

Preliminary Evaluation of the Coastal Transportation Corridor Ordinance in Los Angeles

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The Coastal Transportation Corridor Ordinance attempts to regulate traffic congestion in a busy Los Angeles community by requiring new real estate developments to mitigate future trips and to contribute to a trust fund for improving traffic flow within the affected area. To conduct a preliminary evaluation of the trip reduction portion of the ordinance, a sample of eight buildings housing 117 firms was selected. Three buildings housing 44 firms were subject to the ordinance, and a control group of five buildings housing 73 firms was not affected by the ordinance. Differences in ridesharing facilities, services, and subsidies were observed, and 1,216 workers in the two groups of buildings were surveyed to determine their travel patterns. The results show that developers affected by the ordinance are significantly more likely to include preferential parking for carpoolers in their projects and some bicycle parking facilities as well. The companies affected by the ordinance offer a substantially smaller proportion of their employees free parking at work, and, among employees who pay to park, those in the buildings covered by the ordinance pay higher rates. The provision of these facilities and the combination of parking fees and other promotional efforts have had a very small initial effect on workers' decisions to drive to work alone. The proportion of workers driving to work alone is similar in the experimental and control groups. Although twice as many workers in buildings affected by the ordinance carpooled to work, they were a small fraction of the workforce. A sizable proportion of workers in the study area generally leave work outside the peak period, probably to avoid late-afternoon congestion.

tions and community groups. Now, policymakers frequently argue that "We can't build our way out of our problems," and that attempts to accommodate growth solely by increasing transportation system capacity impose greater costs on communities than are warranted by their benefits. In the 1970s, this shift in emphasis gave rise to transportation system management, the augmentation of capacity through low-capital-cost approaches such as traffic signal synchronization and reserved lanes for high-occupancy vehicles. In the early 1980s, transportation demand management was also emphasized, including efforts to promote ridesharing and transit use by workers through a variety of subsidy and incentive programs. In the late 1980s, this growing movement toward management rather than facility construction has emphasized changes in land-use policy and the spatial redirection of economic growth to control traffic at its source.

In Los Angeles, several regulatory programs, ballot initiatives, and municipal ordinances have been directed toward limiting traffic by controlling land use and real estate development. They have all been enacted so recently that relatively few evaluative studies have yet taken place. Tracking progress under these programs and learning from them is important, so that policymakers proposing new programs and amendments to older ones are informed by past successes and mistakes. One of the recent Los Angeles programs is evaluated in the following sections.

TRAFFIC REDUCTION IMPROVEMENT PROGRAM AND THE COASTAL TRANSPORTATION CORRIDOR ORDINANCE

In 1983, the Los Angeles City Council approved the citywide Traffic Reduction Improvement Program (TRIP). This blanket or framework ordinance enables the council, by a majority of two-thirds, henceforth to designate any community or neighborhood a "traffic impact area." When an area is so designated, a set of procedures is invoked, resulting in special land-use controls and development impact fees within the designated areas. These controls and fees are intended to mitigate the impacts of trips generated by new developments there. The designation of a traffic impact area requires the city to spend 1 year devising a transportation-specific plan for the impacted area, during which development permits may be issued only with the explicit approval of the council. When the year-long planning effort is complete, the council adopts, by separate ordinance, the transportation-specific plan devised

American attitudes toward transportation planning have recently undergone significant change. For three decades after the end of World War II, public policy emphasized the construction of new highway and transit facilities to remove the backlog of needs resulting from the combined effects of depression, a war economy, continued urban growth, and accelerating automobile ownership. For the most part, transportation policymakers agreed that their primary goal was to accommodate growth by constructing facilities that would have adequate capacity to handle future demand. Land-use patterns and economic development were understood to be the sources of traffic, yet there was general agreement that transportation policy should aim to accommodate forecast land-use and economic growth rather than regulate them to control traffic.

Views of transportation policymakers have been changing under pressure from increasing growth and traffic congestion, growing limits on transportation budgets, and increasing opposition to highway construction by environmental coalitions

during the planning period. Although the plans differ because of the specific areas to which they apply, they have many characteristics in common.

