From the gold rush days of the 1800s to the rush hours of today, Coloradans have been in a hurry. The race continues to be to the swift, but rapid growth and slowed government spending threaten the quality of the transportation systems and way of living.

Syndicated columnist Neal Pierce, in his 1983 book, *The Book of America, Inside the Fifty States Today,* said that

> Coloradans have never become serious in deciding how they are going to accommodate their love of unfettered growth with their love of the outdoors. . . . Its people may have been lulled into thinking there will be no crisis, that a solution can be found to all growth problems. But we see a gathering crisis of deeply disturbing proportions: the gradual decline in the quality of life, a steady loss of agricultural land, open space, wildlife habitat, landscape diversity, all accompanied by worsening traffic and deteriorating air quality. If this is the model of the "developed" Western state in America, then it will not be just one politician or another who appears a failure: a once-in-a-generation opportunity to build a resilient, conserving society in one of the most exquisite places on earth will have been forsaken.

Transportation decisions will determine, literally and figuratively, the direction of Colorado's development during the next decade. How the state and federal governments work with the private sector to finance highways may well be the key to deciding, once and for all, which road Colorado intends to travel down.

The outlook for successful privatization certainly has not been improved by the actions of the Reagan administration, the Congress, or the Colorado legislature in recent years. A penetrating analysis of the *Rules of Governmental Accounting* and the *Internal Revenue Code* is needed to allow the establishment of rules that would make privatization on a larger scale profitable. Until the would-be practitioners of privatization are able to turn a profit, the privatization picture is, to quote Liza Doolittle, nothing but "words, words, words."

Arterial Road Funding for Southeastern Jefferson County: Equity Based on Traffic Impact

VALDIS ZEBAUERS AND AL ZEIKUS

Rapid development has resulted in a sudden deterioration of traffic conditions in southeastern Jefferson County, Colorado. This has led to an intensive effort to develop a funding and construction program to alleviate the deficiencies and provide for future needs. Traffic projections were used to size the needed roadway system and derive improvement costs, which were apportioned to each land use category on the basis of traffic generation. This apportionment became the main parameter for establishing a 20-year funding plan made up of three revenue sources: property tax, sales tax, and traffic impact fees on a 1/3, 1/3, 1/3 basis. The total revenue target was set at $120 million in present value. Property tax revenue by land use was projected and credited toward the funding responsibility of each land use. Sales tax revenues were credited toward only the retail responsibility. Traffic impact fees on new development were used to ensure that the projected revenue from all three sources by land use was equal to the total revenue responsibility by land use. The amount generated by existing land use would be approximately equal to the cost of presently needed improvements. The Board of County Commissioners of Jefferson County adopted the fees at a reduced level for the first year during which implementation of both the property tax district and the sales tax district is being processed through the state legislature.

Sometimes known as the gateway to Colorado ski country, Jefferson County makes up the western portion of the Denver metropolitan area and extends into the mountains (Figure 1). Spectacular rock formations, stands of Ponderosa Pine, and magnificent views of Denver and the plains as well as the peaks of the continental divide have long attracted visitors and enticed people from all over the United States to establish residence in this setting.

The county has historically been one of the fastest growing counties in the United States. The population has increased

