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Airline Passenger Protection Data and Issues

Updated December 3, 2019

Discussion Themes re: Airline Passenger Protection Issues

- » Operations (ex-hurricanes), customer metrics are generally improving; complaint rates are low
 - Averaged 1.32 per 100,000 passengers from 2007-2016 and fell from 2015 to 2016 to 2017 to 2018 to 2019 (1.05 YTD September)
 - Rates tend to “spike” upon extreme weather events, airport security breaches, computer outages and staffing shortages (FAA, TSA, CBP, airports, airlines), service cessations, issuance of DOT consumer rules, airline labor actions, runway or airport construction
- » “Flight Problems” (then “Baggage”) is by far the biggest category of complaints, tied heavily to misconnects, which are often a function of extreme weather or National Airspace System
- » DOT expends rulemaking energy and enforcement activity on least frequent areas of complaint
- » DOT enforcement activity emphasizes punishment/publicity, not compliance/collaboration
 - DOT has repeatedly issued NPRMs without adequate time for comment, then published final rules without adequate time to implement and without clear guidance, then seems mystified when airlines have genuine difficulty complying despite full intent to do so
 - The magnitude of DOT fines is often disproportionate to the magnitude or spirit of noncompliance
 - DOT does not triage complaints for validity – rather, it forwards all to carriers demanding explanation
- » DOT routinely overstates regulatory benefits, understates costs – relies heavily on speculation
- » DOT fails to consider unintended consequences of rules and of enforcement actions

Chronology of Events Related to the Filing of Airline Consumer Complaints

Jan-1971	Civil Aeronautics Board begins tracking consumer complaints (publishes first stats in March)
Mid-1985	DOT begins ranking “Majors and Nationals” and for the first time gives industry totals and ratio
Jan-1990	DOT begins ranking carriers that accounted for at least 1% of annual domestic scheduled service passenger revenues
Mid-1990s	DOT begins taking complaints by phone 24/7 (no longer limited to business hours)
Sep-1999	DOT begins taking complaints by email (in addition to letter and phone)
Sep-2007	DOT introduces on-line complaint form; phases out receipt of complaints via email
Apr-2010	DOT Tarmac Delay Rule takes effect (April 29)
Apr-2011	DOT publishes Enhancing Airline Passenger Protections (EAPP) II
Jan-2012	DOT requires “full fare” advertising, disclosure of bag fees on e-ticket confirmations
Apr-2012	DOT publishes guidance re: legislative requirements to post contact info on airline websites to facilitate ability to file complaints and to post DOT consumer hotline number on websites, e-ticket confirmations and airport ticket counters
Nov-2012	DOT publishes Accessible Kiosks and Websites and Stowage of Wheelchairs in Aircraft rules
Jan-2015	Spirit Airlines enters group of carriers included in DOT complaint-rate reporting
Aug-2015	DOT issues Accessibility of Airports final rule (compliance date Oct. 5, 2015)
Nov-2016	DOT publishes Enhancing Airline Passenger Protections (EAPP) III

Source: A4A and DOT

2017 Operating Environment for U.S. Airlines

Major Weather (Storms/Wind/Heat/Ice)

Jan 6-8, 10, 22-23

Feb 9, 12-13, 17

Mar 13-15

Apr 3, 5-8

May 1, 5, 22, 25

Jun 2, 14-15, 19-20

Jul 10, 12-17, 23-24

Aug 2-4, 15, 18, 26-31

Sep 1-5, 7-15

Oct 8 (wildfires/visibility)

Nov 3-5

Dec 8-9

Construction

Boston (BOS)

Los Angeles (LAX)

New York (JFK & LGA)

Seattle (SEA)

Security

FLL shooting (Jan)

LAS shooting (Oct)

SJC breach (Aug)

DAL fire alarm/evacuation (Dec)

Air Traffic Control

Critically low staffing at New York TRACON (N90)*

Construction-related fire at FAA Washington Center (Jul)

Power Outages

U.S. CBP nationwide outage and SJC ticket counters (Jan)

Sabre computer systems nationwide (Feb)

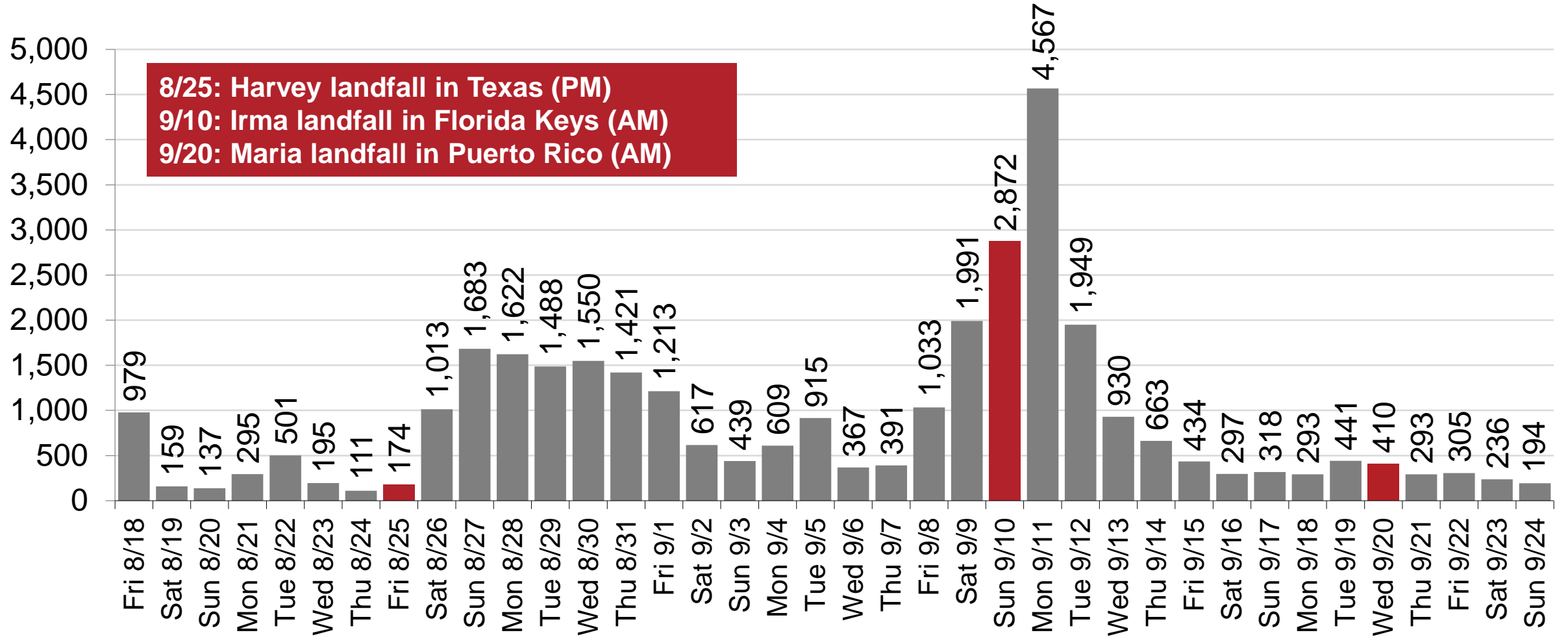
Sacramento airport (May)

Atlanta airport fire (Dec)

Hurricanes (~33,000 cancellations) – Harvey (Texas, Aug 25), Irma (Florida Keys, Sep 10), Maria (Puerto Rico, Sep 20)

Severe Hurricanes Disrupted August-September 2017 Airline Flight Operations

~33,000 Nationwide U.S. Domestic Flight Cancellations: August 18-September 24



Source: masFlight

* Includes passenger/combination and cargo-only carriers

2018 Operating Environment for U.S. Airlines

Power Outages/Airport Equipment:

Jan 1 – CBP nationwide outage; Jan 7 – JFK T4 water main break

Aug 16 – DCA loses power for more than 1 hour, affecting about two dozen flights

Sep 16 – PHX T4 multi-hour closure due to suspicious abandoned rental car

Oct 9 – law enforcement asked Frontier 1612 passengers to exit plane to handle “emotional support squirrel”

Major Weather

- Jan 3-5 (“bomb cyclone”), 7-8, 12, 16-18, 21-22
- Feb 4-5, 7, 9, 11, 15, 20
- Mar 2 (Winter Storm Riley) 7 (Quinn) 13 (Skylar) 20-22 (Toby)
- Apr 4 (Mid-Atlantic/Northeast), 14-16 (MSP/ORD/CLT/NE), 25 (NE)
- May 3 (CHI/DAL t-storms), 14-16 (CHI/mid-Atlantic/NE t-storms), 31 (SE/mid-Atlantic t-storms)
- Jun 18-20 (rainstorms and low visibility in Chicago/mid-Atlantic), 26 (CHI t-storms)
- Jul 1 (CHI storms), 15 (NYC/PHL storms), 17 (NE/mid-Atlantic), 22 (MCO), 23 (DEN), 27 (NE/mid-Atlantic)
- Aug 2-3, 7-8 (t-storms in mid-Atlantic/NE/CHI), 11 (NYC/PHL), 13-14 (mid-Atlantic/NE/DAL), 17 (NE)
- Sep 3 – flooding caused massive delays at ORD; 11-17 – Hurricane Florence (Carolinas)
- Oct 10 – Hurricane Michael battered Florida panhandle, forcing the cancellation of several hundred flights
- Nov 15-16 – snow/ice affected airports from Mid-Atlantic to NE; 25-26 snowstorm hit Chicago and Plains
- Dec 9-10 – winter storm hit North Carolina; 26-28 thunderstorms hit Dallas and Houston

Source: A4A research, FAA Air Traffic Organization and masFlight (subsidiary of Global Eagle)

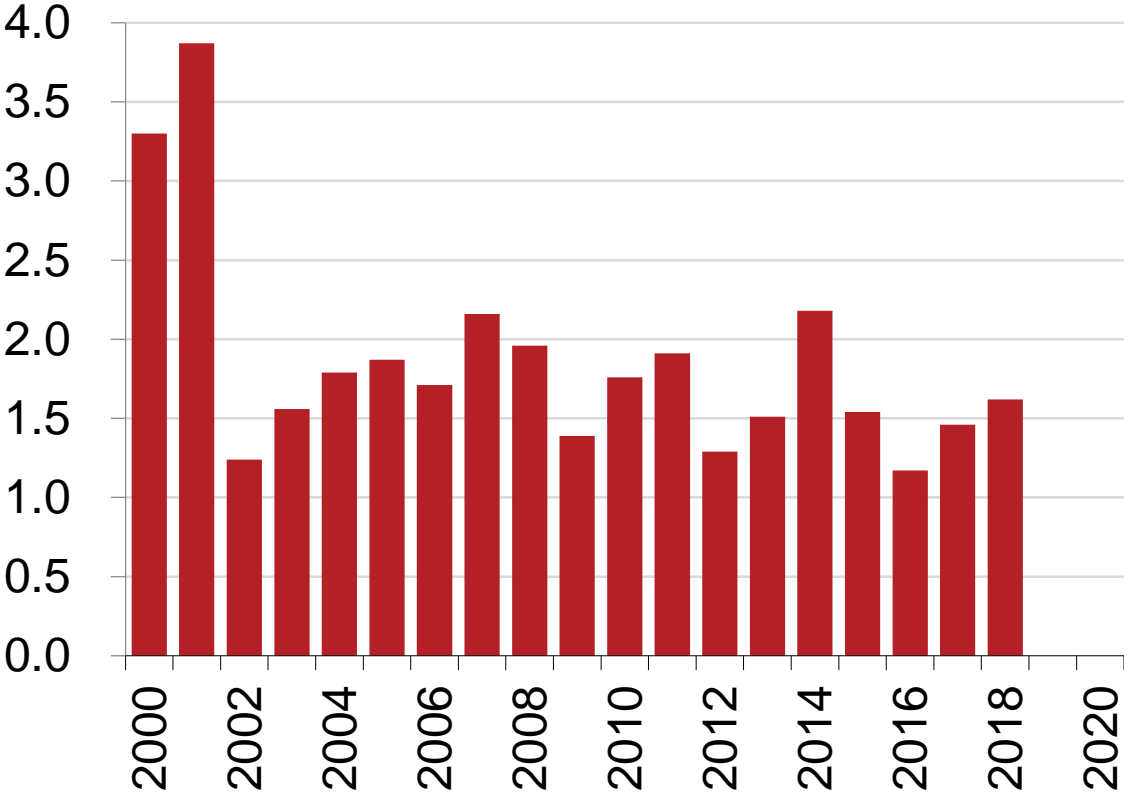
Notable January-September 2019 Operating Challenges

- Jan Drones disrupt LHR (1/8), EWR (1/22); 35-day USG shutdown (12/22-1/25); Polar Vortex (1/29-31)
- Feb Orlando MCO security incident (2/2), smoke at Dallas TRACON (2/13), major snowstorms
- Mar LAX power outage (3/5), B737 MAX grounding (3/13), Sabre IT outage (3/26), major snowstorms
- Apr AeroData outage (4/1), “bomb cyclone” (4/10-12), blizzards, Sabre outage (4/29)
- May Labor issues at AA/WN, extreme weather, outage at Sabre supplier CenturyLink (5/14)
- Jun Ongoing labor issues; LAX outage (6/5), Collins Aerospace GPS issues (6/8-9), thunderstorms
- Jul Ongoing AA labor issues; severe thunderstorms in Dallas, Northeast, Mid-Atlantic, Chicago
- Aug Ongoing AA labor issues; thunderstorms, HKG protests/cancellations (8/12), U.S. CBP outage (8/16)
- Sep French ATC failure (9/1), SFO runway closure (9/12-19), BA pilot strike (9/9-10), Imelda (IAH, 9/19)

