To discuss mass transit in America is to discuss two central themes: how exactly will it benefit the community, and who exactly is going to pay for it. Neither of these questions have an easy answer; neither of them are easily understood. The complexity of each theme expands exponentially, it seems, with every new discussion. Some supporters rarely know the realities of mass transit planning and effects, instead choosing to blindly consider the environmental aspects; detractors often can not look past the economics to understand the social benefits of the plan. Politicians, planners (city, county, and state), economists, academics, environmentalists, commuters, businesspeople, and homeowners all have a different stake in a policy that blithely affects them all differently, and ostensibly in both the short and long terms. Ironically, they all claim to be fighting for the best interest of the community.

I. Community Advantages and Disadvantages

Several studies have considered the impact of mass transit on society and infrastructure in America. Littman (2005) compares rail transit in “Large Rail, Small Rail, and Bus Only” communities and finds that Large Rail cities (those where rail transit is a major component of the transportation system) have lower traffic fatalities (36%), lower per capita consumer transportation expenditures (14%) and lower transit operating costs per passenger-mile than do communities with Bus Only. Using a comprehensive analysis framework, the author finds that rail service attracts discretionary riders (those who have a choice to drive or ride transit) because of its superiority to the bus system, and also that a higher percentage of rail riders would drive if no rail were available than would bus riders if no bus service were available. Moreover, Littman argues that the return of Transit Oriented Development or Smart Growth is another benefit, consisting of “compact, walkable, mixed-use centers,” which would allow those in the community to accomplish varied tasks in the same area as their light-rail stops, ranging from “high-density commercial centers to small suburban villages” (8). Using Portland’s
Orenco Station as a model, the author argues that the benefit comes from residents owning fewer cars, and those that do own cars drive them less. Thus, the effects are both direct (less cars and driving) and indirect (the creation of more accessible land use). Additionally, Littman argues that “reducing just a few percent of vehicles on [the most congested corridors] can significantly reduce congestion costs” (16).

Littman also suggests that many criticisms of light rail are short-sighted. For instance, the author argues that while it seems clear that rail commuting would result in a longer commute than would automobile commuting, data suggest that the inverse is true on corridors where urban rail is most common, and even if the commute is slightly longer, it is less stressful, safer, and multi-tasking is not such a dangerous enterprise. Additionally, those who criticize the costs of initiating a mass-transit rail system (expensive due to special factors) in favor of bus or automobile transport do so as a result of faulty analysis: “rail transit expenditures equal about 5% of total automobile facility costs” (22).

In the post-9/11 world, no mass transit analysis would be complete without a consideration of terrorist attacks. Waugh (2004) argues that while terrorists have yet to strike American mass transit systems, “mass transit systems are now frequent targets of political violence and the United States should take the threat seriously” (307). The appeal to terrorist lies not only in the potential of physical harm and death to mass transit users, but also in the “disruption of social and economic life of communities and even regions” (308). The problems, however, are numerous. First, the federal government has decided to focus mainly on protecting air travel from terrorism, and the author argues that it may well take a major attack before attention is paid to mass transit. Secondly, although strict security measures could be put in place, the concern is that this will decrease the attractiveness of mass transit, and especially so to those who have access to other means of transportation. Third, the costs of implementation, given the large coverage areas of mass transit, is prohibitive. Waugh concludes that “a strategy to address the terrorist threat to mass transit systems has to begin with a strategy for financing those efforts” (316).

In a wider-ranging study, Zimmerman (2005) finds that although rail transport is geographically limited to two main points, (California and New York City), total transit ridership stood at “9 billion passenger trips” in
The author asserts that the “primary human health benefits of transit are related to air quality,” translated into a reduction in carbon dioxide output by 7.4 million tons per year. In addition, transit uses “less electricity than vehicular travel on roadways.” This author also concludes that rail transit results in quicker commutes, and also less stressful and safer commutes. However, the author also notes that certain vulnerabilities also exist. For instance, the physical condition and “the lack of investment to support regular upkeep” have long been serious concerns; the age of both the transit infrastructure and the cars themselves has increased considerably. Security, particularly against terrorist attacks (chemical, biological, etc), is another main consideration of this author. Additionally, an “all-hazards” approach centers on “accidents and natural hazards on infrastructure upon which transit depends.” Specifically, weather-related flooding, electrical power outages, downed trees, and ice have all affected mass transit in the past; more recently, information technology dependence has resulted in downtime as well. In such a situation, those who have come to expect and rely upon mass transit are universally affected. The author argues that “a critical factor in maintaining public confidence in transit after a failure is the system’s ability to recover after a disaster.” Zimmerman concludes that “a fundamental obstacle to greater investment in and use of transit…is that individuals generally will choose modes of travel over rail transit.”

Finally, Currie evaluates the “passenger attractiveness of Bus Rapid Transit (BRT) compared to other transit modes” by studying passenger-provided trip attribute research evidence. The author finds that “BRT systems can be as effective in attracting passengers as heavy and light rail” but that since BRT has been shown to have significant cost advantages over rail, BRT is a superior choice. Moreover, the author argues that BRT designs that minimize passenger transferring are more attractive to passengers, but quality stations and interchange facilities would alleviate this, and that “service frequency, travel speeds, and service coverage of BRT systems will need to be as extensive as light and heavy rail systems to match the patronage levels achieved by these modes.”

**II. The Economics of Mass Transit**
No less important than a discussion on what the advantages and disadvantages of mass transit on a community are is that of who exactly will be paying for it. Hess and Lombardi (2005) document the long transitions that mass transit has undergone from the post World War II era to the modern day. The early days of mass transit saw funding made possible through “farebox revenues,” thus privately funded, and progressed to an “abrupt onset of federal funding in the 1960’s, the federal retreat in the 1980’s, and the emergence of state and local funding as critical pieces of the funding rubric in the 1980’s and 1990’s” (153). Their analysis of 10 cities with mass transit infrastructures who have been forced to determine future sources of funding resulted in three main conclusions. First, “the characteristics of a transit agency’s profile are influenced considerably by the revenue-raising approach of the agency’s home state” (153). In other words, some states prefer raise and distribute revenue at the state level, others leave the power to collect and allocate resources at the local level. Secondly, dedicated funding, generally through taxes on sales, property, and income that “often require voter approval but provide reliable and ongoing sources of revenue,” (142) is an important factor, especially in non-federally funded operating budgets that are state-centric. Finally, the increased competition for obtaining shrinking federal funds means that cities with dedicated funding sources are better equipped to complete transit projects. The accompanying stability leads to advantages to “transit agencies when planning long-term improvements, seeking federal dollars for those improvements, or…bypassing federal funding altogether and instead pursuing capital developments with local or state resources alone” (153).

Using a more traditional cost-benefit framework, Balaker and Kim (2006) examine the views of several leading economists towards mass transit. They find that there is general agreement that mass transit will have a positive impact on home values, but that they are less optimistic about rail transit’s ability to achieve environmental improvement. Moreover, economists as a whole are pessimistic about rail transit’s ability to reduce congestion, and believe the more traditional methods (such as the bus system) are more functional and cost-effective. In short, the cost of rail transit exceeds its benefits, pointing primarily to demographic features, such as suburbanization, the declining influence of central business districts, and increasing wealth as prohibitive factors to successful rail systems. The authors do note, however, that these demographic factors, as
well as trends and policies, vary greatly from one community to another, and that with the right mix, rail can be successful.

In an apparent attempt to prod researchers and planners along, Smith and Gihring produce an annotated bibliography of 76 entries that show that financing rail transit through a mechanism known as value-capture is a viable solution. This anti-Lockean device calls for the reduction of subsidies generated (locally or on a state level) through higher taxes or reduced spending on public services and an increased dependence on a combination of farebox revenues and “the capture of land-value increments within transit corridors” (752). In other words, the concept of transit-oriented development (TOD) develops free-riders in those landowners who happen to own property in a close proximity to newly installed rail stations. The author argues that when the transit station opens, the owners’ land value rises. Since the benefit to the landowner was not created by the individual landowner, the “public sector is justified in recapturing at least some of this ‘betterment’ – the value of the services rendered by installing the transit improvements” (753). Moreover, the authors argue that “based on the benefits received rationale for public taxation, it proposes to recapture what is essentially publically created value” (753). Finally, the authors conclude that the “importance of value capture is mounting due to urban planners’ current interest in transit oriented development in station areas” (784) and calls for this information to be disseminated to local public agencies.

In a study from Canada, Siemiatycki (2006) evaluates the efficacy of a design-build-finance-operate (DFBO) private-public partnership plan to design mass transit. The author argues that the DFBO model of private-public partnership “seeks to balance the advantage of government control of the strategic allocation of scarce resources in the protection of the broad public interest, with the benefit of infusing competitive forces into the delivery of public service to increase efficiency”(137). The perceived effects, Siemiatycki argues, is that “in the field of urban transportation…private-public partnerships can be seen as an attempt to redress issues of political interference, weak procedural accountability, escalating construction costs, and performance shortfalls that become typical during the extended period that projects were designed, financed, and operated primarily by the private sector” (138). In an analysis of this theoretical framework that was put into practice in
Vancouver, British Columbia, the author finds that the private-public partnership was wholly ineffective in reaching the stated objectives: “the planning….had more similarities than differences from earlier…planning that were undertaken using the conventional planning methods…” (148). The author finds that the major problem lies in the “ingrained power relations between the various parties,” whose eyes were focused on those providing the money, not the plan that would provide the greatest public good. The author also finds fault with the underlying theory itself: the confidentiality that was required due to the competitive nature of the planning process was not conducive to public transparency and accountability (apparently this is more of a concern in Canada than it is in the U.S.). The conclusion was quite simply that the private-public partnership, at least in Vancouver, did not relieve cost overruns, nor did it result in more innovate system designs (thought to be the product of competitiveness). The author recognizes the limitations in generalizing results from a single case study, and instead implores the reader to consider these questions when faced with their own DFBO scheme.

In another singular case study, Li and Wachs (2004) consider the financial effects of federal transit subsidy policy on local transit investment decisions. In particular, how does federal transit subsidy policy influence capital investment decisions made by local governments? The authors argue that the financial aspect may be prohibiting the best interests of the community from coming to fruition. In particular, the authors argue that several factors, including “the need to balance political interests, the financial constraints of local governments, the division of financial responsibilities among governments at various levels, and the distinctive characteristics of the American political system” lead to a preference for “capital-intensive transit investments” (44) even when such investments may not be the most efficacious option. Thus, the city spends money in order to get money.

