

## 4.0 Perspectives on Land Resources

### ■ 4.1 Introduction

One of the nine policies adopted by the Indiana Department of Transportation (INDOT) is to “establish and maintain a transportation system that is consistent with the state’s commitment to protect the environment.” One element of this policy is the manner in which INDOT utilizes and protects existing land resources, an issue that has become increasingly complex as suburban areas have developed and population growth is occurring in rural and small urban areas. The movement of housing and jobs into rural and small urban communities has come to be known as “rural sprawl,” complementing the more familiar concepts of urban and suburban sprawl. Open space is being converted to development at a rate that is faster than the growth in either population or housing units.

With these changes, there are particular concerns regarding the protection of agricultural lands, forestland, wetlands, wildlife habitats, and other sensitive land uses. The economy of rural areas is no longer limited to or even primarily agricultural, with housing, manufacturing, service, and trade taking on larger roles. In parallel, agricultural productivity has increased. The result is a tension over the manner in which the increased need for transportation services is met and the manner in which existing land resources are utilized. While there is recognition of the fact that the economic, development, and demographic character of Indiana is changing, there is at the same time a desire to preserve existing characteristics of the land.

Land use and transportation planning traditionally have been conducted in a largely independent manner, and at different levels of government. There is increasing recognition, though that this lack of coordination leads to unintended consequences. As a result, considerable current attention in Indiana and throughout the country is being given to the interconnections between transportation and land use decision-making. Transportation agencies today are actively endorsing the concept of environmental stewardship, where investments in transportation are made in a manner that improves the quality of the environment and affected communities as well as providing improvements in mobility and accessibility.

The purpose of Task 4 of the Market Research Project was to consider how INDOT should change the way in which land resource issues and the interests of resource agencies should be addressed in the transportation planning process. The work involved an identification and analysis of specific land resource issues that are of interest in different parts of the state; interviews with resource agency staff, local transportation planning officials in several small cities and rural areas, and special interest groups; and an examination of the

experience of other states and regions in incorporating land resource considerations into transportation planning.

The work in this task is supplemented by a compendium of transportation planning-related land resource practices being followed in other states and regions provided in Appendix E.

## ■ 4.2 Interview Findings

Sixteen people were interviewed either in person or by telephone using a 13-question interview guide. The responses of these persons to the 13 questions are characterized in this section.

The following people were interviewed:

- Joe Tutterrow, Director, Indiana Land Resources Council;
- John Bacone, Department of Natural Resources – Division of Nature Preserves;
- Glen Boise, Kokomo/Howard County Plan Commission;
- Rick Chase, Purdue Extension Central District Office;
- Rich Gargas, Central Indiana Regional Community League;
- Jim Hawley, Tippecanoe Area Plan Commission;
- Jonathan Isaacs, Town of Fishers – Planning and Zoning Administrator;
- Ellen Jacquart, Nature Conservancy;
- Dr. Eric Kelly, Ball State University;
- Dan Lowery, Indiana University Northwest and Quality of Life Council;
- Eric Myers, Natural Resources Foundation;
- John Ottensmann, Center for Urban Policy and the Environment at IUPUI;
- Jamie Palmer, Center for Urban Policy and the Environment at IUPUI;
- Phil Roth, Indianapolis MPO;
- Jill Saligoe-Simmel, Indiana Geographic Information Council;
- Ken Dallmeyer, Jim Ranfranz, and Steve Strains, Northwest Indiana Regional Planning Commission (joint interview).

The interviews were conducted using the interview guide shown in the accompanying text box.

## Interview Guide – Land Resources

1. What kinds of land resource issues have emerged in recent transportation planning and project development activities with respect to farmland, wetlands, forested lands, and natural resources? Are these issues arising during project development and design, statewide and metropolitan planning, or as a larger policy issue? Is it possible to obtain copies of relevant documentation?
2. Are there portions of the state where these issues are more important or sensitive than in other areas?
3. How important are land resource issues compared to other issues facing the state?
4. Looking into the future, how do you see these issues changing? Do you anticipate that the importance of land resource issues will increase in importance, decrease in importance, or stay relatively the same?
5. What kinds of databases or analyses are available documenting the existing inventory of land resources and how is this inventory changing over time? Can we obtain copies of relevant documents or databases?
6. What existing procedures and approaches are being used to address land resource issues? What has been the experience with these methods? What approaches have been successful? What approaches have proven not to be effective? Why?
7. How could these existing procedures and approaches be improved? Are there *additional* information or analyses that would be worthwhile undertaking in the future as part of either systems planning or project development?
8. With respect to land resources, what are examples of important performance measures that should be examined?
9. What kinds of actions in terms of transportation project location, design, or impact mitigation have been taken in response to the desire to preserve various types of land resources? How have project designs or locations been modified in response to land resource issues?
10. Are there additional policies, strategies, or activities that INDOT should consider undertaking in the future?
11. How can land resource agencies and land resource interest groups more effectively contribute to, or be involved in, the statewide transportation system planning process? What barriers, if any, may exist in achieving this desired level of involvement?
12. What kinds of changes may occur in the future with respect to the manner in which issues of land use, smart growth, and land resources are managed either at the local or state level?
13. Do you have any other comments, concerns, or issues that we have not discussed?
14. Are there other groups or persons with whom we should talk for additional information?

