CORRIDOR PLANNING Guide

Towards a more meaningful

integration of transportation and land use

Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties, as well as the City of Philadelphia, in Pennsylvania; and Burlington, Camden, Gloucester and Mercer counties in New Jersey. DVRPC provides technical assistance and services; conducts high priority studies that respond to the requests and demands of member state and local governments; fosters cooperation among various constituents to forge a consensus on diverse regional issues; determines and meets the needs of the private sector; and practices public outreach efforts to promote two-way communication and public awareness of regional issues and the Commission.

Our logo is adapted from the official DVRPC seal, and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole, while the diagonal bar signifies the Delaware River. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey.

DVRPC is funded by a variety of funding sources including federal grants from the U.S. Department of Transportation's Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), the Pennsylvania and New Jersey departments of transportation, as well as by DVRPC's state and local member governments. The authors, however, are solely responsible for its findings and conclusions, which may not represent the official views or policies of the funding agencies.

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EXECUTIVE SUMMARY

This study, *Corridor Planning Guide*, is designed to review how corridor studies are completed at DVRPC, and to explore various approaches to corridor planning to inform DVRPC's and partner agencies' (including the state departments of transportation and county planning agencies) work on corridor studies. Developing a stronger land use and transportation linkage is an important part of DVRPC's mission.

Corridors form the primary connections between cities, neighborhoods, suburbs, and the region as a whole. Metropolitan planning organizations (MPOs), such as DVRPC, are in a unique position to plan for corridors given our multi-county jurisdiction, enabling DVRPC to conduct a planning exercise across municipal and county boundaries. Many MPOs, DVRPC included, also organize anticipated growth in corridor form in their long-range plans. Corridor plans can facilitate linking land use and transportation, connect infrastructure to development decisions, and coordinate redevelopment along a corridor by building partnerships between numerous public and private agencies and organizations. Corridor plans can resolve major planning issues prior to project development, and protect transportation investments.

This work supports the many initiatives and policies at the New Jersey Department of Transportation and the Pennsylvania Department of Transportation on Smart Transportation, Context-Sensitive Solutions, Community Impact Assessment, Mobility and Community Form, and Fix It First. A companion DVRPC study, *Innovations in Zoning for Smart Growth*, can be useful for those preparing corridor studies with zoning recommendations.

The Introduction includes a discussion of what corridor plans are, when and why they are done, and how they can integrate transportation and land use concerns. Chapter 1 presents national and state perspectives on corridor planning, including the relevant policies and practices of both Pennsylvania and New Jersey Departments of Transportation. Chapter 2 discusses the corridor planning process at DVRPC, including how corridors are selected for study, a typical study methodology, common elements included, and the agency's public involvement. Chapter 3 presents a Corridor Planning Toolbox, describing the common transportation and land use elements included in a corridor study, as well as other tools and techniques that may enhance the land use-transportation linkage. Whenever possible, the description includes why and when one would use the data or tool, and a resource where more information can be obtained.

The Appendix contains several useful checklists for corridor or area planning (or more specific topical studies), from assessing walkability and bikeability, to reviewing proposed land developments and a municipality's level of sophistication with land use issues and smart growth.

INTRODUCTION

What Is a Corridor Study/Plan?

Broadly speaking, transportation-related corridor planning is the coordination of transportation and land use activity within a linear area, usually along a major transportation link, such as a state highway. Corridors can be defined narrowly, to include only one road and its adjoining land use, or more broadly to include a network of parallel routes and transit lines. Metropolitan planning organizations (MPOs), such as DVRPC, have completed numerous corridor studies over the years. MPOs are in a unique position to plan for corridors, given our regional jurisdiction, enabling DVRPC to conduct a planning exercise across municipal and county boundaries. Many MPOs, DVRPC included, also organize anticipated growth in corridor form. Indeed, DVRPC's long-range plan, *Destination 2030*, encourages growth in centers and along corridors. As DVRPC's mission is to plan for and program transportation improvements, corridor plans are prepared to coordinate anticipated or proposed major public improvements with existing and proposed land uses.

Corridor plans provide the state departments of transportation, local governments (including municipal and county), landowners, developers, and residents along the corridor with an overall vision, as well as guidance and coordination on what future infrastructure improvements are needed. Corridor plans often include descriptions of capital improvements, implementation phasing, access and circulation issues, and protected lands.

Why This Study?

This report, *Corridor Planning Guide*, is designed to review how corridor studies are completed at DVRPC, and to explore alternative approaches to corridor planning to inform DVRPC's and partner agencies' (including the state departments of transportation and county planning agencies) work on corridor studies. It is also meant to develop strategies for building a more inclusive process, one that more meaningfully integrates transportation and land use planning.

This work supports the many initiatives and policies at the New Jersey Department of Transportation and the Pennsylvania Department of Transportation on Smart Transportation, Context-Sensitive Solutions, Community Impact Assessment, Mobility and Community Form, and Fix It First. A companion DVRPC study, *Innovations in Zoning for Smart Growth*, can be useful for those preparing corridor studies with zoning recommendations.

Why Do a Corridor Study?

Below are examples of typical problems that, when combined, may warrant a corridor study:

- Inappropriate speeds
- Congestion
- Lack of alternative transportation modes
- Unattractive street environment that limits commerce or development along the corridor
- Uncontrolled access (such as excessive curb cuts) along higher speed roadways
- Lack of sidewalk and bike infrastructure

- Parking facilities are not coordinated with land uses along corridor

- Crashes and fatalities

- Housing, commercial or industrial disinvestment

- Need for visioning for future development

What Are the Benefits of a Corridor Study?

- Improved access along a corridor when land use and transportation planning is coordinated

- Connecting infrastructure to development decisions, reducing infrastructure costs

- Coordinated redevelopment and economic development along a corridor

- Resolution of major planning issues prior to the initiation of project development

- Identification and possibly preservation of transportation right-of-way

- Protection of transportation investments

- Intergovernmental cooperation, partnerships with diverse public and private agencies and organizations

- Asset management

What Is the Role of a Corridor in a Community?

The corridor's overall role in a community is often overlooked because it tends to be qualitative. It is critical to understand that the corridor helps to establish the community's identity, through linking major sections of the community, serving major economic needs (such as shopping), or accommodating community needs, such as open space. Corridors link the various components of a community—residences, businesses and institutions—and often form the economic spine of a community.

Why Integrate Transportation and Land Use?

Land use patterns shape transportation, and often transportation investments shape land use patterns. Different land use scenarios can have widely varying effects on transportation options, open space, energy consumption, and infrastructure costs. Land use patterns can support transit, walking, and bicycling; or they can preclude these options by only supporting automobile travel, for instance, by not providing sidewalks, bike lanes, or enough density to make transit feasible.

Highways and bridges across the United States have shaped growth, just as the railroads did before them. Building a new highway into rural or undeveloped areas invariably brings development (without appropriate land use controls). This development adds more users to the highways, causing congestion. The solution for many years was to keep adding capacity by building more roads or widening roads, however, research over the last decade has shown that one cannot "build one's way out of congestion," at least not for long. What is needed is a change in transportation and land use planning, with coordinated policies, project development and decision-making, to better link land use with transportation.

Communities that integrate transportation and land use planning and policies are better able to manage growth, improve the efficiency of travel, and contain infrastructure costs. Metropolitan planning organizations like DVRPC are uniquely suited to address these concerns, as they play a large role in transportation investments and decision-making, while also creating a long-range land use and transportation plan for the region. A larger challenge lies in influencing local land use decision-making, as

most land use policies are local, and coordinating these policies and decisions with regional and county transportation planning and with the plans of neighboring municipalities.

Achieving a better transportation-land use linkage is the foundation of the smart growth movement. This linkage can lead to supportive land development patterns that create a variety of transportation options, including biking, walking, public transit, and better connected road networks. It can also facilitate mixture of land uses, which might have been otherwise found incompatible, in higher-density, pedestrian-oriented development patterns.

DVRPC produced *Linking Transportation and Land Use Planning in the Delaware Valley* (1991) and *Linking Land Use and Transportation Planning: Case Studies of Successful Implementation* (1994), both of which described planning tools to link land use and transportation planning at the local level.

CHAPTER 1: STATE AND NATIONAL PERSPECTIVES ON CORRIDOR PLANNING

NATIONAL PERSPECTIVES ON CORRIDOR PLANNING

Recent federal surface transportation law (ISTEA, TEA-21 and SAFETEA-LU), beginning in the early 1990s, requires states to develop long-range, statewide multimodal plans and priority programs. Corridor planning is a tool used by state DOTs and MPOs to deliver these statewide plans locally and to engage local stakeholders, producing feedback at the local level for the state. Corridor plans gauge regional impacts of statewide and regional plans on individual facilities and communities. Corridor planning also develops partnerships that benefit project development and implementation.

Given the federal support of state and region-wide transportation planning, corridor planning has evolved over the years to emphasize multimodalism, an interdisciplinary process, and public involvement.

The Transportation Research Board (TRB) has provided guidelines in developing corridor studies in the National Cooperative Highway Research Program's *Guidebook for Transportation Corridor Studies: A Process for Effective Decision-Making* (Report 435), published in 1999. The guidebook lays out the steps of the planning process for corridor studies. It also recommends training to develop staff's competencies in the following interdisciplinary areas in order to complete corridor studies in-house: modeling, public involvement and consensus building, economic analysis, financial analysis and funding. The guidebook also discusses how corridor planning fits in with the National Environmental Policy Act (NEPA) process.

TRB is also currently funding the "Development of a Multimodal Statewide Corridor Planning Guidebook" that would offer guidance on how to develop detailed statewide corridor plans that can effectively link long-range transportation plans to shorter-term state transportation improvement programs (STIPs). Such guidance can also assist the states in responding to new planning requirements that can be expected to emerge from future surface transportation reauthorization. The federally required long-range, statewide multimodal plans and priority programs vary by state, as some states have met this requirement by developing statewide policy plans, while other states have developed statewide plans that result in lists of transportation projects. This project is expected to be complete in February 2008, and Wilbur Smith Associates is the lead consultant.

Several other national organizations have published reports in recent years on corridor planning. These include: *Transportation Corridor Management: Are We Linking Transportation and Land Use Yet?* by the Institute for Public Policy and Management in 1996; *Transportation and Land Development Second Edition*, by the Institute of Transportation Engineers (ITE) in 2002; and *Transportation Planning Handbook*, in 1999, also by ITE.

ITE and Congress for New Urbanism (CNU) have been working since 2003 on a five-year effort on *Context Sensitive Solutions in Designing Urban Thoroughfares for Walkable Communities*. The effort is funded by EPA and FHWA, and is looking at network design, context-sensitive solutions (CSS), and revisions to the functional class system. It will provide alternative street standards enabling boulevards and avenues to be built in place of high-capacity arterials. The draft manual was published for review in the spring of 2006.

STATE PERSPECTIVES ON CORRIDOR PLANNING: NEW JERSEY

NJFIT

The New Jersey Department of Transportation (NJDOT) has recently launched a new initiative, called New Jersey FIT: Future In Transportation (NJFIT). Through this initiative, NJDOT is charting a new approach to making transportation investments. NJFIT is a comprehensive and cooperative approach to integrate and coordinate the development and redevelopment of towns and cities with transportation needs and investments. NJDOT has partnered with the New Jersey Office of Smart Growth and other state agencies and is working with counties, municipalities and other stakeholders to implement this program.

Key outcomes of NJFIT include:

- Lively main streets that serve as economic engines in communities
- Redirection of growth toward older communities, which reinvests in existing areas and also protects environmentally sensitive lands at the urban edge
- Context-sensitive transportation improvements designed with and for each community
- Prioritization and streamlining of projects that contribute to NJFIT
- Safe streets through appropriate and innovative design standards
- A multimodal transportation network that provides choices for all users
- Emphasis on a healthy environment by encouraging walking and improvements in air quality, by integrating land use and transportation planning to help reduce reliance on the automobile

NJFIT includes a toolbox that encompasses traditional capacity improvements and innovative practices, with a focus on education and communication. The toolbox provides an array of techniques that help meet the desired NJFIT outcomes. An emphasis is placed on context-sensitive design; promoting access and mobility; making streets safer through traffic calming and road design; and providing additional options for travelers.

NJDOT has incorporated NJFIT into several recent Integrated Land Use and Transportation Planning Studies that attempt to balance land use, transportation, environmental and economic growth needs and investments. Municipalities and other stakeholders are encouraged to partner with NJDOT and other state agencies in the development of these plans. The *Route 1 Regional Smart Growth Strategy*, *Route 29 Waterfront Boulevard Study, Route 30 Cramer Hill Waterfront Access Management Project, Route 38/I-295 Interchange Study*, *Route 130 Three-Part Transportation and Planning Effort*, and *Route 322 Corridor Study* are examples of this new planning approach in the DVRPC region.

Centers of Place

Additionally, NJ DOT has created a Centers of Place grant program to distribute funds to nontraditional transportation projects that help redevelop communities. The program is open to municipalities designated by the State Development and Redevelopment Plan as either urban, regional, town, or village centers. The grants are awarded to support non-traditional transportation improvements that advance the planning agenda and vision of the municipality and improve community livability. Eligible, illustrative projects include: pedestrian and bicycle facilities, strategies which enable mixed use "Main Streets," traffic

calming improvements, scenic or historic transportation programs, landscaping and streetscaping improvements, rehabilitation of transportation structures, and parking and circulation management.

Mobility and Community Form Element

NJDOT is also working on requiring a Mobility and Community Form Element in local municipal master plans, by amending the New Jersey Municipal Land Use Law to replace the required Land Use Element and the optional Circulation Element with the new Mobility and Community Form Element. This will allow land development goals and transportation goals to come together as one set of goal statements that work together to better manage community development. NJ DOT created an extensive *Mobility and Community Form* guide that assists municipalities in this new type of comprehensive thinking. The guide explains a variety of smart growth strategies, and encourages a fresh and dynamic view of context-sensitive streets, multimodal transportation, and transit-oriented development.

State Development and Redevelopment Plan

The New Jersey Office of Smart Growth is responsible for developing the *State Development and Redevelopment Plan* (SDRP). The State Plan seeks to coordinate planning activities and establish statewide planning objectives in the following areas: land use, housing, economic development, transportation, natural resource conservation, agriculture and farmland retention, recreation, urban and suburban redevelopment, historic preservation, public facilities and services, and intergovernmental coordination.

The State Plan designates planning areas that share common conditions with regard to environmental and development features, including designations of Areas for Growth; Areas for Limited Growth; and Areas for Conservation. These designations are outlined on the State Plan Map, which serves as the land use planning framework to direct funding, infrastructure improvements and preservation programs. A key aspect of the State Plan is the process of cross-acceptance, which provides all stakeholders and citizens with a voice in the development of the plan's goals, strategies, policies and implementation.

The Office of Smart Growth, with the assistance of an Interagency Smart Growth Team, has developed a map of Smart Growth Areas (www.nj.gov/dca/osg/docs/smartgrowthareasmap.pdf).

Smart Growth Areas include areas classified as one of the following: Metropolitan Planning Area or Suburban Planning Area; a designated center; an area identified for growth as a result of a petition for plan endorsement; or a Pinelands Regional Growth Area, Pinelands Village or Pinelands Town as designated by the New Jersey Pinelands Commission.

The New Jersey Housing and Mortgage Finance Agency has developed a free online Smart Growth Locator Tool (sgl.state.nj.us/) that indicates whether a property is located within an area designated as a Smart Growth Area. The tool also identifies the State Plan planning area type and programs for which a project is eligible.

STATE PERSPECTIVES ON CORRIDOR PLANNING: PENNSYLVANIA

Sound Land Use Implementation Plan

The Pennsylvania Department of Transportation (PennDOT) developed the *Sound Land Use Implementation Plan: Building on Smart Transportation Principles* in 2001, in response to Land Use Executive Order 1999-1, to address sound and sustainable land use and development patterns. The plan guides PennDOT's land-use-related actions through specific performance measures. The plan has been updated each year since 2001 to report on the agency's progress. The Commonwealth of Pennsylvania, through PennDOT and other agencies, is committed to linking transportation, land use, economic development, and environmental stewardship.

PennDOT Programs to Link Land Use and Transportation

Since the original plan, PennDOT has instituted a number of programs to link land use and transportation, including the Home Town Streets Program, Access Management Model Ordinances and Handbook, and a handbook on highway noise and land use compatibility. They have also modified applications for Highway Occupancy Permits, Transportation Enhancements and Pennsylvania Infrastructure Bank to consider local land use planning.

PennDOT's Design Manual also now includes a Bicycle and Pedestrian Facilities Checklist, to be used in the planning and programming phase of the transportation project development process, to highlight the need to include bicycle and pedestrian facilities in transportation projects.

PennDOT also completed the *PennPlan Corridor Assessment Study* in 2004, to identify future trends and issues that may impact these corridors or the entire state.

PennDOT Planning Partners Checklist

PennDOT has also been working to strengthen the link between their planning efforts and the National Environmental Policy Act (NEPA). NEPA requires all federally funded projects (such as transportation improvements) to use a systematic interdisciplinary approach to decision-making on the environmental impacts of proposed actions. It requires agencies to consider qualitative and unquantifiable environmental amenities and values as well as technical and economic factors in their projects. To this end, in 2006 PennDOT developed a Pennsylvania Planning Partners Checklist, also known as the Planning and Programming Checklist, for MPOs, regional planning organizations (RPOs), and county governments to use on specific transportation projects to better integrate NEPA concerns. The checklist is intended to improve the MPO process and reduce duplication of work by allowing MPOs to identify potential environmental, cultural, and socioeconomic factors that might impact the schedule, budget, or level of documentation required for a specific transportation project. It is intended to precede the standard scoping process, and MPOs should share the completed checklist with PennDOT officials early in the process of transportation project development. For more on the checklist, please see the Appendix.

CSS and CIA

PennDOT has also adopted FHWA's Context-Sensitive Design (CSD) approach, also known as Context-Sensitive Solutions (CSS), to change the way highway projects are developed, constructed, and maintained. PennDOT developed a Context-Sensitive Solutions website and electronic library in 2006.

As part of CSS/CSD, PennDOT has embraced Community Impact Assessment (CIA), a tool used throughout the project development process (in planning, prioritization and programming, preliminary design, final design, and construction) to assist PennDOT in evaluating the impacts of proposed transportation action on a community and its quality of life. Elements examined included land use, community cohesion, natural environment, and the cultural environment. The Community Context Audit is a tool used in the planning process of CIA to identify various community characteristics that make each transportation project location unique to its residents, its businesses and the public in general. The audit helps to define the purpose and need of the proposed transportation improvements, based upon community goals and local plans for future development.

Highway Transfer Program

PennDOT has also begun a Highway Transfer Program to identify the most appropriate ownership of the close to 40,000 miles of state-owned roads. The program seeks to transfer ownership of locally functional state highways from the state to their respective municipalities. Adding these roads to their local road systems allows local governments to incorporate them into streetscape and other improvement programs, and enables municipalities to have more control over their state highways, particularly if they run through downtown or Main Street-type settings. PennDOT still provides annual maintenance support.

Right-Sizing

PennDOT issued a policy statement in July 2005 encouraging "right-sizing" on individual transportation projects and the statewide program. Right-sizing refers to the best fit for a project that meets transportation needs while also considering community goals, economic development, fiscal constraint and social and environmental issues. Such an approach should happen as early in the project development process as possible, and be carried through subsequent stages. PennDOT has recently conducted four "right-sizing" pilot studies across the state, including the US Route 202 Section 700 study in Bucks and Montgomery counties, and PA 41 in Chester County.

Keystone Principles

The Commonwealth adopted 10 Keystone Principles for Growth, Investment and Resource Conservation in May 2005, to guide investment and support local growth and economic development in the state. PennDOT plans to apply these principles to all relevant programs. They are:

- Redevelop First
- Provide Efficient Infrastructure
- Concentrate Development
- 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

PennDOT Smart Transportation Themes

In order to guide Pennsylvania in achieving smarter transportation, PennDOT has developed 10 themes to guide their work. These include:

- **Money counts.** PennDOT plans to focus financial resources on maintaining existing infrastructure and targeting new investments to statewide and regional transportation priorities. PennDOT has recognized that the state does not have enough money to keep adding capacity to highways to keep up with congestion.

- **Choose projects with high value-to-price ratio.** PennDOT wants to maximize its investment through developing projects that return this investment and are priced realistically.

- **Enhance the local road network.** PennDOT is interested in combating congestion through better use of the local road network, and enhancing its connectivity and overall design.

- **Look beyond level of service (LOS).** Level of service is the traditionally used measure to evaluate the performance of a roadway through grading its level of congestion. Grades range from LOS A, indicating a free flow of traffic, to LOS F, indicating gridlock. PennDOT is moving towards a more holistic evaluation of a roadway's performance beyond just mobility, or how fast a car can move through a corridor, to include quality-of-life issues and community context (whether the corridor is urban, suburban, or rural). Some state highways, for instance, become Main Streets upon entering small towns, where vehicle throughput may not be as important as the overall downtown character of the street, and how the street serves local businesses and pedestrians. Upon leaving town, this same state highway might then focus more on moving vehicles as efficiently as possible, again contingent on local character. Being able to adapt the same roadway to different community contexts is important, and solely relying on LOS does not accomplish these goals.

- **Safety first, and maybe safety only.** PennDOT is targeting techniques such as landscaped medians, street trees, on-street parking, dedicated turning lanes, and various traffic calming measures, to address safety more effectively.

- **Accommodate all modes.** PennDOT is working with other agencies to plan more compact, dense land use patterns to increase transit usage; offer accommodations for all modes, including bikes and pedestrians ("complete streets"); and decrease automobile trips.

- **Leverage and preserve existing investments.** PennDOT has adopted a "maintenance first" or "fix it first" policy, giving higher priority to financing improvements to existing facilities and infrastructure before building anew. The intent is to impede sprawl and channel growth into areas with existing infrastructure.

- **Build towns, not sprawl.** By targeting infrastructure investments into existing towns and developed areas, PennDOT is trying to create a level playing field for future economic development of developed areas, and discouraging such development in greenfield areas.

- **Understand the context; plan and design within the context.** PennDOT is committed to understanding the community context of projects as early in the project planning and development process as possible, realizing that "one size does not fit all."

- **Develop local governments as strong land use partners.** PennDOT is working to create new partnerships with local governments, including counties and municipalities, to better coordinate local land use controls with transportation investments. Local governments have the authority for land use decisions, but often have a narrower context for decision making without the benefit of county, regional and statewide issues or policies.

BI-STATE INITIATIVE

NJDOT and PennDOT, in conjunction with DVRPC, are currently drafting a joint publication, *Smart Transportation Solutions for Communities in Pennsylvania and New Jersey*. The manual is expected to be released in the fall of 2007. It will identify roadway and roadside design values appropriate for different types of roadways in a variety of land use contexts, recommend a collaborative process for implementing context-sensitive design projects, and provide guidelines for improving the transportation system in accordance with context-sensitive smart growth principles. Corridor studies will need to incorporate these new roadway standards that better reflect the surrounding land uses into their analyses.

The new standards will better integrate land use planning with transportation infrastructure, and build off of similar work being done on a national scale by the Institute of Transportation Engineers and the Congress for New Urbanism. New roadway standards that consider context-sensitive solutions and planning for all modes will influence the design of new roadways as well as future roadway improvements.

CHAPTER 2: CORRIDOR PLANNING PROCESS AT DVRPC

SELECTING CORRIDORS FOR STUDY

Corridor studies present an opportunity to broaden the scope of land use and transportation studies beyond individual facilities. In many cases, a solution may not be evident on a specific facility but improvements to a parallel facility or even a different mode, such as transit or bicycling, may improve conditions in the study area.

DVRPC conducts several corridor studies each year. Corridor studies can be funded as part of DVRPC's annual work program or separately by PennDOT, NJDOT or other agencies. DVRPC chooses the corridor studies funded through the work program in consultation with our member governments and each state DOT, while also reflecting the priorities for the region's corridors, as identified in the Congestion Management Process and the Long Range Plan.

Congestion Management Process (CMP)

The Congestion Management Process (CMP), as required by federal transportation legislation, is a systematic process for managing congestion that provides information on transportation system performance. It recommends a range of strategies to minimize congestion and enhance the mobility of people and goods. These multimodal strategies include, but are not limited to, operational improvements, travel demand management, policy approaches, and additions to capacity. The CMP advances the goals of the DVRPC long range plan and strengthens the connection between the plan and the Transportation Improvement Program (TIP). The CMP is a process, not a one-time project, therefore it continually refines the data on congested corridors and the strategies to combat congestion. It completes its cycle by evaluating the effectiveness of transportation improvements, coordinating with other planning processes, and providing updated analysis of the performance of the transportation system as it recycles.

A summary map of "congested and emerging corridors" (See Figure 1) is located on the DVRPC website at www.dvrpc.org/transportation/longrange/cmp/map.htm.

Ten common types of sub-corridors were defined for the Delaware Valley region with descriptions, examples, and sets of Very Appropriate and Secondary Appropriate strategies to address congestion. The CMP uses eight analysis points to determine congested corridors: current daily congestion, current peak-hour congestion, heavily used roads and intermodal facilities, future daily congestion, future peak-hour congestion, frequent crash-related congestion, intermodal importance, and land use (See Figure 2 for an example).

The corridor plan should include the strategies to address congestion as part of the plan's recommendations, as appropriate. These strategies are based on corridor type, however, the following area-wide strategies are included in DVRPC CMP as appropriate for all sub-corridor types:

- Safety Improvements and Programs
- Pedestrian and Bicyclist Improvements
- Signage
- Basic Upgrades of Signals

DVRPC CONGESTED AND EMERGING CORRIDORS
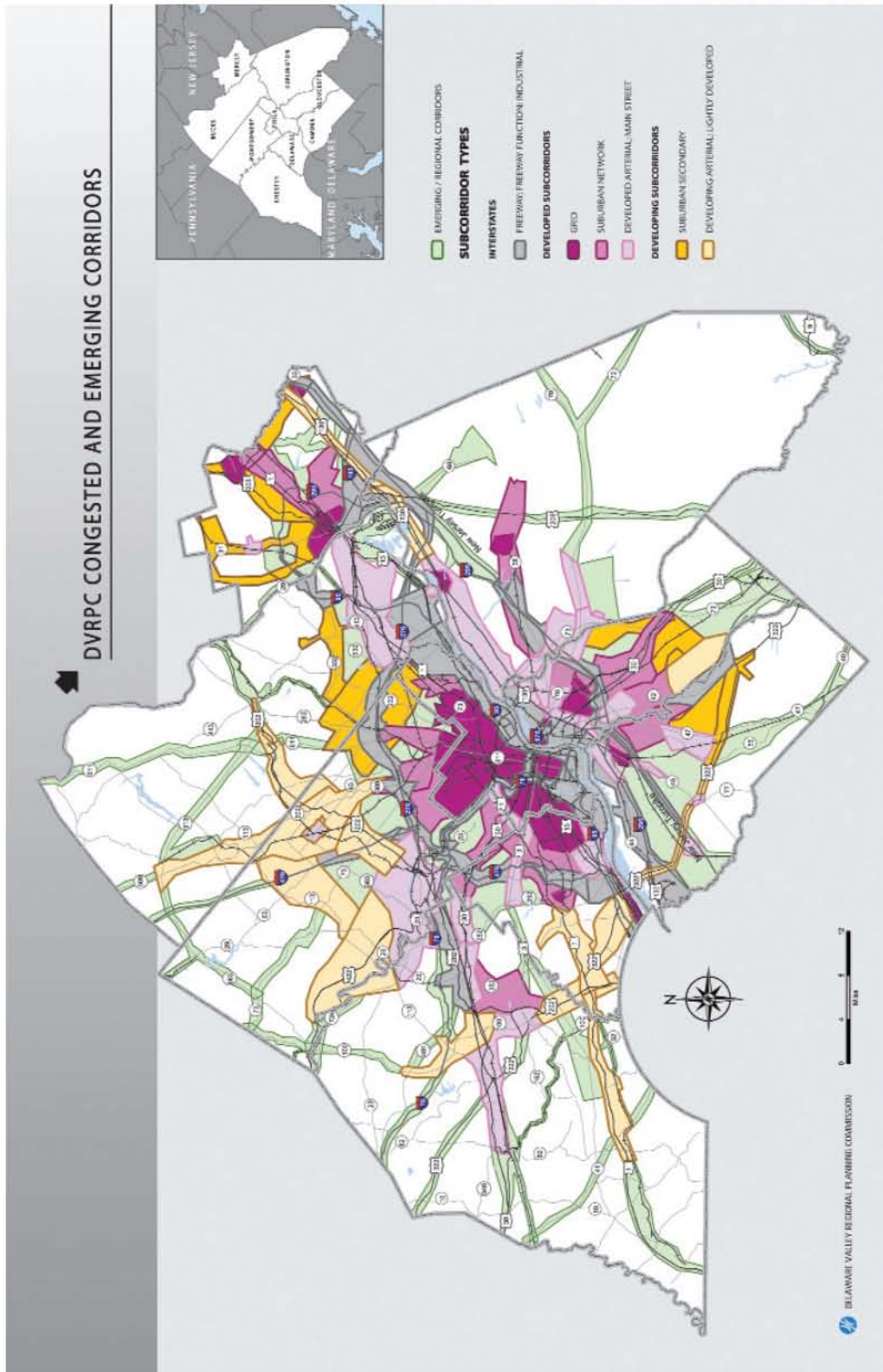
FIGURE 1: DVRPC Congested and Emerging Corridors.
www.dvrpc.org/transportation/longrange/cmp/map.htm
Source: DVRPC, 2006

FIGURE 2: Congestion Management Process Criteria Map. From *US 30 Corridor Study*.
Source: DVRPC, 2006

- Intersection Improvements of a limited scale

- Bottleneck Improvements (vehicle or rail)

- Access Management, both engineering and policy strategies

- Marketing (including outreach, education, and planning) of Transportation Demand Management (TDM) and transit options, including carpool, vanpool, and ridesharing programs, alternate work hours, guaranteed ride home, and TransitCheck where applicable

- Review of Existing Land Use/Transportation Regulations

- Growth Management and Smart Growth

Destination 2030 Long Range Plan

The Destination 2030 Long Range Plan for the Delaware Valley (Destination 2030) is the region's blueprint for future growth and development and identifies strategies and investments to attain future goals. The plan is predicated on redeveloping our existing communities and channeling future growth into appropriate areas. It contains a list of transportation investments, some of which are placed in the region's shorter term funding mechanism, the Transportation Improvement Program (TIP). *Destination 2030* also lists those corridors identified in the CMP for further study. The Long Range Plan is updated every five years, as is the CMP (whose update is prior to the Long Range Plan, in order to incorporate any changes in designated corridors).

Corridor Prioritization

Each year DVRPC chooses corridors for study, with the highest priority going to those corridors designated in the CMP as Priority Sub-corridors, in both New Jersey and Pennsylvania. New Jersey also considers Bridge Management System, Pavement Management System, and Crash Record Database data. Both Pennsylvania and New Jersey subcommittees of DVRPC's Regional Transportation Committee then select a corridor from a pool of high-ranked candidate corridors. In New Jersey all 12 Priority Sub-corridors, as ranked by the CMP, have been or are in the process of being studied.

TYPICAL CORRIDOR METHODOLOGY

It is clear that no "one size fits all" approach can be applied to corridor planning, given their different scales, levels of complexity, and goals. There are, however, some key elements that should be included in every corridor study and in every corridor process, as well as some key questions that should be addressed before, during and after the study. Every corridor study must consider multiple modes of transportation, land use/form, the environment, economic development, and community compatibility. Perhaps most importantly is consideration and analysis of how each affects, and in turn is affected by, the other. This integration is critical to improving the region's transportation network, guiding land use development and community design, protecting the environment, and promoting economic development in the right places in the region.

The following checklists should be used as a guide when completing a corridor study (or in some area studies), to ensure that the key questions, key study processes, and key elements are included.

KEY QUESTIONS

What problems is the study trying to address along the corridor? This can be open-ended, but it is designed to assist with goal-setting. It can be a useful exercise in choosing what corridor to study, and at the beginning, middle and end of a corridor study. Further analysis and field work may reveal more issues along the way, and the problem statement should evolve as the study progresses, as the study team learns more.

What are the goals of this corridor study? Possible goals could be (some may overlap):

☑ Improved access for automobiles

☑ Improved access for pedestrians

☑ Improved access for transit

☑ Improved access for bicyclists

☑ Improved access for freight

☑ Improved safety, fewer accidents

☑ Improved access for airplanes/local airport

☑ Improved local zoning and other regulations that better support a different land use mix, density, form/design, lot layouts, street standards, placement of public utilities

   ☑ Calm traffic

☑ Improved street network, street connectivity

☑ Connect transportation infrastructure to economic development decisions

☑ Coordinate investments along a corridor (could be transportation or land use)

☑ Preservation of right-of-way for future usage

☑ Cooperation among municipalities, state agencies, and others

☑ More attractive streetscape/better-looking corridor

☑ Improved understanding of future land use and transportation scenarios and their impacts on the municipalities

   ☑ Better parking situation

☑ Greater understanding of the effects of Transportation Improvement Program (TIP) projects or other investments along corridor

   ☑ Application of Intelligent Transportation Systems (ITS) along a corridor

☑ Preservation of natural features

☑ Preservation of cultural and historic resources

KEY STUDY PROCESS

Every corridor study should minimally include in its process the following:

☑ **Create Study Advisory Committee (SAC).** A Study Advisory Committee should consist of municipal officials and/or municipal planners, the county planning commission (or commissions if the study spans two or more counties), the state department of transportation, transit agency or agencies, transportation management association (TMA), other municipal agencies or authorities as needed (such as public utilities, streets department, historic preservation, parking authority, business improvement district), at the least. Possible other committee members could include advocacy groups as interested (environmental, bicycle/pedestrian, neighborhood associations), builders association or local developers, major institutions, major employers, or any major landowner along a corridor. In most cases the SAC will be formed anew for each study, unless the local community already has some working group in place that could serve as the committee. Depending on the length and budget of the study, the SAC usually meets quarterly to offer feedback.

☑ **Conduct Field Work and Collect Data.** Field views are performed to learn more about the corridor and observe its strengths, weaknesses, deficiencies and opportunities. Sometimes the entire SAC or study team will go on an organized "study tour" of the corridor at the beginning of the study. Data collection should follow with detailed information on the key elements needed for a corridor study, as well as optional tools and techniques. Much of the data can be mapped to better illustrate the findings. The level of detail gathered can vary based on the purpose of the corridor study, whether it is developing an overall framework for the corridor or a more specific project-oriented approach. An overall corridor framework plan may not be concerned with individual building conditions or ownership of individual parcels of land along the corridor, while a project-specific redevelopment corridor study might have to take these variables into account, along with specific access issues such as curb cuts and the location of utilities. Thus, a "one size fits all" approach does not make sense for corridor studies. As the planning process evolves, corridor studies need to incorporate available new tools, some of which are detailed in this study. Local plans and zoning, along with regional or state plans, should be reviewed.