The first such plan to be enacted by the city was the Los Angeles Coastal Transportation Corridor Specific Plan Ordinance, which was passed in 1985 (1). This ordinance covers an area of approximately 24 mi², shown in Figure 1, bounded by Los Angeles International Airport on the south, the San Diego Freeway (I-405) on the east, the border of the City of Santa Monica on the north, and the Pacific Ocean on the west. The area presently has 40 million ft² of office, light industry, and hotel space. Plans for the area indicate that this

amount of development may double in the coming 5 to 10 years. The present workforce of the area is over 100,000, and this, too, may double if developers' current plans are implemented.

The ordinance resulted from great pressure from a variety of homeowner and community groups and citizens active in opposing new development. The development community and the local city council representative responded, and many months of negotiation among these groups followed. In the end, as is often the case, homeowner groups labeled the ordinance too lenient on developers and opposed its implementation, and some developers complained that the ordinance was too restrictive.

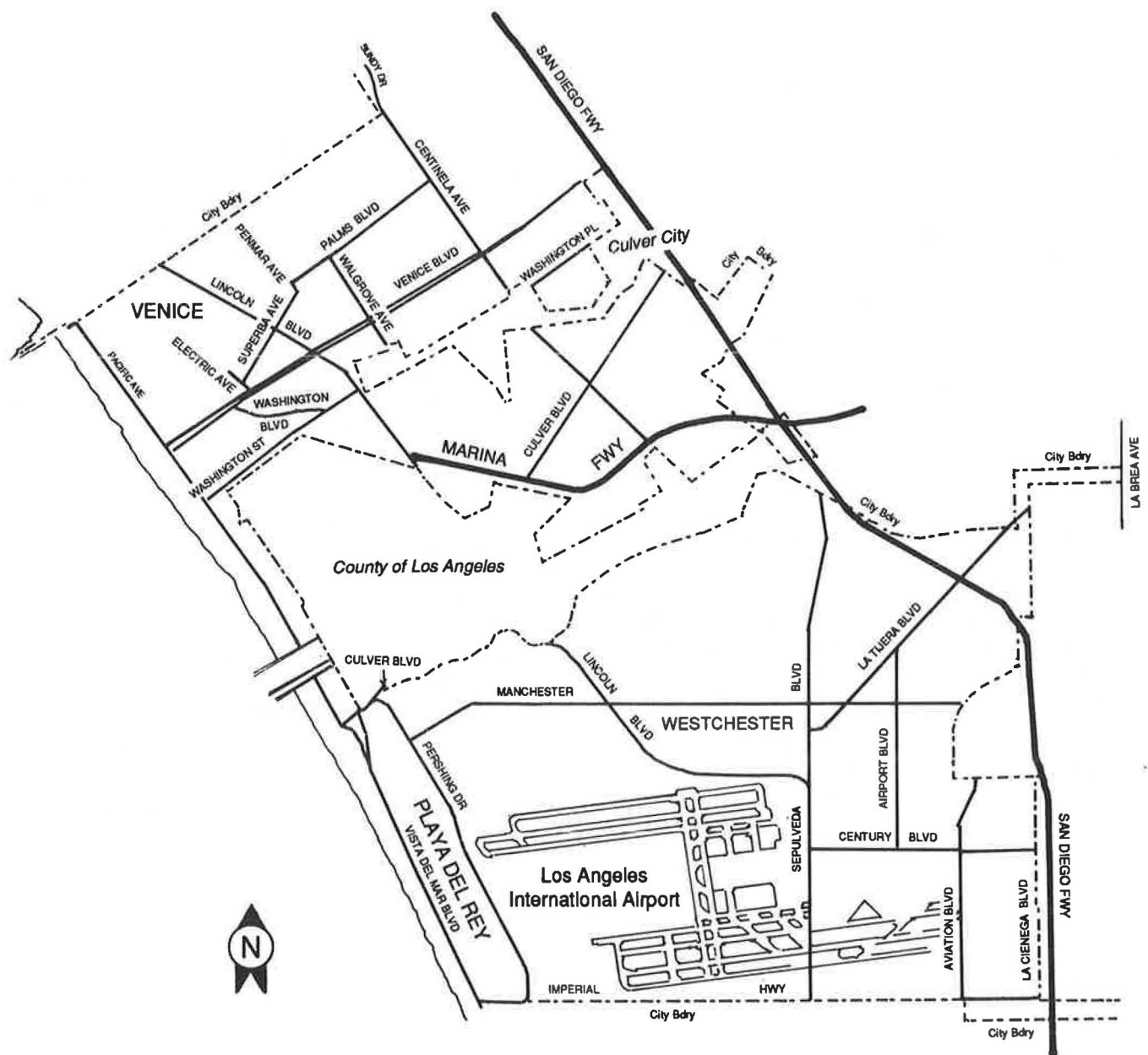


FIGURE 1 Map of the Coastal Transportation Corridor.

The concerns giving rise to the ordinance were reflections of a great deal of empirical information showing that the area's severe traffic congestion would worsen as development continued. The busiest intersection in the city of Los Angeles is at Century Boulevard and Aviation Avenue, within the study area. This intersection carried a traffic volume of 120,267 vehicles per day in 1985. The seventh busiest intersection in the city, Sepulveda Boulevard and Imperial Highway, with a daily volume of 102,770 in 1985, is also in the area affected by the ordinance. The San Diego Freeway, which forms the eastern boundary of the area, is the second most heavily traveled freeway in Los Angeles, carrying daily volumes of around 250,000 (2). At the time the ordinance was enacted, the growth trend in traffic was particularly alarming. Between 1973 and 1980, for example, daily trips on Lincoln Boulevard had risen by 200 percent, traffic on Sepulveda Boulevard had increased by 240 percent, and volume on the San Diego Freeway had grown by 210 percent (3).

MAJOR ELEMENTS OF THE ORDINANCE

The Coastal Transportation Corridor Ordinance requires that any new nonresidential development that would generate more than 100 trips in the afternoon peak hour must include measures that will reduce trip generation by at least 15 percent. The mitigation measures, which might include ridesharing programs, flexible work schedules, transit pass subsidies, or provision of bicycle facilities, are the responsibility of the real estate developer, who passes them along to the tenants through rental agreements.

