Understanding Recent Ridership Changes

Trends and Adaptations

APTA
AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Recent declines in public transportation ridership have prompted a discussion on the factors influencing and causing those declines, and the steps public transit agencies should take to change the ridership trend. Recent nationwide trends, like the emergence of new mobility companies and new technologies, have the potential to reform the current mobility landscape and reduce personal automobile trips. However, public transportation agencies must adapt in order to reinforce the position of public transit as an efficient mode of travel. The public transportation industry can potentially capitalize on external technological innovation and broad economic trends in the coming years. The industry should work to implement adaptations that will provide increased access and use for this efficient mode, while reinforcing the value public transportation still provides.

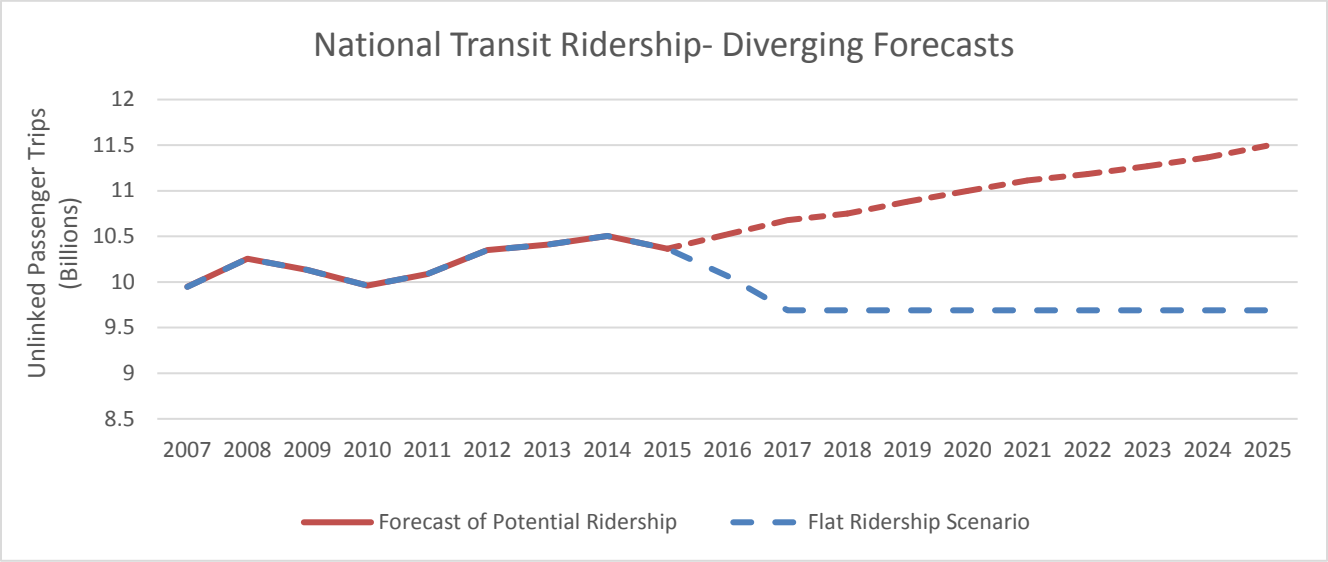
This paper offers three complementary and inseparable analyses: 1) specific identification of the current trends in transit ridership; 2) presentation of adaptations to address declining ridership and boost ridership, while recognizing that success may not be guaranteed until broader macro-economic trends are resolved; and 3) contextualizing current ridership trends by addressing the many benefits of public transportation.

Understanding Current Trends

Declines in transit ridership across the nation have triggered a discussion on the factors influencing and causing those declines. While some transit agencies have struggled to regain ridership since service cuts following the Great Recession (2008-2009), most saw a rebound with modern record ridership in 2014. Today, ridership declines have spread even to the country's most transit-intensive cities.

