Westside Transportation Access Needs Assessment - Short and Long Term Improvements

ABSTRACT

The Los Angeles County Metropolitan Transportation Authority (MTA) adopted the *2001 Long Range Transportation Plan* (LRTP), which sets out the County's transportation investments for the next 20-25 years. The Westside of Los Angeles is a unique part of the Los Angeles area, with a high number of activity centers and medium to high density housing interspersed with prominent shopping, cultural, recreational and educational institutions. The Westside sub-region covers an area of about 102 square miles and is bounded by Mulholland Drive to the north, the Pacific Ocean to the west, LAX to the south and the Central Los Angeles to the east. Some of the Westside cities almost triple in population during the day (Beverly Hills, West Hollywood and Santa Monica) and include neighborhoods that have population densities almost 10 times the county average in parts of Santa Monica, West Hollywood, Westwood and Venice. The Westside cities cannot accommodate any more road capacity without serious community impacts.

Research Question Does the Westside Sub-Region have greater than average transit needs than the rest of Los Angeles? How can GIS be used to help tell the Westside Story?

This study focuses on two sub-groups: transit dependents and choice riders. Transit dependents are defined as people who are too young, too old, can't afford or do not have access to a personal automobile and rely on transit to reach their destinations. The MTA identifies tracts that may have a large concentration of transit dependent residents by the following Transit Dependency Index :{ [Pop] = [zero_car_hholds] and [<15,000 hhld income] and [>1000 65+_yrs] and [>1000 0-15_yrs]}. Choice riders are people who have access to an automobile but choose to take transit either regularly or occasionally as an alternative to driving. They are not expressed as a formula but are used as part of the discussion in this report.

Data Sets

This analysis uses 1990 and 2000 Census Population, Housing and Employment Census data, original data sets created from the MTA's databases on transit speeds, transit ridership and travel directions and data sets from municipal operators.

Findings

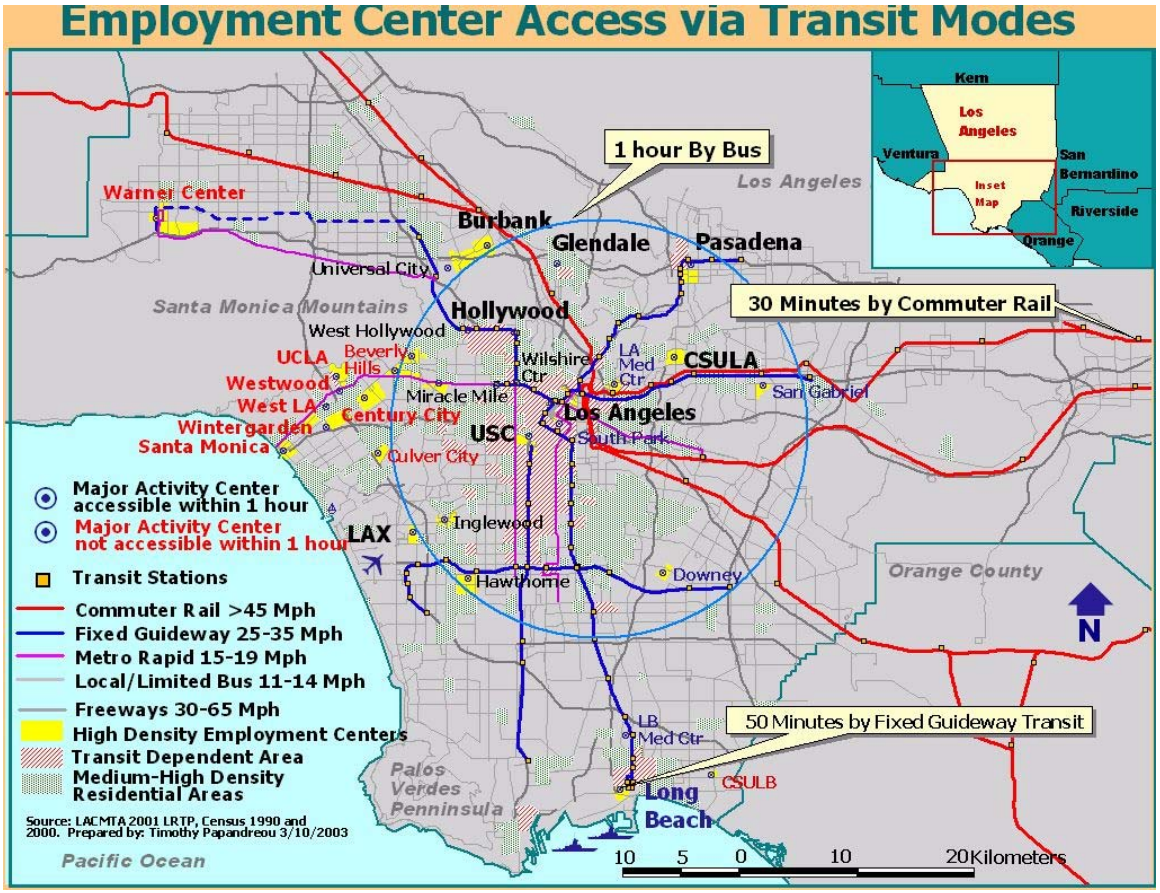
The analysis shows that the transit dependent and working poor are traveling in an arc pattern in the morning from the southern parts of the County northwards into downtown and then westward to the job rich areas of the Westside. This is a skills spatial mismatch that cannot be corrected without large scale coordination from land use and transportation authorities and community activists groups. The housing imbalance is clearly identified; however addressing this problem is outside the scope of this analysis, which is more concerned with the issue of job access with reliable transit to get to the potential opportunities that these employment centers may offer.

