Terre Haute Vigo County
Comprehensive Plan

HNTB

Appendix E:
Policy Development, Transportation

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Supporting Information

As this comprehensive plan was being prepared, the Long Range Transportation Plan (LRP) was being updated as a separate activity by the West Central Indiana Economic Development District. This agency is the officially designated metropolitan planning organization (MPO) for the Terre Haute region.

Since the MPO is the responsible agency for transportation planning (for roadway, transit and bicycle/pedestrian systems) with an update to the transportation plan already underway, independent development of a transportation component for the Comprehensive Plan is not a part of this planning activity. Coordination occurred throughout the process to insure that the linkage between land use and transportation is fully considered in both plans. Ultimately, the new Long Range Transportation Plan will be adopted for incorporation into the Comprehensive Plan.

Although transportation plans are being prepared as a separate activity, it is relevant as a part of this plan to consider the interface between transportation and the broad range of other factors considered in the comprehensive planning process. Those relationships are referenced throughout this document. In this chapter, the linkage is taken a step further by reviewing the elements of transportation planning policies that are most relevant to planning staff and area plan commission members as they administer land use and zoning policies within the planning area. This includes development of a Thoroughfare Plan, or Functional Classification Map that can be used in making decisions about rezoning, planned unit developments, and subdivision review.

The Transportation Planning Approach

The transportation planning process and the results described in previous sections are essential to the planned growth of the community. The approach is regional and the modeling process is effective in linking future travel demand with anticipated land use and demographics for the area. The need for future system capacity is identified and projects are defined within a staging plan that is consistent with resources expected to be available for this use.

The methodology used for Terre Haute/Vigo County is appropriate for its purpose and is consistent with that used by most urbanized areas nationwide. It provides all the information necessary for programming projects, evaluating regional air quality effects and initiating more detailed engineering scoping studies. Nevertheless, the traditional regional transportation planning approach has limitations, and even if these are overcome, it does not ordinarily provide planners and planning commissions with the information they need for decision making at the time they typically need it.

With respect to serving planner's needs, the traditional transportation planning approach has three significant limitations:

- The impacts of land use on transportation are addressed; the impacts of transportation improvements on land use are not.
- Beyond system capacity, the quality of the transportation system (good or bad) is not recognized.
- Impacts of physical changes to the transportation system are recognized, but the impacts of policy changes are not.

Land Use

The "chicken and egg" concept is effectively demonstrated by the relationship between transportation facilities (access) and land use (activity). Simply stated:

- Roadways respond to land use.
- Land use responds to roadways.

The traditional modeling process used in regional transportation planning provides the link between land use and travel. Trips are generated by anticipated land use, causing a need for capacity, which is satisfied by elements of the transportation plan. Ordinarily, the process does not close the loop by adjusting land use and demographic assumptions to reflect the increased access provided by the transportation facility. In other words, most travel simulation models in common use today are "one-way." Roadways respond to land use, but not the other way around. In any case, it is generally not feasible to define land use at a sufficient level of detail at a regional level to consider localized traffic operations or transit system effects.

Transportation System Quality

Roadways are defined in travel simulation models according to facility type (functional classification, such as arterial, collector, etc.) and number of lanes. In some models, a distinction is also made based on area (downtown, fringe, suburban, etc.). Beyond this, models are typically insensitive to differences in the number of access points and intersections. Most models would make no distinction between US 41 with its many access points and signalized intersections and SR 46 with widely spaced intersections and few access points. Both are "four-lane arterials."

Another issue related to quality is the aesthetic character of roadway corridors. Travel demand models are oriented entirely to function, whereas those involved in evaluating development proposals must concern themselves with the visual environment being created.

Transportation System Policies

Travel demand models recognize the difference between roadways that are one-way, or those that prohibit parking, but other policies or regulatory actions are beyond the ability of most current models to recognize. The most significant example is the whole range of access management policies. The number of access points has an impact on roadway operations and effective roadway capacity. Traffic signal spacing created by intersections and driveways are a major determinant of operational efficiency.

Reducing median cuts and linking parking areas are other policy decisions that affect roadway operations. These issues are often addressed in engineering studies, but in many cases (at least on existing routes), some development will have already occurred.

