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16. Abstract

Changes in the transportation system have a large influence on urban development patterns. The location, type, and intensity of urban land uses also affect the urban street and highway system. Various federal and state initiatives have been taken to more closely link transportation and land use. These include the following:

- The Traffic Congestion Management System (CMS) mandated by the Intermodal Surface Transportation Efficiency Act (ISTEA). The CMS regulators specifically state that state and local agencies must address existing congestion and avoid potential future congestion. This clearly implies that the impact of land use and development decisions on transportation must be more effectively addressed than in the past.
- State-mandated growth management requirements such as those in Oregon, Washington, Florida, and Vermont.
- State-mandated local planning which must meet state criteria as those in Florida, Hawaii, Maine, New Jersey, Rhode Island, and Oregon.
- State-mandated congestion management which requires that the impact of proposed development must be assessed and provides penalties if development that degrades congestion is approved by a local government (California).
- Access management practices administered by the state highway agency which are designed to protect the public investment in major state roadways (Colorado, Florida, and New Jersey).

In order to address traffic congestion problems, many municipalities have implemented travel demand ordinances which are intended to reduce drive-alone auto use and encourage ridesharing and transit. In other locations, such requirements have been, or are being, implemented in response to federal clean air requirements.

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INTEGRATING TRANSPORTATION AND LAND USE PLANNING

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IMPLEMENTATION STATEMENT

This report reviews the legislation and practices leading state efforts in addressing transportation infrastructure problems resulting from urban development. The experiences of these states provide valuable guidance to other states that may consider legislation to more effectively coordinate urban growth and urban transportation improvements. Advanced access management policies and practices are a principal method by which a state highway agency can address urban growth management and protect the public investment in the state's major roadways.

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration or the Texas Department of Transportation. This report does not constitute a standard, specification, or regulation. Additionally, this report is not intended for construction, bidding, or permit purposes. George B. Dresser, Ph.D., was the Principal Investigator for the project.

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LIST OF ABBREVIATIONS AND SYMBOLS

AVR	average vehicle ridership
CAAA	Clean Air Act Amendments
CBD	central business districts
CIP	Capital Improvement Program
CMA	congestion management agency (California)
CMAQ	Congestion Mitigation and Air Quality Improvement Program
CMP	Congestion Management Plans (California)
CMS	congestion management system
CO	carbon monoxide
DCA	Department of Community Affairs (Florida)
DCD	Department of Community Development (Washington)
DLCD	Department of Land Conservation and Development (Oregon)
DOT	department of transportation
DRI	developments of regional impact (Florida)
EAR	Evaluation and Appraisal Report (Florida)
FDOT	Florida Department of Transportation
FIHS	Florida Interstate Highway System
FIP	Federal Implementation Plans
GMHB	Growth Management Hearings Board (Washington)
HC	hydrocarbon
ISTEA	Intermodal Surface Transportation Efficiency Act
LCDC	Land Conservation and Development Commission (Oregon)
LOS	level of service
MPO	metropolitan planning organization
NAAQ	national ambient air quality
NJDOT	New Jersey Department of Transportation
NO_x	nitrogen oxide
OPR	Office of Planning and Research (California)

RPC	Regional Planning Commission (Florida, Vermont)
RTP	Regional Transportation Plan (California)
RTPO	Regional Transportation Planning Organization (Washington)
SAC	Suburban Activity Centers
SCAQMD	South Coast Air Quality Management District (California)
SDRP	State Development and Redevelopment Plan (New Jersey)
SHA	state highway agency
SIP	state implementation program
STIP	State Transportation Improvement Program
SZEA	Standard Zoning Enabling Act
TCM	transportation control measures
TCMA	transportation concurrency management areas (Florida)
TDM	transportation demand management
TDR	transfer of development rights
TIP	transportation improvement program
TMA	Transportation Management Areas
TRIPS	Traffic Impact Planning System (Florida)
TRO	trip reduction ordinances (Oregon)
TSM	transportation system management
UGB	urban growth boundaries (Washington, Oregon)
V/C	volume-to-capacity
VMT	vehicle miles traveled
WSDOT	Washington State Department of Transportation

SUMMARY

Transportation is one of the most critical land use problems facing our nation today. Continued urban growth and automobile use without a corresponding increase in highway transportation facilities has led to unprecedented levels of traffic congestion in many metropolitan areas. Widespread impacts in terms of travel delay, air pollution, and congestion costs have become leading national concerns.

One of the major reasons for this decreasing quality of transportation service is the failure to establish an effective relationship between transportation and land use. Travel demand, travel patterns, and modal distributions are largely a function of land use and land use arrangement. Thus, by better integrating land use and transportation, the nation can be better equipped to meet current requirements and accommodate future growth and development.

Many regions of the country are adopting growth management policies to address the social, environmental, and economic problems of our expanding society. Growth management creates a framework to better coordinate transportation and land use planning decisions. Because traffic congestion is already a serious public concern, fear of further increases in traffic created by new development is often a central issue in growth management policy development and practice. In a period of about 20 years, 11 state legislatures have passed growth management laws requiring or encouraging local governments to prepare and fully implement comprehensive growth management plans. This paper explores the planning framework created in six of these states.

This paper explores three major issues relating to the transportation/land use problem: (1) the developing relationship between transportation and land use, (2) the problems of integrating transportation and land use with traditional planning frameworks and techniques, and (3) examples of what some regions of the country are doing to address public concerns about development-induced traffic growth.

I. THE TRANSPORTATION/LAND USE PROBLEM

Throughout history, the development of state-of-the-art transportation modes and transportation facilities has played a key role in shaping urban development patterns. Until the late nineteenth century, horse car lines and cable cars were the most advanced transportation modes in urban America. Cities were densely settled as a result. Residences were located within close proximity to industrial and commercial districts, and all of the necessities of life could be found within a short walking distance from home.

Between 1890 and 1910, American cities began to show the first signs of what is now known as urban sprawl. The construction of street railways made settling on the central city's perimeter attractive to people with moderate incomes. Real estate speculators contributed to residential dispersal by aggressively promoting ventures on the urban fringe. In Los Angeles and Cleveland, for example, electric trolley lines were built by the holders of large tracts of undeveloped land located a considerable distance from the central city. The developers' specific intention was to subdivide that land and profit from the sale of homesites made accessible to downtown by transit (1). Thus by 1920, single-family, low-density development located on the edge of metropolitan America had already taken hold.

Beginning in the early 1910s, mass production of the automobile heightened Americans' level of mobility. The automobile's widespread acceptance and availability by the 1930s broadened the choice of where people could live and work. Along with the motor truck, the automobile made it possible for business and commercial activity to locate outside the central city. Americans were no longer restricted exclusively by steel rail corridors for accommodating travel needs. Newer patterns of urban development became increasingly dispersed, and demand for less convenient modes of transportation faded. The post-World War II economic boom continued the trend toward low-density development. Population growth, rising incomes, and the Federal Housing Administration's mortgage insurance program contributed to the allure of suburban living. Subdivisions were developed around every city in the nation. For example, the 1950 census reported that suburban fringe areas increased in population by 35 percent from 1940 to 1950, whereas central cities increased by only 13 percent during the same time period (2).

Suburban growth continued throughout the 1950s at a tremendous rate. The Interstate

Highway Act of 1956 authorized completion of over 40,000 miles of fully controlled access highways and precipitated development in previously inaccessible locations. Land within the interstate highway corridors was the most readily developed, often at considerable distances from existing urban centers. Almost all residential growth occurred in suburbia; and in order to remain competitive, retail businesses moved out of the central business districts (CBD) to be closer to the clientele. Automobile registration and vehicle miles traveled (VMT) rose dramatically. Between 1950 and 1970, annual urban travel increased from 100 million VMT to 264 million VMT; transit ridership, on the other hand, dropped over 55 percent (3).

The growing obsolescence of central city infrastructure along with advancements in information technology have caused other businesses to move outside the CBD. The construction of interstate bypasses and beltways around the central city have opened large tracts of land to the growing suburban population. Since 1970, about 80 percent of new office space has been constructed in suburbia (4). This explosive growth has led to the creation of Suburban Activity Centers (SACs), also known as "edge cities." If ranked by office space, two of the largest SACs, Uptown Houston and the Dallas Parkway Center, would rank as the thirteenth and fifteenth largest downtowns in the U.S. (3).

Since 1950, over 85 percent of the national population growth has occurred in suburban areas (5). In addition, approximately two-thirds of all jobs created between 1960 and 1980 were located in the suburbs (5). The result of this suburban growth has been an increase in the number of suburb-to-suburb trips. The number of commute trips from suburb to central city which dominated travel patterns in the past has now been exceeded by the number of circumferential commute trips that both start and end in suburbia. The dispersed nature of these trip origins and destinations is a major contributor to the traffic congestion problem because they provide little option for travel except via the automobile.

Consequently, transportation is one of the most critical land use problems facing the nation today. The level of development in many metropolitan areas has already surpassed that which can be adequately served by automobiles alone. Continued urban growth and automobile use without any corresponding increase in highway transportation facilities have led to unprecedented levels of traffic congestion in many metropolitan areas. Widespread impacts due to travel delay, air pollution, and the costs of congestion have become leading national concerns as a result.

ENVIRONMENTAL IMPLICATIONS

In the U.S., intensified traffic congestion caused by a failure to coordinate land use and transportation, whatever the mode or modes, is a major contributor to environmental pollution. For example, transportation emissions (of which automobile emissions are a dominant source) account for over 60 percent of all carbon monoxide (CO) emissions and nearly 40 percent of all nitrogen oxide (NO_x) and hydrocarbon (HC) emissions found in U.S. cities (6).

In 1990, Congress passed the Clean Air Act Amendments (CAAA) which strengthened ambient air quality standards and increased the penalties for nonattainment. One hundred areas in 33 states and the District of Columbia currently fail to meet national air quality standards. If these nonattainment areas fail to meet the standards according to schedule, sanctions such as freezing federal transportation funds and/or imposing Federal Implementation Plans (FIPs) to help attain air quality standards could result.

The CAAA place greater emphasis on controlling VMT. Transportation control measures (TCMs) including employer trip reduction programs, stricter emissions standards for automobiles, public transportation improvements, and pedestrian and bicycle facilities and programs are suggested in the CAAA to improve air quality.

ECONOMIC IMPLICATIONS

Efficient transportation networks are essential to the nation's economic vitality. Available levels of mobility affect agriculture, manufacturing, employment, tourism, and the extent of international trade and investment. The competitiveness of U.S. products at home and abroad largely depends upon the extent, connectivity, and reliability of the nation's transportation infrastructure.

In its report to the president and Congress, the National Council on Public Works Improvement warned that the nation's infrastructure is "barely adequate to fulfill current requirements, and insufficient to meet the demand of future economic growth and development" (7). Furthermore, in 1990, the total cost of congestion in U.S. metropolitan areas exceeded $43 billion (8).

It is believed that too many investments have been made without a full assessment of their benefits or costs to both national and local economies. The old adage "growth pays for itself"

is being carefully rethought in many regions of the nation. Greater emphasis is now being placed on all levels of government to provide a more realistic link between transportation needs and available fiscal resources. The need to develop new funding and institutional measures is also being encouraged at both the national and local levels.

IMPACTS OF ISTEA

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) contains a comprehensive set of planning requirements for metropolitan planning organizations (MPOs) and state departments of transportation (DOTs). Considerations such as the impacts of transportation decisions on land use, development, intermodal connectivity, traffic congestion, air quality, and transit service are now required in the planning process. Appendix A contains a list of the factors to be considered by each MPO.

ISTEA requires MPOs, in cooperation with state DOTs, to prepare long-range transportation plans and transportation improvement programs (TIPs). ISTEA also requires each metropolitan transportation plan to be consistent with the state implementation plan (SIP) for clean air. ISTEA offers flexibility in financing new modes of surface transportation including transit, bicycle, and pedestrian facilities to help reduce demand for the private automobile. ISTEA also offers increased funding for the Congestion Mitigation and Air Quality Improvement Program (CMAQ), a program designed specifically to combat air quality problems through the wider use of TCMs.

Another new provision in ISTEA is the designation of urbanized areas with over 200,000 population as Transportation Management Areas (TMAs). Within these areas, many of which overlap nonattainment areas, the transportation planning process must include a traffic congestion management system (CMS) "that provides for effective management of new and existing transportation facilities . . . through the use of travel demand reduction and operational management strategies" (23 USC 134(i)). In addition, local governments within TMAs functioning through the MPO are given greater project selection authority and are eligible to receive a percentage of ISTEA funds.

ISTEA requires MPOs to develop a coherent set of transportation strategies which will efficiently and effectively meet the mobility needs of the area and of the state. The plan must

be based on the availability of financial resources to fund the strategies and on the proactive participation and approval of the public.

GROWTH MANAGEMENT

Many regions of the country are adopting growth management policies in order to better address the social, environmental, and economic problems of an expanding society. Growth management is a policy program designed to achieve a balance between the protection of natural resources (land, water, and air) and the development required to support growth including transportation and other infrastructure. It is based on the preparation of comprehensive plans integrated at local, regional, and state levels and on the development of strategies to implement the plans fully. Most importantly, growth management as applied here creates a framework for better coordinating transportation and land use policy decisions.

II. TRANSPORTATION AND LAND USE PLANNING

TRANSPORTATION/LAND USE LINK

Transportation and land use are closely related. Land use activity affects demand on transportation facilities, and transportation service is one of the major factors in siting real estate development projects.

If not properly coordinated, transportation and land use can work at odds and reduce the other's effectiveness. For example, urban development can be stifled by an inadequate street system resulting in unstable land use patterns and even driving some businesses to bankruptcy. Conversely, poorly planned development can reduce the effectiveness of an otherwise adequate street system leading to reductions in mobility and, ultimately, congestion. Short and/or nonuniform signalized intersection spacing, close driveway spacing, undefined access geometry, and inadequate access capacity are results of poor planning which can reduce a roadway's efficiency for moving through traffic.

The basic concept underlying the relationship between land use and transportation is accessibility. Accessibility is a measure of the value of a land use given its proximity to all other relevant activity (9). It is the critical factor in most land use location decisions and is reflected in consumer choice. The location of suburban regional shopping malls illustrates these effects; malls are almost always located at the junction of two major roadways and always with accessibility in mind.

The impacts of accessibility on land use created by transportation system changes are not limited to a specific site or to land uses adjacent to an arterial roadway. Entire cities have been reshaped as a result of single transportation projects influencing the accessibility of the urban area. A demonstration of the role of transportation infrastructure in shaping urban form is the construction of electric trolley lines in the 1880s and, more recently, circumferential highways and beltways around the nation's central cities and the subsequent shifts in development activity to these once outlying areas.

Understanding the concept of accessibility and the time people are willing to spend traveling to a given land use are key factors in balancing land use and transportation service. The term "balanced transportation" is often used to denote a balance between land use intensity and

transportation, whatever the mode or modes (9), and is often the basis for all short- and long-range transportation policy objectives.

Achieving balanced land use/transportation involves not only determining the facilities needed to serve given land use schemes but also the impacts available capacity has on accessibility, travel decisions, and land use activity. Proper planning, therefore, must attempt to determine beforehand what elements of the land use and transportation systems are viewed as fixed and not likely to change and what elements are viewed as variable and likely to change.

The development, establishment, and implementation of land use regulations also embody the interrelationship between land use and transportation, although this is not commonly realized. For example, upgrading an existing thoroughfare or constructing a new arterial roadway increases the accessibility of some areas relative to other areas. This increase attracts new development which, in turn, leads to increased traffic demand. Frequently, the new development is dependent on direct access to the transportation system. If access is poorly managed, which is often the case, the efficiency of the roadway for moving through traffic will be reduced due to the high number of curb and median cuts permitted. Soon the arterial roadway is again heavily burdened and in need of further improvements.

LOCAL TRANSPORTATION AND LAND USE PLANNING

Police Power

Local governments derive their power to regulate land use from the state. Each state has the power to enact legislation for the promotion of the public health, safety, morals, and general welfare of its citizens. This "police power" is the authority upon which state and local statutes regulating the use of land are based.

A wide variety of regulatory tools are available to local governments under the police power. Among those most frequently delegated are the authority to establish and enforce a zoning ordinance, the authority to establish a planning board or commission to prepare a plan for the physical development of a jurisdiction, the authority to administer subdivision regulations, and other growth management controls.

Zoning

Local land use regulation originated in the 1920s when the U.S. Supreme Court upheld the power for a city to regulate the use of private property through comprehensive zoning in *Ambler Realty v. Village of Euclid, Ohio* (2, 10, 11, 12). Immediately following the Supreme Court's decision, almost all states adopted zoning enabling legislation which granted cities and, in most states, counties the power to zone. Most of the state acts were modeled after the Standard Zoning Enabling Act (SZEA) which was published by the U.S. Department of Commerce in 1926 and remains intact today with little, if any, revision. Major aspects of the 1926 act are indicated in the first three sections:

> Section 1. Grant of Power. For the purposes of promoting health, safety, morals or the general welfare of the community, the legislative body of cities and incorporated villages is hereby empowered to regulate and restrict the height, number of stories, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes.
> Section 2. Districts. For any or all of said purposes the local legislative body may divide the municipality into districts of such number, shape, and area as may be deemed best suited to carry out the purposes of this act; and within such districts it may regulate and restrict the erection, construction, reconstruction, alteration, repair, or use of buildings, structures, or land. All such regulations in one district may differ from those in other districts.
> Section 3. Purposes in view. Such regulations shall be made in accordance with a comprehensive plan and designed to lessen congestion in the streets; to secure safety from fire, panic, and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate the adequate provision of transportation, water, sewerage, schools, parks, and other public requirements. Such regulations shall be made with reasonable consideration, among other things, to the character of the district and its peculiar suitability for particular uses, and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality.

Within this model zoning enabling act, three purposes specifically apply to transportation planning: (1) to lessen congestion in the streets, (2) to promote the general welfare, and (3) to facilitate the adequate provision of transportation. Also of primary interest in the SZEA is the general statement in Section 3 requiring that zoning regulations be made "in accordance with a comprehensive plan." However, at the time the 1926 act was passed, the exact nature of a

comprehensive plan was unclear (10, 12). Zoning enabling acts adopted by most states contained a similar clause but without any elaboration to its meaning (2, 10, 12, 13). Consequently, zoning ordinances adopted by most communities tended to consist of a map dividing the community into districts without bearing any relation to a comprehensive plan for land use, streets, sewers, schools, and other plan elements affected by such zoning (2, 10, 12, 13). Although not necessarily based on a comprehensive plan, the courts have historically tended to rule that existence of the zoning map was evidence that comprehensive planning was being conducted (10).

