In Defense of the Bus

For many cities, the future of mass transit lies in a mode often considered a thing of the past.

An electric LA Metro bus. Photo courtesy Zuma Press, Inc./Alamy Stock Photo.

By Jonathan Sigall

https://www.planning.org/planning/2018/feb/defenseofthebus/

Buses are easy to overlook. They don't stir the imagination the way autonomous cars and multi-billion-dollar, high-speed rail lines do. The prevailing sentiment toward buses is best reflected in the "honorary monikers" the New York Straphangers Campaign once gave the worst-performing routes in New York City: Pokey and Schleppie. After all, when street congestion is at its worst, pedestrians can typically beat the bus across town.

But when properly planned and operated, bus systems can be an integral component of a transportation system that moves people quickly, reliably, conveniently, and affordably —

particularly when it's the only form of mass transit available in a city. Buses can also serve as a feeder system to other transit modes and nodes, are accessible to populations that can't access a subway, and can reach far-flung neighborhoods that would otherwise be cut off from jobs, education, health care, and other vital services.

In short, buses are important to sustainable, resilient, and equitable transportation — and all for a fraction of the cost and time it takes to build a new-start rail system. More and more cities throughout the U.S. are recognizing this, and undertaking ambitious programs to remake their bus systems from the ground up to stem years of declining ridership, better meet the needs of shifting markets, or both.

Buses Are Essential for Equity

Thirty percent of households making less than $15,000 report riding the bus; high-income households making more than $100,000 are more likely to take the train.
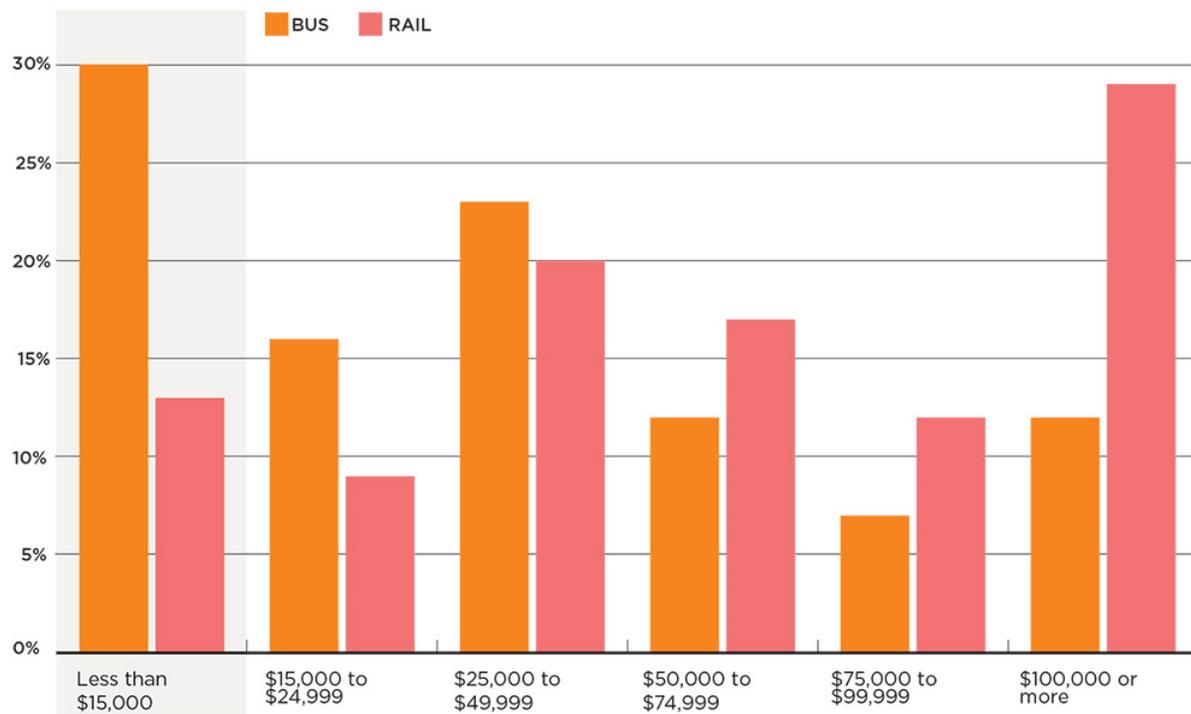
Source: American Public Transportation Association.

