

Congestion at the Curb:

An Analysis of Ride-Hailing at LAX and Recommendations to Optimize the TNC System at Airports

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Introduction

Ride-hailing services such as Uber and Lyft have ushered in a new wave of mobility that has reshaped the transportation fabric of cities across the globe. What started as a novel way to hail a ride with an app is now a multi-billion dollar industry with millions of drivers and hundreds of millions of passengers worldwide. While many have enjoyed the comfort and ease of hailing a Transportation Network Company (TNC) ride, cities are now dealing with the negative effects of tens of thousands of extra cars on the road.

Airports have always been one of the most challenging arenas for TNCs. We've come a long way since the days of unregulated pick-ups and drop-offs, and while nearly all major airports now have agreements with Uber and Lyft, the volume of passengers being dropped off and picked up on an hourly basis often exceeds airport capacity. Combine that with more and more flights every year, and aging infrastructure, and you have a recipe for serious problems when it comes to getting people in and out of airports.

Airports around the country are attempting to deal with the sudden influx of ride-hail passengers, but Los Angeles International Airport (LAX) was one of the first to implement an off-terminal pick-up site, a major structural change to the TNC pick-up process. This report aims to examine the change, provide recommendations to optimize the system, and analyze how other airports around the country can learn from this process to ensure a smooth transition when it comes time for them to face their own ride-hail problems.

Ultimately, the changes that airports like LAX are implementing are for the better, but change can anger constituents and transportation is a polarizing topic. In this case, it only took a few days of growing pains to unleash a torrent of media criticism and pressure onto airport officials. In today's day and age of dynamic media, it's more important than ever to make a great first impression.

Overview of Ride-Hailing at LAX

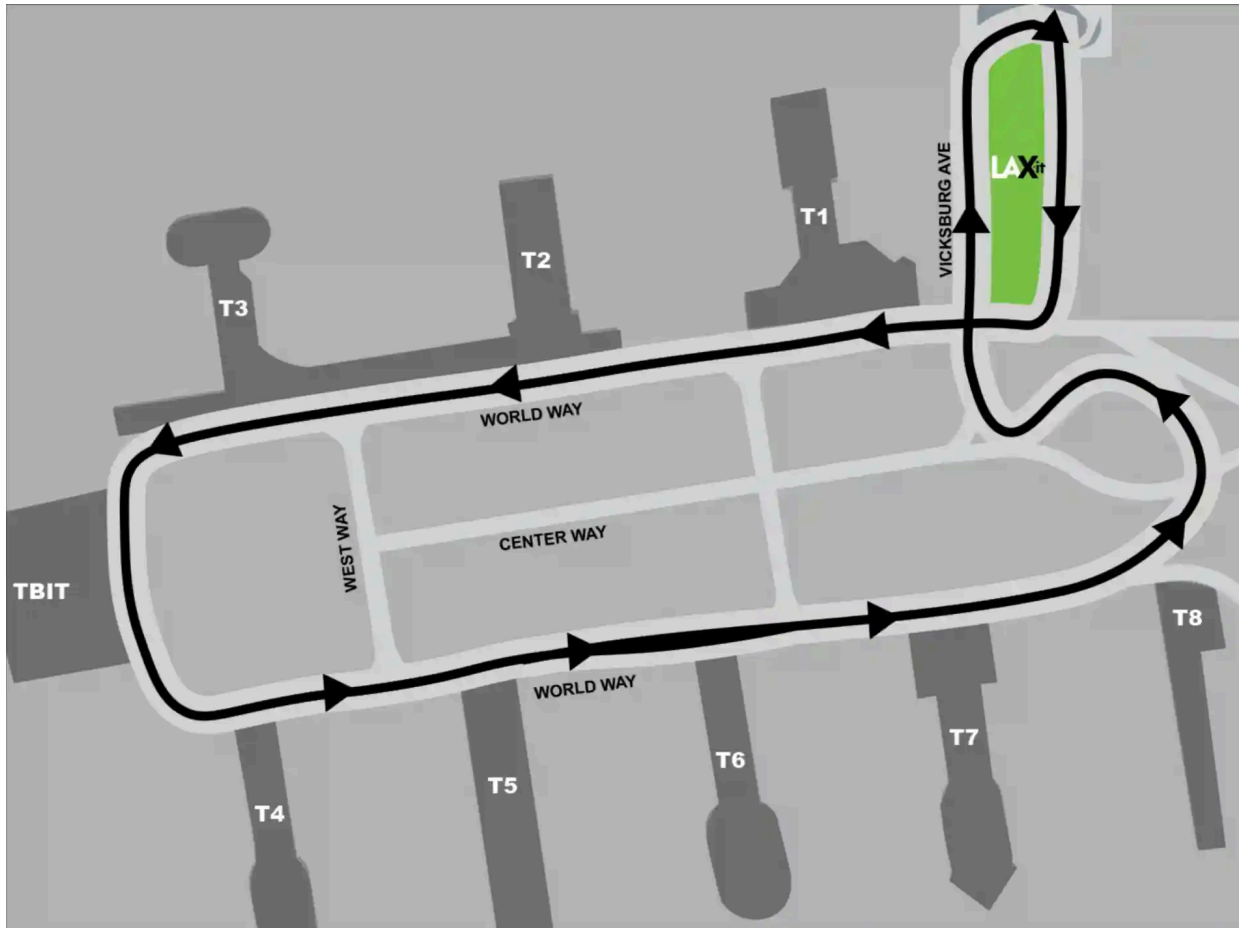
Until October 2019, ride-hailing services such as Uber and Lyft were permitted to drop off and pick up passengers at the curb of their passengers' respective terminals. This system was designed to be convenient for passengers and minimize the hassle associated with going to or from the airport. But this setup also created heavy