Comprehensive Planning

The basis for comprehensive planning followed the establishment of zoning by two years. In 1928, the U.S. Department of Commerce published the Standard City Planning Enabling Act and recommended its adoption by state legislatures. Although the 1928 act emphasized comprehensive planning, recognition of its importance did not occur until the 1950s when Congress passed the Housing Act of 1954 requiring local governments to prepare and adopt a comprehensive plan in order to receive urban renewal funds (10).

Today, the nature and intent of a comprehensive plan is much clearer. Stated simply, the comprehensive plan is the policy-setting document which provides long-range guidance for a community's physical development. The comprehensive plan normally contains at least three major elements: the land use plan, the transportation plan, and the community facilities plan. Plans also commonly contain additional components including housing, historic preservation, urban design, energy, employment, and the delivery of human services. Many recently adopted comprehensive plans also have a section outlining the steps needed to implement recommendations of the plan itself.

Capital Improvement Programming

One of the principal mechanisms for maintaining coordination between land use and transportation plans at the local level is the Capital Improvement Program (CIP). The CIP is a city's budgeting process for the provision, extension, and strategic programming of public facilities so that the city may grow in a planned and orderly manner.

Projects programmed in the CIP are based on an assessment of current and future facilities

consistent with the growth projections in the comprehensive plan. Projects are also linked to an estimate of available financial resources to promote an effective implementation program.

SEPARATION OF TRANSPORTATION AND LAND USE PLANNING

The transportation plan is an important component of comprehensive planning, and land use planning is basic to keeping the street system operating efficiently. Unfortunately, transportation planning and land use planning are not well coordinated at the local level. The CIP, which is supposed to include projects to accommodate future growth in a coordinated manner, is often a collection of poorly coordinated, or uncoordinated, projects.

Transportation and land use plans are often inconsistent at adoption. Available and planned transportation capacity are not checked for consistency with the adopted zoning and land use plans. Another problem is encountered when the development level anticipated in the land use plan cannot realistically be served by the mode or modes of transportation available. This incompatibility is seen in many of the nation's cities where the development level has already surpassed that which can be adequately served by the street and freeway system. In other cases, land uses do not call for development patterns and densities which are sufficient to economically support their rail rapid transit system. Planning for possible variations in transportation modes requires long periods of time and should be a key consideration in developing transportation and land use plans.

In other cases, transportation and land use plans that start off compatible become inconsistent over time. This often occurs when major elements of the comprehensive plan are never fully implemented. Land use regulations adopted without considering transportation objectives can spoil well-integrated plans for the future.

Coordinating land use and transportation is also affected by the opinions of local officials. Transportation is often viewed as a public utility to be provided on demand to accommodate private development. Evaluating development projects in regard to long-range goals and recognizing the long-term effects of day-to-day urban development decisions rarely occurs at the local level. Consequently, access points are allowed, traffic signals are installed, and zoning changes are approved without ever considering the transportation component of the comprehensive plan. Moreover, many planning departments spend considerable time processing

plan amendments, rezonings, variances, and other modifications of the land use plan. However, the necessary accompanying changes are not made in the transportation plan. Thus, such land use revisions are impractical and difficult to accomplish.

Another problem which creates inconsistent transportation and land use plans is the division of duties at the local level. Planners often do the land use planning, while the engineers are responsible for transportation (14). The two groups often work independently, and land use and transportation are poorly coordinated.

Of course, ensuring absolute compatibility between land use and transportation plans is a highly idealized goal. The forecasting accuracy of current planning tools has its own inherent values and limitations (14, 15, 16). Furthermore, individual behavior affects demand both for land use and travel and is difficult to quantify and predict in any certain term (17). Despite these shortcomings, however, transportation plans can be designed to provide for land use objectives. Conversely, land use plans should be designed to reflect transportation needs.

For many localities, impact analyses of proposed new developments have become the main mechanism for resolving incompatibilities between land use and transportation plans. Improvements linked to new developments are not only expected to mitigate the impacts of that development but quite often are expected to rectify existing deficiencies as well. When development mitigation becomes the primary means of upgrading existing facilities, areawide transportation improvements become fragmented; and chances of maintaining the transportation plan diminish. Furthermore, fragmented improvement efforts create greater disruption of area traffic during construction periods and often result in poor use of a city's traffic improvement funds.

Lack of coordination between land use and transportation plans was not as great a concern when funds were available to deliver needed transportation facilities. Today, however, traffic volumes are growing much faster than transportation agencies can deliver projects (14). Attempting to keep up with these demands has strained the financial resources of state and local governments. Furthermore, in the current climate of environmental sensitivity, building more capacity is often considered an unacceptable solution to many transportation problems.

Even when unused capacity does exist, the cumulative effects of small increases in demand created by new development can have enormous fiscal costs for local governments.

Capacity is built all at once involving large, incremental costs. The results can be a cycle of "crisis-oriented growth addiction" as various infrastructures collapse from overuse and are replaced by still larger facilities, which then can be paid for only with additional growth that again creates another crisis of overuse (18). Many local governments get caught in this "infrastructure trap" as the true costs of growth continue to go unrealized.

STATE-LEVEL TRANSPORTATION AND LAND USE PLANNING

States have the ability to exercise their police power to protect the health, safety, general welfare, and morals of its citizens. Also, most states have delegated to their political subdivisions broad authority to exercise this police power which they can use to regulate private land development. Texas is an exception in that, with the exception of Ellis County, counties are not given the same powers as municipalities.

In addition, every state has a state highway agency which is responsible for constructing state roads and for state participation in the federal aid highway program. Most states have also established a department of transportation which has responsibilities for other modes of transportation as well as highways. Indeed, state agencies have been the dominant providers of arterials and freeways. However, state legislatures traditionally have been extremely reluctant either to involve themselves in land use matters or to interfere with the actions of local governments (19).

These circumstances have changed as an increasing number of states have reevaluated their responsibilities regarding land use problems and have passed legislation establishing comprehensive land use programs or acts addressing particular issues. For example, Washington and Massachusetts have enacted environmental policy acts which give the state transportation agencies responsibility for reviewing and approving developments which generate traffic above established statewide thresholds.

Recent passage of the CAAA and ISTEA provide states with new planning requirements, new programs, and new flexibility in decision making. Although the Clean Air Act has always required that state TIPs conform to SIPs for cleaner air, the 1990 amendments to that act prohibit the expenditure of any funds on projects that do not contribute to the goal of clean air. In support of this requirement, ISTEA allows funds formerly dedicated exclusively to highway

projects to now be spent on all modes of surface transportation, including measures to control demand on new roads. Also, any capacity improvement in a Transportation Management Area (an urbanized area over 200,000 population) which is nonattainment for air quality must be an element of the state's CMS.

DEVELOPMENT OF STATEWIDE LAND USE CONTROLS

Many states have learned that some development activities allowed by local governments may adversely affect state interests. Some of these interests are environmental, some are specific to sensitive or significant areas, and still others are limited to specific types of development activities. For example, some of the subdivision projects developed in Florida during the 1960s and 1970s were so large (accommodating in excess of 100,000 residents each) that some counties could find their population quadrupled with the emergence of a single project (10). In response to such rapid growth, Florida passed the Environmental Land and Water Management Act in 1972. This act required that, regardless of where they are located, developments of regional impact (DRIs) be reviewed and approved at the state level. More recently, Florida has required "concurrency." This simply means that all necessary infrastructure (roads, water, wastewater, etc.) be available at the time the development is completed. The necessary building and other permits are not issued until such improvements are in place or funded.

Widespread dissatisfaction with the DRI approval process has led to them being phased out under the Local Government Comprehensive Planning and Development Act of 1993. In its place, local governments must adopt an intergovernmental coordination process that provides a method of reviewing and approving development that impacts more than one jurisdiction. The 1993 act also increases the flexibility of concurrency requirements that local governments have to manage development.

Other states have also found that local government control over land development is not enough. Limitations of this "home rule" perspective for coordinating land use and transportation was recognized along Route 1, central New Jersey's key north-south automobile route. Between 1975 and 1985, developed land along this corridor increased by 31 percent and traffic volumes more than doubled (20). In an effort to address the problems associated with the surge in growth, a Regional Forum consisting of state, county and local officials, land use and transportation

professionals, interest groups, major developers, and corporate leaders was created to formulate regional land use goals and transportation strategies. As the process unfolded, the need for coordinating land use and transportation services throughout the state became more evident. This realization provided a major impetus to enacting the state's growth management legislation in 1985 (11).

The state of California also found that local government approaches to traffic congestion problems were insufficient to meet the demands of growth. In 1989, the California State Legislature passed the Congestion Management Planning Program which declared that "To keep California moving . . . and to develop the California economy to its full potential, it is intended that federal, state, and local agencies join with transit districts, business, private and environmental interests to develop and implement comprehensive strategies needed to develop appropriate responses to transportation needs" (Stats. 1989, Ch 2.6, Sec. 65088). The legislation calls for Congestion Management Plans (CMPs) to address traffic congestion problems through land use, transportation, and air quality relationships in all counties with urbanized areas. If local governments fail to comply with the regional plans, the state has the authority to withhold the local agency's share of state transportation funds.

The state of Oregon enacted legislation creating the Oregon Land Conservation and Development Commission (LCDC) which works with the local units of government in establishing urban growth boundaries for all urban areas. The LCDC has extensive powers to control any improvements which may increase the potential for development in areas outside these urban growth areas. LCDC has indicted legal action against local governmental agencies and the Oregon DOT where, in the view of LCDC, roadway improvements have improved the access to land outside of an urban growth boundary.

The common factors which have caused states to more actively enter into the control of land use at the local level can be categorized into the following four distinct areas:

1. When there are problems that cross jurisdictional boundaries and do not confine themselves neatly to municipal or county controls;
2. Where there are problems created from the actions of a local government agency which may result in a negative impact on the interest of the broader public;
3. When local controls are so limited that they do not effectively protect the land resource

of the state; and

4. When problems or conflicts arise involving implementation of state policies or funds (10, 21).

III. EMERGENCE OF GROWTH MANAGEMENT

INTRODUCTION

The concept of "growth management" has its origins in the 1970s when proposals for "no-growth" or "slow-growth" policies emerged in rapidly growing suburban communities. During the last 15 years, however, growth management has evolved into a concept much different than its original intent of being a growth control mechanism. Growth management has recently been defined as a set of "guidelines to direct needed development to selected sites while protecting an area's natural resources" (22).

Since 1970, 11 states have established comprehensive growth management programs applicable statewide or to critical areas (see Table 1). The first round of state programs was adopted in the early 1970s; passage of the second round began in the mid-1980s.

HISTORY

The Quiet Revolution

The emergence of state land use planning occurred in the 1960s and early 1970s. It began with the realization that local land use controls, primarily zoning, were incapable of managing the large-scale growth and record high development rates of the 1960s. By 1975 a number of states, including California, Florida, Hawaii, New Jersey, New York, North Carolina, Oregon, and Vermont had passed legislation giving state government a greater role in regulating land use. This movement is known as the "Quiet Revolution in Land Use Control" (23).

In some cases, the state's interest was limited to critical areas such as the coastline in California and North Carolina, the Pinelands in New Jersey, and the Adirondack Mountains in New York. In others, such as Vermont, the state reviewed all development projects beyond a certain size and all subdivisions with more than a specified number of lots, no matter where they were located. In still others, such as Florida and Oregon, the state mandated planning and established regulatory criteria to be followed by local governments.

Meanwhile, a second force was underway at the community level as dozens of cities and counties developed local growth control programs. These policies varied in their composition; but most required a comprehensive plan, compatible land use regulations, and a system for timing

or phasing new development such as an adequate public facilities ordinance or a permit system (24). Local growth control programs have been popular on both the west and east coasts, particularly in California and around the Washington, D.C., area.

During the late 1970s, the country entered an economic recession, and interest in funding new state programs for land use regulation faded. The growth management initiatives adopted in the early 1970s faced challenges during this period, but they were all defeated.

For example, Oregon's program survived a series of voter initiatives that would have repealed the land use law entirely. The challenges, inspired primarily by developers and local government officials, grew progressively weaker as citizen approval for the new planning strategies increased.

Second Wave

By the mid-1980s some states began to take another look at centralized growth management legislation. An unbridled real estate boom that began in 1981 and a rapid population growth in many non-urban areas led to a new set of development problems far in excess of those experienced a decade earlier. Increased traffic congestion, air and water pollution, loss of agricultural land, and severe budgetary constraints are just a few of the growth effects which led to "quality of life" degradation, and ultimately, a resurgence of support for tighter land use controls.

Georgia, Maine, Maryland, New Jersey, Rhode Island, and Washington have recently adopted statewide growth management policies. These initiatives are designed to fill in the gaps between state environmental regulation, regional planning, and scattered and inconsistent local growth management efforts. Furthermore, Florida and Vermont have revised and strengthened their earlier statewide land use policies to include a broader range of issues. Whereas the growth management initiatives in the 1960s and 1970s centered primarily around protecting the natural environment, the new legislation addresses a greater number of major policy issues including transportation, urban sprawl, fiscal capacity, affordable housing, water and air quality, and economic development.

Table 1
State Comprehensive Growth Management Legislation

State	Legislation
California	Coastal Act of 1976 (Cal Pub Res Code 30000-30900) Coastal Zone Conservation Act, 1972 (Cal Pub Res Code 27000-650) Tahoe (Lake) Regional Planning Compact, 1969 (Cal Government Code 66801)
Florida	Omnibus Growth Management Act Local Government Comprehensive Planning and Land Development Act, 1985 (Fla Stat 163.3161-.3215) State Comprehensive Plan, 1985 (Fla Stat 187.201) State and Regional Planning Act, 1984 (Fla Stat 186.001-.911) Environmental Land and Water Management Act, 1972 (Fla Stat 380 et seq)
Georgia	Coordinated Planning Legislation, 1989 (OCGA 50-8-1 et seq)
Hawaii	Hawaii State Plan, 1978, Hawaii Department of Planning and Economic Development Adopted by Legislature as Act 100 Hawaiian Land Use Law, 1961 (Haw Rev Stats Chapter 205)
Maine	Comprehensive Planning and Land Use Regulation Act, 1988 (30 MRSA Sec 4960)
Maryland	Economic Growth, Resource Protection, and Planning Act, 1992 (House Bill 1195, Chapter 437 of the Laws of Maryland) Chesapeake Bay Critical Area Law, 1984 (NRA 8-1801-1816)
Massachusetts	Cape Cod Commission Act, 1989 (Chapter 716 of Acts and Resolves) Martha's Vineyard Commission Act, 1974 (Chapter 637 of Acts and Resolves)
New Jersey	State Planning Act, 1985 (NJSA 52:18A-196 et seq) State Pinelands Protection Act, 1979 (NJ Rev State 13-18A)
New York	Adirondack Park Agency Act, 1971 (Article 27, NYS Executive Law, NY Consolidated Laws Service, NY Statutes, Vol 14A)
Oregon	Land Conservation and Development Act, 1973 (SB 100; Oregon Statutes 197)
Rhode Island	Comprehensive Planning and Land Use Regulation Act, 1988 (Chapter 45-22.1 of the Rhode Island General Laws)
Vermont	Amendments to Chapter 117 (Act 280), 1990 Growth Management Act (Act 200), 1988 (24 Vermont Statutes Chapter 117) Environmental Control Act (Act 250), 1970 (10 Vermont Statutes Chapter 151)
Washington	Amendments to the 1990 Growth Management Act, 1991 (ReESHB 1025) Growth Management Act, 1990 (Sub House Bill 2929)

Note: Programs listed above met two selection criteria: (1) they were comprehensive and multifunctional and (2) they were initiated through and in response to state actions. Thus, not included here are numerous state acts focused on single land use-relocated functions and the many state coastal management acts created in response to federal legislation. The California coastal program is included because it was initially adopted prior to and independently of federal action (25).

LAND USE PROBLEMS DRIVING GROWTH MANAGEMENT

Traffic Congestion

Transportation is one of the most critical land use problems facing our nation today. Continued urban growth and automobile use without a corresponding increase in highway transportation facilities have led to unprecedented levels of traffic congestion in many metropolitan areas. As a result, travel delay, air pollution, and the costs of congestion have become leading national concerns.

Development-induced growth in traffic and other types of transportation demand are often central issues in growth management policy development and practice. Because traffic conditions can be quantified to a certain degree, almost all growth management policies include level of service (LOS) traffic standards. The premise of the overall policy is that if the LOS standards can be attained and not exceeded, then the fundamental objectives of the growth management policy will be achieved.

Concurrency mandates of the Florida and Washington state growth management acts, for example, are intended to prevent significant traffic congestion by ensuring that adequate public facilities are provided concurrent with development.

Loss of Agricultural Land

Another land use problem driving growth management is the loss of prime agricultural land to large-scale housing and commercial development. The movement of agricultural operations to less naturally productive areas increases the need for pesticides and fertilizers and poses an unnecessary threat to environmentally sensitive areas.

Many states have adopted growth management legislation on the grounds of protecting agricultural land from development. Oregon, Vermont, and Hawaii were the first states to pass statewide agricultural protection programs that evolved into comprehensive growth management strategies. Oregon's program for protecting agricultural land is particularly strong. It requires cities and towns to set urban growth boundaries beyond which they do not plan to extend. All prime agricultural land outside the boundaries of growth for the city is zoned exclusively for agricultural use. Delaware, Florida, Georgia, Maine, New Jersey, and Rhode Island have followed Oregon's lead (11).

Poor Fiscal Health

In some cities and counties, growth is no longer assumed beneficial to the jurisdiction's fiscal well-being just because it "adds to the tax base." The kind of new development involved (commercial versus residential) and the existing capacities of the local infrastructure determine what fiscal benefits, if any, are produced.

