CHAPTER 7 : LAND USE

OVERVIEW

Predicting how transportation projects will affect land use and community planning objectives is an important step in the community impact assessment process and is a required part of the Project Development and Environment process (Section 9-2.4). Although land use planning activities fall outside of the jurisdiction of transportation agencies, lack of consideration of land use impacts can counteract the effectiveness of long-range transportation planning and growth management efforts. The analysis of land use impacts improves the potential to coordinate with agencies involved in land use decisions and engage them in a collaborative planning process.

UNDERSTANDING POTENTIAL IMPACTS

Transportation projects can affect the rate of growth and the development patterns of an area. Some types of development may be directly induced by the project. However, most land use impacts are not direct consequences of the project, but rather occur indirectly due to changes in travel time and increased land accessibility. The result may be shifts in the spatial distribution of development over time, including such common changes as the introduction of new activity centers along a widened suburban arterial highway or localized commercial development around a new rural highway interchange.

Regional growth patterns depend on a range of factors, including the availability of water and sewer service, access to an educated workforce, the health of the regional and local economy and the quality of transportation infrastructure. Regardless of the actual influence of transportation infrastructure on growth, it is clear that land use and transportation are interdependent. The rate and pattern of development in urban areas is a key factor in predicting the need for additional roadway capacity. At the same time, the availability and efficiency of transportation systems is a major factor in development decisions. Although it is not possible to determine precisely how a transportation project will affect regional growth patterns, the assessment effort will uncover information that could be of significant value to transportation, economic development, and growth management programs.

For more information on land use and transportation issues in Florida see the following reports:

Transportation and Growth Management: A Planning and Policy Agenda.

Planning, Zoning, & the Consistency Doctrine: The Florida Experience.

State Transportation Policy Initiative, Center for Urban Transportation Research, University of South Florida, Tampa.
**Direct (Primary) Impacts**

Direct land use impacts include the actual conversion of productive land to transportation use, the removal of existing uses to accommodate the facility and any immediate changes to the overall character of the affected area. Examples of direct impacts include:

- Displacement of homes and businesses;
- Demolition of homes and businesses;
- Loss of parking, water retention areas, drainage facilities, setbacks or buffer areas, and landscaping;
- Loss of or fragmentation of farmland and reduced agricultural productivity; and
- Loss of or encroachment on cultural or aesthetic resources and community facilities.

**Indirect (Secondary) Impacts**

Indirect or secondary impacts of transportation projects on land use tend to occur over a long period and may involve changes in the overall development and growth of an area. Indirect impacts from transportation improvements can also be cumulative. For example, the addition of a new interchange may not in and of itself influence regional development patterns, but a new intersection and new arterial roadway may cumulatively influence regional development patterns. These impacts will vary depending upon the nature of the transportation improvement and other characteristics of an area that affect growth rates. Indirect impacts that may be associated with highway projects appear in Table 7-1.

Regional growth inducement may result in impacts that are not only adverse to the community, but also can adversely impact the transportation investment. Imagine the following cyclical scenario:

1. Buildings are constructed in the planned future right-of-way of a proposed roadway, foreclosing opportunities to widen or interconnect roads where needed;
2. Thoroughfare frontage is strip zoned for commercial use or subdivided into small lots, with little attention to access control;
3. Poorly coordinated access systems force more trips onto the arterial;
4. Traffic conflicts multiply;
5. Crash rates rise;
6. Congestion increases;
7. Roadway improvements are needed sooner than expected; and
8. The cycle begins again, only structural improvements along the roadway have now increased the cost of future right-of-way and the ability to provide needed roadway capacity.
Table 7-1: General Relationship of Highway Proximity to Land Use Changes