congestion at times, as airports were not built with Uber- and Lyft-type ride-hailing in mind. According to Uber, the company averaged around 500 to 1,000 pick-ups per hour at LAX in 2019.¹ With the growth of ride-hailing from services such as Uber and Lyft over the last several years, congestion in the terminal pick up and drop off area increased significantly, leading to a variety of steps to manage traffic, including designated pick up areas in the terminal.

LAX has a narrow footprint relative to the volume of passengers, lending itself to crowded conditions any time of year. Indeed, LAX is now the fourth-busiest airport in the world, the second busiest in the United States and is the number one origin and destination airport in the world. Compounding the typical congestion that comes with such passenger volume, LAX is undergoing major construction, including the development of an Airport People Mover (APM) to take people to and from the terminal.

Beginning on October 29, 2019, LAX instituted a new policy, prohibiting curbside pickup by ride-hailing services and taxis and instead requiring them to meet passengers at a pickup facility outside the terminal called LAX-it (pronounced “L.A. Exit”). Ride-hail and taxi drop-offs were still allowed on the departure level, however.

¹ Martin, Brittany, “LAX’s New Pick-Up Policy Got Off to a Turbulent Start,” Los Angeles Magazine, October 30, 2019 (available at <https://www.lamag.com/article/lax-uber-lot-chaos/>).



Map of LAX shuttle route and LAX-it. (Image Courtesy of LAWA)

Arriving passengers can walk approximately 3 to 20 minutes (depending on the terminal) to the site or take a short shuttle ride to LAX-it and then wait for an available car (or one they have summoned via an app). According to Los Angeles Times reporter Laura Nelson, the walk from Terminal 1 to LAX-it is 3 minutes and walking in general is most doable from Terminals 1, 2, 7 and 8.²

According to LAX, LAX-it shuttle ride times are now averaging less than 11 minutes, with shuttles arriving every 3 to 5 minutes.³ Notably, limousine and livery services, including Uber Black and Uber Black SUV (and Lyft's comparable services), are still allowed to make pickups at the terminals.

² Nelson, Laura, "LAX has banned Uber, Lyft and taxi pickups at the curb. Here's how the new system works," Los Angeles Times, October 29, 2019 (available at <https://www.latimes.com/california/story/2019-10-28/uber-lyft-ban-lax-airport-pickup-terminal>)

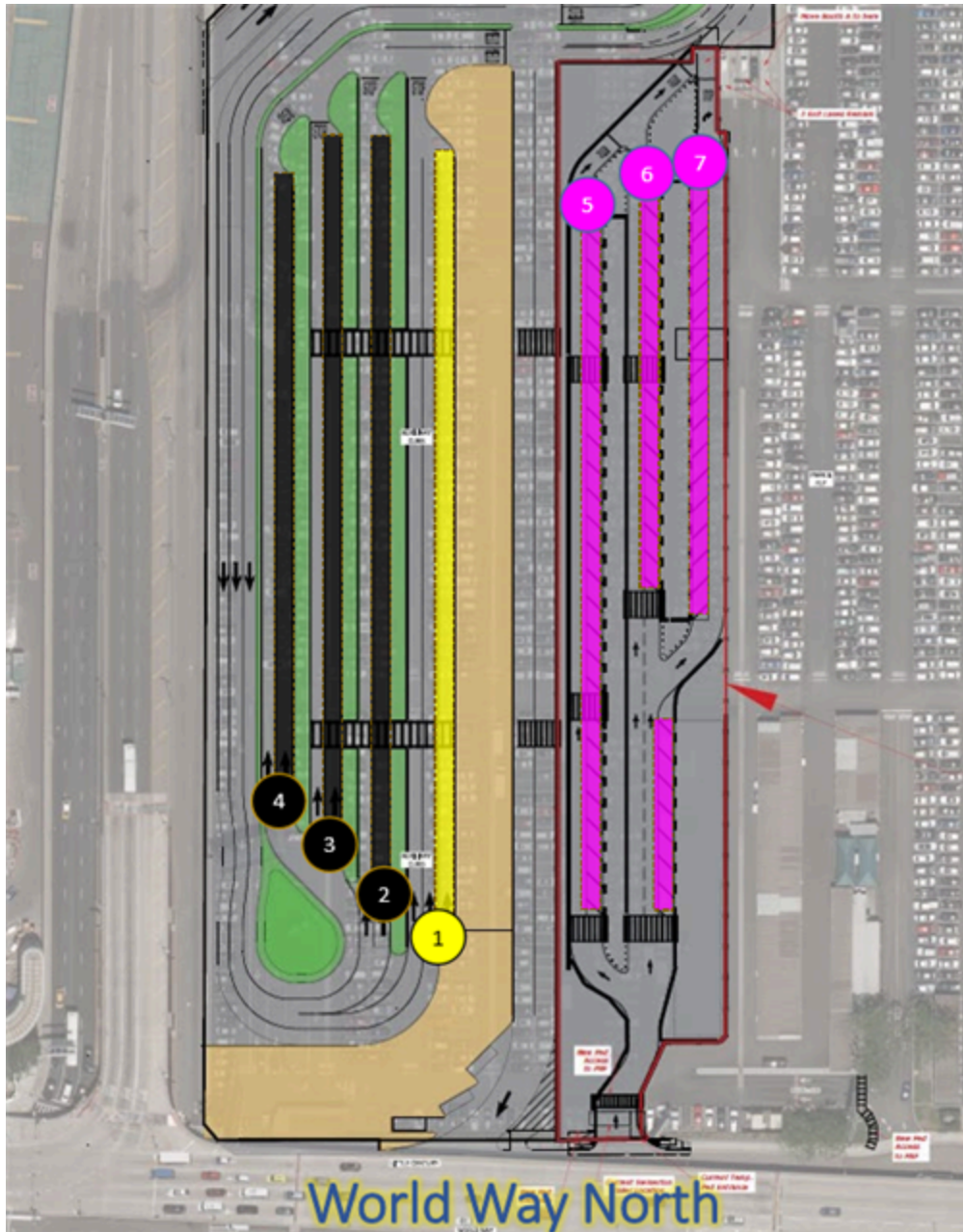
³ Los Angeles World Airports (Press Release), "Two Weeks After LAX-it Launch, LAWA Notes Eight Straight Days of Smooth Operations, Consistent Single-Digit Wait Times for Taxis and Ride Apps," November 12, 2019 (available at <https://www.lawa.org/en/news-releases/2019/news-release-129>).