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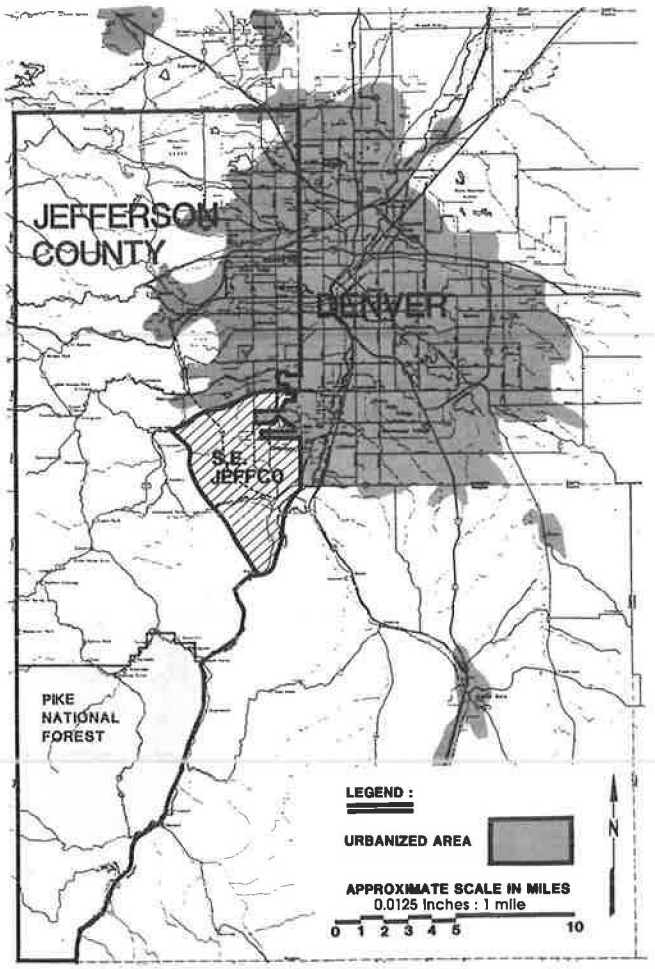

FIGURE 1 Jefferson County and Denver metropolitan area.

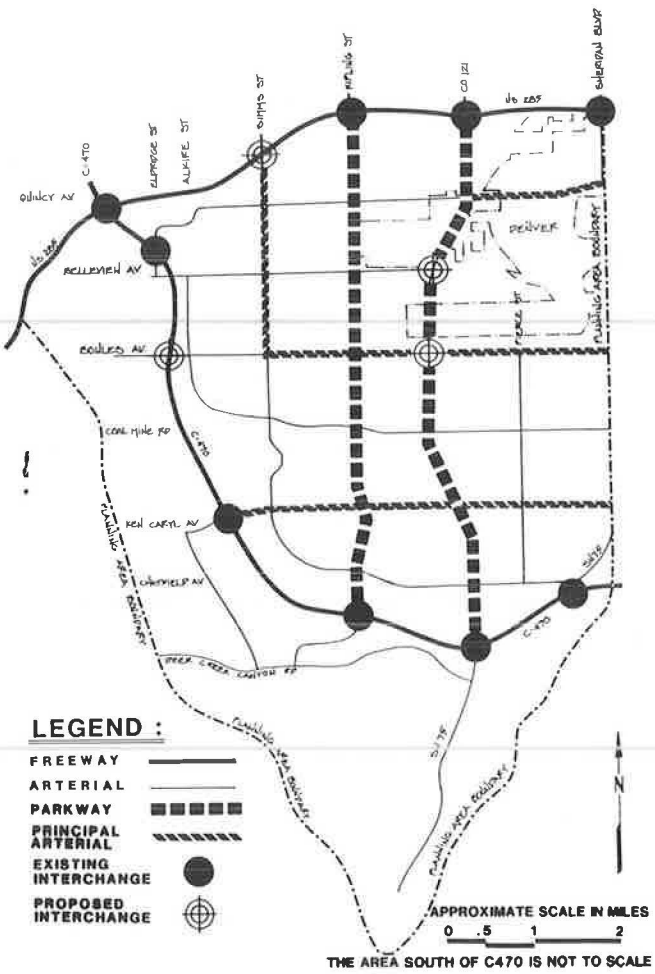

FIGURE 2 Southeastern Jefferson County study area.

from 322,700 in 1975 to an estimated 430,100 in 1986. Although much of the growth has occurred in cities within the county, rapid growth has also been occurring in the southeastern portion of Jefferson County, which is unincorporated (Figure 2). This population has grown from an estimated 21,000 in 1975 to a present population of 65,000. Population is anticipated to reach 120,000 in this area in 20 years.