APTA began its analysis with a statistical regression-based forecast that incorporated variables such as population, real gasoline price, real income, vehicle miles traveled and a traffic congestion index for the top 9 U.S. Metropolitan Statistical Areas (MSAs) based on transit ridership. After integrating independent variable forecasts, the model forecasted a growth in transit ridership based on future positive economic and demographic trends. However, the model did not account for service coverage and reliability, as well as adequate transit funding and maintaining a state-of-good repair, all of which have a strong relationship to ridership and can preempt other transit encourage factors.

Without reformative adaptations that position transit as an efficient mobility choice, ridership could continue to decline. The plateau of the graph's blue line (an extension of 2017's estimated ridership) assumes that the status-quo continues with disruptive external factors and limited internal adjustments. However, strategies that reposition transit as a benefactor of external trends can lead to record modern-era ridership.



In order to address the causes of this decline and adaptations required to reverse course, APTA engaged in a rigorous research process. This includes analysis of the current literature, combing of media reports on individual systems, regression analysis, and confidential focus groups of 1) small-operations, 2) mid-sized, 3) large urban systems. Focus group participants had a wide geographic representation and participants reflected the diversity of the public transportation industry.

Though the determinants of ridership decline vary by community, there are common themes. The findings of both the research and focus groups narrow ridership impacts into four broad categories:

Erosion of Time Competitiveness

Traffic congestion in many cities is up, due to densification, increased mobile/online delivery services, the addition of street enhancements and safety standards, and the proliferation of transportation network companies. Auto loans are now documented to be at levels comparable with pre-recession levels (figure 4), including low credit score sub-prime loans, which can be used to market car ownership to lower-income transit users. The decrease in fuel prices from the highs of 2011-2014 (figure 2) has made automobile ownership less costly and more attractive compared to transit. There is evidence that since the beginning of the Great Recession, pent-up demand for auto purchases and travel has built up. Due to the increased availability and reduced cost of auto ownership, this pent-up demand has been released, leading to more cars on the road and higher congestion. As seen in figure 1, vehicle miles traveled began increasing sharply in 2014 after several years of non-growth.

Figure 1- Vehicle Miles Traveled (Federal Reserve Economic Data)

Focus group participants and data analysis point to reduced speed of buses in service, and the need for additional service hours just to maintain existing headways. This may be contributing to some of the modal shifts that occurring. For example, while total bus ridership is down by nearly 16 percent from 2000-2017, rail ridership (including heavy, light, commuter, and streetcar) is up by a remarkable 43 percent. This indicates that the large investments in new rail systems has been successful in attracting riders, and that it is increasingly becoming preferred to bus travel (note that all bus and trolleybus vehicle revenue miles in the largest 25 urban areas are down over 3 percent from 2008 to 2016). However, daunting capital maintenance and state of good repair issues threaten to hold back rail's reliability and potential growth.

Reduced Customer Affinity and Loyalty

New dynamics in the economy and in individual travel patterns have reduced customer affinity and loyalty. The competitive advantage of purchasing a monthly pass over pay-as-you-go "cash" fares has been diminished by a combination of agencies raising the price of monthly passes along with a decline in trips per month due to teleworking, alternative work schedules, and the increase in online commerce. Traditional transit riders who telework once every 2 weeks reduce their trip consumption by at least 4 per month, further decreasing the incentive for a monthly pass and encouraging pay-as-you-go fare payment. According to the 2016 National Study of Employers, 66 percent of employers allow some employees to occasionally work regular paid hours

from home, up over 20 percentage points from 2006. Forty percent of employers allow some employees to regularly work paid hours from home.

New transit technologies that improve the customer experience, such as eased fare payment through near field technologies and stored value cards on smartphones, have further facilitated the move from monthly passes. Furthermore, there has been a steep decline in the use of free student passes. Some participants report a decline of up to 40% in the use of free college fares. Transportation network companies (TNCs) have impacted customer loyalty in two ways. First, reduced use of the monthly pass means that customers are more likely to take the mode that they feel best suits each individual trip. This means that transit is more likely to have to compete with alternative modes on every trip. As discussed above, service cut during the great recession has not all been replaced, meaning in some places transit service is not as convenient for customers as it once was.

