

THE GREAT TRAIN ROBBERY

Urban Transportation in the 21st Century

CENTER FOR
DEMOGRAPHICS & POLICY

RESEARCH BRIEF

CHAPMAN UNIVERSITY



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Co-authors:

Joel Kotkin and Wendell Cox

Research Team:

Alicia Kurimska, Ali Modarres, Robert Roussel

Principal Advisor:

Alan E. Pisarski,

Editor:

Zina Klapper



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Center for Demographics and Policy

“Demographics is destiny” has become somewhat overused as a phrase, but that does not reduce the critical importance of population trends to virtually every aspect of economic, social and political life. Concern over demographic trends has been heightened in recent years by several international trends—notably rapid aging, reduced fertility, large scale migration across borders. On the national level, shifts in attitude, generation and ethnicity have proven decisive in both the political realm and in the economic fortunes of regions and states.

The Center focuses on research and analysis of global, national and regional demographic trends and also looks into policies that might produce favorable demographic results over time. In addition, it involves Chapman students in demographic research under the supervision of the Center’s senior staff. Students work with the Center’s director and engage in research that will serve them well as they look to develop their careers in business, the social sciences and the arts. They have access to our advisory board, which includes distinguished Chapman faculty and major demographic scholars from across the country and the world.

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The School of Communication prepares leaders to shape commerce via strategic communication, public opinion, health behavior and communication innovation, via evidence-based research projects, campaigns, academic partnerships and practical applications.

AUTHORS

Wendell Cox is a senior fellow at the Center for Opportunity Urbanism in Houston and the Frontier Centre for Public Policy in Canada. He was appointed to three terms on the Los Angeles County Transportation Commission, served on the Amtrak Reform Council and served as a visiting professor at the Conservatoire National des Arts et Metiers, a Paris university.

Joel Kotkin is the RC Hobbs Presidential Fellow in urban futures at Chapman University, director of the Chapman Center for Demographics and Policy, and executive director of the Center for Opportunity Urbanism in Houston, Texas. He also serves as executive editor of the widely read website *newgeography.com* and is a regular contributor to *Forbes* and *theDailyBeast.com*, *Real Clear Politics*, and *The Orange County Register*. He is also Author of eight books. His most recent is *The Human City: Urbanism for the Rest of Us*.

Alan Pisarski (principal advisor) is a writer and consultant in the fields of transportation research, policy and investment. His continuing studies include the Commuting in America series conducted each decade since 1986; The Bottom Line, advising the US Congress on national investment requirements for each of the last five surface transportation reauthorizations. He is invited frequently to testify in both Houses of the US Congress and in state legislatures and international agencies regarding economic and demographic and has represented the United States in numerous international bodies.

Zina Klapper (editor) is a writer/editor/journalist with many years of national credits. Most recently, she edited and helped develop a signature 1,200-page volume of 52 essays for MIT's Center for Advanced Urbanism, scheduled for publication by Princeton Architectural Press in 2017. During the past decade, her international media outreach and writing for the Levy Economics Institute of Bard College has included numerous commentaries on major news outlets worldwide.

RESEARCH TEAM

Alicia Kurimska (lead researcher and copy editor) has worked both for the Center for Opportunity Urbanism and Chapman University's Center for Demographics and Policy. She is also an editor for *NewGeography.com*, a website focusing on economics, demographics, and policy. She graduated from Chapman University with a degree in history.

Ali Modarres is the Director of Urban Studies at University of Washington Tacoma. He served as the editor of *Cities: The International Journal of Urban Policy and Planning* from 1999 to 2017. Dr. Modarres earned his Ph.D. in geography from the University of Arizona and holds master and bachelor degrees in landscape architecture from the same institution. He specializes in urban geography and his primary research and publication interests are the socio-spatial urban dynamics of American cities. He has published in the areas of social geography, transportation planning, immigration and public policy. Some of his recent publications appear in *Current Opinions in Environmental Sustainability*, *Current Research on Cities*, *Transport Geography*, and *International Journal of Urban and Regional Research*.

Robert Roussel graduated from Chapman University with Honors in 2016, Robert has continued to work on projects for the Center for Demographics and Policy since 2015. Starting this August he will begin his Masters of Public Policy at Georgetown University to develop his policy analysis skills and explore his professional interests.

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A Pacific Electric car destined for oblivion waits at the west portal to the subway on the line's last day of service, June, 19 1955.

Courtesy of the Metro Transportation Library and Archive. Used under a Creative Commons license (CC BY-NC-SA 2.0).

EXECUTIVE SUMMARY

Productive cities could not exist without transportation. Economic performance and job creation in a city — by which we mean a metropolitan area — generally improve when people can reach more job destinations more rapidly.¹ Over time, the ways in which people have reached their worksites has changed. In the distant past, nearly all people walked. Later, they relied on mass transit. Now, people in metropolitan areas rely primarily on cars for transportation to their jobs.²

However, in some cities, transit remains both critical and effective. These are metropolitan areas with strong historic — legacy — urban cores, which include large, downtown central business districts or CBDs.³ This is most notable in New York's central business district, which accounts for a dominant 40 percent of all transit work trip destinations in the country, despite having only two percent of the nation's jobs.

Overall, barely 5.2 percent of all commuter trips nationally are on some form of mass transit. Among the nation's 53 major metropolitan areas (places with over 1,000,000 population), only 11 exceed this 5.2 percent average.

Yet despite these realities, many now argue that metropolitan areas should provide much more funding for transit, especially for expensive modes such as light rail, subways (metros), commuter rail lines, and streetcars. This advocacy has been effective in raising transit spending, with more than \$1 trillion in government subsidy expenditures in the United States since 1970.⁴

Critically, many of these new transit lines have not reduced the percentage of those who commute alone by car. In places where there have been large rail investments — Los Angeles, Portland,

Houston, Atlanta and Dallas-Fort Worth, for example — the share of transit commuters has stagnated and even dropped. There are not any examples of metropolitan areas where rail systems reduced solo driving.

Soon, urban mobility may be further transformed, and perhaps enhanced, by new technologies. These include the continuing development of smart phones and ride hailing and sharing services, and ultimately of the autonomous car.

This report measures the effectiveness of transit systems by three generally accepted purposes. Foremost is the provi-

Rather than remain tethered to one-size-fits-all transit, public officials should focus on maximizing their investments in transit and mobility that reflect the particular economic and geographic profiles of their cities. Priority should be given to serving the needs of those unable to provide their own mobility.

sion of basic mobility for people who are unable to afford their own cars or who are unable to drive because of physical disabilities or other factors.⁵ This is referred to as the 'captive' market, because it is comprised of people who have no choice but to use transit (where available), walk, use taxis, or depend on friends and family for travel by automobile.

A second primary purpose of transit is to reduce traffic congestion and achieve environmental objectives, and to do so by attracting drivers from cars to other means of mobility. These potential riders constitute the 'choice' or 'discretionary' market. They have or can afford cars, but they choose to use transit where it provides competitive mobility.⁶

Third, transit-oriented development is widely seen as a means of ‘city building’ — a way for cities to expand business opportunities, reduce sprawl, and create a sense of community.⁷

Our report focuses on issues that are missing from a narrative dependent solely on those three purposes. We identify the best public and individual outcomes in terms of economic growth, job creation, a better standard of living, and the reduction of poverty. These concerns, in our estimation, should constitute the basic rationales of transportation policy.

After a thorough statistical review of the evidence, this report concludes that much of what we spend on transit — and certainly what we spend outside of the strong legacy cores — does not advance fundamental objectives. The focus on new rail services rather than on buses has failed to improve basic mobility for those who need it and has been associated with a decline in transit’s share of commutes in some cities.

We suggest that there may be better ways to address mobility for many of those who are unable, for economic or other reasons, to use cars to get to work. Boosting programs that assist car ownership, home based work, and ridesharing services could all provide more effective and affordable alternatives to traditional transit in most cities. In the future, new technologies such as autonomous cars could improve mobility as well.

Rather than remain tethered to one-size-fits-all transit, public officials should focus on maximizing their investments in transit and mobility that reflect the particular economic and geographic profiles of their cities. Priority should be given to serving the needs of those unable to provide their own mobility. In many cities subsidies might be better fashioned in ways that expands employment opportunities for those who cannot afford car

ownership or do not drive for other reasons. This would also help with other trip destinations, such as visits to health care providers or shopping venues. That focus makes more sense than expending huge sums in an attempt to lure those who are already mobile out of their cars, which transit has largely failed to do.

SECTION ONE: THE HISTORICAL EVOLUTION OF TRANSIT AND THE CITY

Throughout history, transportation has played a critical role in the development of cities. In the earliest urban settlements, goods and people were moved primarily by foot, or were hauled by draft animals. Places located on rivers or near the sea enjoyed advantages, since water-born transportation was, and in some cases remains, the most efficient means of transport.

The Romans and the Chinese — the ancient world’s largest longest lasting empires — understood that effective transportation was critical to economic growth, as well as to political power. The idea that ‘all roads’ lead to Rome was both about commerce and the ability to send troops to the extremities of the vast empire. Without their extensive road network it is unlikely that Rome would have been able to serve as the vital center of such a huge expanse of land.

There were also attempts to improve transportation inside cities. Julius Caesar banned horse-drawn carts between dawn and dusk to curb “noise, gridlock, accidents and other unpleasant byproducts of the urban equine.”⁸ Such problems continued well into the nineteenth century, when both human and horse populations soared across Europe, and then America.⁹



above:
Ancient Roman Road

FROM WALKING CITY TO TRANSIT CITY

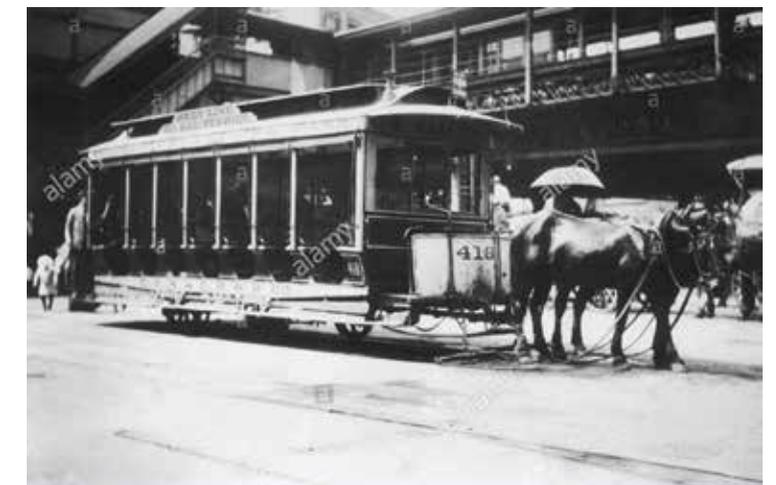
Until the early 1800s, all cities were dependent on foot traffic. Only a relatively small portion of the population could afford the mobility provided by horses, and even fewer had horse-drawn carts or carriages. With the intensification of urban settlement during the industrial revolution — the US urban population rose from 6 percent of the total in 1800 to 40 percent in 1900 — new, faster forms of transportation, such as the horse-drawn omnibus, later improved by running on rails, arose.¹⁰ It was the beginning of ‘a riding habit’: regular transit use by members of the urban middle class. This growing demographic could afford to use horse-drawn transit instead of walking.¹¹ Although getting around by foot remained the main source of mobility for poorer urban dwellers, the ‘walking city’ was eroding.¹²

