

**PUBLIC TRANSIT SERVICE IN CITY OF SAN DIEGO
DISADVANTAGED COMMUNITIES**

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SIGNATURE PAGE

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ABSTRACT

A reliable and efficient public transportation system, with equitable access, is a keystone to having economically viable and sustainable communities. It is essential for a good quality of life especially for disadvantaged communities with no other means of transportation. Public transportation is a critical way for cities to relieve congestion, reduce pollution, provide access to job hubs, education institutions, health care facilities, and other public services. In the United States, reliable public transportation systems are limited to densely populated areas, while areas with low population density lack a reliable transit system. Transportation investments toward building new services and maintaining existing ones have provided more advantages to affluent communities more than low income ones, suburban communities more than urban ones, Freeways and roadways more than public transit. This study, compares public transportation systems between the U.S. and Europe, highlights U.S. cities with reliable transportation systems by concentrating on the San Diego public transit system and discussing its latest successful transportation projects along with the political influence of the distribution of the allocated government transportation funds amongst affluent and disadvantaged communities.

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CHAPTER 1

INTRODUCTION

Overview

The social, economic and environmental sustainability of communities is directly related to its sustainable transportation systems. The evaluation of transportation systems' effectiveness and efficiency relies heavily on the infrastructure that is used to accommodate the transport whether it is roads, railways, airways, or waterways. The purpose of transport is to provide safe, efficient, and affordable economic and social connections to all communities, equally. Having adequate access to work, education, health, and food services, as well as family and friends, is what makes a community sustainable and allows it to grow and thrive (Weyrich, 2003).

Throughout American history, increased population and wealth resulted in an increased demand for a greater and more efficient mobility for both people and goods. Transportation moved from pedal bicycles, public buses, passenger trams, and rail service prior to World War II, to a greater number of road vehicles and a public investment in transit that included larger and more efficient designed roads post World War II (Young, 2015).

During the early 1920s, automobiles became the preferred mode of transportation as a result of the low cost of mass motorization, mass production of vehicles lowered the cost of owning a car and personal income was high enough to be able to afford it, and a national highway system was built which resulted in a severe decline in railroad ridership. The oil crisis that took place in 1973 and the energy crisis of 1979 has changed that and

made it necessary to find alternatives to single occupancy commuter travel. One important alternative was the development of HOV (High Occupancy Vehicle) Lanes which included carpool lanes. During the 1980s and the 1990s, lower oil prices and the development of tract houses in the suburbs have led back to a higher preference for cars as a mode of travel (Sovacool, 2007).

This growth in commuter travel has created traffic congestion and other problems on different levels. For the commuters, it is mainly the higher cost of operating and maintaining vehicles as well as the stress that they have to endure being stuck in traffic trying to reach their destinations. More time of commuting leads to less time for exercise and a sedentary lifestyle that is creating a higher cost of health care. For society in general, it is public health problems such as higher emission of greenhouse gases since transport systems are considered one of its major emitters. For taxpayers, it is the high cost of maintaining and expanding the existing roads and the higher cost of building new ones to accommodate the growing number of travelers (Curry, 2018).

Contemporary environmentalists in the U.S. have broadened their concerns and battles to include air and water pollution, ozone depletion, global warming, acid rain, sustainability and land use which they believe are all closely related to the operation and maintenance of too many cars and the lack of adequate and efficient public transportation systems in cities all over the country.

According to the Paris Climate Change Agreement, Cities' improvement of public transportation systems and getting more cars off the roads and freeways are essential to meeting greenhouse gas reduction targets. Cities are challenged to cut carbon emissions

over the next decade by half by the year 2030 in order to avoid devastating effects of climate change (Dennis, 2019)

Problem Statement

In order to alleviate these problems, money is being allocated for the development and implementation of a sustainable public transportation system in cities only, because they have the advantage of having the proximity to the infrastructure and job market (Uddin, 2013). This is, therefore, further isolating the rural areas, the disadvantaged communities and those who do not have bank accounts and depriving them the benefit of an efficient and sustainable public transport system that would allow them to attain employment, education, health care and other necessary services that they desperately need in order to improve their lives and economic conditions which will relieve the stress on the welfare system. In addition to that, the 80 million baby boomers who are aging and leaving the work force will require and benefit from an adequate and efficient public transportation system that will help them stay mobile and independent which will tremendously cut down on their health care cost which is mostly covered by government insurances such as Medicare and Medical (Brown, 2015).

