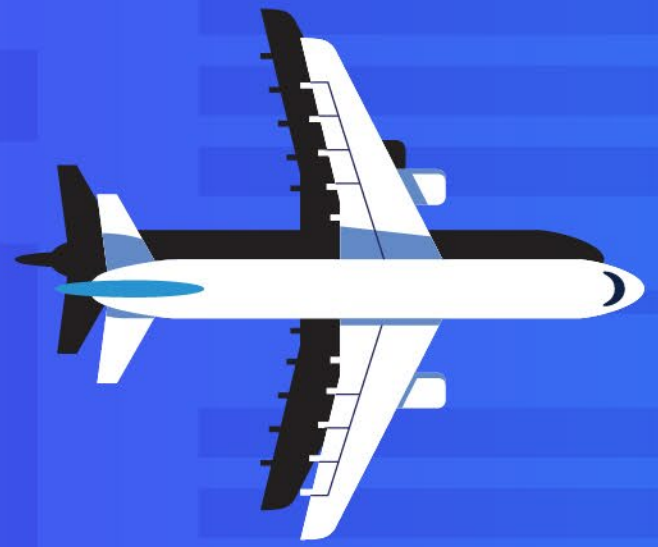
JOURNEY WITH AUS

Traffic Planning Taking Flight!



April 9, 2026

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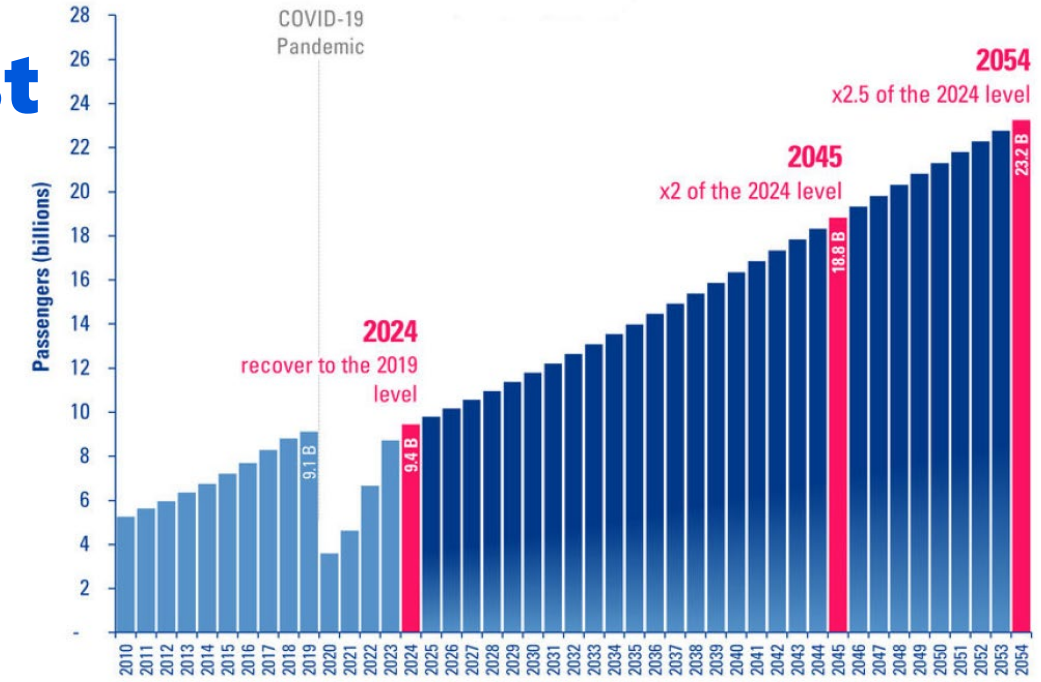
Austin

Austin-Bergstrom International Airport

Global Passenger Traffic Forecast

ACI World Airport Traffic Report 2025



Passenger Growth is based on:

- Increasing global population
- Stronger global economies and rising incomes
- Growth in urbanization and demographic changes
- Growth in tourism and leisure travel
- Increasing Affordability by Ultra Low-Cost Carriers
  Example: Spirit, Frontier, Ryan Air, AirAsia, etc.

AUS and The City of Austin's Growth:

- Fastest-growing metro area in US (Central Texas)
- Strong Tourism & Event Demand
- Regional Economic Growth (such as Tech)
- New airline routes and carriers (20+ Routes Added Within Past Year)

British Airways | Delta Airlines | Southwest Airlines | JetBlue | Frontier Airlines | Cayman Airways

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Translating to AUS: Record High Passenger Levels

Airbus A320 (157 seats)

Equivalent to going from A WN 737 to an Airbus A320

Boeing 737 (122 seats)

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AUS – Growth and Current Reality

Passenger Volume: Holidays & Special Events

Rapid passenger growth post-pandemic

- In 2025: 21.7 million passengers served
- October 2025: Busiest month ever for total passengers - 2,086,037

Current Reality at AUS

- Infrastructure and space is over capacity
- Passenger experience will be negatively impacted
- AUS employees maintaining service as best as possible

30,000+
departing passengers on a Normal Day

35,000 – 40,000
departing passengers during Holidays/Special events

45,000+
departing passengers the day after 2025 Formula 1

8 out of the Top 10
busiest days in AUS history occurred in 2024 & 2025

> **“AUS is now classified as a large-hub airport”**

Program Overview

Journey With AUS projects are developed through a five–phase process:

