



**2035 Long Range Transportation Plan
Task Force**

August 16, 2010; 12:00 – 1:30 p.m.
City Hall, Hooker Conference Room (245)

- I. Welcome & Introductions
- II. Why Are We Here?
 - A. Background on 2030 LRTP
 - B. Current Federal MPO Planning Regulations
 - C. Travel Demand Model Basics
- III. 2035 LRTP Schedule
- IV. Expectations & Ideas for 2035 LRTP
- V. Upcoming Meeting Schedule
- VI. Final Questions or Concerns

Adjournment

MEMORANDUM



To: BMCMPO Policy Committee
From: Josh Desmond, AICP
MPO Director
Date: June 4, 2010
Re: 2035 Long Range Transportation Plan Task Force

Background

As part of the re-adoption of the 2030 Long Range Transportation Plan, MPO Staff prepared a scope of work for the eventual creation of the 2035 Long Range Transportation Plan. A key component of that process is the creation of a Task Force to guide the development of the new LRTP. This memo will provide an overview of the expectations and responsibilities of that committee.

2035 LRTP Task Force

MPO Staff envisions a group of leaders spanning all three MPO Committees to guide the development of the new Long Range Transportation Plan. This group would meet on a monthly basis (although meetings could become more or less frequent as the plan development process demands). It is important that the committee reflect both technical and policy influences so that all perspectives can be represented. While all final decisions with regard to the Plan would rest with the Policy Committee, this group can have a strong influence on the process as well as ensure constant coordination with their respective committees. The responsibilities of the Task Force would include (but not be limited to) the following:

- Background Research: The initial stages of the 2035 LRTP require significant research into best practices from around the country. The Task Force would assist staff in gathering and evaluating these practices.
- Public Input: Task Force members would be asked to help devise the strategy for collecting public input during the development plan, and would be encouraged to participate in special public events during the process.
- Data Collection: The Task Force would assist staff in identifying key data needs and strategies for collecting and evaluating such data.
- Consultant Selection: The Task Force would play a role in developing the RFP/RFQ for consultant services, and may also be asked to participate in the consultant interview/selection process (with final selection approved by the Policy Committee).
- Model Validation: Once a model is created by the consultant, it will need to be reviewed by the Task Force to ensure that it accurately reflects local conditions.
- Project Selection: The Task Force will play a key role in evaluating the many alternative project scenarios that are developed during the planning process.
- Plan Review: As staff develops drafts of the complete plan, the Task Force will be asked to review and comment on those documents.

Action Requested

MPO staff is requesting that the Policy Committee appoint members to serve on the 2035 Long Range Transportation Plan Task Force. Staff is asking that each of the MPO Committees appoint at least two members, but no more than four members. Once the full Task Force is appointed, MPO Staff will coordinate with members to establish an initial meeting schedule and list of tasks.

general purpose highway on a new location or adding general purpose lanes, with the exception of safety improvements or the elimination of bottlenecks), unless the project is addressed through a congestion management process meeting the requirements of this section.

(e) In TMAs designated as nonattainment for ozone or carbon monoxide, the congestion management process shall provide an appropriate analysis of reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in capacity for SOVs (as described in paragraph (d) of this section) is proposed to be advanced with Federal funds. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor and additional SOV capacity is warranted, then the congestion management process shall identify all reasonable strategies to manage the SOV facility safely and effectively (or to facilitate its management in the future). Other travel demand reduction and operational management strategies appropriate for the corridor, but not appropriate for incorporation into the SOV facility itself, shall also be identified through the congestion management process. All identified reasonable travel demand reduction and operational management strategies shall be incorporated into the SOV project or committed to by the State and MPO for implementation.

(f) State laws, rules, or regulations pertaining to congestion management systems or programs may constitute the congestion management process, if the FHWA and the FTA find that the State laws, rules, or regulations are consistent with, and fulfill the intent of, the purposes of 23 U.S.C. 134 and 49 U.S.C. 5303.

§ 450.322 Development and content of the metropolitan transportation plan.

(a) The metropolitan transportation planning process shall include the development of a transportation plan addressing no less than a 20-year plan-

ning horizon as of the effective date. In nonattainment and maintenance areas, the effective date of the transportation plan shall be the date of a conformity determination issued by the FHWA and the FTA. In attainment areas, the effective date of the transportation plan shall be its date of adoption by the MPO.

(b) The transportation plan shall include both long-range and short-range strategies/actions that lead to the development of an integrated multimodal transportation system to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand.

(c) The MPO shall review and update the transportation plan at least every four years in air quality nonattainment and maintenance areas and at least every five years in attainment areas to confirm the transportation plan's validity and consistency with current and forecasted transportation and land use conditions and trends and to extend the forecast period to at least a 20-year planning horizon. In addition, the MPO may revise the transportation plan at any time using the procedures in this section without a requirement to extend the horizon year. The transportation plan (and any revisions) shall be approved by the MPO and submitted for information purposes to the Governor. Copies of any updated or revised transportation plans must be provided to the FHWA and the FTA.

(d) In metropolitan areas that are in nonattainment for ozone or carbon monoxide, the MPO shall coordinate the development of the metropolitan transportation plan with the process for developing transportation control measures (TCMs) in a State Implementation Plan (SIP).

(e) The MPO, the State(s), and the public transportation operator(s) shall validate data utilized in preparing other existing modal plans for providing input to the transportation plan. In updating the transportation plan, the MPO shall base the update on the latest available estimates and assumptions for population, land use, travel, employment, congestion, and economic activity. The MPO shall approve transportation plan contents and

supporting analyses produced by a transportation plan update.

(f) The metropolitan transportation plan shall, at a minimum, include:

(1) The projected transportation demand of persons and goods in the metropolitan planning area over the period of the transportation plan;

(2) Existing and proposed transportation facilities (including major roadways, transit, multimodal and intermodal facilities, pedestrian walkways and bicycle facilities, and intermodal connectors) that should function as an integrated metropolitan transportation system, giving emphasis to those facilities that serve important national and regional transportation functions over the period of the transportation plan. In addition, the locally preferred alternative selected from an Alternatives Analysis under the FTA's Capital Investment Grant program (49 U.S.C. 5309 and 49 CFR part 611) needs to be adopted as part of the metropolitan transportation plan as a condition for funding under 49 U.S.C. 5309;

(3) Operational and management strategies to improve the performance of existing transportation facilities to relieve vehicular congestion and maximize the safety and mobility of people and goods;

(4) Consideration of the results of the congestion management process in TMAs that meet the requirements of this subpart, including the identification of SOV projects that result from a congestion management process in TMAs that are nonattainment for ozone or carbon monoxide;

(5) Assessment of capital investment and other strategies to preserve the existing and projected future metropolitan transportation infrastructure and provide for multimodal capacity increases based on regional priorities and needs. The metropolitan transportation plan may consider projects and strategies that address areas or corridors where current or projected congestion threatens the efficient functioning of key elements of the metropolitan area's transportation system;

(6) Design concept and design scope descriptions of all existing and proposed transportation facilities in sufficient detail, regardless of funding source, in nonattainment and mainte-

nance areas for conformity determinations under the EPA's transportation conformity rule (40 CFR part 93). In all areas (regardless of air quality designation), all proposed improvements shall be described in sufficient detail to develop cost estimates;

(7) A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The discussion shall be developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies. The MPO may establish reasonable timeframes for performing this consultation;

(8) Pedestrian walkway and bicycle transportation facilities in accordance with 23 U.S.C. 217(g);

(9) Transportation and transit enhancement activities, as appropriate; and

(10) A financial plan that demonstrates how the adopted transportation plan can be implemented.

(i) For purposes of transportation system operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonably expected to be available to adequately operate and maintain Federal-aid highways (as defined by 23 U.S.C. 101(a)(5)) and public transportation (as defined by title 49 U.S.C. Chapter 53).

(ii) For the purpose of developing the metropolitan transportation plan, the MPO, public transportation operator(s), and State shall cooperatively develop estimates of funds that will be available to support metropolitan transportation plan implementation, as required under § 450.314(a). All necessary financial resources from public and private sources that are reasonably expected to be made available to carry out the transportation plan shall be identified.

(iii) The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan

transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified.

(iv) In developing the financial plan, the MPO shall take into account all projects and strategies proposed for funding under title 23 U.S.C., title 49 U.S.C. Chapter 53 or with other Federal funds; State assistance; local sources; and private participation. Starting December 11, 2007, revenue and cost estimates that support the metropolitan transportation plan must use an inflation rate(s) to reflect “year of expenditure dollars,” based on reasonable financial principles and information, developed cooperatively by the MPO, State(s), and public transportation operator(s).

(v) For the outer years of the metropolitan transportation plan (*i.e.*, beyond the first 10 years), the financial plan may reflect aggregate cost ranges/cost bands, as long as the future funding source(s) is reasonably expected to be available to support the projected cost ranges/cost bands.

(vi) For nonattainment and maintenance areas, the financial plan shall address the specific financial strategies required to ensure the implementation of TCMs in the applicable SIP.

(vii) For illustrative purposes, the financial plan may (but is not required to) include additional projects that would be included in the adopted transportation plan if additional resources beyond those identified in the financial plan were to become available.

(viii) In cases that the FHWA and the FTA find a metropolitan transportation plan to be fiscally constrained and a revenue source is subsequently removed or substantially reduced (*i.e.*, by legislative or administrative actions), the FHWA and the FTA will not withdraw the original determination of fiscal constraint; however, in such cases, the FHWA and the FTA will not act on an updated or amended metropolitan transportation plan that does not reflect the changed revenue situation.

(g) The MPO shall consult, as appropriate, with State and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the develop-

ment of the transportation plan. The consultation shall involve, as appropriate:

(1) Comparison of transportation plans with State conservation plans or maps, if available; or

(2) Comparison of transportation plans to inventories of natural or historic resources, if available.