Finally, Cervero (1994) finds that land values around urban rail transit stations do increase over time, with lower vacancy rates and increased rents being the main benchmarks in the areas studied (Washington, D.C., and Atlanta, GA).
The combination of economics, land use issues, and traffic congestion provide the basis for a review of the transportation plans and the theories used to formulate solutions. Federal policy changes elicited first responses to the issue but the mode of improvement accepted in cities varies dramatically due to local or regional perceptions of the solutions. The case study of mass transit contains components that are common to issues addressed in scholarly and media publications. The common themes are economics, geography, and traffic congestion problems. The modes considered as solutions are light rail and bus systems, sometimes in conjunction with each other as well as infrastructure development.
Suburban growth is the principal reason stated for highway and city traffic congestion by Rannells (1957), Lave (1970), and O’Toole (2001). The economics of building infrastructure and capitol expenditures for new or expanded modes create a stalemate between consumers and legislators state Rannells (1957) and Winston (1991) in discussions about policy development. A necessary mix of private and public monies to fund solutions is reported by O’Toole (2001) and Lundquist (2004) regarding improvements in Portland, and proposed by Winston (1991) in a global approach to transportation improvement policies. Mass transit projects range from $59.6 million for a feel good project in Portland reported by Lundquist (2004) to 2 billion dollars for constructing a rapid transit system in San Francisco included in an economic report by Lave (1970) during the time one of the proposed systems failed to sway voters in the project discussed in the case study. Geographic constraints impacting plans include intended land use, increase capacity of road lanes, and suburb to urban commuter routes. Federal mandates for improvement and perceived quality of life clash in cities’ plans for transportation. Policy analysts weigh in on both sides of the debate but fail to consider comprehensively the components included in the Seattle study.

In 1971, Atlanta received federal transportation department funding referenced in the case study. Atlanta voters chose buses as the mode of rapid transit improvement with commutes from residential to work areas as the target of research by Dajani, Egan, and McElroy (1975) and a response paper by Talley and French (1981). This variable as the primary measurement is referenced in other studies by Rannells (1957), Lave (1970), and Virma and Dhingra (2005) however Virma and Dhingra state this measurement is not used in other studies and propose it as a new method to calculate cost effectiveness. With economics of commuting as the primary reason for selecting a different mode of transportation, buses were also found to be the only viable solution for traffic congestion in India, Virma and Dhingra (2005) and in Asia, Europe, and South America; Hensher (2007). Opposing the research that buses are the best solution, Lave (1970) finds that commuters will shift to mass transit vehicles in the short run but eventually find a job closer to home to avoid the bus commute. He contends that researchers must look at behavioral implications for mode selection. Hensher (2007, p.3) nullifies his economic findings on the efficiency of buses stating the sentiment, “trains are sexy and buses are boring”. Europe’s heavily utilized light rail is proof of successful marketing of mass transit so much so that France built light rail for export to China. Talley and French (1981) refute Dajani, Egan, and McElroy’s (1975) formula for cost effectiveness of the Atlanta bus system. They contend the original research failed to properly calculate time saved by commuters switching to the bus and did not consider the capital costs financed by the government in their formula. The original research also failed to include non-user costs through a tax increase. Tally and French (1981) conclude the original study was skewed by omitting loss in benefits to encourage investment in the bus system.

While some approaches focus on rubber versus rail costs, others focus on inhibiting automobile usage for commuting. Portland policies intentionally create congestion in an attempt to increase ridership of mass transit. The “Smart Growth” plan analyzed by O’Tool (2001) exposes intentional gridlock by diverting money from street repairs to mass transit, reducing left and right turn lanes, and refusing to add capacity to roadways. Further actions inhibiting automobile use include removing parking spaces from stores and reducing parking spaces in residential areas. Land use zones force residents into the city due to imposed boundaries on the perimeter of the city. Federal funds were used to make the inner city more appealing and make auto travel
nearly impossible. The trend continues with the reemergence of street cars. This mode of transportation was added with minimal change to the roadways and posed as a “little sister” to light rail by Lundquist (2004). Portland failed to consider the regional impact of their policies by refusing to cater to demand suggested by Rannells (1957) and Virma and Dhingra (2005). They have depended heavily on the proximity to mass transit for usage rates proposed by Dajani, Egan, and McElroy (1975) and Hensher (2007), but in a reverse trend of eliminating the suburbs instead of weighing the cost of improvements to city streets to accommodate suburb commuters to the city introduced by Rannells (1957). Across the nation, other regions are incorporating the cause and effect of transportation improvement plans. Rannells discusses a regional project spearheaded in Philadelphia, a $1.6 billion project spans five counties in Pennsylvania and three counties in New Jersey. He asserts it takes an independent agency composed of business persons and consumers to manage the future transportation needs of the region.

In an analysis of other policies on funding improvements, Winston (1991) contends that transportation improvement plans are based on a suspicion that it is a public good and therefore society invested too little in it. I disagree with this assertion. Each local political entity varies in its’ transparency of policy development. Availability for public input in committees and planning councils will affect the tangible and emotional investment of the residents. Winston (1991) proposes tolls for pavement wear charges to fund the upkeep of roads because the commuter ignores their contribution to congestion and ignores the economics of travel because the social cost of the trip exceeds the private cost. Given enough negative impacts, such as higher gasoline taxes and toll roads with a higher rate by axle weight, Winston proposes that congestion pricing will eventually lead to increased bus ridership. This directly conflicts with Rannells (1957) supposition that transportation of goods is fixed and well distributed, that large trucks do not add to the congestion factor in cities and Lave’s (1970) theory that vehicles are a status symbol. Ownership of multiple vehicles for middle and upper income families is indicative of their status.

In a complete reversal of the status factor and Portland’s Smart Growth plan, New York City is proposing an 888 million dollar improvement to the transit station near the financial district in Manhattan. Form and function are the focus of the redevelopment project aimed at easing congestion and confusion for commuters, Neuman and Dunlap (2007). This post 9/11 redevelopment will serve the needs of all income classes and utilizes the close proximity theory of Dajani, Egan, and McElroy (1975) and Hensher (2007).

When research methodology is revealed in the literature, similar research methods for optimal mode of travel and cost benefit of that mode are used. Researchers measure land use predictions, forecast public transportation demand, identify potential corridors, identify stations, develop feeder route via the shortest route to the stations and create schedules for peak flow times. Once the number of routes, riders, and trips are determined, operating cost is factored per person; Lave (1970), Tally and French (1981), Winston (1991), and Virma and Dhingra (2005). Asserting that predicting transit use had another dependent variable, Lave (1970) includes preference for leisure time in the cost analysis. Comfort was included in studies but factored by wait time and a percentage of hourly wages lost during the wait as the cost. The variable only mentioned once but probably worth measuring in the United States is the status factor posed by Lave (1970). Europe’s light rail system, New
York’s bus and light rail system, and Portland’s Street Car project catered to the middle and upper income persons in their proximity to residential and commercial areas, in their design appeal, and in their marketing. These systems have overcome the status issue through one common mechanism—media.

Media timing and content can push legislation for or against transportation improvement plans. In the case study, a failure to utilize the media in 1970 resulted in a defeated measure for Seattle that ended up in Federal dollars for Atlanta. The successful vote of 1996 is preceded by the release of a report covered by the media along with an uplifting project name “Smart Move”. The previous plan named “Forward Thrust” was defeated with opponents and proponents in a duel over hidden agendas. The Street Car Project in Portland dubbed light rail’s “little sister” Lundquist (2004) endears residents to the nostalgia while the “Smart Growth” plan is dissected because of the inner city growth hidden agenda. Mass media attention of the Portland Street Car Project resulted in H.R. 1315 allowing for funding pilot projects of that sort throughout the nation. Another photo opportunity for the media is New York City’s transportation improvement plan’s focal point near the World Trade Center site and dubbed a post 9/11 redevelopment project. This emotional connection to the World Trade Center leads to successful vote of the board for a mixed federal fund/local funded station that met opposition when the World Trade Center section was to be excluded in a budget cutting session in 2004, Neuman and Dunlap (2007). In every plan reviewed, interest groups from railroad, mass transit, trucking, and automobile compete rather than cooperate, Rannells (1957) and the media can be used as a platform for the competition. Successful votes are preceded by intentional use of the media to market the plan, describe the benefit, and invite emotional and tangible investment of the residents. The lofty goal of improving urban livability, Rannells (1957), O’Toole (2001), and Hensher (2007), should be at the forefront of the press release of each transportation improvement plan.

References


Mass transit has served American cities since before the Civil War when horse-drawn omnibuses were used to ferry people from one local destination to another. By the 1880s, 100,000 horses were pulling 18,000 cars over 3,500 miles of track, nationwide. Even before the advent of the automobile, traffic congestion was then and still is today, an overwhelming civic problem. Mass transit evolved from fairly humble origins to its current behemoth-like state in which virtually every American city has some form of public transportation service consisting of some combination of heavy-rail and bus. Over the past 20 years, there has been a focus upon the latest technological triumph of mass transit, the light-rail system. At first thought of as the backbone of the...
transit system of the future, its promises of efficiency and effectiveness is being questioned. In the present paper, the cost effectiveness and overall viability of light-rail systems will be examined. This paper will investigate whether light-rail is indeed the “fool’s gold” of mass transit, or is it the way of the future.

In a research article by DeLong (1998), the arguments regarding the popularly argued beliefs of the benefits of light-rail are systematically dissected, analyzed and refuted. Light-rail is shown not to have a higher capacity than bus corridors, does not serve as a traffic decongestant, is not cost-effective and does not benefit low-income people.

A major problem that reoccurs throughout the planning stages of light-rail systems specifically and in mass-transit projects in general are (1) the projected future ridership and; (2) overall costs of the project. Projected ridership is always dramatically overestimated. Per capita transit ridership dropped in all urban areas that opened or expanded rail systems in the 1980s, including systems in Atlanta, Baltimore, Buffalo, Miami, Portland, Sacramento, San Diego, San Francisco, and Washington, D.C. (Love and Cox, 1991). Overall costs are often understated. According to Rubin and Moore (1996), every mass transit rail project in Los Angeles has had significant cost overruns, with “some final costs running as high as four to six times original planning estimates.”