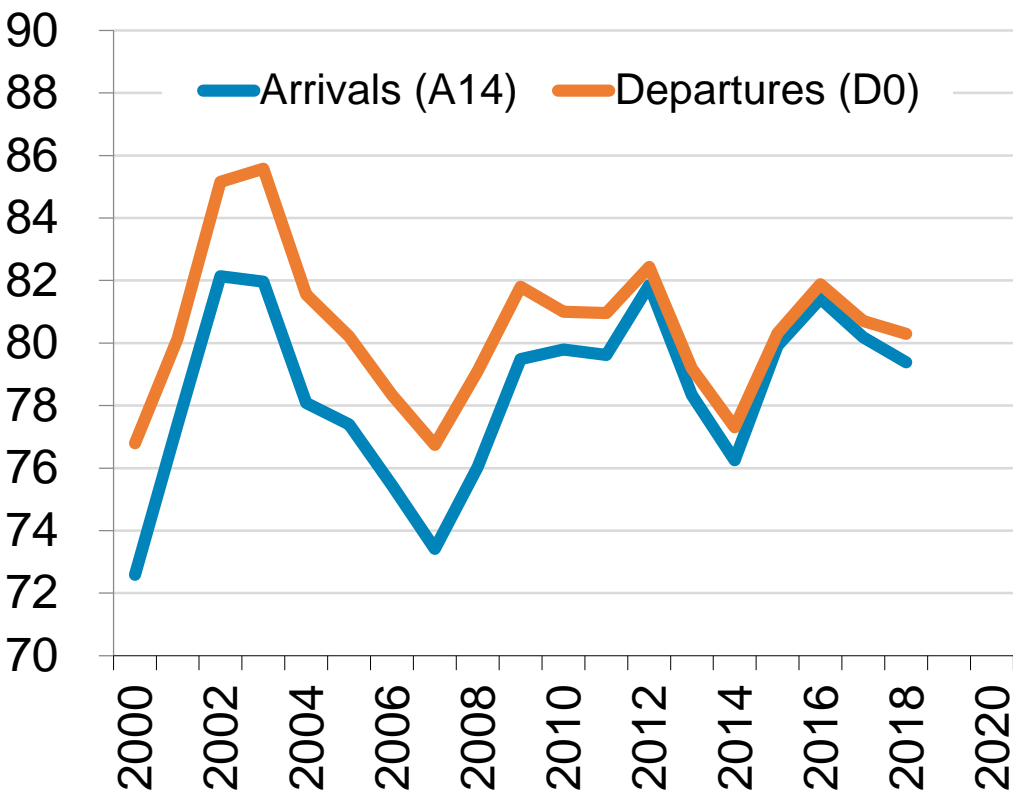
Source: A4A research, FAA Air Traffic Organization and masFlight (subsidiary of Global Eagle)

U.S. Airlines: Domestic Flight Operations Performance

Flight Cancellation Rate (%)



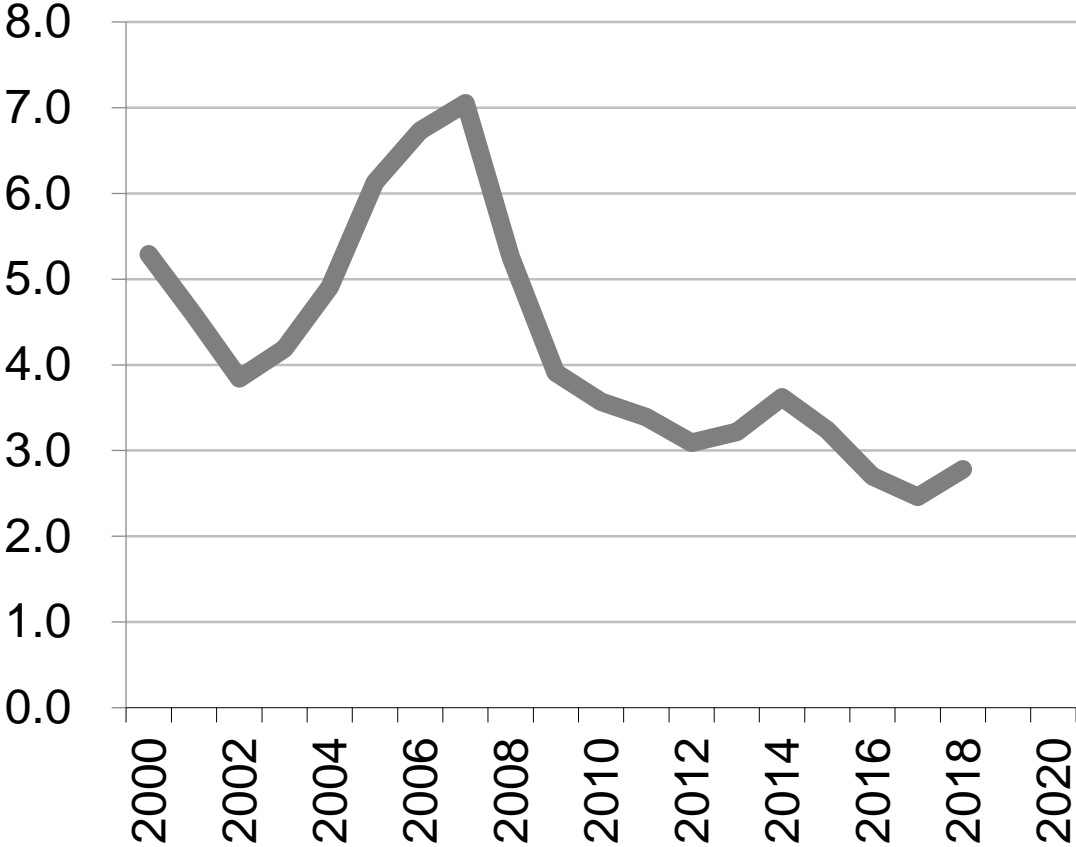
On-Time Rate (%)



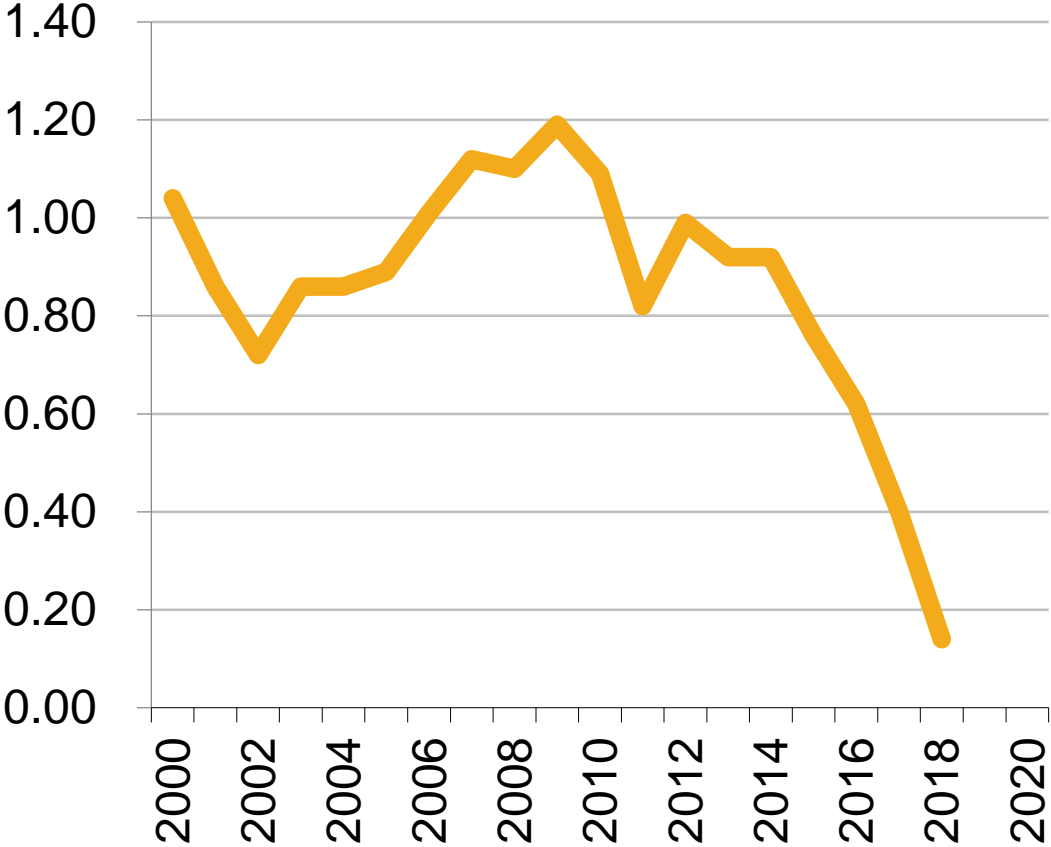
Source: Bureau of Transportation Statistics

U.S. Airlines: Domestic Customer Service Performance

Mishandled* Bag Reports per 1,000 Pax



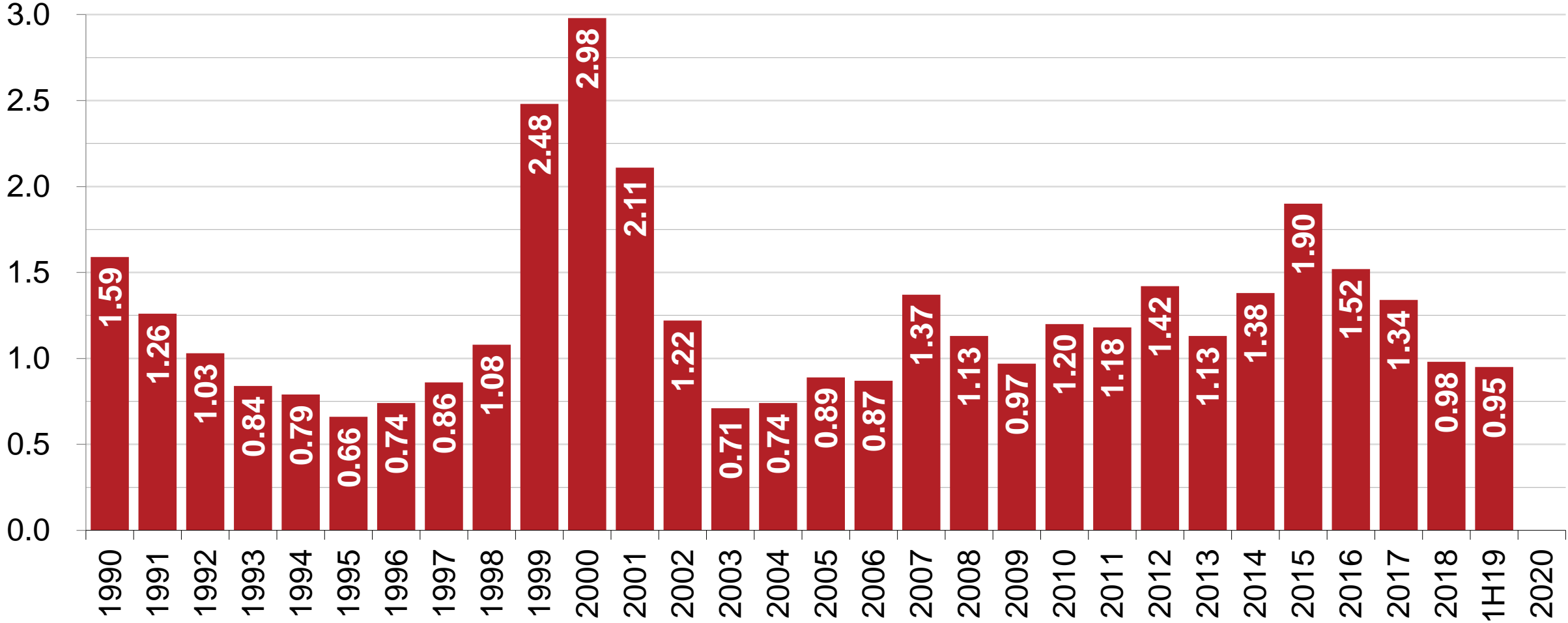
Involuntary DBs per 10,000 Pax



Source: DOT Air Travel Consumer Report (<http://www.dot.gov/airconsumer/air-travel-consumer-reports>)

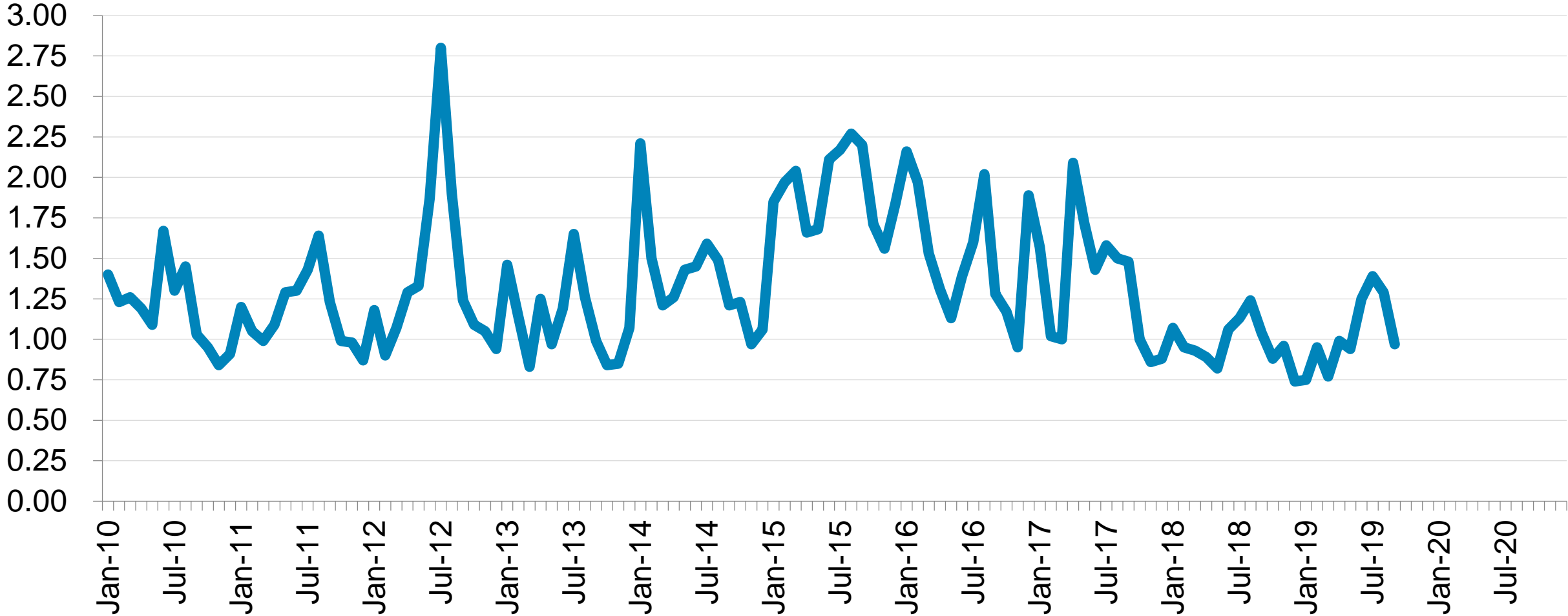
* Lost, delayed, damaged or pilfered

U.S. Airlines: Customer Complaints per 100,000 Passengers Enplaned – Annual Rates