## Summary of Attitudes of Respondents

The following selected quotes provide an overview of the attitude of the respondents:

- “INDOT currently sees transportation planning as something that is done in response to development. In reality, transportation projects direct what happens. INDOT needs to undertake planning with this relationship in mind.”
- “People don’t feel connected to INDOT – it’s hard to get to them – or even figure out who ‘them’ is.”
- “INDOT could probably save money in the long run through greater coordination with local jurisdictions on land use issues.”
- “INDOT is often viewed as an adversary... instead, they should be viewed as a consensus-builder.”
- “People in the state are generally not anti-highway, and there are lots of people who would love to work with INDOT and see better decisions made.”
- “Reaching out to political officials and planners could help INDOT with its public input efforts for the transportation project – specifically, to get public input in an earlier and more effective manner than if INDOT just did it themselves.”
- “INDOT needs to go beyond just thinking as a highway agency. They need to start integrating thoughts on transportation, land use and tax policies as they go through the transportation planning process and help provide MPOs with the technical support to do this as well.”
- “Support for land preservation is mixed – people like the idea in concept, but cities/towns do not like having the land taken off of tax rolls.”
- “The data stops at jurisdictional boundaries, but the problems don’t.”
- “I’m not sure people see the relevance of land use planning to their lives... people see the symptoms, but not their relationship to land use.”

## Responses to Specific Lines of Questioning

### *1. What kinds of land resource issues have emerged in recent transportation planning and project development activities? At what stage of the process?*

All interviewees agreed that certain land resource issues have had relatively high visibility in recent major transportation project design and development processes. Farmland preservation is important throughout the state, and especially near expanding urban areas. Two different motivations are cited, depending upon the person/constituency – first,

conservation of prime farmland for agricultural purposes; and second, preservation of the rural and small town character of areas. Forest preservation is of concern for similar reasons. Most interviewees felt that the rate of land loss (especially agricultural) was a concern in the state, although a few noted that the losses are still relatively small compared to total productive land in Indiana.

Many (but not all) interviewees mentioned that secondary impacts – especially development or “sprawl” – induced by transportation improvements are of increasing concern to them, their constituents, and/or the public. There was a general feeling that transportation improvements (new highway, widening, new interchange) eventually lead to development.

However, the reasons that people are concerned about suburban/exurban/rural development vary. Some are concerned because the induced development consumes or impacts rural land (agricultural, forest, open space) or specific sensitive habitats such as wetlands, floodplains, or nature preserves. A related impact is the effect of reducing/changing rural character. Others, especially representatives of local jurisdictions, are concerned that induced development along the new/expanded highway or in outlying areas can have negative impacts on the performance of the transportation system. They see secondary development impacts not as a problem of land consumption/change, but rather of maintaining transportation system performance. Concerns in most areas are about the capacity of local roads. In the Indianapolis metropolitan area, though, there also is concern about the capacity of the regional freeway system, which people feel is at capacity but cannot be expanded.

In general, people interviewed (especially local officials) were not opposed to development, but just felt that it should go in appropriate places. One local representative noted that they were concerned that highway improvements were made without enough local access, thus failing to provide economic benefits to the community.

Some other, more specific concerns mentioned by one or two interviewees each include:

- Invasive species – Common landscaping and mowing practices along highway rights-of-way either introduce invasive species or allow them to take over. This impacts nearby natural areas as the species spread. Invasive species also have significant negative economic impacts on farmers.
- Fragmentation of forests (as opposed to simple loss of forested land area) – Reduces contiguous forest habitat, affects certain species.
- Runoff/hydrology changes from newly constructed transportation facilities – Can affect and change nearby natural areas, even if the highway does not directly impact the area.
- Groundwater pollution from highway runoff, especially in areas with karst topography.

- Impacts of transportation on tourism – Both as transportation providing access to tourist activities/destinations, but also the negative impact of transportation facilities on areas/locations that are attractive to tourists (noise, traffic, visual intrusion, etc.)
- Animal mortality, e.g., the bobcat in the southern forests.
- Community impacts. In many places, state highways run through the county seat. Traffic safety and capacity improvements have been a concern to some communities because of the impact on community character and ability to walk (sidewalks are not normally included).

Land resource issues typically arise in the transportation project design and development process. While most interviewees had not been closely involved in the statewide plan development process, the feeling was that land resource issues were not being adequately addressed at this stage of planning. For example, land resource issues have not been addressed as part of the Indianapolis long-range transportation planning process, in part because of the unique structure of the MPO (an agency of the City of Indianapolis, although other communities serve on its policy board).

