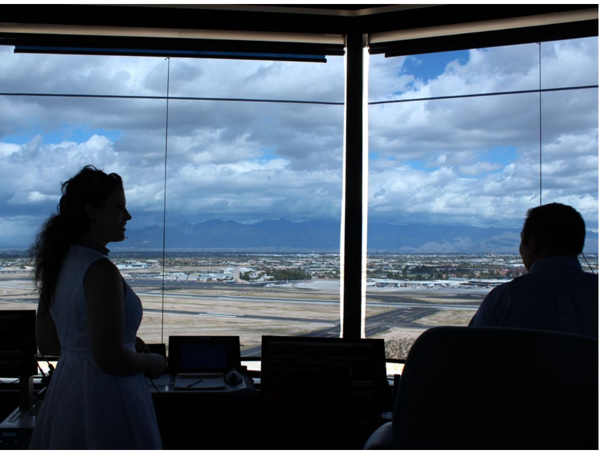
The cohort of air traffic professionals we hired in 2019 and continue to hire in 2020 are essential in our transition to the Next Generation Air Transportation System. Our controllers are increasingly using real-time information to direct aircraft more efficiently while reducing delays. Capabilities such as Performance Based Navigation and Data Communications increase controller productivity while reducing communication errors. Controllers must effectively incorporate new entrants such as UAS and commercial space into routine operations.

We are meeting the challenge of training both new and experienced controllers by streamlining the training process, refreshing course content and modernizing our technologies used for learning. The training program, directed by FAA Order 3120.4, Air Traffic Technical Training, is reviewed annually to ensure its technical accuracy. We regularly review performance metrics and work with research centers to identify areas for improvement and innovation so the training program evolves with operations. The FAA implemented its National Training Initiative (NTI) in July of 2019 which provides minimum training hours per week for all trainees. Trainees that are not certified to independently work traffic on any position have an expectation of receiving 15-18 on-the-job training (OJT) hours per week. Trainees that are certified on at least one position and must maintain currency have the expectation of receiving 12-15 OJT hours per week. The agency is already benefiting from the success of the NTI with a 29 percent increase in total OJT hours, an average OJT hour increase per trainee from 8.7 hours to 10.2 hours per week and an increased number of certified professional controllers (CPCs) since July 2019. NTI is critical to our continued efforts of building and developing our CPC workforce.

THE TRAINING PROCESS

New hires with no previous air traffic control experience begin their federal career training at the FAA Academy, where they learn foundational aviation knowledge through classroom lectures, team exercises and computer-based instruction, and practice basic air traffic control skills using low-, medium- and high-fidelity simulation devices.

The academy lays the foundation for employee development by teaching common, fundamental air traffic control principles and procedures that are used at facilities throughout the country. After successfully completing training at the FAA Academy, developmental



controllers are assigned to a field location, where they enter additional, site-specific qualification training and hone their technical abilities in the operational environment. This phase of training begins in the classroom, where students learn facility-specific equipment, rules and procedures. After students master initial learning objectives, the instruction transitions to simulators where learners can apply their knowledge and improve their skills in a hands-on, repetitive and safe environment. Finally, employees enter the on-the-job training phase working the control position, where their performance is carefully monitored by certified professional controllers who help trainees develop their techniques in a progressively more difficult live-traffic environment.

New hires with previous air traffic experience are selected directly for a field facility and usually begin their federal service in an accelerated training program customized for their prior aviation experience. They are able to bypass certain phases of training, but they are required to meet the same certification standards for each control position as new hires with no previous experience.

The goal of all new employees is to become a certified professional controller, which is when they are credentialed to work all control positions in their area of specialization on their own. Developmental controllers are able to work some positions independently as they progress towards full certification. All fully certified professional controllers work independently under the direction of a supervisor.

All controllers are assigned periodic proficiency training and participate in both mandatory and optional supplemental training. One of the most successful uses of optional supplemental training is the Flight Deck Training (FDT) program. The program provides controllers real-time experience of air traffic control from the flight crew's perspective by observing flight operations from the flight deck in most of the nation's air carriers. Their observations enhance their awareness of effects of air traffic control instructions. An integrated, automated process for requesting, executing and reporting the controller's flight deck experience makes this supplemental training informative and beneficial.

The FAA's recurrent training program is administered every six months as a combination of classroom and computer-based instruction for all operational personnel. It delivers evidence-based topics derived from a number of data sources. As contrasted with annually required refresher training on static topics, recurrent training delivers timely and relevant training based on safety trends and lessons learned. Collaboratively developed and delivered to the controller and supervisory workforce, recurrent training ensures that the operational workforce is aware and prepared to mitigate the day-to-day risks associated with controlling traffic in the NAS.

DESIGNING AND DELIVERING EFFECTIVE TRAINING

Experienced instructors, certified professional controllers and contractors provide both classroom and simulation training at the FAA Academy and at many field locations. The FAA ensures everyone who instructs developmental controllers – whether they are federal employees or contractors – has the background and skills needed to train new employees.

The FAA utilizes a process for the design, development, delivery and maintenance of its certification and specialized air traffic training courses. The Air Traffic Basics, Enroute and Terminal certification training courses are designed to train a less experienced, diverse and technologically savvy workforce. Advanced technology, modern learning theory, human factors concepts, and professionalism skills are incorporated into our courses. Managers and supervisors receive training on new training approaches. Throughout each phase of the controllers' career, training is available to ensure they have the right skills at the right time.

