

# IMPROVING TRANSPORTATION IN THE SAN FERNANDO VALLEY

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## Executive Summary

**T**here are two transportation problems in the San Fernando Valley. One is the abysmal quantity and quality of transit (bus) service available to those who must depend on transit. The other is the decreasing utility of a freeway system that is badly congested for many of the daylight hours. These problems have largely separate solutions, though they do overlap in one significant way.

The most cost-effective approach to solving the Valley's transit problem is to improve the quantity and quality of bus and related kinds of rubber-tired transit service that serve the needs of the transit-dependent. This means increasing the frequency of bus service on major arterials (such as Ventura Blvd., Victory Blvd., and Sherman Way), and increasing its speed via giving buses priority at traffic signals on those arterials. It also means the creation of a limited number of bus transit hubs, to permit "timed transfers"—thereby minimizing total trip times for journeys requiring more than one bus.

Another way to improve transit service is to reduce its cost, by switching from monopoly provision to competitive supply. This is the underlying rationale for attempting to develop a separate Valley Transit Authority or Valley Transit Zone modeled after the successful Foothill Transit Zone. Various political and legal obstacles make the creation of either an authority or a zone somewhat problematical—or would restrict its ability to contract out service. An alternative approach is to get the MTA to more aggressively make use of the contracting authority it now possesses, which is applicable to all new services. Since much new service is needed in the Valley, there is considerable opportunity for lower-cost contracting.

Fixed-route bus service, whether MTA-operated or contractor-operated, will not meet all needs for alternatives to the automobile. Public officials should encourage private shuttle and jitney operators to take advantage of the Public Utilities Commission's permissive licensing standards so as to offer both commuter

and line-haul jitney services to niche markets. Various forms of user-side subsidies (variants on transit passes) could be administered and promoted by transportation management organizations (TMOs) at the Valley's larger employment centers (e.g., Warner Center, Burbank Media District, Van Nuys Government Center).

Busways are significantly more cost-effective than rail lines. Grade-separated busways offer the potential of significant speed advantages over congested streets and freeways, making (in particular) express bus service more competitive. A detailed analysis of the Burbank-Chandler corridor shows that it is poorly located to be a cost-effective busway. Most land uses along this corridor are low-density, providing little direct ridership for a busway. And building an elevated express busway through this mostly residential area confronts serious political opposition (as well as cost that is unlikely to be justified in terms of transportation benefits).

The best locations for express busways are on the Valley's major freeways, where they can be combined with HOV lanes (on the model of the highly cost-effective El Monte Busway). Unfortunately, the political process has provided for HOV lanes on the Valley's relatively uncongested freeways (170, 124, 118), while rejecting them entirely on the congested 101 and leaving their development till last on the congested I-5 and I-405. These decisions also mean that congestion on Valley freeways will continue to increase, with little meaningful relief in sight.

An alternative approach would address both the busway and the congestion-relief problems: build HOT lanes instead of HOV on the most-congested freeways. A High-Occupancy/Toll (HOT) lane permits transit vehicles, carpools of three or more, and emergency vehicles to bypass congested regular lanes at no charge, while letting other drivers pay a market-based fee to gain access. One HOT lane in either direction could be added to the 101 across the Valley for about \$178 million, while the planned HOV lane on I-405 through the Sepulveda Pass could be developed instead as a HOT lane for only a few million dollars more than it would cost as an HOV lane. Major congestion relief would be added by building a complete, six-way HOT-HOT connector system at the bottlenecked 101/405 interchange, for \$240 million. The combined cost of these major improvements could be financed via revenue bonds to be paid off largely from the toll revenues from these two (101 and 405) HOT lane projects. Ultimately, a similar approach should be applied to the obsolete 101/134/170 interchange and the 101 freeway to downtown Los Angeles, a more complex and costly project.

This kind of highway investment would offer tangible relief to that large majority of Valley residents who will continue to use the automobile as their primary mode of travel, and who cannot cost-effectively be served by mass transit that we can afford to build and operate. It will also create a Valleywide busway network that offers a high-speed alternative guideway system for buses, taxis, jitneys, and emergency vehicles.

The once-grand vision of rail transit lines across the Valley has foundered on the rocks of the reality of enormous cost for very little real benefit—as measured by low ridership as well as minimal impact on either traffic congestion or air quality. And the voters have now underlined their opposition to building any additional subways. But rail's demise does not leave us without alternatives. An expanded bus system (including new private providers), higher-speed bus service on major arterials, and a Valleywide network of HOV and HOT lanes can give the Valley a much-improved transportation system, and at a price we can afford.

## Chapter 1

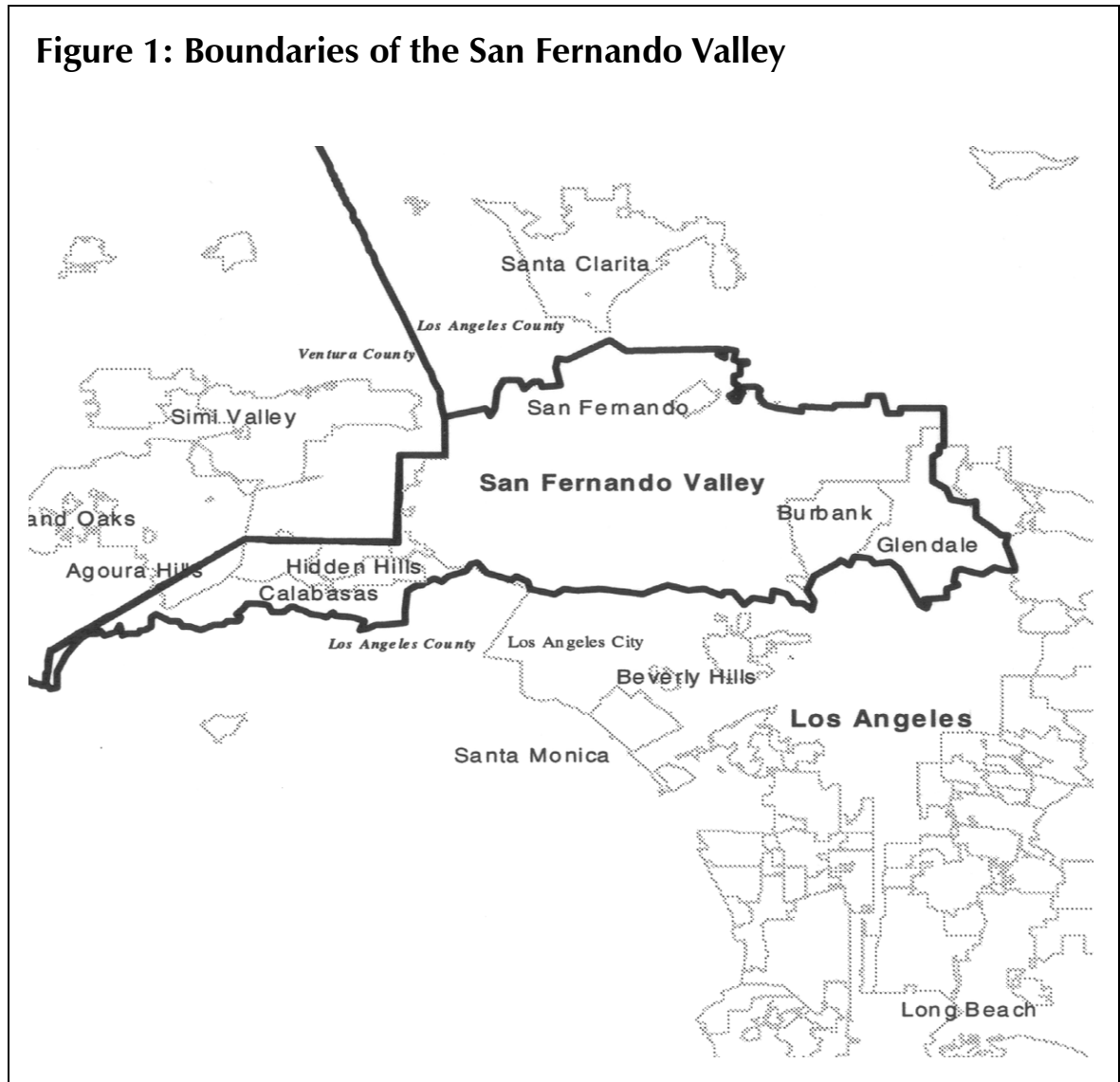
# Introduction

BY ROBERT W. POOLE, JR. AND THOMAS A. RUBIN

**W**hat can be done to improve transit and transportation in the San Fernando Valley? The lead agency for dealing with these problems—the Los Angeles County Metropolitan Transportation Authority (MTA)—has put forth a succession of long-range plans whose basic premise appeared to be that the solution to the region’s transportation problems was to shift significant numbers of people out of their cars and onto mass transit. And because middle-class people generally won’t ride buses, the agency concluded that it must build an extensive rail transit system to attract such riders.

As 1998 draws to a close, the MTA’s approach has been thoroughly discredited. It is not merely a case of large cost overruns on all of its rail projects, street cave-ins, and major management problems. Nor is it simply that the MTA committed itself to a construction program well beyond its available resources, in the process amassing some \$3.5 billion in debt. More fundamentally, most of the MTA’s resources are being directed towards projects that have little or no valid transportation purpose, at the expense of projects that even MTA’s own analysis show are far more productive and cost-effective. In MTA’s 1995 Long Range Plan virtually every rail line studied was badly beaten by *every* other project considered in terms of mobility improvements and cost-effectiveness of mobility improvement (although most of the rail projects did beat some bikeway projects). Despite this, the Plan projected spending over 60 percent of transit subsidies for rail projects, which, in the final year of the Plan, when the maximum amount of rail lines would be in service, would carry fewer than 20 percent of the County’s *transit* trips. From the MTA’s own Plan, bus was almost ten times as cost-effective in carrying passengers as rail.

MTA’s plan was based on misconceptions of the nature of transportation and transit in greater Los Angeles—and especially in the relatively low-density San Fernando Valley (see Figure 1). To develop workable and affordable transportation improvements for the Valley, we must begin with a better understanding of the nature of the problem. Fundamentally, there are two transportation problems in the Valley. One is the abysmal quantity and quality of transit (bus) service available to the transit-dependent—the large numbers of lower-income people who cannot or will not drive. The other problem is the decreasing utility of a freeway system that is badly congested for a growing fraction of daylight hours. These problems are somewhat related, but not in the simplistic way imagined in the MTA’s rail-centered plans.



Mass transit is largely the means of transportation of last resort, used predominantly by individuals and classes who are transportation-disadvantaged due to economic status, age, and/or physical condition. Largely because transit is government-financed, and because many of the users have little real political power, the bus transit system in Los Angeles has been described as “third class service for third world riders.” This lamentable condition is far more advanced in Los Angeles than in almost any other major U.S. city. The use of mass transit, particularly MTA bus service, by non-minority riders, is far lower in Los Angeles than in any other major U.S. urbanized area.

Mass transit cannot, of and by itself, make any significant contribution to reducing overcrowding on freeways and surface streets. Transit currently carries well under five percent of daily work trips in the County, so even a doubling of mass transit riders over the next decade would not even keep up with the expected growth in trips resulting from population and economic growth. Any strategy predicting that mass transit improvements will result in improvements to existing surface travel conditions for any significant

group of current auto travelers is doomed to failure before it begins. At best, transit can slow the rate of decline somewhat and make some contributions to more comprehensive transportation improvements.

Improvements in transit can, however, significantly improve mobility for the transit-dependant by providing improved access—serving more trip origins and destinations, more frequently, over longer hours of service, with higher travel speeds and a higher ride quality, at a lower cost to the rider. Such transportation improvements can be of vital importance to the daily life and upward mobility of such residents by providing access to jobs; schools; medical services; and social, cultural, and religious events.

In short, transit is not—and will not be—a significant factor in decreasing traffic congestion. It can be a major factor in increasing mobility for a significant portion of the community. It is important to recognize, however, that as transit riders are able to improve their social-economic standing, one of the first actions they often take is to join the vast majority of Americans in buying automobiles to be used as their primary means of transportation—to be replaced by a new generation of socially and economically disadvantaged transit riders.

Mass transit also has virtually no measurable impact on air quality. A strategy to improve air quality by attempting to convert current automobile riders into transit users will produce little, if any, impact on air quality—particularly if it is targeted towards upper-income drivers, who generally drive the “cleanest” cars. Transit’s primary air quality impact is in keeping very old, very dirty autos off the streets. Where transit options do not exist, or are regarded as poor by potential riders, marginally transit-dependent riders are forced to drive, using the only vehicles they can afford—largely older, worn-out vehicles in very poor mechanical condition. Such vehicles can be a hundred or even a thousand times dirtier than current-technology automobiles.

Across the country today, transit is almost entirely a taxpayer-subsidized, government-operated service, with only the most productive transit operators covering more than one-third of the total cost of providing services from operating revenues. The least expensive transit ride to operate serves the most transit-dependent riders. By definition, these riders are *transit-dependent*—they have no real choices and, therefore, will put up with extremely overcrowded, unreliable service, with multiple slow transfers, operated at the convenience of the operator, with high fares, and objectionable ride quality.

The most expensive transit ride to operate is that for choice riders. The service must be of high quality—going from where the riders are to where they want to go, when they want to go, with little or no wait time for transit vehicles to arrive, traveling at high rates of speed, with guaranteed seats, at low fares, at close to 100 percent reliability, and free from objectionable service conditions. If the transit operator does not offer all of the above, then the choice rider will likely exercise his/her choice for the automobile.

As a result, service to choice riders can be ten times, or even, in a few cases, a hundred times, more expensive to the taxpayers than service to the transit-dependent. In such circumstances, if the primary objective is to increase transit ridership, it is obvious that the most cost-effective and productive way to do so is to concentrate first on serving the transit- dependent. This can be done by improving the quality of service and by decreasing the price of service to the customer—keeping in mind that, in many cases, the most important increase in *quality* of transit service is an increase in the *quantity* of transit service.<sup>1</sup> As service

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<sup>1</sup> Particularly in Los Angeles County, where we currently have the most crowded buses in any major U.S. city, as well as frequent pass-bys of riders attempting to reach destinations such as jobs, education, and medical appointments on time.

improves in quality, more marginally transit-dependent riders will begin to be attracted to transit. If service improves sufficiently, eventually marginal choice riders will also shift to transit.

MTA has finally had to recognize the results of its past excesses. Earlier in 1998 it suspended work on its next three rail projects (Red Line subway Eastside, Mid-City extensions, and the Pasadena Blue Line). In November, voters approved a ballot measure to prevent spending sales tax funds on any further subway extensions. It remains to be seen whether the MTA will seek to resurrect these projects using non-sales-tax funding sources. As of this writing, rail appears to remain among the agency's highest priorities, even though MTA's own "Restructuring Plan" showed over a billion dollar shortfall over the next six years. Recent MTA financial plan updates claim the problems have been solved, and that MTA could have \$2.3 million available for new projects between 1998 and 2010. However, MTA has a long and unbroken record of adopting financial plans that are later proven extremely optimistic and unpractical. Our assessment of the latest MTA plan gives no reason to believe this pattern will change in the near future.

One of the great challenges facing transit planners today is that travel patterns have changed radically since World War II and are continuing to change. The old emphasis on work travel to the central business district (CBD) in the morning and back in the evening is simply at odds with the real world, particularly that of Los Angeles. Unfortunately, virtually all of our transit planning over the past several decades has been on how to better serve downtown.

While the Los Angeles CBD is still the largest single area of employment in greater Los Angeles, it contains fewer than six percent of the region's total employment. While CBD employment is projected to continue to grow, the CBD is attracting fewer than one in 30 new jobs in the region, which means that its significance as a job site will continue to fall in the future. All the emphasis on renewing downtown Los Angeles, and the huge public sector expenditures to support this city planning approach, can only, at best, limit the extent of the decline. There will always be a downtown, but its importance as the center of the city will continue to decline over time.

In the Valley, while many residents still work "downtown," there is far more employment of Valley residents in the Valley proper and in other non-CBD areas, such as Hollywood, the West Side, Pasadena, and around LAX. Within the Valley proper, the high job concentrations are in Warner Center, Glendale, Burbank, along Ventura Blvd., and in the Van Nuys Government Center area, to name just a few. To see how difficult it is to provide good access to all of these, try to connect more than two high transportation destinations with a single, more-or-less straight, transportation line—while not impossible, the limitations of service design are obvious.

Los Angeles is simply far more spread out, both in residency and job patterns, than any other U.S. urbanized area. The problem is not that Los Angeles has a small downtown—in absolute terms, the Los Angeles CBD size is well up in "Top Ten." The problem is one of density—compared to the average of its peers, for every 100 people in other urban areas who want to travel to jobs downtown, there are fewer than 25 in Los Angeles. This obviously makes implementing a classic, 1960s-style, suburb-to-downtown subway system somewhat less than a meaningful contribution to the Los Angeles transportation system.

Hence, the challenge addressed in this report is to develop proposals for improving the Valley's transportation infrastructure that face the reality of our city's decentralized nature—and the reality of people's transportation choices and options. Within the limits imposed by cost-effectiveness, we must look for ways to make the transit system serve its natural market—the transit-dependent—effectively and

economically. Likewise, we must look for ways of making the highway system more customer-friendly to serve the needs of the vast majority of Valley residents who do and will make nearly all their trips by car.

In Chapter 2, we address alternative investments in transit infrastructure, drawing on previous work that suggests much greater cost-effectiveness for rubber-tire guideways than for rail lines. Next, in Chapter 3, we address the congested freeway infrastructure, seeking ways to improve its usefulness both to drivers and to transit vehicles. Chapter 4 looks into alternative forms of organizing the delivery of transit service in the Valley, inspired by the success of the San Gabriel Valley's Foothill Transit Zone. And Chapter 5 explores the potential of untraditional private transit to supplement conventional bus service. Finally, Chapter 6 looks at how transportation might function in the Valley if all of the foregoing proposals were implemented.

## Chapter 2

# Improving The Valley's Transit Infrastructure

BY THOMAS A. RUBIN

## I. Introduction

This chapter will discuss potential transit improvements in the San Fernando Valley that can be implemented in relatively short order with a significant chance of providing meaningful improvements.

Discussions of transit improvements over the last two decades have focused primarily on guideway solutions, first rail transit and, more recently, bus guideways on the model of Curitiba, Brazil. Because of this emphasis, we will first discuss the “real world” of public transit in Los Angeles, focusing primarily on the Valley, and then move on to what can realistically be done to improve current conditions.

One of the biggest problems in Valley transit is that, because ridership is lower in the Valley than on the other side of the hills, the MTA does not allocate as many bus service hours to the Valley. Several of the Valley lines—such as the two main express lines to and from downtown, and some of the main East-West lines—do have high ridership. But many other Valley lines—though high by national standards—have far less ridership than many of the central area lines, which are among the most heavily utilized bus lines in the nation. And many of the Valley's north-south lines are simply too short to develop high levels of ridership.

Thus, when the MTA has had to make cutbacks in bus service (as it increased spending on rail since the late 1980s), the Valley has often fared less well than other areas with higher existing ridership. For many of the local lines in the Valley, the level of service has fallen to the point where transit is simply not viable as a transportation option for many users. Many lines operate on *hourly* headways during most of the day, with lines that stop service very early in the evening on weekdays, and offer little weekend/holiday service. Since the basic Valley route structure is a “grid” of intersecting north-south and east-west lines at approximate one mile intervals, there are large numbers of trips that require a transfer between two (or even three) buses. Since it is impossible to schedule the north-south and east-west lines to provide for easy transfers at all bus line intersections simultaneously, it is easily possible for a round-trip passenger who requires two buses each way to spend two hours—or more—simply waiting for hourly headway buses to arrive.



In addition, with many lines making their last run at approximately 7:00 PM or even earlier, many potential passengers cannot use transit for home-to-work trips because they cannot get home at night on the bus.

These problems suggest the need for several basic changes to improve bus service in the Valley. First, the sheer physical quantity of service must increase, to permit shorter headways so that transfers become more feasible. Second, the system should be redesigned to make use of “timed transfers”—in brief, all buses in an area arrive at a common point at the same time to allow passengers to make cross-connections (analogous to what airlines do by operating “hub” airports where passengers can transfer among flights). And third, improvements in average bus speeds should be sought, to reduce trip times to more reasonable levels. This can best be done by providing improved infrastructure on which buses can operate.

## II. Types of Bus Guideways

While the term “guideway” transit has often been utilized to refer exclusively to rail modes, the use of “fixed guideway” has been defined to include certain nonrail, “rubber tire” transit and paratransit modal applications:<sup>2</sup>

*1. A transportation system composed of vehicles that can operate only on their own guideways, which were constructed for that purpose. Examples are rapid rail, light rail, and monorail. 2. Federal usage of the term in funding legislation also includes bus priority lanes, exclusive right-of-way bus operations, trolley coaches, and ferryboats as fixed guideway transit.<sup>3</sup>*

Rubber-tire guideway modes include:

**Busway**—a special roadway designed for exclusive use by buses. It may be constructed at, above, or below grade and may be located in separate rights-of-way or within highway corridors. The El Monte Busway/High Occupancy Vehicle lane was originally constructed to be, and operated as, a “pure” busway (no vehicles other than buses), prior to being opened to HOV-3.<sup>4</sup> North American “pure” busways include those operated by the Ottawa-Carleton Regional Transit Commission (OC Transpo) and Pittsburgh’s Port Authority of Allegheny County (PATransit).

**Busway/HOV Lane**—as used in this context, this refers to a freeway lane dedicated to use of high occupancy vehicles, including buses. “Busway” is defined above.

**High-occupancy vehicle (HOV Lane)**—a highway or street lane reserved for buses, multiple-occupant vehicles, or both. Virtually all of the HOV lanes currently in place, under construction, or planned for Los Angeles County are, will, or could be utilized for buses as well as car- and vanpools including the El Monte, Harbor Freeway, and Anderson Freeway HOV lanes. In Los Angeles, while a few HOV lanes, specifically the El Monte are HOV-3, the newly constructed and planned ones are generally HOV-2, with plans for future upgrade to HOV-3.

<sup>2</sup> Vukan R. Vuchic, “Urban Public Transportation Systems and Technology,” 1981, p. 647.

<sup>3</sup> Transportation Research Board, Urban Public Transportation Glossary, 1989, p. 65.

<sup>4</sup> “HOV-3” requires a minimum of three occupants per vehicle to use the HOV lane, while “HOV-2” only requires two. In California, vehicles with fewer than three seats can utilize HOV lanes if all seats are full. It is legal to operate a two-seater sports car with both seats occupied, or a single occupant motorcycle, in an HOV-3 lane.

**High occupancy/toll (*HOT*) lanes**—a type of HOV lane that allows vehicles that do not meet the minimum load standards to use the high occupancy lanes by payment of a fee. The 91 Express Lanes in Orange County is the first U.S. HOT lane facility. The use of transponders with stored and deductible monetary value, or electronic monthly “passes,” eliminates the requirement for such travelers to stop at tollbooths. This technology can be utilized to charge different prices for access at different times, keyed to the instant and immediately upcoming capacity utilization (prices can be raised, lowering demand, during high peak periods and lowered, increasing demand, during times when utilization is down), although overly complex and frequently changing prices could lead to consumer confusion and resistance.

**Bus transit mall**—a further development of dedicated bus lanes where all, or almost all, non-transit vehicle traffic is eliminated, often with pedestrian enhancements such as brick pavement and wrought iron bus shelters, lights, and signposts designed to enhance both transportation options to and from the bus mall area and usability and user desire to travel to the area. Denver and Portland have implemented and operate successful central business district (CBD) bus transit malls. Where the Portland light rail line crosses the bus transit mall on the perpendicular, the pedestrian improvements have been expanded to create a *rail* transit mall.

**Bus (lane) (*bus priority lane, preferential bus lane, priority bus lane*)**—a highway or street lane reserved primarily for buses, either all day or during specified periods. It may be used by other traffic under certain circumstances, such as making a right or left turn, or by taxis, motorcycles, or carpools that meet specified requirements described in the traffic laws. The Spring Street Counterflow lane<sup>5</sup> is the best example in Los Angeles of a bus-dedicated non-freeway lane. Emergency vehicles are the only non-transit vehicles that are authorized to use the Counterflow lane.

**Signal preemption**—in highway operations, an automatic or manual device for altering the normal signal phasing or the sequence of a traffic signal to provide preferential treatment for specific types of vehicles, such as buses or trains. The mid-corridor and now, the northern street running portions (but not the street running southern portion) of the Los Angeles-Long Beach Blue Line coordinates train movements and traffic signals for crossing traffic. A bus signal preemption experiment was operated on Lines 424/425 on Ventura Boulevard in the San Fernando Valley, but was halted many years ago due to technical and operational problems.

The term, “signal *priority*,” will be used to denote that the traffic signaling system is programmed to provide the privileged vehicle a “Green” signal whenever, and as soon as, needed, while “signal *preference*” will be used for situations where the privileged vehicle will receive a “Green” signal earlier than would otherwise be the case, but not necessarily immediately. Due to concerns about traffic flow problems that could result from overly widespread use of absolute signal priorities (two-second greens, disruption of major traffic signal patterns, etc.), it is often reserved solely for emergency vehicle (fire, police, ambulance) usage. It is often extremely difficult for transit operators to obtain municipal permission for signal prioritization/preference because of such concerns on the part of city traffic engineers.

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<sup>5</sup> “...a highway or street lane on which vehicles operate in a direction opposite to what would be the normal flow of traffic in that lane” (TRB). In the CBD, where the Spring Street Counterflow lane operates, Spring Street is a multi-lane one-way street south, except for the eastern-most lane, reserved for bus use, which runs north.

### III. Guideway Transit Options For The Valley

#### A. *Why Rail Is Not Warranted*

Although rail proponents often claim that rail has a higher carrying capacity than rubber tire transit, the actual computations, shown in Appendix I, strongly favor a well-designed rubber tire guideway. First, vehicles on a busway/HOV/HOT lane can operate at twice the speed of a heavy rail line. Second, while proposed Red Line trains in the Valley would be limited to six-minute headways, buses and other high-capacity vehicles on a rubber tire guideway can be operated with only seconds of separation, meaning that there can be hundreds of rubber tire vehicles per hour past a point, compared to ten per hour for the Red Line. Rubber tire guideways are generally far less expensive, and take far less time, to construct than \$300 million per mile subways, which means that more infrastructure improvements can be added much faster—particularly if HOT is used to relieve scarce public sector dollars from sole responsibility for construction. As to operating costs, bus can be very competitive with rail. When other users of the guideway—such as (zero-public subsidy) car- and vanpools, smart shuttles, private buses, and HOT lane users—are added in, rubber tire guideways have a very significant advantage over rail. This again translates into more rubber tire guideway transit being available to the public than a subway could provide.

But what about the possible use of light rail (Blue/Green Line technology) in the Valley? There are two basic reasons why light rail is not particularly useful in the Valley. The first is cost and funding—just as there is no visible means of financial support for a Valley East-West subway, there is no funding possibility for light rail, either.<sup>6</sup>

Second, light rail is not particularly useful as a transit mode in the Valley. Street running light rail would have little, if any, speed advantage over buses on the same street or in a dedicated transit right-of-way. In terms of capital costs, light rail would be far more expensive to construct—perhaps several times more expensive—than a similar rubber tire transit guideway. It is highly unlikely that the operating costs and subsidies for a Valley light rail system would be less than those for rubber tire transit modes.

As for carrying capacity, any properly designed rubber tire guideway can provide as much as is required in any likely Valley corridor. If there is a requirement for high carrying capacity (which we doubt), then rubber tire guideways can easily exceed the carrying capacity of light rail. What is more likely to occur is that the actual usage of the transit guideway would be so low that it would not be economical to operate light rail

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<sup>6</sup> The recent California State Auditor report on the proposed San Fernando Valley Transportation Authority (“Los Angeles Metropolitan Transportation Authority: Creating a Separate San Fernando Valley Authority Would Take a Split of Assets, Revenues, and Debt,” July 1998, Report 98107) states in its cover letter, “Our analysis indicates the VTA would have net revenues in fiscal year 1998–99 of \$38.6 million over what it needs for operating expenses and payments of principal and interest on the existing debt.”

While this would appear to indicate that there would be sufficient annual funding to both issue hundreds of millions of debt to cover the local share of construction costs for a rail line and to cover operating subsidies, a more detailed inspection of the realities of the situation makes it unlikely that such a course of action is practical (the State Auditor’s report is limited to quantifying the financial impacts of a separate authority and is silent on how funds could or should be spent). First, the current financial trials of MTA would make it extremely difficult for any new transit agency in Los Angeles County to receive any funding for a new rail line, particularly at any time in the near future. Second, the Consent Decree that settled *Labor/Community Strategy Center v. MTA* would make it extremely difficult to divert County sales tax funds that have traditionally been utilized to provide transit services to the highly transit-dependant residents of the Los Angeles CBD, Eastside, Westside, South Central, etc. areas on the south side of the Hollywood Hills for the benefit of a far less minority transit use area in the Valley.

except on long headways, making light rail less desirable than bus service, which could operate cost-effectively on shorter headways.

At present, it appears that there will be two minor elements of rail transit in the Valley for the foreseeable future, the Red Line heavy rail line from North Hollywood to the Los Angeles CBD, and the two Metrolink commuter rails from Ventura County and North Los Angeles County to the CBD via Burbank. The Red Line is projected to eventually provide a total of approximately 50,000 trips per day originating and/or terminating in the Valley<sup>7</sup>; the Metrolink ridership is a small fraction of this. Transit planning needs to take these rail systems into account, making the most of these costly prior investments.

