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The Business Case for Post-COVID Public Transit

To be efficient and fair a transportation system must serve diverse demands, including the travel needs of non-drivers and people with low incomes. The COVID pandemic demonstrated the importance of this principle.

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Summary

To be efficient and fair, a transportation system must be diverse in order to serve diverse demands, including the needs of travellers who cannot, should not, or prefer not to drive for most trips. The COVID-19 pandemic changed travel patterns around the world, causing large reductions in public transit ridership in most cities. Many people wonder how communities should plan for post-pandemic public transit. On one hand, the pandemic demonstrated the important roles that transit plays in providing basic mobility. On the other hand, reduced ridership and fare revenues are likely to continue for several years, reducing transit economic returns. This report investigates these issues. It examines the roles that public transit plays in an efficient and equitable transportation system, public transit benefits and costs compared with other modes, how the COVID pandemic affects these roles, transit travel health risks including but not limited to contagion risks, and factors affecting future demand for transit travel. This analysis indicates that well-planned transit improvements can continue to provide large future benefits.

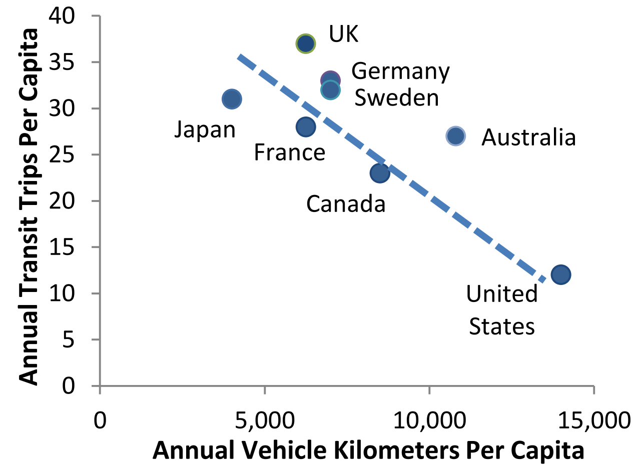
This is technical background for the "*What Is the Future for Transit After COVID?"* dialogue (https://pairagraph.com/dialogue/3ce6a9360f7942dbae281ecaf6d068fd)

Introduction

How should communities plan for public transit after the COVID-19 pandemic? This is an important and timely issue. Transportation planning decisions affect our lives and communities in many ways. We must decide whether to continue current policies that favor automobile travel, or whether it is time to increase support for other modes, including public transit. Let's start by looking at the big picture.

To be efficient and fair, a transportation system must serve diverse travel demands, including the needs of people who for any reason cannot, should not, or prefer not to drive. Many current policies favor driving over other modes; the majority of transport funding and road space is currently allocated to automobiles. This creates automobile-dependent communities where it is difficult to get around without a car (Shill 2020). Figure 1 illustrates the results.

Figure 1 **Transit Versus Vehicle Travel**
(International Comparisons - Transportation)



U.S. residents drive more and use transit less than peers, and as a result, have much higher transportation costs, crash fatality rates, and pollution emissions rates.

An inadequacy of mobility options imposes many costs. Residents of auto-dependent communities spend more on vehicle and transportation infrastructure, experience more congestion delay and chauffeuring burdens, have higher crash rates, and exercise less than they would in more multimodal communities. The COVID pandemic demonstrated the importance of ensuring that everybody, including essential workers and people with low incomes, can access jobs, healthcare and other critical services.

Everybody can benefit from more multimodal planning (Boarnet 2013). Although few motorists want to give up driving altogether, surveys indicate that many people would prefer to drive less, rely more on active and public transport, and live in more walkable and transit-oriented communities, provided that they are convenient, comfortable and affordable (NAR 2020). In response, many communities now apply more multimodal planning (STTI 2018), including public transit improvements and more transit-oriented development. These changes can benefit everybody including people who currently use non-auto modes, people who currently drive but will shift after the improvements, and motorists who experience less traffic and parking congestion, chauffeuring burdens, and crash risk caused by other drivers' errors.

Consider one example. Most jurisdictions impose parking minimums: private property owners are required to provide costly off-street parking. When this parking is cashed out, travellers using non-auto modes receive the cash equivalent of the parking subsidies provided to motorists, typically about 20% of automobile trips shift to other modes. In other words, 20% of traffic problems are caused by policies that subsidize automobile travel more than other modes; providing equal subsidies to other modes is more equitable and significantly reduces congestion, crash and pollution problems.

This report investigates these issues. It examines the roles that public transit plays in an efficient and equitable transportation system, public transit benefits, costs and health impacts, future demands for transit, and how best to meet those demands. This should be of interest to policy makers, planners and transportation system users who want guidance for improving future transportation.

Public Transit Roles

Public transit is not suitable for all trips, but it does play three important roles in an efficient and equitable transportation system:

1. **Independent mobility for non-drivers.** In a typical community, 20-40% of residents cannot, should not, or prefer not to drive (Table 1). Transit gives them mobility, and therefore freedom and opportunity, and ensures that they receive a fair share of public investments, which help achieve social equity goals.