Los Angeles World Airports (LAWA) cited increasing congestion in the terminal and major construction that will result in the loss of more than 30 percent of the airport's curb space as the main reason for the change. Becca Doten, Managing Director for Media Relations at LAWA, reports that "LAX-it was the solution that allowed for about 15% of vehicles to be removed from the Central Terminal Area so we could deal with the traffic impacts that come with construction and being the 4th busiest airport in the world."

This new system got off to a bumpy start, to say the least, with passengers waiting for 45 or more minutes at times for a ride and ride-hail drivers sometimes waiting even longer to get to their passenger. Many passengers took to social media to vent their frustration and for nearly a week, the chaos at LAX was a focal point of the media.

On November 6, a week after opening LAX-it, the airport expanded LAX-it by 50 percent to accommodate increased demand. Since the expansion, congestion and wait times for ride-hailing and taxis at LAX-it have eased considerably. LAX reports that wait times for taxi and ride app cars now rarely exceed 10 minutes.⁴ LAX has added canopies to offer protection from the sun and weather. And LAX has also reported a significant drop in congestion in the terminal areas.

⁴ Ibid., pg. 3.



Map of LAX-it with expansion area in pink. (Image Courtesy of LAWA)

The move to LAX-it mirrors changes at other airports that have sought solutions to deal with new forms of mobility, including ride-hailing. 2018 was a record year for passenger volume⁵ and many airports around the country and world are therefore wrestling with similar challenges due to ride-hailing, construction and increased daily numbers of

⁵ See International Air Transport Association, "Economic Performance of the Airline Industry," 2018 (available at <https://www.iata.org/publications/economics/Reports/Industry-Econ-Performance/IATA-Economic-Performance-of-the-Industry-end-year-2018-report.pdf>).

passengers. These issues beg the question: what is the best solution for optimizing ground transportation, and ride-hailing specifically, at the nation's largest airports? And what measures might LAX and other airports consider for improving the current system?



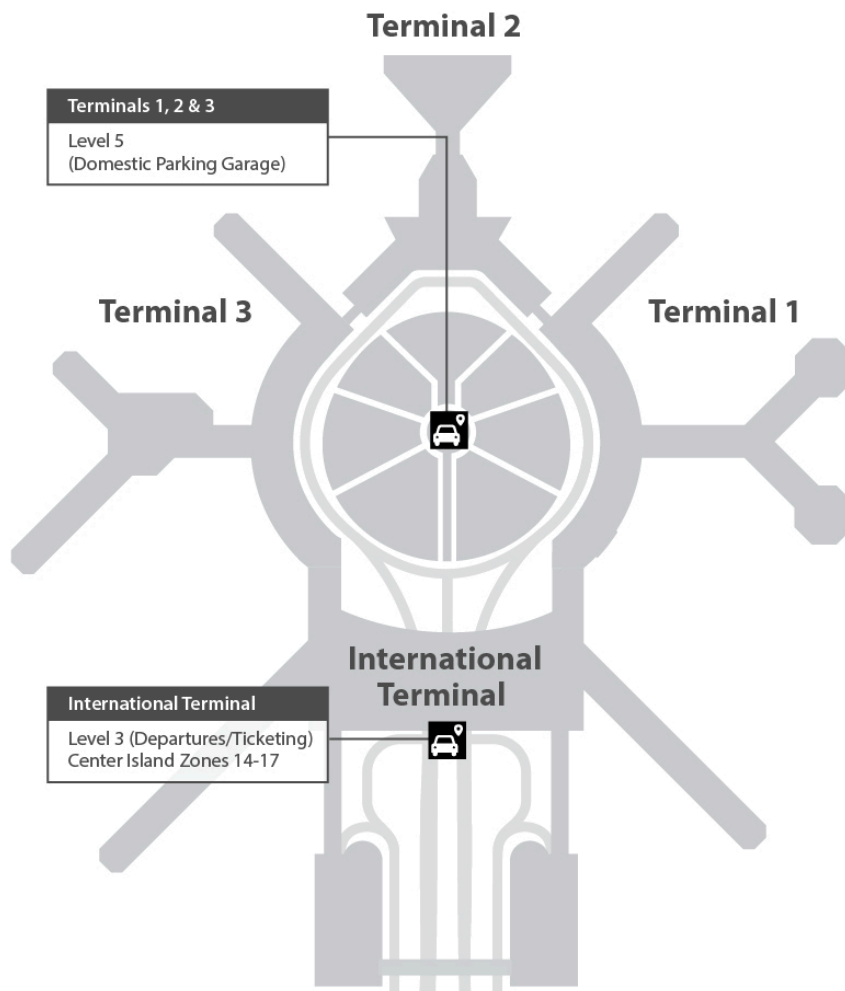
A rendering of LAX-it around the time it first opened. (Image Courtesy of LAWA)