Traffic Planning for Airports

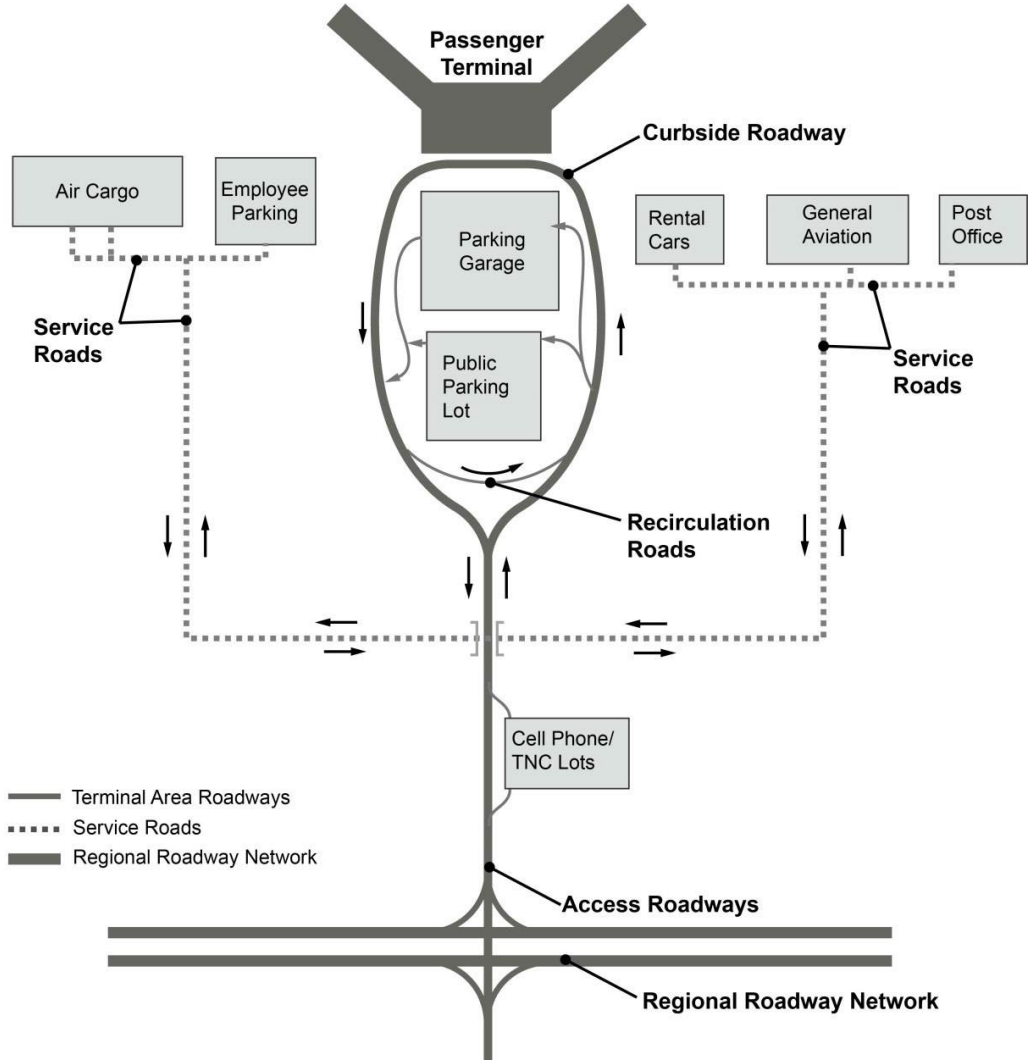
FAA Advisory Circular 150-5360-13A

Airport Terminal Planning: Roadways

"Planning and operation of airport roadways differs dramatically from planning and operation of regional roadways" *–FAA Advisory Circular*

Functions	Regional Roadways	Airport Roadways
Traffic Planning	Mostly based on land-use	Based on flight activity; Peaks are much sharper/frequent
Driver Behavior	Typically drives on same roadway many times a week; familiarity	Aggressive, stressful, and unfamiliar with roadways
Decision Points	Familiarity; mostly predictable	Rapid decision making and short-weaving distances
Signage	Consistent TMUTCD	Complex; unique to Airport Wayfinding

Especially for **large-hub** airports



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Traffic Planning for Airports

ACRP Report 40 & 266: Airport Curbside and Terminal Area Roadway Operations

2 Methods for Airport Traffic Planning:

Method 1: Volume and Mode Choice

- Forecast projected by each land use + forecasted passenger volumes **(Design Day Flight Schedule)**
- Requires a large amount of input to calculate

Method 2: Peak Hour

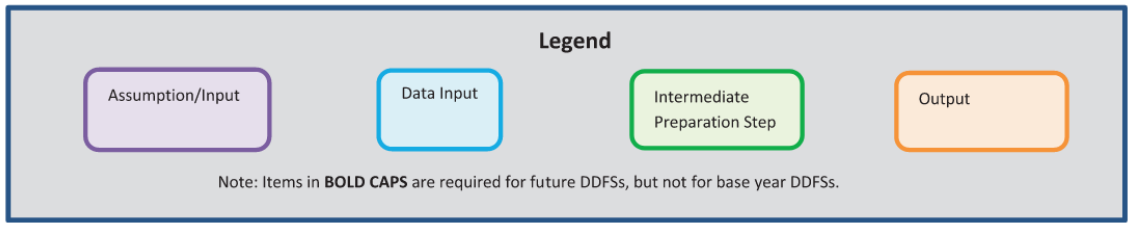
- Increase the existing peak hour traffic volumes by utilizing direct proportion to the forecast growth of design hour airline passengers and other indices of growth
- Extrapolation method