<table>
<thead>
<tr>
<th>Type of Change</th>
<th>Highway Proximity</th>
<th>General Relationship</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Development</td>
<td>Relationship varies</td>
<td>Complex relationship. Low-density single-family development is often independent of highways.</td>
<td>Highways appear to promote conversion of vacant (farm) land to low-density residential use at the urban fringe (although generally some distance from the highway).</td>
</tr>
<tr>
<td>Industrial and Commercial</td>
<td>Moderate-Strong Catalyst</td>
<td>Highways promote conversion of vacant and residential land to commercial and industrial uses.</td>
<td>Increased accessibility provided by highways introduces pressures for commercial development.</td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td>Arterial streets and radial highways tend to promote strip development; circumferential highways promote more comprehensive development.</td>
<td>Land use changes are most rapid and intensive at or near interchanges.</td>
</tr>
</tbody>
</table>


This counterproductive land use and transportation cycle reduces the life of a transportation facility; and increases the potential for adverse community impacts. Conducting a community impact assessment can help raise awareness of the land use and transportation cycle, and local support for a more effective and coordinated transportation and land use planning process.

**DATA SOURCES**

Data for the land use assessment should have largely been assembled in the development of a community profile (see Chapter 4). The most important data for the land use analysis include the following geographic and policy information:

- Existing land use and land cover
- Property ownership and plat maps
• Existing zoning
• Planned future land use
• Local growth management policies and regulations (both adopted and pending) relating to corridor development (e.g., access management, urban service areas, etc.)
• Other local plans or programs affecting corridor development (eg, community redevelopment areas, Main Street program, neighborhood planning studies, etc.).

Figure 7-1: Sample map of zoning and property ownership information. Zoning categories vary across jurisdictions, but tend to be defined as follows: R = residential, C = commercial, MF = multiple family residential. Designations of 1-3 indicate level of intensity or density with 1 being the lowest. R-1, for example, is single family residential.

ASSESSMENT TECHNIQUES

Assessing Direct Impacts

Direct land use impacts result from right-of-way acquisition and can be determined by comparing existing land use data obtained through the land use inventory described in Chapter 4, to proposed alternative alignments. Develop a list of potentially impacted properties for each project that outlines the extent of the potential impact. This should include a description of the existing land use (residential, commercial, industrial, etc), the amount of land potentially acquired and the specific use of the land to be acquired (parking, landscaping, drainage facility, etc.). As mentioned in Chapter 4, field surveys are recommended as they can reveal useful information that may not be apparent from reviewing secondary sources. In terms of direct impacts, potential adverse impacts to look for include:

• Loss of parking;
• Loss of storm water retention ponds and other drainage facilities; and
• Loss of landscaping, buffers or setback space.

Document potential direct impacts of each project alternative for each affected property. This information will prove useful in the right-of-way acquisition process and in understanding potential ways to address direct adverse impacts in project development. Sample strategies are discussed at the end of this chapter and throughout the handbook.

**Determination of Growth Inducement**

The determination of growth inducement establishes whether project alternatives will induce growth or alter the planned pattern of development. There are three general categories of induced growth related to transportation projects:

1. Projects serving specific land development, such as a highway interchange for a theme park;
2. Projects that would likely stimulate complementary land development, such as the development of a hotel near a large airport; and
3. Projects that would likely influence regional land development location decisions, such as a new highway providing convenient access to developable land on the fringe of a metropolitan area.

Determining if a transportation project falls within the first two categories of growth inducement is fairly straightforward. Determining if a transportation project would influence intra-regional land development decisions is less straightforward and more subjective. However, if conditions are generally favorable for growth in a region (sewer lines, relatively low land prices, natural amenities, etc.), then transportation improvements can dramatically influence the rate and location of development.

A land use modeling approach can be applied to make this determination. However, this approach is both data intensive and expensive. A less expensive and equally effective approach, recommended in this handbook, employs a checklist to determine regional growth inducement potential. The checklist approach provides guidance toward a general conclusion on growth inducement potential through the systematic consideration of common market factors applied by real estate investors when making a development or purchase decision. To determine the potential for the project to induce growth in the study area, complete the following checklist. Some of the questions can be answered by consulting publicly available information such as U.S. census data, U.S. Geological Survey topographic maps and road maps. Other information, including known future development trends, will require contact with planners, officials, and real estate professionals familiar with the region or locality in question. As with the consistency determination, the key to making a reasonable determination of growth inducement is to involve study area stakeholders in the process. In addition, the number and type of questions addressed will need to be tailored to the study area and the type of project.

