Integrating Transportation and Land Use in Comprehensive Plans

–A Handbook for Pennsylvania Municipalities

pennsylvania
DEPARTMENT OF TRANSPORTATION

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This handbook is intended as a resource for Pennsylvania's county and municipal leaders who seek practical guidance in better integrating land use and transportation in their comprehensive plan efforts.

Due to the diversity of Pennsylvania municipalities involved in planning for land use and transportation needs, this handbook was developed through the collaboration of several different organizations—the Pennsylvania Department of Community and Economic Development, County Commissioners Association of Pennsylvania, Pennsylvania State Association of Boroughs, Pennsylvania State Association of Township Supervisors, 10,000 Friends of Pennsylvania, the Pennsylvania Chapter of the American Planning Association, the Pennsylvania League of Cities and Municipalities, and the Pennsylvania Department of Transportation. Representatives from each organization formed the backbone of a steering committee which partnered to collectively encourage stronger comprehensive planning.

As Pennsylvania's varied government entities work together to better understand and more effectively plan to improve the integration of land use and transportation, we are supporting our individual missions as well as advancing shared goals—strengthening communities, conserving resources, and making the most of infrastructure investments.

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Section ONE

INTRODUCTION

Purpose of this Guidance Handbook

PennDOT recognizes its role as a partner in the continuing development of great communities throughout Pennsylvania. As such, PennDOT has been working to ensure that transportation improvement projects are born out of a sound planning process that truly links transportation planning decisions with community land use decisions.

This handbook is one in a series of technical support documents prepared by PennDOT to enhance the partnerships between state, county, and municipal officials with the aim of enhancing the linkage between transportation and land use. The other handbooks in this series include:

- *Sound Land Use Planning for Your Community: Model Ordinance Language for Addressing Traffic Noise*
- *Access Management – Model Ordinances for Pennsylvania Municipalities Handbook*
- *Transportation Impact Fees – A Handbook for Pennsylvania Municipalities*
- *Smart Transportation Guidebook – Planning and Designing Highways and Streets that Support Sustainable and Livable Communities*

The aim of this handbook is to provide enhanced guidance for preparing the transportation elements of municipal and county comprehensive plans and to maximize the linkages between comprehensive plans and the decision-making processes outlined in the long-range transportation plans (LRTPs) completed by the state's metropolitan and rural planning organizations (MPOs and RPOs). This document will support municipalities in making the best possible decisions for the future of their communities.

This handbook is intended to be applicable for all levels of local government contemplating the comprehensive planning process—municipal, multimunicipal, or county. The approaches outlined are flexible to adapt to a wide range of budgetary conditions and in all types of municipalities, whether experiencing slow, moderate, or rapid growth.

This document has been prepared in cooperation with the Department of Community and Economic Development (DCED) and other key partners to supplement DCED's *The Comprehensive Plan in Pennsylvania* Planning Series #3.

This handbook is organized as follows:

- **Introduction** – presents information on the importance of linking transportation and land use and includes checklists to help the user determine how best to use this handbook.

- **Transportation and Comprehensive Planning** – provides background information on comprehensive planning and long-range transportation planning in Pennsylvania.
- **Initiating the Plan** – discusses the importance of considering general consistency, multimunicipal planning, and stakeholder involvement early in plan development.
- **Creating the Plan** – provides an approach to effectively identify and integrate transportation goals and objectives with the future land use component of the comprehensive plan. This section outlines how to customize the comprehensive plan to appropriately develop goals and objectives and collect data specific to the issues and needs of the community. For entities with limited resources seeking the simplest possible planning effort, a "minimum approach" is outlined. A more robust "recommended methodology" for plan development is also provided.
- **Implementing the Plan** – highlights various transportation and land use management implementation tools.
- **Appendices,** including **Best Practices for Addressing Transportation in Comprehensive Planning** – which provides summaries of over 30 best practice techniques and examples from Pennsylvania communities.

Why Link Transportation and Land Use?

Transportation and land use need to be considered together for Pennsylvania municipalities to achieve quality of life objectives for their communities. Transportation systems serve communities in various ways: the regional transportation system provides the mobility to travel throughout the region quickly, whereas the local network provides travelers access to the places that they want to go—home, work, school, shopping, appointments, activities, etc. Pennsylvania municipalities should consider how their transportation system meets both the mobility and accessibility needs of the community. Concurrently, municipal land use policies help shape and rearrange the origins and destinations of travel and can either support or hinder mobility and accessibility. Transportation operates most efficiently when it provides a connected network of transportation modes serving a mix of land uses in close proximity. This type of system provides the traveler with a host of options and makes it possible to make fewer, shorter trips and be less dependent on a personal automobile.

A variety, or mix, of land uses, and an increase in land use densities, can lead to shorter trip distances, a better blend of jobs and housing within a community, and an increase in the use of alternative modes of transportation (walking, biking, transit) because different destinations are closer together. A corner store within walking distance of one's home, for example, means that picking up a bottle of milk can be pleasant exercise rather than requiring another trip to the supermarket by car. Also, by providing a range of transportation choices beyond the automobile, individuals who do not drive are provided with new travel opportunities, and congestion and pollution can be eased. By contrast, separating land use types and/or reducing densities can increase the dependency on motorized transportation, thereby increasing congestion and/or the demand for additional roadways.

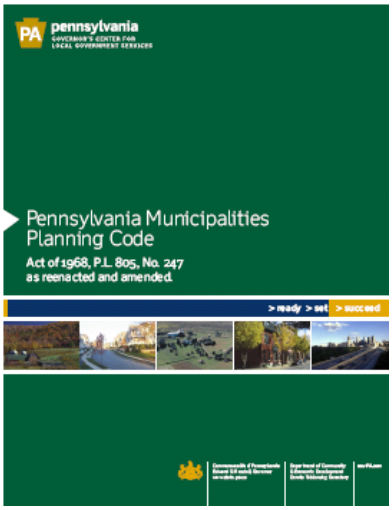
Thus, the design of Pennsylvania communities can either encourage or discourage the range of transportation options. Thoughtful and functional land use and transportation design (i.e., streetscapes, roadway design, traffic calming, and the connection of

Complete Street in a suburban setting.
Source: Urban Advantage

commercial and residential developments) can provide a safer environment for travel and encourage the development of healthy communities that appeal to all citizens including pedestrians, bicyclists, and transit riders. Where applicable, roadways should be designed to be "Complete Streets" to accommodate vehicles, pedestrians, bicyclists, the disabled, and transit by providing travel lanes, sidewalks, bike lanes, wider shoulders, raised crosswalks and medians, audible traffic signals, bus pullouts, and improved access to bus stops. The design of communities can also encourage the use of transit through compact, mixed-use development surrounding a transit station. Transit-oriented developments (TODs) may be appropriate for growing municipalities aiming to reduce the need for more highways in favor of broader transit use. Through careful planning, TODs can also be effective in connecting to existing and planned infrastructure, and linking different transportation modes to one another to form one complete system. In more rural municipalities, community design may include land use controls such as agricultural preservation to focus new development in targeted growth areas and lessen the demands on the overall transportation system.

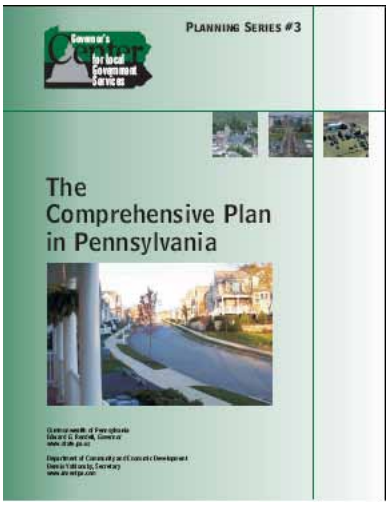
The Need for Coordinated Comprehensive Planning

Pennsylvania municipalities can improve the link between transportation and land use by setting forth balanced policies. The coordination of municipal, multimunicipal, and county comprehensive plans with long-range transportation plans is also important to support appropriate growth and development throughout the region. Municipal, multimunicipal, and county comprehensive plans provide the necessary framework for Pennsylvania communities to effectively plan for future transportation and land use patterns.



The Pennsylvania Municipalities Planning Code (MPC), Act 247 of 1968 as reenacted and amended, requires that all counties in Pennsylvania have a comprehensive plan (Section 301.4) and that the plans be updated at least every 10 years (Section 302.d). Municipal or multimunicipal comprehensive plans, while not mandated, are also required to be reviewed at least every 10 years (Section 301.c).

Whether or not a comprehensive plan is specifically mandated, recent legislation (Acts 67 and 68 of 2000) requires in certain instances that all state agencies shall consider and may rely upon comprehensive plans, and zoning ordinances, when making infrastructure decisions that impact land use. These decisions may include providing funding to address important community needs or issuing permits for improvement projects. This legislation formally recognizes the need for infrastructure investments that can be spurred by land use decisions. The relationship between land use and infrastructure needs is increasingly recognized as critical, with funding resources continuing to fall short of infrastructure maintenance and improvement needs.



Getting Started

The handbook is not an all-inclusive resource for preparing comprehensive plans, but instead focuses on the transportation element and improving linkages with the land use and other components of the overall plan. This guidance is intended to be applicable to all counties and municipalities in Pennsylvania, but especially in cases where transportation/land use issues pose a particular challenge for a community. The questions on the following page are intended to assist municipal officials identifying the relative complexity of their transportation/land use and related planning issues. This in turn can be used to determine which of the comprehensive planning methodologies identified in this handbook may be most effective.

PennDOT has prepared this guidance in close coordination with similar guidance on the preparation of MPO/RPO LRTPs. Municipalities and counties using this guidance will therefore be completing comprehensive plans that can effectively be incorporated into the LRTP. This will expedite the process whereby project proposals are included in an MPO/RPO Transportation Improvement Program (TIP) and the State Transportation Improvement Program (STIP). While there is no guarantee that following this guidance will result in accepted, funded projects, use of this handbook can help reduce the time between plan conception and project implementation.

The checklists below can help municipal and/or county officials and planners determine how to best apply the guidance in this handbook when preparing their comprehensive plan. For example, municipal or county officials anticipating controversy and/or complexity in dealing with transportation/land use issues should consider a more extensive stakeholder outreach program, and may want to draw from the outlined outreach techniques. Those municipalities should also closely follow the *recommended methodology* in "Developing the Plan" in Section 4. An intensive stakeholder outreach program and the recommended methodology will help address the key issues in such a situation. This approach will also maximize the linkages to the MPO/RPO LRTP which, as stated above, serves as the regulatory basis for the project proposals included on the TIP and STIP. All municipalities, regardless of how Table 1 is answered, should give serious consideration to following the guidance contained in "Developing Effective Goals and Objectives" and "Collecting and Analyzing Data" in Section 4.

Table 1: Conditions for Applying Recommended Methodology

	Yes	No
· Do you have significant transportation system needs (beyond routine maintenance) that may necessitate significant financial investments by state and/or federal governments?	○	○
· Is your municipality experiencing significant development pressure?	○	○
· Is there significant development activity in adjacent municipalities that may soon be entering your municipality?	○	○
· Is your municipality giving consideration to implementing Act 209 Transportation Impact Fees (Article V-A of the MPC)?	○	○
· Does the transportation element of your current comprehensive plan provide an unclear connection to the future land use plan?	○	○
· Are there significant safety concerns associated with the existing transportation system?	○	○
· Can the capacity/safety of the existing transportation system be enhanced through better multimodal facilities?	○	○
· Does the current or planned transportation system detract from the quality of life for your community?	○	○
· Is the future development of your community or the need for specific transportation system improvements expected to be controversial?	○	○
· Does your municipality have a current plan to deal with transportation issues?	○	○

Clear Form

Click here if you answered "no" to *all* of the above questions.

Click here if you answered "yes" to *any* of the above questions.

Table 2: Conditions for Applying Minimum Approach

	Yes	No
· Has the development pressure or pattern changed since the adoption of the most recent comprehensive plan?	○	○
· Has it been 10 or more years since the most recent comprehensive plan was adopted?	○	○
· If a municipality, has the county adopted a comprehensive plan subsequent to the adoption of the municipal plan?	○	○
· Has there been a change in transportation or land use policy since the adoption of the most recent comprehensive plan?	○	○
· Is your municipality involved in or considering a multimunicipal planning effort?	○	○
· Is your municipality focusing on potential redevelopment opportunities?	○	○
· Are the demands for maintaining the transportation system in your municipality placing an undue burden on available financial resources?	○	○
· Have you experienced a recent legal challenge to your comprehensive plan or implementing ordinances or foresee such a challenge in the near future?	○	○

Clear Form

Click here if you answered "no" to *all* of the above questions.

Click here if you answered "yes" to *any* of the above questions.

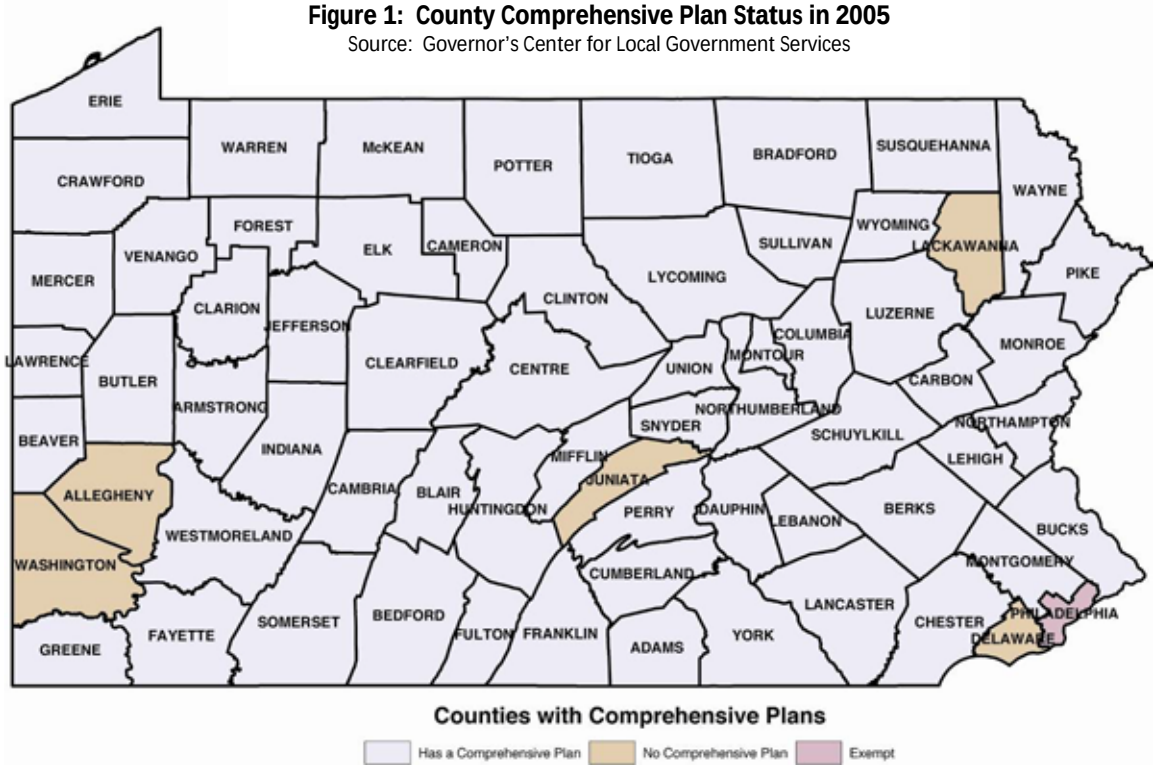
Section TWO

Transportation and Comprehensive Planning in Pennsylvania

Comprehensive Planning in Pennsylvania

As stated earlier, counties are mandated by the MPC to have a comprehensive plan updated at least once every 10 years. According to DCED's *2005 State Land Use and Growth Management Report*—the most recent compilation of the status of county comprehensive plans—six of Pennsylvania's 67 counties are without current comprehensive plans (see Figure 1). However, Internet research conducted as part of the preparation of this handbook indicated that Lackawanna, Delaware, and Philadelphia counties are now the only counties without a current plan. Philadelphia County is specifically exempted from the requirement in the MPC.

Figure 1: County Comprehensive Plan Status in 2005
Source: Governor's Center for Local Government Services



While municipalities are not required by the MPC to have comprehensive plans, many have done so voluntarily. The *2005 State Land Use and Growth Management Report* includes an illustrative summary of the municipalities that have prepared a municipal or multimunicipal comprehensive plan (see Figure 2). There is no readily available source of updated information regarding the current status of municipal comprehensive plans. According to the DCED report, approximately 35 percent of the Commonwealth's 2,566 municipalities do not have comprehensive plans. Nearly half of the municipalities (46 percent) have single comprehensive plans and the remaining 19 percent have participated in a multimunicipal comprehensive planning effort.

Figure 2: Municipal Comprehensive Plans in 2005
Source: Governor's Center for Local Government Services

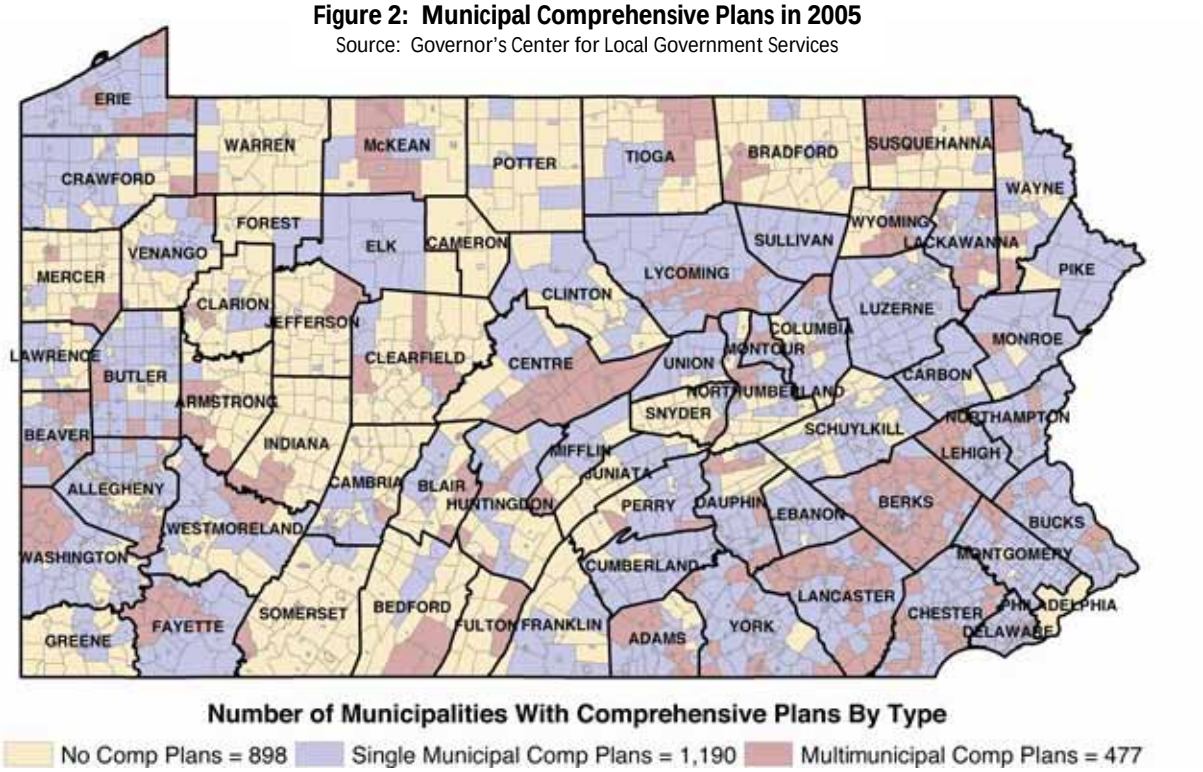
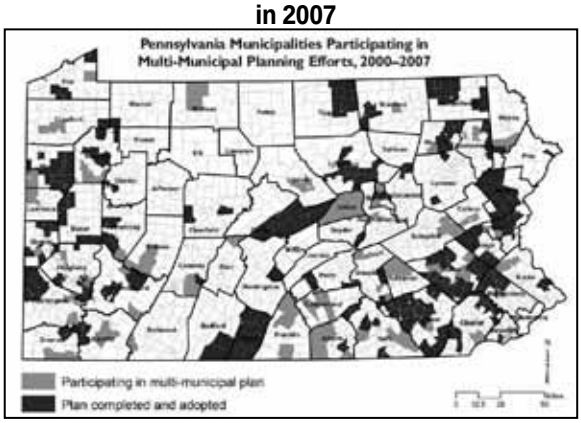


Figure 3: Multimunicipal Comprehensive Plans in 2007



The most recent source of information on multimunicipal comprehensive planning in Pennsylvania is the 10,000 Friends of Pennsylvania's *Plan Regionally, Implement Locally* report which includes data current through 2007. As seen in Figure 3, approximately 25 percent of Pennsylvania's municipalities—representing nearly 25 percent of the population in the state—have participated in multimunicipal plans, indicating a rather significant increase since the 2005 DCED report.

The Municipalities Planning Code

The MPC, Act 247 as reenacted and amended, is Pennsylvania's enabling legislation that addresses comprehensive planning and associated activities such as zoning and subdivision as well as land development controls. Article III of the MPC provides the basic framework for completing comprehensive plans in Pennsylvania. A summary of the key provisions that affect this guidance are provided below.

