Introduction

The connection between transportation and land use is a fundamental concept in transportation planning and analysis. Transportation and land use are inexorably connected. Everything that happens to land use has transportation implications and every transportation action affects land use. State departments of transportation help shape land use by providing infrastructure to improve accessibility and mobility. Accessibility can be measured by the number of travel opportunities or destinations within a certain travel radius, measured either in terms of travel time or distance. On the other hand, mobility is a measure of the ability to move efficiently between origins and these destinations. Thus, mobility is directly influenced by the layout of the transportation network and the level of service it offers. Land development generates travel and travel requires the need for new facilities, which in turn increases accessibility and attracts further development. This “chicken-egg” issue is a matter of ongoing concern whether transportation influences development or if land use dictates transportation.

The state DOT is just one of the many forces influencing both transportation and land use. The other forces influencing land use and transportation are described later in this paper. Also described is the role of state DOTs in controlling the effects of transportation on land development through planning, transportation-related regulations, access management and other programs.

This paper provides an overview of land use activities of state departments of transportation. Such activities occur in the various states and along a continuum from passive to active in six major categories: land use/transportation planning; state land use planning capabilities; education/technical assistance; access management; land use controls; and economic development. This paper deals with each of these categories.

This paper discusses how states incorporate land use issues into their statewide transportation planning and policy efforts. This paper also looks at the direct role the state DOTs have in land use, as well as their role in the local and regional land use decision-making. The paper is a summary of a larger report that was conducted for the Federal Highway Administration.1

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During the writing of this report, the authors attempted to contact all state DOTs to determine what each is doing regarding land use and economic development. This paper describes the framework that was used to describe activities of state departments of transportation related to land use. It provides an overview of some of the information found, but it is not intended to be exhaustive. Furthermore, the role of the state DOTs in land use and economic development is continuously evolving. This paper is intended to discuss the range of activities rather than all possible activities.

Local versus Statewide Roles in Land Use Decisions

In most states land use decisions are made locally by governmental review boards and elected officials. State DOTs typically defer to local governments on land use issues. However, DOTs may have review authority when the development involves access to a state highway or causes traffic impacts on a state highway. By providing transportation facilities and services -- be it through building highways, providing grants for local transportation improvements, or providing assistance to transit services -- a state DOT affects land use patterns in many different ways. Similarly, all development and land use decisions will ultimately affect travel patterns and, thus, influence the decisions made by state transportation officials regarding project planning and programming. Transportation is irrevocably tied to land use and land development.

Even in states where the DOT feels it has no role in land use decisions, its staff members find themselves heavily involved in land use concerns. These occur through the environmental review process, by issuing permits and by deciding where, when and how to expand highway capacity.

Many other state agencies and local interest groups take prominent roles in decisions that directly or indirectly affect land use. Increasingly, coordinated efforts are being made by states to integrate programs and policies, serving to promote transportation options that can minimize harm to the environment, preserve sensitive lands and encourage economic development. The state DOT is only one of many agencies taking part in these coordinated efforts. The level of support garnered from various state agencies and groups in working together on transportation and land use topics depends largely upon the individual state’s political climate, history and local issues. Hot issues in one area of the country or in a particular state may not be salient in others. A wide variety of factors must be taken into account when comparing various state DOT actions.
The state transportation plan can, through extensive public involvement efforts, develop action steps to successfully implement transportation objectives seeking to improve the positive link between transportation, land development and economic development.

In addition, Transportation Planning Regulations also require analysis of land use impacts of transportation investment decisions at the project level. These regulations represent the most far-reaching call for coordinated land use and transportation planning. However, no specification is given as to how to analyze land use impacts of transportation investments or how land use characteristics or development policies should be integrated into the transportation planning process.

State agencies may find themselves taking leading roles in developing coordinated programs and in bringing people together to the same table to ensure that transportation decisions consider the effects on land use and economic development

**Effects of Transportation on Land Development**

State DOTs influence land development through providing infrastructure and, to a lesser extent, through transportation-related regulations. However, these influences are seldom part of a project’s goal and are usually not intentional. State transportation projects are normally planned to improve safety, decrease travel time by alleviating congestion, and achieve other mobility-related goals. Transportation’s most significant impact to land development occurs when access is provided to land. Increased access to land raises its potential for development, and more development generates additional travel. Once access has been provided, land patterns begin to change over a period of time. The results of these changes are, for the most part, irreversible.