☑ **Analyze Data.** Using available tools and techniques, including GIS mapping, analyze the collected data and produce initial findings on corridor conditions.

☑ **Review Initial Findings.** Once staff has gathered and analyzed a considerable amount of data, the SAC will review and offer feedback on the findings and future direction of the study.

☑ **Finalize Findings and Develop Initial Recommendations.** Based on feedback from the SAC, staff would complete the findings phase and develop initial recommendations and/or gather additional data and research. Recommendations can range from a concept for further study to a detailed project.

☑ **Review Initial Recommendations.** Complete findings and initial recommendations would be presented to the SAC, possibly including several different alternatives or scenarios, for feedback.

☑ **Develop Final Recommendations.** Final recommendations are developed based on feedback from the SAC and professional judgment.

☑ **Review Final Recommendations.** Once again, the SAC would convene to review the final recommendations.

☑ **Prepare Report/Final Product.** Some written product should be produced, usually an in-depth report detailing the study process, findings, key elements and analysis, alternatives considered, recommendations, and SAC. A corridor plan should include: multiple maps illustrating the data and analysis and possibly recommendations; aerial photographs and other photos of the corridor; and possibly photo simulations of improvements to the corridor. It may also include sample zoning ordinances, for instance, or other supporting material in an appendix. Some corridor studies produce interim memoranda along the way, that later becomes the main text of the final report. Producing a smaller companion brochure, study website, or corridor study poster are innovative ways to disseminate the study findings, promote the effort, and gain feedback from the larger community.

☑ **Conduct Public Involvement/Outreach.** Public involvement and outreach varies with each corridor study, but some outreach to the public, either through a large open meeting with the general public, or through focus groups, website feedback, surveys, or municipal planning board meetings (open to the public) is critical to the success of the study. Ideally this outreach should happen at the beginning (such as at initial findings), middle and end of each study. If there are specific environmental justice groups within the study area, there should be targeted outreach to involve these constituencies. In general, the county planning commission or municipal office should host these meetings, with presentations by the study team.

PUBLIC INVOLVEMENT

DVRPC's public involvement strategy is to engage and satisfy as many populations as possible, and to do so in an equitable and timely manner. Public participation is an effective and necessary way to determine the needs of a wide variety of citizens, including people with disabilities, economically disadvantaged individuals, the private sector, public officials, special interest groups, and countless others.

DVRPC's Office of Communications and Public Affairs has developed a list of instructions to help staff incorporate public participation into their planning activities. This guidance comprises a four-step process that is summarized below:

- Identify and assess stakeholders and their issues,

- Define the objectives of the public involvement effort,

- Identify relevant public participation activities, and

- Assess efforts on an ongoing basis by creating evaluation benchmarks and progress indicators.

The goal is to ensure that DVRPC has a proactive and meaningful public involvement process that incorporates complete information, timely public notice, and citizen input into decision-making. The DVRPC Office of Communications and Public Affairs maintains a public involvement contact list of key citizens groups and other stakeholders in individual communities.

DVRPC's Regional Citizens Committee and Regional Transportation Committee are two public forums that staff can utilize to discuss their recommendations for specific projects. However, because the study areas for corridor planning efforts often extend through multiple municipalities and include large amounts of private property, it may sometimes be necessary to introduce these projects to more localized groups. Public meetings, charrettes, and information sessions are just a few of the ways in which DVRPC staff can convene and interact with individuals who will be directly affected by their work.

Published in 2004, Public Participation: A Strategy for Citizen Involvement provides a solid overview of DVRPC's current public outreach strategy. This guide will be updated in 2007. For an example of how DVRPC has effectively engaged the public in corridor planning activities, see *NJ Route 70 Corridor Study: Airport Circle to Marlton Circle*.

KEY ELEMENTS

Every corridor study should at a minimum include the following elements, as described in this report. These elements represent the baseline conditions that should be included, with the hope that some of the more sophisticated tools and techniques will also be used, depending on the goals of each study.

Transportation

- ☑ Roadways
- ☑ Transit Facilities
- ☑ Pedestrian and Bicycle Facilities
- ☑ Transportation Capital Projects

Land Use

- ☑ Existing Land Use
- ☑ Future Land Use
- ☑ Cultural and Historic Resources
- ☑ Natural Features (at a minimum, wetlands, steep slopes, and floodplains should be mapped)
- ☑ Density/Form/Community Types

Regulations and Studies

- ☑ Comprehensive or Master Plan and Other Studies
- ☑ Long-Range Plan Characterization of Community Types
- ☑ Zoning and Subdivision and Land Development Ordinances
- ☑ Zoning for Smart Growth

Demographics

- ☑ Existing and Forecasted Population and Employment
- ☑ Major Employers
- ☑ Title VI and Environmental Justice

Economic Development (if applicable)

- ☑ Review of Local Economic Development Incentives

CHAPTER 3: CORRIDOR PLANNING TOOLBOX

This chapter describes the common transportation and land use information and analysis included in a corridor study, as well as other tools and techniques that may enhance the land use-transportation linkage. *Whenever possible, the description includes why one would use the information or tool (bold in italics)*, and a resource where more information can be obtained. In some cases, a map (most drawn from previous DVRPC corridor studies) illustrating the specific information or technique is also included.

TRANSPORTATION – ROADWAYS

Congestion and mobility within a corridor are analyzed by using a combination of several measures of area roadways. Almost all corridor studies include functional classification, traffic volumes, and level-of-service data, while some may also include a travel time study, journey-to-work analysis, signal warrant analysis, or crash analysis. Recommendations may include access management, road diet, complete streets, traffic calming, new roadway standards, or a road safety audit.

Functional Classification

The Federal Functional Classification system is the process by which streets and highways are grouped into classes, or systems, according to the character of traffic service that they are intended to provide. All streets and highways are classified as interstate, freeway, arterial, collector, or local, depending on their function and access. However, it is worth noting that not all roads actually operate according to their functional class. A roadway that is classified as an urban arterial may, because of configuration and speeds, actually operate as an expressway. *Different design standards are applied to different roadways based on their functional class.* This data is periodically updated by state Departments of Transportation on a frequent and regular basis to ensure that the functional classification of any particular route accurately reflects the traffic function of the route. **(See Figure 3)**.

Traffic Volumes

Average Annual Daily Traffic (AADT) is usually tabulated over a 48-hour period on segments of the roadway being analyzed as well as adjacent parallel and intersecting streets. These counts document the total volume on different roadway segments. Turning movement counts are taken during peak periods, usually during weekdays in the AM and PM peaks. *AADT is included in corridor plans to calculate the Level of Service for specific intersections, and to analyze usage patterns for different segments of the roadway* **(See Figure 3).**

Level of Service (LOS)

Level of Service is a measure describing operational conditions within a traffic stream, generally by speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. *A letter grade is given ranging from A to F to give a qualitative representation of the operational level of the intersection or the arterial segment.* The letter grade is used to illustrate the delay and conditions experienced by motorists within a traffic stream. The grade of A represents the best operational conditions while the grade of F represents the poorest operational conditions.
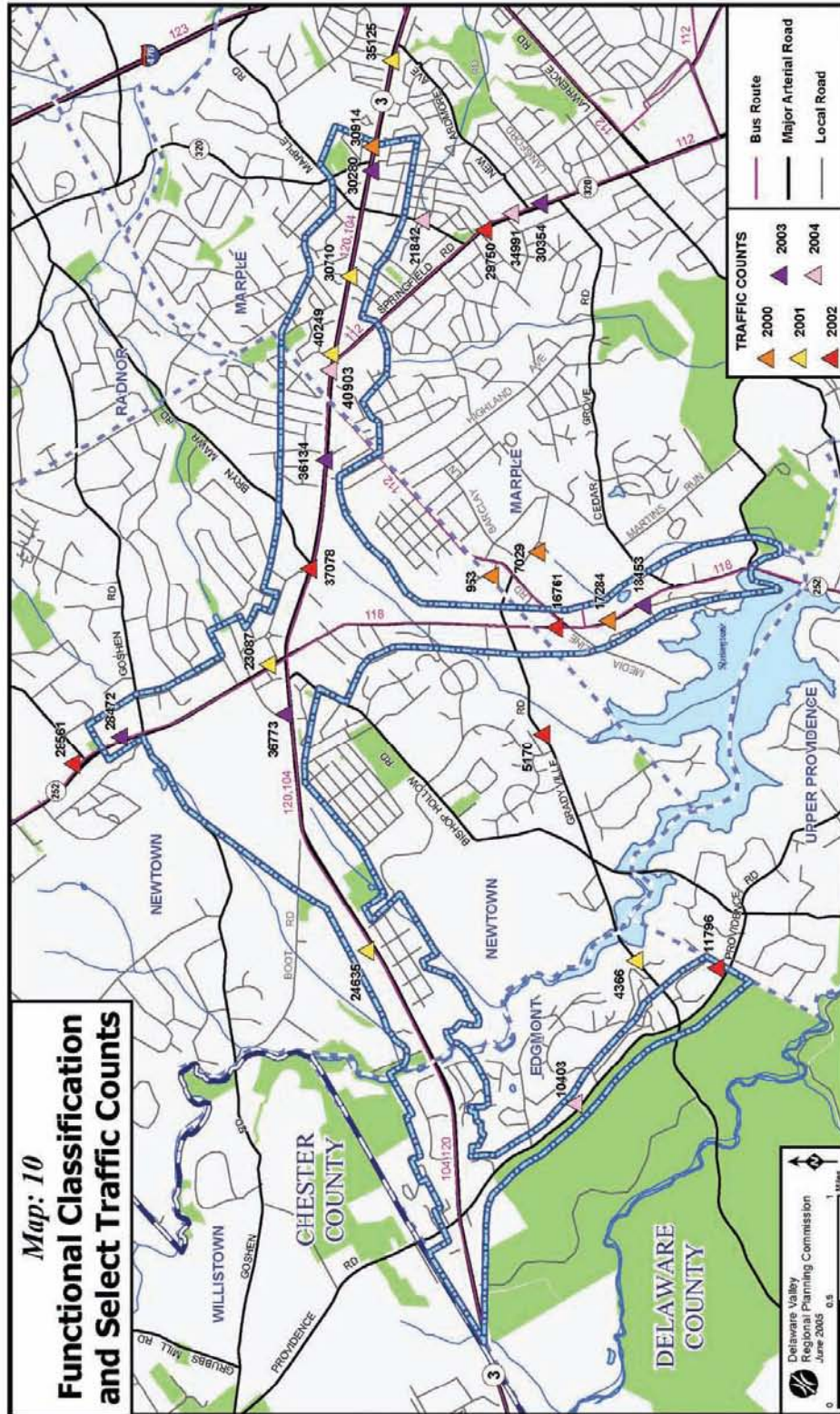
FIGURE 3: Functional Classification and Select Transit Counts Map. From *Route 3, West Chester Pike — Land Use and Access Management Strategies.*
Source: DVRPC, 2006

As defined, LOS A is free flow, LOS B is reasonably free flow, LOS C is stable flow, LOS D is approaching unstable flow, LOS E is unstable flow, and LOS F is forced or breakdown flow. LOS A allows motorists to drive at or above the speed limit and have complete mobility between lanes. LOS B is more congested, though with no impingement on speed. LOS C is more congested than B, but the road is close to capacity, though speed and efficiency are maintained. LOS D is more congested than C, with speeds often reduced because of traffic volumes. LOS E is even more congested, where speed limits are rarely reached and flow is impeded. LOS F is the lowest measure of efficiency, and represents a road with frequent traffic jams and bumper-to-bumper traffic. In urban areas, a LOS D in peak periods is considered favorable, as increasing capacity on such roadways to attain a higher LOS would require costly widenings or bypasses. Thus, achieving the highest LOS is not always the best solution. LOS should be considered in context with surrounding land uses and the overall goals of the community. Mobility is only one aspect of a roadway's performance.

Travel Time Study

Travel time studies are used to calculate the seconds of delay experienced by traffic traveling along different highway segments corresponding to the actual travel speeds. Travel times in the peak travel period are compared with travel times in the off-peak (free flow speed) to determine the length of the delay. This method is used to identify and rank congested highway segments into data to measure Level of Service. *This data is then used to evaluate problem locations on arterials based on congestion by virtue of their high travel times and delays during selected times.*

Journey-to-Work Analysis

Journey-to-work analysis is conducted using travel data that is derived from the DVRPC Regional Traffic Simulation Model, which is a forecasting system for travel demand. These results are then analyzed to determine travel patterns between different Travel Analysis Zones (TAZs), in this case work and home, by travel mode. This data is compiled through detailed measurement of the overall travel to and from these outlined zones. *This analysis is primarily used when zone-to-zone travel time and volumes are of particular interest* (See Figure 4).

Signal Warrant Analysis

This analysis is done to determine the need for a traffic signal at a particular intersection. It is based on MUTCD (Manual on Uniform Traffic Control Devices) guidelines in which any of eight different warrants can be used to determine the need for a traffic signal. These are:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume
- Warrant 3: Peak Hour
- Warrant 4: Pedestrian Volume
- Warrant 5: School Crossing
- Warrant 6: Coordinated Signal System
- Warrant 7: Crash Experience
- Warrant 8: Roadway Network

The needs analysis for a traffic signal includes an analysis of the applicable factors contained in the warrants as well as other factors related to existing operation and safety at the study location.
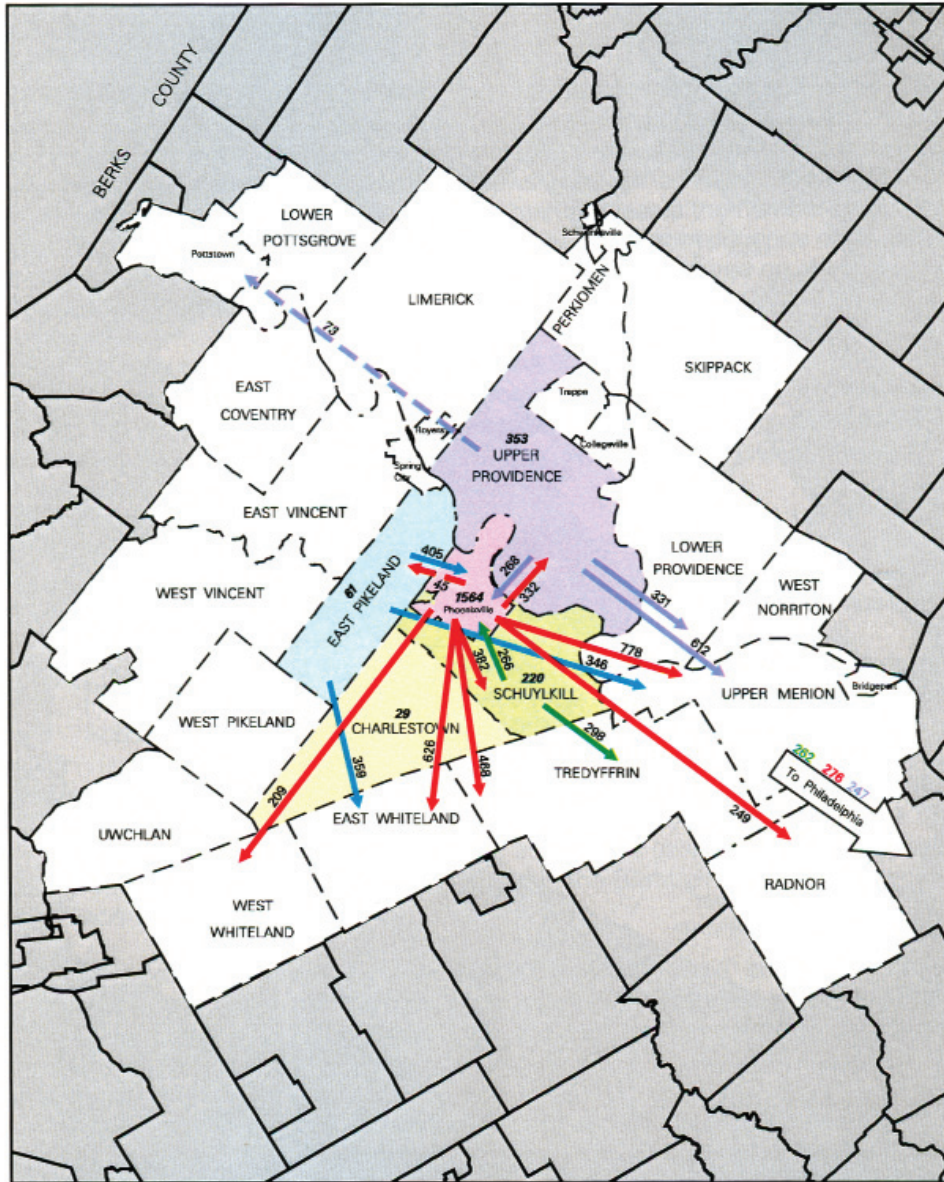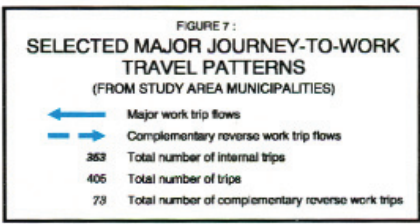
FIGURE 4: Selected Major Journey-To-Work Travel Patterns Map. From *Phoenixville Area Intermodal Transportation Study***.**
Source: DVRPC, 2003

Crash Analysis

Crash analysis is conducted along a corridor to identify crash clusters and determine safety issues. The numbers and types of crashes within a cluster over a three-to-five year period are analyzed and trends identified. Crash types include: same direction rear end, same direction sideswipe, angle, left turn head on, overturned, pedestrian, and hit fixed object. *Crash analysis influences the type of mitigation measures that are proposed for that location.* Locations with a high occurrence of fatalities or injuries are examined in detail to determine appropriate improvement measures. Locations with crashes that exceed the state average for that type of roadway are also analyzed in detail **(See Figure 5)**.

Access Management

Access Management limits and consolidates the number of access points along major roadways, for better functioning of that roadway, to reduce congestion and increase safety. *Access management is often recommended along suburban arterials when there are numerous curb cuts serving businesses along the roadway, causing delays when cars are turning into or out of businesses.* It involves careful design of the location and operation of driveways, median openings, interchanges and street connections, to provide access to destinations in a manner that increases the safety and optimizes the efficiency of the transportation system. Successful access control limits the number of driveways and intersections, referred to as conflict points, reducing accidents as a result.

Access management can be used to control design for all roadway types and modes of transportation, although the emphasis is usually on vehicular movement. It is a relatively low-cost technique that promotes orderly development, extends the life of major roadways, reduces congestion, prepares for future growth and supports alternative transportation modes. Driver benefits include increased average travel speed and fuel efficiency, while total travel time and delays are decreased.

Access management policies are best implemented through planning, regulatory, and design strategies. Programs are set up to share access, provide cross-access, regulate driveways, or other regulatory authority, through the passage of an access management code, or as part of other regulations. Access management codes may cover corner lot requirements, continuity of sidewalk/bike networks and pedestrian/transit rider access, and land use intensity controls (to limit trip making) in specific areas. There is no uniform approach, however, to access management, as the appropriate degree of access control, as well as access management technique, varies according to the function and traffic characteristics of a roadway, the abutting land use, and long-term planning objectives.

For more information see:

> *Managing Change along the US 322 Corridor: Land Use and Transportation Issues, Policies and Recommendations - Volume I.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

> *Access Management along Pennsylvania Highways in the Delaware Valley - County Line Road / PA 309 Case Study Corridor.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2005.

> *Access Management Model Ordinances for Pennsylvania Municipalities Handbook.* Pennsylvania Department of Transportation. 2006.

> *PA 724 Corridor Study.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2004.
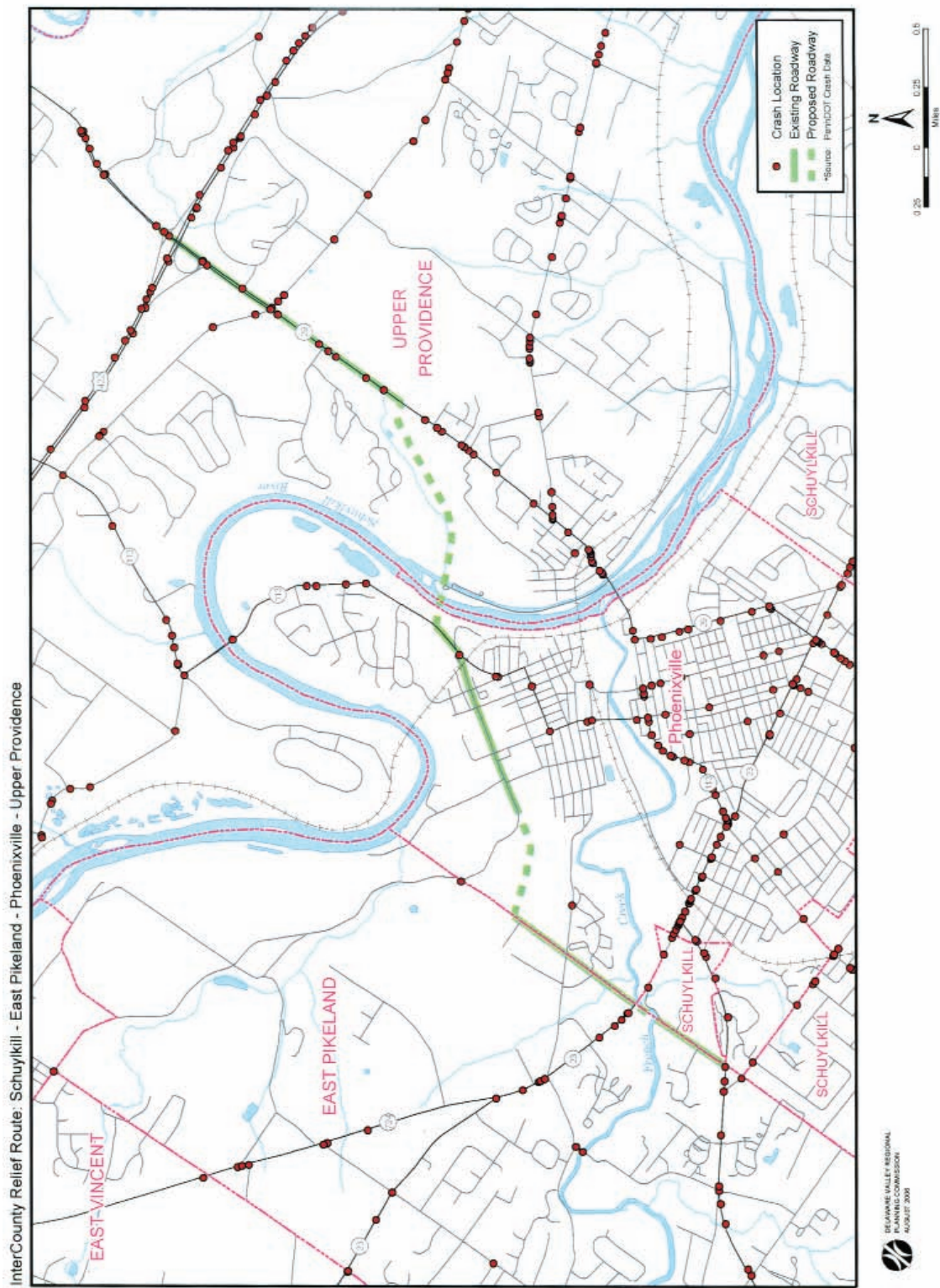
FIGURE 5: From *Intercounty Relief Route – Schuylkill, East Pikeland, Phoenixville, Upper Providence.* **Source: DVRPC, 2006**

Road Diets

Road diets involve a reduction in the number of through lanes on a road or highway, typically reducing a four-lane undivided road into three lanes, to encourage alternate modes of transportation, calm traffic, reduce accidents for all road users, produce greater efficiency in the roadway's operation, and create a more livable environment. Usually, four lanes are converted to one lane in each direction with a dual center left-turn lane. The excess roadway width can be converted to bicycle lanes, on-street parking or a sidewalk. The road itself is simply rearranged without any widening, narrowing or any major construction. The conversion can be done easily with as little as a modest expense in painting the converted lane striping. More elaborate road diets can include a new center median and landscaping. Other roads may be reduced in a similar fashion and have a positive impact on the overall balance of road use.

Studies have shown that under most average daily traffic (ADT) conditions, road diets have minimal effects on vehicle capacity, because left-turning vehicles are moved into the common dual left-turn lane. However, for road diets with ADTs above 20,000 vehicles, there is a possibility that traffic congestion will increase and traffic will be diverted to alternate routes.

On a four-lane street, drivers change lanes to pass slower vehicles (such as vehicles stopped in the left lane waiting to make a left turn). In contrast, drivers' speeds on two-lane streets are limited by the speed of the lead vehicle. Therefore, road diets can potentially reduce vehicle speeds and vehicle interactions during lane changes, which could reduce the number and severity of vehicle-to-vehicle crashes. Pedestrians may benefit because they have fewer lanes of traffic to cross, and because motor vehicles are likely to be moving more slowly. Pedestrian crash risk is reduced when they traverse roads with a smaller number of lanes.

The Federal Highway Administration compared crash data for roads before and after undergoing a road diet, and with nearby roads that had not undergone the diet. In this comparison, the FHWA found that there was a 6 percent reduction in crashes on roads that had undergone a road diet, but no change in the crash rates or severity compared on nearby roads during the same period.

Another similar practice is a "lane diet," in which lane widths are reduced, with the leftover space used for new bicycle lanes or widened shoulders. This is also a form of traffic calming, as narrower lanes encourage drivers to slow down.

For more information see:

> *Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries.* U.S. Department of Transportation Federal Highway Administration, McLean, VA. 2004.

> *Road Diets: Fixing the Big Roads.* Walkable Communities, Inc., Orlando, FL. 1999.

Complete Streets

"Complete streets" is a policy that requires design standards for roadways to include infrastructure for bicyclists, pedestrians, the disabled and transit. These design standards should apply to new roads and roads under rehabilitation. The entire right-of-way must be designed to accommodate safe access for all users, by including wide sidewalks, bike lanes, raised crosswalks and medians, audible traffic signals, bus pullouts, or any other design element that supports safe, alternative transportation. *Corridor studies should consider how roadways within the study area can be made more "complete" for all users, and may recommend changes to the design standards for roadways within the study area.*

The National Complete Streets Coalition is a diverse coalition of groups working together to create a continuous road network that serves the needs of all users, by encouraging transportation agencies to adopt such a policy. They also advocate for training for planners and engineers in balancing the needs of all roadway users, and creating new data collection procedures to track how well streets are serving all users.

For more information see:

> *Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach.* United States Department of Transportation, Washington, DC. 2003.
>
> FHWA Website: www.fhwa.dot.gov/environment/bikeped/design.htm#d4
>
> Complete Streets Website: www.completestreets.org

Traffic Calming/Context-Sensitive Design (CSD)/ Context-Sensitive Solutions (CSS)

Traffic calming is a tool to manage traffic and its impacts on communities. Traffic calming is part of the larger context-sensitive design (CSD) and context-sensitive solutions (CSS) approaches that develop transportation facilities that fit their physical setting and preserve scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility.

Traffic calming techniques target either vehicular speed or vehicular volume, generally decreasing these to better fit their corresponding land uses. Techniques include raised intersections, speed bumps, medians, roundabouts, sidewalk curb extensions, and various degrees of road closures. Benefits can include: a better quality of life for residents living along the roadway, increased safety with fewer and less severe accidents, promotion of pedestrian and cycling uses, a reduced need for police enforcement, environmental improvements due to decreased automobile use, and a more active and attractive streetscape.

Traffic calming and context-sensitive design methods can be implemented by policies that maintain mobility, create connectivity, and ensure safety for pedestrians, bicyclists and drivers. This can be achieved through a set of standards, as part of a master or comprehensive plan, delineating road rights-of-way, bicycle and pedestrian routes and multipurpose shared facilities, or through engineering specifications requiring that new or rehabilitated roads be designed to meet lower speed limits and incorporate pedestrian and bicycle facilities. The most successful approach to traffic calming and context-sensitive design is to mandate it throughout a local jurisdiction, creating a network of roads that support a full range of transportation options.

Traffic calming techniques can be recommended in corridor studies to reduce overall speeds or volumes. DVRPC, for the past three years, has developed separate traffic calming plans for the following municipalities: Parkside neighborhood, Camden; Parkside neighborhood, Philadelphia; Newtown Borough and Township, Bucks County; Eastampton Township, Burlington County; Sharon Hill Borough, Delaware County; and West Windsor Township, Mercer County **(See Figure 6).**

For more information see:

> *Taming Traffic: Context-Sensitive Solutions in the DVRPC Region.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007, 2006, 2005.
>
> *Sunset Road and Salem Road Intersection Analysis.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 1999.
>
> *Traffic Calming: State of the Practice.* Institute for Transportation Engineers and Federal Highway Administration, Washington, D.C. 1999.

SIMPLIFIED OR ELIMINATED ACCESS POINTS

ANGLE PARKING AT SOME LOCATIONS

CURB EXTENSIONS

MEDIAN ISLANDS

NARROWED AND REALIGNED CARTWAY

REALIGNED CROSSWALKS

BICYCLE LANES

WIDENED SIDEWALKS WITH PEDESTRIAN AMENITIES

Chester Pike

Clifton Ave.

Traffic Calming Study

Chester Pike, Sharon Hill Borough

FIGURE 12: Conceptual Improvements Plan Subsection 3

DELAWARE VALLEY REGIONAL PLANNING COMMISSION SEPTEMBER 2006
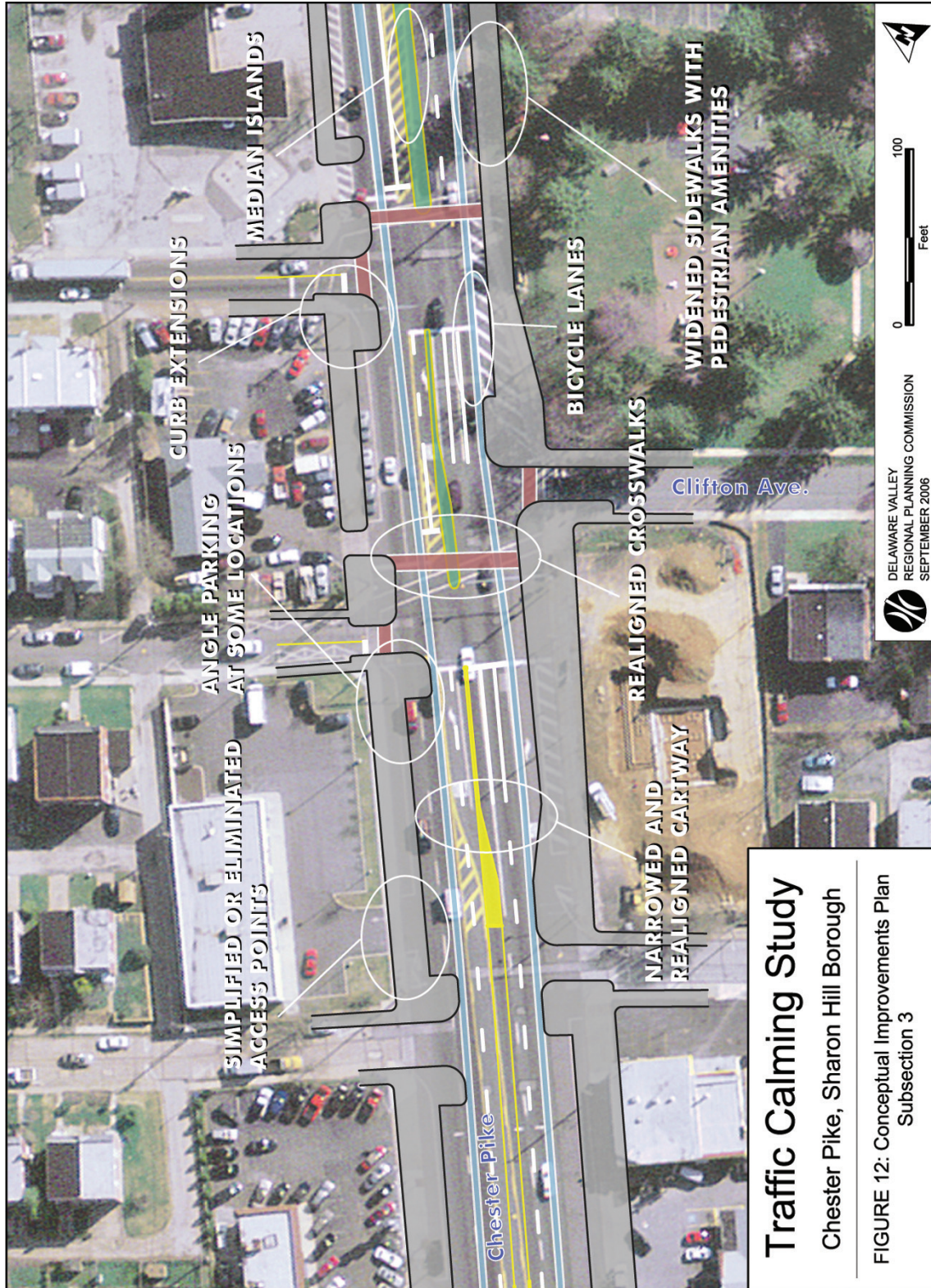
0   100
Feet

FIGURE 6: Subsection of Conceptual Improvements Plan. From *Taming Traffic – Context-Sensitive Solutions in the DVRPC Region*.
Source: DVRPC, 2006

New Roadway Standards

NJDOT and PennDOT, in conjunction with DVRPC, are currently drafting a joint publication, *Smart Transportation Solutions for Communities in Pennsylvania and New Jersey*. The manual is expected to be released in the fall of 2007. It will identify roadway and roadside design values appropriate for different types of roadways in a variety of land use contexts, recommend a collaborative process for implementing context-sensitive design projects, and provide guidelines for improving the transportation system in accordance with context-sensitive smart growth principles. ***Corridor studies will need to incorporate these new roadway standards that better reflect the surrounding land uses into their analyses.***

The new standards will better integrate land use planning with transportation infrastructure, and build off of similar work being done on a national scale by the Institute of Transportation Engineers and the Congress for New Urbanism. New roadway standards that consider context-sensitive solutions and planning for all modes will influence the design of new roadways as well as future roadway improvements.

Roadway types have been expanded to include regional arterials, community arterials, Main Streets, community collectors, neighborhood collectors, and local roads. Dimensions and speeds for each type of roadway differ based on the context of the roadway. Seven "context areas" (adapted from the New Urbanist "Transect" theory) include rural/preserved, suburban neighborhood, suburban corridor, suburban center, town/village/urban neighborhood, town center, and urban core. Thus, a regional arterial traveling through a rural area would have one set of design standards, which would change as that regional arterial moves through different contexts, such as into a suburban corridor and then into the urban core. For example, a regional arterial in a rural context would not have on-street parking, a bike lane, or sidewalks, but would have all three when it enters the urban core. The desired operating speed of a regional arterial in a rural setting would be 45-60 MPH, while this same regional arterial in a suburban corridor would have a desired operating speed of 35-45 MPH, and decrease to 30-35 MPH as it heads into the urban core.