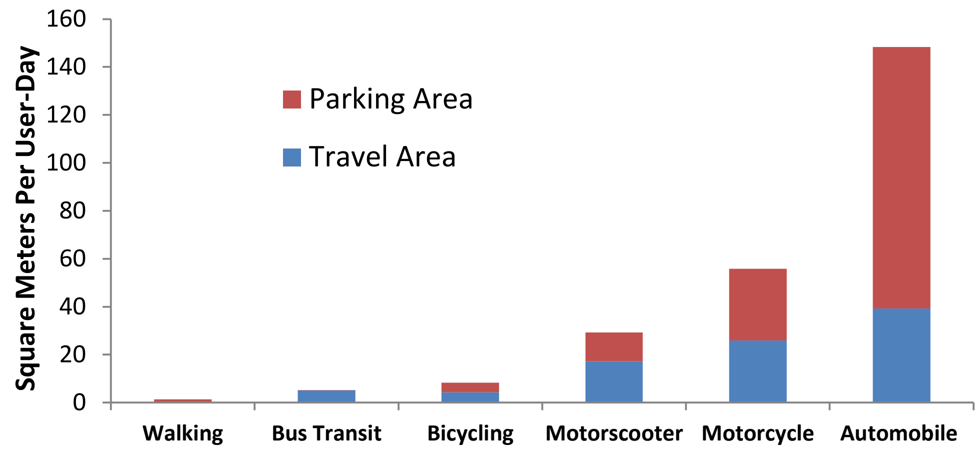
Table 1 **Non-Auto Travel Demands** (Brumbaugh 2021; Litman 2016; Rogers 2016)

Users	Non-users
• Youths, 12-24 years old (15-25% of population). • Seniors who do not or should not drive (5-15%). • Adults unable to drive due to disability (3-5%). • Low-income households burdened by vehicle costs (15-30%). • People impaired or distracted by alcohol, drugs or devices. • Visitors who lack a vehicle or driver's license. • People who want to walk or bike for enjoyment and health.	• Drivers who want to reduce their chauffeuring burdens (in auto-dependent areas, 15% of peak-period trips are to transport passengers). • Residents who want less traffic and parking congestion, crash risk and pollution emissions in their communities.

In a typical community 20-40% of travellers cannot, should not or prefer not to drive. Transit serves their needs.

2. **Resource-efficient urban mobility.** Public transit requires less space for travel and parking (Figure 2), and therefore less expensive infrastructure, than automobile travel, particularly under urban-peak conditions when facility costs are particularly high. It also reduces vehicle costs, crash risk, fuel consumption and pollution emissions compared with automobile travel (Ferrell 2015; Litman 2020).

Figure 2 **Space Required By Travel Mode** (*Transport Land Requirements Spreadsheet*)



Public transit travel requires far less space for travel and parking than other modes. As a result, transit passengers impose lower congestion and infrastructure costs than motorists, particularly under urban-peak conditions.

3. **A catalyst for compact, multimodal development.** High quality public transit helps create high-accessibility neighborhoods where residents own fewer vehicles, drive less and rely more on walking, bicycling and public transit. This can provide large savings and benefit (Ewing and Hamidi 2014). Surveys indicate growing consumer demand for housing in these communities (NAR 2020).

Comparing Benefits, Costs and Subsidies

Comprehensive planning compares the benefits, costs and subsidies required for each mode. This is complicated because public transit provides diverse benefits, as indicated in Table 2, including many indirect and non-market impacts that conventional planning often overlooks.

Table 2 **Public Transport Benefits and Costs** (Litman 2020)

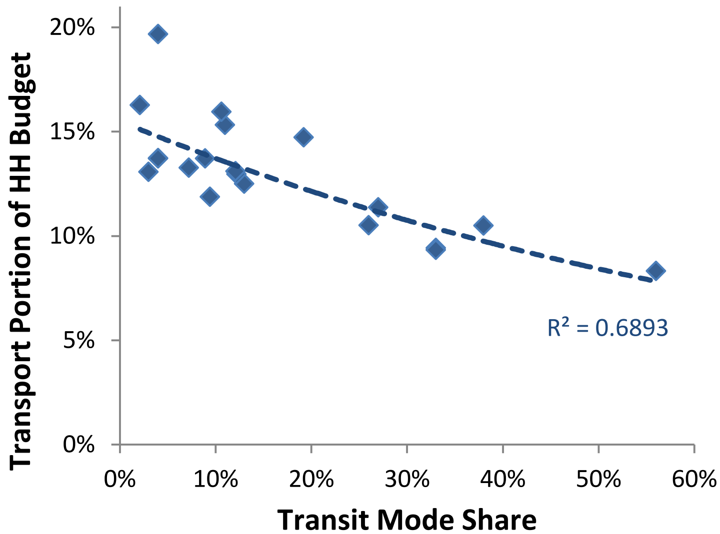
	Improved Transit Service	Increased Transit Travel	Reduced Automobile Travel	Transit-Oriented Development
Metric	Service Quality (speed, reliability, comfort, safety, etc.)	Transit Ridership (passenger-miles or mode share)	Mode Shifts or Automobile Travel Reductions	Portion of Development With TOD Design Features
Potential Benefits	• Improved user convenience and comfort. • Equity benefits (since existing users tend to be disadvantaged). • Option value (the value of having an option for possible future use). • Improved operating efficiency (if service speed increases). • Improved security (reduced crime risk)	• Mobility benefits to new users. • Increased fare revenue. • Increased public fitness and health (by stimulating more walking or cycling trips). • Increased security as more non-criminals ride transit and wait at stops and stations.	• Reduced traffic congestion. • Road and parking facility cost savings. • Consumer savings. • Reduced chauffeuring costs. • Increased traffic safety. • Energy conservation. • Air and noise pollution reductions.	• Additional vehicle travel reductions ("leverage effects"). • Improved accessibility, particularly for non-drivers. • Community cohesion and reduced crime risk. • More efficient development (reduced infrastructure costs). • Farmland and habitat preservation.
Potential Costs	• Higher transit costs and subsidies. • Land and road space. • Congestion and crashes caused by transit vehicles.	• Transit vehicle crowding.	• Reduced automobile business activity.	• Various problems associated with more compact development.