INFRASTRUCTURE INVESTMENTS

The FAA continues to expand accessibility of the high-fidelity Tower Simulator System (TSS), a training device that has provided an interactive, realistic environment for controller training. There are 59 simulators installed at 42 locations, and these systems support training for 251 airports using a "hub and spoke" arrangement where employees at remote facilities travel to central locations to use the simulator. The FAA started the upgrade of these systems to improve the scenario generation capabilities, screen resolution, software responsiveness, and access to the system. The upgrade to all 59 systems was completed in August 2019.

Thirty-one mobile systems were deployed to the field by September 2019 to support multiple locations. These systems complement the original procurement and provide us with a capability of installing a smaller-sized simulator at locations where it would have been cost-prohibitive for the full-sized system.

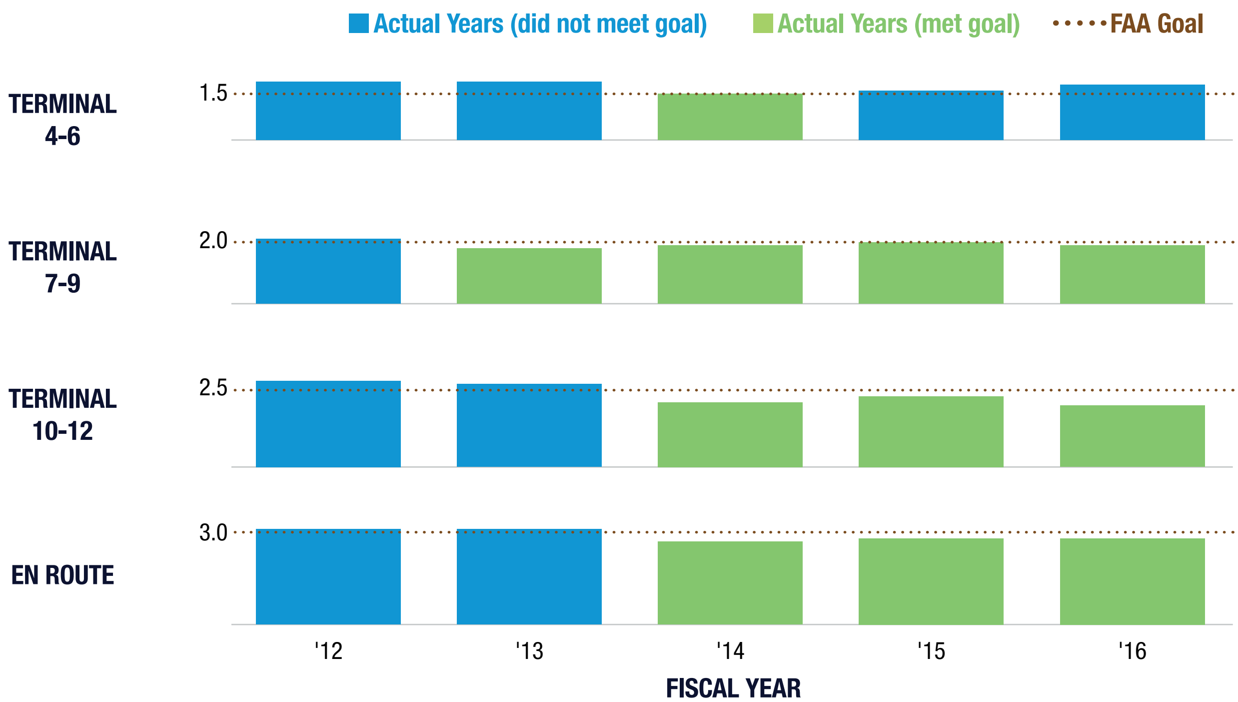
TIME TO CERTIFICATION

The FAA continues to meet its overall goals for time to certification and number of controllers certified. Implementation of foundational NextGen platforms, such as ERAM and TAMR, and new training requirements are factors that affect overall time to CPC. Depending on the type of facility, facility level (complexity) and the number of candidates to certify, controllers are expected to complete certification in one-and-a-half years to three years.

Over 64 percent of those who began training in FY 2012 through FY 2016 successfully completed training at their first facility or a subsequent facility.

Completion means that employees achieved FAA CPC status. The remaining members of the hiring classes (36 percent) have been removed from the agency, resigned or are still in training. Developmental controllers who fail to

TABLE 7.1 YEARS TO CERTIFY (FIRST ASSIGNED FACILITY ONLY)



certify at a facility may be removed from service or reassigned to a less complex facility in accordance with agency policies and directives.

Table 7.1 shows the FAA's training targets and average training completion time by facility type for those who began training in FY 2012 through FY 2016. Only those who achieved CPC status at their first facility assignment are included in the average training completion times displayed because incorporation of training times at additional facilities can skew the average. Training data for hiring classes after FY 2016 are not reported here because greater than 10 percent of the students are still in active phases of training, resulting in continuously changing metrics as those students certify or fail.