How Does Ride-Hailing Work at Other Airports?

Most airports that have taken away curbside ride-hailing pickups have moved pickups to one or more sites, but these sites are still within the airport terminal area. For example, in 2016, Seattle-Tacoma International Airport moved pickups inside one of the parking garages. In 2018, San Francisco relocated most ride-hailing pickups from the curb to several different pickup zones adjacent to parking garages. Which zone you go to depends on at which terminal your flight arrives. This system moved passenger pick-ups away from the curb but to a still nearby and walkable location.



Ride App Pickup



Map of ride-hailing pickup locations at SFO. (Image Courtesy of San Francisco International Airport).

And this past year, Austin-Bergstrom International Airport moved the pickup area for taxis and ride-hailing to the ground floor of the airport's rental car facility. The primary difference between these moves and LAX-it is that these airports have generally kept the pick up spot within the terminal area and often created multiple pick up spots that are assigned to specific terminals. As with the LAX-it move, the goal of these changes for airports is to free up congested curbs.

Goals of Airports & Cities in the Context of Ride-Hailing

Cities and airport authorities have many goals in terms of managing entrance to and exit from an airport. In the context of ride-hailing, cities and airports typically have four primary goals:

1. Managing congestion
2. Managing airport parking revenue
3. Improving the passenger experience for those entering and exiting the airport
4. Increasing sharing and/or equity more generally

In the context of ride-hailing, it is important to keep in mind that airports may have different interests from transportation agencies, civic leaders and other stakeholders outside the airport. For example, LAWA's primary goal in creating LAX-it was to reduce congestion in the terminal area, especially during major construction. On the other hand, the City of Los Angeles and other stakeholder groups may be equally (if not more) interested in increasing shared rides to reduce congestion outside the terminal and meet other environmental and equity goals. It is important to consider these interests and balance them in order to reach an optimal outcome.

With these goals in mind, what can an airport such as LAX do to optimize its system? Is the ideal system one in which all ride-hailing pickups are in a separate lot? And what can we learn from the current system?

Here's What the LAX-it Transition Got Right

After the LAX-it move, congestion and traffic flow within the terminal have steadily improved. According to LAX, speeds on the upper level increased by 13% (TNC pick-ups happened on the upper level prior to LAX-it) and on the lower level by 2% in the first week after LAX-it.⁶ As Michael Christensen, Deputy Executive Director of Operations and Maintenance for Los Angeles World Airports told Curbed, "It's something we keep reminding folks: Your Uber ride into the airport, and especially to Terminal 4 and beyond, you're going to make it in less time on that leg of the ride where you really want to be on time."⁷

When LAX-it opened, there were significant wait times and difficulty with throughput. Airport officials even apologized for the delays, which they described as "unacceptable."

⁶ Los Angeles World Airports (Press Release), "Significant Reduction in Wait Times and 50% Expansion Mark the First Week of LAX-it," November 7, 2019 (available at <https://www.lawa.org/en/news-releases/2019/news-release-126>).

⁷ Walker, Alissa, "LAX-it won't improve until LAX embraces mass transit," Curbed Los Angeles, November 5, 2019 (available at <https://la.curbed.com/2019/11/5/20948244/lax-it-uber-lyft-flyaway>).

⁸ But just six days after the LAX-it move, officials responded by expanding LAX-it by 50 percent, taking over an adjacent Park 'N Fly lot, a sign of significant advanced thinking about potential challenges to an out-of-terminal ride-hailing location.

LAX-it has also taken advantage of PIN Based Pickup, a system offered by Uber (and Lyft, under a different product name). Under PIN Based Pickup, a passenger requesting a ride is given a PIN code that is then shared with a driver in a designated pickup area (in this case LAX-it). When the passenger reaches the pick up area, they simply show the code to the first driver when they are at the front of the line. In this respect, it is similar to taxi lines and can help speed up wait times in high volume areas, such as at the airport.

Another wise tactic was to start the new system on a Tuesday (generally a slower day passenger-volume wise) and to begin the program in October, giving LAX time to adjust before the heavy passengers volumes of Thanksgiving and the rest of the holiday season.