Source: DOT Air Travel Consumer Report

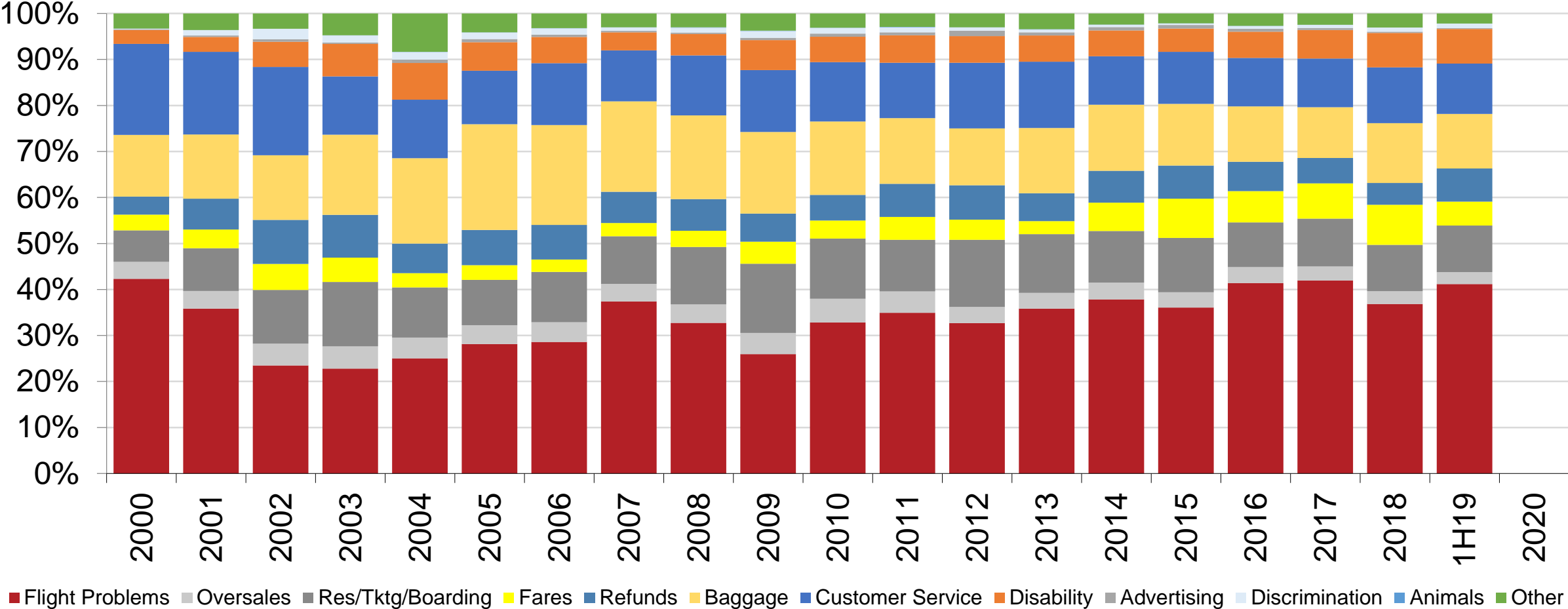
U.S. Airlines: Customer Complaints per 100,000 Passengers Enplaned – Monthly Rates



Source: DOT Aviation Consumer Protection Division

U.S. Airlines: Share of Customer Complaints (to DOT) by Category

Among the 12 Categories, Top Four Consistently Account for More Than 70 Percent of All Complaints



Source: DOT Air Travel Consumer Report

U.S. Airlines: Number of Customer Complaints (to DOT) by Category

Essentially Four Tiers of Complaint Volume, With “Flight Problems” the Clear Leader

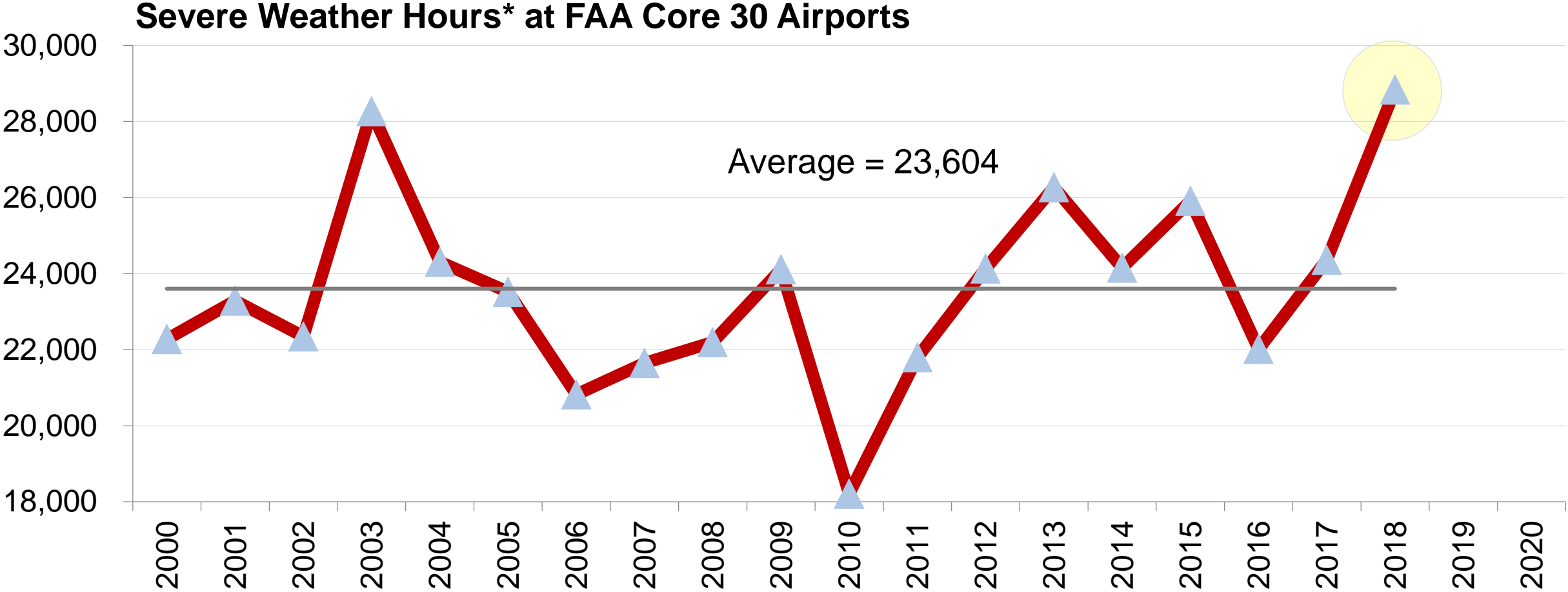
Complaint Category	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Flight Problems*	3,473	4,304	5,506	5,286	4,856	3,271
Baggage	1,372	1,628	2,050	1,536	1,277	1,156
Customer Service	1,396	1,201	1,728	1,350	1,228	1,073
Reservations/Ticketing/Boarding	1,236	1,276	1,807	1,240	1,206	895
Fares	274	699	1,300	867	887	773
Disability	551	633	771	724	715	665
Refunds	589	791	1,097	815	635	419
Oversales	329	411	509	444	350	247
Discrimination	60	60	54	81	81	80
Advertising	66	86	119	83	51	26
Animals	5	2	3	1	1	1
Other	<u>333</u>	<u>274</u>	<u>324</u>	<u>343</u>	<u>284</u>	<u>270</u>
Total	9,684	11,365	15,268	12,770	11,571	8,876

Source: DOT Air Travel Consumer Report

* Flight problems account for more than one-third of complaints and are often tied to missed connections, which are plagued by a chronically deficient ATC system

In 2018, Airlines Operating in U.S. Airspace Confronted Abundance of Severe Weather

From 2016 to 2018, Severe Weather Hours Rose 31 Percent



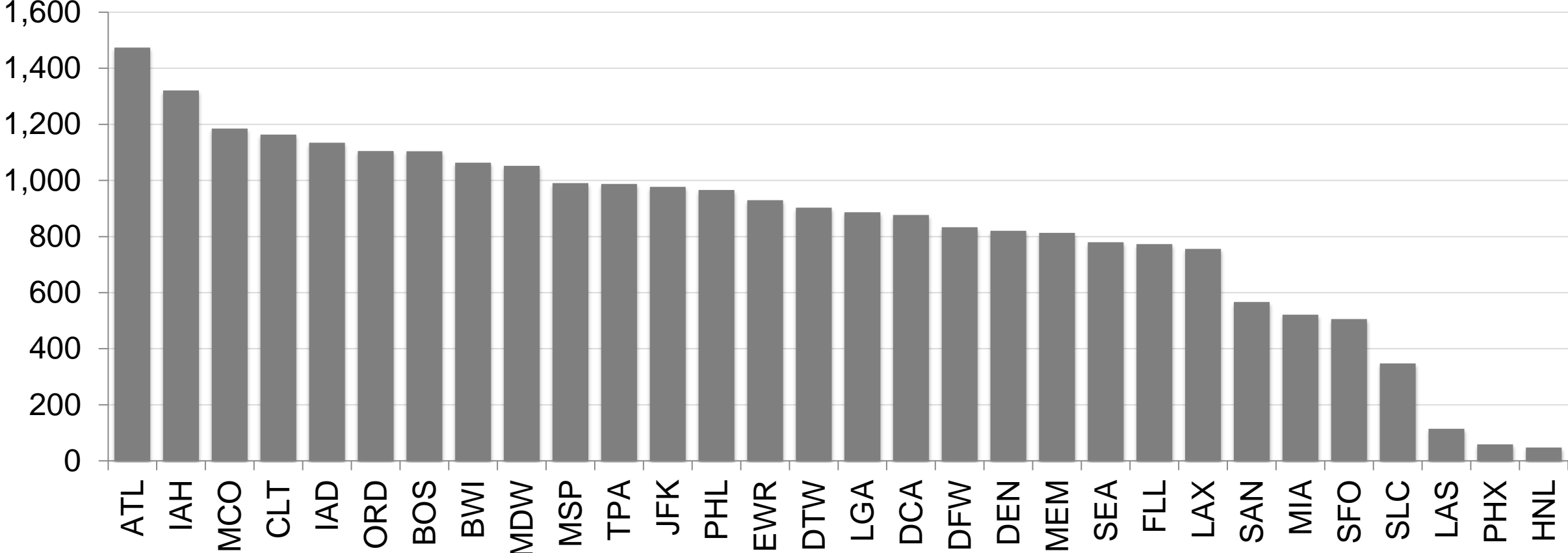
Source: FAA Air Traffic Organization

* Thunderstorms plus instrument meteorological conditions (IMC) within 50 nautical miles; does not include extreme cold/snow/ice

Southeast/Gulf of Mexico U.S. Airports Tend to Experience the Most Severe Weather

Locations in Dry or Tropical Climates Experience the Fewest

Annual Severe Weather Hours* at FAA Core 30 Airports (5-Year Average, 2014-2018)

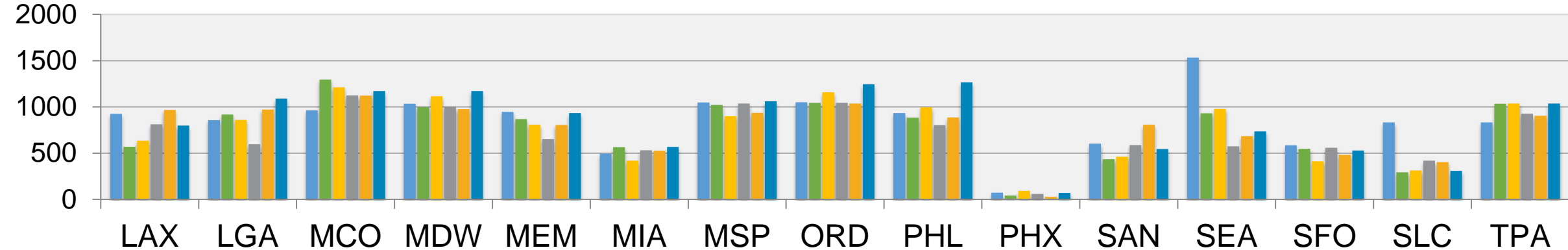
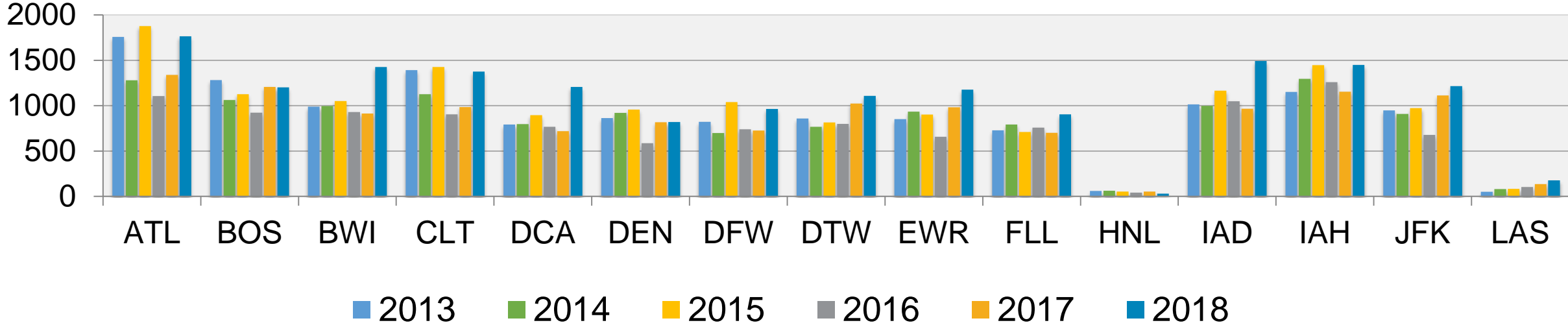