INVESTING FOR THE FUTURE

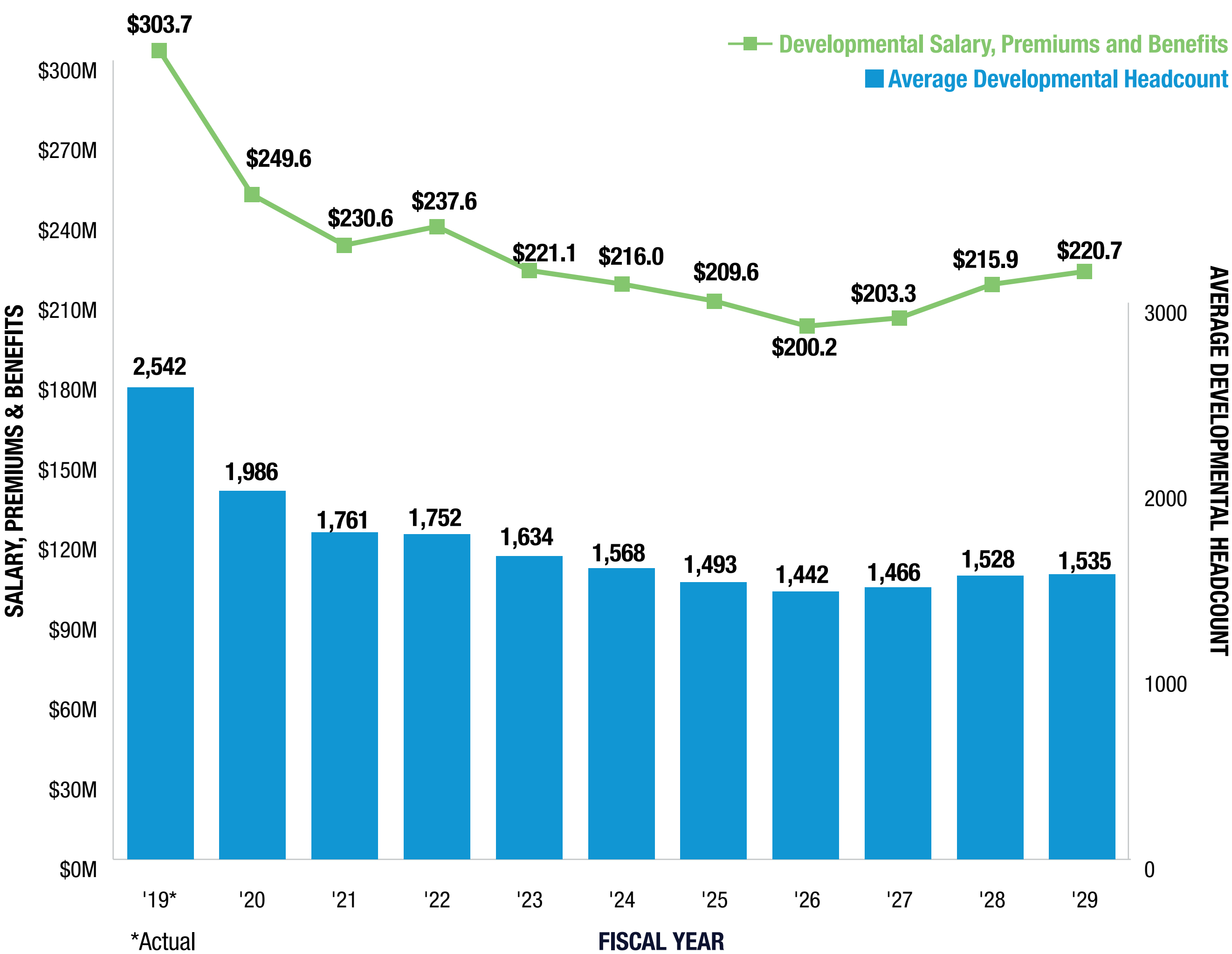
As the FAA transitions to NextGen, the key to providing safe, reliable and efficient air traffic services remains the same: highly skilled, trained and certified professionals. The FAA must maintain curricula to keep pace with the evolving NAS, modernize how it trains employees, incorporate new techniques and technologies for learning, and improve data collection and sharing. Training professionals are part of an FAA team that evaluates how NextGen will change the air traffic work environment and what competencies will be required for the future workforce. The FAA is incorporating what it learns from this evolving and ongoing process into training programs as new systems are implemented. Outcomes-based training aligns NextGen functionality with job tasks so the FAA can make predictions on how training programs will need to change as NextGen evolves.

Ch. 8 Funding Status

In addition to direct training costs, the FAA will incur salary and other costs for developmental controllers before they certify. The average compensation cost of a developmental in FY 2020 is projected to be $125,703.

Figure 8.1 depicts expected annual compensation costs of developmentals, as well as the expected number of developmentals by year through 2029. As training takes one-and-a-half to three years, the chart depicts a rolling total of hires and costs from the current and previous years.

FIGURE 8.1 ESTIMATED COST OF DEVELOPMENTALS BEFORE CERTIFICATION



Appendix

2020 FACILITY STAFFING RANGES

The Appendix below presents controller staffing ranges, by facility, for En Route and Terminal air traffic control facilities for FY 2020. Additional detail on how the staffing ranges are calculated is provided in Chapter 3.

In general, the FAA strives to keep the number of CPCs and CPC-ITs near the middle of the range. While most of the work is accomplished by CPCs, work is also being performed in facilities by CPC-IT and position-qualified developmental controllers who are proficient, or checked out, in specific sectors or positions and handle work independently.

