TOYOTA MONITOR How to Improve and Sustain Equitable Transportation: Transportation Network Companies (TNCs) and the MBTA FOUNDATION

### 1. Problem Statement

TNC ridership has grown rapidly with up to 96,000 rides per day in Boston in 2017 (up 460% from 2014). The increase in TNC ridership has led to the decrease (heavy rail 2%, bus 6% in past year) in MBTA ridership and revenue. Thus, it is important to understand the dynamics between TNCs and MBTA and to examine the implications on the overall access to mobility and the sustainability of the city's transportation ecosystem.

"We believe mobility is critical to creating societal progress and improving lives around the world." -Toyota Mobility Foundation-

## **Current State: Increase in TNCs means**

**Desired State** 



...Congestion & Pollution from TNC cars

<sup>2</sup> More available space in the city from reduced parking load

# 3. Ridership Dynamics between TNCs and the MBTA



Finding solutions to this problem requires all stakeholders to engage in a long-term view, focused on system sustainability. Today, a lack of understanding of the full system makes planning and policy making difficult.

Establish transportation policies that...

Equitable access to mobility Mass transit options

MBTA + TNC synergies

Traffic and congestion in the city

Current literature on the topic is focused on the types of trips riders make rather than analysis on motivations for the transportation decisions.

Because of this perceived gap, we based the construction of our causal diagram on the idea of how a rider chooses between public transit and a TNC for any given ride, assuming that both options are equally accessible. In other words, what makes one option more attractive and the other less attractive. The diagram shows the key dynamics among TNCs, MBTA and selected variables.

#### \$100 Average Utility of Each Variable n = 23 completed surveys \$50 \$0 \$50 \$100 7-9 mins Price \$5-\$9 < 2 blocks (~500. 10-12 mins Subway \$10-\$14 < .50 mile 19-22 mins Price per ride <\$5 -yft, Uber, etc. Own Car \$15-\$19 \$20-\$24 \$25-\$29 .50 mile 25 mins >\$30 .3-15 mins < .25 mile 6-18 mins 23 - 25 mins Public bus

# 4. A Test Survey Conducted test Utility of TNCs and MBTA Attractiveness

Based on initial utility curves from our survey, TNCs could play a vital role connecting transportation deserts via last mile service

5. Recommended Improvement Path

Jul

Aug



## 6. Future Work

Project team recommends the refinement and broader distribution of a choice-based survey, testing and refining the mixed utility of certain variables. In particular, a focus on mixed-use rides and the last mile might more acutely focus the analysis on the area with highest potential for impact. Maria Castillo Son Young Hong Eric Pizzi Robert Thornton

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Acitelli, Tom. (2018). Uber and Lyft averaged 96,000 rides a day in Boston in 2017: Report. boston.curbed.com/2018/5/2/17310438/uber-and-lyft-boston-rides MassDOT. (2017). Mart Ridership Updater FY15-FY17. Boston Transportation Department. (2017). Go Boston 2030 Vision and Action Plan.