

Executive Summary

For decades (indeed, perhaps since the invention of the motorcar) the citizens of Pasadena have complained to their elected officials that there is too much traffic. In the modern era, when most cities are seeing increasing numbers of cars on the road, is this proposition even feasible? And if such a goal can be achieved, can it be done without badly harming either the economy or residents' freedom of movement, or Pasadena's remarkable cultural attractions and quality of life?

Answering these two questions is the central goal of this report. To provide a strong focus, this study identifies a unified set of strategies that would result in at least a 25% reduction in the number of vehicle trips taken on Pasadena streets during the evening rush hour (i.e., the PM peak period). As a second, more modest alternative, a package of strategies that would result in at least a 10% reduction is also presented. The strategies are first identified and described, and then each is analyzed for both its potential effectiveness in reducing traffic in Pasadena, and its side effects: for example, the potential harm (or benefit) that a strategy may hold for the city's economy.

To help identify the best possible options for Pasadena, this study undertakes a wide-ranging review of traffic reduction techniques, examining not only those practiced currently in the United States, but also those adopted internationally. The many efforts that Pasadena is already making to give citizens better transportation choices -- investments in buses and light rail, better pedestrian safety, better cycling facilities, among other efforts -- are also reviewed. Finally, in addition to describing individual strategies, this report provides short case studies of a dozen cities -- both major cities and smaller suburban places, in both the United States and abroad -- that have made notable attempts to reduce traffic. This case study approach is well suited to showing how a group of strategies can work in concert (or fail to work) to reduce traffic congestion.

The entire proposition of reducing vehicle trips and traffic congestion is controversial. Anthony Downs, the noted Brookings Institution scholar and author of such gloomily titled works as *Still Stuck in Traffic*, declares that traffic congestion is "inevitable". Among economic development officials and developers, increasing motor vehicle traffic is often described as simply the price of success.

This study arrives at a different conclusion. Traffic congestion is not inevitable. If the citizens of Pasadena wish, it can be reduced: traffic congestion is a choice, not Pasadena's fate. Moreover, rising traffic congestion is not simply a byproduct or unavoidable symptom of economic success. Instead, traffic congestion is typically a sign of significant economic losses. It indicates a transportation system that is not economically efficient. As a result, reducing auto traffic can often result in substantial economic gains.

However, would Pasadena wish to make the significant changes, with all of the controversy that might be entailed, that would be required to significantly reduce traffic? This report cannot answer that question for the community. It does, however, provide a toolkit of strategies that are demonstrably successful in reducing traffic, and a window into communities where remarkable changes are taking place.

Our team's research arrived at two significant conclusions. First, numerous cities have demonstrated that traffic and drive alone rates can be significantly reduced. Second, when a community wishes to do so, traffic can be reduced with remarkable rapidity. Consider the following case.

The central area of Sweden's capital, Stockholm, is approximately 13 square miles in size, or about half the size of Pasadena. In January of 2006, Stockholm began testing a new

program aimed at reducing traffic. Six months into the trial, vehicle trips into and out of the area had fallen by 22%. Nearly 100,000 vehicle trips per day have been removed from the roads during peak business hours, yet downtown businesses have not suffered any revenue loss.

Stockholm is not an isolated case. The sidebar on the following page briefly lists examples of cities, downtowns, districts and transit agencies that have succeeded in either: (a) significantly reducing vehicle traffic, or (b) significantly reducing drive alone rates. In some of these examples, such as London and Stockholm, existing traffic levels have been sharply reduced from the levels of a few years ago. In many of the other examples, rapid growth was offset by a major decline in the percentage of trips made by driving alone, so that the net result was little or no increase in traffic.

Since the goal of this report is to identify a way to reduce the *existing* number of vehicle trips on Pasadena streets during the evening rush hour by 25%, the examples which merely keep traffic levels constant while a city grows rapidly -- such as the addition of 250,000 workers to downtown San Francisco with no increase in traffic -- are not perfect precedents. However, they do provide important lessons about how a community can reduce driving.

Pasadena and the Region

With nearly 150,000 residents and its significant role as a regional center of employment, culture and nationally known attractions, Pasadena is a significant place. However, in a region as large and as multi-centered as Los Angeles, people's daily trips frequently begin in one city and end in another. As a result, the best strategies for decreasing trips must include partnerships with area cities, transit operators and other agencies—it is very difficult for one city to simply "go it alone", since development activity and traffic does not respect city boundaries.

To help illustrate the situation, consider an extreme case. If all Pasadena residents and all Pasadena workers stopped driving entirely, Pasadena's city streets would not be free of cars. The existing pass-through traffic (with neither origin nor destination in Pasadena), amounting to about one third of all vehicle trips, would continue to pass through. Moreover, since the removal of all local trips would reduce delays for pass-through traffic, cutting through Pasadena on local streets would become more attractive, and it is likely that more pass-through traffic would be induced. How much would this "rebound effect" do to fill the roads back up again? The answer is difficult to determine, but the evidence suggests that at least some new pass-through trips would be induced.