Purpose Statement

This study will start by covering the different types of public transportation systems nationwide and the factors of why and where some are used more than others. The research, then, narrows down to the public railway systems and whether or not it is equally benefiting the various economic classes and communities in the City of San Diego. The reasoning

behind the San Diego Public transportation allocation of funds to more communities than others will be covered along with the public support and the voting that have influenced this allocation of funds toward the major improvements of the public railway systems that are currently taking place in the city of San Diego. This project will also examine whether or not the disadvantaged communities in the City of San Diego are going to benefit at the same rate as the affluent communities from these improvements.

CHAPTER 2

LITERATURE REVIEW

The Difference of Public Transportation in the U.S. and Europe

Between 1920 and 1960, the United States has been the leader when it comes to policies of adapting its cities to the increased use of cars. It has been considered the role model by Western European countries. American households were able to afford owning one or more cars for mainly three specific reasons: the development of the assembly line production of cars which brought down the price of owning and operating a vehicle, the increase of personal wealth and the affordable taxation of car ownership and operation. This major change in lifestyle has prompted the government to develop a variety of road infrastructures such as roadways, freeways, bridges, tunnels and many other projects that were aimed at facilitating the safe and easy commute of motorists (Buehler, 2014)

While European countries were impressed by the United States' ability and policies of adapting cities to car travel, they were not able to imitate and accomplish the same in their own countries for several reasons such as having less affluent households, a higher cost of cars, tax on owning a car, maintaining and operating a car and last but not least the higher cost of gasoline. Roadway expenditures and infrastructures in the United States are paid by government subsidies such as gas taxes, tolls, registration fees and property and income taxes while European citizens pay more in taxes and fees than their government spends on road infrastructures. As a result of that, public transportation was and always remains a more economical and efficient way of commuting throughout Europe (Poiani, 2015).

Public Transit in the U.S.

Over the years, the major shift in the United States toward car dependency has had a devastating impact on the existing privately-owned transit system that suffered from a crippling decrease in ridership. Consequently, many of these systems ended up cutting services and increasing fares in an attempt to stay afloat, others had to file for bankruptcy or go out of business and the rest ended up being bought and operated by the local government.

In the last two decades, The U.S. (after you have used United States once you can then use U.S.) has increased its efforts to decrease its commuters' dependency on cars and increase their dependency and use of public transportation. This time it was the city planners all over the United States who have turned to Europe for direction on accomplishing their goal. One of the initial obstacles that they faced is the fact that zoning laws in European countries are more lax than the ones in the United States. In Europe, an area can be a mix of residential and commercial, which dramatically shortens the distance commuters have to travel for their daily necessities. Doctors' offices, grocery stores, cafes shops and residential structures are zoned together and can be reached by walking, biking or by bus which eliminates the need for owning a car. In the United States, zoning laws are much more rigid. Residential zoning is separate from commercial zoning which forces commuters to travel more distances for their daily needs and necessities therefore it makes more sense for them to cut down on their travel time by owning and using a car for their daily travels. But, the higher number of cars per household and the rise in traffic as a result of motorists commuting to work in their own cars on daily basis have resulted in commuters spending more hours stuck in traffic. Frustrated motorists who are

anxious to get to work on time and cannot wait to get home after a long and hard day can make mistakes that can lead to devastating consequences (Buehler, 2014).

The United States government's investment in expanding the transportation system such as roadways and freeways and conducting periodic repairs to the existing ones in order to alleviate the problem and to safely handle the movement of both people and goods across the country has been stretched thin and is barely keeping up with the constant growth which requires a major change in the transportation system throughout the country (Luk, 2016).

The United States government needed to refocus its attention on its mass transit system which includes light rail and buses in order to shift away from an unsustainable automobile dominated transport system and alleviate not only congestion and accidents but other problems such as pollution, and climate change. It needed to re-increase the use of public transportation and facilitate the accessibility of public transportation to the disadvantaged urban communities, the aging population and the disabled. City planners had to come up with innovative ideas in order to make public transportation use more appealing to car owners who would never consider using public transportation for their daily commutes. They set their goals on finding ways to provide updated, clean, safe, affordable and efficient transportation system that commuters cannot resist (Buehler, 2014).

An investment in an efficient and reliable transportation system is vital for a healthy and booming economy. Public transportation system Statistics from the 2015 Department of Transportation report shows that only 2% of the more than 1800 mass transit systems in the United States covered their operating expenses and generated some type of revenue while the other 98% operated at a loss. The largest and most established transit systems in

the northeastern United States such as the ones in Washington DC, Boston, and New York belong to the 2% that have adequate and efficient public transportation systems.

Public Transportation System and Climate Change

The Contemporary Environmentalist Movement in the U.S. has blamed the lack of efficient and adequate transit systems on some major environmental issues such as: the smog and decreased air quality that is caused by the exhaust of too many cars on roads and freeways, the decreased water quality caused by poisonous car fluids that result from operating and maintaining cars and are carried by water in our streets and into our water systems, Land use policies that include less urban core developments and more suburban sprawl, Transit policies that allocate more funds toward road and freeway expansion to accommodate more cars and not enough funds for adequate and efficient public transportation systems. These environmentalists have accused the government of social injustice for keeping the disadvantaged communities isolated and in poverty (Cervantez, 2010).