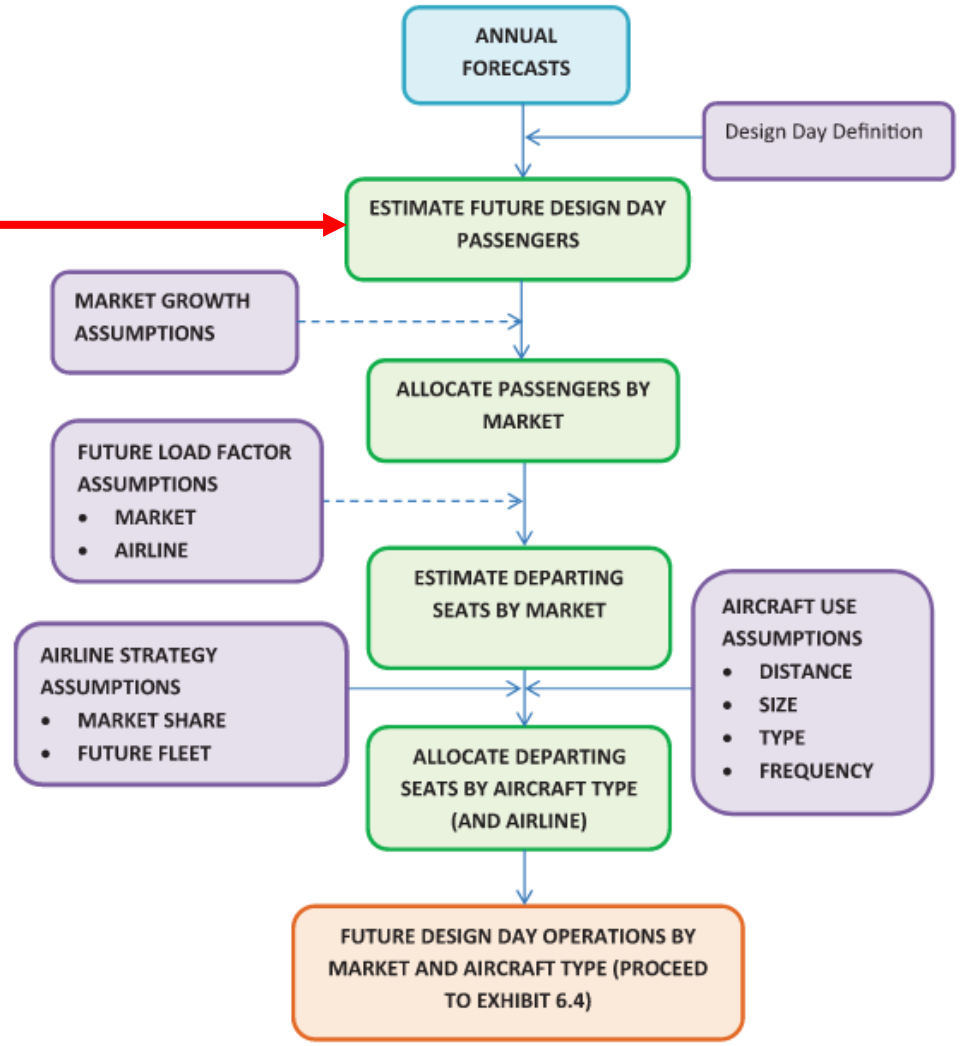
For long-term projections and airport expansions

The Design Day Forecasts (DDFS)

ACRP 163 – Guidebook for Preparing and Using Airport DDFS

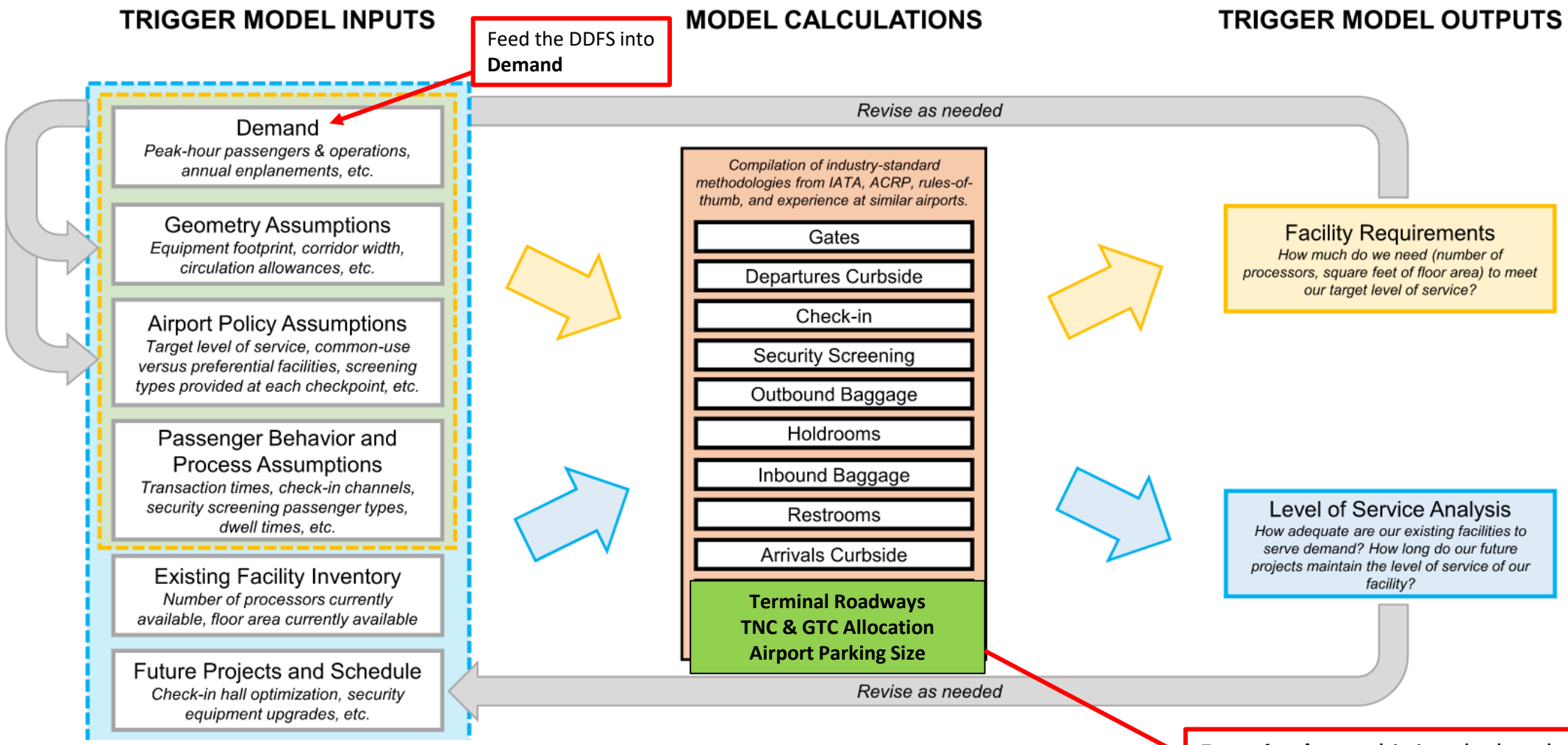
- The DDFS **drives** all planning models for medium & large airports
- The DDFS is a **detailed snapshot** of airline operations used for planning projected into the future (such as 5, 10, or 20 years)
- 3 Methods for calculating DDFS:
  1. Average Day of the Peak Month (most common)
  2. Average Weekday of the Peak Month
  3. Percentile of Daily Enplanements
- The DDFS will now inform the **"Trigger Model"** based on the Design Day





