Abridgment

Overview of Trip Reduction Ordinances in the United States: The Vote Is Still Out on Their Effectiveness

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Trip reduction ordinances (TROs) are local or regional regulations for implementing transportation supply or demand management strategies that improve transportation system efficiency. Perhaps as many as 50 local, regional, and state TROs have been passed, depending on how TROs are defined. Most TROs operate at the municipal level of government, and are intended to mitigate existing or future traffic congestion. Most TROs apply to both new and existing development. TRO implementation strategies vary considerably, but often include the provision of employee transportation coordinators and the development of site-specific transportation management plans. TROs lean slightly toward demand side provisions, but often include supply side provisions as well. Most TROs encompass some mandatory provisions, but voluntary and optional measures usually are included as well. The vote is still out on TRO effectiveness. Many jurisdictions are grappling with the issue of TRO performance monitoring and evaluation. Recommendations for promoting greater consistency in TRO evaluation across jurisdictions are made, including suggested sample design and survey methods.

Transportation planning in the United States for decades has placed primary emphasis on providing additional infrastructure to accommodate increasing travel demand over time. This supply side emphasis is no longer completely accurate in representing transportation planning activities in the United States (*1*). The original goal, to meet urban transportation needs, is still the same. What has changed are the means available to accomplish this aim. A new framework for transportation demand management (TDM) recently has emerged (*2*). Innovative strategies for meeting mobility needs include mechanisms to oversee the supply of infrastructure and programs to alter the demand for transportation. Particular focus has been placed on managing the travel needs of commuters, i.e., the bulk of those who travel during the hours of heaviest traffic congestion. The growing number of work trips, and the adverse consequences of too many vehicles on the road, have led to a variety of mainly local government initiatives aimed at reducing the number of vehicle trips generated during peak hours.

TDM initiatives include, but are not limited to, the formation of public-private transportation management associations (TMAs), the imposition of impact fees for traffic generated by new development, increased maintenance for existing infrastructure, and the formulation of trip reduction ordinances (TROs). Since 1982, as many as 50 TROs have been enacted in the United States. TROs have been legislated primarily by local governments. Several TROs have been established by county, regional, and even state governments. Approximately two-thirds of all TROs are located in the state of California (*3–5*). TRO legislation has been passed at one or more levels of government in at least 10 other states, including Arizona, Connecticut, Georgia, Maryland, Minnesota, New Jersey, Oregon, Texas, Virginia, and Washington.

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DATA AND RESEARCH METHODOLOGY

Data for this analysis were collected from a number of sources, including a national survey administered by the second author in conjunction with Jesse Glazer and Jennifer Dill of Crain & Associates in Los Angeles and the Association for Commuter Transportation. Information on all known TROs in the United States as of about September 1989 was included in the sample, which serves as a national census of TROs.

Summary data on the more salient features of TROs are described in simple statistical terms. In general, more information was available for TROs that had been in effect for longer periods of time. These more established TROs tended to have greater experience in the implementation of TRO provisions, as well as in the evaluation of TRO programmatic results.

OPERATIONAL DEFINITION OF TROs

Most TROs are aimed primarily at reducing traffic congestion caused by a surfeit of vehicle trips on existing roadways. TROs are not indistinguishable from one another, however, nor are they uniformly defined (*6*). Instead, each TRO uniquely blends available transportation management approaches and incentives. Further definition requires characterizing the specific goals of each ordinance, who the ordinance applies to, and the means by which identified goals are to be achieved. Two distinct goal orientations are found in TROs. The first is to mitigate existing or future traffic congestion, in specified areas, often at specified times. The second tends to be more com-

prehensive in nature, often using TROs to promote objectives related to improving air quality and decreasing energy consumption, as well as alleviating traffic congestion. In some cases, TROs are also used to generate revenues through the imposition of development impact fees.

Another characteristic of TROs concerns who is affected by it. Applicability is usually related to the goals of the ordinance. When objectives target the mitigation of future traffic congestion, TROs tend to focus on new development or the expansion of existing employment centers only. If mitigation of existing traffic conditions is paramount, TROs often are aimed at all private employers. Target populations can be identified by square footage of office space, number of persons employed, or location of their facility. In addition, new residential development can be placed under the umbrella of a TRO, although this is far less common.

A broader approach to devising TROs is often taken by state or regional legislation and is aimed at encouraging planning or zoning changes at the local level, so as to indirectly promote a reduction in travel.

A third characteristic of TROs concerns implementation strategies (i.e., how to achieve stated TRO goals). TROs can be implemented through management of the supply of transportation infrastructure (i.e., road maintenance, traffic signalization, other highway improvements, or the provision of alternative modes) or through management of demand (i.e., ridesharing incentives, vanpool programs, travel subsidies, flexible hours, or the employment of on-site employee transportation coordinators (ETCs). TROs that focus exclusively on either the demand or the supply side tend to make all TRO provisions mandatory, with little flexibility in response from regulated parties. TROs that include both supply and demand side provisions often include both mandatory and voluntary provisions, with commensurately greater flexibility in response allowed.