When president Trump recently announced the U.S.'s withdrawal from the Paris Agreement on climate change, C40 North American Regional Director and Ambassador for Inclusive Climate Action accused the Trump administration of hindering climate progress, mayors of C40 cities such as Los Angeles, San Francisco and Seattle disagreed with their president's decision and continued their effort and commitment to meet the emissions guidelines under the Paris Climate Agreement and Environmental and public health activists condemned his decision and warned about the irreversible catastrophic effects that this decision can have on the climate (Dennis 2019)

Comparative Analysis of Transportation Systems of U.S. Cities

Funding for public transportation can come from different sources such as sales tax, general revenues, development fees and funds from the federal government. Over the years, some cities more than others have been able to use those funds to somewhat shift that dependency of commuters from cars to public transportation and meet urban sustainability standards by investing and implementing some improvements to their public transportation systems.

According to Redfin 2018 annual transit Score Report, U.S. cities such as Seattle, Philadelphia, Washington DC, New York city, San Francisco, Chicago, Boston, Los Angeles and San Diego ranked high when it comes to the efficiency of their public transportation systems while others such as Portland, Dallas, Birmingham, Youngstown, Newark, Miami, Atlanta and New Orleans ranked low for the location and efficiency of their public transportation systems. Many of the cities that ranked low, lack the funds to improve and maintain their existing public transportation systems while others do not lack the funding but still do not have adequate and efficient systems simply because they do not think they need them. All of these cities were scored based on the convenient location of their public transportation systems and the frequency of their runs (Pennington, 2018).

A- *Seattle*: For Seattle, one of the most liberal cities in the country (some would argue that SF is the most liberal city in the country), having an efficient public transportation system is not only necessary but also environmentally conscious. The local government is conducting major public transportation funding with the goal of drastically cutting down the use of individual cars by 2022 (Pennington, 2018).

- B- *Philadelphia, New York and Boston*: Philadelphia, New York and Boston are not only three of the oldest cities in the United States but they also have well established public transportation systems that were built and improved slowly overtime. The New York subway system is the busiest in the nation and Boston is famous for its efficient and easy to navigate mass transit system (Pennington, 2018).
- C- *Washington D.C.*: Having one of the most efficient public transportation systems in Washington D.C. is expected since it is the hub of the U.S. government where important people live, work and make official decisions (Pennington, 2018).
- D- *San Francisco*: When it comes to San Francisco, its public transportation system is impressive since it is accessible from anywhere in the city and is not specifically tailored for the areas of businesses and tourist attractions (Pennington, 2018).
- E- *Chicago*: Chicago has an adequate and efficient public transportation system that infiltrates not only the city's hot spots but also deep into the outskirts of the city (Pennington, 2018).
- F- *Los Angeles*: Los Angeles has always been in the process of continuously allocating funds to improve and maintain its public transportation system in order to alleviate the traffic problem that it continues to suffer from especially around LAX airport. Measure M which provided new funding for the expansion of rail, rapid buses and

bike networks was passed on November 2016. The renovations to the public transportation infrastructure included a subway extension from Westwood to downtown, an automated People Mover around LAX, a train service to and from the airport, and light rail lines which connect Long Beach to Azusa and East Los Angeles to Santa Monica (Yeh, 2017). The majority of those who voted for Measure M were not transit riders and were not concerned about whether or not the renovations of the public transportation system would benefit those who need it the most such as the lower income communities.

Many believe that the public transportation problem in L.A. is an inequity and civil rights issue. Public transportation campaigns do not mention poverty or low-income communities. Their campaigns concentrate mainly on relieving congestion, decreasing the rate of car accidents, lowering emissions and making car owners' daily commute time efficient and less stressful (Lee, 2017). Gentrification in L.A. has increased the economic value of neighborhoods and forced low income people to move way out on the outskirts of the city where rent and the cost of living is a lot cheaper but public transportation is inadequate and less available. The result is high unemployment rate, poverty and social exclusion especially among the impoverished black neighborhoods (Rowshandel, 2017).