Conclusion

The analysis shows that the Westside is completely disconnected from the regional fixed guideway transit system, which results in lengthy rides over an hour, by bus transit. Using GIS, I have been able to answer the questions that are argued continually regarding the lack of Westside access to fixed guideway transit.

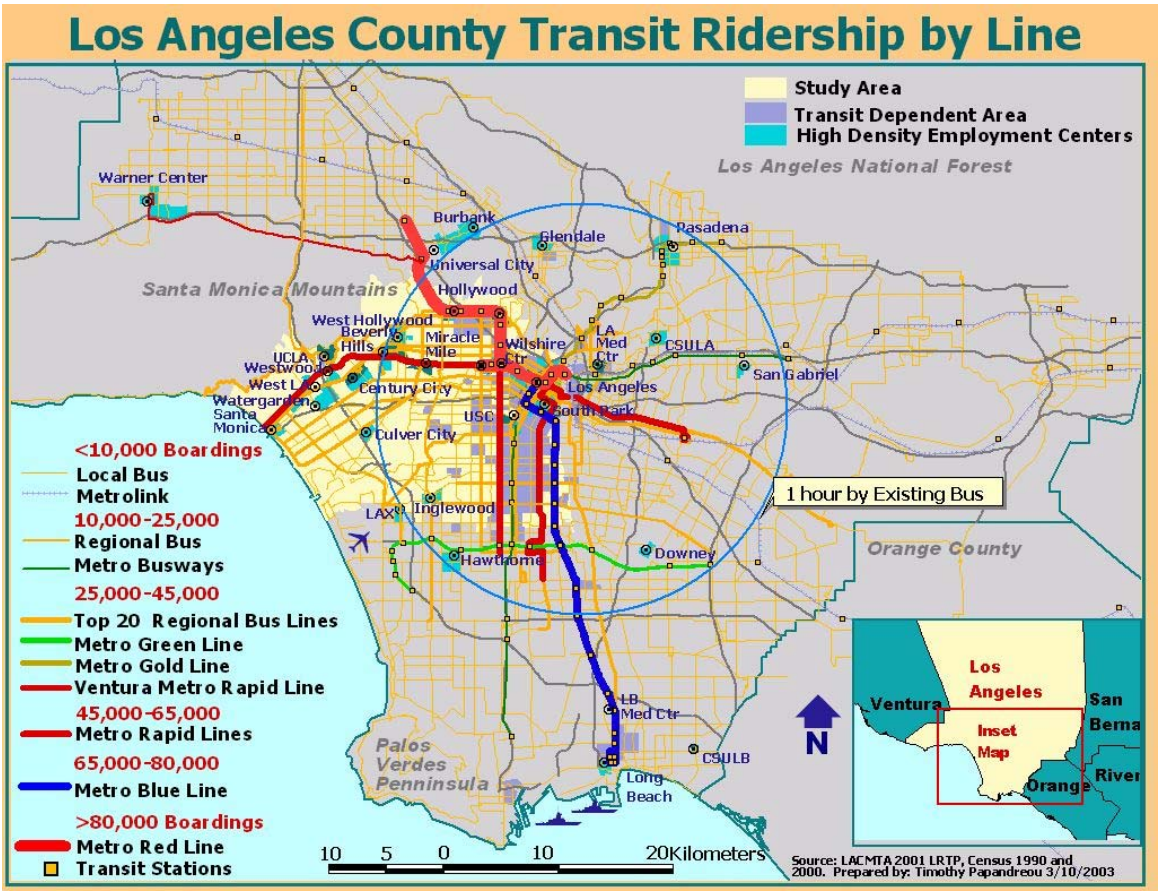
Apart from being politically unpopular and environmentally unsustainable, road and freeway widening is not possible without serious community impacts, and politicians currently won't offer leadership for congestion pricing or truly internalizing the costs of driving. The argument will no longer need to be about how and where to put a fixed guideway system but when. As the Westside increases its density, the solo-driver mode will further exacerbate travel for all coming to and from the Westside.