Section 301 of the MPC requires that the municipal, multimunicipal, or county comprehensive plans consist of maps, charts, and textual matter that shall include, but need not be limited to, the following related basic elements:

> (a.1) A statement of objectives of the municipality concerning its future development, including, but not limited to, the location, character, and timing of future development, that may also serve as a statement of community development objectives as provided in Section 606.
>
> (a.2) A plan for land use, which may include provisions for the amount, intensity, character, and timing of land use proposed for residence, industry, business, agriculture, major traffic and transit facilities, utilities, community facilities, public grounds, parks and recreation, preservation of prime agricultural lands, flood plains and other areas of special hazards, and other similar uses.
>
> (a.3) A plan for movement of people and goods, which may include expressways, highways, local street systems, parking facilities, pedestrian and bikeway systems, public transit routes, terminals, airfields, port facilities, railroad facilities, and other similar facilities or uses.
>
> (a.4.1) A statement of the interrelationships among the various plan components, which may include an estimate of the environmental, energy conservation, fiscal, economic development, and social consequences on the municipality.
>
> (a.4.2) A discussion of short- and long-range plan implementation strategies, which may include implications for capital improvements programming, new or updated development regulations, and identification of public funds potentially available.
>
> (d) The municipal, multimunicipal, or county comprehensive plan may identify those areas where growth and development will occur so that a full range of public infrastructure services, including sewer, water, highways, police and fire protection, public schools, parks, open space, and other services can be adequately planned and provided as needed to accommodate growth.

Furthermore, Article XI of the MPC provides for intergovernmental cooperative planning and implementation agreements. Specific purposes of this Article are:

(1101.5) To complement the economic and transportation needs of the region and this Commonwealth;

(1101.7) To provide for coordinated highways, public services and development; and

(1101.10) To identify those areas where growth and development will occur so that a full range of public infrastructure services including sewer, water, highways, police and fire protection, public schools, parks, open space and other services can be adequately planned and provided as needed to accommodate the growth that occurs.

(1103.a.1) (County or multimunicipal comprehensive plans may) Designate growth areas where: orderly and efficient development to accommodate the projected growth of the area within the next 20 years is planned for residential and mixed use densities of one unit or more per acre; and services to serve such development are provided or planned for.

(1103.a.2) Designate potential future growth areas where future development is planned for densities to accompany the orderly extension and provision of services.

(1103.a.3) Designate rural resource areas, if applicable, where: infrastructure extensions or improvements are not intended to be publicly financed by municipalities except in villages, unless the participating or affected municipalities agree that such service should be provided to an area for health or safety reasons or to accomplish one or more of the purposes set forth in Section 1101.

Finally, Section 1104 provides for the establishment of intergovernmental cooperative agreements to implement the multimunicipal comprehensive plan.

DCED Planning Series

DCED's *The Comprehensive Plan in Pennsylvania* (Planning Series #3) provides further guidance for the transportation, land use, and community facility portions of the comprehensive plan:

Transportation

Inventory of all transportation modes and systems – This element describes components of the circulation system in the community, its interstates, expressways, beltways, highways, boulevards, streets, alleys and public ways.

Pedestrian; bikeway; equestrian; trails; pathways – These are not as traditional ways of transport as those above, but nonetheless are important ways to move around and through the community, either for recreational purposes or more practical trips for specific reasons.

Terminals; airport; port; railroad; water – Perhaps not appropriate for all communities, but if one of these significant facilities is present in the community it should be inventoried, analyzed, and planned for in some way.

Classification of roads, streets and ways – This component categorizes roads by function and purpose. A classification system can be the basis for functional street standards, setting speed limits and programmed maintenance schedules.

Traffic patterns; origin and destination – This information is utilized to program road improvement needs and secure funding.

Traffic volumes and capacity analysis – This data provides important traffic flow information and can be used to establish background levels of service criteria for the community.

Public transportation; assessment and needs – Where appropriate, this component provides important data for present and future public transportation needs.

Land Use

Existing land use inventory, land characteristics and coverage – This element inventories and identifies existing land uses within the community.

Future land use plan – The element projects land use patterns of the future.

Other future land use plans as appropriate – These functional plans include Sewage Facilities Planning, Recreation Plans, Storm Water Management Plans, Energy Conservation Plans, and Solid Waste Management Plans, etc.

Public, Semi-public, Community Services and Utility Facilities

Community Facilities Plan – This element inventories, analyzes and projects future community facilities and utility needs for the community. A plan for community facilities can be as inclusive as deemed appropriate depending upon the needs of the municipality.

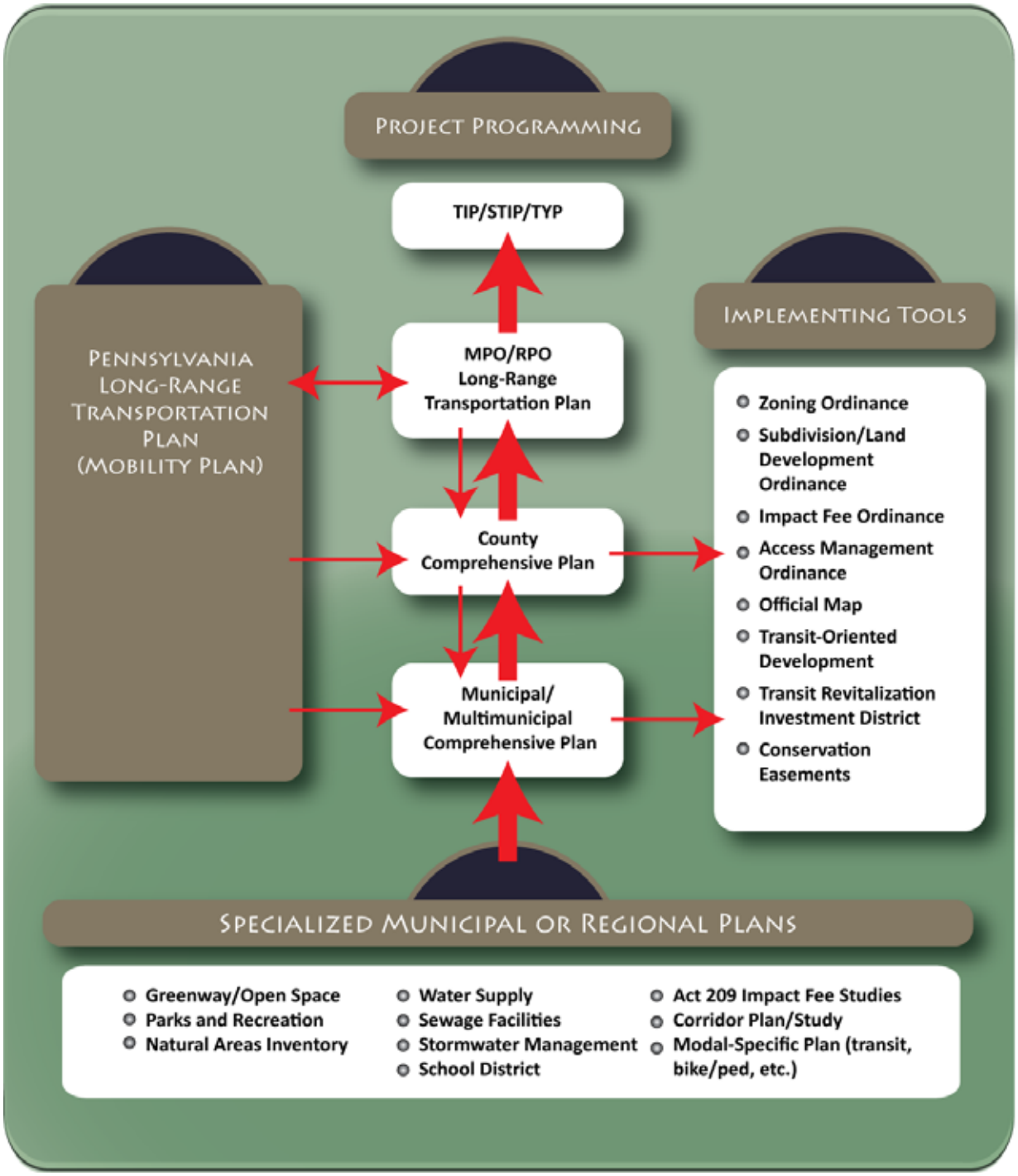
Long-Range Transportation Planning

Municipal, multimunicipal, and county comprehensive plans represent only a portion of the overall planning structure in Pennsylvania. This is especially true in terms of transportation planning and project development where municipal and county comprehensive plans are the central points of a complicated planning structure that includes statewide and regional transportation plans and a number of related infrastructure and land use studies.

States and MPOs throughout the country are required to have LRTPs as a prerequisite for federal transportation funding. Pennsylvania requires that RPOs also address this requirement. In other words, federal funds cannot be used during design and construction if a transportation system improvement proposal is not in the LRTP and contained in a regional TIP, STIP, and Twelve-Year Program (TYP). The regulatory framework for the federally-mandated plans and programs is described in the next subsection. The overall planning structure as it relates to transportation in Pennsylvania is depicted in Figure 4.

Developing LRTPs at the MPO/RPO level is valuable because transportation issues and solutions are typically regional in nature. Considering transportation trends, challenges, goals, and ultimately projects on a regional basis and/or across a metropolitan area results in a more effective use of limited transportation funding.

Figure 4:
Transportation and Comprehensive Planning Structure in Pennsylvania



One of the primary goals of this handbook is to help establish a stronger relationship between municipal and county comprehensive plans and the regional and statewide LRTP and TIP/STIP. Issues and needs identified in comprehensive plans should be reflected in the region's LRTP to advance community goals. The recommended procedures outlined here are designed to provide an improved basis of transportation need and linkages to land use management so that the projects identified in the regional LRTPs and TIPs can effectively address the highest priorities on the local and regional levels.

Federal Transportation Planning Regulations

The federal metropolitan planning and programming regulations (23 CFR, Part 450, Subpart C) define metropolitan transportation plans or LRTPs as "the official multimodal transportation plan addressing no less than a 20-year planning horizon that is developed, adopted, and updated by the MPO through the metropolitan transportation planning process."

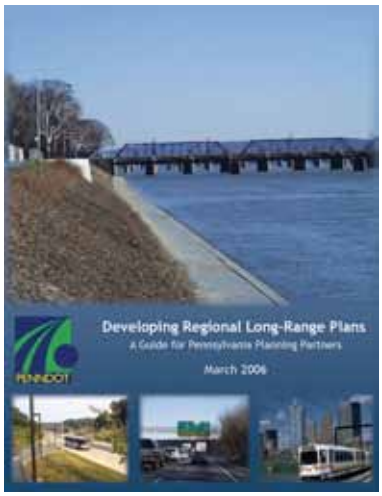
The federal regulations require that the MPO shall consult, as appropriate, with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation concerning the development of the transportation plan. The consultation shall involve, as appropriate:

- comparison of transportation plans with state conservation plans or maps, if available; or
- comparison of transportation plans to inventories of natural or historic resources, if available.

Furthermore, the regulations require that each project or project phase included in the TIP be consistent with the approved metropolitan transportation plan. Therefore, given this requirement and those summarized above, there must at least be consultation between the MPO/RPO responsible for completing the LRTP and TIP and the county and local agencies charged with completing local and/or regional comprehensive plans. This handbook outlines the recommended outreach/coordination activities. The aim is to improve the content and planning practices associated with county, regional, and local comprehensive plans in order to provide more robust local information during development of the LRTP and TIP.

Similarly, the federal regulations for statewide transportation planning (23 CFR, Part 450, Subpart B) define the long-range statewide transportation plan as "the official, statewide, multimodal, transportation plan covering a period of no less than 20 years developed through the statewide transportation planning process."

The federal regulations require that the statewide planning process "coordinate planning carried out under this subpart with the metropolitan transportation planning activities carried out under subpart C of this part for metropolitan areas of the state. The state is encouraged to rely on information, studies, or analyses provided by MPOs for portions of the transportation system located in metropolitan planning areas." Furthermore, statewide transportation planning officials must also "consider the concerns of local elected and appointed officials with responsibilities for transportation in non-metropolitan areas." Additionally, the consultation conducted as part of the development of the statewide plan must "…provide for non-metropolitan local official participation in the development of the long-range statewide transportation plan and the STIP. The state shall have a documented process(es) for consulting with non-metropolitan local officials representing units of general purpose local government and/or local officials with responsibility for transportation that is separate and discrete from the public involvement process and provides an opportunity for their participation in the development of the long-range statewide transportation plan and the STIP."



PennDOT has addressed the federal requirement for consultation with non-metropolitan officials through the establishment of eight RPOs that are tasked with the same LRTP requirements as the MPOs. Therefore, all portions of Pennsylvania are required to have a current LRTP. PennDOT has provided technical guidance to support the preparation of these plans in *Developing Regional Long-Range Plans – A Guide for Pennsylvania Planning Partners*.

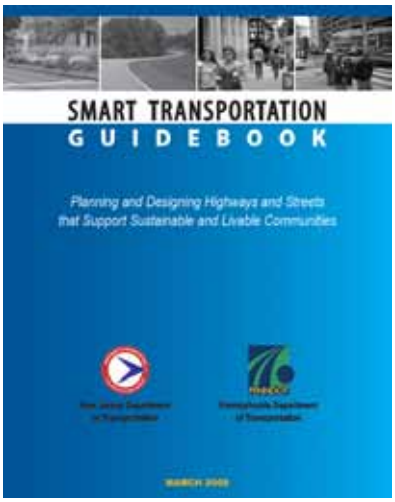
The current statewide transportation plan in Pennsylvania is known as the *Mobility Plan*. This plan provides broad policy guidance for use in the development of MPO/RPO LRTPs. The *Mobility Plan* articulates a transportation vision for the 2030 planning horizon and establishes goals, objectives, and strategies for achieving that vision.

While the federal metropolitan and statewide planning regulations do not specifically address comprehensive plans, the consultation and coordination requirements clearly require extensive efforts to solicit local input into both metropolitan and statewide LRTPs. Comprehensive plans provide the most direct means of sharing publicly-adopted policy, data, and plans relating to transportation facilities. Having a current comprehensive plan provides a municipality or county with a means of sharing data, plans, and policies with MPO/RPO and statewide transportation planning officials.

Policy Linkages

Pennsylvania has adopted "Keystone Principles and Criteria" as a coordinated interagency approach to fostering sustainable economic development and conservation of resources through the state's investments in its diverse communities. The Keystone Principles are valuable in guiding the transportation and other elements of a comprehensive plan. The principles are summarized below. More detail for each of the principles and the core criteria is available on DCED's Web site.

- Provide efficient infrastructure.
- Concentrate development (i.e., redevelopment, infill, etc.).
- Increase job opportunities.
- Foster sustainable businesses.
- Restore and enhance the environment.
- Enhance recreational and heritage resources.
- Expand housing opportunities.
- Plan regionally, implement locally.
- Be fair.



In addition, PennDOT emphasizes strong linkages between all levels of planning documents and a close tie between project development and locally-defined transportation needs. PennDOT focuses on 10 themes:

- Money counts.
- Leverage and preserve existing investments.

- Choose projects with high value/price ratio.
- Safety always and maybe safety only.
- Look beyond level of service.
- Accommodate all modes of travel.
- Enhance local network.
- Build towns, not sprawl.
- Understand the context; plan and design within the context.
- Develop local governments as strong land use partners.

More detail on these themes is available on PennDOT's Web site and in the *Smart Transportation Guidebook*, which is also available online.

Together, the *Mobility Plan* and the above themes and principles provide important policy guidance that should be reflected in comprehensive plans when locally applicable. The following sections of this handbook provide a number of tools for incorporating statewide policies into comprehensive plans.

Section THREE

INITIATING THE PLAN

Achieving General Consistency

Changes made to the MPC in 2000 emphasize the importance of general consistency between policy plans and implementing ordinances—specifically the comprehensive plan and zoning ordinance. Municipalities are strongly encouraged to adopt comprehensive plans that are generally consistent with the county comprehensive plan. They are required to submit their comprehensive plans to the county planning commission every 10 years to be evaluated for consistency (Section 301.c). In some cases the county comprehensive plan may be changed to maintain general consistency—the MPC requires the county to accept proposed amendments to the county comprehensive plan where two or more contiguous municipalities request such amendments (Section 302.d).

These general consistency requirements and reviews are also important because municipalities who adopt municipal comprehensive plans that are generally consistent with the county comprehensive plan, and adopt a local zoning ordinance that is generally consistent with the local comprehensive plan, are eligible for preferential funding and permitting from state agencies:

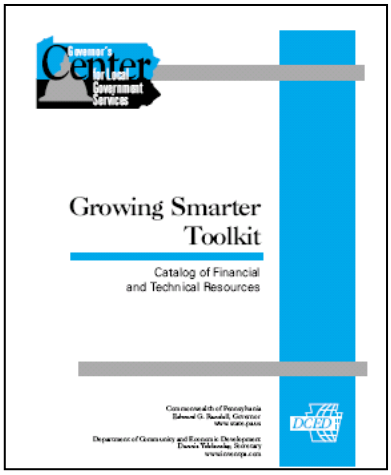
- Section 301.5 of the MPC authorizes priority for state grants to those municipalities which agree to develop comprehensive plans and zoning ordinances that fulfill the general consistency requirements of the MPC.
- Section 619.2(a) states, "Commonwealth agencies shall consider and may rely upon comprehensive plans and zoning ordinances when reviewing applications for the funding or permitting of infrastructure or facilities."
- Section 1105(2) provides for the consideration of comprehensive plans and zoning ordinances, and priority funding consideration by state agencies for municipalities that adopt a county plan or multimunicipal plan and have conformed their plans and ordinances to the county or multimunicipal plan through implementing cooperative agreements.

Given the MPC consistency requirements and the potential financial and/or permitting advantages of general consistency between the local and county levels and implementing ordinances, it is important that the goals and policies contained in the county comprehensive plan are considered in the development of municipal and multimunicipal comprehensive plans, and vice versa.

The MPC does not clearly define or describe the steps to be taken in achieving "general consistency." In addressing this requirement under this guidance, municipalities should strongly consider multimunicipal plans as described below and should also strive to have an extensive stakeholder involvement program as described later in this section. Should a planning process completed under this guidance result in the

identification of significantly conflicting goals or planned transportation system improvements, such conflicts should be clearly identified in the plan along with the actions taken to address the issue(s) and the rationale for the decision(s) made. If the inconsistency is identified in a municipal or multimunicipal plan, a request for revision of the county plan should be sent to the county in accordance with the MPC.

Considering Multimunicipal Planning



Transportation systems and issues are typically regional in nature, so the most effective means of addressing key issues is usually through regional or multimunicipal planning. For those areas where transportation/land use is the driving force behind the planning effort, the area affected by these issues should be defined and all the municipalities in this area should be included in the planning process—to the extent possible. The size of the multimunicipal planning area may also be influenced by other factors such as wastewater treatment needs, water supply, etc. As stated earlier, joining with other municipalities in a planning region may increase the likelihood of receiving financial support through PennDOT, DCED, or other state agencies through programs such as those outlined in the Growing *Smarter Toolkit*. Therefore, the preparation of multimunicipal comprehensive plans is strongly encouraged.

Furthermore, the MPC provides several advantages to a multimunicipal approach as identified in Article XI (Intergovernmental Cooperative Planning and Implementation). A summary of the major advantages specifically addressed in the MPC follows.

- Section 1103(a)(3)(iii) enables multimunicipal comprehensive plans to designate growth areas where development and supporting infrastructure and services are desired, and rural resource areas where "infrastructure extensions or improvements are not intended to be publicly financed by municipalities except in villages, unless the participating or affected municipalities agree that such service should be provided to an area for health or safety reasons or to accomplish one or more of the purposes set forth in Section 1101."
- Section 1103(a)(4) enables the municipalities involved in a multimunicipal effort to "plan for the accommodation of all categories of uses within the area of the plan, provided, however, that all uses need not be provided in every municipality, but shall be planned and provided for within a reasonable geographic area of the plan."
- Section 1104 gives counties and municipalities the authority to enter into intergovernmental cooperative agreements to implement multimunicipal comprehensive plans. Such intergovernmental agreements can provide for the sharing of tax revenues and fees within the region of the plan. They also enable the adoption of a transfer of development rights (TDR) program applicable to the region of the plan so as to enable development rights to be transferred from rural resource areas in any municipality within the plan to designated growth areas in any municipality within the plan.
- Additionally, Section 1105(3) states that "state agencies shall consider and may give priority consideration to applications for financial or technical assistance for projects consistent with the county or multimunicipal plan."

- Section 1106(a) enables municipalities participating in a multimunicipal comprehensive plan to adopt specific plans for any nonresidential part of the area covered by the county or multimunicipal plan. The specific plan includes text and a diagram or diagrams and implementing ordinances regulating the distribution, location, extent of area, and standards for land uses and facilities. It also regulates the location, classification, and design of all transportation facilities, including, but not limited to, streets and roads needed to serve the land uses described in the specific plan.

Completion of a joint comprehensive plan also enables the participating municipalities to "cooperate with one or more municipalities to enact, amend, and repeal joint municipal zoning ordinances in order to implement joint municipal comprehensive plans and to accomplish any of the purposes of this act. (See Article VIII-A).