In the 1880s, omnibus required 15 horses daily. And the need for horses rose even further when omnibuses were

placed on tracks, increasing their speeds and the loads a horse could pull.¹³

The reliance on horses generated residues that would have been familiar in Caesar’s day. Greater human crowding meant greater horse crowding as well, and what might have been tolerable in a sparsely populated rural area became unbearable in a densely packed urban one.¹⁴

The problem was overcome by the adoption of the steam engine, followed by the electrification of streetcars, and the introduction of commuter trains



below:
Belt Line horse cars,
circa 1917, New York
City

as well as subways (metros).¹⁵ These modes, notes economic historian Robert J. Gordon, boosted economic growth and living standards. The first urban subway was built under Boston's Tremont Street in 1897; the far more consequential New York system began service in 1904, and made getting around the country's largest municipality far easier.¹⁶

At the beginning of the twentieth century, public transit held a virtual monopoly on both motorized and horse drawn passenger transport within US cities. Annual streetcar ridership across the country reached more than six billion by 1920 as urban trips per capita rose; by then, nearly all ridership took place on rail services such as streetcars (trolleys), metros, and commuter rail systems.¹⁷

The social benefits of the new transit systems were significant. They allowed urbanites to move from the central cities to the more spacious suburbs, escaping inner-city congestion and pollution. By the 1910 census, the US could boast of metropolitan areas with suburbs extending more than 20 miles from the core.¹⁸

However, annual transit ridership — all modes including subway, streetcar, and bus — peaked in 1926, except for during the period of World War II

rationing. By 2016, national ridership was 10.4 billion, barely above the 10.2 billion of 1907, when the national population was only a quarter of what it is today. Transit's share of motorized and horse drawn urban travel dropped from virtually 100 percent in 1900 to two percent in 2009.¹⁹ (see Figure 1)

THE CITY: FROM MONOCENTRIC TO DISPERSED

During its period of ascendancy, transit gave birth to the 'monocentric' city, which is dominated by a central business district. Transit services generally radiated from the CBD, which offered by far the most intensive service. The development of downtowns in the 1830s and 1840s accompanied residential population losses in the core, as the central core was increasingly used for commercial purposes. Despite the current nostalgic desire for a return to 'mixed use' city centers, historian Robert Fogelson has noted that "most Americans did not want to live above a store."²⁰

By the 1940s, the core cities were clearly decentralizing, raising concerns with organizations like the Urban Land Institute.²¹ The decentralized automobile city was superseding the former monocentric transit city. Nearly all households had gained access to cars, which had come to dominate urban transportation. By 2015, only 8.9 percent of households did not have a vehicle, a nearly 50 percent reduction from the 17.5 percent of 1970. For the employed, the 2015 figure was an even lower 4.5 percent.²² Moreover, vehicle availability had also expanded among African-Americans and Hispanics, who historically have been less likely to own a vehicle. (see Figure 2)

CBDs still boasted the largest concentration of tall buildings, but new automobile-oriented suburban employment centers ('edge cities') were established, while the dispersed 'edgeless cities' that continued beyond suburbs and the further afield exurbs captured the majority of employment.²³ The new city form has been called 'polycentric, but is actually best characterized as 'dispersed.'²⁴ Today, over 75 percent of jobs are located in the suburbs and exurbs combined. Between 2010 and 2015, 81 percent of job growth was in the suburbs and exurbs.²⁵ (see Figure 3)

Those jobs followed residential movement. The population had shifted from rural to metropolitan areas; the nation was 56.5 percent urban in 1940, but had reached 80.8 percent in 2010.²⁶ It also became decisively more suburban. This trend has not been reversed. Today, 85 percent of major metropolitan area residents live outside the urban core, in the suburbs and exurbs, where transit service is sparse.²⁷ In contrast, during transit's heyday, the vast majority of metropolitan residents lived in areas that would be considered urban core today. (see Figure 4)

THE IMPACT ON TRANSIT

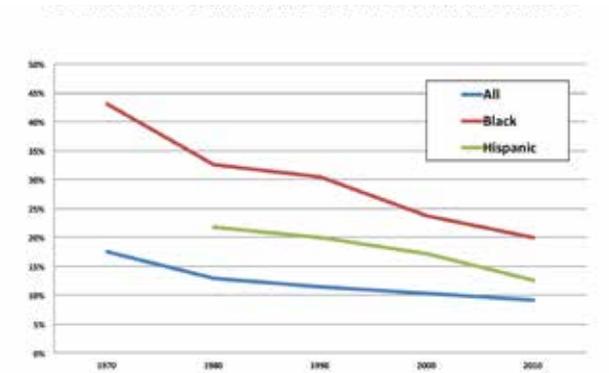
Transit's decline began with an explosion of automobile ownership and use. In 1910, Americans owned less than half a million automobiles, a figure that rose to eight million vehicles in 1920.²⁸ As people and jobs moved to the periphery, the ideal foundation for traditional transit — as a means to access jobs in dense urban centers — began to wither.²⁹ Transit's great strength is to serve dense downtowns, which differ greatly from the more dispersed patterns of suburbs and exurbs. (see Figure 5)

US Transit Ridership per Capita DECENNIAL HISTORY 1890-2010: URBAN



Derived from Census Bureau & APTA (see note). **Figure 1**

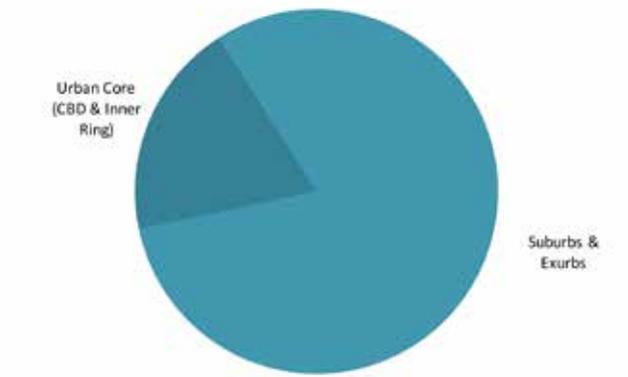
Households Without Vehicles by Ethnicity BY METROPOLITAN AREA CLASSIFICATION: 2015



Census Bureau data provided by Alan E. Pisarski

Figure 2

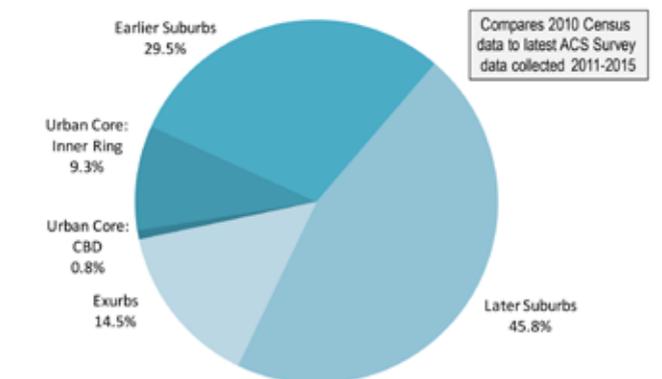
Employment: By City Sector MAJOR METROPOLITAN AREAS: 2010-2015



Derived from: County Business Patterns, City Sector Model

Figure 3

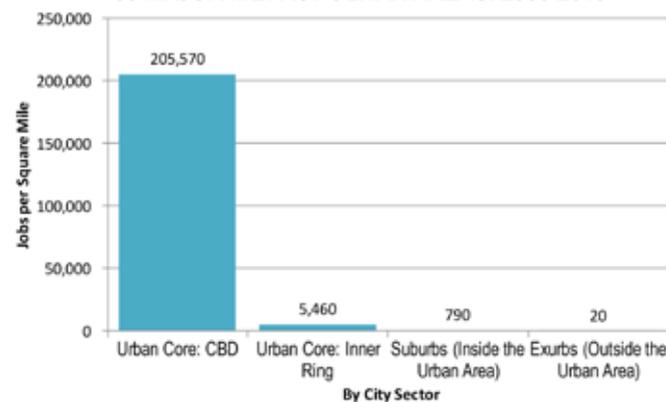
Growth Share by City Sector: Early 2010s 52 MAJOR METROPOLITAN AREAS (2010 to 2011–2015)



Derived from: 2010 Census, American Community Survey 2011-2015 & City Sector Model

Figure 4

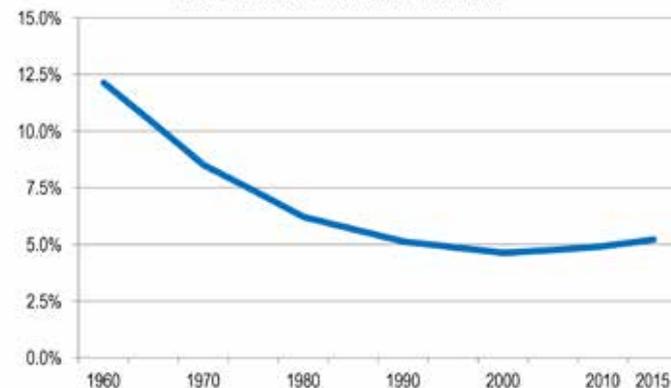
Employment Density by Sector 53 MAJOR METROPOLITAN AREAS: 2006-2010



Derived from ACS (2006-10): City Sector Model

Figure 5

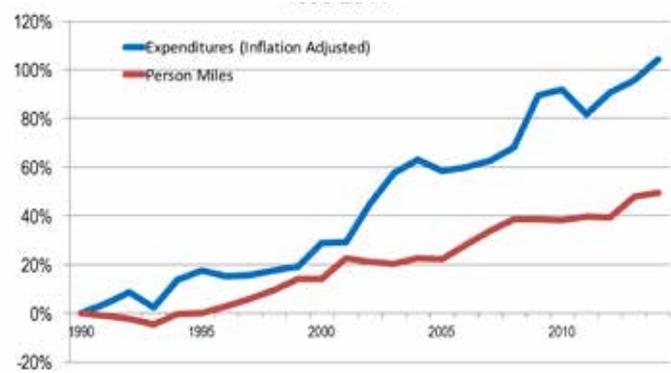
US Transit Work Trip Market Share UNITED STATES: 1960 TO 2015



Derived from Census Bureau data.

Figure 6

Transit Ridership & Expenditures 1990-2014



Derived from Census Bureau & APTA (see note in text).

Figure 7

In this changing environment, suggests economic historian Robert Gordon, fixed transit could not compete easily with the flexibility of the new automotive technology, which did not require transfers or waits at stops.

Between 1960 and 2015, transit's work trip market share dropped more than 50 percent, from 12.1 percent to 5.2 per cent. While this number has trended slightly upward since 2000, the growth has been largely concentrated in the six cities with legacy cores: New York, Chicago, Philadelphia, San Francisco, Boston and Washington. (see Figure 6)

At the same time, there are indications that the 5.2 transit market share figure may be inflated. The National Household Travel Survey for 2009 found that respondents who said that they had commuted by transit on the day of the survey also said that they used transit only 68 percent of the time. This would imply a national transit journey to work market share of about 3.5 percent.

