Traversing the Last Mile:
Getting Central Ohio to Work
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INTRODUCTION

Background:

The "last mile problem" (LMP) in transportation is about how to move a rider from a central node in the network, to their final destination, usually work or home. Originally a concept from the telecommunications industry, it is now a major focus in logistics and transportation planning.

The default solutions to the LMP are walking, riding a bike, or taking a taxi. These are not realistic solutions for workforce commuters, when the four primary concerns that influence the commuter decisions are convenience, price, reliability, and safety.

An explosion of new private sector technologies and business models have given commuters new ways of getting to & from work but decreasing national PT ridership reflects poorly on the success of the currently available workforce last mile solutions.

Problem Statement:

Research indicates that transit ridership depends on proximity to transit, especially workplace proximity, that the lack of a last mile service is the main deterrent to using public transportation (PT) & that transportation is the second most important factor in accepting or staying at a job.

In order to supply Central Ohio's employers with employees that can get to work routinely, on time, or at all, a more effective last mile solution is necessary.

Groveport, Obetz, New Albany, Columbus are all funding no fare shuttle systems as a last mile solution. It is necessary to analyze the success of current shuttle programs, to decide if they are efficiently solving this problem.

AIM

- What is the impact on workforce outcomes & the sustainability of publicly funded shuttles in 3 Central Ohio neighborhoods as a workforce last mile transportation solution?

- What other Central Ohio neighborhoods would benefit by implementing workforce shuttles?

- How do costs & benefits of these shuttles compare with alternative and potential workforce last mile solutions?

Examples of the shuttles & circulators currently operating in Central Ohio:

Left: Central Ohio Transit Authority's (**COTA**) downtown circulator shuttle, the **CBUS**.

Right: Groveport Rickenbacker Employee Access Transit (**GREAT**) shuttle.

METHODS

Data Collection:

Ridership data was collected from the cities of New Albany's "SmartRide" & Groveport's (in partnership w/ Obetz) "GREAT", and Central Ohio Transportation Authority's (COTA) downtown shuttle, the "CBUS" , as well as, for the bus routes that connect these shuttle programs to COTA's larger transportation network. This data spans multiple years, including before and after the implementation of COTA's transit system redesign (TSR) project. The data was collected on these shuttles by Automatic Passenger Counter (APC) technology, which normally has an accuracy rate of 95%. The data was used to determine if the shuttles were leading to an increase or decrease in commuter utilization of the PT system, and thus the effectiveness of the programs of getting employees to jobs.

Data was also collected from each city's Comprehensive Annual Financial Report (CAFR) for all years available from 2011 forward. The unemployment rate and total number of jobs in the locality were considered in each programs effectiveness. The local income tax rate, total collected, and the % of spending funded by income tax ("General Fund") were used to determine sustainability.

Figures on estimated jobs added per year & square footage of the local business park were considered but not included in the analysis due to sparse and inconsistent financial reporting.

RESULTS

Effectiveness:

The ridership on each line was either consistent or grew slightly from implementation to the present. The unemployment rate in the 3 communities fell drastically from 2011 to the present. The estimated total number of jobs available grew in each community over the same span.
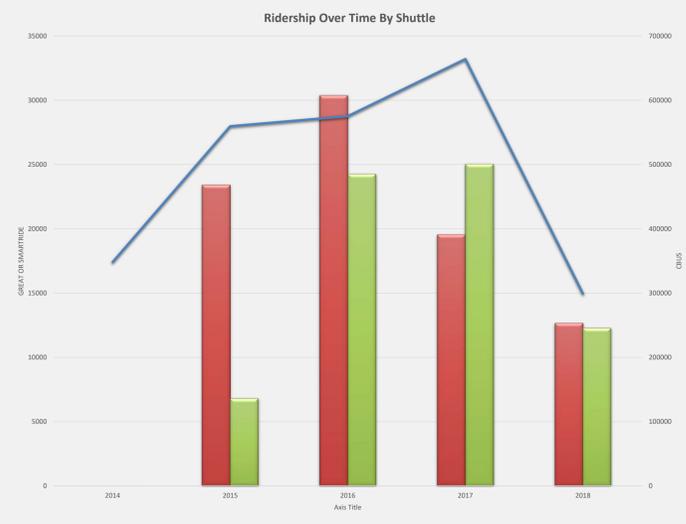
Note: GREAT began in September 2015, and CBUS began operating in May 2014, and all three shuttle programs have incomplete 2018 data as only about a half year was available at the time of this presentation.