It is important to note that while the MPC provides for tax revenue sharing, joint zoning ordinances, multimunicipal TDR, and other advantages, municipalities maintain the ability to implement a joint comprehensive plan on an individual basis. Whether implemented individually or jointly, multimunicipal planning can reduce the costs to each of the municipalities and provide for a more complete analysis of regional issues such as the transportation system.

Developing the Stakeholder Involvement Program

The MPC defines a "planning agency" as a planning commission, planning department, or planning committee of the governing body. Section 209.1(a)(1) empowers the planning agency to prepare the comprehensive plan for the development of the municipality and present it for the consideration of the governing body at the request of the governing body. One of the most important roles for the governing body in the establishment of the planning agency and/or of the agency itself is to seek the level of stakeholder involvement necessary to successfully identify and analyze key planning issues. Both the MPC requirements for public involvement and the recommended approaches for outreach are included in this subsection along with the identification of resources that provide a number of innovative tools for involving more of the public in the planning effort while also making the outreach efforts more effective. An effective stakeholder involvement program will result in the comprehensive identification of key transportation, land use, and other subject issues that should provide focus for the development of the plan.

Public involvement and stakeholder outreach are extremely important. An effective outreach program not only addresses the requirements of the MPC, it also helps ensure that the plan reflects the goals of the community, and in the process lessens controversy. Truly effective stakeholder outreach starts as early as possible in the planning process and continues throughout the effort. Furthermore, obtaining early input on key issues and addressing possible controversy relating to future land use and transportation scenarios during the comprehensive planning process can ultimately reduce delays in implementing system improvements.

MPC Requirements

The minimum public involvement activities for a comprehensive plan as outlined in the MPC are listed (paraphrased from Article III of the MPC) below.

> The municipal or multimunicipal comprehensive plan shall be sent to the governing bodies of contiguous municipalities for review and comment and shall also be sent to the Center for Local Government Services for informational purposes. The municipal or multimunicipal comprehensive plan shall also be sent to the county planning commissions, or, upon request of a county planning commission, a regional planning commission, when the comprehensive plan is updated or at ten-year intervals, whichever comes first, for review and comment on whether the municipal or multimunicipal comprehensive plan remains generally consistent with the county comprehensive plan and to indicate where the local plan may deviate from the county comprehensive plan.
>
> If a county planning agency has been created for the county in which the municipality is located, then at least 45 days prior to the public hearing required in Section 302 on the comprehensive plan or amendment thereof, the municipality shall forward a copy of that plan or amendment to the county planning agency for its comments. At the same time, the municipality shall also forward copies of the proposed plan or amendment to all contiguous municipalities and to the local school district for their review and comments.
>
> Before adopting or amending a comprehensive plan, or any part thereof, the planning agency shall hold at least one public meeting before forwarding the proposed comprehensive plan or amendment thereof to the governing body, county, contiguous municipalities, and the school district, as well as forwarding the public meeting comments and the recommendations of the municipal planning agency. The comments of the county, contiguous municipalities, and the local school district shall be made to the governing body within 45 days of receipt, and the proposed plan or amendment thereto shall not be acted upon until such comment is received. If, however, the contiguous municipalities and the local school district fail to respond within 45 days, the governing body may proceed without their comments. The governing body shall hold at least one public hearing pursuant to public notice. If, after the public hearing held upon the proposed plan or amendment to the plan, the proposed plan or proposed amendment thereto is substantially revised, the governing body shall hold another public hearing, pursuant to public notice, before proceeding to vote on the plan or amendment thereto.

Effective Stakeholder Outreach Considerations

Effective stakeholder outreach springs from the understanding that people whose lives will be affected by a decision should have an opportunity to contribute to that decision. Because comprehensive plans influence the overall economic and social development of a community, it is imperative that the public be involved in the plan's development. All relevant stakeholders should have the opportunity to participate fully in the decision-making process that can affect their individual lifestyles and shape their collective future.

Potential stakeholders to be involved in a comprehensive planning effort are many and varied. The list below, while not all-inclusive, helps to identify many of the types of individuals and groups that should be sought out at the beginning of a comprehensive planning effort. Contact information for many of these potential stakeholders is provided in the appendices. The level of involvement of these stakeholders may vary from sources of background data to members of the planning entity established for the development of the comprehensive plan. The governing body has the authority to determine which of these stakeholders may be included as part of the planning entity responsible for preparing the plan, along with the structure of the overall stakeholder outreach program. The program should address the MPC requirements and incorporate the types of stakeholders below to the maximum extent practicable.

- Citizens Groups
- Business Organizations (i.e., chambers of commerce, downtown business associations, etc.)
- Major Employers
- Realtors/Builders/Developers
- Transit Providers and Riders (all applicable modes: train, bus, air, etc.)
- Freight Industry Providers (truck, rail, ports, aviation, etc.)
- Bicycle and/or Pedestrian Groups
- Environmental Groups (Environmental Advisory Council, watershed association, etc.)
- Municipal and County Planners and Planning Commission members
- MPO/RPO Representatives
- Public Safety Personnel (police, fire, ambulance)
- Community Service Agencies (Lions Club, church-related organizations, etc.)
- Individual residents and businesses
- School Districts
- PennDOT District Representatives
- DCED Regional Planners
- Other Applicable State Agencies
- Non-Profit Planning Organizations (10,000 Friends of PA, Land Trusts, etc.)
- Persons with Disabilities
- Low Income and Minority Populations
- State Legislators

An effective community outreach program will:

- Seek information and meaningful input from the public.
- Hold an open dialogue with interested citizens.
- Obtain public input on goals and objectives.
- Allow the public to help develop solutions for their community.
- Assess the public's reaction to alternative plans.
- Provide the public with access to decision-makers.
- Assimilate public views and preferences into the decision-making and document their consideration.

- Reach a consensus within the community on a recommended course of action.

Three words—openness, transparency, and flexibility—are the guiding principles of effective stakeholder outreach.

Openness is achieved by approaching and involving partners during the earliest stages and throughout plan development. A consistent presence in the community provides public access and promotes openness in discussing issues. It provides stakeholders with opportunities to adequately represent their interests. This enhances the project team's understanding of stakeholders' concerns and provides a sense of shared responsibility for project development.

Transparency results when the decision-making process is straightforward and decisions reflect the honest dialogue that has occurred between the stakeholders and the government. The development of credible and defensible decisions recognizes a basic human need—to have some control over decisions that affect our lives. This approach also achieves loftier ambitions—it strengthens democracy and citizens' confidence in government.

Flexibility is practiced through the careful design of a process tailored to the stakeholders' characteristics and the information to be discussed or presented. Everyone learns differently, and the outreach plan must reflect these differences by offering a variety of ways for stakeholders to receive and give information. An effective program would offer some combination of printed outreach materials, electronic means such as a Web site or online social networking tools, media relations, and meetings. These different techniques work together to reach the full spectrum of stakeholders.

Effective community outreach does not just happen—it must be planned and facilitated at key points throughout the planning process.

The first step is defining the key points where input is required. "Early and Often" is a mantra of good public involvement. During a comprehensive planning initiative, public input is typically sought for the following project phases:

- Inventory and analysis of existing conditions
- Development of goals and objectives
- Development and selection of alternatives

The second step in developing effective outreach is considering the specific stakeholders and the best way to reach them. These stakeholders can be incorporated into the planning committee overseeing the development of the plan or be offered other opportunities to provide input.

The third step is developing a formal Public Outreach Plan targeted to the information needs and preferences of the identified stakeholders. Two principles undergird the development of the public outreach plan:

1. Effective use of public outreach materials
2. Flexible meeting places, formats, and times

Effective Use of Public Outreach Materials

Public information materials may serve a variety of purposes: to inform the public about upcoming events, to provide an update on plan status, or to gather public input. To ensure the materials are effective, it is imperative to think through how they will be used and what specific purpose they serve—before they are developed. As shown in Table 3, there are many types of public outreach materials which serve different needs.

Table 3: Public Outreach Materials Pros and Cons

Public Information Type	Pros	Cons
Fact Sheets **Newsletters** **Brochures** **Issue Papers** **Progress Reports** **Direct Mail Letters**	– Can reach large target audience – Allows for technical and legal reviews – Encourages written responses if comment form enclosed – Facilitates documentation of public involvement process	– Only as good as the mailing list/distribution network – Limited capability to communicate complicated concepts – No guarantee materials will be read – Distribution can be expensive
Web site	– Reaches those unable to attend meetings – Can be linked to appropriate sites to target specific audiences – Reaches across distances – Makes information accessible anywhere at anytime – Saves printing and mailing costs	– Users may not have easy access to the Internet or knowledge of how to use computers – Large files or graphics can take a long time to download
Media Releases	– Flexible – Can reach a lot of people – Informs the media of project milestones – Opportunity for technical and legal reviews	– Do not guarantee increased involvement – Story may not run – Poor placement of press release within newspapers is common
Media Advertising	– Controlled message – Broad distribution	– It does not guarantee increased involvement – Can be expensive – Limited content
List Serve, E-mail Distribution	– Inexpensive way to directly reach stakeholders – Use when you hope people will forward messages, since electronic-based mail is much easier to share than hard copies	– Can be difficult to maintain current e-mail addresses
Web-based Response Polling	– Provides input from individuals who would be unlikely to attend meetings – Provides input from cross-section of public, not just those on mailing list – Higher response rate than other communication forms	– Detail of inquiry is limited – Generally not statistically valid results – Can be very labor-intensive to look at all of the responses – Cannot control geographic reach of poll – Results can be easily skewed
Social Networking Tools (Twitter, Facebook, blogs, etc.)	– Inexpensive – Reaches audience who may not attend meetings	– All comments are public

Flexible Meeting Places, Formats, and Times

The goal of any meeting is to encourage open dialogue and collaborative problem-solving with active participation of all parties. As shown in Tables 4 through 6, there are many ways to design and facilitate meetings. Before calling a meeting, decisions should be made regarding the planned attendees, the information to be discussed or presented, and the desired outcome. Make sure that the following items have been examined as a public meeting is being organized.

Location:

- Is it accessible by public transit?
- Is free parking available?
- Is it accessible by Americans with Disabilities Act (ADA) standards?
- Is it convenient?
- Is it in a familiar location that people will not find intimidating?
- Is the location considered safe?

Time:

- Does the meeting conflict with other important community events?
- Will working people be able to attend?

Services:

- Is child-care needed?
- Should food and drink be provided?
- Should other incentives, such as transit passes, be provided?

Language:

- Are translation services necessary?
- Are bilingual handouts and displays necessary?
- How should they be provided?

Table 4: Community Outreach Toolkit – Personalized Involvement

Participation Technique	Details	Pros	Cons
Walkabouts	– Door-to-door canvassing of neighborhoods – Inform and involve – Opportunities for surveys/interviews – Opportunities to distribute flyers	– Immediate communication with community members – Takes the project and participation opportunities to the communities – More likely to fit into lives of people	– Large time commitment by agency – Relatively small number of people involved
Informational Interviews	– Individual interview in community facility	– Immediate communication with community members – Takes the project and participation opportunities to the communities	– Large time commitment by agency – Relatively small number of people involved
Personal Letters	– Send letters addressed to specific individuals – Send personal invitations to events – Send personal informative letters	– Makes an impact on community members if they think their opinions are important to the agency – More likely to capture public interest in the project	– Costly – Might not significantly increase attendance at events
Outreach Booth	– Set up stands at popular locations, such as parks, community events, malls, etc. – Provide information and involve community members	– Brings participation opportunities to the community – Flexible in terms of time and location – May help overcome language barriers	– Not many people may pause to learn about project and get involved

Table 5: Community Outreach Toolkit – Meeting Variations

Participation Technique	Details	Pros	Cons
Community Public Meeting	– Integrate with the activities people already partake in, such as church activities and community or school events – Increase attendance by having interpreters, refreshments, and child care staff – Multiple meetings at varying times	– Facilitate a large number of community members to get together – Good attendance may produce a lot of results	– Risk low attendance – May not represent full spectrum of community members
Public Meeting	– Widely advertised event at local school, library, other facility – Formal presentation followed by questions	– Facilitate a large number of community members to get together – Good attendance may produce a lot of results	– Risk low attendance – May not represent full spectrum of community members
Open House	– Similar to public meeting but no presentation – Lots of visual aids – Agency staff speaks to attendees one-to-one – Opportunities to conduct surveys/interviews	– Lots of opportunities for feedback – Overcomes language barriers – Flexible in terms of time requirement by participant – Not as formal as public meeting	– Risk low attendance – May not represent full spectrum of community members
Design Workshop	– Large meeting broken into facilitated small groups to identify needs, values, etc. – Work with designers to develop solutions to identified needs	– Lots of opportunities for feedback	– Can require substantial resources in terms of time, manpower, and funding – Participants are required to meet at a specified location for a significant period of time – Risk low participation if participants are not compensated – Significant number of barriers to participation (e.g., transportation to location, available time, etc.)

Table 6: Community Outreach Toolkit – School Programs

Participation Technique	Details	Pros	Cons
Create School Programs	– Programs to educate the children about the project and then parents receive information from children – Parents attend a school event where children present information and parents participate	– Flexible – Far-reaching – Overcomes language barriers – Can be designed to fit the specific community	– Not all community members connected to school

For a public involvement program to be successful, community values and opinions must be understood. Planners must work with citizens to effectively identify and resolve key—and often controversial—issues. Citizens should be sought out for meaningful input with the intent of listening and responding. By working with the community in this way, a widespread, shared sense of the long-term public interest can be identified.

The Public Outreach Program needs to be evaluated periodically to make sure the techniques identified early in the process are effective and the targeted populations are participating and providing meaningful input. Adjustments should be made as necessary.

Dealing with Comments and Controversy

As indicated at the beginning of this subsection, the MPC requires that the governing body with approval authority for a comprehensive plan provide a copy of the draft plan to the county (if a municipality) or municipalities (if a county), appropriate school district(s) and surrounding municipalities or counties for a 45-day comment period prior to adoption of the plan. Any comments received during this period must be considered for incorporation into the plan. In addition, at least one public meeting and a public hearing must be held to solicit comments from the general public and/or stakeholders. While it is not required that all comments be addressed in the plan, it is suggested that the comments be summarized and incorporated into the plan (likely through an appendix) or otherwise documented by the municipality or county. Similarly, any comments received during the outreach efforts held throughout the planning process should be summarized through meeting minutes or similar documentation.

Clearly many of the comments received through the reviews mandated by the MPC and an extensive stakeholder outreach program may come from non-residents and/or individuals or groups with specific agendas. While all comments must be "considered for incorporation into the plan," the MPC delegates the decision on which comments are addressed in the body of the plan to the governing body responsible for the plan. However, it is strongly recommended that all comments received be included in the plan, typically in an appendix, along with information on how the comments were considered and addressed.

Sometimes, despite diligent efforts to be inclusive and consensus-driven, controversy erupts in the planning process. This is not unexpected; controversy arises when people have different goals or different strategies for reaching the same goal. When this happens, there are several techniques that

can be employed. All involve opening up more dialog and communication, not less. Take a step back, put your "pencils down" and work to resolve the issues before resuming plan development.

Some suggested strategies include:

Perform additional studies. If enough people question findings, provide new information, or suggest new ideas which require further discussion, consensus has not been achieved. It may be necessary to conduct additional studies, rethink assumptions, modify alternatives in response to community concerns, or develop entirely new alternatives on the basis of public input.

Arrange special purpose meetings on key issues. Groups of participants may unite behind a cause or several individuals may independently express the same concerns. Small informational sessions may clear the air and alleviate concerns. When the parties in question have resolved the issue, they report back to the whole body.

Sometimes a neutral, third-party facilitator may be needed to move toward a solution. The following techniques rely on a facilitator.

Conciliation relies upon a third party who helps the conflicting parties improve the quality of their communications, explore options, and quiet tensions. By informally improving communications between parties, conciliation builds positive relationships that serve as the foundation for undertaking joint problem-solving.

Facilitation is a process that uses a neutral party to guide meetings. The facilitator works collaboratively with the group to accomplish a specific task or reach a certain goal, without making substantive comments or providing technical input. The facilitator functions as an expert on the meeting process. The responsibility for resolving the conflict is left in the hands of the disputing parties. Facilitation is most often used when there are many interests at the table.

Partnering is a process where parties collaborate to resolve conflicts in order to complete the project on time and avoid lawsuits. Partnering provides a way to solve problems as they develop, increase trust, and build better working relationships. Partnering moves a project forward, getting people on board to make sure issues are managed.

Mediation uses a neutral party to help other parties reach a settlement. The mediator helps the parties define issues, explore ways to meet their needs, and come to an agreement. The goal of mediation is to develop an agreement in which the parties concur. Mediation is a voluntary and non-binding approach to resolving disputes. The mediator establishes the process for dispute resolution, and employs techniques that help parties find common ground and reach a settlement.

Additional Public Involvement Resources

There are a number of resources that outline public involvement techniques applicable to comprehensive planning efforts. Several of these resources are identified below.

- *PennDOT Public Involvement Handbook* provides an extensive toolbox for public involvement techniques.
- The International Association for Public Participation Web site, working through its members, helps organizations and communities around the world to improve their decisions by involving the people who are affected by those decisions.

- The Environmental Protection Agency Public Involvement Web site helps people understand how different types of public involvement relate to EPA programs, how public input can be used in EPA decision-making, and how to use tools to support effective public involvement.
- The Transportation Planning Capacity Building Program of the USDOT Web site lists several public involvement techniques and how and when to use them.

The "Quick Check" questions below are designed to provide a quick review of how well a comprehensive planning process addresses the key requirements and recommendations found in this subsection of the handbook. Similar questions are included in the following subsections as a type of checklist to evaluate overall consistency with this guidance.

QUICK CHECK

- Do the proposed public involvement activities include the mandatory public meeting and hearing required under the MPC and an appropriate range of other activities designed to enhance stakeholder involvement?
- Have all possible planning stakeholders been identified and incorporated into the planning process? (i.e., PennDOT, DCED, transportation providers, bike/pedestrian interest groups, etc.)
- Have ADA concerns been addressed for all public involvement activities?
- Do the activities provide a reasonable opportunity for all residents to participate in the planning process?
- Have all comments received during the preparation and review of the comprehensive plan been considered in the final plan?

Section FOUR

CREATING THE PLAN

Customizing the Plan

As previously mentioned, the MPC is not especially prescriptive regarding the content of the transportation element of a comprehensive plan. The same is true for the land use and other mandatory elements of the plan. Therefore, the MPC provides ample flexibility in the development of a county or municipal comprehensive plan. This handbook is similarly structured with the flexibility necessary to provide guidance for the wide variety of municipal and county governments and transportation/land use issues in Pennsylvania.

Again, the benefits of integrating the transportation and land use elements of comprehensive plans are significant—as are the consequences of not considering the interplay between transportation and land use. Decisions about what type of development goes where create and shape the travel demand that must be met by the transportation system. Sprawling development with homes, workplaces, and stores always a drive away means more traffic congestion, more pollution, and a landscape dominated by vehicles and roadways. Denser, mixed-use development—the type still found in many of Pennsylvania's historic small towns—makes walking and bicycling a realistic option for many trips, supports transit, and enhances rather than detracts from the character of our communities.

Counties and municipalities that intend to undertake the development or update of a comprehensive plan should first determine the level of effort and resources that will be needed. A pre-planning committee representative of community stakeholders can be established to help formulate a framework of planning expectations. This preliminary planning exercise will provide the county or municipality(ies) with a better understanding of what they hope to achieve through the comprehensive plan development process. In addition, if it is determined that outside help from qualified professionals will be needed, counties and municipalities should be certain to establish clear expectations and effectively communicate those expectations during the solicitation process. A well-prepared advertisement that effectively communicates the expected services by qualified professionals will prove greatly beneficial during the selection process.

The stakeholder involvement program should identify the key issues and needs that are to be the focus of the various mandatory elements of the plan. These issues should then form the basis for the plan's goals and objectives and can also be used to tailor the data collection, plan development, and implementation elements to the unique needs of the county or municipal government(s) involved in the planning effort. For instance, while this handbook contains fairly specific guidance for a full range of transportation and land use features, the level of detail and applicability of specific features are likely to vary among municipalities. Similarly, the "Developing the Plan" subsection contains a tiered approach to integrating the land use and transportation elements, but handbook users may choose a hybrid

approach that best addresses varying needs within their planning area. Customized planning efforts are fully acceptable as long as the minimum approach outlined in this handbook is followed and the Quick Check questions at the end of key subsections are answered affirmatively.

This handbook is specifically tailored to the full integration of the transportation and land use elements of a comprehensive plan, but the customization and integration approach is applicable to all of the mandatory elements of a comprehensive plan and is strongly recommended. Following such an approach will help weave together the planning recommendations and simplify the process for developing a multifaceted and feasible implementation program.

In summary, using this handbook enables a comprehensive plan to be fully customized to the needs of a specific area, and it also helps to ensure that the transportation/land use elements of the resulting plan will be generally consistent with other related plans; complete in terms of the data necessary to make important policy decisions; fully integrated between future land use and transportation planning; and have an effective, multifaceted implementation plan.