Accordingly, facilities can safely operate even with CPC staffing levels below the defined staffing range.

Conversely, a facility's total staffing levels are often above the defined staffing range because new controllers are typically hired two to three years in advance of expected attrition to allow for sufficient training time. The total expected end-of-year staffing number shown in Figure 3.1 reflects this projected advanced hiring.

Enroute

		Actual on board as of 09/28/19				Staffing range	
ID	FACILITY NAME	CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
ZAB	Albuquerque ARTCC	151	2	59	212	180	220
ZAN	Anchorage ARTCC	76	8	26	110	83	102
ZAU	Chicago ARTCC	259	22	95	376	277	338
ZBW	Boston ARTCC	165	13	45	223	178	218
ZDC	Washington ARTCC	243	16	89	348	258	315
ZDV	Denver ARTCC	217	24	25	266	231	282
ZFW	Fort Worth ARTCC	241	18	61	320	245	300
ZHU	Houston ARTCC	240	16	49	305	233	285
ZID	Indianapolis ARTCC	242	22	52	316	266	326
ZJX	Jacksonville ARTCC	205	15	38	258	235	287
ZKC	Kansas City ARTCC	187	13	61	261	208	255
ZLA	Los Angeles ARTCC	202	16	59	277	231	282
ZLC	Salt Lake City ARTCC	117	11	39	167	154	189
ZMA	Miami ARTCC	219	14	47	280	214	262
ZME	Memphis ARTCC	192	9	95	296	235	288
ZMP	Minneapolis ARTCC	222	6	58	286	216	264
ZNY	New York ARTCC	222	14	93	329	235	287

Enroute

ID	FACILITY NAME	Actual on board as of 09/28/19 CPC	CPC-IT	DEVELOPMENTAL	TOTAL	Staffing range LOW	HIGH
ZOA	Oakland ARTCC	149	5	96	250	193	236
ZOB	Cleveland ARTCC	270	23	56	349	277	338
ZSE	Seattle ARTCC	134	9	40	183	142	173
ZSU	San Juan ARTCC	43	0	30	73	47	57
ZTL	Atlanta ARTCC	280	51	58	389	308	376
ZUA	Guam ARTCC	13	1	2	16	14	17
	Enroute Total	4,289	328	1,273	5,890	4,660	5,697

Note: Facility numbers do not include new hires at the FAA Academy

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19 CPC	CPC-IT	DEVELOPMENTAL	TOTAL	Staffing range LOW	HIGH
A11	Anchorage TRACON	21	1	2	24	21	25
A80	Atlanta TRACON	80	25	1	106	92	113
A90	Boston TRACON	62	16	0	78	70	86
ABE	Allentown Tower	24	5	7	36	23	28
ABI	Abilene Tower	19	0	3	22	14	18
ABQ	Albuquerque Tower	15	5	13	33	26	31
ACK	Nantucket Tower	10	0	1	11	9	10
ACT	Waco Tower	14	6	6	26	16	20
ACY	Atlantic City Tower	19	2	8	29	18	23
ADS	Addison Tower	10	2	0	12	11	14
ADW	Andrews Tower	11	1	5	17	10	12
AFW	Alliance Tower	16	0	1	17	15	18
AGC	Allegheny Tower	12	1	3	16	12	15
AGS	Augusta Tower	11	0	7	18	13	16
ALB	Albany Tower	18	1	13	32	19	23
ALO	Waterloo Tower	10	0	5	15	10	12
AMA	Amarillo Tower	18	1	4	23	14	17
ANC	Anchorage Tower	21	5	2	28	22	26
APA	Centennial Tower	17	3	3	23	20	25
APC	Napa Tower	7	0	4	11	7	8
ARB	Ann Arbor Tower	8	0	1	9	8	10
ARR	Aurora Tower	13	0	1	14	9	11
ASE	Aspen Tower	12	0	4	16	11	13
ATL	Atlanta Tower	41	8	0	49	47	58
AUS	Austin Tower	32	13	1	46	38	46
AVL	Asheville Tower	14	3	2	19	15	18

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19				Staffing range	
		CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
AVP	Wilkes-Barre Tower	16	0	10	26	16	20
AZO	Kalamazoo Tower	37	13	8	58	49	59
BDL	Bradley Tower	16	0	3	19	12	15
BED	Hanscom Tower	14	0	2	16	12	14
BFI	Boeing Tower	17	2	4	23	17	21
BFL	Bakersfield Tower	14	0	11	25	17	21
BGM	Binghamton Tower	9	0	5	14	11	14
BGR	Bangor Tower	14	0	10	24	18	22
BHM	Birmingham Tower	20	1	10	31	24	29
BIL	Billings Tower	22	0	3	25	17	21
BIS	Bismarck Tower	7	1	5	13	10	12
BJC	Broomfield Tower	9	3	0	12	12	15
BNA	Nashville Tower	31	7	2	40	39	48
BOI	Boise Tower	26	3	1	30	29	35
BOS	Boston Tower	25	6	1	32	31	38
BPT	Beaumont Tower	6	1	4	11	9	11
BTR	Baton Rouge Tower	18	1	6	25	15	18
BTV	Burlington Tower	14	0	11	25	16	19
BUF	Buffalo Tower	27	4	9	40	25	31
BUR	Burbank Tower	19	1	3	23	16	20
BWI	Baltimore Tower	17	4	0	21	21	26
C90	Chicago TRACON	72	19	2	93	90	110
CAE	Columbia Tower	16	1	6	23	19	24
CAK	Akron-Canton Tower	16	0	3	19	14	17
CCR	Concord Tower	10	1	2	13	9	11
CDW	Caldwell Tower	7	1	5	13	10	12
CHA	Chatanooga Tower	16	1	3	20	16	20
CHS	Charleston Tower	17	6	1	24	22	27
CID	Cedar Rapids Tower	15	0	6	21	14	17
CKB	Clarksburg Tower	13	0	4	17	13	16
CLE	Cleveland Tower	32	28	4	64	37	46
CLT	Charlotte Tower	78	18	1	97	80	98
CMA	Camarillo Tower	11	0	2	13	9	11
CMH	Columbus Tower	34	9	1	44	39	48
CMI	Champaign Tower	12	0	6	18	14	17
CNO	Chino Tower	10	2	1	13	11	13
COS	Colorado Springs Tower	17	10	0	27	23	29
CPR	Casper Tower	7	0	7	14	11	13