TRANSIT EXPENDITURES AND RIDERSHIP TRENDS: FALLING PRODUCTIVITY

With transit ridership in decline during the 1970s, Congress took steps to reinvigorate mass transit. Metro systems opened in some cities. This was followed by many more light rail systems, a trend that continued over the coming decades. Today, concerns about environmental sustainability and urban revitalization have stimulated renewed interest in the advertised benefits of mass transit.³⁰

Despite tremendous media attention, this has not been, overall, a successful effort. Total spending by transit agencies has risen strongly compared to ridership, as transit has pushed into less and less

viable markets. For example, from 1990 to 2014 transit ridership (person miles) increased approximately 50 percent, while expenditures per passenger mile have increased at double that amount in inflation adjusted terms.³¹ This could indicate that expansions of transit systems are inherently inefficient because unserved markets tend to be less economically viable, or because transit costs per passenger rise faster than inflation. Whatever the cause, it casts doubt on the ability of transit to achieve substantial ridership increases at costs consistent with those of the overall economy. (see Figure 7)

In addition, to provide expansions to transit service is likely to be more costly than providing existing services. Two reasons being, transit already serves the most lucrative markets - those where passenger fares cover a greater share of costs - and the huge expense of new rail systems. Over the same period, expenditures per household on cars have stayed approximately the same, adjusted for inflation.³²

SECTION TWO: THE LEGACY CORE — WHERE TRANSIT WORKS

Transit still plays a critical urban mobility role in a select number of municipalities: metropolitan area cities with large 'legacy' cores. These urban cores were built before the advent of the automobile and retain a strong transit orientation. The urban cores of these six municipalities — New York, Chicago, Philadelphia, San Francisco, Boston and Washington — also have the largest central business districts, with the largest transit market shares.

Despite this, their CBD share of metropolitan employment is surprisingly small at an average of 10 percent. New

York has the highest share of its employment in the CBD, at 22 percent, while Philadelphia has the smallest, at 7 percent, based on the American Community Survey for 2006-2010.³³

These legacy urban cores (CBDs and inner rings) account for 56 percent of the transit work trip destinations in the nation. That is 11 times lower than the 5.2 percent share that transit commuters represent of total US workers.

Despite the massive expenditures on transit projects elsewhere, much of the increase in transit ridership work trips has taken place in these cities. The newest data indicates that the concentration of transit destinations in the legacy cores may be intensifying. Between 2006 and 2015, the six municipalities with legacy cores, along with their suburbs and exurbs, captured an overall share of 77 per cent of the increase in transit work trip destinations.³⁴ By comparison, the 47 cities without legacy cores accounted for only 16 percent of the increase in transit work trip destinations. New transit commuting outside the major metropolitan areas amounted to 7 percent of the increase.³⁵

TRANSIT IS ABOUT THE CBD AND URBAN CORE

Transit's greatest strength lies with its ability to transport large passenger volumes to and from the established downtowns developed in pre-automobile cities. This is where transit lines converge.³⁶ The CBDs of the six cities with legacy cores include the nation's largest and most dense employment centers, each of which have more than 150,000 jobs. More than 75,000 people commute to these jobs by transit. Apart from Philadelphia, these metropolitan areas boast a transit work trip market share exceeding 10 percent.³⁷

Distribution of Jobs & Transit Destinations BY METROPOLITAN AREA CLASSIFICATION: 2006–2010

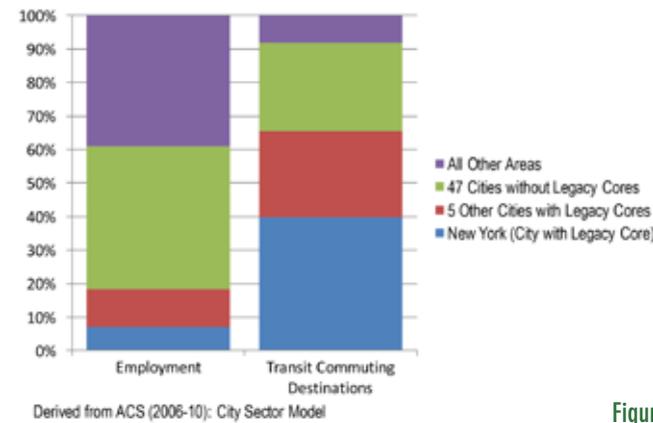


Figure 8

In these cities, the CBD, together with the inner ring of surrounding dense neighborhoods, provides a concentration of destinations that makes it possible for transit to better compete with cars for commuters. In the suburbs and exurbs, where densities are lower, transit is generally unable to compete with cars. (see Figure 8)

below:
Commuters on train.



DEFINING URBAN CORES AND SUBURBS: THE CITY SECTOR MODEL

This report relies on an analysis of urban cores and suburbs in the major metropolitan areas. It uses the City Sector Model, which generally attempts to separate the largely pre-World War II portions of the metropolitan area from the automobile-oriented areas that developed after the war.³⁸ The urban core, including the CBD and the inner ring, replicates the pre-World War II area, with higher population densities and greater transit orientation.³⁹ The suburbs, including the exurbs, largely developed post-World War II, and have lower population densities and greater car use.

The employment location analysis uses a minimum employment density of 100,000 jobs per square mile to qualify as a CBD; it otherwise follows the criteria of the City Sector Model. Wherever the term ‘CBD’ is used in this report, the quali-

tying density is assumed. Wherever the term ‘suburb’ is used alone, it is implied that ‘exurb’ is included. (see Figure 9)

The data source for the job location analysis is the Census Transportation Planning Package, a special census tract work trip destination run of the American Community Survey 2006-2010 for states and metropolitan planning organizations. This data provides the small geographic area information used in the development of long range (25 year) and short-range transportation plans. The next update will be available in 2019.⁴⁰

Comparisons to parallel, larger geographic data for municipalities suggests that the concentration of transit commuting destinations in the cities with legacy cores has increased since the current data was made available.

City Sector Model Criteria – RESIDENTIAL & WORK LOCATION DATA

CITY SECTOR & Relationship to City	Criteria 1	Criteria 2
Pre-WW2 Urban Core : Downtown (URBAN CORE-CBD) (in physical and functional city)	RESIDENTIAL CRITERIA: Employment density >19,999 per square mile in ZIP Code (OR) EMPLOYMENT LOCATION CRITERIA: Employment density 100,000+ per square mile in Census Tract	
Pre-WW2 Urban Core: Outside Downtown (URBAN CORE-INNER RING) (in physical and functional city)	RESIDENTIAL & EMPLOYMENT LOCATION CRITERIA (Zip Code): In principal urban area (AND) Population density >7,499 density per square mile (AND) Transit, Walk & Bike Share >19.9%	(OR) In pr. urban area (& Median year house built before 1946
Post-WW2 Suburban & Exurban (SUBURB)	RESIDENTIAL & EMPLOYMENT LOCATION CRITERIA (Zip Code): Outside URBAN CORE	

Figure 9

NEW YORK: THE ULTIMATE LEGACY CORE

Even among the cities with legacy cores, the New York metropolitan area is unique. New York's CBD was nearly five times as large as any other in the nation in 2006-2010.⁴¹ It is no surprise, then, that its transit system and ridership are head and shoulders above all other major metropolitan areas. New York's transit work trip market share is 31.5 percent, almost double to more than triple that of the other five cities with legacy cores.⁴²

Overall, a remarkable 40 percent of all transit commuting in the United States takes place in the New York metropolitan area.⁴³ This reflects New York's historical legacy as a monocentric city. Approximately 31 percent of Manhattan employees live in Manhattan. Another 44 percent live in the other four boroughs of New York City — the Bronx, Brooklyn, Queens and Staten Island.⁴⁴ The inner

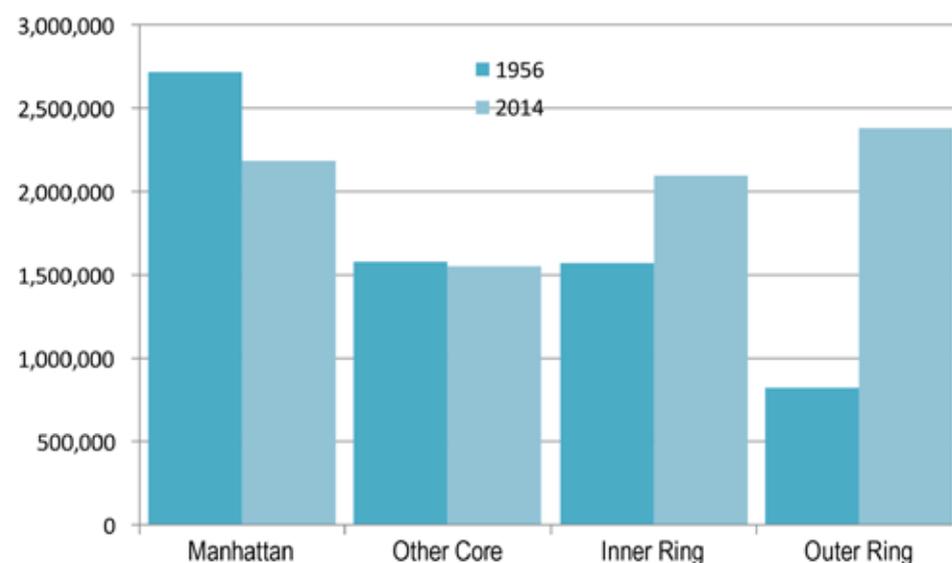
ring counties contribute 17 percent of Manhattan employees, and the outer ring counties account for nine percent of Manhattan employees.⁴⁵

NEW YORK'S SUBURBS: MORE LIKE THE REST OF THE NATION

In contrast, New York's suburban work locations are much like the rest of the country; only 5 percent of commuters, roughly the national average, use transit. Among the 53 major metropolitan areas, New York has the lowest share of its transit destinations in the suburbs and exurbs (7 percent), making it by far the most monocentric city in the nation.

New York's suburbs may be obscure compared to the city, but they have accounted for 90 percent of the metropolitan area employment growth since 1950. Even Manhattan (New York County), which contains the CBD, lost more than

New York MSA Employment Trend
1959–2014



Derived County Business Patterns and Hoover & Vernon

Figure 10

525,000 jobs between 1959 and 2014. The four other boroughs of New York experienced a decline of 25,000 jobs. The inner ring suburbs nearly compensated for these losses, adding 530,000 jobs. The outer ring suburbs accounted for virtually all the job growth, at 1,560,000.⁴⁶ (see Figure 10)

THE REST OF LEGACY AMERICA: NOT NEW YORK, BUT STILL TRANSIT FRIENDLY

No other city comes close to matching New York in terms of transit share, but the five other cities with legacy cores, according to the last decennial census, together account for 23 percent all national urban core transit commuting destinations.

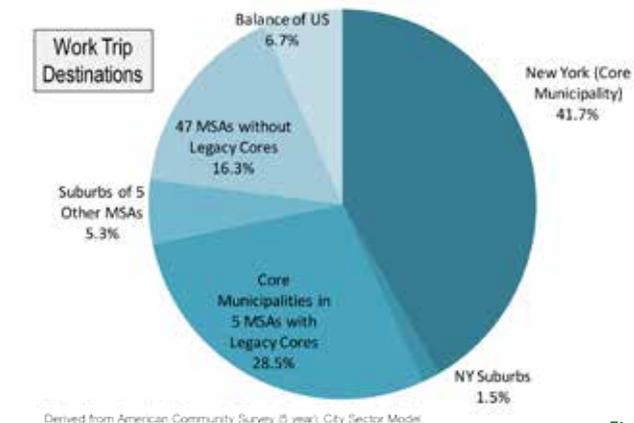
Change to "Like New York, the other cities with legacy cores have accounted for 28 percent of the national transit work trip increase from 2006-2010 to 2011-2015. Combined with New York, they comprised 71 percent of the transit increase. Transit commuting has remained viable into these urban cores." (see Figure 11)

Even so, it should be noted that traffic congestion worsened between 2000 and 2014 in five cities with legacy cores.⁴⁸

SAN FRANCISCO: SECOND BUT NOT CLOSE TO NEW YORK

San Francisco, the second strongest major metropolitan area for transit, was already well established during the transit era. Yet most of the nation's 11th largest metropolitan area remains largely suburban. Since 1950, more than 95 percent of the population growth has been in the suburbs and exurbs.