*2. Are there portions of the state where these issues are more important or sensitive than in other areas?*

- Agricultural/open space/rural character preservation is an issue everywhere, but of primary concern near expanding urban areas – namely, Indianapolis, northwest Indiana, and the Louisville metropolitan area fringes.
- Preservation of transportation capacity/performance is most important near expanding urban areas – but this may include smaller urban areas that are “sprawling” as well as the three large metropolitan areas.
- Forest preservation is of greatest importance in the southern part of the state (where the forests are).
- Groundwater pollution is of greatest concern in the southern part of the state, where the karst topography allows pollutants to spread easily.
- Wetlands appear to be of greatest concern in the northwest part of the state, where there are a number of wetlands with sensitive and endangered species.
- Urban/brownfields redevelopment is of greatest concern in the northwest part of the state.

Case studies of key land resource issues in three specific parts of the state are illustrative of these issues.

- **Greater Indianapolis Region** – While the Indianapolis region continues to grow at a relatively slow pace, some areas on the urban fringe have grown more rapidly as

employment and population move to the suburbs. This has caused concern among existing residents of these areas about the protection of rural character as well as inadequacy of existing roadways for serving high volumes of traffic. However, efforts to limit growth and preserve farmland have been controversial because of the desire of many property owners (including some farmers) to sell/develop their property, and because of local jurisdiction interests in economic development (especially revenue-generating commercial development). Urban communities within the City of Indianapolis are concerned about the disinvestment in the inner city that results from suburban development, and want to maintain/strengthen the physical “core” of the region as its economic center. Also, residents in general are concerned that the freeway system appears to be approaching capacity, and that future expansion of existing highways will not be possible.

- **Northwest Indiana** - Of the various regional concerns for community and environmental groups in northwest Indiana, land resource issues rank high along with environmental justice issues. The two most significant land resource issues in this region are sprawl and the reallocation of lakeshore lands as the steel plants move out. Some see an emphasis on highway rather than transit investments as contributing to sprawl and an associated loss of inner-city jobs and population. Environmental constraints related to water supply and sewerage, though, largely limit development to the Lake Michigan watershed, and most transportation projects have occurred within this watershed as well. Lack of adequate transit service for low-income populations is a significant issue, and is related to some extent to dispersed development patterns. Local groups would like to see a master plan for redevelopment of the steel mill areas/waterfront rather than scattered and uncontrolled development.
- **Southwest Indiana** - Because of significant public interest, the I-69 environmental impact statement (EIS) process included extensive documentation and consideration of land resource issues in developing and selecting project alternatives for the Indianapolis to Evansville corridor. Some of the most significant issues of concern included farmland preservation, forest protection, protection of natural areas, and urban sprawl near Indianapolis. There has been a significant debate over the tradeoff between the economic development benefits of the highway and the potential degradation of rural character. INDOT brought the consideration of land resource issues into the study process by assembling a GIS database of various environmental data for use in route planning and selection. The database was published as part of the EIS in the form of an “environmental atlas,” containing detailed maps showing proposed alignments overlaid on the various environmental data, and that is now being expanded for statewide application.

### ***3. How important are land resource issues compared to other issues facing the state (or local communities)?***

The importance of these issues varies by location in the state, with the greatest relative importance and visibility in high-growth suburban fringe areas. People become concerned when they see rural land being developed, and experience the associated traffic increases and loss of rural character. The desire for land preservation/growth

management, though, often loses out at the local government level to the desire for economic development and a reluctance to tell property owners what to do with their land. One interviewee from the Indianapolis metropolitan area commented that people see the *symptoms* of land use problems (such as traffic congestion), but not the relationship to land use planning.

At the state level, economic development and the state budget crisis currently have greater importance. The state leadership has talked about land resource issues but has not made it a high priority in terms of new initiatives.

**4. *Looking into the future, how do you see these issues changing? Do you anticipate that the importance of land resource issues will increase in importance, decrease in importance, or stay relatively the same?***

The importance/visibility of land resource issues has increased significantly in the last 10 years (from almost nothing). Interest will likely continue to increase in the future, especially in rural areas and the suburban fringe. The fiscal impacts of local development patterns will become of increasing concern to communities given generally tight budgets – development can bring more tax revenue but also require more services. Poorly planned development may have greater negative fiscal impacts than the same amount of well-planned development.

The new Federal farm bill and associated funding is creating greater interest in farmland preservation initiatives.

**5. *What kinds of databases or analyses are available documenting the existing inventory of land resources and how is this inventory changing over time?***

**National Sources**

- National wetlands inventory (last performed for Indiana in the 1980s, but still useful)
- USGS soils survey
- Water and floodplain boundaries

**State Sources**

- The Department of Natural Resources (DNR) maintains its Natural Heritage Data Center, which has the locations of threatened and endangered species, managed lands, historic/archeological sites, etc. Quality can vary by county, though – species inventory is more thorough in some areas than in others.
- Indiana University Purdue University Indianapolis (IUPUI) has good data, developed from satellite imagery, to track recent land use change (they have classified land use by category at a 30-meter grid cell level for 1985, 1993, and 2000). No one else is tracking this.

- Commissioner of Agriculture has some data on farmland, but it is not comprehensive or detailed (e.g., by county).
- The Lake Rim GIS was developed by the Indiana Geological Survey to address water quality issues in northwest Indiana. It includes data relevant to water quality such as landfill sites and hydrology.