### ***B. The Curitiba Bus System As a Possible Model***

Recently, there has been a great deal of interest in applying lessons learned from the extremely impressive and successful bus transit system in Curitiba, Brazil to the Valley. The express busway “Surface Metro” system, which Curitiba has developed as its heavy-duty, main line transit guideway instead of subway or other rail modes, has been the main focus of local interest. Curitiba’s bus transit system is one of the most productive, cost-effective, and highly utilized surface transportation systems in the world, and there are undoubtedly many valuable lessons from Curitiba that can be applied to the Greater Los Angeles area and the Valley in particular.

However, the reason Curitiba’s bus system has been as successful as it has is that it has been carefully customized to the existing conditions in Curitiba. There are many extremely significant economic, political, geographic, and cultural differences between Curitiba and Los Angeles County, and any attempt to apply Curitiba technologies and methodologies to the San Fernando Valley without recognition of these differences is doomed to failure from the start.

It is important, therefore, to understand some of the more important differences between these two areas. Curitiba’s transportation and transit systems are not stand-alone networks; they are vital, integrated components of the overall urban plan for the area. To cite just one example, the shaping of Curitiba’s urban form has been well structured to work with transit, and transit has been structured to make this shaping of the city work. Along many of the alignments of the busways, zoning mandates high-rise residential and commercial construction, which is largely forbidden in other areas of the city. As a result, the busways have a high, built-in ridership within a few blocks, and the residents of the high-rises receive excellent transportation to most of the important destinations in Curitiba. The contrast between the Curitiba urban form and that of the Valley is so large as to make it obvious that a transportation solution that works so well in Curitiba may have little or no applicability here.

- Curitiba has grown from a relatively compact regional center city of 361,000 in 1960 to 2.1 million in 1990, with metro-area projections for the year 2000 of approximately 2.8 million. The original master plan was adopted in 1966, when most of the growth, and future form, of current day Curitiba, was yet to be. The practical implication of the city plan, therefore, focused the development of the *majority* of the city within a single political generation.

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<sup>7</sup> “Los Angeles Rail Rapid Transit Project Metro Rail Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report” (Los Angeles: Southern California Rapid Transit District, July 1989).

- An important factor in the development of Curitiba, compared to that of Los Angeles, has been the *lack* of the many protections built into U.S. and California statutes and case law. Quite simply, in Curitiba, projects do not have to wait for years to start while environmental impact statements are prepared and lawsuits are heard in court.
- The mayor who is given much of the credit for the development of the current structure of Curitiba was originally placed into office by a military *junta*. An experienced architect and city planner with advanced concepts for the city, he had both outstanding ideas and the means to implement them. He was able to build excellent two-way communications with the populace. He developed a “band of brothers” (and sisters) to continue the planning and development of what he began. The success of his methods has been evidenced by his subsequent majorities in free elections.
- In Curitiba, transit does not require major taxpayer financial assistance; it actually *makes money* (which is mainly reinvested into the transit system). Over its entire history, the Curitiba transit system has received virtually no taxpayer funding. This simple fact alone has made the development of the Curitiba bus system far easier and simpler than would ever be the case in the United States.

Unfortunately, it is not possible to achieve in Los Angeles anywhere near the financial results of Curitiba’s transit system. First, the buses in Curitiba operate with ridership levels that are incomprehensible in this country. MTA is now under court order to reduce its load factors, which have historically been near the highest in the nation, to a current maximum of 1.35 (58 passengers on a 43-seat bus since January 1, 1998) and to 1.20 (no more than nine standees) by 2002. Curitiba routinely runs its extra-large express buses with 270 passengers on 57-seat 81-foot buses—a load factor of 4.7.

A major reason for this high level of ridership is the quality of the transit service provided. While Curitiba has its share of lower-income residents, it is one of the richest and most livable cities in Brazil. It has the second highest automotive ownership ratio in the nation (after only Brasilia, the capital), but annual automotive mileage is approximately 25 percent less than average. Transit is simply far superior to the private automobile as a means of transportation for a huge portion of the populace—the transit home-to-work modal split is approximately 70 percent, well over a *dozen* times the Los Angeles ratio.

Second, the Curitiba flat fare of approximately 65¢ (in U.S. currency) is very high when considered in light of the relative levels of income in the two countries. The reason that this fare level is acceptable in Curitiba is, besides the extremely high quality of service provided, that national law requires employers to subsidize transit fares for many employees. As result of this law, it is very common for employers to pay *all* the costs of transit for *all* employees. Even the poorest of the poor in Curitiba can earn transit tokens by collecting materials for recycling.

Third, transit service in Curitiba is operated almost entirely by private-sector providers—but in a manner that is totally unlike anything in this country. The same contractors have held their franchises for many years without anything approaching bidding or contract negotiation. The ingenious methodology is to pay each contractor the exact same amount for each unit of service operated—and the amount paid is based on the *average* cost for all contractors. This gives a tremendous incentive for each contractor to constantly seek out ways to reduce costs and operate more productively in everything they do. At the same time, there is a very high level of oversight by the transit planning, coordination, and supervision authority, which requires strict adherence to standards of service.

There are huge differences between Curitiba, in the period of the implementation of its transit system as it now exists, and Los Angeles County today. In Curitiba, we had the world champion parents who adopted an 18-month old child, who raised it with loving devotion to an outstanding child development plan, and the result was an Rhodes Scholar Olympic gold metal athlete. In Los Angeles and the San Fernando Valley, we have an overweight fifty-year old, who has smoked far too many cigarettes and consumed far too much alcohol for decades, who now has seriously high blood pressure and emphysema. Bringing Los Angeles up to Olympic gold metal/Rhodes Scholarship levels at this point is so highly unlikely a result that it is not an objective worth pursuing. We can, however, with intelligent application of proper techniques, and with the patient swearing off some old, very bad habits, make a significant improvement in the patient's condition that will lead to a healthy, productive life.

## IV. Valley Busway Possibilities

### A. MTA's Current Valley Transit Infrastructure Plans

The current MTA plan for transit improvements in the San Fernando Valley has four main elements:

- Conversion of the Burbank/Chandler East-West rail corridor—which was first planned to be utilized for a light rail line, then a heavy rail subway line, and most recently as a nonsurface level (but not necessarily entirely subway) heavy rail line—as a rubber tire busway;
- Improvement of the existing fixed route bus system;
- Development of arterial bus lanes;
- Introduction of more nontraditional transit modes, including smart shuttles, circulator bus service, etc.

While all four elements have promise for the Valley, the relative priorities of each must be well understood in advance of plan implementation. Of the four, the Burbank-Chandler guideway, while it has very important “glamor” and public interest potential, is actually the *least* important, and should not be implemented (if at all) until the other elements are well under way. The heart of the Valley transit network for the foreseeable future will be conventional, fixed-route, standard-size buses. The nonconventional transit element will take years to build to its full potential and, even then, is unlikely to carry more than a fraction of the ridership of the fixed route buses.

### B. Expanded Service and Arterial Busways

The most important improvement in fixed route bus service in the Valley would simply be to operate more of it. Faster service—buses traveling at higher speeds from point to point—is an important transit quality improvement that not only does not cost money, but can often actually be cheaper to operate, because fewer buses are required to operate routes at a given headway. One proven way to improve bus speed is to give buses and other high occupancy vehicles higher priorities in street movements.

At the “high end” of costs for bus prioritization, there are dedicated surface busways/HOV/HOT lanes and surface bus preference and/or bus-only lanes. In extremely high utilization corridors—such as Broadway in

the Los Angeles CBD, where there may be as many as three to five buses *per minute*, peak hour, peak direction—dedicated surface bus lanes can be extremely easy to justify.

However, in the Valley, bus frequencies are nowhere near the CBD extremes, or even close to major non-CBD transit streets, such as Wilshire and Vermont, where 20 to 30 buses per hour, peak hour, peak direction, are common. Looking at major MTA Valley east-west bus lines, starting with Ventura Blvd., the highest hourly usage shown on the current MTA schedules is approximately 15–16 buses per hour (approximately one bus every four minutes) on lines 424/425/522 during the morning commute in the northbound direction. However, during other peak period/direction combinations on Ventura Blvd., the count is in the six-ten per hour (one bus every six to ten minutes) range.

Even at one bus every three minutes, it is difficult to justify taking a lane from a major street for exclusive transit use. Taking such lanes can also have negative impacts, beginning with the unavailability of lanes to handle automobiles. Businesses along transit corridors are extremely reluctant to give up street parking in front of their locations (if dedicated bus transit lanes are only operational during peak hours, then there can be great confusion for drivers as to what is allowable at different times of day).

On other major Valley east-west bus lines, the frequency of service is even lower. For example, on Victory Blvd. (Line 164) and Sherman Way (Line 163), there are only three to four buses per hour, peak hour, peak direction. Even if these frequencies were doubled, we would still be far short of the minimum justification level for dedicated bus lanes.

There is, however, a bus travel speed improvement mechanism that does not require lane dedication: *signal preemption*. Where buses are given either “instant” green lights at signalized intersections, or receive greens earlier than they otherwise would, bus travel speeds up. This is a well-proven technology that does not require restricting automobile travel away from arterial street lanes and, in many cases, can be almost invisible to automobile drivers.

Because north-south bus lines in the Valley are so short—generally, no more than eight miles—there is a limit on how much time can be saved on their trips. On the smaller number of east-west lines, which can be as long as 30 miles, there is a potential for savings for as much as several minutes per trip. Thus, signal preemption should be installed first on the following three east-west lines, in this order of priority: Ventura Blvd., Victory Blvd., and Sherman Way. Another high-priority corridor for signal preemption is San Fernando Road. Other possible east-west candidates would be (in alphabetical order): Burbank, Devonshire, Nordoff/Osborne, Roscoe, and Vanowen. If north-south lines are to be considered, the place to begin is Van Nuys Blvd. If signal preemption produces significant benefits there, other possible candidates include Balboa, Lankershim, Laurel Canyon, Reseda, Sepulveda, and Topanga Canyon. The entire program should proceed in phases, testing signal preemption first on the best candidates, for 6–12 months, before deciding whether enough benefits can be realized to extend it to other arterials.

### ***C. Timed Transfers: Creating Bus Hubs***

Traditional bus transit is difficult in the Valley. The diversity of trip origins and destinations leads to both infrequent service and the need to make transfers for a high percentage of trips. The classic transit solution in such cases is “timed transfers”—setting up a network of routes so that all the buses in an area arrive at common transfer points (hubs) at the same time. This lets all passengers on all routes transfer to the bus they

need next with minimal waiting time. It is similar to the well-known (and very effective) airline hub-and-spoke system. In the eyes of transit passengers, the service provided via timed transfers would compare very favorably with that provided by the current grid network of north-south and east-west routes, which often lead to transfer-time waits of 15 to 30 minutes.

An area as large as the Valley requires several timed transfer hubs to be served effectively. To provide for long trips, the network must include routes running between the hubs and destinations outside the Valley. The real key, however, is the location of the hubs. Ideally, such a transfer center should be located at the locus of several transportation corridors (including, where practical, passenger rail and air modes), be at or near major transportation destinations (office parks and other job centers, shopping centers, government centers, entertainment complexes), or trip origins (such as high-density high-rise housing—not in large supply in the Valley), and be able to access major arterial streets and freeways. They should also be designed to be passenger-friendly and safe to use.

MTA is currently studying several timed transfer centers in the Valley, including locations at the Burbank and Chatsworth Metrolink stations and the North Hollywood and Universal City Red Line stations. While multi-modal transportation centers are logical places for timed transfer centers, some of these locations are either geographically at the edges of the Valley, not close to any significant trip destination, or difficult to access without significant detours. A proposed Warner Center hub—an inherently more useful location—is suffering difficulties in finding a location.

Timed transfer's biggest problem turns out to be the familiar NIMBY problem—not in my back yard. MTA has had to cancel planning for a well-sited hub due to intense and vocal opposition from nearby residents. Shopping centers generally will not allow timed transfer hubs to be set up in their parking areas. While timed transfer does pose certain other problems (getting several different bus lines of different lengths to all arrive and depart at a common point at the same time, buses suffering more non-moving time), a well-designed and well-implemented timed transfer route system can be far more attractive to riders in an area with the Valley's type of travel patterns. But the biggest problem is finding usable sites and gaining community acceptance.

#### ***D. Burbank-Chandler Options***

One of the greatest potential mistakes that could be made would be to repeat the error of rail advocates in Los Angeles and other areas by overpromising the impact of a single, high-visibility, “silver bullet” element of the overall plan, while de-emphasizing the all-important underlying, but far less glamorous, basic bus and other related “rubber tire” elements. At the same time, however, the public must be offered something that it can believe in and support. Tremendous political support has been built in the Valley for Burbank-Chandler as “the” answer to transit woes.

There are two principal concerns regarding the implementation of a Burbank-Chandler bus guideway:

- It would be very difficult to convert it into transit corridor that will provide significant speed advantages over existing fixed-route bus service for east-west travel in the Valley. Without speed advantages, it will not be attractive to potential riders. As we shall see, it can be maddeningly difficult to achieve speed improvements without major capital expenditures and/or disruptions of existing surface traffic patterns and community life.



- Because only a small portion of the Valley housing stock is within easy walking distance of Burbank-Chandler, and because there are only limited travel destinations (mainly jobs, but also governmental centers, educational opportunities, shopping, social, entertainment, religious, and other activities) within easy walking distance of this potential transit guideway, the proposed bus guideway will be close to useless without an extremely strong feeder/distribution network to get riders to and from it. There is no point in offering riders a savings of even 10 or 15 minutes on a trip from one end of the Valley to the other on the busway if riders waste an hour on each trip in getting to and from the busway.

Without a fast, efficient collection/distribution network, it would be very easy for travel times with the busway to exceed the existing ones. At present, many transit trips in the Valley require two buses, one north-south and another east-west. However, unless the potential rider's trip origin or destination is within relatively easy walking distance of the guideway, the same trip taken on the guideway could require *three* buses—one north-south to reach the busway, one on the busway, and the final north-south to reach the final destination. If there is no improvement to the existing one-hour headways on most north-south routes, then the wait times for the north-south buses could easily exceed any time saved by faster east-west travel on the busway.

#### 1. General Attributes of Burbank-Chandler Guideway Transit Guideway System

Because of the distributed nature of Valley land use, it is difficult to find any potential guideway alignment that serves a large number of major trip origins and destinations. The Burbank-Chandler alignment could potentially serve the following:

- Downtown Burbank/Media City Center (by shuttle bus connector)
- Burbank Metrolink Station
- North Hollywood Red Line Station
- Los Angeles Valley College
- San Fernando Valley Government Center Complex (Van Nuys Blvd.)—two-four blocks
- Pierce College
- Warner Center (by shuttle bus connector)
- Chatsworth Metrolink Station (if it is possible to connect this far without disruption of rail freight traffic)

Most of the alignment is through low-density single family residential, with some two- and three-story apartments, particularly just west of SR 170. There are numerous retail and commercial uses, but these are of almost universally low density. Industrial uses are found in some sections. The line passes very close to two major community colleges, but the layout of the campuses forces walks of two to four blocks to access the actual travel destinations (generally walking past student parking lots on the way). Many of what are potentially the largest travel destinations along the corridor—Warner Center, the Burbank city center/Media District, the Van Nuys retail strip—are far enough from the alignment that most passengers, particularly choice riders, would find shuttle buses mandatory to consider use of transit for such trips.

There is a wide variety of options—and costs—for a rubber tire guideway on this alignment. In the paragraphs below, we will discuss the features and costs of a high-end, low-end, and middle-range options.

## 2. “High End” Burbank-Chandler Guideway

At the high end of the continuum is the type of guideway that is the dream of transit planners not limited by the practical difficulties of the existing infrastructure—or the possibly conflicting desires of pre-existing residents along the proposed alignment right-of-way. It would be:

- Totally grade separated, allowing a high rate of vehicle speed—up to 65 mph. There would be no crossing traffic at any location.
- Provided with special on and off ramps every mile or two. This will permit the same bus or van that picks up and drops off in various neighborhoods to provide line-haul service on the guideway, minimizing transfers.
- Provided with special interchanges with major freeways (I-5, SR 170, I-405), linking the busway with existing and proposed HOV lanes and/or HOT lanes.
- Provided with “off-line” stations that allow “express” service at high speeds without stops for long distances. This would permit both nonstop express buses and shuttles, as well as local services which stop at every station.
- Designed to be utilized by the maximum number of high occupancy vehicles of all types, minimizing the number of transfers required to complete many common trips.

A conceptual drawing of a mid-corridor section and station of a “high end” guideway is shown in Figure 2.

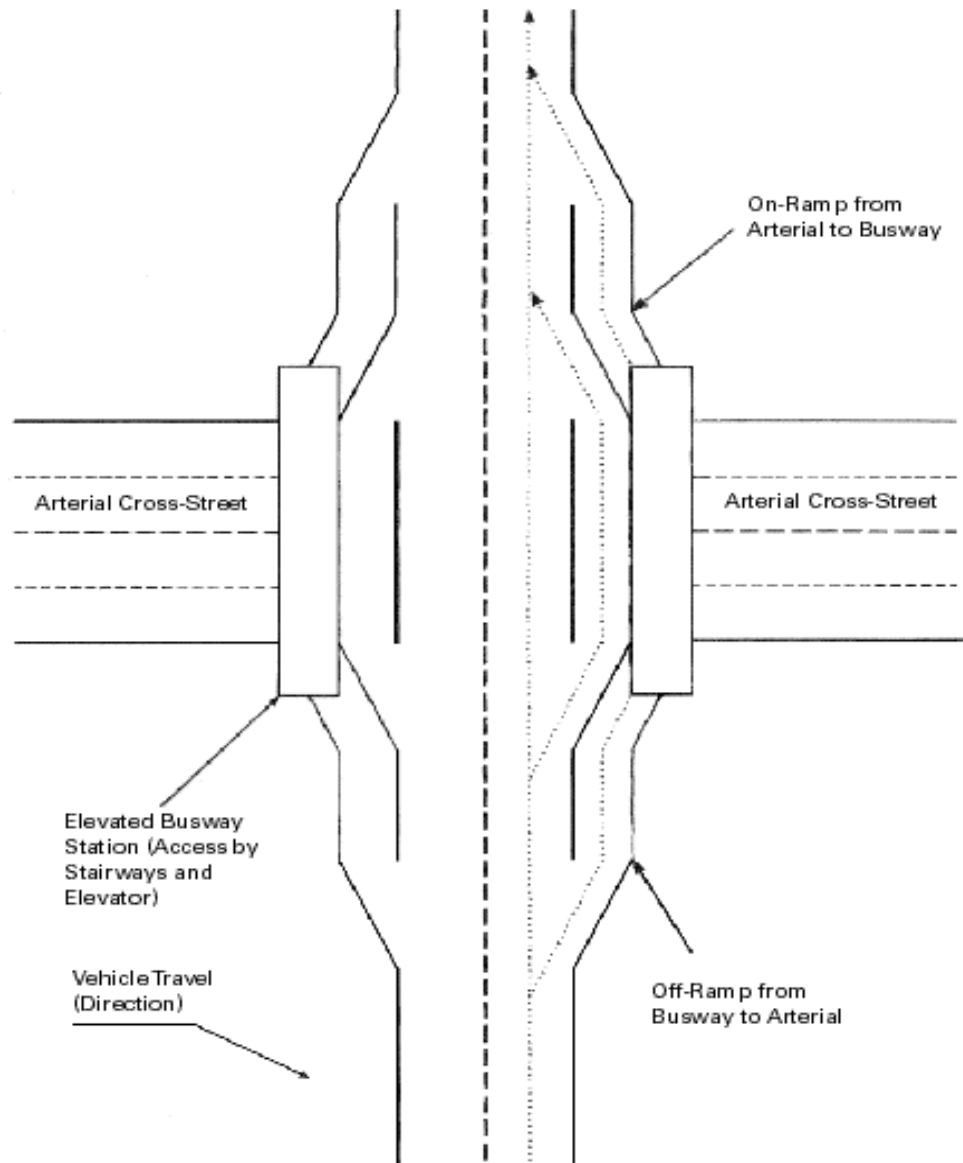
Since the guideway would be totally grade separated, the only limitation on the number of vehicles using it is the roadway capacity. As a practical matter, this means that well over 1,000 vehicles, peak hour, peak direction, could potentially be handled,<sup>8</sup> with peak hour, peak direction ridership past a point over 3,000—perhaps far over, depending upon the number and mix of vehicles and their usable load capacities. The guideway would be open to all MTA transit buses, plus LA-DOT Commuter Express and DASH buses, other recognized transit operator buses, plus smart shuttle and subscription buses and vans, and other types of transit and paratransit vehicles.

The type of guideway outlined above has a maximum passenger travel capacity at least equal to any U.S. rail line and a significantly higher speed of passenger travel. It actually has the capability of producing considerably more peak period transportation than the Ventura Freeway<sup>9</sup> (although the demand for this level of transit in the Valley almost certainly does not exist). For many Valley residents, it would mean that transit would approach and often exceed the speed of travel of the single-passenger automobile. By widening the types of transit available to Valley residents, it could significantly improve the transportation options available to large numbers of people and businesses.

<sup>8</sup> The El Monte Busway/HOV lane currently handles over 60 buses and 1,200 car/vanpools per hour at speeds averaging 55 mph at peak. The maximum number of vehicles per hour for general purpose freeway lanes is approximately 1,700-2,000, and this is at far lower travel speeds. However, the number and layout of stations and on- and off-ramps will significantly impact the carrying capacity of what is, in effect, a two-lane, HOV-only freeway.

<sup>9</sup> This is not imaginative speculation. On the San Bernardino Freeway, which has four general-purpose lanes, the El Monte Busway/HOV lane carries almost six freeway lanes of traffic capacity at peak—far more than the four general purpose lanes combined.

**Figure 2: "High End" Busway, Station, and On- and Off-Ramps  
(Not to Scale)**



Its obvious drawbacks are (1) high cost, to build a Valleywide elevated structure, with complex interchanges with several major freeways and a set of elevated stations, and (2) significant intrusion on residential neighborhoods, leading to a high likelihood of major political opposition.

### 3. "Low End" Burbank-Chandler Guideway

At the other end of the continuum of possibilities, we have a low-cost, simpler solution with far fewer capital costs which, of course, means a far smaller contribution to improvements in Valley transportation. The details of the capital plant and operations of a "Low End" Burbank/Chandler bus guideway that would stretch from the Burbank Metrolink station to the Chatsworth Metrolink Station would include:

- Two paved bus lanes plus crossings of various river channels and drainage canals.
- About 20 station platforms located chiefly at major arterial streets. In some locations, a limited amount of park-and-ride lots could be constructed (although neighborhood opposition and some difficulties in enforcing transit-rider-only use should be expected). And timed-transfer facilities would be placed along the guideway (although neighborhood opposition would likely be even stronger than for park-and-ride lots).
- All of the approximately 37½ crossings of major arterial streets<sup>10</sup>, will be at-grade, signalized crossings. This will significantly limit both the maximum operating speed and the number of vehicles that can be operated. If for example, the guideway is operated with five-minute peak headways in each direction, there will be 12 buses in each direction each hour—up to 24 crossings of each crossing arterial each hour (some number of the crossings in each direction will occur at the same time, so the effective interruptions of arterial traffic will be slightly fewer than the full 24), or approximately one every two-and-one-half to three minutes.
- Because of the limitation of peak hour/peak direction vehicles, there is a limit on the number of passengers that can be carried. In Curitiba, service on the busiest busways is operated with 81-foot double-articulated buses capable of carrying 270 passengers with headways as low as 45 seconds. In Los Angeles, we have seen that the headways are unlikely to be much under five minutes, peak period, peak direction. The absolute maximum load per bus will be under 120, even if 81-foot buses are operated (based on compliance with the Consent Decree). Hence, the absolute maximum number of passengers past the peak load point in an hour would be approximately 1,440 (12 buses an hour, each with 120 passengers) in each direction. While the 1,440 peak point/peak direction riders is a considerable amount of riders for most bus lines, it is simply not enough to have a major impact on transportation and traffic conditions in the Valley.
- There are a fair number of non-arterial streets that cross the guideway. Many or all of these may have to be shut off for safety reasons. This will have two main impacts. It will interrupt “local” surface traffic in the neighborhoods that the guideway transits. And the closing of “minor” cross streets will funnel more automobile traffic on to the arterials and will lead to greater traffic on the streets paralleling the guideway—which will also cause neighborhood opposition.
- For safety reasons, it may be necessary to erect barriers along the guideway to keep pedestrians and other unauthorized individuals and objects off the guideway. In some areas, most particularly along Chandler between Burbank and Ethel, such barriers, and the construction and operation of the guideway itself, could spit neighborhoods and significantly restrict pedestrian traffic across the guideway.
- The stations platforms, with some possible exceptions, are likely to be of existing, conventional bus stop design—low-level boarding, no pre-payment, and simple shelters. While the Curitiba “tube” stops work extremely well in Curitiba, there would simply not be the number of boarding passengers at each station to justify the expense of building and operating high platform boarding, pay-upon-entering, “tube” stations and buses along this guideway—especially since these types of stations require either paid attendants or expensive fare media sales equipment and Blue/Green/Red Line-style fare inspectors.

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<sup>10</sup> The “half” crossing is where the existing rail guideway leaves the center of Chandler, crossing the Westbound lanes only. This count includes 31½ crossing of the east-west segment of the line between the Burbank Metrolink station on the East and Canoga Avenue in the west and six crossings of the north-south segment between Victory Blvd. and the Canoga Park Metrolink station. It may not be possible to utilize the North-South leg for transit uses because MTA staff reports that it is still used for freight traffic on occasion.

- There is likely to be a requirement for a “local” bus line to parallel the guideway to deliver riders to intermediate points along the guideway not served by the guideway buses. If the distances between stations are in excess of one mile, then the need for such service increases significantly.

In summary, it is doubtful that a “low end” bus guideway along Burbank/ Chandler is worthwhile, even if it could be implemented over the expected level of community opposition. The time saving on the guideway is likely to be largely offset by the time penalty of the additional transfer for many passengers unless there are significant reductions in north-south bus route headways and other effective improvements in Valley transit service. The problem of coordination of traffic signals at the over three dozen arterial crossings—allowing the guideway buses to operate at a higher rate of speed while, at the same time, not interfering with traffic on the arterials—will be a very difficult technical challenge.

Finally, we should apply a simple logic test: if the anticipated advantage of the busway in serving the ridership is an increase in speed, and since most of the speed advantage is due to the use of signal preemption at cross-streets, then how much additional advantage would the conversion of Burbank-Chandler produce over simply allowing the buses on an existing east-west Valley bus line to have signal preemption? And if much of the time savings of the busway is due to significantly reduced service headways, would not reducing the headways on non-busway bus lines achieve much of the same benefit?

#### 4. Real World Compromise—the “Middle” Option

The problems of full implementation of a new “high end” guideway are so major and many that it will be simply impossible to overcome them in the practical political environment of Los Angeles, no matter how large the potential benefits. And the “low-end” option appears to offer little advantage over implementing signal preemption on east-west arterials. But is there a possible middle ground busway concept, offering much of the time saving of the high-end but without its huge cost?

For example, while full grade separation is unlikely, it would probably be possible to grade separate a limited number of key arterial crossings. But, as soon as total grade separation is eliminated, the number of vehicles that can be allowed to utilize the guideway must be reduced to little more than one dozen per hour, peak hour, peak direction. It is simply impossible to have a busway with non-grade separated arterial street crossings that would impose even dozens of cross-traffic interruptions per hour, let alone hundreds.

Similarly, while achieving full signal preemption at all arterial crossings would likely produce an unacceptably high level of interference with Valley traffic flows, intelligent application of proven techniques is likely to provide a relatively high speed of transit travel with minimal notice of drivers on surface streets in the area.

Another possibility is a proposal for a “higher” end busway, with full grade separation or something close to it, but to be constructed in stages, as MTA has constructed rail lines. If the phased approach were to be adopted, then the phases are likely to follow the pattern established, but never implemented, for the East-West Valley Subway. The first phase could run from the Red Line North Hollywood Station west to the San Diego (I-405) Freeway and the second, at least part of the way to Warner Center. There is no particular reason not to open a rubber tire guideway a few miles at a time as long as the interchanges with other transit means can be properly coordinated.

While there has never been detailed discussion of extension of the Valley East-West rail line past North Hollywood-Warner Center, this is somewhat easier to do with a busway. Extension eastward to the Burbank Metrolink Station should be regarded as logical (if the basic concept of a rubber tire guideway on Burbank-Chandler can be deemed logical). It may or may not be possible, and desirable, to extend the guideway north to the Chatsworth Metrolink Station, due to continuing requirements for use of this segment for rail freight movements. Because of a higher degree of existing grade separation on this segment than on most of the other segments of the line, it would probably be considerably less expensive, per mile, to convert it for rubber tire use, but the demand for transit on this segment would likely be considerably lower than on the east-west segments of the line. The productivity and cost-effectiveness of this segment, as well as other considerations, would require detailed analysis prior to construction decisions being made.

The bus guideway that is likely to result will probably be usable only by designated fixed route transit operators and will likely require a high degree of transfers to other surface bus lines. No direct connectivity to freeways or HOV lanes is likely to result (due to cost considerations), and even transfer stations are extremely difficult to design.

Most likely, the biggest constraint will be the well-known NIMBY factor. There is no way to implement a meaningful transit guideway along this corridor without significantly disadvantaging many residents along its length. The key question will be if meaningful mitigation techniques, fairly and honestly applied, will be sufficient to overcome the very real concerns of affected residents. We have major concerns regarding the potential of the success of this process.