Neighboring cities, regional agencies, the state and federal agencies all affect Pasadena, and to best reduce traffic, Pasadena will need to actively partner with all of them. However, Pasadena is not helpless. There is a great deal that the city can do on its own, using policy levers under its own control, to reduce car trips.

- *Arlington County, Virginia, Rosslyn-Ballston Corridor:* In the 1960s and 1970s, this suburban corridor consisted largely of tired strip malls with the ubiquitous free parking, a surrounding fabric of single-family homes, and sharply declining population and retail sales. Today, development in the corridor is booming, but with little growth in traffic. Traffic counts from 1997 to 2004, for example, show that while office and residential development grew by 17.5% and 21.5% respectively, traffic along the Rosslyn-Ballston corridor grew by only 2.3%. Census Journey-to-Work Survey data show that over 47% of corridor residents now take transit to work.
- *Bellevue, Washington:* In downtown Bellevue, Washington, the drive alone commute rate fell by 30% from 1990 to 2000, falling from 81% driving alone to 57%.
- *Boulder, Colorado:* Since 1995, the drive-alone rate for employees in downtown Boulder has fallen almost 36%, from 56% driving alone to 36%, while the transit mode share has more than doubled from 15% to 34%.
- *Cambridge, Massachusetts:* Cambridge's Travel Demand Management Ordinance requires that developers reduce the drive alone rate for their development to 10% below the average rate for the census tract in which their development sits. Although the ordinance applies only to new development and building expansions, by two years after the adoption of the ordinance, citywide drive alone rates had declined, even as the state of Massachusetts experienced increasing drive alone rates.
- *London, United Kingdom:* Since the beginning of 2003, when congestion pricing was introduced in central London, the number of vehicle trips in the congestion pricing zone has fallen by 17%. Congestion, measured in terms of person-hours of delay per mile traveled, has fallen by 26%.
- *Lloyd District, Portland, Oregon:* In the nine years since the baseline figures were measured (in 1997), the drive alone rate among all Lloyd District employees has fallen almost 29%, from 60% to 43%.
- *Portland, Oregon:* In 1975, the City of Portland set a cap of roughly 40,000 parking spaces downtown, later replaced with tight maximum parking requirements. City officials credit these limits with helping to increase downtown's transit mode split from about 20% in the early 1970s to 48% in the mid-1990s.
- *San Francisco:* Employment in downtown San Francisco doubled between 1968 and 1984, while the number of cars traveling into the downtown stayed the same.
- *Stockholm, Sweden:* Six months into the trial of congestion pricing the average traffic reduction across the control points between 6:30 AM and 6:29 PM is 22%.
- *Vancouver, Canada:* As a deliberate transportation strategy, Vancouver tremendously increased housing capacity in the downtown area to reduce commuting times and congestion, in what became known as the "living-first strategy". From 1991 to 2002, the number of residents living downtown increased by 62%, to 76,000, but car trips into downtown remained essentially constant. In 1994, walking and cycling trips made up 20 percent of all daily trips into the downtown and together made up the third-highest used mode behind auto and transit trips: by 1999, walking and cycling trips made up 35 percent of all daily trips and are now the most frequently used mode.

Reconsidering Parking Policy in Pasadena

With the benefit of hindsight, we can reevaluate whether policy experiments that were undertaken beginning in the 1920s have worked out as intended. One area of Pasadena transportation

history that has often been little noticed and little studied is parking policy. However, this study will argue that parking policy is perhaps the single most important lever within Pasadena's grasp for affecting the quantity of traffic on Pasadena city streets.

According to the zoning code, Pasadena's minimum parking requirements were adopted to "alleviate or prevent traffic congestion and shortages of curbside parking spaces". Has it worked? For half a century, virtually every city in southern California has had minimum parking requirements, and yet not only has traffic congestion gotten worse, it is projected to steadily worsen over the next 20 years.

Why was it believed that setting minimum parking requirements would alleviate traffic congestion? By the 1920s, the new problem of "spill-over parking" had already arrived in many downtowns. Automobiles filled up all of the curb parking in front of shops and apartments, and any nearby private parking, and then sometimes spilled over into nearby neighborhoods, crowding the streets there. In search of free parking near their destination, motorists often took to circling about, waiting for a space to open up. Instead of searching for parking, many motorists simply double-parked, clogging traffic lanes and greatly increasing congestion. Perhaps most importantly, well-known traffic engineers, such as Wilbur Smith, pointed out that if enough off-street parking were built to meet all possible demand, it would be much easier to prohibit on-street parking. The streets could then be filled from sidewalk to sidewalk with moving traffic.

The essential concept of minimum parking requirements was that if each destination provided ample parking, with enough spaces available so that even when parking was free there would be plenty of room, then there would be plenty of spaces at the curb. Motorists would no longer need to circle the block looking for a space, and so traffic congestion would be lessened.

Minimum parking requirements, however, had unintended consequences for traffic. Pasadena, like most California cities, set minimum parking requirements that were simply high enough to satisfy the demand for parking even when parking was given away for free. The predictable result was that most destinations wound up with free parking.