The guidebook is designed for public officials, policy makers, engineers, planners, developers and individuals to use for the planning, designing and building of a multimodal transportation system. It has been formulated specifically for the Pennsylvania and New Jersey regions to serve as a resource for the departments of transportation to apply design in a context-sensitive manner; for DVRPC to integrate land-use and transportation studies; for municipalities and counties to guide land development and roadway projects; and for developers to integrate smart growth into their projects.

For more information see:

> *Smart Transportation Solutions for Communities in Pennsylvania and New Jersey*. Delaware Valley Regional Planning Commission, Philadelphia, PA. Fall 2007 (publication pending).

Road Safety Audit (RSA)

A Road Safety Audit (RSA) is a formal safety performance examination of an existing or future road or intersection by an independent, qualified audit team. It qualitatively estimates and reports on existing and potential road safety issues and identifies opportunities for safety improvements as well as determines if the needs of all road users are adequately and safely met. The approach is essentially proactive, therefore it is not dependent solely on crash statistics to identify opportunities to eliminate or mitigate identified safety concerns.

An RSA can be performed during any or all stages of a project as a separate study, or can be incorporated into corridor studies as a planning tool to identify safety issues to be considered in improvement projects, and recommend improvements. The RSA recommendations can be implemented in small stages as time and resources permit.

The Road Safety Audit, while representing a separate study, can be used as a tool in the corridor planning effort to identify elements of the road that may present safety concerns-to what extent, to which road users, and under what circumstances-and develop improvement strategies.

An RSA is conducted by a team with varying backgrounds and expertise and is an eight-stage process. The stages are as follows:

PA 896 Road Safety Audit Team
Source: DVRPC

- Identify project to be audited

- Select interdisciplinary audit team

- Conduct pre-audit meeting to review project information and drawings

- Perform field reviews under various conditions

- Conduct audit analysis and prepare report on findings

- Present audit findings to project owner/design team

- Prepare formal response

- Incorporate findings in the project as appropriate

Currently, DVRPC's RSA Program represents the coordination of the DVRPC Planning Work Program with the Pennsylvania Department of Transportation (PennDOT) District 6 Safety Plan by addressing corridors identified under Section 148 Planned Safety Projects eligible for Highway Safety Improvement Program funding. The program is conducted to generate improvement recommendations and countermeasures for roadway segments demonstrating a history of, or potential for, a high incidence of motor vehicle crashes. The emphasis is placed on identifying low cost, quick turnaround safety projects to address the issues where possible, but does not exclude the more complex projects. It is particularly useful given SAFETEA-LU's emphasis on safety and the FHWA's call for metropolitan planning organizations to take the lead on safety project implementation.

For more information see:

FHWA Website: safety.fhwa.dot.gov/rsa/

Allegheny Avenue Road Safety Audit. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

Conestoga Road - Road Safety Audit. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

PA 896 Road Safety Audit. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

TRANSPORTATION – TRANSIT

Passenger Rail Service

Where a corridor is served by rail transit, an analysis of the overall functionality is performed for the frequency of service, number of boardings, and connections with other modes. ***This evaluation is done to identify ways to improve overall passenger usage and satisfaction.*** By identifying ways to improve intermodal connections, transit can further contribute towards alleviating congestion on many roadways.

Bus Service

Bus transit service is analyzed by route network, hours of service and headways. Major trip generators, such as employment centers, are also identified and documented. ***The analysis of bus transit service identifies ways to improve its convenience and reliability for riders.*** By improving transit, a viable alternative to driving will be available, which in turn can alleviate congestion on corridor roadways **(See Figure 7).**

Transit Score

The Transit Score system was originally developed by New Jersey Transit in 2000 to identify areas in the state where expansion of the transit network can have the greatest impact over a 20-year time frame. Four factors were used to develop the Transit Score for each area of the state. They are Household Density, Population Density, Employment Density, and Zero- and One-car Household Density. This data was collected and analyzed to identify specific geographic areas as desirable for expanded transit service. A second step reviewed existing land use and transit availability to identify the appropriate type of new service. This could include new commuter or light rail, extension of existing rail lines, new or expanded ferry service, bus only lanes, expanded transit frequency, vanpools, new express services, park-and-ride facilities and/or shuttles to link services.

DVRPC further refined this method in 2007 for congruent use in both New Jersey and Pennsylvania, and tested it under multiple land use scenarios and the various modes and intensities of transit service throughout the area. As a result, the Transit Score may be easily applied by stakeholders in any part of the region. In the revised calculation, only three factors are used: Population Density, Employment Density, and Zero-Car Household Density. By mapping the calculated scores across a geographic area, planners or other stakeholders can readily observe and numerically compare the degrees of transit compatibility between various locales. Transit Score calculations also enable quick and easy comparisons and illustrations of the relative transit-supportiveness in alternate development scenarios (development under prevailing zoning vs. development under a smart growth zoning proposal, for example). This type of comparison is also useful as part of the required land use evaluation for the FTA New Starts / Small Starts Alternatives Analysis.

Transit Scores can be used in corridor planning to assess the likelihood of future transit service or extensions and the suitability of such service. The Transit Score methodology can also reveal ways in which communities can change their land use patterns in order to make transit a viable option (such as by increasing densities, for example) **(See Figure 8).**

For more information, see:

> *Creating a Regional Transit Score Protocol*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

> *Transit Score Report: Possibilities for the Future*. New Jersey Transit, Newark, NJ. 2000.
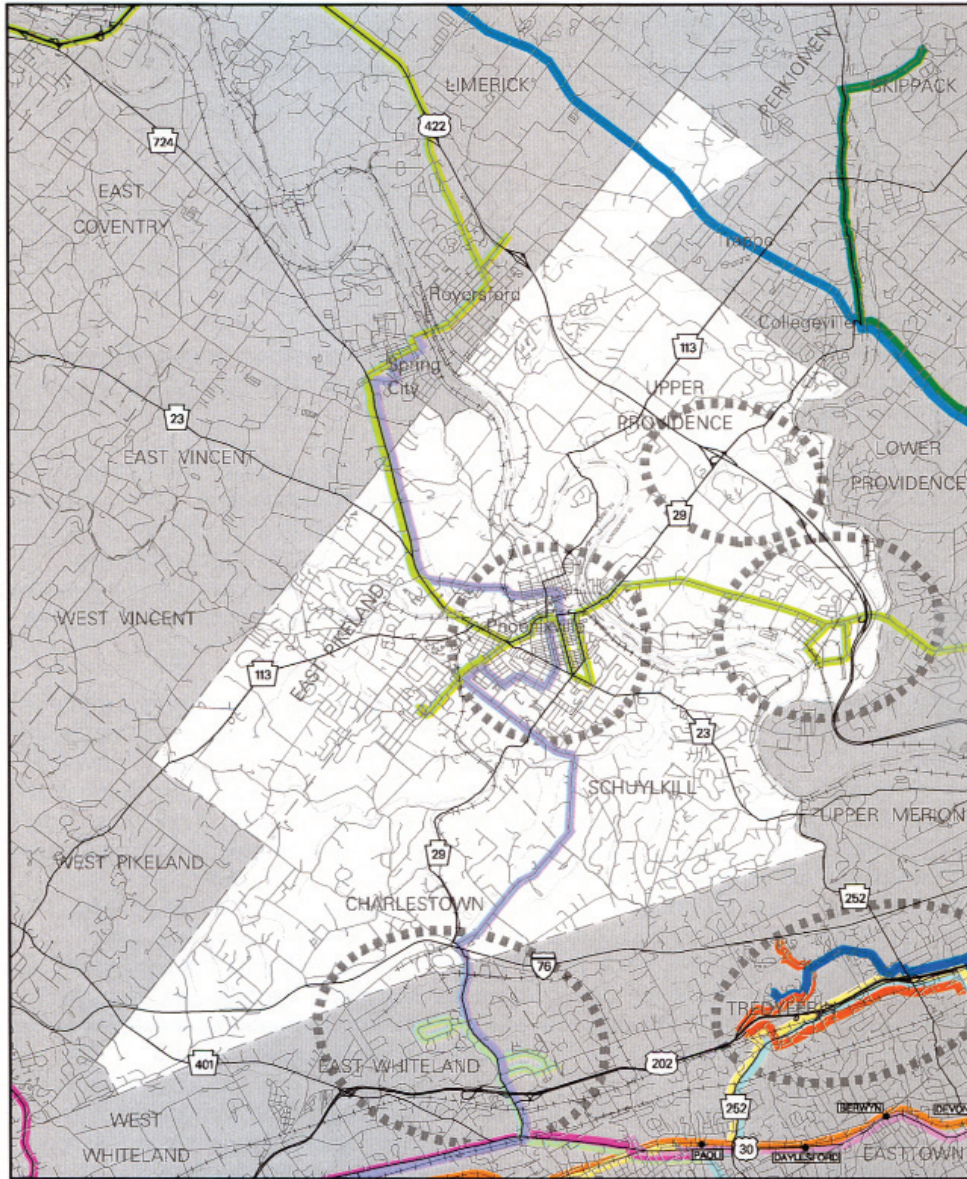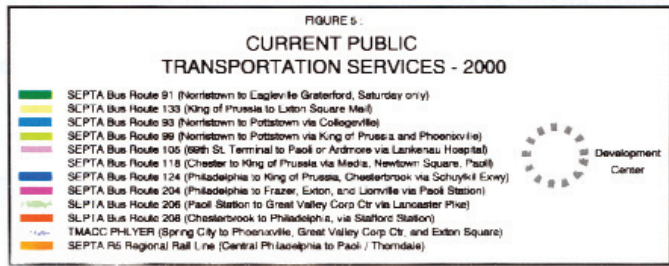
FIGURE 7: Current Public Transportation Services Map. From *Phoenixville Area Intermodal Transportation Study*.
Source: DVRPC, 2003
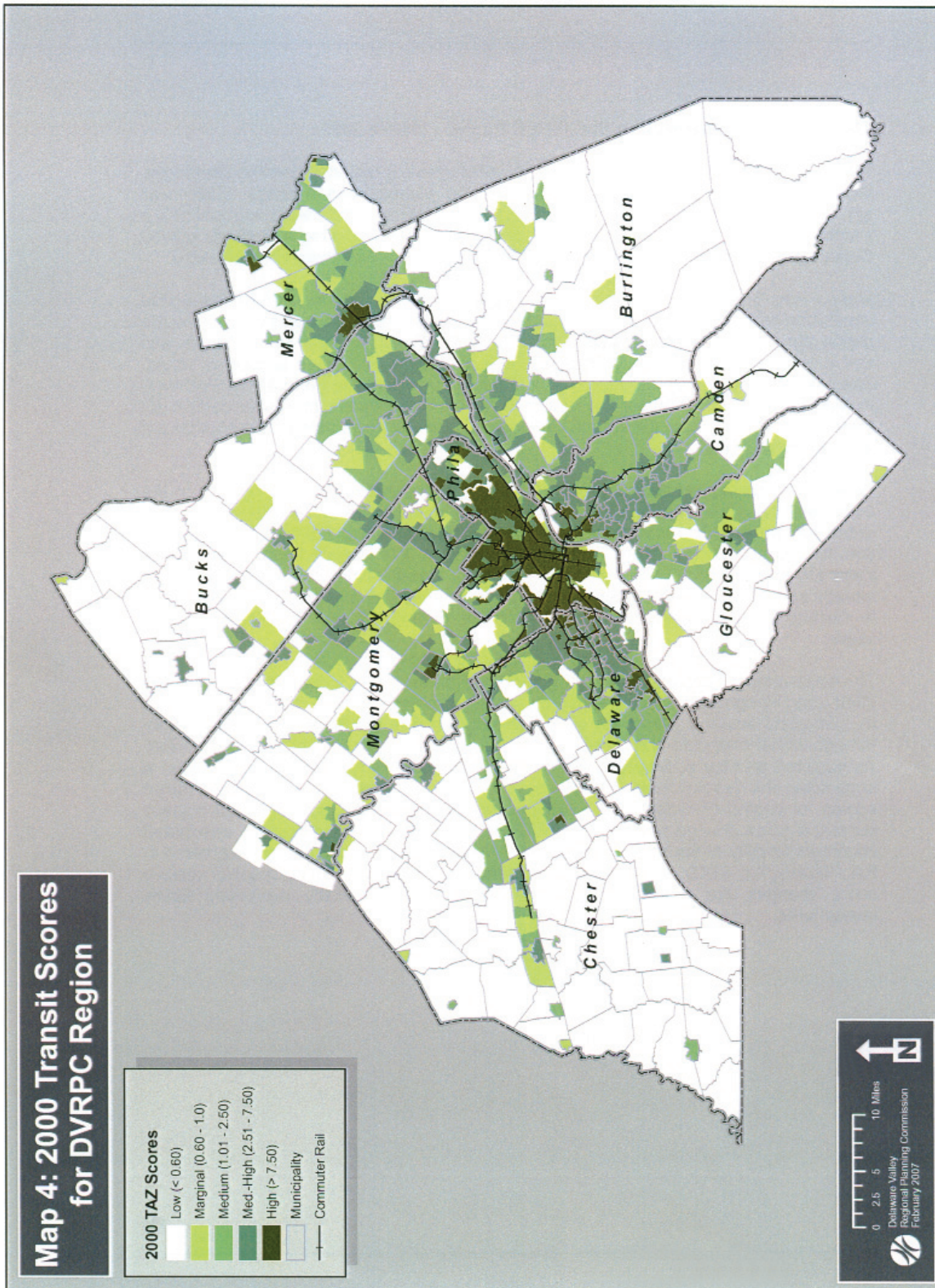
FIGURE 8: 2000 Transit Scores Map. From *Creating a Regional Transit Score Protocol*. Source: DVRPC, 2007

TRANSPORTATION – PEDESTRIANS AND BICYCLES

Bicycling and walking are viable alternatives to driving for certain trips. Bicycle trips are most appropriate for trips of five miles or less, while most pedestrian trips are usually of a half-mile or less, depending on the walking conditions and destination purpose. For example, a person may be willing to walk farther if there are adequate sidewalks, street lighting, a feeling of safety, interesting stores or sights along the route, and most importantly, a destination to walk to, such as work, shopping, or school. *An evaluation of the suitability of a corridor for bicycling and walking is done for most corridor studies, detailing the facilities available and the overall biking or walking experience.*

Bicycle and Pedestrian Level of Service (BLOS and PLOS)

Bicycle Level of Service (BLOS) and Pedestrian Level of Service (PLOS) are tools that assess and compare a given location's accessibility by nonmotorized transportation. BLOS and PLOS measures relate to comfort and the perception of safety rather than the throughput or efficiency of a vehicle level of service calculation (the previously discussed LOS rating for roadways). Like the LOS system, BLOS and PLOS are defined in the Federal Highway Administration's *Highway Capacity Manual.*

BLOS and PLOS are statistically calibrated models. Pedestrian level of service is computed using a separate walkway free from vehicles. Bicycle level of service is computed with the expectation that the cyclist is using the street or a cartway separate from the pedestrian sidewalk. Data considered in the analysis includes the roadway configuration, volume and speed of auto and truck traffic, the presence and quality of sidewalks, availability of on-street parking and other buffers. This data is used to determine pedestrian and bicyclist comfort, the result being a level of service grade or score. *The BLOS or PLOS score can be a useful tool in corridor planning, as it quantitatively measures level of service for bikes and pedestrians, thereby elevating their status as viable transportation modes. It can also inform recommendations for targeted improvements that positively impact nonmotorized accessibility.*

DVRPC has recently used BLOS and PLOS in the multiphase study Increasing Inter-Modal Access to Transit to assess the ease and comfort of biking or walking to local transit stations. Pedestrian levels of service are assessed within one-quarter mile (typically defined as the five-minute walk or "pedestrian shed"), and bicycle levels of service within one mile of each location studied. At the quarter-mile radius, every road segment is evaluated and assigned a PLOS score. Major roadways, typically collector and arterial routes, are evaluated for BLOS in a one-mile radius **(See Figures 9 & 10)**.

For more information see:

> *Increasing Intermodal Access to Transit: Phase III.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

Regional Bicycle Map's Ratings of Local Roadways

The Greater Philadelphia Bicycle Coalition, in conjunction with DVRPC, the U.S. Department of Transportation and Pennsylvania Department of Transportation, developed a *Regional Bicycle Map* in 2003. The map indicates roads that are bicycle-friendly, average, and below average for bike use. Bicycle-friendly is defined as "most suitable for on-road cycling. Some roads may have heavy traffic, but also have wide shoulders, making them preferred routes." Average is defined as "moderately suitable for on-road cycling. Cyclists of lesser skill and experience riding in traffic may find conditions unfavorable." Below average is defined as "least suitable for on-road cycling. While riding on these roads may not be pleasant, they may be the most direct route between two points."

FIGURE 9: Burlington Town Center Station Area BLOS Scores. From *Increasing Intermodal Access to Transit Phase III*.
Source: DVRPC, 2006

FIGURE 10: Burlington Town Center Station Area PLOS Scores. From *Increasing Intermodal Access to Transit Phase III*.
Source: DVRPC, 2006

The ratings were based on a combination of traffic volumes, roadway geometry and field observations. In addition, on the Pennsylvania side of the DVRPC region, Bicycle Level of Service (BLOS) calculations and user input were added to the combination of factors determining the rating. In addition the Regional Bicycle Map shows off-road trails, future trails, bike-suitable transit connections, bike shops and other segments of the region's bicycle network.

Using the Regional Bicycle Map is a quick and easy way to list those roadways in a corridor study area that are bike-friendly, average or below average for bicycling.

For more information see:

> *Greater Philadelphia Regional Bike Map*. Bicycle Coalition of Greater Philadelphia, Philadelphia, PA. 2003.

TRANSPORTATION – OTHER

Parking

A corridor study may also address the supply, pricing, management, and location of parking along a corridor, if warranted. Many municipalities often feel that they do not have enough parking, when often that is a misconception. A corridor study might quantify how many parking spaces are contained within the study area, and offer recommendations on how to better manage (such as through shared parking), market, or price the parking, rather than supplying more, for instance. Or in some cases, more parking may be needed, and care should be taken to recommend good parking management practices and design. A corridor may contain many large surface parking lots, often in front of commercial buildings, that detract from the overall appearance of the corridor. The study might recommend the screening of such lots with landscaping or low fences, building liner buildings along the roadway, or moving the lots to the side or back of buildings.

Both the Institute of Transportation Engineers and the Urban Land Institute have created guidelines for municipal parking requirements. Although useful resources, they should not be the only basis for the parking standards adopted by municipalities. Rather, individual communities should determine their own parking needs and develop regulations that are tailored to specific locations and land uses. A review of municipal parking regulations along a corridor may be useful if an in-depth study of parking issues is needed along a corridor. Changes to parking regulations contained in a zoning ordinance or subdivision and land development ordinance might include the adoption of maximum parking requirements, rather than minimum standards; shared parking; counting on-street spaces in the parking space requirement number; phasing the building of new parking so it is built only as needed; and allowing on-street parking.

In 2004, DVRPC published *Municipal Implementation Tool #6: Parking Management Strategies*. This brochure describes basic strategies for balancing parking supply and demand, and includes two case studies from within the region. Another good source of information is the Victoria Transport Policy Institute, an independent research organization that has completed a number of reports that integrate to topics of parking management and smart growth. To review or download copies of the Institute's publications, visit www.vtpi.org. For more information on parking pricing, see Donald Shoup's *The High Cost of Free Parking* (2005).

Aviation Facilities

There are several general aviation and reliever airports in the region that are important components of the transportation infrastructure. Reliever airports provide a high level of capacity for operation and storage of single engine, twin and small jet aircraft away from the commercial airports. General aviation serves similar aviation and business traffic. ***An evaluation of the impact of aviation facilities within a corridor is done only when there is a direct impact of the airport on that corridor.*** An example of this inclusion was DVRPC's *Route 130/Delaware River Corridor Extension Route 206/Farmbelt Corridor Transportation and Circulation Study* (2003), in which there are several airports within the corridor that contribute to its overall economic vitality **(See Figure 11).**

Goods Movement (Freight)

In conducting corridor studies, an effort is made to identify strategies and improvements that will maximize goods movement within the corridor. Specific data collected include vehicle classification counts, including the percent of trucks by volume as well as the number of trucks by class. Oftentimes specific truck routes may be identified or recommended. In DVRPC's *Route 130/Delaware River Corridor Extension Route 206/Farmbelt Corridor Transportation and Circulation Study* (2003), an agricultural route network was identified that represented the preferred transportation network by farmers in the area, to facilitate mobility of farm equipment between farms, as well as goods movement to and from farms **(See Figure 12)**.

Transportation Capital Projects

The Transportation Improvement Program (TIP) is the regionally agreed upon list of transportation priority projects, as required by federal law. The TIP document must list all projects that intend to use federal funds, along with non-federally funded projects that are regionally significant. The TIP also includes all other state-funded capital projects. The projects are multimodal. They include bicycle, pedestrian, freight-related projects, innovative air quality projects, as well as traditional highway and public transit projects. ***The location and extent of TIP projects are usually identified within the particular corridor being studied, in order to develop improvements strategies that take into account major future capital projects*** **(See Figure 13).**

For more information see:

DVRPC TIP Website: www.dvrpc.org/transportation/capital/tip.htm

DVRPC FY2007 TIP for NJ: www.dvrpc.org/transportation/capital/tip/fy07-NJ.htm

DVRPC FY2007 TIP for PA: www.dvrpc.org/transportation/capital/tip/fy07-PA.htm

Travel Demand Analysis/Modeling

Regional travel simulation models are used to forecast future travel patterns, as well as quantify the effects of various transportation projects and policies. They rely on demographic and employment data, land use, and transportation network characteristics to simulate trip making patterns throughout the region. As in most other large urban areas, the travel simulation models at DVRPC follow the four traditional steps of trip generation, trip distribution, modal split, and travel assignment. ***Modeling is conducted in corridor studies where detailed knowledge of trip patterns is critical.*** DVRPC is currently testing UPlan, a GIS-based land use planning model, developed at the University of California at Davis, which can test growth scenarios and assist with understanding the potential impacts of policy decisions on future growth **(See Figure 14).**
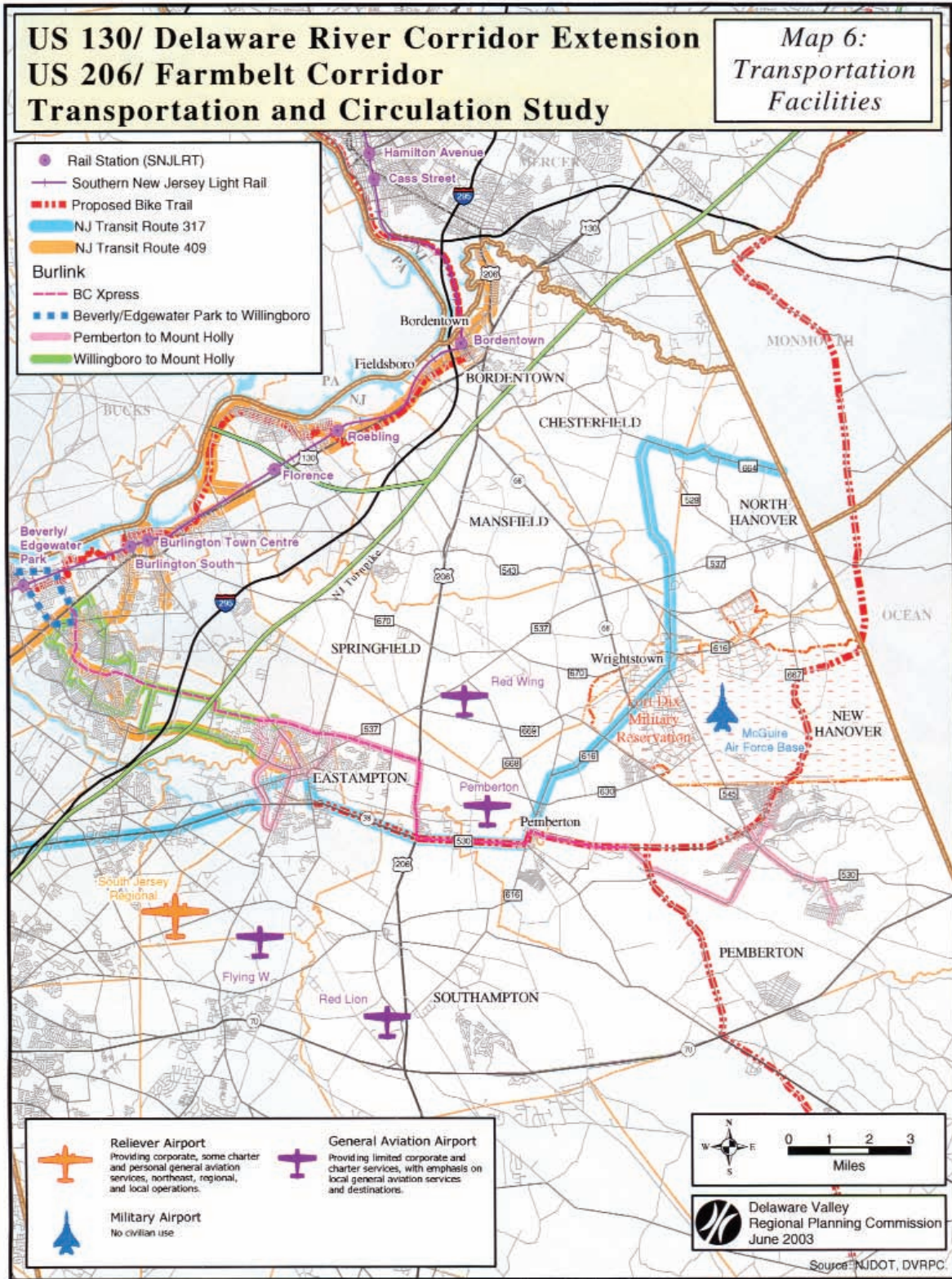
FIGURE 11: Transportation Facilities. From *Route 130/Delaware River Corridor Extension, Route 206/Farmbelt Corridor Transportation and Circulation Study.*
Source: DVRPC, 2003
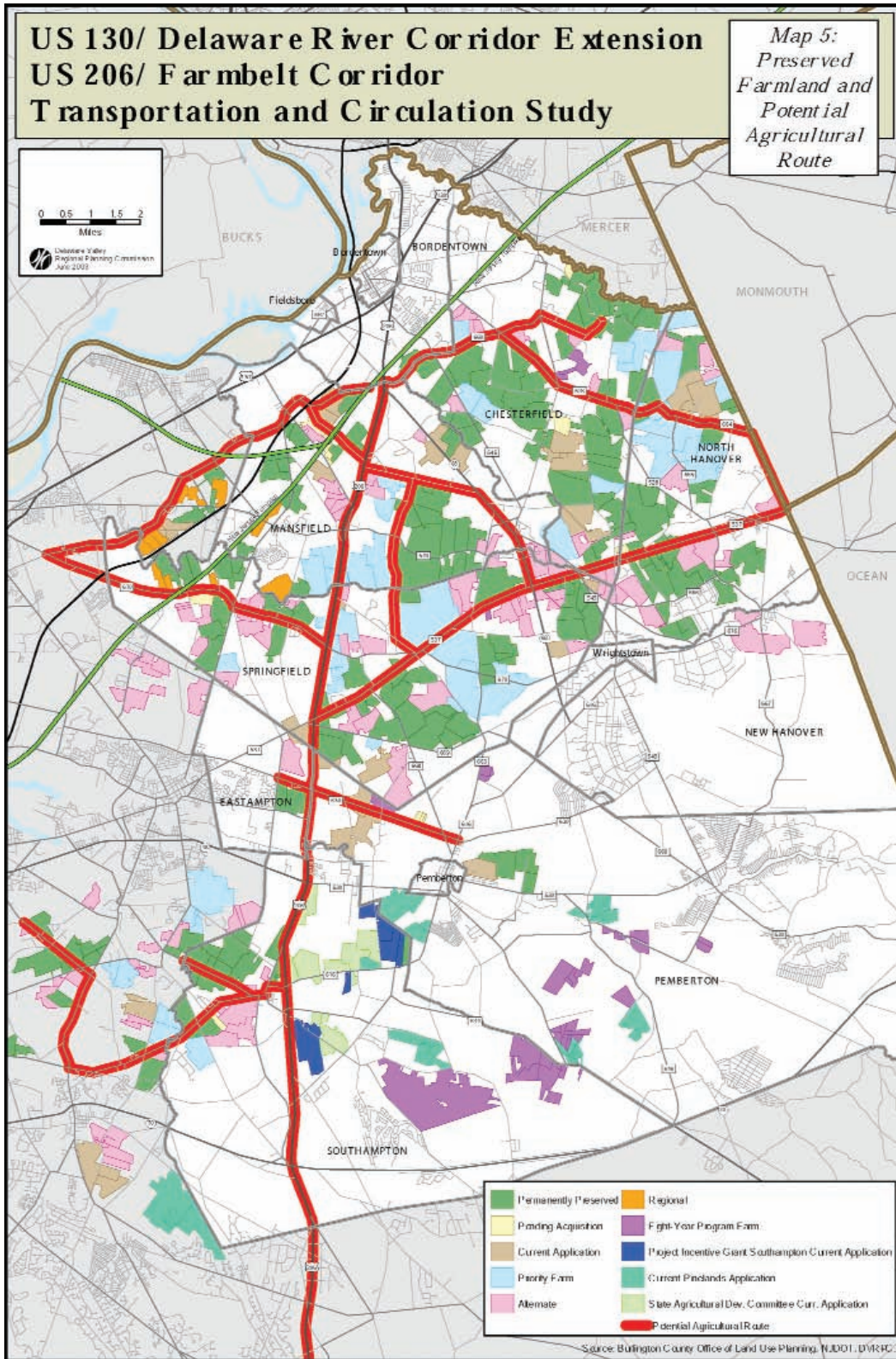
FIGURE 12: Preserved Farmland and Potential Agricultural Route. From *Route 130/Delaware River Corridor Extension, Route 206/Farmbelt Corridor Transportation and Circulation Study*.
Source: DVRPC, 2003
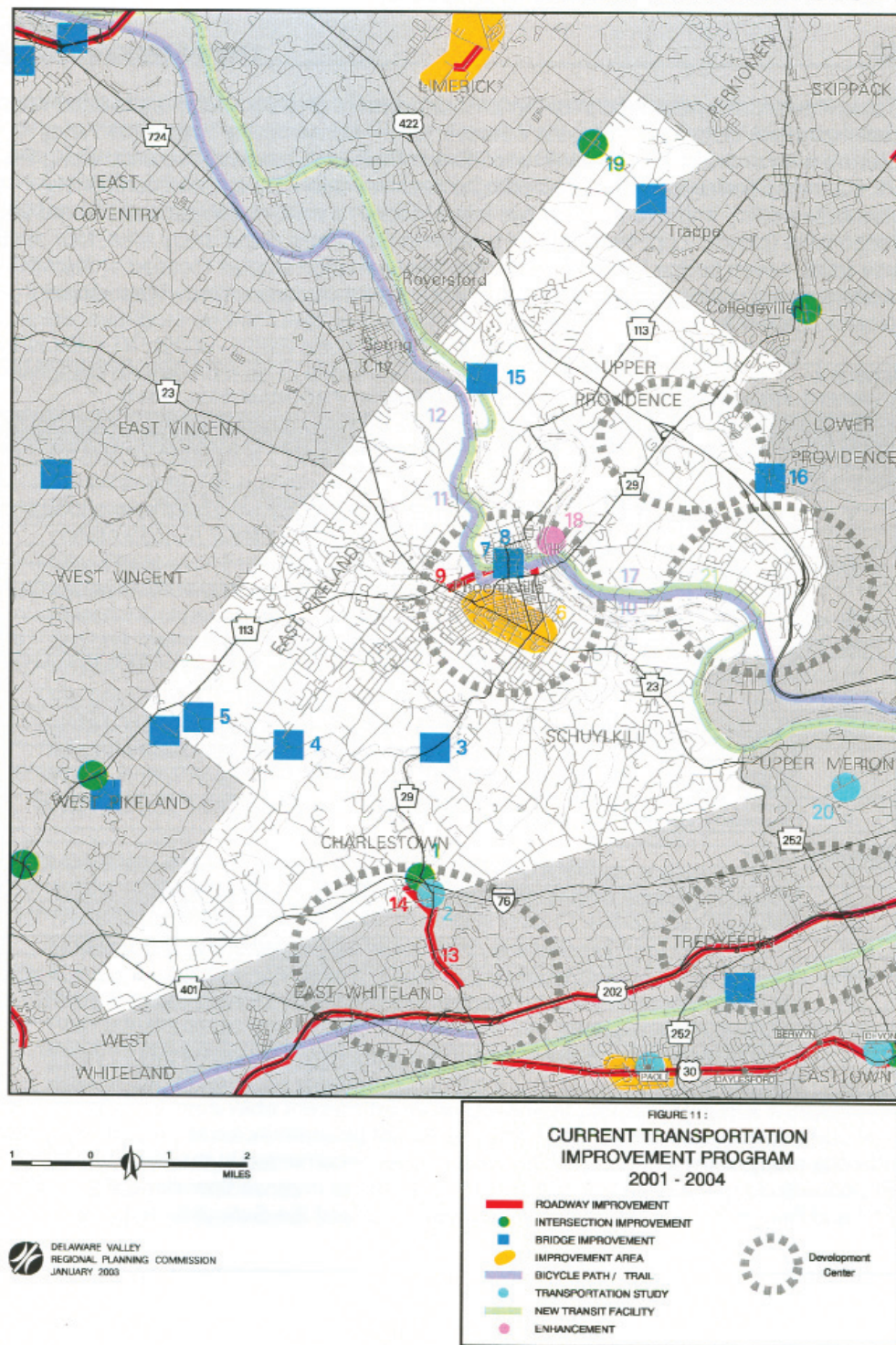
FIGURE 13: Current Transportation Improvement Program Map. From *Phoenixville Area Intermodal Transportation Study*.
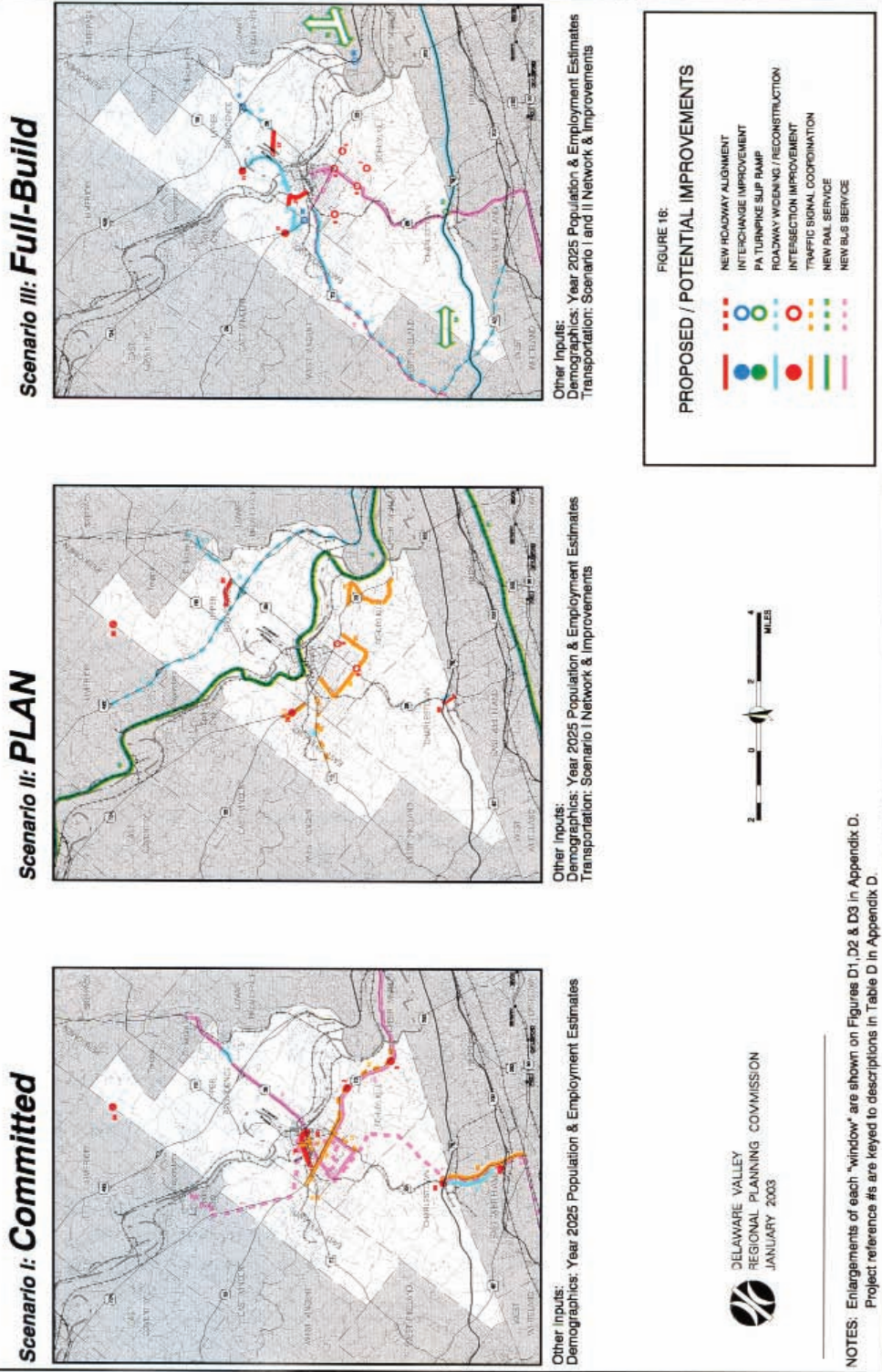**Source: DVRPC, 2003**

FIGURE 14: Improvement Scenarios for Year 2025 Travel Testing. From *Phoenixville Area Intermodal Transportation Study*.
Source: DVRPC, 2003

Transportation Demand Management (TDM)

Transportation Demand Management (TDM) techniques decrease congestion by focusing on the demand for transportation facilities. They encourage strategies to reduce single occupancy vehicle trips by sharing vehicles, eliminating trips, shifting travel from peak to non-peak periods, and other forms of alternative transportation. ***In general, any corridor can benefit from TDM techniques, and all techniques or some combination are recommended in most corridor studies.*** TDM, however, requires significant effort by employers and/or the private sector beyond what just the public sector can do.