In summary, the LRP provides functional classification system and lane requirement information that can be used to establish right of way needs, but it does not address land use refinements, access point locations or aesthetic improvements. These elements can significantly affect a roadway's operation and visual character as a corridor builds out, and they frequently become set very early in a corridor's development history. Rarely is an access point removed or the location of a traffic signal changed. Effective policies are needed at the time projects are proposed, and often, these must provide for site specific studies to generate sufficient information to insure that land use and transportation facilities are appropriately coordinated for the benefit of both.

Effective Transportation Policies

Many of the limitations of regional transportation planning relate to the fact that travel demand models must be applied regionwide. As a matter of practical policy, it makes sense for planners to approach the system as a series of corridors or subareas, then apply a structured approach to optimize conditions in each corridor. The objective is to improve the efficiency of the system while reducing the impact of additions or expansions on the overall quality of the community. This can be accomplished by the following four actions:

- Develop realistic and well thought out corridor land use plans.
- Require traffic impact studies for major developments.
- Establish sound access management principles and stick to them.
- Unify and enhance the corridor by establishing a unified set of aesthetic standards.

Corridor Land Use Plan

The Comprehensive Plan provides a regional or area wide context to guide the development of corridor land use plans. At the corridor level, the definition of land use can proceed a step further to consider

localized conditions, site-specific opportunities and constraints, existing uses and new development proposals. It is key to develop a plan based on the given market conditions and opportunities, that is as detailed and thorough as possible.

When the corridor plan is at the draft stage, it is reasonable to apply any traffic impact study. This approach is used as a "check" of proposed development intensity on local traffic flow. The traffic impact study approach differs from the regional travel demand model in two distinct ways. First, traffic impact studies begin with existing traffic in addition to new traffic generated by developments; whereas travel demand models simulate all travel (existing and new) starting from scratch. Secondly, traffic impact studies provide more detail, including volume estimates at driveways, turning movements at intersections, etc.

Traffic Impact Studies for Developments

Even if a traffic impact study is conducted as part of a corridor study, it is still prudent to require an independent traffic impact study for any major development that is proposed within the corridor. This way, conditions can be more accurately evaluated since actual development proposals rarely match regional plans precisely. Changes to the transportation system can be identified and provided as a part of the decision making process. Finally, access management provisions can be identified, discussed and provided prior to development approval.

Traffic impact study guidelines can be written into the zoning ordinance or (more commonly) zoning can require them, with guidelines provided in a separate document. The Institute of Transportation Engineers has developed a practice that is widely followed by communities throughout the United States. The Indiana Department of Transportation has also developed guidelines that can be used by local communities.

Access Management

The Transportation Research Board defines access management as "the systematic control of the location, spacing, design, and operation of driveways, median openings, interchanges and street connections to a roadway. It also involves roadway design applications such as median treatments and auxiliary lanes, and the appropriate spacing of traffic signals."[1] Effective access management policies improve the function of the roadway, enhance safety for motorists and pedestrians, and establish an image of a consistent master planned corridor.

The elements of each access management plan should respond to conditions in the corridor under study. Generally, an effective access management plan should include the following components:

- Roadway cross section and design standards
- Multi-modal planning (transit, bike/pedestrian)
- Traffic signal spacing
- Driveway location and design

- Median openings

The roadway cross section and design standards are fundamental elements defining any planned roadway. They are the same as typically provided in engineering corridor studies.

Multi-modal planning refers to early consideration of transit (routes, stop locations, waiting facilities and bicycle/pedestrian facilities sidewalks, bike lanes, trailheads, etc.) The key point is that it is much easier to plan for these facilities as an early step of planning than it is to retrofit them to existing facilities. Including them in an access management plan can also encourage property owners and developers to incorporate them into private development plans.