Secondly, the developer must agree to pay, before construction of the project, a one-time fee based on the remaining unmitigated afternoon peak-hour trips produced by the project. The fee, which was initially set at \$2,010 per afternoon peak-hour trip, is deposited in a trust fund specific to the impact area, which may be used by the city for the construction of projects included in the impact area's transportation-specific plan. Projects that are part of the plan include street widenings, installation of computerized traffic signals, construction of remote parking facilities served by shuttle buses, and extensions or expansions of public transit routes, all of which have been enumerated in the transportation-specific plan for the impact area.

A developer can propose a demand management program to reduce generated trips by more than the required 15 percent, and application can in such cases be made for a proportionate reduction in the required fees. For example, should the developer propose to reduce trips by 20 percent rather than the required 15 percent, the fee may be reduced by an amount equal to that which would be paid for 5 percent of the trips. However, if the developer accepts such a fee reduction and the trip reduction program eventually falls short of the required goal, he must later pay triple damages, in the form of a fee equal to three times what would have been paid before construction of the project.

Developers may also receive, in lieu of credit, a reduction in the impact fee assessment for any improvements they make in the regional or subregional transportation system, with approval of the Department of City Planning and the Department of Transportation of the City of Los Angeles. The ordi-

nance also provides that large development projects must be broken into phases, with later phases being approved for construction only after earlier phases have been successful in achieving required trip mitigations.

The ordinance only applies to new development, and no fees or trip-reduction requirements apply to existing developments in the area. Furthermore, the ordinance exempts residential construction, government facilities, and neighborhood-serving commercial projects such as gasoline stations and car wash facilities, as well as religious facilities, schools, and grocery stores.

Because it is a government facility, Los Angeles International Airport is exempted from the requirements of the ordinance despite the fact that it is in the affected area. The airport occupies over 3,500 acres; with a 1986 workforce of 35,000 employees, it is the largest single employer in the study area and by far the largest trip generator. Many critics of the ordinance believe that the exemption of the airport renders the ordinance ineffectual.