## 5. Burbank-Chandler Recommendations

Although it is tempting to propose the use of the Burbank-Chandler right-of-way for a rubber tire guideway, in the last analysis, the cost is simply not worth the result.

To convert a substantial portion of the right of way to a “high end” busway would run from several hundred million to over a billion dollars. While this would be a good value compared to Southern California’s rail expenditures over the past decade and a half, this amount of funding does not exist at the current time, nor is it likely to in the foreseeable future. An equally pressing consideration is the high degree of impact on residents along the line from the necessary property takes and the divisions of communities by the physical barriers of the elevated and/or sub-surface guideway necessary for grade separation.

A “low end” busway is not worth the investment. The very minor improvements in travel time on the guideway would be far offset by the time requirements to access it—and can be duplicated at far less cost on existing bus routes by the application of techniques such as signal preemption that have been available for years.

The “middle of the road” option has some of the advantages of the high end and low end options—and the problems. The construction costs would be into the hundreds of millions—funding which does not exist—and the time savings for the common short trips in the Valley are just not sufficient to justify its construction.

There are not sufficient trip origins and destinations along the guideway to make the Burbank-Chandler right of way an attractive transit option. In order to justify the high financial and other costs it would take to make it work, it would have to attract large numbers of east-west trips from well north and south of the guideway proper. The current very infrequent bus service—half an hour to an hour on many north-south routes for

much of the day—make it virtually impossible to save time on an entire busway trip. A “high end” rubber tire guideway, which would allow hundreds of trips per hour by high occupancy vehicles other than standard 40-foot, taxpayer-subsidized buses could be worthwhile, but the funds to build such a guideway do not exist and the NIMBY problems are massive. Even if funds to build a high end guideway could be found, there are many higher priority uses for them.

We suggest that portions of the Burbank-Chandler right of way be considered for use as bikeways and linear parks. There are no practical uses of it for transit that are justified by the required costs and dislocations to nearby communities.

### ***E. Other Busway Guideway Options***

Our previous work has shown that, in general, rubber-tire guideways are more cost-effective than rail guideways. This general point raises the question of whether any of the recently completed rail systems might cost-effectively be converted from rail to bus operations. If the conversion cost were low, the greater flexibility of the rubber-tire guideway (its openness to a variety of vehicle types, which can provide door-to-door service off the guideway) and the low operating subsidies for such vehicles should make the conversion worthwhile. We examine two such proposals here.

#### **1. Conversion of Red Line Subway to Busway**

This could be done by converting either the entire Red Line subway—from North Hollywood to downtown Los Angeles—or only the Segment 3 from North Hollywood to Hollywood, that is now under construction.

Were we starting from scratch today, construction of a well designed “rubber tire” guideway along the general alignment of SR 101 from North Hollywood to downtown Los Angeles— as a component of an overall system of busway and other transit improvements—would have been a far superior transportation alternative to the Red Line, particularly for Valley residents. While it would have certainly presented many challenges in design and construction, such a system would provide greater transportation utilization for more travelers at higher speeds than the Red Line, at lower construction and operating costs, and could have been placed in operation far sooner. Even assuming that the Red Line to North Hollywood will be completed on the promised schedule, we still believe that a rubber tire guideway along this corridor would be a valuable and productive transportation improvement. (see Chapter 3).

However, to attempt to retrofit the Red Line, or a portion of it, at this late date, would be a bad idea for several reasons. First is bus propulsion power. While it is certainly possible to operate conventional internal combustion engine vehicles through lengthy tunnels (for example, the Holland Tunnel in New York), the Red Line’s ventilation system was not designed for this purpose. The alternative would be dual-power buses such as those used in Seattle’s downtown bus tunnel (diesel on the surface, electric catenary in the tunnel). However, the Seattle dual power buses have initial capital costs well over twice the cost of conventional single power (diesel *or* electric) buses and also have higher maintenance and operating requirements and costs.

A second problem is that of getting the buses *into* the tunnel. There is no existing way to get buses into the tunnel at any place other than where the rail line goes underground East of Union Station—and, at that location, there is no roadway that buses can be operated on, only rails. Ideally, there would be at least two tunnel gateways in the Valley, one at North Hollywood and the other near the southern edge of the Valley,

such as at or near Universal City. Not only would such ports be multi-million dollar expenses that would take years to design and construct, but finding the physical space for them could be very difficult.

The use of catenary electric propulsion presents its own limitations. First, while trains can obtain a top speed of over 55 miles per hour in the tunnel, conventional two-pole electric catenary in this environment would likely be limited to approximately 40 to 50 mph.<sup>11</sup> As operating speeds increase, the possibility of a pole flying off the wire—which causes the bus to come to a stop—increases substantially.<sup>12</sup> And, in the proposed busway tunnel, when one bus stops, every bus behind the stopped bus also stops. To travel the approximately 5.5 miles between North Hollywood and Hollywood/ Highland Stations on the Red Line at a top speed of 45 mph adds minutes against rail travel at a top speed of 55 mph.

The North Hollywood leg of the Red Line is designed to operate six-car trains at headways of six minutes. While this is far more carrying capacity than will be required for the expected rail ridership, in order to carry the projected load on buses, the busway will have to be able to operate with headways far under one minute. In the proposed single-lane tunnel busway, buses will need to be able to stop, when required, to avoid problems such as buses losing power and halting at unexpected locations. Operating buses safely in the tunnel presents certain safety complications, such as visibility around certain sharp curves. The danger of a collision in the tunnel is such that there is likely to be a requirement for protection beyond that provided by the human eyeball. With rail operations, this concern is handled by systems known as automatic train control (ATC) and automatic train protection (ATP). Unfortunately, with the shorter headways necessary to carry the expected passenger load on buses, the existing Red Line ATC is simply not adequate. In order to provide operational ATC/ATP for buses in the Red Line tunnel, it would be necessary to completely modify the entire existing system. Also, train ATC/ATP's are generally designed to be operated with sensors that are not directly applicable for bus operations.

Another problem is that the Red Line uses “center platform” stations—the passengers wait in a space between the two rail lines. However, North American buses have their doors on the right side, which means, to serve center platform stations, the buses will have to travel in the *left* lane, rather than the standard right side of the road. Depending on the other details of the line operation, this could pose certain operational difficulties, such as the two directional traffic flows having to cross at some point(s). The other alternative, buses with doors on the left side, would make the use of these buses on the street totally impractical.

If just the Red Line North Hollywood were to be converted to a busway at this late date, there would be, at an absolute minimum, considerable expense to convert the electric power supply from a “third rail” to overhead catenary, to convert the rails in tunnels to a busway, to raise the platforms in stations to the height of bus floors rather than rail car floors, to modify ATC and other safety and operational systems, and to buy

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<sup>11</sup> “Los Angeles Metro Red Line—Downtown-LA-Wilshire District-Hollywood-San Fernando Valley,” Los Angeles County Transportation Commission, states, “Trains can travel up to 70 mph,” but speeds this high are unlikely in revenue operations.

<sup>12</sup> While catenary electric buses can be equipped with emergency battery propulsion for short distance travel, there would be problems with such use in the Red Line tunnel. First, the distance to be traveled between stations could be several miles, which is a very long way to operate a bus at speed on this type of battery power, particularly uphill (from Hollywood/Highway to Universal City). Second, having the pole that lost contact flying around the top of the tunnel, where it could be damaged or cause damage, let alone cause dangerous conditions, is not advisable, which would make immediate stopping for restringing the preferable operating option.



the special buses themselves.<sup>13</sup> This total cost would run into the tens of millions of dollars, perhaps well over \$100 million. Also, MTA would be left with far more unneeded Red Line cars than it now has.<sup>14</sup>

If the Red Line were to be converted to a busway for its entire length, major transition problems between rail and bus at Hollywood/Vine would be eased—the requirements for transfers at mid-trip would be eliminated, the tunnel entrance near Union Station could be used to get buses in and out, and the Red Line maintenance facility near the Los Angeles River downtown could be converted as the dedicated electric bus maintenance facility. The bad news is that the costs of converting the entire line would be in the hundreds of millions of dollars and the travel time from North Hollywood to Union Station would increase by over 12 minutes.

Even worse, since very significant amounts of construction and equipment that were funded with federal grant participation would be prematurely removed from transit service, under the applicable legal and contractual requirements, MTA could have a rather large bill for reimbursement of the U.S. government. Also, of course, the line would have to be totally shut down for an extended period of time to make the conversion.

Finally, it would be more expensive to carry the passenger load with buses than rail. The usual rail proponent argument is that it costs far less to carry riders on a train than on a bus because the driver of a standard 40-foot bus will only be able to “legally” carry 51 passengers at a time by 2002 (under the Consent Decree resulting from the *Labor/Community Strategy Center v. MTA* Federal Title VI Discrimination lawsuit), while a train operator can carry well over 1,000 passengers on a six-car train. While, in most cases, this argument has limited validity because it ignores the significant number of personnel required to maintain the rail right-of-way, it is largely valid in this case because the right-of-way operations and maintenance costs of the tunnel will be very similar.

## 2. Conversion of Metrolink Guideways to Busways

It has also been proposed to convert the Metrolink guideways to busways. While busways potentially have many advantages over commuter rail, it is again too late to take full advantage of these in Southern California. This time, the reason is that one of the greatest advantages of rubber tire over commuter rail is the potential to avoid major capital costs, while here, well over \$1 billion has already been spent on buying the Metrolink right-of-way and making other major investments, such as vehicle purchases.

At this time, it is not feasible to simply pave over the rail right-of-ways to operate as rubber tire guideways. First, most are still utilized as freight railways in the non-commuter rail operating hours. Elimination of the capability to move freight on these lines is not practical, nor legally possible, without encountering great problems and costs.

To use these guideways as busways would require the construction of two separate travel lanes, one in each direction. Moreover, for optimal utility, there should be off-line stations to allow buses to operate express,

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<sup>13</sup> This brings up another issue: If these buses are only to be operated in the tunnel, they can be spec’ed to have no steps, extra wide doors, and other changes that would greatly speed “one level” boarding and deboarding at stations. However, if the buses are also to be operated on the Valley streets, it would be extremely difficult to operate them without conventional bus stairs (building boarding platforms at the street bus stops could be done, but would itself create problems when illegal parking, accidents, traffic, street maintenance, etc. made access to them difficult)—which would mean far longer “dwell” times for passengers to enter and leave buses at tunnel stations.

<sup>14</sup> See *Passenger Transport*, the weekly magazine of the American Public Transit Association, April 20, 1998 for an MTA advertisement seeking potential buyers and/or lessors of excess heavy rail and light rail cars.

limited-stop, skip-stop, and local service—all on the same guideway at the same time. In this case, it would require, in essence, a four-lane freeway, with additional space between lanes for safety considerations. There are numerous locations along the Metrolink guideways where it is not possible to even operate two separate lanes, such as on the many street overpass structures in the Valley on the Ventura County line.

Due to these same space considerations, it is also not practical to construct busway lanes on the sides of the railroad tracks within the existing right-of-way ownership. Also, it would be either extremely difficult and expensive or impossible to construct busways on the sides of the rail tracks that would allow train movements to other tracks and sidings without either extreme slowing of the buses or construction of elaborate, expensive flyovers.

While it is common for passenger and freight rail trains to share corridors with rubber tire vehicles, often with spacing of less than 20 feet, these types of joint corridors require specific safety techniques and devices to be employed. These devices make movements of vehicles of either mode across the other mode's guideway at speed difficult, if they are possible at all.

For all these reasons, the conversion of the Metrolink guideways to rubber tire guideways at this time does not appear practical.

## V. Conclusions and Recommendations

In conclusion, our recommendations for improved transit infrastructure in the Valley are:

- Improve the speed of major east-west bus lines in the Valley by use of signal preemption technologies on the selected arterials noted previously—especially Ventura, Victory, and Sherman Way.
- Make maximum use of rubber tire guideways for transit to make transit time competitive with single passenger automobiles for longer peak hour commute trips—especially the HOV/HOT lane network discussed in Chapter 3.
- Develop a limited number of transit hubs to permit restructuring bus service away from a strict grid pattern and more toward a timed-transfer system.
- Do not attempt to use the Burbank-Chandler right-of-way as a transit guideway, rail or “rubber tire.”
- Complete the Red Line to North Hollywood and operate it as a heavy rail line, but make sure that this is the last passenger rail line ever constructed in the San Fernando Valley and in Southern California
- Do not attempt to convert the Metrolink right-of-ways to rubber tire guideways, but end Metrolink service where there is little demand for service and where busways/HOV/HOT lanes on freeways can make far less expensive and far more flexible long-haul commuter express bus service a viable alternative.

## Chapter 3

# Making the Most of Valley Freeways

BY ROBERT W. POOLE, JR. WITH JEFF WOERNER

## I. Introduction

Most of this report deals with improving mass transit in the Valley. Yet the vast majority of Valley residents make (and will continue to make) nearly all their trips by automobile. In terms of traffic volume, the freeway system is the most vital component of the Valley's road system. Yet many Valley freeways are already seriously congested, and are likely to grow even more congested over the next 20 years, according to projections in SCAG's 1998 Regional Transportation Plan. Between the years 1994 and 2020, SCAG projects a 43 percent increase in population compared with only an 11 percent increase in freeway lanes. Under the worst-case 2020 baseline forecast, SCAG predicts commute times of up to three hours for many travelers.<sup>15</sup>

One of the key justifications for the now-discredited MTA plan for rail transit in the Valley was its supposed impact on easing traffic congestion, especially freeway congestion. Yet not a single major urban area in the United States has succeeded in reducing traffic congestion by adding rail transit. Extensive studies of traffic congestion in the 50 largest metro areas by the Texas Transportation Institute over the past 10 years found that only five of the 50 have reduced congestion, while three have maintained the same levels. As TTI concludes, "Most of those that either improved or stayed the same did so because either the city built more freeway lanes and streets to handle the demand, or demand was reduced as a result of an economic downturn."<sup>16</sup>

If adding rail is not the answer to congestion, what can be done? The only major city that experienced reduced congestion in the past decade and made a major infrastructure investment was Houston. Explicitly rejecting rail, Houston instead invested heavily in busways. But unlike the very expensive but greatly underutilized Harbor Transitway in Los Angeles, Houston not only built busways—it scheduled extensive express bus service on them, as well as encouraging their use by carpools and other high-occupancy vehicles. In other words, Houston followed the model of the highly cost-effective El Monte Busway on the San Bernardino Freeway here in greater Los Angeles. The El Monte Busway cost only one-tenth as much (per

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<sup>15</sup> "Community Link 21: 98 Regional Transportation Plan" (Los Angeles: Southern California Association of Governments, April 1998).

<sup>16</sup> Tim Lomax, "Decade of Delay Offers Congestion Suggestions," *Texas Transportation Newsletter*, Vol. 24, No. 1, July 1998.

mile) as the Long Beach-Los Angeles Blue Line, and it carries nearly 10 times the throughput—and at significantly higher speed.<sup>17</sup>

In this chapter we will explore two ways of improving the performance of Valley freeways, so as to improve traffic flow. One is to improve the coverage, connectivity, and transit usage of the current and planned network of high-occupancy vehicle (HOV) lanes on the freeway system. The other is to explore modifying the HOV concept to the newer high-occupancy/toll (HOT) lane approach, both to raise additional revenues to complete the HOV/HOT network and to provide congestion relief to a larger fraction of the commuting population.

## II. HOV Lanes: A Critical Assessment

### A. Current and Planned Valley HOV Facilities

As of 1998, HOV lanes are in place and operational on the I-405 San Diego Freeway (from I-5 to SR 101), on the Simi Valley/Ronald Reagan Freeway (SR 118), on the Hollywood Freeway (SR 170), and on the Ventura Freeway (SR 134). Planned for addition over the next decade are new HOV lanes on the I-5 Golden State Freeway (from the Antelope Valley Freeway southward to the I-10 San Bernardino Freeway—entire stretch by 2009)<sup>18</sup> and on the I-405 San Diego Freeway (southward from SR 101 through the Sepulveda Pass—Opening 2005)<sup>19</sup>. Freeway-to-freeway HOV connectors are planned for the following freeway interchanges:

- Golden State/Antelope Valley (I-5/SR 14)—year 2015
- Golden State/Hollywood (I-5/SR 170)—year 2015
- Golden State/Ronald Reagan (I-5/SR 118)—not yet determined
- Golden State/San Diego (I-5/I-405)—not yet determined
- Hollywood/Ventura (SR 170/SR 134)—not yet determined
- San Diego/Ronald Reagan (I-405/SR 118)—not yet determined

This ambitious commitment to HOV lanes and connectors will still leave major gaps in what would otherwise be a seamless Valley HOV network. Missing altogether from the plans are HOV lanes on the Ventura Freeway (SR 101) across the east and west Valley and on the Hollywood Freeway (also 101) as it heads toward downtown Los Angeles from the 101/134/170 interchange. In addition, the following major interchanges will lack HOV connectors:

- Ventura/San Diego (SR 101/I-405)
- Ventura/Hollywood (SR 101/SR 101)
- Golden State/Ventura (I-5/SR 134)

<sup>17</sup> Thomas A. Rubin and James E. Moore, II, “Rubber Tire Transit: A Viable Alternative to Rail,” Policy Study No. 230, Reason Foundation, August 1997.

<sup>18</sup> Caltrans, “1997 HOV Annual Report,” July 1, 1998.

<sup>19</sup> *Ibid.*

A major question for transportation planning is whether these missing elements of a Valley-wide HOV system should be added to current plans, and if so, in what form and with what priority.

### ***B. Rethinking HOV Lanes***

The premise behind transportation planners' national and local commitment to HOV lanes is that the time savings offered by limited-access lanes will provide a strong incentive to motivate drive-alone commuters to shift to car-pooling. Unfortunately, statistical support for this premise is discouraging. As of 1994, the SCAG region had added 300 lane-miles of HOV lanes to the freeway system. Another 940 lane-miles, representing a 313 percent increase, are planned for addition between 1994 and 2020.<sup>20</sup> Yet despite the already large investment in HOV lanes and extensive efforts to promote car-pooling, fewer and fewer people are opting to share rides to work. The fraction of all commuting taking place as car-pools in the SCAG region has declined from 16.9 percent in 1980 to 15.5 percent in 1990 and 13.5 percent in 1996.<sup>21</sup>

Researchers have several explanations for these declines. First, rising affluence has led to greater car ownership, which means that more households with multiple commuters also have multiple vehicles. Second, the increase in women in the workforce reduces the number of potential car-poolers, on average, since statistically speaking, women are more likely to make multiple stops on the way to and from work (which researchers call trip-chaining); such trips do not lend themselves to car-pooling (or, of course, to transit). Third, the continuing dispersal of job locations throughout metropolitan regions and to firms of smaller average size makes it harder and harder to match up people who both live in the same neighborhood and work in the same or adjacent workplaces.

In addition, many researchers question the extent to which HOV lanes that require only two persons per vehicle actually stimulate the formation of carpools which would otherwise not exist—which is the original rationale for building HOV lanes. Transportation researcher Alan Pisarski finds that over half of today's carpools are members of the same family, most of whom would ride together whether or not there were HOV lanes. Only a minority are organized carpools, representing any real change in travel behavior.<sup>22</sup>

From the standpoint of congestion relief, another caution about the HOV approach has been raised by Joy Dahlgren, in her 1994 Ph.D. dissertation at UC Berkeley. Dahlgren sought to find out whether the addition of a general-purpose lane or an HOV lane would be more effective in relieving congestion on a crowded freeway. She concluded that adding an HOV lane would be more effective only under very limited circumstances: if the delays on the freeway prior to adding the new lane were 35 minutes or higher and if the proportion of HOV vehicles already on the freeway was around 20 percent. If the initial proportion of HOV vehicles is five percent or less, Dahlgren found that a general-purpose lane is more effective regardless of the initial delay.<sup>23</sup> Overall, Dahlgren found that if the proportion of HOV vehicles on the freeway is too low, the HOV lane will be underutilized, and if the proportion of HOV vehicles is too high, there will be little or no travel-time-saving incentive for people to shift to car-pooling.<sup>24</sup>

<sup>20</sup> "Community Link 21: 98 Regional Transportation Plan" (Los Angeles: Southern California Association of Governments, April 1998, Table 4.4, pp. 4–9).

<sup>21</sup> Data obtained from Southern California Rideshare (formerly Commuter Transportation Services.)

<sup>22</sup> Alan E. Pisarski: "Commuting in America II" (Washington, D.C.: Eno Transportation Foundation, 1996).

<sup>23</sup> Joy Dahlgren, "HOV Lanes: Are They the Best Way to Reduce Congestion and Air Pollution," *ITS Review*, February, 1995.

<sup>24</sup> *Ibid.*

The relatively poor performance of HOV lanes has also led to a political backlash. A highly vocal opposing group, Drivers for Highway Safety, is active in Orange County. In the San Fernando Valley, vigorous opposition to the addition of HOV lanes on the Ventura Freeway (101) led to their being dropped from the widening plan which took place in late 1991—and has apparently kept HOV lanes for this major freeway out of the 1998 revision of SCAG’s Regional Transportation Plan.

### C. Valley Freeway Congestion and HOV Usage

How well do the existing HOV lanes on Valley freeways work? Table 1 presents 1997 data from Caltrans District 7 on the actual usage of the four existing HOV lanes. To put these numbers in perspective, note that a smoothly flowing regular (“mixed-flow”) lane typically carries 1,500 to 2,000 vehicles per hour; traffic volume much above that leads to unstable flow—congestion—under which actual hourly throughput declines. As Table 1 reveals, all the existing HOV lanes have significant excess capacity in terms of vehicles per hour. And only the HOV on I-405 carries as many or more *people* per hour as a regular lane (1.04 times as many people in the AM peak and 2.61 times as many in the PM peak). Thus, the Valley’s HOV lanes represent a relatively poor investment thus far. One reason for this is that very little bus service is scheduled for these lanes—only SR 134 has any significant bus service during peak hours. But the other reason is simply that few people’s lives are arranged in such a way that it is convenient or possible for them to carpool.

Freeway	Eligibility	AM Peak— Vehicles per Lane per Hour	PM Peak – Vehicles per Lane per Hour	AM Mixed Flow Lane Equivalent	PM Mixed Flow Lane Equivalent
SR-118	HOV 2+	431	354	0.57	0.39
SR-134	HOV 2+	736	976	0.78	0.92
SR-170	HOV 2+	696	570	0.96	0.90
I-405	HOV 2+	905	1,066	1.04	2.61

A second question is whether the HOV lanes are located where they might do the most good, in terms of relieving congestion. Table 2 shows the current rush-hour traffic levels on the Valley’s six freeways. The maximum freeway service flow rate for a level-of-service (LOS) C is 1,550 cars per lane hour for a 70 mph speed facility. Congestion begins as the throughput exceeds 1,550 cars per lane hour.<sup>26</sup> All Valley freeways except the 118 and 405 have a three-hour morning peak period and a four-hour afternoon peak period. The 405 has a five-hour morning peak period and a seven-hour afternoon peak period. Caltrans does not consider the 118 to be a congested highway. Further, Caltrans classifies a highway as congested if vehicles are traveling less than 35 mph.<sup>27</sup> HOV lanes are conspicuously absent from the 101 and I-5, two of the most congested freeways.

<sup>25</sup> Caltrans, “1997 HOV Annual Report,” July 1, 1998.

<sup>26</sup> “Development of the Urban Areawide Congestion Measurement Methodology,” *Texas Transportation Institute Report*, No. 1131-3.

<sup>27</sup> Conversation regarding capacity levels and speeds at capacity with personnel in Caltrans HOV Department, December 18, 1998.

Highway (# of lanes)	Vehicle Count Point	Peak Period Vehicles per Lane Hour	Volume/Capacity Ratio
SR-101 (10 Lanes)	Laurel Canyon Blvd. To Coldwater Canyon	1,940	1.02
I-405 (8 Lanes)	Burbank Blvd. To Victory Blvd.	2,025	1.07
SR-118 (9 Lanes)	Balboa Blvd. To Hayvenhurst Ave.	2,289	1.20
SR-134 (8 Lanes)	Riverside Dr. To Forest Lawn Dr.	1,963	1.03
SR-170 (8 Lanes)	Magnolia Blvd. To Burbank Blvd.	1,863	0.98
I-5 (8-Lanes)	Alameda Ave. To Olive Ave.	1,938	1.02

### III. HOT Lanes Overview

#### A. Defining HOT Lanes

Growing concerns over the relatively poor performance of HOV lanes nationally has led to serious interest in a modification of the concept. Instead of limiting access to special, less-congested lanes only to that diminishing fraction of commuters who can arrange to form carpools, why not also open such lanes to people willing to pay a market price for a faster trip? This concept, first introduced by two UC-Irvine researchers in 1993, is called a HOT (high-occupancy/toll) lane.<sup>29</sup> The idea was endorsed by the Federal Highway Administration in 1994 as one of the ways urban areas could develop pilot projects to test congestion pricing. The first such project to receive federal funding for this purpose was the San Diego Association of Governments' project which has converted the under-utilized HOV lane on I-15 into a HOT lane. The other operational HOT lane project in California is the 91 Express Lanes—new lanes added to the median of the congested Riverside Freeway (SR 91) in Orange County by a private firm, under a long-term franchise granted by Caltrans.

The Institute of Transportation Engineers issued a white paper in 1998 endorsing HOT lanes as a valuable improvement on the HOV concept under three different circumstances.<sup>30</sup>

- First, if an existing HOV-2 lane is under-utilized, converting it to a HOT lane will open it up to enough new (paying) users to gain full value from the investment made in creating it—but the price will prevent demand from growing so high that the lane becomes overloaded and loses its time-saving advantage.
- Second, if an existing HOV-2 becomes over-utilized, and the powers-that-be decide to increase the occupancy requirement to three or more (HOV-3), that change will typically create a huge decrease in usage, since forming three-person car-pools is so much more difficult than forming two-person car-

<sup>28</sup> Peak period traffic vehicle counts and check points from: Caltrans, "1997 Traffic Volumes on California State Highway System," June 1998. Volume/Capacity ratio assumes an average capacity of 1,900 vehicles-per-land-hour per discussion with Caltrans HOV department.

<sup>29</sup> Gordon J. Fielding and Daniel B. Klein, "High Occupancy/Toll Lanes," Policy Study No. 170, Reason Foundation, November 1993.

<sup>30</sup> Kenneth Orski, et al, "High-Occupancy/Toll (HOT) Lanes and Value Pricing: A Preliminary Assessment," *ITE Journal*, June 1998.

pools. Here again, the excess capacity can be sold at a market price, getting full utilization of the lane's capacity but preventing over-use.

- Third, if an HOV lane is planned for addition to a congested freeway, it can be planned and implemented from the outset either as a HOT lane (as was the case with the 91 Express Lanes on the Riverside Freeway) or even as a toll-only express lane.

## ***B. HOT Lanes in Practice***

Thus far, California's limited experience with HOT lanes has been quite positive.

### **1. SR 91 Express Lanes, Orange County**

A 10-mile long section of the Riverside Freeway (SR 91) in Orange County has supported toll lanes since December 27, 1995. The four-lane toll facility in the median area of the existing freeway was built as a private profit-seeking investment and was the first application of "value pricing" attempted in the United States. All tolls are collected at highway speed by an electronic toll collection system and only registered customers with electronic transponders attached to their windshields are allowed in the toll lanes. Further, toll rates vary with the time of day in order to ensure that the toll lanes remain free-flowing at all times. Carpools of three or more people are given a discount by paying only half of the normal toll.

The major assessment report for Caltrans by California Polytechnic-San Luis Obispo reports time savings by Express Lanes users of around 12–13 minutes per 10 mile trip (though many users believe their own time savings are greater). There exists a strong correlation between express lane use and travel time savings which implies a value of time for SR 91 commuters of around \$13 to \$14 dollars per hour. Further, the project is viewed favorably by 65 percent of the Express Lanes users, 62 percent of the HOV discount users, and 53 percent of the main lane drivers. Since opening in 1995, average weekday traffic in the Express Lanes has increased from 8,000 to 30,000 vehicles with travel time benefits to all travelers on the SR 91 corridor. Further, a small improvement of about six minutes per trip was also observed on one of the parallel arterial streets.<sup>31</sup>

The Cal Poly report also found that the Express Lanes' use of time-varying pricing has succeeded in keeping large volumes (over 1,500 vehicles/hour) of rush-hour traffic flowing smoothly at 65 mph while traffic in the adjacent free lanes—though less congested than before the Express Lanes opened—averages 32 mph under congested conditions with no higher volume per hour.

Finally, in addressing the question of fairness and equity, surveys have also found that the mix of vehicles and demographic categories on the 91 Express Lanes does not differ significantly from the mix on the main SR 91 lanes. This does alleviate the concern that the Express Lanes would be used only by more affluent motorists and turn the lanes into the so-called "Lexus Lanes."<sup>32</sup>

### **2. I-15 HOT Lanes Conversion, San Diego**

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<sup>31</sup> Edward C. Sullivan, *Evaluating the Impacts of the SR-91 Variable Toll Express Lane Facility Final Report* (Sacramento: Caltrans, May 1998).