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Determination of Consistency

Urban planning programs rely on reasonable consistency between transportation and land use plans and projects. Without that consistency, it is difficult to accomplish desired objectives. The purpose of the consistency determination is to assure that the final project conforms to and supports, as much as feasible, the planning objectives of the affected area. Because land use and transportation are interdependent, the consistency determination will involve both land use and transportation plans and issues in the affected area. Making a consistency determination is fairly subjective and requires a combination of common sense and some working knowledge of transportation and growth management issues. In addition, because it is essentially a policy determination, the determination of consistency must be made in the context of the local political and socio-economic environment.

Below is a general process for determining the consistency of the transportation project with local and regional growth management plans. It should be modified as necessary to accommodate local circumstances.

1. **Work with local government and regional planning council staff to identify current adopted plans for each affected jurisdiction.** This includes all officially adopted regional and local plans that establish transportation and growth management policies and objectives for the study area. Primary sources include local government comprehensive plans and resulting land use regulations and strategic regional policy plans. Other important sources include adopted neighborhood plans, community redevelopment area plans, corridor management plans, transit development plans, or other officially adopted sub-area or program plans. A complete list of potential data sources appears in Chapter 4 (land use and transportation inventory).

2. **Consider the nature of the proposed project and review the identified plans to identify potential consistency issues.** This review must be conducted for each project alternative as potential issues may vary. Examples of policies, objectives, or issues that might have a bearing on the consistency determination include:
   - A local comprehensive plan policy to avoid adding capacity to major roadways outside of an adopted urban service area;
   - A Main Street Plan objective to provide on street parking and street furniture to improve the image of a downtown shopping area;
   - A Transit Development Plan policy to co-develop bus transfer centers along new state roadways.
   - A Regional Policy Plan policy aimed at improving hurricane evacuation routes.

An effective approach is to begin by strategically scanning the material for background information and potentially relevant policies, objectives, or issues. Next, meet with local planners and other agency staff to discuss your preliminary findings and obtain further information on land use and transportation issues of relevance to the project. Then review the pertinent sections of the plans more closely to be sure that your information is complete.
It is a good idea to meet with staff of all potentially affected agencies, including regional planning councils, water management districts, or other agencies that have an obvious interest in transportation or land use issues. During these meetings, also explore the role of each agency in helping address these issues.

3. **Summarize your findings.** Briefly describe the type of plan reviewed and any potential consistency issues that arose through the review or discussion with agency staff. Be specific in describing the nature of the consistency issue and the potential role of each agency in addressing these issues. Also, document any relevant policies or objectives that are clearly in conflict with each other. This could be summarized briefly in text form and with a matrix that compares alternatives against various policies and each other. For example, taking the examples from #2 above, the summary may find that:

“Alternative A and B would add capacity outside the urban service area boundary and are inconsistent with Policy 1.1 of the local comprehensive plan, but consistent with Policy 2.3 of the Regional Policy Plan that calls for improved hurricane evacuation routes. Alternative C involves no new capacity but would upgrade the roadway to higher design standards. It includes paved shoulders that could be converted to additional lanes during emergency hurricane evacuation. It also provides enough right-of-way that it could be widened if desired in the future. This alternative is consistent with the local comprehensive plan and could accommodate hurricane evacuation needs.”

<table>
<thead>
<tr>
<th>Proposed Alternative</th>
<th>Urban Service Area</th>
<th>Hurricane Evacuation</th>
<th>Main Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) 6 lanes</td>
<td>m</td>
<td>l</td>
<td>m</td>
</tr>
<tr>
<td>(B) Bypass</td>
<td>m</td>
<td>l</td>
<td>l</td>
</tr>
<tr>
<td>(C) Median / Wide Shoulder</td>
<td>l</td>
<td>w</td>
<td>l</td>
</tr>
</tbody>
</table>

I Consistent
w Fairly Consistent
m Inconsistent

4. **Review the draft consistency determination with agency staff and study area stakeholders and revise the draft accordingly.** This will broaden the perspective of the findings by incorporating opinions provided by individuals with various points of view. The benefit of this exercise is that potentially controversial items, which might arise at the public hearing, will be addressed early in the process.

