



▶ **Understanding Transit's Impact
on Public Safety**

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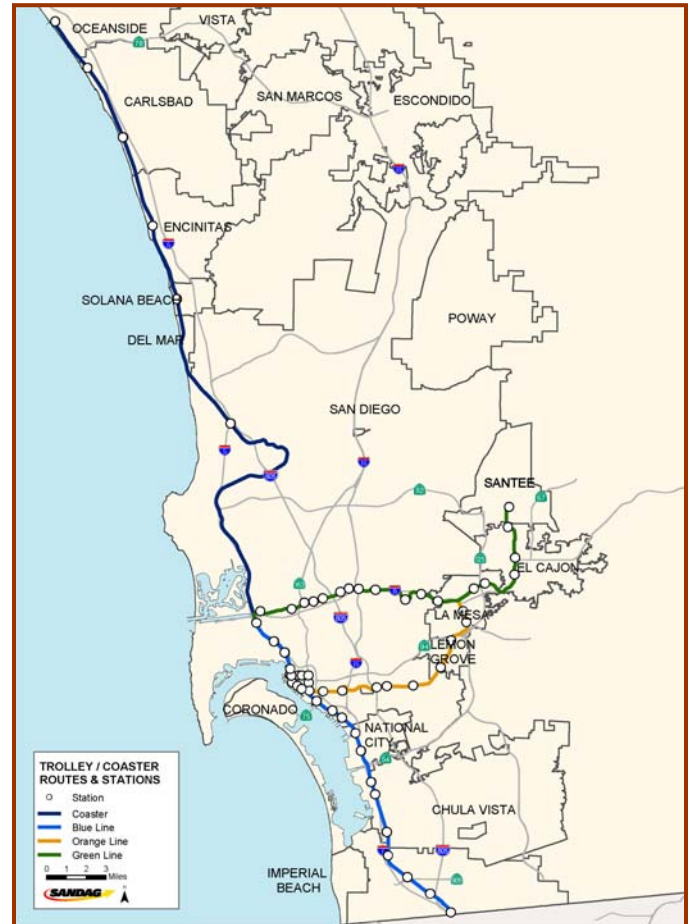
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UNDERSTANDING TRANSIT'S IMPACT ON PUBLIC SAFETY

INTRODUCTION

The possible connection between public transit and crime has been a controversial issue for many years. Some individuals feel that transit provides easy access for criminals into neighborhoods in which they would otherwise not have access. At the same time, proponents of transit often feel that it is the transit station's surrounding neighborhood characteristics, such as population density and land use, that influence the amount and type of crime in the area. This debate can be difficult to sort out because new transit lines are often placed in the areas where they are needed most – neighborhoods with more dense population and/or employment centers. Recent research has attempted to untangle the neighborhood characteristics effect versus the transit effect in an attempt to answer the question, “What is transit’s impact on a neighborhood’s public safety?”

Several recent studies conducted in other jurisdictions suggest that the presence of a transit station does not impact the amount of crime in a neighborhood. For example, the Regional Transportation District in Denver found that crime did not increase after the opening of a new central corridor light rail line in 1994.¹ University of California Los Angeles Urban Planning researchers showed that neighborhoods bordering the Green Line light rail did not experience more crime after it opened in 1995.² As such, the following studies described here were conducted to better understand the issue by examining the relationship between public transit and crime in San Diego County.



SANDAG STUDIES

SANDAG was awarded a transportation planning grant from the California Department of Transportation in 2006 to analyze crime patterns around transit stations. As part of this study, an informal working group was formed that included local law enforcement crime analysts, transit agency security, transit researchers, and transit planners. This group provided valuable input throughout the project.

¹ Denver Regional Transportation District (2006). Technical Memorandum: *Neighborhood vs. Station Crime Myths and Facts*. Denver, CO.

² Liggett, R., Loukaitou-Sideris, A., and Iseki, H. (2002). *Journeys to Crime: Assessing the Effects of a Light Rail Line on Crime in Neighborhoods*. Los Angeles, CA.

The study examined whether the presence of a transit station (Trolley or COASTER stations) affected the amount of crime in a neighborhood.³ This analysis was conducted by: (1) comparing similar neighborhoods with and without a transit station; and (2) comparing crime rates before and after the implementation of the Green Line Trolley extension from the Mission San Diego Station to the 70th Street Station.