Dozens of studies have now demonstrated that when parking is given away free of charge, people drive more. The amount of extra driving induced is substantial. Figure 0-1 summarizes the results of studies of commuters in Los Angeles and elsewhere, showing the reduction in traffic that occurs when parking subsidies are removed or reduced. As this table shows, removing or reducing parking subsidies - subsidies that have been in good part created by minimum parking requirements - reduced vehicle trips by an average of 27%, in the mostly Southern California case studies shown here. Given Pasadena's goal for this study - figuring out how to reduce traffic by 25% - the role played by parking requirements cannot be overlooked.

Fortunately, Pasadena has more choices available to it than either: (a) accepting traffic congestion caused by cruising for free curb parking, or (b) imposing minimum parking requirements, which tends to lead to free parking everywhere and induces more driving.

In this report, a great deal of attention is paid to the political realities of reducing traffic. Any planner or elected official reading the preceding pages must have thought to themselves, "As an academic idea, reducing traffic by making people pay for parking sounds all well and good.

Figure 0-1 Employee Parking Pricing Effect on Auto Commute Rates

Case Study and Type	Autos Driven per 100 Employees		Decrease in Auto Trips
	Employer Pays for Parking	Driver Pays for Parking	
Mid Wilshire, Los Angeles (before/after)	48	30	-38%
Warner Center, Los Angeles (before/after)	92	64	-30%
Century City, Los Angeles (with/without)	94	80	-15%

Civic Center, Los Angeles (with/without)	78	50	-36%
Downtown Ottawa (before/after)	39	32	-18%
Average of Case Studies	70	51	-27%

Source: Willson, Richard W. and Donald C. Shoup. "Parking Subsidies and Travel Choices: Assessing the Evidence." Transportation, 1990, Vol. 17b, 141-157 (p145).

But who really wants to stand up in a public meeting, or planning commission hearing, or especially in an election campaign, and try to argue against the merits of ample free parking?" When we consider that for American employees, for example, free parking is by far the most common employee benefit, who would win elections by trying to take it away? The remainder of this study is filled with examples of places that have successfully reduced traffic. Sometimes, these places have leveled the playing field not by removing free parking, but by providing equally valuable subsidies to employees who don't drive. In other cases, neighborhoods and business districts have realized that the gains from ending free parking outweigh the pain of getting rid of it. They then built cities where one can live comfortably while walking, bicycling and taking transit. In each case, the place studied is part of a modern democracy, where planners and elected officials have to answer to voters. Pasadena voters may or may not wish to make the same choices. The point here is that if they wish to, there are options open, and there are real-world models to follow.

A Recommended Set of Strategies for Reducing Traffic by 25%

To reach a goal of reducing evening rush-hour traffic by 10%, or even 25%, not all of the twelve strategies recommended here would necessarily need to be implemented. Moreover, the strategies could be mixed and matched in several different ways in order to reach these goals. Since describing even just the most important variations would take many pages, for brevity's sake, each of the recommendations is generally presented here in a single basic form and at full strength.

While not all twelve of the strategies recommended here are required to achieve a 10% reduction (or even a 25% reduction) in existing vehicle trips during the evening peak hour, at least one of the strategies -- *congestion pricing* -- is almost certainly essential to achieve such an ambitious target. As described earlier in this paper, pass-through trips, with neither origin nor destination in Pasadena, account for a substantial share of peak hour trips on Pasadena city streets. If, through a variety of programs, Pasadena reduces local trips, this will reduce delays for pass-through traffic. Cutting through Pasadena on crosstown city streets will become more attractive, and it is very likely that therefore more pass-through traffic would be induced. To fully counteract this "rebound effect", congestion pricing is the only remedy known to be effective.

This does not mean that the other strategies recommended here cannot be helpful or should not be pursued. As described here and in the case studies of other cities, these strategies can strongly affect the number of auto trips generated by development within Pasadena, giving residents better alternatives to driving alone. For the most part, they are strategies that Pasadena can implement on its own: by contrast, congestion pricing cannot be implemented without a change in state law. The strategies are also likely to be a useful first step before any attempt to institute congestion pricing is made. Congestion pricing, several studies have suggested, is more likely to be accepted by the public when better alternatives to driving alone are provided: the other eleven strategies recommended in this chapter are designed to do that.

Where Are These Strategies Being Applied Already?

All of the transportation strategies recommended in this study have been implemented before. Nothing here is new or untested. In some cases, Pasadena already implements the strategy to some extent. Many of the recommendations are included as key steps because they appeared,

over and over, as important strategies in cities that have succeeded in reducing vehicle trips. (Most of these strategies are rarely seen in communities where traffic is getting steadily worse.)

Figure 0-2 summarizes many of the strategies used in ten of the case study cities that were reviewed for this report. The table reviews 16 possible strategies. Where a strategy is checked off for a particular city, it indicates that the strategy is in widespread use in the area covered by the case study. For example, all of these cities have priced parking (both meters at the curb in commercial areas, and priced parking at many workplaces and other destinations), and all use residential parking permit districts to prevent spillover parking problems. Overall, even a quick scan of this table suggests one conclusion. Although some of these places are midsized and mostly suburban American cities, while others are European capitals, there is a notable consensus on overall direction: the removal of parking subsidies, combined with improvements to all other modes of transportation.

