

# **Taxicab Leasing Pilot: Final Report**

**August 12, 2019**

## **Summary**

The one-year Taxicab Leasing Pilot began in July 2017. Within the framework of the Pilot, the Participant, NYC Taxi Group, offered two new leasing options to drivers meant to increase flexibility in leasing arrangements between drivers and vehicle owners, and increase passenger service and driver income.

The Fare Share Lease option provided drivers an opportunity to lease vehicles at no upfront cost and instead pay the owner a 35 percent commission fee on all fares. The Participant-Specific Lease option offered shift durations of up to 12 hours, with lease rates ranging from \$6.60 to \$9.10 per hour, depending on time and day. Shifts fewer than 12 hours in duration were pro-rated by the hour. Both lease options allowed for reservation durations of varying lengths and did not require drivers to return vehicles during periods of peak passenger demand as is common in the taxi industry.

Upon evaluation of twelve months of Pilot data, including more than 881,000 trips and 51,000 shifts, it is recommended that TLC rules be amended to allow for pro-rated hourly leases similar to the Participant-Specific Lease model of the Pilot. In order to ensure driver protection, these leases should be subject to hourly maximum charges as determined by TLC.

Though drivers benefitted from increased flexibility offered by the Fare Share lease model of the Pilot, there were substantiated concerns related to financial viability and inefficient vehicle use from the owner's perspective. As such, we do not support rulemaking on fare share at this time.

## **Background & Introduction**

The Taxicab Leasing Pilot ("Pilot") was authorized by the Taxi & Limousine Commission on October 15, 2015 and amended December 3, 2015. For taxicab owners participating in the Pilot ("Participants"), the Pilot waived TLC Rule 58-21(i)(1)(ii), which requires that a shift run for 12 consecutive hours.

The Pilot was designed to allow increased flexibility in arrangements between lessors and lessees of taxicabs, increase service levels for passengers during periods of high passenger demand and thus increase driver income, while maintaining protections against driver overcharges.

TLC staff outreach in early 2015, as part of a biennial review of fares and lease caps<sup>1</sup>, revealed a common driver complaint of lost fare opportunities during the morning to evening shift change, typically occurring around 5pm. The issue is caused by geographic and economic factors. The 12-hour shift-and-change pattern exists in part because many vehicles are leased for two shifts each day, and in order to make the morning and evening shifts equally attractive to drivers, each shift includes peak periods when drivers can earn the most in fares. However, these leasing patterns developed at a time when the majority of taxicab garages were located in Manhattan. Today, the majority of yellow taxi trips still occur in Manhattan, yet the majority of garages are located across in Brooklyn and Queens.

The result is that many drivers are forced to leave Manhattan before the evening rush hour begins to ensure they return vehicles to garages on time for the shift change and do not incur late fees<sup>2</sup>. The outmigration of vehicles results in a shortage of available taxis in Manhattan at periods when passenger demand is highest, creating a lack of both service for passengers and earning opportunities for drivers.

On April 11, 2015, taxi vehicle shortage during peak periods was the subject of a [data research event](#) hosted by the TLC, Google and NYU's Rudin Center for Transportation Policy & Management. Trip data reviewed at this event quantitatively confirmed driver complaints that evening rush hour demand was not being met due to traditional industry shift change structures. The Taxicab Leasing Pilot was thus created to test alternative ways for drivers to begin and end their shifts.

### **Pilot Structure**

TLC offered three options for garages to participate in the Pilot: Fare Share Lease, Participant Shift Change Plan, and Participant-Specific Leasing Model. The table below outlines each model and its intended goals.

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<sup>1</sup> TLC rules stipulate the maximum a driver can be charged for a lease ("lease cap") depending on vehicle type, time, and day. The lease caps per shift range from \$105 in standard vehicles in the morning to \$132 in hybrid vehicles on certain evenings.

<sup>2</sup> Drivers face up to a \$25 fee for each hour they are late in returning vehicles ([http://www.nyc.gov/html/tlc/downloads/pdf/fleet\\_drivers\\_rights\\_poster.pdf](http://www.nyc.gov/html/tlc/downloads/pdf/fleet_drivers_rights_poster.pdf)).