Minimum Approach

It is not the intent of this handbook to mandate a single approach for all comprehensive plan transportation elements, but rather to provide guidance for improving the plans regardless of the planning area, whether municipal, multimunicipal, or county. As indicated in the Introduction section, all counties and municipalities wishing to advance the process from project conception in the comprehensive plan, through inclusion in the MPO/RPO LRTP, and implementation/construction, should at least address the minimum approach outlined below. Failure to do so may result in a longer timeframe for project implementation. The mandatory statements in this minimum approach are meant to describe plans in accordance with this guidance; they are not intended to imply legal requirements. Table 2, shown in the Introduction and repeated below, provides guidance as to when the minimum approach may be sufficient.

Table 2: Conditions for Applying Minimum Approach
(repeated from Introduction for reader convenience)

	Yes	No
· Has the development pressure or pattern changed since the adoption of the most recent comprehensive plan?	○	○
· Has it been 10 or more years since the most recent comprehensive plan was adopted?	○	○
· If a municipality, has the county adopted a comprehensive plan subsequent to the adoption of the municipal plan?	○	○
· Has there been a change in transportation or land use policy since the adoption of the most recent comprehensive plan?	○	○
· Is your municipality involved in or considering a multimunicipal planning effort?	○	○
· Is your municipality focusing on potential redevelopment opportunities?	○	○
· Are the demands for maintaining the transportation system in your municipality placing an undue burden on available financial resources?	○	○
· Have you experienced a recent legal challenge to your comprehensive plan or implementing ordinances or foresee such a challenge in the near future?	○	○

Clear Form

Click here if you answered "no" to *all* of the above questions.

Click here if you answered "yes" to *any* of the above questions.

To develop a plan in accordance with the minimum approach:

- The minimum requirements of the MPC are to be addressed.
- The comprehensive plan should not only address the minimum public involvement requirements in the MPC (see "Developing the Stakeholder Involvement Program" in Section 3), but shall also demonstrate outreach to key stakeholders such as the MPO/RPO, PennDOT, applicable modal (i.e., bus, rail, etc.) providers, and bicycle and/or pedestrian groups and other non-motorized vehicle user groups such as the Amish. While the specific outreach methods are not mandated, these groups should be contacted as early as possible in the planning process.

- The future land use and transportation elements of the plan shall be integrated, with a preference for all elements of the plan being combined and presented together (land use, transportation, utilities, facilities).
- At least one land use scenario is to be evaluated and demonstrated to be generally consistent with the county plan if prepared by a municipality or multiple municipalities.
- Additional land use scenarios beyond the minimum are to be evaluated when the initial scenario(s) indicates need for capacity expansion.
- A full range of improvement alternatives are to be considered and evaluated with a maintenance-first approach (preventive maintenance, safety, operational, increasing interconnectivity of the street network, etc., before capacity addition).
- All applicable transportation modes shall be addressed in the plan with coordination demonstrated from applicable providers/interest groups.
- Recommended transportation system improvements are to have planning level cost estimates and an analysis of funding alternatives (i.e., "fiscal feasibility"). Inflation is to be built into projects; therefore, there needs to be a discussion on YOE (year of expenditure) requirements that are placed on the MPOs and RPOs for projects in the plan and TIP.
- The plan is to contain a section that addresses how the preferred scenario may impact the natural and cultural resources identified elsewhere in the plan.
- A section of the plan is to address consistency with other applicable specialized plans (see Figure 4)—the county comprehensive plan if a municipal plan, current municipal comprehensive plans if a county plan, and the MPO/RPO LRTP.

While all municipalities or counties are to address the above minimum approach and develop goals and objectives and perform data collection in accordance with the guidance in this section, those who answer affirmatively to the questions in Table 1 should also follow the recommended methodology outlined in the "Developing the Plan" subsection. Any proposed variations should be discussed with the Department and the applicable MPO/RPO prior to initiating the planning effort. Such coordination efforts can be initiated by contacting PennDOT Center for Program Development at 717-787-2862.

Developing Effective Goals and Objectives

Comprehensive plans offer the opportunity to address the full range of planning issues important to Pennsylvania's municipalities and counties. As such, they represent the optimal opportunity for fully integrating land use, transportation, and other infrastructure and community facility issues. While the data collection and analysis portion of a comprehensive plan offers some opportunity to integrate the various components, the goals and objectives portion provides even greater potential for fully relating all of the components into a concise statement of a community's direction for the future.

Many comprehensive plans segregate the statement of community goals and objectives into the numerous components of the document (i.e., land use, transportation, utilities, facilities and services, etc.). However, this approach does not acknowledge the interrelated nature of the plan's various elements. Therefore, a consolidated approach is recommended whereby one concise, yet comprehensive, listing of community goals is developed. Implementation objectives that may more specifically address the separate components of the plan should then be listed under each goal so the interrelationships between the components may be more fully illustrated.

EXAMPLE:

Goal:

- Improve the quality of life for all residents.

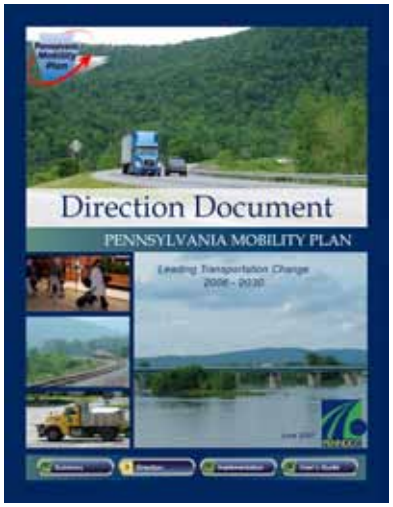
Objectives:

- Preserve the rural character of the municipality as development occurs.
- Enhance multimodal opportunities to improve access to employment, shopping, and recreational facilities while minimizing the demand for additional highway capacity.
- Maintain public water and sewer service utilities within designated growth areas.
- Provide recreational opportunities within bicycle/pedestrian range to most residents.
- Provide connectivity within developments to maintain or improve emergency management response times as development demands increase.

Consistency with Other Related Plans and Policies

While using the approach described above, it is important to maintain generally consistent goals and objectives among planning documents at various levels of government. This helps accelerate identified transportation system improvement projects. Certainly the goals and objectives in a municipal, regional, or county comprehensive plan are centered on local concerns and may vary from or be more specific than those found in MPO/RPO or state (*PA Mobility Plan*) LRTPs, but the goals of the regional and statewide plans should be reviewed and considered closely in the development of all comprehensive plans.

Typically, development of comprehensive plan goals and objectives involves extensive public involvement through meetings, surveys, and other similar techniques. Standard practice involves the presentation of draft goals for consideration and modification. Local officials and residents are provided the opportunity to refine and select those goals that best reflect the priorities of the municipality, region, or county.



The goals and objectives of all applicable plans should be considered and incorporated into the comprehensive plan to the extent that they are locally applicable. Related plans may include the *PA Mobility Plan*, MPO/RPO LRTP (contact your MPO/RPO—see appendices), county comprehensive plans (contact your County Planning Commission—see appendices), or other applicable special purpose plans (see Figure 4). If these goals are not incorporated into the comprehensive plan, the document should provide an overview of the process and state how and why the goal was modified or eliminated.

The five goals outlined in the *PA Mobility Plan* are listed below.

- Move people and goods safely and securely.
- Improve quality of life by linking transportation, land use, economic development, and environmental stewardship.

- Develop and sustain quality transportation infrastructure.
- Provide mobility for people, goods, and commerce.
- Maximize the benefit of transportation investments.

The *PA Mobility Plan* has an extensive list of detailed objectives and strategies that should be reviewed and incorporated into Pennsylvania comprehensive plans as applicable.

The same process of goal presentation, review, and selection should be applied to the applicable MPO/RPO LRTP and any other special purpose plans or documents similar to those identified in Figure 4 or otherwise available locally. Also, the Commonwealth's policy initiatives identified in Section 2 should be considered in the development of local goals and objectives.

Multimodal Considerations

Comprehensive plans should not focus exclusively on the roadway system as the sole means of mobility for municipal residents, but should consider a full range of applicable travel modes. As such, there are often plans prepared by transit providers including school districts, airports, bicycle and pedestrian advocates, Amish and Plain Sect leaders, and others that should be considered in the development of goals and objectives and the other elements of the overall comprehensive plan. Close coordination with the applicable MPO/RPO staff and county planning commissions or departments can help in the identification of applicable plans and/or entities with expertise in the relevant travel modes. The goals presented in any applicable plans or provided through coordination with modal service providers or advocates should be considered for inclusion in the comprehensive plan in the same manner presented for the *PA Mobility Plan* and the MPO/RPO LRTP.

Quick Check

- Does the plan take an integrated approach to combining the goals and objectives of the various plan components to illustrate their interrelated nature?
- Have the goals and objectives from the PA Mobility Plan, applicable MPO/RPO LRTP, and county or municipal comprehensive plans been fully considered in the development of the goals and objectives for the comprehensive plan?
- Does the plan text explain the selection process for goals and objectives, especially in the case of goals from the plans listed above that are not reflected in the comprehensive plan?
- Are there goals addressing all applicable transportation modes in the plan?
- Does the plan support the Smart Transportation themes and Keystone Principles?
- Are the goals and objectives related to the future land use vision of the community?

Collecting and Analyzing Data

Data collection can often consume half or more of the budget for comprehensive plan development. Standard practice for many comprehensive planning efforts in the past has been to gather all available data on the full range of transportation and land use features, even though only a portion of that data may actually be used in developing planning recommendations. It is much more productive to use the steps outlined in the previous section, particularly the stakeholder involvement process, to identify the transportation/land use issues of greatest significance to the municipality/county and only then undertake a targeted data collection effort. It is understood that issues may arise fairly late in the planning process and additional data collection may then be required, but this approach typically allows more of the planning budget to be used in the development and analysis of planning scenarios and the implementation plan.

For example, it may become apparent that the primary transportation/land use concern in a community is the increasing development and congestion along a formerly rural corridor. In this case, data collection would likely focus on an inventory of existing and planned subdivision and land development projects, existing or planned bicycle/pedestrian facilities, and roadway geometry and characteristics. Other factors, such as bridge design characteristics and conditions, existing traffic volumes, traffic control devices, crash histories, etc., may be addressed, but to the same level of detail.

Data collection and analysis has been greatly simplified with the advent of geographic information system (GIS) technology and the increasing availability of GIS data from various sources. Information on data sources including Pennsylvania Spatial Database Access (PASDA), the U.S. Census Bureau, PennDOT's Geographic Information Division, and others are provided in the appendices. Municipalities, counties, and MPOs/RPOs are also often the repositories for a wealth of GIS data, thereby making the coordination efforts outlined below critically important for cost-effective data collection.

The list below indicates potentially applicable data elements that should be considered in the planning process. Municipalities and counties are expected to review the listing, including the description of the potential significance of each data element, and decide which data are most applicable to the planning needs of their community. Such decisions will facilitate a targeted approach to data collection that should not only save both time and money, but also result in a plan that more specifically addresses key issues.

A summary of the sources for all major types of data is also included. The county, MPO/RPO, and PennDOT are the most likely sources for many of the data needs, so early coordination with these entities can make data collection much more efficient and cost-effective. In cases where the plan's development is to be contracted to a consultant, it is ideal for the municipality or county to collect much of the data and state clearly in the request for proposals which remaining data would need to be collected by the consultant. Thus the potential cost savings can be reflected in the consultants' cost proposals.

Because transportation issues are typically regional in nature, data may also need to be gathered from neighboring municipalities or counties. For example, a new traffic signal or office park in an adjacent municipality may alter traffic patterns in the study municipality, and should be considered in development of the comprehensive plan.

Another important source of information, especially regarding local traffic conditions, is the local population—residents and business owners. Their firsthand experience can help identify locations or issues that may not be on the municipality's radar, particularly at minor intersections or in residential areas. Public involvement is an important part of the data collection process and must start early with the inclusion of public opinion on what the problems are that the comprehensive plan will be expected to address.

Transportation Data Needs

This subsection of the handbook provides an overview of the key transportation system elements and recommendations on the relevant data that should be collected for various types of municipalities. The exact data needs for any given municipality or county comprehensive plan can vary significantly based on conditions including existing and anticipated traffic volumes, development pressure, system conditions, and others. A determination should be made before the initiation of the planning effort to determine the applicability of each of the data categories listed below and the level of data likely to prove valuable.

Bicycle and Pedestrian and Non-Motorized Vehicles

Providing appropriate accommodations for the non-motorized traveler is an important transportation and land use consideration for municipalities. The level of walkability is often an indicator of a healthy and economically vibrant community. Municipalities that identify issues surrounding pedestrian and/or bicycle activity should consider data collection for bicycle and pedestrian facilities. This would include an inventory of sidewalks, multipurpose trails, and on-road bicycle facilities. In areas with Amish or Plain Sect populations, data regarding the presence and condition of roadway shoulders and sight distance limitations at high volume intersections can be critical in evaluating the safety level for horse and buggy traffic.

Additional field work and resident input may be necessary to identify areas where: sidewalks are either inconsistent, in poor condition, or absent; people are using roadway shoulders for walking and bicycling; and bicycle and pedestrian facilities are desired. Special attention should be paid to areas such as parks and schools to determine if appropriate connections to residential areas exist. In urban areas, the focus may be on rehabilitating sidewalks and finding ways to better accommodate on-road bicyclists. A suburban or rural municipality may focus on providing multipurpose trails for recreation. In either case, data collection should proceed with these goals in mind.

Public Transportation

Public transportation provides transportation choice, particularly for individuals who do not drive, and therefore is an important component within the transportation and land use framework. One typical issue that is sometimes overlooked is whether bus stops are easily accessible. In suburban communities bus stops can sometimes be located in areas without sidewalk or other pedestrian amenities. Identifying these locations and their improvement needs can be done as part of this analysis.

In municipalities where public transportation currently exists, an inventory of existing conditions should be made of all bus routes and rail stops, along with a general indication of the facilities connected by these services. These may include office parks, hospitals, shopping centers, and residential areas. In addition, intermodal connections, such as where a bus route stops at a train station, should be identified. Information on routes, service frequency, fares, and stops or stations can typically be found on the transit agency's Web site. Field observation may be necessary to determine where rail lines cross roads and what type of crossings exist (at-grade versus grade separated). In municipalities where no

public transportation currently exists, such options should be discussed with officials and the public to determine whether public transportation may be desired or may provide a benefit. This again underscores the importance of stakeholder outreach, which should include existing or potential transit providers.

Functional Classification and Federal Aid Status

All roadways in Pennsylvania are categorized by "functional classification," a system developed by the American Association of State Highway and Transportation Officials (AASHTO). Design guidelines are customized by AASHTO to meet the demands common to each category. The AASHTO categories are as follows:

- Principal Arterial
- Minor Arterial
- Collector (Minor and Major in Rural Areas)
- Local

Roadway functional classification is significant not only for design standards, but it can also be used to determine the eligibility of transportation facilities for federal financial aid. All rural roadways functionally classified in the AASHTO system as higher than a minor collector, and all urban roadways classified as higher than a local roadway, are eligible for federal aid. Municipalities and counties are strongly encouraged to incorporate federal aid eligibility in map and/or tabular format in their comprehensive plan. This information will prove very useful in the development of the fiscal implementation program.

PennDOT has mapped all roads in Pennsylvania using the AASHTO system; classifications by county are displayed on the PennDOT Web site. Municipalities should review the PennDOT data and map their roadway system using the AASHTO system. Any desired changes to the classifications depicted on the PennDOT Web site should be brought to the attention of the MPO/RPO and the PennDOT District.

Municipal and county officials should refine the AASHTO functional classifications to reflect more localized conditions using the transportation context techniques outlined in the *Smart Transportation Guidebook*. This refinement, which is based on factors including desired operating speed, average trip length, traffic volumes, and intersection spacing, provides a context-sensitive means of evaluating existing and possible future roadway design standards as contained in Section 6 of this handbook.

Roadway Geometry and Characteristics

Roadway geometry and characteristics are used primarily for maintenance, safety, and capacity analysis. One common issue found at the municipal level is storm water management. Storm water management facilities that are located within the right-of-way (ROW) or associated with the transportation system are an important part of a transportation facility—and can be expensive to repair. The location, size, and condition of these facilities may need to be identified and included as part of addressing needs and issues associated with the roadway network.

The amount and specificity of roadway data to be collected is dependent on the level of analysis being performed. For example, in a rural township, the focus may be on maintaining open space and guiding land development. In this case only more general roadway characteristic data is necessary, such as relative roadway condition (good, fair, or poor), functional classifications, and speed limits. In a suburban or rapidly developing township, a more detailed analysis of intersections and roads is

necessary, so more data—including lane counts and widths, shoulder widths and conditions, and median locations and characteristics—will be needed to perform capacity analyses and recommend specific improvements.

Traffic Control Devices

Municipalities may want to identify and analyze the location, function, and condition of existing traffic control devices to determine whether enhancements or other modifications can correct existing deficiencies on the network. Other considerations, including various traffic calming measures and techniques, may also be worth further investigation if lowering speeds or reducing cut-through traffic on neighborhood streets is identified as a concern of the municipality.

As with roadway geometry and characteristics, the level of detail of information needed on traffic control devices will vary based on the analysis being performed. At a minimum, the type of traffic control devices used at key intersections along with their condition (i.e., four-way or two-way stops, yields, traffic signals, etc.) should be noted for maintenance purposes. Where specific capacity analysis is needed at signalized intersections, the information available in a signal permit plan should also be secured from the PennDOT District Office.

Traffic Volumes and Patterns

Traffic volumes and patterns are the fundamental basis for evaluating existing and future traffic conditions. Therefore, it is important that this information be as accurate as possible.

Again, the amount and type of data to be collected is dependent on the level of analysis being performed. At a minimum, average daily traffic volumes and heavy vehicle volumes/percentages should be collected. In urban, suburban, and rapidly developing municipalities, certain intersections—or all intersections—may need to be evaluated. In those instances, a determination will need to be made on what time periods to study (typically a.m. or p.m. peak hours) and what counts may already be available through prior studies (i.e., traffic impact studies). More specific information, such as origin and destination data and travel times, may also be necessary depending on the level and/or type of development (i.e., amusement park, regional retail facility, significant employment center, etc.) existing in a municipality or anticipated to be developed within the planning period.

Bridges

Collecting information on existing bridge conditions, including posting status, is important for municipalities that are dealing with aging bridge issues. It is recommended that general bridge information such as location, use (rail, road, pedestrian/trail), condition, historic status, and crossing type (at-grade versus grade separated) be noted in the plan for all bridges greater than eight feet in length. At an absolute minimum, such information should be collected for bridges longer than 20 feet. If bridge improvements are anticipated, any structurally deficient bridges or those of historic significance should be emphasized for possible replacement or rehabilitation. Coordination with the MPO/RPO is important in order to determine if a bridge in the municipality preparing the comprehensive plan is currently slated for improvement in the current TIP.

Railroad Crossings

Interactions between vehicles and trains are safety concerns, thus it is important to collect data on rail lines that may traverse a municipality. General information on the number of tracks, crossing type (at-

grade versus grade separated), and types of signalization and warning devices should be noted. Field observations should be made to determine whether drivers are stopping at appropriate distances from rail crossings and to ensure there are adequate measures in place to deter drivers from crossing tracks when a train is approaching. Implementation of improvements at rail crossings may require the municipality to coordinate with the Pennsylvania Public Utility Commission (PUC).

Crashes

Although congestion is often the first issue that the public brings up with respect to land development and road improvements, safety is of utmost concern both in terms of new development and addressing previous development designed to standards that are now outdated and may compromise safety. Careful consideration should be given to the location, frequency, type, and cause of crashes within the recent past. Managing the number and location of roadway access points may also be worth investigating if it appears that crashes are occurring on corridors experiencing a lot of conflict with traffic entering and exiting the roadway.

Where in-depth intersection analysis may be anticipated, detailed data on crashes, including identification of the prevalent types of crashes, should be completed. In addition, municipal staff, local law enforcement, and residents should be asked to identify intersection and mid-block locations where there are safety concerns. In locations where crash clusters are identified, potential improvements can be analyzed during plan development based on the types of crashes occurring. Coordination with the safety engineers at the PennDOT District Office is required to obtain the crash data and to ensure that it is understood and used properly.

Parking

Managing parking supply is of special concern to cities, boroughs, urban municipalities, and municipalities with areas identified as villages. In the areas where parking supply appears to be an issue, an inventory should be done of existing parking facilities and the associated costs (meters and/or parking lot fees), time restrictions, and locations. A distinction should be made between on- and off-street facilities. The existing conditions inventory should also identify shared parking opportunities and how land uses are utilizing shared parking. In suburban municipalities, where expansive parking lots are often the norm, parking lot utilization during peak demand times should be noted. In addition to determining whether present and future parking needs are being met, this evaluation can guide future parking development through shared parking ordinances or modifications to parking supply requirements.

Other Transportation Facilities and Services

A municipality may have other transportation facilities or services that do not fall under one of the previous categories.

- Airports – The location and general attributes of an airport should be noted, but an airport may have its own master plan that may be incorporated into the comprehensive plan by reference. All municipalities or counties with airport facilities should strive to include facility operators as stakeholders in the planning process. Pennsylvania Law (Act 1984-164) requires municipalities located within an airport hazard area to have zoning regulations in place to prevent hazards to air navigation. Access to an airport and related land uses should be addressed as part of the comprehensive plan in all cases, even if plans for the airport are addressed in a separate master plan.