Finally, the airport deserves credit for recognizing the coming impacts of construction, the airport's limited footprint and "horseshoe layout" and proactively working to address them. John Rossant, Founder of the NewCities Foundation and a thought leader in the mobility space, agreed that "LAX does present complexities that some other airports don't have."

Recommended Solutions to Optimize Ride-hailing at Airports

There are several policies and other logistical and technological solutions that airport and civic officials might take in order to optimize airport pickups even further.

Leveraging the Use of Re-Match

Airport officials are understandably concerned about the congestion caused by the volume of ride-hailing services entering LAX to pick up passengers at the curb. But what if the ride-hailing vehicle is already in the terminal making a drop off? Wouldn't it make more sense (and be more efficient) for the vehicle to grab another rider on the way out, rather than proceeding through the terminal to an off-site location?

⁸ Nelson, Laura "LAX apologizes for 'unacceptable' long waits for Uber and Lyft pickups." Los Angeles Times, October 30, 2019 (available at <https://www.latimes.com/california/story/2019-10-30/lax-apologizes-long-waits-uber-lyft-pickups>)

Re-Match is a feature used by both Uber and Lyft's airport matching algorithm that will do just that. It matches a driver dropping off in Terminal 1 for example, with a passenger requesting a ride in Terminal 2. Since the driver has to pass by Terminal 2 anyway to exit the airport, it is much more convenient for the driver and passenger when the ride is 'rematched'. One downside to this though is that there is a second curb impact when the driver has to pick up at Terminal 2 in the example above. One way to mitigate this is to only allow Uber 'rematches' to happen in the same terminal. So if a driver drops off a passenger in Terminal 1, they could only rematch with a passenger in Terminal 1 to minimize the impact on the curb. Or, airport officials could add a shared pick-up point between Terminal 1 and 2 as LAX used prior to LAX-it.

Bakari Brock, Senior Director of City Partnerships at Lyft, notes that "Re-Match is more efficient in reducing deadheads and reducing carbon emissions." According to Brock, after implementing Re-Match at Seattle-Tacoma (SEA) International Airport, the number of "deadhead" trips decreased by 48% and passenger waiting time fell by 37%.⁹ According to Brock, over 65 percent of Lyft rides from LAX utilized Re-Match prior to the implementation of LAX-it. Since the move to LAX-it, the use of Re-Match has declined, making the ride-hailing system less efficient.

This solution would work well with allowing pickups for shared rides curbside too since airport officials want to keep each level of service in the same pick-up area. i.e. officials always want UberX riders going to LAX-it and Uber POOL riders going to curbside pick-up.

Taxes on Curbside Pickup and Congestion Pricing

LAX collects \$4 for every drop-off and pick up by a standard Uber or Lyft ride at the airport, but an Uber Black pick-up at the curb pays only \$5.¹⁰ This creates an opportunity to institute a pricing scheme to tax curbside ride-hailing pickups more than pickups at a remote site like LAX-it. Passengers wanting to be picked up curbside could do so, but at a premium in addition to the current tax. Bakari Brock of Lyft states that given the limited existing and proposed road infrastructure at airports, he sees an

⁹ Brock, Bakari, "Solving Airport Congestion through Curb Pricing," Medium, July 8, 2019 (available at <https://medium.com/sharing-the-ride-with-lyft/solving-airport-congestion-through-curb-pricing-62fb91e13751>).

¹⁰ Martin, Hugo, "Airports feared losing revenue to Uber and Lyft. Here's what happened," Los Angeles Times, March 1, 2019 (available at <https://www.latimes.com/business/la-fi-airport-uber-parking-revenue-20190301-story.html>).

increasing trend towards value based segmentation which provides that “those who have the means or desire to pay more for an uplevel experience...at curbside would be able to do that.”

A tax on this premium experience could then be used to support other forms of shared transportation, such as buses or trains, and to support infrastructure upgrades at LAX. As writer and urbanist Alissa Walker reports, there are a variety of transportation options such as FlyAway available that passengers can utilize.¹¹ These mass transit options and others could be supported and funded by creative thinking about ways to get passengers out of the terminal area.

The pricing scheme could also be based on congestion. Pick up at a busier time, and pay more to access the terminal. This congestion pricing could be implemented as part of, or separate from, a tax on curbside pickups more generally. Congestion pricing will take a considerable time to build support for and implement. Therefore, it is not an immediate solution to this challenge.

By combining these policies though, airports could reach several goals. They could maintain congestion at manageable levels while still permitting some to pay more to get curbside pickup. A ride-hailing fee based on curbside pickup and/or level of congestion could help make up revenue that airports have lost over the years from fewer people parking at airports.¹²

This system would work well at LAX where only premium services like Uber Black are allowed to do curbside pick-up, but what if one wanted more curbside pick-up options? It could be confusing for drivers and even passengers if some UberX/Lyft trips were curbside and others were at LAX-it, but one way to segment passengers is based on the existing categories of service already being used by Uber and Lyft.

The TNC levels of service are broken down as follows (Lyft has nearly identical corresponding service levels as Uber):

¹¹ Walker, Alissa, “The best ways to get to, from LAX this Thanksgiving,” Curbed Los Angeles, November 25, 2019 (available at <https://la.curbed.com/2019/11/7/20952310/los-angeles-best-flights-cheap-transportation>).