Model	Description	Intended Goals
<b>Fare Share Lease</b>	<ul style="list-style-type: none"> <li>• Participant and driver share total farebox revenue</li> <li>• Participant can retain no more than 35% of farebox revenue</li> <li>• Leases can be offered for any duration up to 12 hours</li> </ul>	<ul style="list-style-type: none"> <li>• Relieve drivers of the financial stress of paying set lease costs at the beginning of the shift</li> <li>• Allow taxicab owners to offer attractive, low-risk leases to drivers</li> <li>• Provide financial incentives for both drivers and owners to ensure vehicles were providing service during period of highest demand</li> </ul>
<b>Participant Shift Change Plan</b>	<ul style="list-style-type: none"> <li>• Participant provides an alternative shift change time occurring outside of 4 - 8pm period</li> </ul>	<ul style="list-style-type: none"> <li>• Maximize the number of Taxicabs in service at peak demand times</li> </ul>
<b>Participant-Specific Lease</b>	<ul style="list-style-type: none"> <li>• Participant proposes shift change times and hourly lease rates in accordance with existing TLC-approved lease caps</li> <li>• Proposals must be approved by TLC</li> </ul>	<ul style="list-style-type: none"> <li>• Attract drivers to shifts and vehicle types that periodically struggle to attract drivers</li> <li>• Allow taxicab owners to tailor shifts to the times drivers want to work</li> </ul>

*Participant Profile and Approach to Pilot*

The Pilot had one Participant: [NYC Taxi Group](#), located in Brooklyn. During the course of the Pilot, the Participant offered drivers two options: Fare Share Lease and Participant-Specific Lease options; they did not offer the Participant Shift Change Plan.

Both options were administered via a smartphone-based app for drivers, *Lacus Driver*, developed by Lacus Technologies in Summer 2017. The Lacus platform leased 263 vehicles to 1,337 drivers throughout the Pilot. The app offered drivers several features that go beyond the Pilot requirements, including instant driver payment, the ability to reserve vehicles using a smartphone and the ability to pick-up and drop-off vehicles on the street rather than having to visit the garage in Brooklyn.

Under the Fare Share Lease, the Participant offered variable shift durations of up to 12 hours and retained thirty-five percent of the total farebox revenue. Under the Participant-Specific Lease model, the

Participant offered shift durations of up to 12 hours, with lease rates ranging from \$6.60 to \$9.10 per hour, depending on time and day. Shifts of less than 12 hours in duration were pro-rated by the hour.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<b>AM</b>	\$7.02	\$7.02	\$7.02	\$7.02	\$7.02	\$6.60	\$6.60
<b>PM</b>	\$7.02	\$7.02	\$7.44	\$9.10	\$9.10	\$9.10	\$7.02

**Qualitative Analysis**

TLC staff performed qualitative analyses through phone interviews to determine the level of satisfaction with the Pilot by both the drivers and the Participant. Driver outreach consisted of phone calls to randomly-selected drivers that leased taxicabs from the Participant and incorporated questions related to when drivers began participating in the Pilot, their general satisfaction with the Pilot, how their hours and earnings varied under the Pilot, and if they would consider continuing to use the Fare Share Lease or similar model if it were made permanent. Staff spoke with eight drivers out of the 106 total that participated in the Fare Share Lease.

Participant outreach entailed bi-monthly phone calls to discuss ongoing issues and evaluate satisfaction both for the Participant as well as the Participant’s perception of driver satisfaction.

*Fare Share Lease*

To determine driver satisfaction, TLC staff conducted interviews with drivers who used the Fare Share Lease model to varying degrees. Drivers were chosen for outreach calls from a pool of drivers who met one of the following criteria:

1. Consistent user of Fare Share Lease model
2. Used Fare Share Lease inconsistently during Pilot period
3. Used Fare Share Lease early in Pilot only

The sample of drivers generally heard about the Pilot from other drivers or via their ongoing relationship with the Participating garage. Similarly, they began to use the Fare Share Lease to try a new leasing model or because they were already driving with the garage. Some drivers indicated their earnings were higher using the Pilot lease options. Although they were not able to definitively cite changes in their earnings, they stressed the importance of increased flexibility afforded by the Pilot.