Share of Additional Transit Commuting
BY METROPOLITAN CLASSIFICATION: 2006–10 to 2011–15



Derived from American Community Survey (5 year) City Sector Model

Figure 11

Residential Transit Market Share Map
SAN FRANCISCO METROPOLITAN AREA 2011–2015

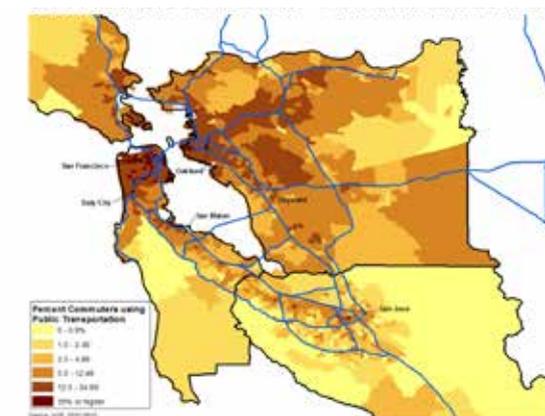


Figure 12

San Francisco's transit destinations are heavily concentrated in the urban core; the CBD, barely 15 percent the size of New York's, has a strong transit market share of 52 percent. In contrast, most of the metropolitan area is suburban, looking more like the rest of the country. For example, the adjacent, almost entirely suburban San Jose metropolitan area (which includes much of Silicon Valley), has only a four percent transit commute market share. (See Figure 12)

SECTION THREE: WHERE TRANSIT CANNOT COMPETE

Transit is far less important in the 47 cities without legacy cores. Their urban cores contain an average of only 16 percent of their metropolitan area jobs, compared to 56 percent in New York and 37 percent in the other five cities with legacy cores. Their urban core destination transit market shares average 3.3 percent, compared to 49 percent in New York and 38 percent in the other five legacy cities. In contrast to the cities that contain legacy cores, more than one-half of the cities without them suffered transit market share losses between 2000 and 2015.

Over the past decade many of these cities have built light rail lines, metros, commuter rails or streetcars in hopes of attracting drivers from cars. These projects have sometimes been supported by surveys that suggest people in these areas want more transit. But, as Steve Polzin, Director of Mobility Policy Research at the Center for Urban Transportation Research at the University of South Florida, notes, “Stated preferences often

run counter to revealed preferences.”⁴⁹ In reality, the rail investments in these cities have made virtually no progress in attracting drivers from cars on to transit.

Among the 19 metropolitan areas that have opened substantially new urban rail systems since 1980, transit’s share of work trips has declined on average from 4.7 percent to 4.6 percent, and remains less than the national average of 5.2 percent.⁵⁰ At the same time, the drive alone share of work trips has risen from 73.0 percent to 76.6 percent. New urban rail systems have been exorbitantly expensive, but clearly have not reduced solo driving. (see Figure 13)

‘City building’ objectives, as we will demonstrate below, have been even more counterproductive. According to a Department of Transportation report, these initiatives were created “to reduce sprawl and create a sense of community through transit-oriented development.”⁵¹

As *Governing Magazine*, writing about light rail in Phoenix, noted, “To those who fought for it, light rail in Phoenix was always about more than shiny new trains and faster travel times; it was a machine to transform urban life. Advocates in Phoenix, like those in many other cities, claimed light rail would introduce a whole new type of development, one that would appeal to both working millennials and retired ‘snowbirds.’”⁵² However, the results there, as elsewhere, have proven less than strongly transformative.

THE LOS ANGELES STORY

On the surface, Los Angeles would seem an ideal place for transit. It is the densest urban area in America, more so than New York, and enjoys a mild climate with a large immigrant population, many of whom hail from places where transit is common. It has been widely celebrated as

“the next great transit city,” and is lauded by such media outlets as the *New York Times* for transcending its sprawling, car oriented past.⁵³ Some, like Los Angeles architectural critic Christopher Hawthorne, envision “a third Los Angeles” that will see the eclipse of the freeways, single family homes, and suburban neighborhoods that have long epitomized the place.⁵⁴

Of course, Los Angeles sprawled long before cars. The city’s public transit system originated in 1873, and eventually at least 220 private and public companies operated transit systems, including horse cars, cable cars, incline railways, steam trains, electric streetcars, interurban cars, and buses. However, the results there, as elsewhere, have proven less than strongly transformative.⁵⁵

The shift to an even more dispersed pattern began with the rise of the automobile prior to World War II. In 1927, Gordon Whitnall, Director of the Los Angeles City Planning Department, observed that instead of cars following “the limitations of cities,” cities had begun “to conform to the necessities and services of the automobile.” Whitnall recognized that an auto-centered city would inevitably disperse.⁵⁶

One indicator of this change was the relative decline of the Los Angeles CBD, the focus of the region’s extensive transit system. In 1926, 41 percent of Los Angeles County residents went to the CBD for work or shopping, a number that dropped to 15 percent by 1953.⁵⁷

The system’s problems stemmed in part because so much of the urban area was built after 1950. Since that time, shaped largely by the automobile, the urban land area has doubled and the population has tripled; in 1920, the urban population was only 1/15th of that of today.⁵⁸

Much has been made of Los Angeles’ downtown progress since the 1970s, and

particularly the recent growth in residential population and cultural attractions. But this has not restored the CBD as a prime business location. It accounts now for barely 2 percent of metropolitan employment. Rather than a place where business people work, downtown has become more of a locale for bars, restaurants, concerts and sporting events. Los Angeles’ downtown, notes real estate analyst David Shulman, is “more about sports and entertainment venues, restaurants and bars, loft conversions and hotels, than it is about companies that need a lot of floors in tall buildings. Nightlife and streetscapes trump florescent light and cubicles.”⁵⁹

Of course, Los Angeles still has many transit riders, but this mostly reflects its vast size and large poverty level population. Indeed, Los Angeles transit riders are among the poorest in the nation, with earnings 48 percent below the metropolitan area median.

Initially designed to reduce traffic congestion, and more recently to help create a more densified urban form, Los Angeles has opened seven new urban rail lines —metro and light rail — and two exclusive busways, at a cost of more than \$15 billion.⁶⁰ Yet transit’s work trip mar-

Change in Work Trip Market Share
19 CITIES: BEFORE AND AFTER (2015)

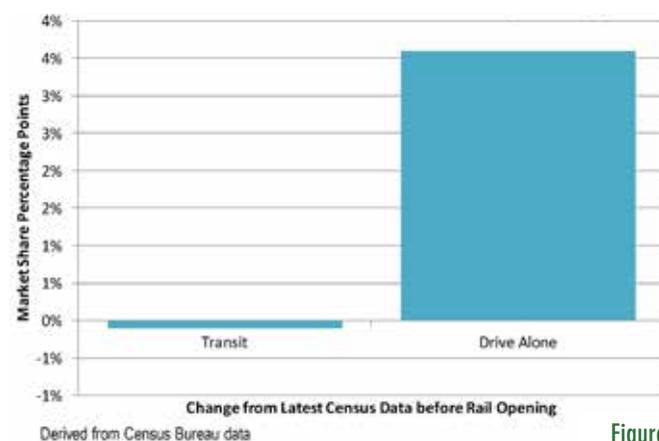


Figure 13

Estimated Passenger Journeys
LOS ANGELES: SCRTD/LAMTA: 1985-2015

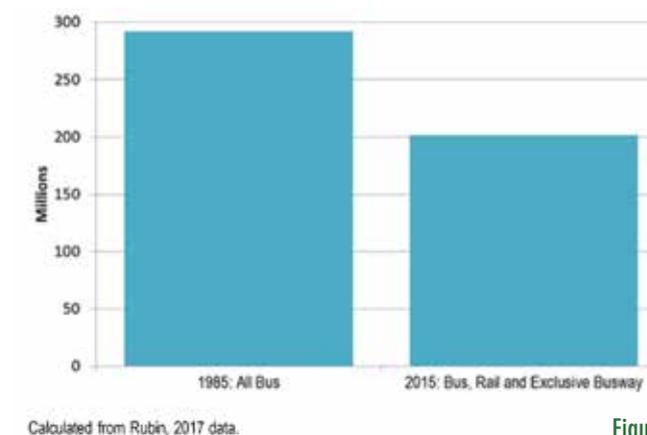


Figure 14

ket share has dropped from 5.6 percent in 1990 to 5.1 percent in 2015, just below the national average transit work trip market share.

Ridership is at least 15 percent below 1985 levels, when there was only bus service, and when the population of Los Angeles County was about 20 percent lower.⁶¹ A former Comptroller of the transit system, Thomas A. Rubin, has suggested that even the present level of ridership is overstated, since many more passengers are required to transfer between vehicles to make a single trip, as bus services are reconfigured to serve rail lines.⁶² (see Figure 14)

Most recently, the much-celebrated opening of the new Expo light rail line extension to Santa Monica added only 19,000 daily one-way riders, while the rest of the transit system (mostly buses) lost 91,000 daily riders.⁶³ No surprise, then, that according to a recent USC study the new lines have done little or nothing to lessen congestion.⁶⁴ Some transit advocates suggest a need for additional, less expensive, bus rapid transit.⁶⁵

Increasingly, many residents are addressing traffic woes by staying home. By 2015 more Los Angeles area residents were working at home than were taking

transit.⁶⁶ Since 1990, despite having built one of the nation's largest and most expensive commuter and urban rail systems, home office use increased 8 times that of transit use, with virtually no public expenditure, while driving alone increased more than 35 times that of transit. (see Figure 15)

In reality, Los Angeles seems anything but "the next great transit city." Today, barely five percent of metropolitan area residents use transit to get to work. In this context, bold calls by political leaders like Mayor Eric Garcetti for future huge jumps in transit seem fanciful at best.⁶⁷

HOUSTON: ANOTHER FAILED TRANSFORMATION

Like Los Angeles, Houston's urban boosters envision their city as ideal for urban rail. They seek to shift the real estate market towards downtown, and view it as "the next great transit city."⁶⁸ Policy advocates have convinced less-critical reporters from, for example, PBS, that Houston, as well as its arch-rival Dallas-Fort Worth, are experiencing a transit based "economic boom."⁶⁹

This story may play well among media, real estate speculators and urban planners, but it is utterly misleading. Houston has proven even less amenable to conventional transit than Los Angeles. In both cities, much of the population growth occurred after World War II, a period characterized by suburban development in virtually all metropolitan areas. Since 1950, as Houston's population increased six-fold to 6.8 million, more than 70 percent of the growth has been outside the city of Houston, and even within the city most growth has been suburban in character. (see Figure 16)

This has occurred even though Houston's CBD remains vibrant, the largest among the cities without legacy cores. Yet, even in the CBD, the transit market share is only 13 percent. The wider urban core (including the CBD) has a transit market share of 9 percent, falling off to 2 percent in the suburbs and exurbs. Since 2000, 96 percent of the new private jobs have been created in the suburbs and exurbs. (see Figure 17)

As in Los Angeles, transit's share has declined in recent years, dropping nearly one-third, from 3.2 percent before light rail opened to 2.2 percent in 2015. Driving alone increased from 77.0 percent to 80.7 percent, while working at home increased from 2.5 percent to 3.7 percent.⁷⁰ All of this is despite a taxpayer bill of more than \$1.5 billion for light rail. Rather than becoming "the next great transit city," bus and rail ridership has been dropping. Transit commuting by residents is comparatively sparse throughout the area. (see Figure 18)

ELSEWHERE IN GROWING CITIES

In most other cities across the country the results are even more pathetic. Phoenix is now the nation's 12th largest metropolitan area, and likely to pass San Francisco and Boston to assume 10th place in the next decade. Virtually all its development is suburban or exurban in character. Transit ridership is concentrated in its urban core, where the transit work location market share is 7 per cent, but falls off to 2 percent in the suburbs and exurbs.