¹² Streeting, Mark, Kershaw, Ian, Santha, Natasha, and Khanna Ashish, “The Future of Airport Ground Access,” pg. 9, L.E.K. Consulting, 2018 (available at https://www.lek.com/sites/default/files/insights/pdf-attachments/Future-Airport-Ground-Access-Report_0.pdf) (noting that “Curbside access is the most valuable ground transport asset, yet it is often congested and rarely monetized.”)

Offering	Lyft	Uber
Basic	Lyft/Lyft Shared	UberX/Uber POOL
Mid-level Premium	Lyft Lux, Lyft XL	Uber Comfort, Uber Select, UberXL
Premium (Commercial)	Lux Black, Lux Black XL	Uber Black, Uber SUV and Uber LUX

Several airports already allow mid-level premium TNC services to pick up at the curb. For example, San Francisco International Airport began a pilot program on November 20 that allows curbside pickup by Uber Comfort, Uber Select and Uber XL (Lyft is not participating in the pilot but does provide Lyft Lux Black and Lyft Lux Black XL pick ups at the curb).

By allowing mid-level premium services into the terminal for curbside pick-up, you can also mitigate some of the growing pains associated with the transition to a LAX-it type model. LAX-it was overwhelmed by the number of passengers in the first week, and a smarter strategy would have been to stagger the roll-out and slowly move over mid-level premium services to LAX-it over time instead of all at once.

Allow Pickups for Shared Rides at the Terminals

One of the criticisms of a segmentation tax is that it is inequitable and encourages the least sustainable and environmentally friendly transportation options (single passenger vehicles). In contrast, those people willing to share rides and reduce congestion are required to go through extra hurdles.

Therefore, airports could consider some combination of allowing shared rides and premium pick ups at the curb, with the latter being subject to an extra tax to fund other sustainable modes of transportation (as discussed later on in this report). This revenue could also help offset the revenue airports have been losing from traditional parking fees.¹³

¹³ See, generally, Streeting, Mark, Kershaw, Ian, Santha, Natasha, and Khanna Ashish, "The Future of Airport Ground Access," L.E.K. Consulting, 2018 (available at

As it stands now, shared rides actually pay more in fees since two passengers in an UberPOOL will each pay a \$4 surcharge to LAX for a total of \$8, whereas a single rider in an UberX will pay \$4 and a rider in an Uber Black will pay \$5.

This solution will support equity and other environmental and congestion concerns both at the airport and in the Los Angeles region. By permitting shared ride pickups, LAX would encourage passengers to use options that are more environmentally friendly and efficient in terms of vehicle utilization. As Juan Matute, Deputy Director at the UCLA Institute of Transportation Studies, notes with regard to LAX-it, “Matching passengers and dedicating a vehicle to multiple matched passengers seems to mean long pickup times. One option is to allow shared TNC pickups in the central terminal area.”

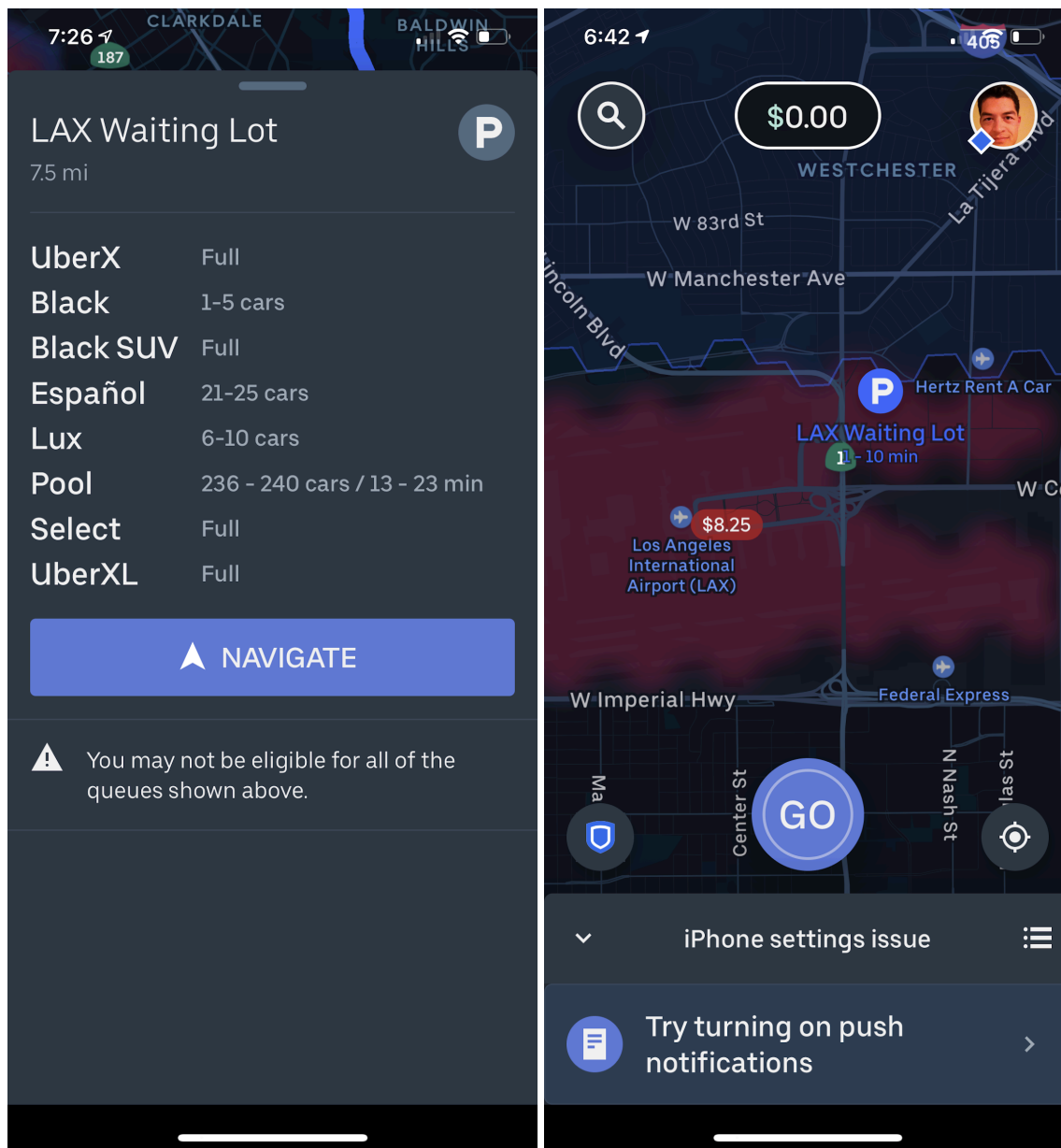
Greg Rogers, Director of Government Affairs and Mobility Innovation for Securing America’s Future Energy (SAFE), argues that “we need to rethink our mobility patterns” and “we should be able to find ways to incentivize people sharing rides” which constitutes a public good. Additionally, since shared rides are only a subset of all TNCs rides, airport terminals can more manageably allow curbside pickups at the terminals at designated locations.