Many local governments are beginning to realize the high cost of growth as they face a backlog of infrastructure needs. For example, New Jersey was experiencing increasing traffic congestion as suburban and rural areas were being developed (26, 11). Needed highway improvements were so far behind demand that the state began losing business development to Pennsylvania and other states. A similar situation was occurring in Florida where local governments were failing to meet the infrastructure needs of a rapidly growing population (26, 27, 11). Florida's growth management act, which requires the provision of adequate infrastructure concurrent with project construction, received support from some developers, because it was in their interest to find a way for government services to be provided in a timely fashion.

Lack of Affordable Housing

Another land use problem driving growth management is the lack of affordable housing. Diminishing federal grants, inflation, and increasing land values have raised the mean sale price for a home beyond the price a typical family can afford to pay. Rising costs burden the financial well-being of an increasing portion of the population, including single-parent families, first-time buyers, the elderly, immigrants, and low- and moderate-income families. A 1990 report on the California family, for example, revealed that many family members are working longer hours or multiple jobs or commuting longer distances to work in order to afford housing (28).

The high cost of housing also poses a serious threat to the nation's continued economic growth. As commuters travel longer distances there is more sprawl, traffic congestion, and air pollution. Furthermore, cities with prosperous economies are losing their ability to attract and retain a strong labor force. The remaining labor force is typically unskilled and without the transportation available to commute to jobs in the suburbs.

New Jersey's growth management legislation was directly stimulated by a ruling by the

state supreme court which required all local governments to provide for their fair share of the low-income housing stock through comprehensive planning (*Southern Burlington County NAACP v. Township of Mt. Laurel*). The court decided "to retain direct jurisdiction over all local planning and zoning regulations until the legislature adopted a statewide planning law that addressed New Jersey's housing needs fairly" (11).

Urban Sprawl

Urban sprawl has been defined as the "scattered, untimely, poorly planned urban development that occurs in urban fringe and rural areas" (29). Although the cost and benefit of urban sprawl remains controversial, many claim that it is an inefficient use of land resources and that it creates a greater dependence on automobile transportation (30).

Urban sprawl is discouraged in a number of states' growth management programs. For example, the Department of Community Affairs (DCA), Florida's state planning agency, has "the authority and the duty to review local plans to determine whether they discourage urban sprawl" (29). Local plans that permit urban sprawl will be inconsistent with explicit requirements to discourage urban sprawl provided in Rule Chapter 9J-5, FAC. Furthermore, the DCA states that "there is a high probability that a plan that fails to discourage urban sprawl also fails to comply with additional key requirements of Florida's growth management laws relating to conservation, land use, internal plan consistency, data-base planning, and efficient provision and use of capital facilities" (29).

Oregon, Washington, New Jersey, and Vermont have also discouraged urban sprawl and explicitly called for compact urban form as a policy goal.

Degradation of the Natural Environment

Environmental damage caused by poor land use location and arrangement is an old and familiar problem. Initially, air and water pollution were most readily identified as the problems which had to be solved. Today, however, a variety of environmental problems common to growth and development have become apparent including erosion, water pollution, water supply depletion, traffic congestion, air pollution, hazardous wastes, and the destruction of wetlands and wildlife habitats.

As a key part in managing growth, many states require that critical areas be classified and designated. These are areas which demonstrate a need for unique treatment and often include wetlands, aquifer recharge areas, fish and wildlife habitat conservation areas, and other environmentally sensitive areas. After classifying and designating these areas, special land use regulations to protect the areas are developed. New Jersey, Georgia, and Florida have legislated provisions for designating and protecting natural resource areas.

IV. GROWTH MANAGEMENT AND THE COMPREHENSIVE PLANNING PROCESS

The Standard Zoning Enabling Act published by the Department of Commerce in 1926 contains a section requiring that zoning regulations be prepared "in accordance with a comprehensive plan." At the time, however, the nature of a comprehensive plan was not clear. Zoning enabling acts drafted by most states contained a similar clause, but most were adopted without any elaboration to their meaning (12, 13). Consequently, zoning ordinances were often adopted and revised without any relation to a comprehensive plan (2, 12). In 1928, the Department of Commerce published another model act, the Standard City Planning Enabling Act, which indicated that a zoning plan should be included as part of a comprehensive plan (2). Although most states subsequently adopted this act in some form, many cities and counties continued to develop zoning ordinances with little relationship to a comprehensive planning process (12).

Since 1970, many state legislatures have begun to emphasize and enforce the old clause "in accordance with the comprehensive plan." In a period of about 20 years, 11 state legislatures have passed growth management laws requiring or encouraging local governments to prepare comprehensive plans and to develop the necessary land use regulations to implement the plans fully. Although these states share in updating the model planning legislation, a comparison of the programs reveals wide diversity in adopted policy and process.

The growth management programs of California, New Jersey, Washington, Florida, Oregon, and Vermont represent the wide range of approaches to providing better coordination between comprehensive planning and land use regulation. These six programs can be grouped into three categories based on the level of direct state involvement in the planning process: mandated planning without state-level enforcement, mandated planning with state-level enforcement, and state regulatory planning.

MANDATED PLANNING WITHOUT STATE-LEVEL ENFORCEMENT

California

California is perhaps the best example of a state that plans through single-purpose laws.

The first single-purpose law, the Coastal Zone Conservation Act, was enacted in 1972 in response to heavy growth pressures along the 1,100 mile coastline which degraded both the natural and visual environment. Since then, at least 10 other laws have been adopted to address specific planning concerns including the California Environmental Quality Act and the Congestion Management Planning Program.

In the late 1970s, the executive director of the California League of Cities said, "There is no interest in statewide land use planning in California. None. None by cities, not by counties, not by the state . . . We've given up on the grand scheme of doing anything statewide. Instead, we concentrate on legislation on specific problems, such as coastal protection, prime agricultural land, and preserving Lake Tahoe" (31). Although California mandates local comprehensive planning, there is still very little state involvement in comprehensive land use planning.

The Planning and Zoning Law

California state law requires that each city and county adopt a comprehensive, long-range general plan "for the physical development of the county or city, and of any land outside its boundaries which . . . bears relation to its planning" (Sec 65300). Seven elements which cities and counties must include in their plans are land use, circulation, housing, conservation, open space, noise, and safety.

California encourages consistency between plans of neighboring cities and counties but does not require it. California requires that any planning agency proposing to adopt or substantially amend a general plan or zoning ordinance file a notice of intent with any abutting city or county prior to final action by the city council (Sec. 65352(a)). A city must refer a proposal to amend or adopt a general plan or zoning ordinance to a county whose planning review would be affected by the action, and a county must do the same for an affected city (Sec. 65919 and 65919.3). The affected jurisdiction(s) may then comment and make recommendations regarding the proposal's consistency with its plans. The city council then has the option of accepting or rejecting the comments and recommendations; it does not have to ensure that consistency exists.

State's Role

The Office of Planning and Research (OPR) was established by the California Legislature to serve as the statewide land use planning agency. The intent was "to have one agency at the state level which is responsible for developing state land use policies, coordinating planning of all state agencies, and assisting and monitoring local and regional planning" (Sec. 65040).

The state legislature directed the OPR to adopt and update guidelines for the preparation and content of local general plans to assist local governments in meeting the comprehensive planning requirements. The guidelines are advisory, not mandatory; and there is no state-level review procedure for local plans.

New Jersey

The forces which shaped many of the nation's growth management policies were also witnessed in New Jersey. Traffic congestion, loss of agricultural lands, polluted streams, loss of wetlands, deteriorating urban centers, fiscal stress, and other impacts of unplanned growth led to a declining quality of life in many parts of the state (NJSPC 1992). Unique to New Jersey, however, are the proactive judicial forces which necessitated state-level legislative action into local growth issues (24, 25, 27). In *Southern Burlington County NAACP v. Township of Mt. Laurel*, the New Jersey Supreme Court ruled that municipalities had an affirmative duty to provide affordable housing opportunities to the poor and to provide a fair share of the regional housing need. This case, along with subsequent rulings (*Uxbridge v. Township of Cherry Hill, Hills Development Co. v. Township of Bernards*), led to the conclusion that state-level guidance of municipalities' land use regulations and zoning were required.

1985 State Planning Act

In 1985, the New Jersey State Legislature passed the State Planning Act which declared:

> New Jersey, the nation's most densely populated state, requires sound and integrated statewide planning with local and regional planning in order to conserve its natural resources, revitalize its urban centers, protect the quality of its environment, and provide needed housing and adequate public services at a reasonable cost while promoting beneficial economic growth, development, and renewal (32).

Cities, counties, and the state are all required to prepare and adopt mutually compatible plans and regulations. The process of plan comparison among the government levels is known as cross-acceptance; counties act as the mediating bodies.

Under the act, cities and counties are required to prepare and adopt comprehensive plans, but they do not have to comply with the state plan. Instead, if a local government chooses, it could propose alternative terms and conditions and seek to reach accommodation with the state through plan cross-acceptance. Thus, compatibility depends solely on the ability of the state and local governments to resolve differences through the cross-acceptance process.

State's Role

The State Planning Act mandates that a State Planning Commission comprised of 17 members be appointed by the governor. The 17 members include state agency heads, local and county government representatives, and members of both political parties. The state agencies represented on the Commission are the Department of Agriculture, the Department of Commerce and Economic Development, the Department of Community Affairs, the Department of Environmental Protection, and the Department of Transportation.

The act also establishes the Office of State Planning to serve as professional staff to the State Planning Commission. A summary of the statutory duties and responsibilities of the State Planning Commission and the Office of State Planning are presented in Table 2.

Table 2
Statutory Duties of State Agencies under New Jersey's State Planning Act

State Planning Commission
■ Establish a statewide planning process; ■ Prepare and periodically update the State Development and Redevelopment Plan; ■ Develop and promote procedures that affect cooperation among state agencies and local governments; ■ Review state and local government planning procedures and relationships and recommend administrative or legislative action to promote a more efficient and effective planning process; ■ Review state and local planning programs and recommend to the governor and legislature any administrative or legislative action that would improve the efficiency or effectiveness of such programs; and ■ Review any legislation appropriating funds for a capital project and make recommendations concerning such legislation.
Office of State Planning
■ Publish an annual report on the status of the State Development and Redevelopment Plan and progress; ■ Provide planning services to other agencies of state government; ■ Provide planning assistance to local units of government; ■ Review the plans of interstate agencies that affect New Jersey; ■ Compile statewide data including forecasts of population, employment, housing, and land needs; and ■ Prepare and submit to the State Planning Commission alternative growth and development strategies in conjunction with the preparation of or update to the State Development and Redevelopment Plan.

Source: State Planning Act of 1985, NJSA 52:18A-196-207

Statewide Development and Redevelopment Plan

The State Planning Commission is charged with establishing a statewide planning process and the State Development and Redevelopment Plan (SDRP). The SDRP is designed to "represent a balance of development and conservation objectives best suited to meet the needs of the State" (NJSA 52:18A-200). The SDRP is a tool which identifies suitable locations for growth, limited growth, agriculture, open space conservation, and other designations deemed necessary by the State Planning Commission. The SDRP also establishes statewide planning policy objectives in the following areas: land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination.

The statewide planning process for preparing, maintaining, and revising the SDRP is known as plan cross-acceptance. Thus, the SDRP is established through the active participation

and cooperation of the local, regional, and state governments. Furthermore, cross-acceptance is a process designed "to elicit the greatest degree of public participation in order to encourage the development of a consensus among the many, sometimes competing, interests in the State" (NJSA 52:18A-202.1d).

Once the SDRP has been adopted through cross-acceptance, state agencies are expected to examine existing programs to identify ways in which the goals and objectives of the SDRP can be achieved. State agencies then take steps to implement programs consistent with the state plan.

Washington

The state of Washington adopted its first comprehensive growth management legislation (House Bill 2929) in March 1990. The bill's passage was in response to mounting citizen protests against congested roadways, economic instability, and urban sprawl resulting in loss of open space and in air, water, and land pollution problems, especially in the Puget Sound region. House Bill 2929 established a mandated planning process in which cities and counties in rapidly growing areas prepare comprehensive and coordinated land use plans. The bill's provisions were updated in 1991 with Revised Engrossed Substitute House Bill (ReESHB) 1025. This latter bill modified House Bill 2929 in only minor ways, added new provisions explaining how the 1990 legislation would be enforced, and defined the state's role in overseeing the new planning strategy.

1990 Growth Management Act (House Bill 2929)

Section 1 of House Bill 2929 sets the premise for Washington's Growth Management Act:

> The legislature finds that uncoordinated and unplanned growth, together with a lack of common goals expressing the public's interest in the conservation and wise use of our lands, pose a threat to the environment, sustainable economic development, and the health, safety, and high quality of life enjoyed by residents of this state. It is in the public interest that citizens, communities, local governments, and the private sector cooperate and coordinate with one another in comprehensive land use planning. . . (WS 1990, HB 2929, Sec. 1)

House Bill 2929 requires the state's fastest growing counties, and cities within those counties, to adopt comprehensive land use plans and development regulations. Counties that have

both a population of 50,000 or more and have had a population increase of more than 10 percent in the previous 10 years, and counties (regardless of their population) that have had a population increase of more than 20 percent in the previous 10 years are required to adopt land use plans and supporting development regulations which work to implement the land use plan (Sec. 4(1)). Counties which do not fall into either of these two categories may choose whether or not to accept the planning requirements of House Bill 2929. Once they have chosen to participate, however, a county may not remove itself from the process. As of January 1992, 16 of Washington's 39 counties were required to plan under House Bill 2929, and eight more chose to participate in the process (24).

Washington urges compatibility between plans of contiguous counties but does not mandate it. Section 10 of House Bill 2929 states, "Each comprehensive plan of each county or city must be coordinated with, and consistent with, the comprehensive plans of other counties or cities with which the county or city has, in part, common borders or related regional interests." To help ensure consistency in plan quality, the Department of Community Development (DCD) offers technical assistance, grants, and mediation services to counties and cities required to plan (Sec. 20).

State's Role

Washington is not required to prepare a state plan. It does, however, authorize the DCD to adopt procedural criteria to assist counties and cities in developing adequate comprehensive plans.

ReESHB 1025 requires counties and cities planning under the act to submit their plans, development regulations, and amendments to the state DCD. The DCD may review and comment on local and county plans but has no authority to declare a plan not in compliance with the law. Instead, ReESHB 1025 requires that state agencies comply with the local comprehensive plans and development regulations.

The authority to review county and city plans for noncompliance with the Growth Management Act was granted to the Growth Management Hearings Board (GMHB). ReESHB 1025 creates three Growth Planning Hearings Boards, one for Eastern Washington, one for Central Puget Sound, and one for Western Washington. The boards each have three members,

one who must be a lawyer and one who must be a former city or county elected official.

The boards hear petitions alleging that (1) a state agency, county, or city is not in compliance with the Growth Management Act or environmental requirements for plans or (2) the Office of Financial Management population projections should be adjusted. Petitions may be filed by the state, city, or county that plans under the act or by a person who has standing. Appeals by the state may be made only by the governor, an agency head with the governor's approval, or the Commissioner of Public Lands on issues relating to state trust funds.

The Growth Planning Hearings Boards have 180 days after being petitioned to issue a final decision. This process established the principle that local plans and development regulations are presumed valid upon adoption by the DCD and that the burden of proof is on the petitioner to prove that the plan or regulation does not meet growth management requirements. The boards consider the criteria adopted by the DCD when judging the validity of the plans and regulations.

ReESHB 1025 establishes a system of sanctions for noncompliance with the Growth Management Act. Sanctions can be imposed only by the governor, based on a finding of noncompliance by a Growth Planning Hearings Board. The sanction for state agencies is a revision of allotments in appropriation levels. Sanctions for local governments include withholding distributions from the motor vehicle fuel tax, transportation improvement account, urban arterial trust account, rural arterial trust account, sales and use tax, liquor profit tax, and liquor excise tax.

Regional Transportation Planning Organizations

House Bill 2929 authorizes local governments within a county or group of counties to create Regional Transportation Planning Organizations (RTPOs). The RTPO is responsible for ensuring that the transportation element of the comprehensive plans for the region's counties and cities conforms to HB 2929 and is also consistent with the Regional Transportation Plan.

The requirements for creating an RTPO are that each RTPO shall (1) encompass at least one complete county, (2) have a population of at least 100,000 or contain a minimum of three counties, and (3) have as members all counties within the region and at least 60 percent of the cities and towns within the region representing a minimum of 75 percent of the cities' and towns' population (Sec. 54). The Washington State Department of Transportation (WSDOT) must verify

that each RTPO conforms to these requirements. In urbanized areas, the RTPO is the same as the MPO designated for federal transportation planning purposes.

The duties of the RTPO are to:

1. Designate a lead planning agency to coordinate preparation of the regional transportation plan. The lead planning agency may be a regional council, a county, city, or town agency, or a WSDOT district;
2. Designate the regional transportation system;
3. Develop a regional transportation plan consistent with county, city, and town comprehensive plans and state transportation plans;
4. Certify that the transportation elements of the comprehensive plans adopted by the region's counties, cities, and towns meet state requirements and are consistent with the regional transportation plan; and
5. Review the regional transportation plan every two years to make sure it is current (Sec. 55).

The elements of the Regional Transportation Plan are goals and policies, regional land use assumptions, identification of needs, financial plan, and system improvements and strategy plan. Goals and policies developed by the RTPO include intergovernmental coordination and regional LOS standards. The RTPO must also establish a process for assuring regional transportation plan implementation and a performance monitoring program to determine how well the plan is being implemented.

House Bill 2929 mandates the creation of a Transportation Policy Board to advise the RTPO on policy decisions (Sec. 56). The Transportation Policy Board provides representatives of major employers within the region, the department of transportation, transit districts, port districts, and member cities, towns, and counties within the region an opportunity to participate in transportation policy making.

Washington's Concurrency Management System

The transportation element of House Bill 2929 requires that each county and city planning under the act incorporate a concurrency management system into their comprehensive plans. The legislation states:

> After adoption of the comprehensive plan . . . local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development . . . 'concurrent with development' shall mean that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six years . . . (WS 1990, HB 2929, Sec. 7(6e)).

Strategies to accommodate the impacts of development may include increased public transportation service, ridesharing programs, demand management, and other transportation system management strategies (Sec. 7(6e)).