<sup>32</sup> *Ibid.*



The HOV lanes on I-15 consist of two reversible lanes in the median of the freeway, open to southbound traffic from 5:45 AM to 9:15 AM and to northbound traffic from 3:00 PM to 7:00 PM. Historically greatly underutilized, they were opened to single-occupancy vehicles for a fee (as well as carpools, still at no charge) in December 1996. Early results have shown that ExpressPass users experience savings of 10 to 20 minutes per trip.<sup>33</sup>

At first, monthly ExpressPass permits were sold for \$50 each to the first 500 people. Permits were displayed in the vehicle windshields. Another 200 passes were added in early 1997, and the monthly fee was increased to \$70. In late 1997 electronic transponders were issued to all Express Pass holders. In March 1998, a per-trip toll replaced the flat monthly fee, and charging via electronic toll collection began. Per-trip charges range from 50 cents to \$4 and fluctuate with changes in the volume of traffic on the HOT lane. During the rush hour peak, the maximum toll of \$4 is charged unless road sensors detect lighter than usual traffic.

A survey of I-15 commuters including ExpressPass participants was conducted in September and October 1997 before variable pricing was instituted. ExpressPass users are predominantly 35 to 54 years of age, are mostly men, are highly educated, and come from higher-income households. Further, they are SOV drivers who use the lanes for work-related purposes 8 to 10 times per week. Overall, 89 percent of the survey participants think the I-15 HOT Lanes program is a success.<sup>34</sup>

### ***C. SCAG HOT Lane Proposals***

During 1995–96 SCAG sponsored a 43-member task force called Reduce Emissions and Congestion on Highways (REACH). Its purpose was to examine the possibilities for using pricing mechanisms to address the serious problems of vehicle emissions and traffic congestion on SCAG region highways. The task force’s work was funded in part by a federal grant under the FHWA Congestion Pricing Pilot Program. The REACH Task Force represented a broad cross section of business, government, and community organizations. It commissioned Wilbur Smith Associates to do detailed traffic modeling of the impact of various pricing measures, as well as conducting extensive survey research on public attitudes toward pricing. Overall, the task force concluded that both emission fees and congestion pricing could be quite effective in dealing with the problems of vehicular emissions and freeway congestion.

When it came to making specific policy recommendations for congestion reduction, however, the task force concluded that it would not be politically feasible to propose wide-ranging freeway pricing. Instead, a broad consensus developed around the idea of HOT lanes as a way of introducing and testing freeway pricing on a voluntary basis, along the lines of the SR 91 Express Lanes and I-15 HOT Lanes projects. The REACH final report set out guidelines for selecting candidate HOT lane projects, focusing (as most likely to be politically feasible) on situations where the proposed addition of an HOV lane could be introduced instead as a HOT lane.<sup>35</sup> Only one such situation was identified as a near-term prospect in the Valley: a HOT lane addition for the Antelope Valley Freeway (SR 14). This and several non-Valley HOT lane proposals were included in the 1998 SCAG Regional Transportation Plan.

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<sup>33</sup> *Congestion Pricing Notes, Fall 1997*, <http://next.hhh.umn.edu/Centers/SLP/Conpric/cpnotes3.htm>.

<sup>34</sup> Kenneth Orski, et al., “High-Occupancy/Toll (HOT) Lanes and Value Pricing: A Preliminary Assessment,” *ITE Journal*, June 1998.

<sup>35</sup> REACH Task Force, “Final Report and Recommendations for Regional Market-Based Transportation Pricing” (Los Angeles: Southern California Association of Governments, January 22, 1997).

#### ***D. Sonoma County SR 101 HOT Lanes Feasibility Study***

In December 1995, the Sonoma County Transportation Authority (SCTA) and the Bay Area's Metropolitan Transportation Commission (MTC) started discussing the possibility of using tolls to help finance a new carpool lane and better manage congestion on SR 101. This led to a detailed feasibility study analyzing a possible HOT lane approach for the new lanes on 101, which is Sonoma County's principal artery. The study developed two variants of a HOT lane approach, differing only in length and number of access points. Among the key elements were the following:

- Variable pricing by time of day and distance traveled is the most economically efficient pricing strategy;
- Each direction on SR 101 through Sonoma County would possess one new HOT lane due to bi-directional peak-period traffic;
- Plastic pylons would be used to control access to the new HOT lane to avoid the high cost of purchasing additional right-of-way needed to construct concrete barriers;
- Access locations would be limited for operational and enforcement reasons with more access locations in the more urbanized areas of the SR 101 corridor;
- The preferred method for charging HOT lane customers is electronic toll readers in conjunction with on-board vehicle transponders.

Travel forecasting to determine future demand for the HOT lanes in 2005 and 2015 was directed at the following primary and secondary comparisons:

- Primary—advantages of a tolled HOV lane versus a free HOV lane.
- Primary—advantages of a flat toll versus a variable or dynamic toll in managing SR 101 corridor travel and generating revenue.
- Secondary—effect of varying toll lane lengths and the number of vehicle access points on revenue.
- Secondary—effect of a possible commuter rail line on HOT lane revenue in the year 2015.

Finally, the following results were obtained for the performance measures of AM peak hour vehicle-miles-traveled (VMT), vehicle-hours-traveled (VHT), average speeds by mph, freeway travel times, and person throughput at selected screening locations.

- HOT lane usage is related to congestion levels.
- A free HOV lane has a greater effect on carpool formation than the HOT lane mainly because the market for two- and three-person carpools is small.
- The HOT lane's corridor performance is better because speeds in the mixed flow lanes are improved to a greater extent than with the free HOV lane. This is primarily due to the fact that there are more eligible vehicles able to access the tolled lane diverted from the mixed flow lanes. Further, VHT in the corridor are reduced by one to three percent by tolling the HOV lane.
- While the free HOV lane produces the highest speeds for HOV lanes, it will not sustain this level of performance in the future. In the year 2015, the variable toll maintains the best speeds in the HOT lane because the price to access the lane is raised to keep the lane flowing at a desired level. This also

assumes that the carpool occupancy requirement is not raised to three persons and remains at two persons.

- The variable-priced toll lane generates much more revenue while maintaining better speeds than the flat-priced toll lane.
- A future commuter rail system along the SR 101 corridor does affect the revenue potential of a tolled HOV lane. However, flat-toll revenue would be affected more than the revenue generated by a variable-rate toll road.

Overall, the Sonoma County SR 101 analysis finds that a HOT lane approach provides better corridor performance than a free HOV lane. Speeds in mixed flow lanes also improve due to the diversion of traffic to the tolled lane.<sup>36</sup>

## IV. Valley HOT Lane Possibilities

Based on the positive results of the SR 91 and I-15 HOT lane projects, and making use of design concepts similar to what Parsons Brinckerhoff proposed for SR 101 in Sonoma County, we have analyzed the addition of new HOT lanes on SR 101 and the conversion of HOV to HOT on I-405 in the Valley. In turn, these proposals lead to addressing the heavily congested 101-405 interchange. We also look briefly at other possible Valley HOT lanes.

### A. *Ventura Freeway (101) HOT Lanes*

The most important east-west artery in the Valley is the Ventura Freeway (SR 101). It carries the most traffic, and until the addition of an extra lane in each direction in 1991, was the most congested. Despite the congestion relief offered in the near-term by the new lanes, SCAG predicts the return of more serious congestion over the next decade. With that increased congestion, the 101 will lack any alternative, higher-speed lanes—either for time-sensitive auto trips or for any form of mass transit (express bus, shuttle van, taxi, etc.).

There is thus a plausible case for adding yet another lane to each side of 101, from Woodland Hills to the 101/134/170 interchange, to make possible the conversion of the center lane in each direction not to the rejected HOV configuration but to a HOT lane. In comparison to the rejected HOV approach, the new HOT lanes would be open to all users (not just car-poolers), whenever they decided that a particular trip was time-sensitive enough to be worth paying the price of bypassing the congestion on the regular lanes. There would be no decrease in the existing number of regular lanes. From the standpoint of freeway users, there would be no losers from this approach.

The cost of acquiring the needed right of way to add a total of 34 feet to the 101's total width has already been estimated by the MTA, during studies in 1994 which estimated the cost of widening the 101 in order to build a rail line down its median.<sup>37</sup> That cost of right-of-way acquisition and paving the new outside lane on each side was calculated for a project extending from Canoga Ave. to Lankershim. The total was \$158

<sup>36</sup> Parsons Brinckerhoff Quade and Douglas, Inc., "Final Report: Sonoma County U.S. 101 Variable Pricing Study," MTC and SCTA, June 6, 1998.

<sup>37</sup> "Draft Project Study Report/Feasibility Study for San Fernando Valley East/West Rail Transit Project Ventura Freeway Aerial Alignment Study," MTA, November, 1994.

million (in 1998 dollars), which works out to \$10.6 million per mile. Applying this average to the 13.59 miles from Topanga Canyon Blvd. to the 101/134/170 interchange produces a total estimated cost of \$144 million. Caltrans cost estimates for restriping existing lanes to convert the inside lane to HOV (no repaving is required due to the recent repaving of 101) add another \$31 million.<sup>38</sup> And adding the cost of electronic toll collection equipment (based on the I-15 HOT Lane Project) adds another \$2.7 million.<sup>39</sup> Altogether, this produces an estimated project cost of \$178 million.

How much revenue might a 101 HOT lane generate? While maximum revenue would be produced if the lane were opened to toll-paying users only, this would cause incompatibilities with other HOV/HOT lanes (e.g., on the San Diego Freeway). Thus, our preliminary analysis assumes a mix of HOV-3 and paying customers, similar to what exists on the 91 Express Lanes (except we assume that the HOVs of 3 or more use the lanes at no charge).

Tables 3 through 5 display estimated information on tolls, vehicle numbers, and projected revenue for a 13.59 mile long HOT lane in each direction on SR 101 between Topanga Canyon Blvd. and the 101-134-170 interchange. All estimates are based on the tolls and vehicle numbers observed on the 91 Express Lanes as of June 1997. After applying these estimates to the proposed SR 101 HOT lane, we project revenue in the range of \$11 million dollars per year (in 1998 dollars).

Rate Class	Sun	Mon	Tue	Wed	Thur	Fri	Sat
Early AM (12–6 AM)	0.76	0.76	0.76	0.76	0.76	0.76	0.76
Morning (6–10 AM)	0.76	1.26	1.26	1.26	1.26	1.26	0.76
Midday (10 AM–2 PM)	1.89	1.26	1.26	1.26	1.26	1.26	1.89
Afternoon (2–5 PM)	1.89	2.02	2.02	2.02	2.02	3.47	1.89
Evening (5–8 PM)	1.89	3.72	3.72	3.72	3.72	4.03	1.89
Late PM (8–12 PM)	0.76	0.76	0.76	0.76	0.76	0.76	0.76

Rate Class	Sun	Mon	Tue	Wed	Thur	Fri	Sat
Early AM (12–6 AM)	0	0	0	0	0	0	0
Morning (6–10 AM)	960	2,187	2,187	2,187	2,187	1,803	1,477
Midday (10 AM–2 PM)	2,389	2,187	2,187	2,187	2,187	1,803	2,216
Afternoon (2–5 PM)	2,389	3,507	3,507	3,507	3,507	4,966	2,216
Evening (5–8 PM)	2,389	6,458	6,458	6,458	6,458	5,767	2,216
Late PM (8–12 PM)	0	0	0	0	0	0	0
Total	8,126	14,340	14,340	14,340	14,340	14,340	8,126

<sup>38</sup> Caltrans 1993 estimates converted to 1998 dollars.

<sup>39</sup> Estimate obtained from San Diego Association of Governments (SANDAG).

<sup>40</sup> Toll schedule based on information found in, *Evaluating the Impacts of the SR-91 Variable Toll Express Lane Facility Final Report* by Edward Sullivan. Exhibit 1-D, p. 7. Averages were estimated for the six rate periods and then increased based on the 26 percent increase in length of the proposed SR-101 HOT lane.

<sup>41</sup> Vehicle numbers based on information found in, *Evaluating the Impacts of the SR-91 Variable Toll Express Lane Facility Final Report* by Edward Sullivan. Page xiii. Average weekday and weekend totals per lane were used and then doubled to account for a HOT lane in each direction. These numbers represent SOV and HOV2 vehicles only since all other HOV vehicles at this point are assumed to ride for free. The estimates were reduced by 4.4 percent to account for HOV vehicles over 2 persons. This percentage is found on Table 2-IV, page 35 of the SR-91 report. The rate class vehicle numbers are based on percentages of the daily average and the level of the toll. Therefore, the peak periods possess greater vehicle numbers compared to the off-peak periods.

**Table 5: SR 101 HOT Lane Revenue Per Period (1998 Dollars)<sup>42</sup>**

Rate Class	Sun	Mon	Tue	Wed	Thur	Fri	Sat
Early AM (12–6 AM)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Morning (6–10 AM)	\$730	\$2,756	\$2,756	\$2,756	\$2,756	\$2,272	\$1,862
Midday (10 AM–2 PM)	\$4,514	\$2,756	\$2,756	\$2,756	\$2,756	\$2,272	\$4,189
Afternoon (2–5 PM)	\$4,514	\$7,084	\$7,084	\$7,084	\$7,084	\$17,232	\$4,189
Evening (5–8 PM)	\$4,514	\$24,025	\$24,025	\$24,025	\$24,025	\$23,243	\$4,189
Late PM (8–12 PM)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$14,273</b>	<b>\$36,621</b>	<b>\$36,621</b>	<b>\$36,621</b>	<b>\$36,621</b>	<b>\$45,019</b>	<b>\$14,427</b>

### **B. 405 HOT Lanes**

The HOV lanes on the San Diego Freeway are the most-used of any in the Valley, but even they are seriously under-utilized in the morning peak (and most of the rest of the day). Current plans call for adding similar HOV lanes on the section of the 405 that extends southward from the 101 through the Sepulveda Pass—one of the region’s worst bottlenecks—by 2005.

Due to the very heavy congestion on that section of the 405 (and continuing southward to Los Angeles International Airport), it appears likely that this section of HOV would likely be fully utilized at the normal HOV-2 requirement. But if the access requirement is increased to HOV-3, there is likely to be significant excess capacity—side by side with stop-and-go traffic in the regular lanes for much of the day.

Hence, there is a strong case for developing the HOV lanes through the Sepulveda Pass as HOT lanes, and converting the existing HOV lanes on 405 on the Valley floor into HOT lanes at the same time. Access would be granted to any vehicle paying a demand-based variable price—and to any vehicle containing three or more occupants: cars, vans, taxis, shuttles, and buses (as well as emergency vehicles). Such an express lane would significantly relieve congestion on this major congested artery. And it would provide a far more competitive guideway for all forms of transit vehicles. The added cost of developing the new segment as HOT instead of HOV, and of converting the current HOV segment to HOT, would be minimal. The principal costs would be the electronic toll collection equipment and changeable message signs.

### **C. The 405-101 Bottleneck**

Clearly the most gridlocked freeway location in the Valley is the intersection of the San Diego and Ventura Freeways. The subject of many newspaper articles over the past year, this obsolete design, which is carrying far more traffic than it was designed for, causes enormous rush-hour backups, especially on the 405. Caltrans has begun researching modest improvements, and local officials are urging the MTA to make these improvements a top priority.

<sup>42</sup> Revenue estimates based on information found in, *Evaluating the Impacts of the SR-91 Variable Toll Express Lane Facility Final Report* by Edward Sullivan. The values in tables 3 and 4 are used to obtain the revenue numbers. The weekly total is then multiplied by 52 to obtain an annual estimated revenue of \$11,450,542 in 1998 dollars.

Serious relief for this horribly congested interchange could be provided by HOV-HOV or HOT-HOT connectors (assuming that such lanes were in place on both the 101 and the 405 in the first place). Such connectors would permit four categories of user to speed through this congested interchange—emergency vehicles, transit vehicles, car-poolers, and paying customers—all of whom are now stuck in congested regular lanes. Diverting all four of these categories to the new lanes through the interchange would free up the regular lanes to some extent, as well.

The cost of such connectors would be significant. SCAG and Caltrans estimate that a typical HOV-HOV “Y” connector, linking the HOV lanes in both directions on just two freeway segments, costs in the vicinity of \$30-50 million. Using \$40 million as the average for each two-way link, a complete set of six connectors at the 101/405 interchange (including north-south and east-west overcrossings for those HOT users not changing freeways) would cost in the vicinity of \$240 million.

There are several ways to think about this expense, as an investment in a better transportation system. First, it is a small fraction of what the MTA had proposed to spend on now-abandoned rail schemes. In contrast to those rail projects, a greatly improved 101/405 interchange would improve the daily commutes of nearly 20 times more people than would have used a Valley Red line train (605,000 versus 32,000).

Second, if the overall transportation benefits from fixing this most heavily congested interchange are greater than the benefits from adding HOV-HOV connectors at several other locations, the funds that would have been used for those projects might be better spent on the 101/405 project (if sufficient funds are not available to do them all). For example, since the SR 118 and SR 170 HOV lanes carry so little traffic (and their adjacent mixed-flow lanes are not as congested as those on other freeways), it is not clear if HOV connectors are really justified in those cases—especially by comparison with the enormous benefits of decongesting the 101/405 interchange.

Third, if the project is carried out as HOT rather than HOV, it will generate revenues that largely support its costs. As noted previously, the proposed 101 HOT lane could generate some of \$11 million per year, and a comparable amount is probable from a 405 HOT lane. A \$22 million revenue stream would support the issuance of \$366 million in bonds (at 6 percent interest). This is 88 percent of the total cost of the connectors (\$240 million) plus the 101 HOT lanes (\$178 million). Thus, toll revenues would pay for nearly all of the project.

Fourth, by dramatically increasing the connectivity of the HOV or HOT network, this project will greatly increase its usefulness as transit infrastructure, giving all types of transit vehicles new uncongested rights of way on which to operate in major corridors.

#### ***D. Other Possible Valley HOT Lanes***

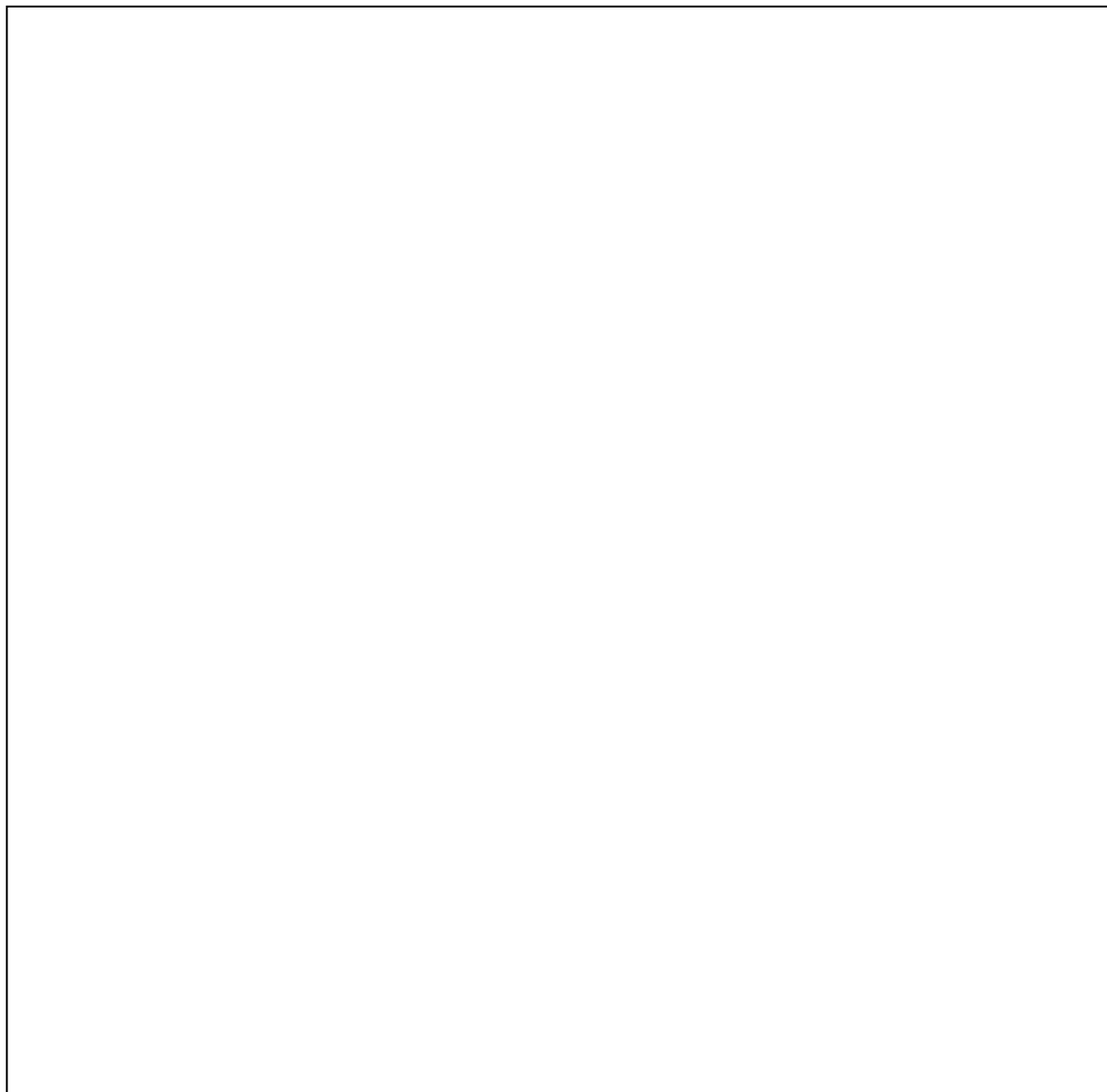
Detailed analysis of other HOT lane possibilities is beyond the scope of the time and budget of this study. However, a few preliminary suggestions can be made. First, there is probably not sufficient demand to convert the SR 118 HOV lanes to HOT lanes. Since there is minimal congestion on this freeway, those lanes might better be converted to mixed-flow lanes. The same may be true for the HOV lanes on the 170.

The Golden State Freeway is another story. In addition to being a congested commuter route, the I-5 is a major truck route. Indeed, the 1998 SCAG RTP identifies I-5 as a candidate for the addition of truck toll

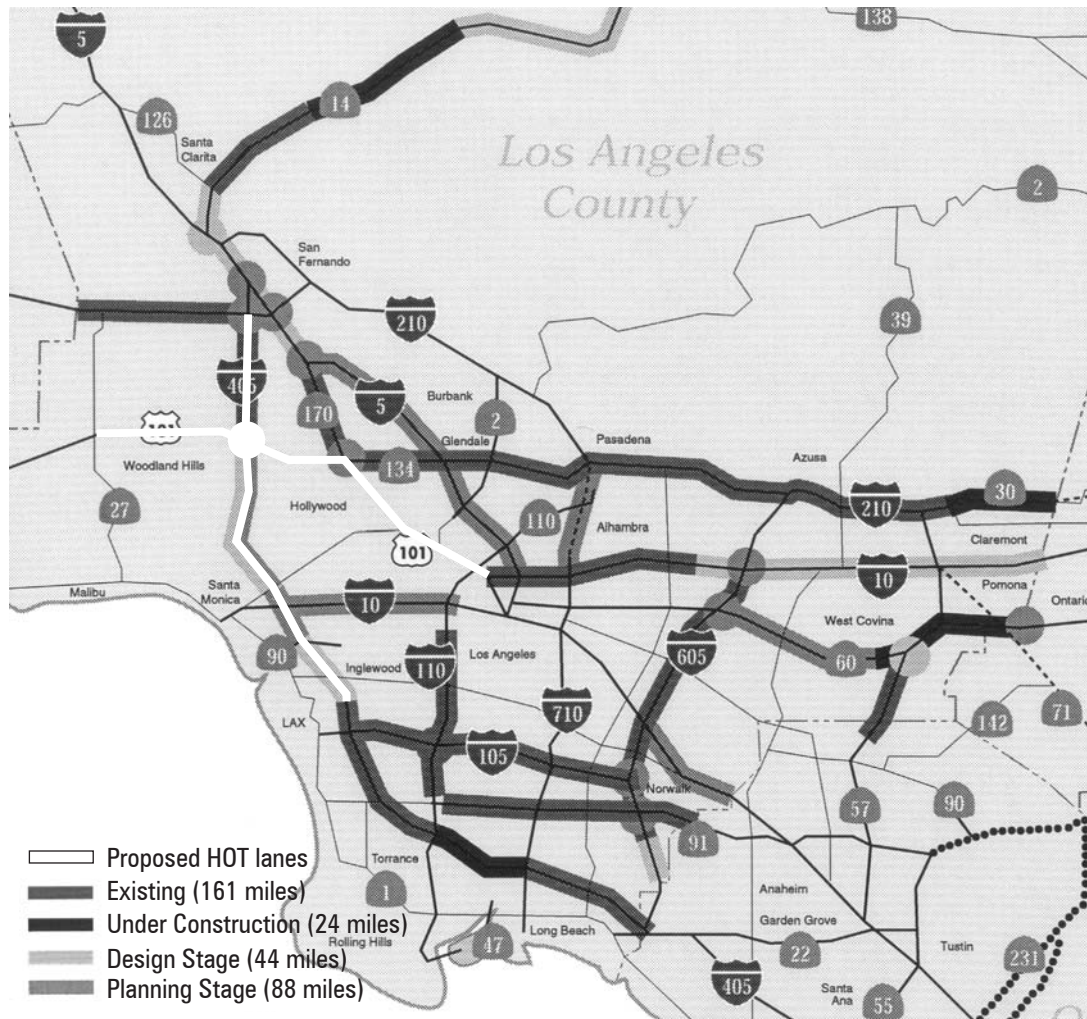
lanes over the next 20 years—heavy-duty outside lanes reserved for trucks only, offering truckers time savings in exchange for the payment of demand-based tolls. Decisions on when and whether either HOV or HOT lanes (and associated connectors) should only be made in conjunction with plans for such truck lanes—which offer major potential benefits to auto users.

The other freeway with important HOT lane potential is the 101 from the 101/170/134 interchange to downtown Los Angeles. No HOV lanes or HOV connectors are currently in prospect for this crucial freeway—yet it is one of the most congested in the entire SCAG region. The problem is that the physical constraints on adding lanes are very severe in this corridor, and the 101/170/134 interchange is hopelessly obsolete in design. Thus, any relief via adding HOV or HOT lanes would be very costly to obtain. It seems clear from the current RTP that no such relief is deemed affordable over the next 20 years, given current and projected revenue sources (primarily federal and state gas taxes, plus local sales tax revenues which are largely committed to paying off the huge MTA rail bonded indebtedness). A HOT lane corridor along 101 to downtown would at least offer an additional source of revenue to contribute to the very large costs of redesigning and expanding this obsolescent facility.

Figure 3 shows the possible future network of HOT and HOV lanes in the Valley.



**Figure 3: L.A. County HOV System Status**



## V. Assessment of HOT Lanes Approach

There are two fundamental arguments in favor of the HOT lanes approach outlined in this chapter. The first is the very real benefits HOT lanes will provide to drivers—who make up over 91 percent of all trip-making in greater Los Angeles. Our current freeway system is a one-size-fits all approach. Regardless of the type of trip, the time of day, or the level of congestion, everyone must sit in the same stop-and-go traffic for much of the day, on much of the freeway system. But not all trips are of the same value to people. A three-mile trip on the freeway to rent a video or buy a pizza is far less time-critical than a working mother's rush to pick up her child from day care before a late fee of as much as \$1 per minute kicks in. Likewise, a physician rushing to the hospital to deal with a medical emergency, a salesman late for a critical appointment, a harried businessperson rushing to catch a plane at LAX—any of these people might well find it worth paying \$3, \$5 or perhaps far more to be able to take an uncongested express lane, if only one were available at that particular time.

In most other areas of our daily lives, our economic system offers a range of choices, at prices reflecting their different value to different people. In transportation, air travel offers coach and first class, and increasingly



also offers no-frills coach and business class as additional choices. In mail and package delivery, we have several different classes of regular mail, as well as Express Mail and the various private overnight and two-day delivery companies. In restaurants, entertainment, and retail shopping, we are offered a huge diversity of choices, spanning an enormous range of prices and qualities. Highway transportation is one of the very few areas of our daily lives where no real choice of price and quality has been available. HOT lanes represent a break with this no-choice tradition.

The second major benefit of the HOT lanes approach—if it is taken advantage of—is the important new infrastructure it offers for transit providers. One of the alleged advantages of rail (if grade-separated, via elevation or tunneling) is that it can bypass traffic congestion. By contrast, buses and taxis are just as subject to getting stuck in traffic as automobiles. But a complete and connected network of HOV or HOT lanes offers an alternative infrastructure paralleling the freeway system—but not trapped by its congestion. This parallel network can best be thought of as a common carrier—i.e., like a fiber-optic line that is open to any qualified user. In the case of HOT lanes, qualified users include paying automobiles, qualifying car-pools, emergency vehicles, vanpools, shuttle vans, jitneys, taxis, MTA buses, subscription buses, city buses, privately contracted buses, and any other type of high-occupancy vehicle.

To be sure, some portions of this HOT lane system—specifically the freeway-to-freeway connectors—are very costly to build, making the system as a whole somewhat comparable in cost to a grade-separated rail guideway. But in contrast to the MTA’s proposed rail guideway—which would have been usable only by MTA rail cars—the HOT lane system is an open network, accessible to the large array of types of user noted above. It is this kind of flexibility that gives the El Monte Busway the throughput equivalent of 5.7 freeway lanes. Because of the ability to fine-tune usage of HOT lanes by varying the price, so as to ensure uncongested traffic flow that takes full advantage of the lane’s inherent capacity, we can state with confidence that “if we build HOT lanes, they will come.”

Politically, who is likely to support HOT lanes? Some indication of their broad appeal can be found in the fact that the 43-member REACH Task Force was able to reach consensus that HOT lanes made sense as a way forward, to make better use of the region’s freeway system. Among the organizations participating in the Task Force were SCAG and Caltrans, a coalition of major employers, the Auto Club of Southern California, the Reason Foundation, and the Environmental Defense Fund.