#### **Local Sources**

- The quality of land use/land resource data varies by jurisdiction. Some have relatively comprehensive data, others have no data. Many do not have GIS capabilities.
- The Indianapolis MPO has used census data from 1960, 1980, and 2000 in conjunction with USGS maps to determine urbanized land area and population density in each year.

#### **Meta-sources**

- The Indiana Land Use Consortium has published a Land Resources Catalog that provides summaries and references to various sources of data.
- The Governor established a group, the Indiana GIS Initiative (INGISI) to coordinate information/data across state agencies and between state and local agencies.
- The statewide environmental GIS currently being developed illustrates the current Indiana state-of-practice in assembling environmental data for transportation planning. This effort is expanding the scope of the 170-layer database completed for southwest Indiana so that it is statewide in coverage. The effort is scheduled to be completed in 2004.

#### **6. *What existing procedures and approaches are being used to address land resource issues? What has been the experience with these methods? What approaches have been successful? What approaches have proven not to be effective? Why?***

##### **At the Statewide Level**

- The Department of Environmental Management (DEM), DNR, and nonprofit groups (e.g., Nature Conservancy) identify important/sensitive areas (e.g., wetlands, key habitat) and work to acquire or otherwise manage them for preservation. For example, DEM issues permits for building on a wetland, and mitigation may be required. Indiana has done a standard version of Gap (habitat) analysis.

##### **In Transportation Project Design and Development**

- INDOT assembles data, especially on wetlands, preserves, and other sensitive areas, as well as existing development, and works to design projects that minimize direct impacts on these areas (e.g., through alternative project alignment choices). For example, the department commissioned the Indiana Geological Survey to do a relatively

comprehensive data collection and mapping effort for southwest Indiana, and they are expanding this effort statewide for use in transportation planning.

- Interviewees disagreed about the extent to which INDOT adequately addresses land resource and natural resource issues through the EIS process; some felt the agency does a good job, while others did not.
- The Land Use in Central Indiana Model (LUCI) has been developed as a tool for forecasting urbanization, but has not yet been applied in transportation planning practice. In transportation corridor studies, INDOT has done land use forecasting with the objective of generating population and employment changes to feedback into the statewide travel demand model, but not with the objective of predicting land use change.

### **In Local Comprehensive Planning**

- The amount and quality of comprehensive planning, as well as issues addressed, varies widely by jurisdiction. Some jurisdictions do not do comprehensive planning. (*Note – A recent research effort by IUPUI surveyed the state of practice in planning in Indiana.*) Jurisdictions that plan may often identify areas, such as floodplains that are not suitable for building. Some jurisdictions have parks plans to set aside land for recreational purposes. Except for these preserved areas, it is unusual for local jurisdictions to place significant restrictions on the type or location of development. If somebody wants to build on a property, the planning/zoning boards are unlikely to deny permission.
- The level of coordination between transportation and land use planning also varies, but well-coordinated planning is uncommon. Most jurisdictions do not have the resources or technical expertise to do good coordinated planning, or to work with developers to site development in appropriate locations from a transportation perspective. Often there is only one person in a planning department, and it is “all they can do to deal with petitions,” so they have “no time to analyze the world.” Even if planning has been done, there is a reluctance to override the intentions of particular property owners or developers (“zoning is political”). Most counties do at least have a registered engineer (state-subsidized), though, who can review subdivision designs, etc.

### **7. *How could these existing procedures and approaches be improved? Are there additional information or analyses that would be worthwhile undertaking in the future as part of either systems planning or project development?***

#### **Improvements to INDOT’s Procedures and Approaches**

- To help address the kinds of land resource concerns raised in these interviews, INDOT currently is in the process of assembling a statewide GIS database, expanding a 170-layer GIS developed for the southwest Indiana region. This comprehensive statewide database can be used up front in the project planning process to identify potential

problem areas, and should to a large extent address the identified concerns. Not all of those interviewed, however, were aware of this effort. Better use of GIS mapping and analysis capabilities will be helpful in identifying areas that should be avoided by transportation facilities. A uniform, comprehensive, and accessible GIS system at the state level, therefore, should be a great benefit.

- Tools are needed for analyzing the impacts of transportation systems on urban development/land development, both at a macro level (urban sprawl, land conversion) and at a micro level (specific interchanges, arterials, subareas, etc.)
- One respondent mentioned that there are models used in Indiana and elsewhere that INDOT could make better use of: for example, Land Evaluation and Suitability Analysis (LESA) to analyze soils, terrain, topography, vegetation, etc., for appropriate facility siting.
- One local planner mentioned the desire for empirical before/after evidence on the impacts of highways on communities, especially on property values of neighborhoods adjacent to the highway.
- One comment was made that “The time engineers/planners/analysts spend working on EISs would be more productively used working with local governments where impacts and needs are understood.”

It is important to note that many of the land resource issues involving transportation projects appear to arise more from disagreements on the relative importance of various impacts than from a lack of data/information on the impacts. There also is disagreement about the interpretation of impacts, and the value system associated with an impact. If a road project brings economic development to a depressed rural community, it’s a positive impact if you care about economic health, but a negative impact if you care about maintaining rural lifestyles.)