Source: FAA Air Traffic Organization

* Thunderstorms plus instrument meteorological conditions (IMC) within 50 nautical miles; does not include severe cold

From 2013-2018, Several East Coast Hubs Saw Significantly Worse Weather

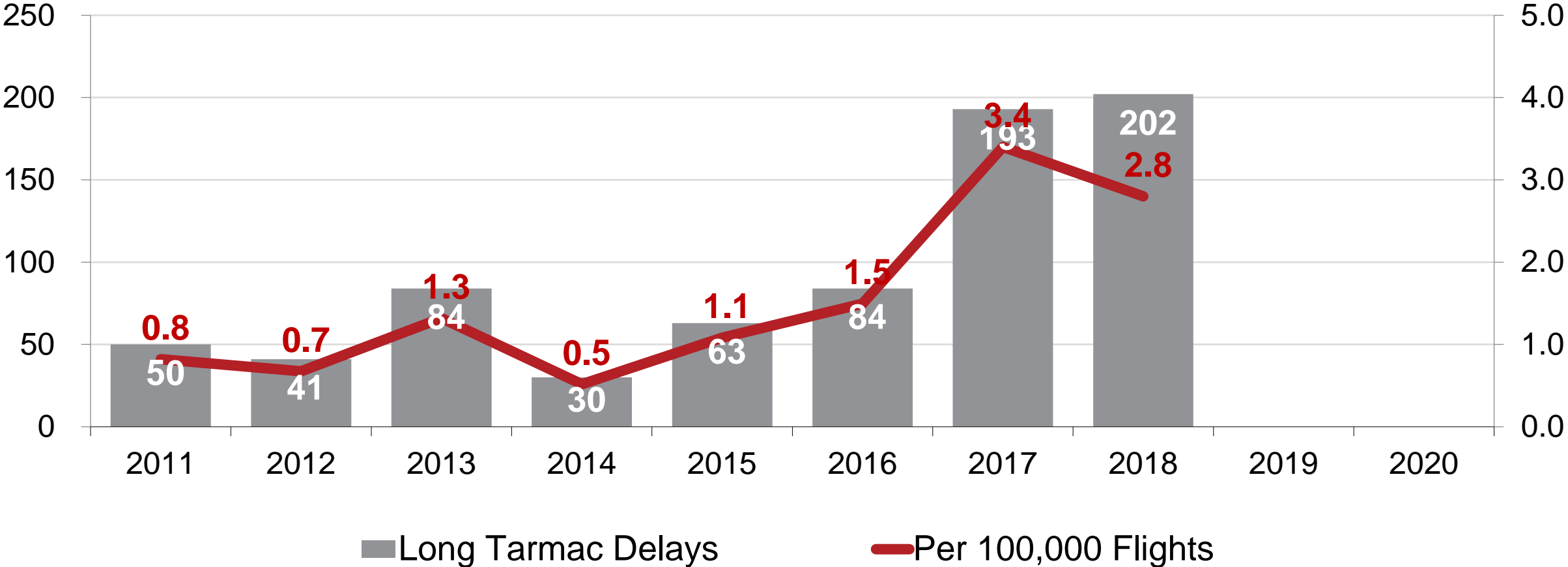
Severe Weather Hours* at FAA Core 30 Airports



Source: FAA Air Traffic Organization

* Thunderstorms plus instrument meteorological conditions (IMC) within 50 nautical miles; does not include extreme cold/snow/ice

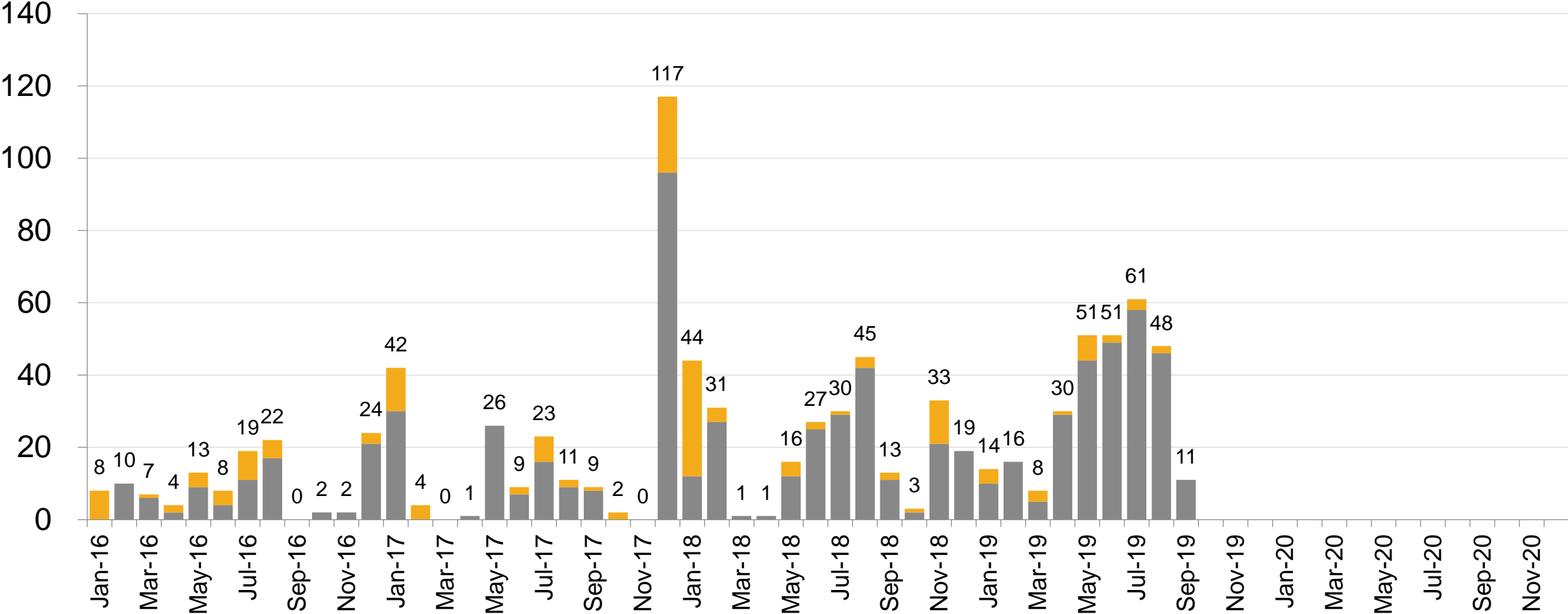
Domestic Flight Tarmac Times Exceeding Three Hours: Annual, 2011-2018*



Source: Bureau of Transportation Statistics

* DOT Tarmac Delay Rule Took Effect April 29, 2010

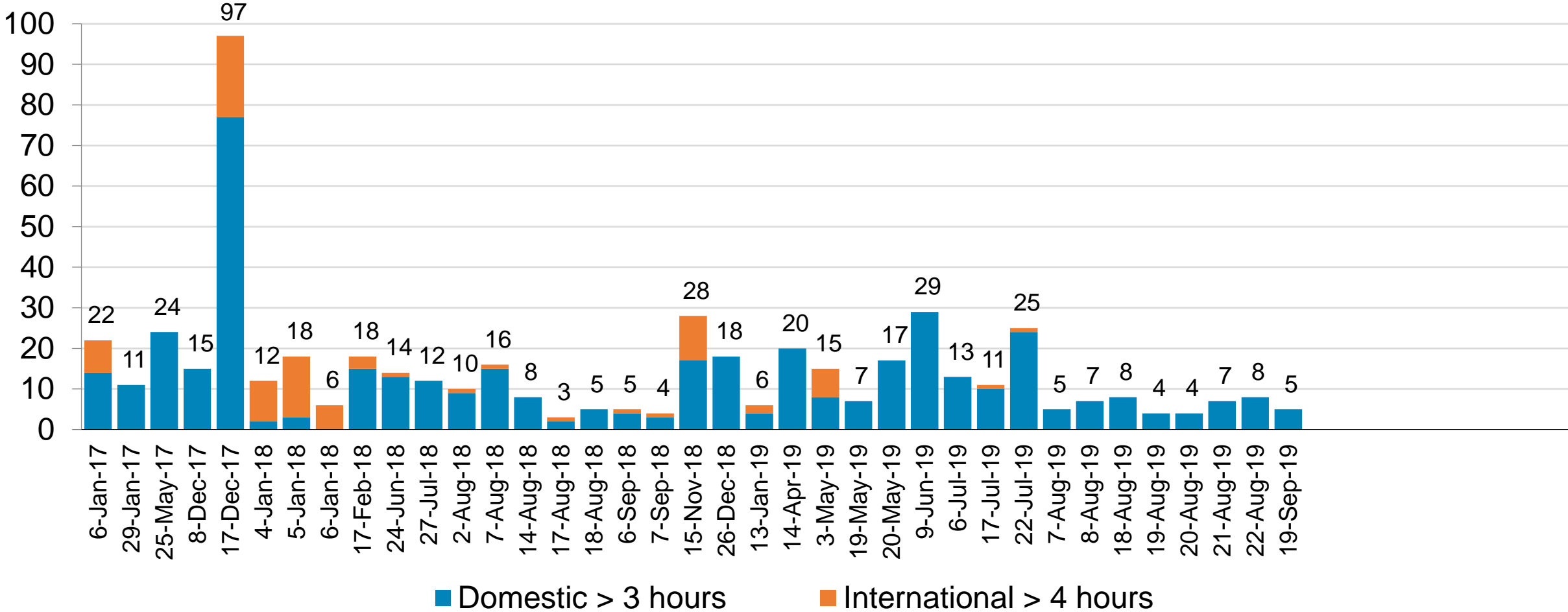
Domestic (> 3 Hrs) and International (> 4 Hrs) Long Tarmac Delays: Monthly, 2016-Present*



Source: Bureau of Transportation Statistics (<https://www.bts.gov/monthly-summary-tarmac-times>)

* DOT Tarmac Delay Rule Took Effect April 29, 2010, reporting of international LTDs commenced Aug. 2011

Days (or Clusters of Days) With Significant Numbers of Long Tarmac Delays: 2017-Present



Source: Bureau of Transportation Statistics (<https://www.bts.gov/topics/tarmac-times>)

Sample DOT Rulemaking in Which DOT Failed to Quantify Costs or Benefits

- » Executive Order 12866(1)(b)(6) requires that agencies propose or adopt a regulation **only upon a reasoned determination** that the **benefits** of the regulation justify its **costs**.
- » Nonetheless, DOT issued a proposal on Jan. 19, 2017, that would force airlines to share certain ancillary fee information with global distribution systems (GDSs).
 - This effectively substitutes government regulation for the market forces that currently shape such information-sharing (i.e., negotiation and contracting).
- » DOT states, “Due to the lack of key pieces of data, the **Department was unable to quantify the costs and the benefits of the rule** proposed in this SNPRM.” (82 FR 7554).
- » In regard to benefits, DOT states it “is **unable to quantify and monetize the likely benefits** of this SNPRM with any certainty.” (82 FR 7557).
- » Instead DOT asks the public what the benefits of its proposal may be (82 FR 7543).

Source: A4A

DOT Enforcement Policy Should Pivot From Punishment to Supporting Compliance

Too Many Fines (Examples Below) Issued to Project Tough Enforcement Image

- 9/21/10** **Order 2010-9-22.** DOT fined United \$12K for inadvertently over-reporting four flights as experiencing tarmac delays when subsequent investigation determined that passengers in fact had an opportunity to deplane prior to the three-hour mark. DOT noted critically that “United’s misreporting of this data wasted valuable Department resources, since only after the Enforcement Office initiated its investigation did it learn that United improperly filed the data. The Enforcement Office learned this only after the ACR was published and released to consumers.”
- 12/9/16** **Order 2016-12-3.** DOT fined Delta \$40K for failing to submit to DOT the written explanation of five tarmac delays. The order indicated that Delta had correctly reported the flights’ performance to BTS and none of the delays triggered fines since they fell in the safety/security/NAS exceptions.
Order 2016-12-4. DOT fined JetBlue \$40K for underpaying 12 passengers who were denied boarding because of weight/balance issues; the passengers were accommodated on the next available flight and provided travel vouchers. Upon discovery of its mistake, JetBlue issued full compensation checks to each of the 12 customers and notified DOT.
Order 2016-12-5. DOT fined Frontier \$60K for violations of the Full-Fare Advertising Rule. Frontier listed the base and the tax-inclusive fare in the same font. DOT requires the tax and fee-inclusive fare to be in a larger font.
- 6/28/17** **Order 2017-6-20.** DOT fined Delta \$120K for reporting more animals carried than the actual number of animals carried that met DOT’s definition. This was for the first time this data was ever reportable, and DOT didn’t issue guidance until very shortly before the reports were due. Those inaccurate numbers were never reported to the public.
- 7/6/17** **Order 2017-7-1.** DOT fined TAP Portugal \$100K for a long tarmac delay at Boston, where 19 other international flights (from NY-area airports) also were diverted (putting undue strain on local ground services). TAP was unable to receive ground services (after multiple requests) while it was parked in a remote location or to use one of the 8 wide-body gates (because all gates were fully utilized). TAP ultimately canceled the flight and deplaned passengers at 4 hours 26 minutes.
- 7/21/17** **Order 2017-7-8.** DOT fined Frontier \$400K for failing 1) to provide the required written notice and 2) to inform passengers that they had the right to cash compensation rather than vouchers, even though the electronic vouchers that Frontier provided exceeded by many multiples the value of DOT’s required denied-boarding compensation amount.
- 9/21/10** **Order 2010-9-22.** DOT fined United \$12K for inadvertently over-reporting four flights as experiencing tarmac delays when subsequent investigation determined that passengers in fact had an opportunity to deplane prior to the three-hour mark. DOT noted critically that “United’s misreporting of this data wasted valuable Department resources, since only after the Enforcement Office initiated its investigation did it learn that United improperly filed the data. The Enforcement Office learned this only after the ACR was published and released to consumers.”
- 9/1/17** **Order 2017-9-1.** DOT fined United \$80K for inadvertently overstating the number of animals it had transported in 2015 per 14 CFR Part 235 (reporting of incidents involving the loss, injury, or death of an animal during air transport). DOT had issued unclear animal reporting guidance for a brand new regulation with little time for review. The inaccurate data was never published (in the *Air Travel Consumer Report*) and United voluntarily disclosed the error following a self-audit.