(h) The metropolitan transportation plan should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPA contained in the Strategic Highway Safety Plan required under 23 U.S.C. 148, as well as (as appropriate) emergency relief and disaster preparedness plans and strategies and policies that support homeland security (as appropriate) and safeguard the personal security of all motorized and non-motorized users.

(i) The MPO shall provide citizens, affected public agencies, representatives of public transportation employees, freight shippers, providers of freight transportation services, private providers of transportation, representatives of users of public transportation, representatives of users of pedestrian walkways and bicycle transportation facilities, representatives of the disabled, and other interested parties with a reasonable opportunity to comment on the transportation plan using the participation plan developed under § 450.316(a).

(j) The metropolitan transportation plan shall be published or otherwise made readily available by the MPO for public review, including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web.

(k) A State or MPO shall not be required to select any project from the illustrative list of additional projects included in the financial plan under paragraph (f)(10) of this section.

(l) In nonattainment and maintenance areas for transportation-related pollutants, the MPO, as well as the FHWA and the FTA, must make a conformity determination on any updated or amended transportation plan in accordance with the Clean Air Act and the EPA transportation conformity regulations (40 CFR part 93). During a conformity lapse, MPOs can prepare an

interim metropolitan transportation plan as a basis for advancing projects that are eligible to proceed under a conformity lapse. An interim metropolitan transportation plan consisting of eligible projects from, or consistent with, the most recent conforming transportation plan and TIP may proceed immediately without revisiting the requirements of this section, subject to interagency consultation defined in 40 CFR part 93. An interim metropolitan transportation plan containing eligible projects that are not from, or consistent with, the most recent conforming transportation plan and TIP must meet all the requirements of this section.

§ 450.324 Development and content of the transportation improvement program (TIP).

(a) The MPO, in cooperation with the State(s) and any affected public transportation operator(s), shall develop a TIP for the metropolitan planning area. The TIP shall cover a period of no less than four years, be updated at least every four years, and be approved by the MPO and the Governor. However, if the TIP covers more than four years, the FHWA and the FTA will consider the projects in the additional years as informational. The TIP may be updated more frequently, but the cycle for updating the TIP must be compatible with the STIP development and approval process. The TIP expires when the FHWA/FTA approval of the STIP expires. Copies of any updated or revised TIPs must be provided to the FHWA and the FTA. In nonattainment and maintenance areas subject to transportation conformity requirements, the FHWA and the FTA, as well as the MPO, must make a conformity determination on any updated or amended TIP, in accordance with the Clean Air Act requirements and the EPA's transportation conformity regulations (40 CFR part 93).

(b) The MPO shall provide all interested parties with a reasonable opportunity to comment on the proposed TIP as required by § 450.316(a). In addition, in nonattainment area TMAs, the MPO shall provide at least one formal public meeting during the TIP development process, which should be ad-

ressed through the participation plan described in § 450.316(a). In addition, the TIP shall be published or otherwise made readily available by the MPO for public review, including (to the maximum extent practicable) in electronically accessible formats and means, such as the World Wide Web, as described in § 450.316(a).

(c) The TIP shall include capital and non-capital surface transportation projects (or phases of projects) within the boundaries of the metropolitan planning area proposed for funding under 23 U.S.C. and 49 U.S.C. Chapter 53 (including transportation enhancements; Federal Lands Highway program projects; safety projects included in the State's Strategic Highway Safety Plan; trails projects; pedestrian walkways; and bicycle facilities), except the following that may (but are not required to) be included:

(1) Safety projects funded under 23 U.S.C. 402 and 49 U.S.C. 31102;

(2) Metropolitan planning projects funded under 23 U.S.C. 104(f), 49 U.S.C. 5305(d), and 49 U.S.C. 5339;

(3) State planning and research projects funded under 23 U.S.C. 505 and 49 U.S.C. 5305(e);

(4) At the discretion of the State and MPO, State planning and research projects funded with National Highway System, Surface Transportation Program, and/or Equity Bonus funds;

(5) Emergency relief projects (except those involving substantial functional, locational, or capacity changes);

(6) National planning and research projects funded under 49 U.S.C. 5314; and

(7) Project management oversight projects funded under 49 U.S.C. 5327.

(d) The TIP shall contain all regionally significant projects requiring an action by the FHWA or the FTA whether or not the projects are to be funded under title 23 U.S.C. Chapters 1 and 2 or title 49 U.S.C. Chapter 53 (e.g., addition of an interchange to the Interstate System with State, local, and/or private funds and congressionally designated projects not funded under 23 U.S.C. or 49 U.S.C. Chapter 53). For public information and conformity purposes, the TIP shall include all regionally significant projects proposed to be funded with Federal funds other than

SPECIAL REPORT 288

METROPOLITAN TRAVEL FORECASTING

Current Practice and Future Direction

Committee for Determination of the State of the Practice
in Metropolitan Area Travel Forecasting

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Transportation Research Board
Washington, D.C.
2007
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Summary Findings and Recommendations

Under federal law, metropolitan planning organizations (MPOs) are charged with developing transportation plans and programs to accommodate mobility needs for persons and goods within their regions. To this end, the MPOs estimate future travel demand and analyze the impacts of alternative transportation investment scenarios using computerized travel demand forecasting models. These models are used to estimate how urban growth and proposed facilities and the associated operational investments and transportation policies will affect mobility and the operation of the transportation system. Forecasts derived from these models enable policy makers to make informed decisions on investments and policies relating to the transportation system. In addition, MPOs in federally designated air quality nonattainment or maintenance areas have been given a central role in determining whether their regional transportation plans and programs conform to State Implementation Plans for meeting national air quality standards. Travel forecasting models play a principal role in this process as well.

STUDY CHARGE

The committee was tasked with assessing the state of the practice in travel demand forecasting and identifying shortcomings in travel forecasting models, obstacles to better practice, and actions needed to ensure the use of appropriate technical approaches. This report provides the requested assessment and recommendations for improvement and is designed for officials and policy makers who rely on the results of travel forecasting. A separate report com-

missioned by the committee is intended for readers with an interest in the technical details of current practice.

FINDINGS

The findings summarized below are based on surveys of MPO and state agency practice, a literature review, and the knowledge and judgment of the committee members.

Current State of Practice

The basic modeling approach at most MPOs remains a sequential four-step process by which the number of daily trips is estimated, distributed among origin and destination zones, divided according to mode of travel, and finally assigned to highway and transit networks. In smaller metropolitan areas, there may be little or no public transit, and the mode-of-travel step may be omitted, resulting in a three-step process. This basic approach has been in use since the 1950s and was originally intended to aid in decisions on the scaling and location of major highway and transit capital investments. Through the years, refinements and incremental improvements to this process have been made, but its basic structure has remained unchanged. A few metropolitan areas have adopted or are experimenting with the use of more advanced travel models based on tours of travel or the representation of human activity, unlike the four-step approach, which is based on single trips. These more advanced models can provide a better representation of actual travel behavior and are more appropriate for modeling policy alternatives and traffic operations. Other fundamental advances being used in a few places include joint transportation–land use models and the combining of travel demand forecasting with detailed traffic simulation models.

Although the four-step process is nearly ubiquitous, there are considerable variations in the completeness and complexity of the models and data employed. Smaller metropolitan areas with stable growth may use a simple version of the current models without a transit component or land use model, addressing travel only on the network of larger highways. Areas with more complex needs are likely to use more sophisticated four-step models, including combined transportation–land use models, or to adopt advanced techniques, such as activity-based models. Metropolitan areas such as San Francisco, New

York, and Columbus, Ohio, have implemented more advanced approaches. *The committee finds that there is no single approach to travel forecasting or set of procedures that is “correct” for all applications or all MPOs. Travel forecasting tools developed and used by an MPO should be appropriate for the nature of the questions being posed by its constituent jurisdictions and the types of analysis being conducted.*

Shortcomings of Current Models and Modeling Practice

The demands on forecasting models have grown significantly in recent years as a result of new policy concerns. Existing models are inadequate to address many of these new concerns. MPOs are required by federal law to consider in their planning process how projects and strategies will affect a wide variety of policy concerns. Requirements specific to modeling include estimating motor vehicle emissions (which depends on estimating speeds and traffic volumes by time of day), estimating new travel generated by adding new capacity, evaluating alternative land use policies, and estimating freight movement and nonmotorized trips. In general, the conventional four-step models in use by most MPOs perform reasonably well in representing and forecasting aggregate system- and corridor-level travel demand. As the problems being studied become more disaggregate and more linked to individual behavior, however, the four-step process yields less satisfactory results.

Current models have inherent weaknesses. Most fundamentally, the processes that represent travel demand in the four-step model are not behavioral in nature; that is, they are not based on a coherent theory of travel behavior and are not well suited to representing travelers’ responses to the complex range of policies typically of interest to today’s planners and politicians. They also are unable to represent dynamic conditions for the transportation system. The conventional travel models make use of networks, both highway and transit, in which congestion is represented by averages over an extended period. These models cannot represent the conditions that would be expected or found by an individual traveler choosing how, when, and where to travel. *As a consequence of these weaknesses, the following cannot be adequately represented:*

- **Time chosen for travel:** The conventional model structure is inherently incapable of accurate treatment of the choices travelers make in response to congestion and other indicators of system performance. Applications that depend on the ability of models to characterize and forecast travel by time of

day include vehicle emissions, variable pricing toll strategies, variable work hours, convertible traffic lanes, and time shifting of travel in response to congested networks or road pricing.

- **Travel behavior:** Traveler behavior is currently represented in a highly aggregate manner. Factors influencing travel behavior—such as value of time and value of reliability—for different sectors of the traveling public are impossible to model with the four-step process. This makes it difficult to represent travelers' responses to changes in public policies, such as road pricing, telecommuting programs, transit vouchers, and land use controls.

- **Nonmotorized travel:** Many walking or bicycle trips take place or are affected by features wholly within a travel analysis zone and thus cannot be captured by the current models. One solution to this limitation is to code a much finer-grained zone system; however, doing so imposes a major burden of labor and computer processing. As a result, many MPOs do not model walking or bicycle travel. This makes it difficult to evaluate the impact of such initiatives as smart growth and transit-oriented development.