Public transit can have various types of benefits and costs. Comprehensive analysis considers all of these impacts

Public transit can provide large benefits (Wallis, Lawrence and Douglas 2013). People who live or work in communities with high quality transit tend to save money, have lower traffic casualty rates, exercise more (since most transit trips include walking and bicycling links), and spend less time chauffeuring non-drivers than their peers in more multimodal communities (Ewing and Hamidi 2014). Many of these benefits are external; you benefit if your neighbors shift from automobile to transit.

For example, Figure 3 show that as transit commute mode shares increase in a community, the portion of household budgets devoted to transportation (including vehicles, fuel and transit fares) tends to decline, from over 15% in cities with the lowest transit share to less than 10% in those with the highest transit share. Similar patterns are found within urban regions: the Housing and Transportation Affordability Index shows that residents of more central, multimodal neighborhoods tend to spend much less on transportation than comparable households in automobile-oriented, urban-fringe areas. This indicates that high quality transit typically saves households thousands of dollars annually.

Figure 3 **Transportation Spending Versus Transit Mode Share**



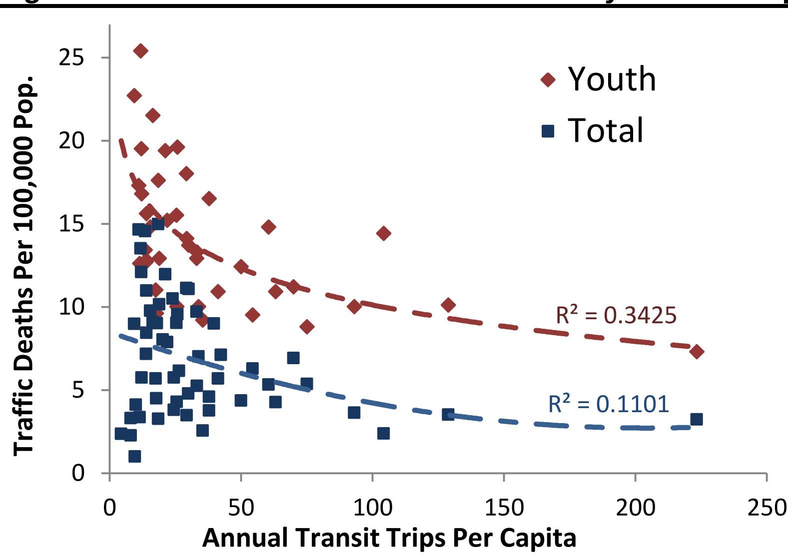
The portion of household budgets devoted to transportation (vehicles, fuel and transit fares) declines as transit mode shares increase. Regions with the highest transit ridership tend to have the lowest transportation spending, providing thousands of dollars in annual savings for an average household.

Based on the U.S. "Consumer Expenditure Survey" and the US Census "2012 American Community Survey" data. The Center for Neighborhood Technology's Housing and Transportation Affordability Index shows similar results at the local level.

Analysis in my report, Raise My Taxes, Please! Evaluating Household Savings from High Quality Public Transit Service, indicates that high quality transit typically requires about $268 in additional subsidies and $104 in additional fares annually per capita, but provides vehicle, parking and road cost savings averaging $1,040 annually per capita, plus other benefits including more independent mobility for non-drivers, public health and safety, and environmental quality. This indicates that residents should rationally support tax increases if needed to create high quality transit services in their communities.

High quality transit provides many important benefits ignored by critics. Figure 4 shows that traffic death rates decline as transit ridership increases in a community. This and other research indicates that people, particularly youths, are safer living in communities with high quality transit (Litman 2019b).

Figure 4 **Youth and Total Traffic Fatality Rates Compared to Transit Travel** (CDC 2012)



Per capita traffic fatality rates tend to decline with increased transit ridership. This makes sense because high quality public transit and transit-oriented development help reduce total vehicle travel, including higher-risk driving by youths, seniors, and people impaired.

This relationship is particularly strong for youths (15-25 years old). This suggests that many young people want to reduce their risk exposure, but can only do so if they have adequate alternatives.

Comparing Costs

It is important to use apples-to-apples comparisons between modes. For example, transit services that provide basic mobility for non-drivers should be compared with the costs of wheelchair-accommodating taxi or ridehailing services, which average $1.50 to $2.50 per passenger mile. Transit services in dense urban areas should be compared with the full costs of accommodating more automobile trips, including vehicle, fuel, road, parking, and traffic external costs, on that corridor. Table 3 shows cost categories that should be considered in such comparisons. When critics claim that urban transit is more expensive than roadway expansions, they generally overlook some of these cost factors.