The Auto Club historically has opposed directly charging for road use, and has opposed most proposals to expand the use of tolls and toll roads. But in the REACH process, the Auto Club agreed to support those HOT lane projects that involved net additions to highway lane capacity (such as the 101 HOT lanes proposed in this chapter). At the national level, the American Highway Users Alliance (which includes the American Automobile Association as a member) now supports HOT lanes.

The Environmental Defense Fund’s support for HOT lanes is also worth noting. While some environmental organizations oppose any highway project that involves adding lane capacity, EDF has concluded that the introduction of road pricing is so important that it has been willing to support projects such as the 91 Express Lanes and the proposed Sonoma County HOT lanes on 101 that involve the addition of new lanes. We can predict that they may be willing to support a project such as the proposed 101 HOT lanes.

Any project that involves taking additional land for freeway expansion—such as that required for the 101 HOT lanes—will be opposed by some of those whose land is slated for purchase, and by others living near the freeway who will object to both the one-time construction and to the increased traffic and noise from the

additional lanes. What is involved here is a question of trade-offs. This report makes the case that a Valleywide network of HOT lanes and arterial busways provides a far more traveler-friendly infrastructure than would be provided by any kind of guideway—bus or rail—in the heavily residential Burbank-Chandler corridor. To avoid the high dollar costs and neighborhood disruption costs of putting a guideway in that corridor, the trade-off is to make wiser use of the Valley’s existing freeway corridors, especially the 101 corridor.

## Chapter 4

# Restructuring Valley Transit Services

BY JAMES E. MOORE, II WITH THOMAS JOSEPH O'BRIEN

## I. Introduction

This chapter evaluates options for restructuring the transit system in the San Fernando Valley, and reviews the primary obstacles to effective restructuring. The MTA is currently responsible for providing transit services to the residents of the San Fernando Valley and the rest of Los Angeles County. Two of the eleven bus divisions that make up the MTA are located within the San Fernando Valley, accounting for 359 buses operating on 35 routes.

Competitive bidding for service delivery can be a powerful tool for improving cost-effectiveness, as many jurisdictions have discovered. There are many possibilities for restructuring transit service, ranging from permitting transit authorities to contract out services to creating a regulatory environment that encourages competition among private entrepreneurs. This chapter concentrates on three approaches, two of which have been the subject of recent California legislation. The first approach would establish a San Fernando Valley Transit Authority (VTA) independent of the MTA. A 1998 report by the California State Auditor suggests that such a VTA is feasible from an economic standpoint, assuming the transfer of certain transit corridors and 20 percent of both the MTA's sales tax revenue and its debt.<sup>43</sup> The Auditor's study incorporates rail development, but we are concerned only with nonrail options. Creation of a new transit authority would require state legislation.

The second approach is to create a transit zone intended to balance localized planning authority with centralized fiscal control. The MTA could presently provide the majority of the funds for such a new zone for a period of up to three years. If, at the end of that time, the new planning authority is able to demonstrate savings and improved service, the zone is then designated an "operator," with formula funding provided through the MTA in its capacity as the County's transit planning and programming agency. In the greater Los Angeles area, this has come to be known as the "Foothill Model," named after the Foothill Transit District, which operates in the San Gabriel Valley east of downtown Los Angeles. Foothill left intact for three years the routes it inherited from the Southern California Rapid Transit District (SCRTD) in 1988. It

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<sup>43</sup> California State Auditor, Bureau of State Audits, "Los Angeles Metropolitan Transportation Authority: Creating a Separate San Fernando Valley Authority Would Take a Split of Assets, Revenue, and Debt" (Sacramento: California State Auditor, 1998).

demonstrated mandated cost savings, was designated an operator, and then began to make changes. It also used savings to lease equipment. Transit zones like Foothill may be established at the local level.

The third option, directly contracting out current MTA services to private firms, is both viable and politically more realistic. There are potential savings in subcontracting. Competitive bidding may encourage increased efficiency on the part of public agencies, particularly if the process fosters competition among different transportation authorities. In Los Angeles County one can imagine a scenario in which the Los Angeles City Department of Transportation (LADOT) competes with the MTA for service on Valley routes.

Subcontracting offers fewer political obstacles. Recent political efforts in the California legislature suggest that transit restructuring in the San Fernando Valley will depend on more than a balance of payments between two regional agencies. In the end, successful transit restructuring will have to reflect sound fiscal policy and the political will of leaders in affected jurisdictions. It will come about only as a result of balancing payments and the agendas of transit riders, union members, and elected officials.

## II. Transit Zones and Transit Authorities

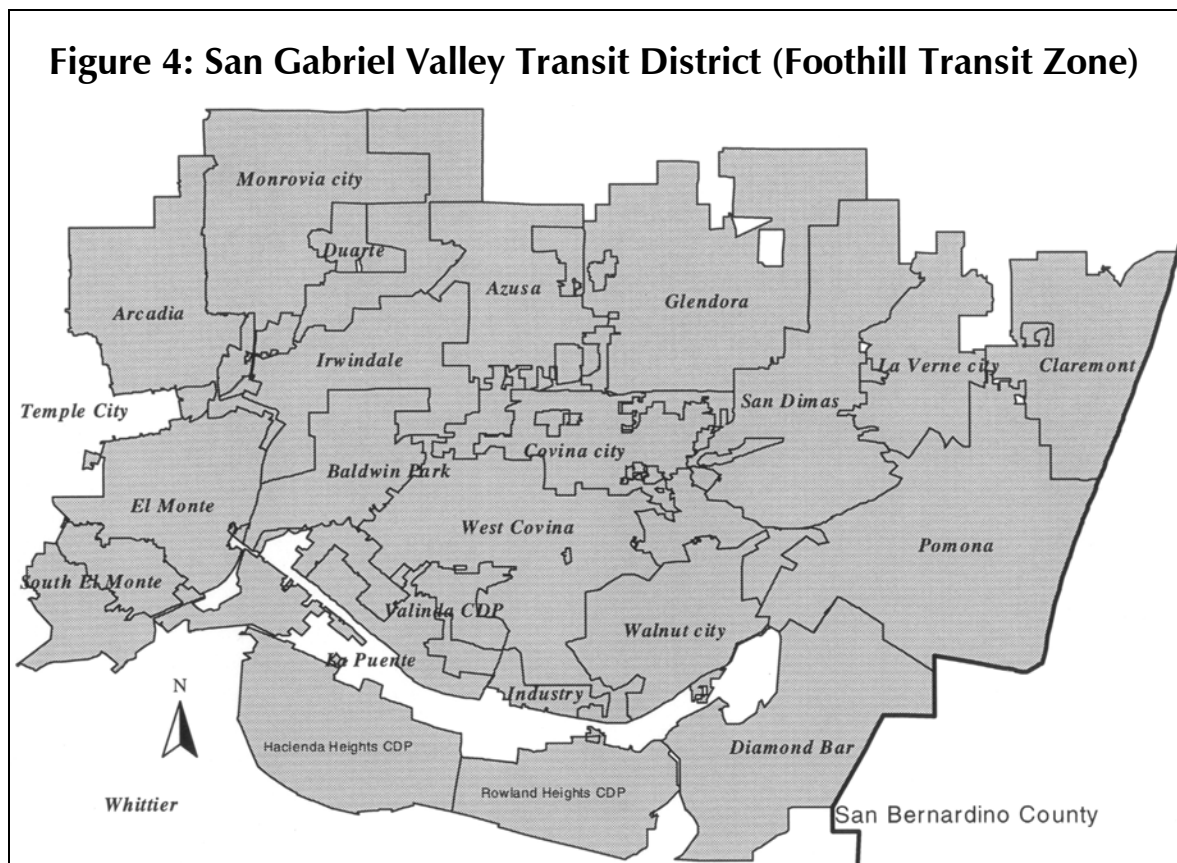
The Foothill Transit Zone was created in 1988 as a private-public partnership serving 20 member jurisdictions in a 327 square-mile area of the San Gabriel Valley. Foothill currently serves 21 cities in addition to unincorporated parts of Los Angeles County (Figure 4). The Foothill Transit District is governed by a five-member executive board composed of four city representatives and one appointee of the Los Angeles County Board of Supervisors.

Competitive contracting is the key principle upon which Foothill was created. The experiment has resulted in improved service at a reduced cost for participating cities.<sup>44</sup> Foothill Transit has a lower system-wide operating cost per service hour than the MTA (\$54 vs. \$100), lower fares than the MTA, a higher system-wide fare box recovery ratio (45.2 percent vs. 32.1 percent), and a lower system-wide subsidy per service hour (\$30/hr. vs. \$68/hr.).

Some of these savings are on routes once operated by the RTD, the bus service that combined with the Los Angeles County Transportation Commission (LACTC) to form the MTA. Between 1982 and 1985, the RTD used Proposition A sales tax funds to institute a \$0.50 bus fare. Known as the “Bus Continuation Project” this initiative contributed to a 40 percent increase in bus ridership. After three years of steadily increasing bus ridership, the LACTC canceled the special fare subsidy and shifted the Proposition A funds to rail construction. Bus lines with the lowest ridership were cut to save more money to channel into rail. These lines were subsequently transferred to LADOT (largely commuter express routes) and to Foothill Transit, both of which continue to operate these routes.

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<sup>44</sup> San Gabriel Valley Council of Governments Transit Restructuring Ad Hoc Committee, “San Gabriel Valley Council of Governments Transit Restructuring Study” (Pasadena: San Gabriel Valley Council of Governments, 1997).



There is little doubt that MTA is vulnerable to claims of providing inadequate service in the San Fernando Valley and elsewhere. The experience of Foothill Transit, which increased ridership and reduced costs after spinning off from the RTD, is a persuasive argument for the proponents of transit restructuring. The MTA has Zone Guidelines<sup>45</sup> that were adopted in 1986 by the LACTC to implement certain provisions of the legislation that created the agency in 1976. When the MTA was formed by merging the LACTC and the RTD, the Transportation Zone Guidelines were transferred to the new authority. The key question for proponents of transit restructuring is whether a new agency would realize the cost savings required by the MTA's Zone Guidelines, and what role union contracts will play in the calculation.

The Guidelines permit the MTA to create new transit agencies that provide more cost-effective service by inviting bids from public or private operators. The Public Utilities Commission requires zones to be located in cities or unincorporated county areas with an economic center, with a minimum of three contiguous communities, and/or a minimum of 50 contiguous square miles. The Guidelines thus permit the following approaches with respect to the San Fernando Valley:

1. creation of a transit *zone* managed by a joint powers authority (JPA) involving different local jurisdictions, or
2. creation of a public transit *authority* via state legislation.

<sup>45</sup> Los Angeles Department of Transportation, "San Fernando Valley Transportation Zone Overview" (Los Angeles: Los Angeles Department of Transportation, 1998). This report is a chronology of events with attached correspondence. A discussion of the MTA Zone Guidelines is contained within an Inter-Departmental Correspondence from the LADOT to Councilmember Richard Alarcon dated February 17, 1998. See also LACTC "Transportation Zone Guidelines," February 26, 1986.

The MTA Zone Guidelines require that the application for transit restructuring be sponsored by the county or by a city of adequate size. The City of Los Angeles may act as applicant. They also require that the applicant show cause why the MTA cannot adequately meet the transit needs of an area in a cost-effective manner, and why the new agency can do so more cost-effectively. The MTA Guidelines stipulate that 25 percent savings be apparent for the development of a new zone/authority to proceed.

Los Angeles City Councilman Richard Alarcon, chairman of the City Council Transportation Committee, has championed the cause of a new Valley transit zone. He believes that the LADOT could coordinate transit operations under a joint powers authority and show the mandated savings of 25 percent in costs or subsidies. He has stated that 40 percent savings could be realized if the new agency operates without carrying over existing MTA contracts. He is certain, however, that there are not eight votes on the City Council to do this. Therefore, he thinks savings in the range of 21–40 percent are more realistic.<sup>46</sup> Savings of less than 25 percent do not meet current MTA criteria to establish a zone.

Alarcon initiated a motion in October 1997 requesting that the LADOT prepare a report on the feasibility of creating a Valley Transit Zone under the MTA. LADOT reported back to the Committee in December 1997; and in January 1998, the full City Council directed LADOT staff to meet with other local jurisdictions and the MTA about the feasibility of establishing a zone. In April 1998, the Council formally endorsed a plan to study the formation of the Valley Transit Zone. On May 21, Alarcon hand-delivered to the MTA a notice of intent to proceed with restructuring, followed by a pre-application submitted along with other jurisdictions including the Cities of Burbank and Glendale. The MTA decides on the basis of the pre-application whether there is cause to proceed with the creation of a new agency and then requests a final application. As part of its review, the MTA considers the planned restructuring's consistency with MTA Guidelines and its impact on existing operations. The agency holds public hearings and, in the end, it is the MTA Board that has the authority to create the zone and approve funding for a specified period of time.

Despite the additional time needed to coordinate the application process with different jurisdictions, there is considerable agreement on the need for restructuring among the representatives from the San Fernando Valley and their constituents. Only two Los Angeles councilmembers voted against the \$265,000 study called for by Alarcon. Both represent constituencies in the heart of the City. Another councilmember who supported the study has openly expressed reservations about nullifying union contracts<sup>47</sup>. There may be opposition from organizations such as the County Labor Council, but also there appears to be widespread support for a Valley transit zone. The County Board of Supervisors, which also has the power to call for the creation of a transit zone, supports the zone in concept and will consider a specific application once it is submitted. In the meantime, proponents continue to remind reluctant elected officials that inflexible union contracts hurt low-income bus riders by contributing to higher fares.

Alarcon's efforts parallel those of two San Fernando Valley lawmakers in Sacramento. AB 2189, sponsored by Democratic Assemblyman Tony Cardenas, called for the MTA to establish a zone in the Valley for buses. The bill died in committee in May 1998, apparently over labor/contract issues.

A Valley Transit Authority was proposed by California State Senator Tom Hayden in Senate Bill 1886. The Hayden bill originally called for the creation of a Valley Transportation Authority independent of the MTA with formula funding from the state and federal governments. The Senate Appropriations Committee initially

<sup>46</sup> Richard Alarcon, address, Sylmar Community Coordinating Council, Sylmar, May 20, 1998.

<sup>47</sup> Patrick McGreevy, "City Endorses Transit Zone," *Los Angeles Daily News*, April 30, 1998, p. 3.

voted 7-3 to set up a 20-member Valley panel to oversee local transit spending. However, the version that was approved by the State Senate in May 1998 and sent to the Assembly would have instead created a 15-member Valley Transportation Authority under the authority of the MTA. The modified version of Sen. Hayden's bill was first considered by the Assembly in June 1998. The Assembly Transportation Committee twice failed to pass the same measure, effectively killing it before the bill reached the floor. In each case, local representatives either failed to vote or voted against the measure. Tony Cardenas missed the final vote. Jack Scott, from neighboring Pasadena, opposed it.

The history of these bills conveys a message about the (un)likelihood of steering transit restructuring legislation through Sacramento. State lawmakers are in a position to craft enabling legislation but they more often create obstacles. The best course for restructuring is local action and not state legislation.

### III. Obstacles to Transit Zones and Authorities

Apart from government inaction, there are three serious legal obstacles to the creation of either a Valley transit zone or an independent transit authority:

- Section 13(c) federal labor compensation payments,
- Existing MTA union contracts, and
- The Consent Decree in the case of the Labor/Community Strategy Center vs. the MTA.

#### A. Federal Section 13(c)

The most relevant piece of federal legislation is Title 49, Section 5333(b) of the U.S. Code, often referred to as Section 13(c) of the Federal Transit Act, a reference dating to the Urban Mass Transportation Act of 1964. This law stipulates that, as a condition of federal financing by the Federal Transit Administration, mass transit employees have the right to preserve rights obtained under collective bargaining agreements, protection against reductions in the quality of their working conditions, priority for re-employment, and job (re)training.

In more practical terms, this federal transit law means that federal funds cannot be used to take away employment rights. It requires monetary compensation or retraining for all transit employees, union and non-union alike, affected by restructurings like those proposed for the San Fernando Valley. It requires a transit agency to pay, for a period of up to six years, the *difference* between an employee's wage prior to loss of employment and the wage obtained after restructuring (either within or outside the new transit agency). In the San Fernando Valley, the range of salaries for affected employees is likely to be from \$10/hour to \$19/hour. With benefits, the upper end of the pay scale translates into a cost of over \$30/hour.

Foothill Transit did not receive any federal funds as part of its creation, and was able to avoid the direct payment of compensation. Plans for the San Fernando Valley could include funds from Washington however; and if a dispute exists over potential harm to transit workers, then the U.S. Department of Labor will not certify compliance with Section 13(c) and federal funds will not be forthcoming.

It is rare for actual 13(c) payments to be made. The penalties are large enough that agencies make arrangements to avoid both the payments and associated legal expenses. A new regional authority could spend millions of dollars simply proving that it is not subject to the federal transit law. Bargaining units

might place other projects at risk by tying up creation of a new transit zone or authority in the courts as they attempt to force a transit agency to prove that employees have suffered no harm.

Transit agencies will be required to weigh the potential liability associated with federal regulations against the benefits of decentralized service. The potential benefits available to the San Fernando Valley are far greater than the cost of the worst-case scenario, six years of compensation payments and the possibility of penalty payments that could exceed the other operating costs of the zone. First, while the law requires payments equaling the difference between the transit wage and the wage earned after restructuring, it also requires employees to let the agency know about their employment status and whereabouts. Enforcement could occur every 30 days or every quarter; and the burden should fall upon the employee to submit forms with updated information. Failing to do so would put compensation payments at risk.

The task of coordinating compensation payments and form submittal should go to a skilled employee placement firm, perhaps one which has dealt with downsizing in the aerospace industry. The cost of employing such a firm would be more than offset by savings in compensation payments. Good tracking of ex-employees will reveal whether or not someone has refused a job. Refusing employment forfeits protection under the federal transit law. The original employer, i.e. the MTA, is not equipped to administer such a program.

The timing of transit restructuring is also important. Implementation does not have to be done overnight. Instead, coordinated efforts between a new transit agency and its parent authority, e.g. between a proposed Valley Transit Zone and the MTA, would allow transfer of routes and assets over a period of time. An aggressive program would include a one or two-year long conversion process. This makes Section 13(c) less relevant because normal employee turnover would reduce the number of workers affected. Early retirement incentives also help. San Diego, Indianapolis, and Denver have pursued contracting through attrition. San Diego has achieved 35 percent contracted service over a 17-year period. However, this rate (three percent a year) is probably not fast enough for the San Fernando Valley.

Effective decentralization of transit services can be accomplished while complying with other tenets of federal transit law as well. Contractors should be required to give the right of first job refusal to ex-MTA employees. This can be done on a quarterly basis, based on seniority, and tied into the existing bid process for routes. Multiple contractors help in this arena tremendously. First, smaller contractors keep bigger firms honest. Second, the bidding for ex-employees by multiple contractors is likely to discourage the employees from resorting to Section 13(c) for compensation. The size and scope of operations in the San Fernando Valley should easily permit three separate contractors to operate simultaneously. Finally, it should not be the new agency's goal to completely eliminate federally mandated compensation payments. The extent of these labor protection payments is widely misunderstood. They are limited to the difference between old compensation and new. If a driver takes a job with the private operator and gets paid \$7 less in wages and benefits per hour, then this is the extent of labor protection called for under the law. If the driver refuses to take a job for which (s)he is qualified, (s)he loses labor protection. Considerable savings will still result if the average compensation payout period can be reduced to two years. The average elsewhere now appears to be about 3.5 years.

There is no relief in the National Labor Relations Act. The NLRA permits private contractors to comply with collective bargaining law by hiring a minimum of 51 percent of existing employees. However, Section 13(c) remains both relevant and more stringent. But this is not an insurmountable obstacle; and should not preclude the formation of a new transit zone, a transit authority, or subcontracting in the San Fernando Valley. There may even be some benefit to incorporating labor protection payments into the development of contract services, particularly if this avoids the high transaction costs associated with protracted legal battles with labor unions.



## ***B. Current Union Contracts***

The existing contracts between the MTA and its unions are far greater obstacles. Any major transit restructuring would have to include key commitments currently in place at the MTA. Article 51 of the United Transportation Union (UTU)/MTA agreement requires that an acquiring agency assume all existing MTA labor contracts, with no loss of worker rights or benefits. This clause is triggered by the transfer of an asset, including a bus or a bus line, and greatly intensifies the problems associated with Section 13(c) labor protection requirements. The other MTA unions, the Amalgamated Transit Union (ATU) and the Transportation Communications Union (TCU), have similar provisions in their contracts.

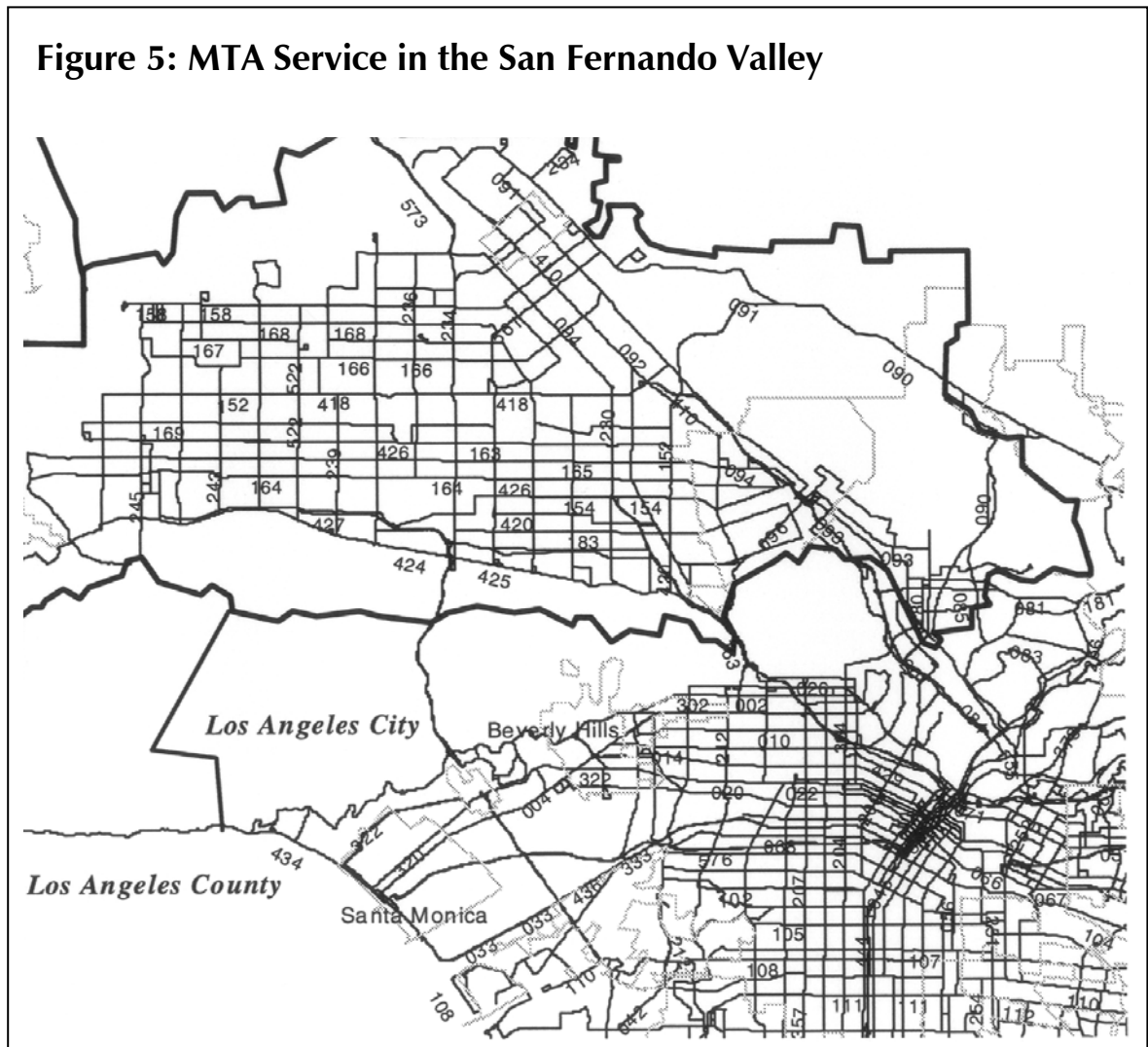
There is a debate over the validity of Article 51 that dates to the creation of Foothill Transit. Proponents for Foothill Transit claim that they circumvented this requirement in court, but the California 2nd Appellate Court has handed down a definitive opinion stating that Article 51 is valid, and cannot be ignored. When the Foothill Transit District was formed, the unions sued the SCRTD, LACTC and Foothill to prevent the creation of the new zone. But the judge ruled that the unions had pursued court action prior to arbitration, failing to first exhaust appropriate administrative remedies. The unions appealed to the 2nd Appellate Court and their appeal was denied. The California Supreme Court also refused to hear the unions' appeal. By the time the unions filed for arbitration on Article 51 and won, the Foothill Transit Zone was already formed and merely made cash settlements to resolve the dispute.

The UTU is unlikely to repeat this oversight. Unions have a place at the table. It's not realistic to think that the current terms and conditions of their contracts will be circumvented. Furthermore if funding from Sacramento is involved, the unions can expect support from key legislators. California Assembly Speaker Antonio Villaraigosa, also of Los Angeles, is a former union organizer for the United Teachers of Los Angeles.

If the new agency has to assume the UTU/MTA labor contract "as is," then a new zone cannot realistically be formed. Remedies exist, but they are imperfect. One possible legal argument is that creating a new system (and not merely transferring ownership of an existing route) means that the MTA has not sold an asset. The new agency can avoid the physical transfer of buses (a fixed asset) by cutting back on the number of vehicles currently under order by the MTA. In this way, the new zone is implemented over time, two to three years perhaps, as MTA buses are retired and replaced.

In reality, it will be nearly impossible for a proposed agency to avoid absorbing some or all of the existing MTA routes (Figure 5). Some level of service on these routes will have to be continued. Further, it is neither desirable nor necessary to delay implementation of a zone until an entirely new system is in place.

**Figure 5: MTA Service in the San Fernando Valley**



Instead, it is better to address Article 51 directly and make it less relevant. For example, it is possible to incorporate the unions into the restructuring process from the beginning. For every bus that MTA takes off the road, between 2.5 and 3 drivers are likely to lose their jobs. The MTA has seen an overall reduction in its workforce over the past ten years. The remaining workers are better paid, but they also recognize that their positions are vulnerable and that the threat from Foothill-style zone proposals is ever present. They will have an incentive to negotiate.

A new agency could probably negotiate more jobs through lower wages for existing employees. In fact, the most recent UTU contract has a top pay scale that is approximately 80 percent of the current top pay. However, it may make more sense to keep the work rules, terms, and rates for those existing employees and then negotiate forward by agreeing upon different structures and rates for replacement workers and new jobs. One of the most important lessons provided by Foothill Transit is that changes in work rules may be more effective than changes in pay rates. For example, by changing contract regulations with regard to sick leave, the new agency can realize savings that compensate for a higher pay rate.

The MTA has flexibility with regard to Article 51 when it creates new service. When the MTA adds a new line, its union agreements permit it to make use of a Business Development Operating Facility (BDOF) clause. While the top rate for union employees is now \$20/hour, operators receive \$10/hour under the BDOF. Including benefits, the MTA can save \$20 per hour. However, if the MTA tries to use old buses on new service, it is likely to encourage challenges under Section 13(c).

Section 13(c) and Article 51 are not insurmountable constraints, but together they do preclude a rapid transfer of service from a public agency to a private operator. Such a big bang approach has been tried elsewhere. In Houston, the Metropolitan Transit Authority of Harris County undertook the biggest one-time contracting program while simultaneously addressing the requirements of federal transit law. In a single day in September 1996, the Houston authority contracted out 20 percent of its fleet, or 145 vehicles out of a total of 800 buses.

### ***C. The Consent Decree***

In Los Angeles, however, restructuring transit services requires more than coordination with the transit unions. It is also necessary to convince bus riders of the long-term fiscal and service impacts of any change. This must be done as part of an attempt to address the third potential obstacle to transit restructuring in Los Angeles: the federal district court's Consent Decree in the case of the Labor/Community Strategy Center vs. MTA. This suit was brought against the MTA by the NAACP Legal Defense and Education Fund on behalf of the Bus Riders' Union and other litigants. The decree requires improvements in service; and the riders' union is requesting, among other things, that the court require the MTA to order 1,600 more buses than it had planned on ordering during the six-year period from FY 1999–FY 2004.

The Consent Decree may have done more to focus the attention of the MTA on the needs of transit users than any other action.<sup>48</sup> This anti-discrimination suit would be made even more relevant if a new zone received money to lower fares (as sales tax monies were used to lower RTD fares between 1982 and 1985). Establishing a San Fernando Valley Transit Zone may create a situation where one group of riders on the suburban fringe is better funded and receives better service relative to riders in central Los Angeles. If the Bus Riders' Union argues that a new zone makes some aspects of a bad situation worse, the 9th Circuit Court or its Special Master might be persuaded that creating a new zone violates the Consent Decree.