Critics of the ordinance also argue that the trip generation rates published as part of the ordinance are not valid. The rates, derived from tables published by the ITE, are based on 1-day counts of facilities throughout the United States. The sample of buildings giving rise to the tables is not necessarily a random one or specifically comparable to buildings in southern California. The rates used in the ordinance do not take into consideration regional variations in trip generation, seasonal variations, or variations that might result from differences in climate or weather.

Another problem with the ordinance is its limited provisions for monitoring and enforcement. The only formal mechanism for monitoring the efforts of the developers to implement their trip-reduction programs are annual reports submitted to the city of Los Angeles by the developers themselves.

METHOD OF EVALUATING THE PROGRAM

The actions of developers responding to the imperatives of the ordinance were compared with those of a control group of similar developments nearby, which are not affected by the ordinance. Travel behavior of workers employed in buildings affected by the ordinance was compared with travel behavior of workers in the control buildings. The intent, of course, was to determine whether or not the programs provided by developers are affected by the ordinance, and whether the ordinance is having any measurable impact on employee travel choices.

Information about the programs offered by developers was gathered in direct personal interviews with the developers during 1988 and 1989. Information on travel patterns of employees working in various buildings was obtained by questionnaires distributed to employees during the summer and fall of 1988, with the cooperation of their employers and building managers. The sample, whose characteristics are presented in Table 1, included three buildings that were subject to the ordinance, which together included 44 separate firms. From among the employees of those firms, 620 completed questionnaires regarding personal characteristics and travel choices. A control group of five buildings containing 73 firms was used to obtain travel data and personal information about 596 employees.

TABLE 1 STUDY FIRMS

Building #	Respondents	# of Firms	Average # of Respondents per Firm
A. <u>Experimental Group</u>			
1	121	40	3
2	266	1	266
3	233	3	78
Total:	620	44	
B. <u>Control Group</u>			
4	160	30	5
5	89	20	4
6	117	21	6
7	131	1	131
8	99	1	99
Total:	<u>596</u>	<u>73</u>	
Overall Total:	1216	117	

TABLE 2 FACILITIES PROVIDED

		Reserved Parking for Ridesharers	Bicycle Racks	Lockers	Showers
<u>Experimental</u>					
Bldg.	#1	No	No	No	No
	2	Yes	Yes	No	No
	3	Yes	Yes	No	No
<u>Control</u>					
Bldg.	#4	No	No	No	No
	5	No	No	No	No
	6	No	No	No	No
	7	Yes	No	No	No
	8	No	No	No	No

In most of these instances, data on the employees were obtained directly through the questionnaires. In one case, an employer had recently completed a survey of its own and provided the survey results. Because the survey administered by the employer did not include a few of the questions on the questionnaire, the numbers of respondents differ somewhat from one question to another. The response rate varied from one firm to another, but the range of responses was between 25 and 38 percent of the employees of the eight buildings.

Chi-squared tests were done on all the findings to determine whether the differences observed between the experimental and control groups were statistically significant at the 0.05 level.

PROVISION OF FACILITIES, SERVICES, AND SUBSIDIES BY DEVELOPERS AND EMPLOYERS

Table 2 presents the facilities provided by the developers of the eight buildings in the sample. Reserved parking for ridesharers was provided in two of the three experimental buildings, whereas only one of the five control buildings offered reserved parking for ridesharers. Similarly, developers of two of the three buildings affected by the ordinance but none of the five control buildings had elected to include bicycle racks. Interestingly, none of the eight buildings included showers or lockers for bicycle commuters; developers may have regarded those facilities as unlikely to attract sufficient use to warrant

TABLE 3 PARKING SUBSIDY AT EXPERIMENTAL AND CONTROL BUILDINGS

	Experimental Group (%)	Control Group (%)
Pay to Park at Work?		
Yes	38.0	23.2
No	62.0	76.8
Amounts Paid		
<\$20	10.6	70.4
\$20 to \$40	75.6	8.8
>\$40	13.9	20.8

NOTE: For the question "Do you pay to park at work?" 324 answers were received for the experimental group and 538 for the control group. For the amounts, 123 answers were received for the experimental group and 125 for the control group.

their inclusion. Subsidized parking at worksites is common in the ordinance area. An inquiry was made to determine whether employers in buildings affected by the ordinance were providing subsidized parking for employees as frequently as employers in the control group. The results of this inquiry are presented in Table 3, which clearly indicates a substantial difference. Although 77 percent of the employees in the buildings not affected by the ordinance received free parking at work, only 62 percent of the employees in the affected buildings had their parking fully subsidized. This difference is significant, although the majority of the employees were parking free even in buildings covered by the ordinance.