Despite its car centric land layout, it is believed that Los Angeles provides non-car owners a better access to its transportation system than any other metropolitan area in the U.S. (Hess, 2012). Its public transit includes subways, light rail, buses and shuttles among other public transportation options such as Metro Bike Share which is a bike rental program, LAX Fly Away which is a transportation

to and from LAX and Metrolink which is long distance commuter trains connecting the city of L.A. with outlying areas. There are also other transportation systems such as taxi, electric scooters/bikes and ride-sharing apps such as Uber and Lyft. Despite having one of the most comprehensive public transportations in the U.S., low ridership in L.A. is blamed on several factors such as the low cost of fuel, good economy, limited knowledge of the transit's usability and services, Metro buses not being on time, safety concerns especially in certain areas such as the Blue Line and the preference of Uber and Lyft.

G- *San Diego*: Last but not least of the highly ranked public transportation systems and the focus of this paper is San Diego's, where tourism is a very important contributor to the city's economy and is a sizable source of income. The transportation system that San Diego has in place and is in a continuous process of improvement is tailored to its tourists and its working force. San Diego Metropolitan Transit System (MTS) has put in place a project in 2016 called "Transit Optimization Plan" which aims at generating more fare revenue by utilizing existing transit resources in a more efficient way and increasing ridership on key network corridors.

The City of San Diego also created a "Climate Action Plan" in 2015 that enforces emission target rates by 2035. In order to meet these targets, transit officials have to come up with plans to move a lot more people out of cars and onto public transportation systems such as buses and trolleys and encourage walking and biking as well. According to Hasan Ikhata, the executive director of the San Diego

Association of Governments (SANDAG), zoning changes are going to take place around every transit station where people will be able to not only reside but also shop, walk and bike (Bowen, 2019). SANDAG has identified what it called “Transit and Specialized Transportation Gaps”. These are areas with concentrations of low-income communities not served by transit (SANDAG, 2018).

A substantial number of individuals in these disadvantaged communities work non-traditional schedules such as early morning or night shifts and weekends when transit is less frequent or nonoperational. In order to meet these community’s needs, SANDAG compared the population density of low-income communities with the densities of jobs within San Diego region and found that these communities are located in close proximity to only a few of the major employment centers and far from the majority of the others such as University City, Kearny Mesa, Miramar, Poway, Sorrento Valley and Carlsbad. Getting jobs in these areas would require multiple transfers that are long and costly (SANDAG, 2018).

MPOs are required by law to identify the underserved communities, understand their demographics and needs, and engage them in the distribution of benefits and the planning process. Past actions have proven, that in San Diego, there has been an underinvestment of transportation benefits in these communities that are in most need of them and no engagement with them has been pursued concerning policies, plans, and projects that would have a negative or positive impact on their communities (Williams, 2017).

Disadvantaged communities in San Diego are in dire need of adequate and reliable transportation systems. They are located far from job hubs and with no adequate transit. Therefore, they are kept isolated and in poverty.

San Diego's areas of low-density neighborhoods and sprawling land use is not accommodating when it comes to the development of an adequate public transit. Mass transit works best in compact neighborhoods with a large population that can access it on foot. This sprawl has forced citizens to rely on privately owned car for their daily travel and since public transit is in central business districts and corridors, it is not a reliable travel option for low-income families.

The limited access to reliable transportation systems and the lack of efficient mobility between jobs and affordable housing for the individuals and families of the disadvantaged communities in San Diego and other cities in the nation, remains an unsolved issue for several reasons such as suburbanization, car dependency, land-use patterns, high cost of maintaining existing public transit systems and building new ones especially in the "Gap areas" (as identified by SANDAG) along with the slow increase in income for low income families occupying low level jobs and last but not least, the majority of the transportation local, state and federal funding being geared toward relieving congestion in major employment centers and corridors rather than helping isolated disadvantaged communities get out of poverty (Zhao, 2013).

Still, San Diego has public transportation options that include light rail, train, shuttle and buses that allow tourists as well as San Diegans the ability to travel without the need of a car. The Metropolitan Transit System (MTS) operates buses,

Rapid, Trolley and Paratransit services in central, south and east subregions of San Diego County. North County Transit District (NCTD) operates COASTER, SPRINTER, BREEZE, FLEX and LIFT services in North San Diego County. Other transit services include Amtrak which is a train that travels throughout Southern California, Greyhound buses that operate into and out of San Diego connecting all major U.S. cities, Metrolink which provides rail service throughout Southern California and specialized transit for seniors, veterans, the disabled and the poor (511sd.com).

Current Successes of the San Diego Transit

Successful policy changes that San Diego officials initiated as part of the effort to decrease car dependency and to further incentivize the public to use transit are relieving developers from the mandatory provision of off-street parking for certain types of buildings such as apartments and condos that will be erected within a half mile of a major transit stop and the mandatory requirement of developers to provide residents with subsidized monthly transit passes are in the process of being implemented. Zoning changes are also being sought in order to increase housing density close to transit stops (Bowen, 2019).