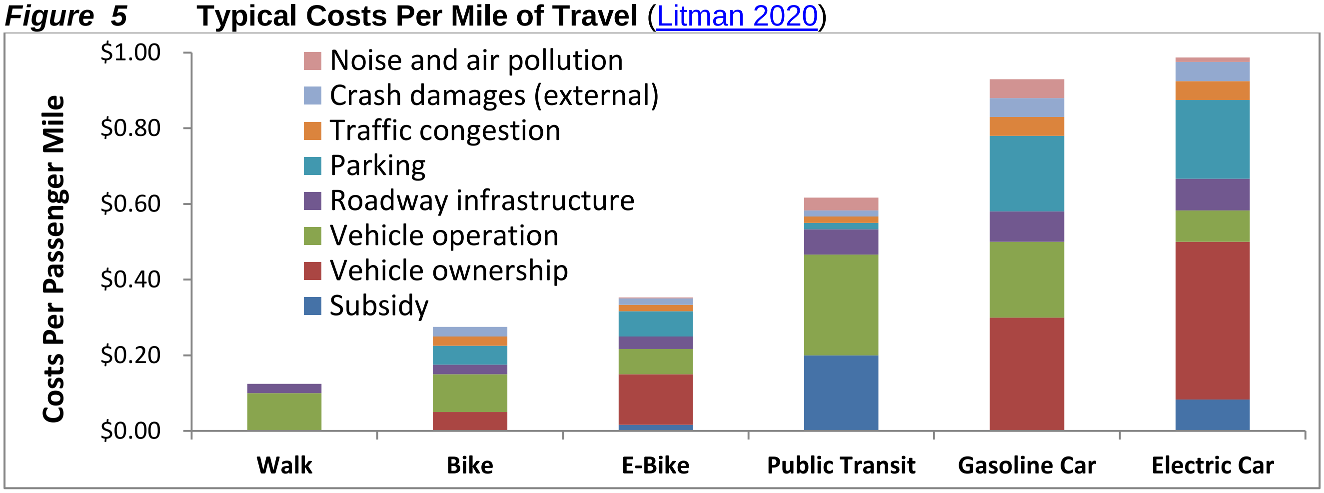
Table 3 **Costs to Consider when Comparing Mode Costs**

	Walking	Bicycling	Automobile	Taxi/Ridehailing	Public Transit
Vehicles	Shoes	Bikes	Vehicles	Vehicles	Buses/trains
Fuel	Food	Food	Fuel	Fuel	Fuel/electricity
Operator costs	Unpaid	Unpaid	Unpaid	Paid	Paid
Travel facilities	Sidewalk/paths	Roads/paths	Roadways	Roadways	Roads/lanes/tracks
Terminals	Public seats	Bike racks	Parking facilities	Parking facilities	Bus/train stations
Traffic externalities	Traffic delays		Traffic delays, crash risk and pollution emissions		

This table indicates that categories that should be considered when comparing costs between modes.

Figure 5 compares the typical costs of six modes, measured per travel mile. Many people assume that motorists pay their road and parking facility costs through fuel taxes, tolls and parking fees, but in fact, those charges only fund about half government expenditures (FHWA 2018) and a tiny portion of parking costs, the remaining costs are funded through general taxes or incorporated into rents or prices of other goods. For example, parking costs typically add one or two hundred dollars a month to housing costs (Gabbe and Pierce 2016), and a few dollars to a restaurant bill.

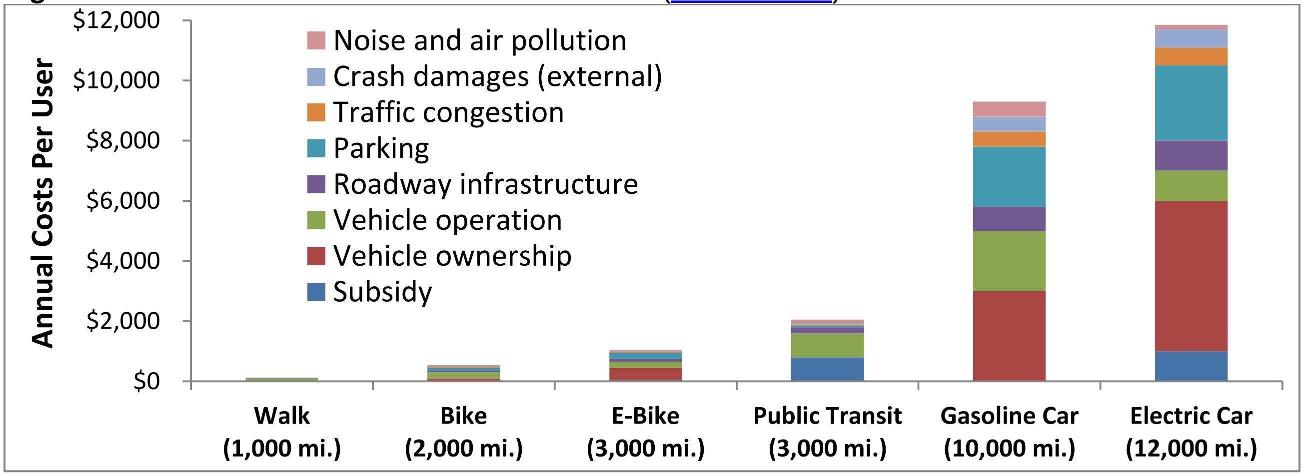
Figure 5 **Typical Costs Per Mile of Travel** (Litman 2020)



This graph compares per-mile costs of six travel modes.