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19				Staffing range	
		CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
CPS	Downtown Tower	12	0	0	12	9	11
CRP	Corpus Christi Tower	25	6	8	39	29	35
CRQ	Palomar Tower	10	0	2	12	10	12
CRW	Charleston Tower	17	2	5	24	16	20
CSG	Columbus Tower	9	0	1	10	7	8
CVG	Cincinnati Tower	33	6	1	40	40	48
D01	Denver TRACON	76	9	0	85	76	92
D10	Dallas - Ft Worth TRACON	76	26	2	104	87	106
D21	Detroit TRACON	37	25	1	63	49	59
DAB	Daytona Beach Tower	44	15	8	67	50	61
DAL	Dallas Love Tower	21	1	3	25	21	26
DAY	Dayton Tower	12	1	4	17	11	14
DCA	Washington National Tower	21	3	0	24	25	31
DEN	Denver Tower	31	5	1	37	38	47
DFW	DFW Tower	43	6	0	49	53	65
DLH	Duluth Tower	14	0	8	22	17	21
DPA	Dupage Tower	16	0	3	19	14	17
DSM	Des Moines Tower	17	3	6	26	18	21
DTW	Detroit Tower	27	6	1	34	29	35
DVT	Deer Valley Tower	14	1	4	19	18	22
DWH	Hooks Tower	10	2	2	14	10	12
ELM	Elmira Tower	9	1	10	20	9	11
ELP	El Paso Tower	20	2	8	30	19	24
EMT	El Monte Tower	10	1	0	11	9	11
ERI*	Erie Tower	11	0	1	12	9	11
EUG	Eugene Tower	15	6	1	22	18	22
EVV	Evansville Tower	10	2	8	20	13	15
EWR	Newark Tower	23	21	0	44	33	40
F11	Central Florida TRACON	34	14	4	52	52	64
FAI	Fairbanks Tower	18	1	9	28	17	21
FAR	Fargo Tower	15	1	5	21	17	21
FAT	Fresno Tower	22	2	5	29	21	26
FAY	Fayetteville Tower	11	1	13	25	18	22
FCM	Flying Cloud Tower	10	1	1	12	10	12
FFZ	Falcon Tower	12	0	0	12	13	16
FLL	Fort Lauderdale Tower	24	4	1	29	25	31
FLO	Florence Tower	8	1	6	15	10	12
FNT	Flint Tower	11	0	2	13	8	10

* The TRACON portion of ERI was transferred to BUF effective 11/04/18

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19				Staffing range	
		CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
FPR	St Lucie Tower	9	2	2	13	11	13
FRG	Farmingdale Tower	10	2	3	15	12	14
FSD	Sioux Falls Tower	14	1	4	19	15	18
FSM	Fort Smith Tower	26	0	6	32	23	28
FTW	Meacham Tower	16	0	0	16	16	19
FWA	Fort Wayne Tower	16	0	9	25	18	22
FXE	Fort Lauderdale Executive Tower	14	1	3	18	14	17
GCN	Grand Canyon Tower	6	0	3	9	7	9
GEG	Spokane Tower	29	3	0	32	23	29
GFK	Grand Forks Tower	21	3	1	25	18	21
GGG	Longview Tower	16	0	8	24	15	18
GPT	Gulfport Tower	15	0	5	20	13	16
GRB	Green Bay Tower	16	2	1	19	17	20
GRR	Grand Rapids Tower	13	0	1	14	10	12
GSO	Greensboro Tower	22	4	5	31	22	27
GSP	Greer Tower	21	2	4	27	18	23
GTF	Great Falls Tower	14	0	4	18	12	15
HCF	Honolulu Control Facility	62	17	12	91	77	94
HEF	Manassas Tower	9	3	2	14	9	11
HIO	Hillsboro Tower	14	1	2	17	12	15
HLN	Helena Tower	11	1	0	12	9	11
HOU	Hobby Tower	17	2	1	20	18	22
HPN	Westchester Tower	11	0	5	16	11	14
HSV	Huntsville Tower	11	0	9	20	15	18
HTS	Huntington Tower	18	0	3	21	15	19
HUF	Terre Haute /Hulman Tower	14	1	4	19	15	19
HWD	Hayward Tower	10	0	1	11	9	11
I90	Houston TRACON	74	25	0	99	85	103
IAD	Dulles Tower	23	10	1	34	26	32
IAH	Houston Intercontinental Tower	33	0	0	33	32	39
ICT	Wichita Tower	20	5	11	36	26	31
ILG	Wilmington Tower	10	1	1	12	9	11
ILM	Wilmington Tower	21	2	3	26	16	20
IND	Indianapolis Tower	27	10	9	46	38	47
ISP	Islip Tower	12	7	4	23	13	16
ITO	Hilo Tower	13	0	1	14	11	13
JAN	Jackson Tower	14	0	10	24	13	16
JAX	Jacksonville Tower	31	14	14	59	40	49