DVRPC manages the Mobility Alternatives Program (MAP), funded by PennDOT, which provides commuters in Southeastern Pennsylvania with alternatives to driving to work alone. Administered through a network of seven subcontractors (five Transportation Management Associations, the City of Philadelphia, and SEPTA), MAP is an outreach and education program that provides information on the variety of options available to commuters, including transit, car or van pools, and flexible work hours.

Telework involves either working at home or at a satellite work center closer to an employee's home than the conventional office. As a result, the commute between home and the office is either partially or completely eliminated. Work is completed through the use of computers and telecommunication technologies (phone, personal computer, modem, fax machine, e-mail, etc.).

Flex-time strategies allow employees to work alternative work hours or compressed work weeks in order to reduce congestion in peak-time periods on local roadways. These strategies reduce vehicle trip demand on highway facilities by shifting it to less congested time periods. Alternative work hours occur during off-peak travel periods, and compressed work weeks eliminate trips to the workplace on certain days. Flex-time is employee and family-friendly, by allowing individuals to set their work hours to better fit their personal preferences.

Carsharing is an organized program that facilitates sharing automobiles among multiple users without each incurring the fixed cost of owning a car. A charge is assessed with each use. An example is the PhillyCarShare program.

Ridesharing is a program in which two or more individuals share part or all of a commute on a regular basis. Carpooling involves a group of commuters who use their own vehicles, while rotating drivers on a regular basis. Another common example is vanpooling, where a larger group of riders, usually going to the same destination, are picked up by either a member of the vanpool or an agency that operates the vehicle. These alternative forms of transportation save time, money, and are beneficial for the environment.

Pricing parking are actions taken to alter the supply and/or demand of a parking system, to encourage alternative modes. Examples include parking cash-out (employers offer a cash payment to employees to give up private parking spaces at work) or transportation allowances (employers offer transit fare subsidies, such as DVRPC's TransitChek, and/or vanpool and carpool fare allowances), preferred parking areas for carpools or individuals who only drive a few times a week, or using price levels to modify behavior. Incentives such as these can reduce the number of single occupant vehicle commutes and increase use of alternative forms of transportation.

Congestion pricing is a method of reducing congestion by charging higher fees for roadway use based on time and/or location of travel. The goal of this program is to encourage travelers to shift to alternative times, routes or modes during peak traffic periods. Congestion pricing programs may also include gas taxes, insurance structures, and differences in toll structures for different types of trucks and cars.

For more information see:

> *DVRPC Congestion Management Process: Limiting Traffic Congestion and Achieving Regional Goals.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.
>
> *Pennsylvania Congestion Management System: Phase 2 Report.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 1997.
>
> *US 322, Section 100 - Congestion Management Systems Analysis.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 1995.

Intelligent Transportation Systems (ITS)

Intelligent transportation systems (ITS) refers to using technologies in electronics (wireless and hardwired), communications, or computer-based information processing to improve the efficiency and/or safety of a surface transportation system. ITS is primarily applied to freeway systems, but can be used in vehicles themselves, or in conjunction with mass transit service.

At the corridor level, the most basic ITS program is a closed-loop traffic signal system. With this approach, a series of intersections are hardwired to a central computer system. Each intersection collects and sends data relating to traffic flow and volume to the central system, which in turn computes the most efficient signal timing pattern for the road network.

More sophisticated ITS technologies for corridors include network surveillance and various traveler information systems, such as variable message board systems. These can be used to relay up-to-the-minute travel information to drivers on the road. A similar transit ITS traveler information application is a smart bus stop. With this system, a transit vehicle's location is tracked electronically. This information is used to communicate the next arrival time to passengers waiting at the stop. *In large or highly congested corridors with parallel roads or transit, integrated corridor management can coordinate traffic speeds, direct traffic to less congested roads, compare transit travel times to drive times, and otherwise coordinate between multiple systems for improved efficiency.*

DVRPC has created two documents on ITS practices. The first is *Institutional Coordination of Intelligent Transportation Systems in the Delaware Valley - Regional ITS*, which provides a common framework for planning, defining, and integrating intelligent transportation systems. It is modeled after and consistent with the National ITS Architecture developed by US DOT. This document maps out how the various ITS components in the Delaware Valley should ultimately be tied together and integrated-both physically as well as institutionally. It discusses the roles and responsibilities of a wide range of ITS stakeholders, the tailoring of ITS deployment and operations to local needs, the sharing of information between stakeholders, and the future expansion of ITS. This regional ITS architecture was developed through a coordinated process with a wide array of stakeholders.

Second is the *Draft ITS Master Plan for the Delaware Valley*, which represents a long-term vision and strategy for creating ITS programs in the Delaware Valley. Its application is largely the responsibility of several individual agencies with different objectives. It presents a comprehensive vision of ITS services to be implemented, and, more importantly, proposes a list of projects that will bridge the individual programs and create more cohesive operations.

For more information see:

> *Institutional Coordination of Intelligent Transportation Systems in the Delaware Valley - Regional ITS Architecture.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2001.

> *Draft ITS Master Plan for the Delaware Valley.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

> US DOT Website: www.its.dot.gov/its_overview.htm

LAND USE

Existing Land Use

Existing land use refers to just that-what land uses are within the study area. "Activity" is considered to be the single most important land use characteristic, describing what actually takes place in physical terms on that land. Thus, office activity on a parcel of land translates into an office land use. *A discussion of existing land use in a corridor study is important for understanding the context of the transportation network and the relationship of roads and transit to growth centers and jobs.*

DVRPC maintains land use data and maps for the entire nine-county region, based on digital orthophotography created from aerial surveillance, flown every five years. DVRPC asks its member county governments to review the draft land use files for specific errors and revises accordingly. Thus, the land use data is based on both interpretation of orthophotography and local knowledge. Land uses are classified into 31 separate categories. Land uses are almost always described using a color-coded land use map accompanying the description.

In addition to the 17 categories utilized in DVRPC's 1995 and revised 1990 land use files (the first 17 are listed below), the Commission's 2000 land use file delineates parking areas associated with each of 13 land use categories and creates a separate category for agricultural bogs, located primarily in southern Burlington County. The 1965 Standard Land Use Coding Manual established standard colors for land uses, which are listed after each land use below **(See Figure 15)**.

2000 DVRPC Land Use Classifications and Colors:

The 31 categories are as follows:

- Single-Family Detached Residential (yellow)
- Multi-Family Residential (salmon)
- Residential Rowhomes (orange)
- Mobile Homes (light orange)
- Manufacturing-Light Industrial (light purple)
- Manufacturing-Heavy Industrial (dark purple)
- Transportation and Parking (gray)

- Utility (pink)
- Commercial (red)
- Community Services (light blue)
- Military (navy blue)
- Recreation (yellow-green)
- Agriculture (light green)
- Mining (dark red)
- Wooded (bright green)
- Vacant (lime)
- Water (aqua blue)

PHOENIXVILLE AREA
INTERMODAL TRANSPORTATION STUDY

FIGURE 2:
1995 LAND USE

SINGLE FAMILY (DETACHED)
MULTI FAMILY
ROW HOMES
MOBILE HOMES
LIGHT MANUFACTURING
MANUFACTURING
TRANSPORTATION
UTILITY
COMMERCIAL / SERVICES

COMMUNITY SERVICE
MILITARY
RECREATION
AGRICULTURE
MINING
VACANT
WOODED
WATER
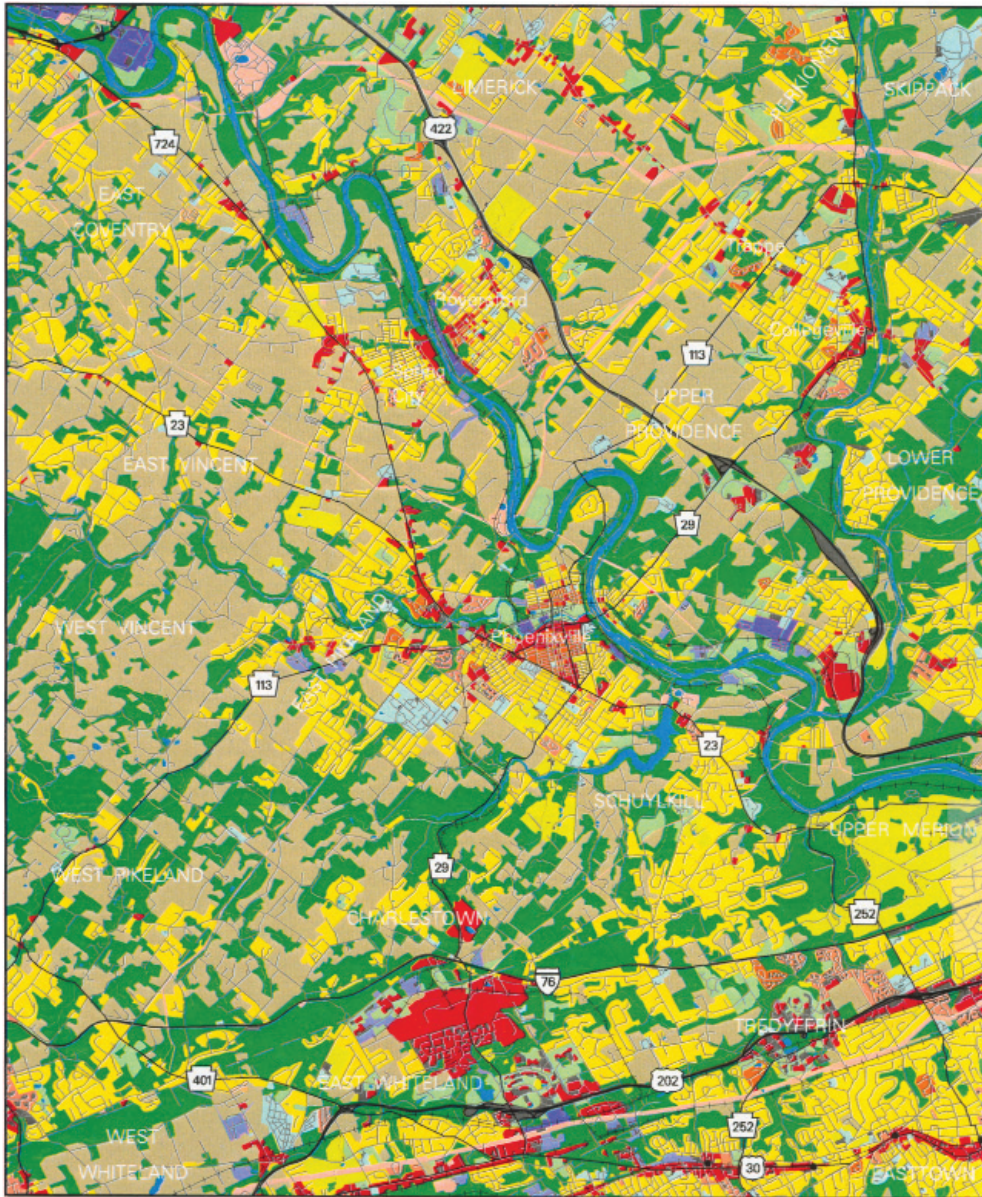
DELAWARE VALLEY
REGIONAL PLANNING COMMISSION
JANUARY 2003

FIGURE 15: 1995 Land Use Map. From *Phoenixville Area Intermodal Transportation Study*. Source: DVRPC, 2003

New in 2000:

All parking categories are colored on land use maps as transportation (gray) but each parcel with parking does have an underlying code that identifies what use the parking is serving, if needed for analysis.

- Parking-Multi-Family Residential
- Parking-Residential Rowhomes
- Parking-Mobile Homes
- Parking-Light Manufacturing
- Parking-Heavy Manufacturing
- Parking-Transportation
- Parking-Utility

- Parking-Commercial
- Parking-Community Services
- Parking-Military
- Parking-Recreation
- Parking-Agriculture
- Parking-Mining
- Agricultural Bog (dusty pink)

DVRPC aerial photography and land use data can be purchased by contacting DVRPC's Map Sales Department at 215-238-2828 or mapsales@dvrpc.org.

Future Land Use

A discussion of future land use looks at the study area's potential development and growth activity on a general level, as well as proposed development projects, plans for major land preservation, and/or the development of an open space system. Data on proposed or future land uses can come from municipal sources, and/or from an examination of the zoning code (either a cursory review or a full zoning build-out analysis). Illustrations can be created that show different growth scenarios, such as a trend scenario ("growing with the flow") or a plan scenario ("growing with places in mind"). *The land use characterizations of the* **Smart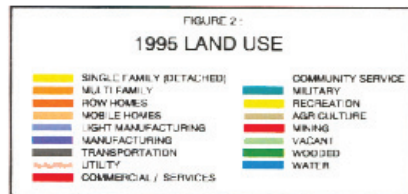 Transportation** *initiative (rural/preserved, suburban neighborhood, suburban corridor, core) can help define the future context of an area and provide guidance for the appropriate transportation needs. Future land use is a critical element in understanding the future needs of the transportation system in a corridor study* (See Figure 16-18).

Cultural and Historic Resources

The Delaware Valley region has many cultural and historic resources, including registered historic districts, national parks, and a wide variety of historic buildings and styles of architecture. In many cases, these important resources are located in communities that have changed markedly over time. Historic landscapes such as the Brandywine Battlefield and Valley Forge National Historical Park, which were once considered rural outposts, are now surrounded by busy highways, and residential and commercial development. As we work to modernize and increase the efficiency of our transportation infrastructure, it is also important that we preserve the character of the historic places that help keep the Delaware Valley unique.

When completing a corridor study-or any planning effort that includes recommendations for a defined study area- it is important to identify any cultural or historic resources that may be impacted by proposed changes to the area's natural and built environments. In the case of corridor studies, the presence of historic and culturally significant places should necessitate contingencies and changes to even modest plans. Landmark buildings threatened by proposed road widenings, historic vistas interrupted by highway interchanges, unique main streets and town centers weakened by the construction of new bypass
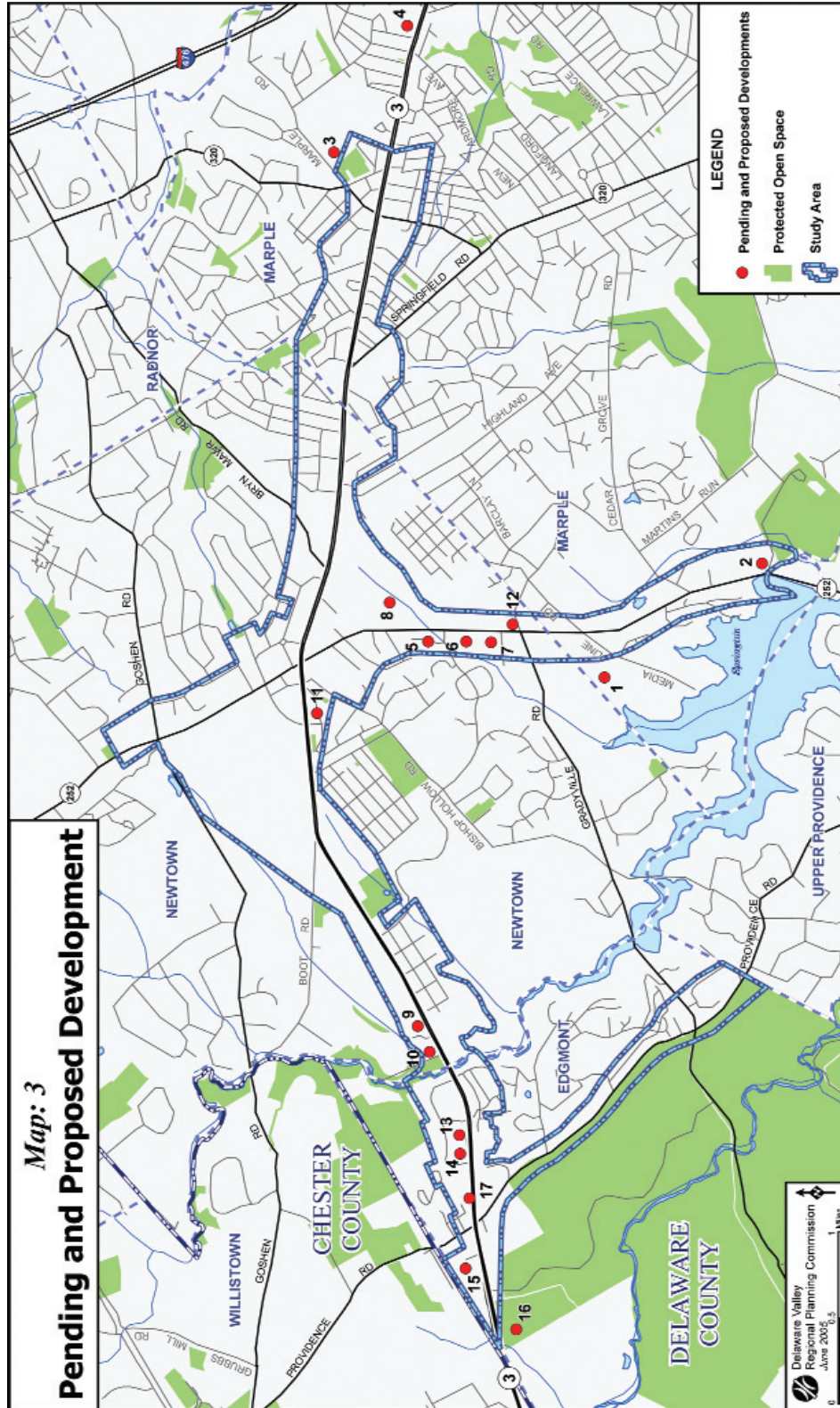
FIGURE 16: Pending and Proposed Development. From *Route 3, West Chester Pike — Land Use and Access Management Strategies.*
Source: DVRPC, 2006

FIGURE 3: CORRIDOR VIEWS – GROWING WITH THE FLOW

NJ 55

RICHWOOD

MULLICA HILL

LOGAN

WOOLWICH
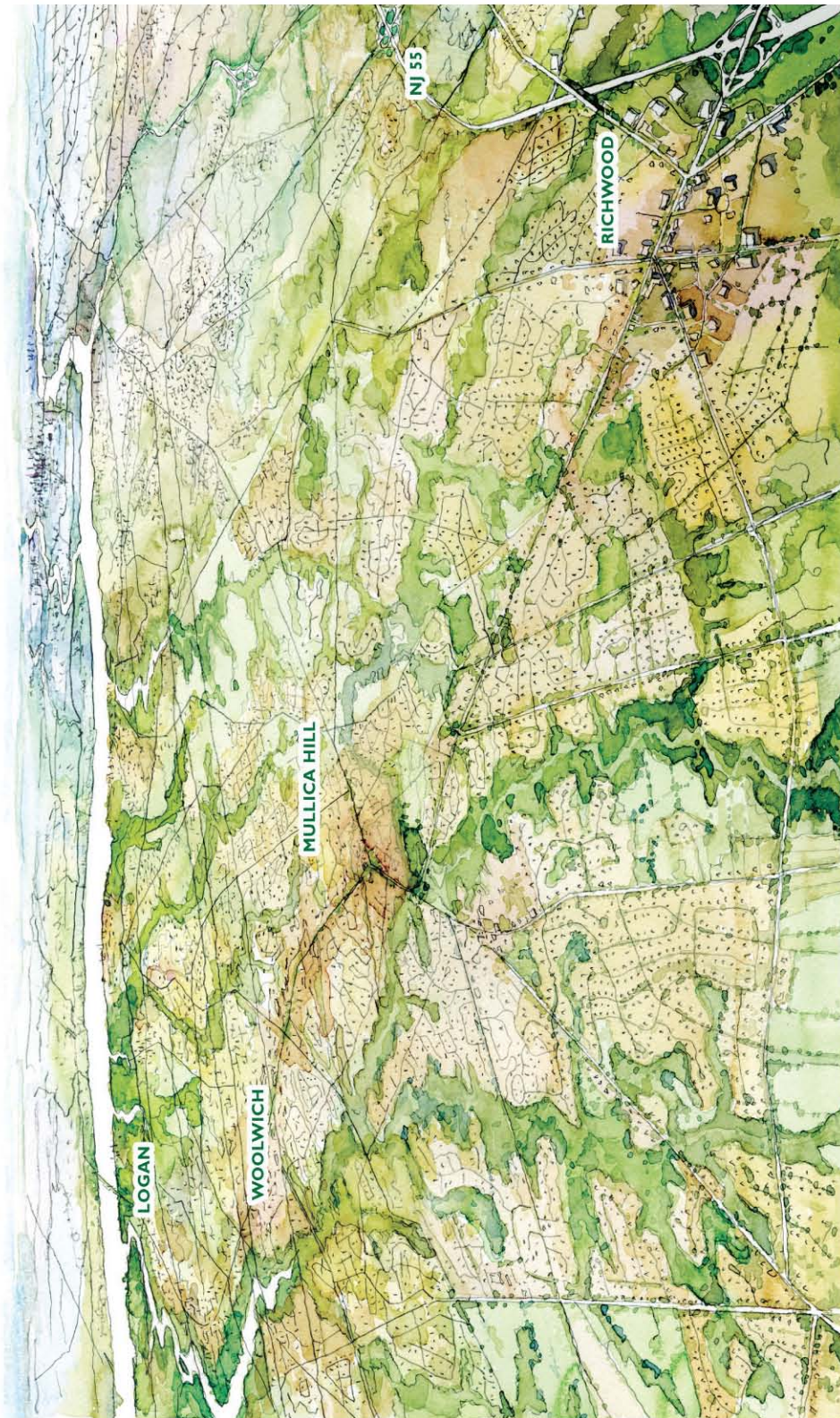
FIGURE 17: Rendering of "Growing with the Flow." From *Managing Change Along the US 322 Corridor: Land Use & Transportation Issues, Policies & Recommendations – Volume 2: Framework Plan.* **Source: DVPRC, 2007**
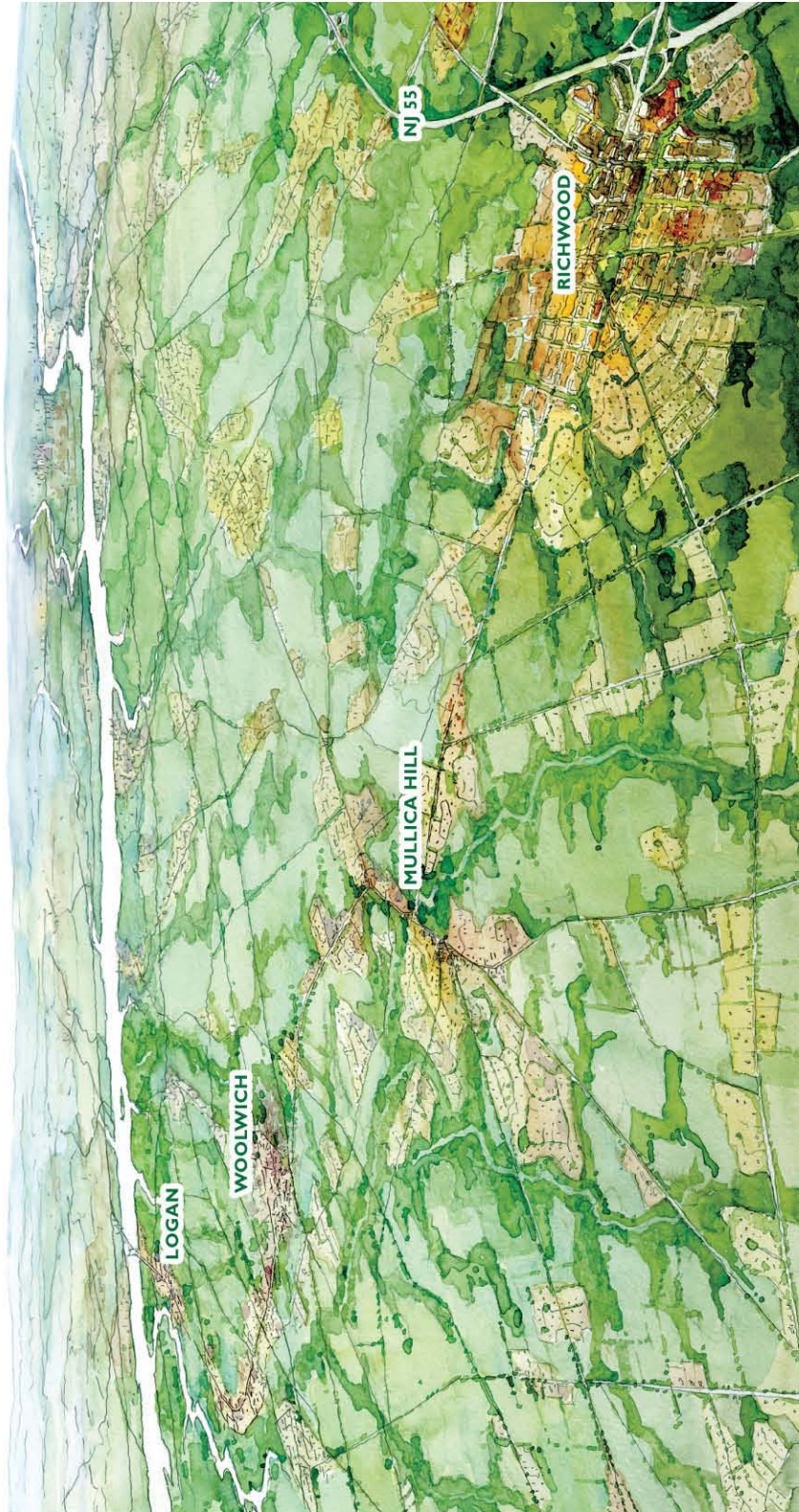
FIGURE 4: CORRIDOR VIEWS – GROWING WITH PLACES IN MIND

NJ 55

RICHWOOD

MULLICA HILL

WOOLWICH

LOGAN

FIGURE 18: Rendering of "Growing with Places in Mind." From *Managing Change Along the US 322 Corridor: Land Use & Transportation Issues, Policies & Recommendations – Volume 2: Framework Plan.* **Source: DVPRC, 2007**

roads-all are examples of how changes to a corridor can threaten the integrity of regional, cultural and historic resources **(See Figure 19).**

Determining where our registered historic places are located is a relatively simple task. Every state is required by federal law to maintain a publicly funded state historic preservation office (SHPO). The responsibilities of SHPOs include identifying historic properties, and preparing and updating statewide preservation plans. SHPOs also provide assistance to government agencies at the federal, state, and local levels, as well as to citizens groups, nonprofit organizations, and the private sector. In Pennsylvania, the Bureau for Historic Preservation, a division of the Pennsylvania Historical and Museum Commission, serves as the SHPO. In New Jersey, the Department of Environmental Protection's Office of Historic Preservation fills this role. In both states, the SHPO maintains an online database of all nationally registered historic places and landmarks. To look up a historic resource in Pennsylvania, visit www.arch.state.pa.us. In New Jersey, see www.state.nj.us/dep/hpo/1identify/identify.htm.

For more information see:

> *Municipal Implementation Tool #7: Historic Preservation.* 2004. Delaware Valley Regional Planning Commission. Philadelphia, PA. 2004.

> *Route 202 Section 100 Land Use Strategies Study.* 2001. Delaware Valley Regional Planning Commission. Philadelphia, PA. 2004.

Natural Features

The Delaware Valley region is home to some of the nation's most renowned natural areas and protected open spaces. Valley Forge National Historical Park, the Pinelands National Reserve, and Wissahickon Valley Park are just a few of the better-known examples. However, many municipalities throughout the region are taking important steps to identify and protect their own environmental resources.

***Corridor plans should include a map that identifies all the significant environmental resources within the defined study area.*** The presence of wetlands, protected open space, flood plains, steep slopes, and other sensitive areas can have a profound effect on the shape and placement of future development, including roadway improvements. Before recommending changes to an area's built environment, it is important to identify any open space issues that may need to be accommodated **(See Figure 20).**

Corridor studies should evaluate the risk of flooding when making recommendations for transportation improvements. Not only will poorly planned improvements be threatened by future flooding events, they may exacerbate flooding problems elsewhere by interfering with the natural functioning of floodplains. Knowing the location of the 100-year floodplain and the floodway is key to assessing these risks.

Digital floodplain mapping for New Jersey and Pennsylvania can be purchased from the Federal Emergency Management Agency (FEMA) or from third party providers. A popular digital product is FEMA's Q3 Flood Data, which was produced by scanning FEMA's paper Flood Insurance Rate Maps (FIRMs). A CD-ROM containing environmental and natural resource GIS data is also available for purchase from DVRPC. The CD includes FEMA's Q3 Flood Data for a 24-county region centered on Philadelphia. Digital floodplain mapping for Pennsylvania can also be downloaded from the Pennsylvania Spatial Data Access (PASDA) center at http://www.pasda.psu.edu.

As part of *Destination 2030*, DVRPC's current long-range plan for the region, a series of maps were created to provide a snapshot of the region's existing open space and identify priority areas for future

FIGURE 19: Cultural Landmarks & Historic Resources Map. From *Intercounty Relief Route – Schuylkill, East Pikeland, Phoenixville, Upper Providence.*
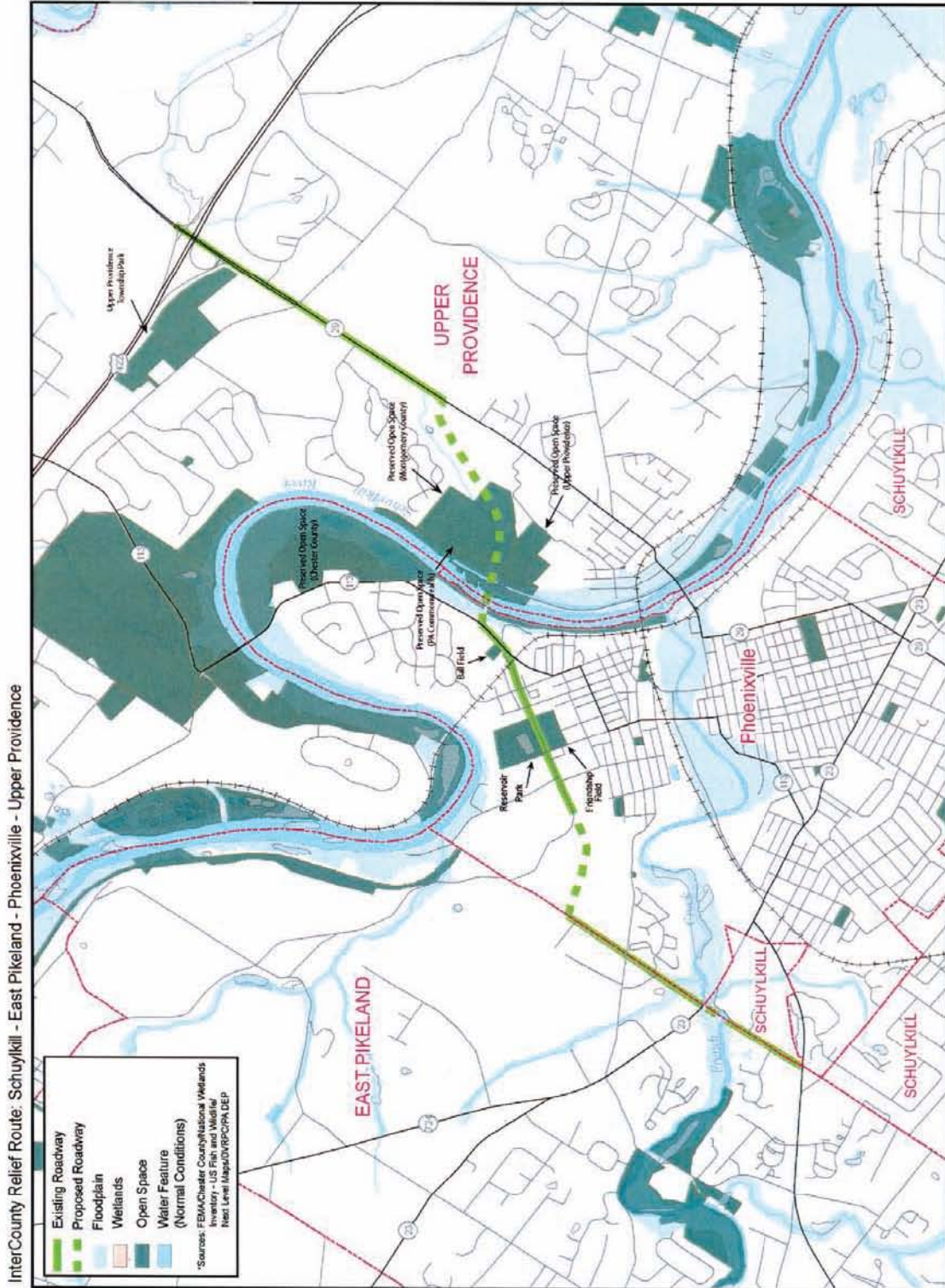**Source: DVRPC, 2006**

FIGURE 20: Natural Features Map. From *Intercounty Relief Route – Schuylkill, East Pikeland, Phoenixville, Upper Providence.*
Source: DVRPC, 2006

conservation work. The content of the completed maps is summarized below. To view the maps, see the land use section of *Destination 2030* at www.dvrpc.org/LongRangePlan/Final/Destination2030_LandUse.pdf.