- On-Demand Services – This encompasses other services that are provided on an as-needed basis, such as paratransit, taxis, and rideshare. Though these services make up a small portion of the overall transportation in a municipality, they should be included in the overall transportation plan with service areas, costs, and operating times noted.
- Rail Freight Facilities – Rail freight may use the same tracks as heavy passenger rail, so track ownership and who operates on those tracks should be identified. In addition, the location and type of rail crossings (at-grade versus grade separated) should be noted.
- Park-and-Ride Facilities – Park-and-Ride facilities may include official lots identified as such, often near freeway ramps, or unofficial lots where drivers use available space as a parking lot. Unofficial lots should be included in the inventory as these represent a demand that is not being met with existing official facilities. For both official and unofficial lots, the utilization of the lot should be observed to determine if there is a need for additional park-and-ride space.
- Water Transportation Facilities – Where a municipality borders a water feature such as a river, bay, or ocean, any transportation connections with the water should be identified. Depending on the size and activity of a facility, varying degrees of observation and data collection may be necessary. A major shipping port may already have its own master plan and therefore only needs to be included in the comprehensive plan by reference. As with airports, access to a port and associated land uses should be addressed in the comprehensive plan. For smaller facilities such as ferry docks and public boat ramps, a municipality should first determine if these facilities are covered under a larger agency or plan such as a port authority or a parks and recreation plan, and then address any facility or service needs accordingly in the comprehensive plan.

Transportation Data Sources

The transportation element must encompass all modes of transportation; therefore, a wide variety of data is necessary. Not all data must be collected in every instance, but the data that is used must accurately reflect current conditions to be useful in predicting future conditions.

Much of the information is readily available through PennDOT, MPOs and RPOs, counties, and local municipalities. In addition, data collected for prior transportation studies may be used, assuming the data is still relevant. More specialized data may also be available through organizations such as Transportation Management Associations (TMAs), transit agencies, and airport authorities. In addition to raw data, findings from long-range and master plans should be incorporated into the comprehensive plan so that planning efforts are coordinated across agencies. A summary of the data typically available and the agencies which may be able to provide this information is shown in Table 7.

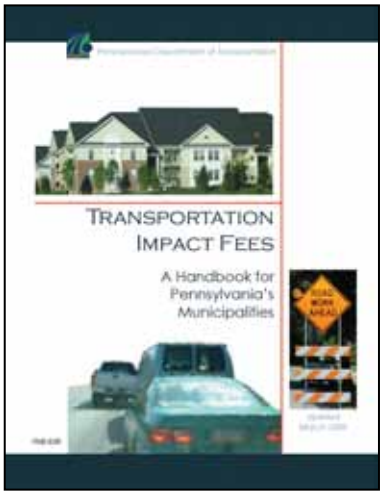
Table 7: Sources for Data Collection

Agency	Available Data Elements	Online and Other Sources
PennDOT	– Traffic Characteristics Average Daily Traffic (ADT) Truck percentages – Roadway Images Speed limits Pavement type and condition Location of bridges, traffic signals, stop signs – Traffic Signal and Flasher Permit Plans Lane widths Medians Speed limits Pedestrian signals – Functional Classification Maps – Railroad Facilities Location Operator – Aviation Facilities PA Airport Map/s Airport Aerial Photo Part 77 Overlay – Bridges Location Condition Feature carried Historic status – Crash Data	– PennDOT iTMS – PA Traffic Volume Maps – PennDOT VideoLog – Contact District Office (click on PennDOT Organizations, then Engineering Districts) – PennDOT GIS Database – PA Railroad Map – Bureau of Aviation (click on Public Airports) – PennDOT Bridge Report – PennDOT Historic Bridge Database[1] – PennDOT Bureau of Safety/ Traffic Engineering
MPO/RPO	– Traffic/Transportation Studies Traffic counts Proposed development – Transportation Model Existing and projected traffic volumes Travel times – Congestion Management Processes (CMP) Data – Available GIS Data – Rail Freight Information (intermodal facilities and major track facilities) – Long-Range Transportation Plans – Rideshare, Park-and-Ride Facility Information	– MPO/RPO Contacts (click on Transportation Program Development link, then map)
County	– Traffic Studies – County Comprehensive Plan – Available GIS Data – Bicycle/Trail Plan	– County Contacts

Municipality	– Land Development Plans Right-of-way (ROW) – Traffic Studies Traffic counts Proposed development – SALDO and Zoning Ordinances ROW requirements Functional classification – Parking Ordinances/Parking Authority Location of parking Number of spaces Time/permit restrictions Cost	– Municipal Contacts – Municipal Contacts or DCED Land Use E-Library – Municipal Contacts and/or Parking Authority
Transit Agency	– Route Maps and Schedules Buses Passenger Rail Paratransit – Service Expansion and Improvement Plans – GIS Data	– Contact local transit agency (through MPO/RPO as necessary)
Other: **Airport Authorities** **Bicycle PA** **Census** **School District**	– Existing Facilities and Planned Improvements – Pennsylvania Bicycle Routes – Origin and Destination Data	– Airport Authority (through MPO/RPO as necessary or PennDOT Bureau of Aviation) – BikePA.com – U.S. Census – FHWA National Household Travel Survey

[1] Data available in a Microsoft Access database or in a Microsoft Excel spreadsheet.

Land Use and Related Data Needs



In an effort to promote the strongest possible land use-transportation linkage, a listing of comprehensive plan data needs is not complete without the identification of critical land use and related elements. The enhancement of this linkage was clearly the intent of the legislature in the Act 209 amendments to the MPC (Sections 501A - 506A) in 1990 that incorporated transportation impact fees. While it is understood that not all municipalities desire to complete all of the steps necessary to adopt impact fees, this portion of the MPC provides an effective example approach to comprehensive planning that effectively links land use and transportation. Additionally, following the approach outlined in Article V-A of the MPC while completing a comprehensive plan provides a municipality with the flexibility of pursuing transportation impact fees as a financing option should the planning process conclude with a policy decision to implement the fees. PennDOT's Publication 639, *Transportation Impact Fees – A Handbook for Pennsylvania's Municipalities*, contains a summary of the recommended land use data:

- County or municipal comprehensive plan
- Current zoning ordinance
- Approved subdivision and land development plans with available lots
- Analysis/summary of approved building permits for the last 5 to 10 years
- Municipal population and employment totals for at least the last two census reports
- Act 537 Plan
- Base mapping with roadways and parcels
- Public water system mapping with planned expansion areas
- Applicable school district long-range plans
- Other plans or studies deemed applicable

A description of how these data elements may be collected and used is found in the "Land Use Assumptions Report" section of Publication 639. Many of these data needs are readily available and may be collected and analyzed by municipal staff and/or officials, producing a possible cost savings for municipalities or counties completing the comprehensive planning process through a consultant contract.

Publication 639 goes into fairly extensive detail in providing recommendations for accurately portraying existing conditions and historic trends in several key areas:

- land use
- developable lands
- zoning
- population including current population numbers and future population growth projections
- employment
- building permits

The approaches outlined in the Transportation Impact Fees handbook should be strongly considered. They are an effective means of depicting and analyzing existing land use and demographic conditions that can be linked, with relative ease, to the transportation data collected as described earlier in this section. In brief, Publication 639 calls for the development of 5- and 10-year trend data for the previous one or two decennial census periods to be used in the development of 5- and 10-year growth and land use scenarios in the analysis portion of the plan. Data collection should include depiction of trend data for population, employment, and building permits (commercial, industrial, and residential), and a GIS-based presentation of available or developable lands overlaid with current zoning, planned sewer and/or water service areas, and environmental constraints with significant development limitations.

The exact methodologies for collecting and analyzing historic, existing, and future conditions data for land use and demographics may be modified from the approach outlined above based on the availability of localized data and/or knowledge of regionally-specific trends or issues. However, the methodology chosen must provide a strong basis for depicting likely development scenarios for at least the next 10 to 20 years.

Quick Check

- Has a targeted data needs analysis been completed and all appropriate transportation-related data from the MPO/RPO, PennDOT, transit and/or aviation providers, bike/pedestrian interest groups, and other interested parties been secured?
- Have all applicable sources of demographic data and projections been reviewed and incorporated? (i.e., Census Bureau, Act 537 Plan(s), Water Supply Plan(s), County/Municipal Comprehensive Plans, MPO/RPO LRTP, etc.)
- Has the land use data collection methodology outlined here and in the PennDOT Transportation Impact Fee Handbook or similar approach been taken that has resulted in the collection of all necessary land use data?

Developing the Plan

The remainder of this section outlines the recommended methodology for enhancing the planning outcomes beyond the minimum approach presented earlier. While all municipalities or counties may follow this methodology, those who answer affirmatively to the questions in Table 1, shown again below, should follow the guidance in this subsection unless variations are discussed with PennDOT and the applicable MPO/RPOs prior to initiating the planning effort. Such coordination efforts can be initiated by contacting the PennDOT Center for Program Development at 717-787-2862.

Table 1: Conditions for Applying Recommended Methodology
(repeated from Introduction for reader convenience)

	Yes	No
· Do you have significant transportation system needs (beyond routine maintenance) that may necessitate significant financial investments by state and/or federal governments?	○	○
· Is your municipality experiencing significant development pressure?	○	○
· Is there significant development activity in adjacent municipalities that may soon be entering your municipality?	○	○
· Is your municipality giving consideration to implementing Act 209 Transportation Impact Fees (Article V-A of the MPC)?	○	○
· Does the transportation element of your current comprehensive plan provide an unclear connection to the future land use plan?	○	○
· Are there significant safety concerns associated with the existing transportation system?	○	○
· Can the capacity/safety of the existing transportation system be enhanced through better multimodal facilities?	○	○
· Does the current or planned transportation system detract from the quality of life for your community?	○	○
· Is the future development of your community or the need for specific transportation system improvements expected to be controversial?	○	○
· Does your municipality have a current plan to deal with transportation issues?	○	○

Clear Form

Click here if you answered "no" to *all* of the above questions.

Click here if you answered "yes" to *any* of the above questions.

Recommended Methodology

Coordination Efforts

The key to truly effective stakeholder outreach and coordination is establishing a multifaceted planning entity ("planning agency" under the MPC) to oversee the development of the plan, combined with effective outreach techniques to all applicable stakeholders and the general public. Ideally, the group established to oversee the plan will comprise as many key stakeholders as can be reasonably accommodated. Those entities anticipated to have a minor stake in the planning effort can be deemed advisory to the planning agency.

Gathering significant input from the general public and stakeholders during the development of a comprehensive plan has traditionally proven to be a challenge. The approaches and resources in "Developing the Stakeholder Involvement Program" in Section 3 provide a wide range of tools that can be used to solicit the desired input at the discretion of the municipality or county. Unlike some of the other parts of the planning effort, specific methodologies for outreach and coordination are not mandated as long as the minimum approach is addressed, the data/input identified below is sought, and the techniques used are described in the plan.

Coordination efforts should be maintained throughout the planning effort. Early input from county or municipal planners, the MPO/RPO, school district(s), and special interest groups may lead to the identification of ongoing or planned outreach efforts that may be combined with those desired for the comprehensive plan, thereby increasing the number of participants in the overall process. The input that should be sought from key groups during the various planning stages is outlined below.

Goals and Objectives:

- General public – direct input into development of goals and objectives
- County planning staff – county comprehensive plan goals along with those in other applicable specialized plans
- MPO/RPO – LRTP goals and objectives
- PennDOT – statewide plan goals and objectives, and input on related initiatives/policies
- Special interest groups (economic development, environmental, bicycle and/or pedestrian, etc.) – goals and objectives of specialized plans or ongoing initiatives
- School district(s) – goals and objectives in educational planning
- Modal service providers (bus, rail, freight, etc.) – goals and objectives of current plans and initiatives

Data Collection and Analysis:

- General public – review of existing conditions data
- County planning staff – GIS or other data on existing conditions such as land use, transportation facilities, available transit facilities/services, etc.
- MPO/RPO – similar to County planning staff but may have access to more detailed transportation system data along with information on planned transportation system improvements

- PennDOT – traffic counts, accident clusters, roadway levels of service (LOS), highway occupancy permit (HOP) application statistics, planned improvements, etc.
- Special interest groups (economic development, environmental, bicycle and/or pedestrian, etc.) – economic conditions and development projects, key environmental resource constraints, existing and planned bicycle and/or pedestrian facilities, etc.
- School district(s) – student enrollments and projections, building plans, transportation routes and issues, etc.
- Modal service providers (bus, rail, freight, etc.) – current and planned routes and ridership, planned improvements, etc.
- Emergency service providers – existing accident/problem areas, issues relating to response times, constraints for providing service, etc.

Plan Development/Implementation Program:

- General public – review of alternative scenarios and plans
- County planning staff – identification of key county plans, consistency review
- MPO/RPO – input from LRTP, input into funding feasibility, consistency review
- PennDOT – input into technical and funding feasibility of planned improvements
- Special interest groups (economic development, environmental, bicycle and/or pedestrian, etc.) – review of alternative scenarios and plans
- School district(s) – review of alternative scenarios and plans, consistency review
- Modal service providers (bus, rail, freight, etc.) – review of alternative scenarios and plans
- Emergency service providers – review of alternative scenarios and plans

Scenario Building

The development of the future land use scenario portion of the combined land use/transportation plan starts with the review of current plans with land use components. The most important plans to be reviewed are county comprehensive plans for municipalities and recent municipal plans for counties. However, there are a number of other specialized plans that also have land use components that should be incorporated into the review. These include storm water management plans (Act 167), sewage facilities plans (Act 537), land use assumptions reports for those municipalities with Act 209 impact fee ordinances, official maps, greenway/open space plans, historic preservation plans, and other similar documents. The MPO/RPO LRTP may also provide future land use mapping and/or population and employment projections that may prove useful. Not only does the review of the existing plans constitute a possible cost savings, especially where GIS future land use files are available from past planning efforts, but this step is critical in addressing the MPC's consistency requirements (Section 301.a.5).

Achieving consistency among specialized plans and the various levels of comprehensive plans is critical for effective implementation, especially when infrastructure improvements (i.e., transportation, water supply, wastewater collection and treatment, storm water management, etc.) must be closely coordinated with growth and development. However, achieving consistency does not require that the future land use plans of these documents must be accepted in their entirety. Consistency can be achieved by closely reviewing these plans and denoting any variations that may be due to policy modifications, changes in recent development patterns, or other similar rationale. Involving the county during the development and analysis of the land use scenario can help ensure general consistency

between the plans before undertaking the formal plan review and adoption procedures mandated by the MPC. In the case of municipalities with a transportation impact fee ordinance in effect, the land use scenarios must be fully consistent with the Land Use Assumptions Report adopted by the municipality in advance of the adoption of the ordinance. Any desired changes to the scenario described in the Land Use Assumptions Report are likely to justify the update of the report and the municipality's Roadway Sufficiency Analysis, and may warrant a revision to the impact fee ordinance itself. These modifications should be made in accordance with PennDOT's Publication 639, *Transportation Impact Fees – A Handbook for Pennsylvania's Municipalities*.

Municipalities or counties following this guidance must develop at least one future land use scenario that uses the process above to achieve general consistency between the county and municipal comprehensive plans. When the transportation system analysis for the initial scenario, completed in compliance with this guidance, results in a demonstrated need for additional system capacity (i.e., lane additions, new interchanges, additional roadways to provide parallel capacity, etc.), then at least one additional future land use scenario must be developed. The additional scenario(s) shall be specifically designed to lessen the transportation system demands while still addressing key community goals and objectives.

The minimum number of land use scenarios does not include the development of a build-out scenario except in the case where full build-out of a municipality is anticipated within the planning horizon. Build-out scenarios can be educational in providing a quantitative measure of the full capacity of current land use regulations, but rarely provide an effective basis for assessing infrastructure demands within a 10 to 20 year period.

All land use scenarios developed in accordance with this guidance shall take the following features into account:

- Community goals and objectives relating to future development
- Environmental constraints (i.e., floodplains, wetlands, steep slopes, etc.)
- Publicly-held or preserved property (i.e., municipal or state parks, public forestlands, agricultural conservation easements, etc.)
- Existing and planned public utility service areas (water supply and wastewater)
- Land Use Assumptions Reports in municipalities with Act 209 Transportation Impact Fees

Additional factors of local or regional significance should also be addressed in the development of the scenario(s).

Scenario Evaluation and Selection

The goals of the transportation element of any comprehensive plan are to create a system where safety, system maintenance, connectivity, and capacity are addressed, and to facilitate the implementation of the future land use plan. The transportation element relies on a variety of analysis techniques to evaluate how existing and future conditions will be addressed within the context of an individual municipality. A rural municipality may find that little growth is anticipated, so there may be more emphasis on safety and maintenance needs and a somewhat qualitative connectivity analysis with little emphasis on capacity. Conversely, an urban or fast-growing municipality will need to place more emphasis on the quantitative goals of maintaining high volume or critical facilities and maximizing the

capacity of the existing system. Municipalities may vary on the spectrum of qualitative versus quantitative goals; however, safety and maintenance must always be major considerations in all plans.

The analysis efforts will vary based on the nature of the municipality, both present and expected future, as well as its goals. These levels of analysis can be categorized into three tiers. The tiers discussed below are meant only to provide guidance in estimating the analysis efforts based on a municipality's current and anticipated situation, rather than prescribe a "one size fits all" approach. Some municipalities may find that they need to execute levels of analyses from more than one tier, based on the particular issues they are experiencing or anticipate in the future for a particular mode of travel.

Facilities not specifically discussed in one of the tiers may be assessed on an as-needed basis along with the tier analysis appropriate to the municipality. For example, bridges and rail freight facilities, while part of the overall transportation system, can be considered on an individualized basis. A rural municipality which falls into a Tier 1 or 2 level of analysis does not need to move up to the next level to include bridges or rail freight, but additional data collection and analysis will be necessary to address these more specialized facilities.

All comprehensive plans should include base mapping of the transportation system that reflects the functional classification system for state, county, and municipal roadways as described under the "Collecting and Analyzing Data" subsection. These classifications have impacts relating to design criteria and the eligibility for federal funding. Municipalities should also consider refining the PennDOT functional classifications by using the land use and transportation contexts defined in the *Smart Transportation Guidebook*. The process provided in the Guidebook helps ensure that improvement standards are in context with the desired local conditions in the community.

Tier 1 – All Comprehensive Plans

Tier 1 is the minimum analysis that must be completed for all comprehensive plans. It is typically used in a rural municipality with a relatively simple transportation system and little anticipated growth, and in portions of counties with similar characteristics. The analysis for the future transportation plan is typically qualitative in nature and mainly completed through an effective stakeholder outreach program involving municipal planning or engineering staff/consultants, emergency service providers, the county, MPO/RPO, PennDOT, and bicycle/pedestrian stakeholders.

Tier 1 includes a basic analysis of all transportation facilities and services in the municipality. Any known safety or congestion problems should be identified for improvement through stakeholder outreach and the data collection efforts recommended previously; however, in-depth capacity analysis is not typically necessary. More qualitative analyses, such as analysis of road safety issues; identification of maintenance needs for roads, bridges, and traffic signals; and a review of pedestrian connectivity may be used to develop an implementation plan. Data may be gathered through field views, review of past municipal maintenance activities, road and bridge past inspection records, and future budgets and feedback received from the public regarding transportation needs.

Establishing the land use and transportation context as recommended in PennDOT's *Smart Transportation Guidebook* can be an effective approach in Tier 1 analyses. Once the contexts are determined and problem areas identified, the guidebook can be used to help establish appropriate standards for necessary transportation system facilities.

Typical improvements identified at this level of analysis may include replacement of or new pavement markings and signs; roadway, traffic signal, and sidewalk maintenance; curb ramps; sidewalk connections; improved access management; and minor traffic calming projects. Many of the implementation tools that are applicable in Tier 1-type communities are described in greater detail in the following section.

Tier 2 – Municipalities with Moderate Transportation Issues

A Tier 2 analysis includes the analysis described in Tier 1 plus additional analysis to address specific capacity, safety, and accessibility issues. A Tier 2 analysis would be most appropriate in rural municipalities anticipating rapid growth, relatively stable suburban municipalities, and counties or portions of counties with similar characteristics. A comprehensive review of the transportation system is necessary, including the identification of high crash locations, roadway and intersection level of service (LOS) deficiencies, existing access management issues, and the need for multimodal facilities and improved connections between different modes of transportation.

In Tier 2, a few key corridors are typically identified as either experiencing congestion due to existing development or being targeted for planned future growth for the evaluation of traffic operations. This evaluation should be based upon existing traffic volumes and future volumes based on trip generation analysis of the future land use plan. Traffic analyses should be performed using commonly accepted capacity analysis software.

Tier 2 communities who are contemplating the development of transportation impact fees under Article V-A of the MPC may want to follow the general process for completing a "Roadway Sufficiency Analysis" required under the MPC. A detailed description of the steps to be completed for a Roadway Sufficiency Analysis are included in PennDOT's Publication 639, *Transportation Impact Fees – A Handbook for Pennsylvania's Municipalities*. Municipalities choosing to follow this approach should pay close attention to the administrative requirements described in Publication 639, including the maximum timeframe for completing and adopting the analysis report. It may prove beneficial to follow the process in a general manner during the development of the comprehensive plan, thereby enabling an informed decision on the enactment of impact fees and completion of the actual Roadway Sufficiency Analysis as a separate effort.