Many proponents of mass transit believe that highway congestion can be alleviated by diverting funds from highway construction into mass transit. However, the effect of transit on highway congestion is insignificant in most cities. The cities with the fewest highways tend to be the most congested. The average American urban area has 114 miles of freeway per million residents. Los Angeles, one of the most congested areas in the nation, has only 53 miles per million residents. Portland, which has not built a major highway in over 15 years, has one
of the nation’s fastest growing levels of congestion. Cities such as Houston and Phoenix, which have consciously built new roads to keep up with urban growth enjoy much reduced levels of congestion (O’Toole 1998).

Further ammunition against the theory that transit reduces congestion is the fact that outside of a few inner-city areas, transit carries far too few riders to make an impact upon congestion. New York City is the only area in the country in which more than 10 percent of overall commuter traffic, primarily due to its high concentration of centralized jobs in Manhattan (American Dream Coalition).

Light-rail systems also place a Herculean burden upon the taxpayer. According to a 2004 report by the Federal Transit Administration, the net loss of nineteen major cities with light-rail systems was an average of $136 million with an average taxpayer share of that loss of 92% (FTA). San Jose's light-rail system has so indebted the region's transit agency that it has been forced to make severe cuts to the transit system (O’Toole 2002).

Mass transit, by its mandate to reduce congestion seeks to attract riders of “choice”, those that can decide to drive or not. However there’s increasing criticism that this policy has caused transit authorities to turn their backs on the dependent inner-city patron in an ineffective and expensive attempt to win the business of the suburban resident. This underscores a critical issue of social equity (Garrett and Taylor 1999).

Proponents of mass transit are not without their champions. St. Louis’s MetroLink Light Rail is pointed out as an example where transit has relieved congestion by over 12,500 cars from St. Louis’s rush hour traffic every day. It is noted that some types of transit has a strong effect on highway congestion, and others do not.
However, by their estimates, 60% of the people riding the light-rail would otherwise drive if the train did not exist. (Weyrich and Lind, 2001).

Cities with larger, well-established rail systems have significantly higher per capita transit ridership, lower average per capita vehicle ownership and mileage, less traffic congestion, lower traffic death rates and lower consumer transportation expenditures than otherwise comparable cities. This indicates that rail transit systems can provide a variety of economic, social and environmental benefits, and benefits tend to increase as a system expands and matures. This analysis indicates that rail investments can be a cost effective way to improve urban transport (Littman, 2006).

The proponents and opponents of light-rail will continue to vigorously argue their points of view. However, the data suggests that light-rail is an exceedingly expensive proposition for most cities yet is not without its benefits. However, any future proposal for such a system must pay very close attention to the financial costs involved and those involved must temper their expectations. Light-rail is not a panacea.

References


By definition mass transit involves the movement of large numbers of people. Increasingly regarded as a government function and supported by tax revenue, these systems generate heated debate at city, county, and state levels. The literature reviewed here falls into three basic categories of study. The history of mass transit and its movement from private to public ownership leads us into a cost-benefit analysis. This continues with examinations of the perceived and real beneficiaries. Finally, the administration of existing systems goes under the magnifying glass. Although the issues associated with mass transit are inumerable, these three areas address many topics of concern.

Richard Farmer, in his article entitled *Marketing the Transit System*, offers one basic reason for government takeover of public transportation.
Since 1925, most transit companies have been in continuous financial difficulties caused by the rapid increase in private automobile use.¹

He argues that this does not make the industry unique as there are examples of other industries administered publicly for the greater good. These examples include water, electricity, garbage and sewer. These are all considered modern necessities and are often purchased from publicly-owned companies. While there are alternatives, they are frequently inferior. In the case of public transit, the alternative is the privately-owned automobile. Commuters, since 1920, increasingly chose this attractive option. Mass transit still fills a necessary role. With centralized business districts, space does not exist for all of those cars.

A modern rapid transit system can handle up to 40,000 persons per lane per hour, and express bus systems can handle 20,000, while a single freeway lane handles only 3,500 persons per hour. Moreover, each automobile requires about 150 square feet of parking space, while transit passengers need none.²

Farmer concludes that, even with fast, clean, convenient systems, metropolitan areas will have to engage in a “hard sell” to overcome the popularity of the automobile.

In Costs, Productivity and Welfare Problems of the Local Transit Industry, Edward Sussna examines the necessity for public ownership. The current management of existing systems fails to solve changing urban transportation requirements. The reasons he gives for this include declining ridership leading to declining income, and diminishing quality of service in the areas of frequency and comfort. Instead, Sussna offers three suggestions for improvement.

First, in the short run, where equipment is relatively fixed, transit companies could pursue policies which encourage better use of their equipment and manpower…Second, in the long run, where major investments will be made, thought must be given to transportation modes which are significantly more efficient than present one….Third, and closely related to the first two proposals, is the proposition that the transit industry’s problems are insoluble without positive public policy.³

Pashigian, in Consequences and Causes of Public Ownership of Urban Transit Facilities, proposes three factors for the shift to public control. Regulation is one possibility in that losses caused by more stringent regulations brought government ownership. Another factor many support is the decline of the transit industry as a result of automobile ownership. Externalities provide the third factor and the example given is the decrease in the number of riders and the government’s unwillingness to subsidize the industry rather than supplant it. Pashigian sees this trend negatively and predicts it will not slow the trend towards the automobile. While the first two articles relied on literature reviews for their data, Pashigian uses numbers from the American Transit Association, the U.S. Census Bureau, and the Department of Transportation.
Thomas Peterson provides a discussion of a cost-benefit analysis performed by the Stanford Research Institute (SRI) for the Southern California Raped Transit District (SCRTD). The importance of this lies in the data a public agency looks at when determining the feasibility of a public mass transit system. Peterson points out that the SRI was overly optimistic in many of its projections. The group listed traveler benefits as difference in travel time, decrease in vehicle operating costs, lower street congestion, reduced number of required parking spaces, and the need for fewer automobiles. Along with that would be a decrease in the number of vehicle miles driven per year, an accompanying decrease in the number of automobile accidents, and a revenue surplus. Community benefits listed included (1) structural and functional unemployment reductions, (2) construction unemployment reductions, (3) improved business productivity, (4) improved government productivity, and (5) improvements in lifestyle. 4

Peterson questioned the ability of SRI to predict future unemployment and lifestyle enhancement. He also encouraged the attainment of more reliable figures for passenger demand as this is the crucial figure in deciding feasibility of a system. Following this point logically, one examines who, exactly, benefits from public mass transit. Eric Schenker and John Wilson study exactly this in The Use of Public Mass Transportation in the Major Metropolitan Areas of the United States. The one factor that overrides all, in their opinion, is automobile ownership. Race, income, convenience, or any other category simply does not correlate to the degree that automobile ownership does with transit use. From existing literature, Schenker and Wilson extracted data that showed the relative correlations that led them to this conclusion.

In The Redistributive Impact of the Atlanta Mass Transit System, Dajani et al observed that among actual riders the most important factor was convenience. This included proximity to stations, and directness of routes. Their data was taken from 1983 projections of consultants to the Atlanta Regional Planning Commission. Dajani did, however, caution that the sample size was small and would require further investigation to support the theory.

Glenn Yago attacks inflated expectations in The Sociology of Transportation. The assumption of early ecologists and geographers that urban dwellers would gain universal access to housing, employment, education, and services has given way to study of transportation’s impact upon residential segregation, decentralized and polycentric land use patterns, energy use, and inequity in the distribution of transportation services. Attention has also been directed to the social impact of the inequities—mismatch between residential location and employment opportunities among the urban poor, and social isolation of youth, aged, handicapped, racial and ethnic minorities, and women. 5

However, probably the most important point he makes is the following, concerning the our knowledge of the effects of transportation and thus our ability to do a comprehensive cost-benefit analysis. Neither human ecology, urban political economy, locational theory, nor social psychological theory can claim exclusive understanding of how transportation affects urban life. Further theoretical and empirical synthesis should specify both the social structural and spatial limits of transportation and urban form. 6
Yago’s study yields far more questions than answers, as he points out.

What changes in urban political and economic organization (local and regional government, markets, corporate structures) promote spatially centralizing or decentralizing tendencies? How can macro-social historical comparisons of urban policy clarify the variations in social and spatial structural interactions affecting transportation? How can we introduce organizational and ecological variables into our assessments the impact of policy changes on land use, energy use (both direct and indirect), and inequalities of access? What is the link between physical mobility and social mobility in the urban region? How can we assess the impacts of transportation upon social interaction in order to improve the accounting of social costs in policy decisions? Which management structures (centralized or decentralized) best promote transportation effectiveness in the urban region?

The final papers reviewed here focus on the past, present, and future planning processes in urban transit, with recommendations for those who will be involved. Mark Foster, as a historian, reminds us not to get stuck in the present. His article, *The Automobile in Urban Environment: Planning for an Energy-Short Future*, encourages us to look to the short-sightedness of many past endeavors as lessons. The most telling example he uses is the focus of the federal government on the automobile industry and the federal highway system. However, he cautions us.

This essay argues that although the critics of the car culture raise valid objections, their alternative suggestions are all too often enormously expensive and highly impractical. For this and other reasons, the automobile will dominate urban transportation for the foreseeable future.

Foster advises policy makers not to offer more than they can deliver and, though no longer believe we have a limitless supply of energy, if we engage the right people and avoid hasty decisions, we will cross this hurdle.

Naomi Bailin Wish, in *Improving Policy Making in Public Transportation*, opens by referring to the current state of public transportation as “in shambles.” To find the source of this mess, Wish chooses to survey 650 policy makers, members of commuter groups, and academicians to gain information about the opinions of the mass transit community. The most interesting find of this survey is the similarity of opinions. Again, as we heard earlier in commuter opinions, convenience and comfort were at the top of the list as ways to increase ridership. However, there was some disagreement between administrators of New Jersey public transportation and legislators, however, the similarities were far more striking. Wish’s conclusion, based on these opinions, is that with some negotiation, the differences could be ironed out and everyone would benefit.

The final article by B.R. Stokes, *Bay Area Rapid Transit: A Transportation Breakthrough*, is an analysis of the process of creating the BART system in San Francisco and surrounding areas. Stokes roundly applauds the planning phases of the project. He lists the guidelines for transportation planning, and the criteria for optimum transit in the local area. More importantly, he offers three important suggestions for future planners. He urges planners to be responsive to human and political factors, as in the racial distribution of Berkeley. The need for a
regional policy-making mechanism is addressed as a means of subverting competing interests between agencies. Finally, there is the need to “Think Big.” Planners need to expand their focus beyond the metropolitan area and plan for future growth. Stokes points to the automobile industry.