Past development occurred under provisions of the county's subdivision regulations that require improvements to the arterial road system within or adjacent to development. The piecemeal nature of development, however, led to sporadic spot improvements but provided no significant system or corridor capacity. In the last 4 years the area has experienced a surge in retail as well as residential development; the most significant single development was a 2.5 million square foot regional shopping mall. The rapid retail development resulted in a sudden deterioration of traffic conditions in this area. Traffic volumes doubled on some roads that were already congested. An angry outcry from the community led to an intensive effort to develop an updated comprehensive plan for this area to be followed by a funding and construction program to alleviate the major roadway deficiencies and provide for future needs.

STUDIES

In 1984 the county commissioners appointed a special task force made up of a variety of representatives from business interests as well as homeowners' groups. With the assistance of county planning and transportation staff, this task force developed a Land Use Policy Plan for the area. With respect to transportation considerations, two important criteria were established: The plan stated that level of service (LOS) C was to be achieved on all portions of the major thoroughfare system; LOS D was to be accepted only for limited time periods. In addition, the number of through lanes on arterial roads was not to exceed six. In some cases, these limitations implied the use of interchanges.

The Major Thoroughfare Plan was updated for this area on the basis of the new land use projections.

The traffic model provided the usual traffic-loading information that was used to size the needed system and identify a list of improvements and associated costs ($164 million). The model also yielded the information needed to derive an apportionment of that cost to each land use category on the basis of traffic generation. This apportionment became the main parameter for establishing a funding plan made up of three revenue

sources particular to this part of Jefferson County: property tax, sales tax, and traffic impact fees. It was clear that the needs of this area were disproportionately large (65 percent) compared with those of the total county. Thus the commissioners opted for funding strategies to be applied to this area only.

A special team of attorneys and financial consultants, assembled by the county commissioners, structured the concepts of a special improvement district funded by property tax and a special improvement district funded by sales tax. The sales tax district would require a change in Colorado statutes. Elections would be required to form both districts. The county transportation staff structured the traffic impact fee concept, which could be enacted by the board of county commissioners, for the area. It was decided to focus further studies on a 20-year time frame instead of the longer term, full development, scenario. The 20-year funding needs were estimated to be $120 million.

Traffic impact fees had to be based on traffic impact by land use type in order to be legally defensible. The transportation staff used the data from the model and the system improvement costs to derive the overall funding responsibility for residential, retail, office, and industrial uses.

In defining this responsibility, it was necessary to develop a cost per trip as well as the number of "chargeable" trips per land use category. Multiplying the cost per trip by the chargeable trips for each land use category yielded the amount of revenue each land use should generate over the study period.

Chargeable trips by land use had to be carefully computed to avoid double counting and to properly assign trips to land uses. For example, in the case of a trip from home to office where both home and office are within the study area, the trip was charged to the residential use category. On the return trip from office to home, the trip was charged to the office category. External trips were all charged to the land use within the study area. Thus, in the previous example, if the office had been outside of the study area, both trips would have been charged to residential land use. The total number of chargeable trips by land use was derived using initial aggregated land use tabulation, trip generation factors, the trip table, and the relationship between internal and external productions and attractions. The *National Cooperative Highway Research Program Report 187 (1)* was a helpful reference for estimating non-home-based productions and attractions. The results of this procedure are given in Table 1.

Estimates of revenue by land use from the two tax districts were applied toward the responsibility by land use, with the sales tax revenue applied totally toward the retail responsibility. After the expected revenue by land use was applied toward the responsibility by land use, traffic impact fees were computed to make up the difference.

TABLE 1 20-YEAR FUNDING RESPONSIBILITY BY TYPE OF LAND USE

Land Use	Funding Responsibility ($ millions)
Residential	71.13
Retail	67.97
Office	18.27
Industrial	7.13
Total	164.50

TABLE 2 20-YEAR REVENUE BY FUNDING AND LAND USE ($ millions)

Land Use	Property Tax	Sales Tax	Traffic Impact Fees	Total
Residential	23	0	22	45
Retail	7	40	9	56
Office	6	0	7	13
Industrial	4	0	2	6
Total	40	40	40	120