Also, people dependent on transit may view driving for TNCs as a pathway to car ownership, and TNCs have implemented new programs to assist drivers with owning or leasing a vehicle. Driving for TNCs is seen as a way to partially defray monthly car payments. Furthermore, due to increased costs associated with urban living, some traditionally transit dependent communities have been displaced, forcing them to move to less transit-oriented areas and eventually seek alternative transportation modes. This suburbanization has made serving the transit dependent more difficult, making the service even more of a lifeline for those unable to own a car. These suburban areas are more difficult to serve with high-quality transit, leading these groups to choose travel options other than public transportation. These issues, combined, lead to a reversal of induced demand.

Erosion of Cost Competitiveness

A number of factors are eroding the cost competitiveness of public transportation. For example, the proliferation of sub-prime auto loans and reduced gas prices has reduced both the purchase price and operations of personal vehicles (see figures 2-4). TNCs are moving to supplement their ridesourcing model with ridesplitting. Major TNCs began implementing ridesplitting services in 2014, which under some contexts may be price-competitive with transit fares, while offering a more personalized service. Furthermore, due to increased traffic congestion and supportive infrastructure, bike sharing and biking in general has become a popular way to forego a more expensive bus ride that may be slower.

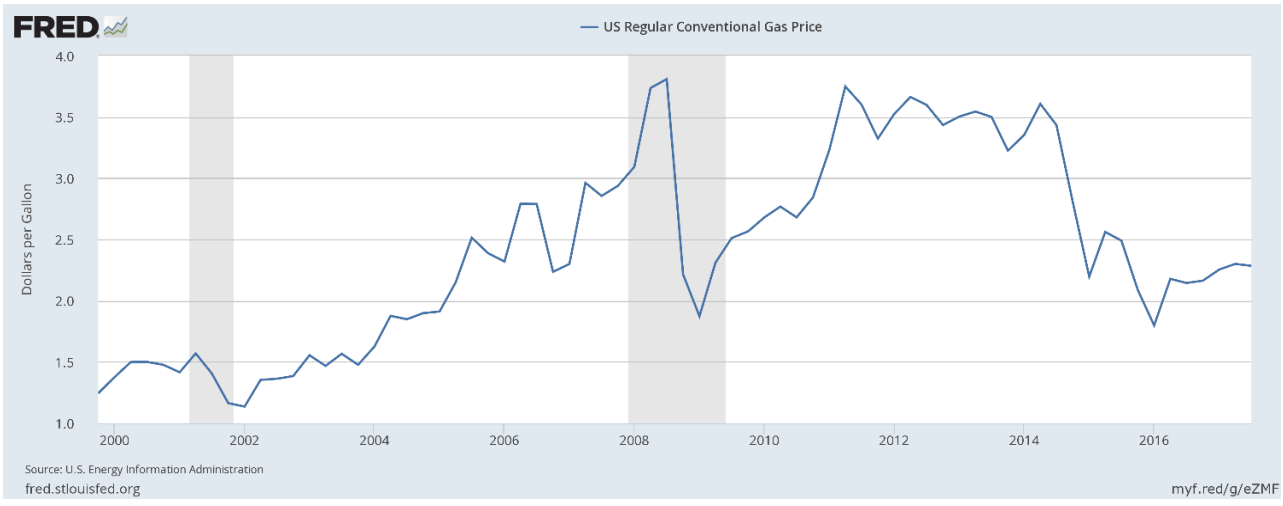


Figure 2- U.S. Regular Conventional Gas Price (Federal Reserve Economic Data)