EVALUATING TRO SUCCESS

Evaluating TRO programmatic success is often problematic because of an indirect linkage between stated goals and actual effects. Specific objectives of mitigative TROs (excluding ordinances designed solely to generate revenues) might include reductions in vehicle-miles of travel (VMT) or improvements in the level of service (LOS) on given streets or highways. Some TROs are aimed at reducing the number or percentage of single-occupant vehicles (SOVs) on the road at a given time. Improvement in air quality by reductions in vehicle emissions through reduced VMT is an objective of some regional TROs.

The dilemma of TRO evaluation arises because achievement of TRO ends is sought through fairly indirect means. Often the mandatory aspects of TRO legislation involve designating an on-site ETC or installing bike lockers and showers at work places. These mandates are not linked directly to traffic reduction. The TRO can be "successful," in that all business concerns in an area have complied with its mandates, yet not make much if any progress toward its goal of trip reduction. The intermediate step between successful implementation of a TRO and achievement of its objectives is the formulation of specific goals by parties affected by the TRO. The challenge is to define success in such a way that progress toward the given objective can be measured.

If a TRO states that a reduction in VMT is the end sought, and the strategy to attain that end is to mandate that all businesses with greater than 100 employees hire an ETC, then the first measure of success is placement of ETCs at all businesses of the required size. The next step is entirely contingent on goals to be achieved at each specified firm. It is critical that behavioral goals be defined and made measurable at the lowest level of program implementation possible.

A fair contribution by any given firm might be defined as a 25 percent reduction in the number of employees who drove alone to work at the beginning of the program. With an operational definition at this level of implementation, parties affected by the ordinance can be monitored through identification of baseline conditions, preparation of an initial transportation management plan (TMP), and submission of periodic progress reports, at least until conformance is achieved. With relevant employee data in hand, an agency can then calculate the resultant impact on VMT or emissions.

Several facets of existing TROs may hamper efforts at evaluating their success. Foremost among these is that data collection is not always required by the ordinance. Nor are employer-based transportation program goals always specified. Without adequate program structure, TROs may be a form of wishful thinking. A second constraint lies in the ambiguity found in the stated goals of some other TROs. Without specific objectives, there is nothing really to be measured in terms of actual performance. TRO evaluation is a rhetorical question in such cases. A third constraint lies in the voluntary nature of some program elements. If a TRO suggests rather than requires specific behavioral changes, there may be no way to define TRO success in any objective fashion.

Given the chasm between ideals and the current reality of TROs, it is necessary to consider ways and means to improve evaluation efforts. In the case of traffic mitigation goals, a standard for employee participation that is rationally linked to VMT should be considered. Some TROs do set standards such as this. However, many agencies do not know how successful a TRO has been, because few means of evaluation are possible given the constraints of existing legislation.

One might preface more adequate TRO evaluation with a preliminary study aimed at identifying program elements that seem to work in a variety of different organizational settings and locations. More preliminary research is needed because there is no model TRO legislation that incorporates the need for comprehensive performance monitoring and program evaluation at this time. Lacking the development of more realistic standards for TRO success that explicitly link changes in employee travel behavior to changes in ambient traffic conditions, evaluation of the effectiveness of TRO programs is infeasible from a methodological perspective.

OVERALL ASSESSMENT OF RECENT TRO EVALUATION EXPERIENCES

Although a comparative evaluation of existing TROs indicates significant variations in the methods used to lessen traffic, less variation exists in terms of preliminary findings and conclusions. Preliminary findings include the following:

1. Observed changes in travel behavior can be large or small. TROs may not have had major impacts on employee mode choice in most cases, at least not through the first several years of operation. Southern California provides a partial exception to this finding. TROs have had more success in altering the timing of commute travel, primarily through encouraging employers to provide alternative work hours to their employees.
2. Data collection needs are generally large. Even in the smallest jurisdictions, thousands of employee surveys must be collected in order to identify observed changes in employee travel behavior resulting from TRO implementation. Most jurisdictions currently require annual employee survey updates.
3. Analysis often is not carried through. Given the cost of collecting employee travel data, information provided may not be used to the fullest extent possible. In most cases, the data are tabulated and synthesized into frequency distributions. The relations between variables often are not considered explicitly. The effectiveness of specific TRO program elements cannot be differentiated under these all-too-common circumstances.
4. Feedback is important. The key to more effective TROs lies in providing adequate feedback to decision makers on whether or not goals and objectives are, in fact, being met through implementation over time. A small number of TROs seems to have achieved their objectives, more or less, whereas most of the others are still working hard on accomplishing theirs. Some jurisdictions that have evaluated program effectiveness have modified certain provisions of their TROs in response to short-term evaluation results. This reiteration is part of a difficult but ultimately necessary process if innovative TROs are to develop into effective public policy instruments.

FUTURE DIRECTIONS

The incentive to implement TDM initiatives such as TROs lies in the degree to which local or regional mobility has been adversely affected by low service levels. When the problem is painful enough, the political system reacts. It is not likely that TROs will be the preferred alternative for mitigating congestion problems throughout the country because not all regions accept proactive local government intervention. Alternatives such as TMAs seem better suited for areas with a history of business community involvement in local governance or with an orientation toward negotiation and consensus building.

Whether TROs gain in popularity is clearly dependent on adequate resolution of the program evaluation issues discussed here. Without appropriate methods to gauge the effectiveness of existing TROs, there will be little incentive to consider them in areas uncomfortable with mandated changes in travel behavior. With the vote still out on which TDM strategies are most effective, more rigorous program evaluation is the next step needed.

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