Fixed guideway transit connections to the activity centers coupled with Sustainable Mobility Centers (attended bicycle parking, electric bicycle, scooter and car rentals, anchored to a transit center) will provide equitable, rapid and comfortable access for the transit dependent while at the same time providing residents and choice riders with sustainable transportation options other than solo-driving, thereby enhancing both the Westside and Los Angeles communities' livability.



Employment Access Speeds by Transit Mode

Although LA County's transit network is vast and extensive, it is not equally accessible. The speed access map was created using the MTA's LRTP and Scheduling department as references. The data was tabulated and according to the MTA, the average countywide local bus speed is around 12 miles per hour (19kmh). A separate set of data was available for fixed guideway such as urban rail and busways, and Commuter rail. The map shows that Metrolink by far provides the fastest access to most parts of the county at over 45 mph.



Ridership by Transit Mode

It is easy to see that although Metrolink is the fastest mode it is almost invisible when using line weights to show ridership by line. The data was collected from SCAG and the MTA's countywide transportation departments. The ridership figures are for 2002 and are expanded based on a monthly average. The cohorts were divided into 4 tiers. This map clearly shows that transit is heavily used in the Westside sub-region. What is not known is whether it is used primarily by the transit dependent population or by choice riders. Further analysis of the ridership by line shows that there is a definite inbound travel pattern from the south into downtown with an equally strong travel pattern (based on boardings) heading west in the morning and east and south in the evenings.

LA County Transit System and Transit Dependent 1990-2000

Westside Transit Boardings at Transfer Points

1990-2000 Change in Transit Dependency and Transit Infrastructure.

The areas identified as Transit Dependent have shifted north and west, in the San Fernando Valley. It is interesting to note that parts of Long Beach, Burbank and Hollywood have reduced their transit dependency, probably due to gentrification of new infill housing.