Drivers interviewed were universally satisfied with the Fare Share Lease. Among the strongest statements of support were that the Fare Share Lease was a “gift to drivers” with “nothing else like it in the yellow industry.” Many of those who stopped using the option did so often only because it became difficult to find available vehicles on the Lacus platform. The most frequent reasons given for satisfaction with the Pilot were the increased flexibility of work hours and the protection from ending a shift with a negative balance (i.e. earning less than the cost of the lease). These were seen as beneficial to quality of life and work/life balance overall.

In bi-monthly calls with TLC staff, the Participant raised concerns about the inefficient use of vehicles due to the nature of the commission-based model, which in turn impacted financial feasibility from the owner’s perspective. Drivers only paid a commission on fares, therefore the vehicle owner was not compensated for time the driver used the vehicle for non-revenue generating activities. Since the driver was not charged for this time, there was no incentive to limit mileage or time with vehicles or prohibit the use of vehicles for other purposes besides providing service<sup>3</sup>. The Participant’s claim of less efficient vehicle use was supported by data showing trips per hour in the Fare Share Lease compared to Participant-Specific Lease in the upper and lower quartiles.

#### *Participant-Specific Lease*

Drivers interviewed were also satisfied with the Participant-Specific Lease option. The Lacus app offered by the Participant allowed drivers to pick-up and drop-off vehicles using a smartphone, and the most cited benefit was the ability to reserve vehicles via their mobile phone and thus avoid going into garage. They also expressed satisfaction with the pro-rated leasing costs and ability to start and end shifts outside of the afternoon rush period.

In bi-monthly phone calls, the Participant was generally satisfied with the Participant-Specific Lease model.

#### **Quantitative Analysis**

Data was provided by the Participant to the TLC every other week from July 14, 2017 through August 12, 2018. Data included individual trip records, as well as reservation-level driver, vehicle and fare data. Individual trip records included pick-up and drop-off times, distance and duration, and other fields similar to TLC trip records for medallion taxis. Data submissions were verified by TLC using internal trip records

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<sup>3</sup> Participants had the option to charge drivers a minimum amount per shift.

to ensure details of trips were accurate. Submissions were deemed to be accurate, thorough and able to be used for analysis with no major concerns.

*Data modifications*

The raw data from the Participant was slightly modified by TLC staff in the following ways to create consistency and establish a final dataset for analysis:

1. Data from July 2017 and August 2018 was excluded due to potential erroneous records at the beginning of data transmission and to create a full one-year period for analysis.
2. To analyze shift-level statistics, Participant-provided shift data was compared to existing internal calculations for shifts in the medallion sector.<sup>4</sup> Participant data yielded 77,591 total shifts compared to 66,612 as calculated by TLC (or 14.1 percent fewer total shifts). The difference in total shifts is partly a result of a high proportion of shifts from the Participant data being double-counted: approximately 18 percent of all reservations from the Participant were twice the amount calculated by TLC.
3. Participant data for vehicle reservation duration (i.e. the time between when the vehicle was reserved and when it was returned and available again for use by another driver) was modified by removing periods when the vehicle was not in use for service (i.e., the time between shifts). In total, 29.6 percent of total reservation duration hours were removed.

*Findings*

After the aforementioned modifications, the Pilot yielded 881,844 trips by 1,337 unique drivers occurring between August 1, 2017 and July 30, 2018. The number of drivers represented roughly four percent of total active medallion drivers over the same period.

	<b>Participant-Specific Lease</b>	<b>Fare Share Lease</b>	<b>Total</b>
<b>Trips</b>	863,381	18,463	881,844
<b>Reservations</b>	20,695	1,222	21,917
<b>Shifts</b>	49,639	1,434	51,073 <sup>5</sup>
<b>Vehicles</b>	263	98	263 <sup>6</sup>
<b>Drivers</b>	1,313	106	1,337 <sup>7</sup>

<sup>4</sup> TLC’s methodology counts any period of inactivity exceeding three hours as a shift break.

<sup>5</sup> This number differs from the previously stated 66,612 because it accounts for modifications to dates and drivers included in analysis.