- **Time-specific traffic volumes and speeds:** The four-step process does not produce accurate, disaggregate estimates of time-specific volumes or speeds on specific routes. These estimates are needed to evaluate improvements in traffic operations, modes of access to transit stations, time shifting of travel in congested networks, and freight movement policies, as well as to calculate air quality emissions.

- **Freight and commercial vehicle movements:** The lack of robust, validated models with which to forecast freight movement and commercial truck activity is of great concern, especially since these vehicles have a disproportionate effect on emissions, traffic, and pavement wear. The reasons for this deficiency include a lack of data (since much freight movement begins or ends outside the metropolitan area) and a lack of information on the business demands that drive freight movements.

Shortcomings of conventional forecasts are also related to poor technical practice in the use of models. The committee notes that this problem is not particular to conventional models and will need to be addressed for advanced models as well. Examples of this problem include the following:

- **Inadequate data:** The survey conducted for this study found that many MPOs have inadequate data to support their modeling process. This is particularly true of hourly directional traffic counts to support model validation, current household travel data rich enough to support market segmentation

or other disaggregate needs, and any useful origin–destination data on freight movement for use in specifying models of goods movement.

- **Optimism bias:** A number of studies have shown that forecasts for toll road and new transit projects are typically substantially higher than actual start-up patronage. This is true for projects undertaken 20 years ago as well as for more recent start-ups, although forecasts supporting requests for federal capital assistance for transit (Transit New Starts) have improved. These problems have drawn the attention of the Federal Transit Administration (FTA) and bond rating agencies.

- **Quality control:** Organizing a metropolitan travel forecasting process is a complex undertaking requiring detailed network coding, use of extensive traffic and passenger volume data, and proper integration of various models and submodels. Many opportunities to introduce errors arise. The best practice is to have a rigorous, formally defined quality control process, with independent assurance during each step. While some MPOs have such a process in place, many do not.

- **Validation errors:** Validating the ability of a model to predict future behavior requires comparing its predictions with information other than that used in estimating the model. Perceived problems with model validation include insufficient emphasis and effort focused on the validation phase, the unavailability of accurate and current data for validation purposes, and the lack of necessary documentation. The survey of MPOs conducted for this study found that validation is hampered by a dearth of independent data sources.

The committee believes that FTA is to be commended for taking steps to ensure quality in the travel forecasting methods used for major project planning. In particular, FTA initiatives to ensure the quality of New Start ridership, revenue, and cost information have been useful in uncovering weaknesses in model practice and form.

Obstacles to the Development and Application of Improved Models

Despite some obvious shortcomings of current travel forecasting models, change has been slow to come in comparison with, for example, the period 1950–1960, during which much of the current four-step urban transportation modeling system was developed. Advanced models exist that are more responsive than conventional approaches to a wider array of current issues, but there

are also barriers to their widespread implementation. Obstacles to advances in modeling practice include preoccupation with the immediate demands of production, fear of legal challenges, and significant budget and staff limitations.

Insufficient evidence exists that advanced models can be implemented for a reasonable cost and will provide significant improvements over current practice. Although a number of agencies have begun to use tour- and activity-based models, many believe that these models are not fully ready for implementation. There are valid concerns about the costs associated with the new models and the amount of data needed to specify, calibrate, and validate them. Yet agencies that are using these advanced models are providing a growing body of evidence that they can successfully replace the current models used to perform basic MPO forecasting activities and address more complex policy and operational issues as well.

Intergovernmental relations have changed over time. Direct federal involvement in and funding for the development of models and associated training have gradually decreased. Responsibilities for model development have devolved to the states and MPOs, with private-sector support. At the same time, federal planning and related environmental requirements for states and MPOs have grown. Even as the federal government has greatly reduced its financial support for efforts at model enhancement, federal regulations have imposed additional requirements on the modeling process. Aside from recent significant federal investment in a complex microsimulation modeling package (TRANSIMS), MPOs and states have been on their own in developing models that can respond appropriately to these requirements.

Federal funding for MPO model development efforts has not grown commensurately with travel modeling and forecasting requirements and is severely deficient. The Travel Model Improvement Program (TMIP) has the potential to greatly facilitate the adoption of advanced modeling practices and the improvement of current practices. For the past several years, TMIP has been funded at \$500,000 per year for all activities other than development of TRANSIMS. This is an inadequate amount to assist MPOs with meeting the federal requirements.

Although TRANSIMS was not evaluated for this study, the committee notes that it has provided an important bridge from the current practice of static, trip-based modeling to improved future practice. TRANSIMS receives about \$2 million annually through the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) to support the development of new applications and to assist agencies with its deploy-

ment. This funding is not adequate for these purposes. By comparison, in the late 1970s and early 1980s, federal highway and transit agencies spent about \$5 million a year on travel modeling, an amount that equates to about \$15 million in current dollars.

To put this funding issue in context, SAFETEA-LU authorizes about \$40 billion annually in federal support for highway and transit improvements, many of which are subject to metropolitan and statewide planning rules or other programmatic requirements, such as Transit New Starts. One would expect appropriate corresponding support for models used to provide critical information on how this large investment should be planned and implemented.

Recent Advances in Modeling Practice

Through the TRANSIMS initiative and other efforts by university researchers and consultants, advanced travel models are being developed that are based on a more comprehensive understanding of the activities of households and a more complete representation of network performance that accounts for the details of congested operations throughout the day. Such models have been implemented in a few places, where they appear to perform well.

Summary

The findings summarized above reveal that most agencies continue to use a trip-based three- or four-step modeling process that, while improved during the past 40 years, has remained fundamentally unchanged. These models have basic, documented deficiencies in meeting current modeling needs. There are also deficiencies in current practice—particularly data gaps—that will not be resolved by switching to more advanced models. The institutional environment for travel modeling has devolved much of the responsibility for the development of travel models to the states and MPOs, although the federal government retains a strong interest in the area. Advanced models that better meet the needs of MPOs have been developed and satisfactorily implemented by some metropolitan areas. There are, however, considerable barriers to fundamental change, including resource limitations, practitioners' uncertainty as to whether new practices will be better than those they replace, a lack of coordination among stakeholders, and inadequate investment in the

development and transfer of new techniques. Accordingly, the pace of fundamental change in the field of travel forecasting has been very slow.

2035 Long Range Transportation Plan Development Schedule

The following schedule was created by staff and endorsed by the Policy Committee in Spring 2010. Please note that the dates are very preliminary and should not be interpreted as firm deadlines, especially later in the process. It should also be noted that some the steps of the process may change as research is conducted, new goals are identified, or new direction is desired. Any number of variables could drastically alter how the LRTP is developed.

- Form an LRTP Task Force (Summer 2010)
 - Form Task Force comprised of members from each MPO Committee
 - Task Force will work with staff throughout LRTP development and provide direction
 - Report to CAC, TAC, and PC throughout LRTP development
- Identify direction and process (Fall 2010)
 - Conduct research on existing and possible federal requirements
 - Identify what other progressive communities are doing and how they are doing it
 - Refine the timeline and LRTP update scope throughout LRTP development
- Perform gap analysis and begin corrective measures (Winter 2011)
 - Inventory existing data
 - Identify shortfalls in data needed for robust Travel Demand Model
 - Begin collecting data in Fall 2010 and continue throughout course of LRTP development
- Visioning Process (Spring 2011)
 - Embark on comprehensive visioning process for the new LRTP. The visioning process should steer the rest of the development of the Document (public workshops)
 - Explore possibility of statistically significant survey gauging preference of residents
- Financial Forecast (Fall 2011)
 - Coordinate with federal, state, and local agencies on anticipated revenue streams
 - Identify how funds can be spent (restrictions/allowances for different funding sources)
- Consultant Selection process (Spring/Summer 2012)
 - Identify possible consulting firms
 - Identify selection criteria
 - Issue RFP, RFQ, or other process
- Travel Demand Model Development (Summer/Fall 2012)
 - New census data should be available
 - Collect data required by consultant to perform work
 - Calibrate model to existing conditions
- Call for Projects (Fall 2012)
 - Identify possible projects in coordination with LPAs
 - Identify possible projects as identified by the community (public workshops)
- Individual Project Evaluation (Winter 2013)
 - Evaluate projects individually against the Vision Statement
- Alternatives Analysis (Spring 2013)
 - Model different project scenarios to see which combination of projects achieves goals of vision statement
 - Seek public input on the preferred projects list to be implemented over the next 20 years (public workshops)
 - Refine Preferred Project list based on public input

- Write LRTP (Summer 2013)
 - Synthesize all previous work into new Long Range Transportation Plan
- Finalize LRTP (Fall 2013)
 - Public Workshops on final Document and written public comment period
 - Seek action from MPO Committees



2030 LONG RANGE TRANSPORTATION PLAN

BLOOMINGTON/MONROE COUNTY METROPOLITAN PLANNING ORGANIZATION

ADOPTED BY THE
MPO POLICY COMMITTEE:
MARCH 31, 2006

AMENDED:
JUNE 8, 2007

READOPTED:
MAY 14, 2010

PREPARED BY:
METROPOLITAN PLANNING ORGANIZATION STAFF
CITY OF BLOOMINGTON PLANNING DEPARTMENT

WITH THE ASSISTANCE OF:
BERNARDIN LOCHMUELLER & ASSOCIATES
EVANSVILLE, INDIANA

Transportation is a common thread in the quality of life of the residents of any community. People need to move safely and efficiently between their homes, workplaces, shopping opportunities, and recreational activities. For each trip that a person makes, there are options. What mode of travel will be used? Which route will best connect the trip origin with its destination? What are the costs and benefits of the decisions made with regard to each trip?

The *2030 Long Range Transportation Plan* seeks to quantify the answers to those questions over a 25 year time horizon. The Plan serves primarily as a means to predict future transportation needs and to illustrate a plan of action to meet those needs. Specifically, it provides a menu of transportation projects to be implemented over the next 25 years that will alleviate projected congestion points, safety hazards, and connectivity limitations.