Sustainability:

GREAT and SmartRide were found to be sustainable programs thus far. The governments who fund the programs foot the bill. SmartRide costs New Albany $130,000 annually. Groveport and Obetz share the cost of the GREAT shuttles, splitting the total of $490,585 between them, w/ Obetz covering $150,000 and Groveport the remainder. The GREAT shuttles operate on weekends which helps account for the higher price. What make the programs sustainable is payroll taxes. Each community is sparsely populated (10,000 residents or less) and each has large numbers of outside workers paying income tax rates of 2-2.5% which consistently results in 70-95% funding for the shuttles & every other service they provide. Receipts have gone up each year since operations began for each community.
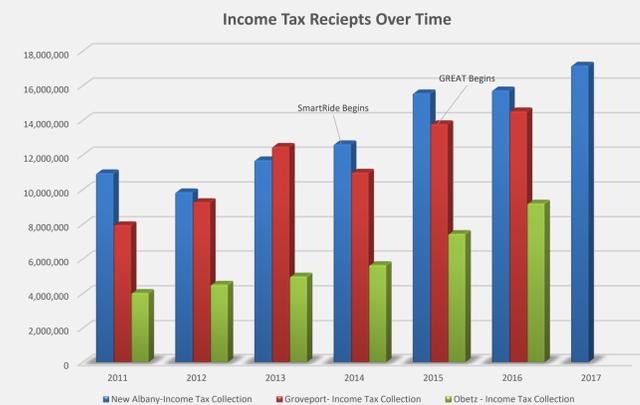
The model and sustainability of the CBUS is a different matter entirely. Unlike GREAT and SmartRide, CBUS is funded by COTA and not a city, like Columbus, who unequally reaps the benefits of this arrangement. COTA receives funding via a regional sales tax so it is unable to benefit directly from an increase in income taxes that are potentially generated from the CBUS's service area. Income tax receipts for Columbus also grew from 2011-2017, but In the long term, without a stronger economic incentive for COTA to keep the CBUS free, it is the least sustainable.

Potential for Expansion:

Many other Central Ohio towns and suburbs need to consider funding a workforce shuttle. Similar characteristics to the communities analyzed here, like proximity to a business park, development incentives, an existing bus line (Delaware's DATABus), a small population to work force ratio, & other factors were found to be characteristics of communities w/ efficient shuttle systems. From researching various Central Ohio communities, Dublin, Lancaster, & Marysville are cities that could successfully implement an efficient shuttle system.

Analysis of Alternatives:

The alternative solutions to the LMP have shortfalls, particularly as workforce related solutions. One disadvantage of all options was that each would cost the commuter more than a free shuttle.

- **Lyft/Uber** - have begun working w/ cities to provide last mile service but based off similar estimates from other cities, this would mean the city subsidizes the commuter $2 a ride minimum, only making sense for the non-CBUS shuttles. The city also then lacks the ability to capture data for future transportation planning.

- **Car2Go** - recently exited Columbus, as the cost is similar to Lyft/Uber but people had to drive themselves, this model failed.

- **Lime/Bird** - Bikes and Scooters available at $1 for 30 minutes but elderly or disabled workers potentially could not use them, they require an "App" which inadvertently excludes low income workers without a data plan. Without proper pedestrian zones and sidewalks increases danger in some communities, and. The only alternative that covers all 4 primary concerns are autonomous shuttles, which will begin operating in Columbus market later in 2018. Currently their price tag & potential danger keep them from being a reasonable alternative for most localities.

- **Autonomous Shuttles** – The Ohio Department of Transportation (ODOT) will be testing these starting 2018 on the Scioto Mile. The cost of new technology & potential safety issues currently makes this an unattainable option for many communities.

CONCLUSIONS

This analysis suffered from many factors. Poor financial reporting necessitated a smaller amount of variables to analyze. The delay in 2017-2018 CAFR's combined with very recent implementation of these shuttles supplied only a few years of overlapping data Constant changes, like COTA's TSR, makes comparing the ridership on certain routes & stops impossible. Finally, the national and state unemployment rate fell from 2011 to the present due to economic recovery since the 2007 financial crisis so there is a strong possibility that these numbers improved due to the economy overall. This research will continue in the hope that stronger conclusions can be drawn provided new data, new methodology, or the passing of time.

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