LOS criteria will serve as a gauge to judge the transportation system's performance. House Bill 2929 mandates that LOS criteria be established for all arterials and transit routes (Sec. 7(6b)). WSDOT has published a list of assumptions required to develop a system of LOS criteria including:

1. An analysis of present land uses (i.e., various residential densities, commercial, office, warehouse, etc.);
2. An analysis of population, employment, and trips per day generated in each land use area;
3. Ten- to 20-year projections of anticipated growth for each of these areas;
4. A desired location of future land uses; and
5. The location of future transportation facilities that not only relieve current transportation pressures but that also guide the location of future growth and the type of development occurring around the facilities.

Thus, cities and counties must identify funding capacity, transportation backlogs, and future needs on a 10- or 20-year time frame. House Bill 2929 authorizes RTPOs to be responsible for coordinating the plans of all cities and counties in a region and a Transportation Policy Board to support this effort (WS 1990, HB 2929, Sec. 53-60).

MANDATED PLANNING WITH STATE-LEVEL ENFORCEMENT

Florida

Florida's growth management policies originated during the 1970s in response to a rapidly

increasing population and subsequent environment crises, including a severe drought which taxed water supplies in southeast Florida in 1971. One of the primary motivating factors that led Florida to pursue its growth management program in the 1980s was a general public dissatisfaction with the traffic and highway congestion that accompanied the state's surging growth during the 1970s and 1980s (27, 33).

Legislative History

Direct state involvement in land development issues began with the passing of the Environmental Land and Water Act in 1972. The main features of this act and other state initiatives to strengthen planning and to make it more effective are summarized in Table 1.

Table 3
Chronology of Transportation and Growth Management Legislation in Florida

1972	**Environmental Land and Water Management Act (Chapter 380, F.S.)** • Established Areas of Critical State Concern and Development of Regional Impact (DRI) programs. • Gave regional planning agencies an active role in evaluating the regional impact of proposed developments. • Permitted a regional planning agency, DCA, or developer to appeal a local government development order to the Adjudicatory Commission. • Established the Environmental Land Management Study (ELMS) Committee to make recommendations strengthening local government land management processes and to evaluate the effectiveness of regional planning agencies with regard to land and water management. **Florida State Comprehensive Planning Act (Chapter 23, F.S.)** • Created the Division of State Planning in the Department of Administration to oversee the implementation of the DRI and Areas of Critical State Concern programs. • Mandated a state comprehensive plan to provide the framework for planning and policy decisions. **Land Conservation Act (Chapter 250, F.S.)** • Authorized $200 million in bonds to buy environmentally endangered lands. • Complemented the Areas of Critical State Concern program by providing funding for the purchase of public lands. **Florida Water Resources Act (Chapter 373, F.S.)** • Controlled land use and established restrictions near important water sources. • Created five water management districts to be effective as of 1976.
1974	**Environmental Land Management Study Committee (ELMS I)** • Recommended requiring all cities and counties to adopt a comprehensive plan.

1975	**Local Government Comprehensive Planning Act (Chapter 163, F.S.)** • Required local governments to adopt a comprehensive plan containing elements addressing future land use, traffic, sewer, solid waste, drainage, conservation, recreation and open space, housing, intergovernmental relations, power plant sitings, and a coastal zone element for coastal areas. • Mandated consistency of local land use decisions with the adopted comprehensive plans.
1980	**Florida Regional Planning Council (RPC) Act (Chapter 160, F.S.)** • Mandated the creation of RPCs in each comprehensive planning district of the state. Existing RPCs and councils of governments were to be reorganized under these requirements. • Required one-third of the voting members on an RPCs governing board be gubernatorial appointees and not less than two-thirds be elected local officials. • Mandated each RPC to prepare and submit a comprehensive regional policy plan to the legislature.
1984	**Environmental Land Management Study Committee II (ELMS II)** • Strongly recommended an integrated policy framework that ties local, regional, and state plans. • State and Regional Planning Act (Chapter 186) • Required the Office of the Governor to prepare a State Plan for managing growth and present it to the legislature. • Strengthened the mandate for RPCs to prepare Regional Policy Plans and appropriated funding for that purpose. • Required state agencies to prepare functional plans to serve as a basis for budgets. • Gave RPCs a stronger role in assuring local compliance with state and regional policies and to provide technical assistance to local governments.
1985	**State Comprehensive Plan (Chapter 187, F.S.)** • Created state comprehensive plans to serve as policy framework for other state, regional, and local plans. **Revisions to Local Government Comprehensive Planning and Land Development Regulation Act (Chapter 163, F.S.)** • Required all local comprehensive plans be consistent with the State Comprehensive Plan and Comprehensive Regional Policy Plans. • Required public facilities and services needed to support development be available concurrent with the impact of the development.
1988	**State Highway Access Management Act (Section 335.18, F.S.)** • Stated that owners of property abutting a state highway have a right to reasonable, but not unlimited, access. • Established an access control classification system for each segment of the State Highway System.
1991	**Florida Intrastate Highway System Plan** • Delineated a statewide system of limited access facilities that allow high speed and high volume traffic movement.

1992	**Environmental Land Management Study Committee III (ELMS III)** • Put forth 174 recommendations, most of which were incorporated into the Local Government Comprehensive Planning and Land Development House Bill 2315, ELMS III Act. **State Highway Access Management Act, amended (Section 335.18)** • Prohibits delegation of permit authority to local governments. • Prohibits local government from adopting more stringent access management standards for state highways. • Allows property owners to have direct access to state highways unless it interferes with public safety or highway operational capacity.
1993	**Local Government Comprehensive Planning and Land Development (House Bill 2315)** • Requires strategic new growth management section to be added to the State Comprehensive Plan. • Phases out DRI program by 1995 and replaces it with stronger intergovernmental coordination requirements for local comprehensive plans. • Eliminates the authority of RPCs to appeal DRI development orders. • Increases the flexibility of transportation concurrency by providing long-term concurrency management areas, exemptions for redevelopment or infill, a pay-and-go option in lieu of improvements, and areawide level of service standards in activity centers. • Provides local authority to set level of service standards on state roads, except for those designated as part of the Florida Intrastate Highway System. • Eliminates the concurrency exemption previously allowed for state facilities, including the state university system. • Local governments within metropolitan planning organization boundaries must adopt a new transportation element that consolidates all aspects of transportation. • Eliminates the twice yearly limit on amendments to local government comprehensive plans and streamline amendment adoption. • Revises the state comprehensive plan to provide more strategic direction to growth management. • Refocuses the RPC's role as promoting intergovernmental coordination, reviewing and coordinating land use and transportation plans, and mediating disputes between local governments in their area. • Redefines regional policy plans as strategic in nature and must address affordable housing, economic development, emergency preparedness, natural resources, regional transportation, and any other element of regional significance. • Directs FDOT and the Department of Community Affairs to prepare a model Transportation Corridor Protection Ordinance for local governments. **Florida Intermodal Surface Transportation Efficiency Act (FL ISTEA) (CS/SB 1328)** • Implements Federal ISTEA.

The 1975 Local Government Comprehensive Planning Act mandated all local governments to engage in comprehensive land use planning and to join with county and state governments to achieve statewide comprehensive planning (10). The state undermined its credibility in mandating local planning, however, when it failed to carry out commitments to fund plan preparation by

local governments (27). Furthermore, local plans were subject to review and comment, not review and approval, at the state and regional levels. By 1985 all of Florida's 461 local governments had prepared comprehensive plans; but these plans varied greatly in quality, and implementing regulations fell short of their goals.

The 1985 Growth Management Act

During the 1984-1985 legislative session, Florida passed a series of laws which modified three principal state statutes governing planning and growth management in the state. The three revised statutes are the Local Government Comprehensive Planning and Land Development Regulation Act (Chapter 163), the State Comprehensive Plan (Chapter 187), and the State and Regional Planning Act of 1984 (Chapter 186).

Chapter 163 required cities and counties to develop and submit comprehensive plans for regional and state review. Plans must include a capital improvement element, a concurrency management plan, and a coastal management element. Local plans are reviewed for minimum compliance with regional policy plans and with state statutes. The state review is performed by affected state agencies and coordinated by the DCA, which has final administrative approval authority.

Chapter 187 was a "direction-setting document which provides long-range policy guidance for the orderly social, economic, and physical growth of the state" (Sec. 187.101(1) and (2)). It contains a list of 26 goals and supporting policies in the areas of water resources, natural systems and recreational lands, land use, downtown revitalization, public facilities, transportation, agriculture, housing, air quality, energy, hazardous and nonhazardous materials and waste, governmental efficiency, the economy, and employment.

Chapter 186 required that three statewide policy plans (the state water plan, the state land plan, and the state transportation plan) be prepared. The statute also requires the agency to develop functional plans which guide and control the state's budgetary process, ensuring that state expenditures support fulfillment of the goals and objectives of the state comprehensive plan.

Local plans must be approved by the DCA within the time frame established. If local plans do not comply with the state's goals and objectives, penalties may be imposed. The primary penalties are the withholding of state revenue-sharing and infrastructure funds or the

imposition of building permit moratoriums. If local governments agree to correct the inconsistencies within a designated time period, however, the plan can obtain conditional approval. The legislation also contains a broad provision entitling individuals and neighboring local governments to challenge local plans. Once the local plans obtain approval from the state land planning agency, local governments have one year to adopt land development regulations that implement the plans.

Florida's Concurrency Management System

Revisions to the Local Government Comprehensive Planning and Land Development Regulations Act of 1985 (Chapter 163 F.S.) set the premise for Florida's concurrency management system: "It is the intent of the Legislature that public facilities and services needed to support development shall be available concurrent with the impacts of such development" (FS 1985, Ch 163.3177, Sec. 10(h)).

The act required local governments to establish concurrency management systems consisting of policies and procedures for permitting development, establishing adequate LOS standards and adopting a five-year CIP. Local governments must set LOS standards for six kinds of public services: transportation, sewer, solid waste, parks and recreation, and stormwater management. State agency responsibilities for some of these services restrain to some degree local government's ability to set LOS standards. For example, the Florida Department of Transportation (FDOT) sets the LOS standards for all roads on the Florida Intrastate Highway System (FIHS). Local governments set the LOS standards on other state and local roads.

The minimum requirements for establishing concurrency management systems by local governments were outlined in Rule 9J-5.0055(2), Florida's Administrative Code, commonly referred to simply as 9J-5. This rule required local governments to create programs which will ensure that their concurrency management systems monitor development, track capital improvements, and assess capacity on an ongoing basis (34). Rule 9J-5 also establishes three conditions under which local governments can issue development permits to satisfy the concurrency requirements:

1. The necessary facilities are in place or will be in place when the impacts of development occur, or

2. The necessary facilities are under construction when a permit is issued, or

3. The necessary facilities are subject to a binding contract for their construction (34).

In addition to these conditions for meeting the concurrency requirements, 9J-5 proposed that local governments devise and implement concurrency management systems based on a five-year CIP. Such systems must ensure that the necessary facilities to eliminate existing infrastructure deficiencies and accommodate new development will be available within a reasonable period of time. In the absence of such a locally devised system to manage concurrency, development permits may be issued only under one of the conditions listed above (34). Local governments were provided much broader regulatory authority and new tools for managing the rate, timing, and location of growth. The legislature mandated state review of comprehensive plans to assure compliance with the state growth management policy, required consistency between plans and regulatory programs, and adopted a state policy plan to provide the policy context for regional and local planning (Chapter 187, F.S.).

The intent of the Growth Management Act was to encourage sustainable long-term growth. The legislation required local governments to prepare financially feasible plans. Concurrency was introduced, requiring that the necessary facilities and services be in place when the impacts of development occur. Communities were to prevent unnecessary degradation of the environment and to protect essential natural resources, including water, farmland, and wildlife habitat.

The process often became mired in bureaucracy as local governments and the Department of Community Affairs disagreed over terms of quality planning. Smaller communities, limited by inadequate planning budgets and staff found the process unwieldy. Moreover, concurrency, impact fees, and the prospect of growth control over coastal and rural areas caused many to question the requirements of the 1985 legislation. Private property rights interests began to call for language in state planning legislation emphasizing the Fifth Amendment of the U.S. Constitution, which prohibits the taking of private property for public use without just compensation. Chapter 163 was amended to recognize these constitutionally-protected private property rights. The Florida Legal Foundation was established in 1992 to investigate judicial and regulatory proceedings that impinge on the rights of property owners. The 1993 Florida Legislature passed CS/SB 1000, creating a study commission to research the issue of inverse condemnation. This paralleled a national private property rights campaign in 1992 that

introduced private property rights bills in 27 state legislatures. CS/SB 1000 was vetoed by Governor Lawton Chiles over concerns that the study commission, because of its composition and change, would "stack the deck" on the side of private property interests. In its place Governor Chiles issued an executive order creating a 15-member commission with a more balanced composition and charged with addressing government intervention both as to reducing and enhancing property values.

The 1993 Growth Management Amendments

In response to the various pressures evolving from the 1972 Environmental Land and Water Act, as well as other legislation passed in 1975 (Local Government Comprehensive Planning Act), 1980 (Florida Regional Planning Council Act), 1985 (State Comprehensive Plan Act and Revisions to Local Government Comprehensive Planning and Land Development Regulation Act), and 1988 (State Highway Access Management Act), the governor appointed a third Environmental Land Management Study Committee (ELMS III) in 1991. ELMS III addressed several issues including the following: redefinition of the state's growth management framework, concerns over private property rights, concurrency, infrastructure funding, and the relationship between state and local plans. The committee's recommendations resulted in the Local Government Planning and Land Development Act of 1993 which took effect on July 1, 1993. Key elements of the act are identified in Table 1. The features of the act are discussed below.

Vision

Local governments are encouraged to develop a "vision" based on the future appearance and qualities of their community. Local governments are to review comprehensive plans, land development regulations, and the capital improvements programs after their vision has been created to ensure that they will lead the community toward its goals. Neighboring communities -- especially those sharing natural, physical, or economic resources -- are encouraged to participate in creating a "greater-than-local" vision.

State Comprehensive Plan

The State Comprehensive Plan provides direction to all levels of government regarding the orderly social, economic, and physical growth of the state. It also provides for coordinating state agency strategic plans. To determine progress towards attaining state goals, the State Comprehensive Plan is to be evaluated biennially by the Office of the Governor.

The act strengthens the growth management portion of the State Comprehensive Plan by requiring that it establish clear, concise, direct goals, objectives, and policies related to land development, water resources, transportation, and related topics. The plan is to be strategic, rather then comprehensive. The growth management portion of the State Comprehensive Plan shall:

- Identify urban and metropolitan growth centers;
- Identify areas of state and regional environmental significance and establish strategies to protect them;
- Set forth and integrate state policy for growth related to land development, air quality, transportation, and water resources;
- Provide guidelines for where urban growth is appropriate and should be encouraged;
- Provide guidelines for state transportation corridors, public transportation corridors, new interchanges on limited access facilities, and new airports;
- Provide coordinated state planning of road, rail, and waterborne transportation facilities designed to take the needs of agriculture into consideration and to provide for the transportation of agricultural products and suppliers;
- Provide a statewide policy to enhance the multiuse waterfront development of existing deepwater ports, ensuring that priority is given to water-dependent land uses;
- Recommend when and to what degree local plans must be consistent with the growth management portion of the State Comprehensive Plan;
- Recommend how to integrate the state water plan, the state land development plans, and transportation plans required by Chapter 339, F.S., Transportation Finance and Planning; and

- Set recommendations concerning what degree of consistency is appropriate for the strategic regional policy plans.

The Executive Office of the Governor is directed to prepare the growth management portion of the State Comprehensive Plan. The growth management portion is to have legal effect upon adoption by the Legislature and the Legislature is to indicate which plans, activities, and permits must be consistent with the growth management portion of the State Comprehensive Plan.

Areas of Critical State Concern

The act promotes coordination between state, regional, and local agencies in guiding development within an Area of Critical State Concern. The Department of Community Affairs is to recommend actions local government and state and regional agencies must take to carry out principles for guiding development. When designating an Area of Critical State Concern, the Administration Commission is directed to provide a clear statement of the purpose of the designation and to develop a checklist of actions that will result in designation. Broad authority is also granted to all affected state agencies to adopt permitting standards and criteria that further the purpose of the designation.

Regional Planning Councils

RPCs were retained and recognized as a multipurpose regional entity that plans for and coordinates intergovernmental solutions to growth-related problems on greater-than-local issues. The act states that the role of RPCs is regional planning and coordination and that it is not a permitting or quasi-regulatory agency. Additional powers that have been granted to RPCs include:

- Coordinating regional entities in developing the strategic regional policy plan;
- Conducting a cross-acceptance negotiation process intended to resolve inconsistencies with regional and local plans;
- Coordinating land development and transportation to foster regionwide transportation systems; and
- Reviewing plans of transportation authorities and MPOs to identify inconsistencies between those agencies' plans and local government plans.

Local governments may choose regional mitigation relative to planning and growth management disputes. RPCs are required to establish a dispute resolution process that provides for meetings among disputing parties, initiation of voluntary mediation, and initiation of arbitration or administrative or judicial action where appropriate.

Regional Policy Plan

The act renamed the regional policy plan as the "strategic regional policy plan" and specified which areas the plan will address. The plan developed by each RPC must contain regional goals and policies that address affordable housing, economic development, emergency preparedness, natural resources of regional significance, regional transportation, and any other subject relating to the particular needs of a district.

The strategic regional policy plan shall be consistent with the State Comprehensive Plan and each RPC must submit an Evaluation and Appraisal Report (EAR) on its strategic regional policy plan every five years. The act states that the standards included in strategic regional policy plans may be used for planning purposes only and not for permitting or regulatory purposes.

An RPC may not adopt a planning standard that differs materially from a planning standard adopted by rule by state or regional agency when such rule expressly states the planning standard is intended to preempt action by the RPC. Concurrency requirements prohibit an RPC from establishing binding LOS standards for public facilities and services provided or regulated by local governments. Also, inconsistency between a local plan or plan amendment and the strategic policy plan cannot be the sole basis for finding the local plan or amendment not in compliance.

Intergovernmental Coordination

Intergovernmental coordination was strengthened to promote increased cooperation among governmental agencies and address development issues previously covered by the DRI program. Local governments must implement actions necessary to strengthen the intergovernmental coordination element of their comprehensive plan by December 31, 1997. Local governments who exercise their option to retain the DRI program are not required to expand their intergovernmental coordination requirements in their EAR.