Figure 6 compares these costs per user-year, taking into account differences in annual mileage. Of course, these costs vary depending on vehicle type and travel conditions, but the basic finding, that auto travel imposes higher costs than other modes, is unlikely to change under any realistic assumptions.

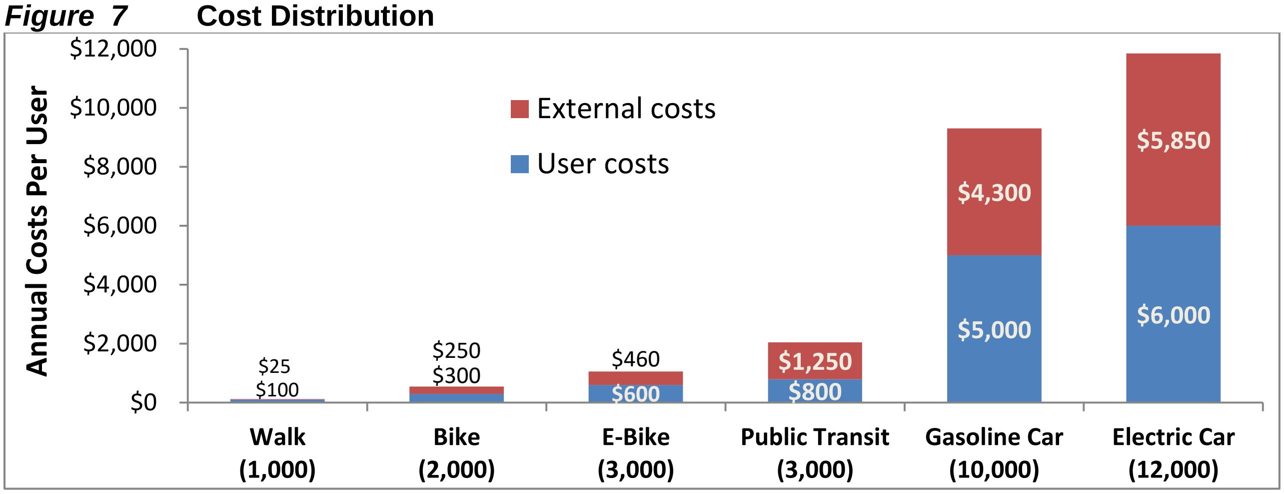
Figure 6 **Annual Costs Per Full-Time User** (Litman 2020)



This graph compares total annual costs of the six travel modes, taking into account differences in annual mileage (the numbers below each mode). Because automobiles tend to have higher costs per mile plus higher annual miles, they tend to have much higher total costs per user-year than other modes. (Because electric cars have lower operating costs, they tend to be driven more annual miles than comparable gasoline vehicles.)

Figure 7 shows the distribution of these costs. Automobiles have high user costs and impose large external costs. Considering sidewalks, paths, roads, government-mandated parking, and transit subsidies, more than 95% of total transport infrastructure dollars are spent on automobile facilities.

Figure 7 **Cost Distribution**



This graph compares vehicle and external costs of the six modes. Automobile travel imposes large external costs.

Of course, most people use a combination of modes, including automobiles, so many external costs are ultimately born by motorists. However, this cost structure is still inefficient and unfair because people who drive less than average subsidize the costs of their neighbors who drive more than average, and since vehicle travel tends to increase with income, this is regressive – it favors higher income people to the detriment of those with lower incomes. This is important for public transit evaluation: transit travel receives significant government subsidies per passenger-mile while motorists impose larger total annual external costs in the form of road and parking facilities not funded by user fees, plus traffic externalities.

Public Transit Economics

Critics claim that public transit is inefficient and inequitable. For example, in the Pairagraph Debate that inspired this report, Randal O'Toole argued that transit services are wasteful indicated by their large subsidies per passenger-mile; are environmentally harmful because their emission rates are comparable an average car; and are regressive because only 5% of workers earning under $25,000 annually commute by transit. These arguments misrepresent transit economics.

As previously described, public transit has three main goals: affordable mobility for non-drivers, efficient travel on major urban corridors, and creating compact, multimodal neighborhoods. These sometimes conflict. For example, providing basic mobility for non-drivers may seem inefficient, since it requires operating transit at times and locations where demand is low, such as lower density areas or late at night. Conversely, to reduce urban congestion and pollution, transit must attract discretionary travellers (people who would otherwise drive), which requires premium commuter services that may seem regressive. Creating transit-oriented development requires high quality transit with frequent service, attractive stations, and local pedestrian and bicycling improvements, which may seem costly. For this reason, transit efficiency and equity should be evaluated compared with alternatives, for specific services using *scenario analysis*. Let me give some examples.