On the other hand, shared matching algorithms generally work better using a single pick up point versus multiple terminals. According to Bakari Brock at Lyft, “It’s a lot easier to batch and bundle an efficient passenger ride if those passengers are in a condensed location.” Therefore, airports and TNCs would have to work closely to determine if and how this solution could be effectively implemented. Consolidating pick-up points would be one way to handle this and that would also reduce the curb impact of a driver making multiple stops.

Air Traffic Control for Ground Transport

How many Uber and Lyft drivers are available right now? This was a question that airport officials found themselves asking over and over during the LAX-it transition. TNCs and airports may have shared interests and common goals, but they don’t share the same systems and have access to the same data.

This was evident in our conversations with airport officials, and it turns out that in some respects, Uber and Lyft drivers had more information about the situation on the ground than airport staff.



The image on the left was taken from the Uber driver app and shows the First In First Out (FIFO) queueing system that Uber (and Lyft) use at airports. In this instance, the UberX queue is full (200-300 drivers waiting) and not accepting any more drivers. The image on the right was taken from the Uber driver app and shows an \$8.25 flat rate surge for the driver's next fare (the driver will receive an \$8.25 surge bonus for an airport pick-up).

We heard from airport officials that, from time to time, there were not enough drivers at LAX-it, yet there were dozens queued up in the staging lot. On the surface, this would not appear to make much sense. If there are passengers at LAX-it requesting rides and drivers waiting for requests in the staging lot, Uber and Lyft's algorithm should send drivers trip requests. One possible explanation is that those drivers in the staging lot were actually online with Lyft but not Uber (or vice versa) (since two-thirds of all drivers work for both Uber and Lyft¹⁴). We may never know for sure what was happening, but if airport officials had access to airport queue information, this could have been easily confirmed.

If it turned out that there were no drivers in LAX-it and no drivers in the waiting lot, this would give airport officials the information they need to go to Uber and Lyft and work with them to incentivize drivers to head to the airport - either through surge pricing or other incentives. According to Uber, the company already shares data with the airports but from our research, it may not be the right type of data.

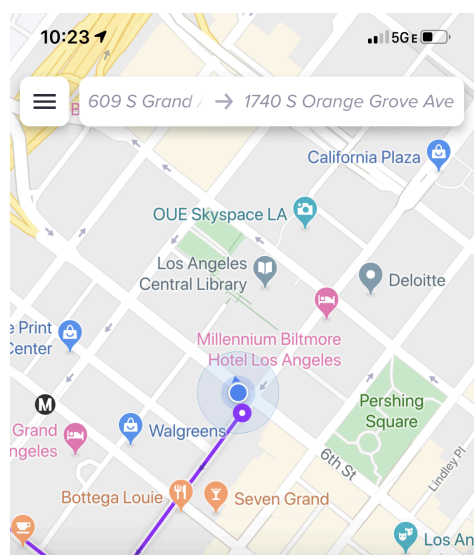
It's important for airports to develop at least a rudimentary understanding of driver motivations and the data that is available to them. There's no reason that a TNC driver should have more information than airport officials.

TNC Nudging

TNCs can also help in this situation by nudging consumers towards premium service at times when LAX-it is over-capacity. Typically during times of elevated demand, we see surge pricing on Uber where the cost of the ride can go up 2x, 3x or more. But since each level of service 'surges' independently, there are times where an UberX can be nearly the same price as an Uber Black. If Uber Select was also allowed to do curbside pick-ups, this would create even more opportunities for Uber to nudge customers toward their mid-tier premium services, which become cost competitive during busy times. This would help soften supply issues at LAX-it during times of peak demand and mean increased revenue for TNCs, drivers and even airports if they charge higher fees on these rides.