As in Houston and Los Angeles, there are bold calls to turn Phoenix into a "transit city," but this seems far-fetched.⁷¹ Jobs in the Phoenix metropolitan area are heavily concentrated in areas of suburban

Houston MSA: Population by City Sector 2000 TO 2011–2015

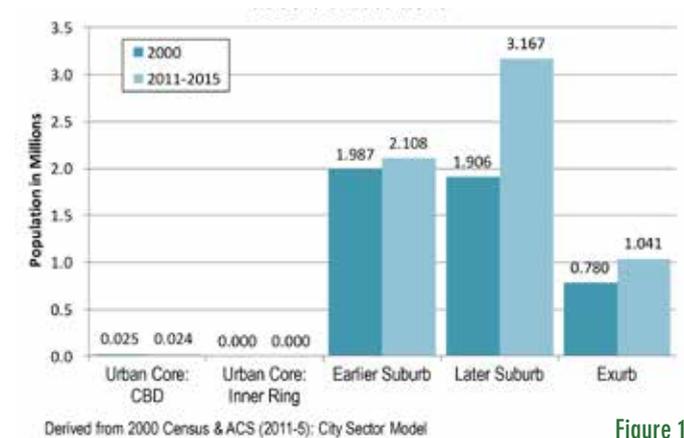


Figure 16

Houston MSA: Employment by City Sector 2000 TO 2015

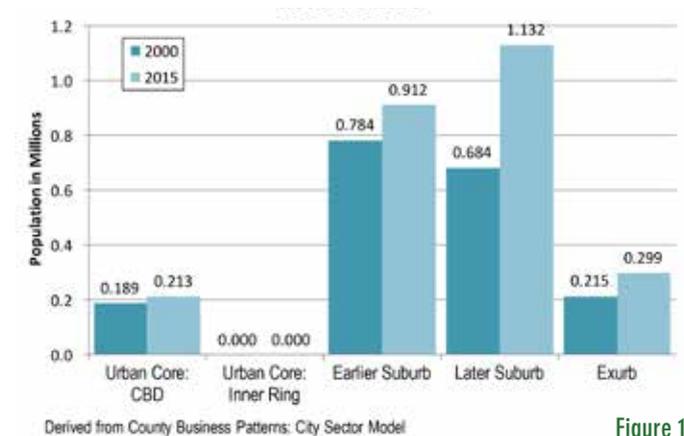


Figure 17

Change in Work Trip Access: Houston SINCE BEFORE URBAN RAIL (2000–2015)

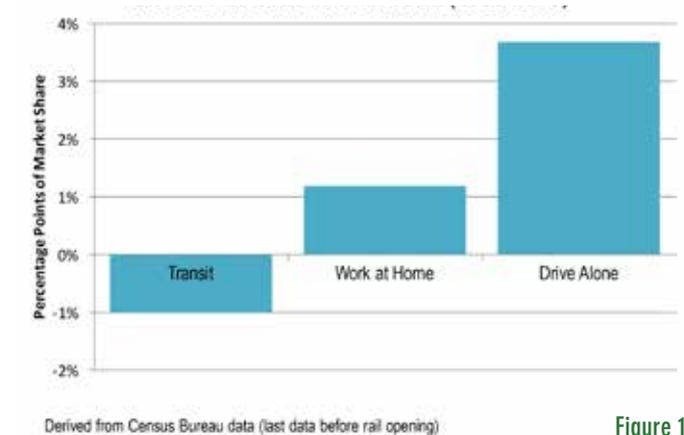


Figure 18

Change in Work Trip Access: Los Angeles SINCE BEFORE URBAN RAIL (1990–2015)

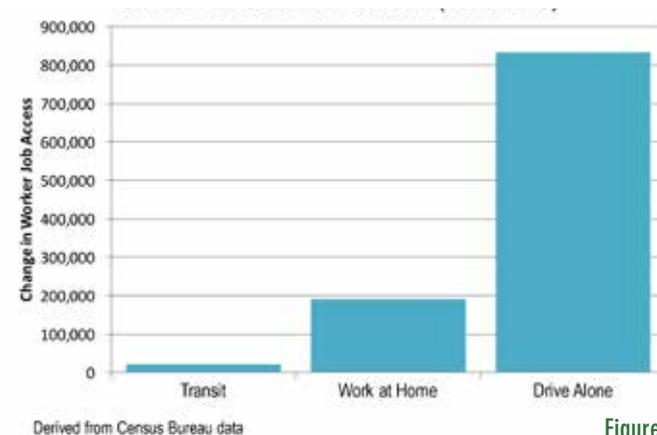


Figure 15

character, and most transit destinations are in the suburbs and exurbs. Despite a billion-dollar investment in rail transit, the transit market was miniscule before light rail (1.9 percent) and remains a still miniscule 2.2 percent, less than one-half the national transit market share.⁷² Only limited transit commuting is available in most of the metropolitan area. (see Figure 19)

Like Phoenix, other fast-growing areas such Dallas-Fort Worth, Austin, Riverside-San Bernardino, Nashville, Charlotte, and Las Vegas have dispersed

Residential Transit Market Share Map PHOENIX METROPOLITAN AREA: 2011–2015

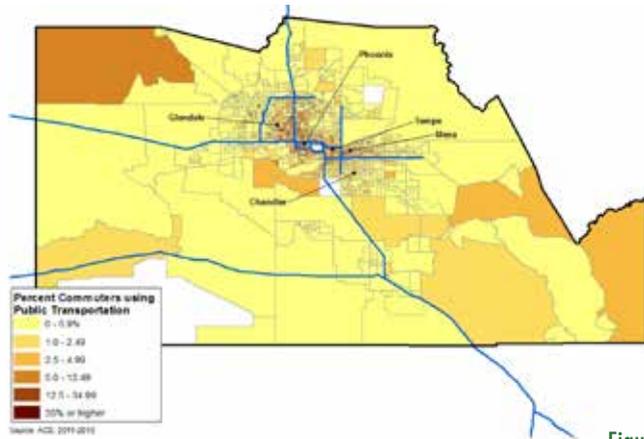
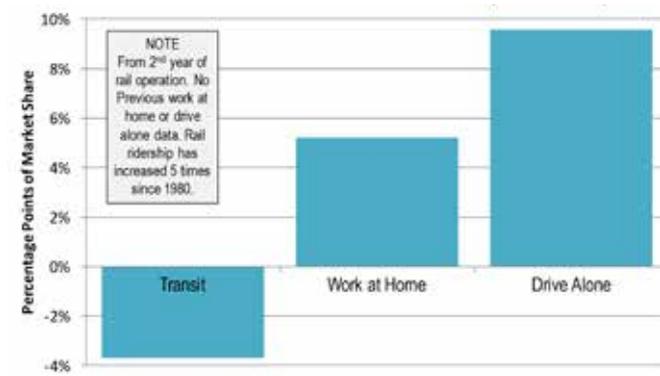


Figure 19

ATLANTA WORK TRIP ACCESS Change in Work Trip Access: Atlanta 1980–2015



Derived from Census Bureau data

Figure 20

job markets, with only a small percent of jobs in the central core. This explains the failure — after over five billion in expenditures — for Dallas’ DART rail system to increase transit’s commute market share there. The Dallas-Fort Worth system focuses on bringing people to the area’s modest downtown, which has 2 percent of all jobs, well below the major metropolitan average for dense CBDs of 5 percent.

Orlando, another fast-growing city, epitomizes these trends. In this Florida city 94 percent of the jobs and virtually all the residents are in the suburbs. Only 2.2 percent of commuters use transit to get to work.

LOFTY EXPECTATIONS FOR ATLANTA

Perhaps no city so epitomizes the futility of conventional transit spending as Atlanta. With the opening of MARTA in 1979, Atlanta has built the third largest new metro system (fully grade separated rail) in the US.⁷³ This indeed has spurred some ‘city building,’ or real estate development, at some rail stations. Many business leaders believe that mass transit — primarily rail transit and streetcars — is critical to attracting millennials and young professionals.⁷⁴

Yet for all the lofty expectations, the more than four billion spent on the Metro systems has not drawn more of the metropolitan area’s growth to areas that it serves, nor has it increased transit’s work trip market share. The population of the city of Atlanta, on which the system is concentrated, dropped by 5,000 from 1980 to 2010, while the suburbs grew by nearly 3,000,000.⁷⁵ Much of the metropolitan area’s job growth remains in suburban areas. County Business Patterns data, which primarily measures private sector jobs, indicates that more than 90 percent

of job growth occurred in the suburbs and exurbs between 2010 and 2015.⁷⁶ Employment in Atlanta is becoming more dispersed, despite perceptions and reports to the contrary.

This may be part of the reason why transit’s market share dropped from 6.8 percent in 1980 to 3.1 percent in 2015, 40 percent below the national transit market share of 5.2 percent.⁷⁷ The share of commuters driving alone rose from 68.3 percent to 77.9 percent. Working at home increased from 1.2 percent to 6.4 percent, now more than double the market share of transit.⁷⁸ (see Figure 20)

Not surprisingly, this has not reduced congestion. Since 1982, Atlanta’s traffic congestion has more than doubled.⁷⁹ In addition, a new streetcar line has been so ineffective, despite claims from the downtown business community, that some locals call it “a streetcar called undesirable.”⁸⁰

OLDER FORMERLY MONOCENTRIC CITIES

But the weak performance of transit is not limited to systems in fast-growing sunbelt cities. Many slower growing, older, formerly monocentric cities had strong transit ridership and CBDs before World War II. Transit market share, however, subsequently fell considerably. For example, transit’s market share is now 2.0 percent in Cincinnati, 3.3 percent in Cleveland, 1.1 percent in Kansas City and 2.9 percent in Providence. (see Figure 21)

THE IRONY OF PORTLAND

Internationally acclaimed for its ostensibly transit-friendly land use policies, such as a prohibition on suburban housing development beyond an ‘urban

growth boundary,’ Portland sees itself, and is widely seen as a model of city building through transit.⁸¹

Portland opened its MAX light rail system in 1986, but, despite that, has seen its transit market share drop from 7.9 percent in 1980 to 6.9 percent in 2015, only modestly above the national transit work trip market share. Meanwhile, solo driving increased from 65.3 percent to 70.0 percent.⁸² Working at home increased from 2.3 to 6.4 percent, at virtually no cost to the public treasury, compared to the more than 3 billion dollars spent to

Metropolitan Area Transit Market Shares SELECTED CITIES WITHOUT LEGACY CORES: 2015