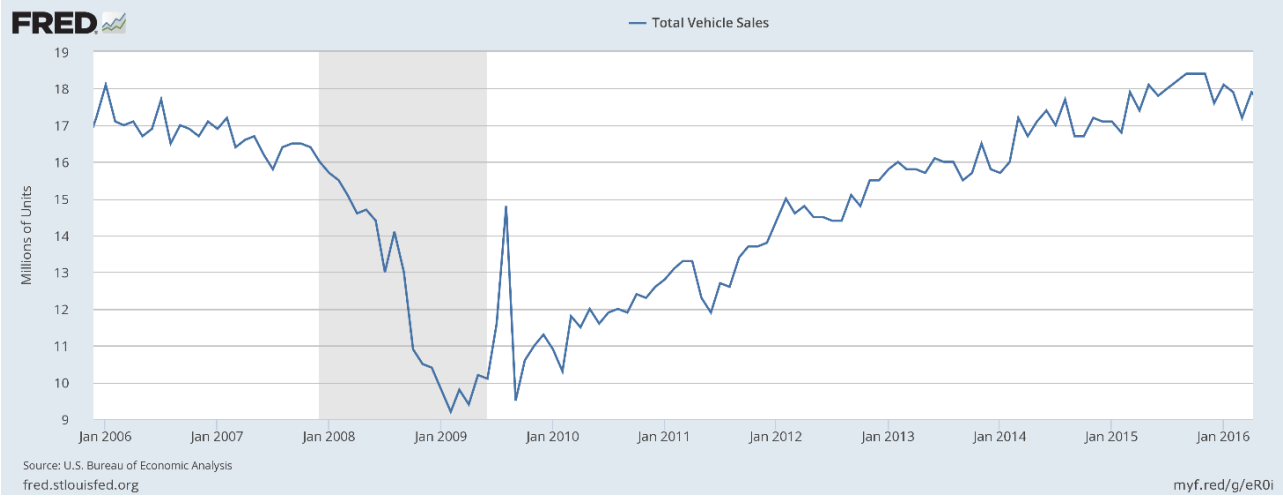


Figure 3- Total Vehicle Sales (Federal Reserve Economic Data)

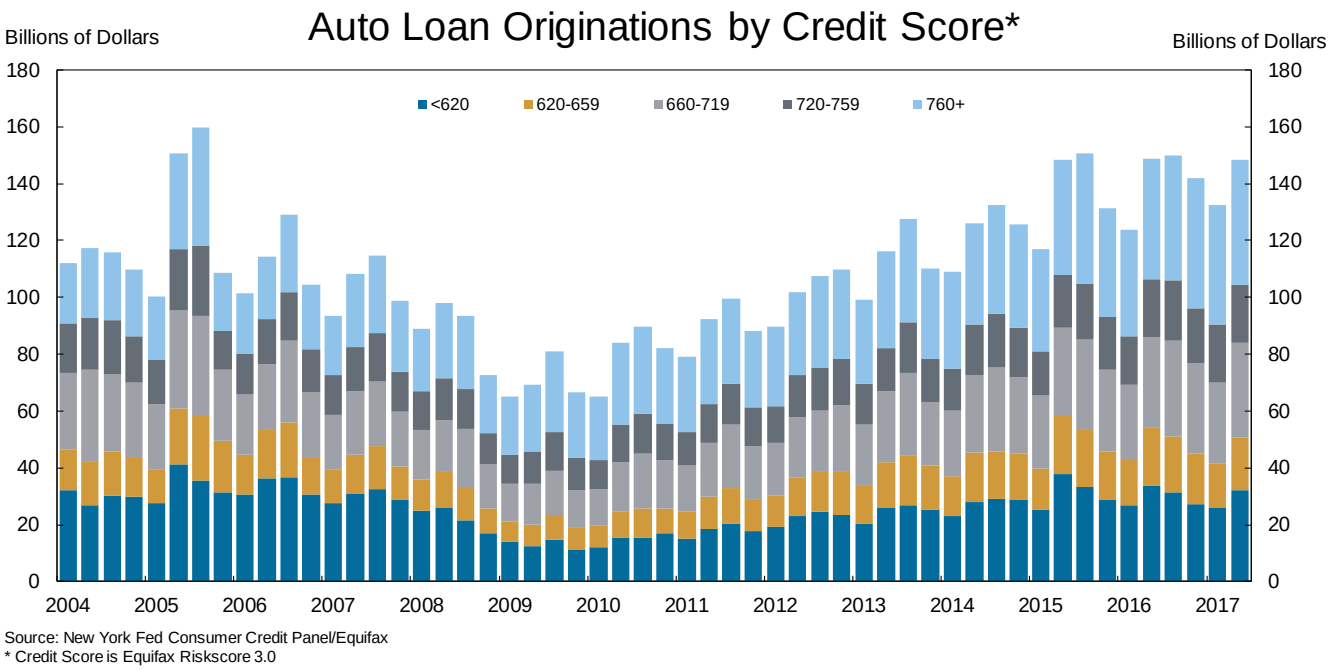


Figure 4- Auto Loan Originations by Credit Score (New York Fed Consumer Credit Panel)