New requirements provide for the formation of interlocal agreements between a county, municipalities within that county, the district school board, and service providers to promote joint processes for collaborative planning and decision making. Activities involving cooperation may include location and extension of public facilities subject to concurrency and siting facilities with countywide significance.

Changes to the DRI Program

Broad dissatisfaction with the DRI process and the role of RPCs in DRI review resulted in a decision to phase out the DRI program. In its place, local governments must adopt an intergovernmental coordination element that provides a method of reviewing and approving development with impacts on more than one jurisdictions. The element must be adopted by December 31, 1997. Once adopted, the local government may opt out of the DRI program. Small counties (less than 100,000 people) and cities (2,500 people or less) may opt to retain the DRI program.

The intergovernmental coordination element must establish an alternative process for addressing issues managed through the DRI process. This includes:

- A process to determine if development proposals would have significant impacts on other local governments and on state or regional resources or facilities identified in the state or regional plan;
- A process for mitigating extra-jurisdictional impacts with an option for regional mitigation;
- A dispute resolution process for timely resolutions of disputes pertaining to development proposals that impact adjacent areas;
- A process for modifying development orders that is consistent with the local plan policies and preserves recognized development rights; and
- A procedure to identify and implement joint planning areas -- especially for annexation or joint infrastructure service areas.

In addition, each county, municipalities within that county, school board, and service providers must establish, by interlocal or formal agreement, joint processes for collaborative planning and decision making on the location and extension of public facilities subject to concurrency. A

deepwater port may opt out of the DRI review program if it successfully completes an alternative comprehensive development agreement with a local government.

In the interim -- and for jurisdictions that remain in the program -- the DRI process has been amended. DRI thresholds were revised to reduce barriers to infill, encourage a higher proportion of residential development in mixed use projects, promote compact development, and facilitate hotel and resort projects that will serve existing convention centers. The revised thresholds apply to only urban central business districts and regional activity centers.

Developers are now permitted to initiate a comprehensive plan amendment related to a proposed DRI. Local governments must consider the DRI application and plan amendment at the same public hearing. Thereafter, the appeal process for the DRI must follow Chapter 380, and the compliance process for the plan amendment must follow requirements of Chapter 163. New provisions also specify that if a developer proposes to abandon a DRI and has not developed the site, and will not develop the site after abandonment, then the owner or developer need not contribute any land, funds, or public facilities as a condition of abandonment.

If the local government certifies that a DRI proposal is consistent with the local comprehensive plan, then the developer may qualify for expedited review. This consists of:

- A short application form to be promulgated by DCA by rule;
- A limitation on sufficiency of information requests -- the RPC may request additional information no more than twice, unless the developer waives this limitation (10)(b); and
- A limitation on the time for setting the local public hearing -- no later than 90 days after the RPC issues notice that a public hearing may be set, unless waived by the developer.

Several changes were made to the requirements for regional review. The RPC is to evaluate the application to determine the impact it will have on state or regional resources or facilities identified in applicable state or regional plans and whether it will significantly impact adjacent jurisdictions. At the request of an adjacent local government, the RPC may review and comment upon issues specific to that community. The list of specific issues for regional review was eliminated, except for the requirement that the RPC evaluate whether the project will favorably or adversely affect the ability of people to find adequate housing reasonably accessible to their

place of employment.

RPCs may no longer promulgate rules to guide the DRI review process and instead are subject to rules of the DCA. These will be uniform statewide standards for DRI review and must be promulgated within six months of the effective date of the bill. At the request of the RPC, DCA may adopt by rule different standards for a specific planning district, where the statewide standard is found inadequate to protect or promote the regional interest at issue.

"Substantial deviation" refers to whether a proposed change in a project is so substantial that the project must go through another DRI review. The act prohibits RPCs from appealing a local government's determination regarding substantial deviation, but this right of appeal remains with the DCA. Changes to determination of vested rights clarify that projects demolished and reconstructed within the same approximate footprint of a previously vested project, remain vested-- provided the change does not constitute a substantial deviation under Section 380.06 (19)(b).

DCA retains the right to appeal developments that would have required DRI review, even though the program has been terminated. Developers may request a binding letter of interpretation to determine whether their project may be subject to such an appeal.

Concurrency

The 1993 act specifies which facilities and services are subject to concurrency requirements on a statewide basis. These include road, sewer, solid waste, drainage, potable water, parks and recreational facilities, and mass transit, where applicable. However, local governments now have the option to extend concurrency requirements to include other forms of infrastructure as the growth management system matures.

The Act requires that facilities must be in place no later than the issuance of a certificate of occupancy; certain exceptions are provided for transportation and parks. Parks and recreation facilities to serve new developments must be in place no later than one year after the issuance of a certificate of occupancy. However, prior to the issuance of a certificate of occupancy, land must be dedicated or acquired by the local government or the developer's fair share funds must be committed. State and other public facilities and development are also subject to concurrency. The act states that only governmental entities responsible for providing, financing, operating, or regulating facilities shall establish binding LOS standards for public facilities.

Transportation Concurrency

The act requires that transportation facilities are required to be in place to serve development within three years after issuance of a certificate of occupancy. Local governments are permitted to grant certain exceptions where transportation concurrency may interfere with other goals of local comprehensive plans. Such expectations may be issued for projects that promote public transportation or within an area which the comprehensive plan designates for urban infill development, urban redevelopment, or downtown revitalization.

Local governments can adopt a long-term transportation concurrency management system with a planning period of up to 10 years for significantly backlogged districts. These must be adopted as part of the comprehensive plan. The local plan can adopt interim LOS standards on certain facilities and may rely on the schedule of capital improvements as a basis for issuing development permits. The act allows extension of the long-term concurrency management system to 15 years depending upon:

- The extent of the backlog;
- Whether the backlog is on local or state roads;
- The cost of eliminating the backlog; and
- The local government's tax and other revenue-raising efforts.

Under certain situations, a developer may proceed with development if transportation concurrency requirements are not met. Conditions for the "pay and go" option include: (1) development is consistent with future land use designation; (2) local plan includes a capital improvements element that provides for transportation facilities adequate to serve the proposed development; (3) local government has provided a fair share of the cost assessment to the landowner for transportation facilities; and (4) the landowner has made a binding commitment to the local government to pay his fair share of the cost of providing the transportation facilities to serve the development.

A *de minimis* impact that will not cause significant degradation of the existing LOS on transportation facilities was deemed consistent with concurrency requirements. Local governments are encouraged to allow *de minimis* impacts on transportation facilities for projects that do not degrade the adopted LOS standard more than 3 percent of the maximum volume.

Local government LOS standards for the Intrastate Highway System must be consistent

with FDOT. However, local governments can establish their own LOS standards on all other roads on the State Highway System.

Transportation Concurrency Management Areas (TCMAs) were written into legislation as another flexible application of transportation concurrency for the purpose of promoting urban infill and redevelopment. TCMAs are to be identified in the local comprehensive plan and may only be applied in a "compact geographic area with an existing network of roads where multiple, viable alternative travel paths or modes are available for common trips." Local governments may establish a separate areawide LOS standard within the TCMA based upon an analysis that justifies the LOS standard, how infill or redevelopment will be promoted, and how mobility will be accomplished within the TCMA.

Transportation Element of the Comprehensive Plan

A new transportation element must be adopted by local governments within MPO boundaries. The new element addresses all aspects of transportation including:

- Traffic circulation including major thoroughfares, other routes, and bicycle and pedestrian ways;
- All alternative modes of travel such as public transportation, pedestrian, and bicycle travel;
- Parking facilities;
- Aviation, rail, seaport facilities and services to serve existing land uses;
- The availability of facilities and services to serve existing land uses and the compatibility between future land use and transportation elements;
- The capability to evacuate the coastal population prior to an impending natural disaster;
- Airports, projected airport and aviation development, and land use compatibility around airports; and
- An identification of land use densities, building intensities, and transportation management programs to promote public transportation systems in designated public transportation corridors so as to encourage population densities sufficient to support such systems.

Review of Comprehensive Plan Amendments

Changes to the local plan amendment adoption and review process will allow local governments to amend their comprehensive plans in a more timely manner. Previously, all proposed comprehensive plan amendments automatically underwent review by the DCA, which collected responses form other state agencies. Review of amendments shall be completed by the DCA only if it is requested by the Regional Planning Council, an affected person, or the local government transmitting the plan amendment. However, the DCA may still review any proposed plan amendment regardless of whether a request for review has been made.

When review is requested, the Regional Planning Council's review is limited to effects the amendment will have on regional resources or facilities in the strategic regional policy plan and extra-jurisdictional impacts that would be inconsistent with the comprehensive plan of the affected local government. Inconsistency between a local plan amendment and a strategic regional policy plan may not be the sole basis for the RPC to find the amendment not in compliance.

Evaluation and Appraisal Reports

EARs are required of local governments to monitor the effectiveness of the comprehensive plan in guiding the community toward its goals and objectives. The act states that EARs shall be the principal process for updating local comprehensive plans to reflect changes in state policy on planning and growth management. In addition, EARs must now include:

- The effect changes in state law have upon local government comprehensive plans;
- Actions to be taken with respect to planning issues identified in the report; and
- Proposed plan amendments necessary to carry out issues raised in the report.

Submission of the EAR to the DCA has been extended to no later than seven years after the adoption of the comprehensive plan, with periodic reports every five years thereafter. DCA's review of the EAR will not include a "compliance" decision but will be limited to timely submission and inclusion of the prescribed components. The DCA will adopt rules for review of reports and may delegate review of the report to the respective Regional Planning Council.

When developing an EAR, a municipality with 5,000 residents or less or a county with 50,000 residents or less has the option to focus on selected issues or elements. Municipalities

with 2,500 residents or less must submit an EAR no later than 12 years after the adoption of their comprehensive plan, with periodic reports every 10 years thereafter.

Annexation and Enclaves

Previously, an annexing municipality had to submit a separate vote when annexing any contiguous, compact unincorporated area. The 1993 law states that a vote by the annexing municipality is necessary if the total area annexed exceeds 5 percent of the total land area of the municipality. If the proposed annexed area contains no voters, then the property owner consent is required to proceed with the annexation. Until a comprehensive plan amendment is adopted by the municipality, an annexed area is subject to the county land use plan and county zoning or subdivision regulations.

The Act defines "enclave" as any unincorporated area that is enclosed within or bounded by another municipality and/or a natural or manmade obstacle. Since enclaves can create significant problems in planning, growth management, and service delivery, the legislature declared that it is the policy of the state to eliminate enclaves. The act expedites the annexation of enclaves of 10 acres or less.

University Campus Master Plans

The legislature provides special growth management provisions which recognize the unique relationship between campuses of the State University System and the local governments in which they are located. The Board of Regents is directed to prepare and adopt a campus master plan for each campus of each institution over which it has jurisdiction by July 1, 1995. The campus master plan must contain elements relating to future land use, intergovernmental coordination, capital improvements, recreation and open space, general infrastructure, housing, and conservation. The transportation element must address reasonable transportation demand management techniques to minimize off-site impacts. The plan must not be in conflict with the comprehensive plan of the host or affected local government while remaining consistent with the State Comprehensive Plan. Campus master plans must be updated every 5 years. A State University System Concurrency Trust Fund was established for funding State University System offsite improvements required to meet concurrency standards.

Funding

Effective May 1, 1993, an additional one to five cent local option gas tax may be levied every gallon of motor fuel sold in a county. Such a tax shall be adopted by a majority plus one vote of the governing body of the county or by referendum. The tax must be imposed by July 1 to be effective September of any year. Prior to imposing the tax, the county may establish by interlocal agreement with the municipalities within the county, a formula for dividing the entire proceeds of the tax. If no interlocal agreement is reached, the proceeds of the tax shall be distributed among the county and municipalities based on transportation expenditures of each for the preceding five fiscal years. Local governments must utilize the additional local option gas tax revenue for transportation expenditures needed to meet the capital improvements element of the adopted comprehensive plan.

Oregon

Oregon's growth management initiatives began in 1969 as a response to heavy growth pressures along the coastline and within the Willamette Valley. Rampant development was already taking its toll within the valleys of its southern neighbor, California; Oregonians were determined not to let that happen to the Willamette Valley (26). In 1973, the Oregon Legislature passed the Oregon Land Use Act (Senate Bill 100). It established a statewide planning system which enforced state land use goals and objectives through local comprehensive planning.

Early Legislation

In 1969, the state legislature passed Senate Bill 10. This bill was designed to preserve agricultural land across the state with particular focus on the Willamette Valley. Senate Bill 10 required each city and county to prepare a zoning ordinance to control land use within their jurisdiction and to base such zoning on a comprehensive plan. If any city or county failed to develop a comprehensive plan and associated zoning ordinance by the end of 1971, the governor could step in and develop the plans for them.

Senate Bill 10 was considered a good beginning, but it was criticized as being weak in implementation (10, 26). The legislation provided no standard for evaluating the quality of the comprehensive plan nor did it provide for coordination between adjoining cities and counties (10,

26). More importantly, however, Senate Bill 10 failed to provide the funding by which the planning could be accomplished (10).

1973 Land Use Act (Senate Bill 100)

In 1973, Senate Bill 100 was passed to rectify the weaknesses of Senate Bill 10. With this new law, the state required all cities and counties to adopt comprehensive plans and land use regulations in accordance with statewide goals and objectives. Each city, county, or regional council must submit its plan for state-level review. One or more state agencies review the plans, and state-level commissions have the authority to approve or disapprove these documents.

State's Role

Senate Bill 100 established the Land Conservation and Development Commission to review and approve or disapprove local comprehensive plans. Members of the seven-person commission are appointed by the governor and confirmed by the senate. The bill also established the Department of Land Conservation and Development (DLCD) to provide technical expertise to the commission. When local comprehensive plans are submitted for compliance with the statewide planning goals (a process known as acknowledgement), the DLCD reviews the plans and submits recommendations to the LCDC which then holds a public hearing and renders a decision.

The 19 statewide planning goals enumerated in Senate Bill 100 can be divided into four categories (LCDC 1990). The first category, addressing the planning process directly, contains Goal 1 (Citizen Involvement) and Goal 2 (Land Use Planning). The second category deals with conservation issues and contains policies on agricultural lands, forest lands, open space, and natural resources. The third group deals with development and contains goals on housing, transportation, public facilities and services, urbanization, and the economy. The fourth set of goals addresses Oregon's coastal resources. An exclusive goal is also provided for protecting the Willamette River Greenway.

Each of the 19 goals is divided into two sections, Goals and Guidelines. Conformance with the state goals is mandatory while the guidelines are suggested, not required, courses of action local governments may take to meet the goals of the law.

The LCDC has three measures to ensure that local governments comply with state planning requirements. The first is the withholding of state revenue funds which begins immediately after the deadline for compliance. The second is the imposition of a building moratorium limiting some or most forms of development. The third measure is the issuance of a court order to compel local governments to comply with the law. Each of these measures has been used by the LCDC to force cities and counties to comply with state planning requirements (LCDC 1986).

STATE REGULATORY PLANNING

Vermont

Vermont's first attempt to manage growth occurred in 1970 when the state legislature passed the Environmental Control Act of 1970 (Act 250). Support for Act 250 stemmed from Vermonters' fear that increasing tourism and second-home development spurred by completion of the interstate highway system would destroy the state's great environmental beauty and rural way of living (10, 26, 27). Act 250 established a regulatory system administered by the state which essentially bypassed town and municipal governments. The law also called for the preparation and adoption of a state comprehensive land use plan which failed to pass through the state legislature in 1974, 1975, and 1976. Ultimately, in 1977, the effort to adopt a statewide land use plan was abandoned.

The development boom of the 1980s and the absence of any integrated comprehensive planning process led to the enactment of Act 200 in 1988. This law established a process for intergovernmental comprehensive planning and provided a means for local governments to increase their regulatory authority.

Early Legislation

Act 250, passed in 1970, consisted of two components administered at the state-level: development permitting and comprehensive planning. Development permitting was conducted by three-member district boards comprised of local residents appointed by the governor and administered at the state-level by a nine-member Environmental Board created under the Agency for Environmental Conservation. Projects above a certain size, considered to have regional

significance, are reviewed against a backdrop of environmental criteria such as water and air pollution, transportation, education, scenic and natural resources, the ability of the local government to provide public services, conformity with statewide plans, and conformance with adopted local or regional plans.

The second component of Act 250 required comprehensive planning at the state-level. Although the state enabling legislation at the time authorized full planning, zoning, and subdivision control by municipalities, only about 40 percent of the municipalities were zoned by 1975 with an even smaller percentage of the zoning ordinances based on a comprehensive plan (10). Because of this limited experience on the part of local governments, comprehensive planning was put in the hands of the state.

The following are principal elements of the planning process created by Act 250:

Phase 1. Conduct an inventory of present land use and capability for land development;

Phase 2. Establish a land capability and development plan to provide the planning principles to guide economic development and define protection of natural resources, transportation needs, and energy conservation in the state; and

Phase 3. Provide for a statewide land use plan which would designate areas for conservation, agriculture, development, and other land uses (10).

Phase 2 was completed in 1973 and provides the guidelines for regulating development. Phase 3, adoption of a state land use plan, has never been realized in Vermont. A state plan was brought before the legislature in 1974 and 1975; however, it was defeated both times. A state plan for Vermont has failed to be adopted because of the controversy over whether the plan does or does not require state-level zoning administration (26).

When the building boom of the 1980s arrived in Vermont, the limitations of Act 250 became apparent. Act 250 provided a regulatory system for reviewing large scale development but failed to provide comprehensive planning across the state. Planners found that they had no means to effectively manage the cumulative effects of development. It was at that time that the seeds for reforming the 1970 Environmental Control Act were sown.

Growth Management Act of 1988

In 1988, the governor of Vermont signed the Growth Management Act (Act 200) into law.

A Citizens Guide to Act 200 introduces the system: Act 200 "significantly strengthens the process of integrating plans at the local, regional, and state agency levels. It also increases the resources available to towns and regions for planning and provides substantial and sustained funding for the Housing and Conservation Trust Fund (to protect open land, valuable resource areas, and affordable housing). The Act authorizes communities to assess 'impact fees' and establishes two programs to help Vermont farmers stay in business."