Twelve Recommendations

Recommendation 1: Charge the right price for curb parking

Charge the lowest price that will leave one or two vacant spaces on each block -- that is, performance-based pricing. This will eliminate the traffic congestion caused by drivers cruising for parking.

One source of excess traffic in Pasadena (as in many other cities) is cruising for parking, that is, people searching and circling to find a free or below market-rate curb parking space. Cruising for parking adds more traffic to an already congested street network. In these circumstances, managing parking prices to ensure that there are available curb parking spaces at all times of day is an important strategy for reducing traffic. Making sure that there are curb parking spaces available, using parking prices rather than relying on minimum off-street parking requirements, is also a fundamental first step that makes possible the implementation of many of the powerful traffic reduction strategies described later.

As demonstrated by the success of old Pasadena's parking meter zone, charging for on-street parking with a goal of leaving one or two vacant spaces on each block (i.e., a target occupancy rate of 85%) will not drive customers away. Under the policy, if rates are set too high, so that too many spaces are empty, the policy requires adjusting rates downward until the parking spaces are again well-used by customers.

Recommendation 2: Return the meter revenue to the neighborhoods that generate it

Revenue return will make performance-based prices for curb parking politically popular.

A. Create additional Commercial Parking Benefit Districts, modeled after the Old Pasadena Parking Meter Zone.

Net revenues from paid parking at the curb should fund public improvements that benefit the blocks where the money is collected.

If parking revenues seem to disappear into the General Fund, where they may appear to produce no direct benefit for the District where they are collected, there will often be little support for installing parking meters, or for raising rates when needed to maintain decent vacancy rates and prevent cruising traffic. But when District merchants and property owners can clearly see that the monies collected are being spent for the benefit of their blocks, on projects that they have chosen, they become willing to support market rate pricing.

B. Establish Residential Parking Benefit Districts.

Residential Parking Benefit Districts should be implemented in residential areas, wherever there is the potential for spillover parking from nearby commercial areas, and wherever densities are high enough that the on-street parking might fill up if left unmanaged. Residential Parking Benefit Districts are similar to Pasadena's existing residential parking permit districts, but can also allow a limited number of commuters to pay to use surplus on-street parking spaces in the residential areas, and then return the resulting revenues to the neighborhood to fund public improvements.

Recommendation 3: Invest a portion of parking revenues in transportation demand management programs

In Commercial Parking Benefit Districts, invest parking revenues in a full spectrum of transportation demand management strategies for employees and residents, including transit, carpool, vanpool, bicycle and pedestrian programs. Invest in the most cost-effective mix of transportation modes for access to the District, including both parking and transportation demand management strategies.

The cost to construct new parking garages in many parts of Pasadena can be expected to be approximately \$30,000 per space gained, resulting in a total cost to build, operate and maintain new spaces of approximately \$180 per month per space, every month for the expected 40 year lifetime of the typical garage. (Given land values, the opportunity cost of using surface land for parking can be even higher.) These dismal economics for parking garages lead to a simple principle: it can often be cheaper to reduce parking demand than to construct new parking.

Recommendation 4: Provide Universal Transit Passes

In recent years, growing numbers of transit agencies have teamed with universities, employers, or residential neighborhoods to provide universal transit passes. These passes typically provide unlimited rides on local or regional transit providers for low monthly fees, often absorbed entirely by the employer, school, or developers. The principle of employee and residential universal transit passes is similar to that of group insurance plans – transit agencies can offer deep bulk discounts when selling passes to a large group, with universal enrollment, on the basis that not all those offered the pass will actually use them regularly. A review of existing programs found that the annual per employee fees are generally between 1% and 17% of the retail price for an equivalent annual transit pass. Universal transit passes are usually extremely effective means to reduce the number of car trips in an area, as shown in Figure 0-3.

Figure 0-3 Effects of Universal Transit Pass Introduction

Location	Drive to work		Transit to work	
	Before	After	Before	After
Municipalities				
Santa Clara (VTA)	76%	60%	11%	27%
Bellevue, Washington	81%	57%	13%	18%
Ann Arbor, Michigan	N/A	(4%)	20%	25%
Downtown Boulder, Colorado	56%	36%	15%	34%
Universities				
UCLA (faculty and staff)	46%	42%	8%	13%
Univ. of Washington, Seattle	33%	24%	21%	36%
Univ. of British Columbia	68%	57%	26%	38%
Univ. of Wisconsin, Milwaukee	54%	41%	12%	26%
Colorado Univ. Boulder (students)	43%	33%	4%	7%