External Factors

Some of the factors producing the transit ridership decline are outside the control of transit agencies and their leaders. Focus group participants noted an uptick in the availability of parking in downtown areas or an increase in free parking. Policies that lower the cost or increase the supply of parking diminish public transportation's competitive edge. Past research has revealed that parking pricing and availability has a major impact on public transportation desirability. Focus group participants also noted that major amenities such as hospitals had opened in areas outside their service area that were more difficult to serve with high quality transit.

Additionally, mental health policy shifts and housing shortages have led to more mentally ill and homeless people on the streets. Thus, these individuals use public transportation as a makeshift shelter, often riding service from end-to-end. There is a resulting perception, either real or simply imagined, that transit is unsafe and/or unpleasant.

Adaptations to Address Decline

While there are clear determinants impacting ridership, there are also suitable adaptations that may slow, arrest or reverse declines depending on the degree of implementation, local economic conditions and community support. In an increasingly competitive mobility network, transit cannot act as the only alternative to the personal automobile, but rather as one of many alternatives that compete on each trip.

Protect and Improve Time Competitiveness

Increasing traffic congestion and competing uses of street and curb space hamper transit's ability to operate street modes efficiently and competitively. Enforced dedicated lanes for bus routes will allow for a greater control of on-time performance and scheduling. Dedicated lanes can help to avoid bus bunching, and signals to consumers that routes are time competitive and reliable, compared to other mobility options. This is particularly powerful in areas with congestion, as competing mobility sources will be impacted by unreliable pick-up times and slow travel. Other on-street infrastructure such as transit bulbs, queue jumps, and signal priority can help speed up service. Policies like all-door boarding and express services reduce dwell times at transit stops. Combining these features can mean faster, more reliable service for customers, and reduced costs for transit agencies. Finally, providing accurate real-time information is crucial for customers when planning their trips. In an age where car locations can be monitored via mobile device, it is necessary that the same be done for transit.

Strengthen Affinity Bonds and Customer Loyalty, and Improve Cost Competitiveness

Gamification and sharing have become an important component of building customer loyalty, and may be one solution to making transit more valuable for travelers. Earning points for specific travel, and the ability to share fares or points with friends is an opportunity to build customer affinity. Using those points to get free t-shirts from a local clothier along a route, or for free sodas and chips at a local restaurant are an example of the types of engagement points that millennials requested in APTA's 2013 *Millennials and Mobility* report.

Many public transportation agencies already have access to data about what stations, lines and routes customers use, via smart card-generated big data. These data points could be used to power an app showing stats about a rider's trips, along with badges for achievements like visiting a new station, riding a certain number of times in a week, or using a new bus route. Mobile games, fitness apps, and wearable tech all incorporate these elements to create a competition environment and drive use of their products. Transit has suffered an erosion in cost competitiveness, but new creative solutions can help bolster transit's image and edge among other modes.

Address External Factors

Implementing adaptations to combat or reverse external factors may be the most difficult of all, as many of the necessary policy changes may be far outside of the scope or reach of a transit agency alone.

For example, the prevalence of increased homeless and mentally-ill customers may be a consequence of reduced funding or policy changes involving housing and healthcare. Another example would be the provision of additional parking or free parking in a transit agency's most competitive zones. Land-use policy is critical in complementing transit. Some participants in APTA's focus groups noted that community amenities (such as hospitals and university expansions) were being placed in remote suburban locations difficult to serve via transit.