The planning process is guided by 32 planning principles reduced to 12 planning goals determined by the state. These goals must be followed by state agencies, regional planning commissions, and towns in developing comprehensive plans.

Act 200 does not require cities or towns to prepare local plans. It does, however, offer incentives such as planning grants, technical assistance, and increased regulatory authority to encourage local governments to participate.

Increased regulatory authority is a big incentive for local governments wishing to retain much of their home rule authority. Once approved or confirmed, a town's plan would gain official status in the development review procedures established by Act 250 (i.e., a proposed project would be reviewed for consistency with the local plan). Another incentive is the authority to levy impact fees which is granted only to those cities or towns with an approved and adopted plan. Finally, the act would require state agency plans to be compatible only with approved local plans.

Act 200 requires that local governments submit plans to the representative RPC for review and approval. In order to be confirmed, local plans must be consistent with the 12 state planning goals. Act 200 defines the term "consistent with" to mean "substantial progress towards attainment of the goals" (Sec. 4302 (f)).

In addition, the law requires that local plans be compatible with the plans of their regions and of neighboring towns. The definition of "compatible with" was that the town's plan "would not significantly reduce the desired effect of the implementation of the other plan" (Sec. 4302 (f)). Finally, Act 200 mandates that RPCs prepare and adopt regional plans consistent with the 12 planning goals and compatible with approved town and adjoining regional plans.

State's Role

Act 200 requires state agencies (such as the Agency of Transportation and the Agency of Natural Resources) that make decisions affecting land use to adopt plans and take actions consistent with the state planning goals and plans developed by RPCs, municipalities, and other state agencies. *A Citizen's Guide to Act 200* explains, ". . . if the Agency of Transportation plans to re-route part of a highway through Washington County, it must ensure that the project is consistent with the central Vermont regional plan as well as the plans of the towns along the route."

Act 200 requires state agencies to submit their plans to the Council of Regional Commissions for review and approval. The council is comprised of one representative from each RPC, three state agency heads, and two public members appointed by the governor. Other duties of the regional council are reviewing regional plans and plan amendments according to the consistency and compatibility criteria and acting as an impartial mediator in disputes between or among municipalities, RPCs, or state agencies.

V. IMPLEMENTING TRANSPORTATION AND LAND USE STRATEGIES: TOOLS FOR MANAGING GROWTH

ZONING

Zoning has been defined as ". . . the division of a jurisdiction into districts (zones) within which permissible uses are prescribed and restrictions on building height, bulk, layout, and other requirements are defined" (35).

Police power is the legal source from which a jurisdiction may enact zoning ordinances to protect and preserve the community. States may choose to delegate police power to cities, counties, townships, and other jurisdictions through enabling legislation.

Zoning is different from planning; zoning is a means of accomplishing the aims and objectives of planning. Planning, in the broad sense, considers the development of an overall program for the future physical development of a jurisdiction. Therefore, planning is more comprehensive than just a suggested pattern of land use. It may involve considering all public improvements and services that develop a community. But because planning involves only proposals for future action, it does not, without further implementation, impose any immediate restrictions or regulations.

Zoning, on the other hand, is the result of planning. Zoning is the implementing arm of the land use plan section of the comprehensive plan. Zoning involves two elements, the official zoning map showing the zoning of each parcel of land within the jurisdiction and a written ordinance establishing rules and regulations pertaining to the land uses. Generally, five aspects of property are regulated in the basic zoning ordinance:

1. Land use type (i.e., residential, commercial, industrial);
2. Minimum size of a land parcel, including the width and depth of the lot;
3. Minimum size of front, side, and rear yards;
4. Maximum building coverage of the site; and
5. Maximum height of buildings on the site (36).

In his book, *Highway Transportation Criteria in Zoning Law*, William Stanhagen wrote, "If the zoning ordinance is a tool used to carry out a land use plan, then the zoning authorities must be concerned with traffic, because one of the basic objectives of the zoning ordinance and

the land-use plan is to prevent the creation of traffic and parking problems" (13). Zoning controls can work directly to support transportation objectives by recognizing the relationship between the function and operation of a land use with those of an arterial street system. Thus, by establishing rules and criteria for land use type, development density, and lot size with transportation needs in mind, zoning can help achieve a desirable balance between the land use and transportation sections of the comprehensive plan.

Zoning is often used as a mechanism for managing transportation demand through the trip generating characteristics of different land use types, development sizes, and development densities. A variety of policies has been developed by local governments which use zoning regulations to better equate land use with transportation service. Four of these policies are (1) focusing development where transportation capacity is available, (2) increasing development densities to foster transit ridership, (3) restricting uses that generate large numbers of peak-period automobile trips, and (4) reducing the total amount of development permitted to reduce the number of trips generated (14).

Other proposals on how to use zoning to meet transportation needs include coordinating setback requirements with arterial planning; controlling the location, design and use of curbcuts; and providing for an effective parking program.

Inadequate setback requirements are typically the result of a failure to coordinate zoning and the arterial street plan. With effective coordination, setback requirements can aid in meeting traffic needs by providing space for adequate driveway throat length and site circulation design. Also, establishing adequate setbacks on corner lots can maintain sight distances and otherwise limit the creation of hazardous conditions (13).

Uncontrolled location and driveway design creates much of the confusion and congestion on the urban arterial. Zoning can supplement an access management program by (1) providing appropriate setback requirements for adequate access design and capacity, (2) establishing adequate lot widths to allow for safe and efficient driveway spacing, and (3) encouraging interparcel access and other methods of shared parking to minimize the number of access points required.

Providing an effective parking program is also a method of achieving greater utility of existing streets. Off-street parking requirements are included in zoning controls because of their

close relationship to land use and intensity of development, both of which zoning was designed to regulate.

CORRIDOR OVERLAY ZONES

Overlay zones are a growing method for managing access along commercial corridors. The technique is used to overlay a special set of requirements onto an existing zoning district while retaining the underlying zoning and its associated requirements. Text that specifies standards for the access management overlay district is included in the land development (or zoning) code with corridors designated on the zoning map. Overlay requirements may address any issues of concern, such as joint access, parking lot cross access, outparcels, reverse frontage, driveway spacing, limitations on new driveways, roadway design specifications, and so on.

Sample regulations for the Grand Traverse Bay Region in Michigan apply to the area 300 feet on either side of the designated corridor, establish minimum lot frontage of 400 feet, and permit only one access per 400-foot lot. Service drive provisions freeze the number of driveways on a designated corridor to one per existing parcel having a single tax code number at the date of the amendment. When subsequently divided, all parcels must provide access via subdivision roads, other private or public roads, or by service drives in conformance with specified design requirements. Commercial driveway location and spacing standards are provided for regional arterials and other types of roads. Parcels with less than 100 feet of frontage may be permitted a driveway, but in certain cases a shared driveway or alternative means of access may be required. Requirements for minimum intersection or corner sight distance are tied to AASHTO guidelines, and somewhat lower standards tied to the posted speed limit are provided for special circumstances such as inadequate frontage.

RETROFITTING NONCONFORMING PROPERTIES

Zoning requirements are not retroactive. Properties that predate adoption of zoning requirements and do not meet those requirements must be designated as nonconforming. This process is commonly known as "grandfathering." Nonconformities may relate to land use or dimensional requirements, as in a nonconforming lot of record. Nonconforming properties may continue in the same manner as they existed before land development regulations were adopted.

These requirements protect the substantial investment of property owners and recognize the expense of bringing those properties into conformance.

Yet the negative impacts of nonconforming properties may be substantial. Nonconforming properties may pose significant safety hazards, increase traffic congestion, reduce property values, degrade the environment, or undermine community character. To address the public interest in these matters, land development regulations include conditions or circumstances where nonconforming properties may be brought into conformance. The City of Orlando, for example, requires nonconforming access features to be brought into compliance with access management standards under the following conditions:

- When new driveway permits are needed
- Changes to existing use that increase land use intensity
- Substantial enlargements or improvements
- Significant change in trip generation (per FDOT standards)
- As changes to roadway design allow

Opportunities to bring nonconforming features into compliance typically occur when a change of ownership has taken place for a business acquisition or move. Thus, the costs of required improvements may be included in the mortgage or business loan, allowing the property owner to amortize them over time, thereby reducing the financial burden.

SUBDIVISION REGULATIONS

Subdivision regulations ensure proper layout of streets in relation to existing or planned streets; adequate space for utilities, emergency access, recreation, light, air, privacy, and public safety; and adequate water, drainage, and sanitary sewer facilities. They facilitate capital improvement planning. The subdivision ordinance establishes:

- The administrative review and evaluation procedure for processing conceptual, preliminary, and final plats;
- What must be included on the plat;
- Design principles and standards for lots, blocks, streets, public places, pedestrian ways and utilities;
- Required improvements, including streets, sidewalks, water and sewer facilities,

and curbs and gutters; and

- Financing and maintenance responsibilities.

Subdivision regulations also include general provisions such as definitions, variances, fees, enforcement and penalties, and so on. A good subdivision control ordinance includes many illustrations of design principles and standards for clarity and ease in application.

Jurisdictions commonly require submission of preliminary plats prior to review of final plats. A few jurisdictions require submission of a conceptual plat which is even more general than a preliminary plat application. The advantage of this technique is that it allows planning and engineering staff to advise the developer on design and local standards before he or she has invested in a surveyor or engineer to draft the plat.

One of the key access considerations when reviewing subdivisions is the access system for lots abutting an arterial. These lots should be provided access from a local road. Many jurisdictions require that when a new subdivision is created, lots abutting an arterial are prohibited from having direct access to that arterial. Instead, access to these lots must be from an interior local street or frontage street. Access rights of these lots to the arterial must be dedicated to the local jurisdiction and run with the land.

Lots, or lots that abut two streets, should be required to obtain access on the street with the lower functional classification. When a residential subdivision is proposed that would abut an arterial, lots should be permitted access only via a local street. In either case, the community could require that access rights to the arterial or collector be dedicated to the local government and this restriction recorded with the deed.

Limiting New Driveways along Major Roads through Subdivision Controls

An effective method of managing curb cuts in newly emerging commercial corridors is to restrict the number of future driveways to one driveway as-of-right per existing lot or parcel. This may be accomplished as follows:

1) Identify and map the emerging corridor. These are typically on the urban fringe and may already be zoned commercial, but may also be zoned agricultural or residential;

2) Verify the location of all existing lots and parcel boundaries within the corridor;

and

3) Assign one driveway to each of these mapped parcels, effective upon adoption of the ordinance and map. Parcels with large frontages could be permitted more than one driveway and additional driveways could be permitted to a property owner under special conditions.

Under this approach, future division and subdivision of parcels could occur, but each newly created lot would obtain access via the connection permitted by the ordinance. Because of this constraint, property owners would be obligated to share driveways and use service drives, cross access, and even rear access drives in some instances to maintain appropriate access. Limitations on new driveways may be established using a corridor overlay approach.

Outparcel Requirements

Outparcels are those lots on the perimeter of a larger parcel that abut a roadway. Outparcel regulations are adopted for commercial corridors to foster coordinated on-site circulation systems that serve outparcels as well as interior development, thereby reducing the need for driveways on an arterial. Outparcel regulations may include standards governing the number of outparcels; minimum lot frontage; access, parking and circulation; landscaping and pedestrian amenities; building height, coverage, and setback requirements; and signage.

The number of outparcels might be limited to one per 10 acres of site area within a minimum frontage requirement of 500 lineal feet per outparcel. Each parcel must provide all required parking on site and conform to all landscaping and setback requirements of that zoning district.

Access to an outparcel should be as direct as possible avoiding excessive movement across parking aisles and queuing across surrounding parking and driving aisles. All access to the outparcel should be internalized utilizing the main access drive of the principal retail center. In no instance should the circulation and access of the principal commercial facility and its parking and service be impaired by the site circulation and access of the outparcel.

Joint Access

Joint access requirements provide for a unified circulation plan and adequate driveway

spacing along developing commercial corridors. There are programs for minimizing driveways and curb cuts through the use of joint access and parking lot cross access requirements. If properties are unable to meet driveway spacing requirements of the Access Management Classification System, the Public Works Director may waive the requirements. The waiver is based on the condition that joint use driveways and cross access easements must be established wherever feasible and the building site shall incorporate a unified access and circulation system. The property owner must enter an agreement to dedicate remaining access rights along the thoroughfare to the City and at his own expense enter an agreement to be recorded with the deed that pre-existing driveways will be closed and eliminated after construction of the joint-use driveway.

The city designates "cross access corridors" on properties adjacent to thoroughfares as follows: "Cross access corridors shall be designated to provide unified access and circulation among parcels on each block of the thoroughfare, to assist in local traffic movement. Each corridor should be designed to include the following elements:

- A continuous linear travel corridor extending the entire length of each block which it serves, or at least 1,000 feet of linear frontage along the thoroughfare, and having a design speed of 10 mph. Final design of the facility shall be approved by the Public Works Director.
- Sufficient width to accommodate two-way travel aisles designed to accommodate automobiles, service vehicles, and loading vehicles in accordance with (design) requirements;
- Stub-outs and other design features which made it visually obvious that the abutting properties may be tied in to provide cross-access; and
- Linkage to other cross-access corridors in the area."

All plats, site plans, and other development must meet these standards in designated cross-access corridors and property owners must record an easement with the deed allowing cross access to and from the other properties in that affected area. Cross-access corridors are indicated on the zoning map by dashed or dotted lines and distinguish portions of the corridor where easements have been recorded. This essentially serves as a cross-access corridor overlay zone.

Standards are included for coordinated or joint parking design and joint maintenance

responsibility (also recorded with the deed). The same standards are applied to phase development in the same ownership and leasing situations. Where abutting properties are in different ownership, cooperation is encouraged but not required. Only the building site under consideration is subject to the requirements which are recorded as a Binding Lot Agreement prior to issuing a building permit. As abutting properties are developed (or as retrofitting requirements are initiated) they must abide by the standards. Where unified access and circulation is not practical, the city may provide a variance.

PERFORMANCE STANDARDS

In response to rapid growth, many state and local governments have sought to reconcile the competing interests of growth and environmental protection by developing regulatory schemes which attempt to control the rate of growth and allow development to proceed in an orderly manner. The first public facilities ordinance designed to keep pace with the rate of development was adopted in the 1960s in Ramapo, New York, located within commuting distance of New York City. After a comprehensive plan was prepared, an 18-year CIP was established (involving three 6-year capital programs) setting out a schedule for constructing municipal infrastructure facilities. No residential development was then permitted in the town unless the developer could show that certain capital improvements, whether constructed by the town or by the developer, would be available by the time the proposed project was completed. This program of providing for phased growth was challenged in the courts in *Golden v. Planning Board of Town of Ramapo* and was upheld by New York State's highest court in 1972 (19).

Since 1972, almost all growth management policies have included an adequate public facilities ordinance similar to the one enacted by *Ramapo* (15). The term recently used to describe this concept is concurrency, a word which has its origins in Chapter 163 of Florida's 1985 Growth Management Act which states, "It is the intent of the Legislature that public facilities and services needed to support development shall be available *concurrent* with the impacts of such development . . ." (FS 1985, Ch 163.3177, Sec. 10(h)).

Level of Service Standards

The principal means of implementing an adequate public facilities ordinance or a

concurrency doctrine is the requirement that jurisdictions set LOS standards for a wide range of public facilities and services. The premise of the overall policy is that if the LOS standards can be attained and not exceeded, then the fundamental objectives of the growth management policy will be achieved. To date, Florida is the only state which mandates concurrency on a statewide basis; it requires LOS standards for roads, sanitary sewers, drainage, potable water, solid waste, parks and recreation, and public transit (in large cities and counties only) (33). Washington has a concurrency doctrine applicable only to arterials and transit routes in the state's fastest growing areas (WS 1990, HB 2929, Sec. 7(6b)).

Concurrency prohibits approval of a development which will cause the LOS of a transportation facility to drop below the established standards. If strategies are established to accommodate those impacts concurrent with development construction, approval is possible. For example, the state of Washington mandates regionally coordinated LOS and allows increased public transportation service, ridesharing programs, demand management, and other transportation system management strategies to serve as mitigation for development (WS 1990, HB 2929, Sec. 7(6e)). These provisions, to a large extent, are designed to promote the state's compact urban development policy. By offering some flexibility in the state's concurrency management program, denser development patterns are permitted in areas designated to encourage growth. Washington's system also allows development approval if a financial commitment is in place to complete the mitigation within six years (WS 1990, HB 2929, Sec. 7(6e)). Therefore, in some jurisdictions, the fact that the LOS standard is exceeded does not, in itself, necessarily mean that a proposed project is denied.

The rocky implementation record of Florida's concurrency program emphasized the need to incorporate flexibility into the Washington concurrency management system. Flexibility allows the two goals of maintaining adequate LOS standards and encouraging compact urban development to balance. Florida's program, enacted six years earlier, denies development unless adequate public facilities are in place when the impacts of development occur or are specifically programmed into the five-year CIP. In Florida, the FDOT sets the LOS standards for all roads on the FIHS; local governments set the LOS standards on other roadways. For all state roads, these early LOS standards were set at the same level, whether or not they were located in urban or rural areas. Because these roads were the major arterials in most cities and counties, and often

fell below the state standards, a widespread moratorium was created prohibiting development in most urban areas and exacerbating the problems of urban sprawl (27, 37).

The DCA and FDOT provided flexibility in transportation concurrency by allowing local governments to establish transportation concurrency management areas (TCMAs). The TCMA rule allows local governments to use a facility system approach to determine transportation concurrency rather than a link-by-link, segmental approach (34). This rule allows local governments to establish one areawide LOS for the entire system for the purpose of issuing development orders and permits as long as the LOS standard for the system is maintained (27, 37). For example, in Lee County the comprehensive plan provides for a districtwide measurement LOS standard. The decision for development approval is based on a comparison of the district's total roadway capacity to its total vehicular volume in the peak hour. If the aggregated capacity is greater than the volume, development can be approved (38). The trade-off for allowing more traffic congestion in such areas is that improved public transportation and traffic management practices must also be implemented (27).