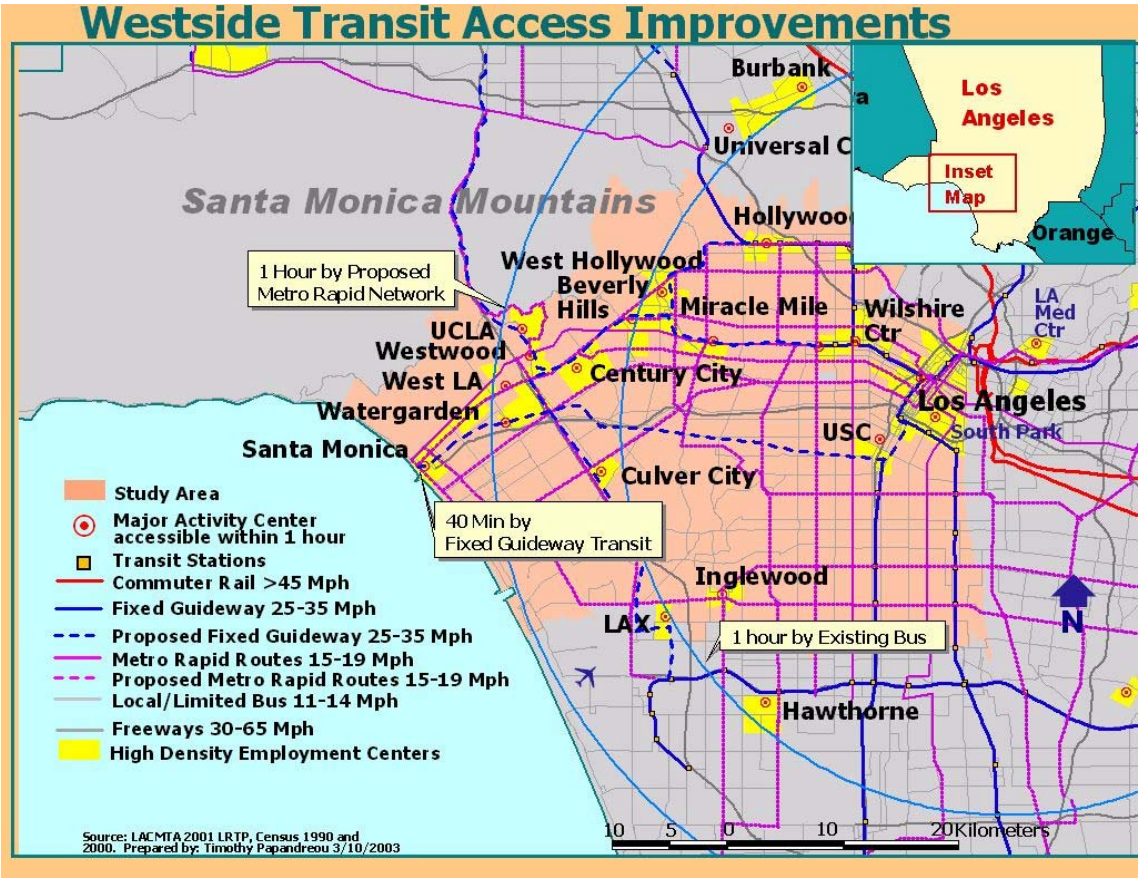
Westside Transit Boardings at Key Intersections/Transfer Points

The data for these intersections were geo-coded from the MTA 2001 on/off ridership counts. It shows high boardings on the northbound routes in the eastern part of the study area which is primarily transit dependent. However, the east west routes have high boarding volumes all the way to Santa Monica. All the east-west boulevards have high transit boardings in both the eastern and western part of the study area.

This map clearly shows that transit is heavily used in the Westside sub region. What is not known is whether it is used primarily by the transit dependent population or by choice riders. Further analysis of the ridership counts at time points shows that there is a definite inbound travel pattern from the south into downtown with an equally strong travel pattern (based on boardings) heading west in the morning and east and south in the evenings.

The large number of transit dependent people can explain this reverse commute population residing in this section of the county. It is highly likely that this arc like travel pattern is a way of correcting the jobs skills housing mismatch in the county.

As higher paying professional jobs tend to cluster around the Westside downtowns, service and lower skilled jobs are needed but cannot be filled by locals as they could not afford to live on the wages that are being offered, more affordable accommodation in the central part of the county with its fewer amenities requires this commuting pattern.