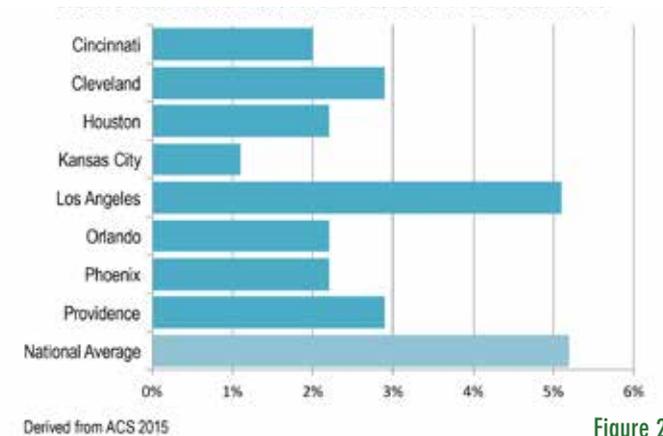
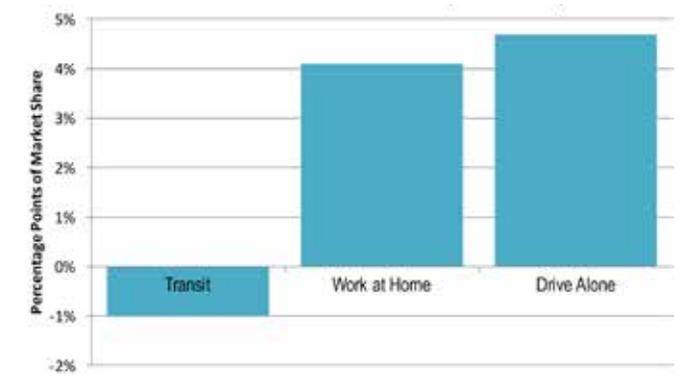


Figure 21

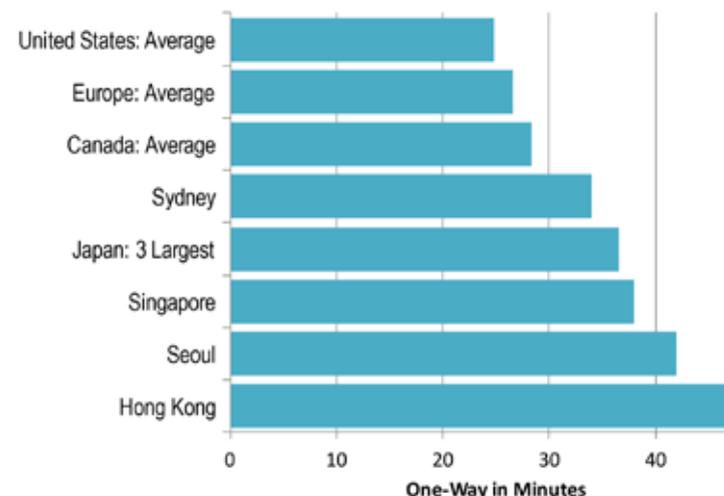
Change in Work Trip Access: Portland SINCE BEFORE URBAN RAIL (1980–2015)



Derived from Census Bureau data

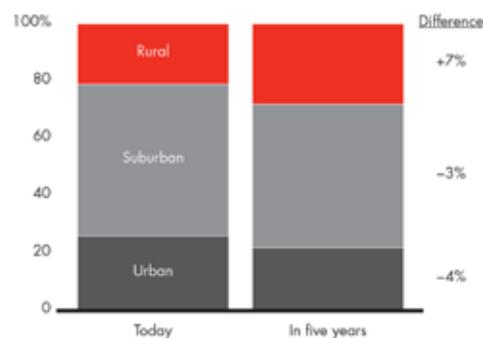
Figure 22

International Work Trip Travel Times METROPOLITAN AREAS OVER 1,000,000: AVAILABLE DATA



1999-2010 data from various sources: See note in text **Figure 23**

Living Preferences: Today and 5 Years PRESENT RESIDENCE AND PREFERRED IN 5 YEARS



Source: http://www.bain.com/Images/BAIN_REPORT_Spatial_economics.pdf **Figure 24**

build urban rail. (see Figure 22)

As in other cities, transit has failed to reduce traffic congestion. From 1985 to 2014, Portland’s traffic congestion doubled, from an average delay of 20 percent relative to uncongested travel times in 1985 to 40 percent in 2014; Portland had the 6th worst urban traffic congestion among the major metropolitan areas, which is notable given that Portland ranks only 25th in population.⁸³

SECTION FOUR: TRANSIT AND THE REALITIES OF THE AMERICAN URBAN FORM

Transit suffers myriad fundamental competitive challenges in terms of travel time and access to jobs. This will not be improved, contrary to conventional wisdom, since cities continue to disperse as more people move to less transit oriented areas. These realities rarely appear in discussions about transit, but need to shape policy in most metropolitan areas.

DISPERSION IS THE REALITY

Americans seem generally happy with their overwhelmingly suburban lifestyle and their ability to reach places of employment faster than most of those in the high-income world can.⁸⁴ (see Figure 23)

Surveys of where people want to live in five years show a decline in the number of those who prefer urban living, already a small minority, and an increase in desire to move to more rural areas. This in a country where the clear majority already live in suburbs, and where the strongest growth continues to be in the suburbs and exurbs.⁸⁵ (see Figure 24)

Americans continue to move, for the most part, to less congested, less dense areas with lower levels of transit service and away from the more tightly packed areas with better transit service. A recent report by the global consulting firm Bain and Company suggested that greater decentralization was likely to occur due to technological advances, such as the autonomous car. Bain found metropolitan areas in the US, and even more so in Europe, to be dispersing toward greater suburbanization, after a stall during the Great Recession.

Rather than a period of greater centralization, Bain envisions a “post-urban economy” that will be more localized and home-based.⁸⁶ By 2025, it reports, fewer people could live in urban cores than in exurbs, which it defines as “beyond the traditional commuting belt.”⁸⁷ (see Figure 25)

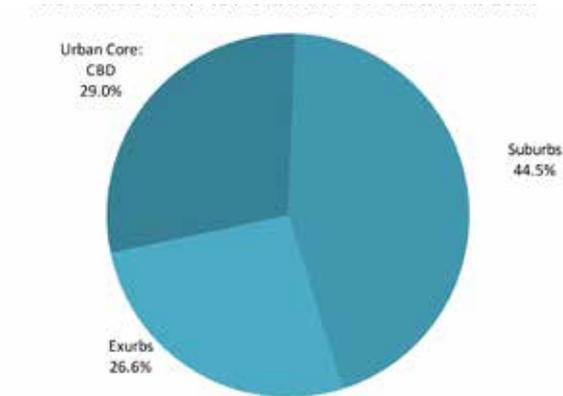
This suggests that, for most metropolitan areas, expending billions more on new rail lines or other expensive strategies makes little sense. In most cities with legacy cores and in those without them, population and job growth is greatest in the suburbs and exurbs. The numbers demonstrate that suburb to suburb work trips account for most of the commuting activity in major metropolitan areas.

David Levinson of the University of Minnesota suggests, “Federal funding for transit has distorted investment to be capital intensive — favoring ribbon-cuttings for politicians — while resulting in neglect for local operations. While the rational local transit organization will take advantage of federal largesse, there is no good reason for federal involvement.”⁸⁸

ACCESS TO EMPLOYMENT: TRAVEL TIMES

Despite these problems, there remains a vital role for transit to play in the future. Perhaps the most important will be to provide access to jobs for low income citizens. It is clear that having transit access is by no means the same thing as having access to employment. Most jobs in the average metropolitan area cannot be reached from the average transit stop in an amount of time competitive with what could be achieved with an automobile. University of Minnesota research shows that the average employee in 49 of the nation’s major metropolitan

Forecast: A Post Urban Core Landscape TOTAL US METROPOLITAN POPULATION: 2025



Derived from Bain & Co. Spatial Economics: The Declining Cost of Distance **Figure 25**

Access to Transit and Employment 49 MAJOR METROPOLITAN AREAS: 30 MINUTES

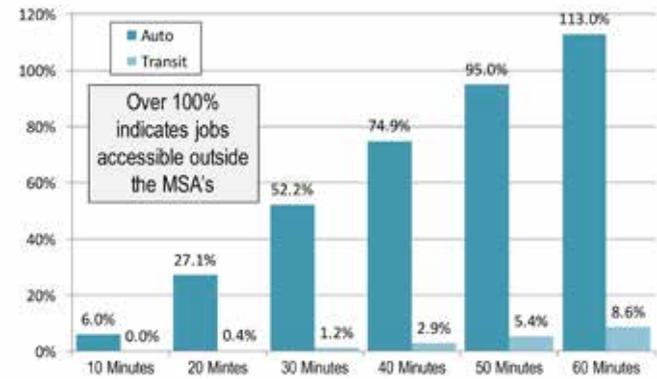


Derived from Brookings Institution & U. of Minnesota data **Figure 26**

areas can reach barely one percent of the jobs in the area by transit within 30 minutes. The same research indicates that only 8.4 per cent, just one out of every 12 jobs, can be reached in 60 minutes.⁸⁹ (see Figure 26)

Even in New York, with by far the best transit ridership in the nation, the most monocentric form, and a transit system that reaches within walking distance of 90 percent of residences, the average employee can reach only 2.5 percent of the metropolitan area jobs in 30 minutes. The great effectiveness of automobiles is clear. In the other cities with legacy cores, cars provide 22 times the 30-minute job

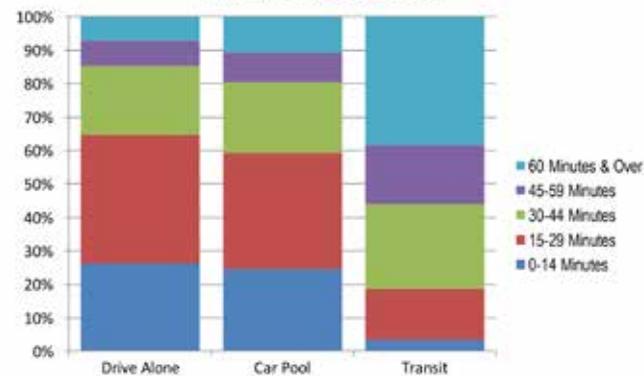
Transit & Auto Employment Access MSA JOBS ACCESSIBLE TO TYPICAL EMPLOYEE: 2015



Derived from U. of Minnesota Accessibility Observatory

Figure 27

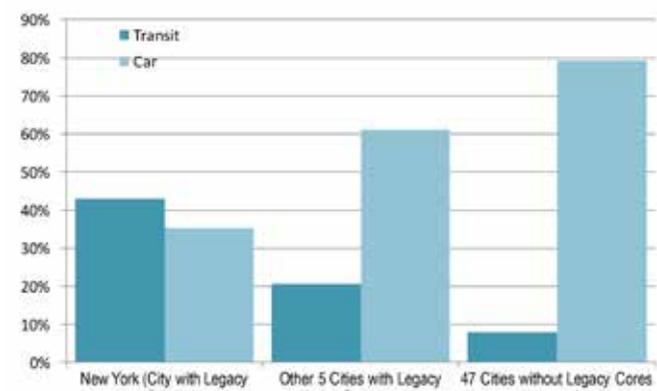
Commuting Time by Mode (One-Way) UNITED STATES: 2015



Derived from American Community Survey

Figure 28

Work Trip Access: Workers in Poverty MARKET SHARE - MAJOR METROPOLITAN AREAS



American Community Survey, 2015

Figure 29

access of transit; in the 47 cities without legacy cores, cars provide access to 70 times as many jobs. (see Figure 27)

Travel times for commuters who use transit also are considerably longer than the travel times of those who drive alone or use car pools.⁹⁰ Expenditures that could rival gross domestic product.⁹¹

In 2015, 65 percent of all US commuters driving alone had work trips of less than 30 minutes, while 59 percent of car pool commuters reached work in less than 30 minutes. By contrast, 19 percent of transit commuters reached work in 30 minutes.