Where project alternatives are determined to be consistent, no more action is required beyond documenting the process and findings. Where the project alternatives are determined to be clearly inconsistent, strategies to either make the project alternatives consistent or to address their potential adverse impacts must be developed. These strategies are discussed in the section of this chapter entitled, “Mitigation and Problem Solving.”
Checklist To Evaluate Growth Inducement Potential

Directions: The purpose of this checklist is to help determine the potential for the proposed project to induce growth in the study area. Check the most appropriate response in the box or provide the appropriate answer. This information provides background for completing the rest of the checklist. The data required to complete this section of the checklist should already be available from the community profile (see Chapter 4). Additional data can be obtained through discussion with local authorities, stakeholders, and other local sources. Once completed, include the checklist in the project files or the final Community Impact Assessment report.

Background Information

Generalized Setting

Within Metropolitan Statistical Area (Identify MSA) □
Both Inside and Outside MSA □
Outside MSA □
Indicate Distance to Nearest Metropolitan Center _______

Population

Trend Projection
Declining □ _______
Static (+ 1%/10 years) □ _______
Slow Growth □ _______
Rapid Growth (> 10%/10 years) □ _______

Employment

Trend Projection
Declining □ _______
Static (+ 1%/10 years) □ _______
Slow Growth □ _______
Rapid Growth (> 10%/10 years) □ _______

Regional Study Area Conditions

Directions: A “yes” answer indicates that conditions generally favor growth. The more “yes” answers, the higher the certainty that regional conditions generally favor growth.

Is the regional population increasing rapidly (generally, > 10% per 10 years)? □ Yes □ No

Is the region considered favorable for receiving FHA/VA loans? □ Yes □ No

Are there any major growth generators (e.g. universities, military installations, industries, tourist attractions) in the region? □ Yes □ No

Is the regional office/commercial market characterized by low (generally, < 10%) vacancy rates in any class of space? □ Yes □ No
Is the region’s business and civic leadership committed to rapid development? □ Yes □ No

Are there other state or federal policies or programs affecting regional study area conditions? □ Yes □ No

Is the region an exporter of natural resources? □ Yes □ No

Local Study Area Conditions

Directions: If regional conditions generally favor growth based on the answers to the preceding questions, then proceed with the next series of questions. A “yes” answer indicates that the area in the immediate project vicinity has land use conversion potential; the more “yes” answers, the higher the certainty that land use conversion will be induced by the project.

GENERAL INDICATORS

Is the regional path of development in the direction of the local study area? □ Yes □ No

Is the project within 5 miles of a growing community (generally, >5% per 10 years)? □ Yes □ No

Is the local study area characterized by middle and/or high-income levels? □ Yes □ No

Is the local study area free of moratoriums on development (e.g. sewer moratoriums, growth restrictions)? □ Yes □ No

INDICATORS OF CONDITIONS FAVORABLE TO CONVERSION OF LOWER DENSITY DEVELOPMENT

Is the local study area within a 30-minute drive of a major employment center? □ Yes □ No

Does the local study area have relatively high land availability/low land prices (generally <one-third of larger parcels developed)? □ Yes □ No

Is the vacant land characterized by relatively large parcels? □ Yes □ No

Is the local study area characterized predominantly by level land (generally, <5% slope)? □ Yes □ No

Is the project’s Potential Impact Area characterized by soils suitable for development? □ Yes □ No

Is the project’s Potential Impact Area predominantly free of flooding or wetlands? □ Yes □ No
INDICATORS OF CONDITIONS FAVORABLE TO CONVERSION TO HIGHER DENSITY DEVELOPMENT

Does the local study area have relatively low land availability/high land prices (generally >two-thirds of larger parcels developed)?  □ Yes □ No

Is the local study area served by existing principal arterials and water/sewer systems?  □ Yes □ No

Is the local study area covered by relatively few governmental jurisdictions?  □ Yes □ No

Is the local study area characterized by frequent rezoning approvals?  □ Yes □ No

Conclusion

Do regional conditions generally favor growth?  □ Yes □ No
Do local study area conditions generally favor growth?  □ Yes □ No
Do conditions favor conversion to lower or higher density development?  □ Lower □ Higher

Additional Comments:
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Reviewed by:
Name____________________________________________________Date____________

Transportation alternatives can be evaluated for their ability to stimulate desirable land use changes and avoid adverse impacts on community development and growth management objectives. When project alternatives are identified as having the potential to adversely impact land use patterns in the community, methods to address those potential impacts need to be developed and documented as part of the community impact assessment.