Increases in urban property values and rents have had several consequences for public transportation. To further increase the value of transit, the housing market should be allowed to develop free from nimbyism, anti-market zoning and failed planning practices. Proper complete street design provides improved access to public transit stops and stations, and enhanced transit operations as well.

These external factors, if not contained, can reduce the effectiveness of other adaptations. The result is an increased need for transit agency leadership to engage in areas that have no apparent connection to public transportation, including engaging private sector stakeholders and local, regional and state elected officials and leaders. Agencies should also politically engage with partners that may mutually benefit from adaptations. For example, TNCs benefit from parking fees that reflect the true price of parking, and a parking supply that balances a variety of community goals. Furthermore, properly pricing roadway use creates the conditions for reduced traffic congestion and higher transit ridership and use of shared TNC services. Another emerging ally is the real estate development community. Developers increasingly support reduced parking minimums in new construction because it reduces their costs. These engagements increase political risk, but offer the opportunity to mitigate the negative impacts of external factors.

Outcomes of Adaptations

As shown by focus groups, detailed modeling and additional research, the extent and prevalence of these adaptations will have a direct impact on transit ridership.

What Transit Agencies are Doing

Metropolitan Council – Minneapolis, MN

Ridership on Met Council's Green and Blue light rail lines experienced four percent growth in 2017. Along with two light rail extensions in the CIG engineering phase, the agency is also planning for 17 new rapid bus routes, 46 new local bus lines, and upgrades to 76 existing routes to accommodate future ridership.
http://www.fox9.com/news/ridership-on-public-transportation-at-all-time-high-met-council-says

Toronto Transit Commission – Toronto, ON

A recently implemented pilot program for the King St. streetcar line ended up increasing morning rush hour transit ridership by almost 25 percent. In coordination with the City of Toronto, on-street parking was removed and vehicular traffic through intersections was prohibited. Average streetcar journey times have been reported to be as much as 14 percent less. TTC has also released a five-year ridership growth strategy that outlines how they will launch innovative microtransit partnerships, increase bus and streetcar signal priority, install Wi-Fi services, reduce bus overcrowding and implement a new transfer policy.
https://www.thestar.com/news/gta/2018/01/11/king-st-pilot-boosting-streetcar-ridership-ttc.html
https://www.thestar.com/news/gta/transportation/2018/01/21/ttc-unveils-strategy-to-grow-transit-ridership.html

King County Metro Transit – Seattle, WA

Ridership on Metro's bus system continues to break records, with 122.2 million rides taken in 2017. These gains reflect the continued investments in service from King County and the City of Seattle, including $30 million each year to address overcrowding, reliability and expansion. As Sound Transit prepares to dramatically expand light rail, King County Metro is focusing on growing their RapidRide lines and improving connections with the rail system.
https://kingcounty.gov/elected/executive/constantine/news/release/2018/February/21-metro-ridership.aspx

Valley Metro – Phoenix, AZ

Through the first half of 2017 bus ridership in Phoenix was reported to be six percent higher than the same period in 2016. Improvements in frequency and more service hours have attracted new riders and made connections with the popular light rail system more convenient.
http://ktar.com/story/1773087/bus-ridership-phoenix/?

Dallas Area Rapid Transit – Dallas, TX

DART is currently reworking their bus network to better serve their core riders with reliable 15-minute rush hour frequencies. Making routes more direct and more complementary to the light rail system are some priorities of the overhaul. Long term plans also include acquiring new buses and enhancing off-peak service, to be targeted for 2019.
https://www.dallasnews.com/news/dart/2017/07/07/dart-trying-fast-track-bus-service-overhaul-criticism

Omnitrans – San Bernardino, CA

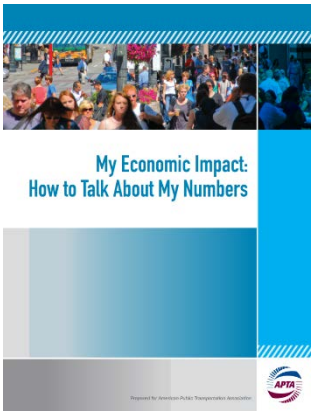
Passenger boardings in January 2018 were 1.7 percent above that in January 2017, the first noted ridership gain for the agency in over three years. The increased usage of freeway express routes and the sbX bus rapid transit line helped drive the gains. Omnitrans has taken steps to improve the customer experience by implementing mobile fare payment, adding more streamlined routes, and expanding the operating hours of the sbX.
http://www.omnitrans.org/blog/2018/02/19/omnitrans-ridership/