The automobile industry is successful because it ties up nearly 20 percent of the gross national product in direct and related output, thus almost assuring its self-perpetuation. BART, too, is a large investment relative to the three counties supporting it. BART has been designed as a system of the future to attract present and future users. It is mainly the future users who will flock to BART and appreciate the new standards which it has brought to the public transportation industry.10

Overall we have seen that although there are innumerable issues associated with the development of and implementation of a mass transit system, many of the obstacles are the same, regardless of venue and opinions on the solutions are often equally similar. As Foster cautioned us, look to the past, and avoid making promises you cannot fulfill.

**Literature Cited**

Mass Transit in Urban Areas

In the constant struggle to overcome the challenges presented by urban sprawl policy makers must deal with the present while preparing for future growth. Next to housing issues, transportation and mass transit top the list of those items that prove most difficult to solve. Policymakers not only have to develop a clear affordable plan, but they must also sell it to politicians, investors, and the public at large (they usually end up footing the bill). The selling of the plan proves to be most difficult when it comes to mass transit issues. The plan must address which policy options are best and most passable by elected officials and voters, not whether or not the plan has too little or too much light or ground rail, bussing use, or high occupancy vehicle (HOV) lanes.

The most common fate of most mass transit plans is the budget shortfall due to the lack of use of the transportation. According to the U.S. Department of Transportation, the average public transit vehicle in the U.S. operates with more than 80% of its seats empty. Energy consumption per passenger mile is now greater for buses than for private cars, and much greater than for car or van pools. Underuse of the system means that each trip costs more. In the case of Portland's mass transit plan the projected cost per trip of $1.14 actually became $9.49 a trip.

Mass transit must prove itself a viable alternative to those who would be giving up a certain degree of freedom by being carless throughout their work day. One option would be for employers to provide vehicles for their employees to use throughout their workday. Several plans suggest remedying the situation by having
employers offer a cash alternative to those who do not drive to work and take up a parking space, this policy that would reduce traffic congestion, air pollution, and gasoline consumption and would do this by bringing commuters' travel choices in line with their own preferences about how they would spend their own income.

In "Great Rail Disasters," economist Randal O'Toole assesses the track record of rail transit in 23 urban areas based on 13 criteria, including ridership cost, congestion, energy, use, and safety. Among other things, he shows that advocates of rail projects routinely overestimate their popularity among commuters and underestimate their costs; that such projects "can cost 50 times as much to start as comparable bus transit"; that they typically make congestion worse instead of alleviating it for the auto users.

Another concern of mass transit comes in the area of management, public verse private. Many systems have ended in bankruptcy due to poor practices by private management or demanded public bailout just to keep a system running. In, “Comparative Performance in Urban Bus Transit: Assessing Privatization Strategies” James Perry and Timlynn Babitsky assess the costs and benefits of privatization in the context of urban bus transit. Five ownership-management structures were compared on a series of performance indicators. The results indicate that privately owned and operated systems produced more output per dollar and generated greater revenues than other types of systems. Publicly owned systems managed by contractors, however, performed no more efficiently and effectively than publicly owned, publicly managed systems. In, “Marketing the Transit System” Richard Farmer analyzes the complicated process of a public takeover of mass transit due to the failure of private management. He specifically focuses on the difficulties associated with marketing the take over to the public. Peter Pashigian conducted a study which focused on the economic aspects as to why mass transit transfers from private to public ownership. Pashigian finds that over regulation by local agencies and increase use of automobiles make the transit system operate with little or no profit margins. He believes that transportation becomes a service provided by local governments due to lack of profits.

Another conflict for mass transit policy makers is the issue of land use, specifically regarding light and heavy rail systems. Robert Cervero claims in his study, “Rail Transit and Joint Development” that rail transit
leads to higher property values in the areas around the stations due to higher access to regional centers. His conclusion is that rail transits and area rentals will benefit from rail transit only if the areas economy is already growing. He states “transit guides rather than creates growth and by itself rarely effects land use changes”.

Is there real demand for mass transportation? If we take into account the socioeconomic status of an urban area we see that those who tend to be poorer live further from the central business districts, thereby creating a situation where a vehicle is needed, but cannot be afforded. According to Charles Lave mass transportation has many competing viewpoints those in support and opposing. In his study, “The demand for Urban Mass Transportation” he concludes that, “Some are trying to preserve business districts, Some want to preserve total populations, while others are only interested in preserving particular segments of society, the middle and upper classes”.

Glenn Yago studied the relationship of urban transportation planning as a tool for segregating classes on communities in “The Sociology of Transportation”. He believes that the current studies of the effects of transportation for the masses should focus on residential segregation, land use patterns, and the inequity of in the distribution of transportation services. Eric Schenker and John Wilson conducted a study in which they used eleven characteristics such as automobile ownership, race, and housing conditions across 23 major U.S. cities to determine the effects of income and race in regards to transportation plans. They concluded that automobile ownership is the population characteristic most highly correlated with mass transit use. Those areas with lower economic levels tend to have higher mass transit uses.

With mass transit so important to a major urban area, why are so many systems unable to meet public needs? Naomi Bailin Wish makes a demand for more efficient and effective policy making in public transportation in her study of public policy making in regards to mass transportation. She claims that even though most policy makers and academicians agree that transportation is of utmost importance, the system is in shambles.

Not all the studies of mass transportation focus on failures. B.R. Stokes conducted a study of the Bay Area Rapid Transit (BART) in which he found many successes. He called San Francisco’s mass transit light
rail “a bold concept for a better way of urban living”. He concludes that a regional rapid transit system coupled with good local and feeder transit services (i.e. buses) offers a vital alternative to packed freeways. He believes the Bay Area has succeeded in balancing the many aspects of mass transit.

Bibliography


Mass Transit Literature Review

In the John F. Kennedy School of Government Case Study on “The Debate over Seattle’s Regional Transit System”, the policy for a mass transit system was being analyzed. Mass transit in an urban or metropolitan area is greatly needed and, in the case of a transit system already functioning, needs great improvement. Many different cities have tried different techniques but all have been met with some obstacles.
Throughout the history of the United States, there have been problems with the transit systems in place or in development.

According to some of the literature, “U.S. public transit ridership has declined significantly since the end of World War II.” (Smith, Razzouk, & Richardson, 1990). It is estimated that in 1946, “public transit carried over 26 billion passenger trips per year.” (Smith, Razzouk, & Richardson, 1990). From the 1950’s on, transit passenger numbers declined as inexpensive gas and with a substantial population moving out of urban cities increased. Probably the most tumultuous time period for mass transit was between the years of 1984 to 1987. (Smerk, 1987).

In 1984, the “reauthorization of federal highway and mass transit legislation in D. C. was delayed by a presidential veto.” (Smerk, 1987). This was to halt the distribution of federal highway trust fund monies. In mid 1985, new legislation was being developed when Senator Frank Lautenberg of New Jersey introduced the Federal Mass Transit Program. However, little progress was made on the Senator’s legislation until 1986, due to current reauthorization that was valid through that year. The beginning of the 1986 brought the new program of reauthorization, which was termed the Urban Mass Transportation Act, and later transformed into the Surface Transportation Reauthorization Act of 1986. (Smerk, 1987).

Throughout its years of congressional legislation and shifting populations, cities have been trying to develop a mass transit system to work for its constituents. There has been great debate between the different acting groups regarding how best to develop such a system. Two major participant groups immersed in this debate are the policy makers and the commutes. Policy makers contend that the public is too unrealistic. They argue that the commuters demand good service but are unwilling to pay more. The commuters in turn accuse the policy makers of “not being sensitive to the horrendous conditions of most public transportation systems because they never use them.” (Wish, 1982).

In Naomi Wish’s article, 650 questionnaires were mailed to nine counties in New Jersey that were also part of New York. These questionnaires were in regards to improving the public transportation already
installed. The results were very surprising. 90% of the constituents that responded approved policy that “improved the reliability and dependability of mass transit,” as well as “upgraded the comfort of mass transit facilities.” 80% approved policy that would “provide substantially more park and ride facilities; increase police protection on subways; and provide better subway and bus information in buses, trains, and terminals.” (Wish, 1982).

On the contrary, only 20% approved policy that “provided free mass transit between suburbs; raise tunnel and bridge tolls to $3; double off-street parking fees for private autos; and create a new tax on non-city residents parking cars in Manhattan.” And only 10% approved measures that would “ration gasoline by coupons or other means; raise the price of gasoline to $2 a gallon; initiate odd-even sale days of gasoline on a permanent basis; and charge for the per mile use of all major highways.” (Wish, 1982). With these results, it was clear that the public did not want to raise their out of pocket expenses by much. However, noting that having better conditions and police protection was high on their lists for improvement gave way that the present conditions were, in fact, horrendous.

Also in previous research, studies have been done to try to isolate many variables in order to better contour policies to satisfy the commuters. In a cross sectional study with regression analysis, it was found that “personal income level and racial content of a city are not at all correlated with public transit use.” (Shenker & Wilson, 1967). The authors used twenty-three major U.S. metropolitan cities and eleven variables in this study. The variables ranged from city population, number of commuters during peak hours, to age of housing units, and number of automobiles per household. The authors contend that the most “striking relationship of the study emerges between automobile ownership and mass transit use.” (Shenker, & Wilson, 1967). They concluded that personal automobile ownership can be “used to estimate current public transportation demand in large metropolitan areas” with the exception of New York. (Shenker, & Wilson, 1967).

Taking into consideration several of the prior literature findings, many of the same questions regarding the policy analysis and transit implementation kept appearing. Various questions that were addressed in past
literature are relevant for the Seattle’s Sound Move case study. In a case study in Los Angeles during the 1970s, the researcher mapped out several points that were absolutely necessary in order to properly determine the feasibility of a mass transit system. His paper is a cost-benefit analysis study employed to address the problems and to suggest alternative methods for the proposed Los Angeles rapid transit system. (Peterson, 1975).

In his research, he found that many benefits for the plan were calculated incorrectly due to such factors as “inflation, anticipated unemployment reductions and expenditure decreases, along with double counting and the inclusion of non-quantifiable benefits.” (Peterson, 1975). Not only were these benefits calculated incorrectly, many costs were either underestimated or omitted entirely. In addition, passenger estimates for the rapid transit system were overly optimistic. He concluded that this last point was particularly vital “since passenger estimates are crucial to a cost benefit study.” (Peterson, 1975).