<sup>6</sup> All vehicles in the Fare Share Lease were used in the Participant-Specific Lease.

<sup>7</sup> Some drivers participated in both leasing models, and therefore the total does not represent a sum of both models.

### *Shift-Level Statistics*

To account for the differences in results between drivers deemed to be active and inactive participants in the Pilot, reservations were divided into three categories based on driver participation levels. This rate was calculated by dividing the number of unique days a driver completed a Pilot shift by the total number of days they were signed up for the Pilot. The categories were created using the median participation rate (47 percent), upper quartile (70 percent), and lower quartile (27 percent).

#### *1. Median Quartile Participation Summary Statistics*

	<b>Fare Share Lease</b>	<b>Participant- Specific Lease</b>
<b>Drivers Included</b>	22	331
<b>Total Shift Farebox<sup>8</sup></b>	\$209.73	\$246.68
<b>Hourly Farebox</b>	\$21.70	\$24.08
<b>Hourly Net<sup>9</sup></b>	\$13.25	\$14.38
<b>Shift Lease Payment</b>	\$72.99	\$90.79
<b>Hourly Lease</b>	\$7.55	\$8.86
<b>Shift Duration (hours)</b>	9.67	10.25
<b>Trips per Hour</b>	1.68	1.67

#### *2. Upper Quartile Participation Summary Statistics*

	<b>Fare Share Lease</b>	<b>Participant- Specific Lease</b>
<b>Drivers Included</b>	3	177
<b>Total Shift Farebox</b>	\$200.36	\$272.93
<b>Hourly Farebox</b>	\$20.47	\$24.91
<b>Hourly Net</b>	\$12.54	\$15.42
<b>Shift Lease Payment</b>	\$70.13	\$94.76
<b>Hourly Lease</b>	\$7.17	\$8.65
<b>Shift Duration (hours)</b>	9.79	10.95
<b>Trips per Hour</b>	1.67	1.72

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<sup>8</sup> Sum of fares and surcharges; does not include tips.

<sup>9</sup> Hourly net is the result of hourly farebox minus hourly lease payment and hourly estimated gas costs.

### 3. Lower Quartile Participation Summary Statistics

	<b>Fare Share Lease</b>	<b>Participant- Specific Lease</b>
<b>Drivers Included</b>	57	521
<b>Total Shift Farebox</b>	\$164.50	198.65
<b>Hourly Farebox</b>	\$20.66	\$21.24
<b>Hourly Net</b>	\$12.55	\$10.70
<b>Shift Lease Payment</b>	\$57.69	\$91.17
<b>Hourly Lease Payment</b>	\$7.24	\$9.75
<b>Shift Duration (hours)</b>	7.96	9.35
<b>Trips per Hour</b>	1.24	1.53

The findings outlined in the tables above demonstrate that the degree of participation in the Pilot yielded different results for each leasing model.

Drivers using the Participant-Specific Lease model saw increased earnings and total trips, and decreased leasing costs, as the extent of participation increased. Conversely, those drivers in the lowest participation quartile had the highest leasing costs, and lowest trips per hour. In general, drivers in this model paid an effective commission rate of between 35 and 46 percent of total earnings toward vehicle leases.

Drivers using the Fare Share Lease model in the median participation quartile had the highest hourly earnings, and the most trips per hour. Since drivers paid a fixed commission of 35 percent for vehicle leases, the extent of participation had no effect on overall leasing costs.

The Fare Share Lease model had significantly fewer users over the duration of the Pilot, and the total number of active drivers decreased over time as Participant decreased the number of vehicles available for this leasing model. The upper quartile of participation (driving on 70 percent or more of total days) included only three drivers, compared to 177 drivers in the Participant-Specific Lease model. There is less overall variability in shift statistics between participation categories (the three tables) for the Fare Share Model than in the Participant-Specific model because the number of drivers within each varies less.