Comparing crime rates before and after the implementation of the Green Line extension was initially part of another SANDAG study, the 2006 Mission Valley Corridor Crime Study, that evaluated the extension's impact on crime and perceptions of crime and safety. As part of that study, residents in the immediate areas surrounding the Green Line extension were surveyed about their perceptions of crime and safety before and after the new transit line.

Comparing Neighborhoods With and Without Transit Stations

As part of the first study component, neighborhoods with a transit station were matched to areas without a transit station that had similar socioeconomic, demographic, and land use features in order to isolate a station's impact on neighborhood crime.

Neighborhoods with stations were matched to similar neighborhoods without stations using a method called Propensity Score Statistical Matching (PSM). Neighborhoods were defined as census block groups, which are geographic summary units used by the Census Bureau to report census data and range in population from 600 to 3,000 people. PSM was used to create a set of neighborhoods that could be compared to transit station neighborhoods in an attempt to isolate what the amount of crime would be "if the station had not been built."⁴

³ The COASTER is a commuter train that runs from north San Diego County to the downtown area of the City of San Diego. The Trolley is a light rail that has three lines, Blue, Orange, and Green (see map on page 1).

⁴ For more information about PSM methodology, please refer to: 70; 41-55. Rosenbaum, P. R., D. B. Rubin. (1984). Reducing Bias in

NEIGHBORHOOD FACTORS MATCHED IN PSM MODEL

- ▶ total population
- ▶ population density
- ▶ ethnicity
- ▶ median age
- ▶ percent of families below poverty
- ▶ income
- ▶ educational attainment
- ▶ presence of children under the age of eighteen
- ▶ female-headed households
- ▶ housing type
- ▶ renter-occupied
- ▶ proportion zoned industrial
- ▶ proportion zoned residential
- ▶ proportion zoned commercial
- ▶ presence of parking lot

Once neighborhoods were matched, the average number of Part I crimes, using year 2008 data, was calculated for both types of neighborhoods – those with transit and those without.⁵ The results showed that there were no statistically significant differences in the overall amount of crime between the two types of neighborhoods. The analysis also looked at all property crimes, motor vehicle thefts specifically, and violent crimes individually. Again, there were no statistically significant differences between transit and nontransit neighborhoods on any of these measures of crime.

Observational Studies Using Subclassification on the Propensity Score. *Journal of the American Statistical Association*, 79; 516-24.

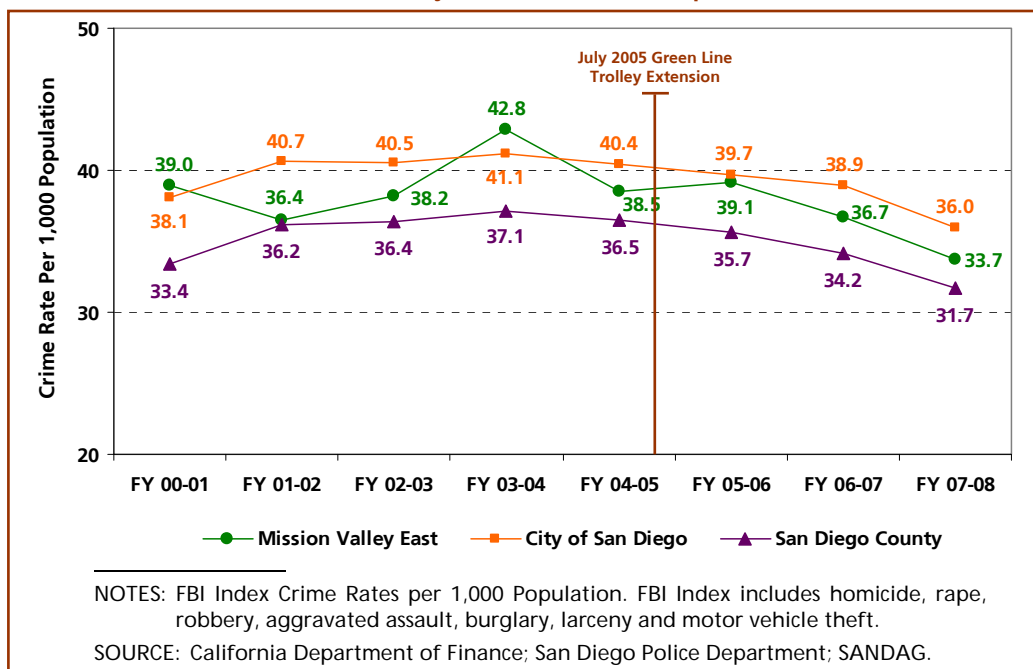
⁵ Part I crimes, also referred to as the FBI Index of Crimes, represents the compilation of crime data based on the standardized national system of classifying and counting reported crimes. Four violent offenses (willful homicide, forcible rape, robbery, and aggravated assault) and three property offenses (burglary, larceny theft, and motor vehicle theft) are included in this Index.