Trigger Modeling

Focus: Traffic Planning



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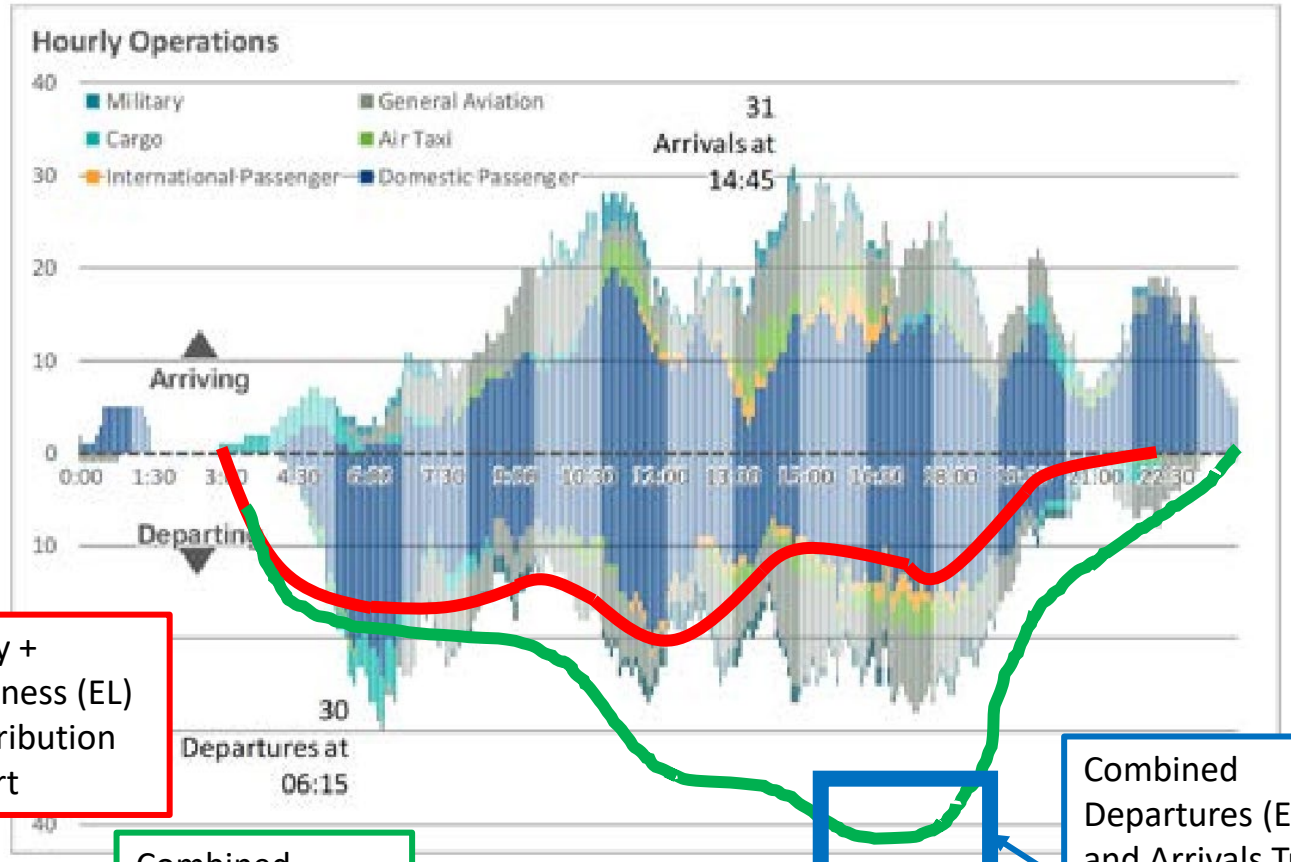
Example: DDFS Rolling Charts

ACRP Report 40/266:

Airport Curbside and Terminal Roadways



Early + Lateness (EL) Distribution Chart

Combined Departures (EL) and Arrivals Traffic

Combined Departures (EL) and Arrivals Traffic

Design to **this** for roadways

ACRP Report 40/266 converts hourly passenger flow into physical curb space requirements, separating Private vehicles from Transportation Network Companies (TNCs).