Recommendation 5: Require the unbundling of parking costs

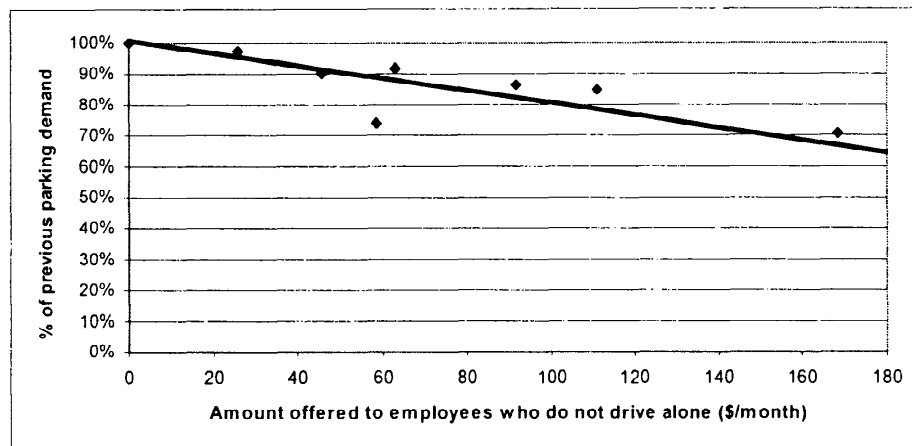
Parking costs are frequently subsumed into the sale or rental price of housing and commercial space in California, for the sake of simplicity and because that is the more traditional practice in real estate. But although the cost of parking is often hidden in this way, parking is never free, and hiding its cost results in higher vehicle ownership and more traffic. To reduce traffic, the full cost of parking should be "unbundled" from the cost of multifamily housing units (both rental and condominium); commercial space; and from the costs of other goods and services, with limited exceptions. For example, Bellevue, WA, "requires building owners to include parking costs as a separate line item in leases and to charge a minimum rate for monthly long-term parking that is equal or greater than the cost of a bus pass. This makes it easier for employers to determine the value of their current parking subsidies [when employers are establishing employee parking charges or parking cash-out programs]." Additionally, this policy means that employers who successfully reduce parking demand and traffic to their worksites are able to reap financial benefits by leasing fewer parking spaces. San Francisco provides an example of "unbundling" parking costs at residences: the city requires the unbundling of parking costs in all residential structures over ten dwelling units.

Recommendation 6: Require Parking Cash-Out

Require all new and existing employers that provide subsidized employee parking to offer their employees the option to "cash out" their parking subsidy.

The majority of all employers provide free or reduced price parking for their employees as a fringe benefit. Under a parking cash out requirement, employers are allowed to continue this practice *on the condition that they offer the cash value of the parking subsidy to any employee who does not drive to work.* The primary benefit of parking cash out programs is their proven effect on reducing auto congestion and parking demand. Figure 0-4 illustrates the effect of parking cash-out at seven different employers located in and around Los Angeles. It should be noted most of the case study employers are located in areas that do not have good access to transit service, so that a large part of the reduced parking demand and driving to work that occurred with these parking cash out programs resulted when former solo drivers began carpooling.

Figure 0-4 Effects of Parking Cash-Out on Parking Demand



Effects of parking cash-out on parking demand. Source: Derived from Donald Shoup, "Evaluating the Effects of Parking Cash-Out: Eight Case Studies," 1997. Based on the cost in 2005 dollars.

Recommendation 7: Strengthen transportation demand management requirements

Strengthen Pasadena's existing transportation demand management requirements, programs and services, both by asking more of employers and by providing additional public resources and staff attention.

In many ways, this recommendation overlaps with previous recommendations, such as devoting a portion of parking meter revenues to transportation demand management programs, enrolling employees and residents in universal transit pass programs, unbundling parking costs, and so on. However, additional techniques that have not been mentioned so far can include:

Trip Reduction Ordinances: In two of the successful case study cities, Bellevue, WA and Cambridge, MA, strong trip reduction ordinances have had a significant impact on drive-alone rates. For example, Downtown Bellevue worksites enrolled in its Commuter Trip Reduction program reduced drive alone rates from 72.9% to 58.5% - a 20% decrease.

Supporting Car-Sharing: Car-sharing provides individuals with access to a fleet of shared vehicles, allowing them to avoid owning a car, or a second or third car. Pasadena can step up efforts to attract car-sharing through several mechanisms, such as requiring new developments to provide parking and subsidize start-up costs, or reducing or eliminating the City's fleet of pool cars, and allowing employees to use car-sharing instead.

Recommendation 8: Improve transit

To reduce traffic, further investments in transit are a key strategy. If the City of Pasadena employs the demand management techniques recommended elsewhere, such as Universal Transit Passes, parking cash out programs and/or congestion pricing, people will have greater need for - and there will be riders for - an excellent transit network that can better compete with driving. Both London's and Stockholm's congestion charging schemes are heavily supported by investments in transit. Transit service can be expanded and improved in several ways, for instance by improving:

- Frequency
- Reliability
- Travel time

- Hours of operation
- Service and comfort

Comprehensive improvements, such as Light Rail or Bus Rapid Transit systems, can provide large increases in transit use and attract large numbers of discretionary riders who would otherwise travel by automobile. Various cities have seen increases in bus ridership with the introduction of BRT service – Pittsburgh (38%), Los Angeles (40%), Brisbane (42%), Adelaide (76%), Leeds (50%).