A concurrency requirement does not automatically imply that the developer must pay for required improvements, only that the improvements must be made. Funding for needed facilities is a related but separate issue. Funding for mitigation may be provided by local governments if the improvements are included in the list of projects programmed in the CIP to eliminate existing deficiencies. Impact fees may also be part of a concurrency regulation if they are linked to development impacts and are determined in such a way as to guarantee adequate facility funding. However, even when impact fee systems are not in place, if funding for required improvements is not available, developers often volunteer to pay for improvements, including correcting an existing deficiency to obtain development approval (39).

A concurrency doctrine related to established standards is a relatively easy concept to understand and, on its face, seems to be a good solution to many growth-related problems, such as traffic congestion. This simple concept, coupled with the prospect of providing new public services without necessarily raising taxes, has made it a popular doctrine with the general public (39). However, limitations inherent in transportation planning procedures become evident, and often controversial, when administering concurrency programs. Some of these problems center around the forecast accuracy of transportation planning techniques for determining existing and

future traffic conditions including:

- Accuracy of base condition turning movement counts, intersection geometry, and signal descriptions (15);
- Accuracy of capacity calculations; either overstating or understating available capacity is possible (39);
- Accuracy of demand estimations; much of concurrency theory assumes that new demand comes from new development when, in fact, demand from existing development usually increases over time (39);
- Accuracy of planned transportation improvement descriptions (15);
- Accuracy of trip rates and traffic distribution characteristics and for estimating pass-by and multiple destination trips (15); and
- Accuracy of trip assignments (15).

Traffic studies assign traffic to the street system either by a least-travel-time modeling approach or by a manual approach. For example, Broward County, Florida, uses the Traffic Impact Planning System (TRIPS) to administer its concurrency management system. TRIPS is a computer-based system that accumulates trips that will be generated from approved plats to monitor the impacts of planned development on roadways (34). The resulting LOS on the roadways provides the basis for approval, denial, or approval with conditions of the proposed development projects.

The question has been raised as to whether a concurrency management system with rigid LOS thresholds is an appropriate tool for managing growth (15, 16). For example, LOS C thresholds would be met by an intersection with a 0.80 volume-to-capacity (V/C) ratio but not by an intersection with a 0.81 V/C ratio. The argument is not that accurate traffic forecasting is impossible but rather that forecast accuracy levels of 0.01 are not realistic and should not be misapplied for rigid legal definitions (15). Using a range of V/C ratios rather than employing a single V/C value as a traffic standard has been suggested to offset the variability of planning factors, such as those listed above, and also to make a concurrency system more equitable for the development community (15, 16).

Although LOS may be a good measure for determining the impacts of individual development projects, it may not be an appropriate measure for determining the cumulative

impacts of development and, therefore, for monitoring the implementation of a concurrency management system. A recent state-of-the-practice review revealed that a growing consensus among transportation professionals that LOS is not an adequate measure of areawide congestion despite its widespread acceptance by various state legislatures, municipalities, and traffic operators engineers. The overriding reason is that LOS is a point measurement and, therefore is, difficult to apply systemwide (40).

CONGESTION MANAGEMENT SYSTEMS

Concerns over traffic congestion and other infrastructure issues were factors in the passage of such legislation as Washington State's Growth Management Act and state planning legislation such as Florida and Oregon. Traffic congestion is also specifically addressed by California's Congestion Management Legislation and the CMS mandated by the ISTEA.

California's Congestion Management Program

The Congestion Management Planning Program is an effort to improve the relationship between land use, transportation, and air quality (Sec. 65088). A CMP is a countywide program to address traffic congestion problems in a coordinated and cooperative manner.

The law provides that each county containing an urbanized area as defined by the U.S. Bureau of the Census (currently 31 counties) must establish a congestion management agency (CMA) for preparing and adopting a CMP and monitoring local agency conformance with the CMP. The CMA may be either the County Congestion Management Agency created for this purpose or another public agency, as chosen by resolution of the county population. The CMP must contain the following five components:

1. An element defining the CMP transportation system and LOS standards for the highway portion of the system;
2. A transit standards element;
3. A travel demand management and trip reduction element;
4. A program for analyzing the impact of land use decisions; and
5. A CIP (Sec. 65089(b)).

The CMP transportation system must include, at minimum, all freeways, state highways,

and principal arterial roads. However, the legislature does not define a principal arterial; thus the determination as to what roads are principal arterials is left to each CMA. The purposes of the CMP are to establish programs for mitigating the traffic impacts of new development and to monitor the performance of system roads to ensure that established LOS standards are met (Sec. 65089(b)).

Upon completion, each CMP must be submitted to the Regional Transportation Agency for review of the consistency between the CMP and the Regional Transportation Plan (RTP). Those projects in the CMP which are consistent with the RTP shall be included in the regional transportation improvement program (Sec. 65089.2).

If a municipality or the county approves a development which results in the LOS on a roadway dropping below the CMP's acceptable level, the CMA must inform the state controller. The state controller is then required to withhold the local government's share of the state transportation funds (Sec. 65089.4).

During the CMP preparation, the CMA must consult with regional transportation providers, the regional transportation agency, local governments, Caltrans, and the air pollution control district/air quality management district. Once adopted, the CMP must be updated every two years (Sec. 65089); data collection and monitoring, however, must be conducted annually.

CMPs can influence the policies of land use and circulation elements. Transit standards, travel demand management measures, and LOS standards are of common interest to both the CMP and the local general plan. However, it is not required that the CMP be incorporated into or be consistent with local general plans, but state transportation funds will be lost if the LOS on any segment of the designated congestion network drops below the adopted LOS standards. OPR advises that cities and counties address the goals, policies, and programs of the CMP to the extent practical in their general plans' land use and circulation elements.

FEDERAL REQUIREMENTS

ISTEA required the Secretary of Transportation to issue regulations for statewide and metropolitan planning and rules relative to the six management systems and the traffic monitoring program required by ISTEA.

A CMS is one of the six required management systems which each state is required to

develop, establish, and implement. The interim final rules covering the CMS require that consideration be given to strategies that reduce single occupant vehicle travel.

Where the addition of general purpose lanes are determined to be appropriate, the rules require that features be incorporated which will maintain the functional integrity of the lanes. This means access management, which is listed as a specific CMS strategy.

A CMS can be viewed as a monitoring, forecasting, and analysis process which identifies alternative strategies, assesses the potential effectiveness, and develops a program to be implemented. Such a process is a proactive approach to maintain or improve mobility and air quality through an action plan to relieve existing and anticipated future traffic congestion. Thus, CMS is the continuous activity of considering and implementing actions that enhance mobility and reduce congestion on designated roadways or in targeted areas.

Congestion management should be viewed in the context of the overall planning process. For example, the CMS should relate the goals and objectives of the regional metropolitan transportation plan recommendations and policies. This leads to development of local and regional (MPO) TIPs. Also, the statewide CMS will help identify strategies for incorporation into the State Transportation Improvement Program (STIP).

A CMS should support the development and implementation of transportation system management (TSM) and transportation demand management (TDM) programs and policies through an assessment of the potential effectiveness of TSM and TDM. A CMS should also support the air quality goals of the community through the implementation of policies, programs, and transportation system improvements that maintain or improve air quality.

At a minimum, an effective CMS should contain the following six elements (40):

- Identification of targeted roadways to be included in the planning effort
- Identification of system performance measures and objectives
- A process of ongoing data collection and system monitoring
- A procedure for evaluating system performance and changes in performance over time including the evaluation of land use development proposals or changes in land use
- Multimodal congestion reduction including the use of TSM and TDM strategies
- A process for identifying the specific responsibilities of each agency and

jurisdiction involved in the CMS

It should be recognized that CMS is substantially different from transportation system management of the 1970s (40). These differences include:

- CMS emphasizes implementation and the role of implementing agencies. State and local agencies must establish an institutional structure for making congestion management decisions.
- CMS includes a systematic process for continuous data collection and congestion monitoring. CMS also includes projecting where, and to what extent, congestion will occur in the future. Both of these aspects were absent in transportation systems management as practiced prior to the passage of ISTEA.
- CMS places more emphasis on integrated multimodal and TDM strategies.
- CMS involves a linkage with the 1990 CAAA requirements, congestion management strategies, and land use decisions.

CMS represents a significant step towards furthering interagency and interjurisdictional coordination in implementing congestion management strategies, coordinating transportation and land development, and achieving air quality goals. Urbanized areas with a population over 200,000 are defined as TMAs. In all TMAs the CMS shall be a part of the metropolitan planning process (78 sec. 500.505 (d)). Thus, in these areas, the MPO must have a significant role, if not the lead role, in the CMS. Additionally, where a TMA is designated as an air quality nonattainment area, the CMS shall provide an appropriate analysis of all reasonable travel demand reduction and operational strategies for a corridor in which the project will result in a significant increase in single occupancy vehicle capacity (78 sec. 500.505 (e)). In order to effectively address congestion issues, MPOs which are not TMAs, should also make CMS a part of their metropolitan transportation planning process. At the very least a CMS must be developed by the state in cooperation with the MPOs having a population less than 200,000 (40).

ISTEA makes the state responsible for developing and implementing the six management systems as well as the Traffic Monitoring System. While the CMS and other management systems must be implemented on a statewide basis, the state may define subsystems within the state and delegate responsibility for developing and implementing the CMS to local agencies.

Factors, such as growth management and concurrence requirements, will influence the

structure and implementation of a CMS in some areas. Growth management requirements call for developments and the transportation network to be mutually compatible and not cause an overload of the transportation system. Concurrence requirements ensure that the funding for transportation improvements are available before development can occur.

The primary purpose of the CMS is to provide additional information needed to make more effective decisions on the use of limited resources to protect the investment in and improve the effectiveness of the existing and future transportation network. The CMS must provide overall measurement and monitoring of mobility, not just roadway performance. This approach is necessary because many of the decisions relative to the roadway system will directly affect bus transit operators and goods movement by truck. It is suggested that V/C ratios be used for defining congestion at intersections or spot locations, using travel rate (travel time per unit distance, i.e., minutes per mile) for measuring congestion along corridors, and using a weighted average of travel rate or travel speed for defining congestion on the subarea or areawide level where this is significant transit. For areas which do not have significant transit, a volume/"acceptable slow rate" ratio is suggested (40). The mandate requiring states and MPOs to monitor congestion systemwide will have effects on those cities already participating in concurrency management. A CMS must identify proposed strategies to make more efficient use of existing and future transportation facilities; evaluate their potential effectiveness, singularly or in combination; and develop an implementation program as to schedule, responsibilities, and funding.

The objective of the CMS and the other management systems is to protect and enhance the transportation infrastructure. In TMAs, the CMS is to provide effective management of existing and future transportation facilities eligible for funding under Title 23 USC and under the Transit Act. If the management systems are to be effectively utilized in urban areas, they must be an integral part of the metropolitan planning process of MPOs in both TMAs and non-TMAs. This logically follows from the fact that the metropolitan planning process involves evaluating transportation/land use alternatives and assessing the effectiveness of changes in the transportation system to improve mobility and safety, actions individually or in combination, etc. (40).

The MPO has a primary responsibility for the planning process in urban areas. Hence, integrating the management systems into the planning process, the transportation plan, and TIP

leading to effective implementation necessitates that the MPO have a prominent role in the CMS and the other management systems as they relate to transportation facilities within their geographical areas of concern.

However, ISTEA makes the state highway agency (SHA) primarily responsible for the management systems. ISTEA also provides delegation of responsibilities by the SHA to MPOs. Hence, this dichotomy between responsibility for the metropolitan planning process and responsibility for management systems can be resolved by the SHA by 1) delegating significant responsibility for the CMS to the MPOs and 2) working closely with the MPOs throughout the planning process. (40).

ACCESS MANAGEMENT

Growing traffic congestion, concerns over traffic safety, and the increasing cost of roadway improvements have caused many local and state governments to pursue access management programs. Without an access management program along arterial roadways, capital investment for arterial improvements or arterial relocation will likely be required at periodic intervals.

Research over the last 20 years has shown that the management of driveways is just one aspect of access management (41). To fully support an access management program, medians, median openings, traffic signal spacing, and the spacing of freeway interchanges must be managed along with controlling the proliferation of driveways.

Access management policies can be incorporated into the comprehensive planning process through zoning and corridor planning, whereas implementation of the policies take place during driveway permitting, site plan review, and roadway improvements, which include new roads and road widenings.

Statewide access control programs have been adopted in Colorado, New Jersey, Florida, New Mexico, and Wisconsin (41). Oregon and Wisconsin are in the process of developing advanced access control regulations. The following describes the access control programs for Colorado, Florida, and New Jersey.

Colorado State Access Code

The Colorado State Access Code, initially adopted in 1981, offers the first comprehensive statewide approach to access management. The act authorizes state and local governments to regulate access to and from highways under their jurisdiction "to protect the public health, safety and welfare, to maintain smooth traffic flow, to maintain highway right-of-way drainage, and to protect the functional level of public highways while meeting state, regional, local, and private transportation needs and interests" (2 CCR 601-1, Sec. 1.2).

Colorado's access code establishes a system for classifying state highways into five categories, or functional levels, of access control. Access to and from state highways is permitted according to the degree to which the applicable category allows. The five categories are:

Category 1: Interstates and other freeways that limit access to directional ramps.

Category 2: Roads that are planned to become Category One roads eventually. Access is tightly controlled, and at-grade intersections are limited to one-mile intervals for rural roads and one-half-mile intervals for urban roads.

Category 3: Urban and most rural arterials. This category contains about 80 percent of the state highways in Colorado. Direct private access is normally denied unless no other reasonable access can be provided. Signalized intersections are limited to half-mile spacings.

Category 4: Roads that are more urban in nature. Generally, private direct access is allowed but limited to right turns only unless full movement would not be dangerous. Intersection spacing is recommended at one-half-mile intervals but is more frequently based on historical traffic patterns and detailed signal analysis control.

Category 5: Only frontage and other service roads where access needs take priority.

The Colorado Highway Commission is responsible for assigning an access category to each highway section or segment. The Colorado Department of Transportation is then responsible for granting permit applications. Local authorities are given the right to issue driveway permits if they so choose; however, all permits must be reviewed by the department for compliance with the standards and specifications set forth in the access code (2 CCR 601-1, Sec. 2.2).

No direct access is permitted to roads classified as freeways. Access to expressways is prohibited unless no other reasonable access to the site is available; even then only right turns are

permitted. Colorado uses the terms "preferably prohibited" for major arterials but permits right turn access if no other access exists. Access is permitted to arterial/collector and frontage/service roads.

Exceptions exist for expressway and major arterial access. In order to be granted access to these road types, all the following must be shown: no alternative access is available and providing service or frontage roads is prohibitively expensive; the alternate access is not safe; and the access meets the street spacing requirements of one-half mile.

In addition to the classification scheme, Colorado uses what they term a licensing system. Permits are required for access connections to the State Highway System. When a permit is issued, designs are required to meet state regulations and desirable geometric dimensions, not just minimums. Permits are issued for the intended use only and new application must be made when the use changes or when the intensity of use changes such that traffic volumes increase by 20 percent over permit volume. Failure to construct or use the access in accord with the permit leads to revocation. The state can also deny access to the State Highway System if reasonable access is available from another street. The department can also relocate or reconstruct, at department expense, when required by operational or safety issues.

When a permit is granted, access designs are required to be consistent with state regulations; and the permittee is responsible for all construction costs. Failure to construct, maintain, or use the access consistent with the terms and conditions of the permit can lead to permit revocation (Sec. 2.10). The department may also require that any existing, nonconforming driveway be reconstructed or relocated to conform with the access code if there is either a change in property use or changes in the highway or highway traffic conditions (Sec. 2.11).

Access regulations adopted by Colorado are considered effective because of their strong legislative backing and centralized administration (41).

Florida State Highway Access Regulations

In 1988, the Florida Legislature adopted the State Highway System Access Management Act (Chapter 335.18, Florida Statutes) in response to intensive development pressures and growing congestion on state highways. Three basic legislative findings support the act. First, "regulation of access to the State Highway System is necessary in order to protect the public

health, safety, and welfare, to preserve the functional integrity of the State Highway System, and to promote the safe and efficient movement of people and goods within the state." Second, the development of an access management program "which coordinates" local land use planning decisions with investments in the State Highway System will ensure managed growth and development of commerce. Third, access management will further the development of an effective transportation system that operates safely, efficiently, and effectively (Section 335.181 (1), Florida Statutes).

The 1988 Act provided the FDOT with the power to ensure that the State Highway System remained as efficient and effective as possible. Specifically, the Department could deny access to the State Highway System if safety and operational concerns were evident and the property owner had reasonable access to another public road which abutted the property (Section 335.181 (2), Florida Statutes). The Act provided that local governments could adopt standards for access management control that were equal to or more stringent than those established by the FDOT. Thus, the local government and FDOT could coordinate efforts and maintain or improve roadway operations on problem segments of the State Highway System (Section 335.182 (2), Florida Statutes).

Additional powers granted to FDOT included the ability to regulate alterations to an existing connection (Section 335.1825 (1), Florida Statutes). If changes were to be made to a connection, an access permit had to be obtained, and the department had the authority to deny access to the State Highway System until the permittee constructed or altered the connection in accordance with the permit requirements. The department could close any unpermitted connections, including installation of barriers and removal (Section 335.185 (1), Florida Statutes).

The act called for FDOT to adopt administrative procedures for issuance and modification of access permits, closure of unpermitted connections, revocation of permits, establishment of a permit application fee, and a permit review process. This was accomplished by adoption of Rule Chapter 14-96, Florida Administrative Code, State Highway System Connection Permits Administrative Process. The act also required the development of an access control classification system (Rule Chapter 14-97, Florida Administrative Code, State Highway System Access Management Classification System and Standards). To ensure an orderly transition into the new access requirements, the legislation grandfathered certain types of access and access permits.

These included provisions that exempted unpermitted connections in continuous use for a year or more from having to obtain a permit, kept valid all access permits issued prior to the effective date of the legislation until a significant change was made to the connection, and allowed the department to issue nonconforming access permits if no other reasonable access could be granted on any public road (Section 335.187, Florida Statutes).