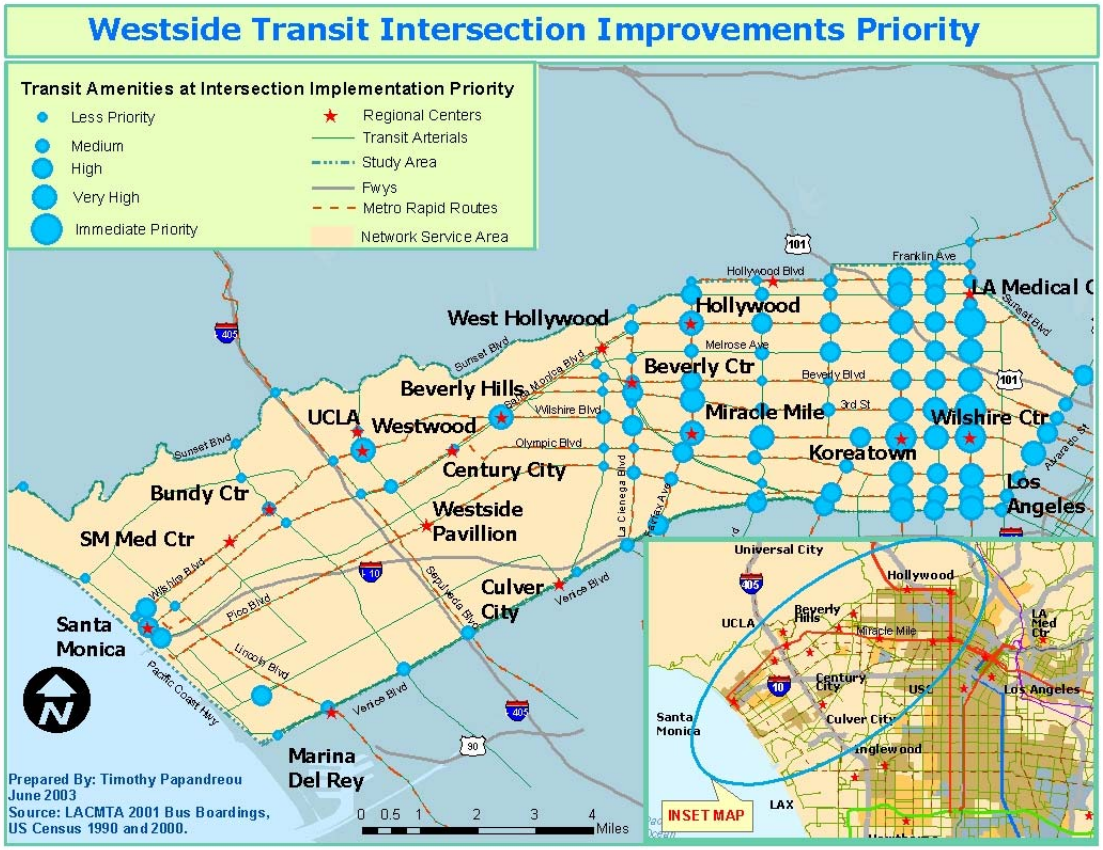
Wilshire Transit Access Improvements.