Many of these factors ring true for the “Sound Move” project in Seattle. Many of the benefits in Sound Move were exaggerated or calculated incorrectly as well as the costs. In the Seattle case study, ECONorthwest determined, through many factors, that Sound Move’s costs clearly outweighed its benefits. The policy makers had overestimated benefits, such as employment, commuter savings, and congested traffic; and were not realistic about cost. ECONorthwest concluded that it would take “$3 Billion to construct the system and take $100 million to run each year until 2010, however the annual benefits would be less than half the amount originally estimated by the RTA.” (C14-01-1639.0, 2001)

Many of the questions that were addressed in the Seattle case study were addressed in previous literature. The cost-benefit analysis seemed to run into several of the same problems as the case study in Los Angeles. The cost-benefit analysis is a good approach to analyzing a policy of this sort, but the problems associated with such an analysis need to be addressed and calculated properly. Taking into consideration knowledge gained by reviewing literature on this topic, it is a difficult task yet it is reasonable. With the
foundation left by other researchers, policy makers should have a strong idea how to properly implement a mass transit system.

References


Mass transit and transportation issues have been a consistent problem facing state legislatures, the federal government, and the general public since at least the early 1960s. With the end of the Second World War, and the coming of the baby boomers, urban cities soon found themselves growing exponentially and their infrastructure simply couldn’t keep up.

In the Kennedy School of Government’s case student entitled “Sound Move: The Debate Over Seattle’s Regional Transit System”, Susan Rosegrant takes a look at the many attempts of Seattle-area policy makers to pass mass transit proposals. Seattle created the Municipality of Metropolitan Seattle (Metro) in 1958, which was responsible for overseeing sewage treatment, but eventually began reviewing the best ways to solve Seattle’s urban transportation issues. All throughout the 1950s, 60s, 70s, 80s, and part of the 90s, Seattle and its suburbs consistently voted down any rail proposal. The reasons were varied: rail was too expensive, the rail didn’t go to the right places, it wouldn’t really solve the congestion, lack of campaign funds, and various other issues. However, after nearly four decades of various proposals on the ballot, increasing city bus routes, and other measures, the voters of Seattle finally approved the Sound Move rail campaign. This rail victory was short-lived, however. With the change in administrations in 2001, Seattle was no longer given the federal funding it was promised under the previous administration. Additionally, they discovered that the proposed rail lines would be on weak ground which would require additional expenses to secure the area, which also meant the rail wouldn’t be completed by the voter-approved deadline.

In the 1970s, the transportation planning debate was beginning to shift. The issue was no longer building increased highway capacity, but rather, considering alternative routes to decrease congestion along the nation’s highways. David Miller discusses this exact situation in “New Challenges, New Institutions”. He recommends that, at the state level, the creation of a state department of transportation is a possible response to the transportation dilemma, and from the federal level, the National Transportation Study is useful for involving
states and localities in the planning of transportation projects. Through these two actions, Miller hopes that the increased emphasis on planning will lead to better implementation (Miller 242). However, as we now know, states and localities are still dealing with mass transit issues that don’t seem to have been resolved by simply creating a state department of transportation. Naomi Bailin Wish also explores ways to better our transportation policy creation in “Improving Policy Making in Public Transportation.” Her objective was “to gain a greater knowledge regarding both the political feasibility and probable impacts of policies designed to increase public transportation ridership.” Wish surveyed leaders of commuter groups, academics, and elect and appointed policy makers and discovered that the respondents “judge comfort, accessibility, safety, and dependability of prime importance in increasing public transportation ridership” with each group values different criteria at different levels. These differences have led to these groups to often view one another as adversaries. The

author believes, however, that the “group differences are a matter of in degree rather than kind” and the groups should be able to work together for more agreeable solutions.

Seattle isn’t alone, however, in its search to alleviate traffic congestion, reduce pollution, and improve the overall quality of life for its citizens. For the many states and municipalities that debate rail the considerations are vast. Alan S. Boyd discusses the many difficulties in solving mass transit problems in “The Transportation Dilemma”. Boyd states “there is no single answer to our transportation problems because there is no single problem. An empty gas tank can be as severe a problem in its own way as the design of a downtown freeway network.” In many “anti-rail” campaigns, claimed that rail wasn’t being built where commuters would actually use the system, or that the proposed system invariably benefited one social stratum over another.

The controversy over who pays for and who benefits from rail systems is also a heated contention within the transportation solution debate. In “The Use of Public Mass Transportation in the Major Metropolitan Areas on the United States” by Eric Schenker and John Wilson, they conclude that, surprisingly, “personal income level and racial content of a city are not at all correlated with public transit use.” In fact, they go on to state that
“non-white population does not seem to be correlated with…” the use of mass transit. The only variable the authors found to effect mass transit was automobile ownership. (Schenker 367). In Dajani, Egan, and McElroy’s “The Redistributive Impact of the Atlanta Mass Transit System”, they too find similar results. They state that there “appears to be no relationship between per family benefits and income” in regards to planning mass transit. Therefore, “the redistributive effects of a transit system are determined primarily by convenience factors, especially trip routing and the location of transit stations” (Dajani 57).

Another major concern, primarily for citizens who live along proposed rail lines, is the impact rail will have on their property values. K. C. Koutsopoulos discussed the major impacts of rail on residential areas in “The Impact of Mass Transit on Residential Property Values. Koutsopoulos states that the “major impact of mass transit on property values is the capitalization of the reductions in travel costs afforded by a new transportation alternative.” (Koutsopoulos 564). Additional concerns have been the energy impact of modern rail systems. In “Negative Energy Impact of Modern Rail Transit Systems” Charles A. Lave states that “rail transit is an energy waster.” By analyzing the San Francisco Bay Area Rapid Transit system, which Lave states is typical of other modern rail systems. He concludes that the operating-energy savings is so small that it is vastly outweighed by the construction-energy that it takes to construct modern rail. Lave recommends that if we want “to improve the efficiency of our transportation systems, we should emphasize the development of more efficient automobiles” (Lave 596).

Finally, the role of the federal government is also of concern to voters and policy makers alike. Starting in the 1960s, the federal government began to take a larger role in decision-making at the local level. Arthur E. Bauer, in “Solving Transportation Problems in the Federal System: Is There a Role for State and Local Governments?” states that the Federal Highway Act of 1962 requires cities with populations exceeding 50,000 “must have continuous, comprehensive, and cooperative planning for transportation development” (Bauer 59). This trend was reversed however, when President Bush signed the Intermodal Surface Transportation Efficiency Act of 1991. This act greatly enhanced the role of local and state governments in the selection of transportation
projects; in essence, it decentralized certain aspects of federal surface transportation policy (Dilger 77). Some have even suggested stiff federal policies regulating oil to assist in the mass transit crisis. Edward F. Renshaw gives several suggestions for relief but primarily focuses on placing a tariff on imported oil. He states “a tariff would lessen a growing dependence upon imported oil, reduce the risk of supply disruption, help solve a chronic balance of payments problem, and strengthen its international bargaining position.” Renshaw also recommends further protective measures in order to increase local energy production (Renshaw 175).

The mass transit debate is one that our country has been trying to solve for at least the past 60 years, with mixed results. The experts cannot seem to agree on one course or another, all the while leaving us stuck in neutral and in five o’clock traffic, so to speak. With so many political maneuverings, potential solutions, and potential drawbacks, it doesn’t seem likely that the mass transit debates will be disappearing in the near future. With any luck, the disparate groups will place politics aside and do what is best to solve our current dilemma.

Bibliography


Mass transit is almost universally accepted as a “good” thing for any given city. A functioning mass transit system suggests that a city has “made it,” that it is “grown up” and successful. Unfortunately, city planners and policy analysts are much more enamored with mass transit than those who actually have to use it extensively for transportation.

The research on mass transit appears fairly constant over time; researchers and planners in the 1960s faced similar situations as do analysts today. Eric Schenker and John Wilson, writing in 1967, analyzed variables associated with higher use of mass transit in the major metropolitan areas of the US. They found that
the strongest correlation of the eleven variables tested was car ownership. The correlation was negative, and strong. If a person owns a car, they are simply much less likely to use mass transit. The researchers did not find strong relationships with either income or race across the various metropolitan areas (Schenker & Wilson, 1967).

Even forty years ago the same recognizable problems faced policy makers and supporters of mass transit in the economics of mass transit. Richard Farmer writes an article suggesting marketing solutions to the mass transit ridership problem. The article was written in a time of increased public ownership of mass transit operations. The writer presents a plan of marketing public transport in a way effective enough to fight against the “irrational” rate of automobile use and ownership. He reports that no past advertising has been successful at long-term ridership increases. He suggests that a “hard sell” approach is necessary to break the hold of automobile use. However, he does not offer concrete examples of the “hard sell,” and states that more research is needed (Farmer, 1964).

Society as a whole usually places more importance on mass transit than its individual citizens do. Mass transit ridership has steadily fallen since WWII, but has slightly increased since the 1970s. Of all mass transit trips taken in the United states, approximately half occur in just two states, NY and CA. Other countries, such as Japan, France and Germany have much higher ridership rates. The benefits of mass transit include environmental effects and safety, as well as good speed and lowered stress for riders compared to automobiles. Challenges facing mass transit are its costs and upkeep, since much of the mass transit infrastructure is fairly old. Mass transit is usually not the preferred choice of individual riders (Zimmerman, 2005).

Surveys have proven to be effective tools for public administrators and policy makers to communicate with the public about mass transit issues. Naomi Bailin Wish surveyed policy analysts, academics, and other informed citizens in order to gauge their feelings on potential solutions to increasing ridership and quality of mass transit. The respondents felt that making public transportation free, or upgrading current service in meaningful ways were the best ways to increase ridership. The experts agreed that cutting down on crime,
improving cleanliness, and making sure that the trips were on-time and dependable were achievable goals to lead to increased ridership (Wish, 1982). These responses were common sense, and are consistent other surveys of mass transit. If it is clean, safe, and reliable, people will be more likely to use it. However, they would still prefer to drive, if at all possible.

Mark Baldassare, et al, surveyed solo drivers in an attempt to ascertain what it would take for them to use more mass transit. The most common answers were: more mass transit options, more carpools available for the drive into work, and cash bonuses paid by their employers to stop driving alone. Most respondents preferred the convenience of driving. Most non-solo drivers were found to be fairly young, and on the lower end of the income scale (Baldassare, Ryan, & Katz 1998).