Mobility for Non-Drivers

To serve non-drivers, the alternative to transit is taxi or ridehailing services, sometimes requiring wheelchair accommodating vehicles. These services typically cost $1.50 to $3.00 per mile, far higher than transit subsidies. Taxi services also tend to impose higher traffic externalities than public transit, since most taxi trips have empty backhauls, so each passenger-mile generates two vehicle-miles of travel, which doubles traffic congestion, crash risk and pollution emissions.

Affordable Mobility

Public transit and transit-oriented development can help travellers save money. Automobile travel is expensive; although lower-income motorists use various strategies to minimize their vehicle costs – they purchasing older cars and minimal insurance, and perform some of their own repairs, it is difficult to legally drive an automobile for less than $5,000 annually. A typical lower-income urban household spends about $5,000 annually to drive 5,000 annual miles, which averages about $1 per mile, require thousands of dollars in road and parking facilities, and impose external traffic costs.

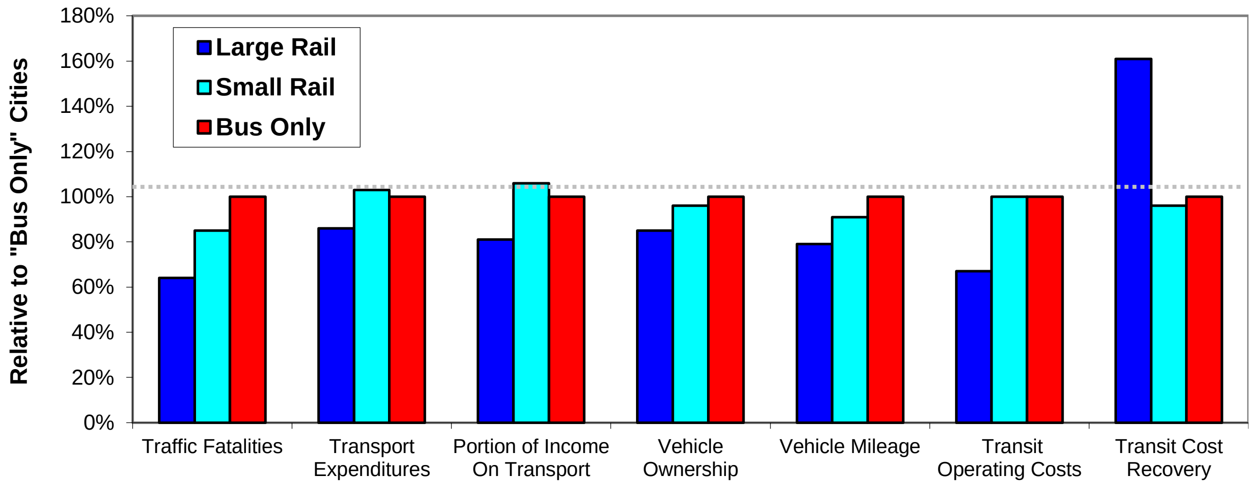
Efficient Mobility on Busy Urban Corridors

On busy urban corridors, the alternative to transit is to expand road and parking facilities to accommodate more automobile traffic. According to the *Highway Economic Requirements System*, in 2014 it typically cost $11-44 million to add an arterial lane-mile and $15-64 million to add an urban freeway lane-mile. Assuming 5% depreciation and 6,000 peak-period vehicles per lane-mile, urban roadway expansions cost $0.50-2.50 per additional vehicle-mile. Considering land, construction and operating expenses a typical urban parking space cost $10 to $20 per day to provide. This indicates that an additional 10-mile urban auto commute requires $20 to $70 per day in facility costs, $5 to $15 in vehicle costs, plus additional traffic externalities. This is far more costly than most transit services.

These examples indicate that, although public transit may seem costly, it is generally cheaper and more efficient, imposes smaller external costs, and is more equitable than alternatives. This is not to suggest that public transit is the only solution to every transportation problem, but considering all impacts, transit investments often provide greater economic returns than alternatives.

O'Toole argues that federal subsidies encouraged transit planners to choose costly rail transit over more cost effective and popular bus services. This is inaccurate. Cities with rail transit have higher transit ridership, plus lower costs and subsidies per transit passenger-mile, than cities with bus-based transit systems (Litman 2004). Between 2012 and 2018, U.S. bus ridership declined 15% and rail ridership declined 3%, while transit ridership grew in most peer countries (UITP 2020). Figure 8 compares the performance of U.S. cities categorized by their transit system quality. Cities with large, high quality rail transit systems perform better than cities with smaller rail systems or bus-only transit systems. For example, residents of these cities drive 21% fewer annual vehicle-miles per capita (1,958 fewer annual miles), spend a smaller portion of household budgets on transportation (12.0% versus 14.9%), and transit systems have 33% lower transit operating costs per passenger-mile (42¢ versus 63¢) and 58% higher transit service cost recovery (38% versus 24%).

Figure 8 **Transportation Performance Comparisons** ([Litman 2004](#))



U.S. cities with larger rail transit systems that carry a large portion of commuters tend to perform better than cities with smaller rail systems or bus-only transit systems. The dashed line indicates "Bus Only" city values.

It is also inaccurate to blame transit inefficiencies on federal subsidies. During the first half of the Twentieth Century the transit industry earned healthy profits, but automobile-oriented planning reduced ridership, encouraged sprawled development and increased traffic congestion reduced transit efficiency and income (Litman 2021). Transit service quality and cost recovery (portion of costs covered by fares) are much higher in older, transit-oriented cities such as Boston, New York and Chicago than in newer, automobile-oriented cities such as Atlanta, Houston and Nashville, indicating that automobile-oriented planning reduced transit efficiency.

