HOW WILL AIRPORTS MANAGE THE NEW LANDSIDE MOBILITY?

PRESENTER:
Larry Bauman, PE, CM

MARCH 29, 2019

2019 NEC/AAAE Airports Conference
This session will address the potential impacts on airports from Transportation Network Companies (TNCs such as Uber and Lyft) and autonomous (driverless) vehicles (AVs). TNCs impact curbside congestion and ease of movement as well as landside revenue. In the near future, autonomous vehicles (AVs) will also impact airport landside activities and revenue.

The participants will learn:

- What are the latest trends in TNCs and AVs?
- How will these trends impact landside management, parking behavior, and revenue?
- How are airports dealing with curbside congestion and reduced parking revenues due to TNCs and AVs?
- What can airports do to prepare for these ongoing and upcoming trends?
Who are They?

- Uber (69%) and Lyft (29%)...and everyone else (2%)
- A new trend line in January 2019 shows global drop in weekly TNC usage between 2017 and 2019

Global Consumers Are Using Ride-Hailing Services With Less Regularity

Q: How often do you use ride-hailing services?

Source: Deloitte Insights, 2019
Loyalty Programs

• Uber Rewards – rolled out in January 2019
• Lyft Rewards – was announced in December 2018 but is not yet active
The Latest on AVs

Who’s Leading the Pack on AV Testing?

- Waymo, Uber and GM – claim they will deploy fleets of AVs within 2-4 years
- Toyota and Uber’s E-Palette – eAV pilot test fleets promised by 2021
- Daimler’s “Vision URBANETIC” – eAVs for people and cargo promised by mid-2020s
The Latest on AVs

“Connected” AVs (CAVs) – V2X

- V2P – vehicle to pedestrian
- V2N – vehicle to network
- V2V – vehicle to vehicle
- V2I – vehicle to infrastructure

CAVs are able to rely on multiple sensors to provide 360-degree awareness beyond line-of-sight...such as a blind intersection.
The Latest on AVs

What is the Latest Estimate of AV Market Penetration?

- By 2030 – 15% of new cars sold, with 12% owned by TNCs
- By 2040 – 90% of new cars sold, with 33% owned by TNCs
- By 2050 – 40% of vehicles on the road
The Latest AV and TNC Technology

- Uber’s Unmanned Electric Flying Taxi or eVTOL – being tested now
- FedEx’s “SameDay Bot” – being tested in several cities
- Starship’s “Delivery Bot” Startup – delivering food to college campuses
How TNCs Impact Airports

The relationship between airport passenger growth and parking revenue growth has changed

• Parking revenue no longer grows in tandem with passenger growth

• Real life data show that:
  • Parking revenue per passenger peaks 24 months from TNC entry
  • Parking revenue then drops 3-7% annually after the peak
  • TNC revenue per passenger surpasses parking and RAC revenue 37 months from TNC entry

Source: Airport Analyses Informing New Mobility Shifts, NREL, October 2018
How TNCs & AVs Impact Airports

Parking revenue statistics and strategies:

- Parking revenue growth lags operating revenue growth at 12 of the top 20 US airports (NREL)
- Every TNC vehicle displaces 8-10 parked vehicles at any given airport (L.E.K. Consulting)
- 2018 airport parking transactions per enplanement were down 5-20 percent (Walker Parking Consultants)
- 2017 car rentals were down 12 percent from 2016 (Certify)
How TNCs & AVs Impact Airports

Airport parking demand will peak in 2030

• Parking demand at airports will peak around 2030 and then shrink through 2050 (Walker Parking Consultants)

• Capacity of existing airport parking goes up as demand converts to AVs
Embracing TNCs – Now

- Airports are launching online discounted, pre-paid parking or frequent parker programs
  - OAK, DFW, PHX, BOS, SLC, PHL, BUF, YVR, YOW, DCA, IAD, and more coming
- Airports are keeping landside revenue on track through TNC fees which average ±$3.00
Embracing TNCs – Between Now and 2030

Curbside demand is now the key landside growth constraint

• The new landside mobility is an opportunity to improve customer service and financial performance
• Control your curbside demand through effective branding and pricing – premium / non-premium zones
• Starting now, move premium TNC pickup zones away from the curbside and into alternate areas, like garages
• Before 2030, dedicate specific areas for AV parking and AV / TNC loading zones

Embracing AVs – Now

Plan to Deploy Autonomous GSE

- AV Pushback Tugs at Heathrow
- Airport Perimeter Fence AV Security at Edmonton
- IAG Cargo and Oxbotica’s AV “CargoPod” at Heathrow
Embracing AVs – Now

Plan to Deploy Autonomous GSE

• Yeti Snow Technology and Semcon AV snow plows
• Tested in Norway and Finland in 2018
• Yeti is finalizing their “Four Step” solution to AV plowing
  1. Tower coordination
  2. Yeti control center – snow clearing request to tower
  3. Tower – snow clearing time allowance
  4. Yeti control center – route download and begin
Plan for Autonomous Shuttle Buses

- Hino Motors tested their AV bus at Tokyo’s Haneda Airport in 2018
- Softbank Group and All Nippon Airways intend to commercialize these buses at airports by 2020
- Softbank Group and Toyota will be investing $1 billion into Uber’s AV TNC program
Embracing AVs – 2030

Develop Adaptive Reuse Plans for Your Parking Facilities

- Aside from pick-up / drop-off zones, convert garages to multi-use facilities
- Examine conversions from an “urban design” perspective – what land uses want to be near airports?
Embracing AVs – 2035

Plan to Accommodate Autonomous Flying Taxis at Your Airport

- Fraport AG and Volocopter are developing electric air taxi services to bring people to / from Frankfurt International Airport (FRA)
- The European Safety Agency is developing certification standards
Embracing AVs – Beyond 2035

“Future-Proof” Your Airport – look into Autonomous BHS

- The Hague Airport in Rotterdam and Vanderlande joint innovation project – autonomous bag handling...“FLEET”
- A-BHS will ultimately replace fixed conveyors and sortation systems
- A-BHS will use 50% less energy and will be 100% more flexible
TNCs now account for 73% of air passenger landside access expenses to/from airports (Certify)

That is why passenger growth no longer equates to parking revenue growth (NREL)

Airports need to implement TNC pickup / drop off fees to offset the loss (Morning Consult)

Airports must implement curbside congestion management: (L.E.K.)
  - Offer and market discounted and prepaid parking
  - Establish “premium zone” access charges
  - Move TNC pick-up and drop off zones into alternate areas, like garages

Source: Establishing A Common Standard for TNC Wayfinding at Airports, AAAE, August 2018
Summary – AVs

- 90% of new cars sold by 2040 will be AVs (Walker Parking Consultants)
- 40% of vehicles on the road by 2050 will be AVs (Walker Parking Consultants)
- As a result, airport garage parking demand will peak before 2035 – start planning for adaptive reuse
- Embrace autonomous buses, tugs, and other GSE – starting now
- Prepare for AV flying taxis – within 15 years
- Research automated BHS now – prepare for it within 20 years