Given the increased complexity of a Tier 2 analysis, qualified transportation planners/consultants should be involved to provide expertise in modeling and parking and public transportation analyses. Also, an increased level of coordination with municipal planning or engineering staff/consultants, emergency service providers, the county, MPO/RPO, PennDOT, transit providers, bicycle/pedestrian stakeholders, and others will be necessary. These stakeholders should all be involved in the collection of appropriate data and in the development and review of the analysis techniques. Recent information on transportation system characteristics and analyses, including existing and anticipated levels of service (LOS) for roadway segments and intersections, may be readily available from traffic impact studies completed for land development projects in the municipality and transportation studies completed by the various stakeholders.

An asset management or "maintenance first" focus should be used when identifying needed transportation system improvements. In order to provide service that supports community goals under the preferred land use scenario, transportation system improvements should be considered in the order outlined below.

- System maintenance – repaving, shoulder improvements, bridge rehabilitation or replacement, transit facility improvement, traffic signal or sign maintenance, etc.
- Operational improvements – see Federal Highway Administration (FHWA) Congestion Reduction Web page for applications such as incident management, Intelligent Transportation System (ITS) installation/management (see FHWA Web site), traffic sign or signal installation or synchronization, lane striping modifications, one-way versus two-way streets, travel demand management (see FHWA Web site), traffic calming (see PennDOT Guidance), etc.
- Access management – see PennDOT's *Access Management Model Ordinances for Pennsylvania Municipalities Handbook* for applications such as right-in/right-out driveway access, driveway spacing, parallel service roadways, shared access points, etc.
- Multimodal applications – new or improved pedestrian and/or bikeway facilities, new or modified bus or rail service, demand response service, etc.
- Capacity considerations – lane additions, bypasses, new interchanges, new arterial highways, etc.

More detail on the specific measures included under each of these categories is included in Section 5. Typical improvements identified at this level of analysis may include intersection improvements such as signalization or the addition of turn lanes, modifications to signal timing, and traffic calming.

A bicycle and pedestrian facilities preliminary needs analysis should be completed which includes an evaluation of existing and future bicycle and pedestrian facility demands. This may be accomplished through identifying facilities and/or uses that are likely to generate significant walking and bicycling traffic. Stakeholder outreach and public input can be vital in these efforts. Limited public transportation may also be included in a Tier 2 analysis, including an assessment of whether significant employment and retail centers are being adequately served. The analysis may show the need for improvements to existing services and facilities. A limited parking analysis may also be included to identify existing parking facilities and provide general information on whether additional parking will be necessary.

Tier 3 – Municipalities with Complex Transportation Issues

Tier 3 analysis is an extension of Tier 2 analysis and is intended for growing suburban and urban municipalities where there are multiple key corridors and where multiple transportation systems interact, and in counties or portions of counties where similar characteristics exist. The techniques used in Tier 3 analysis are much the same as those used in Tier 2; however, the scope of such analysis is increased to include more roadways, more intersections, and more intermodal connections. Because of the potentially large study area and interactions between land use, roadway transportation, and public transportation, it is again typically appropriate to use a transportation model. The results of subtle variations in land use scenarios can more easily be determined using a model than attempting to do the same through more generalized analysis of traffic movements. Like Tier 2, the involvement of a qualified transportation professional/consultant is highly recommended.

As discussed under Tier 2, communities that are contemplating transportation impact fees under Article V-A of the MPC may want to conduct the necessary analysis of the transportation system by following the general process for completing a Roadway Sufficiency Analysis required under the MPC. A detailed description of the steps to be completed for a Roadway Sufficiency Analysis is included in PennDOT's Publication 639, *Transportation Impact Fees – A Handbook for Pennsylvania's Municipalities*. Municipalities choosing to follow this approach should pay close attention to the administrative

requirements described in Publication 639, including the maximum timeframe for completing and adopting the analysis report. It may prove beneficial to follow the process in a general manner during the development of the comprehensive plan, thereby enabling an informed decision on the feasibility of implementing impact fees and completion of the formal Roadway Sufficiency Analysis as a separate effort.

In addition to a more detailed model analysis of a broader area, more detailed public transportation analyses may also be needed. Such analyses may include an evaluation of whether—as a result of the future land use plan—new services and facilities will be needed to accommodate increased ridership on existing facilities and whether new ridership may evolve in areas not currently served. Improvements may include new bus circulator services; new regional bus and rail service; and new facilities such as a train station, a bus stop, or an intermodal transportation center. A municipality where Tier 3 analysis is used will also likely need to review the existing parking supply and future demand. The analyses will determine the approximate number of additional parking spaces that may be needed, including the expansion of existing facilities or new facilities. A Tier 3 analysis of pedestrian and bicycle facilities is likely to include general alignments of new facilities.

Even when following the maintenance-first approach outlined under Tier 2, the results of the roadway and intersection analysis may show the need for significant and costly infrastructure improvements that may be difficult to fund. Given this reality, a more detailed evaluation of operational system improvements may be necessary. This evaluation may include analysis of ITS techniques such as closed loop traffic signal coordination, traveler information tools, and incident management systems as needed in order to maximize the operation of existing facilities. At this level of analysis, greater coordination with the county, MPO/RPO, emergency service providers, transit agency, and PennDOT must take place while developing the future transportation plan.

Plan Development and Adoption

Once the scenario(s) have been developed and evaluated in accordance with the above guidance, the implementation tools necessary to put the plan into action should be identified, prioritized, and scheduled, and a fiscal plan should be outlined that demonstrates the fiscal feasibility of the selected plan. A menu of several implementation tools is provided in the next section. Municipalities and counties are encouraged to draw upon this list and incorporate others as necessary to develop a multifaceted implementation program that helps ensure the effectiveness of the selected plan of action.

Many transportation system issues or needs can most likely be addressed through a range of implementation mechanisms, each with policy, technical, and financial implications. Since the comprehensive plan is a policy document as opposed to a regulatory tool, the development of a detailed implementation program is one of the most important portions of the plan. As such, the comprehensive plan should contain text and graphic or tabular depictions of the implementation tools that are believed to be most applicable or preferred. In addition, these plans should contain a menu of options to support a flexible implementation approach as conditions change over the life of the plan. The Internet links provided in this handbook and the sample tools included in the next section provide a wide range of implementation options and examples for consideration. The plan shall include a summary of the anticipated implementation mechanisms, the schedule for the proposed actions, and planning-level costs for each measure incorporated into a capital improvements plan. Responsible individuals or entities should also be identified in the plan.

The complete transportation/land use element of the comprehensive plan should include the text, tables, maps, and graphics necessary to clearly describe the elements of the plan outlined in this guidance. The preferred land use scenario and transportation system plan should be presented together, including sufficient maps to clearly depict the anticipated future land uses in the planning area along with the planned transportation system improvements. Plan production considerations should include digital formats that can be updated easily, reproduced inexpensively for distribution, and/or posted on the municipal or county Web site for use by the public, developers, and other interested parties.

As indicated in "Developing the Stakeholder Involvement Program" in Section 3 of this handbook, Section 301.3 of the MPC requires that a municipal comprehensive plan be provided to the county planning agency at least 45 days prior to the public hearing required in Section 302. A municipality must also forward copies of the proposed plan or amendment to all contiguous municipalities and to the local school district for their review and comments. Similarly, counties must distribute the draft plan and consider the comments of the municipalities and school districts, as well as the comments of contiguous municipalities, counties, and school districts. All comments received through this process and/or as received proactively through the stakeholder outreach program should be incorporated into the comprehensive plan, typically through appendices. The governing body for the plan may choose to amend any portion of the plan prior to adoption. The comment summary in the plan should include a summary of how/if comments are addressed in the body of the document.

A comprehensive plan is adopted by resolution of the applicable governing body in accordance with Section 302 of the MPC. The adoption resolution should be included in the final plan.

Quick Check

- Does the plan meet the minimum requirements of the MPC, especially the requirements for outreach and coordination with the public and others?
- Does the plan demonstrate outreach activities with the county (if a municipal plan), municipalities (if a county plan), MPO/RPO, and applicable modal providers in addition to the minimum requirements of the MPC?
- Are the transportation and land use planning recommendations presented in a combined fashion, preferably also combined with all other applicable utilities and facilities?
- Does the plan incorporate at least one land use scenario that is demonstrated to be generally consistent with the county plan (if a municipal plan), with additional scenarios included if the initial scenario evaluation indicated a need for significant additional transportation system capacity in one or more corridors?
- Were transportation system improvement alternatives considered in the order of maintenance and safety first, followed by operational improvements, access management, and multimodal services—before capacity addition was considered?
- Were all applicable transportation modes addressed in the plan with coordination demonstrated from all applicable providers and interest groups?
- Does the plan contain planning-level cost estimates for all transportation system improvements?
- Is there an analysis of funding alternatives for all listed transportation system improvements, indicating the relative fiscal feasibility of the plan?
- Does the plan contain a section that addresses how the preferred scenario may impact the natural and cultural resources identified elsewhere in the plan?

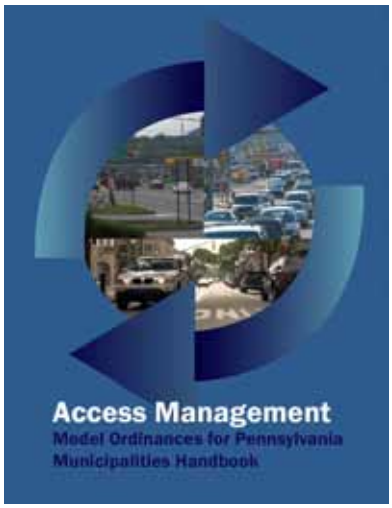
Section FIVE

IMPLEMENTING THE PLAN

As the overall policy document, the comprehensive plan is not law and is not self-enforcing. However, municipalities and counties have a range of tools available to help implement their vision for transportation and land use as outlined in their comprehensive plan. Transportation System Management tools help the current transportation system work more efficiently, which can reduce the need to build or widen roadways. Land Use Management tools encourage desirable development patterns. There are also various funding options to help implement the recommendations of comprehensive plans. This section presents an overview of these tools.

Transportation System Management Implementation Tools

Access Management



Access management is a means of controlling the ways in which vehicles can access major roadways, using techniques such as limiting the number of driveways and intersections with roadways. Although it involves a sometimes complex balance of the need for local accessibility with the need for overall mobility, properly managed access is vital to the safety and efficiency of a community's road network.

When access points are not managed effectively, accidents and congestion increase and a community's quality of life can deteriorate. Adopting appropriate access management practices will help a community better accommodate growing traffic demand and development, while preserving the character of a town and quality of life for residents and businesses. PennDOT's *Access Management Handbook* (Publication 574) is designed to help Pennsylvania's local governments better understand access management and guide them in the development and implementation of a program for their community.

The model ordinance language provided in Publication 574 conforms to the requirements of the MPC and meets or exceeds the standards contained in PennDOT's HOP regulations. This guidance provides a starting point for municipalities wishing to implement an access management program.

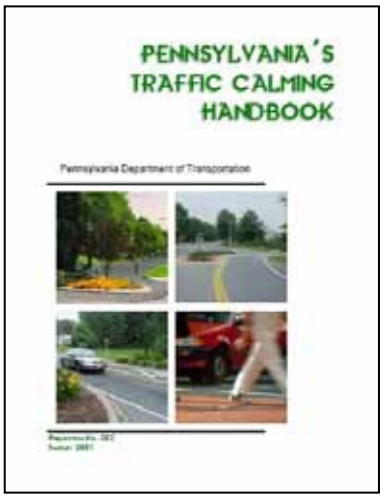
Highway Occupancy Permit (HOP)

The HOP process, specifically the Policies and Procedures for Transportation Impact Studies, promotes an early scoping and coordination process between PennDOT, the applicant, the municipality, and other potential stakeholders. PennDOT's Transportation Impact Study guidelines provide applicants flexibility in mitigation options. Mitigation strategies can include efforts to facilitate future improvements for motorists, pedestrians, bicyclists, and transit users within the study area. These strategies can include various implementation tools (access management, impact fees, etc.) identified in the county, municipal, or multimunicipal plan. The Transportation Impact Study guidance also requires the HOP applicant to evaluate the land use and roadway context(s) of the study area as part of their submission. Municipalities that establish these land use and roadway contexts in their comprehensive plans (as discussed under the recommended methodology) can help ensure that future access improvements are integrated with municipal land use goals.

By establishing an effective communications process with the District HOP office, municipalities can work cooperatively with PennDOT to make certain that HOP projects support the goals and objectives outlined in the comprehensive plan. PennDOT can work with municipalities to incrementally implement corridor-wide improvements that have been identified during the planning process.

Traffic Calming

Traffic calming measures (i.e., roundabouts, speed humps, bulb-outs, on-street parking, etc.) are mainly used to address speeding and high cut-through traffic volumes on neighborhood streets. These issues can create an atmosphere in which non-motorists are intimidated, or even endangered, by motorized traffic. By addressing high speeds and cut-through volumes, traffic calming can increase both the real and perceived safety of pedestrians and bicyclists, thereby increasing multimodal travel and improving the quality of life within the neighborhood.



While traffic calming measures are typically limited to use on local streets and other low-volume roads, they have been incorporated on collector streets with predominantly residential land uses and, less frequently, on streets through downtown business districts. Because traffic calming measures are designed to slow traffic and reduce cut-through volumes, they are generally not appropriate for use on arterial streets which are intended to accommodate higher speeds and larger traffic volumes.

PennDOT's *Traffic Calming Handbook* (Publication 383) recommends the completion of a "Traffic Calming Study and Approval Process" before selecting from the broad range of possible traffic calming techniques. This process is outlined in the handbook and may be incorporated into the comprehensive plan if deemed appropriate. Another good reference document is the Institute of Transportation Engineers' (ITE) *Traffic Calming – State of the Practice*. Finally, PennDOT's *Guide to Roundabouts* (Publication 414) includes standards for appropriate roundabout use and design and a questionnaire to aid in determining whether a roundabout is an appropriate alternative to signalization.

Travel Demand Management (TDM) Strategies

TDM encompasses strategies and policies to reduce automobile travel demand, or to redistribute this demand over space or time. Managing demand can be a cost-effective alternative to increasing capacity. A demand management approach to transportation also has the potential to reduce the environmental impacts associated with capacity enhancements, and improve quality of life. The inability to easily and quickly add new infrastructure, coupled with the growth in passenger and freight travel, have led to the need for transportation system managers and operators to place a greater focus on managing demands. As such, before traditional capacity measures such as lane additions are considered, TDM strategies should be evaluated as a means of maximizing the capacity of existing transportation systems.

Managing travel demand has broadened in recent years to include optimizing transportation system performance for commute and non-commute trips and for recurring as well as non-recurring events. Managing demand today is about providing all travelers, regardless of whether they drive alone or carpool, with choices of location, route, and time—not just of mode of travel. Examples of commuter-related TDM strategies include:

- Employer partnerships to promote flexible work hours
- Zoning laws to facilitate demand management
- Express and shuttle bus services
- Traveler information services
- Guaranteed ride programs
- Transit/van integration

Non-commuter (i.e., special events, etc.) strategies include, but are not limited to :

- Traveler information services
- Shuttle bus services
- Fringe parking

More information on TDM strategies can be obtained through a number of sources including the FHWA Web site and FHWA publications including *Mitigating Traffic Congestion – The Role of Demand Side Strategies* and *Commuter Choice Primer – An Employer's Guide to Implementing Effective Commuter Choice Programs*.

Congestion Management

Congestion management refers to a variety of tools aimed at improving service on existing roads, incentivizing travel pricing to distribute or reduce demand, adding capacity, managing work zones, managing travel demand (TDM), and improving traveler information. Congestion management measures can effectively reduce congestion and should be considered in the comprehensive plan before capacity-adding projects. Congestion management tools include:

- Traffic incident management
- Traffic signal timing

- Arterial management
- Access management
- Freeway management and traffic operations
- Road weather management
- 511 traveler information telephone services
- Travel time message signs for travelers
- National traffic and road closure information
- Real-time travel time information
- Freight shipper congestion information

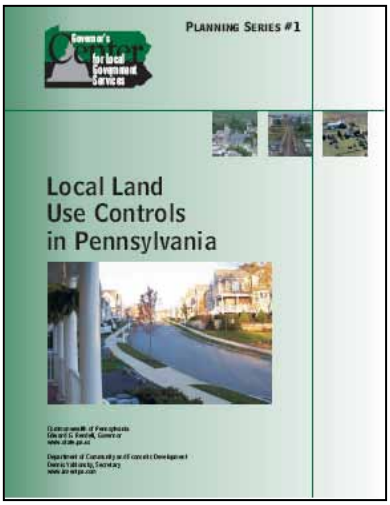
Additional information on congestion management measures can be found on the FHWA Congestion Reduction Toolbox Web site.

Land Use Management Implementation Tools

An adopted comprehensive plan is not the legal equivalent of a land use ordinance, nor is it self-enforcing. Plans depend on local ordinances and other actions to implement their concepts and recommendations. Optimal implementation programs are multifaceted and are likely to include several of the mechanisms identified in Section 5. This subsection summarizes the land use controls that are specifically enabled under the MPC and are thus available as implementation tools for municipal and/or county governments. The input of the municipal or county solicitor should always be sought before enacting the land use ordinances and controls described here. More detailed descriptions for these land use controls can be found in the MPC, PennDOT's *The Transportation and Land Use Toolkit* (Pub 616), and DCED's *Local Land Use Controls in Pennsylvania* (Planning Series #1).

Official Map

Article IV of the MPC describes an official map as "a map of all or a portion of the municipality which may show appropriate elements or portions of elements of the comprehensive plan…which may include, but need not be limited to:



- Existing and proposed public streets, watercourses, and public grounds, including widenings, narrowings, extensions, diminutions, openings, or closings of same.
- Existing and proposed public parks, playgrounds, and open space reservations.
- Pedestrian ways and easements.
- Railroad and transit rights-of-way and easements.
- Flood control basins, floodways, and flood plains, storm water management areas and drainage easements.
- Support facilities, easements, and other properties held by public bodies undertaking the elements described in Section 301."

In short, an official map is a land use ordinance that identifies privately held lands that are desirable as public lands and, as such, may be an effective tool to implement the comprehensive plan. If a property owner indicates an interest in building, subdividing, or otherwise improving a property indicated for future public use on an adopted official map, the municipality has one year to acquire the property or begin condemnation proceedings. The municipality cannot withhold approval or condition approval of a subdivision or land development plan on a landowner's dedication of the land.

Zoning Ordinances

Article VI of the MPC addresses zoning ordinances, and joint zoning is specifically addressed in Article VIII-A. Whether adopted for a single municipality or jointly, zoning ordinances generally regulate land use and the size, height, and density or intensity of use. Zoning ordinances are potentially powerful tools for the effective implementation of the preferred land use/transportation scenario.

There are a number of implementation tools that can be put into place through the adoption of a zoning ordinance. Many of these are described below, including planned residential development, traditional neighborhood development, and transfer of development rights. There are additional tools that can have a direct effect on transportation system demands, including cluster development and transit-oriented development (TOD). Cluster development refers to grouping the allowable number of residential structures for a property on a portion of the available land, and reserving a significant amount of the site as protected open space. This approach can reduce the demands for new roadways and improve access management on the collector system serving the subdivision. TOD is the term used to describe dense, mixed-use, pedestrian-friendly growth that is intentionally concentrated around a transit facility. While TOD is specifically designed to facilitate transit usage, it has the additional benefit of encouraging pedestrian and bicycle movement, and thus can significantly reduce vehicle miles traveled. Both TOD and cluster development can be accommodated within a zoning ordinance either by right or as an overlay zone.

Planned Residential Development

Planned residential development (PRD) is defined in Article VII of the MPC as "an area of land…to be developed as a single entity for a number of dwelling units, or a combination of residential and nonresidential uses, the development plan for which does not correspond in lot size, bulk, type of dwelling, use, density or intensity, lot coverage, and required open space to the regulations established in any one district…of a municipal zoning ordinance." PRD is typically a form of overlay zone in an ordinance that can be used in establishing TOD as described above. PRD may include clustering provisions.

Traditional Neighborhood Development

Article VII-A of the MPC regulates the application of traditional neighborhood development (TND) in Pennsylvania. TND is defined as a mixed-use community with residential, retail, office, and civic buildings often in close proximity, much like many of Pennsylvania's traditional small towns. TND is very similar in development style to TOD, but is not necessarily constructed in conjunction with transit facilities. TND shares many of the advantages of TOD, including encouraging pedestrian and bicycle movement, thereby potentially reducing the demands for vehicular trips. Much like many of the development types described above, the increased density permitted in TND can also help a community accommodate a variety of land use types with a more compact development footprint.