### **Improvements to Local Planning Procedures and Approaches**

- There was widespread agreement that training for local planners and engineers is extremely important. “Training is often a better planning tool than zoning and subdivision regulations.” There is a general lack of professionals in technical jobs at the local level, largely due to insufficient financial resources. However, the staff that are in place, as well as volunteer positions such as planning and zoning board members, could benefit from additional training and technical support. Some training activities are conducted (e.g., through IUPUI, Purdue Extension, Indiana Land Use Consortium) but more are needed.
- One specific area in which greater technical support is needed is the ability to do traffic impact analysis and mitigation related to development. Local planning commissions need to know how to respond to development in terms of providing appropriate road infrastructure (e.g., when is a signal, passing lane, etc., needed; do local roads have the capacity to handle planned development).

- Better coordination is needed among local jurisdictions. Specifically, consistent data classifications and information maintenance systems are required; and cross-jurisdictional coordination of planning efforts is required. The need for comprehensive and consistent land use data was mentioned specifically in the Indianapolis metropolitan region, where a lack of such data hampers efforts to jointly plan for transportation, land use, and economic development from a regional perspective. The Indiana Geographic Information Council is attempting to establish standards and work with local jurisdictions to develop more uniform and comprehensive data.

**8. *With respect to land resources, what are examples of important performance measures that should be examined?***

Many interviewees noted that induced development (along an arterial, near an interchange, or elsewhere within a community) was an important performance measure – e.g., location and amount of residential and commercial development. Interest in the specific types of impacts from this induced development, however, varied considerably. Also, some interviewees noted that the key performance measures vary depending upon the situation. Specific suggestions included:

- Fiscal impacts – cost of providing services versus tax revenue gains;
- Transportation impacts, including traffic congestion and safety;
- Loss of land by type and quality, e.g., forest land, farmland, wetland, important/unique habitats;
- Efficiency of land used for urban purposes – e.g., jobs/acre, population/acre, gross state product generated per unit of new land development;
- Forest fragmentation;
- Introduction of invasive species;
- Economic benefits to the community (businesses, jobs, etc.); and
- Tourism benefits.

**9. *What kinds of actions in terms of transportation project location, design, or impact mitigation have been taken in response to the desire to preserve various types of land resources? How have project designs or locations been modified in response to land resource issues?***

Most respondents felt that INDOT is taking land resource issues into account in making specific alignment/routing choices for facilities, e.g., to avoid particular natural areas, wetlands, or other environmentally sensitive locations. INDOT has given greater consideration to this factor within the past few years. Respondents disagreed, though, about the extent to which consideration was taken and appropriate decisions made. For example,

the DNR felt that INDOT has coordinated well with them on avoiding preserves and natural areas, while the Nature Conservancy felt that INDOT had not responded to some of their concerns. Also, avoiding major forest fragmentation may result in farmland takings and potential secondary impacts from “greenfields” development. Respondents’ differing opinions appear, in part, to reflect value judgments on the relative importance of different issues, including land resources and other issues such as economic development.

Respondents noted that INDOT has been less likely to evaluate or make changes that address secondary impacts due to the transportation facility (noise, runoff, etc.) than primary impacts (directly from the facility itself).

Other observations included:

- Mitigation is commonly performed, e.g., through the replacement of wetlands or acquisition of other natural areas not on the alignment. The state has begun a wetland mitigation banking program.
- Two examples were cited where INDOT worked with the local communities to implement additional landscaping, one in the Town of Fowler (wildflowers) and one in Fishers. These were noted as exceptions rather than standard practice, however.
- INDOT has been reluctant to make highway design changes to address local community character issues/impacts, although in some cases such changes ultimately have been made after pressure from the community. For example, a town in western Indiana had to “work hard” to get sidewalks included as part of a highway upgrade project through the town.
- Potential secondary impacts on land development have been given limited, if any, consideration to-date.

**10. Are there additional policies, strategies, or activities that INDOT should consider undertaking in the future?**

Within the transportation planning and project development processes, interviewees generally felt that INDOT should give more consideration to the secondary impacts of transportation projects, and should help to avoid or mitigate those impacts. The most frequently mentioned area was that INDOT could work more closely with local jurisdictions to coordinate transportation planning and land use planning. Interviewees stressed that while local land use/planning decisions are not INDOT’s responsibility, INDOT nonetheless is an important stakeholder in these decisions because of the implications for the transportation system. Interviewees felt that there were a number of beneficial ways in which INDOT could assist and work with local jurisdictions to improve planning practices. Interviewees also noted a desire for greater coordination between INDOT and other statewide agencies and interest groups.