An analysis of Atlanta’s mass transit system by Jarir Dajani, et al, concluded that “transit riders save time and costs for themselves and reduce auto congestion and thereby auto travel times for others. Convenience is important when it comes to quality mass transit operations” (Jarir, Egan, & McElroy, 1975). Enticing usual automobile drivers to try public transportation is the missing link. Most riders of mass transit are there because of economic factors. Most people would still prefer to use an automobile, no matter how “good” the mass transit system may be.

Mass transit is also expensive, and the positive qualities associated with it are often unquantifiable. Ian Savage examines the history of the Chicago Transit Authority (CTA) from 1948 to 1997. He found that “exogenous decrease in demand” (more car drivers) and increased costs of operation have greatly reduced the CTA’s overall profitability. The CTA mostly chose to make up shortfalls in revenue by increasing fares and productivity, rather than cutting lower performing routes. The researcher also found that many gains in productivity in the 1970s were wasted, due to the large amounts of government subsidies of the time. The CTA did not plan for cutbacks on government funding, and were unprepared when ridership rates fell to lower levels (Savage, 2004).
David C. Hodge analyzes the geographic distribution of mass transit subsidies. He finds an obsession with equity, everyone wants their own fair share of the pork pie. He makes a division of “winners” and “losers” in the allocation of government funds. Hodge uses the case of King County, Washington (prior to the Sound Move plan) for study. Suburbs are the clear “winners” in this analysis. Although they have lower ridership for mass transit, the fare difference is made up with tax revenue. They receive more subsidies for building and service costs for their mass transit than the urban core (Hodge, 1988).

One proposed solution to the problems associated with low mass transit ridership and high costs of operation is privatization. Clifford Winston suggests just that thing. One of his major complaints about mass transit is that ridership is almost always inflated in planning stage. It simply does not materialize, and is often overly optimistic.

In contrast, the “capital and operating costs…(are)…underestimated.” Winston cites waste and pork as two of the main reasons to support privatization. He claims that privatization would increase efficiency, and with improvements in marketing, mass transit could be turned into a winning and profitable economic system in the private sector. Winston realizes that it is still premature to privatize highways, but he would like to see it happen eventually. Winston desperately wants industry privatization, but concludes that it will not happen because the bureaucracy loves spending the people’s money (Winston, 2000).

Perhaps the best reason for improved mass transit is that it can possibly reduce stress in people’s daily lives. Again, lowered stress cannot be defined with a dollar sign, but it is an important goal. Richard Wener, et al, examine a new “one-seat ride” for commuters traveling from New Jersey into New York City. Previously, New Jersey commuters had to transfer in Hoboken. The researchers found that commuter stress is significantly lower for the “one-seat” riders than those who had to transfer. They findings were explained by the shorter amount of time for the commute offered by the “one-seat ride.” They also found that reliability and “on-time” status of mass transit reduced commuter stress in both groups (Wener, Evans, Phillips, & Nadler).
Quality mass transit is not cheap. Initial outlays and operating costs are quite high, and ridership levels and may not be enough to support mass transit operations in all cities. They appear at best to be a “break even” proposition. However, the benefits of mass transit cannot simply be indexed with dollars and cents. Lowered stress, less pollution, and fewer cars on the road are all valuable aspects of mass transit, and must be accounted for in any cost-benefit analysis.

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5. **Title:** Implications of private-public partnerships on the development of urban public transit infrastructure: The case of Vancouver, Canada. **Author:** Siemiatycki, M. Department of Urban Studies, University of Glasgow, Glasgow, United Kingdom. © 2006 Association of Collegiate Schools of Planning. **Summary:** The author refutes a widely accepted notion that private design-build-operation of large scale transportation systems introduces technological innovation, and reduces the potential for construction-cost escalations.

6. **Title:** An interdependence analysis of commuting decisions. © 1997 John Wiley & Sons, Ltd. **Author:** Joireman, Jeffrey, Van Lange, Paul, Kuhlman, Michael, Van Vugt, Mark, and Shelley, Gregory. Department of Psychology, University of Delaware, U.S.A., Free University of Amsterdam, The Netherlands, University of Limburg, The Netherlands, Department of Psychology, Seattle Pacific University, 3307 3rd Ave. W., Seattle, WA 98119, U.S.A. **Summary:** The authors explore human decision making within the context of commuting preferences and social orientation. Their analysis confirms earlier research that individuals with pro-social orientations in combination with high levels of trust exhibited a greater preference for public transportation, and a reduced desire to avoid other commuters, relative to individuals with a pro-social orientation and low levels of trust, or a pro-self orientation regardless of levels of trust. In addition, intention to commute by car was positively associated with not only overall personal preference for the car, but also with the desire to avoid other commuters.

7. **Title:** Commuting by car or public transportation? A social dilemma analysis of travel mode judgments. **Authors:** Van Vugt, Mark, Van Lange, Paul, Meertens, R. Department of Psychology, University of Southampton, UK, Department of Psychology, Free University, Amsterdam, The Netherlands, Department of Health Education, University of Limburg, Maastricht, The Netherlands, Department of Psychology, University of Southampton, Southampton SO17 1BY, UK. **Summary:** This paper analyzes human judgment with regard to
the decision to commute by car versus public transportation in terms of a conflict between immediate self-interest and long-term collective interest.

Using *rational choice theory* as a basis, this study reveals that preferences for public transportation in a standard commuting situation is enhanced by the belief that public transportation provides a shorter average travel time than car and is at least as reliable.

Moreover, paralleling prior research, preferences were found to be affected by a pro-social concern - the belief regarding the impact of cars on the level of environmental pollution. Findings indicate that any combination of two such considerations was more effective in promoting public transportation preferences than the sum of their separate effects. Finally, the authors provide evidence that commuter preferences are shaped by individual differences in social value orientations.

8. **Title:** The dial-a-ride problem in a public transit system. © 1999 Scripta Technica, Electron Comm **Author:** Uchimura, Keiichi, Saitoh, Takashi, Takahashi, Hiro. Faculty of Engineering, Kumamoto University, Kumamoto, Japan 860-8555, Seattle Transportation, Seattle, USA 98104-1826. **Summary:** The authors analyze the feasibility of local area dial-a-ride (e.g. taxi and jitney services) in Japan, serving in a mass transit capacity. They perform a resource usage and services optimization study using a genetic algorithm.

9. **Title:** Impact of transport policies on energy use and emissions. **Author:** Nepal, S.M., Tribhuvan University, Lalitpur, Nepal. **Summary:** Using the Kathmandu Valley as a case study, this paper analyses the implication of different transportation policies for reducing road vehicular emissions and energy consumption. It estimates and analyses current and future trends of energy demand and environmental emissions, especially CO2 and PM.

10. **Title:** Public investment in transportation infrastructures and regional asymmetries in Portugal. © Springer-Verlag 2006. **Authors:** Pereira, A., Andraz, J., Department of Economics, The College of William and Mary, Williamsburg, VA 23187, United States, Faculdade de Economia, Universidade do Algarve Campus de Gambelas, 8000 Faro, Portugal. **Summary:** The authors investigate the effects of public investment in transportation infrastructure in Portugal. Empirical results suggest that although public investment in transportation infrastructures has been a powerful instrument to promote long-term growth, it does so in a way that is unbalanced across regions. The author shows that public investment in transportation infrastructures has markedly contributed to the concentration of economic activity in Lisbon.


- The author of this paper explains some of the ways proponents of rail systems can use skewed information to promote a favorable view of rail systems and down-play the benefits of improving or expanding current bus service in the Houston, Texas area. It serves as a warning to local governments advocating for rail-heavy transit and as an opposing view-point to the Seattle paper, which depicted bus-
transit advocates in a similar light.


- This article describes some of the benefits of implementing a HOT (High-Occupancy Toll) lane system to ease traffic congestion. It also discusses some of the downfalls of such systems which include a negligible effect on exhaust emissions and the outcome of an HOT lane program that was not correctly implemented.


- The use of least-cost and algorithmic solutions to decision making problems alone is challenged in this paper. The author makes the case that decision making has numerous dimensions and cannot be satisfactorily solved for "the answer" with numerical analysis alone. He asserts that such analysis should serve as intuition that guides decision makers in their processes.


- This article gives a brief overview of challenges the railroad industry has faced and how resurgence has arisen due to better management of the rail lines and the introduction of light and heavy rail lines to intercity commuters. One insight briefly covered was the effectiveness of light-rail in a moderately dense population. This, coupled with a need for management more in-line with the needs of the area, can offer an effective guide for those who favor light-rail as an environmentally safer alternative to cars and buses where a medium density population exists.


- In this article, the problems plaguing much of the developing world concerning automobiles can serve as a warning to transportation managers here in the United States: with an increasing population will come an increase in demand for cars. American cities are going to face this growing demand for ease of congestion and prevention of rising pollution. Something that wasn't mentioned in the Seattle mass transit article, that I believe should be considered from this piece, is that government, in addition to considering buses, toll lanes and rail lines to ease congestion and protect the environment, should also promote a more effective effort for low-emission and alternative fuel vehicles.

The insight gained from this paper could be used on both sides of the Mass Transit debate. For those in favor of rail-transit, findings that state a negligible decrease in housing prices would help to alleviate the fears of those in sparsely developed areas of dropping property values due to construction in station areas. For those in opposition to rail-transit, the lack of significant economic increases and small number of riders could be used as an example of the waste that would occur if a rail system is implemented.


The Canadian government's continued subsidizing of its aging rail system is an example of incorrect implementation of rail-transit policy: if the technology is no longer efficient or desirable, alternatives must be pursued to prevent needed resources from being inefficiently diverted. What could also be taken from this paper is the possibility of using fast rail trains to compete with cars and buses if rail must be pursued to ease congestion and pollution.


Katzmann’s article summarizes the Americans with Disabilities Act and its obligations to the handicapped. With its requirements, anti-rail advocates would be able to bolster their case by citing its “reasonable accommodation” requirements as better met using buses instead of a light-rail system.


A consideration not investigated by Seattle-area planners was the effect of the rail stations on crime in the neighborhood and surrounding areas. This paper takes an empirical look at the effects of crime in rail stations around the central Atlanta area. Through this analysis, the author determines that a rail transit system does indeed contribute to crime in the area, while temporarily having no effect on crime in distant locations. What could result from the installation of a rail system would be the need for an increase in police presence at the stations and a minor incentive for some criminals to turn from crime due to increased employment opportunities brought about by the transit system.