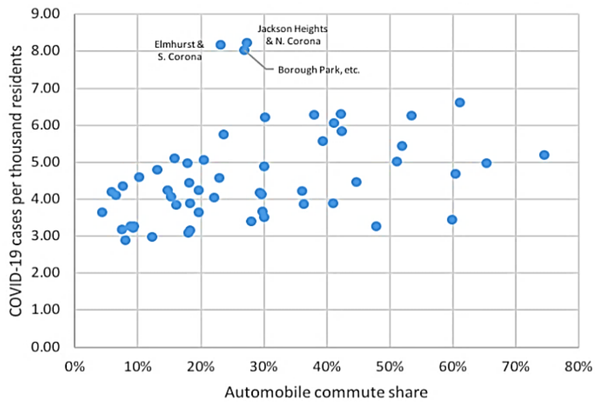
O'Toole's claim that public transit is inequitable is clearly inaccurate. Public transit and transit-oriented development help disadvantaged people by providing affordable, basic mobility that allows them to save money and increases their economic opportunities (Bouchard 2015; Porter, et al. 2015). According to the report, *Who Rides Public Transportation*, 21% of very-low (<$15,000 annual) income household use public transit, 46% of transit users have no vehicle available, and 60% are people of color. Ewing, et al. (2016) and Frederick and Gilderbloom (2018) found large increases in economic mobility (the chance that a child born in a low income family becomes more economically successful as an adult) and reduced income inequality in communities with more transit services and transit-oriented development.

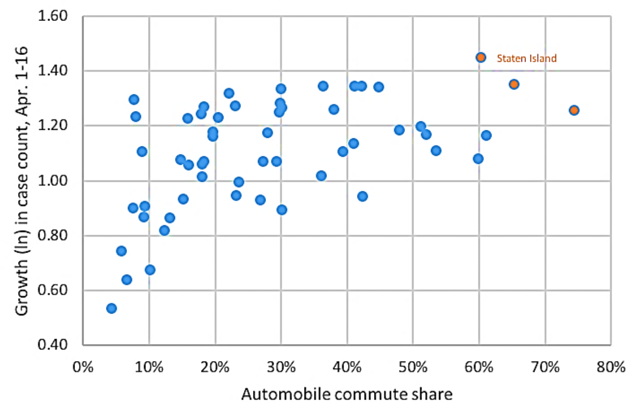
Public Transit Contagion Risk

Because transit passengers occupy enclosed and sometimes crowded vehicles and stations, many people assume that transit travel has high contagion risk. However, evidence from the COVID pandemic indicates that transit travel risks are actually equal or less than that of automobile travel.

One early study, *Subways Seeded the Massive Coronavirus Epidemic in New York City*, claimed that COVID cases concentrated along subway lines, but critics point out that infection rates were actually higher in more automobile-oriented areas (Furth 2020; Levy 2020). In *Automobiles Seeded the Massive Coronavirus Epidemic in New York City*, Salim Furth, showed that local COVID infection rates tend to decline with transit mode share and increase with automobile mode share, as illustrated below. Because motorists tend to travel farther, visit more destinations, and take fewer precautions, they tend to spread disease more than transit users.

Figure 8 **COVID-19 Infection Rates Versus Auto Commute Mode Share** (Furth 2020)





This study found statistically strong positive correlations between automobile commute mode shares and both COVID infection rates (left figure) and infection growth rates (right figure), plus strong negative correlations between both subway and other transit commute mode shares and infection rates.

Transit risks can be reduced further by limiting crowding, appropriate cleaning and sanitizing, employee and passenger hygiene, operator protection (Fletcher, et al. 2014; Levy and Goldwyn 2020), operational improvements that reduce delay, and improved ventilation (Transit Center 2020). Virtually all transit agencies are implementing these practices.

Unenclosed modes – walking, bicycling and micromodes – have the lowest contagion risks, so transit oriented development reduces risk by encouraging travellers to use these modes. In contrast, residents of automobile-dependent communities are often forced to share enclosed vehicles, when travelling with family members or friends, or as a taxi or ridehailing passenger, which has relatively high contagion risk.

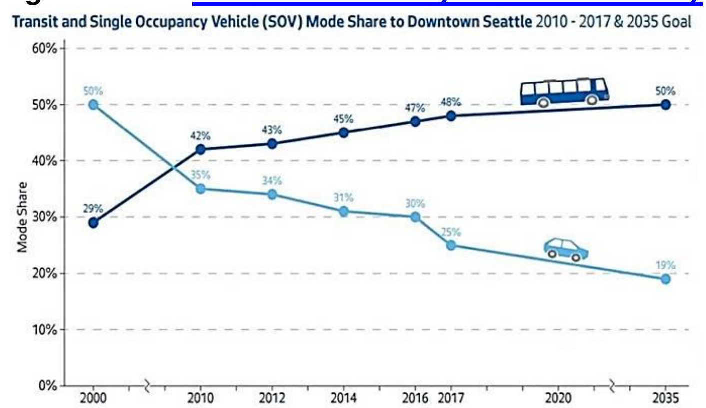
The Future Demand for Public Transit

Total vehicle travel declined significantly during the COVID pandemic due to the combination of lock-downs and travel restrictions, fear of contagion, plus reductions in business activity, commuting and incomes. During the pandemic many transit users used telework and delivery services to reduce trips, and some people moved from cities to rural areas. However, as the pandemic ends, and economic and travel activity rebound, transit ridership has started to recover.