Example *Departures* Calculation:

- **Passengers** = Available Seats x Load Factor
  - Load Factor = 0.85
  - Assumed average of 160 seats per flight
- Vehicle Volume = (**Passengers** x Mode Choice) / Vehicle Occupancy Factor
  - For Departures, mode share was treated similarly with VOF = 1.5
  - For Arrivals mode share was divided into private cars (1.3) and TNCs (1.1)
  - Example: 102 vehicles per 160 person aircraft x 700 (departures + arrivals)
  - **71,400 vehicles daily** just for passengers *TNC, Parking, Pickup/Drop-off Operations*
- Add **"dwell time"** per vehicle (2-4 minutes)

Example: Trigger Model Output

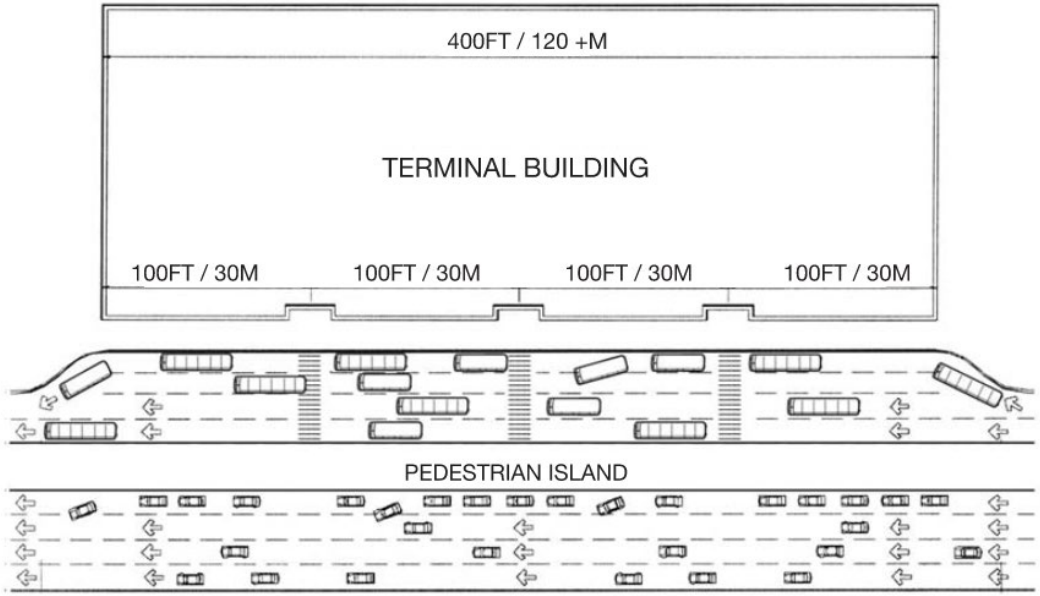
Terminal Roadway Planning

Assumptions & Recap

- The DDFS is typically calculated using the **peak month average day** (PMAD) approach. Airports can set more conservative measures such as **Percentile of Daily Enplanements** (2% NTE).

- **Method 1: Volume & Mode Choice** is the best approach for forecasting Airport Expansion traffic

- **Historic Annual Background Growth Rate** = 16% (very aggressive)
  - Growth in TNC, Cargo, Passengers, Rental Cars, and Landside Tenant Development



Source: *Terminal Groundside Access Systems*, Fred Silverman, FAA White Paper

Figure VII-5. Curbfront with pedestrian island.

- **Example of Trigger Model Output for Terminal curb:**

Infrastructure Element	Peak Demand	Engineering Factor	Required Linear Space	Required Infrastructure
Departures Curb	70 Simultaneous Cars	25 ft per car	1,738 ft	3 Loading Lanes
Arrivals Curb (Private)	96 Simultaneous Cars	25 ft per car	2,397 ft	3 Loading Lanes
TNC Pick-Up (CONRAC)	39 Simultaneous Cars	25 ft per car	966 ft	Segmented Linear Curb (App-Zoned)
Main Entrance Highway (Calibrated)	4,907 Vehicles / Hour	1,500 vph capacity	N/A (Flow-Based)	4 Inbound Lanes

Can also be used to size:

- Parking Sizes (Public, Employee)
- Ground Transportation Center (GTC) & TNC Staging Areas
- Terminal Roadways
- Exit & Entry Plazas

Landside and Terminal
Roadway Planning & Analysis

Designing for Airport Roadways

ACRP 40/266 – Airport Curbside and Terminal Area Roadway

"Many airports are challenged with legacy infrastructure. Here are challenges when undergoing airport expansion."

Capacity Challenges → Addressed through Landside and Roadway Studies

- Roadways are undersized (regional, terminal, and curbs)
- Not enough parking (public & employees)
- Not enough staging area (GTC, cellphone lot, rental cars)