This document has been designed specifically to fulfill Federal and State transportation planning requirements, and, in doing so, to ensure that the Bloomington/Monroe County Metropolitan Planning Organization maintains its eligibility for Federal transportation funding. The Plan study area includes all of Monroe County to ensure that all communities are represented and that system-wide solutions to transportation issues can be created in a cooperative and coordinated process. In addition, the Plan strives to achieve a multi-modal transportation perspective, including provisions to improve facilities for bicycling, walking, and public transit.

TABLE OF CONTENTS

PREFACE

| | |
|------------------------|-----|
| Introduction..... | II |
| Table of Contents..... | III |
| Acknowledgments | VI |

CHAPTER 1: EXECUTIVE SUMMARY

| | |
|---|----|
| Purpose of the Long Range Transportation Plan | 2 |
| Implementation of the 2025 Plan..... | 3 |
| Public Involvement | 4 |
| Transportation Vision Statement | 5 |
| Future Transportation Needs Plan..... | 6 |
| Cost Feasible Plan | 13 |

CHAPTER 2: VISION STATEMENT

| | |
|---|----|
| Introduction..... | 22 |
| Future Transportation Vision | 22 |
| Mobility & Accessibility..... | 23 |
| Traffic Mitigation | 24 |
| Land Use, Transportation & Quality of Life..... | 26 |
| Safety & Security | 27 |
| Economic Vitality | 28 |
| Finance..... | 29 |

CHAPTER 3: FUTURE TRANSPORTATION NEEDS PLAN

| | |
|--|----|
| Introduction..... | 32 |
| Socioeconomic Forecast | 34 |
| Vehicular Transportation Demands | 37 |
| Highway Transportation Problems..... | 39 |
| Public Transit..... | 44 |
| Alternative Transportation..... | 64 |
| Future Transportation Needs Plan..... | 76 |

CHAPTER 4: FINANCIAL FORECAST

| | |
|--|----|
| Introduction..... | 86 |
| Federal Resources & Programs | 87 |
| Federal Funds for Bloomington/Monroe County..... | 88 |
| Committed State Construction Funds..... | 89 |
| Local Resources & Forecast Assumptions | 90 |
| Bicycle & Pedestrian Funding Forecast..... | 92 |
| Summary Forecast | 94 |

TABLE OF CONTENTS (CONT.)

CHAPTER 5: COST FEASIBLE PLAN

| | |
|---|-----|
| Introduction..... | 96 |
| Public Transit System Improvements | 97 |
| Alternative Transportation System Projects..... | 99 |
| Conclusion..... | 100 |
| Cost Feasible Plan | 101 |

APPENDIX A: TRANSPORTATION PLANNING REQUIREMENTS

| | |
|---|-----|
| Federal Statutes | 106 |
| General Metropolitan Planning Requirements..... | 108 |
| Transportation Planning Process Factors | 109 |

APPENDIX B: METHODOLOGY

| | |
|---|-----|
| Introduction..... | 112 |
| Technical Assistance | 113 |
| Public Participation | 114 |
| Citizens Advisory Committee..... | 118 |
| Policy & Technical Advisory Committees..... | 120 |

APPENDIX C: ALTERNATIVES ANALYSIS

| | |
|--|-----|
| Introduction..... | 122 |
| Base Year Network..... | 123 |
| Existing Plus Committed Network | 124 |
| Proposed Improvement Projects | 126 |
| Alternatives Analysis: Overview..... | 131 |
| Alternatives Analysis: Performance | 132 |
| Alternatives Analysis: Results..... | 149 |

APPENDIX D: ENVIRONMENTAL JUSTICE

| | |
|------------------------|-----|
| Federal Statutes | 156 |
| Compliance..... | 157 |

APPENDIX E: AIR QUALITY

| | |
|-----------------|-----|
| Overview..... | 164 |
| Compliance..... | 165 |

TABLE OF CONTENTS (CONT.)

APPENDIX F: PROJECTS INDEX

| | |
|--|-----|
| Introduction..... | 168 |
| Bloomington/Indiana University Projects..... | 169 |
| Monroe County/Ellettsville Projects..... | 173 |
| State of Indiana Projects..... | 176 |

APPENDIX G: GLOSSARY

| | |
|------------|-----|
| Terms..... | 180 |
|------------|-----|

APPENDIX H: SAFETEA-LU COMPLIANCE

| | |
|--|-----|
| Introduction..... | 188 |
| Metropolitan Transportation Plan Requirements..... | 189 |

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The *2030 Long Range Transportation Plan* was completed through the efforts of a variety of individuals and groups. Their input, assistance, and persistence is greatly appreciated. Special thanks to all who participated in the public workshops and made the voice of the community heard in this process.

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EXECUTIVE SUMMARY

2030 LONG RANGE TRANSPORTATION PLAN

1

PURPOSE OF THE LONG RANGE TRANSPORTATION PLAN

The 2030 Long Range Transportation Plan constitutes the long-range, multi-modal transportation plan for the Bloomington, Indiana Urbanized Area as required by Federal statutes (23 USC 135, Section 450.300) for the programming of Federal funds for transportation project planning and implementation of ground transportation modes (roadway, transit, bicycle, and pedestrian facilities). The Plan study area included all of Monroe County in order to make it coordinated and comprehensive in its scope. The City of Bloomington, Monroe County, and the Town of Ellettsville participated in a cooperative process through the MPO to develop the Plan. The 2030 Long Range Transportation Plan supersedes the 2025 Long Range Transportation Plan which was adopted by the Metropolitan Planning Organization’s Policy Committee in the year 2000. The 2030 Long Range Transportation Plan is a “living” document, and complements the ongoing operational and capital improvement programs of the City of Bloomington, Monroe County, and the Town of Ellettsville.

When Bloomington became an Urbanized Area with the 1980 Census, the Governor of the State of Indiana designated the City of Bloomington Plan Commission as the MPO responsible for transportation planning. The Bloomington Area MPO completed the first long range transportation plan in 1984. With the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, the long-range transportation plan had to be fiscally constrained and multi-modal in character. The Transportation Equity Act for the 21st Century (TEA 21) adopted in 1998 continued these requirements, but permitted illustrative transportation projects if additional funding were available.

The Year 2030 Long Range Transportation Plan document consists of:

- A “Vision Statement” establishing transportation policies for preparing, evaluating and implementing multi-modal transportation improvements;
- A “Future Transportation Needs Plan” to identify forecasted transportation needs in the year 2030; and
- A “Cost Feasible Plan” showing the phasing for projects which reflects fiscal constraints.

The 2030 Long Range Transportation Plan incorporates all of Monroe County (including Ellettsville) into its study area to improve project coordination on the edge of the expanding urban area. Upon adoption, the 2030 Long Range Transportation Plan will:

- Serve as the basis from which to draw transportation projects involving Federal surface transportation funds for the Transportation Improvement Program for the Bloomington Urbanized Area;
- Be incorporated by reference into the Indiana Statewide Long-Range Multi-Modal Transportation Plan when it is updated; and
- Provide guidance of an advisory nature to Monroe County and the Indiana Department of Transportation on projects outside the Urbanized Area boundary.

The 2030 Long Range Transportation Plan should be updated at least every five years in order to maintain the required 25-year time horizon, but may be amended more frequently if needed.

The adoption of the 2025 Long Range Transportation Plan for the Bloomington Urbanized Area has led to the completion (or programming) of several major improvement projects listed in Bloomington and Monroe County. These projects include:

- East 3rd Street/Atwater one-way pair extension (programmed)
- Curry Pike widening & extension (programmed/partially constructed)
- State Road 37 East Frontage Road (programmed)
- Weimer Road upgrade (programmed)
- Adams Street extension (partially completed by private development)
- State Road 37 West Frontage Road between SR 45 and SR 48 (completed)
- Jackson Creek Multi-Use Trail (first phase in design)
- CSX Trail (first phase in design)
- Rogers Street corridor pedestrian improvements (first phase under construction)

These major transportation investments are essential in addressing such issues as alleviation of traffic congestion, improvements to street connectivity, upgrades to roadway safety, and improvements for bicycle and pedestrian accessibility and commuting.

PUBLIC INVOLVEMENT

The public involvement process for the 2030 Long Range Transportation Plan encompassed three major efforts to inform the public and gain their insight on community transportation issues. Beginning in the fall of 2005, the Policy and Technical Advisory Committees of the MPO met in joint session seven times during the development of the Plan. In addition, the Citizens Advisory Committee (CAC) of the MPO discussed the Plan during nine separate meetings spanning a period of nine months. During all of these meetings, the MPO committees assisted staff in developing the Plan's Vision Statement. The committees also reviewed the different roadway improvement alternatives analyzed by the MPO staff and consultant as well as the final project listing generated for the Cost Feasible Plan. Finally, four separate workshops were held in Bloomington and Ellettsville to solicit county-wide public input. The first two workshops, which were conducted on November 8, 2005, were designed to identify transportation priorities and areas of concern. The second two workshops, which were conducted on February 21, 2006, were designed to prioritize transportation projects in the Transportation Needs Plan. More information about the results of the workshops and the public involvement process in general is provided in Appendix B: Methodology.

Participants add their comments to a map during one of the public workshops held in November 2005.



Consistent with the planning requirements of the Transportation Equity Act for the 21st Century (TEA-21) and the input of community leaders and citizens on transportation policies and problems, future transportation goals and objectives were prepared to reflect a vision for the City of Bloomington, Monroe County, and the Town of Ellettsville. The Vision Statement highlights the need to:

- Develop a truly multi-modal system;
- Create a fully developed network of alternative transportation facilities;
- Reduce the number and length of auto trips;
- Achieve a better relationship between land uses to reduce auto dependency;
- Achieve the widest possible range of alternatives to the automobile;
- Make transportation investments that are consistent with comprehensive plans;
- Make transportation investments that protect the environment, promote energy conservation, and improve quality of life;
- Increase safety for all users of the transportation system;
- Support economic vitality through strategic transportation investments;
- Improve the movement of goods through the transportation system;
- Promote fiscally sound transportation investments and maximize financial resources; and
- Preserve existing transportation investments through operational improvements.