A current successful SANDAG project is the extension of the Mid-Coast Trolley which is in the process of extending Blue Line Trolley Service from Santa Fe Depot in Downtown San Diego to the University community. Therefore, serving major centers such as University of California, San Diego (UCSD) and University Town Centre (UTC) and Old Town. The implementation of this project started in 2016. It is expected to provide an effective and efficient alternative way of travel for commuters who use congested freeways

and roadways. It is expected to attract 20,000 new transit riders a day when it will be completed and ready for service by the end of 2021. According to SANDAG, this project will give residents and commuters access to employment, educational institutions and medical centers. It also gives visitors and tourists access to shopping centers (SANDAG, 2018).

Another success for SANDAG is the implementation of Riding to 2015: San Diego Regional Bike Plan which is a diverse regional bike system of interconnected corridors that makes biking a convenient and cheap form of transportation. It is aimed at improving public health by increasing public mobility, relieving traffic congestion by reducing the number of cars on the roads and improving air quality by reducing greenhouse gas emission.

The Politics and Process of Public Transit

A high number of voters in all cities across the United States, including San Diego, regardless of their reasons, care about having an efficient and reliable public transportation system whether they think they personally need it or not and although many advocacy organizations are working to support their cause, politicians in some cities and their agendas are standing in the way of accomplishing such an important goal since investing in such systems in order to improve the lives of the ones who need them the most is not top priority for them (Stromberg, 2015).

While public transportation is prevalent and important to politicians and voters in Europe and other parts of the world, the majority of politicians and voters in the United States, including San Diego, see and treat public transportation as a social welfare and a

government aid program that helps the poor because the majority of transit commuters across the United States come from low income households and disadvantaged communities and cannot afford to own and maintain cars. Politicians in European cities such as Paris are concerned and work diligently at having a reliable and efficient transportation system that benefits all citizens regardless of their social or economic status. These cities charge not so low fares and are still able to provide reliable transportation for their poor population because each municipality is forced by law to provide extra funds to transit agencies whose operating costs exceed their revenues. In the U.S., treating public transit as a welfare program and therefore not granting it the appropriate funding prevents transit agencies from being able to cover their operating costs and provide a reliable and efficient transportation system especially in the low-income communities. The end result is a poorly maintained transit system with inadequate service, limited operating hours and low frequency (Stromberg, 2015).

In the United States, public transportation investment is and has always been a politically charged and controversial issue. Conservatives view the transit system as a welfare program for the poor and therefore are not supportive of the allocation of adequate funds that are necessary for having reliable, efficient and adequate transit systems that benefit the disadvantaged communities. Instead, they support the allocation of the majority of the transportation funds toward highways that serve the suburban communities. The progressives in Urban America have always highlighted the significant inequities between the inadequate bus service in the poor communities and the efficient rail service in the more affluent ones. They accuse transportation planners and policy makers of being more concerned with the needs of the suburban commuters and allocating most of the

transportation funds toward building highways and commuter rail that do not benefit or serve the needs of the low-income communities that depend on public transportation in order to improve their economical situations (Anbinder, 2018). On the other hand, in cities such as L.A. and San Diego, there are government officials who have always been advocates for equity and the fair distribution of transit funds that benefit the disadvantaged communities despite of the resistance they continue to face from other government officials and the wealthier communities in their areas.

Inadequate U.S. mass transit is not only caused by cheap gas, suburban sprawl, land layout and a poor infrastructure. It is mainly caused by a defective political economy. Politicians not only invest too little in public transportation systems but they also choose their investments poorly. They do not concern themselves with the quality of transit systems if it has no effect on their chances of re-election and the law does not enforce holding them accountable for their poor decisions and injustice when it comes to transit service (Stromberg, 2015).

The Federal government has a major influence when it comes to transportation policy. Even though the White House and Congress do not favor public transit and not enough transportation funds are pouring from Washington, states and local governments can afford to allocate enough funds to run buses efficiently and frequently in urban areas in order for individuals who do not own cars and cannot ride and park to be able to get to transit stations that would transport them to job hubs in a timely matter. Although state and local politicians know that a good feeder bus system can save massive capital costs by carrying commuters to existing rail lines rather than having to build new rail lines that reach them, they remain adamant at allocating money elsewhere and continue to be

indifferent to the potential benefits that such projects would provide the disadvantaged communities (English, 2018).

Some believe that one of the reasons why politicians in the United States seldom discuss public transportation issues during their campaigns, is that the voters who go the polls on election day are mostly affluent whites who do not use public transportation and some of them could care less about it while the majority who use it and need it the most such as African Americans, Hispanics and immigrants never show up at the polls. The other one is that it is mostly not very clear who is actually responsible for public transportation decisions which in the majority of areas fall under the control of independent authorities with complex governance structures and different levels of influence by sometimes governors, mayors and other local officials (Gordon, 2018).