#### *Vehicle Availability*

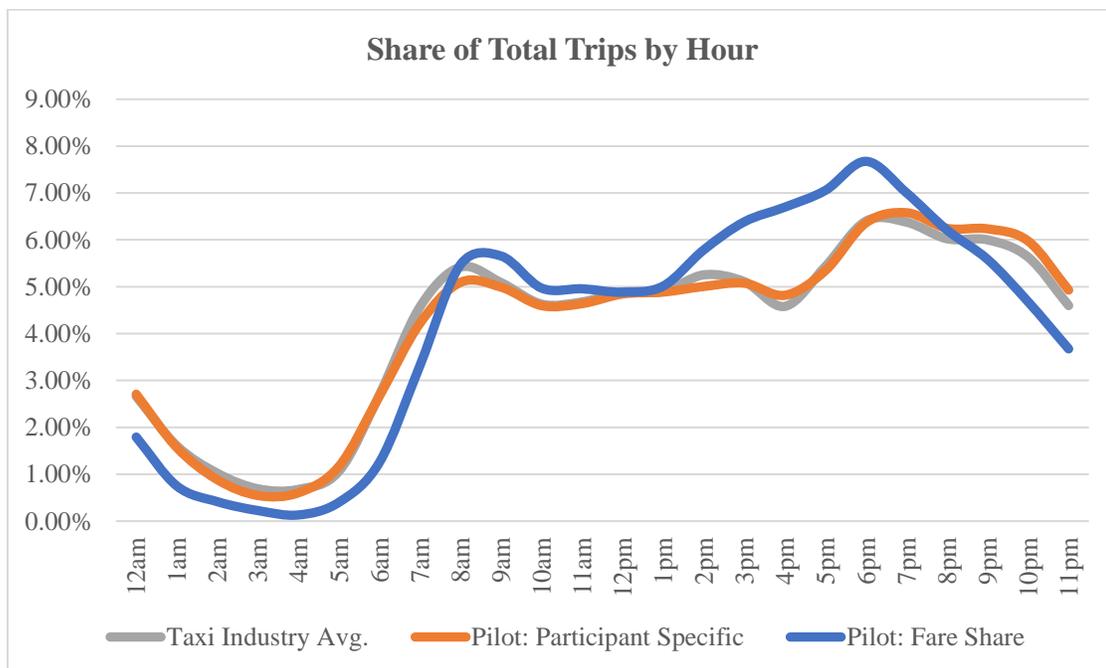
A Pilot goal was to increase vehicle availability for passengers during rush hour periods in order to increase driver earning potential and provide more trips to passengers. To analyze this, Pilot period trips

were aggregated by weekday morning and afternoon peak periods (7 – 9am and 4 – 6pm) and compared to medallion trips as a whole during the Pilot period.

The weekday morning peak period accounted for slightly more than 15 percent of all medallion trips, which was greater than that of both Pilot lease models by less than one percent. The weekday afternoon peak period showed greater discrepancies. Nearly 22 percent of all weekday trips in the Fare Share Lease model took place during that period, which was greater than the Participant-Specific model (18.29 percent) and medallion sector (16.41 percent).

The higher share of trips during the afternoon peak period for the Fare Share Lease is a result of shorter shift durations and differing work hours. In the medallion sector, a higher share of total trips occurs in the late night and early morning period than in the Fare Share Lease: nearly 40 percent of all weekday medallion trips occur from midnight to noon, compared to 34 percent in the Fare Share Lease. The difference is more pronounced in the period between midnight and 6am, when medallions perform 10.42 percent of all weekday trips, which is more than twice the 4.97 percent in the Fare Share Lease model. This demonstrates the greater concentration of Fare Share Lease trips in specific time periods compared to the Pilot Participant-Specific Lease and the medallion sector generally.

Seen in the graph below, there is a decline in the total share of trips occurring within the 3pm and 4pm hours (5.11 percent to 4.58 percent) in the medallion sector. The Pilot Participant-Specific Lease shows a similar trend of decline, from 5.08 percent to 4.82 percent. At the same time, there was an increase in the share of Pilot Fare Share Lease trips, from 6.38 percent at 3pm to 6.7 percent at 4pm.