Essay is mainly a survey of the history of crime in public transportation and the steps and technologies implemented to ease or eliminate it. The overall goal is to encourage government to emphasize vigilance and proactive steps to stem crime rather than depending solely on what has been developed and currently implemented. As populations increase, there will be more of a need to prevent and fight crime in the transit system, especially in rail-based transportation.
Mass-transit is a term often associated with public transportation such as buses and various forms of rails. There are many advantages for the use of such a system such as the decrease in automobile emissions, the congestion of traffic, and many other ills that are linked with life in an urban sprawl. For purposes of this paper, mass-transit will be defined as “all major modes of passenger transport, mainly bus and rail, which have exclusive rights to operate in [a] market[s]” (Berechman 1).

Public transportation as a viable alternative to private transportation has existed in the United States as early as the 1800s. The cities of New York and Boston had developed horse-powered rail cars for customers in hopes of attracting those that could not afford a private mode of transport (Cudahy 7). During the 1920’s, methods of urban transport such as trains, buses, or subways were a popular choice of transportation. In 1926 to 1928, there were over 14 billion passengers that were accounted for that used a form of mass-transit (Reische 12). Additionally, the peak usage of public transportation was in 1945 in which 19 billion revenue passengers were accounted for. Over time, there has been a sharp decrease in the usage of public transportation over the years in which by the 1960s, there had already been a drop of 50% in mass-transit usage. (Reische 12).

Furthermore, some politicians have questioned how much of a role the government has in subsidizing the mass-transit industry. Those in the Reagan administration insisted, “Subsidization, regulation, and public-ownership have drastically reduced the efficiency of the transit industry…” (Pucher and Markstedt 324). Obviously there are benefits for the use of public transportation; however, there are those in Washington who believe there should be efforts for privatization and deregulation in order to reintroduce the benefits of having a system of mass-transit in place. The overall decrease in ridership is often associated with the failure and dissatisfaction of the current public transportation system.

Currently, mass-transit is a convenient means by which several metropolitan cities in the United States utilize in order to accommodate the transportation needs of its population. Cities such as New York and Washington D.C. offer mass-transit options such as the subway and its citizens often utilize these options daily as a necessity. Over the last several decades, various cities have chosen to develop more modern forms of
mass-transit such as a light rail systems as opposed to heavy rail systems like a subway. Communities such as Los Angeles, San Diego, and Salt Lake City have developed a light rail mass transit system in order to benefit the needs of the community (Allegra).

Many cities are following this trend by developing light rail transit as an effective alternative to automobiles. Proponents argue that the benefits of light rail transit are arguably better than having a heavy rail system in place such as a subway. First, the key advantage to having light rail versus a heavy rail system is its flexibility in location. Land in developed cities is a rarity to find therefore it is much easier and probable to develop a system that can be placed alongside normal streets and existing traffic without disrupting the natural balance that already is in place (Black 153).

Moreover, light rail is a safer alternative to that of a heavy rail system. Subways and larger trains need a third rail in order to supply electricity in order to power its engines, and these rails are considered to be a safety hazard for pedestrians. Light rails employ an overhead wire of electricity to power the trains therefore there is less worry for pedestrian-related accidents (Black 153).

Additionally, light rail systems have the ability to transport a large amount of passengers in a corridor as opposed to other forms of mass-transit such as buses. These rails are capable of transporting over 20,000 passengers in one hour in each direction.

Another argument proponents suggest is the ability of light rail transit to increase the property value of the community (Knapp, Ding, and Hopkins 32). As previously mentioned, there are many cities that do not have the luxury of having an infinite amount of land resources to build on. Communities that do have the adequate land resources should consider building a light rail simultaneously if not before the completion of the new community. Specifically, studies have indicated that cities that have plans to develop such systems will influence the value of the land, and builders have an incentive to build high-density housing rather than develop low-density forms of housing (Knapp, Ding, and Hopkins 33).
There are those that do not favor mass-transit alternatives such as light rail and are more partial to other forms such as HOV lanes, buses, and heavy rail systems. One potential problem that opponents of light rail often bring is the overestimation of ridership by analysts. For instance, light rail ridership in Buffalo was 68% below the intended figures and consequently the operating costs were 12% higher. Reasons such as this discredit claims by supporters of light rail who suggest the cost-effectiveness of the program over traditional forms of public transportation (Black 155).

Mass-transit is a viable alternative to other forms of transportation due to the benefits associated with it. The difficulty lies in the inability of those involved to agree on which form of mass-transit is best for them. Additionally, there is no consensus on creating an urgency towards utilizing mass-transit over private transportation such as cars. There are numerous benefits that are involved with mass-transit; however we as a society have yet to find out for ourselves unfortunately.
Mass urban transit is a hot topic in public policy. A vast amount of time, money, and manpower has been poured into studies that assess the need for improving mass transit systems, identifying the most effective and efficient types of mass transit solutions, and identifying the effects of improved transit systems. Indeed, there is
no lack of literature on all aspects of mass transit, from implementation, effectiveness, and cost efficiency to analyses of need, impact, and alternatives of urban transportation solutions. In light of this vast body of literature it would be impossible to systematically review all of the relevant materials in our quest to analyze and discuss transportation policy in American urban centers. What this literature review will present is a small sample of literature that is diverse in nature and offers a variety of viewpoints and ideas on the future of urban transportation planning and city life.

There is little argument among researchers, policy makers, policy implementers, and the general public that the current state of urban congestion and transportation alternatives is not satisfactory. It seems that all parties agree that something must be done to improve the quality mass transit in American cities. The arguments that arise in the literature take on three different tones. First, the type of transit alternatives that will be the most effective is hotly debated. Second, there are a variety of motives for improving mass transit systems. Finally, there is distinct disagreement over the effectiveness of various modes of transportation and transportation alternatives that will offer the best benefits to communities.

The literature presents a wide variety of motivations for improving mass transit. Among the most common are environmental concerns, a desire to improve employment and mobility for the lower class, and efforts to ease traffic congestion. One thing that all the literature agrees upon is that the status quo in urban transit policy is not acceptable. “Large public transit deficits, low transit load factors, and severe highway congestion…suggest[s] that the US public sector is not setting urban transportation…service to maximize net benefits (Winston 411).” Research suggests that current policy plans that focus on light rail, expanding road systems, and using multiple occupant vehicles (carpooling, vanpools, and busses) are not meeting the needs of urban citizens. Loo suggests that policy makers need to shift from “estimating trip generation rates…to a better understanding of the trip-changing factor (215).”

Even those researchers who focus on less central issues of the urban transit debate seem to agree that their goals are not being met by current policy. Gatzlaff and Wachs who are concerned with the effects of mass
transit on property values and the environment, respectively, both reports that alternative approaches to mass transit will be needed in order to maximize benefits and minimize costs. Wachs in particular claims that, “costly rail network, HOV lanes on highways, and the reduction of peak hour work trips…will result in the reduction of some trips…but they will cumulatively have small effects and large costs (336).” Gatzlaff postulates that a combination of decentralized urban growth and low ridership on rail and bus systems have are to blame for the failure of current transit policy (54). “It is not an easy task to lure travelers to urban transit, unless land-use policies and economic measures are combined with dramatic improvement in levels of transit service (Loo 334).”

If current approaches such as HOV lanes, busses, and light rail are not effective then the obvious question that ensues is what will work to decrease congestion, increase the mobility of the lower class, and decrease the environmental impact of our modern, urbanized, lifestyles? It is in answering this question that the literature starts to diverge. There are a variety of possibilities that exist in two distinct categories. First, several researchers propose that we abandon current approaches to mass transit and implement technologically driven solutions to the problems posed by urban congestion. The other group of researchers suggests modifying popular policies that are in place in order to minimize costs, encourage participation, and expand services.

One of the most popular alternatives to building new infrastructure is investing in, and encouraging, telecommuting. Telecommuting, either working from home via teleconferencing technology or working from satellite offices in less congested areas, offers a unique way of dealing with urban congestion. Mitomo uses a study of telecommuting in Tokyo to show the possible impact of this solution to transportation problems. He suggests that up to 28% of the Japanese workforce will be telecommuting in some manner by 2010 and that traffic congestion in Tokyo will be reduced up to 10.9% at a savings of 75 billion yen per year (748). While this approach ignores one major concern, mobility and employment of the poor, it would certainly address both environmental and congestion concerns. If Mitomo is correct, telecommuting in U.S. cities could drastically reduce the peak hour usage of major roadways. Other researchers also point to technology as a source of
vitality in dying mass transit systems. Ideas such as the smart card, linked trip cards, and computerized terminals linked to GPS systems that indicate where the next bus or train is and when they will arrive at the stop are all suggestions for improving transportation with technology (Sinha 339, Loo 214, Wachs 352).

Other researchers suggest that the key to improving mass transit does not have anything to do with current structures but rather in increasing the cost of traveling by car. Loo suggests that increasing the number of toll roads, the price of gasoline, and charging other user fees to people traveling by car could provide enough incentive to use mass transit alternatives (217). Sinha agrees, suggesting that if the government took action to make driving a car more expensive while simultaneously making mass transit more attractive then there would be a vast increase in the use of alternative transportation options (335).

A final alternative is to continue to build roadways, rail systems, bus routes, and other mass transit facilities but to do so in a deregulated and privatized system. Clifford Winston argues in his article *Government Failure in Urban Transportation* that the government in not capable of efficiently running mass transit systems. Winston claims that it is not mass transit that has a problem but rather the way in which it is administered. He argues that privatization would be likely to provide the competitive market forces that could make mass transit a profitable and consumer friendly business that draws widespread approval while diminishing taxpayer costs.

Still, some researchers are not ready to privatize or abandon current mass transit policy and they resist the idea that technological improvements alone will significantly increase ridership levels. These views are most coherently packaged by Sinha who sets out eight considerations that he says policy makers should follow if they wish to design effective mass transit systems. Sinha argues that compact and mixed-use developments and the promotion of regional density along with coordinated regional, state, and national policy planning will promote better policy. He suggests that policies need to be shifted so that nonmotorized and transit riders costs are more competitive with auto users and that increased infrastructure for non-auto users need to be provided in order to give people adequate opportunities to utilize nonmotorized modes of transport. Finally, Sinha suggests balanced investment in new modes of transportation is needed in order to show people that the car is only one of
the many modes of transportation available to them. He stresses that new modes of transportation must be comparable in speed, cost, and flexibility in order to be successful. This can be done using technology as a tool but, Sinha argues, technology alone is not enough.