**Emerging Land Use Concerns**

Recently, concerns about urban sprawl have grown in many areas of the nation. Many diverse groups have common concerns about the role transportation plays in exacerbating or combating the problems associated with urban sprawl, suburban congestion, and jobs/housing mismatches. Some people have argued that efforts to expand the highway system contribute to urban sprawl by decreasing travel times from urban to exurban/rural areas and making undeveloped areas attractive for residential and commercial uses. Highway facilities, some time after construction, have experienced driving times that often exceed the predicted driving times, suggesting that new or expanded facilities may be unable to solve long-term congestion problems.

Several factors can be identified as contributing to sprawl, such as movement of jobs to suburbs, lower transportation costs versus lower housing costs, preference of many people to live in remote areas away from the problems of the
city, and the desire for larger lots. This section provides an overview of some of these factors.

Of recent concern are labor shortages created by jobs/housing mismatches. Housing markets in the suburbs have excluded many skilled laborers who would traditionally be employed by the industries and commercial enterprises that develop in these areas. A combination of transportation and land use measures are needed to address this problem.

The concern about sprawl and transportation has led to a new debate in many states and communities about the relationship between transportation and urban sprawl. In some cases, local and statewide efforts are now beginning to take effect to limit sprawl in some of the nation’s fastest growing urban areas. The new debate invariably involves state DOTs.

**State Roles in Land Use Activities**

There are considerable variations between the state DOTs in their role in land use and economic development activities. Roles in an individual state can vary along a broad spectrum ranging from very active involvement in the coordination of transportation and land use to a very passive role, where the state leaves most of the decision-making to other agencies. In order to help understand the spectrum of activity that states may undertake a chart has been developed to show the range of state activities. A state’s role can be defined along a continuum from active to passive in the following six categories.

- Land Use/Transportation Planning Requirements
- State Land Use Planning Capabilities
- Education/Technical Assistance
- Access Management
- Land Use Controls
- Economic Development

Each of these categories is described below.

**Land Use/Transportation Planning Requirements**

At the passive end of the continuum, states fund regional and local level planning and leave the decision making entirely to local jurisdictions. The option to do planning and how it is done is left to the local agencies. At the most active level, the state itself is responsible for planning and zoning, as is done in Hawaii. Between these two ends of the spectrum is state mandated local planning where the state sets mandatory standards for land use plans or may set guidelines reflecting the state’s interests. A passive approach would require the planning to take place but not require state approval of the plans. A slightly more active
strategy would require that local land use decisions must have state approval and certification.

**State Land Use Planning Capabilities**

The state can provide a range of capabilities to assist local agencies, depending on how involved they want to be in the planning process. As shown in the chart, these activities would range from providing data collection services for local government (at the passive end), to the utilization of sophisticated state land use models and basic research (at the active end). The purpose of transportation/land use models is to predict the future impact of transportation investments on land use. Some of the states using transportation/land use models are Oregon and New Jersey. Intermediate state services would include providing GIS assistance, policy research and economic forecasting.

**Education and Technical Assistance**

State participation in education and technical assistance can take many forms. At the passive end of the continuum, states only react to local requests for assistance. A more active state participation would include formulating state guidelines, convening oversight committees, providing conferences, holding training sessions, issuing newsletters, organizing a hotline or Web site, providing public education, etc. At the most active level of participation, the state would provide one-to-one assistance to local government for the analysis of land use implications of transportation decisions.

**Access Management**

Access management is a systematic approach to providing appropriate access to land development on highways. The chart shows the range of access management programs that states have adopted. A passive approach is to allow unlimited access to the state highway system so long as access points follow site specific guidelines. A more active strategy involves the development of comprehensive access management plans and policies. The most active strategy is to limit capacity expansion only to designated areas according to a statewide growth management policy.

**Land Use Controls**

Land use control initiatives by a state encompass a broad range from simply including a topic in transportation plans or environmental impact statements to completely controlling land use. The various options available to a state involve different degrees of participation by state and local agencies in project-level control of land use and the project’s environmental impacts, land use control in environmentally sensitive areas, smart growth, scenic easements, agricultural and open space preservation, growth management and control of large scale developments. Smart growth programs bias the provision of state infrastructure to designated growth areas following state mandated land use plans. For example, the state of Maryland restricts the expenditure of state highway funds to
areas designated for development according to local plans that have been written from guidelines provided to governmental agencies, developers and local officials. Florida, Oregon and New Jersey have adopted growth management programs. Development of regional impacts (DRI) controls, such as those used in Florida, require a developer to demonstrate that sufficient infrastructure exists before proceeding with the project.