Here is an example of Lyft nudging a customer toward Lyft LUX instead of regular Lyft on a regular non-airport ride in Los Angeles, during the same week as the LAX-it transition:

¹⁴ <https://therideshareguy.com/uber-driver-survey/>



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Upgrade

It is important for airports to understand the products that TNCs already have available at their disposal since it is a straightforward task for them to implement this service at airports versus creating a product from scratch. One challenge we've seen for regulators is that they are often operating in silos trying to regulate TNCs versus working together, where they could share more information about what constitutes a reasonable request from Uber or Lyft.

Enhanced Communication and Addressing the Customer Experience

An off-site ride-hailing facility may encourage more passengers to drive their personal vehicle to/from the airport or use rental cars since it involves the same transfers and gives people the assurance that they can simply drive a car immediately to their destination rather than wait in a long ride-hailing line. For example, LAX reports that

LAX-it shuttle ride times average less than 11 minutes, with shuttles arriving at stops within the terminal every 3 to 5 minutes. Therefore, it may appear to arriving passengers that LAX-it has added on average 10-15 minutes to a ride home from the airport, plus the potential uncertainty of when a taxi, Uber or Lyft will actually be available at the LAX-it lot.

LAX might mitigate this issue by, for example, providing real-time updates via an app on how long it will take to get to LAX-it and expected wait times for rides once at LAX-it. LAX might also publicize more widely statistics on any reduced wait times for ride-hailing at LAX-it versus pickups at the terminal. As Greg Rogers notes “clarity breeds convenience.” Finally, LAX might communicate in real time how the response time for other transportation modes has improved as a result of LAX-it. This will provide more certainty and reliability to passengers.

Other areas that airports should look to address are initial communication with both the public and ride-hailing companies. Wait times often ranged from 45 to 60 minutes in the first week at LAX-it. Although those wait times have come down considerably and fairly quickly, there was a rash of negative publicity that always poses the risk of scaring off potential riders. There was also a considerable amount of confusion for passengers during the rollout of LAX-it, with attempts by some to circumvent LAX-it by taking shuttles to nearby hotels or parking lots to pick up an Uber or Lyft. Drivers had a challenging experience as well, sometimes waiting over an hour to get a ride. John Rossant found that the larger lesson is “the importance of the ride-hailing companies . . . working as closely as possible both with the City and the airport authority well in advance..” of a rollout of a ride-hailing pickup system.

LAX might also have more fully addressed the customer experience prior to opening. Although now covered with canopies, it was initially open-air and exposed to the elements. While Los Angeles enjoys mostly pleasant weather, it does rain and passengers arriving at night may not be dressed properly for chilly nights during the winter. The first time a passenger gets caught in the rain without an umbrella trying to get to LAX-it or has to sit outside on a cold, windy night might be the last time they will consider ride-hailing at LAX. Therefore, it is important for airports to communicate information about the experience before arriving passengers have to decide which transportation mode to take.

Finally, LAWA and other airports should also continue to consider the impact of an off-site facility on different groups of passengers. Women and children might be wary of walking or traveling to an off-site facility, especially at night, for safety reasons. And

elderly passengers may be reluctant to take the extra trip now needed to get to LAX-it. LAX could address some of these concerns by communicating the safety protocols in place, such as the presence of security guards, lighting on the walkways to and from LAX-it, and concerns about shuttle service late at night.

These are issues which should be further explored as LAX-it and other airport ride-hailing facilities come online.

Conclusion and Recommendations for Airports

LAX has made considerable strides in addressing ride-hailing at one of America's busiest airports. As LAX-it and ride-hailing systems at other airports continue to evolve, we recommend the following strategies to optimize ground transportation and ride-hailing systems:

- (1) Permit the use of ride-hailing pickups via “Re-Match” within the airport terminal. Utilize Re-Match as part of recommendation numbers two and three.**
- (2) Tax curbside single passenger ride-hailing pickups at higher rates to support other forms of shared mobility such as buses and trains and to replace parking revenue.**
- (3) Permit pick-ups for shared rides within the terminal at designated locations to encourage shared mobility and support equity goals.**
- (4) Share data and information between TNCs and airport officials about each other's respective systems (air traffic control for ground transport).**
- (5) Enhanced communication from the airport about the ride-hailing system, including real-time updates and alerts via smartphone.**

Recent developments in ground transportation present an opportunity to re-evaluate and creatively deploy strategies that move people more effectively. TNCs like Uber and Lyft have made getting to and from airports a pleasant experience, but as we've seen, too much of a good thing can create other challenges. We encourage airports around the country to evaluate the solutions presented in this report to ensure that an optimal system is designed and provides for the best possible experience for the most number of people.

Authors

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Harry Campbell is the founder of The Rideshare Guy, a blog, podcast and Youtube channel for Uber and Lyft drivers and the author of The Rideshare Guide. Over the years, Harry has established himself as one of the leading rideshare industry experts with appearances in thousands of top media publications and his site is trafficked by hundreds of thousands of visitors every single month. In addition to the media side of the business, Harry and his team are active industry consultants, advisors and investors in the mobility space.