Driver Behavior → Addressed with roadway configuration and wayfinding

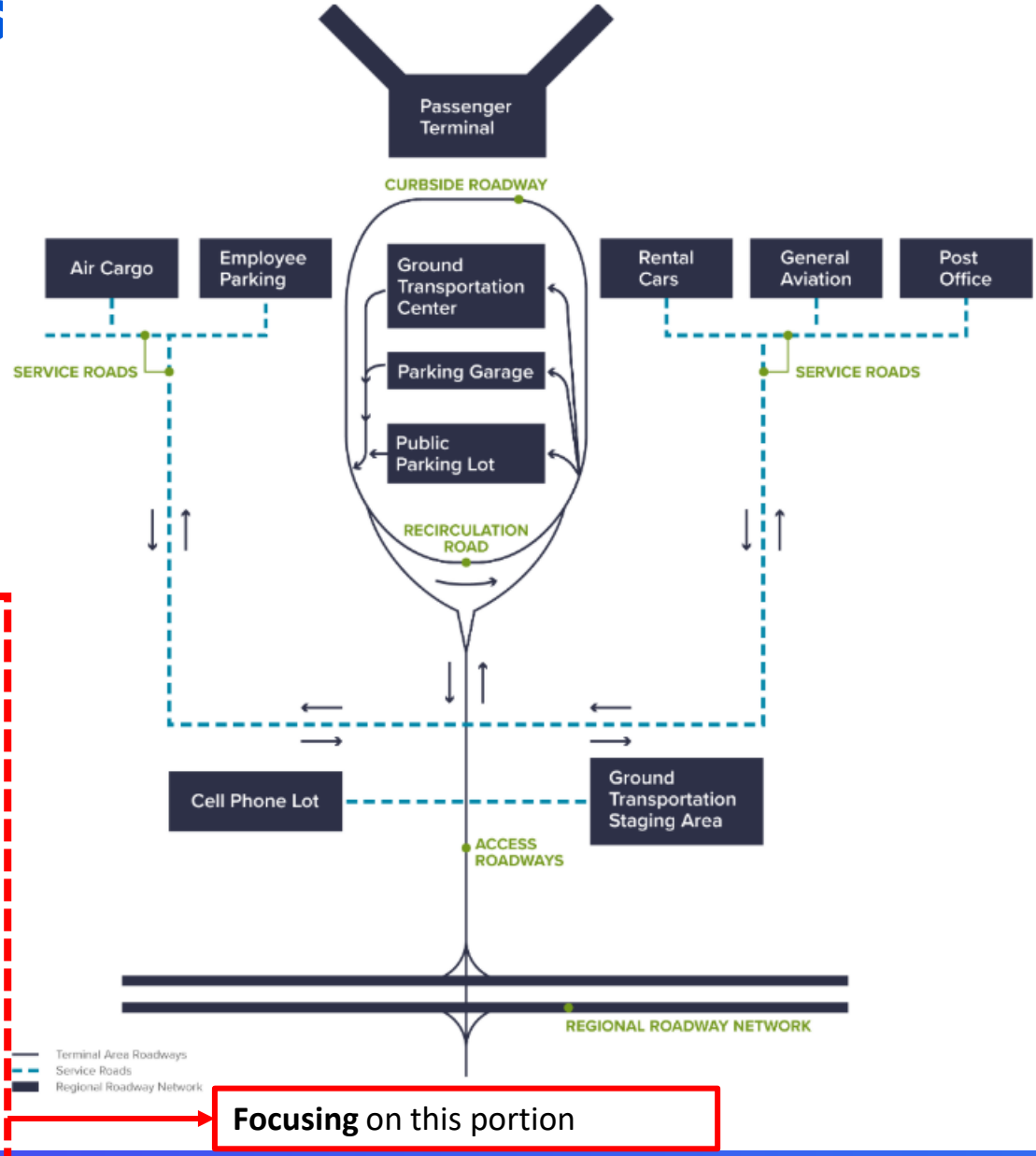
- High proportion of unfamiliar motorists
- Stressful conditions (passengers, TNC, cargo, rental car operators, employees)

Weaving Density → Addressed with roadway geometry

- High degree of entry/exit points (less than 500 feet spacing)
- Weaving occurs at slower speeds & Rapid decision making

Queue Spillbacks → Addressed with roadway operations

- Capacity limitations are driven by "dwell times"
- Flight disruptions alter peak hours and efficiency



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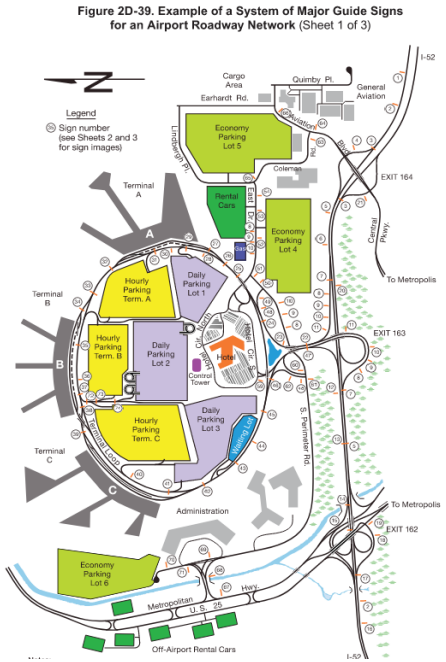
Airport Wayfinding

ACRP 52 – Wayfinding and Signing



"Airport signs are an identity or branding of the airport. Airports signs should look different than freeway signs, as a means to slow down traffic, and confirm entry into a different environment…"

Wayfinding Signage

- Align with the MUTCD (or in Texas, the TMUTCD)
- Utilize more "symbology" per ACRP 52 and TMUTCD 2025 (Section 2D.60 Signing at Airports)
- Positive guidance towards correct lane assignments
- Airport specific Wayfinding Standards Manual and Design Standards Manual (DSM)
- Design towards the "Design Driver" – hypothetical person for whom the roadway is tailored
- Reduce "recirculating traffic"