- 2030 Land Use Plan. This map offers a comprehensive vision of future growth and investment in the region through the identification of key land use categories and development centers **(See Figure 21)**.

- 2004 Protected Lands. Existing protected lands across the region, including federal property, state-owned land, county parks, municipal holdings, preserved farms, and privately protected sites, are all identified on this map **(See Figure 22)**.

- 2030 Greenspace Network. This map illustrates DVRPC's proposal to link and expand the region's existing open space into a greenspace network, where parks, forests, meadows, protected farms, and stream corridors are joined together in an interconnected system **(See Figure 23)**.

- 2030 Conservation Focus Areas. These areas include agricultural and natural lands that possess a combination of unique physiographic, vegetative, and land use characteristics. The Conservation Focus Areas identified on this map are not "no-growth zones." Rather, they are locations where natural, agricultural, and recreational values should be protected as limited growth that is appropriate within the context of the surrounding area is also allowed **(See Figure 24)**.

In addition, for its nine-county service area, DVRPC tracks municipal use of natural resource protection tools, and maintains an inventory of locally funded open space programs. To view a map that identifies the locations of these programs, see www.dvrpc.org/planning/environmental/openspace/lfos_2006-11.pdf. DVRPC's Office of Environmental Planning also conducts county and municipal natural resource inventories, develops greenway, open space and farmland preservation plans, and contributes to a wide variety of regional water quality initiatives.

Several open space prioritization models have been developed recently to help decision makers in open space, land use and transportation planning. The Regional GreenPlan was developed by the Greenspace Alliance to prioritize land for its ecological, agricultural and recreational values. Similarly, the Schuylkill Watershed Land Prioritization Strategy prioritizes land for its ecological and drinking water values. Areas that ranked high in either of these models should be protected from development. *Corridor plans can consult these prioritization models in order to avoid making recommendations for development or transportation improvements that would negatively impact high-value resource lands.*

The issue of stormwater management is also important to address in corridor studies as roadway improvements can increase runoff and contribute to soil erosion, flooding, damage to natural drainage systems and degradation of drinking water resources. Utilizing Best Management Practices that reduce impervious coverage and promote infiltration are important. In addition, street trees should also be considered resources that contribute environmental, scenic, economic, energy savings, health, traffic calming, and stormwater management benefits. *Corridor studies should map the presence of street trees as an important resource, and avoid proposals that would remove street trees when possible.* If removal of street trees is unavoidable for safety or other reasons, then recommendations to replace trees should also be included.

2030 LAND USE PLAN

Development Centers

◎ Metro
▣ Metro Sub-Center
⊙ County
☐ Growth
△ Revitalizing

Land Use Category

- Existing Development
- Future Growth
- Greenspace Network
- Rural Conservation Lands
- Metro Center/Sub-Center
- Water

DELAWARE VALLEY REGIONAL PLANNING COMMISSION

FIGURE 21: 2030 Land Use Plan. From *Destination 2030 – The Year 2030 Plan for the Delaware Valley.* **Source: DVRPC, 2006**

2004 PROTECTED LANDS

21

Federal Lands
State Lands
County Lands
Municipal Lands
Preserved Farmland
Land Trust Lands/
Protected Private Lands

DELAWARE VALLEY
REGIONAL PLANNING
COMMISSION

Sources: DVRPC, County Planning Commissions, Greenspace Alliance of Southeastern Pennsylvania, Heritage Conservancy, PADCNR, NJDEP, Au Conservation Foundation

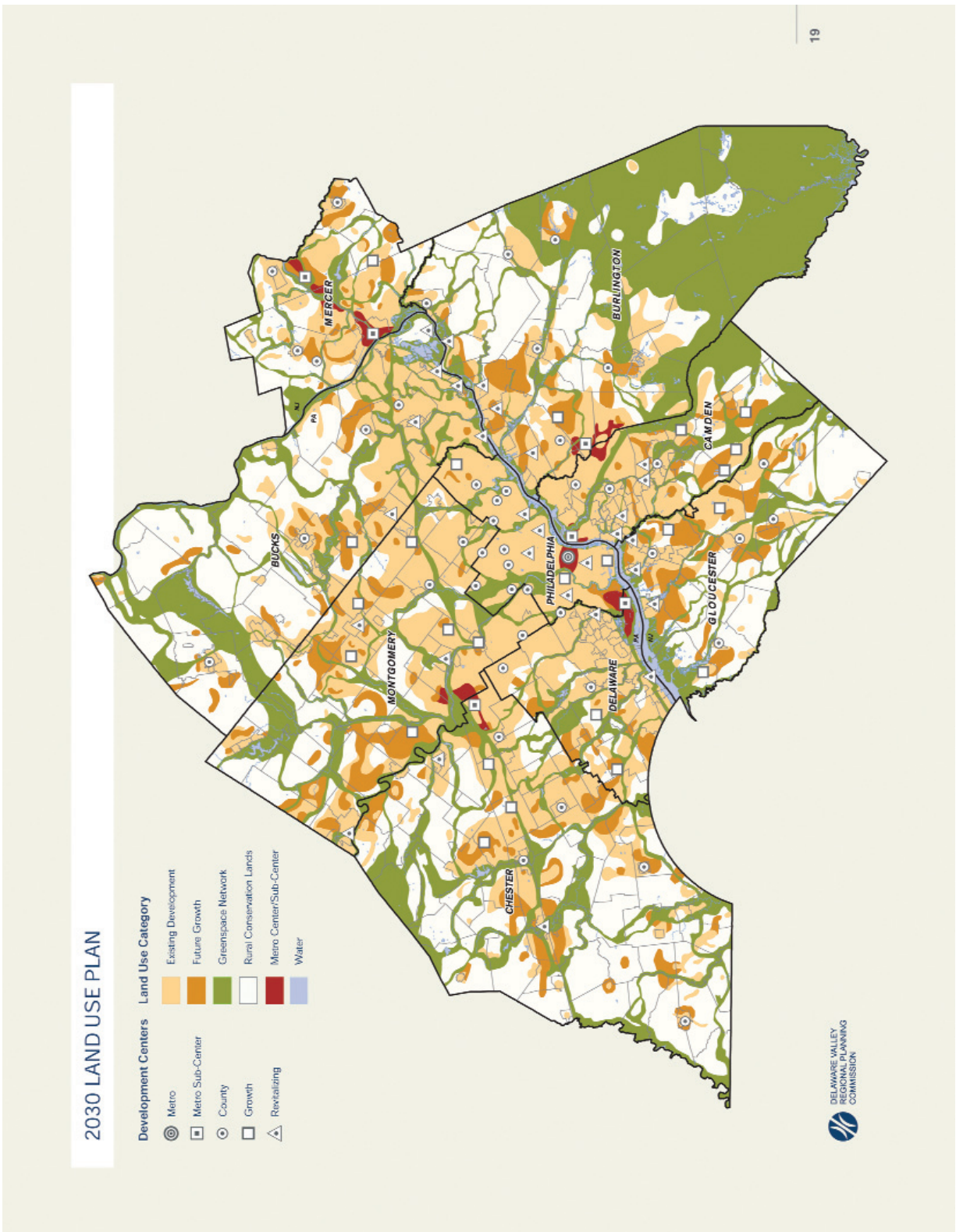**FIGURE 22: 2004 Protected Lands. From** *Destination 2030 – The Year 2030 Plan for the Delaware Valley.* **Source: DVRPC, 2006**
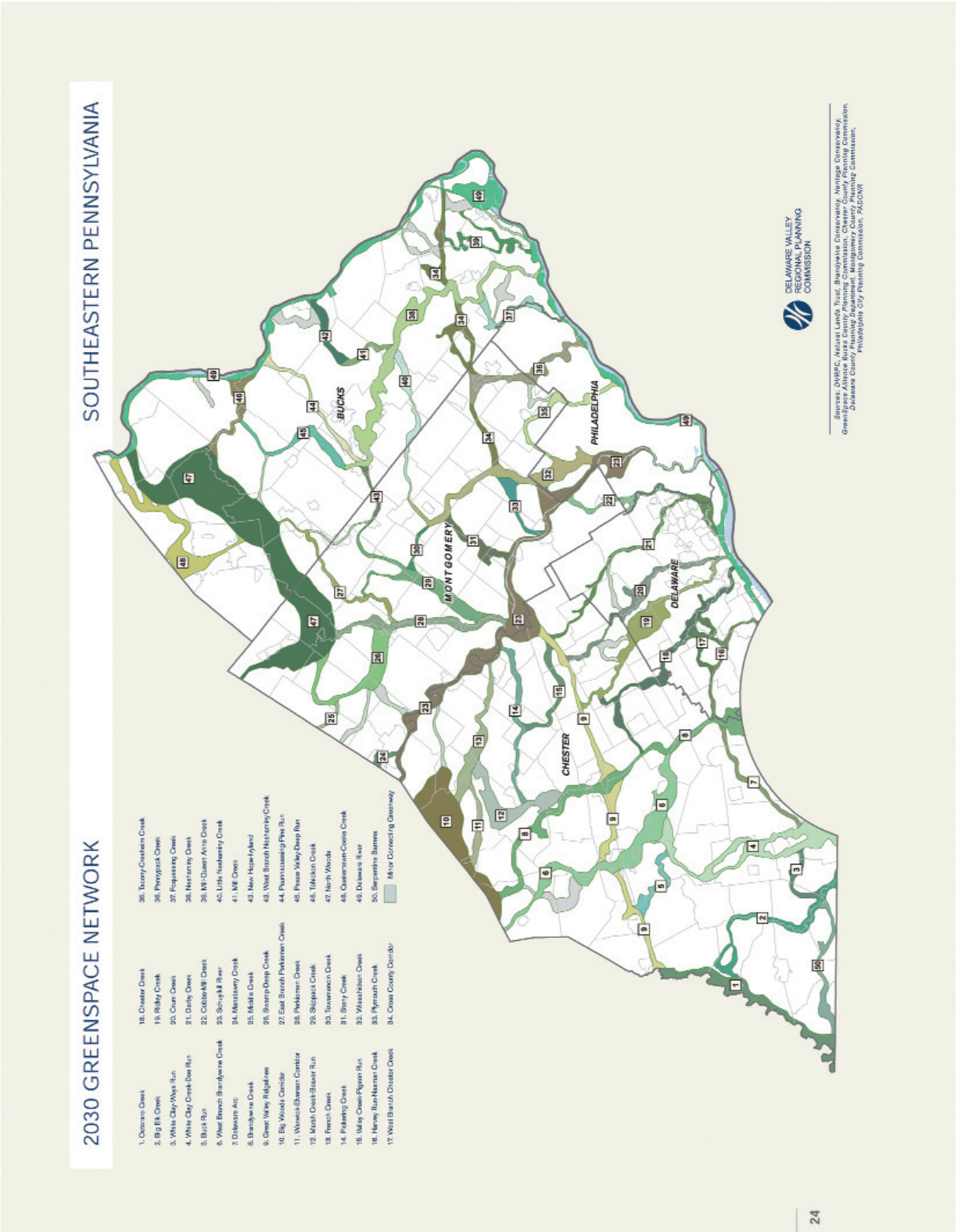
FIGURE 23: 2030 Green Space Network. From *Destination 2030 – The Year 2030 Plan for the Delaware Valley.*
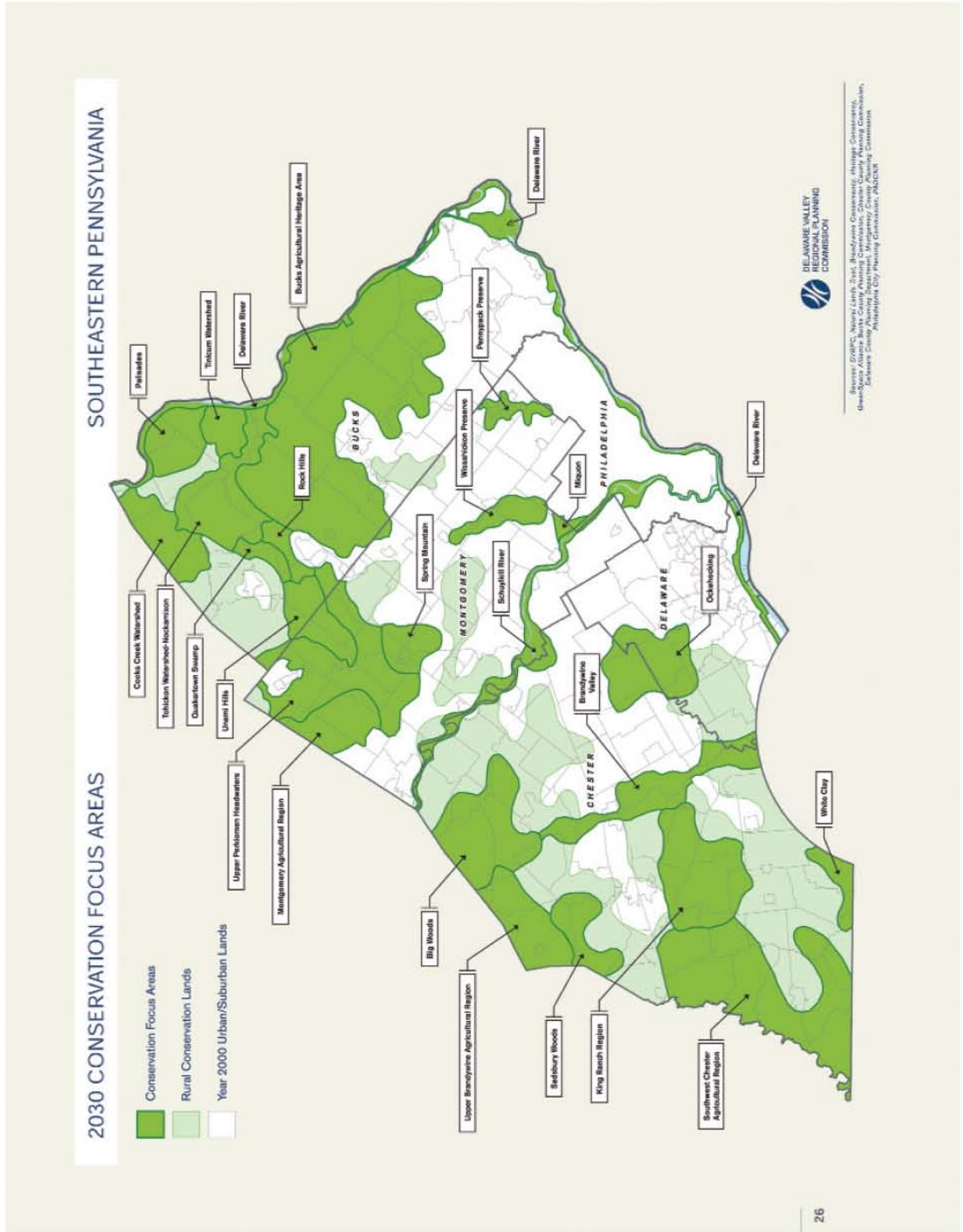**Source: DVRPC, 2006**

FIGURE 24: 2030 Conservation Focus Areas. From *Destination 2030 – The Year 2030 Plan for the Delaware Valley.*
Source: DVRPC, 2006

For more information, see:

> *Destination 2030: The Year 2030 Plan for the Delaware Valley.* Delaware Valley Regional Planning Commission. Philadelphia, PA. 2006.
>
> *Regional GreenPlan.* GreenSpace Alliance of Southeastern Pennsylvania. www.regionalgreenplan.org.
>
> Schuylkill Action Network Website. www.schuylkillactionnetwork.org.

Density/Form/Community Types

In addition to examining the overall land use mix, the corridor study could also include a discussion on density, using DVRPC's 2004 Realizing Density report, which lists the population density, gross housing unit density, and net housing unit density for all 353 municipalities in the region, as well as the region's nine counties.

Also, some discussion of form and building types is important to characterize the community types along the corridor, such as rural, suburban corridor, suburban center, suburban neighborhood, town center, village or urban neighborhood, or urban core. Zoning codes have traditionally focused mostly on land use, but new emphasis is being placed on form or building type, the basis for form-based codes.

The form of development along a corridor, such as commercial uses situated on an arterial roadway with large front setbacks of surface parking, may actually be more significant in the analysis and recommendations than the land use (commercial) itself. Certainly the types of recommendations made for a Main Street (commercial land uses, usually small front setbacks) versus a strip shopping street (commercial land uses, usually large front setbacks) would differ more based on their form, rather than the commercial uses they accommodate. The Main Street's form better supports walking (even if the strip commercial arterial has sidewalks) and most likely transit, and a recommendation in a corridor study might be to further enhance these options, while accommodating parking in the rear and on-street. Recommendations along the strip shopping street might include better controlling access and curb cuts along the arterial, creating liner buildings along the arterial to create more of a "street wall," and providing sidewalks.

A typical land use map would show both the Main Street and the strip shopping street as red (commercial land uses), which alone does not convey anything about the form or character of this commercial area, or how the recommendations might differ. Review and recommendations based on the form of the corridor, not unlike context-sensitive design, will produce better results than solely focusing on land use.

REGULATIONS AND STUDIES

Comprehensive or Master Plan and Other Studies

A community's comprehensive (Pennsylvania) or master (New Jersey) plan guides decisions about the physical and social development of a municipality or county. It provides the vision and the rationale for a community's zoning ordinance and future growth. Counties can also prepare comprehensive or master plans, and sometimes there are also multi-municipal master plans. *All of these policy documents should be summarized in a corridor study, or at the very least spell out the future vision of the municipalities or counties involved. This is especially important when it comes to the comprehensive plan's language on new growth and redevelopment in the community. Any corridor study recommendations should address the existing comprehensive plan.* Reviewing these local plans is critical to ensuring that

transportation decisions and future infrastructure or improvements are linked to an overall land use plan and vision that supports such infrastructure.

Consideration should be given to all relevant studies that have been done by other agencies or consultants in the corridor study area. If still relevant, recommendations should be consistent with the conclusions of these other studies or explain why not.

Long-Range Plan Characterization of Community Types

A corridor study should include the characterization of community types in their corridor, based on the types outlined in the region's long-range plan, Destination 2030: The Year 2030 Plan for the Delaware Valley. A corridor study should ensure that recommendations are in line with the appropriate policies for that community type. In some cases, a single study area may include a wide range of community types that encompass a variety of unique priorities and dynamics. These community types and related policies are an effective tool to quickly summarize the character of a place and guide recommendations.

As the metropolitan planning agency for the region, federal regulations mandate that DVRPC prepare and maintain a long-range transportation and land use plan with a minimum 20-year time horizon. *Destination 2030* sets forth DVRPC's land use and transportation policies, including transportation projects, for the region. It outlines a collective future vision for the region's 353 municipalities. DVRPC classified each of the municipalities as one of four general community types **(See Figure 25)**, in order to simplify and categorize policy recommendations for each type. The four types are:

- Core Cities, with policies centered on Redevelopment and Renewal, for DVRPC's four core cities of Philadelphia, Camden, Trenton, and Chester. *Destination 2030* seeks to maximize the existing assets of these places while also promoting community renewal, neighborhood preservation, and economic development strategies that encourage population and job growth rather than further decline.

- Developed Communities, with policies centered on Stabilization and Revitalization. Developed Communities include the region's older townships and boroughs. Inner-ring municipalities adjacent to the Core Cities, streetcar suburbs, and developed townships in outlying areas are all examples of Developed Communities. Preventative maintenance, streetscape and signage programs, and economic development activities such as Main Street initiatives can all help to reinforce the locational and physical advantages of these places while also stemming disinvestment.

- Growing Suburbs, with policies centered on Growth Management and Community Design. Often located in outlying areas, Growing Suburbs are experiencing, or forecast to experience, significant growth in population, jobs, and land consumption. The policy prescriptions of enhanced growth management and community design reflect the need to improve the form of development, reduce congestion, and protect open space in these communities.

- Rural Areas, with policies centered on Preservation and Limited Development. The Delaware Valley is home to some of the most productive farmland in the United States, including the famed mushroom fields of Chester County. As a result, agricultural industries currently comprise a significant economic sector that is important to the region. To ensure the long-term health and preservation of Rural Areas, Destination 2030 recommends limiting the expansion of exurban infrastructure systems, preserving rural lifestyles and villages, supporting the farming industry, and enhancing efforts to protect natural resources.
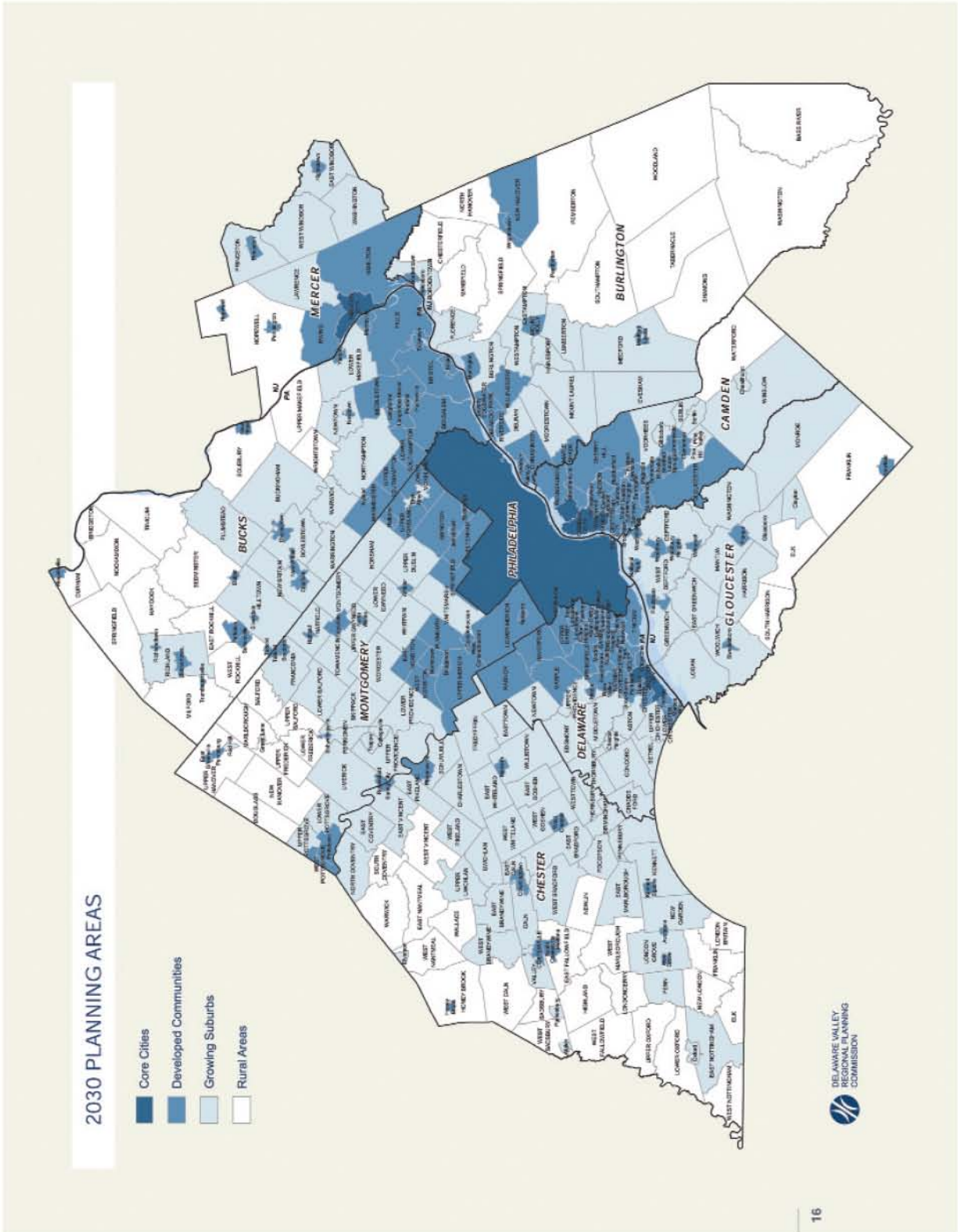
FIGURE 25: 2030 Planning Areas. From *Destination 2030 – The Year 2030 Plan for the Delaware Valley.*
Source: DVRPC, 2006

The long-range plan places a strong emphasis on rebuilding our existing transportation infrastructure and linking transportation investments to specific land use, economic development, environmental and transportation goals. Goals were developed for eight critical issue areas, including urban revitalization, growth management, economic development, the environment, equity and opportunity, transportation facilities, transportation operations, and transportation finance.

For more information see:

> *Destination 2030: The Year 2030 Plan for the Delaware Valley*. Delaware Valley Regional Planning Commission. Philadelphia, PA. 2006.

> *Destination 2030: A Vision for the Future Polices and Goals of the 2030 Long Range Plan.* Delaware Valley Regional Planning Commission. Philadelphia, PA. 2004.

Zoning and Subdivision and Land Development Ordinances

When completing a corridor study, the municipal zoning ordinance (where land uses, density, and bulk standards are regulated) and municipal subdivision and land development ordinance (where the design and layout of lots, streets, and public utilities are regulated, otherwise known as site plan review) should be reviewed. In some cases, such as in some New Jersey municipalities, these two ordinances are contained within a unified development code (UDC). Almost all corridor studies will include several municipalities, thus each ordinance should be analyzed and the zoning districts mapped. By combining the zoning of neighboring municipalities onto one map, this may reveal some compatibility issues between zoning districts along the municipal boundaries.

In some cases, a composite zoning map **(See Figure 26)** may need to be created that actually translates each municipality's zoning districts into common districts, such as one-acre residential, half-acre residential, etc. A composite zoning map can better show what the overall zoning build-out might be in the future along a corridor or in a study area, as well as comparing land uses, densities, and bulk standards across municipalities. *A review of zoning in a corridor study may lead to recommendations on changing uses, densities, or bulk standards to better respond to conditions along the corridor, or changing the subdivision and land development ordinance to design lots and streets in a more context-sensitive manner, and/or to promote smarter development patterns.*

Zoning for Smart Growth

Should a corridor study reveal deficiencies in zoning and/or subdivision and land development regulations, how and why to update these regulations should be included in the corridor study recommendations. Zoning for smart growth includes a variety of types of zoning districts-some described separately following this section-and innovations, such as form-based codes.

Starting in the beginning of the 20th century, zoning emerged as a tool to separate incompatible land uses, such as industrial and residential, for public health and safety reasons. A polluting factory was seen as a noxious use, one that should be separated and/or buffered from residential neighborhoods. Conventional zoning created geographic zones based on common land usage (residential, commercial, industrial, etc.). This type of zoning has separated uses over the years, but to the detriment in most cases of place-making and livable communities. Single use zones require a great deal of travel, almost always by automobile, to access the office park, the shopping mall, the residential subdivision, the school. Zoning's initial rationale of separation is no longer valid, as most industrial uses are no longer as noxious or polluting; and separating homes from shopping, from school, and from work has created a sprawling nation.
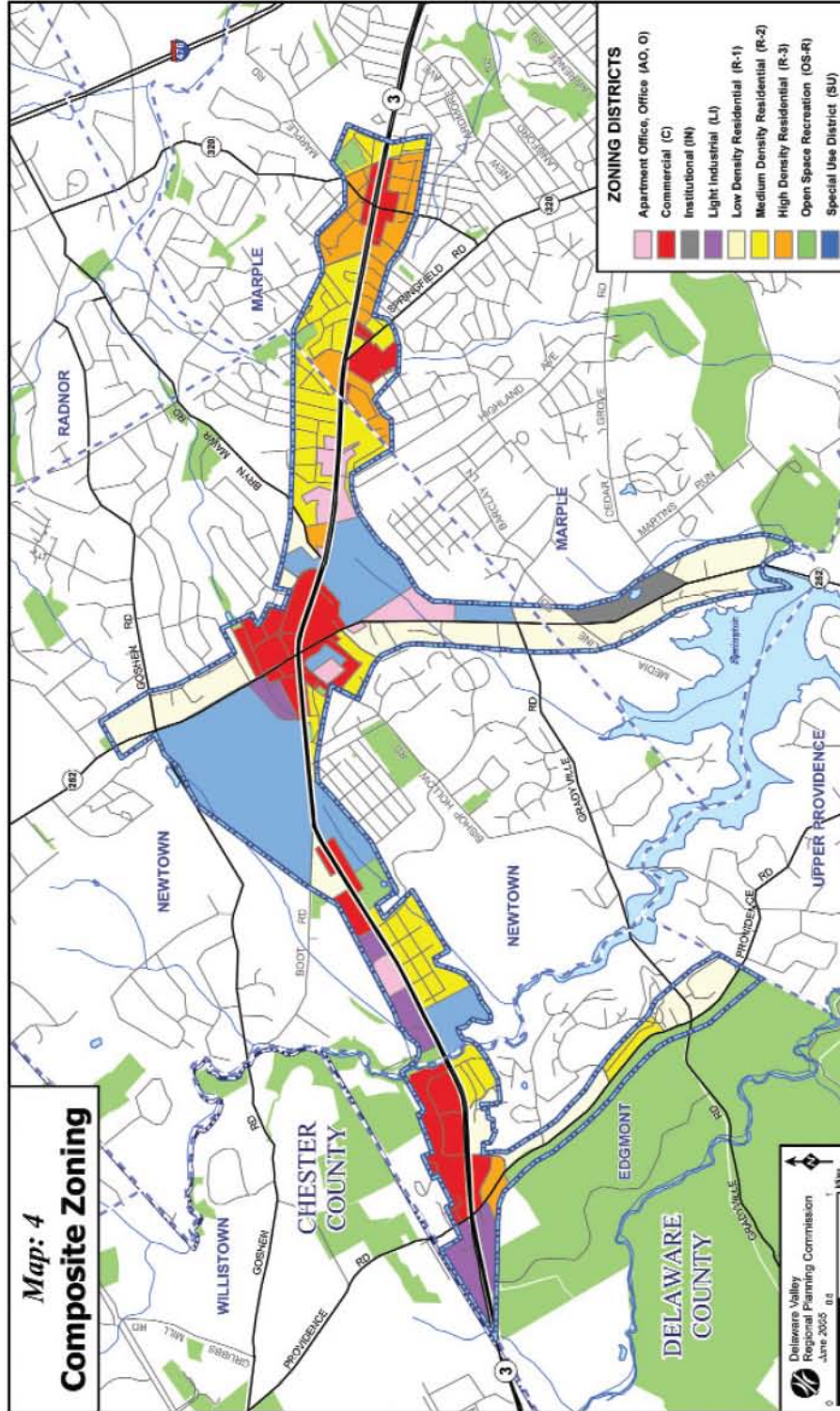
FIGURE 26: Composite Zoning Map. From *Route 3, West Chester Pike — Land Use and Access Management Strategies.*
Source: DVRPC, 2006

Today, planners advocate mixing uses and building types, connecting land uses, heterogeneity rather than homogeneity. Most municipal zoning codes, however, have not kept pace with these changes, and their standards are out of date. Many municipalities, working with an outdated code, are not able to respond quickly when the market changes, such as when a developer wants to convert an old industrial building into a mixed-use residential and commercial development.

Allowable densities can and should be higher in most communities, as new technologies and new architectural design strategies can make concerns over density obsolete. When a zoning code's allowable density and height standards are based on a 50-year-old standard of how high a fire truck's ladder could reach, clearly the zoning code is not responding to modern conditions. Zoning must do better at reacting to dramatic changes in demographics, building types, and rising land development costs.

Thus, zoning for smart growth recognizes that a new set of zoning districts, or a wholly new type of zoning code-a form-based code- is needed in many municipalities to allow for mixed uses, transit-oriented development, traditional neighborhood development, conservation design, affordable housing, etc. Form-based codes establish zones based on physical form and building types (e.g., neighborhood shopping district, downtown business district) rather than usage (e.g., residential, commercial). In contrast to conventional zoning, which is almost entirely text, form-based codes tend to be very visual and graphic-oriented. The SmartCode is a model form-based code, developed by the new urbanist firm Duany Plater-Zyberk & Company, that is free to use, and local municipalities can calibrate to local conditions. Although form-based codes have already been adopted in a number of municipalities across the country, none are currently in place in the Delaware Valley. Still, a number of municipalities in our region have adopted some form of smart growth zoning, or are interested in form-based codes.

For more information, see:

> *Innovations in Zoning for Smart Growth*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.
>
> "Form-Based Zoning." PAS Quick Notes 1. American Planning Association, Chicago, IL. 2004. www.planning.org/pas/member/pdf/QN1text.pdf.
>
> *SmartCode: A Comprehensive, Form-Based Planning Ordinance V-6.5.* Duany Plater-Zyberk. 2005. www.tndtownpaper.com/images/SmartCode6.5.pdf

Transit-Oriented Development (TOD)

DVRPC has been involved in planning for transit-oriented development (TOD) for several years. TOD is defined as compact, mixed-use, and pedestrian-friendly development around a transit station. Buildings are designed and oriented to facilitate transit usage and, although automobile traffic is accommodated, bicycle and pedestrian infrastructure is also provided in order to encourage multimodal access.