Source: A4A research of DOT consent orders at <https://www.transportation.gov/airconsumer/enforcement-orders>

DOT Routinely Ignores Unintended Consequences of Rules, Enforcement Actions

- » Airlines have finite IT and human resources
 - Forcing them to spend money to comply with a rule can unintentionally divert/delay funds from a planned investment that might have benefited more customers and to a greater degree (i.e., website modifications when passengers of all types are increasingly going mobile) or generated additional airline revenue, which could be used to invest in the customer experience
- » Requiring airlines to provide phone-customers verbal codeshare information has:
 - Increased call times (driving up airline costs)
 - Reduced the number of flight options being mentioned on a reservation call, as most consumers have limited patience to hear boilerplate disclosures
 - Not mirrored the virtual nonexistence of consumer complaints about codeshare disclosure
- » Big rules like Long Tarmac Delay tend to treat all passengers as if they have same preferences, shown by MIT/Dartmouth to result in passengers getting to their final destination much later than if not for the tarmac rule
- » The 1,500-hour rule for airline pilot qualification and the revised FAA Flight/Duty/Rest (Part 117) final rule were not science-based, may be counterproductive to safety, result in more “flight problems” (crews timing out, disrupting passengers), and limit supply (and increase the cost) of pilots available to serve small communities

APPENDIX A

One-Time Events Impacting Airline Flight Operations and Consumer Complaints

Notable Human-Caused Flight Disruptions: 2007-Present

6/30/2007	Glasgow Airport attack
1/6/2017	Fort Lauderdale airport shooting
12/19/2018	London Gatwick drone incident
1/8/2019	London Heathrow drone incident
1/22/2019	Newark airport drone incident

Source: A4A and DOT

2010-2013

Jan/Feb-2010	EWR security breach; DCA power outage; “Snowmageddon” in DC/PA and blizzards in Northeast, Texas, Southeast
Apr-2010	DOT Tarmac Delay Rule takes effect
Jun-2010	Spirit grounds flights when pilots strike
Dec-2010	Two blizzards: one in Chicago / Great Lakes and one in Mid-Atlantic and Northeast
Jan/Feb-2011	Ice storm brings ice to South, effectively shuts down ATL; blizzard in Northeast; severe icing in Texas/Midwest; snow in NE/Great Lakes
Apr-2011	DOT publishes Enhancing Airline Passenger Protections (EAPP) II
Aug-2011	CBP staffing shortage/misallocation; Hurricane Irene besets Eastern U.S
Jan-2012	DOT requires “full fare” advertising, disclosure of bag fees on e-ticket confirmations
Mar/Apr-2012	Direct Air ceases operations, stranding thousands of passengers UA difficulty with combination of UA/CO reservation systems results in flight delays, faulty kiosks and jammed phone lines EWR security breach results in evacuation of terminal and flight delays DOT publishes guidance to post DOT consumer hotline telephone number on airline websites, e-ticket confirmations, airport ticket counters
Jun/Jul-2012	Fire at FAA Tech Center in New Jersey has ripple effect on air traffic nationwide Derecho (deadly, destructive thunderstorm) disrupts flights and causes widespread power outages Bad weather in the Northeast and in Houston
Oct/Nov-2012	Superstorm Sandy leads to thousands of cancellations/delays; UA computer issues; power outage at Burbank (BUR)
Feb/Mar-2013	Nor’easter hits PHL to BOS; snowstorm impacts Mid-Atlantic and Northeast
Apr-2013	AA computer issues; federal budget sequestration “forces” FAA to furlough controllers, for which FAA attributed 7,194 flights delays
Summer 2013	Customs and Border Protection (CBP) computer outage and chronic staffing shortage/misallocation at dozens of airports nationwide
Nov-2013	Nov. 1 – shooting at LAX causes delays and > 300 canceled flights Nov. 17 – thunderstorms, winds in Great Lakes area combine with low ceilings in Northeast, causing significant delays and 900+ cancellations Nov. 24-27 – nationwide weather system result in about 1,600 cancellations
Dec-2013	Dec. 5 – weather system brings snow/ice and low ceilings to Midwest and Northeast, resulting in ~12,000 cancellations and numerous delayed flights – DAL/CHI/MEM/PHL/NYC/BOS Dec. 14 – snow/ice/heavy rain hit Upper Midwest and Northeast causing ~1,100 cancellations

2014

Jan-2014	Polar vortexes bring extremely cold temperatures to the Midwest and East plus a series of snow and ice storms cause extensive delays Jan. 4 – FAA Flight, Duty & Rest final rule (aka Part 117) takes effect Jan. 7 – Alaska computer issues; Jan. 7-8, 21 – JetBlue cancels hundreds of flights due to weather/crews at NYC and Boston Jan. 13 – DOT Stowage of Wheelchairs in Aircraft rule takes effect, permitting airlines to strap manual folding wheelchairs to seats
Feb-2014	Feb. 13 – more than 7,500 cancellations as massive winter storm affects ATL to BOS; Feb. 18 – United computer issues
Mar-2014	March 2-4 – Winter Storm Titan brings snow/ice to Midwest and Mid-Atlantic; March 12-13 – Vulcan impacts ORD, DTW, CLE and upstate New York
Apr-2014	April 14-15 – thunderstorms, snow/ice, and wind affect airports from Texas to New York April 29-30 – ~1,900 flights canceled as severe thunderstorms moved through Texas, Southeast, and Washington-New York corridor April 30 – computer malfunction at FAA Los Angeles TRACON results in FAA issuing an hour-long ground stop for all departing flights at LAX; some incoming flights diverted to other airports; LAS, PHX and SLC were also affected by the malfunction
May-2014	May 8-16 – ~8,300 flights canceled as severe thunderstorms move through Midwest/Northeast May 13 – electrical fire at FAA Chicago TRACON halts flights for several hours and requires reroutes through large piece of airspace (one of busiest in NAS); halts flights to/from MDW and ORD and caused numerous diversions and 500+ cancellations May 15 – FAA computer system crashes as a result of aircraft transiting very high altitudes (U-2 spy plane), which caused computer to misinterpret altitude and cause memory-related overload, leading to delays and diversions in Los Angeles and Oakland
Jun-2014	CBP staffing shortage/misallocation; runway construction causes numerous delays, particularly at EWR and SFO June 5 – Frontier computer issues; June 9-13 – ~5,000 cancellations as severe thunderstorms move through Midwest/Northeast
Jul-2014	July 2-3 – 3,000+ cancellations as severe thunderstorms move through Northeast/Mid-Atlantic July 14-15 – more than 2,500 flights canceled due to storms in the Northeast and Dallas
Aug-2014	Widespread thunderstorm activity
Sep-2014	Sept. 26 – FAA contractor act of sabotage causes fire at Chicago Air Route Traffic Control Center (ZAU), requiring most aircraft to be diverted around the area controlled by the center for 17 days, through Oct. 12, driving ~6,600 cancellations affecting 462K passengers
Oct-2014	CBP staffing shortage/misallocation @ Fort Lauderdale (FLL); Oct. 1-12 – ZAU outage continued to disrupt operations through Oct. 12 Oct. 1-3 – Chicago-area capacity restricted and thunderstorms and strong winds impacted the Midwest from Texas to Illinois Oct. 13 – storms again hit the Midwest, particularly DFW and IAH; Oct. 31 – very strong winds and light snow affected the Chicago area
Nov-2014	Nov. 10 – snow, ice and wind disrupt MSP and DEN; Nov. 17-18 – snow/wind in Chicago and low ceilings, rain and strong winds in Northeast Nov. 14 – FAA communications outage at New York TRACON resulted in 123 delays Nov. 26 – winter storm hit Northeast causing low ceilings, strong winds, rain and snow
Dec-2014	Low ceilings throughout the month at SFO cause cancellations and delays Dec. 2 – power outage at BUR airport closes Terminal A security checkpoint; Dec. 3 – Frontier computer issues Dec. 9-11 – winter storm hit Northeast, low visibility hampers operations at DFW; Dec. 23 – low ceilings/visibility slowed operations at eastern airports

2015

Jan-2015	Jan. 1 – Spirit Airlines enters DOT “ranked carrier” group for complaint-rate reporting purposes Jan. 26-28 – winter storm hits the Northeast bringing blizzard-like conditions
Feb-2015	Feb. 1-3 – Winter Storm Linus hits Great Lakes and Northeast (esp. New York and Boston) Feb. 2 – Delta experiences issues with website, mobile app and airport kiosks Feb. 9 – Winter Storm Marcus hits NYC and New England; Feb. 15 – snow/ice in the Northeast Feb. 16-17 – Winter Storm Octavia brought icy conditions to Nashville, Charlotte and DC area and then continued into the Northeast Feb. 21-28 – winter storms brought snow and ice to the Rockies, Plains, South, Great Lakes and Northeast, hitting Dallas particularly hard Feb. 24 – FAA grounds Southwest flights due to failing FAA inspections
Mar-2015	LAX Runway 7R-25L construction Frontier transition from Sabre to Navitaire (New Skies) results in long waits on phone, long check-in lines at the airport and missed flights March 1-3 – Winter Storm Sparta hits Northeast; March 1-5 – Winter Storm Thor impacts DFW, CLT, Mid-Atlantic and the Northeast March 5-6 – snowy, icy conditions at LGA caused Delta aircraft to slide off the runway resulting in numerous cancellations March 20 – Winter Storm Ultima brought snow/ice to NE; March 23 – Chicago region hit with snow/ice; March 30 - JetBlue computer issues
Apr-2015	DOT: LAX Runway 7R-25L construction April 9-10 – heavy rainstorms impact Great Lakes region, especially Chicago-area airports on 9th and Northeastern airports on 10t April 20 – high winds, low ceilings/visibility cause numerous cancellations at NY-area airports April 28 – software glitch causes American Airlines flight deck iPads to malfunction
May-2015	May 10-11 – thunderstorms in Texas and Midwest drive cancellations at DFW and IAH May 18 – low ceilings and thunderstorms impact New York-area and PHL airports May 25-27 – strong thunderstorm system impacts Midwest (especially Dallas- and Houston-area) before moving into Atlanta and Northeast May 31 – thunderstorms affect airports from DC to Boston; FAA surveillance outage at Las Vegas TRACON results in 105 delays
Jun-2015	CBP staffing shortage/misallocation (BOS, IAD); LAX Runway 6L-24R construction June 1 – rain/thunderstorms affect New York, Philadelphia and Washington airports; June 2 – United computer issues June 8 – thunderstorms result in significant cancellations at ORD and Philadelphia; June 9 – scheduled CBP outage June 15-17 – thunderstorms in Great Lakes region and Northeast; heavy rain and thunder in Dallas and Houston June 22-23 – thunderstorms in the Chicago area and Philadelphia-New York corridor
Jul-2015	CBP staffing shortage/misallocation (BOS, IAD); LAX Runway 6L-24R construction; United computer issues (July 8) July 13-14 – thunderstorms in the Chicago area and Philadelphia-New York corridor; July 15 – Spirit Airlines computer issues July 30 – Eastern Seaboard thunderstorms

2015 (Cont'd)

Aug-2015	CBP staffing shortage/misallocation (BOS, IAD); LAX Runway 6L-24R construction Aug. 5 – DOT issues Accessibility of Airports final rule (compliance date Oct. 5, 2015) Aug. 10-11 – thunderstorms in the Chicago area and Philadelphia-New York corridor Aug. 15 – automation issue in FAA Washington Center (Leesburg, VA) causes flight reroutes, delays and ground stops for several hours, particularly impacting WAS-NYC traffic; flights also forced to fly at lower altitudes causing increased fuel burn and diversions Aug. 20 – thunderstorms in NYC/PHL area as well as Houston
Sep-2015	DOT: LAX Runway 6L-24R construction Sept. 8 – United computer issues Sept. 10 – thunderstorms in NYC/PHL Sept. 17 – American computer issues
Oct-2015	DOT: LAX Runway 6L-24R construction Oct. 2 – rain storm with high winds and low ceilings in the NYC and PHL areas Oct. 7 – FAA Chicago TRACON (C90) automation malfunction caused radar scopes to display multiple targets; ground stops issued Oct. 8 – automation outage at FAA Chicago TRACON resulted in 130 delays Oct. 11 – Southwest computer issues Oct. 15 – CBP outage Oct. 16 – Myrtle Beach (MYR) computer issues Oct. 23 – thunderstorms in the Dallas Oct. 24 – Frontier computer issues Oct. 28 – rain storm with high winds / low ceilings in NYC, PHL, and Washington areas Oct. 29 – Alaska computer issues Oct. 30 – flooding in Austin, TX results in closure of the FAA tower and TRACON for a day; mobile facilities were provided, allowing for severely limited service – just 8-10 arrivals and departures per hour; facilities did not resume normal services until Dec. 5
Nov-2015	LAX Runway 6R-24L construction Nov. 18-19 – strong winds affect Chicago operations, then combine with rain, wind, reduced visibility and low ceilings in NYC and PHL Nov. 21 – snow storm affects Chicago-area flights
Dec-2015	DOT: LAX Runway 6R-24L construction Dec. 14 – fog/low ceilings/rain in the NYC area and PHL Dec. 15 – snowstorm in DEN Dec. 23 – rain and low ceilings in NYC, PHL and CLT Dec. 27-29 – large storm system hits Houston and Dallas then brings snow to Chicago, resulting in numerous cancellations at MDW/ORD