Impetus for change

Among the first urban areas to transform their bus networks were Jacksonville, Florida, and Houston, followed by Columbus, Ohio, where buses are the only public transit option. Each was looking to flip a system that had become outdated and onerous. In Jacksonville and Houston, in particular, systems were failing by the most basic barometer: ridership.

When Jacksonville began its system optimization in 2013, its bus service ranked last among 11 peer cities in riders per revenue mile. The situation there was discouraging enough that the case could have been made to shutter service altogether. On a systemwide basis, buses were averaging less than 20 riders per revenue hour — often an indicator, notes a case study of the city's bus redesign, that a bus line should be eliminated.

Meanwhile, service frequency was so poor that no routes ran at intervals better than 30 minutes — and only two out of the agency's more than 50 routes came at 30-minute intervals. Service in general was complicated and inconvenient.

Houston commuters faced similar challenges. Prior to the restructuring in 2015, routes were long, circuitous, and difficult to understand for all but seasoned riders. Travel times were lengthy, trips were complex and exhausting, and scheduled waits between buses could be upward of 60 minutes, according to a case study of the system redesign there.

The result was plummeting ridership. Between 2008 and 2013, Houston lost more riders (19.6 percent) than all but one of 13 peer agencies (St. Louis, with 20.4 percent). Houston was also dead last in boardings per revenue hour: 19.8 in 2011, compared to a peer average of 30.5.

Although Columbus dealt with a drop of half a million customers between 2014 and 2016, the dip followed record ridership of 19.3 million in 2014. It also represented a modest 2.6 percent decline in trips and came well into the city's transit system redesign, which commenced in 2013 after Curtis Stitt, then CEO of the Central Ohio Transit Authority, had a watershed insight.

Stitt compared current system maps to maps from 40 years earlier and saw that they were near copies of each other, despite the region's significant evolution during the intervening decades. For COTA to remain relevant and support economic and demographic trends, Stitt knew it was time for a ground-up restructuring.

The system had to adapt from its hub-and-spoke orientation, which served downtown well but not the current nexus of job and population centers that had dispersed outward. Riders not bound for the inner city generally had to still travel downtown first, then back out. It was a time-consuming and tiring commuting pattern, compounded by a paucity of high-frequency routes — seven, to be exact, says Josh Sikich, AICP, who managed COTA's redesign.

Beyond contending with wearisome routes, commuters in these three cities relied on timetables that were not user friendly or intuitive. Real-time information wasn't readily available or accessible. The systems also failed to meet the needs of the growing number of workers who no longer work nine to five. More service was needed — earlier, later, and on the weekends.

The easy — and often actual — response in these situations is to assume that the demand for buses just isn't there and reduce or discontinue service. Instead, these cities recognized that the lack of demand wasn't due to a public averse to bus service but rather to outdated systems that served markets suboptimally or simply no longer existed.

The hardest hit by poor bus service are often the people who can least afford it. According to the report *Who Rides Public Transportation* by the American Public Transportation Association, 30 percent of bus riders barely scrape by on an annual household income of less than $15,000, and 40 percent cite a need-based reason for using transit: no money, no car, or no other transit options.

Columbus is an apt representation of that equity gap. Some seven in 10 bus riders there have a total annual household income of less than $25,000, less than half the city's median household income of $55,028. Add to that the fact that 61 percent of city bus-rider households don't have their own vehicle, and buses become even more vital for the city's transportation network.

Better addressing ridership needs

These three cities chose transformative over incremental change. Tinkering at the edges was no longer viable; decades of such piecemeal change landed them in the predicament they found themselves to begin with. Bold action was needed.