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19 CPC	CPC-IT	DEVELOPMENTAL	TOTAL	Staffing range LOW	HIGH
JCF	High Desert TRACON	18	1	4	23	21	25
JFK	Kennedy Tower	25	9	0	34	31	37
JNU	Juneau Tower	15	0	3	18	11	14
L30	Las Vegas TRACON	31	7	0	38	41	50
LAF	Lafayette Tower	8	0	3	11	8	10
LAN	Lansing Tower	14	0	1	15	11	13
LAS	Las Vegas Tower	27	8	0	35	37	45
LAX	Los Angeles Tower	37	22	0	59	43	53
LBB	Lubbock Tower	14	1	6	21	16	20
LCH	Lake Charles Tower	12	0	11	23	12	15
LEX	Lexington Tower	20	1	6	27	21	25
LFT	Lafayette Tower	19	0	4	23	15	18
LGA	La Guardia Tower	23	14	0	37	30	37
LGB	Long Beach Tower	19	4	0	23	19	23
LIT	Little Rock Tower	22	3	7	32	22	26
LNK	Lincoln Tower	10	0	3	13	9	11
LOU	Bowman Tower	11	1	2	14	9	12
LVK	Livermore Tower	11	0	0	11	10	12
M03	Memphis TRACON	24	1	3	28	27	33
M98	Minneapolis TRACON	43	13	1	57	49	60
MAF	Midland Tower	10	0	13	23	16	20
MBS	Saginaw Tower	14	0	1	15	8	10
MCI	Kansas City Tower	36	4	1	41	30	37
MCO	Orlando Tower	22	1	0	23	26	32
MDT	Harrisburg Tower	15	0	14	29	22	26
MDW	Midway Tower	18	4	1	23	20	24
MEM	Memphis Tower	21	6	2	29	22	26
MFD	Mansfield Tower	11	0	3	14	9	11
MGM	Montgomery Tower	16	2	3	21	17	21
MHT	Manchester Tower	15	0	0	15	12	14
MIA	Miami Tower	74	21	1	96	85	104
MIC	Crystal Tower	10	0	1	11	9	11
MKC	Downtown Tower	14	2	0	16	12	14
MKE	Milwaukee Tower	29	16	3	48	34	41
MKG	Muskegon Tower	10	0	3	13	8	10
MLI	Quad City Tower	14	0	7	21	13	16
MLU	Monroe Tower	13	0	2	15	11	13
MMU	Morristown Tower	10	0	3	13	9	11

Terminal

ID	FACILITY NAME	Actual on board as of 09/28/19				Staffing range	
		CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
MOB	Mobile Tower	20	1	3	24	18	21
MRI	Merrill Tower	11	1	0	12	11	13
MRY	Monterey Tower	11	0	0	11	7	9
MSN	Madison Tower	15	1	6	22	18	21
MSP	Minneapolis Tower	34	3	1	38	30	37
MSY	New Orleans Tower	27	6	3	36	32	40
MWH	Grant County Tower	10	2	8	20	12	15
MYF	Montgomery Tower	12	1	1	14	12	15
MYR	Myrtle Beach Tower	17	2	5	24	20	25
N90	New York TRACON	129	32	81	242	173	211
NCT	Northern California TRACON	125	28	1	154	156	191
NEW	Lakefront Tower	9	0	1	10	8	10
OAK	Oakland Tower	19	5	0	24	21	26
OGG	Maui Tower	13	1	1	15	11	14
OKC	Oklahoma City Tower	21	6	10	37	26	32
OMA	Eppley Tower	13	0	2	15	12	15
ONT	Ontario Tower	13	1	2	16	14	17
ORD	Chicago O'Hare Tower	50	13	1	64	63	76
ORF	Norfolk Tower	20	4	10	34	26	31
ORL	Orlando Executive Tower	12	0	1	13	10	12
P31	Pensacola TRACON	32	4	4	40	29	36
P50	Phoenix TRACON	52	9	2	63	56	68
P80	Portland TRACON	25	5	1	31	26	32
PAE	Paine Tower	10	1	0	11	10	12
PAO	Palo Alto Tower	11	0	3	14	8	10
PBI	Palm Beach Tower	35	23	5	63	44	54
PCT	Potomac TRACON	143	30	0	173	144	176
PDK	DeKalb - Peachtree Tower	15	1	1	17	13	16
PDX	Portland Tower	20	7	3	30	23	28
PHF	Patrick Henry Tower	9	1	1	11	8	9
PHL	Philadelphia Tower	58	7	1	66	71	86
PHX	Phoenix Tower	23	2	1	26	29	36
PIA	Peoria Tower	18	0	7	25	16	20
PIE	St Petersburg Tower	10	2	2	14	10	12
PIT	Pittsburgh Tower	30	17	0	47	35	42
PNE	Northeast Philadelphia Tower	10	1	3	14	9	11
PNS	Pensacola Tower	10	0	1	11	10	12
POC	Brackett Tower	10	1	0	11	9	10