Concern is often expressed about long commutes that take 60 minutes or more. The most obvious cause is traffic congestion. However, second to working at home, which does not require any commuting time, driving alone is actually an effective means to avoid long commutes. In reality, transit commuters are more than five times as likely to have a long commute than those who drive alone, at 38 percent of riders compared to 7 percent of drivers. (see Figure 28)

MOBILITY FOR WORKERS IN POVERTY

Only in New York does transit take more commuters in poverty to work than cars do. In the five other cities with legacy cores, cars provide more than three times the mobility of transit for workers in poverty. In the metro areas without legacy cores, 10 times as many people in poverty commute by car as by transit. (see Figure 29)

In metropolitan America, people need access to some form of individualized transport to employment opportunities. Providing mobility to low income

citizens who cannot afford cars is one of the principal justifications for subsidizing transit. Transit commuters have a higher poverty rate than average workers, and tend to have a poverty rate twice that of those who drive alone. (see Figure 30)

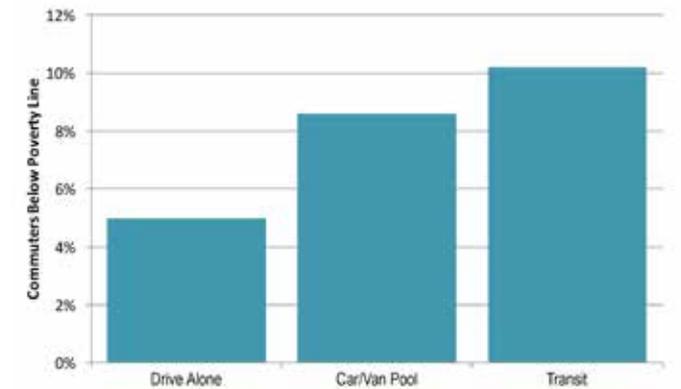
Despite this, even most commuters below the poverty line use cars to get to work. Taken together, cars driven alone and carpools carry more than five times as many commuters below the poverty line as transit does. Rather than viewing vehicle access as a burden to the low-income population, it should be recognized as a tool of access to a greater share of jobs and other opportunities. (see Figure 31)

SECTION FIVE: THE FUTURE OF TRANSIT

At a time when we are moving towards major technological breakthroughs in access to goods and services, most transit thinking remains firmly ensconced in the twentieth, or even the nineteenth century. To be sure, the ostensible goals of transit — less congestion, less pollution, and serving the poor — remain important, but transit has not been effective in addressing these concerns.

For decades, instituting urban rail systems and achieving greater transit use have been touted as important ways to reduce automobile-produced air pollution. And, in fact, huge strides have been made, especially through improved vehicle technology. But virtually none of the improvements can be attributed to transit, since driving alone has continued to increase, despite the billions in transit investment. (see Figure 32)

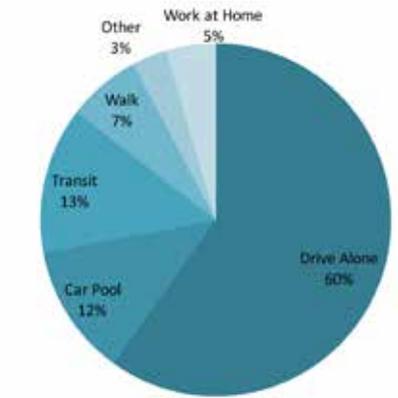
Poverty Rate: Car & Transit Commuters MAJOR METROPOLITAN AREAS-2015



Calculated from 2015 American Community Survey

Figure 30

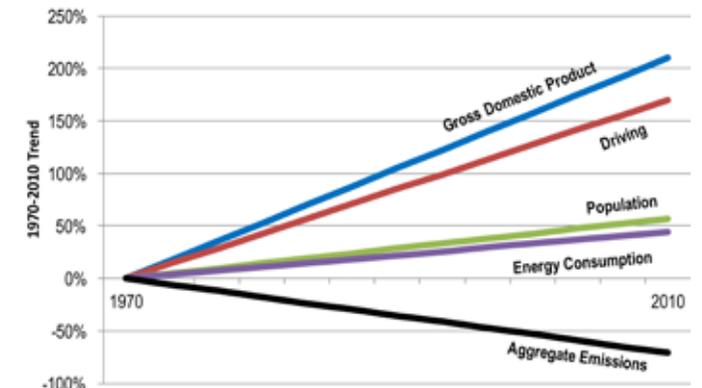
Job Access by Workers in Poverty MAJOR METROPOLITAN AREAS: 2015



Derived from American Community Survey 2015

Figure 31

Driving and Air Pollution 1970–2010



Adapted from Environmental Protection Agency

Figure 32

INFORMATION TECHNOLOGY AND TRANSIT

Smart phones and related information technologies offer significant potential breakthroughs in urban mobility. Roy Amara, the late president of the Institute for the Future, has said, “We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run. Self-driving cars are as much of a paradigm shift as the invention of the telephone, and we all need to get prepared for the ride of our lives.”⁹²

Despite claims that ridesharing services like Uber and Lyft would boost transit use, the increased popularity of Uber type services has been cited as a factor in the recent ridership declines in Los Angeles and on the New York subway.⁹³

In the future, the autonomous car could make even more revolutionary impacts on both the urban form and transit.⁹⁴ Automated car proponents claim that the cost of operations will be considerably below that of today’s cars.⁹⁵ If that should be achieved, the autonomous car could be used to provide door-to-door mobility not only for the elderly and disabled, but also for people who currently cannot afford their own cars. Under any circumstances, this innovation seems certain to further weaken conventional transit outside the cities with legacy cores.⁹⁶

There is considerable disagreement about how soon autonomous vehicles will become common. Some researchers suggest that by 2030 the conversion to autonomous vehicles will be nearly complete.⁹⁷ Other researchers predict the roll out of autonomous cars is going to proceed at a modest pace, with total sales in 2035 equaling only one-quarter of present world production.⁹⁸ Bain and Company, meanwhile, cites a Lux Research report

suggesting that only 0.2 percent of the US vehicle fleet will consist of fully autonomous cars in 2030.⁹⁹ Despite these disagreements about the pace of change, the world of urban transportation is likely to be radically transformed, sooner or later.

GLIMPSES OF THE TRANSIT FUTURE

In addition to these modern technologies, cooperation between ridesharing services such as Uber and Lyft could potentially improve mobility and lower costs. For example, in suburban San Francisco a local transit operator has established a one year pilot program to subsidize local ridesharing services, and has cancelled a lightly patronized bus route, reducing costs.¹⁰⁰

One area ripe for consideration is ridesharing services for paratransit, the door-to-door special services that generally serve disabled and elderly citizens not able to use conventional transit services. The demand for paratransit service is likely to increase in the future because of an increase in the number of older Americans.¹⁰¹ Transit agency cooperation with ridesharing services could result in lower costs, according to the American Public Transportation Association.¹⁰²

In the city of San Francisco, senior and disabled riders can use an app or phone line to hail a subsidized taxi and pay for trips. Eligible users can be issued debit cards by the city to reduce the cost of their rides.¹⁰³ There could also be substantial potential for improving mobility and reducing costs by assisting low income residents in gaining access to automobiles.

A recent Urban Institute report found that “Keeping or gaining access to automobiles is positively related to

the likelihood of employment,” among housing voucher recipients.¹⁰⁴ Research by the Progressive Policy Institute, a research organization affiliated with the Democratic Leadership Council, also has noted that “The shortest distance between a poor person and a job is along a line driven in a car.”¹⁰⁵

Other research has shown that access to automobiles can substantially reduce rates of unemployment for lower income African American workers.¹⁰⁶ According to Brookings Institution research, “Given the strong connection between cars and employment outcomes, auto ownership programs may be one of the more promising options, and one worthy of expansion.”¹⁰⁷

Suggests UCLA transit expert Brian Taylor:

“... federal transportation policy should evolve to (1) allow as many poor people as possible to enjoy the automobile-based transportation system that we have – for better and for worse – developed in the US and (2) shift transit subsidy policy from funding new transit vehicles, facilities, and rail lines, to subsidizing transit riders, most of whom reside in low- and moderate-income households.”¹⁰⁸

Recognizing this need, some private-non-profit organizations are providing loans to lower income citizens to purchase cars.¹⁰⁹ The current prohibitive costs of transit and limited access to employment justifies study and serious consideration of such alternatives. There could be significant opportunities ahead in this regard.

In addition, there are other fiscally effective measures consistent with improved rapid transit service which would help both low income citizens and discretionary ridership. “HOT” lanes (high

Transit & Work at Home Shares BY METROPOLITAN AREA CLASSIFICATION-2015

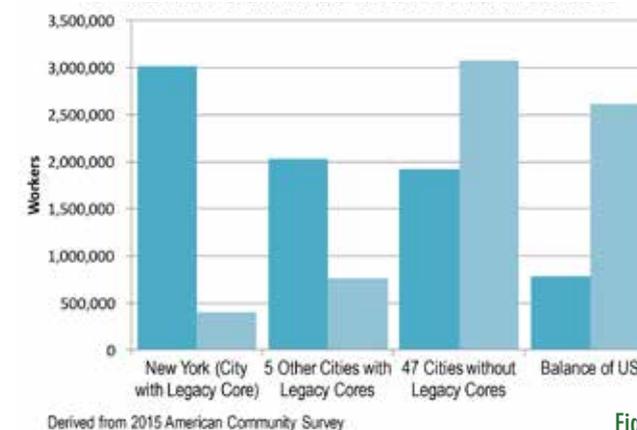


Figure 33

occupancy toll lanes) provide expedited travel around freeway congestion and can be used for cost effective express bus systems, without having to pay the many millions per mile required to build the least expensive urban rail lines.

Finally, there is more potential for working at home, which has increased substantially. In 1980, 2.3 percent of workers performed their duties primarily at home. By 2015, this had doubled to 4.6 percent and was only 0.6 percentage points behind transit; outside of New York, this exceeds transit’s share. The national increase in working at home during this period was 4.7 million, almost three times the increase in transit commuting. Achieving the transit increase required more than \$750 billion in government subsidies between 1980 and 2014. In contrast, the rise in working at home was accompanied by virtually no increase in government subsidies.¹¹⁰

The comparison between working at home and using transit is particularly notable in cities without legacy cores. In the cities with legacy cores, the number of people who work at home is approximately one-quarter the number of those who commute by transit; in cities without legacy cores the volume of those who work at home was 60 percent greater than those who use transit.¹¹¹ (see Figure 33)



FOCUS ON THE PEOPLE WHO REALLY NEED IT

One of transit's objectives is to provide mobility service to those without access to cars. And yet, declines in bus ridership and in overall transit share are often taking place precisely in cities that have built urban rail.

As two transit analysts recently warned: "In recent decades transit spending priorities have been slanted away from bus service and towards commuter-oriented rail services favored by the wealthier general voting public, although most members of this group rarely if ever ride transit. We contend that efforts to secure popular support for transit subsidies stifle agencies' ability to acknowledge

transit's critical social service function and serve the needs of its core demographic. While such strategies make sense politically, underserving the poor has a cost in terms of job opportunities and the quality of life..."¹¹²

Regional planning agencies view future transit needs on a long-term basis, such as 25 years. However, the need of those in poverty is for employment now. It would seem more socially responsible to provide access to personal transportation for this population, thus improving employment opportunities and reducing poverty.

below:
there has been an almost 3 fold increase in working at home in comparison to transit use.