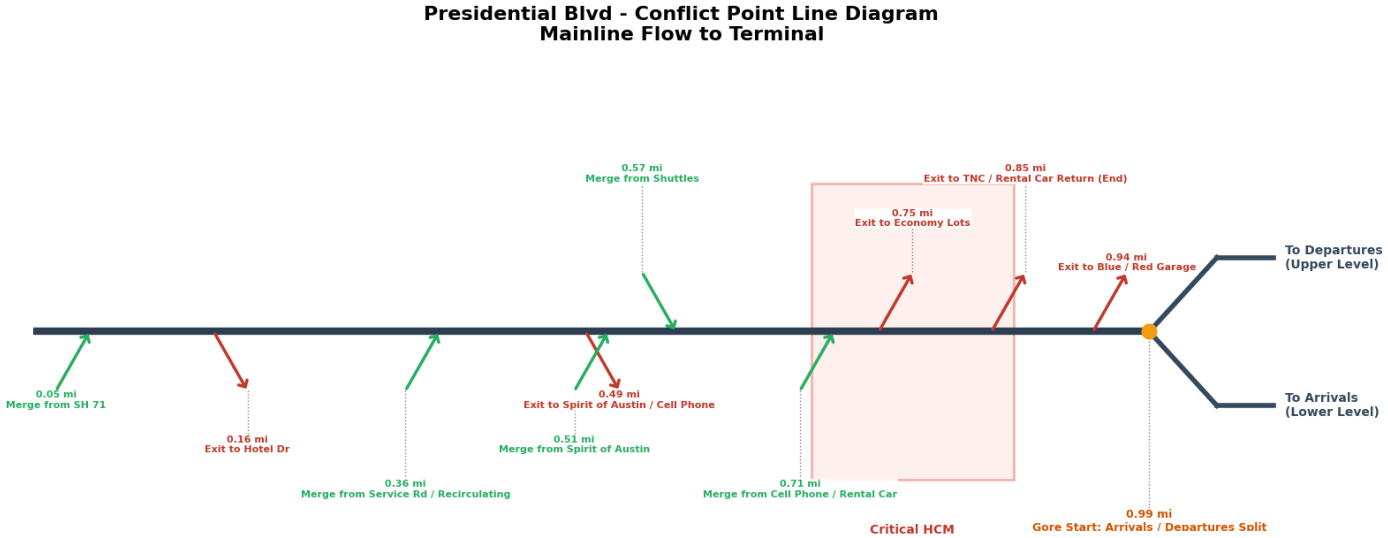
Table 2-1. Percentage of private vehicles recirculating to the arrivals curbside.

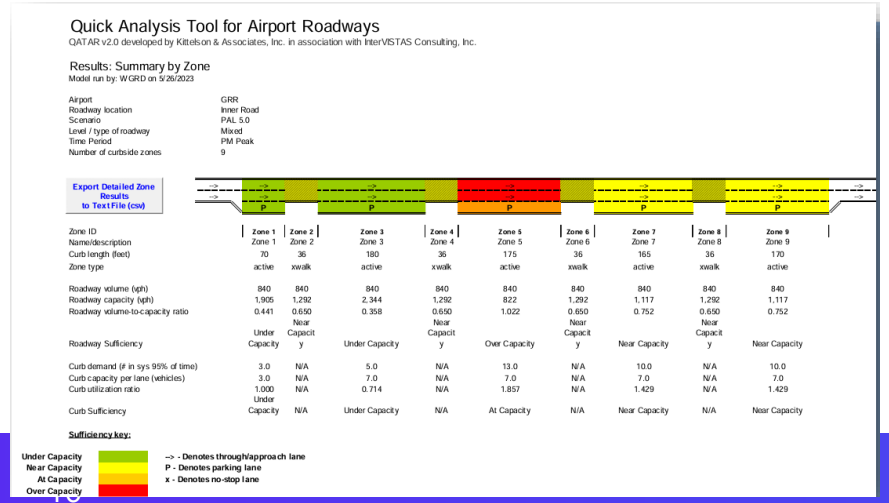
Airport	Recirculating (%)
Baltimore/Washington International Thurgood Marshall Airport	50%
San Francisco International Airport	43%
Seattle-Tacoma International Airport	30%
Dallas Love Field	26%
Reagan Washington National Airport	15%

Source: Based on data provided by Ricondo & Associates, Inc., June 2009.

Airport Roadway Weaving

ACRP 40/266 – Airport Curbside and Terminal Area Roadway





Quick Analysis Tool for Airport Roadways

QATAR v2.0 developed by Kittelson & Associates, Inc. in association with InterVISTAS Consulting, Inc.

Results: Summary by Zone

Model run by: WGRD on 5/26/2023

Airport	GRR
Roadway location	Inner Road
Scenario	PAL 5.0
Level / type of roadway	Mixed
Time Period	PM Peak
Number of curbside zones	9

Export Detailed Zone Results to Text File (csv)

Zone ID	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9
Name/description	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9
Curb length (feet)	70	36	180	36	175	36	165	36	170
Zone type	active	xwalk	active	xwalk	active	xwalk	active	xwalk	active
Roadway volume (vph)	840	840	840	840	840	840	840	840	840
Roadway capacity (vph)	1,905	1,292	2,344	1,292	822	1,292	1,117	1,292	1,117
Roadway volume-to-capacity ratio	0.441	0.650	0.358	0.650	1.022	0.650	0.752	0.650	0.752
Roadway Sufficiency	Under Capacity	Near Capacity	Under Capacity	Near Capacity	Over Capacity	Near Capacity	Near Capacity	Near Capacity	Near Capacity
Curb demand (# in sys 95% of time)	3.0	N/A	5.0	N/A	13.0	N/A	10.0	N/A	10.0
Curb capacity per lane (vehicles)	3.0	N/A	7.0	N/A	7.0	N/A	7.0	N/A	7.0
Curb utilization ratio	1.000	N/A	0.714	N/A	1.857	N/A	1.429	N/A	1.429
Curb Sufficiency	Under Capacity	N/A	Under Capacity	N/A	At Capacity	N/A	Near Capacity	N/A	Near Capacity

Sufficiency key:

Under Capacity
Near Capacity
At Capacity
Over Capacity

--> - Denotes through/approach lane
P - Denotes parking lane
x - Denotes no-stop lane

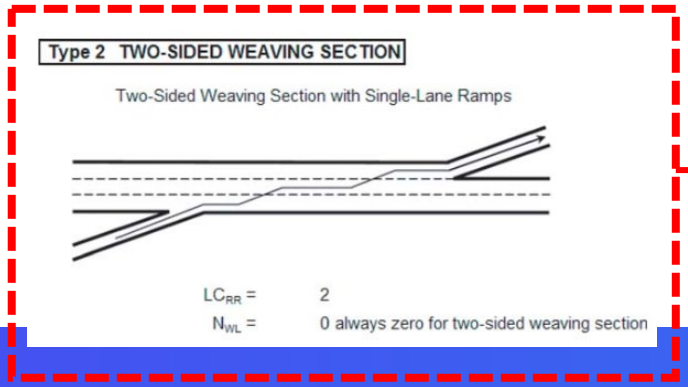
"The operation of weaving and merging areas on airport roadways differs from regional roadways. Merging typically occurs at slower speeds on airport roadways than they do on freeways and arterial streets"