Terminal

		Actual on board as of 09/28/19				Staffing range	
ID	FACILITY NAME	CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
POU	Poughkeepsie Tower	8	2	2	12	8	9
PRC	Prescott Tower	10	2	4	16	11	14
PSC	Pasco Tower	16	0	6	22	16	19
PSP	Palm Springs Tower	8	1	3	12	9	11
PTK	Pontiac Tower	8	2	1	11	10	13
PUB	Pueblo Tower	13	1	0	14	13	16
PVD	Providence Tower	22	4	9	35	24	29
PWK	Chicago Executive Tower	11	1	0	12	9	11
PWM	Portland Tower	17	0	6	23	18	22
R90	Omaha TRACON	17	3	2	22	19	23
RDG	Reading Tower	14	0	5	19	12	15
RDU	Raleigh-Durham Tower	32	10	2	44	41	50
RFD	Rockford Tower	18	2	4	24	19	23
RHV	Reid-Hillview Tower	10	0	2	12	11	13
RIC	Richmond Tower	11	3	4	18	13	15
RNO	Reno Tower	13	0	3	16	13	15
ROA	Roanoke Tower	20	1	7	28	18	23
ROC	Rochester Tower	17	1	11	29	20	25
ROW	Roswell Tower	6	0	10	16	11	14
RST	Rochester Tower	11	0	5	16	12	15
RSW	Fort Myers Tower	24	7	1	32	26	32
RVS	Riverside Tower	12	1	3	16	12	15
S46	Seattle TRACON	37	7	2	46	49	60
S56	Salt Lake City TRACON	32	3	14	49	40	48
SAN	San Diego Tower	21	5	0	26	22	27
SAT	San Antonio Tower	36	7	4	47	37	45
SAV	Savannah Tower	16	4	4	24	20	25
SBA	Santa Barbara Tower	23	0	10	33	23	28
SBN	South Bend Tower	20	1	13	34	18	23
SCK	Stockton Tower	11	0	0	11	8	10
SCT	Southern California TRACON	194	33	2	229	203	249
SDF	Standiford Tower	42	6	1	49	38	47
SDL	Scottsdale Tower	12	0	0	12	11	14
SEA	Seattle Tower	24	4	0	28	29	36
SEE	Gillespie Tower	12	2	0	14	13	16
SFB	Sanford Tower	14	2	1	17	17	20
SFO	San Francisco Tower	22	8	0	30	30	37
SGF	Springfield Tower	28	0	4	32	25	30

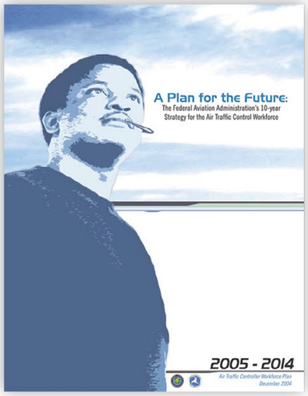
Terminal

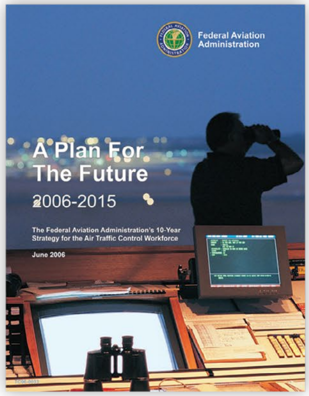
ID	FACILITY NAME	Actual on board as of 09/28/19 CPC	CPC-IT	DEVELOPMENTAL	TOTAL	Staffing range LOW	HIGH
SHV	Shreveport Tower	18	0	11	29	18	22
SJC	San Jose Tower	13	2	2	17	14	17
SJU	San Juan Tower	16	1	0	17	15	18
SLC	Salt Lake City Tower	28	2	0	30	27	33
SMF	Sacramento Tower	11	2	2	15	14	17
SMO	Santa Monica Tower	13	2	2	17	10	12
SNA	John Wayne Tower	16	5	0	21	20	25
SPI	Springfield Tower	8	1	5	14	9	12
SRQ	Sarasota Tower	13	0	1	14	12	14
STL	St Louis Tower	19	4	0	23	18	21
STP	St Paul Tower	9	2	0	11	8	10
STS	Sonoma Tower	8	0	2	10	8	9
STT	St Thomas Tower	11	0	2	13	8	10
SUS	Spirit Tower	11	0	0	11	10	12
SUX	Sioux Gateway Tower	10	2	3	15	11	13
SYR	Syracuse Tower	15	1	11	27	17	21
T75	St Louis TRACON	24	3	3	30	26	31
TEB	Teterboro Tower	15	6	1	22	21	26
TLH	Tallahassee Tower	11	2	5	18	15	19
TMB	Tamiami Tower	18	0	0	18	15	18
TOA	Torrance Tower	9	1	0	10	8	10
TOL	Toledo Tower	19	0	5	24	17	21
TPA	Tampa Tower	45	14	4	63	54	65
TRI	Tri-Cities Tower	13	2	5	20	14	17
TUL	Tulsa Tower	21	3	8	32	25	30
TUS	Tucson Tower	12	1	3	16	12	15
TVC	Traverse City Tower	9	0	3	12	8	10
TWF	Twin Falls Tower	6	0	4	10	7	9
TYS	Knoxville Tower	23	2	14	39	24	29
U90	Tucson TRACON	14	2	7	23	16	20
VGT	North Las Vegas Tower	14	0	0	14	11	13
VNY	Van Nuys Tower	22	4	0	26	17	21
VRB	Vero Beach Tower	12	1	0	13	11	14
Y90	Yankee TRACON	15	2	8	25	19	23
YIP	Willow Run Tower	15	0	0	15	10	12
YNG	Youngstown Tower	16	1	5	22	16	19
	Terminal Total	6,128	1,086	1,087	8,301	6,636	8,104