Recommendation 9: Improve bicycle and pedestrian facilities and programs

Although bicycling and walking rates in Pasadena are still modest, compared to some California college towns, such as Davis, Palo Alto and Berkeley, Pasadena residents already bike and walk to work at rates double the national average. Recently, Pasadena expanded the bikeway network with 50 miles of additional bike lanes, enhanced bike routes, and standard bike routes. The Mobility Element describes many further potential improvements, as do Pasadena's Bicycle and Pedestrian Master Plans. Many of the other recommendations in this chapter will both increase demand for bicycling and walking facilities and will have greater effect if excellent facilities to welcome new cyclists and pedestrians are in place. These plans should be fully implemented.

Recommendation 10: Remove minimum parking requirements for off-street parking

All minimum parking requirements in Pasadena should be removed.

Pasadena's minimum parking requirements were adopted to "alleviate or prevent traffic congestion and shortages of curbside parking spaces". In many parts of Pasadena, minimum parking requirements have succeeded in preventing shortages of curbside parking spaces, but they have played a powerful role in increasing the number of vehicle trips on Pasadena streets and worsening traffic congestion throughout the City.

Minimum parking requirements worsen traffic congestion through a simple three step process:

1. Minimum parking requirements are set high enough to provide more than enough parking even when parking is free, even at isolated suburban locations with little or no transit.
2. Parking is then provided for free at most destinations, and its costs hidden.
3. Bundling the cost of parking into higher prices for everything else skews travel choices toward cars and away from public transit, cycling and walking.

Once the first two recommendations in this report - setting prices for curb parking that ensure at least one or two vacancies per block, and returning the resulting parking revenue to the neighborhood where it is generated - are fully implemented, off-street minimum parking requirements are no longer needed to prevent shortages of on-street parking. Instead, they only act to worsen traffic, and to discourage developers, employers, residents and other property owners from implementing strategies that reduce traffic and parking demand.

Recommendation 11: Set maximum parking requirements

To reduce vehicle trips and congestion, set maximum parking requirements for Pasadena districts that limit the supply of parking to available road capacity.

As described earlier, most of the case study cities - at least eight out of ten - employ *maximum* parking requirements, rather than minimum parking requirements, to successfully reduce traffic congestion. Pasadena also now employs maximum parking requirements in its transit oriented

development zones. Maximum parking requirements generally alleviate traffic congestion and reduce auto use through a simple three step process:

1. Maximum parking requirements are set low enough to so that if parking at a location is given away for free, there will be a shortage.
2. Parking at these locations is then provided to the people who use it for a price that covers at least part of its costs, so that parking's cost is revealed. Alternately, employers and other parking providers need to provide strong subsidies for alternative transportation (such as free transit passes or a parking cash out program), to avoid a shortage while remaining popular with their drivers.
3. Removing parking subsidies (or providing equally strong subsidies for other modes) then brings travel choices back into balance, toward public transit, cycling and walking.

As with removing minimum parking requirements, the first two recommendations in this chapter - setting prices for curb parking that ensure at least one or two vacancies per block, and returning the resulting parking revenue to the neighborhood where it is generated - need to be implemented, in order to prevent shortages of on-street parking when maximum parking requirements are set.

Recommendation 12: Establish congestion pricing

As is described at length in the case studies, establishing congestion pricing is the most powerful single technique for ensuring traffic reduction. For pass-through trips (that is, trips with neither origin nor destination in Pasadena) on Pasadena streets, it is almost certainly the only truly effective remedy, the only one that can guarantee a decline in this type of trips. Two of the case studies demonstrate the efficacy of congestion pricing:

London: Congestion delays dropped 26% since 2003 from 2.3 to 1.8 minutes per kilometer. Figures from 2005 show a 17% decrease in total traffic with a 31% drop in potentially-chargeable vehicles entering the zone. From 2002 to 2005, the total number of car "vehicle-kilometers driven" fell 39%. The fee is not considered to be a perfect solution due to it not being time or location-variable.

Stockholm: Average traffic reduction across the control points between 6:30 AM and 6:29 PM is 22%. The reduction reached its peak during afternoon rush hours with a 24% drop. Traffic reduction in the inner city shows a 15% drop in vehicle kilometers traveled. Vehicle travel times dropped significantly within and around the inner city. The largest reductions were observed around the control points, where time spent in congestion was reduced by a third in the morning peak hour and by half in the evening peak hour. No adverse traffic impacts on surrounding road network.

However, the State of California has already adopted legislation under the Vehicle Code prohibiting fees for use of public roads. This means that for a Congestion Pricing Charge to be levied in Pasadena, state legislation would be required to authorize the formation of a public agency to levy the charge.

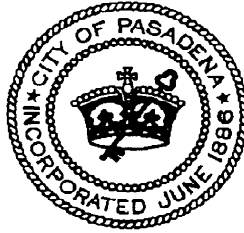
Conclusions

While congestion pricing, based upon its success around the world (including on various American high occupancy toll lanes, such as I-15 in San Diego County) is a powerful tool, and clearly has the capacity to reach this study's goal of reducing traffic on Pasadena streets during the evening peak hour by 25%, it is a measure that Pasadena clearly cannot implement without approval from the state legislature. For this reason, it has been left for last on this list of recommendations. However, it is worth noting that as technical obstacles have fallen, and an increasing number of congestion pricing programs have met with voter approval, congestion pricing is growing in popularity.