Interviewees had the following suggestions for better coordinating transportation planning with local planning, and especially land use planning:

- A process is needed for INDOT to work with cities and counties in affected corridors earlier in the planning and project development process, i.e., before alternatives are fully defined. INDOT should solicit input on how the project should fit in with local land use goals and objectives, and also could work with local jurisdictions to ensure they are considering the potential impacts of the roadway on their community.
- INDOT should work with local jurisdictions to ensure that potential impacts of a roadway improvement on a community are being considered in other aspects of community planning. For example, local planners need to know where projects are going early in the planning process, so that local comprehensive plans can support state transportation projects. This will “protect the locals from doing things that get in INDOT’s way.”
- INDOT should view/work with local officials as a resource – often local officials may have knowledge about data sources, impacts, best mitigation strategies, etc., that would be useful in project design/development. INDOT needs to tap into this knowledge and provide a forum for airing local knowledge, issues, and concerns.
- INDOT should pay more attention to local knowledge in creating its population, employment, and traffic forecasts (this viewpoint was expressed primarily by local planners). Some interviewees expressed concern that the statewide modeling system does not adequately account for local traffic or projected growth in the future. Local jurisdictions sometimes keep close track of new development and believe they can provide more accurate forecasts.

Interviewees also mentioned specific ideas for improving coordination between transportation and land use planning, such as:

- Assign INDOT planners and engineers to stay in touch with locals, e.g., by attending planning commission meetings or meeting with local officials to understand issues important in each community. INDOT may not be able to do this with all communities, but should at least focus on larger jurisdictions.
- Provide technical assistance to help local jurisdictions address the infrastructure impacts/needs related to new development. For example, when a subdivision or commercial development is proposed, the state highway engineer is supposed to comment on how it will affect traffic flow, but this communication comes through the county highway engineer who says “the state requires this.” One interviewee commented that sometimes the planning commission gets good information, and sometimes not. Local agencies need to know what is needed from an infrastructure perspective to support new development. This issue is particularly critical in rural counties that may not have a registered engineer.
- Support technical assistance for comprehensive planning efforts. For example, the state could help locals understand the importance of doing comprehensive planning with transportation impacts/needs in mind. How can transportation facilities be planned to serve new development, and what options are available for doing this?

- Local agencies should consult with the state whenever a comprehensive plan is revised, including how the plan might affect/require transportation projects.
- Use the Land Resources Council as a communications vehicle.
- Make it easier to contact INDOT; for example, identify a point of contact for groups with concerns.

Suggestions to improve coordination with other state agencies and interest groups included:

- INDOT needs to become more of a consensus-builder with tourism, economic development, natural resource, etc., interests. More interagency coordination is needed.
- Hold quarterly meetings with mid- to high-level people from other state agencies to talk about issues.
- Form interagency coordination groups around specific issue areas.
- The state can help in obtaining/channeling Federal funds available for land preservation – possibly a role for the Land Resources Council.

Finally, interviewees made specific suggestions for improving transportation facility design and management practices. Of these, access management and right-of-way acquisition were commonly mentioned; the other recommendations were mentioned by one or two interviewees each.

- Address access management; limit the number of driveways/access points along major arterials. Interviewees recognized, though that this may not be easy. Because property owners must legally be given access to their land, this may require coordinating with local jurisdictions and property owners to construct access roads. One interviewee suggested the need for more flexibility in allowing access management for lower classes of functional roads.
- Be more proactive about protecting right-of-way for future new transportation facilities, facility expansion, and interchange development. Right-of-way should be acquired well before the facility is actually needed, when land is cheap and local opposition or potential displacement is minimal.
- Consider actions to protect specific sensitive areas from development, such as acquiring easements on land adjacent to roadways or guaranteeing no curb cuts. Elkhart County acquired an easement on a wetland as a condition for obtaining a permit from the DEM to construct a bypass.
- Revise landscaping and roadside maintenance practices; specifically, stop planting crown vetch (an invasive species that moves into natural areas adjacent to highways) and instead plant a “good mix of native seeds.” Manage presence of invasive species, such as Johnson grass and Canada thistle, along roadways.

**11. How can land resource agencies and land resource interest groups more effectively contribute to, or be involved in, the statewide transportation system planning process? What barriers, if any, may exist in achieving this desired level of involvement?**

Most of the interviewees were either not aware of the statewide planning process or were not very familiar with it. Two comments on this process included:

1. The current modus operandus (or at least, many peoples' impression) seems to be that INDOT proposes a statewide plan and asks for reactions – at which point, it's too late to make significant changes. There is an impression that INDOT already has decided what they want and that other groups' input does not matter.
2. The statewide plan appears to be primarily a laundry list of projects on the back burner.

One local jurisdiction (combined county/MPO) commented that they have had discussions with INDOT about the statewide plan and they agree on most points but not all. Disagreements tend to be about future traffic volumes (especially underprediction) and future connections. These issues (e.g., need for greater capacity) eventually get worked out in the design process.

Constructive advice for improving the statewide planning process included:

- A more formal and forward-thinking statewide planning process is needed to address transportation issues from a long-term statewide and community development perspective.
- More information and outreach is needed. Get information on issues being discussed in the process (including issues that affect land resources) out to local jurisdictions, other state agencies, and various interest groups earlier, so that these groups can understand where the process is going and what opportunities they have to provide input. The same comment holds true with involving local jurisdictions and other state agencies.
- Greater interagency coordination methods are needed. One idea is to hold a quarterly meeting of mid- to upper-level officials of the agencies. Another idea is to create advisory groups for various interest areas such as tourism and natural resource/land preservation. A structure is needed where people already are at the table, rather than having issues raised on a project-specific basis.
- The statewide planning process does not appear to be well-connected to the legislative process. If the legislature understood the overall plan, they might be more supportive. (One interviewee suggested having the legislature approve the statewide plan as a policy document.)
- Meetings should be led by professional facilitators rather than engineers.