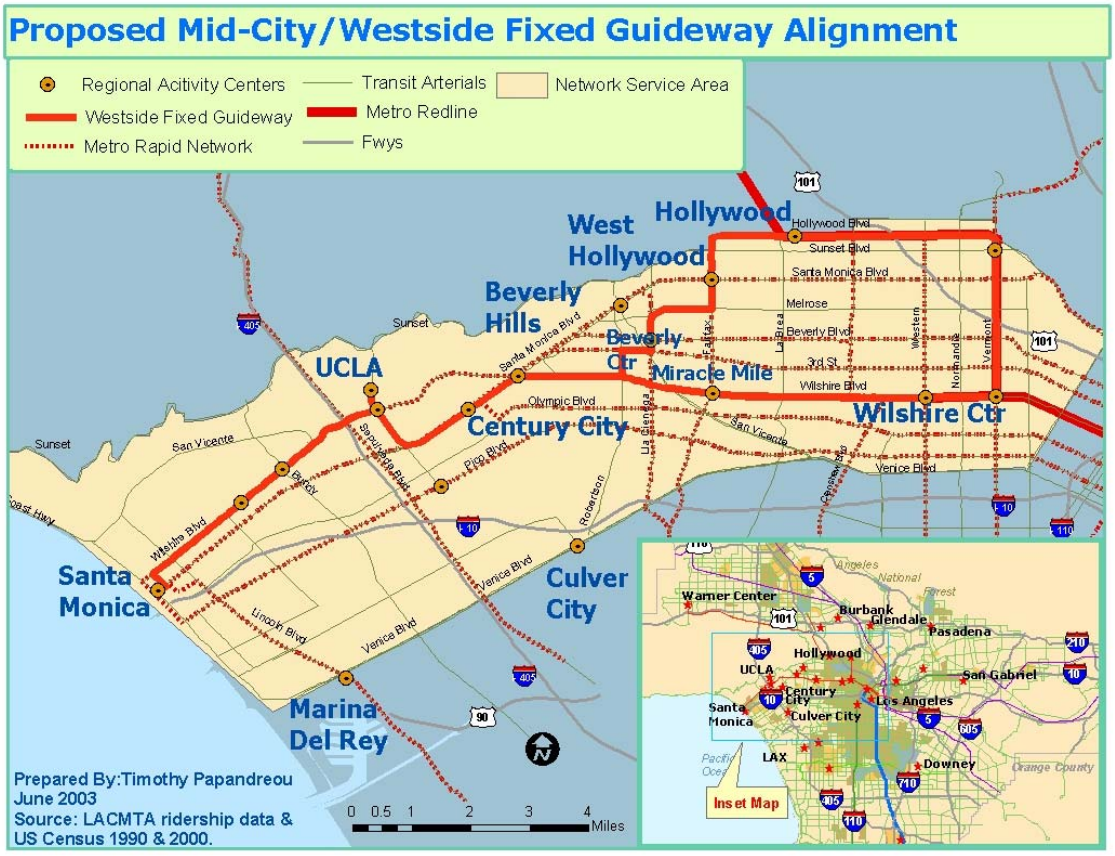
The purple lines represent the implementation of the proposed Westside Metro Rapid. The new 1 hour buffer is stretched out to the 16 mile mark as the average speed improvements from local bus to Metro Rapid is about 25%. Introducing articulated vehicles will increase that performance to about 35% faster service than previous local bus service.

The blue dashed lines are the ultimate build out to the Metro Redline to UCLA and the Exposition Light Rail line from Downtown LA to downtown Santa Monica in about 40 minutes and an LAX Green line extension/BRT to UCLA and the Valley (LRTP strategic section).

Either of these two lines would form the backbone of an already heavily used and well-integrated transit system. While funding and geo-political obstacles hold up the implementation of the fixed guideway projects, a fully implemented Metro Rapid BRT system would provide the "vertebrae" for the "spine" i.e.: the Redline or Expo line.

The second map shows the priority intersections that, based on transfers would be ideal candidates for transit station amenities (shelters, Next Bus Display, Metro Information Maps, Improved Crosswalks, Bicycle parking & Car Sharing facilities)





Wilshire Boulevard Relief Alignments.

The Westside sub-region will need ancillary routes other than Wilshire Blvd due to the high volume corridors. Starting from Vermont, I used network analyst to find the best routes that connect the activity centers. Options that could be used are the East West and North South Boulevards.

Using network analyst, I then determined the best route option for the northern activity centers and for the southern activity centers. I then determined the shortest route from Vermont Ave as this is the highest transit transfer point in the study area. The network analyst chose Santa Monica and Vermont Metro Rail station to get to Santa Monica Downtown. The route length is 13.54 miles. The Current MTA schedule times this segment at 67 minutes. Conversion to Metro Rapid will improve that number to 53 minutes.

Conclusion

The implementation of the Metro Rapid system with the above mentioned improvements would set the groundwork for a more equitable and accessible Westside until the fixed guideway projects can bolster the connection to the regional system.

SOURCES:
LACMTA Mid-City Westside Draft Environmental Impact Report 2001
LACMTA Mid-City Wilshire BRT Environmental Impact Report 2002
SCAG Regional Transportation Plan 2001
US Population & Housing Census 1990 and 2000 RTF3 and RTF1.
LACMTA 2001 Transit Boardings On/Offs Expanded Passengers Counts.
LACMTA and Municipal Operators Bus routes & Schedules.