If implementing congestion pricing appears a long way down the road, however, or is not desired by the community, the reader should not feel that little can be done. The recommendations previously presented are highly effective. Numerous researchers have compared the benefits produced by reducing parking subsidies, for example, to the effects of charging congestion tolls. In 1967, J. Michael Thomson estimated that parking fees in central London could produce about half the benefits of a peak-period congestion toll for all cars entering central London. In California, Professor Elizabeth Deakin and Greig Harvey estimated that the right level of tolls for congested roads in Los Angeles in 1991 would average about \$0.10 per mile. UCLA's Professor Shoup calculates that free parking at work reduces the cost of commuting by \$0.22 a mile, meaning that if Pasadena had to choose either eliminating parking subsidies or congestion pricing, removing the parking subsidies would yield higher benefits.

Perhaps most importantly, many of the recommendations previously cited involve delivering benefits: new transportation benefits for commuters, such as free transit passes; new parking revenues for merchants to spend on public improvements, such as the new streetscapes in Old Pasadena; and new options for residents, such as the option to determine how many or how few parking spaces one wishes to purchase or lease. All of these recommended traffic reduction strategies, it is worth remembering, have been implemented in modern democracies, in places where elected officials and city planners need the approval of the community, and were able to win it.

The purpose of this study, we should note, is not to decide whether Pasadena citizens wish to take action to reduce traffic. It does, however, provide a clear roadmap, based upon measures that have been proven and implemented, to show how traffic may be reduced if the community wishes to do so.



TRANSPORTATION ADVISORY COMMISSION

February 17, 2007

Via E-Mail & Hand Delivery

Mayor Bill Bogaard
Vice Mayor Steve Madison
Members of the City Council
City of Pasadena
175 North Garfield Avenue
Pasadena, California 91109

Subject: Recommendations from the Traffic Reduction Strategies Study

Dear Mayor Bogaard, Vice Mayor Madison, and Members of the City Council:

On February 26, 2007, the City Council is scheduled to review the City of Pasadena "*Traffic Reduction Strategies Study*" prepared by Nelson/Nygaard Consulting Associates ("*Traffic Reduction Study*"). The Transportation Advisory Commission ("*TAC*") has carefully reviewed the Traffic Reduction Study. TAC strongly endorses most of the findings and recommendations made by Department of Transportation ("*DOT*") staff based on the Traffic Reduction Study. As discussed in greater detail below, TAC concurs with DOT staff's ten policy recommendations (listed on pages one and two of the staff report), with the following substantive changes:

- DOT staff recommends studying the feasibility of "unbundling" parking costs for second parking spaces in all new residential projects over ten units in the Central District and in TOD zones. Consistent with the Traffic Reduction Study, however, TAC recommends amending the Zoning Code to require the unbundling of parking costs for every parking space per unit for new residential projects over ten units.

- TAC recommends that all money collected from future Residential Parking Benefit Districts be spent in the districts themselves. Residents within the districts should have strong input over how the money is spent.
- DOT staff recommends requiring proof of compliance with California's parking cash-out law prior to issuing occupancy permits for new commercial development. TAC agrees with this recommendation, and further recommends that the City study the feasibility of expanding parking cash-out compliance to existing commercial businesses.
- Consistent with the Traffic Reduction Study, TAC believes that removing minimum parking requirements (staff recommendation Page 1, #4) is linked with, and should be implemented in conjunction with, compliance with California's parking "cash out" law (recommendation Page 1, #6).
- The Traffic Reduction Study strongly endorses parking caps as an effective means to reduce traffic. TAC recommends that the City study the feasibility of lowering existing parking caps in TOD zones, and implementing parking caps in all Specific Plan areas throughout the City.

Background

As part of the Fiscal Year 2006 Operating Budget, the City Council directed Department of Transportation (DOT) staff to commission a study to identify strategies that could reduce evening peak hour traffic congestion by ten percent (10%) and twenty-five percent (25%) increments. The idea for such a study was first discussed by Council members at a joint meeting between TAC and the City Council.

The Traffic Reduction Study starts with a bold premise: *"Traffic congestion is not inevitable. If the citizens of Pasadena wish, it can be reduced: traffic congestion is a choice, not Pasadena's fate."* In analyzing our City's traffic problems, the Traffic Reduction Study focuses on Pasadena's parking policies, and how current parking requirements encourage car trips at the expense of pedestrians, bikes and transit. In the Traffic Reduction Study, Nelson/Nygaard argues that Pasadena's minimum parking requirements have had unintended consequences for traffic: "Dozens of studies have now demonstrated that when parking is given away free of charge, people drive more."