Corridor study areas may include locations that are ideally situated for TOD, such as underutilized properties near existing rail stations, which can be redeveloped with transit-supportive uses, form, and density. TOD Zoning could be recommended in a corridor study to encourage this type of development. When possible, linking TOD to corridor studies, roadway and transit improvement projects can help protect public highway and transit investments over the long term. By increasing transit use and reducing automobile dependency, TOD can help minimize the need for future road widenings and other costly efforts to expand the capacity of congested corridors. In 2003, DVRPC completed *Linking Transit, Communities and Development: Regional Inventory of Transit-Oriented Development Sites*. This report highlights opportunities for TOD near 45 transit stations across our region. Dozens of additional stations

not included in the 2003 report are also suitable for TOD. In addition, DVRPC has completed in-depth TOD case studies for more than a dozen of the existing transit stations in its service area.

When completing a corridor study for an area served by transit, it would be useful to check to see if any TOD planning has been completed for the station area(s), or if the station area is considered a good candidate for TOD, by checking the 2003 TOD Inventory list (See Figure 27) *and the 2007 On Track: Progress Towards TOD in the Delaware Valley.* Although much of DVRPC's research has focused on places served by rail transit, a case study completed for Woodbury, New Jersey, in 2004 illustrates how TOD can also benefit places that are only served by bus lines. It may also be useful to include a sample TOD ordinance, such as that found in DVRPC's 2002 *Transit Village Design in Burlington County* report, or those available online at national TOD-related websites such as Reconnecting America at www.reconnectingamerica.org.

For more information, see:

>   *Transit Village Design in Burlington County.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2002.

>   *Linking Transit, Communities and Development: Regional Inventory of Transit-Oriented Development Sites.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2003.

>   *Implementing Transit-Oriented Development: Four TOD Plans for Girard, Lansdale, Thorndale and Woodbury.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2004.

>   *Developing Around Transit: Transit-Oriented Development Plans for SEPTA Broad Street Line Ellsworth-Federal, SEPTA R5 North Wales and SEPTA R2 Warminster.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

>   *On Track: Progress Towards TOD in the Delaware Valley.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

Conservation Design

Corridors located in outer suburban and semi-rural areas are often proximate to large parcels of undeveloped land. As the demand for new housing increases in these places, local governments may be asked to approve large-scale subdivision plans that pay little heed to existing environmental resources. Recommending the adoption of conservation design ordinances in growing communities can help strike a balance between rising development demand and shrinking supplies of open space.

Conservation design is the practice of planning residential communities that preserve open space without reducing the overall density of an area's built environment. To achieve this goal, homes are arranged on a site in a manner that allows at least half of the parcel's total land area to be set aside as common open space. This practice of designing with nature helps ensure the protection of environmental, historic, and cultural resources that often do not survive the development of more conventional subdivisions.

Unfortunately, the application of conservation design does not comply with the zoning, subdivision, and site plan review codes currently in place in most municipalities. To address this issue, DVRPC and the Natural Lands Trust are working with communities located throughout the Delaware Valley to draft and implement conservation design ordinances. (While the Natural Lands Trust has drafted codes for numerous Pennsylvania municipalities, all of DVRPC's work has taken place in New Jersey.) Examples of the ordinances may be downloaded from DVRPC's website at

www.dvrpc.org/planning/community/ProtectionTools/ordinances.htm

Map 2: Regional Inventory of TOD Sites in Pennsylvania

Legend:
- Opportunity Site
- Commuter Rail
- Schuylkill Valley Metro
- Cross County Metro

Bucks
1 Bristol
2 Cornwells Heights
3 Croydon
4 Levittown
5 Warminster

Chester
6 Berwyn
7 Coatesville
8 Downingtown
9 Paoli
10 Phoenixville
11 Thorndale

Delaware
12 Baldwin Tower
13 Chester Transportation Center
14 Marcus Hook
15 Springfield Mall

Montgomery
16 Ambler
17 Ardmore
18 Conshohocken
19 Fort Washington
20 Glenside
21 King Manor
22 Lansdale
23 North Wales
24 Penbrook
25 Pottstown

Philadelphia
26 30th Street
27 46th Street
28 Bridge-Pratt/Frankford Trans. Center
29 Girard
30 Temple University

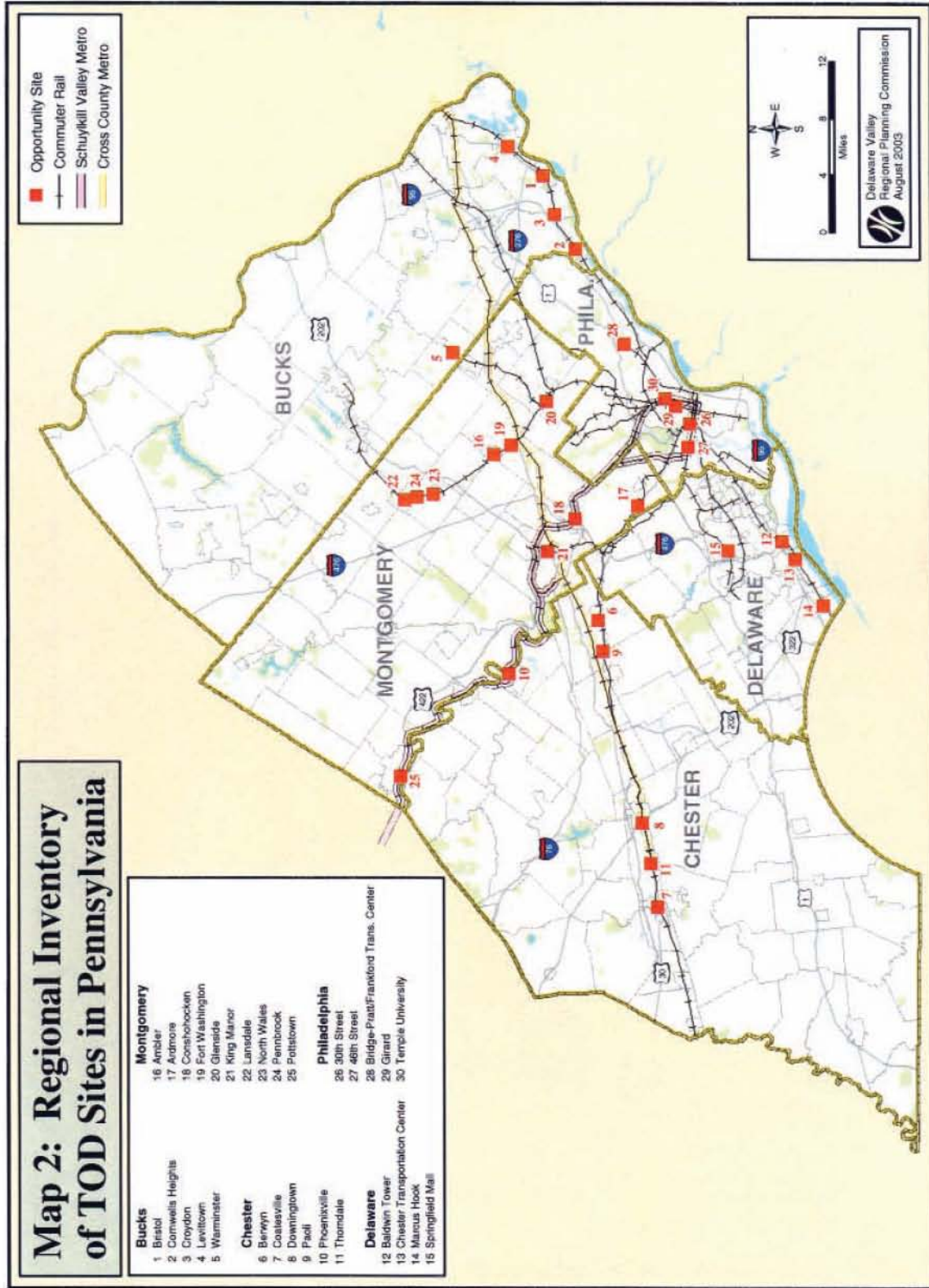Delaware Valley Regional Planning Commission
August 2003

FIGURE 27: Regional Inventory of TOD Sites in Pennsylvania. From *Linking Transit, Communities, and Development: Regional Inventory of Transit-Oriented Development Sites, Volume One.*
Source: DVRPC, 2003

and the Natural Lands Trust's website at www.natlands.org. In addition to conservation design, DVRPC's page provides examples of municipal zoning ordinances on a wide range of environmental topics, including, but not limited to, stream corridor protection, wetlands management, and transfer of development rights.

For more information, see:

> Arendt, Randall. *Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks.* Island Press. 2006.
>
> Arendt, Randall. *Growing Greener: Putting Conservation into Local Plans and Ordinances.* Natural Lands Trust. 1999.

CONSERVATION DESIGN	CONVENTIONAL DESIGN
Buildings and lots placed in the most appropriate locations on a parcel of land	Fragmented landscape
Contiguous open space for people and wildlife	No common open space
Reduced impervious coverage	More impervious coverage
Reduced stormwater runoff	More stormwater runoff

Green Building and Green Communities

Opportunities for green development should be identified and recommended in corridor studies and other planning efforts whenever possible. Many of the most congested corridors in the Delaware Valley region are located in growing suburban areas where roadway improvements have not kept pace with the development of new homes and businesses. The incorporation of green building projects into these areas can help to reduce local resource consumption while also creating new, vibrant places that are healthy, safe, attractive, and walkable.

Since the founding of the U.S. Green Building Council (USGBC) in 1993, and the launch of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System five years later, green building and other forms of sustainable design and development have begun to play a more visible role in our built environment. As the country's most prominent advocate and regulator of green building, the USGBC operates in accordance with a "triple bottom line" that promotes environmental, social, and economic prosperity.

The USGBC's LEED rating system includes criteria for evaluating a wide variety of new and existing structures. Among these criteria are standards for water and energy efficiency, and the use of recycled, renewable, and local building materials. Although buildings constructed to LEED standards may cost slightly more to develop or improve, their projected energy savings over the long term may exceed any incremental increase in their up-front costs. To achieve LEED certification, a project must also contribute to the overall health of its surrounding community by creating a place that is both attractive and accessible.

For example, the criteria for new commercial buildings include accommodations for alternative modes of transportation and the use of high-quality and innovative design techniques. By 2010, the USGBC hopes to certify 100,000 buildings and 1 million homes.

In addition to certifying individual buildings, the USGBC launched LEED for Neighborhood Development, or LEED-ND, as a pilot program in 2007. It is the first national rating system for neighborhood design, developed in association with the Congress for New Urbanism and the Natural Resources Defense Council. LEED-ND certification provides independent verification that a development's location and design meet accepted high standards for environmentally responsible, sustainable development. It affectively integrates smart growth, green building and urbanism. LEED-ND will be refined based on feedback throughout 2007 and 2008, with the full program and balloting system launched in 2009.

Local organizations dedicated to promoting green building and sustainable design include the Delaware Valley Green Building Council, Sustainable Philadelphia, and Philadelphia Green, an initiative of the Pennsylvania Horticultural Society. In addition, the Engineering and Design Studio at Philadelphia University functions as an interdisciplinary resource center with a focus on green building materials, sustainable design, and community involvement.

The emerging importance of climate change and increasing energy costs merit consideration in corridor planning. Current scientific consensus indicates that the Delaware Valley will face increased intensity in rainfall, which will result in increased flooding over historical levels and frequencies, warranting a conservative approach to stormwater drainage and flood protection in infrastructure design and location.

The Delaware Valley is expected to experience higher summer temperatures, and many more summer days in which the high temperature exceeds 90°F. These higher temperatures suggest at least two considerations when planning for street trees—they should be of a type that can withstand future climate extremes, and they should be plentiful to provide shade for pedestrians and buildings.

The combined impacts of policy responses to climate change and increased energy prices may result in a decreased number of personal cars, due to increased use of transit, increased cycling, and sharing of rides. Planners may wish to take this into consideration by assuring the corridor plan will accommodate future transit vehicles and cyclists. Corridor planners may also want to consider how orientation of roads might have an impact on the ability of future buildings to make maximum use of solar energy. In addition, corridor planners may need to be prepared to document the greenhouse gas emissions impacts of various options under consideration.

For more information, see:

> *Building Momentum: National Trends and Prospects for High Performance Green Buildings.* U.S. Green Building Council, Washington. 2003. www.usgbc.org/Docs/Resources/043003_hpgb_whitepaper.pdf.

> *Sustainable Philadelphia: Clean and Green by 2016.* Sustainable Philadelphia. 2006. www.sustainablephiladelphia.com/pdf/Sustainable_sm.pdf.

> *White Paper on Sustainability: A Report on the Green Building Movement.* Building Design and Construction. 2003. www.usgbc.org/Docs/Resources/BDCWhitePaperR2.pdf.

Affordable and Workforce Housing and Mobility Needs

When completing a corridor study, it may be important to consider how the proposed roadway or transit improvements included in the final report will affect the low- and moderate-income residents of the surrounding area, and the adequate supply of affordable and workforce housing surrounding major transportation corridors. In addition to the broad range of Environmental Justice issues (discussed later), it is critical to pay special attention to proximity of affordable and workforce housing options to major road and transit corridors. Given that the number one household cost is housing, followed by transportation, the true cost of housing should consider the sometimes hidden costs of transportation and its effect on a housing unit's affordability. An apartment or home far from the central city might be cheaper, but commuting costs for that household may make it as expensive or more than a closer-in apartment or home. Affluent communities that have essentially "zoned out" more affordable homes and apartments (through restrictions on multifamily housing, large minimum lot sizes, etc.) often find that those that work in their community cannot afford to live there, and sometimes jobs in corporate office parks go unfilled if affordable or workforce housing is not close enough or accessible for their workers.

The presence of affordable and workforce housing within a corridor study, and those households' mobility needs, should be taken into account when compiling recommendations for a report. The importance of providing multimodal options for commuting and other trips-such as through public transit, walking and bicycling-is very important to all of those who live or work in a corridor, but is particularly important for those who are transit-dependent or earn low to moderate incomes. Likewise, the actual provision of affordable and workforce housing units near transportation corridors is important, and can be recommended in a corridor study through the adoption of an inclusionary zoning ordinance.

Online databases of affordable housing units are available for both Pennsylvania and New Jersey. When completing a plan for a corridor, it may be helpful to consult these resources in order to determine whether a significant number of affordable or workforce units are proximate to the study area. Visit the Pennsylvania Affordable Apartment Locator at www.phfa.org/pal/ and the New Jersey Housing Resource Center at www.njhousing.gov.

Several organizations working throughout the Delaware Valley are making concerted efforts to expand the housing opportunities available to low- and moderate-income households. These include, but are not limited to, the Housing Alliance of Pennsylvania, the New Jersey Council on Affordable Housing, The Reinvestment Fund, and the Local Initiatives Support Corporation.

For more information, see:

> *Choices: A Report on the State of the Region's Housing Market.* The Reinvestment Fund, Philadelphia, PA. 2001. www.trfund.com/resource/downloads/policypubs/Choices.pdf.

> *Choices in Pennsylvania: Developing a Rational Framework for Housing Investment in Pennsylvania.* The Reinvestment Fund, Philadelphia, PA. 2003. www.trfund.com/resource/downloads/policypubs/choices_in_PA.pdf.

> *Guide to Affordable Housing in New Jersey.* New Jersey Department of Community Affairs. 1999. www.state.nj.us/dca/dh/guide/guide.shtml.

> *Municipal Implementation Tool #9: Inclusionary Zoning.* 2006. (DVRPC Publication No.: 06013.)

> *Center for Neighborhood Technology's Housing and Transportation Affordability Index* www.cnt.org/ht/

DEMOGRAPHICS

Existing and Forecasted Population and Employment

Demographics on population and employment provide important information about a corridor. The United States Census Bureau is the primary source of U.S. socioeconomic data, which includes population, housing, income, educational attainment, age, gender, race, employment, and journey-to-work, among other data. DVRPC also publishes data bulletins, analytical data reports, and data reference guides, which highlight the most recent census figures for the nine-county region. *These data reports can be especially useful in corridor studies, by placing the corridor within its larger context of the region. Corridor studies should include consideration of overall demographics of the study area, and highlight anything particularly relevant, such as whether the area is one of the fastest growing in the region, for example.*

Socioeconomic figures can be summarized and/or mapped at different political levels, depending on what is most relevant to the corridor study. Some common census statistical area types are minor civil division (MCD), which is usually the municipality; block group; and even smaller, by block. Comparisons of the most recent census data with the previous census can also provide meaningful analysis of changes in population, home values, and median income in the corridor, for instance. Demographic mapping forms the basis of DVRPC's Environmental Justice analysis of degrees of disadvantage.

Corridor studies should also include DVRPC's population and employment forecasts for the study area. Currently, DVRPC's adopted forecasts are made through the year 2035, based on Year 2000 Census data. Population forecasts are based on the decennial census, while employment forecasts are also based on census data, through the Census Transportation Planning Package (CTPP). Estimating employment is more difficult than population, thus the CTPP is onsly one of multiple sources of estimating employment. Other sources include the U.S. Bureau of Labor Statistics, the U.S. Bureau of Economic Analysis, state-level ES-202 data sets (operated by state Labor Market Information offices), and private information sources. Thus, the CTPP data gets reconciled with other sources of employment data, and is also reviewed by the individual counties.

For more information, see: DVRPC Website: www.dvrpc.org/data.htm

Major Employers

An inventory of major employers along a corridor may enhance an analysis of current demographics. This element may provide insight into the relationship of the roadway network and major employment centers, the attraction of employees from outside the study area, the size of the work force using the study area's transportation network, and the relative long-term stability of particular transportation infrastructure.

DVRPC publishes a report on employment centers every decade. *Employment Centers in the Delaware Valley, 2000* lists 136 employment centers in the region-88 in DVRPC's five Pennsylvania counties, and 48 in DVRPC's four New Jersey counties. Employment centers are defined as integrated, concentrated areas of nonresidential development that share transportation and land use linkages, have at least 500 employees, and have an employment density of at least 0.5 employees per acre. These centers form the backbone of the region's economy and, as primary destinations for journey-to-work trips, impact the region's highway and transit systems as well as goods movement and communications networks. Ninety-two percent of the region's employment is located within these identified employment centers.
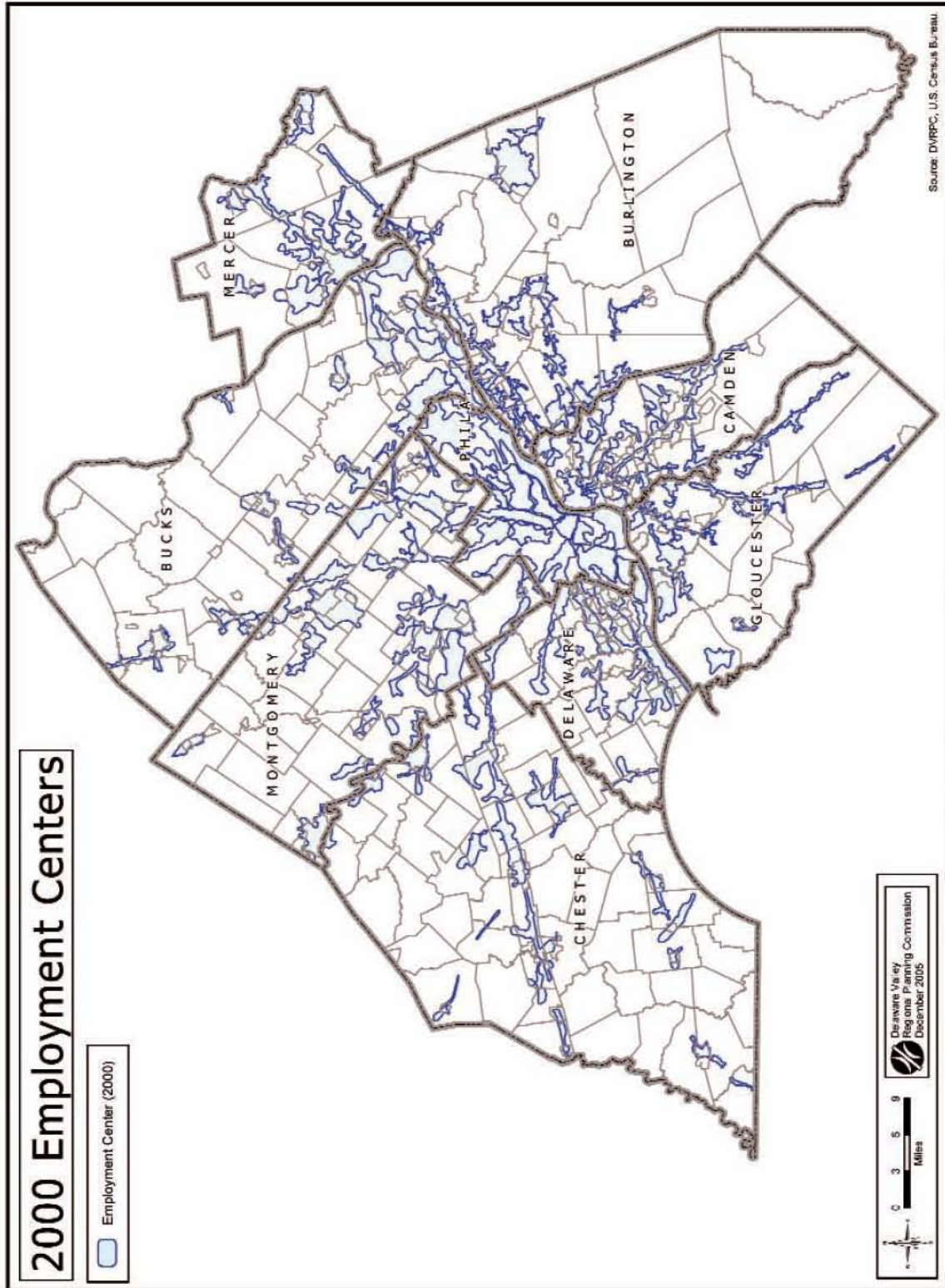
FIGURE 28: Employment Centers Map. From *2000 Employment Centers in the Delaware Valley.*
Source: DVRPC, 2003

Employment data compiled and analyzed in the report are from the Census Transportation Planning Package (CTPP) **(See Figure 28).**

To characterize each center, employment in 11 different sectors was combined into major employment categories, and centers were designated as industrial, service, wholesale/retail, government, or "multiple sector" centers. As expected, these categorizations illustrate a shift away from industrial sector employment towards a more service-oriented economy. Employment density in the centers ranges from a low of just over 0.7 employees per acre to a high of 180 employees per acre, in Center City Philadelphia.

Title VI and Environmental Justice

Title VI of the Civil Rights Act of 1964 and President Clinton's 1994 Executive Order on Environmental Justice (#12898) state that no person or group shall be excluded from participation in, or denied the benefits of, any program or activity utilizing federal funds. In turn, DVRPC, as part of the United States Department of Transportation's certification requirements, is required to evaluate its plans and programs for environmental justice (EJ) sensitivity. This includes expanding outreach efforts to low-income, minority, and other disadvantaged populations.

As part of its EJ program, DVRPC has created an internal methodology to identify disadvantaged communities within the region. Using U.S. Census data, DVRPC currently analyzes eight possible degrees of disadvantage (DODs). DODs are considered present in areas where concentrations of one or more of the following population characteristics exceed the regional average: poverty, elderly residents, non-Hispanic minorities, Hispanics, residents with Limited English Proficiency, carless households, physically disabled residents, and female heads of households with at least one child.

As standard practice, corridor studies should include an EJ analysis as part of their overall demographic investigation, so the potential impacts of the corridor study recommendations on disadvantaged populations can be considered. DOD methodology can provide a quick demographic snapshot of an area in addition to identifying disadvantaged groups. To complete an EJ analysis, the census tracts where the corridor lies should first be identified. Once all the applicable tracts are identified, they should be analyzed for individual DODs as well as to determine their overall level of disadvantage. *When corridor study areas include tracts with individual DOD concentration levels that are double the regional average, the project should be brought to the attention of DVRPC's Title VI Compliance Manager to coordinate outreach to these communities* (See Figure 29).

DVRPC's DOD methodology has been incorporated into several projects and reports. These include, but are not limited to, *Destination 2030*, the Transportation and Community Development Initiative (TCDI), the Congestion Management Process (CMP), the Job Access and Reverse Commute (JARC) Program, and the Coordinated Human Services Transportation Plan (CHSTP) .

For an example of how DVRPC's EJ methodology can be successfully integrated into a corridor study, see *NJ Route 70 Corridor Study: Airport Circle to Marlton Circle*. Completed in 2006, this report on an eight-mile section of NJ Route 70 in Camden and Burlington counties demonstrates how EJ analysis can be used to reveal the potential impacts of recommended transportation improvements on disadvantaged populations.

For more information, see:

> *"...and Justice for All": DVRPC's Strategy for Fair Treatment and Meaningful Involvement of All People.* Delaware Valley Regional Planning Commission, Philadelphia, PA. 2003/2002/2001.

FIGURE 7: DEGREES OF DISADVANTAGE BY 2000 CENSUS TRACT

InterCounty Relief Route: Schuylkill - East Pikeland - Phoenixville - Upper Providence
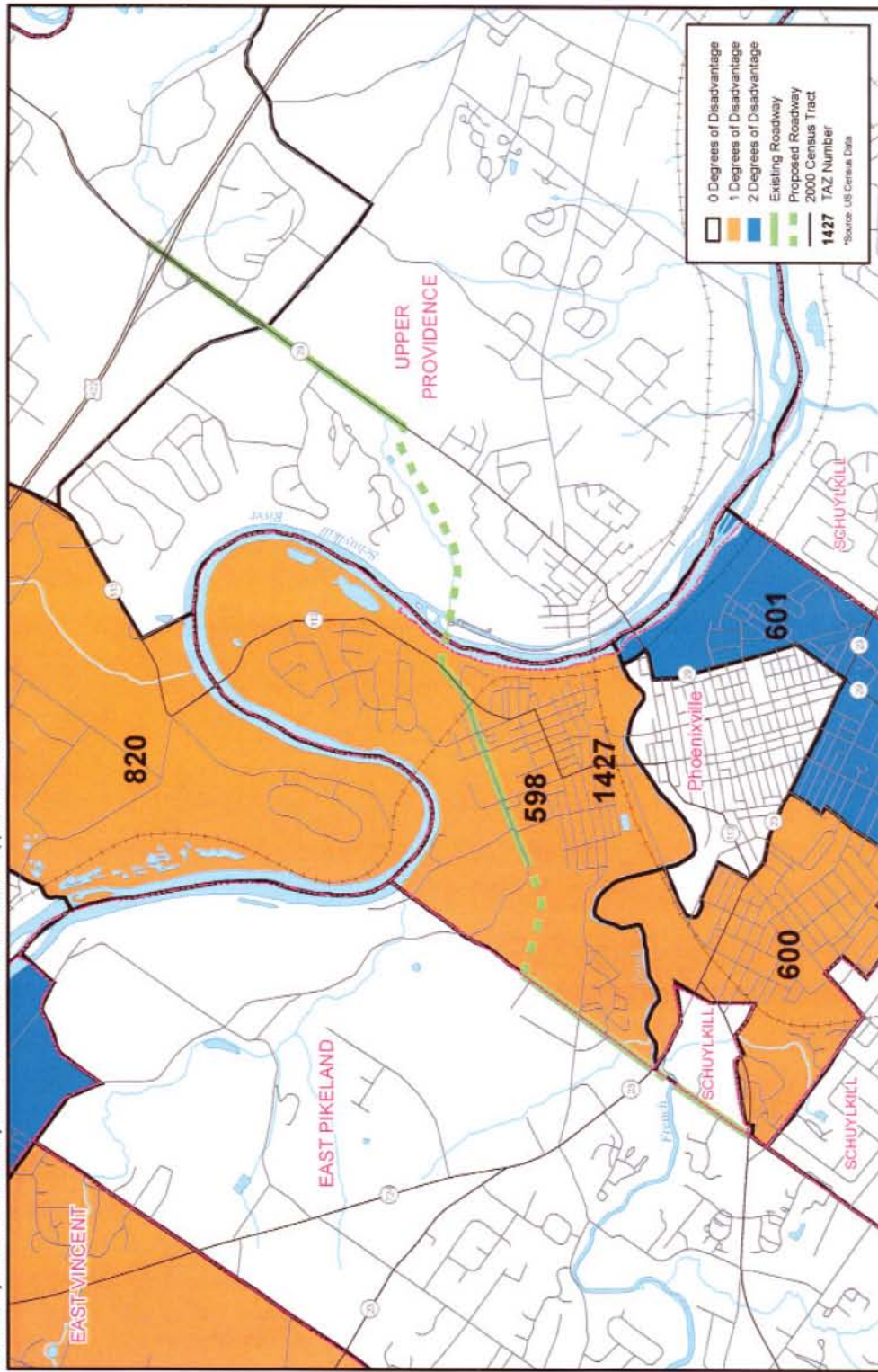
FIGURE 29: Degrees of Disadvantage by Census Tract. From *Intercounty Relief Route – Schuylkill, East Pikeland, Phoenixville, Upper Providence.*
Source: DVRPC, 2006

Equity and Opportunity: Title VI Compliance Plan. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

Making a Difference…Together: DVRPC Environmental Justice Protocol. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2005.

ECONOMIC DEVELOPMENT

Land use, transportation, the environment and economic development all need to be considered when studying a corridor. The Commonwealth of Pennsylvania, through its Keystone Principles for Growth, Investment, and Resource Conservation (May 2005), and the current federal transportation legislation, SAFETEA-LU, have placed a greater emphasis on the coordination of land use and transportation plans with economic development.

As part of its current Integrating Land Use, Transportation, and Economic Development Planning (LUTED) project, DVRPC is working with local economic development officials and other stakeholders to create a strategy for ensuring that economic development decisions reflect sound land use and transportation planning principles, and that land use planning decisions support and are coordinated with economic development needs. This project is also prioritizing transportation investment needed to promote economic growth within the region. A good economic development project depends on an efficient regional and local transportation network, and locational decisions made by businesses almost always consider access as a top priority. Investing in transportation infrastructure along a corridor can also spur economic development and land development.

DVRPC's long-range plan encourages economic development along existing corridors and centers, to take advantage of the existing public infrastructure and road and transit network, rather than new development on outer suburban or exurban greenfields that lack multimodal transportation access. DVRPC also encourages the redevelopment of brownfields and greyfields into viable development sites, and state agencies in both Pennsylvania and New Jersey have created funding streams and technical assistance programs to support the reuse of these sites.

Corridor plans should consider the economic development implications of any proposed infrastructure improvements, such as the development or redevelopment of land near a highway interchange, along an arterial roadway, or in proximity to a transit station. A corridor study might include a market feasibility study to assess what level of development a corridor might be able to support. If this is the case, at the start of the corridor planning process, an economic baseline for the corridor should be established, noting the type and level of economic activity on the corridor (type of business, employment, revenue, average salaries, etc.). This will be useful not only to gauge the effectiveness of corridor revitalization going forward, but also to help with evaluating the feasibility of various marketing strategies.

Existing zoning along a corridor (usually involving multiple municipalities) could be analyzed to tally how much development the corridor is zoned for. For instance, in DVRPC's *Inter-municipal Cooperation: White Horse Pike Economic Development and Land Use Assessment* (2003), a zoning build-out analysis and market study revealed that the corridor was over-zoned for commercial land uses. A corridor plan might also reveal that little information is available on developable parcels along a corridor, as was the case with the White Horse Pike Study, prompting the development of an available land database to promote development opportunities along the corridor.

In corridor studies with explicit revitalization goals, it is also important to address the role local government plays in creating a climate conducive to economic growth. This might include analysis of how existing

businesses evaluate the local tax system, as well as the relative ease of permitting and licensing. One effective step might be to interview existing businesses on why they have chosen to locate in the corridor, and what their major challenges are in remaining and growing. These challenges should be addressed by local government as part of the broader corridor planning process. It is also useful to inventory and evaluate any existing municipal economic development incentive programs, such as tax abatements, business improvement districts, or Main Street programs, and their effect on the corridor.

In 2002, DVRPC created the *Regional Economic Development Resource Guide* to disseminate information about funding and technical assistance programs that are available to support economic development activities in the region. The guide was updated in 2007. When completing a corridor study with an economic development component, use of this document may uncover information about possible future funding opportunities that could assist the affected municipalities.

For an example of a corridor study that includes a significant economic development component, see DVRPC's *Inter-municipal Cooperation: White Horse Pike Economic Development and Land Use Assessment* (2003).

For more information, see:

> *A Post-Global Economic Development Strategy*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

> *Municipal Implementation Tool #10: Reclaiming Brownfields*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2006.

> *Redesigning Shopping Centers in the Delaware Valley: From Greyfields to Community Assets*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2005.

> *Regional Economic Development Resource Guide*. Delaware Valley Regional Planning Commission, Philadelphia, PA. 2007.

CONCLUSION

It is clear that no "one size fits all" approach can be applied to corridor planning, given their different scales, levels of complexity, and goals. There are, however, some key elements that should be included in every corridor study and in every corridor process, to better integrate transportation, land use/form, and economic development. This integration is critical to improving the region's transportation network, guiding land use development and community design, and promoting economic development in the right places in the region. The checklists contained in this report should be used as a guide when completing a corridor study (or in some area studies) to ensure that the key questions and elements are included in a deliberative process.

Communities interested in pursuing a corridor study should coordinate their proposal with the pertinent city or county planning agency, State DOT and DVRPC. It is hoped that the information contained in this report helps to define the steps and contents of a corridor study, as well as providing additional resources to assist in the study process. Working in partnership at the local, county and regional levels, more effective corridor studies, plans and projects can be formulated and implemented to resolve current congestion and safety problems, while also respecting the communities and landscapes that they traverse.

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DVRPC TIP Website: www.dvrpc.org/transportation/capital/tip.htm

DVRPC Website: www.dvrpc.org/data.htm

FHWA Website: www.fhwa.dot.gov/environment/bikeped/design.htm#d4

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APPENDIX A: USEFUL CHECKLISTS FOR CORRIDOR EVALUATION

RATING WALKING/PEDESTRIAN-FRIENDLINESS

Walkability Checklist: How Walkable Is Your Community?

The National Center for Safe Routes to School, the Pedestrian and Bicycle Information Center, the United States Department of Transportation, and the United States Environmental Protection Agency created this walkability checklist for anyone to use in order to judge the quality of the physical environment while walking from one place to another. The checklist should be reviewed prior to the walk, and the questions it asks should be given ratings or responses immediately after. Based on the responses, problem areas can be identified through the worksheet and potential short- and long-term solutions to improving the community for walking are summarized in the "Improving Your Community's Score…" section. The checklist also has a section on where to go for additional resources.

www.walkinginfo.org/walkingchecklist.htm

Pedestrian-Friendliness Scorecard

The Voorhees Transportation Policy Institute created the Pedestrian-Friendliness Scorecard in 2003 to measure the overall pedestrian friendliness of a community or municipality. It is designed for use by citizens or officials. It identifies 10 criteria for a pedestrian-friendly environment, and allows the user to rate each of these for their own community, and then add up the ratings to determine an overall grade for the community's walkability. www.smartgrowthgateway.org/pdf_folder/tpiwalkscorecard-5.xls

Walkability Checklist

Active Independent Aging, of Ottawa, Canada, created this Walkability Checklist in 2004 to consider the walking needs for the elderly on a neighborhood level. This checklist rates the physical environment for safety and pleasantness. The final tally gives a walkability rating, and gives suggestions for improvements with an older population in mind. www.falls-chutes.com/guide/english/resources/handouts/walkchecklist.html

Walkability Checklist

How walkable is your community?