Jacksonville and Houston were among the first major U.S. cities to redesign their bus systems from scratch. They launched their new services in December 2014 and August 2015, respectively, and began reaping the dividends in short order.

Ridership in Jacksonville grew 10 percent in the first full year of service, from 889,057 in December 2014 to 990,277 the following December. Although patronage has since leveled off, according to the Jacksonville Transit Authority, that trend alone speaks volumes about what agencies stand to gain from restructuring their services. Peer agencies have seen ridership declines of 10 to 20 percent over the last three years.

Results in Houston are comparable. They're not as robust as originally expected — a seven percent increase in the first two years, versus a projected 20 percent — but Kurt Luhrsen, the vice president of service planning at the Metropolitan Transit Authority of Harris County, attributes the modest gains to a downturn in the region's oil industry. They're nonetheless happy to be holding their own, he says, explaining that the ridership trend would be worse without the revamped bus service.

Overall, their efforts have been so successful that they garnered best-in-class honors from the American Public Transportation Association. In 2015, METRO nabbed the award for Outstanding Public Transportation System Achievement. JTA claimed the same prize one year later. Perhaps more tellingly, their successes are spurring cities across the country to overhaul their bus systems — including Columbus.

For Columbus, which unveiled its redesign on May 1, 2017, it's too early to assess the impact, but planners there expect positive outcomes. Initially, they project the current downward trend in ridership will cease, with patronage staying flat between 2016 and 2017. Over three years, they forecast a ridership growth of 10 percent, driven in large part by the expansion of high-frequency and weekend service. (Frequent service is defined as routes that run at least every 15 minutes.)