FDOT adopted a seven-level classification system. Class 1 facilities are freeways and toll roads. As shown in Table 1, four different subclasses are used. The remaining six classifications (Classes 2 through 7) are facilities with at-grade intersections (see Table 2). Classes 3 and 4 have the same standards except 3 has, or is planned to have, a restriction (nontraversable) median, while Class 4 are undivided roadways. Classes 5 and 6 are also the same except for the pressure (Class 5) or abuse (Class 6) of a restrictive median. Higher standards are specified for roadways having speeds over 45 mph. Rule 14-97 defines each class as follows:

Access Class 1: Limited Access Highways do not provide direct property connections. They are designed for high speed, high volume traffic movements. These types of roadways include Interstate Highways and the Florida Turnpike. Access is permitted only via interchange, and the spacing of these interchanges is one mile in urban areas to six miles in rural areas.

Access Class 2: These are highly controlled access facilities distinguished by their ability to carry high speed and high volume traffic over long distances in a safe and efficient manner. These highways are distinguished by a system of existing or planned service roads, a highly controlled limited number of connections, median openings, and infrequent traffic signals. Segments having this classification usually have access restrictions supported by local ordinances and agreements with the department.

Access Class 3: These facilities are controlled access facilities where direct access to abutting land will be controlled to maximize the through movement of traffic. This class will be used where existing land use and roadway sections have not been built out to the maximum land use or roadway capacity or where the probability of significant land use change in the near future is high. These highways are distinguished by existing or planned restrictive medians and maximum distance between signals and driveway connections. Local land use planning, zoning, and subdivision regulations should support the restrictive spacings of this designation.

Access Class 4: These facilities are controlled access highways where direct access to abutting

land will be controlled to maximize the through movement of traffic. This class will be used where existing land use and roadway sections have not been built out to the maximum land use or roadway capacity or where the probability of significant land use change in the near future is high. These highways are distinguished by existing or planned nonrestrictive median treatments.

Access Class 5: This class will be used where existing land use and roadway sections have been built out to a greater extent than those roadway segments classified as Access Classes 3 and 4, and where the probability of a major land use change is not as high as those roadway segments classified Access Classes 3 and 4. These highways will be distinguished by existing or planned restrictive medians.

Access Class 6: This class will be used where existing land use and roadway sections have been built out to a greater extent than those roadway segments classified as Access Classes 3 and 4, and where the probability of a major land use change is not as high as those roadway segments classified Access Classes 3 and 4. These highways will be distinguished by existing or planned nonrestrictive medians or centers.

Access Class 7: This class will be used only in urbanized areas where existing land use and roadway sections are built out to the maximum feasible intensity and where significant land use changes or roadway widening will be limited. This class shall be assigned only to roadway segments where there is little intended purpose to provide high speed travel. Access needs, though generally high in those roadway segments, will not compromise the public health, welfare, or safety. Exceptions to standards in this class will be considered if the applicant's design changes substantially reduce the number of connections compared to existing conditions. These highways can have either restrictive or nonrestrictive medians.

Table 4
Access Classification and Standards for Limited Access Facilities Interchanges

Access Class	Segment Location	Applicable Interchange Spacing Standard (Miles)
1	Area Type 1 CBD &CBD Fringe for Cities in Urbanized Areas	1
1	Area Type 2 Existing Urbanized Areas Other than Area Type 1	2
1	Area Type 3 Transitioning Urbanized Areas and Urban Areas Other than Area Type 1 or 2	3
1	Area Type 4 Rural Areas	6

Source: Rule 14-97, Florida Administrative Code

Table 5
Access Classification and Standards for Controlled Access Facilities

Access Class	Facility Design Features (Median Treatment and Access Roads)	Minimum Connection Spacing (Feet)	Minimum Median Opening Spacing - Directional (Feet)	Minimum Median Opening Spacing - Full (Miles)	Minimum Signal Spacing (Miles)
2	Restrictive with Service Roads	1,320/660*	1,320	0.5	0.5
3	Restrictive	660/440*	1,320	0.5	0.5
4	Non-restrictive	660/440*	N/A	N/A	0.5
5	Restrictive	440/245*	660	0.5/0.25*	0.5/0.25*
6	Non-restrictive	440/245*	N/A	N/A	0.25
7	Both	125	330	0.125	0.25

* Greater than 45 mph/Less than or equal to 45 mph

Notes: Section 14-97.004, FAC, contains supplementary and more detailed instructions for the use of these standards.
These minimum spacings may not be adequate if auxiliary lanes and storage are required.
Single properties with frontage exceeding the minimum spacing criteria may not receive permits for the maximum number of possible connections.

1992 Amendments to Florida's Access Management Plan

In 1992, the legislation was amended. The following changes have the greatest impact on regulating connections. FDOT may no longer deny access to the State Highway System unless it can demonstrate that the connection will degrade traffic operations or jeopardize the public safety. This includes elimination of the department's ability to deny access if a more reasonable connection could be made to another public road. The new legislation also eliminates the ability of local governments to adopt access management standards that were more restrictive than those of FDOT. In addition, statutory wording regarding FDOT's ability to require joint access was eliminated.

The 1992 amendments also defined significant change to mean changes in use of property, structures, or facilities such that trip generation is increased by 25 percent and exceeded 100 vehicles per day more than the existing use (Section 335.182 (3), Florida Statutes). The change also affected the department's ability to deny access if substantial alterations were made to the connection. The new legislation allows FDOT to restrict the access connection until alterations are made, but FDOT can no longer deny access.

The 1992 Amendments also set forth the criteria used to determine if a connection affected the safety and operation of the State Highway System. The criteria included number and severity of accidents, operational speed, LOS, and geographic location. If the department denies access it must detail the specific reasons why access was denied and inform the applicant of the right to request a meeting with FDOT officials to determine ways in which access could be permitted. Any property owner denied access has the right to have the denial subject to administrative review.

By increasing the difficulty of denying driveway permit requests, these changes could have a negative impact on the safety and functional characteristics of the State Highway System. Further, while FDOT previously was able to deny access based on availability of safer access off another public road, that option is no longer available. Where joint access is most practical, the department can encourage but can no longer require it.

This increases the need for local government coordination in regulating access to the State Highway System. The 1992 Amendments could negatively affect local practice as well. For example, some individuals question whether removal of local authority to adopt regulations more

stringent than FDOT could affect efforts to restrict access rights to the State Highway System through land development regulation. However, the ultimate affect may be minimal due to broad authority granted to local governments under Intergovernmental Programs, Chapter 163, Florida Statutes, to regulate land development.

In 1992, the FDOT established the Florida Intrastate Highway System (FIHS) which is the statewide system of limited access and controlled access facilities that allow for high speed and high volume traffic movement within the state (Section 338.001, F.S.). This system was designated by FDOT and adopted by the legislature in an effort to preserve regional and statewide transportation mobility. The FIHS program involves development and improvement of a system of highways with strict access controls. Process, criteria, and standards for the FIHS Plan emphasize the need to coordinate with local governments on managing access to those portions of the FIHS that are not limited access facilities.

FDOT is charged with making the necessary system improvements and entering into formal agreements with local governments for coordination land use planning and regulation with state access standards for controlled access facilities. All segments are planned to be brought into compliance with system criteria and standards within a 20-year period. This deadline, however, may prove unworkable given a substantial shortfall in projected funds available to the FDOT to bring the system up to FIHS standards within 20 years. Thus, finding adequate funding to maintain and improve Florida's priority statewide system of highways will remain an ongoing challenge for FDOT and the legislature.

Rule 14-97 does not provide for deviations from the prescribed median opening and connection spacing standards. In order to address this issue and to achieve some uniformity between the seven FDOT districts, the Secretary of Transportation is expected to issue an administrative directive regarding the handling of deviations from the standards for median openings in July 1994. The Secretary of Transportation is also expected to sign an administrative order to improve the public involvement process when FDOT projects involve changes in median design and closure of median openings.

New Jersey State Highway Access Code

In 1989 the New Jersey state legislature passed the State Highway Access Management

Act requiring the commissioner of transportation to adopt a state highway access management code establishing standards for the design and placement of driveways within a year of enactment. The New Jersey Department of Transportation (NJDOT) identified seven levels of access ranging from full control of access for freeway facilities to driveway access limited only by corner clearance and safety considerations for local roadways.

Access Level 1 applies only to limited access highways, and provides for access at interchanges only. Level 2 provides for access to the roadway only via at-grade street intersections or at interchanges. Level 3 provides for right-turn only driveways or access via an interchange. Generally, roadways are restricted to right-turn only by continuous medians. Level 4 applies to right- and left-turn in and right-turn out access connections. This applies to divided multi-lane highways. Level 5 access permits right and left turns for both ingress and egress but requires left-hand turn lanes. It applies to all highway types. However, left-turn movements on divided highways would be restricted by signalized spacing standards. Level 6 access provides for right- and left-turn access both in and out of site with left-turn lane requirements based on activity level of the site and hours of use. If the left turn requires signalization, turn lanes are required. Finally, Level 7 access allows for right and left turns with access determined only by safety requirements. This applies to frontage roads and to collector or local roads.

Because of the establishment of this classification system, the NJDOT is able to deny access to state highway system roads if reasonable access to other public roads exists. The department may also close existing access connections when alternative access becomes available if the department bears the cost of constructing the new connection. When access is granted to a state highway, the department may place whatever restrictions are necessary to ensure that the provisions of the Access Management System are met.

The department may revoke the permit if a significant increase in traffic occurs from a change in use or expansion. Significant change is defined as an increase in traffic by 10 percent over the previous use or an increase in more than 100 vehicles per day over the standard at time of permit. All of these provisions vary from Florida's access management statutes and provide a considerable amount of flexibility to New Jersey.

In addition, New Jersey has added a section to its access management statutes to address future lot divisions. The code states that "no property abutting a State Highway shall be

subdivided in a manner which would create additional lots abutting that highway unless all the abutting lots so created are in accord with the standards established in the access code." Such language should be added to Florida statutes.

Driveway spacing standards originally proposed by NJDOT were consistent with those developed by Colorado but were then reduced in response to pressure from local elected officials and developers. Conformity for driveway spacing is determined by measuring the distance from the centerline of the lot frontage along the highway to the centerlines of the adjoining lots. If either distance is less than the required spacing, then the lot in question is nonconforming. For nonconforming lots, access is still permitted; but the number of peak-hour trips is limited.

Oregon

The Oregon Department of Transportation (ODOT) has developed a proposed administrative rule (49) which is the most sophisticated access regulation developed by a state DOT to date. Significant features include the requirement of a site review, traffic impact analysis, and the handling of variances.

However, ODOT has decided to enhance the access permit process and improve access design standards under the current administrative rules rather than go through the process of adopting a new rule at this time.

TRIP REDUCTION ORDINANCES

Trip reduction ordinances (TROs) have emerged as additional tools for responding to growth and traffic congestion problems. TROs are local, regional, or state government requirements designed to encourage transportation alternatives to single occupant vehicles such as ridesharing, transit, bicycling, walking, and even telecommunications substitutes (42). Most TROs focus on work trips and for this reason are directed toward employers and developers of industrial, business, and commercial properties.

TROs help to reconcile differences between land use and transportation service by concentrating on the trip-generating characteristics of new and existing developments. TROs are often included in growth management policies because they allow development to proceed while supporting concurrency objectives by maintaining satisfactory LOS standards. To date, there are

about 60 TROs nationwide, with notable examples in California, New Jersey, Maryland, Virginia, Washington, Arizona, and Florida (42). The most TRO activity is occurring in California where in 1989 the state legislature included it as a mandatory element of the CMPs required in urban communities (CS 1989, Ch 2.6, Sec. 65089).

A wide variety of trip reduction programs have been established by local governments, many of which respond to the particulars of the situation. However, many trip reduction programs can be grouped into one of the following three categories (43):

(1) Trip reduction to mitigate new development. Many trip reduction measures have been incorporated into the conditions of approval for new development projects, often those over a certain size. The specific requirements of the trip reduction action may be set forth by ordinance, regulation, or policy statement, or may be negotiated on a case-by-case basis.

(2) Trip ceiling on new development. Another growth management strategy bases development approval directly on peak-period trip generation rather than on development density. Here, a fixed trip generation ceiling is placed on a project; and additional development is approved only if the trip ceiling is not exceeded or if additional road capacity is provided. Because additional capacity improvements are often unlikely, the magnitude of development in these cases depends largely on the success of the TDM programs.

The Pleasanton, California, TRO adopted in 1984 was one of the first to mandate trip ceilings on new development. The mandate grew out of negotiations over the Hacienda Business Park, a 500-acre development planned to eventually contain about eight million square feet of office, commercial, and light industrial space, and 24,000 jobs (42). Pleasanton's TRO set a performance standard which limited peak-hour, drive-alone commute trips to 55 percent or less of the daytime work force. Traffic analysts for the city arrived at this figure because, according to their forecasts, all planned development for the business park could be accommodated at acceptable levels of service on the local streets and freeway ramps if not more than 55 percent of the employees drove alone (42). The Pleasanton TRO stipulated that the performance standard could be met over a 3-year period by any reasonable means the employer or complex chose (including staggered work

hours). Consequently, alternative work hours have been the primary strategy in meeting the trip reduction standard. Carpooling and vanpooling have been only moderately successful, except in one case where a parking shortage inadvertently developed. During parking shortage, a 40 percent carpool/mode share was attained (42). Otherwise, drive-alone has remained the mode choice for the vast majority of commuters. However, the LOS standards which the TRO was designed to protect have been maintained.

(3) Trip reduction for air quality. As air pollution becomes more of an issue, TROs are being implemented with the specific intent of improving air quality. In the Los Angeles metropolitan area, air pollution generated by traffic congestion is a major concern. In July 1988, the South Coast Air Quality Management District (SCAQMD) in California passed Regulation XV designed to reduce emissions by establishing vehicle occupancy requirements for all employers with 100 or more employees. The average vehicle ridership (AVR) goals range from 1.3 in outlying areas of the region to 1.75 in downtown Los Angeles (42, 43). Employers are required to submit a trip reduction plan to SCAQMD for review and approval. Rideshare matching, subsidies, and cash incentives are suggested as trip reduction strategies, along with facility improvements supportive of ridesharing and bike use, flextime and compressed work weeks, and telecommuting (42).

Analysis of Regulation XV's first-year results shows significant increases in AVR. For example, for 812 employers where a plan has been implemented one full year, AVR increased from 1.23 to 1.26. The drive-alone mode share decreased from 75.8 to 70.9 percent, and the percentage of people carpooling rose from 13.5 to 18.7 (42, 43). However, although these early results are positive, they do not imply that AVR targets will be reached. A second issue raised is whether the anticipated air quality benefits would occur even if the AVR targets were achieved (43).

In 1987, the EPA listed trip reduction ordinances as one of the 10 transportation control strategies which urban areas unable to attain national ambient air quality (NAAQ) standards might consider implementing (42). Congress also endorsed TROs. In the 1990 CAAA, TROs are identified as a transportation control measure, along with employer-based transportation management plans and local programs and ordinances to facilitate non-automobile travel. Furthermore, the 1990 CAAA require that states with severe or extreme ozone nonattainment

areas submit a SIP revision requiring employers with 100 or more employees in such areas to implement programs to reduce work-related vehicle trips and VMT by employees. At a minimum, the SIP revision must require that each employer increase its employees' vehicle occupancy in commute trips during peak periods by no less than 25 percent above the area's average vehicle occupancy at the time the revised SIP is submitted. The nine most polluted cities defined by the 1990 CAAA include eight regions classified as severe: Baltimore, Chicago, Houston, Milwaukee, Muskeegan (MI), New York City, Philadelphia, and San Diego. Los Angeles is classified as extreme.

URBAN GROWTH BOUNDARIES

Establishing urban growth boundaries (UGBs) is a growth management strategy designed to encourage compact urban growth patterns while promoting infill and redevelopment. Although a good deal of controversy remains as to the benefits and costs of compact urban forms, many believe that containing development within UGBs prevents sprawl, protects the environment, and promotes the wise use of existing public facilities (34).

Washington and Oregon mandate that UGB's be established as part of their growth management legislation. UGBs have been strongly recommended for use in Florida. UGBs are based on a region's 20-year population projections and include the areas required to support urban growth expected to occur in the 20-year period. Once a UGB is designated, local governments are required to encourage growth inside the UGB and discourage growth outside the UGB. Zoning is the principal tool used to enforce the UGB designation, although transfer of development rights (TDRs) and agricultural preservation laws have also been employed.

Oregon's Urban Containment Policy

UGBs are required by Goal 14 of Oregon's 1973 act to delimit areas for urban growth around all incorporated cities. Cities and counties are required to collaborate on the designation of UGBs taking into account (1) the growth policy of the area, (2) the needs of the 20-year forecast population, (3) the carrying capacity of the planning area, and (4) the open space and recreational needs (LCDC 1990). Local governments are then required to develop local land use controls and regulations to limit growth outside UGBs to conserve agricultural and rural resources

while encouraging growth inside UGBs.

Results of a study to evaluate the effectiveness of the growth management policies of Oregon's planning program indicate that the urban containment policy has been only partly successful in accommodating growth inside and restricting growth outside UGBs (44). The study examined issues related to growth in four urban areas across Oregon: (1) the Portland Metropolitan area, (2) Bend, (3) Medford, and (4) Brookings. The study found the urban growth policy to be more effective in managing commercial and industrial development than residential development. Commercial and industrial development in each of the four case study areas was concentrated inside UGBs; however, except in the Portland area, large percentages of residential development occurred outside the UGBs. In the Portland area, only 5 percent of residential growth occurred outside the UGB compared to between 24 and 57 percent of urban growth in three other metropolitan areas.

As a growth management strategy, the study concluded that Goal 14 of Oregon's act calling for UGBs did little to manage the land uses that cause urban sprawl. The authors state, "There is a market demand for many types and locations of land uses that appear incompatible with a reasonable interpretation of the intent of the statewide planning goals and with good growth management. In our opinion, the goals are clearly against land uses that cause urban sprawl, put urban uses outside of UGBs, and convert productive farm and forest land outside of UGBs to low-density residential uses. Yet market forces for these kinds of uses are strong; the forces for suburbanization have been working in Oregon and in the U.S. for a century. They include (a) increasing real incomes, (b) increasing mobility, (c) increased housing demand stimulated by maturing boom babies, (d) improved technology and the extension of urban services, (e) the deterioration of central-city services and amenities, (f) relatively lower land costs with distance from the city center, and (g) the resulting relative efficiency of suburban and exurban locations" (44).

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