Drawing on case studies from cities throughout the United States and Europe, the Traffic Reduction Study contains twelve strategies to reduce traffic

congestion in Pasadena. In broad terms, the Traffic Reduction Study recommendations include:

- Remove minimum parking requirements for off-street parking.
- To reduce vehicle trips and congestion, set maximum parking requirements for Pasadena districts that limit the supply of parking to available road capacity.
- Require building owners to “unbundle” the cost of parking from rents or the cost of the condominium so residents can opt-out of paying for the parking space.
- Require employers that provide subsidized employee parking to offer their employees the option to “cash out” their parking subsidy.
- Provide employees and residents of large projects with Universal Transit Passes to encourage use of public transit.
- To protect neighborhoods from “spillover” parking from nearby commercial areas, establish “Residential Parking Benefit Districts” that collect parking meter revenue and then return the revenue to neighborhoods to fund neighborhood protection measures and to reduce auto traffic.
- Create additional Commercial Parking Benefit Districts, modeled after the Old Pasadena Parking Meter Zone.
- Expand and improve public transit, including the City’s ARTS bus system.
- Establish congestion pricing.

TAC Recommendations

On December 1, 2006, TAC reviewed the Traffic Reduction Study, and heard a presentation from Nelson/Nygaard. On January 16, 2007, TAC held a special meeting to discuss each traffic reduction strategy with Nelson/Nygaard and DOT staff. On February 8, 2007, TAC again reviewed the Traffic Reduction Study, and heard a presentation from DOT staff concerning staff’s findings and recommendations from the Traffic Reduction Study. At the February 8 meeting, TAC unanimously approved two motions regarding the Traffic Reduction Study:

1. Motion #1: TAC’s first motion endorses staff’s recommendations (with some proposed changes), and makes two additional recommendations based on the Traffic Reduction Study:
 - a. TAC agrees with the ten (10) recommendations discussed in the February 8, 2007 DOT staff report (pages one and two), subject to the following proposed changes to recommendations two, four and five:

- i) Recommendation #2: Change “investigate the conversion” to “convert,” so the recommendation reads as follows: “Convert existing Residential Preferential Parking District to a Residential Parking Benefit District.” In addition, TAC recommends all money collected from Residential Parking Benefit Districts should be spent in the District, and residents should have input and strong influence in how the money is spent.
 - ii) Recommendation #4: Change “Request staff to study the feasibility of amending” to “amend,” so the recommendation reads as follows: “Amend the Zoning Code and Central District Specific Plan removing minimum parking requirements for all new development in the Central District.” In addition, TAC agrees with the Traffic Reduction Study that removing minimum parking requirements (recommendation #4) is linked with, and should be implemented in conjunction with, compliance with California’s Parking Cash Out Law (recommendation #6).
 - iii) Recommendation #5: Change “Request staff to study the feasibility of amending” to “amend,” and change “the second” to “each,” so the recommendation reads as follows: “Amend the Zoning Code and Central District Specific Plan to require the unbundling of parking costs for each parking space per unit for all new residential structures over ten dwelling units and all new commercial developments in the Central District and in the Transit Oriented Development Zones.”
- b. TAC also recommends the City Council adopt the following two (2) proposals drawn from the Traffic Reduction Study:
- i) Expand Parking Cash Out: If adopted by the City Council, staff recommendation #6 would require proof of compliance with California’s parking cash-out law prior to issuing occupancy permits for new commercial development. TAC agrees with this

recommendation. In addition, TAC further recommends that the City Council direct DOT staff to study the feasibility of expanding parking cash-out compliance to existing commercial businesses.

- ii) Maximum Parking Requirements: During the 2004 update to the General Plan Land Use Element, the City Council established maximum parking requirements (parking caps) for developments within Transit Oriented Development (TOD) zones. Parking for all new development within a quarter mile of the City's six Gold Line stations is currently capped at seventy-five percent (75%) of what is required by code. The Traffic Reduction Study strongly endorses parking caps as an effective means to reduce traffic. Therefore, TAC recommends that the City Council direct DOT staff to study the feasibility of (a) lowering the existing TOD parking cap below the existing 75% rate, and (b) implementing parking caps in all of the Specific Plan areas throughout the City.

- c. TAC urges the City Council to adopt all twelve recommendations from TAC and DOT staff (as amended). The strength of this important initiative lies in implementing all twelve recommendations in combination.

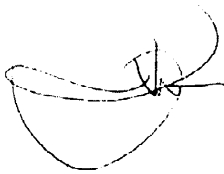
- 2. Motion #2: TAC recommends the City Council direct DOT staff to coordinate a workshop with TAC, the Environmental Advisory Commission, the City's Parking Commissions, and any other advisory bodies identified by the City Council. The purpose of the workshop would be to present the findings of the Traffic Reduction Study, and to discuss the roles of the various Commissions in implementing the strategies recommended by the City Council.

On February 8, 2007, TAC also voted unanimously to commend DOT staff for preparing an excellent report under the leadership of Principal Transportation Planner Mark Yamarone.

Conclusion

On behalf of TAC, we thank the City Council for the opportunity to review and comment on the Traffic Reduction Study. We hope our comments and recommendations will be helpful in the upcoming public review process.

Very truly yours,

A handwritten signature in black ink, appearing to read 'V. Farhat', written over a faint, curved line that suggests a signature line or a decorative flourish.

Vince Farhat
Chair

A handwritten signature in black ink, appearing to read 'Juan Carlos Velasquez', written in a cursive style with a long horizontal flourish extending to the right.

Juan Carlos Velasquez
Vice-Chair

cc: Planning Commission