Through the first few months, this trend has been playing out: Sunday ridership is already up approximately 18 percent.
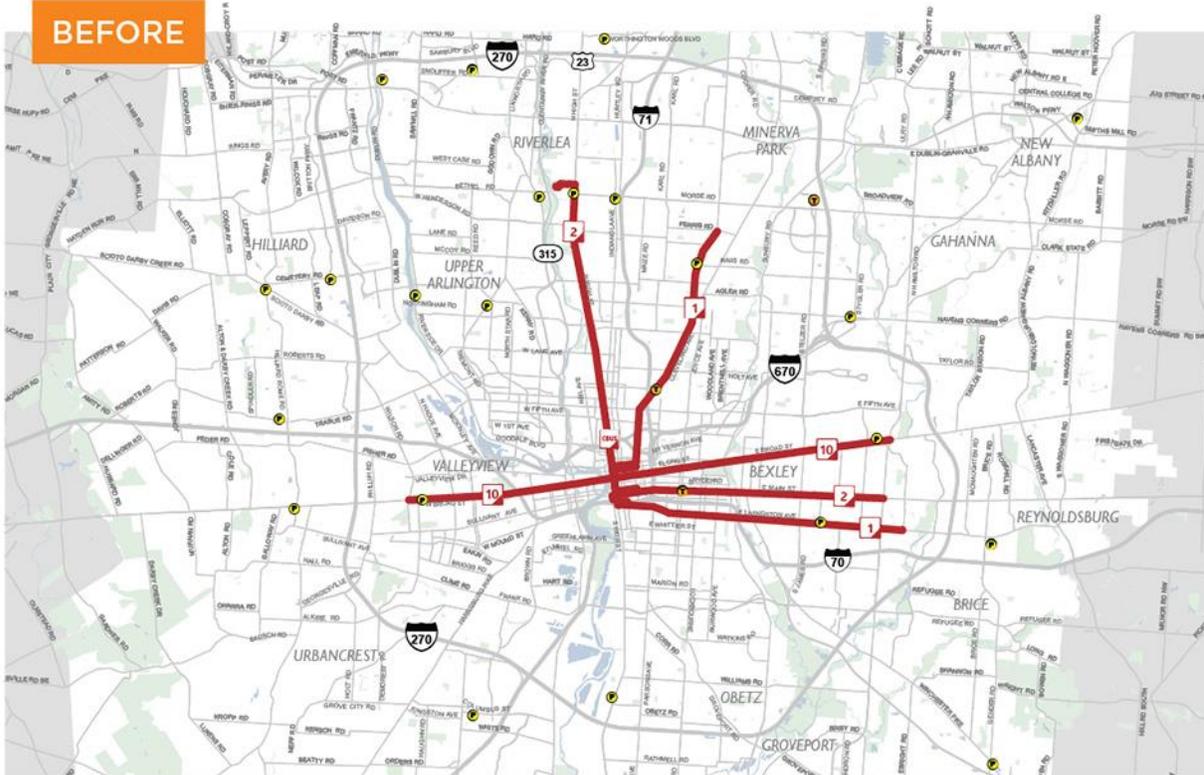
So how did these cities all do it? In a word, simplification.
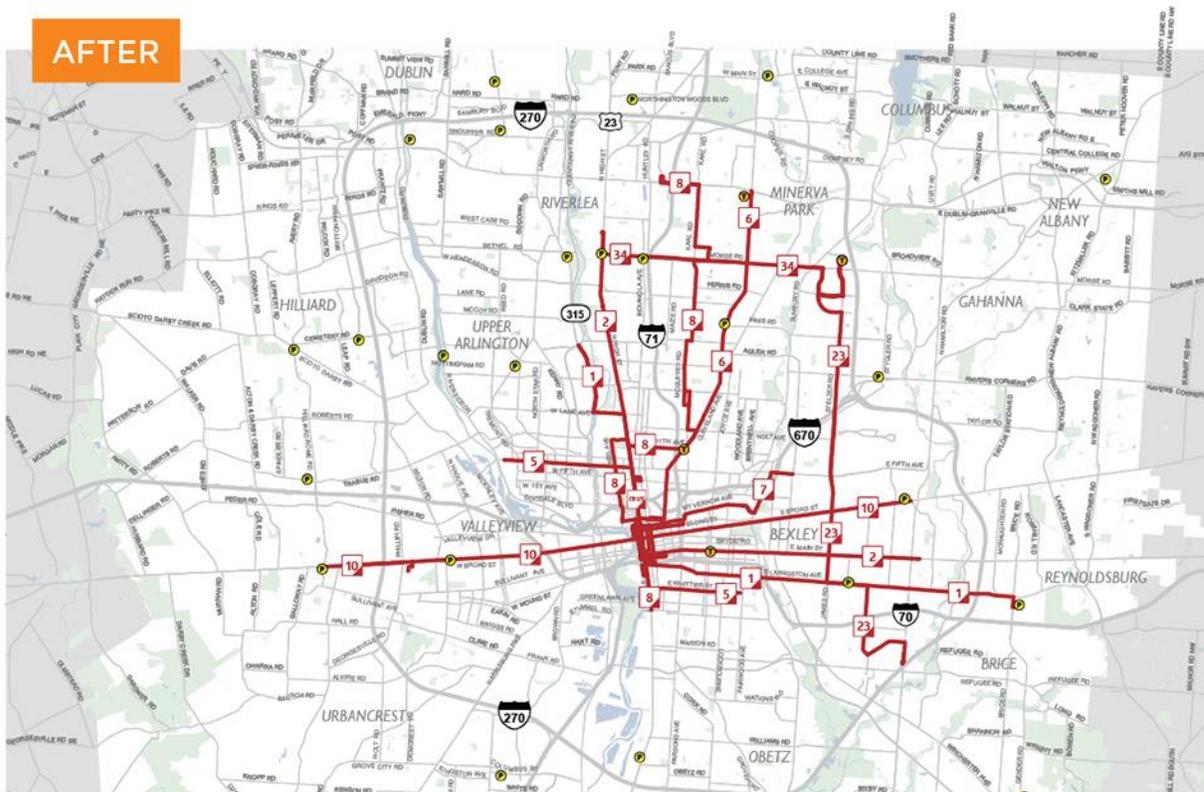
Route Remake in Columbus

A COTA employee helps a rider navigate the new bus routes on launch day, May 1, 2017.