Take a walk with a child and decide for yourselves.

Everyone benefits from walking. These benefits include: improved fitness, cleaner air, reduced risks of certain health problems, and a greater sense of community. But walking needs to be safe and easy. Take a walk with your child and use this checklist to decide if your neighborhood is a friendly place to walk. Take heart if you find problems, there are ways you can make things better.

Getting started:

First, you'll need to pick a place to walk, like the route to school, a friend's house or just somewhere fun to go.

The second step involves the checklist. Read over the checklist before you go, and as you walk, note the locations of things you would like to change. At the end of your walk, give each question a rating. Then add up the numbers to see how you rated your walk overall.

After you've rated your walk and identified any problem areas, the next step is to figure out what you can do to improve your community's score. You'll find both immediate answers and long-term solutions under "Improving Your Community's Score..." on the third page.

SafeRoutes
National Center for Safe Routes to School

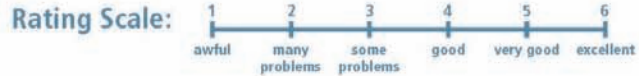**Pedestrian and Bicycle Information Center**

U.S. Department of Transportation

Take a walk and use this checklist to rate your neighborhood's walkability.

How walkable is your community?

Location of walk _____
_____

Rating Scale:

1	2	3	4	5	6
awful	many problems	some problems	good	very good	excellent

1. Did you have room to walk?

☐ Yes   ☐ Some problems:
- ☐ Sidewalks or paths started and stopped
- ☐ Sidewalks were broken or cracked
- ☐ Sidewalks were blocked with poles, signs, shrubbery, dumpsters, etc.
- ☐ No sidewalks, paths, or shoulders
- ☐ Too much traffic
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)   _____
1 2 3 4 5 6   _____

2. Was it easy to cross streets?

☐ Yes   ☐ Some problems:
- ☐ Road was too wide
- ☐ Traffic signals made us wait too long or did not give us enough time to cross
- ☐ Needed striped crosswalks or traffic signals
- ☐ Parked cars blocked our view of traffic
- ☐ Trees or plants blocked our view of traffic
- ☐ Needed curb ramps or ramps needed repair
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)   _____
1 2 3 4 5 6   _____

3. Did drivers behave well?

☐ Yes   ☐ Some problems: Drivers...
- ☐ Backed out of driveways without looking
- ☐ Did not yield to people crossing the street
- ☐ Turned into people crossing the street
- ☐ Drove too fast
- ☐ Sped up to make it through traffic lights or drove through traffic lights?
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)   _____
1 2 3 4 5 6   _____

4. Was it easy to follow safety rules?
Could you and your child...

☐ Yes   ☐ No   Cross at crosswalks or where you could see and be seen by drivers?

☐ Yes   ☐ No   Stop and look left, right and then left again before crossing streets?

☐ Yes   ☐ No   Walk on sidewalks or shoulders facing traffic where there were no sidewalks?

☐ Yes   ☐ No   Cross with the light?

Locations of problems: _____

Rating: (circle one)   _____
1 2 3 4 5 6   _____

5. Was your walk pleasant?

☐ Yes   ☐ Some unpleasant things:
- ☐ Needed more grass, flowers, or trees
- ☐ Scary dogs
- ☐ Scary people
- ☐ Not well lighted
- ☐ Dirty, lots of litter or trash
- ☐ Dirty air due to automobile exhaust
- ☐ Something else _____

Locations of problems: _____

Rating: (circle one)   _____
1 2 3 4 5 6   _____

How does your neighborhood stack up?
Add up your ratings and decide.

1. _____
2. _____
3. _____
4. _____
5. _____

Total _____

26–30	Celebrate! You have a great neighborhood for walking.
21–25	Celebrate a little. Your neighborhood is pretty good.
16–20	Okay, but it needs work.
11–15	It needs lots of work. You deserve better than that.
5–10	It's a disaster for walking!

Now that you've identified the problems,
go to the next page to find out how to fix them.

Now that you know the problems,
you can find the answers.

Improving your community's score...

	What you and your child can do immediately	What you and your community can do with more time
1. Did you have room to walk?		

Sidewalks or paths started and stopped Sidewalks broken or cracked Sidewalks blocked No sidewalks, paths or shoulders Too much traffic	• pick another route for now • tell local traffic engineering or public works department about specific problems and provide a copy of the checklist	• speak up at board meetings • write or petition city for walkways and gather neighborhood signatures • make media aware of problem • work with a local transportation engineer to develop a plan for a safe walking route

2. Was it easy to cross streets?

Road too wide Traffic signals made us wait too long or did not give us enough time to cross Crosswalks/traffic signals needed View of traffic blocked by parked cars, trees, or plants Needed curb ramps or ramps needed repair	• pick another route for now • share problems and checklist with local traffic engineering or public works department • trim your trees or bushes that block the street and ask your neighbors to do the same • leave nice notes on problem cars asking owners not to park there	• push for crosswalks/signals/parking changes/curb ramps at city meetings • report to traffic engineer where parked cars are safety hazards • report illegally parked cars to the police • request that the public works department trim trees or plants • make media aware of problem

3. Did drivers behave well?

Backed without looking Did not yield Turned into walkers Drove too fast Sped up to make traffic lights or drove through red lights	• pick another route for now • set an example: slow down and be considerate of others • encourage your neighbors to do the same • report unsafe driving to the police	• petition for more enforcement • request protected turns • ask city planners and traffic engineers for traffic calming ideas • ask schools about getting crossing guards at key locations • organize a neighborhood speed watch program

4. Could you follow safety rules?

Cross at crosswalks or where you could see and be seen Stop and look left, right, left before crossing Walk on sidewalks or shoulders facing traffic Cross with the light	• educate yourself and your child about safe walking • organize parents in your neighborhood to walk children to school	• encourage schools to teach walking safely • help schools start safe walking programs • encourage corporate support for flex schedules so parents can walk children to school

5. Was your walk pleasant?

Needs grass, flowers, trees Scary dogs Scary people Not well lit Dirty, litter Lots of traffic	• point out areas to avoid to your child; agree on safe routes • ask neighbors to keep dogs leashed or fenced • report scary dogs to the animal control department • report scary people to the police • report lighting needs to the police or appropriate public works department • take a walk wih a trash bag • plant trees, flowers in your yard • select alternative route with less traffic	• request increased police enforcement • start a crime watch program in your neighborhood • organize a community clean-up day • sponsor a neighborhood beautification or tree-planting day • begin an adopt-a-street program • initiate support to provide routes with less traffic to schools in your community (reduced traffic during am and pm school commute times)

A Quick Health Check

Could not go as far or as fast as we wanted Were tired, short of breath or had sore feet or muscles Was the sun really hot? Was it hot and hazy?	• start with short walks and work up to 30 minutes of walking most days • invite a friend or child along • walk along shaded routes where possible • use sunscreen of SPF 15 or higher, wear a hat and sunglasses • try not to walk during the hottest time of day	• get media to do a story about the health benefits of walking • call parks and recreation department about community walks • encourage corporate support for employee walking programs • plant shade trees along routes • have a sun safety seminar for kids • have kids learn about unhealthy ozone days and the Air Quality Index (AQI)

Need some guidance?
These resources might help...

Great Resources

WALKING INFORMATION
Pedestrian and Bicycle Information Center (PBIC)
UNC Highway Safety Research Center
730 Airport Road , Suite 300
Campus Box 3430
Chapel Hill, NC
27599-3430
Phone: (919) 962-2202
www.pedbikeinfo.org
www.walkinginfo.org

National Center for
Safe Routes to School
730 Martin Luther
King, Jr. Blvd., Suite 300
Campus Box 3430
Chapel Hill, NC 27599-3430
Toll-free 1-866-610-SRTS
www.saferoutesinfo.org

National Center for Bicycling and Walking
Campaign to Make America Walkable
1506 21st Street, NW
Suite 200
Washington, DC 20036
Phone: (800) 760-NBPC
www.bikefed.org

WALK TO SCHOOL DAY WEB SITES
USA event: www.walktoschool-usa.org
International: www.iwalktoschool.org

STREET DESIGN AND TRAFFIC CALMING
Federal Highway Administration
Pedestrian and Bicycle Safety Research Program
HSR - 20
6300 Georgetown Pike
McLean, VA 22101
www.fhwa.dot.gov/environment/bikeped/index.htm

Institute of Transportation Engineers
www.ite.org

Surface Transportation Policy Project
www.transact.org

Transportation for Livable Communities
www.tlcnetwork.org

WALKING COALITIONS
America Walks
P.O. Box 29103
Portland, Oregon 97210
Phone: (503) 222-1077
www.americawalks.org

PEDESTRIAN SAFETY
National Highway Traffic Safety Administration
Traffic Safety Programs
400 Seventh Street, SW
Washington, DC 20590
Phone: (202) 662-0600
www.nhtsa.dot.gov/people/injury/pedbimot/ped

SAFE KIDS Worldwide
1301 Pennsylvania Ave. NW
Suite 1000
Washington, DC 20004
Phone: (202) 662-0600
Fax: (202) 393-2072
www.safekids.org

WALKING AND HEALTH
US Environmental Protection Agency
Office of Children's Health Protection (MC 1107A)
Washington, DC 20460
Phone: 202-564-2188
Fax: 202-564-2733
www.epa.gov/children/
www.epa.gov/airnow/
www.epa.gov/air/urbanair/ozone/what.html
www.epa.gov/sunwise/uvindex.html
www.epa.gov/otaq/transp/comchoic/ccweb.htm

President's Task Force on Environmental Health Risks and
Safety Risks to Children
www.childrenshealth.gov

Centers for Disease Control and Prevention
Division of Nutrition and Physical Activity
Phone: (888) 232-4674
www.cdc.gov/nccdphp/dnpa/readyset
www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm

Prevention Magazine
33 East Minor Street
Emmaus, PA 18098
www.itsallaboutprevention.com

Shape Up America!
6707 Democracy Boulevard
Suite 306
Bethesda, MD 20817
www.shapeup.org

ACCESSIBLE SIDEWALKS
US Access Board
1331 F Street, NW
Suite 1000
Washington, DC 20004-1111
Phone: (800) 872-2253;
(800) 993-2822 (TTY)
www.access-board.gov

Voorhees Transportation Policy Institute
Pedestrian-Friendliness Scorecard

What is pedestrian-friendliness? Pedestrian-friendliness is the cornerstone and key to an urban area's efficient ground transportation. We begin and end every trip as a pedestrian. Walking remains the cheapest form of transport for all people, and the construction of a pedestrian-friendly environment provides the most affordable transportation system any community can plan, design, construct and maintain. Assessing the pedestrian-friendliness of our communities is the first step towards establishing more liveable communities.

About this scorecard: This scorecard is as much a conceptual model as it is a practical tool. It should be viewed as a way to help citizens and local officials evaluate whether or not a municipality is pedestrian friendly, and whether the right tools are in place to make it so. This scorecard is designed to help us answer the questions "How walkable are our communities?" and "How can we make our communities safer and more enjoyable places to walk?" Walkable communities have a number of benefits, including traffic and congestion reduction, and decreasing demand for parking, especially in local commercial and train station areas.

General pedestrian-friendly criteria:
-- Facility design and infrastructure enhances the pedestrian environment
-- Transitions and continuity of the pedestrian environment encourage walking
-- Traffic and street crossing design prioritizes pedestrian's needs
-- Streetscape is designed at a human scale and is visually interesting
-- Land uses are pedestrian-oriented
-- Safety rules prioritize the pedestrian and are enforced
-- Design of lighting and landscaping considers pedestrian comfort and safety
-- Pedestrian amenities exist and are appropriately located
-- Pedestrian paths maximize level walking surfaces
-- Seasonal issues do not compromise pedestrian accessibility or safety

Directions: The scorecard is divided into ten sections, one for each pedestrian-friendly criterion (see above). Read through the sections and identify the best answer for each measurement listed. To calculate the score, enter the points for a given answer into the score column. Add up the scores for each measurement and write that number (subtotal) in the space provided. If using the electronic scorecard, simply place an "x" in the appropriate answer column and the scorecard will tally your responses automatically.

To use: Scorecard will tally your responses automatically. Simply place an "X" in the appropriate answer column.

I. Infrastructure / Maintenance

Some aspects of transportation facility design can enhance the pedestrian environment while others can act as deterrents to walking and create obstacles to travel. Particular attention should be given to the construction and maintenance of sidewalks and curb cuts, and to walkway widths.

I. Infrastructure / Maintenance		Points	Answer	Score
There are sidewalks on both sides of the street	Plenty of sidewalks on both sides of street	4		0
	Adequate sidewalks on both sides of street	3		0
	Sidewalks on one side of street only	2		0
	Few sidewalks exist	1		0
	Very few or no sidewalks exist	0		0
Sidewalks are wide enough in all locations *(minimum clear width*	Sidewalks are consistently wide enough	2		0
	Sidewalks vary in adequate width	1		0
	Sidewalks are too narrow	0		0
Sidewalks are in adequate repair	Sidewalks are consistently in good shape	3		0
	Sidewalk repair is adequate	2		0
	Sidewalks need some repair	1		0
	Sidewalks present tripping hazards	0		0
There are curbs	Curbs are appropriately located	2		0
	Curbs are in most locations	1		0
	No curbs exist	0		0
Curbs are designed for easy pedestrian access	Curbs are pedestrian accessible	1		0
	Curbs are not pedestrian accessible	0		0
Curbs are in adequate repair	Curbs are consistently in good shape	2		0
	Curb repair is adequate	1		0
	Curbs are in poor repair	0		0
The pavement is well-maintained	Pavement is consistently in good shape	3		0
	Pavement maintenance is adequate	2		0
	Pavement needs some repair	1		0
	Pavement is a hazard	0		0
			Subtotal	0

II. Continuity

The ease of transitions within the pedestrian realm is a key element in encouraging people in your community to walk. The provision of pedestrian-oriented pavement markings and signalization affords safe points of interaction with motorized traffic. Attention to grade shifts at driveways and building entrances make for a more seamless trip.

II. Continuity		Points	Answer	Score
Pedestrian walkways lead to and from adjacent areas allowing for	Walkways prioritize pedestrian access	4		0
	Walkways link most destination points	3		0
	Continuity is adequate for pedestrian access	2		0
	Continuity is poor for pedestrian access	1		0
	Pedestrian walkways go nowhere	0		0
Signals are conveniently timed *(Signal cycle lengths should be*	Pedestrians do not have to wait for signals	3		0
	Signals change quickly for pedestrians	2		0
	Signals respond slowly for pedestrians	1		0
	Vehicle movement is prioritized	0		0
There are minimal curb cuts *(frequent curb cuts for driveways*	Few curb cuts exist	2		0
	Some curb cuts exist	1		0
	Curb cuts exist in abundance	0		0
Pedestrian crossings are marked *(Marked crosswalks increase*	Crossings are consistently marked	3		0
	Crossings are marked at most intersections	2		0
	Crossings are marked at major intersections	1		0
	Crossings are rarely marked	0		0
Curb ramps are provided at all corners *(The ADA requires two*	Curb ramps exist at all corners	2		0
	Presence of curb ramps is adequate	1		0
	Few or no curb ramps exist	0		0
			Subtotal	0

III. Traffic and Street Crossing

Well-designed traffic and street crossings can enhance the pedestrian realm and encourage walking. Street design should consider street widths, traffic speeds, and pedestrian's lines of sight.

III. Traffic and street crossing		Points	Answer	Score
Streets are easy to cross *(Corners should be free of obstructions,*	Streets are consistently easy to cross	4		0
	Street crossing is relatively easy	3		0
	Street crossing is adequate	2		0
	Streets are difficult to cross	1		0
	Streets are dangerous to cross	0		0
Traffic speeds are compatible with pedestrians *(Narrower travel*	Speeds prioritize pedestrian movement	3		0
	Speeds are compatible with pedestrians	2		0
	Traffic speeds intimidate pedestrians	1		0
	Speeds compromise pedestrian safety	0		0
Traffic volumes do not make walking unpleasant	Traffic volumes are low	2		0
	Traffic volumes do not intimidate pedestrians	1		0
	Traffic volumes are unsafe for pedestrians	0		0
Parked cars do not block pedestrian's views	Parked cars do not block views	2		0
	Parked cars occasionally block views	1		0
	Parked cars compromise pedestrian safety	0		0
Trees, plants and signage does not block pedestrian's views	Foliage or signage do not block views	2		0
	Foliage or signage do not pose problems	1		0
	Foliage or signage compromise safety	0		0
			Subtotal	0

IV. Streetscape

Streetscape design includes the layout of the streets, the sense of focus and enclosure, proportions and dimensions, and responds to natural features. Awnings, benches, drinking fountains, planters, trees and other sidewalk furniture and amenities are integral elements in making a community more visually interesting and more accommodating for the pedestrian.

IV. Streetscape		Points	Answer	Score
There are trees, flowers, etc. along the route	Foliage significantly enhances the route	2		0
	Some trees and flowers are along route	1		0
	Few or no trees or flowers exist along route	0		0
Trees or awnings provide sun protection	Pedestrian has plenty of protection from sun	2		0
	Pedestrian has some protection from sun	1		0
	Limited or no protection from sun	0		0
The sidewalks are visually interesting *(Building facades, including*	Sidewalks have visual appeal	2		0
	Sidewalks have adequate visual interest	1		0
	Sidewalks are uninteresting	0		0
The walking environment is litter and graffiti free *(Trashcans*	The environment is very clean	2		0
	The environment is adequately clean	1		0
	The environment is unclean	0		0
The walking environment is pleasant	The environment encourages walking	3		0
	The environment is enjoyable	2		0
	The environment is adequate	1		0
	The environment deters pedestrians	0		0
			Subtotal	0

V. Land Use

Land uses that are pedestrian-oriented incorporate a careful consideration for the access needs of the person traveling by foot, and therefore encourage walking. Buffers between pedestrian and auto-oriented land uses offer many advantages to the comfort and safety of pedestrians.

V. Land Use		Points	Answer	Score
There are pedestrian-oriented land uses *(Land use and*	The environment is pedestrian-oriented	3		0
	Land uses encourage pedestrianism	2		0
	Pedestrian-orientation is adequate	1		0
	No pedestrian uses exist	0		0
Retail and service uses are located on lower levels of buildings	Retail & services are on the ground level	2		0
	Some ground level services exist	1		0
	Ground level access to services is difficult	0		0
Commercial development is concentrated	Commercial uses consistently concentrated	2		0
	Commercial uses adequately concentrated	1		0
	Commercial uses compromise environment	0		0
Auto-oriented land uses are separated from those for pedestrians	Pedestrian and auto uses happily coexist	4		0
	Pedestrian access is prioritized	3		0
	Auto-orientation does not dominate	2		0
	Environment favors auto-orientation	1		0
	Autos are obstacle or threat to pedestrians	0		0
Pedestrian areas are buffered from auto-related hazards	Pedestrians areas buffered from auto hazards	2		0
	Auto hazards encroach on pedestrian realm	1		0
	Autos compromise pedestrian realm	0		0
			Subtotal	0

VI. Safety Rules

In a pedestrian-friendly environment motorists can anticipate and respond to pedestrian movements, and pedestrians can always identify safe spaces where motorists must yield.

VI. Safety Rules		Points	Answer	Score
At crosswalks pedestrians can see and be seen by drivers	Pedestrian visibility is prioritized	4		0
	Pedestrians feel safe at crosswalks	3		0
	Pedestrian visibility is adequate	2		0
	Pedestrian visibility at crosswalks is poor	1		0
	Pedestrians feel vulnerable at crosswalks	0		0
Bollards are used to protect pedestrians on corners or other areas	Bollards are consistently used	2		0
	Bollards are used at major intersections	1		0
	Pedestrians feel vulnerable at waiting areas	0		0
Where there are no sidewalks, pedestrians can walk on shoulders	Yes	1		0
	No	0		0
			Subtotal	0

VII. Security / Lighting

Creating a walkable environment can enhance the safety and security of the community. Strategically-placed lighting can substantially enhance pedestrian safety. Careful consideration should be given to landscaping that affords ease of access and good visibility.

VII. Security / Lighting		Points	Answer	Score
Lighting is adequate on pedestrian routes (*Pedestrian light*	Lighting is frequent and human-scale	3		0
	Lighting is adequate	2		0
	Lighting is infrequent	1		0
	Pedestrian routes are poorly lit	0		0
Lighting is adequate on street corners (*Particular attention should*	Street corners are well-lit	2		0
	Lighting exists at major intersections	1		0
	Few street corners are adequately lit	0		0
Pay phones or police call boxes are located along pedestrian	Yes	1		0
	No	0		0
The route appears secure (no vacant buildings, good visibility,	The route maximizes pedestrian security	3		0
	Route security is adequate	2		0
	Route security is poor	1		0
	The route feels unsafe	0		0
Threatening behavior does not dominate route	No antisocial activity exists	2		0
	Antisocial activity is not a significant problem	1		0
	Antisocial activity dominates the route	0		0
			Subtotal	0

Handout 16

Walkability checklist

Introduction

Walking is a great way to get the exercise you need for healthy aging. Walking is easy to do. It can fit into even the busiest of schedules. Best of all it's free. But not all neighbourhoods are created equally when it comes to walking. We invite you to use the following checklist to explore the walkability of your neighbourhood. Your organization may want to organize a group walkability check for the neighbourhood around their facility.

How to use the checklist

- ◆ Pick a place to walk to, like a route to a friend's house, to a store or for some exercise.
- ◆ Your walk can be as long or as short as you wish.
- ◆ Read the checklist over before you go.
- ◆ As you walk, watch for items from your checklist.
- ◆ Take note of good things and problems along your walking route.
- ◆ Also, check off the items that might be a problem for someone less able-bodied
- ◆ Pay attention to where you are going. Stop first, then check off items on your list.
- ◆ Write down the location of problems you find.
- ◆ If the item does not apply to your route, go on to the next section.

After your walk

- ◆ Fill in the rating for each section.
- ◆ Total up the ratings to see how your neighbourhood scores overall for walkability.

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You can use the results to:

◆ Choose walking routes in your neighbourhood that are safe and pleasant. Let your friends and neighbours know about good places to walk.

◆ Use the checklist results to improve the walkability of your neighbourhood. Contact your city hall and let them know about problems that you have found. Call or send a letter. Provide details about the problem and its location to help city staff respond to your request.

◆ You may want to collect walkability checklist results from other people to bring problems to the attention of city hall. If more people report a hazard, there is a better chance of getting changes made.

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1. Sidewalks, stairs and ramps, and winter safety

Yes　No

☐　☐　There are sidewalks all along my route.

☐　☐　Sidewalks are wide and even, with no cracks or holes.

☐　☐　Sidewalks are level.

☐　☐　Sidewalks are clear of poles, signs, bushes, trash, parked bicycles etc.

☐　☐　Edges of stairs and ramps are marked with a contrasting colour.

☐　☐　Stairs and ramps feel safe to use—not too steep, no cracks or breaks.

☐　☐　Stairs and ramps have railings on both sides.

☐　☐　Stairs are safe to use in wet weather—not slippery.

☐　☐　Sidewalks are safe to use in winter—clear, and well salted or sanded.

☐　☐　There are grit boxes in the neighbourhood.

Other:

Location of problems:
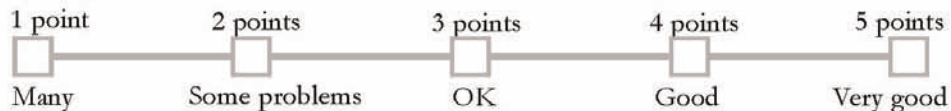
Rating:

1 point	2 points	3 points	4 points	5 points
☐	☐	☐	☐	☐
Many	Some problems	OK	Good	Very good

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4

2. Crosswalks

Yes **No**

☐	☐	Curbs have ramps at crosswalks.
☐	☐	I can clearly see traffic before I cross the street—nothing blocks my view.
☐	☐	On wide roads, there is an island in the middle of the road to wait for the next light.
☐	☐	I can use an under or over pass to cross streets.
☐	☐	There is a crosswalk where I need one. I don't have to walk all the way to a corner to get across the street.
☐	☐	Drivers give pedestrians the right of way at crosswalks and at stop signs and stop lights.
☐	☐	I can get across the street before the light changes.
☐	☐	The traffic light changes soon after I push the crosswalk button.
☐	☐	I can cross the street in time and within the crosswalk lines even if the there are many people crossing at the same time.

Other:

Location of problems:
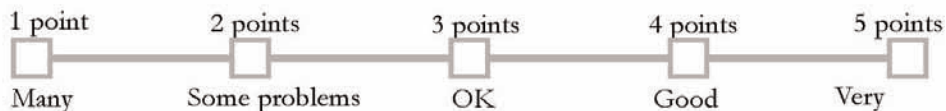
Rating:

1 point	2 points	3 points	4 points	5 points
☐	☐	☐	☐	☐
Many	Some problems	OK	Good	Very

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Handout 16   5

3. Traffic

Yes   No

☐	☐	There is space between the sidewalk and the street so I don't worry about the traffic.
☐	☐	The traffic is light enough to make walking pleasant – not too many large trucks, exhaust fumes or noise.
☐	☐	Drivers obey the speed limit.
☐	☐	The speed limit is suitable for this neighbourhood.
☐	☐	Speed bumps and extended curbs at corners help slow down the traffic.
☐	☐	Drivers are careful–they watch out for pedestrians at driveways, crosswalks and parking lots.
☐	☐	Drivers are careful not to splash walkers when there are puddles on the streets.
☐	☐	Cyclists are careful around pedestrians. They dismount when approaching pedestrians or they drive slowly, use their bells and leave plenty of room between their bike and the walkers.
☐	☐	The parking lots I walk through have sidewalks and crosswalks.

Other:

Location of problems:

Rating:

1 point	2 points	3 points	4 points	5 points
☐	☐	☐	☐	☐
Many	Some problems	OK	Good	Very

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4. Personal safety

Yes   No

☐ ☐   At night, the street is well lit.

☐ ☐   I feel safe because there are lots of other people around.

☐ ☐   There are houses and stores where I could go in case of trouble.

☐ ☐   There are phones I could use to call for help.

☐ ☐   My route is free of suspicious people, vandalism, crime and disturbing graffiti.

☐ ☐   There are police, security guards or a pathway patrol on my walking route.

☐ ☐   Dogs are properly controlled by their owners.

Other:

Location of problems:
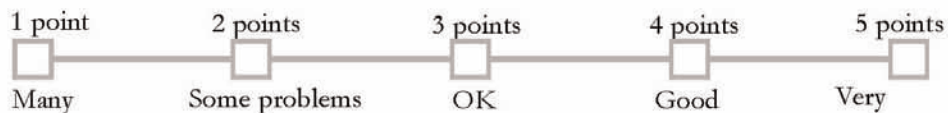
Rating:

1 point	2 points	3 points	4 points	5 points
☐	☐	☐	☐	☐
Many	Some problems	OK	Good	Very

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5. Pleasant and supportive routes for walkers

Yes   No

☐ ☐ The route is natural with rivers, lakes, gardens, grassy areas, birds, flowers trees or wildlife to look at.

☐ ☐ It is clean—no litter, trash, including houses and businesses.

☐ ☐ There are interesting things to see such as statues, fountains, interesting old buildings or beautiful architecture.

☐ ☐ Shady places with benches can give me a comfortable place to sit and take a rest.

☐ ☐ There are public washrooms that I can use easily and safely.

☐ ☐ Trees, building awnings, and bus shelters give protection from sun, rain and wind.

☐ ☐ I can take a bus home if I get tired.

☐ ☐ I can get a drink at water fountains.

Other:

Location of problems:

Rating:

1 point	2 points	3 points	4 points	5 points
☐	☐	☐	☐	☐
Many	Some problems	OK	Good	Very

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Summary

Date of walk: _____

Route: _____

Add up your ratings	Score
1. Sidewalks, stairs and ramps, and winter safety	
2. Crosswalks	
3. Traffic	
4. Personal safety	
5. Pleasant and supportive routes for walkers	
Total:	

How did your neighbourhood score?

20-25	Congratulations, you have a great neighbourhood for walking.
15-19	Not bad, a couple of things to fix up.
10-14	Your neighbourhood needs some work to make it pedestrian friendly.
5-9	You deserve better than this, get some help from your local government, a lot of work needs to be done.

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What to do if you found problems

Pick another route for now.
Report problems to City Hall or to the proper authority.

1. Sidewalks, stairs and ramps, and winter safety

What you can do now
- Make sure all bushes on your property are trimmed so they don't get in the way of walkers.
- When snow is removed from your driveway, make sure that it is not piled on the sidewalk.
- Carry a small bag of sand with you in the winter time to spread on slippery spots.
- Wear good shoes when you are out walking.
- In winter, take a bus to a shopping mall and join a walking group.

What you can do with more time
- Ask business owners to make sure their stairs and ramps are safe for seniors.
- Have a local radio station give an update on walking conditions along with their regular weather and traffic reports.
- Get together with your neighbours to clean up problem areas.
- Work with City Hall to set up a hotline for people to report hazards on sidewalks.
- If you have no sidewalk in your area, contact your coucillor and other people in your area that might be concerned, start a petition.

2. Crosswalks

What you can do now
- Be a courteous driver yourself.
- Trim any trees or bushes that block the street or drivers' views.

What you and your community can do with more time
- Ask that the police department do more to enforce traffic laws.

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◆ Ask City Hall for more crosswalks, greater visibility for pedestrian crosswalks, traffic light timing that puts pedestrian safety first, pedestrian overpasses or underpasses and raised medians.

3. Traffic

What you can do now

◆ Pick a time for your walk when there is less traffic.

◆ Set an example: when you are driving slow down and be considerate of others.

◆ Report unsafe driving to the police.

What you and your community can do with more time

◆ Organise a neighbourhood Speed Watch program.

◆ Ask the police department to enforce traffic laws.

◆ Work with City Hall to introduce traffic calming in your neighbourhood.

◆ Ask City Hall to fix roads where large puddles of water accumulate.

◆ Ask City Hall to make walking routes a priority in all new developments.

4. Personal safety

What you can do now

◆ Ask a friend to go with you on your walk.

◆ Walk in the daytime.

◆ Report scary people to the police.

◆ Ask neighbours to keep dogs leashed or fenced.

What you and your community can do with more time

◆ Start a Neighbourhood Watch or Crime Watch program.

◆ Start a walking club so you always have someone to go with.

◆ Request more police in your neighbourhood.

◆ Ask business owners to put lights in sunken doorways, alleyways and other areas where someone might lurk.

◆ Ask City Hall and private property owners to fix up vandalism.

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◆ Organise a walking potluck in your neighbourhood where people have to walk to a new house for each course of the meal.

5. Pleasant and supportive routes

What you can do now
- ◆ Smile and say hello to the people you pass.
- ◆ Plant trees and flowers in your own yard.
- ◆ Take a trash bag with you on your walk.
- ◆ Take a folding chair or stool with you so you can sit down and have a rest.
- ◆ Take a drink with you.
- ◆ Walk on the shady side of the street.

What you and your community can do with more time
- ◆ Plant trees and flowers on abandoned properties.
- ◆ Organise a community clean-up day.
- ◆ Sponsor a neighbourhood beautification or tree-planting day.
- ◆ Begin an adopt-a-street program.
- ◆ Make a map of your neighbourhood that shows public washrooms, water fountains and telephones.
- ◆ Work with businesses and City Hall to install benches along popular walking routes.
- ◆ Work with city planners to build parks with shade, benches, public telephones and water fountains.
- ◆ Ask City Hall to improve bus routes in your neighbourhood.
- ◆ Ask local farmers if they would set up a fruit or vegetable stand once a week in a church or community centre parking lot.

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RATING BICYCLING/BICYCLE-FRIENDLINESS

Bikeability Checklist

The National Highway Traffic Safety Administration, the Pedestrian Bicycle Information Center, and the U.S. Department of Transportation created a bikeability checklist for anyone interested in biking to review specific bike riding conditions. It is a short review of the conditions of the bike riding area, including road conditions, intersections, continuity of facilities, and bicyclist safety. The checklist provides a rating for the bikeability of the ride, and gives suggestions and resources for improving an area's bikeability.

www.bicyclinginfo.org/cps/checklist.htm

Bikeability Checklist

How bikeable is your community?

Riding a bike is fun!

Bicycling is a great way to get around and to get your daily dose of physical activity. It's good for the environment, and it can save you money. No wonder many communities are encouraging people to ride their bikes more often!

Can you get to where you want to go by bike?

Some communities are more bikeable than others: how does yours rate? Read over the questions in this checklist and then take a ride in your community, perhaps to the local shops, to visit a friend, or even to work. See if you can get where you want to go by bicycle, even if you are just riding around the neighborhood to get some exercise.

At the end of your ride, answer each question and, based on your opinion, circle an overall rating for each question. You can also note any problems you encountered by checking the appropriate box(es). Be sure to make a careful note of any specific locations that need improvement.

Add up the numbers to see how you rated your ride. Then, turn to the pages that show you how to begin to improve those areas where you gave your community a low score.

Before you ride, make sure your bike is in good working order, put on a helmet, and be sure you can manage the ride or route you've chosen. Enjoy the ride!

NHTSA
National Highway Traffic
Safety Administration

Pedestrian and Bicycle Information Center

U.S. Department
of Transportation

Go for a ride and use this checklist
to rate your neighborhood's bikeability.

How bikeable is
your community?

Location of bike ride (be specific):

_____

Rating Scale:

1	2	3	4	5	6
awful	many problems	some problems	good	very good	excellent

1. Did you have a place to bicycle safely?

a) On the road, sharing the road with motor vehicles?

☐ Yes   ☐ Some problems (please note locations):
- ☐ No space for bicyclists to ride
- ☐ Bicycle lane or paved shoulder disappeared
- ☐ Heavy and/or fast-moving traffic
- ☐ Too many trucks or buses
- ☐ No space for bicyclists on bridges or in tunnels
- ☐ Poorly lighted roadways

Other problems: _____

_____

b) On an off-road path or trail, where motor vehicles were not allowed?