**12. What kinds of changes may occur in the future with respect to the manner in which issues of land use, smart growth, and land resources are managed either at the local or state level?**

Some local jurisdictions in rapidly growing areas will consider more innovative and aggressive approaches to land resource management; others will at least “pay attention” to the issue. For example, the Indiana Land Use Consortium is working with Putnam County on how to better address land use issues in planning. In most counties, though, planning is not going to change, local zoning controls are “not really going to happen,” and traditional attitudes towards allowing development will continue.

One interviewee commented that the state is likely to get better at supporting local planning. For example, changes are in the works with respect to wastewater policy, which affects the suitability of land near interchanges for development. Some progress also is being made on invasive species. Others commented, though that short of gubernatorial leadership, the state is not likely to take a much more active role in land resource issues – especially given the current budget crisis. Interviewees were of the opinion that the process for addressing land resource issues by the Legislature will continue to be reactive rather than proactive (e.g., exceptions to specific rules to allow specific things to happen).

There has only been limited interest in Smart Growth policies so far, and it is not clear from the interviews whether this will increase.

**13. Do you have any other comments, concerns, or issues that we have not discussed?**

- One interviewee commented that the Transportation Enhancements (TE) program should be better staffed and made more visible. More resources for this program could lead to a greater return for INDOT and the state. INDOT would pick up good PR for these “soft projects.” Also, the program should be streamlined. Local officials complain about bureaucracy and also that INDOT requires “overbuilding” (e.g., building bicycle paths to highway standards when users are bicyclists/pedestrians.)
- One interviewee commented that INDOT should pay greater attention to land resource issues specifically in the airport planning process. For example, the DNR has some concerns about the proposed Gary airport, since the area is full of wetlands and rare species. The DNR reports, though that they have had good coordination with INDOT on the Indianapolis airport expansion.
- Interviewees from local and regional agencies commented that INDOT should pay greater attention to the needs of local traffic. State highway system planning is focused primarily, if not exclusively, on moving through traffic – often at the expense of local traffic. On a related topic, highway improvement studies should consider impacts on local roads as well as needs for local road improvement in coordination with – or even as an alternative to – the main highway improvement. For example, the Central Indiana Suburban Transportation Mobility Study (CISTMS) study should consider the effects of local road improvements as a complementary or alternative strategy to a through highway.

- A number of interviewees suggested giving more serious consideration to a broader range of transportation options. The following options were mentioned by at least one interviewee each: rail transit, HOV lanes, ITS, and bicycle/pedestrian in local communities.
- One interviewee noted that INDOT still uses obsolete design standards, such as “open intersections,” and sometimes under-designs (e.g., diamond interchange where a cloverleaf will be needed).

## ■ 4.3 Examples of Coordinated Transportation and Land Use Planning

Interviewees frequently noted a perceived disconnect between transportation planning and land use planning, and various problems created by this disconnect. Based on the market research interviews on land resource issues, the following subsection provides examples cited by the interviewees as “uncoordinated” planning and its effects. An example of “coordinated” planning is then described.

### Examples of Uncoordinated Planning and Its Effects

Here are some examples that interviewees provided regarding uncoordinated planning and its effects:

- A subdivision was built in the alignment of a proposed bridge over the Ohio River. This will make property acquisition for the project much more difficult. Recent news reports suggest that local officials were legally required to grant the permit for the subdivision.
- In Johnson County (south of Indianapolis), there is a growing need for an east-west highway due to development in the county. However, since a right-of-way has not been set aside, it will be increasingly difficult to build such a connector. Planning for this 25 years ago would have made it easier to build.
- There is a prairie nature preserve in Lake County that was purchased by the state when the county was still rural. It is now surrounded by towns. The road through the preserve is now a bottleneck because it cannot be widened because of the preserve’s protected status. The DNR had pointed out for 20 years that this would be a problem but it was not addressed in the comprehensive planning of the local jurisdictions.
- Kokomo/Howard County has not been able to craft land use policies specifically for a bypass because the final route has not been determined.
- Lack of access controls along a highway in Lafayette has led to a proliferation of curb cuts, roadside businesses, and increasing traffic snarls and safety problems.

- In Elkhart County, the county is eligible for state funds to upgrade a road but wants to limit access along the road (so that its primary function is traffic movement). However, INDOT is not willing to limit access for lower functional classifications of roads. This issue also arises in the case of bypasses around towns, where towns support the bypass but want to limit access in order to preserve business viability in the downtown.

## **An Example of Coordinated Planning**

The Tippecanoe Area Plan Commission, based in Lafayette, provides an example of how transportation and land use planning *can* be coordinated at the local level. The Commission has a somewhat unusual role in that it is both the designated MPO and the land planning agency for the county, in charge of planning, zoning, subdivision ordinances, etc. (This arrangement dates to the mid-1970s). Bloomington and Muncie are the only other areas in the state with the same land use and transportation planning agency. Also, there is a unified zoning and subdivision ordinance that applies to all but one jurisdiction in the county – in most areas with zoning, each jurisdiction has its own code.