**Economic Development**

Economic development spans a range of activities which includes project design help to local businesses, state infrastructure banks, funding programs to promote basic employment opportunities, industrial roads and provision of road facilities by the state for developments that generate both basic and non-basic employment. Examples of state funding programs that facilitate economic development are the RISE program in Iowa and the TEA programs in Wisconsin and California. State infrastructure banks (SIB) are funds for infrastructure investment generated at the state or regional level as implemented in Ohio, Florida and several other states. Industrial road programs pertain to the allotment of funds by the state towards improving existing road facilities that enhance accessibility to eligible industrial and agricultural facilities.

**Activities Chart**

The range of activities for each of the six topics is represented graphically in the chart on the scale from passive to active as shown on the next page: Based on the programs, activities and regulations implemented by a particular state, it could easily determine where it fits on the chart. Note that most of these activities are cumulative in their implementation. For example, under Land Use Controls, “Topic in Environmental Impact Statements” spans the entire length of the scale from passive to active, and this element would co-exist with any other option that is implemented by the state. Once the state policy/action is graphically represented on this chart, it can be used as the basis to consider future endeavors. A state could then choose to be more or less active by implementing other strategies on the chart. States can review the chart to determine if they should add options to each of the categories on the chart or add entirely new categories, based on emerging issues or new technologies specific to the state. This chart is intended to be generic and can be modified to represent the planning actions and programs implemented by any particular state.
The use of the chart is illustrated by an example of a hypothetical state. In each of the various categories, the state is doing the following.

♦ **Land Use/Transportation Planning:** The State delegates land decisions to local municipal governments, and it does not require MPO zoning conformance with a comprehensive plan. Thus, this state assumes a passive role in land use and transportation planning.

♦ **State Land Use Planning Capabilities:** The state assists the local municipalities in making transportation and economic decisions by providing them with information such as vehicle travel data. It also provides technical assistance in the development of geographic information systems.

♦ **Education/Technical Assistance:** The state is largely inactive in this field. The only form of assistance provided by the state to the local agencies is through prompt responses to unsolicited requests.

♦ **Access Management:** The state has developed an Access Management System Plan to indicate the network of state highways on which access shall be controlled. This system plan aims at maintaining safety on the selected highways by regulating traffic flow through access management. The state also works with the local governments to review development plans that are adjacent to or affect the traffic flow to a state highway. Thus, the DOT plays an active role in terms of access regulation.

♦ **Land Use Controls:** The state practices weak growth management by developing technical reference guides that would assist local agencies in assessing a project’s potential in influencing land development patterns. The state also plays an active role in land use by participating in interagency councils that direct land use and initiate land use reforms. The state has also organized focus groups with both state and local participants to provide the local governments with the necessary tools to make decisions that reflect statewide goals.

♦ **Economic Development:** The state uses a Development Grant Program, which provides communities with infrastructure improvements that initiate both basic and non-basic employment opportunities for these communities. Emphasis is always maintained on rural communities.

The following chart shows the strategies adopted by the state. Thus, the thick line plotted on the chart displays the present position of the state.
A review of the chart indicates that the state level of activity in outreach and technical assistance appears to be inconsistent with its other activities. The state might review its role in providing outreach and technical assistance in relation to its other more active programs. If the state were to be more active with regard to land use transportation and planning, the state could consider implementing state mandated local planning, where the state sets mandatory standards for comprehensive planning. Similarly, the state could organize oversight committees, conferences and training programs to assist local agencies. With the implementation of these steps, the new chart representing state actions would look like the one shown below, which is more balanced in its aggressiveness.
Conclusions

State Departments of transportation participate in a wide variety of actions that relate to land use. These range from basic participation on task forces and committees to extensive programs of access management, education, technical analysis, land use regulation and economic development programs. States are different in the level of participation and it is an area of evolving activity. In nearly all cases state departments of transportation work in partnership with local government and state agencies. The chart presented here is a way of understanding the scope of land use activities of state DOTs and can be useful in helping a state can develop a balanced, rational approach to their policies and programs.

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