2016

Jan-2016	DOT: LAX Runway 6R-24L construction Jan. 14 – JetBlue suffers power outage at Verizon data center Jan. 22-26 – Winter Storm Jonas brings snow, ice and blizzard conditions to Eastern U.S.
Feb-2016	DOT: LAX Runway 6R-24L construction Feb. 9 – Spirit Airlines computer issues Feb. 15-16 – snow-ice, wind and low ceilings affect CLT, Mid Atlantic and Northeast airports Feb. 24 – snow/ice in Chicago and strong rain/wind/thunderstorms in Mid Atlantic and Northeast
Mar-2016	TSA: excessive lines due to chronic understaffing at key airports; LAX Runway 6R-24L construction March 1 – snow/ice in Chicago affect flights at ORD and MDW March 23 – virtually all flights to/from DEN canceled due to snow/ice
Apr-2016	TSA: excessive lines due to chronic understaffing at key airports and outage @ MSP, BWI and other airports; LAX runway construction April 16-18 – storm system brings significant snow to DEN before moving into the Midwest, driving heavy rain and thunderstorms in Texas April 29 – thunderstorms in Dallas
May-2016	TSA: excessive lines due to chronic understaffing at key airports and outage at PHX (bag-screening issue; technical glitch); LAX runway May 26 – automation outage at FAA Southern California TRACON results in 109 delays May 31 – thunderstorms in Dallas and Chicago
Jun-2016	LAX Runway 6R-24L construction June 2 – thunderstorms affect Houston and Dallas; outage at FAA Grand Turk radar in Miami Center airspace results in delays and significant reroutes to aircraft proceeding north and south through Miami oceanic airspace June 12 – thunderstorms affect Houston and Dallas June 16 – thunderstorms hit airports from Washington to NYC June 21-23 – thunderstorms impact DC, Chicago, PHL and NYC airports June 28 – thunderstorms affect Houston and the NYC area airports
Jul-2016	LAX Runway 6R-24L construction July 1, 8 – thunderstorms in NY area and PHL July 13-14 – thunderstorms in Chicago and the Northeast Corridor (and again July 18 in NE) July 20-22 – Southwest Airlines computer issues July 21 – thunderstorms in Chicago and ATL July 24 – Delta and United (due to computer issues at GoJet) July 25 – thunderstorms in the Northeast and Texas July 28-31 – thunderstorms in Chicago, the Northeast, CLT, Texas

2016 (Cont'd)

Aug-2016	LAX runway construction; major construction commences at LGA – TSA begins advising passengers to arrive > 2.5 hours before departure Aug. 8-10 – Delta Air Lines computer issues Aug. 10-12 – New York/PHL thunderstorms Aug. 12 – DFW/ORD thunderstorms Aug. 15-16 – FAA communications outage at Cleveland Center results in ~624 delays Aug. 19-20 – DFW/ORD thunderstorms Aug. 21 – New York/PHL/DC thunderstorms Aug. 25 – FAA Miami Approach Control power outage results in 14 diverted aircraft and hours of delays tied to increased spacing between arrivals (30 miles as opposed to 3 miles); outage at FAA Miami Tower results in 111 delays
Sep-2016	LAX Runway 6R-24L construction Sept. 12 – FAA multi-hour power outage at EWR results in 90-minute delays; FAA communications outage results in 105 delays Sept. 19 – Frontier computer issues Sept. 21 – heavy thunderstorms in Chicago area
Oct-2016	LAX Runway 6R-24L construction; LAX Runway 7L-25R construction Oct. 6-9 – Hurricane Matthew affects operations to/from airports in Florida and the Southeast Oct. 14 – United computer issues
Nov-2016	Nov. 3 – DOT publishes Enhancing Airline Passenger Protections (EAPP) III Nov. 11 – American computer issues
Dec-2016	LAX Runway 7L-25R construction Dec. 11 – snow and ice in Chicago and Detroit Dec. 15 – strong winds at SFO and in NY (particularly affecting operations at EWR) Dec. 16-18 – strong winds/snow in DEN cause operational issues, particularly for Frontier; winter storm affects Chicago / Great Lakes region before moving into Northeast / Mid-Atlantic Dec. 18 – two power outages impact LAX Central Terminal and some surrounding areas, resulting in flight delays of 30-60 minutes

2017

Jan-2017	<p>LAX Runway 7L-25R construction</p> <p>Jan. 2 – CBP outage causes long lines and delays at airports nationwide</p> <p>Jan. 6 – shooting at FLL causes numerous aircraft to be held on tarmac, some for hours</p> <p>Jan. 6-8 – storm affects Southeastern U.S., then Mid-Atlantic and the Northeast</p> <p>Jan. 7 – power outage at SJC takes down ticket counters and airport baggage system; also results in short flight delays</p> <p>Jan. 8 – storm affects the Pacific Northwest (PDX/SEA) and northern California (SFO)</p> <p>Jan. 10 – storms with strong winds affect northern California and the Chicago area</p> <p>Jan. 22 – United computer issues; 22-23 – storms/low ceilings affect ATL, DTW, ORD, California, LAS, the Northeast</p> <p>Jan. 29 – Trump travel ban instituted for passengers from some nations; Delta computer issues</p>
Feb-2017	<p>LAX Runway 7L-25R construction</p> <p>Feb. 8 – computer issues at Sabre affect Alaska/American/Southwest; United computer issues</p> <p>Feb. 9 – winter storm affects DC-Boston corridor; winds, heavy rain hit NorCal and Pacific NW</p> <p>Feb. 12-13 – snow/ice and strong winds in the Northeast</p> <p>Feb. 17 – storm brings rain, strong winds, and low visibility to California airports</p> <p>Feb. 22 – AA computer issues curtail takeoffs from/to PHL; 23 – JBLU outage forces passengers to check in manually at FLL and NAS</p>
Mar-2017	<p>DOT: LAX Runway 7L-25R construction</p> <p>March 13-15 – winter storm takes toll on airports throughout Great Lakes and Eastern U.S.</p> <p>March 20 – system-wide outage at ExpressJet delayed flights it operates for AA/DL/UA for hours</p>
Apr-2017	<p>LAX Runway 7L-25R construction; runway construction at JFK and BOS plus higher-than-normal ATC delays</p> <p>April 3-5 – thunderstorms in ATL and CTL, impacting Delta’s crew-scheduling systems and forcing the cancellation of about 20% of its flights; wind and runway construction drive cancellations at JFK</p> <p>April 6 – strong wind and thunderstorms affect Chicago airports and much of the East Coast</p> <p>April 6-8 – Delta cancels ~25%/18%/10% of flights due in part to strong winds in ATL followed by need to recover its operation</p> <p>April 9 – ORD police forcibly eject passenger David Dao from UAX 3411 after he refused to deplane</p> <p>April 23 – American apologizes after video showing the aftermath of an employee allegedly hitting a mother with a baby stroller goes viral</p>
May-2017	<p>DOT: LAX Runway 7L-25R construction; runway construction at JFK and BOS plus higher-than-normal ATC delays</p> <p>May 1 – low ceilings/visibility in the Northeast</p> <p>May 2/4 – House and Senate hold hearings on airline customer service</p> <p>May 5 – thunderstorms in the Northeast</p> <p>May 10 – Spirit Airlines cancels flights on pilot work action; “near-riot” in terminal at FLL</p> <p>May 22/25 – low ceilings/visibility/rain in the Northeast</p> <p>May 24 – Sacramento (SMF) computer issues</p>

2017 (Cont'd)

Jun-2017	LAX Runway 7L-25R construction; runway construction at JFK and BOS plus higher-than-normal ATC delays June 2 – heavy thunderstorms in Dallas June 14-15 – thunderstorms in Chicago subsequently move into Eastern portion of the country June 19-20 – thunderstorms, strong winds in Northeast and Chicago; extreme heat in Phoenix
Jul-2017	July 7 – Airline passengers to/from JFK faced some delays when dozens of turtles decided to leave Jamaica Bay and take to the runways July 10 – Chicago thunderstorms; FAA Washington Center evacuated, disrupting flights along the east coast, including flights from BWI/IAD/DCA being halted for several hours; WaPo: “Hazmat incident at air traffic control center delays flights around the Washington region. An evacuation at...air traffic control center in Leesburg, Va. delayed hundreds of flights around the region...” July 23 – SWA computer issues @ OAK; 23-24 – thunderstorms in CLT; thunderstorms and low ceilings in the Northeast
Aug-2017	Aug. 2-4 – series of thunderstorms sweep through the Northeast and Chicago Aug. 12 – security incident at SJC prompts long lines and flight delays (departing/arriving from/to several gates) of up to two hours Aug. 14 – SWA computer glitch erases priority boarding for frequent fliers Aug. 15 – LAS flights delayed and canceled due to extreme temperatures Aug. 18 – thunderstorms affect the Northeast Aug. 21 – SkyWest network outage contributed to delay of hundreds of flights it operates for AA/AS/DL/UA as well as 62 cancellations Aug. 22 – thunderstorms the Northeast impact operations at JFK and PHL Aug. 26-31 – Hurricane Harvey hammers Houston and south Texas with rain/wind/flooding
Sep-2017	Sept. 1-5 – recovery from Hurricane Harvey in Houston area Sept. 5 – storms/strong winds in the Northeast Sept. 7-15 – Hurricane Irma affected Caribbean (especially Puerto Rico and USVI), Florida and the Southeast Sept. 8 – software system outage delayed dozens of Alaska Airlines flights across the USA Sept. 24 – more than 40 inbound flights diverted from PHX to Tucson and Mesa airports after a fire alarm in the FAA control tower was activated; the tower was evacuated as a precaution; the issue stemmed from a malfunction in an air handler that was off-gassing steam Sept 28 – network outage at Amadeus delayed Southwest flights in the US and many others overseas
Oct-2017	Oct. 1 – ground stop at LAS due to mass shooting at Mandalay Bay Resort and Casino; 24 flights diverted to PHX, SLC and other cities Oct. 8 – wildfires in Napa/Sonoma reduce visibility at SFO, resulting in numerous cancellations and extended delays
Nov-2017	Nov. 3-5 – snow, low ceilings and reduced visibility at SEA
Dec-2017	Dec. 8-9 – snowstorm forces cancellation of more than 1,000 flights in Texas, Atlanta, Charlotte; causes delays along East Coast Dec. 17-18 – Georgia Power underground electrical fire disrupts power for ~11 hours (1pm to midnight) at Atlanta (ATL), causing ~1,600 cancellations and ~750 delays (including numerous extended tarmac delays) and diversions across the system Dec. 22 – 4:30 a.m. fire alarm at Dallas Love Field forced evacuation of entire terminal and passengers had to be re-screened at security

2018

Jan-2018	Jan. 1 – CBP computer outage brings gridlock to border control checkpoints from 7:30 p.m. ET to 9:30 p.m. ET Jan. 3-5 – “Bomb cyclone” winter storm moved from the Southeast up into the Mid-Atlantic and Northeast” Jan. 7 – JFK T4 evacuated Sunday afternoon after a water main broke, causing flight delays and exacerbating other lingering storm effects Jan. 7-8 – Winter storm brought snow/freezing rain to Chicago and the Northeast Jan. 12 – Fog/rain/wind in Mid-Atlantic and Northeast Jan. 16-18 – Winter weather moved from Texas into the Southeast and Northeast Jan. 21 – Snow in Denver and low visibility in Chicago; 22 – Snow storm in MSP
Feb-2018	Feb. 4-5 – Snow/heavy rain/ice affected Chicago and Mid-Atlantic regions Feb. 7 – Snow/rain in the Northeast Feb. 9 – Snow and low visibilities in Chicago and Great Lakes area Feb. 11 – Winter weather in Chicago, Great Lakes and Northeast; Southwest Airlines deicing fluid shortage at MDW Feb. 15 – Winter weather in Chicago, Great Lakes, Rockies Feb. 17 – Winter Storm Noah “brought a quick burst of snow to the Northeast” including 3.1 inches at EWR Feb. 20 – N. Texas/Kansas thunderstorms; low ceilings/visibility at many Eastern airports; DL2165 (MCI-LAX) spends 12 hours on MCI tarmac during ice storm before crews ultimately time out
Mar-2018	Mar 2 – Winter Storm Riley became a nor’easter, affecting flight operations in the Northeast Mar 7 – Winter Storm Quinn, second nor’easter hit the Northeast Mar 13 – Winter Storm Skylar, third nor’easter hit the Northeast, particularly affecting New England airports Mar 20-22 – Winter Storm Toby, fourth nor’easter hit the Mid-Atlantic and then moved into the Northeast
Apr-2018	Apr 4 – Mid-Atlantic/Northeast impacted by low ceilings and gusting 40+ mph winds Apr 14-16 – storms in MSP/ORD and CLT, then Mid-Atlantic/Northeast Apr 17 – FAA issues ground stop (till 1:45 pm) for aircraft departing for PHL due to WN 1380 emergency landing (11:23 am) at PHL Apr 22-23 – SWA cancels about ~200 flights because of voluntary engine fan blade inspections (subsequent to WN 1380 incident) Apr 25 – rain/winds in Northeast
May-2018	May 3 – thunderstorms in Chicago and Dallas May 14-16 – thunderstorms in Chicago moved into the Mid-Atlantic and Northeast May 31 – thunderstorms in the Southeast and Mid-Atlantic
Jun-2018	June 15-20 – AA subsidiary PSA experienced issues with its crew tracking software; ~3,000 cancellations primarily affected CLT June 18-20 – rainstorms and low visibility in Chicago which moved into the Mid-Atlantic June 24 – area thunderstorms affect all NYC airports, resulting in multiple FAA ground stops June 26 – thunderstorms in Chicago June 28 – multiple ground stops at LGA due to wind/thunderstorms per FAA ATC operations plan

2018 (Cont'd)