Politicians and bureaucrats at all levels of the government have destroyed public transportation by building highways to suburbs that are not adequately served by public transportation, by encouraging the more affluent white communities to move to these suburbs through the incentives of better education and housing, by providing FHA loans and tax policies, by making these suburbs car-dependent as a result of zoning laws that reduce population density, by concentrating public housing in central cities and by funding transit far less than highways. As a result of that employers relocated to the suburbs and the urban poor communities became isolated with a lack of institutions, resources and an adequate public transportation system (Lewn, 2001).

CHAPTER 3

METHODOLOGY

To identify disadvantaged communities in the San Diego region for consideration of their transportation planning needs , the San Diego Association of Governments (SANDAG) utilized Series 13 Regional Activity Based Model (ABM) to examine mapped characteristics, such as age, ethnicity and income, at the household level, along with input from community-based organizations (CBO), advocacy organizations and other stakeholder groups. More details related to the social equity analysis process can be found in [Appendix H of the Regional Plan](#).

SANDAG established three population groups that represent the disadvantaged communities in the region: minorities, low-income, and seniors. Within the City of San Diego, SANDAG identified the following seven community plan areas (CPA) as having significant percentages of these disadvantaged populations:

- Barrio Logan
- City Heights
- Encanto
- Linda Vista
- San Ysidro
- Skyline-Paradise Hills
- Southeastern San Diego

The purpose of this study is to provide an assessment of whether commuters living in these disadvantaged communities within the City of San Diego are being appropriately served and considered by the existing and planned 2035 transit facilities. In order to achieve that, different data sources have been utilized to assess and analyze the four key

transportation criteria including Commuter Density, Transit Commute Mode Share and 2035 Transit Stop Increase.

Sources and Corresponding Analytical Steps

A- *San Diego Geographic Information Source (SanGIS)*: The San Diego Geographic Information Source (SanGIS) is a Joint Powers Authority (JPA) of the City of San Diego and the County of San Diego, responsible for maintaining a regional geographic information system (GIS) land base and data warehouse. For this effort, this source has been used to obtain the shape files for existing transit stops (Transit_Stops_GTFS.shp) and community plan area boundaries for the City of San Diego (Community_Plan_SD.shp). To isolate the existing transit stops within each community planning area, the following steps were applied in ESRI ArcMap software:

1. Add Transit_Stops_GTFS and Community_Plan_SD shape files to the Table of Contents pane.
2. Right-click the Transit_Stops_GTFS layer > Select Open Attribute Table
3. Click Table Options in the upper left corner > Select Add Field...
4. In the Add Field window, input Count in the Name field > Maintain Type as Short Integer > Click OK.
5. Right-click the Count field > Select Field Calculator
6. In the Field Calculator window, enter a 1 in the white dialog area below Count => Click OK

7. Right-click the Community_Plan_SD layer > Select Joins and Relates > Select Join...
8. In the Join Data window under the What do you want to join to this layer? dropdown, select Join data from another layer based on spatial location
9. In step 1, select Transit_Stops_GTFS
10. In step 2, select the first bullet, each polygon will be given a summary... > Check Sum
11. Specify an output shape file location and name it CPA_Stops > Click OK
12. The CPA_Stops shape file is added to the Table of Contents pane. Right-click the CPA_Stops layer > Select Open Attribute Table. Note the Sum_Count field indicating the amount of point features (transit stops) that lie within each polygon feature (community planning area).
13. Right-click the CPA_Stops layer > Select Properties
14. In the Layer Properties window, navigate to the Fields tab > Uncheck all fields except for CPNAME and Sum_Count to hide the unnecessary attributes from the attribute table > Click OK
15. In the CPA_Stops Attribute Table, click Table Options > Select Export
16. In the Export Data window, click the browse icon and specify an output location > Change the Save as type to dBase Table > Click Save > Click OK. This allowed us to open the data in Excel format.

B- SANDAG: SANDAG’s Data Surfer contains accurate census, estimates, and forecast information and reports based on year, geography type and location. For this effort, this source was used to obtain *Means of Transportation to Work* data from Demographic and Socioeconomic Profile 2010 for each CPA in the City of San Diego. This data was constructed from *U.S. Census Bureau’s American Community Survey 2010 5-year file, Table B08301*. The *Means of Transportation to Work* data categories are listed below;

- Total
- Passenger vehicle
- Single-occupancy vehicle
- Carpool
- Public transportation
- Bus
- Trolley/Streetcar
- Heavy Rail
- Other public transportation
- Motorcycle
- Bicycle
- Walk
- Other
- Work at home

The existing transit routes ([Transit Routes GTFS](#)) were obtained from SanGIS and the 2035 transit network (trcov_2035) and 2035 transit stops (stops_2035rc) were obtained from SANDAG. The increase in 2035 transit stops within each community planning area was isolated manually.