It is clear after reviewing the literature that mass transit improvements are needed. Public officials need to consider ways to alleviate peoples concerns about mass transit, increase flexibility and benefits of current systems, and expand on current infrastructure in a way that encourages automobile alternatives. It seems unlikely that light rail or heavy rail solutions hold a great deal of promise in their ability to accomplish these goals. The costs of such systems far outweigh their benefits in nearly every case and to invest billions of dollars in these systems does not seem to be an effective or reasonable response to the mass transit problem. In the end it is important to consider a broad policy that effectively addresses the concerns of competing interests. As Wachs summarizes, “people should have the opportunity to travel more…mobility means access to opportunities for employment, health care, recreation, and social interaction, and the goal of transportation policy should…be to increase these opportunities (352). A transportation policy that reduces congestion by expanding mass transit, integrates technological features that increase reliability and ease of usage, and encourages people to utilize modern alternatives to traveling into urban centers such as telecommuting, online shopping, and working from home will benefit all interests. In addition to this, any proposed transportation policy should seek to reduce user costs both in real terms and in opportunity costs without making auto travel unaffordable. The key is to make mass transit options look attractive not to penalize auto users thus decreasing mobility and violating a central goal of transportation policy as suggested by Wachs.

Works Cited


Developing a workable mass transit plan for a specific city is not an easy task. The most proficient type of mass transit depends on the specific city and its outlay, geography, economic standing and the willingness of all parties involved. Many questions not only need to be asked but also answered honestly when creating city-specific mass transit systems. Some of these questions include: will the mass transit be cost and time effective and efficient, will the mass transit be environmentally effective, will the mass transit have significant utilization and will the mass transit reach the appropriate people? But most importantly, the question that must be answered will be, “Is this a useful way to spend our money?”

Before the days of automobiles, there was no need to worry about mass transit systems; people lived and worked in urban areas. After the Interstate Highway Act of 1956 however, “freeways became the new concepts of urban design” (Cervero, 1) “automobiles relaxed the need for proximity to a transit line,” (Small, 6) and seen even more evidently today, “geography is irrelevant” (Gordon, 1). These developments provided many desired amenities to residents, but also created problems. Whatever one’s judgment about the wisdom of those past decisions, “longevity of buildings makes such trends virtually impossible to reverse(Small, 6). “As per capita income continues to rise, the exodus to the suburbs will continue, and even more people will have the desire to bring even more cars back into the city. Most city planners agree that any solution to the urban transportation problem will involve the diversion of automobile users onto some form of mass transportation” (Lave, 1).

It is easy to understand how traffic congestion began and therefore why developing mass transit is an issue, but it is not easy to determine how to balance the problem of congestion with a system that will be used and is practical. “Density dictates that we cannot expect to provide unencumbered road space for every person who might like it at 5:00 p.m. on a weekday—any more than one would expect to build a dormitory with a shower for every resident who wants to use one in the morning” (Small, 1). Yet at some point, as passenger density increases, it eventually becomes worthwhile to pay one driver to serve many passengers and “eventually to incur the high capital cost of building a rail line” (Small, 4). The problem with this however is that many rail
transit systems constructed recently in the U.S. are uneconomical because the passenger volumes are too low. This is due to several different factors, including the desired lifestyle of many Americans: even if riders know the schedule of a transit, they have to adjust their own schedule to fit it, which is a cost to the rider. Also, “empirical evidence reveals that people care even more about avoiding time spent walking or waiting than about time spent inside a vehicle” (Small, 4).

Solutions to the mass transit system vary. Some are as minimal as creating carpool lanes on the freeway while others offer cheaper alternatives to rail such as “‘Bus Rapid Transit,’ in which local bus transit is configured to offer rail-like service quality at costs between those typical of bus and rail” (Small, 4). Another solution is to make an “attempt to provide quantitative estimates of the degree of transit improvement which will be necessary to attract commuters. Of course it is possible to accomplish such a diversion by acting to make the automobile less desirable, e.g., increasing parking costs, or refusing to build more freeways. But such a solution may spell long run death for cities anyway: it is possible to force commuters onto transit in the short run, but in the long run the may simply find jobs closer to their homes in the suburbs” (Lave, 320). “Urban transportation is a vital part of economic activity and responds to well-designed economic policies. Much can be accomplished to improve urban life by using our basic knowledge of economic incentives” (Small, 7). But as city councilman from British Columbia summed up his reasoning to support a rail and bus system, “You don’t build a transit system to solve traffic problems. You don’t build it expecting to pay for itself. You build it because it makes a good place to live” (Sound Move, 20). And as a whole we must make metropolitan land use, transportation and environmental planning a more effectively integrated part of our society than it has traditionally been and in doing so we will help communities grow smarter (Waddell).

Works Cited

Seattle and much of the nations metropolitan cities have experienced urban sprawl since the 1950’s. Suburbanization, coupled with a growing inner city population, has produced a transit crisis in many cities. Traffic jams on the interstates as well as surface streets have become the norm for most daily commuters headed to and from work or school. In addition to traffic concerns are environmental concerns dealing with air quality. Prior to installation or upgrade of a mass transit system many cities conduct studies or analyses of how to go about the planning and construction of such a major infrastructure. Before upgrading the San Francisco Bay Area Rapid transit (BART), researchers analyzed the costs and benefits that would be associated with construction. Accordingly, Lave and Hannon (1977) have addressed the energy impact associated with a modern rail transit system. Their premise for analyzing energy impact was due to the fact that it is just assumed
to be common knowledge that reducing the amount of automobiles on the road would be more ecologically friendly. However, after reviewing BART construction plans it was determined that it would cost 25.2 times as much construction energy to construct BART than it would to construct a highway system. Also, the operating energy savings is so small relative to the construction energy that it would take approximately 535 years to repay the energy it took to build BART, much less save any energy. Lave and Hannon conclude that rail transit is an energy waster and that we should focus our energy on creating more efficient cars and bus systems.

There may be negative energy impacts with the construction of a rail system, however Koutsopoulos (1977) has found that property values are increased due to the addition of new transit lines. In this study, data was pulled from the Senior Real Estate Analysis (SREA) to perform a cross-sectional study of 33 independent variables with observed sales price as the dependent variable. Findings showed that in 1977 the average home increased in value by approximately $73 due to new bus routes being added in Denver neighborhoods. While there are potential profits to property owners there are many costs associated with transit. The federal government is expected to assist with these costs.

In 1961 Congress approved the first federal aid for public transit. This was a matching funds program for states. Congress only wanted to subsidize capital costs and not operating costs. According to Wachs (1989) their logic was that if local governments covered the operating costs then subsidies would be used for efficiency. However, if local governments used federal money for operating costs there would be no incentive to optimize efficiency and costs would be endless. The federal government justified these subsidy expenses because they would have benefits such as urban traffic relief, reduced fossil fuel consumption and provisions of transportation for those who are unable to drive. Wachs concludes however that it is unrealistic to expect that improvements to mass transit will reduce car usage or ownership. People who own cars use them even when decent transit services are available. Instead of creating new transit systems Wachs recommends that attention be paid to management of systems. Special attention should be paid to reassessment of the fare systems, with the flat fare system being abolished altogether.

A case study focusing on Canada’s transportation issues also recommends that their transit system rethink their pricing policy. Perl and Pucher (1995) echo recommendations made by Wachs in that he believes that transit expansion should be halted and focus should be redirected to reducing transit costs. Once transit increases it will be seen as a competitor to the automobile. Perl and Pucher urge for an increase in costs associated with automobile ownership in an attempt to reduce automotive usage. Claims have been made that due to the relatively inexpensive costs associated with owning and operating an automobile mass transit has lost ridership. Suburbanization is another factor that has been associated with the decline of mass transit riders. Land planning codes should be revised so that developers don’t create communities where its residents are stranded with their only transportation option being the automobile.
Demographics of who uses mass transit is another important issue to consider when promoting mass transit to the public. Shenker and Wilson (1967) address this issue in their study, which examined 23 metropolitan areas and used 11 variables that determine demand for mass transit. Findings indicated that surprisingly personal income and racial content of a city are not at all correlated with transit use. Automobile ownership is the population characteristic that most highly correlated with transit ridership. This information should guide transportation planners and decision makers to focus their efforts on trying to convince this sector of the population to use mass transit.

Why should a city even consider construction or expansion of their mass transit systems? Would it be beneficial for the economy and the public to expand systems? These are questions that transportation planners need answered before trying to obtain funding to construct new systems. Peterson (1975) looks at a Los Angeles cost-benefit analysis case study and found that benefits and costs can often times be miscalculated to show a positive outcome. This was the case in Los Angeles and should caution decision makers to consider inflation and use a modest estimate for the number of passengers actually using the system. These factors need to be considered when conducting an accurate cost-benefit analysis.

In addition to the questions asked during a cost-benefit analysis are questions about performance and productivity measurement. Gleason & Barnum (1982) indicate that there has been abuse and misuse of the terms efficiency and effectiveness. Measures of efficiency, such as cost per passenger, are being incorrectly used as measures for effectiveness and that various traditional measures of efficiency, such as those that incorporate mileage can be misleading when applied to decision making. Effectiveness measures should involve only the extent to which goals are accomplished. Efficiency measures should involve output and input relationships. Proper use of these terms will assist administrators with outcome measurement.

A great deal of concern is made with increasing mass transit ridership to justify costs. Bailin Wish (1982) surveyed opinion leaders in the public transportation community to try to get a feel for the political feasibility and probable impacts of policies proposed to increase ridership. These decision makers and opinion leaders share common ground on these policies. The respondents rate comfort, accessibility, safety and dependability as most important in increasing ridership. They strongly disapprove of policies that would raise automobile costs and state that improving the ride is far more important than fare reductions. New policies intended to promote ridership should take these suggestions into account if they want their policies to succeed, according to these decision makers and opinion leaders.

The final, and very important question is who should determine how to spend the funds for transit management and expansion? Baurer (1978) and Hays (1977) concern themselves with this area of study. States and localities should take responsibility for planning the transit systems of their cities. This will produce a more successful outcome than using the federal government to plan out transit systems nationwide from Washington.
through use of shared constituencies and shared responsibilities. Local governments will be more apt to coordinate between each other and create policies that work for their cities. If there are numerous agencies providing the same service it is in their own best interest to cooperate with each other to create a better product that their consumers will want.

**References**