Traffic signal spacing is among the most important access management components. According to the Access Management Manual, decreasing signal spacing from four to two per mile decreases total delay by nearly 60% and vehicle-hours of travel by nearly 50%. Put another way, a four-lane divided arterial roadway with ½-mile signal spacing and a high degree of access control, has the same ability to carry traffic as six lanes with ¼-mile spacing and a low level of access control.[2] It should be noted that if signals are to be coordinated in two directions, they need to be evenly spaced within these parameters. At many locations in Indiana, the underlying roadway pattern is one of one-mile spacing. In some locations ½ mile spacing provides better access. Providing for signalized intersections at these crossroads (whether traffic signals are installed initially or not) and allowing full access with median openings at mid points between intersections is ideal for most arterials. However, the more access points there are on any particular roadway the less efficient the traffic will flow. Other access points should be allowed as right turn in/right turn out with no median cuts.

Just as the efficiency of a roadway is not determined entirely by what is installed between the curbs, the appearance of a roadway corridor is not determined entirely by what is installed within the right of way. Most elements that define the visual character of a corridor are installed on private property. Aesthetic standards provide a means to provide consistency and effectiveness for a wide range of features located along the roadway.

Aesthetic features that might be controlled by the adoption of general or corridor-specific standards include the following:

- Landscape Treatment
- Buffering & Berms
- Landscaped medians with selected accent treatment.
- Lighting Enhancements
- Gateway Treatment
- Specialty Wall Treatments
- Thematic Treatment
- Themed Corridor-Specific Wayfinding System

- Bicycle/Pedestrian Enhancements

Many of the elements listed above can be adopted as part of the general zoning ordinance for Terre Haute and Vigo County. Others (such as thematic treatment or wayfinding system) are likely to be corridor-specific and would require the establishment of an overlay zone. Corridor overlay zones would also provide the opportunity to establish specific access management plans to fit the needs of a specific location.

[1. Access Management Manual, Committee on Access Management, Transportation Research Board, Washington, D.C., 2003, page 3]

[2. Access Management Manual, Committee on Access Management, Transportation Research Board, Washington, D.C., 2003, page 144]

Long Range Transportation Plan

Phasing of Long Range Improvements: The Long Range Transportation Plan (LRP) is a long-range, multi-modal transportation improvement program for Terre Haute and Vigo County. Since the Federal Aid Highway Act of 1963, the LRP has been required in Urbanized Areas (communities of 50,000 or more persons) for guiding the programming of federal funds for the improvement of ground transportation modes (roads, transit, bicycle facilities and pedestrian facilities)."[3]

"Transportation improvements (See Figures ES-1 and ES-2, Maps 1 and 2) are placed into four phases over time, based on transportation needs and available funding. Committed projects (currently programmed projects) are programmed through the year 2010 with the exception of the segment of SR 641 from Riley Road to I-70 falling into the 2011-2015 period. The phases for future projects are 2011-2015, 2016-2020 and 2020-2030. All State 'capacity expansion' and 'intersection/roadway reconstruction' projects in the LRP are included in the Statewide Long Range Transportation Plan, and have been programmed within available funding. Terre Haute and Vigo County 'capacity expansion' and 'intersection/roadway reconstruction' projects in the LRP are fully funded consistent with historical federal funding sources…"[4]

"Multi-Modal Improvements: In addition to roadway investments, the LRP includes the Cherry Street Joint Development Project (transit capital assistance grant) and transportation enhancement projects such as the National Road 'Cross Roads of America,' Terre Haute Arts Corridor Historic National Road Heritage Trail Pathway connections, Historic Riley Lock, Historic National Road Twigg and Jones Rest Areas, I-70/US 41 interchange landscaping. Other multi-modal transportation improvements may be added on a continuing basis."[5]