Addressing both Article 51 and the Consent Decree will entail developing strategies that, in the short term, could result in the cancellation of service. The past transfers of some SCRTD express routes to County and City of Los Angeles provide a model. The cancellation of some service in the interim most likely provided riders with a short-term hardship, but it also provided them with long-term benefits as the changes produced improved service. The MTA has already responded to the Consent Decree by establishing reverse commuter express buses, operated by a contractor, that provide service between downtown Los Angeles and the San Fernando Valley; and the 1998–99 MTA budget includes three pilot bus lines in the San Fernando Valley, including a Thousand Oaks-LA Express line and a Laurel Canyon Shuttle. The latter is already operational and being run by a contractor.

It should be possible to show that similar contracting arrangements in the San Fernando Valley can keep fares lower while increasing service levels 20 to 50 percent above MTA levels. Foothill's Comparative

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<sup>48</sup> Thomas A. Rubin and James E. Moore, II, "Better Transportation Alternatives for Los Angeles," Policy Study 232, Reason Public Policy Institute, 1997.

Report Card for fiscal year 1997 indicates that it would provide more than double (119 percent) the number of vehicle service hours over the best case scenario for MTA operation of the same lines, 539,044 vs. 246,410; as well as more than double (110 percent) the number of boardings, 15,249,854 vs. 7,278,831. It would also have a lower operating cost, \$29.9 million vs. a best case 1997 value of \$31.4 million for the MTA. As the Report Card states: “Applying the MTA system data to the lines Foothill Transit acquired provides the Best Case operation of these lines by the MTA. This assumes continued operation of the six lines which RTD announced it would drop, and that these lines would have performed the same as all other RTD/MTA lines.”

For proponents of restructuring to win what is essentially a public relations war, the riders (and the Bus Riders Union) must see the UTU as a source of problems for the effective provision of services. The challenge is to get the riders to realize that the Consent Decree intended to protect the interests of riders is actually shielding the UTU, and that a change is needed to truly meet the demands of the transit dependent population.

In the San Fernando Valley, this will mean designing a system that is more appropriate for this particular region and addressing:

1. the role of effective timed transfers in improving and maximizing service (see Chapter 2);
2. the feasibility of using busways, articulated buses, jitneys, smart shuttles, and paratransit services (see Chapter 5); and
3. the relationship between population densities and these service options.

By evaluating these options with the Bus Riders Union, and explaining that service improves with a change in operator, the new agency (or contractor) gains an ally and the Consent Decree ceases to be an obstacle. This is particularly critical if elected officials at any level choose not to stand up to the labor unions, and the Bus Riders Union becomes the de facto lobby of the transit-dependent in the Valley. Winning over the riders’ union will be difficult; and proponents of restructuring must be careful not to splinter the Bus Riders’ Union with claims that the Valley is benefiting at the expense of MTA’s core area. However, if the riders’ union is truly interested in improved service, then its leadership must consider the benefits of transit restructuring, not just in the Valley but elsewhere as well.

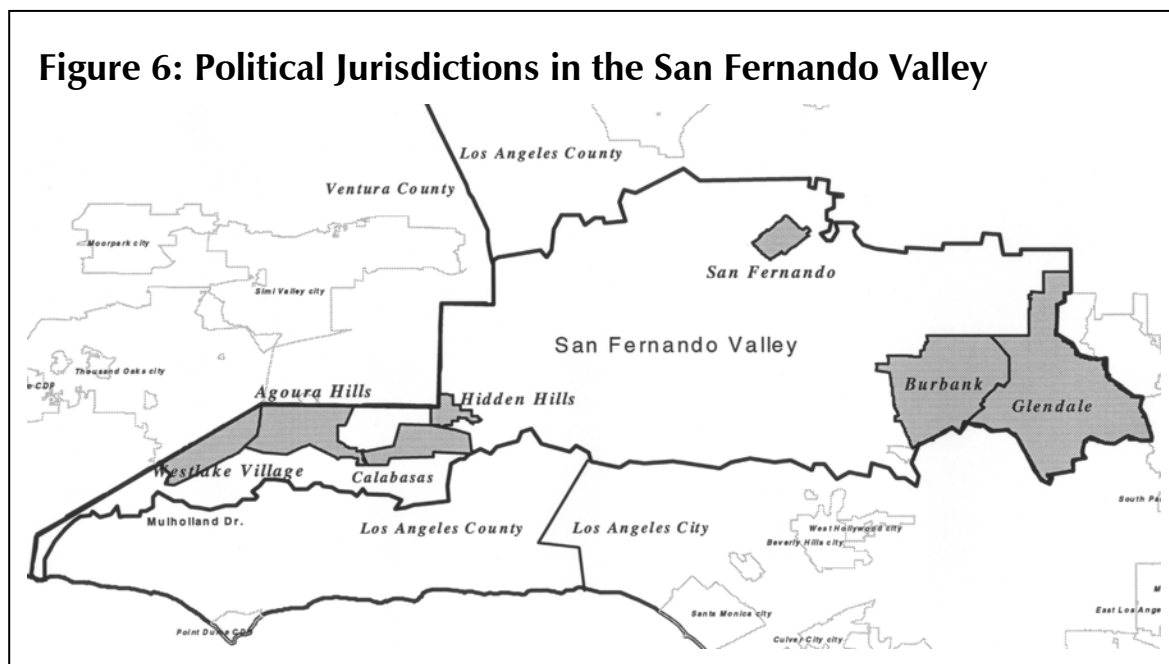
#### ***D. The Politics of Change***

At the local level, as at the state level, successful transit restructuring will depend on political actors with often overlapping authority. Because funding is expected to come from federal, state and local sources, multi-level and multi-jurisdictional coordination is of great importance. Many elected officials with San Fernando Valley constituencies seem to agree that restructuring is necessary. The primary task now is to reach an agreement about the nature of this restructuring.

Foothill Transit streamlines policy-making by limiting the size of its board. The full Foothill Board, made up of representatives from the County and participating cities, is responsible for adopting a budget, changes in bus fares and major changes in service involving 25 percent of miles and/or riders on a line. But the Executive Board, which is new every three years, is made up of only five members, representing the County and each of the four clusters of cities comprising Foothill’s membership. The Executive Board awards contracts and controls policy.

This cluster concept could work well in the San Fernando Valley, with Los Angeles's City Council Districts forming clusters with other participating cities (San Fernando, Calabasas, etc.) This dilutes somewhat the overwhelming power and size of Los Angeles vis-à-vis other transit zone members. This could also serve to bolster the political clout of the San Fernando Valley as a whole, just as the clout of the San Gabriel Valley increased with the ascendancy of Foothill Transit. It could also help to forestall secession, by finally addressing one of the Valley's key complaints: It has received little in return for tax revenues the Valley exports to the MTA. Figure 6 shows the political jurisdictions in the Valley.

Los Angeles City Councilman Richard Alarcon believes that the best, most realistic option is to create a transit zone under the authority of the MTA. This zone would use the same legal basis that permitted a Foothill Joint Powers Authority to create a similar authority in the San Fernando Valley. His primary concern appears to be avoiding the considerable MTA debt load, a share of which an independent authority would necessarily inherit. He also hopes to avoid developing an entirely new transit and communications infrastructure.



Alarcon's pragmatic approach has considerable merit. There is limited legal precedent for the creation of a Valley Transit Authority; but a new transit zone can be created by following local guidelines. However, there is no certainty a new transit zone can demonstrate the 25 percent cost or subsidy savings mandated by the MTA. The Councilman has already acknowledged that savings might be as low as 21 percent, in which case the transit zone will not be approved.

More importantly, Alarcon's leadership is a reminder of the need for champions to ensure that the enabling legislation for changes survives the political process. The councilman's impending departure for the State Senate may slow the momentum for city-based action with respect to a transit zone. The composition of the next council and its next Transportation Committee will be critical.

Other valley councilmembers have expressed support for a Valley Transit Zone, and could take the lead after Alarcon leaves. Joel Wachs, for example, supports Councilman Alarcon's actions. However, there are risks for those officials whose districts, unlike Alarcon's, straddle different portions of the City. Implementation of a San Fernando Valley Transit Zone could easily be tied to or held hostage by transit developments elsewhere. Pasadena's Jack Scott opposed the Hayden legislation because he reportedly believed that it would have had a negative fiscal impact on the construction of a light rail line in his district.<sup>49</sup>

It is also necessary to balance the interests of the transit-dependent with those San Fernando Valley residents who may negatively impacted by transit restructuring. The creation of timed transfer points (transit hubs), for example, is likely to intensify bus activity in certain areas of the Valley. Opponents may object to increases in both bus traffic and ridership, particularly residents who perceive transit users in an unflattering light. If the latter have influence with elected officials, then political support from within the San Fernando Valley becomes uncertain.

County Supervisor Mike Antonovich, who represents the Valley, has openly supported the concept of a public/private transportation system that would incorporate the cities of San Fernando, Hidden Hills, Agoura Hills, Calabasas, Westlake Village, Burbank, Glendale, and the Valley portions of the City of Los Angeles. There is no early indication that the smaller cities would object to the substantial role such an arrangement would afford the Los Angeles Department of Transportation, but this is a potential stumbling block.

One key player who has yet to weigh in on restructuring is Julian Burke, the man charged by Mayor Richard Riordan with turning around the MTA. Any indication that he favors localized control as a means of limiting expenses and improving service would increase the likelihood of a new zone. Burke has remained publicly silent on the question of restructuring, and his support is uncertain.

The California Transportation Commission is an interested observer, but from a distance. The Commissioners are appointed by the Governor and are responsible for advising the legislature and Governor on transportation programming and policy, particularly at the State level. In this sense, the legislature could determine that a San Fernando Valley Transit Zone is not the business of the CTC. Such a result can be a source of conflict for local proponents. The ultimate goal of creating a new transit agency is to maintain local control, but financial solvency will depend on a steady stream of support from the federal, state, and local levels. Determining what level of support to solicit, and from whom, is a central question for the local political players.

The Alarcon transit zone approach is clearly more realistic than an independent authority requiring approval from the State legislature. If it can be accomplished, a transit zone is the best balance between localized planning and centralized fiscal control. Foothill has documented success with this approach. At this time, however, even a transit zone requires multi-jurisdictional political coordination at the local level. If this appears unlikely, an alternative would be to pursue greater subcontracting by the MTA. This also requires some political will, but far less than for the options already outlined. If successful, aggressive subcontracting on the part of the MTA may garner the support needed for more sweeping reforms.

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<sup>49</sup> Eric Moses, "Valley Transit Bill Withers, Dies with State Assembly Panel Vote," *Los Angeles Daily News*, August 4, 1998, p. 3.

## IV. Experiences With Transit Contracting

### *A. Local Transit Contracting Successes*

The Foothill Transit experience has been the defining one for supporters of transit decentralization in Southern California. Lessons about other contracting options are available from both Los Angeles and other US cities. We review the experiences of the Los Angeles Department of Transportation, and events in the cities of Denver and San Diego. These other cities provide lessons about the contracting process, and about the administrative organization and multi-jurisdictional coordination needed for successful competitive contracting.

LADOT has a history of successful transit subcontracting upon which it and the MTA can continue to build. Existing city-run services like the Downtown Areas Shuttle (DASH), a short-haul fixed route service, and Commuter Express have demonstrated that decentralized, contract services can exist in conjunction with a larger, region-wide transit backbone.

LADOT's Community DASH division oversees four contractors operating about 72 mini-buses on approximately 20 lines. Community DASH service includes routes in areas such as Fairfax/La Brea and Beachwood Canyon. Routes are planned for Lincoln Heights/Chinatown and Highland Park/Eagle Rock. Community DASH figures do not include service in downtown Los Angeles or Commuter Express routes. Operating costs for Community DASH average \$40/service hour. These costs paid directly to the contractor and exclude LADOT administration and planning costs. Even accounting for administrative costs, these figures compare very favorably to the MTA's operating cost of \$100/service hour. The Downtown DASH contractor alone operates 63 vehicles at a cost of \$42/hour. Downtown DASH serves 7 million riders every year. Operating costs for mini-buses are generally lower than for full-size coaches, and it is potentially misleading to compare operating costs for such different fleets. However, it is clear that transit agencies can realize savings from both contracted services and more flexible transit (and paratransit) options.

LADOT also operates successful Commuter Express buses via subcontracting. Coach USA holds the current contract. The entire service has 102 vehicles on 16 commuter runs, 4 local runs and 1 Metrolink run. Nine of these lines were taken over from the MTA in 1987. They served 700,000 passengers annually at that time. Commuter Express currently serves 6,000 riders a day, or 1.6 million boardings every year—more than double MTA's previous volume. Its operating cost is \$100/hour, the same as when the MTA operated these lines, but Commuter Express now serves more riders and has added new routes to El Segundo, Santa Clarita, and Ventura County. Local lines have been added in Long Beach and San Pedro.

### *B. Other Cities' Contracting Experiences*

Denver reinforces the lesson that public-private competition is simplest if implementation is limited to the natural rate of employee attrition. The local transportation district serves the City, five surrounding counties, and a portion of a sixth county. Beginning in the 1970s, it began a four-year effort to replace five percent of the workforce per year with contract employees. The Denver district accomplished this through attrition, largely through retirements. In fact, Colorado law mandates that 20 percent of fixed-route transit services be contracted out. It precludes the use of layoffs. It is the only state with such regulations.

Currently, Denver has service contracts with three operators: ATC, Laidlaw and Mayflower. (The latter was recently purchased by Laidlaw.) It remains to be seen whether or not Denver will attempt to maintain a minimum of three independent contractors. These operators employ 23 percent of the workforce systemwide, allowing the transit agency to comply with state requirements. Denver Transit also contracts out for paratransit services and services mandated by the Americans with Disabilities Act (ADA). The combined systemwide share of paratransit and contracted fixed route operations is 30 percent.

The role of the Colorado legislation in promoting contracting cannot be overstated. Colorado is a right-to-work state, but with a strong union presence. Denver is one of only three transit agencies in the country with elected board members. Its transit board is composed of 15 elected officials, each representing 150,000 people. As a consequence, these representatives seek the political and financial support of interest groups, including unions while state mandates ensure that the public-private partnerships are not subject to the political whims of an ever-changing board.

Denver's experience also suggests what ought not to be done with regard to zone governance. Initially, Denver contractors were required to provide their own vehicles. Financing the vehicles increased costs by roughly 50 percent. No project can realize profits under such circumstances. The Foothill model and the experience of LADOT, which owns the DASH and Commuter Express buses operated by contractors, suggest that a governing agency should lease vehicles to contract operators, purchasing them without debt using federal funds. Capital costs then become only approximately 15 percent of bus operations. Also, governments know under this arrangement that they can transfer buses from one contractor to the next. Contractors that own their own fleets may find that offering service on used vehicles makes it more difficult to compete for new contracts.. Operators should almost always lease vehicles, even in what may otherwise be turn-key operations.

The San Diego region offers a lesson in flexible planning under centralized fiscal control. San Diego County has two transit planning bodies. The North County district was formed in 1975 by the integration of several municipal systems. The Southern portion of the county, roughly 570 square miles, is served by the San Diego Metro Transit Development Board (MTDB), formed in 1976 for the local light rail system. Prior to 1976, cities in San Diego County provided their own local service or contracted with the San Diego Transit Corporation (SDTC), a city-operated bus system. However two factors encouraged the formation of the Development Board: San Diego Transit's costs, which proved to be 40 percent higher than the costs of subsequent providers, and the passage of Proposition 13, which capped property taxes and made efficient service delivery more critical than ever.

The MTDB is an excellent example of decentralized service provision. It is responsible for planning, contracting, and funding approvals for four different transit operations:

1. San Diego Trolley, a public agency governed by an operations board in charge of 123 rail cars generating over 5 million revenue miles annually;
2. San Diego Transit Corporation (SDTC), the old urban bus system serving primarily the City of San Diego, with 280 buses generating over 10.2 million revenue miles annually;
3. Contract Bus Services serving the South Bay/Coronado area on the basis of competitive bidding; and
4. Chula Vista, National City, and County Transit.



The Chula Vista and National City transit agencies are operated at the municipal level. They are comparable to Montebello Transit in LA County's San Gabriel Valley. County Transit operates in San Diego's unincorporated areas, particularly those in the western portion of the County (La Mesa, Poway). The Contract Bus Service and the municipal/county lines operate a total of 181 fixed route vehicles and 114 paratransit buses generating 10.2 million revenue miles annually. The city councils and, in the case of County Transit, the Board of Supervisors, have operating authority over their transit systems. The MTDB has final fiscal responsibility.

The San Diego area has supported privately run transit services since 1972 when Chula Vista first contracted out its bus operations. The Transit Development Board began pursuing contracting options in 1979, and presently contracts out approximately 35 percent of its municipal and county operations. The trolley and the urban lines run by San Diego Transit are not included in this 35 percent figure, although the SDTC has successfully won bids away from private operators. SDTC's union appears willing to work with management to remain competitive.

The MTDB takes an opportunistic approach to public-private ventures. It has no specific targets. Instead, a committee reviews new service and route restructuring opportunities on existing lines on an annual basis. As changes are made, competitive bidding is introduced incrementally. This permits the MTDB to avoid laying off drivers. The result is a staged implementation of contracted services. This process also guarantees that the benefits of contracted services accrue to suburban areas, where new lines tend to be developed first.

MTDB's approach makes labor compensation regulations like Section 13(c) irrelevant. The Board can avoid both layoffs and compensation payments as a result of attrition, the absorption of drivers through route restructuring, and the creation of new lines. There is a price, however. These public-private agreements are made at an unnecessarily slow pace; and agencies subject to pre-existing labor agreements are all but excluded from the benefits of contract operations.

## **V. Conclusions: The Benefits of Subcontracting**

If transit restructuring in the San Fernando Valley is to become a near-term reality, it will involve contracting out on the part of the MTA. A new transit zone and an independent authority would be forced to comply with the federal transit law's labor regulations, the MTA Zone Guidelines, existing MTA union contracts, and the Consent Decree resulting from the Bus Riders Union lawsuit. An independent authority would also have to absorb existing MTA debt. Subcontracting is much more feasible, both economically and politically, and would still provide substantial benefits.

The private sector is more likely to negotiate effective labor agreements. The alternative is to live with the residue of political promises to unions. A contractor, if given the necessary latitude, can negotiate contracts appropriate for the system it is responsible for. Cities will try to avoid conflicts with unions by pursuing a standard three plus two contract. Transit operators have the experience to know when a longer contract period is appropriate.

If MTA takes full advantage of the Business Development Operating Facility clause in its existing labor agreements, the agency could negotiate terms that make MTA truly competitive with private operators. The MTA has thus far blunted the impact of this clause through ineffective bargaining with its unions. The

unions agreed to the BDOF because the lower pay scale it includes is tied to new service. There is a stipulation that existing routes operating at 135 percent of the average systemwide subsidy are also subject to the BDOF article. Unfortunately, the MTA did not require that the average subsidy rate exclude the cost of rail lines. As a result the average rate of subsidy is artificially inflated, and it is very unlikely that any existing bus routes operate at 135 of this inflated average. A private contractor is much less likely to make a similar mistake.

Contracting avoids the need to transfer assets and tax revenues and to build new facilities. Federal funds helped Foothill build new facilities (none of the MTA facilities went with the contract), but this is not likely to be the case in the San Fernando Valley. Federal funds will not be readily available; and a contracting arrangement will more easily permit an operator to assume control of the MTA facilities in the Valley. The MTA's Chatsworth center is an example. The contractor follows the asset but is not required to purchase the asset.

If transit restructuring is accomplished via competitive bidding, and not creation of a new San Fernando Valley Transit Zone or Authority, this will increase the likelihood that service will be coordinated with other local operators. MTA and Foothill operations are clearly uncoordinated, and it is unlikely that establishing a new San Fernando entity would produce any different outcome. A contractor may be able to encourage the MTA to be more flexible and effective in integrating MTA services with those of other transit providers like LADOT, Access Services (ADA paratransit) and Health and Human Services-funded paratransit. An operator should take advantage of its ties to the MTA to ensure fares are integrated and that transfers between systems are structured seamlessly. Otherwise, it risks alienating riders and limiting its ability to increase the number of passengers carried. No such fare integration currently exists between Foothill and the MTA, and transfers between the two systems are problematic for riders. The MTA is funding four smart shuttle experiments in Los Angeles; two of these are in the San Fernando Valley. If these were operated as part of another transit zone, it would likely impede inter-system transfers.

Contracting would also lead to better use of existing transit facilities than would creation of a separate zone or authority. For example, the MTA could share facilities with its contractors, and with the Los Angeles Department of Transportation, which is already under contract to operate some of the MTA service mandated by the Consent Decree.

Most importantly, contracting can be made responsive to local needs. Truly local planning ensures more effective oversight and customer service. This is important, because there is no universally best service design. The decision to operate a grid system or a timed-transfer system does not depend on a formula, but on the geographic and demographic realities of the community and on the needs of the transit dependent. Planning should not start with the system but with the customer, and contractors are much more cognizant of this than are most public providers. The Foothill Master Plan Study,<sup>50</sup> which took a year to complete, is an example of an effective local plan that resulted in useful headway and routing changes. Management aimed for both effectiveness and convenience to reduce inefficiencies in the existing system, maintaining high ridership with consistent, regular service. Similar goals will also serve the planners and riders of contract operators working for the MTA.

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<sup>50</sup> Nelson Nygaard Associates, "Foothill Transit Strategic Plan: Comprehensive Operational Analysis," Portland, 1994.

## VI. Acknowledgments

Many people were generous in supporting our work with their time and expertise, helping us to better understand the complex legal and political issues discussed here. Special thanks go to the following: Lan Nguyen and Paul Casey of the City of Los Angeles Department of Transportation; Michelle Namen of the Office of Councilman Joel Wachs; William Forsythe, President and CEO of Forsythe & Associates, and Julie Austin, Forsythe's Senior Project Director for Foothill Transit; Cal Marsella, General Manager of the Denver Regional Transportation District; Elliot Hurwitz, Contract Services Administrator of the San Diego Metro Transit Development Board; Jill Henry, Administrator of the Office of Mobility Management, City of Indianapolis; MaryAnn Mullen, Industrial Relations Specialist, U.S. Department of Labor; His-Hwa Hu, Southern California Association of Governments, and Wendell Cox, Wendell Cox Consultancy (<http://www.publicpurpose.com>).

## Chapter 5

# Private Transit Alternatives For The Valley

BY PETER GORDON

## I. Introduction

**W**ith conventional transit use continuing to fall, are there plausible alternatives to private auto travel? What can private-sector transit do? This chapter involves an assessment of the potential for expanded private shuttle van services in the San Fernando Valley. We also discuss “gypsy” van services that operate in parts of Los Angeles for their possible applicability to the Valley.

Many writers have suggested that, with sufficient deregulation, both of these shared-ride modes have the potential to offer a wider range of transit services than they currently furnish. If so, they would supply private, demand-responsive and unsubsidized (or lightly subsidized, compared to the status quo) transit. They would become a realistic alternative to the private auto for some and would secure a market niche by offering a higher quality of service, including faster, more frequent, near door-to-door transit, than conventional transit providers can offer.

It is time for Los Angeles to seriously consider a greater role for private transit. Several other U.S. cities with large immigrant populations already have considerable private transit services. It would appear that more such service could be offered in Los Angeles, as well.

In New York City, the \$220,000 price of a single taxi “medallion” is inescapable evidence of the fact that demand for for-hire transportation exceeds the legally authorized supply. (The high medallion price also demonstrates the advantages that owners reap from arbitrary limits on supply.) Besides the legal cabs and thousands of legal on-call limousines, some 387 different van and jitney services (some with dozens of vehicles) have operated mainly in the outer boroughs for many years. They serve between 20,000 and 40,000 riders per day. Some of these jitney-van services are licensed by the state utilities commission. The legally licensed vans are only allowed to offer restricted pre-arranged service. Many more vans operate illegally. There have been several recent transit industry efforts to have the New York City Council outlaw the licensed carriers and strictly enforce anti-gypsy laws. The Council has also been unwilling to license new applicants. Its authority in these matters is being challenged in pending litigation.

In San Diego, also with a substantial immigrant population, jitney service has experienced ups and downs. Legally sanctioned in the late 1970s, ridership grew to about 15,000 per week in 1984. After that, the area's economic recession, customer complaints about some of the operators, competition from airport shuttle van companies, and some reregulation, brought a decline. Researcher Robert Cervero reports that only ten licensed and perhaps as many unlicensed jitney operators are still in business, most of them ferrying passengers to and from the Mexican border.<sup>51</sup>

Miami is the third major city with a significant immigrant-oriented jitney industry. Operating for many years without legal authorization (but largely not harassed), it came to prominence in the aftermath of Hurricane Andrew, when all transportation was seriously disrupted—and every transit provider's services were welcomed. Following the emergency, an effort was made to bring Miami's clandestine jitneys into compliance with Dade County insurance and safety standards.<sup>52</sup> A 1992 Miami study done for the Federal Transit Administration found that:

- Jitneys carry an average of 110–125 passengers per vehicle per day. The fleet of 400 vehicles serves 43,000–49,000 riders per weekday. For Miami, this was 23–27 percent of bus ridership.
- Jitney operating costs were \$70–\$75 per day. At fares of \$1, they must serve 70–75 riders per day to break even. At the 110–125 passenger loads, each operator earned \$40–\$55 per day (approximately the minimum wage at the time).<sup>53</sup>

Another study found that these jitneys had developed a market of their own rather than simply “skimming” riders from the bus system.

If similar proportions of transit users could be served by expanded private transit service in Los Angeles, the MTA's losses of the last 10 years would be recouped, and the prospect of alternatives to private auto transportation would be revived. Some of the benefits of reduced single-occupant vehicle use would finally be available to the local area. Moreover, efforts to put welfare recipients to work have renewed interest in jitneys and other private forms of transit. As some writers have emphasized, jitneys both take people to work and put people to work.

## II. Why Consider Private Transit For Los Angeles?

Three realities underpin any discussion of passenger transportation in greater Los Angeles.

**The region has accommodated very well to the private auto.** It is the obvious mode of choice. Older used cars are the mode of choice of the poor. Traffic “doomsday” has not arrived in spite of brisk population and even faster growth in vehicle-miles traveled (mainly for nonwork purposes) and in defiance of conventional wisdom. Average (one-way) commute durations are still below 25 minutes and average travel times (all purposes) show no signs of rising. As in other U.S. cities, the decentralization of jobs and housing has been the traffic “safety valve.”

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<sup>51</sup> Robert Cervero, *Paratransit in America* (Westport: Praeger, 1997).

<sup>52</sup> *Ibid.*

<sup>53</sup> “The Miami Jitneys,” Urban Mobility Corp. in association with KPMG Peat Marwick Mundle & Associates, Inc. (Washington, DC: Federal Transit Administration, Office of Private Sector Initiatives, September 1992).

**Conventional transit has performed poorly.** This results from its nature as well as from the way it has been managed by local officials. U.S. per capita transit use is now at a historic low in spite of \$350+ billion of public subsidies over the last 35 years. Transit mode share in Los Angeles continues to fall, in part because \$7 billion has been wasted on rail transit that few people use. Between 1985 and 1995, Los Angeles county grew by 12 percent (many of the newcomers being poor immigrants) while transit use fell by 30 percent. Rail transit has no place in modern American cities. Yet, it still enjoys political popularity along with substantial funding primarily because it is a vehicle for the delivery of vast amounts of pork. Rail's negative impact on bus service is by now widely recognized. Sunbelt cities with new rail have experienced greater transit ridership losses than have sunbelt cities without new rail. Yet, even without such politically motivated missteps, traditional bus service faces declining market share because of changing settlement and travel patterns in U.S. cities. The demand for door-to-door transportation is easy to explain. People have come to expect it because of the revolution in lifestyles prompted by the auto. In turn, activities have dispersed geographically, further adding to the demand for ubiquitous transportation. Conventional transit has been woefully unable to accommodate to these trends. Its monopoly status as well as vast public funding have in no way made up for its fundamental shortcomings.

**Circumstances, including federal, state and local regulations, have left few choices between the private auto and conventional transit—few private transit modes.** Yet, it is well known that regulation does not neutralize demand when demand is strong. The link between zealous regulation and underground economic activity has been famously demonstrated by Hernando DeSoto<sup>54</sup>. Yet, this is not simply a Third World phenomenon. *The Economist* cited an unpublished EC report that notes 15 percent of Europe's GDP is from "lawful but undeclared work."<sup>55</sup> That amount is up from 5 percent in 1970. The growth of the underground economy was explained by the growth of European regulation. *The Economist* refers to this sort of enterprise as "a blessing rather than a curse" but also a sure sign of government failure. Less intrusive and less burdensome policies were suggested. Well known U.S. examples of service in defiance of strict entry barriers include "gypsy" vans and taxicabs.

In this chapter, we focus on the third point. Can the relevant regulatory framework become more user-friendly? If so, would there be more private transit services in Los Angeles? Can the San Fernando Valley set a prominent example? Would new and innovative private transit provide the viable alternative to private auto use that conventional transit has failed to offer? What else can be done to cultivate these modes? The answers are complex. To start, here are some key Los Angeles *private transit* background facts.

Airport shuttle vans are a rare private transit success (although there are critics), replacing approximately five percent of private airport auto travel at almost no cost to taxpayers.<sup>56</sup> Thirty-eight unsubsidized private companies operating approximately 600 vans currently serve LAX.

Shared-ride vehicle regulation is a complex and changing picture. Vans that regularly cross city boundaries are licensed by the California Public Utilities Commission. The PUC reports that its current policy is one of "open entry, limited only by a known lack of fitness, usually related to safety."<sup>57</sup> Yet licensed vans may not

<sup>54</sup> Hernando DeSoto, *The Other Path: The Invisible Revolution in the Third World* (New York: Harper & Row, 1990).