Comparing Crime Rates and Perceptions of Safety Pre- and Post-Station Presence

The second part of the analysis studied crime data and residents' perception of crime and safety before and after the Green Line Trolley extension opened in July 2005. The new Trolley line extended from the Mission San Diego Station to the 70th Street Station.⁶ It is important to understand residents' perceptions, as well as actual crime figures, because feelings of safety can be just as meaningful when studying transit's neighborhood impact.

SANDAG staff compiled Part I crime data for the eastern portion of the Mission Valley corridor (MV East), the City of San Diego, and San Diego County utilizing data available through the Automated Regional Justice Information System (ARJIS), along with assistance from the San Diego Police Department. The data for San Diego County represent crimes reported in the 18 incorporated cities, as well as the unincorporated areas of the County.

Green Line Trolley Extension Did Not Impact Crime



This recent transit extension provided an opportunity to study the impact that a station's presence has on local crime before and after it was built. Comparing rates before and after also attempts to control for neighborhood factors, which did not change drastically immediately before and after the Green Line's implementation. As already mentioned, this part of the analysis continued upon a previous SANDAG study conducted in 2006 that evaluated the Green Line Trolley extension's impact on crime and perceptions of crime in the Mission Valley corridor.

As shown in the graph, the area where the Green Line was extended (MV East) did not experience an increase in crime after it opened. Not only did crime rates not increase along the Green Line Trolley extension corridor, but they tended to follow both the City of San Diego and County's crime rates. Crime rate changes were consistent with the City and the County suggesting that the extension of the Green Line Trolley did not impact crime after it opened.

⁶ Previously known as the Blue Line, the service started at the Old Town Station and ended at the Mission San Diego Station.

CONCLUSIONS

The results of the two SANDAG studies support similar studies conducted in Denver and Los Angeles suggesting that the presence of transit does not lead to more neighborhood crime. The analysis points to the idea that it is the neighborhood's characteristics – demographic, socioeconomic, and land use – that influence crime rates. When those neighborhood factors, such as population density and the amount of commercial lands, are accounted for, having a transit station does not result in more neighborhood crime. Additionally, a comparison of crime rates and resident perceptions of crime and safety before and after the implementation of the Green Line, suggests that the new trolley line did not result in more crime nor did residents feel like it did or that they were less safe.

The 2006 Mission Valley Corridor Crime Study also found that residents did not perceive crime to increase either.⁷ That report was published in 2007 and is available on the SANDAG Web site. As part of that study, surveys were conducted to assess any changes in perceptions of public safety since the Green Line extension. Residents living in the area surrounding the extension were asked to respond to a variety of questions concerning crime and safety in the area. The primary objective was to gauge any perceived public safety changes that were directly related to the implementation of the Green Line Trolley extension. Residents were asked questions about how they felt about crime and safety compared to two years ago (the survey was conducted in the fall of 2006).

The survey results showed that most residents did not feel the Green Line extension negatively impacted public safety in the area. The majority of residents (82%) felt that their community was just as safe or safer than it was before the extension. Similarly, three out of four respondents (75%) felt that the amount of crime in their community had stayed the same or decreased since the extension. Also noteworthy was that of the small group of residents who felt crime had increased during the two years, the most common reason given for the change was increased population and housing in the area.

⁷ SANDAG (2007). *2006 Mission Valley Corridor Crime Study*. San Diego, CA. More information about the survey and its methodology can be found in this report.