FUTURE TRANSPORTATION NEEDS PLAN

Development of the Future Transportation Needs Plan involved a six-step process: forecasting future travel demand; considering “committed” transportation improvements; identifying major transportation problems; proposing new transportation improvement projects; evaluating transportation improvement alternatives; and refining the final Future Transportation Needs Plan.

FUTURE TRAVEL

The MPO’s Travel Demand Forecast Model was updated and made more accurate by expanding the traffic analysis zonal system, incorporating Indiana University student travel patterns, and giving special treatment to industrial parks, shopping centers, and major apartment complexes. Housing and employment data by traffic analysis zone (TAZ) were updated to the 2000 base year of the new travel model using census data. Daily traffic counts from the on-going City and County traffic count programs were incorporated into the Travel Demand Model, and the Model was calibrated to replicate actual daily traffic counts in the year 2000.

Next, key variables for predicting future travel demand were forecasted to the year 2030 and compared to population and employment forecasts of the Indiana Business Research Center at Indiana University, the U.S. Bureau of Census, and the U.S. Bureau of Economic Analysis Regional Economic Information System. The forecast in Table 1-1 shows increasing population, employment, and income through the Year 2030.

TABLE 1-1: SOCIOECONOMIC FORECASTS FOR MONROE COUNTY

| Year | Population | Group Quarters | Household Population | Households | Retail Employment | Total TAZ Employment (under-reported base) | Total Employment |
|---|------------|----------------|----------------------|------------|-------------------|--|------------------|
| 2025 Technical Memorandum 5 Extrapolated to 2030 | | | | | | | |
| 1997 | 116,653 | 15,112 | 101,541 | 42,321 | 15,249 | 66,887 | 76,094 |
| 2000 | 120,665 | 15,112 | 105,553 | 45,108 | 15,924 | -- | 79,234 |
| 2005 | 126,687 | 15,112 | 111,575 | 48,093 | 17,150 | -- | 84,772 |
| 2010 | 132,219 | 15,112 | 117,107 | 50,916 | 18,081 | -- | 88,992 |
| 2015 | 138,627 | 15,112 | 123,515 | 54,173 | 18,651 | -- | 91,975 |
| 2020 | 145,575 | 15,112 | 130,463 | 57,984 | 18,859 | 82,183 | 93,496 |
| 2025 | 152,423 | 13,355 | 139,068 | 61,852 | 19,078 | 83,518 | 95,015 |
| 2030 | 159,271 | 13,355 | 145,916 | 65,728 | 19,297 | 84,853 | 96,534 |
| 2000 Control Indiana Statewide Travel Demand Model Documentation Binder | | | | | | | |
| 2000 | 120,206 | -- | -- | 46,896 | 14,440 | -- | 78,190 |
| 2030* | 158,921 | 14,015 | 144,906 | 69,333 | 16,144 | -- | 100,419 |
| 2000 Census and TAZ I-69 Corridor Model | | | | | | | |
| 2000 | 120,563 | 14,331 | 106,232 | 46,898 | 14,440 | -- | 78,141 |
| 2030* | 159,271 | 13,007 | 146,264 | 65,946 | 17,155 | -- | 100,416 |
| 2030** | 160,022 | 13,007 | 147,015 | 66,227 | 17,326 | -- | 101,002 |

* Without I-69 Corridor / **With I-69 Corridor / Source: BLA Technical Memorandum 8/19/2005

Based on these county-wide control totals, the growth of 21,119 new households, 1,402 retail jobs, and 20,366 non-retail jobs from 2000 to 2030 was spatially allocated to the TAZs on the basis of past trends, known development projects, and the future development recommendations contained in the City of Bloomington's Growth Policies Plan, Monroe County's Comprehensive Land Use Plan, and Ellettsville's Comprehensive Plan.

Finally, the updated MPO Travel Demand Model was used to forecast future travel based on the allocation of future growth to the TAZs and to test the performance of subsequent transportation improvement alternatives. As a result of the increase in population and households, continuing decline in household size, increase in the number of vehicles per household, increase in employment in Monroe County as a regional retail and employment center, and increase in external travel passing through Monroe County, there will be an increase in trip-making activity from 2000 through 2030. Forecasted increases in congestion over the next 25 years cannot be accommodated by merely taking transportation system management actions (low-cost capital investments such as intersection and signalization improvements) to preserve the capacity of the existing roadway network or by doubling public transportation's share vehicle trips.

COMMITTED PROJECTS

Before identifying existing and future transportation problems, the base year 2000 highway network of the Travel Demand Model was modified to reflect programmed transportation improvements (known as "committed" projects) in the Fiscal Years 2006 through 2008 Transportation Improvement Program for the Bloomington/Monroe County Metropolitan Planning Organization. This modified network, which is termed the Existing Plus Committed (E+C) roadway network, incorporates transportation improvements that are realistically anticipated to be completed in the immediate future, that will be funded before new projects are identified, and that will not be second-guessed in the development of the future transportation plan. The committed highway projects are listed as follows (see Figure 1-1 for a map of committed projects):

- West 3rd Street Phase II: Widen to four lanes with landscaped median from Landmark Avenue to SR 37
- Curry Pike (City Phase): Widen to four lanes from SR 45 to Constitution Avenue
- Vernal Pike Phase I: Widen to three lanes from Curry Pike to Loesch Road and two-lane reconstruction from Loesch Road to Hartstrait Road
- Vernal Pike Phase II: Widen to three lanes from SR 37 to Curry Pike
- Country Club Drive/Rogers Street: Reconfigure intersection to add left-turn lanes
- Rogers Road/Smith Road: Realign curve to improve safety
- 3rd Street/Atwater Avenue: Extend one-way pair from Mitchell Street to High Street; spot intersection and safety improvements
- Basswood Drive: Extend two lane road from end of Basswood Drive to West 3rd Street/Johnson Avenue intersection

FUTURE TRANSPORTATION NEEDS PLAN (CONT.)

- Weimer Road: Realign between Tapp Road and Wapahani Road
- State Road 45/46 Bypass: Widen to four lanes from North Walnut Street to East 3rd Street
- State Road 48: Widen to four lanes from Curry Pike to west of Hartstrait Road
- State Road 45: Widen to four lanes from SR 45/46 Bypass to Pete Ellis Drive; Widen to three lanes and reconstruction from Pete Ellis Drive to Russell Road
- Sare Road (Phases I & II): Reconstruction from Rogers Road to David Drive, including signalization at Rogers Road; Reconstruction from McCartney Lane to 400 feet south of Moores Pike

MAJOR TRAFFIC PROBLEMS

Having added “committed” transportation improvements to the existing highway network, existing traffic (year 2000) and future traffic (year 2030) were assigned to the “existing-plus-committed” (E+C) highway network to identify traffic problems for which additional major transportation investments may be needed. Major traffic problem areas projected for year 2030 are as follows:

- State Road 46: Union Valley Road to Smith Pike
- State Road 48: Curry Pike to State Road 37
- 3rd Street: Woodlawn Avenue to Indiana Avenue
- Hartstrait Road: State Road 48 to Woodyard Road
- 2nd Street/Bloomfield Road: Patterson Drive to Rogers Street, Weimer Road to Allen Street, and Rogers Street to College Avenue
- State Road 45/46 Bypass: North Walnut Street to East 3rd Street congested even after widening project
- Atwater Avenue: East 3rd Street to Woodlawn Avenue
- Walnut Street: 10th Street to 17th Street and 2nd Street to 3rd Street
- College Avenue: 10th Street to 17th Street
- Adams Street: Kirkwood Avenue to Vernal Pike
- Rogers Street: Rockport Road to 17th Street
- Henderson Street: Winslow Road to Hillside Drive and Grimes Lane to 1st Street
- Indiana Avenue: 12th Street to 13th Street
- Woodyard Road: Thomas Road to Vernal Pike
- Vernal Pike: Woodyard Road to 11th Street
- 10th Street: Walnut Street to Dunn Street and Fee Lane to Jordan Avenue
- Grimes Lane: Rogers Street to Henderson Street
- Moores Pike: College Mall Road to Smith Road
- State Road 37: Rockport Road to State Road 45 and State Road 48 to the State Road 45/46 Bypass
- State Road 45: Pete Ellis Drive to John Hinkle Place

- State Road 46: Owen County Line to Maple Grove Road, Smith Pike to Arlington Road, Arlington Road to State Road 37 (westbound traffic only), and College Mall Road to Pete Ellis Drive
- 11th Street: Adams Street to Rogers Street
- That Road: State Road 37 to Rogers Street
- Victor Pike: State Road 37 to Church Lane

TRANSPORTATION NEEDS PLAN

The Transportation Needs Plan addresses multi-modal transportation needs including transit investments, bicycle/pedestrian investments and roadway investments (“capacity expansion” projects). Of particular import, the Needs Plan also recognizes the essential need to first preserve existing transportation investments. The preservation of existing transportation investments (termed “capacity preservation”) involves:

- The ongoing operation and maintenance of the existing roadway system, improvements to public transportation fixed-route services, and new bicycle and pedestrian facilities to promote commuting and short distance trips;
- The preservation of roadways through resurfacing and reconstruction based on a pavement management program, bridges through rehabilitation and reconstruction based on a bridge management program, and public transit services through a bus replacement and capital facilities maintenance program; and
- The preservation of safety and roadway capacity through low-cost capital improvements to address spot safety and localized congestion concerns through intersection signalization, signage, pavement marking, access management, traffic calming and guardrail improvements.

Due to their on-going nature capacity preservation projects are not defined in the 2030 Long Range Transportation Plan, but rather funding must be set aside for transportation preservation activities which are defined in the annual operating and capital improvement programs for the City of Bloomington, Monroe County, the Town of Ellettsville, Bloomington Public Transportation Corporation, Indiana University Campus Bus Service, and Rural Transit, as well as those in the Transportation Improvement Program of the MPO.