Jul-2018	July 1 – Thunderstorm in Chicago area July 15 – Thunderstorms in NYC/PHL, windy and thunderstorms plus runway construction in DEN July 17 – Thunderstorms in the Northeast/Mid-Atlantic July 22-25 – Daily thunderstorms/ceiling/wind affecting Mid-Atlantic to Northeast July 22 – MCO thunderstorms July 23 – DEN thunderstorms July 27 – Northeast/Mid-Atlantic thunderstorms Jul 29 – no AA takeoffs nationwide for ~40 minutes due to data center outage at its main operating system and dispatch operation
Aug-2018	Aug 2-3 – Thunderstorms in Mid-Atlantic and Northeast Aug 7-8 - Thunderstorms in Mid-Atlantic, Northeast, and Chicago Aug 11 – Thunderstorms in New York/Philadelphia area; 13-14 - Thunderstorms in Mid-Atlantic, Northeast, and Dallas Aug 16 – DCA loses power around 9:45 PM, interrupting airport operations for more than an hour and affecting about two dozen flights Aug 17 – Thunderstorms in Northeast Aug 18 – DFW had ground stops due to “thunderstorms impacting arrival fixes and airport”
Sep-2018	Sep 3 – “Flooding Causes Massive Delays at O’Hare, Closes Surrounding Roads”; arrivals late by more than an hour on average, the weather canceled hundreds of flights and delayed more than a thousand others; crews worked to clean up leaks inside the terminal; “Monday’s weather cancelled nearly 500 flights here — and delayed more than 1,100” Sep 6 – NYC airports had heavy thunderstorms and winds; numerous ground stops Sep 7 – multiple ground stops and route closures at DAL/DFW/IAD/PHL due to thunderstorms Sep 11-17 – Hurricane Florence batters the Carolinas, resulting in close to 3,000 cancellations Sep 16 – portions of PHX T4 had multi-hour closure, prompted by suspicious abandoned rental car, which snarled air traffic and led to cancellation of ~30 flights (mostly WN) and delayed hundreds more Sep 25 – Delta grounds all domestic flights for ~1 hour due to a technology issue
Oct-2018	Oct 9 – Frontier 1612 (MCO-CLE) delayed ~2 hours as law enforcement asked passengers to exit plane as they contended with a passenger who insisted on traveling with her “emotional support” squirrel Oct 10 – Hurricane Michael batters Florida panhandle, forcing the cancellation of several hundred flights in the region
Nov-2018	Nov 15-16 – Snow/ice storm affected airports from Mid-Atlantic to Northeast Nov 25-26 – Snow storm hit Chicago and Plains
Dec-2018	Dec 9-10 – winter storm affected North Carolina Dec 19-21 – hundreds of flights canceled at LGW following reports of drone sightings close to the runway Dec 26-28 – thunderstorms hit Dallas/Houston

Jan-2019	<p>Jan. 5 – AS1367 from BOS-LAX waited ~2 hours on ground before takeoff, then diverted to BUF because of an electrical burning smell; 140 pax were flown back to BOS, then ultimately to LAX Sun. night</p> <p>Jan 8 – flights halted at LHR for approximately one hour due to drone sightings</p> <p>Jan 15 – Several SWA flights to/from BWI delayed due to computer network connectivity problems that “originated with a vendor that provides data streams to the airline’s phones and computers.”</p> <p>Jan 22 – FAA halted EWR arrivals for 30 minutes around 5pm after crews on two incoming flights spotted a drone at ~3,500 feet over TEB</p> <p>Jan 25 – At least four major airports (LGA/PHL/EWR/ATL) suffered flight delays because of an increase in air traffic control employees calling in sick amid the government shutdown, which ended Friday afternoon after 35 days thanks to a short-term deal. FAA listed “staffing” as the cause and had issued a “traffic management” initiative to slow down the rates of departures. FAA confirmed it had initiated procedures to adjust flights because of an increase in sick calls by controllers: “We’ve mitigated the impact by augmenting staffing, rerouting traffic, and increasing spacing between aircraft when needed. The results have been minimal impacts to efficiency while maintaining consistent levels of safety in the NAS.”</p> <p>Jan 29-31 – Polar Vortex grounds >1K flights as arctic temperatures prevent workers from loading bags and preparing planes for takeoff</p>
Feb-2019	<p>Feb 2 – more than 100 delays and 45 cancellations at MCO after TSA agent jumps off airport hotel balcony in apparent suicide</p> <p>Feb 7 – snowstorm in MSP and rain/wind in Chicago area; 10-12 – snowstorm in Midwest moved into Northeast; SEA snowstorm; 13 – wind and heavy rain affected SFO</p> <p>Feb 13 – reports of smoke in Dallas TRACON force ground stops at DFW and DAL, resulting in 28 AA diversions and 35 WN cancellations</p> <p>Feb 15 – SWA declared “operational emergency” due to unusually high number of aircraft out of service for maintenance, forcing it to cancel several hundred flights from Feb. 12-20 (approx.)</p> <p>Feb 17 – Chicago snowstorm; 20 – Chicago/Mid-Atlantic/Northeast snow impact; 21 – LAS snowstorm</p> <p>Feb 22 – SWA issued a nationwide ground stop that morning, reportedly following a technical issue with its computer systems</p> <p>Feb 24-26 – wind storm moved from Great Lakes to Northeast while another affected SFO and western region</p>
Mar-2019	<p>Mar 3-4 – Snow in the Northeast</p> <p>Mar 5 – massive lightning storm (~1,500 pulses in 5 minutes) recorded off SoCal coast forced a Delta flight (to SEA) to return to LAX and caused a brief power outage at three LAX terminals</p> <p>Mar 7 – AA removed 14 B737-800s from service after discovering an issue with overhead bins, resulting in ~40 flight cancellations</p> <p>Mar 13 – 737 MAX fleet grounded, affecting WN, AA, and UA and resulting in 100-200 cancellations per day</p> <p>Mar 13-15 – blizzard conditions shut down DEN for a day; thunderstorms in Dallas moved into Chicago/Great Lakes and Northeast</p> <p>Mar 26 – widespread Sabre system outage prevented AA/AS/B6 passengers from checking or boarding for about 30 minutes</p> <p>Mar 28 – Icelandic airline WOW Air ceases operations due to financial trouble, grounding planes and stranding passengers</p>
Apr-2019	<p>Apr 1 – several airlines experience delays and/or gate returns due to a system outage in weight and balance software AeroData</p> <p>Apr 4 – UA4390 from TYS to IAH diverted to DFW after two cockpit screens went blank mid-flight</p> <p>Apr 10-12 – “bomb cyclone” hits Rockies and Plains for second time in four weeks, dropping 2+ feet of snow from DEN to MSP</p> <p>Apr 12 – man on AA1346 from MSP-PHX touched the faces of other passengers and sprayed them with an unknown substance</p> <p>Apr 13-14 – thunderstorms hurt operations in Dallas; 14-15 – winter weather in Chicago, then moving into Northeast as rain/winds</p> <p>Apr 19 – thunderstorms and severe weather affected airports in Southeast and East Coast from FL to MA</p> <p>Apr 24 – flooding at Dallas Love Field, especially parking garages; 26 – thunderstorms hit NE/mid-Atlantic; 27 – snow in Chicago region</p> <p>Apr 28 – JetBlue 410 (SDQ-JFK) temporarily quarantined after crew members mistook mosquito bites (on a young boy) for the measles</p> <p>Apr 29 – SABRE outage hits major U.S. carriers, resolved by 2pm (lasted ~15 minutes)</p> <p>Apr 30 – thunderstorms throughout Midwest from Chicago to Dallas</p>

2019 (Cont'd)

May-2019	<p>AA appeared to experience atypically high cancellation rates on good weather days; on May 20 the airline filed court papers accusing its mechanics union of disrupting operations. SWA also experienced an unusually high number of cancellations unrelated to weather.</p> <p>May 1-2 – thunderstorms @ DAL/HOU/CHI/DC; 3 – AUS/SAT/IAH ground stops/ramp closures due to extreme weather throughout TX; multiple diversions compounded gate demand</p> <p>May 5 – ground stop in MIA due to thunderstorms; May 7-9 – Dallas, Houston thunderstorms involving multiple ground stops</p> <p>May 11 – PSA (AA) pilot arrested at gate in Louisville (SDF) on suspicion of murder in November 2015</p> <p>May 14 – global outage at Sabre supplier outage CenturyLink causes delays for multiple carriers</p> <p>May 18-21 – DAL/CHI thunderstorms moved into NE, EWR/LGA/JFK departure/arrival routes cut off on 19th due to NY-area storms</p> <p>May 20-21 – late season DEN snowstorm, with freezing temperatures, precipitation and low ceilings/visibility (1/2 mile for part of the day)</p> <p>May 23 – thunderstorms from DC to Boston; May 27-28 – Chicago-area thunderstorms moved into the Northeast (JFK storms)</p> <p>May 29-30 – thunderstorms in Dallas and then Mid-Atlantic up through the Northeast; fog/storms cause multiple diversions for LGA arrivals</p>
Jun-2019	<p>See above re: AA and SWA, continuing in June</p> <p>Jun 1 – DFW/OKC – slow-moving thunderstorms at DFW; multiple ground stops and diversions; STL – Heavy thunderstorms throughout the evening</p> <p>Jun 2 – JFK – thunderstorms surrounding the airport cut off departure routes and caused significant backups</p> <p>Jun 5 – Parts of LAX were left without light and power for about 3.5 hours Wednesday night, causing cancellations/delays/diversion</p> <p>Jun 8-9 – problems with Collins Aerospace GPS products force cancellation of hundreds of flights, especially flights on aircraft operated by US regional carriers</p> <p>Jun 8-10 – thunderstorms in CLT/ATL/DEN/Dallas then Northeast (e.g., PHL fog/ramp congestion, SWF/JFK) result in the cancellation of several hundred flights</p> <p>Jun 13 – thunderstorms affecting DC region</p> <p>Jun 13 – DL 500 (IND-CDG) diverted to DTW after passenger hit an FA in the throat and puked; DL put the other passengers up in hotels</p> <p>Jun 14 – thunderstorms affecting DEN/BFF; multiple ground stops and diversions</p> <p>Jun 15 – UA 627 (DEN-EWR) with multiple flat tires skidded off runway upon landing at EWR; all flights halted for about two hours</p> <p>Jun 16-20, 23 – IAH (t-storms with wind shear; multiple ground stops, diversions, go-arounds); t-storms in DAL/HOU/CHI/DEN; DEN/DAL/mid-Atl; NE/mid-Atl/MIA/DEN; DAL/NE/CHI; NE/mid-Atl; DAL/CHI</p> <p>Jun 17 – WN 157 (PIT-DEN) hit by a SWA provisioning truck at PIT; aircraft taken out of service for inspections and repair</p> <p>Jun 19 – thunderstorms at JFK; 23 – thunderstorms at ORD and DFW (multiple diversions and ground stops); 24 – thunderstorms in ATL/SAV, with multiple diversions and ground stops</p> <p>Jun 29 – UA 2098 (LGA-IAH) emergency landing at EWR due to hydraulic failure, results in closure of EWR runway 22L, diversions, etc.</p> <p>Jun 29-30 – thunderstorms in Northeast (incl. multiple ground stops at JFK on the 29th), then Chicago</p>
Jul-2019	<p>Particularly in first two weeks, AA continued to experience atypically high cancellation rates even on good weather days following May 20th court filing accusing its mechanics union of disrupting operations</p> <p>Jul 6 – thunderstorms in Dallas and the Northeast</p> <p>July 11 – thunderstorms in Northeast and Mid-Atlantic</p> <p>July 17-18 – thunderstorms affected the Northeast and Chicago</p> <p>July 22 – thunderstorms in the Northeast</p> <p>July 31 – thunderstorms in the Northeast</p>

2019 (Cont'd)

Aug-2019	<p>Aug 3 – UA162 (GLA-EWR) canceled as two UA pilots arrested at Glasgow Airport for allegedly failing a breath test before boarding</p> <p>Aug 7-8 – Thunderstorms in the Northeast and Mid-Atlantic</p> <p>Aug 12 – HKG canceled all flights not yet checked in as anti-government protesters peacefully demonstrated at the airport for a fourth day</p> <p>Aug 13 – network system outage caused major disruptions for Delta Air Lines travelers at DCA</p> <p>Aug 16 – CBP “temporary outage” or processing systems caused long lines at JFK/LAX/ORD/IAD/SEA/YYZ etc on one of busiest days</p> <p>Aug 16 – DL 2385 (JFK-MIA) sits on tarmac at JFK for 8 hours; crew called Port Authority Police due to passenger altercation</p> <p>Aug 18-22 – Chicago/DTW, NE thunderstorms; CLT, NE thunderstorms; Chicago, DC, NE thunderstorms; NE thunderstorms; CLT, NE , Mid-Atlantic thunderstorms</p> <p>Aug 29 – UA crew helps boy with autism – story goes viral</p> <p>Aug 30 – Dallas thunderstorms</p>
Sep-2019	<p>Runway/taxiway construction at SFO/LGA/EWR resulted in numerous GDP/GS programs</p> <p>Sep 1 – air-traffic control failure in France: “Flights across Europe grounded and delayed after catastrophic outage”</p> <p>Sep 2 – numerous passengers evacuate EWR after Alaska Airlines employee finds two men to appear suspicious and pulls the alarm</p> <p>Sep 2-6 – Hurricane Dorian impacted Florida and coastal SC/NC/VA</p> <p>Sep 3 – thunderstorms in Chicago</p> <p>Sep 7-19 – SFO Runway 28L closed for reconstruction, result in hundreds of delays and cancellations</p> <p>Sep 9-10 – British Airways forced to cancel virtually all flights after pilots went on strike for the first time in the airline's history affecting ~200,000 passengers</p> <p>Sep 18 – DL 2353, (ATL-FLL) diverts to TPA after descending from 39K feet to 10K feet in under 8 minutes; no injuries were reported</p> <p>Sep 19 – massive rains/flooding from Tropical Depression Imelda forces IAH to close ~2 hours, causing 650 canceled flights and 230 delays, with additional cancellations and delays on Sep. 20</p> <p>Sep 20 – AA 2408 (PHX-MSP) diverted to DEN about one hour after takeoff as a male passenger became unruly, punching seats, yelling at other passengers and smoking cigarettes</p> <p>Sep 23 – Thomas Cook Group (British global travel group) enters compulsory liquidation, leaving 150,000 travelers stranded worldwide</p> <p>Sep 25 – UA 1554 (WAS-SFO) diverted to Denver to assist a customer who was in the lavatory when the lavatory door became inoperative</p> <p>Sep 26 – AS 411 (JFK-LAX) diverted to MCI after a "combative, unruly passenger" threatened crew members and "threatened the safety of the aircraft”</p> <p>Sep 27 – thunderstorms in Chicago</p> <p>Sep 29 – UA 292 (DEN-MCO) had to return to Denver following a mechanical issue with an engine</p>
Oct-2019	<p>Oct 2 – GA aircraft (WWII bomber) fatal accident at Hartford (BDL) forces airport to close for ~3 hours, resulting in several delays and cancellations</p> <p>Oct 5 – Mystery woman lacking ID and boarding pass boards DL 1516 (MCO-ATL) removed from aircraft, resulting in passengers being delayed by several hours (from 10:20 am until 1:13 pm)</p> <p>Oct 7 – ticketed passenger removed from AA 1060 (MIA-EWR) by Miami-Dade Police using force after running on the jetbridge (bypassing the gate agent) and exhibiting signs of danger to others</p> <p>Oct 10 – some Boeing 737 NGs (e.g., Southwest, GOL) temporarily due to grounded after FAA-ordered inspections result in discovery of some structural cracks in the pickle fork</p> <p>Oct 24 – thunderstorms in Dallas</p> <p>Oct 29-31 – winter storm affected Denver then moved into the Midwest bringing snow and winds to Chicago; then moved to Mid-Atlantic and Northeast with strong winds and rain</p>
Nov-2019	<p>Nov 11 – Snowstorm affected Chicago and DTW</p> <p>Nov 26 – Snowstorm hurt Denver operations</p>