SECTION SIX: CONCLUSION — MAXIMIZING THE BENEFITS OF TRANSIT FUNDING

The now nearly 50-year experiment with transit subsidies has fallen well short of expectations. A more practical result could be obtained by better prioritization of funding to meet the greatest needs in the metropolitan reality as it currently exists. Seeking to impose a monocentric model on increasingly dispersed metropolitan areas is a futile strategy that makes little sense.¹¹³ In the cities without legacy cores, and in the suburbs of the cities with legacy cores, we should focus on the needs of those unable to provide their own mobility. This is far more socially responsible than adding expensive services such as urban rail that have shown virtually no evidence of reducing driving alone.

Urban analyst Aaron Renn suggests that subsidies should be focused on those without cars — the captive market. In addition, he suggests strategies that include, for example, attention given to bus systems and repairs for deteriorating, under-maintained, already-existing urban rail systems.¹¹⁴ A particularly telling example of current needs is Washington, D.C.'s subway: the US Secretary of Transportation went so far as to threaten a shutdown of the system due to fatal accidents, which have been attributed to policies that prioritized system expansion over safety.¹¹⁵ There are also concerns in New York, our premier transit city, with maintenance problems causing a deterioration of service on both the New York City subway and on the commuter rail systems serving Penn Station.¹¹⁶ As Renn puts it succinctly: "The priority should be: repairs to existing mission critical rail lines, and helping distressed communities."¹¹⁷

This report set out to determine which transit strategies would lead to the best public outcomes in terms of the economy, poverty reduction, and an improved standard of living.

Our conclusions are clear. Transit can best contribute to individual lives and the overall good of society by focusing on basic mobility for those who need it most. In the vast majority of markets, transit has not successfully lured drivers from their cars to relieve congestion or improve air quality. And it is wasteful to commit transit funds to achieve purposes other than improved transportation, such as city-building or place-making. Transportation is too important to economic growth and prosperity to be subject to utopian notions.

Thus, from a public policy perspective, it seems unwise to spend money on additional options for people who can make their way to work on their own. A better approach would be to focus on developing cost-effective new options for those who lack the mobility to reach jobs. Practical pressing concerns, not visions of reshaping our cities, should drive policy.

Transit can best contribute to individual lives and the overall good of society by focusing on basic mobility for those who need it most.

- 1 As used in this report, “city” refers to metropolitan areas (labor markets, including built up urban areas and areas outside from which commuters are drawn) or urban areas, the continuously built-up urbanization, not defined by political jurisdictions. Metropolitan areas are the functional dimension of cities (economic cities).
- 2 As used in this report, this includes automobiles, pickup trucks and sport utility vehicles (generally referred to as “light vehicles” by the US Department of Transportation).
- 3 This report relies to a significant degree on American Community Survey (ACS) data, which is produced by the United States Census Bureau. ACS provides detailed survey data at various levels of geography. Its one year product (such as 2015) contains representative survey data for approximately one-fifth of the nation and reports results for larger geographic entities (such as most municipalities with more than 60,000 residents). The larger, five year product (such as ACS 2011-2015) collects representative survey data for all the nation, combining the one-fifth samples from the corresponding years. The five year product contains estimates for virtually all of the jurisdictions in the nation, as well as estimates to the census tract and zip code level.
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- 7 Ibid.
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- 12 Ibid.
- 13 Ibid.
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- 17 Streetcars, known as trams in Europe. Streetcar ridership numbers are rough estimates, developed from differing sources, with adjustments made to account for changes in urban definitions. The principal source is the American Public Transportation Association 2016 Factbook. 1922 was the first year that the American Public Transportation Association (APTA) reported ridership on non-rail modes. Urban population data is only available in census years.
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- www2.census.gov/prod2/decennial/documents/41033927n361-385ch13.pdf.
- 19 2009 estimated from data in <http://nhts.ornl.gov/2009/pub/stt.pdf>, adjusted for urban population.
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- 21 *Downtown*, 11, 25, 31, 238.
- 22 U.S. Census Bureau data.
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- 26 Urban area data is updated only during the decennial censuses.
- 27 City Sector Model: Details in Box 1.
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- 29 “Derived from “Summary of Travel Trends: 2009 National Household Travel Survey, Federal Highway Administration, <http://nhts.ornl.gov/2009/pub/stt.pdf>, Table 26.”
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- 32 Derived from US Bureau of Labor Statistics data.
- 33 American Community Survey 2006-2010.
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- 35 Calculated from American Community Survey data.

- 36 See: *Downtown: Its Rise and Fall, 1880–1950*.
- 37 Based on 2013 metropolitan area geographical definitions.
- 38 The City Sector Model (see: <http://demographia.com/csm2015.pdf>) largely uses ZIP Code area demographics to separate the urban core areas from the suburban and exurban areas. The model is modified for work location commuting, based on census tract data supplied by the US Department of Transportation and the American Association of State Highway and Transportation Officials (AASHTO). This variation defines high density employment areas, principally the central business district, as census tracts having an employment density exceeding 100,000 per square mile. Otherwise the sector definitions remain the same.
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Design Notes

THE GREAT TRAIN ROBBERY. Urban Transportation in the 21st Century and the graphics utilize the following:

To achieve visual harmony a modified version of the grid Jan Tschichold conceived for his book *Typographie* was employed.

MINION PRO Chapman's serif family, is a digital typeface designed by Robert Slimbach in 1990 for Adobe Systems. The name comes from the traditional naming system for type sizes, in which minion is between nonpareil and brevier. It is inspired by late Renaissance-era type.

DIN is Chapman's realist san-serif family. The original version of DIN was released in 1931 and was created for use in engineering and technical applications such as traffic signs. In 1995, DIN was updated by Dutch designer Albert-Jan Pool. It was based on DIN-Mittelschrift and DIN-Engschrift, as defined in the German standard DIN 1451. DIN is an acronym for Deutsches Institut für Normung (German Institute of Standardisation). Source: Typewolf.com and Wikipedia

Front and back cover:

http://www.zastavki.com/eng/Creative_Wallpaper/wallpaper-19429.htm

Inside front & back cover: NYC subway map quad overlay

Page 9: 123rf.com - photo by Alex Zaitsev

Alamy Stock Photo - Belt Line horse cars, circa 1917, New York City

Page 14: 123rf.com - photo by Peter Bernik

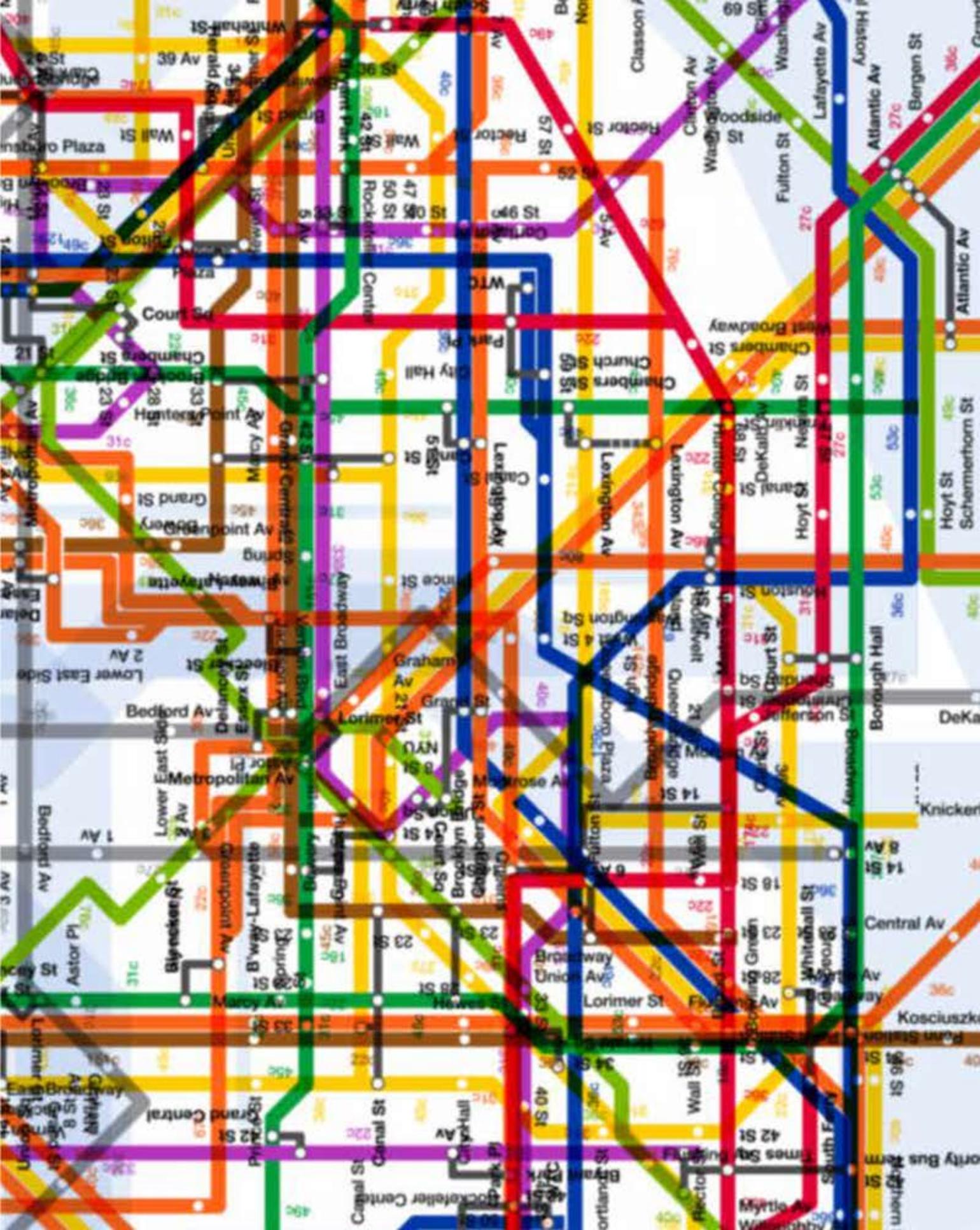
Page 28: Car silhouettes - Created by Freepik

Page 30: 123rf.com - photo by Vasin Leenanuruksa

Book exterior and interior design by Chapman University professor Eric Chimenti. His work has won a Gold Advertising Award, been selected for inclusion into *LogoLounge: Master Library, Volume 2 and LogoLounge Book 9*, and been featured on *visual.ly*, the world's largest community of infographics and data visualization. He has 27 years of experience in the communication design industry. To view a client list and see additional samples please visit www.behance.net/ericchimenti.

Professor Chimenti is also the founder and head of Chapman's **Ideation Lab** that supports undergraduate and faculty research by providing creative visualization and presentation support from appropriately qualified Chapman University undergraduate students. Services include creative writing, video, photography, data visualization, and all aspects of design. The students specialize in the design and presentation of complex communication problems.





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RESEARCH BRIEF

This report set out to determine which transit strategies would lead to the best public outcomes in terms of the economy, poverty reduction, and an improved standard of living.

Transit can best contribute to individual lives and the overall good of society by focusing on basic mobility for those who need it most. In the vast majority of markets, transit has not successfully lured drivers from their cars to relieve congestion or improve air quality. And it is wasteful to commit transit funds to achieve purposes other than improved transportation, such as city-building or place-making. Transportation is too important to economic growth and prosperity to be subject to utopian notions.



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