Will the pandemic cause people to abandon cities and public transit? Probably not. Perhaps the most relevant example is experience after September 11 and various urban transit terrorist attacks. Many people expected these events to end demand for city living and transit travel, but transit agencies responded with improved security and public education, and both urbanization and transit ridership soon returned to previous levels. In fact, cities and transit are generally safer and healthier overall than suburbs and automobile travel (Hamidi, et al 2018). During a pandemic it may be rational to limit transit travel, but people are usually safer and healthier using transit rather than driving (Litman 2005).

Although transit ridership was declining in the U.S. prior to the pandemic, some cities demonstrate that integrated programs can increase transit ridership and reduce automobile travel (Small 2017). These programs can be financed by shifting current funding from highways and parking facilities to improving non-auto modes and supporting TDM programs. For example, the Puget Sound Regional Council's TDM Program, which improved transit services and incentives, significantly increased transit travel and reduced auto travel in downtown Seattle, as illustrated in Figure 9.

Figure 9 **Seattle Center City Commute Survey**



Between 2000 and 2017, downtown Seattle transit mode share increased from 29% to 48%, and auto share declined from 50% to 25%, due to transit improvements and TDM incentives.

People sometimes claim that new technologies and services will soon eliminate the need for conventional transit, but there are good reasons to be skeptical. Conventional transit is generally more cost effective than ridesharing, and autonomous vehicles will take many more years to be widely commercially available (Litman 2018).

The COVID pandemic is likely to reduce transit demand for a few years, but will not reduce the importance of providing transit services. Post-pandemic transit planning should include (Grabar 2021):

- Policies that minimize contagion risk, and information concerning the relative safety of transit travel.
- Services that better meet the needs of essential workers such as lower-wage shift workers.
- Transit service improvements, such as dedicated bus lanes, and commute trip reduction programs that encourage travellers to use the most efficient mode for each trips.
- Smart Growth policies to ensure that any household that wants can find suitable housing in a walkable, transit-oriented neighborhood where it is easy to get around without a car.
- Correct current transportation planning and funding practices that favor automobile travel to the detriment of transit (Box 1). For example, reduce parking minimums, cash out and unbundle free parking, develop bus lanes and TDM programs when they are cost effective.

Box 1 **Policies that Underinvest in Public Transit** (Litman 2014; Schill 2019)

1. Transportation planning that prioritizes speed over other goals (affordability, equity, public health, environmental quality, etc.), and therefore automobile travel over more affordable and efficient modes.
2. Dedicated roadway funding that cannot be used for other modes or TDM strategies, even if they are more cost effective and beneficial overall.
3. Roadway design that favors automobile traffic over other modes.
4. Zoning codes that limit density and compact housing types, and mandate abundant parking.
5. Development policies that favor urban expansion over compact infill.
6. Public facilities (schools, post offices, courts, etc.) located to maximize automobile access.
7. Unpriced or low-priced roads and parking facilities, and fixed insurance and registration fees.
8. Fuel production subsidies and low fuel taxes.
9. Transportation planning that undercounts, overlooks and undervalues non-auto travel.
10. Travel models that ignore induced travel impacts, which exaggerates roadway expansion benefits.

Many common public policies and planning practices favor automobile travel to the detriment of public transit.

Conclusions

Public transit plays unique and important roles in an efficient and equitable transportation system, including basic mobility for non-drivers, efficient mobility on busy corridors, and a catalyst for compact, multimodal community development. The COVID pandemic demonstrated the importance of these roles. Even people who do not use transit benefit if it helps essential workers, reduces motorists' chauffeuring burdens and contagion risk associated with carrying passengers, and reduces the traffic problems they face. It is important to consider these factors in post-pandemic transit planning.

Transit services bear many extra costs to accommodate people with special needs, and transit services tend to operate in dense urban areas where costs are particularly high. When all costs are considered, transit improvements are often cheaper and more equitable than accommodating more automobile traffic under those conditions.

Every time somebody purchases an automobile they expect governments to spend hundreds of dollars annually for roads, businesses to spend thousands of dollars annually for parking facilities, and their community to bear various external traffic costs. Considering all of these impacts, automobile travel is generally more expensive than transit travel per mile, and because motorists travel far more annual miles than non-drivers, motorists impose far higher total costs. As a result, people who drive less than average subsidize the transportation costs of neighbors who drive more than average, which is unfair, and since vehicle travel tends to increase with income, is regressive.

There is considerable latent demand for high-quality public transit. Although this requires more initial investment, it attracts more riders, has lower unit costs and provides more benefits than basic transit services. Critics like O'Toole favor cost minimization that will result in inferior transit service, reduce transit ridership, and increased traffic problems. We can do better.

The COVID pandemic will probably reduce transit demand for the next few years, but not the importance of transit in an efficient and equitable transportation system, or the value of planning that responds to the growing demands for non-auto travel and multimodal communities.

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