Table 3 also indicates that among those paying to park at work, workers in buildings affected by the ordinance typically paid much more. Although 70 percent of the employees paying to park in the control buildings were paying less than \$20.00 per month, only 11 percent of the employees in the experimental buildings paid that little, whereas three-fourths of them paid between \$20.00 and \$39.00 per month. Perhaps Table 3 indicates a shift toward employee-paid parking at worksites affected by traffic control ordinances such as the Coastal Transportation Corridor program.

EMPLOYEE TRAVEL PATTERNS

The Coastal Transportation Corridor Ordinance has two purposes. First, it aims to reduce automobile traffic by encour-

aging ridesharing, including transit use, vanpooling, carpooling, bicycling, and walking to work in buildings that come under the ordinance. Second, it seeks to upgrade traffic arteries in the impact area by charging developers fees that will be used to improve facilities in the corridor. Only the first of these questions is addressed here. By comparing the experimental population with the control group, the presence of substantial differences in their travel patterns can be estimated.

Before comparing travel patterns of the two groups, their demographic characteristics must be described in general terms. The samples in the experimental and control buildings did not differ significantly from one another in their major demographic characteristics. Of the workers in both the experimental and control buildings, 70.2 percent were in administrative and clerical positions, 20.4 percent in professional jobs, and 4.3 percent in janitorial and catering services. Nearly 70 percent of the respondents were under 40 years old, and 23 percent were between the ages of 40 and 59. The age distribution was judged to be typical of the Los Angeles commuter work force, because it is similar to the distribution of respondents to the 1988 commuter survey performed by Commuter Computer (4). Approximately 59 percent of the respondents were females, which was a substantially higher proportion than in the regional commuter survey, in which only 47 percent were women. Over half of the respondents earned between \$20,000 and \$49,999, and only about 10 percent earned less than \$20,000 per year. Approximately 97 percent were employed full-time, which was defined as 5 days per week and 8 hr per day.

Because the ability to rideshare is dependent on the need for a car at work, respondents were asked whether they regularly needed a car at work. Although 68 percent said that they needed their cars as part of their work, 32 percent of these answered that they used their cars only for personal business while at work, and only 25 percent said that they used their cars at work virtually every day of the week. By contrast, 14 percent said that they typically used their cars at work only 1 day per week, and 15 percent said that 2 days per week was typical.

Table 4 indicates that the one-way distance between home and work was distributed similarly for workers in the buildings covered by the ordinance and those in the control group. In both instances, just under two-thirds of the employees traveled less than 15 mi between home and work, whereas about one-third traveled more than 15 mi. Because the work-trip lengths and demographic characteristics were similar for the

TABLE 4 PERCENTAGES OF EMPLOYEES TRAVELING VARIOUS DISTANCES FROM HOME TO WORK

	Experimental n=620	Control n=596
1 - 5 miles	23.1	24.8
6 - 15 miles	42.4	38.6
16 - 30 miles	17.1	18.3
31 miles & over	15.9	15.7
Non-response	1.6	2.7

TABLE 5 MODE SPLIT PERCENTAGES

	Experimental n=620	Control n=596
Drive alone	86.8	87.9
Public Bus	2.0	2.3
Carpool	7.4	3.5
Drop Off	2.9	3.5
Park & Pool	0.7	0.2
Motorcycle	0.2	1.3
Others	0.2	1.2