Roadway Weaving

- Macroscopic modeling using Quick Analysis Tool for Airport Roadways (QATAR) per ACRP 40/266

Solutions

- **Re-configure the roadway** by determining maximum weave length and capacity
- **Remove** risk by installing barriers/delineators



This is a common condition at airports

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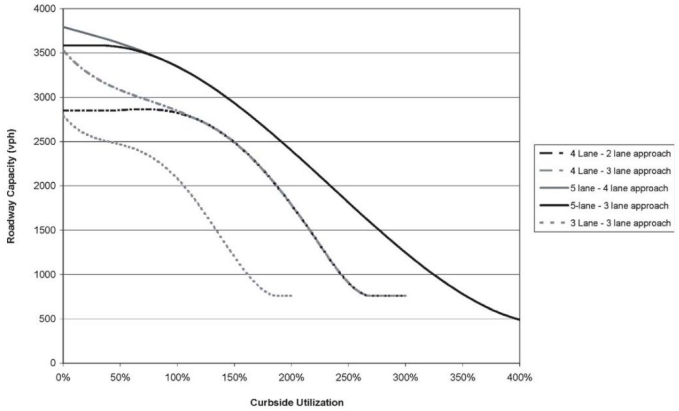
Airport Queuing and Capacity

ACRP 40/266 – Airport Curbside and Terminal Area Roadway

AT OR OVER CAPACITY



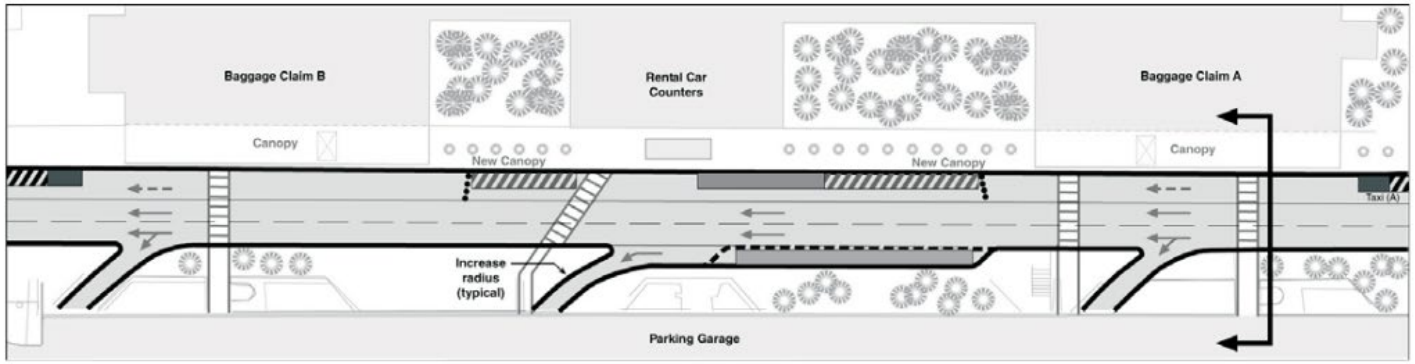


Figure 6-1. Insufficient queuing space at parking entry at Tulsa International Airport.

"...it is not possible, or desirable, for a roadway to operate at its capacity for sustained periods, because any minor disruption will cause congestion, which results in delays, lengthy queues, and undesirable levels of safety and driver comfort."

A disruption or delay within the traffic network will aversely impact the air transportation system. Delayed flights due to late pilots, passengers, airline maintenance, etc. will now disrupt flight plans and schedules at other airports.

Solutions

- **Operational:** Change in traffic operations (such as relocating TNC entrance/exit) and reducing roadway congestion through land-use planning
- **Parking:** Real-time parking occupancy sensors, or increase plaza sizes
- **Curbside:** Design double parking lanes or increase curb length
- **Geometry:** Grade separated pedestrian and vehicle crossings

Summary Slide of Resources

Traffic Planning for Airports

Title	Subject Matter	Notes
ACRP Report 24	Guidebook for Evaluating Airport Parking Strategies	Used to develop airport land use planning and parking strategies
ACRP Report 25	Airport Passenger and Terminal Planning & Design	Used to plan for terminal roadway configurations
ACRP Report 40 **New Report 266*	Airport Curbside and Terminal Area Roadway Operations	Used to reference numerous resources and approaches for traffic planning and design
ACRP Report 52	Wayfinding and Signing Guidelines for Airport Terminals and Landside	Used to reference design and best practices for wayfinding signage
ACRP Report 163	Guidebook for Preparing and Using Airport Design Day Flight Schedules	Used to prepare the DDFS
ACRP Report 186	Guidebook for Managing TNCs	Used to reference for TNC management
ACRP Report 187	Reducing Congestion at Airports	Used to provide solutions for congestion mitigation
ACRP Report 223	Airport Curbside Management Solutions	Used to develop strategies for curbside planning and traffic control
FAA Advisory Circular 150-5360-13A	Airport Terminal Planning	Used to assist in master planning, which includes elements of roadway planning & design
International Air Transport Association	Airport Development Reference Manual (ADRM)	Used to determine terminal curbside operations and LOS

This typically prepared by an Aviation Consultant

This typically prepared by an Aviation Consultant

Traffic Engineering Manuals used for Airport Planning:

- HCM
- AASHTO Green Book
- ITE Trip Generation
- TMUTCD

**yellow highlights are items covered in today's presentation*

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