Reemphasizing Transit's Value

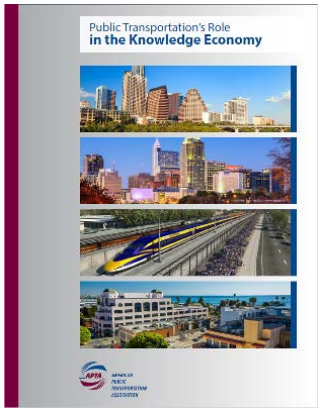
Reemphasizing the benefits of public transportation is important for having a balanced conversation regarding its efficacy and its role in the larger mobility picture. Public transportation provides many benefits not captured by ridership statistics alone. There are many disruptive trends in the economy today outside of the control of transit agencies. Despite these trends, public transportation remains critical to regional economies and strengthens local communities.

Community Economic Impact and Development

Consistent communications on the role that transit plays in regional economic development is necessary, because even in communities where transit is near the top of policy priorities, there is a difficulty in scaling adaptations that promote ridership and enhance transit's economic contribution. APTA's research product *The Economic Impact of Public Transportation Investment* indicates that investment in public transportation has a 4 to 1 economic return nationally. Long-term investment in public transportation creates and supports 50,000 jobs per billion dollars of investment through direct employment, economic growth, and increased efficiency and productivity.



In APTA's *My Economic Impact: How to Talk About My Numbers*, a strategic framework is laid out for calculating informative economic impact numbers that best communicate the value of public transit. It should always be noted that public transportation not only connects people to jobs and opportunity, but *creates* jobs and opportunity through economic multipliers.



Promoting Growth in the Tech Sector

As noted in APTA's *Public Transportation's Role in the Knowledge Economy*, the nature of tech firm placement leads to clustering, so that talent and support systems necessary to start and sustain enterprises are efficiently utilized. Public transportation plays a crucial role in the success of tech clusters by enhancing employment access to these areas. Rising traffic congestion near tech clusters can be avoided with increased public transportation investment, allowing for continued growth over time. The study of eight high-growth clusters around the U.S. indicated that 400,000 jobs are at risk if transit investment is not made in these areas. Already, companies like General Electric, Marriott, Motorola, and Amazon are moving or are planning to move into large office spaces in transit-rich downtowns.

Resiliency in the Housing Market

Areas with public transportation are shown to have better real estate value performance than areas without. APTA's *New Real Estate Mantra* paper highlighted the impact transit had on home values during the Great Recession. During the recession, residential sales prices near transit outperformed their regions as a whole by an average of 41.6% in the cities studied. Stations with a higher level of transit access to the region saw better price resilience. Transit agencies should think beyond the station to ensure that stations and stops create value for neighborhoods, engaging local, regional, and state stakeholders to improve station and stop access. Enhanced station areas can lead to increased ridership and further investments in transit, serving much more than just a mobility function if they are designed and planned with people in mind. Stations and stops can also create great places and a setting for community engagement that foster a diversity of activities. Great place making around stops and stations include accessibility, comfortable spaces, safety and has a good image that reflects a community's values.

A Competitive Mobility Market

A transit network of variety and redundancy provides options for people to reduce their personal vehicle usage. Transportation network companies, automation, and walking will not accomplish this alone. Transit is a pillar to meet mobility consumers where they are, so that they can take the best mode for their given trip. The APTA report *Shared Mobility and the Transformation of Public Transit* details the synergy between shared mobility modes and the public transportation industry.