C- *Assessment of Disadvantaged Communities*: This section describes the City’s assessment of the seven CPAs based on the criteria below:

Metric	Description
Commuter Density	Commuters per acre $\frac{\text{Total commuters}}{\text{CPA area (ac)}}$
Transit Commute Mode Share	Percent of commuters using public transportation $\frac{\text{Public transportation commuters}}{\text{Total commuters}}$
Commuter – Stop Density	Commuters per existing transit stop $\frac{\text{Total commuters}}{\text{Existing CPA transit stops}}$
2035 Stop Increase	Percent increase in 2035 transit stops $\frac{\text{New 2035 CPA transit stops}}{\text{Existing CPA transit stops}}$

D- *Commuter Density*: Commuter density (i.e. commuters per acre) normalizes the number of commuters against the geographic size of the CPA to allow comparison between CPAs.

E- *Transit Commute Mode Share*: Transit commute mode share informs which CPAs use the existing transit system the most for commute purposes, normalized to the number of available commuters.

F- *Commuter-Stop Density*: Commuter-stop density (i.e. commuters per transit stop) normalizes the number of total commuters against the amount of existing transit stops to inform which CPAs have currently received the most transit service.

G- *2035 Transit Stop Increase*: Percent increase of 2035 transit stops normalizes the magnitude of new transit stops in comparison to the amount of existing transit stops in the CPA.

Limitations of Study:

This study has been conducted by using only data from two sources: SANDAG's Data Surfer and SANGIS (San Diego Geographic Information Source). This study provides a framework from which subsequent studies should employ other reliable resources such as qualitative analysis that include more representation of the underdeveloped communities involved in this study, in order to refine the methodology toward more accurate results.

CHAPTER 4

FINDINGS

Findings in Commuter Density

Commuter density (i.e. commuters per acre) normalizes the number of commuters against the geographic size of the CPA to allow comparison between CPAs. Table 1 below shows the commuter density for each of the disadvantaged communities compared to the average of all City of San Diego CPAs, 4.5 commuters per acre. Six of the seven disadvantaged communities have a commuter density above the City's average with only Barrio Logan below the average.

Table 1. Commuter Density

Community	Total Commuters	CPA Area (ac)	Commuter Density	Average ¹	Compared to Average
Barrio Logan	1,881	552	3.4	4.5	Below, 76%
Encanto	19,204	3,811	5.0		Above, 112%
Linda Vista	15,791	2,732	5.8		Above, 129%
City Heights	29,866	2,936	10.2		Above, 227%
San Ysidro	10,500	1,862	5.6		Above, 126%
Skyline-Paradise Hills	29,611	4,585	6.5		Above, 144%
Southeastern San Diego	20,683	3,050	6.8		Above, 151%

Notes:

¹ Average of all City of San Diego CPAs

Findings in Transit Commute Mode Share

Transit commute mode share informs which CPAs use the existing transit system the most for commute purposes, normalized to the number of available commuters. Table 2 below shows the transit commute mode share for each of the disadvantaged communities compared to the average of all City of San Diego CPAs, 3.5%. Six of seven disadvantaged communities have a transit commute mode share above the City average with only Skyline-Paradise Hills below the average.

Table 2. Transit Commute Mode Share

Community	Transit Commuters	Total Commuters	Transit Commute Mode Share ¹	Average ²	Compared to Average
Barrio Logan	309	1,881	16.4%	3.5%	Above, 472%
Encanto	1,414	19,204	7.4%		Above, 212%
Linda Vista	1,085	15,791	6.9%		Above, 197%
City Heights	2,576	29,866	8.6%		Above, 248%
San Ysidro	627	10,500	6.0%		Above, 172%
Skyline-Paradise Hills	823	29,611	2.8%		Below, 80%
Southeastern San Diego	2,405	20,683	11.6%		Above, 334%

Notes:

¹ Did not calculate a transit commute mode share for CPAs that have zero (0) commuters.

² Average of all City of San Diego CPAs

Findings in Commuter-Stop Density

Commuter-stop density (i.e. commuters per transit stop) normalizes the number of total commuters against the amount of existing transit stops to inform which CPAs have currently received the most transit service. Table 3 below shows the commuter-stop density for each of the disadvantaged communities compared to the average of all City of San Diego CPAs, 243.5 commuters per existing transit stop. Six of the seven disadvantaged communities have a commuter-stop density below the City’s average with only City Heights above the average.