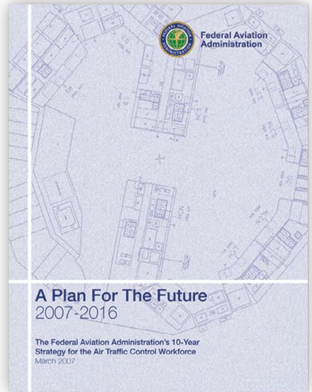
Note: Facility numbers do not include new hires at the FAA Academy

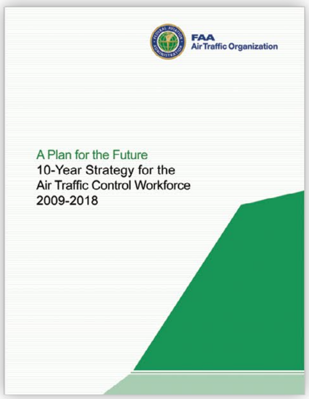
FAA Totals	Actual on board as of 09/28/19				Staffing range	
	CPC	CPC-IT	DEVELOPMENTAL	TOTAL	LOW	HIGH
En Route total	4,289	328	1,273	5,890	4,660	5,697
Terminal total	6,128	1,086	1,087	8,301	6,636	8,104
Facility total	10,417	1,414	2,360	14,191	11,296	13,801
FAA Academy Students				410		
Other*	2			2		
Total Controller Headcount	10,419	1,414	2,360	14,375		

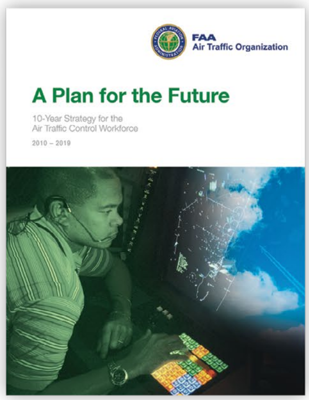
*Note: Other category indicates controllers currently counted in the FAA total controller headcount but are on temporary detail out of an FAA ATC facility. They are not counted in the facility data shown above. These controllers should return to their facilities upon completion of their details.

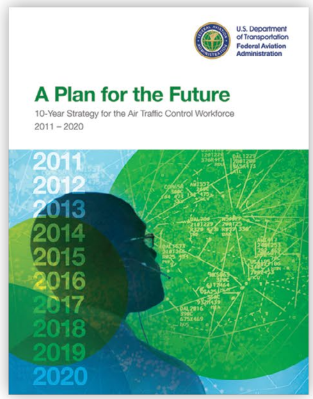


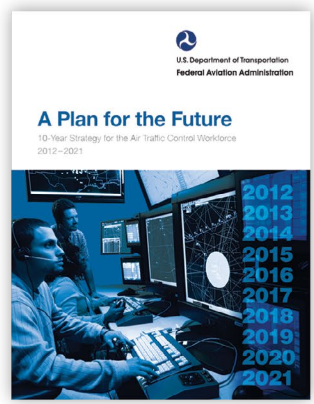


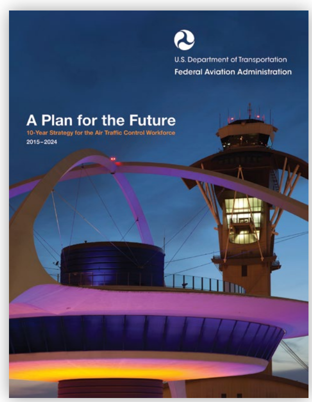


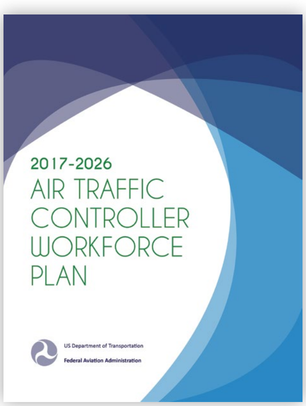


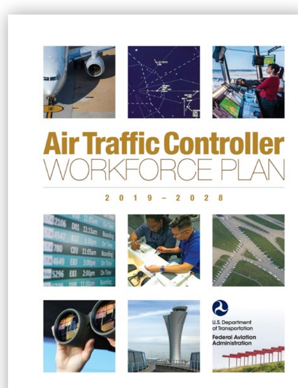












U.S. Department of Transportation

Federal Aviation Administration

800 Independence Avenue, SW
Washington, DC 20591

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