STRATEGY

On reviewing the funding concepts recommended by the consultant team and staff, the commissioners decided to pursue a strategy that collected approximately 1/3 of the revenue needed from each funding source while collecting the appropriate amount from each land use category. This approach enhanced the aspect of equity and helped avoid overburdening any one funding source. The property tax would primarily affect current residents and businesses and to a lesser extent future residents during the 20-year period. Revenue from property tax could be distinguished by land use type and appropriately credited toward each land use. The sales tax is a means of capturing revenue from retail users and a way of collecting revenue for roads from shoppers who live outside the study area. This revenue would be applied toward the retail responsibility. The traffic impact fees demonstrated that substantial funding of future needs would be provided by new development. The results of this funding distribution are given in Table 2, and the resulting fee structure is given in Table 3.

On further analysis, it appeared that with this strategy approximately $46 million would be collected from existing development. This amount is relatively close to a $42 million estimate of current improvement needs. Thus the argument that future development would pay to solve existing problems created by others was avoided. The estimates (in millions of

TABLE 3 PROPOSED TRAFFIC IMPACT FEE

	Dollars Per Square Foot[a]
Residential Multifamily @ $659/dwelling unit Single family @ $942/dwelling unit	0.54[b]
Retail	2.37
Office	1.31
Industrial	0.33

[a]Escalated by Colorado construction index (for highways) for previous year.
[b]Estimated average.

TABLE 4 REVENUE BY EXISTING VERSUS FUTURE DEVELOPMENT ($ millions in present value)

	Existing	Future	Total
Property tax	25	15	40
Sales tax	21	19	40
Impact fees	0		40
Total	46	74	120

dollars of present value) of the breakdown of revenue by existing and future developers are given in Table 4.

IMPLEMENTATION

The strategy, dubbed "Three Prong" by the community and the press, was introduced to homeowners' association representatives, the Chamber of Commerce, and the Home Builders Association, which ultimately became the main element representing land developer interests. Although general support was expressed by the Chamber of Commerce and homeowners' representatives, the developers' representatives expressed concern over the traffic impact fee portion of the plan. The main concerns were that if the two tax districts did not pass election, the impact fees would be expanded to cover the entire cost of the system, and that the county's growth and traffic projections were too high. At the same time, all groups recognized that there was little chance that the needed sales tax legislation would pass or that subsequent property tax and sales tax district elections would succeed without the traffic impact fees in place.

To address all concerns, on February 24, 1986, the county commissioners enacted the traffic impact fees at 20 percent of the recommended fee level for a period of 1 year. Thus the development interests would have an opportunity to fund an independent study to address growth projections for and traffic needs of the area during the next 20 years. The study would serve as a basis for review of the fee structure and establish subsequent fees to fund the 1/3 share of the 20-year need. The continuation of the fees was also made contingent on passage of one of the other two funding mechanisms. Should neither pass, the collected fees would be returned and the total strategy reviewed.

At the present time the needed legislative changes are being considered in the state legislature and a committee of community homeowners and business leaders has defined a service plan for the property tax district to be voted on in October 1986. The developer interests are currently raising funds for an independent study to be directed by a task force made up of developers, staff, and community representatives.

In a 2-month period more than $100,000 in traffic impact fees has been collected by the county. Obviously, the final chapter of this funding program cannot yet be written; however, at this point, the chance of being able to use new revenue sources for arterial roads in southeastern Jefferson County appears good. Although not yet passed, the sales tax district legislation has had a strong showing in the state legislature and the property tax district proposal also appears to have substantial support from the community. The commitment to have traffic impact fees on new development match the revenues from property tax adds considerable incentive to the property tax proposal. Under the traditional countywide application of property or sales taxes to fund capital improvements, chances of success would be substantially less because of the localized nature of the roadway problem.

REFERENCE

1. A. B. Sosslau, A. B. Hassam, M. M. Carter, and G. V. Wickstrom. *NCHRP Report 187: Quick-Response Urban Travel Estimation Techniques and Transferable Parameters.* Comsis Corporation, Wheaton, Md.; TRB, National Research Council, Washington, D.C., 1978.