BEFORE

AFTER

The city's bus network redesign (bottom map) added new, high-frequency routes that make connections easier.

Back to basics

Simplicity is the core organizing principal for any city looking to invigorate their bus systems. Planners and outside experts point to the same fundamental goals and methods:

PROVIDE DIRECT ROUTES. In Columbus, where buses once ran along only one main corridor, downtown service was spread over four arterials, offering riders more direct and accessible rides.

ENHANCE FREQUENCY. COTA more than doubled the number of high-frequency routes (from seven to 15). Houston and Columbus augmented weekend services, increasing the number of routes and bulking up timetables with more frequent service.

MAKE THE SYSTEM EASIER TO UNDERSTAND. The city of Houston created a system that can be navigated without a timetable by providing service at predictable intervals. Like a rapid transit system, riders just show up, knowing a bus will arrive shortly. COTA sought to make riding the system on weekends easier by nearly replicating weekday schedules.

CREATE RELIABILITY. All three cities divided long routes into shorter, more direct segments. (The shorter a route, the less likely a bus will get mired in traffic and thrown off schedule.) In some cases, long, aimless routes were eliminated outright. Technology plays a role, too: Smart traffic lights prioritize buses at intersections, and GPS technology helps address gaps in service or bunching in real time.

IMPROVE TRIP SPEEDS. The same interventions that yield better service reliability work to speed trip times. In addition, Jacksonville removed 30 percent of bus stops to reduce the number of times buses have to slow or stop, and added more route supervisors to address conditions as they unfold.

PROVIDE REAL-TIME INFORMATION. In an age where people can shop, bank, and conduct other transactions on their phones, riders expect the convenience of apps that make it easier to plan a trip and navigate en route. Jacksonville, Houston, and Columbus all offer mobile access to real-time trip information.

LEVERAGE CATALYTIC EVENTS. An impetus for improving service in Houston was the opening of three light-rail lines. Beyond a chance to simply integrate the two networks, transit and civic leaders saw the light-rail expansion for the rare opportunity it offered to remake the bus map "from a blank sheet." Houston made further capital investments, installing more than 1,000 new bus stops and building two new transit centers. During its changeover, Jacksonville added 129 new ADA-compliant stops.

Among the more innovative features was the installation of new bus stop signs months ahead of the actual launch; the signs were then fitted with hoods that contained the current route

information. When it came time to flip the switch from old to new, the agencies sent cadres of workers to remove the hoods, readying new signs overnight.

Throughout the process, all three agencies invested heavily in customer outreach and education campaigns to ensure communities were ready for their new systems. They also offered individualized education, provided websites and other material that had information on the old and new services, and used street teams to guide riders.

Other Innovators

Jacksonville, Houston, and Columbus may get the lion's share of attention when it comes to innovation in bus service, but they are far from the only U.S. cities achieving great strides in their bus systems.

SEATTLE is arguably the most transit-oriented city in the country, implementing a host of policies that have cut into the mode share for single-occupant auto trips into downtown despite soaring economic growth. King County Metro, for example, was the first major U.S. transit agency to offer a discount fare program that's solely income based. It's also remaking its bus network, though not all at once. Instead, it's remaking the bus map one quadrant of the city at a time.

SAN FRANCISCO overhauled its bus network, too, adopting many of the same features its cohorts in Jacksonville, Houston, and Columbus did. But it implemented one truly forward-thinking innovation that was the first of its kind in the U.S. on a systemwide basis: all-door boarding. Utilizing "tap-on" fare cards, this feature alleviates one of the biggest bottle-necks in traditional bus service: the line to load at the front of the bus.

PINELLAS COUNTY, Florida, is partnering with ride-share providers like Uber to help riders who don't live within walking distance of a bus stop access the transit system. Patrons "hail" a ride and the county picks up the tab, addressing the first/last mile impediment that often strands the most vulnerable populations.