Transfer of Development Rights

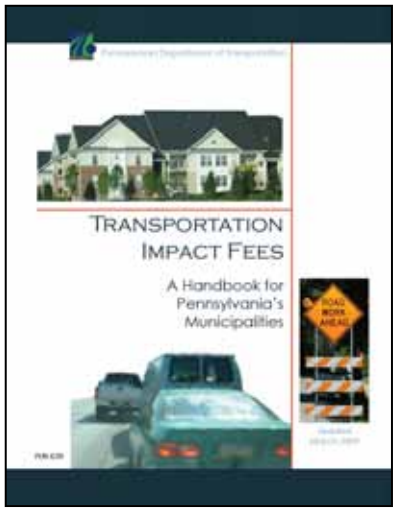
Transfer of development rights (TDR) involves removing development rights of specified lands which a municipality desires to remain undeveloped, but permitting those rights to be transferred from those lands to other lands where more intensive development is deemed appropriate. This approach to growth management can help preserve large areas while encouraging compact development patterns in others where transportation and/or other infrastructure is better suited to handling the growth demands. It is a potentially powerful land preservation tool as it provides a source of revenue for farmers and owners of other large tracts without encouraging the sale of their land for development. TDR is addressed in Sections 603(c)(2.2) and 619.1 of the MPC.

Subdivision and Land Development Ordinances

Unlike zoning ordinances, which regulate land use types and the intensity of development, subdivision and land development ordinances (SALDO) (see Article V of the MPC) regulate the improvement standards and processes to be followed when proposing the subdivision or land development of property. By regulating transportation elements such as the width and construction of roadways, street connectivity (cul-de-sac regulations), lot configurations, driveways, sidewalks, and other facilities, they are an ideal means of implementing the design recommendations contained in chapters 6 through 8 of the *Smart Transportation Guidebook*. Further, SALDO regulations are typically less controversial than other land use implementation tools such as zoning. Incorporating the design recommendations can be fairly straightforward, especially if the methodology followed in evaluating the transportation/land use scenario(s) included establishing the land use context in accordance with the *Smart Transportation Guidebook*.

Capital Improvements Programming and Funding Alternatives

DCED's *The Comprehensive Plan in Pennsylvania* defines a capital improvement plan (CIP) as "a schedule or list of projects for which public funds are to be used." Incorporating a CIP into the comprehensive plan is a critical implementation tool to help ensure that the improvements included in the plan can be reasonably implemented from a fiscal perspective. Furthermore, development of a CIP is required for those municipalities wishing to levy transportation impact fees (see PennDOT's Transportation Impact Fee Handbook).



The CIP should include all proposed improvements in the plan for which there is an identifiable cost. Inflationary factors should be used for those improvements not planned to be implemented until the later years of the plan. Anticipated sources of funding should also be identified for each improvement. Transportation system improvements proposed on the federal aid system may be eligible for federal funding through the MPO/RPO TIP and the STIP. However, a full range of funding options should be evaluated in the CIP including private contributions or funding; transportation impact fees levied in accordance with the *Transportation Impact Fee Handbook*, bond issuance, Transit Revitalization Investment Districts (TRID) (see DCED Land Use Planning Technical Assistance Program (LUPTAP) and TRID

Guidelines), borrowing through the Pennsylvania Infrastructure Bank or other entities, grants through programs such as the Safe Routes to Schools Program, tax increment financing (TIF), and others applicable to the county or municipality.

Due to the wide variety in possible funding sources, close coordination with those responsible for processing or reviewing funding applications is highly recommended. This coordination may include outreach to the private development community, MPO/RPO, county planning commission, PennDOT, and others. Discussions should include a review of the eligibility of the proposed improvement under a given program(s) and the amount of funding that may be reasonably received through the funding source.

Section SIX

APPENDIX

References and Resources

DCED, County, and Municipal Resources:

- Planning Series Publications (includes MPC, The Comprehensive Plan, and more)
- Funding and Program Finder
- 2005 State Land Use and Growth Management Report
- Governor's Center for Local Government Services contacts
- Links to county planning commission and municipal Web sites

PennDOT and MPO/RPO Resources:

- Mobility Plan
- LRTP Guidance
- Access Management
- Impact Fees
- Smart Transportation
- Smart Transportation Guidebook
- The Transportation and Land Use Toolkit
- Sound Land Use
- Public Involvement Handbook
- Traffic Calming Handbook
- Pennsylvania Infrastructure Bank
- Central Office Contacts (click on PennDOT Organizations, then Bureaus & Offices)
- District Contacts (click on PennDOT Organizations, then Engineering Districts)
- MPO/RPO Contacts (click on Transportation Program Development link, then map)

Federal Resources:

- Metropolitan Planning and Programming Regulations
- Statewide Planning and Programming Regulations

- Transportation Planning Capacity Building Program
- FHWA Congestion Reduction Toolbox
- FHWA ITS Web site
- FHWA TDM Web site
- Safe Routes to Schools Program

Municipal Associations:

- County Commissioners Association of Pennsylvania (CCAP)
- Pennsylvania State Association of Boroughs (PSAB)
- Pennsylvania State Association of Township Supervisors (PSATS)
- Pennsylvania League of Cities and Municipalities (PLCM)

School Districts:

- http://www.edna.ed.state.pa.us/

Other Resources:

- 10,000 Friends of Pennsylvania "Plan Regionally and Implement Locally"
- International Association for Public Participation
- Environmental Protection Agency Public Involvement Web site
- Institute of Transportation Engineers "Traffic Calming – State of the Practice"
- Pennsylvania Chapter of the American Planning Association

Data Sources:

- U.S. Census Bureau (demographic data)
- Pennsylvania Spatial Data Access (PASDA) (photogrammetry, environmental resources, land use, etc.)
- PennDOT Geographic Information Division (traffic data, online video log, link to PASDA for roadway and municipal boundary data)

Transit Providers and Interest Groups:

- Obtain contact information from your MPO/RPO

Acronyms

AASHTO – American Association of State Highway and Transportation Officials

ADA – Americans with Disabilities Act

ADT – Average Daily Traffic

CCAP – County Commissioners Association of Pennsylvania

CIP – Capital Improvement Plan

CMP – Congestion Management Processes

DCED – Department of Community and Economic Development

DCNR – Department of Conservation and Natural Resources

DEP – Department of Environmental Protection

FHWA – Federal Highway Administration

GIS – Geographic Information System

HCM – Highway Capacity Manual

HCS – Highway Capacity Software

HOP – Highway Occupancy Permit

ITE – Institute of Transportation Engineers

ITS – Intelligent Transportation Systems

LOS – Level of Service

LRTP – Long-Range Transportation Plan

LUPTAP – Land Use Planning Technical Assistance Program

MPC – Municipalities Planning Code

MPO – Metropolitan Planning Organization

PA Chapter of APA – Pennsylvania Chapter of the American Planning Association

PASDA – Pennsylvania Spatial Database Access

PennDOT – Pennsylvania Department of Transportation

PLCM – Pennsylvania League of Cities and Municipalities

PRD – Planned Residential Development

PSAB – Pennsylvania State Association of Boroughs

PSATS – Pennsylvania State Association of Township Supervisors

PUC – Public Utility Commission

ROW – Right-Of-Way

RPO – Rural Planning Organization

SALDO – Subdivision And Land Development Ordinances

STIP – State Transportation Improvement Program

TDM – Transportation Demand Management

TDR – Transfer of Development Rights

TIF – Tax Increment Financing

TIP – Transportation Improvement Program

TMA – Transportation Management Association

TND – Traditional Neighborhood Development

TOD – Transit-Oriented Development

TRID – Transit Revitalization Investment District

TYP – Twelve Year Program

UPWP – Unified Planning Work Program

YOE – Year of Expenditure

Best Practices for Addressing Transportation in Comprehensive Planning

It can be extremely helpful to study other well-executed plans before launching a planning initiative. This subsection offers 35 best practices for preparing the transportation element of a comprehensive plan. Drawn from 11 comprehensive or similar plans spanning the spectrum of urban to rural communities, these practices cover topics related to the technical development, outreach, coordination, and presentation aspects of the planning process. A brief planning area description and plan or element overview provides context for understanding the application of best practices in each community. Descriptions of coordination with MPO/RPOs and state agencies recognize that data sharing and dialogue can lead to thorough and cost-effective analysis, scenario development, and decision-making, while building working relationships for implementation.

There are certainly many other well-developed transportation elements of comprehensive plans across Pennsylvania. This selection simply provides a snapshot of some of the most current practices in use. If you would like to nominate an additional plan and its best practices for future updates of this handbook, please contact the Program Center at 717-787-2862 or RA-PennDOTLRTP@state.pa.us and/or the PennDOT Bureau of Municipal Services at 717-783-2446 or PENNDOT boms@state.pa.us and reference this handbook.

Best Practices for Transportation Planning By Topic:

Outreach and Coordination

- Sharing of ideas for improvements among planning partners
- Draft plan preview for select planning partners
- Recommendations responsive to non-English-speaking citizens
- Packaged input kit for interested citizen groups
- Focus group session with senior citizens
- Public presentation on "What happens after the plan?"
- Amish community representation on the plan's citizen task force
- Participation of planning partners from start to finish

Data Collection and Analysis

- Relevant findings and appropriate cross-references for demographic and other analyses
- Use of tables to simplify data presentation
- Uses of planning partners' data in lieu of new data collection
- Detailed intersection capacity and level of service analyses

Modal Inventory/Analysis

- Commercial waterways as transportation facilities; condition of sidewalk access to transit facilities
- Analysis by mode, summary by corridor
- Public transportation as local transit, intercity, and private taxi services
- Bike/pedestrian facilities as a safe, interconnected, and well-signed environment
- Parking as a component of the transportation system

Plan Development

- The land use and transportation link
- "What action and where to take it"
- "Complete streets"
- Staff training
- Summary table of transportation projects
- Direct relationship of plan vision to transportation goals

Visualization

- Simple diagrams of each modal system

- Intermodal mapping and illustrations of benefits
- Maps from data/analysis to alternatives and impacts to recommended improvements
- Schematic illustrations of land use and applied access management techniques

Implementation

- Reference to PennDOT's guidance publications
- Identification of municipal roles and responsibilities for implementation
- Identification of planning partners' roles and responsibilities for implementation
- Prioritization of short- and long-term projects
- Coordinated actions by multiple planning partners
- Using an array of potential funding sources
- Creative strategies for financing improvements to the riverfront
- Fiscal analysis and constraints to local improvements and contributions (local match)

Transportation Plan: Shaping Our Future, A Comprehensive Plan for Montgomery County, 2005

A Plan for an Urban County

Planning Area Description

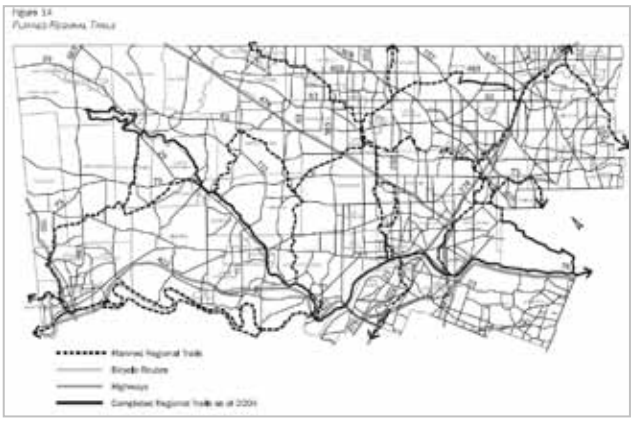
Montgomery County is home to over 750,000 residents and half a million jobs. Traffic is everywhere—on the highways, in downtowns, around office complexes and malls, and along roads that were once rural. Between 1979 and 1999, traffic on the county's 10 highest-volume roads grew by 129 percent—much faster than the growth rate in population or jobs. By 2025, the county is expected to add 107,000 people, 49,000 homes, and 77,000 jobs, driven by the market and enabled by land use policies. If current trends continue through 2025, this new development will consume over one-sixth of the county, more than half of the farms will close, traffic will become more congested on the highway system, and older boroughs and townships will continue to lose vitality.

Transportation Element Overview

To address these growth issues and to improve the efficiency of the transportation network, the *Transportation Plan* aims to manage traffic generation with better land use policies, improve the accessibility and convenience of sidewalks and bicycle facilities and public transportation services, maintain the county's airports, reduce conflicts between rail freight operations and communities, and improve the road and highway network. If fully implemented, the Transportation Plan will address many of the existing and anticipated road bottlenecks around the county.

Best Practices for Transportation Planning

Plan Development – The plan devotes an entire chapter to the land use and transportation link, discussing the principles and benefits of "linked" land use, site design, and transportation planning in managing the public's demand for highways, improving the feasibility of other travel options, and reducing costly infrastructure investments. It recognizes six community types, from established towns to rural areas, and relates the comprehensive plan's seven land use policies and 12 site design actions to each community type.



Modal Inventory/Analysis – The plan is comprised of six chapters, each focusing on a single mode of travel or shipping. Each chapter discusses applicable state laws, travel to work statistics, facility conditions (safety) and ownership, relationships to land uses, design and service standards, project funding sources, and performance measures.

Visualization – The plan contains numerous black and white diagrams depicting various aspects of the modal systems, as discussed in the text. The final chapter of the plan presents the programmed and significant proposed projects along its 11 major corridors, illustrating the various modal improvements together geographically.

Outreach/Planning Partners – Montgomery County Planning Commission incorporated project suggestions that had been offered to the Planning Commission over several years, shared the list of project priorities, invited municipal officials to public meetings, and took comments from municipal officials.

Funding Sources

Montgomery County and PA DCED Land Use Planning and Technical Assistance Program grant

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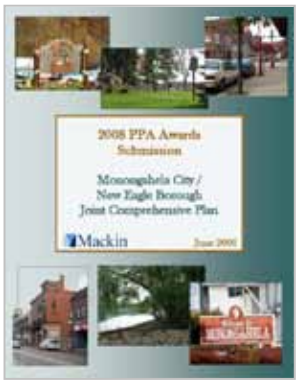
City of Monongahela and Borough of New Eagle, 2008

A Plan for a Multimunicipal Urban Area

Planning Area Description

The City of Monongahela and New Eagle Borough were experiencing many community development problems common to older riverfront industrial towns in Southwestern Pennsylvania. The City had a declining population (including its elderly population), an aging housing stock, stable but high housing vacancy rates, and a large low- to moderate-income population. The Borough was a growing community with newer housing stock, but high vacancy rates and a similarly large low- to moderate-income population. Neither municipality was prepared to deal with the land use, housing, and economic development impacts of the Mon Valley Expressway.



Transportation Element Overview

The comprehensive plan identifies priority rehabilitation needs, infill development goals, remediation measures for transportation deficiencies, and offers methods to enhance the local economic development potential.

Best Practices for Transportation Planning

Modal Inventory/Analysis – The plan for riverfront towns recognizes commercial waterways, which allow for year-round navigation, and the locations, hours, types of activities, and parking associated with recreational access points. It also inventories bicycle routes and the extent, condition, and ownership of the sidewalk network. Intermodal analysis identified the poor condition of sidewalks and signage near transit stops as a disincentive to using public transit.

Implementation – The plan recommends what action to take and specifically where that action should be taken. For example, "Improve pedestrian connections along East Main Street." Photos in the plan quickly and clearly demonstrate the need by showing sidewalk conditions in this location. Another recommendation, "Improve traffic flow: intersection improvements," specifies Main and Fourth Streets as the location.

Outreach/Planning Partners – The Washington County Redevelopment Authority was a project sponsor, county level stakeholder, and reviewer of early plan development. The Washington County Planning Commission also gave early review to the draft plan. The Southwestern Planning Commission and PennDOT District 12-0 were recognized in the text as the transportation planning partners in the region.

Funding Sources

PA DCED Land Use Planning and Technical Assistance Program, Washington County Redevelopment Authority, and municipal funds

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Source: 2008 PPA Award Application

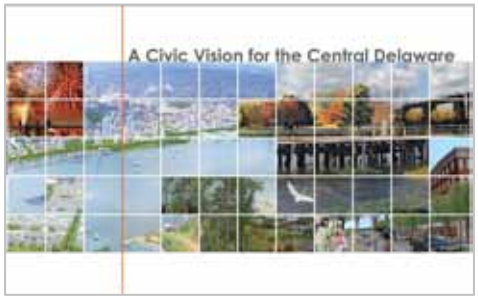
A Civic Vision for the Central Delaware, 2007

A Plan for an Urban Neighborhood

Planning Area Description

The seven-mile riverfront in Philadelphia known as the Central Delaware occupies more than 1,100 acres from Oregon to Allegheny Avenues and from the Delaware River to I-95. Its location along one of the world's great working rivers, its proximity to the strong Center City Philadelphia real estate market, and its vibrant neighborhoods to the west of I-95 place the Central Delaware among the most important redevelopment areas in the Philadelphia region. Unfortunately, redevelopment has been hampered by industrial-era zoning regulations, suburban scale development, the barrier of I-95, and the lack of vision and planning needed to create strong public places and a prosperous private development.

Transportation Element Overview



A Civic Vision for the Central Delaware looks beyond these barriers at the underlying fabric of the city to establish a physical framework for growth through movement, streets, public transit and trails; parks and ecological open spaces; and a mix of uses. The plan proposes that "New streets will determine the size of development parcels and optimize public riverfront access; they will incorporate public transit for residents and tourists, a recreational trail, and a right-of-way dedicated to biking." These movement systems will accommodate modes of transportation and shift the focus from the car to the pedestrian, cyclist, and jogger. Together with parks, trails and open spaces, and sound economic policies and development controls, the Central Delaware will again become an inviting, walkable, dense urban riverfront.

Best Practices for Transportation Planning

Plan Development – The plan applies a "complete streets" philosophy to proposed improvements to Delaware Boulevard, recommending adequate right-of-way for walking, bicycling, and public transportation, thereby reducing the number of traffic lanes necessary on the boulevard. Right-of-way dimensions include dedicated space for street trees and plantings, providing wide-ranging benefits. The plan cites a UC Davis study that shows that New York City street trees are collectively worth $122 million in annual energy savings, air quality protection, storm water runoff treatment, and real estate values.

Plan Development – The implementation chapter discusses the need to establish creative strategies for financing public improvements to the riverfront. Though the city should consider tax abatement districts and special services districts, the plan recommends the city also explore other financing methods. These could include the creation of tax increment financing districts and special services districts and the use of dedicated sales tax revenue.

Visualization – The mapping of the three networks—movement systems, parks and open space, and land development—presents related conditions that most plans, if they mapped such conditions, would depict separately. This enables the planner (and reader) to think holistically about the problems and alternatives. The computer-generated graphics throughout the document are very detailed and illustrate the vision of the document very well.

Coordination Efforts

46-member advisory group, including representatives of the Delaware Valley Regional Planning Commission (DVRPC), and PennDOT District 6-0 and Central Office

Funding Sources

William Penn Foundation

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Source: www.planphilly.com, 2008 PPA Award Application

Long-Range Transportation Plan, 2007, a chapter of the 2007 Lebanon County Comprehensive Plan

A Plan for a Suburban County

Planning Area Description

Lebanon County was reclassified as an urban county following the 2000 census. Population densities range from 5,824 persons per square mile in the City of Lebanon to 2.5 persons per square mile in Cold Spring Township, with a countywide average of 331 persons per square mile. Approximately 75 percent of the population lives within three miles of US Route 422. Growth has largely occurred along Route 422 and other major corridors. The county's economy includes local manufacturing and service enterprises, similarly located along these corridors, as well as agriculture and forestry in the rural areas, though large numbers of workers commute to the capital region, Hershey, and Lancaster. Passenger vehicle and truck traffic on the county's main roads is expected to continue to increase, creating additional delays and the potential for trip diversions onto secondary roads. The Hispanic population has grown, particularly in the City of Lebanon; many do not speak English.

Transportation Element Overview

The Long-Range Transportation Plan was developed as one element of the county's comprehensive plan. Its preparation was fast-tracked to meet its 2006 requirement for MPO transportation planning. The LRTP was then expanded and incorporated into the comprehensive plan prior to its review and adoption. The LRTP, like other plan elements, comprises three sections: 1) a transportation system profile, 2) vision, goals, and policy statements, and 3) a transportation action plan, including reference to the current TIP.

Best Practices for Transportation Planning

Data Collection and Analysis – With regard to demographic, land use, housing, and economic trends, the transportation profile summarizes the relevant findings and refers the reader to the respective profiles of these elements for further detail.

Data Collection and Analysis – The profile uses a table or matrix to characterize highways and interstates by their limits/location, functional classification, number of lanes, width of pavement, operating segments, average annual daily traffic volume, historic change in traffic volume, percentage of truck traffic, projected traffic volumes, and recent improvements. Its bridge section includes the total number of bridges in the county, number and percent by ownership (state, county, local), inspection frequency, and statistics on bridge conditions. The composite analysis of modal trends and issues is summarized in a Table of Key Trends by Transportation Mode. A sample table entry is presented below:

Highway	Limits/Location	Functional Classification(s)	Key Features
78	Berks County line to merge with I-81 via Bethel Township, Swatara Township, Union Township	Interstate Highway	· 4 lanes; 24-foot-wide pavement in each direction. · Daily traffic volume on I-78 in Lebanon County exceeds 35,000 vehicles per day. · Traffic has increased over 100% since 1993. · Trucks comprise a 45% vehicle share. · PennDOT is currently performing $2.85 million in necessary overhead bridge preservation work along the Lebanon County portion of I-78.