Access to Opportunities

Increasingly there is shift to a winner-take-all economy rewarding those individuals with the right skill set, and regions with the right industries. At the same time, government support for low-income families is eroding. Given that public transportation provides access to opportunities, regions that invest in transit are investing in a more efficient, productive and equitable society. Demand for transit-rich walkable neighborhoods is high, resulting in high costs in some of the nation's most successful transit cities. Supply of housing in these transit-rich neighborhoods is not increasing fast enough. More high-quality transit, and denser housing near high-quality transit, is needed to alleviate cost pressures.

Promotion of Public-Private-Partnerships

Given the importance of the entire network to reaching the goal of modal shift, the possibility of new governance models beyond the traditional transit agency becomes probable. Setting broad goals of mode share shift, social equity, and economic growth, while allowing future operators and contractors to develop solutions to reach those goals, has the potential to promote a more dynamic mobility industry. Transit agencies may also be able to take advantage of a variety of value capture tools to leverage private developers and finance projects that

promote the development goals stated in the previous "Access to Opportunities" section. (http://www.apta.com/resources/reportsandpublications/Documents/APTA-Value-Capture-Options-2017.pdf)

Tools to Make the Case for Public Transportation

APTA has developed several tools that the public can use to help make the case for public transportation in their communities and nationwide. APTA's *Industry Footprint* (www.apta.com/IndustryFootprint) showcases the public transportation industry on a map of the U.S. It includes information by congressional district about public transportation service, APTA members, transit industry suppliers, and members of congress and their districts. The *My Economic Impact Tool* (www.apta.com/MyEconomicImpact) provides a way for transit agencies to calculate the economic impact of their own service using budget and service supply data.

Conclusions and Takeaways

External factors point to increased public transportation use over time. According to the United States Census Bureau, the country stands to gain an additional 35 million in population by the year 2030. However, this growth will be contingent on community involvement and funding that provides public transportation the level playing field it needs. Public transit will need to be cutting edge in its use of technology, partnerships with the private-sector, and its relationship with multimodal communities. Transformative changes in mobility will eventually lead to a decrease in automobile sales and usage. Major automobile manufacturers are anticipating this and are investing heavily in autonomous technology and new future mobility services.

Current determinants of ridership decline may vary by community, there are, however, common themes. The findings of both the research and focus groups narrow ridership impacts into four broad categories:

- *Erosion of Time Competitiveness*
- *Reduced Customer Affinity and Loyalty*
- *Erosion of Cost Competitiveness*
- *External Factors*

There is a recognizable set of adaptation strategies that may contain or reverse ridership declines. These include:

- *Ensure that key selected routes are time competitive and reliable for every trip compared to other mobility options*
- *Use gamification and sharing to enhance customer loyalty and mask the perception of price.*
- *Enhance community engagement in areas that seem to have limited connection to public transportation.*

Some focus group members have made significant progress in applying the adaptations suggested here, however, these agencies still experienced ridership decline. Stories like these emphasize the uniqueness of external regional trends listed in this paper. It also shows the significant task involved with reforming operations and services, and the recognition that many regional funding and community cultures are currently unable to fully apply the solutions described previously.

Transit board members, elected officials and constituents, should appreciate that these ridership declines are a national trend and go beyond any one transit agency. The new mobility landscape is bringing new innovations that can have positive impacts on public transit, but elements of this landscape are holding back growth. Many of

the adaptations necessary to correct the decline, beside the funding necessary from policymakers, will require local cooperation. In many places, public transportation agency operations and leadership will need to coordinate with local and regional partners to implement measures to reinforce the position of public transit as an efficient mode of travel. In order to foster cooperation between partners, the industry should continuously reinforce the value of public transportation.

Acknowledgements

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The American Public Transportation Association (APTA)

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The American Public Transportation Association (APTA) is a nonprofit international association of 1,500 public and private sector organizations, engaged in the areas of bus, paratransit, light rail, commuter rail, subways, waterborne services, and intercity and high-speed passenger rail. This includes: transit systems; planning, design, construction, and finance firms; product and service providers; academic institutions; transit associations and state departments of transportation. APTA is the only association in North America that represents all modes of public transportation. APTA members serve the public interest by providing safe, efficient and economical transit services and products.

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APTA is the leading force in advancing public transportation.