The Commission forecasts growth with considerable accuracy because of close ties to the development community. They have pre-design areas on the order of 600 acres. They work with developers to identify areas that are the easiest or most suitable to develop. At the same time, they discourage development in inappropriate areas (e.g., by refusing to rezone floodplains or areas not served by public utilities). As a result, they know proposed densities and locations of residential and commercial growth. The Commission then develops socioeconomic forecasts and identifies transportation projects to support that growth. Afterwards, other county/local agencies take these forecasts and do utility plans based on them. Note, though that “zoning is politics” rather than rational, and it is not always possible to control development as desired. The Commission also has two full-time transportation modelers in-house. Their growth projections, including population, development, and traffic, have been “very accurate” in the past.

The Commission has authority, albeit limited, within their subdivision ordinances to set aside right-of-way easements for future transportation improvements – again, unusual for Indiana. A developer must set aside a designated corridor for five years (after the developer acquires the land) for potential transportation facilities. A transportation agency (state, city, or county – but not the MPO) must acquire or condemn land within the five-year time period; otherwise the developer is allowed to build on it. These policies are “on the edge of violating takings law” and could run into legal difficulties if land set aside for a transportation right-of-way is not later used for this public purpose.

The Commission believes that its approach, followed over a 25-year period, has successfully introduced greater rationality to transportation and land use planning in the county. Development in the county is relatively contiguous, rather than leapfrog. They believe that the cost of providing infrastructure and utilities to serve development has been lower as a result. Also, farmland is well-preserved and development has stayed out of floodplain areas.

## ■ 4.4 General Findings on Land Resource Issues in Indiana

Interviewees agreed that concerns over land resource issues have grown in recent years, that these issues have relatively high visibility in some parts of the state, and that they will continue to grow in importance with respect to transportation decision-making. Traffic congestion, farmland preservation, and preservation of rural and small town character are probably the most significant concerns related to land resource planning. Other areas of concern include forest preservation, preservation of sensitive natural areas (habitat, wetlands) and open space, groundwater contamination, and invasive species.

The relative importance of land resource issues varies by location. Issues related to transportation and urban growth are most significant on the fringes of expanding urban areas (including small as well as large cities). Other project-related issues have arisen in rural areas as well.

There is a general feeling that transportation improvements (new highways, highway widening, new interchange) eventually lead to development. Those interviewed view development as having both positive impacts (economic development and tax revenue) and negative impacts (loss of rural land/open space and increased traffic congestion), with different people placing different weights on these impacts.

Interviewees noted that there is not a strong culture of land use planning in Indiana. This makes it harder to achieve land resource-related objectives. Local officials are reluctant to impose restrictions on property use; the general public “does not see the relevance of land use planning to their lives.” Education, outreach, and voluntary incentives therefore are important components of addressing land resource issues.

## ■ 4.5 Potential INDOT Actions Recommended by Interviewees

A number of respondents noted that INDOT has made important progress within the past five to 10 years in taking land resource issues into account when making specific alignment/routing choices for facilities. Examples include avoiding particular natural areas, wetlands, and other environmentally sensitive locations.

Most of those interviewed, though, also felt that it was important that INDOT further expand its consideration of land resource issues beyond the project design stage. Interviewees noted three general areas in which INDOT should expand its involvement in order to improve the manner in which land resource considerations are integrated into transportation planning.

### **Coordination, Outreach, and Training**

1. Conduct more extensive outreach and coordination with local officials, stakeholder groups, and the general public, starting at the early stages of the transportation planning and project development processes;
2. Assist local jurisdictions, through coordination and training, in establishing appropriate land use policies to maximize positive impacts and minimize negative impacts related to transportation investment;
3. Improve the visibility and treatment of land resource issues in the statewide planning process; and
4. Work to overcome an image as an adversary or an agency that acts without considering feedback from others, and instead work to build a reputation as a collaborator.

### **Analytical Capabilities**

5. Complete the implementation of a uniform, comprehensive, and accessible GIS system at the state level for use in project design and impact assessment; and
6. Develop and apply tools for evaluating the impacts of transportation projects on land resources/land use and urban growth, both at a micro level (e.g., interchange) and a macro level (city/region).

### **Design, Operation, and Management of the Transportation System**

7. Implement access management policies, to maintain traffic flow on arterial roads;
8. Revise landscaping and roadside maintenance practices to reduce the spread of invasive species;
9. Protect right-of-way for future new transportation facilities, facility expansion, and interchange development; and
10. Acquire development rights in selected impact areas, such as wetlands adjacent to an improved highway.

A number of interviewees noted that while these recommended actions might require upfront commitments of resources on the part of INDOT, they have the potential to reduce costs and expedite project delivery in the long run. For example, greater coordination between transportation and land use decisions will reduce the cost of right-of-way acquisition as well as reduce overall demands on the transportation system. Consulting with stakeholders and addressing land resource issues earlier in the transportation planning process will help accelerate project delivery, by mitigating impacts and achieving greater consensus at an earlier stage of the process.