FUTURE TRANSPORTATION NEEDS PLAN (CONT.)

In addition to continuing to improve the operations of Bloomington Transit, Indiana University Campus Bus Service and Rural Transit, several specific transit needs have been identified. These include:

- Increased levels of service (number of days, hours of operation, frequency, and geographic coverage);
- A downtown shuttle system;
- New Park and Ride lot locations/ride sharing programs;
- Alternative fuels;
- A new/expanded downtown transfer facility;
- The creation of a regional transit authority; and
- Investigation of developing high occupancy vehicle (HOV) lanes.

In terms of bicycle and pedestrian needs, the Transportation Needs Plan:

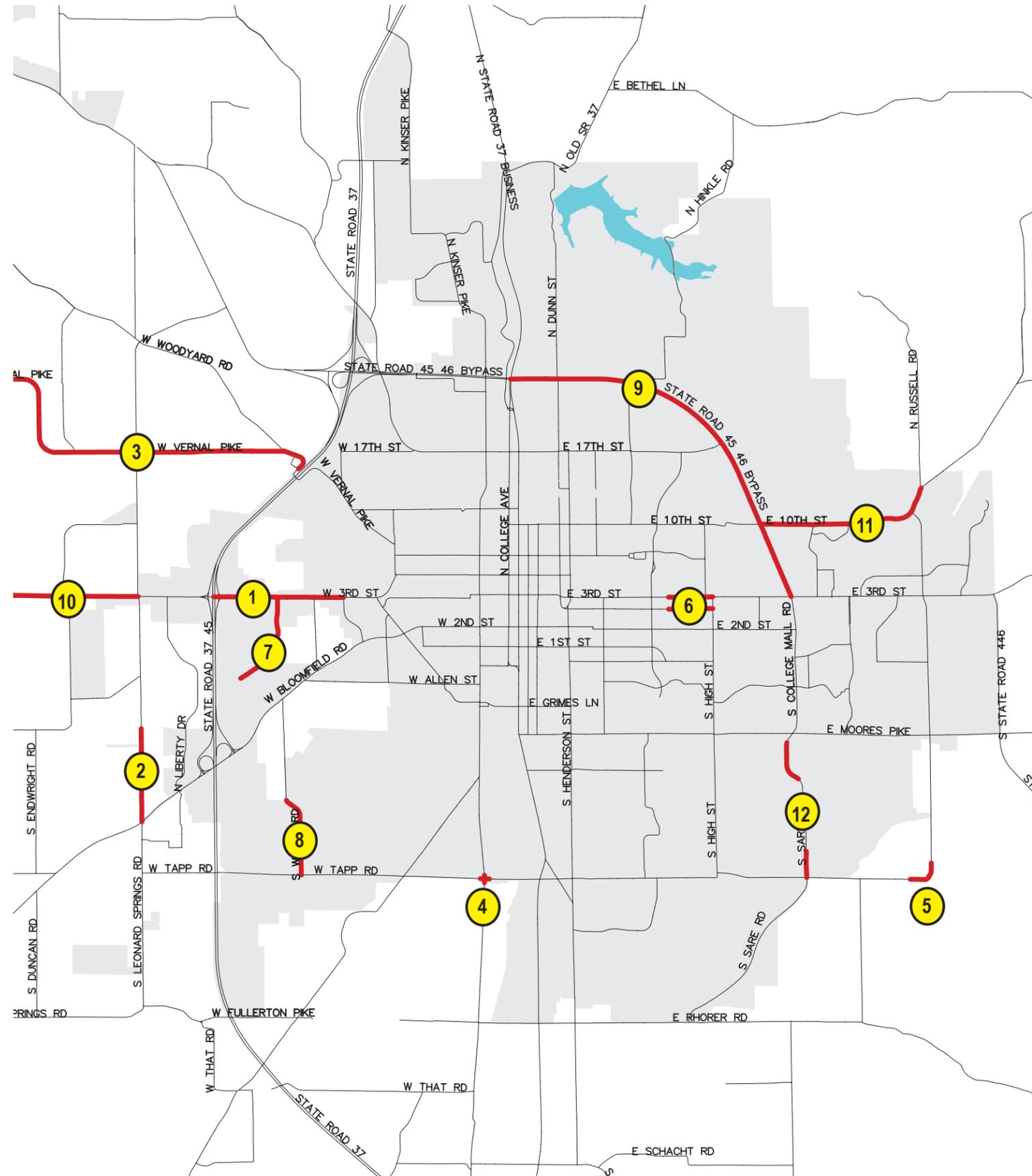
- Calls for funding for bicycle and pedestrian projects;
- Includes bicycle and pedestrian facilities as a part of roadway investment projects in the City of Bloomington and Monroe County;
- Outlines major trail projects needed to provide commuting, recreational, and short-range trip opportunities; and
- Incorporates projects outlined in the City of Bloomington's Alternative Transportation and Greenways System Plan and the soon to be adopted Monroe County Alternative Transportation and Greenways System Plan.

The Transportation Needs Plan appears in Figures 1-2 and 1-3, and Tables 1-2, 1-3, 1-4, and 1-5. The Transportation Needs Plan also recommends transportation system management (TSM) actions to address a few lingering congestion problems where major transportation investments are not proposed.

The Winslow Road corridor is an example of an area where growing congestion and infrastructure conditions merit future improvements.



FIGURE 1-1: COMMITTED PROJECTS



LEGEND

Map Features:

- Road Improvement Project
- Multi-Use Trail Project
- Lake
- Urbanized Area

- 1 **West 3rd Street Phase II** – from Landmark Avenue to SR 37
- 2 **Curry Pike** – from SR 45 to Constitution Avenue
- 3 **Vernal Pike Phase I and II** – from SR 37 to Hartstrait Road
- 4 **Country Club Drive/Rogers Street Intersection**
- 5 **Rogers Road/Smith Road Intersection**
- 6 **3rd Street/Atwater Avenue** – from Mitchell Street to High Street
- 7 **Basswood Drive** – from end of Basswood Drive to West 3rd Street
- 8 **Weimer Road** – from Tapp Road to Wapahani Road
- 9 **State Road 45/46 Bypass** – from Walnut Street to 3rd Street
- 10 **State Road 48** – from Curry Pike to Hartstrait Road
- 11 **State Road 45** – SR45/46 Bypass to Russell Road
- 12 **Sare Road Phase I and II** – from Rogers Road to David Drive and from McCartney Lane to Moores Pike

In translating the Transportation Needs Plan into the Cost Feasible Plan, a forecast of likely financial resources has been provided to establish a fiscally-constrained Plan as required by the Federal Transportation Equity Act for the 21st Century (TEA 21).

FORECAST OF EXISTING AND POTENTIAL FINANCIAL RESOURCES

To determine the amount of local funds available for major transportation investments from Fiscal Year 2009 through 2030, funds are first set aside from the total transportation revenue stream for on-going operation and maintenance of the existing transportation system, for preservation of existing transportation investments (roadway resurfacing, bridge rehabilitation, transit operations, bicycle facilities, and pedestrian facilities), and for the completion of projects already in the pipeline. Accordingly, the City of Bloomington and Monroe County can fund \$290 million in major highway capital investments from Fiscal Years 2009 through 2030 over and above new investments in alternative modes (transit, bicycle, and pedestrian facilities). Thus, the \$84.4 million in City of Bloomington major highway projects and \$97.5 million in Monroe County initiated projects are fully funded.

Setting aside Federal and State funds normally used for capacity preservation activities, the Indiana Department of Transportation will be able to fund the \$345 million in potential State “capacity expansion” projects on State-maintained facilities between 2009 and 2030. Ultimately, the Cost Feasible Plan is advisory only for State projects because the Indiana Department of Transportation selects projects and establishes priorities on a statewide basis.

As noted in Figure 1-2, Interstate 69 has been identified as an Indiana Department of Transportation project to be included in the Cost Feasible Plan. Both Bloomington’s Common Council and Mayor have publicly stated their opposition to this project and do not see this highway as an inevitability. The inclusion of Interstate 69 in the 2030 Long Range Transportation Plan should not be construed to be an expression of City of Bloomington support for this proposal. Rather, the Plan includes this project because the MPO is required to include INDOT projects in its Cost Feasible Plan.

LONG RANGE TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

Because sufficient historical transportation resources exist to fully fund locally initiated projects, all projects in the Transportation Needs Plan were carried forward into the Cost Feasible Plan for implementation phasing for Fiscal Years 2009 through 2030. Based on the availability of funding over time, transportation improvement projects were divided up over two time periods, corresponding with expected funding re-authorizations and local priorities for implementing the projects.