Getting to yes

With such strong plans and results, it might seem an easy pitch to get buy-in for bus system redesigns. The reality is that the tale is never so straightforward.

"The biggest challenge is people don't like change," says Luhrsen, adding that communities can identify with their bus routes the same way they do their neighborhoods. Up north in Columbus, Sikich notes that even riders who had the most to gain voiced concerns. Their trips were being made more direct and faster, but they were skeptical they would actually benefit.

The question for agencies is how get to "yes," explains Luhrsen. The answer is manifold:

PUT THE TIME IN UPFRONT. Too many agencies rush from design to implementation without getting public and political buy-in on the goals upfront, says Luhrsen. He cautions planners not to "discount the public discourse on goals and objectives."

Houston undertook an exhaustive outreach and education campaign, which APTA's director of policy and research, Darnell Grisby, lauds as "best-in-class." It used network simulations to demonstrate the trade-offs to stakeholders, most notably the 80 elected officials in the service area. The agency invested considerable time keeping the community and politicians engaged throughout the process. The end game, says Luhrsen, is to get politicians to be advocates — or, at minimum, not be vocal opponents.

COMMUNICATE, COMMUNICATE, COMMUNICATE. Appealing to stakeholders in audience-specific ways keeps them engaged and educated. For example, Grisby says data and outcomes demonstrate repeatedly that giving up street parking for better bus service in any locale benefits shopkeepers, as most patrons come by foot or transit. But raw data won't win the day. Easy-to-understand tools like maps can help bridge the communications gap. In Houston, network simulations were a key part of the strategy, demonstrating trade-offs and outcomes in a way data alone can't.

FIND A CHAMPION. Nathaniel Ford Sr. took the helm at JTA in 2013 after successful stints as the head of transit in San Francisco and Atlanta. He made it his crusade to not only revive the failing bus system in Jacksonville, but transform it into a world-class entity. Houston, too, had a champion on its board of directors, Christof Spieler, who was instrumental in paving the way for its program. COTA had the steadfast support of its CEO, Curtis Stitt, as well as its board of directors.

Their backing was critical, according to the agency's head of planning, Michael Bradley, as it allowed the project leaders to feel empowered to stand strong in case of opposition.

BE FLEXIBLE — TO A POINT. Agencies must be receptive to community input and open to modifying the design throughout the planning process. This was the case in Houston, which had intended to replace low-performing routes with dial-a-ride service. The METRO board of directors declined to make that change after opposition from disenfranchised community members, who felt they were too often on the losing end of such changes.

Still, while it's good to keep an open mind and be responsive to public concerns, agencies can risk being overly accommodating. The result, Bradley warns, could be a watered-down plan that ends up "serving everyone, but no one well."

THINK LIKE AN ENTREPRENEUR. It's no coincidence that the acronym for Jacksonville's system redesign is the same as the most fundamental measure of corporate success: ROI.

Ford restructured the JTA by bringing in a consultant in organizational development, C. Robinson Associates, which implemented a plan to strip away layers of bureaucracy, facilitate collaboration among staff and stakeholders, streamline communication, and encourage ownership and accountability among project team members.

COTA, meanwhile, credits an external consulting team for the breadth of its overall vision: Without "new ideas, the [redesign] likely would not have been as big of a change as it was," says agency management.

These three cities have demonstrated that transformative change is achievable. They have remade their bus networks quickly and affordably, and successfully addressed the needs of their ridership; in doing so, they successfully revitalized systems that were failing or were outdated.

Their success is testament to what can be achieved through well-planned, well-executed, and forward-thinking campaigns. And other cities are taking notice.

Planners from Columbus studied the example set by Jacksonville and Houston. Now, Columbus is the new template: Transit officials from Rochester, New York, have visited the city as they consider revamping their own failing system. Perhaps one day, planners from another metropolis will come to Rochester, looking to climb aboard the renaissance in urban bus service.

Jonathan Sigall is a mass transit financing and planning professional in New York City. He writes frequently for APA on transportation planning issues.