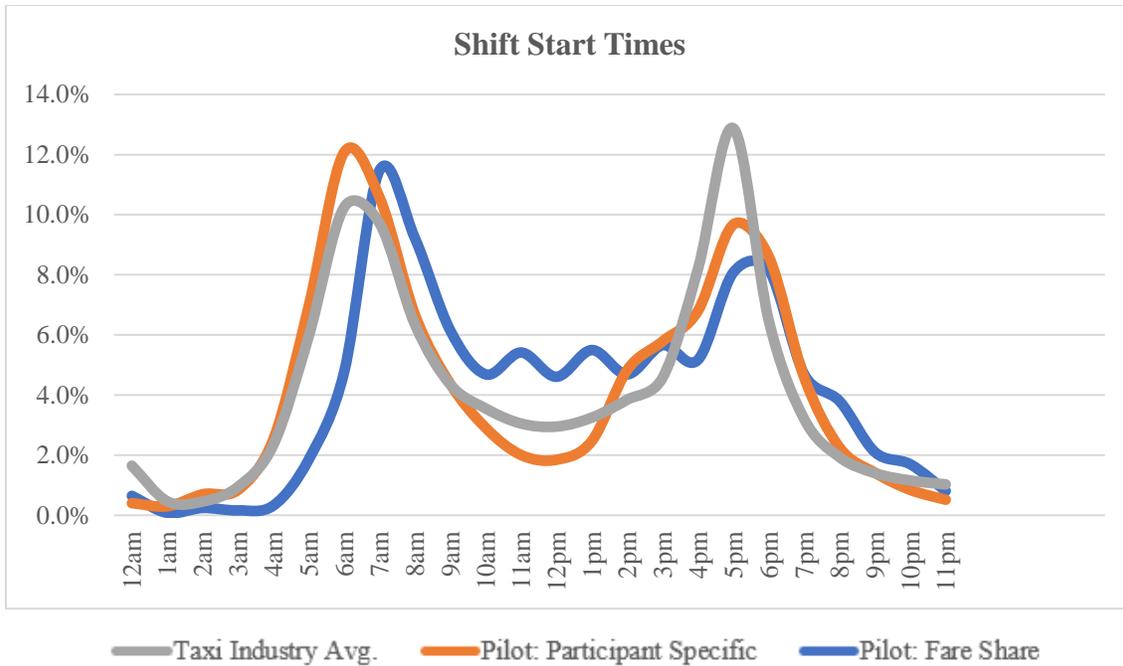
The observed increase in vehicle availability from 4pm – 6pm during Fare Share Leases as compared to other lease options suggests that the Fare Share Lease model offers potential for contributing to the Pilot goal of increasing vehicle availability during the evening peak when passenger demand is high. This in turn provides additional earning opportunities for drivers during that period.

### *Driver Behavior*

To understand how the two leasing models impacted shift start time, the graph below shows the share of first trips by reservation occurring within each hour. Drivers in the medallion industry as well as those in the Participant-Specific Lease model start driving on average between 6am – 7am, compared to the Fare Share Lease model drivers that start between 7am – 8am. In the afternoon, medallion drivers begin one hour earlier (5pm) than the Pilot models (6pm). The driver interviews supported these findings.

The analysis finds a slight difference in driver behavior in the Pilot as compared to the medallion industry as a whole. Though relatively small, any change in behavior in the yellow industry is worth noting. The reason for lack of major behavioral change could be economic: during certain hours, drivers typically earn the most money, and even if drivers are not forced to start shifts at certain times, they still have financial incentives to do so.

The reason could also be behavioral: as some of the interviewees explained, drivers are often in the habit of working a set schedule and find it difficult to break with longstanding patterns despite the existence of alternatives.



**Recommendation**

It is recommended the TLC amend Rule 58-21(c)(1), which outlines Standard Lease Cap rates, to allow for voluntary pro-rated leases on shifts up to 12 hours, similar to those offered in the Pilot’s Participant-Specific Lease model. Vehicle owners who choose to offer leasing arrangements under this rule should be subject to maximum hourly rates to prevent driver overcharging. TLC should establish these maximum rates in consultation with industry stakeholders during the forthcoming 2019 lease cap hearing process.

Findings do not support rulemaking for the commission-based model as implemented through the Pilot Fare Share Lease. While most drivers contacted by TLC benefitted from increased flexibility and protection against a net loss on shifts, there was limited number of Participants and drivers overall. Additionally, there were substantiated concerns about financial viability and inefficient vehicle use from the owner’s perspective.