<sup>55</sup> "Blinded by the Dark," *The Economist*, April 4, 1998, p. 15.

<sup>56</sup> Robert W. Poole, Jr. and Michael Griffin, "Shuttle Vans: The Overlooked Transit Alternative," Policy Study No. 176, Reason Foundation, 1994.

<sup>57</sup> *The California Airport Shuttle Van Industry* (San Francisco: Transportation Div. of California Public Utilities Commission, December 1992, p. 2).

use meters. They may rove freely for “walk up” passengers in geographic areas sanctioned by their Passenger Stage Corporation (PSC) license.

Meters define taxis, which are a city matter. Cities, notably Los Angeles, have shown themselves reluctant to open this market. The LADOT enforcement personnel try to limit illegal taxis. It is not clear how the city would react to large-scale jitney-type service.

Airport authorities are also involved when operations take place on their property. Until recently, LAX authorities have allowed all PUC-licensed operators to serve airport passengers. Yet, currently the Los Angeles City Board of Airport Commissioners seeks to limit access to the lucrative “walk-up” market to selected suppliers. Promising improved quality of service, LAX authorities would lease curb space for approximately \$1 million per year per operator to selected groups.

Gypsy vans operate in Los Angeles as in other large U.S. cities. They offer jitney-type service (mostly fixed routes and fixed schedules). Both of these private transit modes, shuttle vans and gypsies, provide first-rung entrepreneurial opportunities as well as transportation services for those choosing to avoid auto travel.

The city is now engaged in a Smart Shuttle pilot program, and it released its first-year report dated August 1998. Two of the four pilot shuttle projects are in the San Fernando Valley. In each case a private provider (with up to 11 vans in service at any one time) was equipped with “advanced transportation technologies” (including efficient dispatch software) and operated for a subsidized base fare (\$1.00–\$1.25) along designated routes with scheduled stops but with an additional \$0.50–\$0.75 deviation surcharge for special pick-ups and drop-offs. With advanced reservations, door-to-door services were available for \$3.00. The report shows that the four shuttle services provided 20–25,000 trips per month. Operating subsidies were high, at \$5.55 to \$7.44 per boarding. The report suggests a number of changes, including better coordination with MTA routes as well as “eventual migration toward a user-side subsidy.”

In addition, Valley area Transportation Management Organizations (TMOs hereafter, even though some prefer the TMA label) have had some successes in boosting transit use and ridersharing for their client employer groups. They have established and refined important brokering functions between employers and public as well as private transit providers. The Warner Center TMO, for example, takes credit for lowering solo-driver commuting from 85 percent in 1987 to 67 percent at present. Services include guaranteed ride-home arrangements, back-up transportation to assure those who choose to leave their cars at home will not be stranded, carpool and vanpool formation assistance, feeder services to conventional transit lines, lower fare agreements with transit agencies, etc. TMOs have been important, because rideshare successes require continuous reinforcing, due to the tendency of many people to leave rideshare programs. Hence, the entrepreneurial skills of the TMOs have been essential. The availability of such proven skills is a key transportation resource for the Valley.

Also, ridesharing programs work best for the case of large employers. The long-term trend in average firm size is toward smaller firms. Nevertheless, the TMOs have been innovative. They have initiated and cultivated new programs, often delivering the successful ones to the traditional agencies of local government.

The existence—and the possible expansion—of private transit modes in Los Angeles is important because jitney-type service can serve four transit markets:<sup>58</sup>

1. Areas not now served by public transportation. This is important in light of MTA service cutbacks and substantial headways on most Valley routes.
2. Replacement of conventional buses that are poorly patronized.
3. Relief of conventional transit that experiences peak-hour crowding.
4. Feeders for rail and heavily traveled bus routes.

The following sections describe some of the details of current shuttle van and “gypsy” van service in greater Los Angeles. This is followed by a discussion of what can be done to expand such services in the San Fernando Valley.

### III. L.A.’s Airport Shuttle Vans

California’s Public Utilities Commission has pursued relatively open competition in ground transportation since the early 1980s. Passenger Stage Corporation (PSC) licenses which allow shared-ride services are now available to all those going through the application process (costing \$500 and perhaps the services of an attorney) and posting the required liability insurance. Successful applicants are, of course, covered by all state labor laws, workers’ comp, inspection, and insurance requirements. There is some relief because shuttle companies are now allowed to work with drivers as independent contractors rather than as employees.

PSC applicants must indicate one or more “service points” (usually one or more airports) where most of their passengers have either an origin or a destination. Recently, Union Station in downtown Los Angeles has been included as such a service point for some of the operators. PUC staff point out that the Commission is open to requests for rights to such service point designations for any other geographic market niches, perhaps ones designated by one or more zip codes. The PUC approval process is now often granted *ex parte*. There may be circumstances where hearings occur at which protests from any affected parties can be heard but these are not typical. According to PUC staff, the Commission’s current policy is to discourage rote protests by government agencies.

It appears, then, that widespread jitney-type service in California is now legally possible. Yet in light of the costs imposed by insurance and inspection requirements and other state mandates, such service is not always economically viable, especially for small start-up firms and owner-drivers.

Operations on airport property require the sanction of airport authorities. In California, this had been relatively easy to secure until recently. Robert W. Poole, Jr. and Michael Griffin reported that five percent of Los Angeles’ airport access trips were via shuttle vans as of 1994. But LAX officials cite a recent downtrend. The *Los Angeles Times* notes that 60 million passengers used LAX in 1997 of which 1.2 million (only two percent) used a shuttle van.

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<sup>58</sup> Z. Andrew Farkas and Matthew DeRouville, “The Potential of the Jitney: A Case Study of the Baltimore Metropolitan Area,” *Transportation Quarterly*, Vol. 42, No. 1, 1988, pp. 89–105.



Until recently, LAX authorities had 38 PSC-licensed door-to-door shuttle van operators, running about 600 vans. But in early July 1998, LAX officials recommended that the Los Angeles City Council restrict continued access to the lucrative “walk up” market to just three of the larger firms (Super Shuttle, Prime Time Shuttle and Xpress Shuttle) via non-exclusive concessions. Four long-distance operators would also be allowed to continue operations. They will also serve the walk-up demand to their respective markets. Fares will be controlled. All other PSC-licensed groups could still serve the airport but only with reservation business. Some of these operators interviewed (below) report that this is not enough for them to remain in business.

LAX officials point to “uncontrolled growth” that resulted in safety violations, non-compliance with LAX rules, increasing passenger complaints, even increasing traffic congestion and excessive staff time spent overseeing van operations. They point out that passengers using vans fell in 1996–97 while passenger traffic to the airport grew. There have also been allegations of graft and corruption.

The new regulations are, of course, welcomed by the large operators. They would pay the airport at least \$1 million per year for rights to serve the airport. Other shuttles will only be allowed to serve airports on a reservation basis. Operators licensed to provide TCP (non-shared ride) services also remain unaffected. Airport officials claim that this change will result in higher levels of service which will augment demand. The smaller shuttle operators interviewed viewed all this as a politicized taking of their rights.

While many analysts presume that operators chafe against existing regulations and would readily expand operations were there fewer of these, we have found little corroboration of this in our interviews with shuttle van operators. Ironically (perhaps interestingly) many operators say that they desire *more* regulation, asserting that their industry is held in low esteem because of the reprehensible conduct of some of their competitors. “Under-regulation” and “easy to get” PSC certification results in “too much competition” and also in high insurance costs, according to some. Operators who complained about high insurance rates noted these were the result of the bad reputation of the industry (caused by their competitors’ behavior). Also, that with capacity of seven or fewer passengers, they are not required to have commercial drivers’ licenses; this also drives up insurance rates. Yet our sample was small and many of the operators interviewed were seemingly unsure just what rights their various licenses did and did not confer.

Of the 38 PSC-licensed operators currently serving LAX, some are really part of the same company. It appears that the number of independent entities is in the low 30s. Of these, only 13 would be interviewed. The interviews revealed a wide variety of views and interpretations re the current situation, including the following:

- There were various opinions as to what rights, including which geographic areas, their existing PSC licenses actually included.
- There were various views as to whether non-airport sites were economically viable for them. Many noted that there is only enough “walk-up” business at the airports.
- There were various thoughts on the political feasibility of obtaining rights to serve non-airport areas.
- There were various views on what rights would be available at LAX once the new rules were installed. (This is reasonable in light of the fact that at this writing the new rules are not yet law).

It is difficult to draw sweeping conclusions from these interviews. None of the operators claimed that they are kept away from non-airport markets by the terms of their licenses, corroborating the PUC staff reports.

Operators did not volunteer the connection between costs imposed by current state labor law and the difficulties of profitably serving lower-demand non-airport markets although a few assented to that view when pressed. In the existing moderately regulated environment, the legal shuttle operators apparently perceive only thin markets beyond the airports; they appear to be reluctant to explore other markets. Interviews suggest that operators are unwilling to conjecture how and where they might operate if cost factors were more favorable. Non-airport “walk-up” demand is seen by most as too low to support operations at present cost levels.

Shuttle vans are not taxis. Taxis are usually not shared-ride but do use meters. An experiment in shared-ride taxi service with flat fares throughout the Los Angeles central city zone ran in 1991–97 but was discontinued for lack of interest. The City of Los Angeles regulates taxi companies that do most of their business within city boundaries. There are currently ten legally franchised companies operating 1,900 vehicles. To be legally franchised, a request must be posted with the city clerk and the franchise regulation division of the city’s department of transportation. Letters of application must include statements of “public convenience and necessity.” This is clearly beyond the “market test” that suppliers in unregulated industries respond to. Upon staff approval, the request moves to the city’s board of transportation commissioners. If approved by the Board, the final nod is up to the city council. Los Angeles franchises are awarded for a period of five years.

LADOT staff report that there simply are very few applications. The process may be seen as daunting. All ten franchises, however, must apply for renewals in 1999. Staff relate that it is possible that new groups will compete for approvals at that time.

#### IV. L.A.’s Gypsy Vans

As in other major U.S. cities with large immigrant populations, there are “informal” or “gypsy” vans that operate in the parts of Los Angeles populated by newcomers. Poor transit service usually adds to the gypsies’ appeal. The importance of the transit market niche served by gypsy vans is attested to by the fact that the most widespread gypsy van operations are in New York city *atop North America’s most extensive subway*. Many of these vans are technically illegal, “... yet it is difficult to find any victims.”<sup>59</sup> Their mere existence in New York, Los Angeles, and some other major cities in spite of massive transit investments and in spite of their clandestine status reveals the niche that has been left unattended by conventional transit. This is jitney-type service by small vans that adhere to fixed routes but occasionally deviate from these depending on demand.

There are naturally no formal data on these services. Because so little is known we employed a USC student visiting from Mexico and assigned to this project as a research assistant to spend several days riding those gypsy vans that we could easily discover. Based on this individual’s informal observations of this (mainly Hispanic-serving) gypsy shuttle van operation, we have established the following.

There appear to be five established gypsy van pick-up locations in the downtown Los Angeles area, located within a two-mile radius of each other, providing service from very early in the morning, about 5:00–6:00 AM, to late in the evening, about 10:00 PM, seven days a week. After 5:00 PM some of the locations change

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<sup>59</sup> Otto A. Davis and Norman J. Johnson, “The Jitneys: A Study of Grassroots Capitalism,” *Journal of Contemporary Studies*, Winter 1984.

due to posted parking restrictions. The number of vans operating from each site varies. The first three sites serve the downtown-Anaheim route. Operators suggest that the following numbers are accurate:

- Location I: Six vans operating from 6<sup>th</sup> and Broadway
- Location II: Four vans operating from Spring, between 7<sup>th</sup> and 6<sup>th</sup>
- Location III: Three vans operating from Los Angeles between 5<sup>th</sup> and 6<sup>th</sup>

Each van departs with six to nine passengers. Headways are between 15 and 30 minutes. The van drivers appear to work full-time on van operations.

The other downtown sites serve the long-distance markets, to Tijuana and to various northern California cities. Departures for northern California are every 30–60 minutes. Tijuana vans leave every 30 minutes:

- Location IV: Ten vans, near the L.A. Bus Depot
- Location V: Four vans also near the L.A. Bus Depot

Fares are pre-set and apparently well-known. We observed the following:

<i>Downtown L.A. to Anaheim</i> (Disneyland area):	\$4.00 (travel time is 45 minutes, less than one-half the trip time of regular transit service)
<i>L.A. to Northern California</i>	\$80.00 (trip duration varies)
<i>L.A. to Tijuana</i>	\$25.00 (trip duration varies)
<i>Special Request</i>	\$80.00 (trip duration varies)

The latter refers to any other destination. A beeper number is available. Special “appointments” can be made. Riders are met at stations I or II. Long-distance round trips must be prepaid. Gypsy operators have been observed to recommend other, less expensive, alternatives. They appear careful to explain that only when a group of people are traveling together is their service recommended. All trips are direct; there are no stops along the way. Once at the drop-off/pick-up location in Anaheim, the drivers pick up new riders and return to downtown Los Angeles.

These vans appear to be tolerated by local authorities. LADOT enforcement personnel (just two individuals) appear to be mostly concerned with illegal taxis (including those that intercept dispatch signals). The observed “gypsies” are more akin to fixed-route jitneys than freewheeling jitneys. Location I, seemingly the most active in terms of volume, operates openly in front of the Los Angeles Community Development Department building on 6<sup>th</sup> Street without any interference from authorities. Police and other officials seemed not to notice. Drivers were seen to warmly greet officers and other city workers. If these observations are indicative, then it is hard to make the case that service levels are constrained by the clandestine status of the operators.

Casual conversations revealed that the observed system has existed for about 40 years. There appears to be an informal network of “rights” to do this. Some operators revealed that they operated jitney-type vehicles in Mexico before arriving in Los Angeles.

The vast majority of the ridership appears to be new Hispanic immigrants who seek security when they travel in California. These are people who have yet to familiarize themselves with local transportation and other

aspects of daily life, seemingly prefer to operate among people they trust and know about. Passengers who engaged in conversation do not own cars and are so new to the country that they will not travel by any other means. They naturally want to avoid troubles with immigration and other authorities. It is unclear whether legalization would actually repel some of these riders.

Overall, service appears to be efficient, well-organized, secure and reliable. There were no observed cases of threatening riders that may cause fear. One female passenger remarked that on these vans she never has to worry about “weirdos” causing problems, or other types of rudeness often found on regular buses. Riders appear to know each other, share various things in common and have a mutual respect for one another. They seem to enjoy the fact that they can speak with drivers and get answers to various questions they may have.

The gypsy vans serve a limited market. The ones observed in this study choose to limit service to the Hispanic market. They may be constrained by their clandestine status to do little outside of the Hispanic immigrant community. They clearly avoid expensive state and federal mandated labor and insurance costs. At the same time, their niche market status seems to work in their favor. They serve a community within which there is a high level of trust, relieving some of the personal safety problems that plague conventional public transit. Our observations apply to one van service that appears to serve Hispanic passengers. It is, of course, likely that there are other similar suppliers that serve other close-knit immigrant groups in this region. Anecdotal evidence abounds that such services exist.

Legalizing Los Angeles’ existing gypsies would add to their costs. Gypsies can now seek PSC licenses from the PUC at low initial cost but have avoided doing this because legal status would make operations more expensive. This is so even in a climate of regulation that is moderate by local historical standards as described in the previous section.

## V. Private Transit Options For The Valley

Can the San Fernando Valley—a fairly “typical” Southern California suburban community—reap the benefits of rejuvenated private transit? To begin to answer this question, we need to look at the Valley’s geography and think about the possible markets for private transit. There appear to be two potential markets, for two different types of private transit (corresponding to extensions of the models already in existence in Los Angeles: airport shuttles and gypsy vans). These markets are:

1. Commuter shuttle services, aimed at bringing small groups of people from a particular neighborhood to an area of concentrated employment or to a transit hub (sometimes called “many-to-one” service, analogous to that serving an airport or a train station);
2. More traditional jitney van service, plying semi-fixed routes along major arterials, offering an alternative to bus service, and probably focused on immigrant-rich areas.

Where might such transit niche markets be found in the San Fernando Valley? To answer this question, we need to look for concentrations of (1) employment, and (2) immigrant communities. The Valley had a population of 1,382,493 in early 1995 according to the Los Angeles County Department of Regional Planning (sum of their Burbank, Calabasas, Chatsworth-West Valley, Encino-Central Valley, San Fernando statistical areas). Post-1990 census small-area employment data are limited. Some 1995 County Business

Patterns (CBP) employment data are available at the zip code level. According to CBP, Valley employment was 727,624, about nine percent of the five-county southern California economy in 1995. Areal extent data for zip codes are not available, precluding the easy calculation of job density data. Moreover, many zip codes are large, limiting the value of these data for a discussion of workplace origins and destinations. Nevertheless, some useful clues can be found. Ten of the Valley's zip codes account for just over half of the Valley's jobs. Some of these may contain areas that could be served by many-to-one commuter shuttle services.

- The largest number of jobs were in zip code 91505 (121,098 jobs) which includes most of the Burbank airport and extends south all the way to the Los Angeles River; it also includes the Warner Brothers Studios and abuts zip code 91523 with the HBO studios and 91506 with the Disney Studios.
- The zip code with the second greatest number of jobs is 91311, almost at the other end of the Valley, covering Chatsworth and surrounding communities (43,930 jobs).
- The third area with substantial employment activity is zip code 91367, including Warner Center (33,147 jobs).
- Zip code 91502, also in Burbank, accounts for 28,045 jobs. This area is near the cluster described in #1 and straddles the Golden State Freeway, with Burbank Boulevard on the North and Forest Lawn Drive on the South.
- The fifth area is the huge zip code 91355 including Stevenson Ranch and Six Flags Magic Mountain (27,949 jobs).

Another area in the top-ten near the Burbank cluster is zip code 91605, in North Hollywood, with 18,143 jobs. Many of these are, of course, relatively low employment densities. Moreover, the trend is toward even lower job densities and generalized dispersion.<sup>60</sup> All of this makes transit service, conventional as well as para-transit, difficult.

The San Fernando Valley also houses growing immigrant populations, many of them among the “working poor” and Hispanic. People in this group are thought to be the most likely to be transit users, and are potential customers for jitney services, as in New York and Miami. Unfortunately, the only available small-area data that describes residential concentrations of immigrant groups are derived from 1990 census data. These data are mapped in a book called *The Ethnic Quilt: Population Diversity in Southern California*.<sup>61</sup> The Mexican Origin population numbered 3,751,278 for all of southern California. Concentrations are in the Pacoima-San Fernando area with significant clustering across the Valley, north of the 101 Freeway. The Guatamalan Origin population (139,650 in the region in 1990) and the Salvadoran Origin population (274,788 in the region in 1990) were similarly located throughout the Valley.

Economists believe that in the absence of tight regulations, new modes of service that may not yet have even been imagined might arise. There would be experimentation and innovation. Brand names and service differentials that best fit local markets would emerge. At the same time, economists recognize that one-time customers (such as tourists and other airport arrivals) have the largest information problems and are the most vulnerable to unethical operators. This report, however, is not devoted to the special issues that apply to

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<sup>60</sup> Peter Gordon and Harry W. Richardson, “Beyond Polycentricity: The Dispersed Metropolis, Los Angeles, 1970–90,” *Journal of the American Planning Association*, Vol. 62, No. 3, pp. 289–295, 1996.

<sup>61</sup> James P. Allen and Eugene Turner, *The Ethnic Quilt: Population Diversity in Southern California* (Northridge: California State University, 1997).

traffic at airports and other arrival points. Rather, we ask: Are non-clandestine private jitney-type services possible in markets such as the San Fernando Valley?

Los Angeles' only recent experience with legal jitney service took place in the early 1980s. The PUC granted operating authority to two jitney companies. Only one of them actually initiated operations, serving up to 6,500 riders per day. Unfortunately, it began service just as the RTD began offering its heavily subsidized \$0.50 fare. RTD also expanded its bus service on the jitney-served routes. To compete, the jitney operator had to keep lowering its fares and, after less than one year of operations, it gave up, having failed to make money.<sup>62</sup>

Several factors suggest that conditions are more favorable today. First, the MTA's bus fares are considerably higher today, even after adjusting for inflation. And—especially in the Valley—MTA's bus service is sparse and infrequent. The PUC is far more open to licensing such services than it was in the 1980s—including its recent concession to the need to accept independent contractor owner-drivers. And a number of airport shuttle van operators are about to be deprived of a significant portion of their market at LAX, giving them an incentive to search for new uses for their vehicles.

The recently released report on the city's pilot Smart Shuttle experiment reinforced the hypothesis that markets for para-transit services are thin. What, then, can be done to jump-start private transit use in Los Angeles, in particular in the San Fernando Valley? A combination of policies is required. The Southern California Association of Governments should make these its regional transportation priority. It could begin by promoting extra private transit demand and supply via the following complementary ideas.

California's PUC now allows shuttle drivers to become owner/drivers. Yet, and not surprisingly, existing labor law requirements were cited in many of the interviews as a source of high costs. Locally, Los Angeles' City government has long regulated the operations of any group that would compete directly with the city's licensed taxicabs. Yet, conversations with city staff suggest that there would be no objection to licensed shared-ride vehicles that sought "walk-up" business at designated non-airport sites. PUC staff report that they now do award such licenses. There appears to have been a sort of deregulation by evolution—yet the existence of this de-facto policy of openness is not being perceived by potential private transit operators. They may be intimidated by the mere existence of gatekeepers who can always revert to their previous market-closing behavior. Hence, public officials need to be more pro-active in seeking to encourage private transit operators. *State and local law should be amended to enshrine policies of openness in ground transportation*—for example, by officially endorsing the PUC's current open policy toward granting PSC licenses. The city's 1999 taxi franchise renewal period may provide an opportunity to do this at the local level.

Private transit supply would also likely respond to augmented demand. An argument can be made for *targeted* transit subsidies. Transportation economists have long favored user-side subsidies (travel vouchers) over producer-side subsidies because the former are most amenable to targeting specific groups. Travel vouchers would also motivate demand-responsiveness by suppliers. The recently enacted federal transportation measure, TEA-21, makes a positive change regarding the tax-code treatment of such benefits. Under the old law, taxable cash compensation in lieu of tax-exempt fringe benefits (such as free parking) was not allowed. Under the new law, employers can "cash out" parking but, alas, the cash is taxable. But at

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<sup>62</sup> Roger F. Teal and Terry Nemer, "Privatization of Urban Transit: The Los Angeles Jitney Experience," *Transportation* 13, pp. 5–22, 1986.

least the option is now legal. This brings federal law closer to California's 1992 parking cash-out law, under which certain categories of employers are required to offer employees the equivalent cash value of employer-provided parking. The employee may then use the cash for any purpose—for parking but alternatively to purchase transit services from a public or private provider.

Another version of a travel voucher is the Denver RTD's Eco-pass. Under this program, employers prepay a set fee and give employees a monthly transit pass. Employers would pay the provider group(s) an annual lump sum that is agreed to in advance. The lump sum would be less than the face value of all vouchers issued because not all of them will be redeemed. Denver's RTD reports that their program includes over 1,000 firms. The passes are tax-free to employees and tax deductible to employers, up to the amount allowed by federal law. The agency earned \$3.5 million in 1997, furnishing about 3.3 million boardings in return. Each participating employer is seen as offering "group insurance pricing." The company is charged a negotiated price based on the estimated transit usage for that company's employees.

Researcher Donald Shoup suggests that employers could be exempted from zoning or building-code provisions that require the provision of extensive employee-parking facilities in return for their contribution to an Eco-pass pool.<sup>63</sup> Employers' contribution to limiting the demand for SOV auto commuting would relieve them from having to supply parking spaces to accommodate it. Shoup's calculations suggest substantial net gains to employers were they allowed this option. Likewise development agreements and levied trip fees could include contributions to an Eco-pass fund. The Los Angeles City Planning Department should reevaluate its position on parking requirements in this light. Many large employers already contribute to TMO programs. Eco-passes would expand the menu of programs managed by the TMOs.

In the case of the San Fernando Valley, eco-type passes should be usable on any PSC-licensed shuttle operators, any licensed and available taxi, in addition to the conventional bus and rail transit providers. While the mode of choice of low-income workers is the used car, some employers, such as Hewlett-Packard of Palo Alto, have found that giving out free transit passes has helped them recruit low-income workers.<sup>64</sup> Employer funding could eventually be combined with any funds that the state redirects to this program, perhaps shifting some of the nonfederal transit subsidies, for example State Transit Assistance, away from current transit programs. MTA's FY 1999 budget shows \$25.7 million of State Transit Assistance. Valley interests should work with state political leaders to redirect such funds away from conventional transit providers. A five-year Eco-pass pilot program initially financed by state and city funds that demonstrates success would increase the ranks of employers that join a TMO to similarly support such a program. The major Valley-area Transportation Management Organizations are best positioned to broker Eco-pass agreements with employers, with funding agencies, and with transportation vendors. They have already demonstrated substantial entrepreneurial know-how whereby various new para-transit ideas have been tested.

A major source of resistance by transit agencies (in New York and other cities) to jitneys operating along arterials has been competition for customers at bus stops. The transit agency defines the bus stop as belonging to it, and the jitneys as interlopers. Recent Brookings Institution research suggests that this problem be addressed by creating formal legal "curb rights" of access to certain curbside locations for various transit providers.<sup>65</sup> This would permit jitneys to coexist with MTA and contract bus service on

<sup>63</sup> Jeffrey Brown, Daniel Hess, and Donald Shoup, "Unlimited Access," paper presented at "Transit and University Commentaries" conference, American Public Transit Association, Fort Collins, CO, June 1998.

<sup>64</sup> "Take the Bus and Get a Big Discount from Us," *Wall Street Journal*, August 27, 1998, p. A-1.

<sup>65</sup> Daniel B. Klein, Adrian Moore, and Binyam Reja, *Curb Rights* (Washington, D.C.: Brookings Institution Press, 1997).

specific Valley routes. Depending on the situation, refined rules for curb access at bus stops would have to be clear and enforced. If so, both modes could flourish.

The future availability of a network of high-speed HOT/HOV lanes (as proposed in Chapter 3) will offer additional advantages to the private transit modes. In their inevitable competition with the private automobile, they will be able to bypass congestion on regular freeway lanes, gaining a critical time-saving advantage that in some cases will offset the additional pick-up/drop-off time and be directly competitive door-to-door with auto commuting. Substantially enhanced private transit, in turn, creates an additional argument for investing in the HOT/HOV lane network. It becomes a common-carrier network available to a wide variety of providers of improved transportation.

## **VI. Acknowledgments**

Several people provided useful assistance for this chapter. Special thanks go to Ken Koss and Paul Wuerstle of the California Public Utilities Commission for patiently answering numerous questions. Judy Christian of LAX has also been especially helpful. In addition, Jeannie Lee, Paul Casey, and Lan Nguyen of the Los Angeles Department of Transportation were generous with their time. More than most of the survey respondents, Lois Smith of SmartShuttle shared the perspectives of a private operator. Chris Park of the Warner Center Transportation Management Organization, Brooke Geer Person of Glendale Transportation Management Associates, Inc., and Judith Johnston-Weston of the Burbank Media District Transportation Management Organization kindly offered the views of TMO/TMA Managers.



## Chapter 6

# Valley Transportation in 2020

BY THOMAS A. RUBIN

## I. Introduction

If the suggestions of this report are implemented, what will surface transportation in the San Fernando Valley look like in the year 2020?

The short answer is, not hugely different from what we see now—which is relatively good news, given some of the doomsday predictions of three-hour commute times in SCAG planning documents.<sup>66</sup> Most likely, if a well-informed Valley resident were somehow transported over two decades into the future, she would not immediately notice any great changes—just as a Valley resident from the early 1970s would probably not notice any great changes if transported to the present day.

This, of course, does not mean that there won't be *any* changes. There will be changes of many types, but they are likely to be much more in the nature of evolutionary, rather than revolutionary. In this report we have sketched out physical, legal, and organizational changes that can improve both highway traffic flow and transit service quality. Ideally, by 2020 Valley residents will have a choice between regular freeway lanes and uncongested HOT lanes—on I-405 all the way to LAX and on SR 101 possibly all the way to downtown. Special truck lanes on I-5 may separate the ever-increasing truck traffic from the regular lanes, easing their congestion and increasing their safety. Greater connectivity of HOV and HOT lanes across freeway interchanges will greatly increase their usefulness. Indeed, these special-purpose lanes will constitute a Valley-wide network offering improved travel times for express buses, shuttle vans, taxis and jitneys, and paying automobiles.

There will also be legal and organizational changes to create more travel options. More bus service will be provided by private firms competing for contracts, seeking to fill different market niches. Transportation Management Organizations at major employment centers will coordinate service by commuter shuttles, vanpools, and jitneys, as well as various kinds of buses.

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<sup>66</sup> “Communitylink 21: 98 Regional Transportation Plan,” Los Angeles: Southern California Association of Governments, April 1998.

Yet with all these changes, the sheer growth in the Valley’s population and travel will at least keep pace with, if not exceed, the positive impact of these changes. People will cope as they always have—by making changes in where they live and work, and in when and how they travel.

## II. Assumptions

Predicting the future is very difficult, which is why most of the people who try it make serious mistakes. To understand why we believe the above summary is a likely scenario, it is important to understand our underlying assumptions.