APPENDIX B

Causes and Costs of Flight Delays

For Any Given Flight, DOT Employs Five Categories to Capture the Primary Cause of Delay

Bureau of Transportation Statistics (BTS) Categories and Descriptions

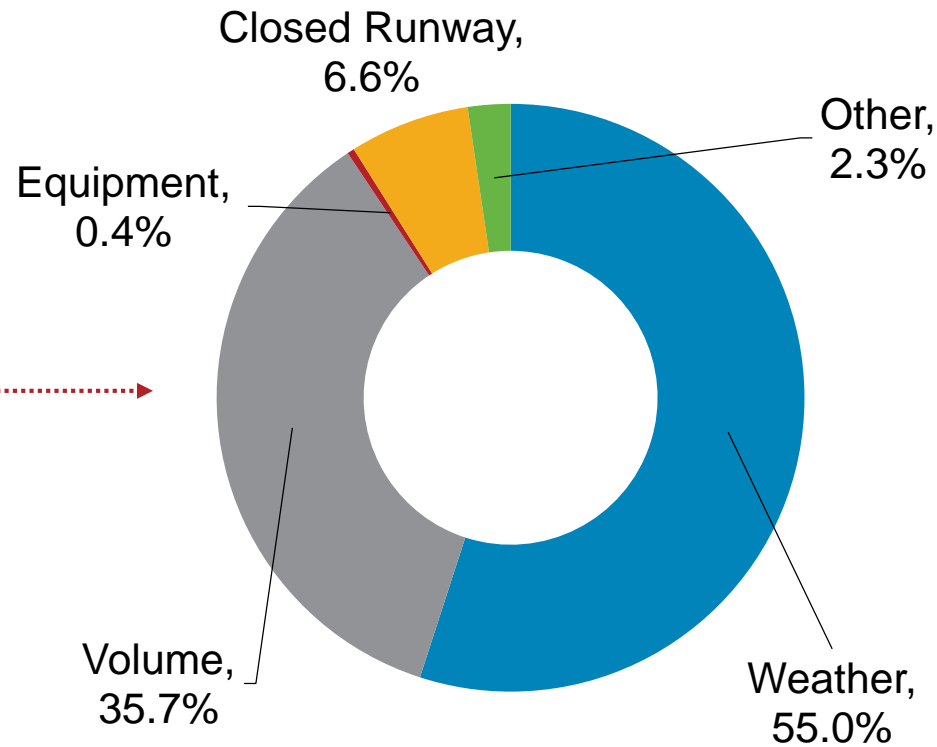
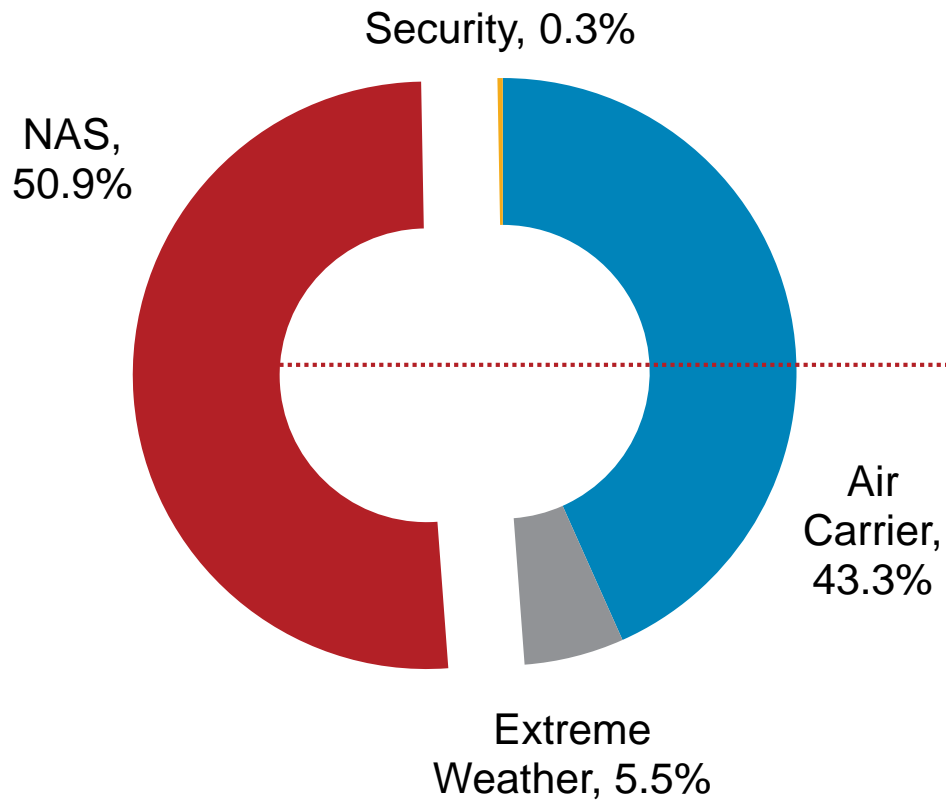
BTS Category	BTS Description
Air Carrier	Circumstances within the airline's control (e.g., maintenance/crew problems, aircraft cleaning, baggage loading, fueling).
Extreme Weather	Significant meteorological conditions (actual or forecasted) that, in the judgment of the carrier, delays or prevents the operation of a flight such as tornado, blizzard or hurricane.
National Airspace System	Non-extreme weather, airport ops, heavy traffic volume, ATC, etc.
Late-Arriving Aircraft	A previous flight with same aircraft arrived late, causing the present flight to depart late.
Security	Caused by evacuation of a terminal or concourse, re-boarding of aircraft because of security breach, inoperative screening equipment and/or long lines in excess of 29 minutes at screening areas.

Source: Bureau of Transportation Statistics

Half of 2018 U.S. Flight Delays* Were Attributable to the National Airspace System (NAS)

Share of *All* Flight Delays* by DOT Category

NAS-Caused Flight Delays by FAA Category



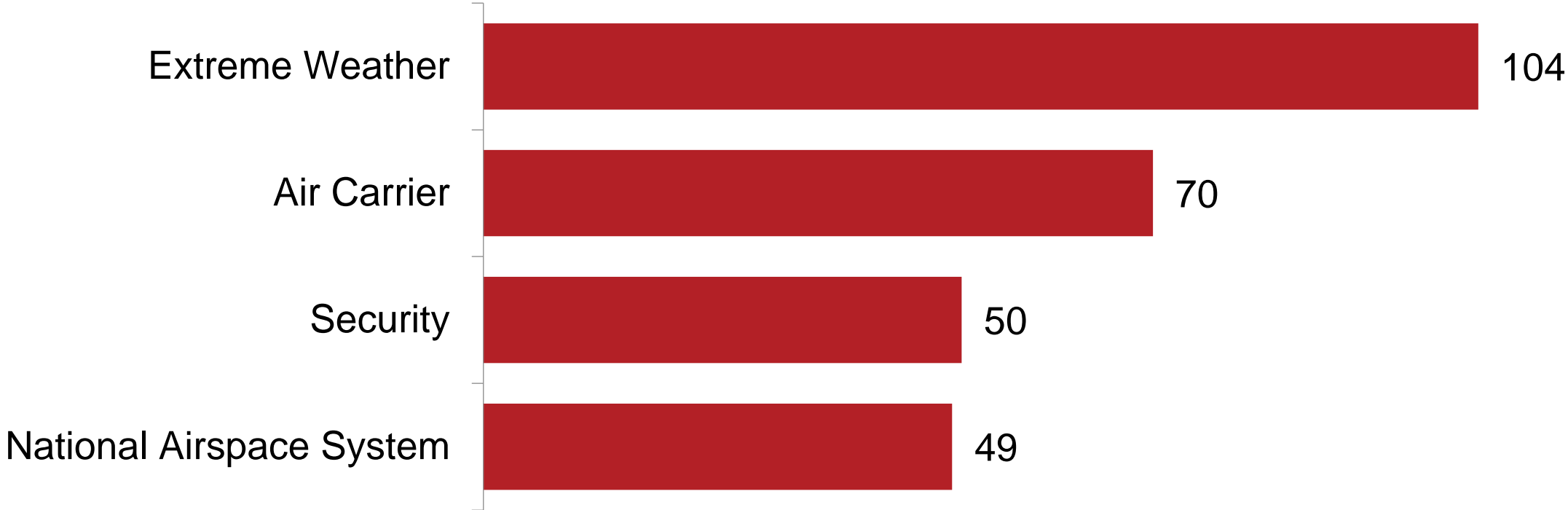
Source: A4A analysis of data from the Bureau of Transportation Statistics

* With "Aircraft Arriving Late" delays reappropriated

Flight Delays Caused by Extreme Weather Are Disproportionately Long

In 2018, Flight Delays Caused by Extreme Weather Averaged 104 Minutes

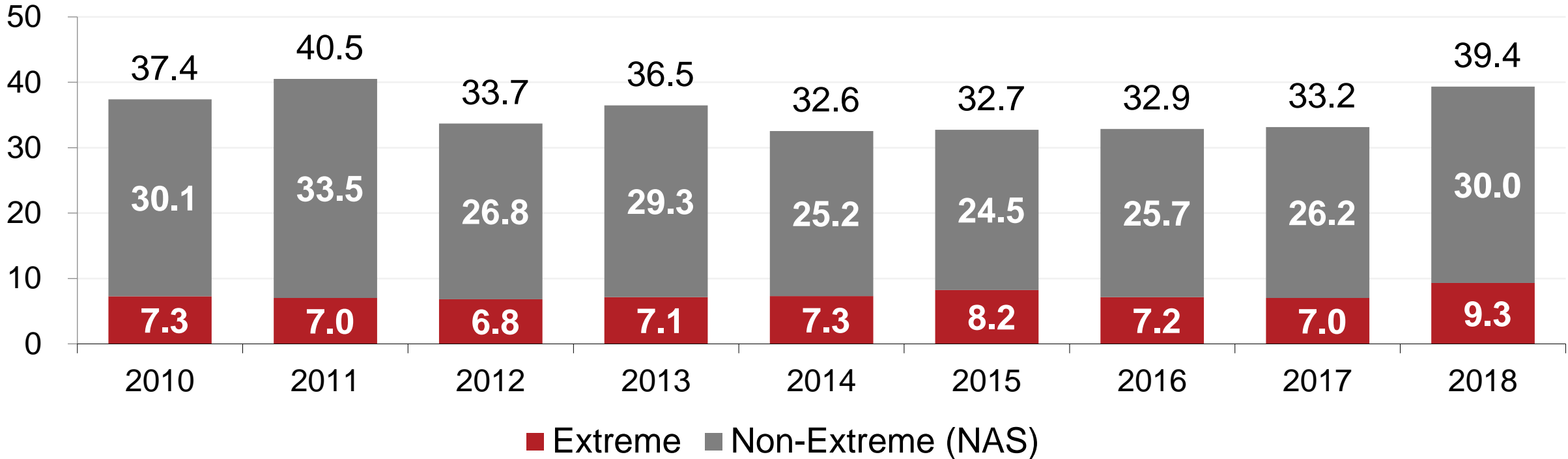
Average Duration of Flight Delay (Minutes) by DOT Category, 2018



Source: A4A analysis of data from the Bureau of Transportation Statistics

In 2018, Weather Accounted for Almost 40 Percent of U.S. Flight Delay Minutes*

Share (%) of U.S. Passenger Airline Delay Minutes Caused by Weather*



“Delays or cancellations coded ‘NAS’ are the type of weather delays that could be reduced with corrective action by the airports or the Federal Aviation Administration.”

Note: Extreme weather prevents flying; non-extreme weather slows the operations of the system but does not prevent flying (also known as NAS weather delays)
 Source: A4A calcs and Bureau of Transportation Statistics (<https://www.bts.gov/topics/airlines-and-airports/understanding-reporting-causes-flight-delays-and-cancellations>) * With “Aircraft Arriving Late” delays reapportioned

According to FAA, Flight Delays Cost the USA an Estimated \$28B in 2018

More Than Half of Delay Costs Attributed to Passenger Value of Time

2018 U.S. Flight Delay Costs (\$Billions)



(1) Increased expenses for crew, fuel, maintenance, etc. (2) Time lost due to schedule buffer, delayed flights, flight cancellations, missed connections. (3) Estimated welfare loss incurred by passengers who avoid air travel as the result of delays. (4) Increased cost of doing business for other sectors, making associated business less productive.

Source: FAA Air Traffic Organization update to "Total Delay Impact Study: A Comprehensive Assessment of the Costs and Impacts of Flight Delay in the United States"



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