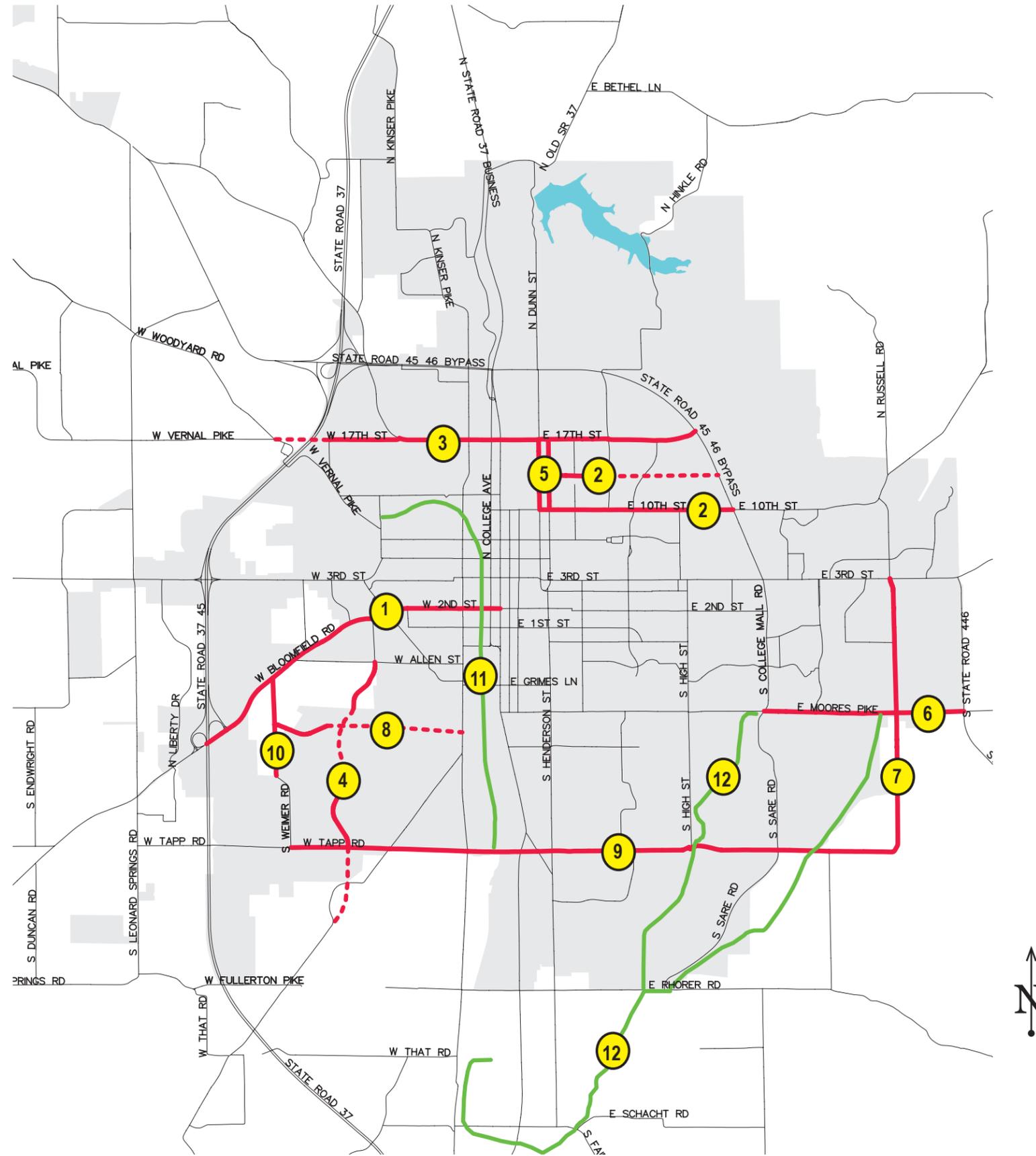
COST FEASIBLE PLAN (CONT.)

The phasing of projects (see Tables 1-2, 1-3, 1-4, and 1-5) establishes a long-range capital improvement program for major transportation investments from which projects are chosen for inclusion in the MPOs three-year Transportation Improvement Program. The project priorities within each of the three phases are advisory in nature. Moreover, lower-cost transportation projects (such as transportation enhancement projects, transit capital investments, intersection improvements, signalization improvements, and safety improvements) may be added to the three-year Transportation Improvement Program as long as such projects are compatible with the 2030 Long Range Transportation Plan. Table 1-6 provides an overview of the specific design components recommended for each of the projects in the cost feasible plan. Refer to Appendix F: Projects Index for a more detailed description of each project.

TABLE 1-2: PHASING OF HIGHWAY CAPITAL IMPROVEMENT PROJECTS FOR THE CITY OF BLOOMINGTON & INDIANA UNIVERSITY

| Project | Total Project Cost | Federal | Local Match | Other Funds | Project Total Funds | Cumulative Amounts |
|---|---------------------|---------------------|--------------------|--------------------|---------------------|--------------------|
| Short-Term Projects (2009-2019) | | | | | | |
| 2nd Street/Bloomfield Road (Phase III) | \$5,952,072 | \$4,761,658 | \$1,190,414 | \$0 | \$5,952,072 | \$5,952,072 |
| 2nd Street/Bloomfield Road (Phase I) | \$3,005,387 | \$2,404,310 | \$601,077 | \$0 | \$3,005,387 | \$8,957,459 |
| 10th Street/14th Street | \$8,949,066 | \$7,159,253 | \$1,789,813 | \$0 | \$8,949,066 | \$17,906,525 |
| 17th Street | \$4,074,046 | \$3,259,237 | \$814,809 | \$0 | \$4,074,046 | \$21,980,571 |
| Adams Street | \$6,814,248 | \$5,451,398 | \$1,362,850 | \$0 | \$6,814,248 | \$28,794,819 |
| Dunn Street - 12th Street to 13th Street | \$1,051,085 | \$840,868 | \$210,217 | \$0 | \$1,051,085 | \$29,845,904 |
| Smith Road (Phase I) | \$3,291,438 | \$2,633,150 | \$658,288 | \$0 | \$3,291,438 | \$33,137,342 |
| Sudbury Road | \$0 | \$0 | \$0 | \$5,321,238 | \$5,321,238 | \$38,458,580 |
| Weimer Road | \$2,276,917 | \$1,821,534 | \$455,383 | \$0 | \$2,276,917 | \$40,735,497 |
| Fiscal Years 2009-2019 (totals) | \$35,414,259 | \$28,331,407 | \$7,082,852 | \$5,321,238 | \$40,735,497 | |
| Long-Term Illustrative Projects (2020-2030) | | | | | | |
| 2nd Street/Bloomfield Road (Phase II) | \$18,047,010 | \$14,437,608 | \$3,609,402 | \$0 | \$18,047,010 | \$18,047,010 |
| Moore's Pike | \$3,903,258 | \$3,122,606 | \$780,652 | \$0 | \$3,903,258 | \$21,950,268 |
| Smith Road (Phase II) | \$3,291,438 | \$2,633,150 | \$658,288 | \$0 | \$3,291,438 | \$25,241,706 |
| Tapp Road/Country Club Drive/Winslow Road/Rogers Road | \$18,383,336 | \$14,706,669 | \$3,676,667 | \$0 | \$18,383,336 | \$43,625,042 |
| Fiscal Years 2020-2030 (totals) | \$43,625,042 | \$34,900,034 | \$8,725,008 | \$0 | \$43,625,042 | |

FIGURE 1-2: CITY OF BLOOMINGTON/INDIANA UNIVERSITY TRANSPORTATION PROJECTS



LEGEND

Map Features:

- Road Improvement Project (dashed line are proposed connections)
- Multi-Use Trail Project
- Lake
- Urbanized Area

- 1 2nd Street/Bloomfield Road
- 2 10th Street/14th Street
- 3 17th Street
- 4 Adams Street
- 5 Dunn Street
- 6 Moores Pike
- 7 Smith Road
- 8 Sudbury Drive
- 9 Tapp Road/Country Club Drive/Winslow Road/Rogers Road
- 10 Weimer Road
- 11 CSX Corridor Trail
- 12 Jackson Creek Trail