Our most important assumption is that there will be no huge changes in the important underlying conditions. In particular:

- Fuel and other transportation prices (cost of vehicles, parking) will not change radically in either direction, either through major shortages of supply, new technologies that lower effective prices, or government fiat (huge increases in fuel taxes, mandates radically restricting single passenger automobile use, etc.).
- There will be no large changes in public travel patterns to favor multi-traveler modes (transit, carpooling, etc.) over single-occupant driving.
- Politics will continue to be a significant factor in government transportation decisions.
- No radical new transportation technologies, with vastly improved cost, speed, or other characteristics, will become widely available.
- The earth and mankind in general, and Southern California in particular, will not suffer significant catastrophic events (nuclear war, major earthquakes beyond the usual California norms, pandemic plagues, etc.)—California will not fall into the sea, neither literally nor figuratively.

## III. Major Factors Shaping Valley Transportation

### *A. Expanded Busway/HOV/HOT Lane Network Provides New Options*

One of our main proposals is the great expansion of High Occupancy Toll lanes and interchanges in and into the Valley. If fully implemented, the result would be a network of high-speed guideways for the use of transit, carpool, vanpool, private sector transit providers—and single passenger automobile travelers willing to pay the economic price for the opportunity to complete their travel during peak periods more quickly.

The economic return of charging single passenger travelers and others who do not qualify for free use of the network will generate revenues that can be bonded against to complete the network far faster than by tax revenues alone.

There will be many challenges in completing the network. Some of the most important, and most heavily traveled, segments of the Valley freeway network are also the oldest, where there are significant problems with gaining the necessary additional width of alignment to build. Highway 101 from the Los Angeles CBD

through the Hollywood Hills and the complex SR 101/134/170 interchange will be a particularly difficult problem. SR101 from the 101/134/170 interchange to the west end of the Valley will also present significant problems, particularly with HOV/HOT interchanges at the I-405/SR 101 and SR 101/134/170 interchanges.

One of the greatest challenges may be how to handle success. What will happen if the HOT network is “too” successful—if the total demand is more than the network can handle? Once usage begins to exceed more than approximately 1,500-1,600 vehicles per hour, the speed advantage of the HOT lane will begin to disappear, converting it into nothing more than an additional lane to the freeway. The obvious market-driven answer is to raise the price of usage to balance demand to available capacity. But if a significant number of vehicles on the lanes are “free” users—governmental transit buses, private sector transit vehicles, including smart shuttles, carpools, vanpools, etc.—the amount of “excess” capacity that can be sold will become limited. If the “free” users grow too large in number, then the ability to produce enough revenue from the paying users to cover the debt service requirements can become an issue. One alternative is to free up space for paying customers by further increasing the requirement for “free” usage from HOV-3 to HOV-4, but that is likely to be politically unpopular. Building an additional HOT lane is likely to be either physically and technically challenging, expensive, or both. Taking a general use lane for conversion to HOT use may be the least-bad alternative at that point. While this will undoubtedly have opponents, it will also have a legion of supporters—those who have grown accustomed to the benefits of bypassing congestion and wish to continue to do so.

Perhaps this problem will never occur. If it does, it will be interesting, for once, to find that the issue is how to deal with a transportation innovation that is successful beyond the original concept.

### ***B. Non-Traditional Transit Modes Will Expand***

The “everywhere to everywhere” travel patterns of the Valley are difficult to satisfy by traditional fixed route transit modes. We expect that new, non-traditional transit modes will come into being, expanding greatly to meet opportunities that will develop if long-standing restrictions on private sector transit entrepreneurship are relaxed.

We expect that long-standing *sub rosa* van services, that have until now almost exclusively served relatively recently arrived Hispanic residents, will expand both routes and markets. Also, smart shuttle service (similar to existing airport shared-ride van services) will also expand, taking advantage of the HOV/HOT network to offer time-savings over driving alone in the regular lanes. Finally, entrepreneurial and TMO-sponsored transit modes, ranging from club buses (employer-sponsored buses to bring workers to and from distant work sites) to route associations (voluntary associations of operators that band together to operate a transit service on a specific route or in a specific area) to shared-cost van pools will expand.

The roles of government in the above are four: (1) To get out of the way—remove barriers to private sector and alternative transit modes, while retaining the proper governmental role, such as ensuring safe operation of service by qualified entities and drivers; (2) To provide technical assistance to start ups where required; (3) In certain limited cases, to provide limited financial assistance; and (4) To offer dispute resolution.

### ***C. Traditional Government-Run Fixed-Route Bus Service Will Decline in Relative Importance***

Given the nature of the residential areas and the commercial and other trip destination areas in the valley, the majority of transit trips will continue to be fixed-route bus trips for the foreseeable future. While other modes will significantly increase their modal shares, they are beginning from such small bases that will not be able to overtake the substantial amount of existing bus trips. Also, there is significant room for expansion of bus service in the valley, given a reasonable investment in this mode.

There are two technical changes that can make bus transit both more competitive with other modes in the eyes of potential riders and, at the same time, less expensive to operate: (1) The expansion of Busway/HOV/HOT lanes will allow the expansion of long-haul commuter express bus service. In certain cases, HOV/HOT bus routes can be time-competitive with single passenger non-HOV/HOT lane trips. Operation on rubber tire guideways will allow far faster operation, which translates to lower cost. Any new routes can be operated by contractors or under highly favorable MTA labor rates, also leading to low public sector costs. (2) Bus signal preemption on arterial streets will lead to faster operations of local routes, with results similar to those discussed above for express routes.

Despite these actions, we expect the mode share of fixed-route government-operated buses to drop as the total number of trips increases considerably and some existing and potential bus trips are instead transferred to rail and non-traditional rubber tire transit modes.

### ***D. Existing Rail Lines Will Remain But Will Not Be Expanded***

At the present time, there are three rail transit lines in, or through, the Valley—the Red Line to North Hollywood (in construction) and the Ventura County and North Los Angeles County Metrolink lines. We believe that these are likely to continue in use, but not be expanded.

The “next” rail line in the Valley would have been the East-West Valley Line, usually placed along the Burbank-Chandler Corridor west from the Red Line North Hollywood Station in two phases, (1) approximately five miles to I-405, and (2) to Warner Center. However, there are no known funds for such a line, or even the likely distant possibility of such funds. Moreover, this line does so poorly on standard productivity and cost-effectiveness measures that it is highly unlikely that it would be able to gain federal discretionary construction grants—especially since it would likely be both suffering from MTA’s reputation in Washington and competing with other MTA projects for funding. Such a project would also face major problems in going after state funds. Running a light rail line down the Burbank-Chandler alignment would be a less bad—although still a poor—project. It is unlikely that such a project will progress because of the Valley’s political climate, which has pronounced light rail unacceptable. Also, running non- or semi-grade separated light rail along this alignment would cause major disruptions to north-south automobile traffic.

Similar considerations apply to the development of a cost-effective busway along Burbank-Chandler. All Burbank-Chandler surface guideway proposals suffer from the common problems of an alignment that is both very narrow for two-way operation in certain locations, would interfere with crossing traffic in a huge way, travels through many residential neighborhoods in ways that would make it very hard to avoid serious disruptions of current ways of life, and simply does not have a significant number of either riders or travel

destinations that either (1) are close to the line and stations, (2) can be easily accessed by rubber tire transit modes.

While there have been proposals to expand Metrolink's current lines, none of these proposals apply to the Valley. Further expansion of Ventura County Metrolink lines is dependent upon either Ventura County coming up with more funding or Los Angeles County providing an even larger subsidy to Ventura County riders than it is now. Of the potential changes to Metrolink service in and through the Valley, perhaps the most likely would be the replacement of the current little-used North County service with an expanded long-haul commuter bus service. This, however, would require Metrolink and MTA to admit that they made major mistakes in extending service to North County after the 1994 earthquake, which is highly unlikely given the problems that Federal Emergency Management Agency funding for this extension has caused and is still causing.

### ***E. Fixed-Route Buses Will Continue to Be the Major Transit Mode***

While the Los Angeles County travel patterns will continue to decentralize as jobs and other trip destinations continue to be spread out, the Valley travel patterns are already so diverse as to limit how much further decentralization will occur here. In fact, there is actually the possibility that certain locations—including Warner Center, Van Nuys Civic Center, Burbank and Glendale CBDs—will continue to grow as job centers, at least in absolute numbers. As a result, there is reason to believe that the demand for fixed route rubber tire transit in the Valley will fall off less than it will in the rest of the County, and could even grow (again, in absolute terms). Also, while the demand for rail trips in the Valley will not be large, it will exist and rubber tire bus routes will likely be the most important method of access for most Valley riders.

### ***F. There Will Be No Major Changes in Governmental Transit Structure***

Disgust with MTA has led to many proposals to decentralize transit, including both a transportation zone and a separate transportation authority in the valley. However, we believe that such changes, even if implemented, are unlikely to translate into significant changes in the actual delivery of services to the public.

Even MTA's own reconfiguration consultant team now recognizes that both the MTA employees and labor agreements would accompany any transfer of bus lines and other assets to other entities. Therefore, cost savings akin to those of the Foothill Transportation Zone are best viewed as a one-time legal accident, unlikely to be repeated in Los Angeles. The savings projected by the LADOT's consultants for a new zone, under the MTA labor contracts, are insufficient to allow MTA to authorize a new zone—unless MTA changes the rules.

Even under the MTA labor contracts, there are no restrictions on a new valley transit agency using either private contractors with lower-cost employees, or using low-cost direct employees, to operate *new* transit lines or services. However, there is no restriction against MTA using such cost savings techniques itself for new services, leaving the economic advantage of a new agency dependent upon other arguments.

Any proposal to shift funding from the larger MTA service area to the Valley is likely to be met with strongly based opposition from the successful plaintiffs in the *Labor/Community Strategy Center v. MTA* suit, who would argue that the resulting consent decree would be violated by such transfers.

In summary, there is not a very strong transportation or economic rationale for the establishment of a new transit/transportation entity in the Valley. There are, however, strong political arguments for a new transportation entity in the valley. For example, the discussion of a valley transportation zone allows Los Angeles City Council members to appear to be supportive of, or at least responsive to, the valley independence movement. Better yet, if successful, it would allow the valley independence advocates to claim a victory (after spending a great deal of their limited resources on the attempt)—while taking absolutely nothing away from the city of Los Angeles and the power of the existing office holders. Also, if a Zone were to be formed, the tens of millions of dollars of sales tax “local return” funds that the city receives from MTA would stay with the city—and the elected city politicians.

For these reasons, we believe that it is not altogether unlikely that some type of new governance structure will be enacted. However, we do not believe that it is likely to result in a significant savings in cost of operations of service (in fact, under certain circumstances, it is not impossible for the total costs of County transit operations to increase). If MTA’s policies and procedures are not reformed, it is unlikely that there will be additional revenues for improvements (of course, if MTA were to be reformed, then the need for new a Valley transit agency would be lessened). Of course, if transit in Los Angeles County continues to be Balkanized, the ability to produce a true county-wide transportation and transit network is likely further compromised.

### ***G. Major Changes Will Be to Travel Patterns, Not Transportation Assets***

As we have seen, the changes in Valley transportation infrastructure will primarily be additional busway/HOV/HOT lanes, plus a significant increase in rubber tire transit vehicles, with the majority of the increase in private sector vehicles. There will also be certain technical changes that will allow more productive utilization of the existing asset base, such as traffic signaling improvements. These changes and additions are relatively small compared with the huge, existing Valley transportation infrastructure.

These changes are too minor to have dramatic impacts on Valley travel, given the projected increase in demand for transportation. Therefore, what we are likely to see is the continuation of the kinds of changes in individual traveler travel patterns that have been occurring for decades. When an individual’s travel time, and trouble, have deteriorated beyond the ability of a specific individual to accept and deal with the consequences, the individual will make a change. She will change her work hours to less crowded travel periods, move closer to her employment site, find a job closer to her home, change *both* home and work location, or, finally, leave the area entirely. She will take advantage of newer technologies to allow working from sites other than the traditional central job site, including both satellite offices (even if only for a day or two a week) and her own home.

Businesses will respond in many ways, including changing their hours of work and continuing to move major jobs sites out of the central city to suburban and exurban areas closer to employment pools—and to other parts of the state and country. When transportation deteriorates beyond a certain point, businesses that are not tied to the area by their business demands begin to take it into account in making location decisions.

The private sector—the marketplace—also responds in other ways. Shopping trips to stores are being replaced, to a greater and greater extent, by catalog and, more recently, Internet shopping that includes home delivery. While the sales tax exemption for these types of transactions will probably be eliminated in the not

too distant future, the convenience and trip avoidance factors will continue to grow in importance. Even today, remote grocery shopping/delivery services are becoming more common.

Not all residents of the Valley will utilize all of these methods of gridlock avoidance, and it should not be expected that they will. Instead, as travel conditions change, a greater number of “former” travelers will reach *their* own decision points—where the “costs” of the new methodology, in terms of money, the reluctance to try a new way of doing a familiar task, and change in scope of options, become less than the “gain” of being able to avoid taking that additional trip. Of course, many of these trip-avoidance methodologies have significant advantages to users even without the trip avoidance factor, which means that any trips eliminated are a “bonus” to the rest of the public. However, in general, what will occur is that people will continue to do what they have always done until the travel conditions degrade to a point where some number of individuals take specific actions to eliminate or alleviate their own problems.

#### ***H. Market-Driven Changes, Not Command and Control***

In line with the above, the greatest changes in surface transportation will be those arising out of individuals making individual choices as to how to lead their lives, not governments making decisions that will lead to a greater good (or lesser evil) for large groups of residents.

There are certain decisions that government can make that would have very major impacts on surface transportation condition over a relatively short time period. For example, if the federal government implemented a strategy of increased taxes to double or triple gasoline prices, with a significant share of these taxes going to expand transit and decrease fares, we could reasonably expect to see a large shift from single-occupant automobile travel to transit and other shared-ride options. But we see little likelihood of such a policy becoming law.

We do not expect that huge changes in the current environment for surface transportation—radical gas tax increases, systemwide congestion pricing, increased auto ownership taxes, *effectively* requiring all drivers to have automobile insurance, enforcing stringent environmental requirements on vehicles, mandating higher parking costs, etc.—to become the law of the land for the simple reason that people do not want them to become law and, in the last analysis, the lawmakers in Sacramento and Washington understand this very well.

While politicians are generally not reluctant to make legal changes, or to propose new programs and/or capital facilities, that will make things better for their constituents and/or give them more options, it is extremely rare in the existing political environment to see changes that will cause disadvantages to large (or, often, even small) numbers of voters enacted into law.

#### ***I. Average Speeds Will Not Improve, and Are Likely to Decrease***

Consistent with the above, we do not expect any future significant increases in average speeds of travel for more than very short periods. In fact, the only thing that we can foresee that would cause travel speeds to increase would a major collapse of the global and/or local economies that would lead to a major reduction in trips taken.

Transit cannot and will not have a significant impact on surface transportation travel speeds. This can be easily proven by a simple comparison. If we assume that the reported 1990 Los Angeles County transit home-to-work mode share of 8.25 percent<sup>67</sup> (which has since declined below 6 percent) would somehow double over the next 25 years, it would be greatly outstripped by the projected 36.4 percent county population increase.<sup>68</sup>

Our expectation—an expectation proven in the real world for decades and accepted by virtually every acknowledged expert in the field—is that demand for travel will increase, that the demand increase will far exceed the increase in supply (freeway widenings, HOV lanes, transit improvements, etc.), and that the controlling factor will be the degree to which individuals react to decreases the quality of their travel conditions by changing how (and when, and if) they travel. The common experience is that, while more and more individuals will take such adjusting actions as speeds decrease, the number of adjustments will always be less than the additional impacts from new trips.

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<sup>67</sup> “A Plan for Los Angeles County,” Los Angeles: Metropolitan Transportation Authority, 1995.

<sup>68</sup> California Department of Finance Demographic Research Unit, year-by-year projections, 1993.



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# Appendix

## Guideway Capacity

There are two capacity concepts that are important in the analysis of guideways for the Valley, those of maximum theoretical capacity and of practical capacity in the Valley environment. Of these, the latter is far more important.

### *Maximum Theoretical Capacity*

Guideway capacity can be quantified in terms of capacity past a point and in terms of transportation miles consumed. Capacity past a point (per hour) is calculated as:

$$C_p = T/H \times C \times P/C$$

where

$C_p$ =	Capacity past a point
$T/H$ =	“Trains” per Hour
$C$ =	Consist (number of cars per train)
$P/C$ =	Passengers per car

For example, if MTA operates six-car trains every six minutes on the North Hollywood Red Line extension and each car has a “crush load” (maximum “legal” number of passengers) of 301<sup>69</sup>, then the capacity past a point in a hour is:

$$\begin{aligned} C_p = & (60 \text{ minutes per hour} / 6 \text{ minutes between trains}) \times 6 \text{ cars per train} \times 301 \text{ passengers per car} = \\ & 10 \text{ trains per hour} \times 6 \text{ cars per train} \times 301 \text{ passengers per car} = \\ & \text{a maximum of 18,060 passengers per hour past a point} \end{aligned}$$

For buses and other rubber tire vehicles, the consist is always “1” (with a few very specialized exceptions that we will not bother with here). If there is one bus per minute on the El Monte Busway, and the maximum number of passengers per bus is 51 (calculated as 43 seats per bus x the 1.20 maximum Consent Decree load factor of 2002), then the calculation for capacity past a point is:

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<sup>69</sup> The six-minute minimum headway is based on a three-minute headway in the “combined” section of the Red Line between Wilshire/Vermont and Union Stations where the two separate Red Line branches (North Hollywood to Wilshire/Vermont and Wilshire/Western to Wilshire/Vermont) come together. Assuming that trains will be operated alternatively between the two branches, the minimum branch headway is half the “combined” headway, or six minutes. Six cars is the maximum train lengths that will fit into the Red Line stations. Crush Load of 301 per “RTD Fact Sheet—the Metro Red Line.”

$$C_p = (60 \text{ minutes per hour} / 1 \text{ minute between "trains"}) \times 1 \text{ "car" per "train"} \times 51 \text{ passengers per "car"} = 60 \text{ buses per hour} \times 51 \text{ passengers per bus} = \text{a maximum of 3,060 passengers per hour past a point}^{70}$$

Transportation Miles consumed brings in the speed of operations, reflecting that a guideway that provides for a higher operating speed produces more value than a slower one. The formula is:

$$TM = C_p \times S$$

where

$$\begin{aligned} TM &= \text{Transportation Miles Consumed} \\ S &= \text{Average Operating Speed} \end{aligned}$$

With an average operating speed of 25 mph for the Red Line and 52 mph for the El Monte Busway<sup>71</sup>, the calculations are:

$$\text{Red Line North Hollywood: } TM = 18,060 \times 25 = 451,500$$

$$\text{El Monte: } TM = 3,060 \times 52 = 159,120$$

These above values are index numbers. (Technically, the product is passengers miles per hour, but for the value shown to actually be achieved, the guideway would have to be as long [expressed in miles] as the average operating speed [expressed in miles per hour], which is virtually never the case in the real world. However, the use of these values as index numbers is of value in comparing maximum and usable capacity.)

### *Practical Capacity*

Practical Capacity is almost always considerably less than Maximum Capacity because of real world problems that restrict the actual utilization of capacity. While these restrictions can reduce the average operating speed, the number of "trains" per hour, or even the train consists, in the above cases, the factor that is most often and most significantly affected is the passengers per car.

The 51 maximum passengers per bus is actually exceeded thousands of time per day in Los Angeles County. However, as a practical matter, an observed El Monte capacity was 31 per bus<sup>72</sup>.

There is no heavy rail line in North America that commonly operates at crush load. (The Tokyo system, with its well known car "loaders" who literally push passengers into cars, is one of a handful of crush load rail systems in the world.)

<sup>70</sup> This is *not* the absolute maximum capacity of a busway. It would be physically possible, for example, to operate an 80-foot articulated bus with 100 seats (and 120 passengers) every five seconds, producing 86,400 passengers carried past a point in an hour (actually, even this is not the maximum—there is no technical reason why four-second headways, three-second headways, or even shorter headways could not be operated. Also, there are 80-foot buses that are operated with 270 passenger loads. However, all this really proves is that busways can potentially carry loads far in excess of any possible requirement for such capacity.

Similarly, heavy rail systems can also be constructed with higher capacities than the calculations shown above for the Valley Red Line. BART, for example, operates ten-car trains—two-thirds longer consists than the MTA maximum of six cars. Three-minute heavy rail headways are theoretically possible on many systems, and two-minute headways are not impossible with certain enhancements in train control and locator systems. However, again, the need for such capacity, particularly in the San Fernando Valley, simply does not exist.

<sup>71</sup> 25 mph is authors' estimate based on actual observation of the current Union Station—Wilshire/Western actual operating speed of 21–22 mph and differences between this Red Line segment and the North Hollywood alignment. 52 mph is from Caltrans, 1992.

<sup>72</sup> Caltrans 1992.

In practice, many heavy rail lines are scheduled to be operated with approximately 200 percent seated loads, or 118 per car<sup>73</sup> for Red Line cars. The Red Line was anticipated to be operated with peak hour loads of 169, or 286 percent of seated load.<sup>74</sup> However, in analyzing *Valley* carrying capacities, it must be remembered that the trains leaving the Valley will be traveling to Union Station, picking up passengers at every stop along the way. Therefore, the maximum load on trains leaving the Valley for travel to the Los Angeles Central Business District can only be approximately 57 percent<sup>75</sup> of the peak load, or approximately 85 per car (assuming scheduling for a full load of 169 per car). The trains between North Hollywood and Universal City will have approximately 25 percent capacity loads., so, roughly, the Red Line cars will have approximately 41 percent of capacity loads when operating in the valley during peak periods, or approximately 69 passengers per car. Therefore, for the Red Line in the Valley, from North Hollywood south to the first station south of the Hollywood Hills, the *practical* Capacity Past a Point and Transportation Miles are:

$$C_p = (60 \text{ minutes per hour} / 6 \text{ minutes between trains}) \times 6 \text{ cars per train} \times 69 \text{ passengers per car} =$$

$$10 \text{ trains per hour} \times 6 \text{ cars per train} \times 69 \text{ passengers per car} =$$

$$4,140 \text{ passengers per hour past a point}$$

$$TM = 4,140 \times 25 = 103,500$$

If the proposed Valley East-West heavy rail line were to be constructed, the  $C_p$  and TM values will be roughly similar to these, perhaps slightly higher than the above, for the same reason—the maximum capacity leaving the Valley is somewhat limited by the requirement to reserve capacity for the larger number of passengers who will be boarding after the trains leave the Valley<sup>76</sup>.

Light rail has been proposed at various times for the Valley, including along the Burbank-Chandler Corridor until local political and NIMBY (“not in my back yard”) considerations literally forced it underground. We have no recent ridership estimates for such a line. In 1991, LACTC projected<sup>77</sup> 24,000 daily trips for the proposed San Fernando Valley East-West heavy rail line from Sepulveda Boulevard to Warner Center. A longer rail line would undoubtedly have greater ridership than this 8.4 mile segment. However, a street running light rail, similar to that of the existing Long Beach-Los Angeles Blue Line in its extreme northern and southern segments, would have a lower ridership than a totally grade separated heavy rail line with its far faster operating speed. Since a street-running light rail line would have little, if any, speed advantage over bus lines operating on parallel streets in the Valley<sup>78</sup>, it is very questionable if many existing bus

<sup>73</sup> Red Line cars have 59 seats (MTA, “The Metro Red Line,” 1995).

<sup>74</sup> LACTC, “Los Angeles Metro Red Line—Downtown-LA-Wilshire District-Hollywood-San Fernando Valley”

<sup>75</sup> Per SCRTD, “Los Angeles Rail Rapid Transit Project—Metro Rail,” Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report, July, 1989, Figure 2-38, “New LPA (locally preferred alternative) Daily Boardings, Alightings and Link Volumes by Direction,” page 2-1-48, daily link volumes (trip segments between station pairs) are shown as (North to South—South to North link volumes are almost identical), with authors’ calculation of percentages of peak volume:

North Hollywood-Universal City	10,403	24.9%
Universal City-Hollywood/Highland	23,934	57.3%
Vermont/Beverly-Wilshire/Vermont	41,727	100.0%

<sup>76</sup> While it can be argued that high ridership in the Valley could cause total Red Line ridership to far exceed the load factors in the Red Line Union Station-North Hollywood that are the basis for the above calculations, the extremely low ridership projections for the East-West Valley Line give no reason to believe that this will ever occur.

<sup>77</sup> LACTC, Proposed 30-Year Integrated Transportation Plan (Revised), August 26, 1991, page 64. (This was a draft of the final 30-Year Integrated Transportation Plan, which was adopted the following year. This draft contains far more detail than the adopted plan.)

It should be noted that the only thing that was understated in the 30-Year Plan was costs.

<sup>78</sup> There would probably be some differences in operating speed, but these are likely to be unique to the specific transit line, rather than the modal technology. For example, if a decision is made to operate a street running rail line with stops every mile and full traffic signal preemption, it would undoubtedly travel faster than a bus line with stops every other block and no traffic signal preference. However, since the number of stops per mile and signal preemption has only a little to do with bus vs. rail modes, this is not a case where it is proper to state that rail has a speed advantage over bus.

riders will find any significant speed, or other, advantage to using a Burbank-Chandler light rail line—particularly since there are a significant number of trip origins or destinations along the alignment. For these reasons, a light rail line of approximately 13 miles from the North Hollywood Red Line stations to Warner Center would likely not approach 25,000 riders per day. If we assume a ratio of average weekday:peak hour ridership of 9:1 (which is approximately MTA’s recent experience), this suggest under 3,000 peak hour riders. However, this is *bi-directional* ridership and, even for peak period peak direction travel, some trips will not pass the peak load point. If we assume that 60 percent of peak period ridership passes the peak load point in the peak direction, then we are talking well under 2,000 riders past a point in the peak hour. If we assume a 22 mph average operating speed (which is a very high speed for a street-running light rail line), then we have an TM of under 44,000—most likely, well under.

Turning now to the practical capacity of a busway in the Valley, let us first examine the number of express bus trips for existing Valley bus lines between 7:00 and 8:00 a.m. on weekdays<sup>79</sup>:

<u>Bus Line</u>	<u>East (South) Bound</u>	<u>West (North) Bound</u>
418	3	
420	7	11
424/425/522	9	19
426	4	
427	<u>2</u>	<u>1</u>
Totals	25	31 <sup>80</sup>

The above totals do not include express lines operated for the City of Los Angeles Department of Transportation.

All of the above lines are primarily designed to provide service between the Valley and the portion of the City south of the Hollywood Hills, at least in their express portions.<sup>81</sup> Therefore, there is virtually no express bus service currently operated in the Valley proper.

Although the above lines serve different corridors in the Valley, it does not appear unreasonable to speculate that a high speed transit busway in the Valley with good connections to the freeways serving the Valley could effectively operate at least 30 buses per hour, peak period, peak direction, with an average passenger load similar to the 31 observed on the El Monte busway.<sup>82</sup> This produces practical bus Capacity Past a Point and Transportation Miles of:

$$C_p = 30 \text{ buses per hour} \times 31 \text{ passengers per bus} = 930 \text{ passengers per hour past a point}$$

$$TM = 930 \times 40 = 37,200$$

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(In fairness, there is a qualification to the above. Because a two- or three-car light rail train can carry far more passengers—as many as six to ten times more with extreme loads—than an individual bus, signal preemption for buses creates more cross-traffic interruptions than for light rail. However, if buses are “platooned” [deliberately operated in groups], this difference can be significantly reduced. In the real world, this issue becomes one of faster operating speed at longer headways vs. shorter headways with slower operating speeds. In the case of short trips, there is almost always a trip time savings with shorter headways and, more important, the *appearance* of a time advantage favors shorter headway solutions because passengers tend to count “wait time” as twice actual time in motion time.)

<sup>79</sup> MTA, Metro Bus Rider’s Guide—San Fernando Valley, Burbank, Glendale, effective January 1997 (obtained from MTA as current in July 1998, subject to “Northern Region Update,” effective December 14, 1997).

<sup>80</sup> While it appear to be erroneous that there are more express trips *to* the Valley than *from* during the morning peak, there is actually far more demand for transit job-related and other trips to the Valley than from. Lines 420 and 424 are the two most highly utilized bus lines in the Valley, operating at expresses on freeways for part of their travel, but operating more as locals or limiteds in the Valley proper.

<sup>81</sup> Line 427 does have two stops per trip in the express portion of its trip in the Valley. None of the other lines have any freeway bus stops in the Valley.

<sup>82</sup> This translates into a headway of two minutes, which means that such a guideway could not be operated with cross-traffic; it must have a separate guideway.

However, a Valley “rubber tire” guideway with full grade separation need not be utilized only by buses. Other transit and paratransit modes could also use such a guideway. The El Monte busway/HOV lane carries over 1,200 HOV-3 carpools at peak hour<sup>83</sup> with an average passenger load of 3.2 at an average speed of 55 mph. While the El Monte busway is a very highly utilized facility for buses alone, HOV ridership is over 70 percent of total utilization (measured both in passengers past a point and total passenger miles). Assuming that at least some of the non-bus transit alternatives proposed in this paper are implemented, a 70:30 split does not appear unreasonable. If we assume a similar ratio for a Valley “rubber tire” guideway, then we would have  $C_p$  over 3,000 and TM over 125,000.

Therefore, using assumptions that, on balance, are quite favorable towards rail modes, we find that, at worst, a “rubber tire” guideway in the Valley is extremely competitive in terms of transportation capacity with rail modes and likely significantly superior. The capital cost of a “rubber tire” guideway is a fraction of any heavy or light rail mode. The operating cost of bus on “rubber tire” guideways is far less than that of rail—and the public sector cost for the non-bus utilization is *zero*.

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<sup>83</sup> Caltrans, 1992.



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