TABLE 6 TIMES OF ARRIVAL AT AND DEPARTURE FROM WORK

	Experimental Group (%)	Control Group (%)
Time of Arrival at Work		
Before 6:30 a.m.	5.0	4.4
Between 6:30 and 6:59 a.m.	6.0	6.2
Between 7:00 and 7:29 a.m.	11.6	9.6
Between 7:30 and 7:59 a.m.	21.0	13.3
Between 8:00 and 8:29 a.m.	25.5	21.1
Between 8:30 and 8:59 a.m.	23.4	31.5
Between 9:00 and 10:00 a.m.	6.0	8.4
After 10:00 a.m.	0.8	1.7
Not Regular	0.8	3.5
Time of Departure from Work		
Before 4:00 p.m.	8.6	10.1
Between 4:00 and 4:29 p.m.	7.4	7.7
Between 4:30 and 4:59 p.m.	14.1	12.6
Between 5:00 and 5:29 p.m.	28.1	20.0
Between 5:30 and 5:59 p.m.	12.8	13.8
Between 6:00 and 6:29 p.m.	16.8	24.7
After 6:30 p.m.	11.0	9.1
Nonresponding	1.3	2.2

two groups, any differences observed in travel patterns were assumed to be attributable to the program itself.

Table 5 presents a comparison of the mode choices for the journey to work between the two populations. Little difference was observed between the two samples in the proportion of workers who drive to work alone. In the buildings affected by the ordinance, more than twice the proportion of employees carpool to work, but these seem to have a small effect on the proportion driving to work alone. Only 13.2 percent of the experimental group employees did not drive alone, versus 12.1 percent of the control group employees. The ordinance has not appeared to make any substantial difference in the proportion of workers driving to work alone.

Table 6 indicates how those affected and those not affected by the ordinance differed in terms of their arrival and departure times. First, the table indicates that most workers in the study area arrive at work during the peak period. Only 11.8 percent of the experimental group employees and 12.3 percent

of the control group employees arrive at work outside peak hours (i.e., before 7:00 a.m. and after 10:00 a.m.). Second, relatively larger proportions of experimental group employees (19.6 percent) and control group employees (19.2 percent) leave work outside peak hours (i.e., before 4:00 p.m. and after 6:30 p.m.).

The amount of information about alternative travel modes received by employees through their employers was of interest, because implementation of the ridesharing requirements is dependent on employee awareness of alternatives to driving alone. The results of this investigation are presented in Table 7. The table indicates that among those ridesharing to work, the majority of employees of companies in the control group had learned about their current option from a fellow employee. Although those in the experimental companies were three times as likely as those in the control group to learn about their options from their employers, those who heard about ridesharing from their employers constituted less than 3 percent of the sample. In both samples, not a single ridesharer reported having learned about opportunities for ridesharing from a ridesharing coordinator.

CONCLUSION

The results of this study are preliminary. They are based on a small sample of buildings, and the study was undertaken early in the history of implementing the Coastal Transportation Corridor Ordinance. The results thus far indicate that developers affected by the ordinance are significantly more likely to include preferential parking for carpoolers in their projects and to include some bicycle parking facilities. The buildings affected by the ordinance offer a substantially smaller proportion of their employees free parking at work, and those who pay to park pay higher rates. The provision of these facilities, and the combination of parking fees and other promotional efforts, seems to have had a very small initial effect on workers' decisions to drive to work alone. The proportion of workers driving to work alone is similar in the experimental and control groups; although twice as many workers in buildings affected by the ordinance carpooled to work, they were a small fraction of the workforce. Although most workers in

TABLE 7 SOURCE OF INFORMATION ABOUT PRESENT COMMUTE MODE BY PERCENTAGE

	Experimental n=386	Control n=596
Through Employer	2.3	0.7
Fellow Employee	6.7	2.0
Freeway Messages/Adverts	1.0	0.3
Fliers	0.5	0.5
Transportation Coordinators	0	0
Other	5.7	6.7
(Drive Alone)	83.7	89.6

the study area arrive at and leave work during the peak periods, an increasing number seem to leave work outside peak hours, perhaps to avoid the late-afternoon congestion.

In sum, promising differences in the behavior of real estate developers and employers affected by the ordinance were observed, but the differences are small. As yet, no substantial changes in travel behavior can be attributed to the ordinance, except for a tendency toward slightly higher rates of carpooling among workers at firms affected by the ordinance.

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