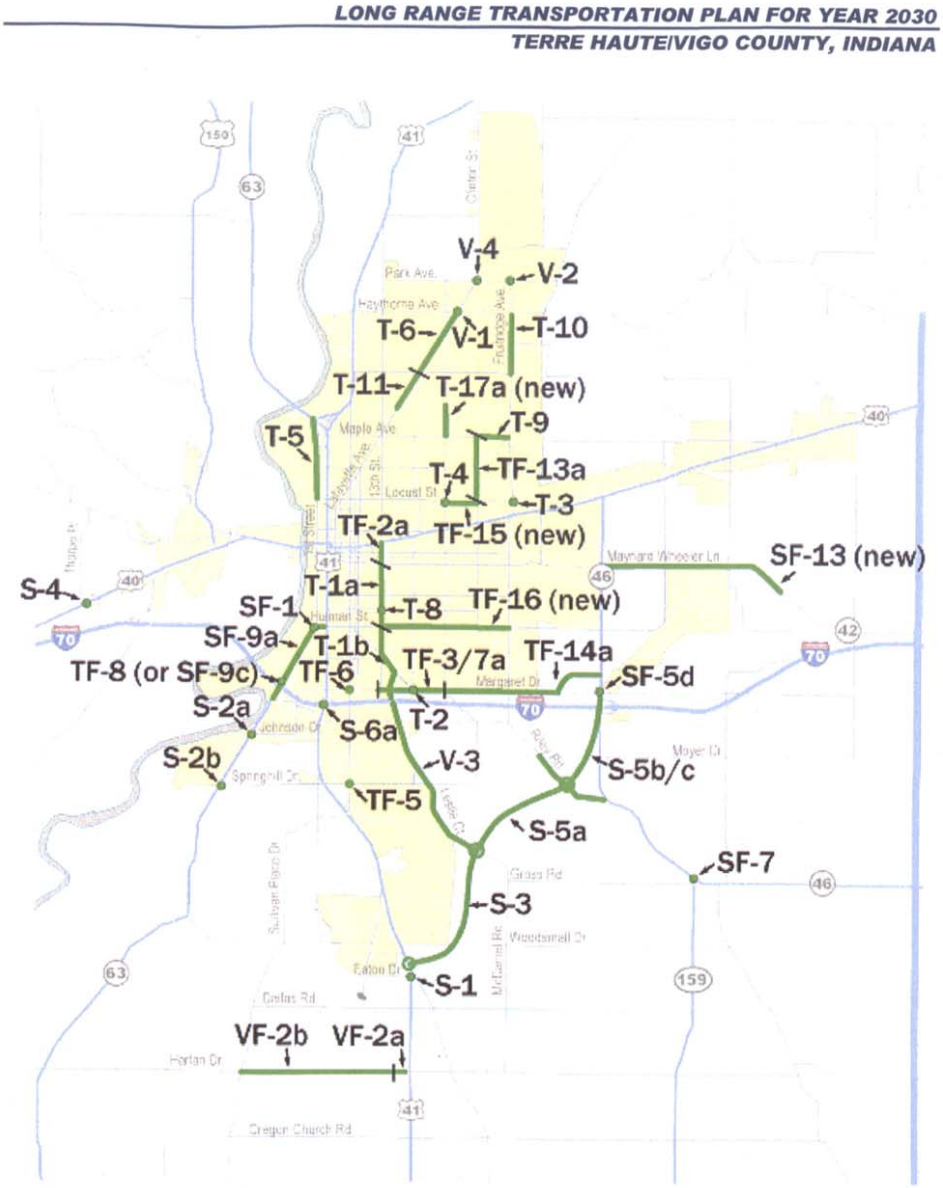
The maps on the following pages summarize the improvements outlined in the Terre Haute/Vigo County Long Range Transportation Plan for the Year 2030.

[3. Terre Haute/Vigo County Long Range Transportation Plan for Year 2030, Executive Summary, Bernardin Lochmueller & Associates, Inc., prepared for the West Central Indiana Economic Development District, (Draft, March 2005), page ES-1]

[4. Terre Haute/Vigo County Long Range Transportation Plan for Year 2030, Executive Summary, Bernardin Lochmueller & Associates, Inc., prepared for the West Central Indiana Economic Development District, (Draft, March 2005), page ES-4]

[5. Terre Haute/Vigo County Long Range Transportation Plan for Year 2030, Executive Summary, Bernardin Lochmueller & Associates, Inc., prepared for the West Central Indiana Economic Development District, (Draft, March 2005), page ES-5]