Table 3. Commuter-Stop Density

Community	Total Commuters	Existing Transit Stops	Commuter-Stop Density ¹	CPA Average ²	Compared to Average
Barrio Logan	1,881	50	37.6	243.5	Below, 15.4%
Encanto	19,204	139	138.2		Below, 57.7%
Linda Vista	15,791	79	199.9		Below, 82.1%
City Heights	29,866	113	264.3		Above, 108.5%
San Ysidro	10,500	66	159.1		Below, 65.3%
Skyline-Paradise Hills	29,611	122	242.7		Below, 99.7%
Southeastern San Diego	20,683	143	144.6		Below, 59.4%

Notes:

¹ Did not calculate a commuter-stop density for CPAs that have zero (0) existing transit stops.

² Average of all City of San Diego CPAs

Findings in 2035 Transit Stop Increase

Percent increase of 2035 transit stops normalizes the magnitude of new transit stops in comparison to the amount of existing transit stops in the CPA. Table 4 below shows the percent increase in 2035 transit stops for each of the disadvantaged communities compared to the average of all City of San Diego CPAs, 11.4%. All seven disadvantaged communities have a percent increase in 2035 transit stops; however, that increase, in certain areas, is significantly below the City’s average.

Table 4. 2035 Transit Stop Increase

Community	2035 Transit Stop Increase	Existing Transit Stops	% Increase ^{1,2}	CPA Average	Compared to Average
Barrio Logan	3	50	6.0%	11.4%	Below, 52%
Encanto	5	139	3.6%		Below, 31%
Linda Vista	3	79	3.8%		Below, 33%
City Heights	5	113	4.4%		Below, 39%
San Ysidro	1	66	1.5%		Below, 13%
Skyline-Paradise Hills	5	122	4.1%		Below, 36%
Southeastern San Diego	4	143	2.8%		Below, 24%

Notes:

¹ [% Increase] = [2035 Transit Stop Increase] ÷ [Existing Transit Stops]

² Did not calculate a % increase for CPAs that have zero (0) existing transit stops.

Table 5 that is shown below, summarizes the results of the four criteria assessed. The metrics indicate that these communities have high commute demand for transit, as shown by the above average commuter density and transit commute mode share. However, it appears these communities may not have sufficient existing and proposed transit service

due to their below average commuter-stop density and their below average percent increase in 2035 transit stops when compared to other City of San Diego CPAs.

Table 5. Assessment Summary:

Comparison to Average of City of San Diego CPAs

Community	Compared to Average			
	Commuter Density	Transit Commute Mode Share	Commuter-Stop Density	2035 Transit Stop Increase
Barrio Logan	Below	Above	Below	Below
Encanto	Above	Above	Below	Below
Linda Vista	Above	Above	Below	Below
City Heights	Above	Above	Above	Below
San Ysidro	Above	Above	Below	Below
Skyline-Paradise Hills	Above	Below	Below	Below
Southeastern San Diego	Above	Above	Below	Below

This study has highlighted that, in San Diego, transportation investments have provided advantages to more communities than others and that there are procedural, geographic and social inequities in the distribution of transportation funds which are benefiting the affluent communities more than the disadvantaged communities.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

Conclusion

A reliable transportation system is a major contributor to a better quality of life for a region's residents. It facilitates economic development and gives access to health, education, employment and recreational facilities. The concepts of environmental justice, the federal laws in Title VI of the Civil Rights Act, and various other federal and state laws promote an equitable distribution of benefits and burdens amongst all communities in a region. They require making investments that provide everyone – regardless of age, race, color, national origin, income, or physical ability – with opportunities to work, shop, study, be healthy, and play. Unfortunately, these transit laws are not adequately enforced hence the inequitable distribution of funds amongst all communities. It is definitely time for us to seriously look to Europe for direction when it comes to public transportation. Emulating their zoning laws of mixed residential and commercial centers along with their reliable, efficient and effective transportation system might be the only cure for our car addiction and solution to our transportation, environmental and social problems.

Recommendations

- 1- There should be a more aggressive attempt to revamp the zoning laws in order to allow more development in urban communities.

- 2- Transit laws should enforce the mandatory adequate representation of the disadvantaged communities in order for them to be fully engaged in the final decisions on proposed projects in their areas.
- 3- Transit policies should dictate and enforce the fair distribution of transportation funds based on the different needs of different areas and communities in order for the needs for historically disadvantaged communities to be met.
- 4- Disadvantaged communities should not be segregated and isolated. Communities should include mixed income housing creating a socio-economic diversity that increases sustainability for all.
- 5- Building more mixed-use developments and increasing residential density in areas that are close to transit stations in order to increase ridership and generate more revenues that should be used for improvements and maintenance of existing transportation systems.
- 6- Using the allocated transportation funds for the immediate needs of the communities and not for future predictions.

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