If it is determined that the project alternatives would not induce growth, then no further action is required beyond documenting the process and findings. If it is determined that growth will be induced by the project alternatives, then determine if the potential for induced growth is consistent with local land use planning objectives for the study area. This can be achieved by reviewing issues and findings raised in the consistency review and considering the future land use plan for the study area.

If the potential for growth inducement is largely consistent with local future land use plans, then no further action is required beyond documenting the process and findings. If the potential exists for growth inducement that is significantly inconsistent with local comprehensive plans, neighborhood or community desires, or that could adversely affect the transportation investment, then the next step is to consider alternative strategies for addressing potential growth impacts.

MITIGATION AND PROBLEM SOLVING

Many methods for addressing potential impacts cannot be implemented by transportation agencies, but are the responsibility of one of the stakeholder organizations (local jurisdictions, water management districts, federal agencies, etc.). Strategies for addressing project impacts should be identified and pursued, regardless of the lead agency involved in implementation. The community impact assessment process is an opportunity for the transportation agency to overcome jurisdictional barriers and partner with stakeholder agencies and organizations on creative solutions to transportation and development problems.

An example of this type of partnering might be a local jurisdiction implementing access management overlay zoning along a project corridor to preserve the character of the corridor and reduce adverse impacts of development on the roadway. In this example, only the local jurisdiction has the authority to implement the needed zoning changes, but the transportation agency could lend technical assistance. Another example might be partnering with local agencies on the provision of alternative parking areas within walking distance of properties that have lost parking due to the project.

Also look for ways that the project may be able to help solve community problems. Some areas have contaminated brownfield sites that have not been developed due to clean up costs. In this scenario transportation agencies could consider locating transportation projects on brownfield sites and to configure transportation systems to assure that sites slated for redevelopment are well served by transportation (see “Reuse of Contaminated Sites”).
There are four primary methods for addressing impacts, as adapted from Community Impact Assessment: A Quick Reference for Transportation, Federal Highway Administration

1. Avoidance – Alter the project to avoid a potential impact. Examples include:
   a. Shifting alignment to avoid taking parking areas, storm water retention facilities, or other direct impacts; or
   b. Bridging over a roadway segment to avoid cutting off the main access point to a shopping center.

2. Minimization – Modify the project to reduce the severity of the impact. Examples include:
   a. Providing on-street parking instead of additional travel lanes in a Main Street area; or
   b. Shifting a project to minimize the impact on productive farmland.

3. Mitigation – Undertake an action to alleviate or offset an impact or to replace an appropriated resource. Examples include:
   a. Working with local governments on development of an access management plan and regulations for the corridor;
   b. Constructing a parking structure to compensate for lost private parking.

4. Enhancement – Add a desirable or attractive feature to the project to make it fit more harmoniously into the community (not designed to replace lost resources or alleviate impacts caused by the project). Examples include:
   a. Providing textured pedestrian crossings in downtown areas;
   b. Adding landscaping and other amenities to the facility design.
CONCLUSION

Upon completing the analysis detailed in this chapter, the following actions should be completed:

1. Document all relevant actions taken, findings reached and commitments made as part of the land use analysis conducted per the direction of this chapter;

2. File all relevant documentation related to the land use analysis per the direction of this chapter in the official project file;

3. Incorporate the relevant findings of this analysis into the project development process in order to minimize the potential land use impacts of the final project on the community; and

4. Incorporate the documentation developed as part of the process described in this chapter into the relevant section of the environmental document under development for this project per Section 9-2.4 of the Project Development and Environment Manual.