Map 1: Long Range Transportation Plan: Committed Projects

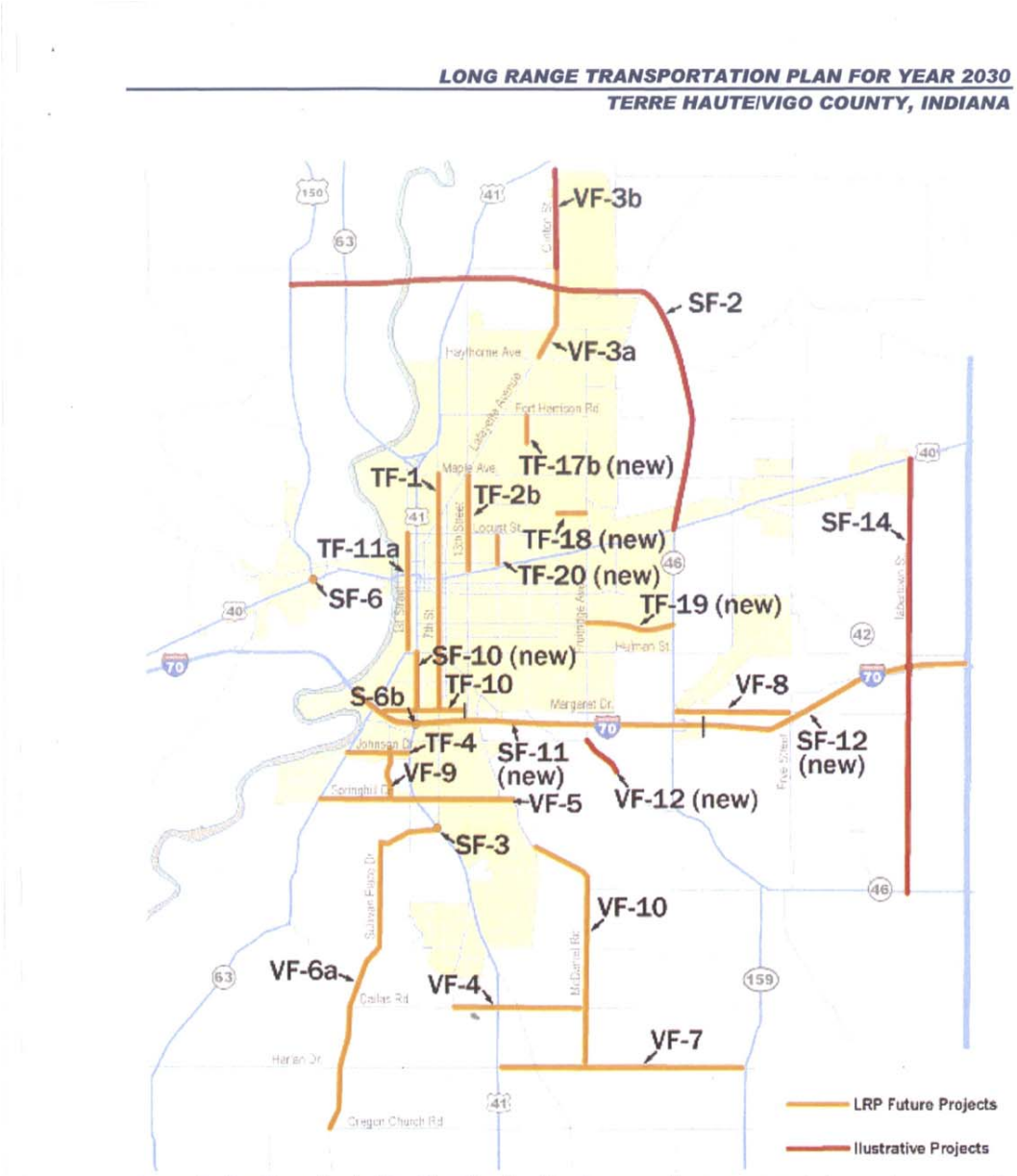


Legend: T = Terre Haute, V = Vigo County (Due to annexations, some projects may become a city funding responsibility over time.), S = State, F = future

FIGURE ES-1: COMMITTED PROJECTS

Prepared by Bernardin-Lochmueller & Associates for West Central Indiana Economic Development District ES- 8

Map 2: Long Range Transportation Plan: Future Projects



Legend: T = Terre Haute, V = Vigo County (Due to annexations, some projects may become a city funding responsibility over time.), S = State, F = future

FIGURE ES-2: FUTURE PROJECTS

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