*For project information please reference Appendix F

FIGURE 1-3: MONROE COUNTY/INDOT TRANSPORTATION PROJECTS

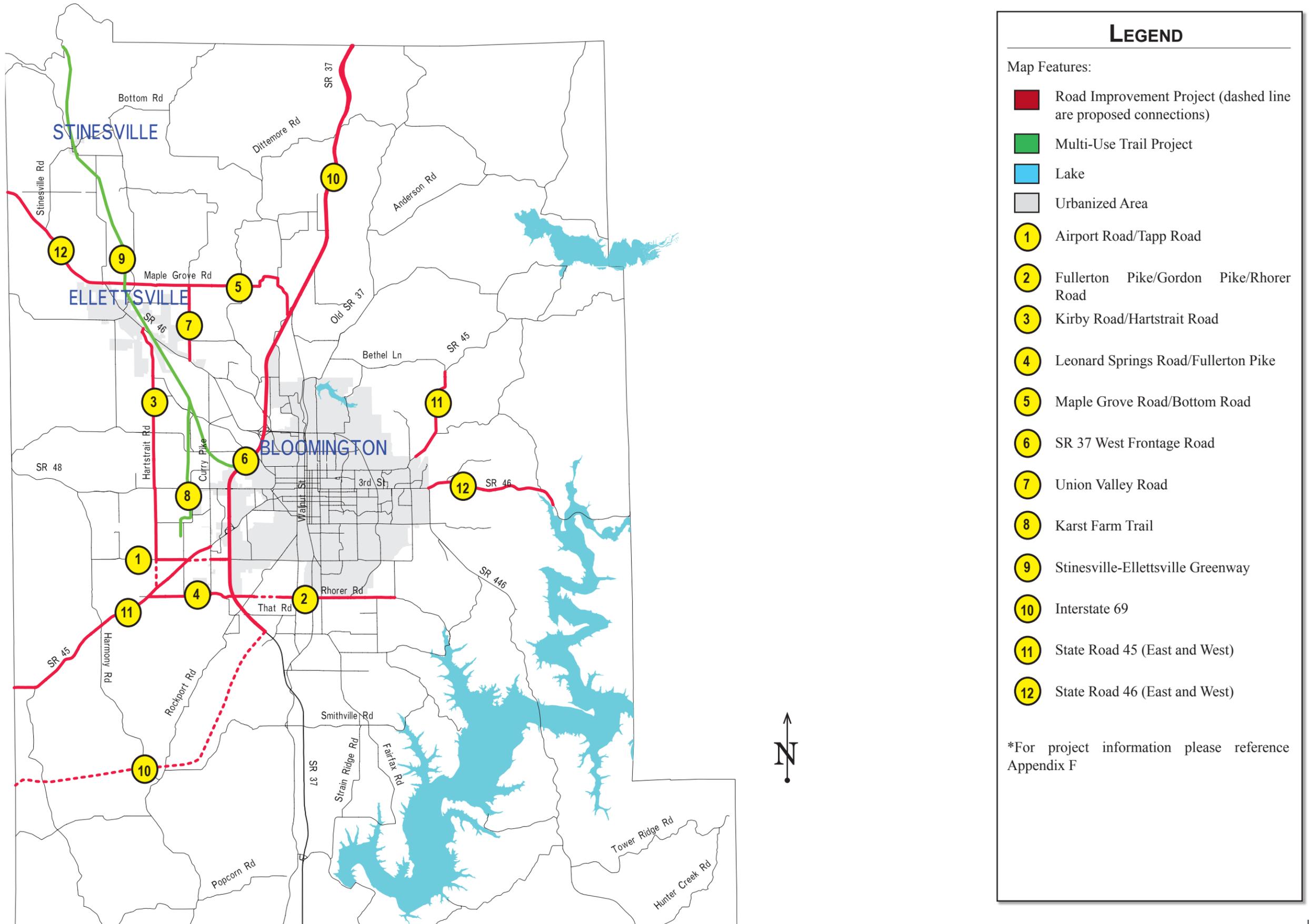


TABLE 1-3: PHASING OF HIGHWAY CAPITAL IMPROVEMENT PROJECTS FOR MONROE COUNTY & ELLETTSVILLE

| Project | Total Project Cost | Federal | Local Match | Other Funds | Project Total Funds | Cumulative Amounts |
|--|--------------------|--------------|--------------|-------------|---------------------|--------------------|
| Short-Term Projects (2009-2019) | | | | | | |
| Airport Road/Tapp Road | \$6,740,745 | \$5,392,596 | \$1,348,149 | \$0 | \$6,740,745 | \$6,740,745 |
| Fullerton Pike/Gordon Pike/Rhorer Road (Phase I) | \$11,666,899 | \$9,333,519 | \$2,333,380 | \$0 | \$11,666,899 | \$18,407,644 |
| Fullerton Pike/Gordon Pike/Rhorer Road (Phase II) | \$886,005 | \$708,804 | \$177,201 | \$0 | \$886,005 | \$19,293,649 |
| Fullerton Pike/Gordon Pike/Rhorer Road (Phase III) | \$3,345,705 | \$2,676,564 | \$669,141 | \$0 | \$3,345,705 | \$22,639,354 |
| SR 37 West Frontage Road | \$10,609,362 | \$8,487,490 | \$2,121,872 | \$0 | \$10,609,362 | \$33,248,716 |
| Union Valley Road | \$4,919,289 | \$3,935,431 | \$983,858 | \$0 | \$4,919,289 | \$38,168,005 |
| Fiscal Years 2009-2019 (totals) | \$38,168,005 | \$30,534,404 | \$7,633,601 | \$0 | \$38,168,005 | |
| Long-Term Illustrative Projects (2020-2030) | | | | | | |
| Fullerton Pike/Gordon Pike/Rhorer Road (Phase IV) | \$4,301,621 | \$3,441,297 | \$860,324 | \$0 | \$4,301,621 | \$4,301,621 |
| Kirby Road/Hartstrait Road | \$35,203,539 | \$28,162,831 | \$7,040,708 | \$0 | \$35,203,539 | \$39,505,160 |
| Leonard Springs Road/Fullerton Pike | \$9,704,612 | \$7,763,690 | \$1,940,922 | \$0 | \$9,704,612 | \$49,209,772 |
| Maple Grove Road/Bottom Road | \$10,102,054 | \$8,081,643 | \$2,020,411 | \$0 | \$10,102,054 | \$59,311,826 |
| Fiscal Years 2020-2030 (totals) | \$59,311,826 | \$47,449,461 | \$11,862,365 | \$0 | \$59,311,826 | |

TABLE 1-4: PHASING OF HIGHWAY CAPITAL IMPROVEMENT PROJECTS FOR THE STATE OF INDIANA IN MONROE COUNTY

| Project | Total Project Cost | Federal | Local Match | Other Funds | Project Total Funds | Cumulative Amounts |
|--|--------------------|---------------|--------------|-------------|---------------------|--------------------|
| Short-Term Projects (2009-2019) | | | | | | |
| Interstate 69 | \$274,653,666 | \$219,722,933 | \$54,930,733 | \$0 | \$274,653,666 | \$274,653,666 |
| Fiscal Years 2009-2019 (totals) | \$274,653,666 | \$219,722,933 | \$54,930,733 | \$0 | \$274,653,666 | |
| Long-Term Projects (2020-2030) | | | | | | |
| SR 46 (East) | \$46,179,800 | \$36,943,840 | \$9,235,960 | \$0 | \$46,179,800 | \$46,179,800 |
| Fiscal Years 2020-2030 (totals) | \$46,179,800 | \$36,943,840 | \$9,235,960 | \$0 | \$46,179,800 | |

COST FEASIBLE PLAN (CONT.)

TABLE 1-5: PHASING OF MULTI-USE TRAIL PROJECTS FOR THE CITY OF BLOOMINGTON, MONROE COUNTY, AND ELLETTSVILLE

| Project | Total Project Cost | Federal | Local Match | Other Funds | Project Total Funds | Cumulative Amounts |
|---|--------------------|--------------|-------------|-------------|---------------------|--------------------|
| Short-Term Projects (2009-2019) | | | | | | |
| CSX Corridor Trail (Phase III) - Adams Street to Country Club Drive | \$5,428,386 | \$4,342,709 | \$1,085,677 | \$0 | \$5,428,386 | \$5,428,386 |
| Jackson Creek Trail (Phase I) - Rhorer Road to Child's School | \$1,654,670 | \$1,323,736 | \$330,934 | \$0 | \$1,654,670 | \$7,083,056 |
| Jackson Creek Trail (Phase II) - Rhorer Road to Fairfax Road | \$1,477,081 | \$1,181,665 | \$295,416 | \$0 | \$1,477,081 | \$8,560,137 |
| Jackson Creek Trail (Phase III) - Rhorer Road to Schmalz Park | \$1,184,058 | \$947,246 | \$236,812 | \$0 | \$1,184,058 | \$9,744,195 |
| Karst Farm Trail (Phase I) - Karst Farm Park to Vernal Pike | \$1,641,000 | \$1,312,800 | \$328,200 | \$0 | \$1,641,000 | \$11,385,195 |
| Karst Farm Trail (Phase II) - Vernal Pike to Stinesville-Ellettsville Trail | \$351,648 | \$281,318 | \$70,330 | \$0 | \$351,648 | \$11,736,843 |
| Fiscal Years 2009-2019 (totals) | \$11,736,843 | \$9,389,474 | \$2,347,369 | \$0 | \$11,736,843 | |
| Long-Term Projects (2020-2030) | | | | | | |
| Jackson Creek Trail (Phase IV) - Child's School to Southeast Park | \$955,894 | \$764,715 | \$191,179 | \$0 | \$955,894 | \$955,894 |
| Jackson Creek Trail (Phase V) - Schmalz Park to SR 446/Moores Pike | \$1,227,297 | \$981,838 | \$245,459 | \$0 | \$1,227,297 | \$2,183,191 |
| Jackson Creek Trail (Phase VI) - Sare Road to SR 446/Moores Pike | \$1,946,921 | \$1,557,537 | \$389,384 | \$0 | \$1,946,921 | \$4,130,112 |
| Jackson Creek Trail (Phase VII) - Fairfax Road to Clear Creek Trailhead | \$2,773,098 | \$2,218,478 | \$554,620 | \$0 | \$2,773,098 | \$6,903,210 |
| Stinesville-Ellettsville Greenway (Monroe County) | \$5,942,695 | \$4,754,156 | \$1,188,539 | \$0 | \$5,942,695 | \$12,845,905 |
| Fiscal Years 2020-2030 (totals) | \$12,845,905 | \$10,276,724 | \$2,569,181 | \$0 | \$12,845,905 | |

TABLE 1-6: SUMMARY OF COST FEASIBLE PROJECT DESCRIPTIONS

| | RW | RE | RC | SW | SP/BL | MT | H/B |
|---|----|----|----|----|-------|----|-----|
| City of Bloomington Projects | | | | | | | |
| 2nd Street/Bloomfield Road | X | | | X | X | | X |
| 10th Street/14th Street | | X | | X | X | | X |
| 17th Street | | | X | X | X | | |
| Adams Street | | | X | X | X | | |
| Dunn Street | | | X | X | | | X |
| Moore's Pike | X | | | X | X | | |
| Smith Road | X | | | X | X | | |
| Sudbury Drive | | | X | X | X | | |
| Tapp Road/Country Club Drive/Winslow Road/Rogers Road | X | | | X | X | | X |
| Weimer Road | | X | | X | | | |
| Monroe County / Town of Ellettsville Projects | | | | | | | |
| Airport Road/Tapp Road | | X | X | X | X | | |
| Fullerton Pike/Gordon Pike/Rhorer Road | X | | | X | X | | |
| Kirby Road/Hartstrait Road | X | | | X | X | | |
| Leonard Springs Road/Fullerton Pike | X | | | X | X | | |
| Maple Grove Road/Bottom Road | | X | | X | X | | |
| SR 37 West Frontage Road | | | X | X | X | | |
| Union Valley Road | | X | | X | X | | |
| Indiana Department of Transportation Projects | | | | | | | |
| Interstate 69 | X | | X | | | X | |
| State Road 45 (West) | X | | | X | | | |
| State Road 45 (East) | X | | | | | | |
| State Road 46 (East) | X | | | X | | | |
| State Road 46 (West) | X | | | X | | | |
| Greenways Projects | | | | | | | |
| CSX Corridor Trail | | | | | | X | |
| Jackson Creek Trail | | | | | | X | |
| Karst Farm Trail | | | | | | X | |
| Stinesville-Ellettsville Greenway | | | | | | X | |

RW = Road Widening / RE = Road Reconstruction / RC = New Road Connection
 SW = Sidewalk Facility / SP/BL = Sidepath or Bikeline Facility / MT = Multi-Use Trail Facility
 H/B = Feasibility Study for High Occupancy Vehicle/Bus Only Facility