Outreach/Special Population – The plan is responsive to demographic conditions, i.e., the increasing Hispanic population in the City of Lebanon. For example, Action 5A4 recommends use of a wide range of media, e.g., Hispanic radio programs, to dialogue with the public on transportation planning.

Plan Development – The plan acknowledges that this young MPO would benefit from additional training. For example, Action 4A3 recommends training for promoting use and additional planning of bicycle/pedestrian facilities.

Plan Development – The action plan schedules 31 policy and initiative recommendations in two-year timeframes over the 10-year planning horizon of the comprehensive plan. It programs transportation projects over the 25-year planning horizon of the LRTP. The plan notes PennDOT's Access Management Handbook and Model Ordinance as tools available to improve the transportation/land use linkage.

Coordination Efforts

During the preparation of the plan, the MPO staff attended meetings of the county's municipal associations and municipal managers, as well as the county maintenance office, to identify problem areas that would suggest projects or studies for the plan, the TIP, or the Unified Planning Work Program (UPWP). The MPO staff requested traffic volume and crash data from PennDOT District 8-0 and offered the District an opportunity to review the draft plan.

Funding Sources

FHWA/PennDOT Supplemental Planning Funds; coordinating elements of the comprehensive plan were funded by Lebanon County, PA DCED Land Use Planning and Technical Assistance Program, PA Department of Conservation and Natural Resources (DCNR) Community Conservation Partnership Program, and the PA Department of Environmental Protection (DEP).

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Nazareth Area 2030 Plan, 2006

A Plan for a Suburban Multimunicipal Area

Planning Area Description

The "Nazareth Area" is a 104-square-mile region of Northampton County, Pennsylvania, extending from the wooded slopes of Blue Mountain to the fertile flatlands along the Monocacy Creek south of the boroughs of Nazareth and Bath. The five boroughs were the population centers of the region until the 1950s when housing development shifted to the rural areas. Access to and from the area improved in the 1970s with the opening of Route 33 along the eastern edge and more recently with the connection of Route 33 to Interstate 78. By 2000, about 40,000 people occupied the 10 communities. An additional 18,000 persons may reside here by 2030.

Transportation Element Overview

The transportation plan focuses on highway problems related to congestion, safety, and maintenance. Fifty-nine projects are identified to address existing problems and anticipated needs through 2030. The plan acknowledges that funding for these projects is constrained at all levels of government and advocates access management and traffic calming techniques as means to minimize the need for highway improvements and reduce the impacts of heavy traffic. The plan also notes strategies for improving transit service, bicycle/pedestrian systems, and parking, particularly in the boroughs.

Best Practices for Transportation Planning

Data Collection and Analysis – The plan's characterization of growth uses MPO and county household metrics (size, number of vehicles, and number of workers) and housing density to explain increases in traffic volumes. Journey to work and place of residence versus place of work are the only local statistics presented.

Plan Development – The plan presents 59 transportation improvement projects in a simple table with a corresponding map.

TRANSPORTATION PLAN

Map #	Location	Problem	Recommended Improvement	Time Element	Source of Funds *
Lower Nazareth Township					
13	Georgetown Rd./Newburg Rd.	Crashes	Signalize, add turning lanes	Medium	Impact Fee
14	Hanoverville Rd./Twp. Line Rd.	Lack of Signalization	Signalize, add turning lanes	Medium	Impact Fee
20	Rt. 191/Hanoverville Rd./Hecktown Rd.	Geometry/Congestion	Realign, add turning lanes	Short	Fed./State/Local
34	Hecktown Rd./Country Club Rd.	Signal Timing	Retime signal, add turning lanes	Short	Impact Fee

Implementation – Each modal section of the plan lists the policies, actions, and advocacy roles that the municipalities "will use" or "will consider," such as, "Municipalities will coordinate land development with available road capacity and transit service," and "Municipalities will consider enacting impact fee ordinances."

Coordination Efforts

The staff of the Lehigh Valley Planning Commission (LVPC) prepared the plan and coordinated plan development and review within the LVPC and with the Lehigh MPO. The MPO's regional travel model identified problem areas and PennDOT's sufficiency ratings called attention to bridge needs. Discussion with PennDOT District 5-0 addressed bridge reconstruction and the possible development of a new interchange on Route 33.

Funding Sources

FHWA/PennDOT via the MPO's Unified Planning Work Program and LVPC in-kind services

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The Cranberry Plan, Shaping Cranberry Township, 2005-2030

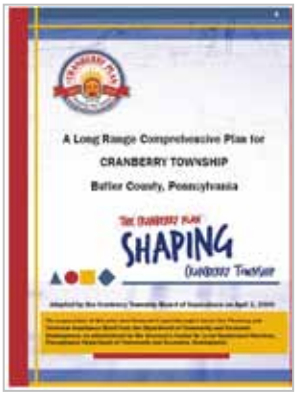
A Plan for a Suburban Township

Planning Area Description

In the 1990s, Cranberry Township, Butler County, became known as a fast-growing community, attracting residential and commercial growth. Easy access to and from Cranberry Township as a result of its location at the intersection of I-76 (Pennsylvania Turnpike), I-79, and State Routes 19 and 228 has enabled retail, office, and service industries to flourish, offering residents and workers from the region a wide range of employment options. Its resident population continued to grow from 23,625 in 2000 to 28,445 in 2007.

Transportation Element Overview

Shaping Cranberry Township takes a very detailed and integrated approach to traditional community planning elements. Its preparation includes a growth analysis of land use patterns; demand on public infrastructure, including water, sewer, and transportation; and projected increases in municipal revenue and expenses. The current transportation system—predominantly streets and highways—is viewed as a public resource that must be managed and maintained with limited resources, thus requiring very careful decision-making with regard to its expansion. Its transportation element therefore focuses on the evolving pattern of streets, sidewalks, and trails that can provide real transportation options, including public transportation for residents, businesses, and visitors, and advocates a collaborative approach to regional transportation issues such as congestion management.



Best Practices for Transportation Planning

Plan Development – The plan describes multifunctional (or complete) streets for vehicles, pedestrians, bicycles, and transit vehicles as a success factor for improving transportation options in the township.

Outreach/Planning Partners – The regional transportation goal focuses on partnerships to bring improved transportation to Cranberry Township. Partners include the Southwestern Pennsylvania Commission (SPC), PennDOT, transit providers, municipalities and counties in the region, and employers—each with an operational role, as well as a potential financial role, in making improvements that benefit the township as a whole.

Implementation – The plan acknowledges Cranberry Township's Traffic Impact Fee Program as a municipal funding source. The growth analysis includes the projected revenue from this program as it evaluates the projected cost of required improvements to support each of the three growth scenarios.

Visualization – The plan includes an extensive map set of current conditions, including maps of Sidewalks/Regional Connections (sidewalks, trails, parks, and open space), Road Ownership, and Traffic Counts (Annual Average Daily Traffic (AADT) counts collected in Fall 2007). The plan also maps Traffic Count Projections for Scenarios A, B, and C based on Average Daily Traffic (ADT) counts in 2007, and the associated Traffic Impacts.

Coordination Efforts

The planning process featured a panel discussion on intergovernmental cooperation with representatives from Butler County and the Southwestern Pennsylvania Commission. Data and studies from SPC were also referenced in the development of the transportation element.

Funding Sources

PA DCED Land Use Planning and Technical Assistance Program, PA DEP, PA DCNR, Cranberry Township

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Source: www.cranberrytownship.org

Cultivating Community, Union County Comprehensive Plan, (draft) 2009

A Plan for a Rural County

Planning Area Description

Union County grew by 4.2 percent in population between 2000 and 2006, while housing units increased by 7.5 percent. Whether due to shrinking household sizes, an aging population, or other factors, this disproportion is expected to continue with population growth projected at 41 percent and housing growth at 68 percent by 2050. While development is changing the land use pattern of the county, the transportation infrastructure remains the same—a system of mostly two-lane roads with major routes built to connect its towns and villages and rural roads providing access to the agricultural and rural areas. Additionally, many villages and smaller town centers do not have complete sidewalk networks, inhibiting walkability and connectivity. The availability of public transit service is very limited. Given these conditions, motor vehicle use is the primary form of circulation within Union County.

Transportation Element Overview

In a context of designated growth areas and rural areas, the plan recommends that multimodal opportunities from pedestrian, bicycle, transit, and vehicular routes serve and connect designated growth areas, while roadways continue to serve rural areas.

Best Practices for Transportation Planning

Data Collection and Analysis – The regional context and trends portion of the plan presents intersection capacity and level of service analyses for the existing roadway network, based on PennDOT's traffic volume data, and includes key intersections. It presents the locations of problem road segments and intersections on the Existing Roadway Deficiency Map.

Plan Development – The transportation element expresses the plan's sustainability theme by recommending a system of travel or mode choices and monitoring mode use over time. For example, one of four roadway goals is, "Automobile usage, as measured by vehicle miles traveled, is reduced through…increased multimodal transportation options and mixed-use development patterns that reduce the need to drive." Similarly, one of two bicycle goals is, "Bicycle use for both transportation and recreation purposes is increased as a percentage of trips taken by county residents." Next-level strategies support the plan's transportation choices philosophy with necessary promotional efforts, such as Strategy 8-11, "Develop

maps and other materials related to alternative transportation choices available in Union County and communicate this information to the public."

Outreach – *Meeting in a Box* kits were made available to citizens so that residents who were unable to attend public sessions could discuss the same topics and provide their results back to the planning team. Each kit contained instructions for the meeting host, handouts, pens, and even popcorn. The handouts included an information sheet describing *Cultivating Community*, maps, and datasheets to record information. Three groups totaling 69 people used the *Meeting in a Box* kits and provided feedback over a four-month time period.

Coordination Efforts

The planning effort organized municipalities into three planning areas, each with a planning advisory team comprised of local officials and planning commission members. Each team acted as a sounding board, reviewed plan text and maps, and ensured that public input was translated into the regional plans that rolled up as the county plan. SEDA-COG, Union's RPO, assisted the county with scope review in advance of the request for proposal (RFP), and interim and final document review. District 3-0 and the county maintenance department also offered their perspectives on transportation system deficiencies and issues, and suggestions for improvements.

Funding Sources

FHWA/PennDOT Supplemental Planning Funds; coordinating elements of the comprehensive plan were funded by a PA DCED Land Use Planning and Technical Assistance Program grant, county and municipal cash, and county in-kind services.

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Northwest Clearfield County Transportation Plan, an element of the Regional Comprehensive Plan, 2009

A Plan for a Rural Multimunicipal Area

Planning Area Description

The Greater DuBois area lies at the crossroads of Interstate 80 and US 219 in North Central Pennsylvania. Historically, the City of Dubois and surrounding Brady, Falls Creek, Huston, and Sandy townships benefitted from this transportation nexus to become an important center of regional commerce. However, at times the area's geographic constraints have jammed its transportation system; emergency closures of I-80 have overwhelmed the area's major traffic corridors. In addition, outdated signal controllers and related equipment contribute to congestion and delay and key intersections have become bottlenecks as travel patterns have changed over time. While the area generally experiences good east-west mobility, moving north-south can be challenging.

Transportation Element Overview

The plan advances 34 recommendations organized around six broad themes:

- Signals/Signal Systems – addressing equipment updates and new installations, which signals need to be updated, and where new signals need to be installed
- Lane Marking – enhancing safety through low-cost improvements
- Geometric/Capacity Improvements that increase the safety and capacity of various roadways and their intersections
- Safety Improvements to several intersections
- Intelligent Transportation Systems (ITS) that reduce congestion by providing traveler information
- Public Transportation – improving intersystem transfer and routing efficiency

Best Practices

Implementation – The plan acknowledges that some improvements to the transportation system can be made fairly quickly, particularly those made by the municipalities themselves. However, others will require coordination with the RPO and PennDOT as well as competition for funding, such as:

- Construct a connector road from Shaffer Road to Oklahoma-Salem Road to relieve congestion due to left turns.
- Remove the jog on the southbound approach of US 119 at the intersection of US 322.
- Increase capacity (with turn lanes) at the Shaffer Road/Beaver Drive intersection to reduce p.m. congestion.

Implementation – The recommendations clearly recognize that getting projects completed requires partnerships and coordination. The steering committee addressed this early in the planning process when it asked its planning team to focus attention on multimunicipal approaches to planning and

implementation. "Install light emitting diode (LED) traffic signals at all intersections" is just one recommendation in which multiple municipalities are identified to "lead" their own projects or join together in a single bid for a region-wide upgrade.

Outreach/Special Populations – The planning team held a session with residents of St. Michael Terrace to engage seniors on the mobility issues they face as pedestrians, motorists, and riders of public transportation. From this discussion came ideas for two recommendations:

- Install LED pedestrian countdown signals at intersections with high pedestrian traffic.
- Construct an intercity bus transfer center and revise fixed-route service to meet changes in demand, as the region's seniors increasingly rely on public transportation.

Coordination Efforts

The steering committee was comprised of municipalities, Clearfield and Jefferson counties, transit providers, chambers of commerce, the North Central Pennsylvania Regional Planning and Development Commission (NCPRPDC), and PennDOT.

Funding Sources

FHWA/PennDOT Supplemental Planning Funds; PA DCED Land Use Planning and Technical Assistance Program for the balance of the Regional Comprehensive Plan

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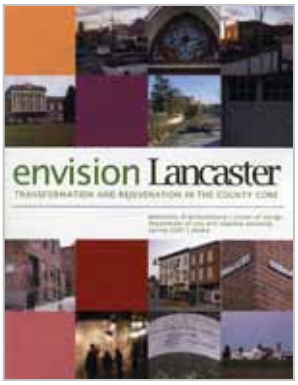
envision Lancaster: Transformation and Rejuvenation in the County Core, 2007

A Downtown Revitalization Plan

Planning Area Description

The City of Lancaster is the county seat of Lancaster County. After shifting from an agricultural trade center to a powerhouse of the industrial revolution and surviving decline during the urban renewal era, the City has emerged as an important location in the Philadelphia and Harrisburg commuter sheds and as an arts and cultural center. Lancaster is now entering a new stage of opportunity supported by strong, motivated leadership and increased civic engagement.



Transportation Element Overview

The study's two focus areas were the Prince and Queen Street corridors from Lancaster's historic downtown to the train station, and the station area. The Harrisburg Pike to Franklin & Marshall College area was also included in the overall analysis and recommendations. Creating a stronger identity for each of the focus areas and connecting all three activity hubs were among the plan's goals.

Best Practices for Transportation Planning

Modal Inventory/Analysis – The plan identifies Red Rose Transit as the local bus transit provider. It notes the number of routes, recent ridership trends, most-heavily-used routes, operating budget, and fare recovery percentage. The plan also notes Amtrak as the intercity rail transit provider. It recommends expanded taxi service and continued improvement of bus transit service.

Modal Inventory/Analysis – The plan characterizes existing conditions in the study area as unfriendly to pedestrian and bicycle traffic and makes general recommendations to create bicycle lanes and continuous sidewalks, expand sidewalks widths, increase tree plantings and lighting, and improve pedestrian signage.

Modal Inventory/Analysis – The plan notes available on-street parking, parking garages, and surface lots in the focus areas. It notes that parking capacity is sufficient for current demand but that redevelopment of a more intense nature could generate demand in excess of current parking capacity. No data is provided.

Implementation – The plan notes potential funding sources as it discusses various improvement and redevelopment concepts. It also summarizes these in the implementation chapter.

Coordination Efforts

The Gateway Revitalization Study and background materials were provided by the Lancaster County Planning Commission. Various public agencies attended the public presentation.

Funding Sources

Not applicable; project was completed as a planning studio student project.

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Source: 2007 PPA Awards Application

Mon/Fayette Land Use & Economic Development Analysis, 2004

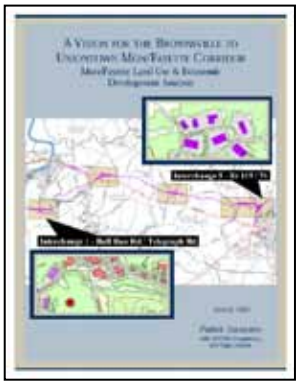
A Corridor Plan linking Land Use, Transportation, and Economic Development

Planning Area Description

The purpose of the Mon/Fayette Expressway Uniontown-to-Brownsville Project is to provide for safer and more efficient vehicular travel by improving access, addressing future capacity requirements, and drawing traffic (especially trucks) off U.S. Route 40 and onto a more modern facility. The project is designed to support the efforts of the National Road Heritage Park, which aim to make Route 40 less of a major transportation artery and more of a local traffic corridor and tourist destination. The reduction of truck traffic and the improvements in safety are intended to encourage new development at the expressway interchanges and foster economic revitalization along the National Road.

Transportation Element Overview

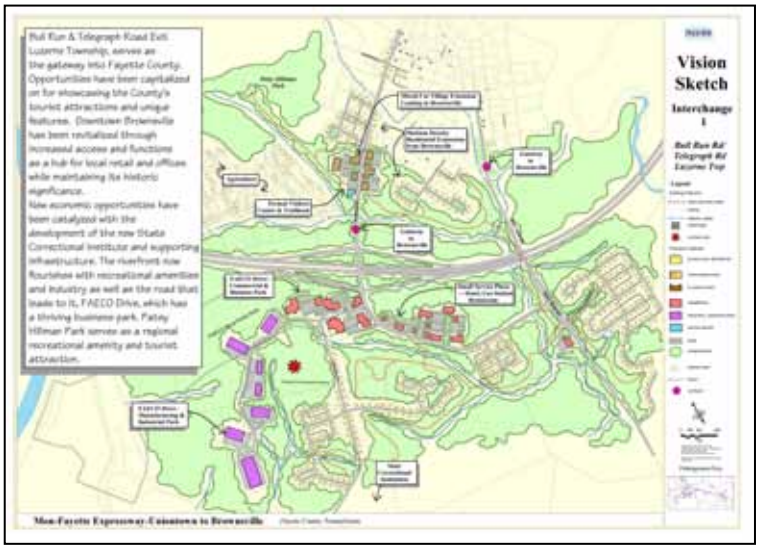
This study identified economic development and land use opportunities for the five planned Mon/Fayette interchanges within the Brownsville to Uniontown corridor. The planning process prepared: 1) a comprehensive analysis of the existing community development conditions; 2) a shared vision and goals for economic vitality in the corridor's small towns with visible open space and natural beauty between them, illustrated in a "vision sketch;" and 3) an action plan for land use, transportation, and economic development investments.



Best Practices for Transportation Planning

Visualization – The study's schematic site designs depict a mix of land uses at appropriate scales and densities, access management techniques, and protected resources for each interchange.

Outreach/General Public – Upon completing the study, a public meeting was held with local officials and county commissioners to present the key recommendations and discuss how to use the plan as a proactive tool.



A Note on Implementation Status

Fayette County has revised its zoning and subdivision and land development regulations based on the recommendations. The county has drafted an interchange overlay zone and historic overlay zone for the Historic National Road corridor. Furthermore, the county is revising ordinances to include some of the proposed economic development uses in the zoning districts surrounding the interchanges. The county has begun to explore the feasibility of tax base sharing, discuss incentives, and coordinate site plan review as laid out in the study.

Coordination Efforts

The Southwestern Pennsylvania Commission (SPC), Fayette County, PennDOT, and the municipalities along the corridor participated in the study's steering committee. Public meetings were also conducted.

Funding Sources

Fayette County

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Source: www.mfe-union-to-brown.com, 2008 PPA Award Application

Lancaster County Long-Range Transportation Plan, 2008

A Plan Addressing Special Modes of Travel

Planning Area Description

Lancaster County is home to an estimated 25,200 Amish and Plain Sect residents (2004). Many of these residents rely on public transportation and non-motorized transportation such as horse-drawn buggies, bicycles, and in-line skates for everyday travel. Though their communities are concentrated in the eastern part of the county, their homes and farms are dispersed at relatively low densities. Thus they must often travel alongside the largely motorized population (487, 332 total estimate of 487, 332) to access public transportation or to reach their destinations. The integration of motorized and non-motorized travelers, specifically in large rural areas, is a challenge for planners. For example:

- Traffic congestion makes it *safer* to operate a horse-and-buggy.
- The width and condition of roadway shoulders is extremely important, including the orientation and elevation of storm grates.
- Intersections that cross more than two lanes require more time for buggies to cross.
- Intersections on slopes require the horses to hold the carriages against the grade.
- Transit service, such as Red Rose and Amtrak, is used and schedules should be published where the communities will see them, such as in community newspapers.

Best Practices for Transportation Planning

Outreach/Special Populations –The Lancaster MPO clearly took interest in soliciting the input of Amish and Plain Sect communities. Specifically, an Amish representative served on the citizen task force and the planning team conducted an outreach meeting with the Amish Safety Committee. This outreach meeting helped to identify travel conditions that benefit or are hazardous to the traveling Amish community. This helped develop a better understanding of Amish travel needs and yielded a more complete and balanced multimodal transportation plan, which benefitted all residents.

Coordination Efforts

PennDOT District 8-0 participated in the citizen task force and provided data for the plan's development. Unique outreach measures to address the needs of the Amish and Mennonite populations are described above. Lancaster County Planning Commission's Executive Director and staff assisted in review of the plan for consistency with the county's comprehensive plan.

Funding Sources

PennDOT and FHWA

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