☐ Yes   ☐ Some problems:
- ☐ Path ended abruptly
- ☐ Path didn't go where I wanted to go
- ☐ Path intersected with roads that were difficult to cross
- ☐ Path was crowded
- ☐ Path was unsafe because of sharp turns or dangerous downhills
- ☐ Path was uncomfortable because of too many hills
- ☐ Path was poorly lighted

Other problems: _____

_____

Overall "Safe Place To Ride" Rating: (circle one)

1   2   3   4   5   6

2. How was the surface that you rode on?

☐ Good   ☐ Some problems, the road or path had:
- ☐ Potholes
- ☐ Cracked or broken pavement
- ☐ Debris (e.g. broken glass, sand, gravel, etc.)
- ☐ Dangerous drain grates, utility covers, or metal plates
- ☐ Uneven surface or gaps
- ☐ Slippery surfaces when wet (e.g. bridge decks, construction plates, road markings)
- ☐ Bumpy or angled railroad tracks
- ☐ Rumble strips

Other problems: _____

_____

Overall Surface Rating: (circle one)

1   2   3   4   5   6

3. How were the intersections you rode through?

☐ Good   ☐ Some problems:
- ☐ Had to wait too long to cross intersection
- ☐ Couldn't see crossing traffic
- ☐ Signal didn't give me enough time to cross the road
- ☐ Signal didn't change for a bicycle
- ☐ Unsure where or how to ride through intersection

Other problems: _____

_____

Overall Intersection Rating: (circle one)

1   2   3   4   5   6

Continue the checklist on the next page...

2

4. Did drivers behave well?

☐ Yes   ☐ Some problems, drivers:
- ☐ Drove too fast
- ☐ Passed me too close
- ☐ Did not signal
- ☐ Harassed me
- ☐ Cut me off
- ☐ Ran red lights or stop sign

Other problems: _____

_____

Overall Driver Rating: (circle one)

   1 2 3 4 5 6

5. Was it easy for you to use your bike?

☐ Yes   ☐ Some problems:
- ☐ No maps, signs, or road markings to help me find my way
- ☐ No safe or secure place to leave my bicycle at my destination
- ☐ No way to take my bicycle with me on the bus or train
- ☐ Scary dogs
- ☐ Hard to find a direct route I liked
- ☐ Route was too hilly

Other problems: _____

_____

Overall Ease of Use Rating: (circle one)

   1 2 3 4 5 6

6. What did you do to make your ride safer?

Your behavior contributes to the bikeability of your community. Check all that apply:
- ☐ Wore a bicycle helmet
- ☐ Obeyed traffic signal and signs
- ☐ Rode in a straight line (didn't weave)
- ☐ Signaled my turns
- ☐ Rode with (not against) traffic
- ☐ Used lights, if riding at night
- ☐ Wore reflective and/or retroreflective materials and bright clothing
- ☐ Was courteous to other travelers (motorist, skaters, pedestrians, etc.)

7. Tell us a little about yourself.

In good weather months, about how many days a month do you ride your bike?
- ☐ Never
- ☐ Occasionally (one or two)
- ☐ Frequently (5–10)
- ☐ Most (more than 15)
- ☐ Every day

Which of these phrases best describes you?
- ☐ An advanced, confident rider who is comfortable riding in most traffic situations
- ☐ An intermediate rider who is not really comfortable riding in most traffic situations
- ☐ A beginner rider who prefers to stick to the bike path or trail

How does your community rate? Add up your ratings and decide.

(Questions 6 and 7 do not contribute to your community's score)

1. _____	26–30	Celebrate! You live in a bicycle-friendly community.
2. _____	21–25	Your community is pretty good, but there's always room for improvement.
3. _____	16–20	Conditions for riding are okay, but not ideal. Plenty of opportunity for improvements.
4. _____	11–15	Conditions are poor and you deserve better than this! Call the mayor and the newspaper right away.
5. _____		
Total _____	5–10	Oh dear. Consider wearing body armor and Christmas tree lights before venturing out again.

Did you find something that needs to be changed?

On the next page, you'll find suggestions for improving the bikeability of your community based on the problems you identified. Take a look at both the short- and long-term solutions and commit to seeing at least one of each through to the end. If you don't, then who will?

During your bike ride, how did you feel physically? Could you go as far or as fast as you wanted to? Were you short of breath, tired, or were your muscles sore? The next page also has some suggestions to improve the enjoyment of your ride.

Bicycling, whether for transportation or recreation, is a great way to get 30 minutes of physical activity into your day. Riding, just like any other activity, should be something you enjoy doing. The more you enjoy it, the more likely you'll stick with it. Choose routes that match your skill level and physical activities. If a route is too long or hilly, find a new one. Start slowly and work up to your potential.

3

Now that you know the problems,
you can find the answers.

Improving your community's score...

	What you can do immediately	**What you and your community can do with more time**
1. Did you have a place to bicycle safely?		

a) On the road?

No space for bicyclists to ride (e.g. no bike lane or shoulder; narrow lanes)
Bicycle lane or paved shoulder disappeared
Heavy and/or fast-moving traffic
Too many trucks or buses
No space for bicyclists on bridges or in tunnels
Poorly lighted roadways

- pick another route for now
- tell local transportation engineers or public works department about specific problems; provide a copy of your checklist
- find a class to boost your confidence about riding in traffic

- participate in local planning meetings
- encourage your community to adopt a plan to improve conditions, including a network of bike lanes on major roads
- ask your public works department to consider "Share the Road" signs at specific locations
- ask your state department of transportation to include paved shoulders on all their rural highways
- establish or join a local bicycle advocacy group

b) On an off-road path or trail?

Path ended abruptly
Path didn't go where I wanted to go
Path intersected with roads that were difficult to cross
Path was crowded
Path was unsafe because of sharp turns or dangerous downhills
Path was uncomfortable because of too many hills
Path was poorly lighted

- slow down and take care when using the path
- find an on-street route
- use the path at less crowded times
- tell the trail manager or agency about specific problems

- ask the trail manager or agency to improve directional and warning signs
- petition your local transportation agency to improve path/roadway crossings
- ask for more trails in your community
- establish or join a "Friends of the Trail" advocacy group

2. How was the surface you rode on?

Potholes
Cracked or broken pavement
Debris (e.g. broken glass, sand, gravel, etc.)
Dangerous drain grates, utility covers, or metal plates
Uneven surface or gaps
Slippery surfaces when wet (e.g. bridge decks, construction plates, road markings)
Bumpy or angled railroad tracks
Rumble strips

- report problems immediately to public works department or appropriate agency
- keep your eye on the road/path
- pick another route until the problem is fixed (and check to see that the problems are fixed)
- organize a community effort to clean up the path

- work with your public works and parks department to develop a pothole or hazard report card or online link to warn the agency of potential hazards
- ask your public works department to gradually replace all dangerous drainage grates with more bicycle-friendly designs, and improve railroad crossings so cyclists can cross them at 90 degrees
- petition your state DOT to adopt a bicycle-friendly rumble-strip policy

3. How were the intersections you rode through?

Had to wait too long to cross intersection
Couldn't see crossing traffic
Signal didn't give me enough time to cross the road
The signal didn't change for a bicycle
Unsure where or how to ride through intersection

- pick another route for now
- tell local transportation engineers or public works department about specific problems
- take a class to improve your riding confidence and skills

- ask the public works department to look at the timing of the specific traffic signals
- ask the public works department to install loop-detectors that detect bicyclists
- suggest improvements to sightlines that include cutting back vegetation; building out the path crossing; and moving parked cars that obstruct your view
- organize community-wide, on-bike training on how to safely ride through intersections

4

Improving your community's score...

	What you can do immediately	**What you and your community can do with more time**
4. Did drivers behave well?		
Drivers: Drove too fast Passed me too close Did not signal Harassed me Cut me off Ran red lights or stop signs	• report unsafe drivers to the police • set an example by riding responsibly; obey traffic laws; don't antagonize drivers • always expect the unexpected • work with your community to raise awareness to share the road	• ask the police department to enforce speed limits and safe driving • encourage your department of motor vehicles to include "Share the Road" messages in driver tests and correspondence with drivers • ask city planners and traffic engineers for traffic calming ideas • encourage your community to use cameras to catch speeders and red light runners
5. Was it easy for you to use your bike?		
No maps, signs, or road markings to help me find my way No safe or secure place to leave my bicycle at my destination No way to take my bicycle with me on the bus or train Scary dogs Hard to find a direct route I liked Route was too hilly	• plan your route ahead of time • find somewhere close by to lock your bike; never leave it unlocked • report scary dogs to the animal control department • learn to use all of your gears!	• ask your community to publish a local bike map • ask your public works department to install bike parking racks at key destinations; work with them to identify locations • petition your transit agency to install bike racks on all their buses • plan your local route network to minimize the impact of steep hills • establish or join a bicycle user group (BUG) at your workplace
6. What did you do to make your ride safer?		
Wore a bicycle helmet Obeyed traffic signals and signs Rode in a straight line (didn't weave) Signaled my turns Rode with (not against) traffic Used lights, if riding at night Wore reflective materials and bright clothing Was courteous to other travelers (motorists, skaters, pedestrians, etc.)	• go to your local bike shop and buy a helmet; get lights and reflectors if you are expecting to ride at night • always follow the rules of the road and set a good example • take a class to improve your riding skills and knowledge	• ask the police to enforce bicycle laws • encourage your school or youth agencies to teach bicycle safety (on-bike) • start or join a local bicycle club • become a bicycle safety instructor

5

Need some guidance?
These resources might help...

Great Resources

STREET DESIGN AND BICYCLE FACILITIES
American Association of State Highway and Transportation Officials
444 North Capitol Street, NW, Suite 249
Washington, DC 20001
Tel: (202) 624-5800
www.aashto.org

Institute of Transportation Engineers
1099 14th Street, NW, Suite 300 West
Washington, DC 20005-3438
Tel: (202) 289-0222
www.ite.org

Association of Pedestrian and Bicycle Professionals (APBP)
P.O. Box 23576
Washington, DC 20026
Tel: (202) 366-4071
www.apbp.org

Pedestrian and Bicycle Information Center (PBIC)
UNC Highway Safety Research Center
730 Airport Road, Suite 300
Campus Box 3430
Chapel Hill, NC 27599-3430
Tel: (919) 962-2202
www.pedbikeinfo.org
www.bicyclinginfo.org

Federal Highway Adminisrtation
400 Seventh Street, SW
Washington, DC 20590
www.fhwa.dot.gov/environment/bikeped/index.htm

EDUCATION AND SAFETY
National Highway Traffic Safety Administration
400 Seventh Street, SW
Washington, D.C. 20590
Tel: (202) 366-1739
www.nhtsa.dot.gov/people/injury/pedbimot/bike/

League of American Bicyclists
1612 K Street NW, Suite 401
Washington, DC 20006
Tel: (202) 822-1333
www.bikeleague.org

National Bicycle Safety Network
www.cdc.gov/ncipc/bike/default.htm

National Safe Kids Campaign
1301 Pennsylvania Ave NW, Suite 1000
Washington, DC 20004
Tel: (202) 662-0600
www.safekids.org

PATHS AND TRAILS
Rails to Trails Conservancy
1100 17th Street SW, 10th Floor
Washington, DC 20036
Tel: (202) 331-9696
www.railtrails.org

National Park Service
Rivers, Trails and Conservation Assistance Program
1849 C Street, NW, MS-3622
Washington, DC 20240
www.ncrc.nps.gov/rtca/rtca-ofh.htm

HEALTH
Centers for Disease Control and Prevention
Division of Nutrition and Physical Activity
4770 Buford Highway, NE
Atlanta, GA 30341-3724
www.cdc.gov/nccdphp/dnpa
Tel: (770) 488-5692

National Center for Injury Prevention and Control
Childhood Injury Prevention
4770 Buford Highway, NE
Atlanta, GA 30341
www.cdc.gov/ncipc

ADVOCACY AND USER GROUPS
Thunderhead Alliance
1612 K Street, NW, Suite 401
Washington, DC 20006
Tel: (202) 822-1333
www.thunderheadalliance.org

League of American Bicyclists
1612 K Street, NW, Suite 401
Washington, DC 20006
Tel: (202) 822-1333
www.bikeleague.org

National Center for Bicycling and Walking
1506 21st Street, NW, Suite 200
Washington, DC 20036
Tel: (202) 463-6622
www.bikewalk.org

Surface Transportation Policy Project
1100 17th Street, NW, 10th Floor
Washington, DC 20036
Tel: (202) 466-2636
www.transact.org

OTHER USEFUL RESOURCES
Bikes and transit: www.bikemap.com

Bicycle information: www.bicyclinginfo.org

Bicycle-related research:
www.tfhrc.gov/safety/pedbike/pedbike.htm

Bicycling Magazine: www.bicycling.com/

Bicycle touring:
Adventure Cycling Association
P.O. Box 8308
Missoula, MT 59807
(800) 755-2453
(406) 721-8754
www.adv-cycling.org

6

RATING PROPOSED LAND DEVELOPMENT PROJECTS IN DEVELOPMENT REVIEW

The Development Review Checklist

The New Jersey Office of Smart Growth (formerly Office of State Planning), developed The Development Review Checklist in 1995. The checklist is intended for use by anyone involved in the development process from design to project evaluation. In particular, it attempts to incorporate new development seamlessly into existing communities by recommending good design principles. This checklist includes practices for a wide variety of projects, big and small, and as a result not every recommendation will be appropriate for most developments. It includes questions on community form and structure, transportation and circulation, parking, housing, commercial land uses, community facilities, and parks and open space.

www.nj.gov/dca/osg/docs/developmentchecklist110195.pdf

Smart Growth Scorecard for Proposed Developments

New Jersey Future created the Smart Growth Scorecard for Proposed Developments for use by local officials and citizens in identifying smart growth strengths and weaknesses in proposed development. Proposed developments are reviewed for how well they meet selected smart growth techniques, such as whether it is located near existing development and infrastructure; provides for a variety of housing options; preserves green space; contains a mix of land uses and transportation alternatives, including the pedestrian; and fits in with the local architecture. A grade of A through F is calculated to determine the project's smart growth benefits and/or shortcomings. www.njfuture.org/Media/Docs/development_card.pdf

Delaware Valley Smart Growth Alliance Project Recognition Program Criteria

The Delaware Valley Smart Growth Alliance, an alliance of public sector, private sector, and nonprofit organizations devoted to smart growth, has developed a project recognition program, to endorse proposed projects prior to development approval. Developers with projects in the entitlement stage submit their proposed development to the alliance for review against established smart growth criteria (attached). The alliance reviews projects on a quarterly basis, and then issues letters of endorsement for the selected smart growth projects, and can offer testimony before local approval authorities. This document is directed towards the development and design community. www.delawarevalleysmartgrowth.org/criteria.htm

Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND) Rating System

LEED-ND is the first national standard rating system for neighborhood design, developed by the U.S. Green Building Council, the Congress for New Urbanism, and the Natural Resource Defense Council. It integrates the principles of smart growth, urbanism, and green building, and provides independent, third-party verification that a development's location and design meet high standards for environmentally responsible, sustainable development. The rating system is still in the pilot stages, and will be further refined in 2007 and 2008, with an official launch in 2009. Due the lengh of the LEED rating system material, it could not be included in this report. However, it may be accessed online at:

www.usgbc.org/DisplayPage.aspx?CMSPageID=148

Creating Communities of Place

Office of State Planning
Department of the Treasury

Memo

November 95

Governor
Christine Todd Whitman

Treasurer
Brian W. Clymer

THE DEVELOPMENT REVIEW CHECKLIST

The Development Review Checklist prepared by the New Jersey Office of State Planning is designed to assist communities, and anyone involved with the development process, to improve the quality of development, and to do so in ways which are compatible with the State Development and Redevelopment Plan. Like the State Plan, this checklist is not a regulatory tool, and should obviously not be used as the basis for approving or denying specific projects.

The checklist spells out a number of attributes and relationships which the Office of State Planning views as building blocks for livable communities, be they urban, suburban, exurban or rural. Each development occurs under a unique set of circumstances; and many projects are unlikely to fulfill on their own all or even most of the attributes listed in the checklist. There may be good reasons for this. Project size is an important consideration, with larger mixed-use projects better able to incorporate diversity than single use projects; other important considerations are neighborhood context, natural features, and so forth. The checklist is intended to stimulate discussion and focus attention on those reasons which prevent a particular development from satisfying certain checklist objectives.

The checklist is also intended to focus attention on the relationships between new development and exist-ing communities, in particular on ways in which it can enhance neighborhoods, and contribute to the existing fabric. At present, new development is frequently viewed as an almost certain detriment to existing communities, given the fear of real or imaginary negative impacts on existing residents, in the form of additional traffic, school children, declining property values, or other. As a result, municipal codes are filled with provisions designed to insulate the existing from the new, using the conventional zoning toolbox of physical and visual barriers (setbacks; buffers; fences, walls and hedges; interrupted means of circulation, etc); and, to the extent possible, to ensure that new development will be as similar to the existing as possible. Each site is treated like an enclave, further fragmenting our communities. When proposals for new development are discussed, emphasis during public review is too often placed on their perceived negative impacts, with little attention paid to their potential benefits. Applications can live or die depending upon how well they perform along a single measure of impact, such as number of school children, or number of car trips generated. The requirement that projects be self-sufficient in many ways (meet all parking needs on-site, meet all stormwater detention/retention needs on-site, etc) further reinforces their isolation. Lost is the sense

that community building is a slow, incremental process, with many small and diverse contributions adding up to a greater whole. This is all the more important since infill projects can play a critical role in diversifying a community, by providing different housing products, including various types of affordable housing; by providing missing links, through extensions to the sidewalk systems, bicycle connections, or completion of the street network; by providing needed services, such as retail in understored areas, day-care, or civic sites; by providing open space; and so forth.

This checklist is presented to assist those involved in the development process to flush out the critical items in a development proposal, to distinguish between the essential and the accessory, and to better integrate a project with the surrounding fabric.

This checklist can also be used to evaluate existing zoning and/or master plan provisions and assess whether they are appropriate to the building of livable communities.

As always, the Office of State Planning welcomes your thoughts and comments on the usefulness of this checklist as a planning tool, as well as on its specific provisions. Please direct your comments to Carlos Macedo Rodrigues, Manager of Special Projects, by fax at 609.292.3292 and/or by phone at 609.292.3097.

	Yes	Some what	No	N/A
1. General Context				
1.1 Is the location of the proposed development appropriate from a regional growth management perspective?	❑	❑	❑	❑
1.2 Does it promote a compact, walkable, Center-based land use pattern?	❑	❑	❑	❑
1.3 Is it appropriately linked to adjacent neighborhoods, maximizing accessibility for pedestrians, bicycles, emergency vehicles and other vehicles?	❑	❑	❑	❑
1.4 Is it consistent with the intent established for the area in the relevant planning documents?	❑	❑	❑	❑
1.5 Is it consistent with local and regional wastewater, stormwater, drinking water, energy, land use and transportation policies?	❑	❑	❑	❑
1.6 Will it contribute towards satisfying local and/or regional needs?	❑	❑	❑	❑
1.7 Will it contribute towards a more balanced and sustainable region?	❑	❑	❑	❑
2. Community Form and Structure				
2.1 Is it organized into neighborhoods with distinct character, or does it reinforce and complement the identity and character of existing or planned neighborhoods?	❑	❑	❑	❑
2.2 Will it contain a balanced mix of activities (residential, commercial, civic, recreational, etc), or contribute towards such balance?	❑	❑	❑	❑
2.3 Do neighborhoods have a center, or focus?	❑	❑	❑	❑
2.4 Do neighborhoods have recognizable edges or limits?	❑	❑	❑	❑
2.5 Are neighborhoods generally defined by a 10-minute walking distance?	❑	❑	❑	❑
2.6 Are neighborhood centers characterized by higher density, with employment, mixed-use, multi-family housing, convenience shopping, civic uses, a transit stop, a neighborhood green and/or other central features?	❑	❑	❑	❑
2.7 Are neighborhood edges defined by physical features such as major streets, rail lines, water features, greenways, preserved open space, large school sites, cemeteries, major parks, etc?	❑	❑	❑	❑
2.8 Are neighborhood fringes characterized by lower density, with larger lot single-family housing, land-intensive community facilities, etc?	❑	❑	❑	❑
2.9 Are neighborhoods organized according to a pedestrian-friendly block structure (200 to 400-foot blocks)? Do longer blocks have mid-block pedestrian and bicycle connections?	❑	❑	❑	❑
2.10 Does layout follow traditional community design principles, with an emphasis on gateways, focal points, visual terminations, edge definition, etc?	❑	❑	❑	❑
2.11 Does layout of streets and buildings promote energy efficiency?	❑	❑	❑	❑
2.12 Do buildings face streets, and form near-continuous building walls, with relatively consistent setbacks and on-site surface parking (for multi-family or commercial uses) predominantly to the rear?	❑	❑	❑	❑
2.13 Do civic and community buildings occupy prominent locations?	❑	❑	❑	❑
2.14 Does layout respect historic structures and landscapes?	❑	❑	❑	❑
2.15 Are indigenous forms, building types and materials encouraged?	❑	❑	❑	❑
3. Transportation and Circulation				
3.1 Do circulation systems generally interconnect, minimizing cul-de-sacs?	❑	❑	❑	❑
3.2 Are circulation systems legible to the occasional visitor (use of modified grid, radial street networks, or other type of integrated network)?	❑	❑	❑	❑
3.3 Are there easy, clearly defined linkages between different uses?	❑	❑	❑	❑
3.4 Does site layout facilitate alternative modes of transportation, and create links between them?	❑	❑	❑	❑
3.5 Do the residential and commercial densities support transit?	❑	❑	❑	❑
3.6 Does it contain an integrated network of pedestrian (sidewalks, walkways), and bicycle facilities (lanes, paths), providing access to all types of uses, not just residential and recreational?	❑	❑	❑	❑
3.7 Are the street design standards pedestrian-friendly (narrow streets, traffic calming devices, curb side parking, small curb radii, etc)?	❑	❑	❑	❑
3.8 Do streets provide a safe environment for all users, not just cars and trucks?	❑	❑	❑	❑
3.9 Are alleys used to provide rear access to lots?	❑	❑	❑	❑

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4. Parking

		Yes	Some what	No	N/A
4.1	Is curb-side parking permitted on most streets (day and night), and counted towards the minimum parking requirements?	❏	❏	❏	❏
4.2	Is on-site parking located behind, beside or underneath most buildings?	❏	❏	❏	❏
4.3	Have the overall parking requirements considered potential reductions from mixed-use, shared parking and other modes of transportation?	❏	❏	❏	❏
4.4	Is each use allowed to satisfy its parking requirement within a reasonable proximity (5-minute walk), rather than directly on-site?	❏	❏	❏	❏
4.5	Does the layout and distribution of land uses maximize shared parking?	❏	❏	❏	❏
4.6	Are large surface parking areas divided into smaller units and intensively landscaped and screened?	❏	❏	❏	❏

5. Housing

		Yes	Some what	No	N/A
5.1	Does the proposed development provide a variety of housing types to address a community's full range of housing needs? (different age groups, income levels, mobility options and life styles)	❏	❏	❏	❏
5.2	Does it broaden the range of unit types, by including multi-family, accessory housing (apartments over garages), apartments over retail, small lot single-family, cohousing, or others?	❏	❏	❏	❏
5.3	Does it address affordability by providing small starter units, encouraging rental income-producing accessory units, requiring affordable housing set-asides, or through other strategies?	❏	❏	❏	❏
5.4	Are different housing types mixed within the same development, neighborhood, street and block?	❏	❏	❏	❏
5.5	Are community-oriented housing features (front porches, small set-backs, balconies, etc) emphasized?	❏	❏	❏	❏
5.6	Are housing units oriented towards streets, not towards parking lots or driveways?	❏	❏	❏	❏

6. Commercial

		Yes	Some what	No	N/A
6.1	Are commercial uses physically/functionally integrated with housing and other uses, not isolated in single-use districts (office parks, retail malls)?	❏	❏	❏	❏
6.2	Do different commercial uses (retail, office, services) coexist with each other and with civic, cultural, and residential uses in "Main Streets", neighborhood/town centers or other pedestrian-friendly configurations?	❏	❏	❏	❏
6.3	Can many neighborhood retail/service needs be satisfied by stores located at neighborhood centers, easily accessible to pedestrians and cyclists, and within a short walking distance from the residential areas?	❏	❏	❏	❏
6.4	Are shopping areas pedestrian-friendly and transit-supportive?	❏	❏	❏	❏
6.5	Are employment nodes pedestrian-friendly and transit-supportive?	❏	❏	❏	❏
6.6	Will retail/service facilities, such as a grocery store, convenience store, restaurant/cafe, and so forth be provided as part of this project, or will they be available to most residents within a 15-minute walking distance?	❏	❏	❏	❏

7. Civic, Cultural, Recreational and Other Community Facilities

		Yes	Some what	No	N/A
7.1	Are the sites selected for civic, cultural and other community facilities well integrated into the community, or are they distant and physically separated?	❏	❏	❏	❏
7.2	Are the sites both prominently located and central to a majority of residents/users?	❏	❏	❏	❏
7.3	Are the facilities compact (multi-story, when possible) rather than land intensive (single-story, large parking lots)?	❏	❏	❏	❏
7.4	Are they easily recognizable architecturally?	❏	❏	❏	❏
7.5	Are they easily accessible to pedestrians and cyclists, not just by car?	❏	❏	❏	❏
7.6	Which of the following facilities will be available to most residents within a 15-minute walking distance:				
	a. child care	❏		❏	❏
	b. kindergarten	❏		❏	❏
	c. elementary school	❏		❏	❏
	d. middle school	❏		❏	❏
	e. high school	❏		❏	❏
	f. library	❏		❏	❏
	g. church/synagogue/mosque	❏		❏	❏
	h. community center	❏		❏	❏
	i. playground/park	❏		❏	❏
	j. pool/tennis/other active recreation	❏		❏	❏
	k. police station	❏		❏	❏
	l. fire station	❏		❏	❏
	m. emergency/rescue	❏		❏	❏

3

	Yes	Some what	No	N/A

8.   Parks, Open Space and the Natural Environment

8.1   Are natural systems preserved and integrated within the neighborhood structure, as part of the public realm, and are they accessible to the public?

8.2   Does layout minimize disruption to natural systems?

8.3   Does layout maximize natural resource and energy conservation?

8.4   Is there an appropriate amount of public open space, of various sizes and characteristics, and is it easily accessible to the public?

8.5   Are neighborhoods organized around or serviced by neighborhood greens?

8.6   Are larger community-wide or regional facilities located between neighborhoods or as part of green belts?

8.7   Do linear parks (greenways, blueways) define neighborhood edges, while providing pedestrian and bicycle linkages between neighborhoods?

8.8   Do stormwater management systems enhance the natural systems to be preserved?

8.9   Is impervious surface run-off treated, prior to discharge?

OFFICE OF STATE PLANNING
New Jersey Department of the Treasury
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FUTURE

SMART GROWTH SCORECARD —
Proposed Developments

An easy-to-use scorecard for identifying Smart Growth strengths and weaknesses in proposed development.

Scorecards are complimentary upon request. Membership support of New Jersey Future and its non-profit research and policy work is welcome. To become a member, and to learn more about our efforts to bring smarter growth to New Jersey, visit our website at www.njfuture.org or call 609/393-0008.

What is Smart Growth?

Smart Growth means adding new homes, new offices and businesses and new jobs to New Jersey's economy in a way that enhances the communities where we already live — without requiring higher taxes, adding to our road and traffic woes and without consuming or polluting our remaining farmland, beachfronts, woodlands and open spaces.

How do you know Smart Growth when you see it?

Smart Growth has two primary features: the "where" and the "how." It happens "where" development can be accommodated with minimal adverse impact to the environment, and in places where development takes maximum advantage of public investments already made. Smart Growth also addresses "how" the finished development will work with neighboring development to restore choices that are missing in places marked by sprawl: such as the choice to walk or use public transit, the choice to meet neighbors in attractive common spaces, or the choice to live in an apartment, a house, or a condominium.

About this scorecard

This scorecard is as much a conceptual model as it is a practical tool. It should be viewed as a way to help citizens and local officials evaluate development proposals and the potential benefits and drawbacks they may bring to the community. The card is best applied to larger projects, which tend to have larger implications for smart growth, but is a useful exercise for most development proposals.

It is important to note that local zoning and accompanying community requirements may not permit an applicant to build to the standards set in this scorecard. In such cases, those concerned about bringing smarter growth to their community will want to work with local leaders on improving zoning and local master plans to encourage these general criteria:

General criteria for Smart Growth

- Located near existing development and infrastructure
- Increases the range of housing options
- Protects open space, farmland and critical environmental areas
- Creates or enhances a vibrant mix of uses (residential, retail, office)
- Creates or enhances choices for getting around
- Walkable, designed for personal interaction
- Respects community character, design and historic features

Directions:

The scorecard is broken up into seven sections, one for each Smart Growth criterion. Simply read through the sections and circle the best answer for each measurement listed. Some questions might require additional information from your local planning and zoning office. The measurements are weighted differently so that the maximum score for each measurement reflects its importance to Smart Growth goals. To calculate the score, multiply the points for a given answer by the measurement's weight and enter it into the score column. Add up the scores for each measurement and write that number (subtotal) in the space provided.

I. Near existing development and infrastructure – Makes the most of limited public resources and builds on public investments already made. Upgrading existing infrastructure and services is more efficient than building new in previously undeveloped areas. Creates opportunity for infill or redevelopment of under-utilized, abandoned and brownfield sites.

Measurement	Answer	Points	Weight	Score
Project is located adjacent to existing infrastructure: roads, water and sewer	Existing service Less than 1/4 mile 1/4 to 1/2 mile 1/2+ mile(s)	3 2 1 0	X 4	
Project is in State Plan Planning Area 1 or 2, a designated center (according to the State Plan) and/or a designated Area in Need of Redevelopment	Yes No	1 0	X 2	
Project is near at least three of the following – housing, restaurants, retail/convenience/services, schools, recreation centers, offices	Less than 1/4 mile 1/4 to 1/2 mile 1/2 to 3/4 mile 3/4 to 1 mile 1+ miles	4 3 2 1 0	X 2	
Project requires new/additional services and/or facilities (fire, police, school)	Not needed Needed	1 0	X 2	
			Subtotal	

II. Range of housing options – Offers a range of housing types and sizes. Increases the choices available to households of all income levels.

Measurement	Answer	Points	Weight	Score
Project offers a mix of housing types and sizes (apartments, condos, townhouses, single-family, studios, 1BR, 2BR, 3BR, etc.)	Yes No	1 0	X 3	
Project has units with a wide-range of pricing options that will be sold or leased, with at least 15 percent priced as affordable housing	Yes No	1 0	X 2	
Project contributes to community's fair share of affordable housing (COAH number)	Yes No	1 0	X 2	
			Subtotal	

III. Protects open space, farmland and critical environmental areas – Benefits the general public as it spares watersheds, scenic vistas and agricultural areas needed for drinking water, farm and tourism revenues and strong quality of life.

Measurement	Answer	Points	Weight	Score
Project avoids critical environmental areas (State Plan Planning Area 5, prime watersheds, unbroken forest and grassland areas, critical wildlife areas/wildlife habitat)	Yes No	1 0	X 3	
Project located on land that is physically suitable for development (avoids steep slopes greater than 20 percent, floodplains, stream corridors, aquifers and aquifer recharge areas)	Yes No	1 0	X 2	
Project does not intrude into agricultural and/or open lands	Yes No	1 0	X 2	
Project cleans up a brownfield site	Yes No	1 0	X 2	
Project is energy efficient (example: exceeds standards in NJ energy code, meets standards of NJ Energy Star Homes program, etc.)	Yes No	1 0	X 2	
Project uses at least 30 percent recycled or "low impact" building materials	Yes No	1 0	X 1	
			Subtotal	

IV. Mix of uses – Creates a vibrant community where places to work, shop, live and play are integrated.

Measurement	Answer	Points	Weight	Score
Project is mixed use (any combination of housing, retail, office, commercial, public buildings, etc.)	4+ uses 3 uses 2 uses 1 use	3 2 1 0	X 2	
Project provides a new type of development to an existing neighborhood such as employment, housing, retail, civic, educational, cultural, recreation, neighborhood-serving retail/service	4 uses added 3 uses added 2 uses added 1 use added 0 uses added	4 3 2 1 0	X 2	
Project adds to the diversity of uses within an existing community	Yes No	1 0	X 3	
			Subtotal	

V. Choices for Getting Around – Sited near existing transit service to decrease dependency on the automobile, thereby reducing traffic and encouraging walkability (see VI. below).

Measurement	Answer	Points	Weight	Score
Project is accessible by multiple modes of transportation (auto, bus, rail, walking, biking)	4+ modes 3 modes 2 modes	2 1 0	X 4	
Project is in walking distance to public transit (bus, rail, jitney)	Less than 5 mins 6-10 minutes 11-15 minutes 16-20 minutes 20+ minutes	4 3 2 1 0	X 2	
Project has an interconnected road system without cul-de-sacs OR the project is located on an existing street network that is interconnected	Yes No	1 0	X 2	
			Subtotal	

VI. Walkable, designed for personal interaction – Designed at the human scale, rather than for the automobile, to help reduce traffic and create places with increased potential for social interaction, walking and sense of community.

Measurement	Answer	Points	Weight	Score
For residential: Average number of dwelling units/acre (including on-site right-of-way and open space) **For commercial:** High floor-area ratio (exclude structured parking and right-of-way)	14+ DU/acre 10-13 DU/acre 7-9 DU/acre 4-6 DU/acre < 4 DU/acre —or— 1.0+ FAR .76 - 1.0 FAR .51 - .75 FAR .4 - .5 FAR < .4 FAR	4 3 2 1 0 4 3 2 1 0	X 2	
Project parking is located where it does not visually dominate the development from the street and allows easy and safe pedestrian access to buildings	Parking in rear Structured parking On-street parking Lot in front	3 2 1 0	X 2	
Project density is equal to or greater than that of surrounding areas	Greater density Equal density Lower density	2 1 0	X 1	
			Subtotal	

VII. Respectful of community character and design –

In keeping with the local architecture, especially in historically significant areas. Enhances the community's desirability as a place to live, work, shop and recreate.

Measurement	Answer	Points	Weight	Score
Project reuses or rehabilitates existing and/or historic structures	Yes No	1 0	X 3	
Project building design follows existing or desired architectural style	Yes No	1 0	X 1	
Project contributes to public streetscape with pedestrian-friendly amenities such as benches, lighting, street trees, trash cans, and windows at street level	Yes No	1 0	X 1	
Project creates or enhances community spaces such as public plazas, squares, parks, etc.	Yes No	1 0	X 1	
			Subtotal	

Final calculations:

1. Starting at Table I below, enter the subtotals for each section into Column 2 (Section Scores).
2. Divide Column 2 by Column 1 (Total Possible) and enter that number into Column 3(Calculation).
3. Multiply Column 3 by 100 and enter that number into Column 4. This is the Final Score for the section.
4. Using Table II below, enter the letter grade for each section into Column 5. This is the Final score for the section.

Once the calculations are complete, take a look at the areas in need of improvement. Does the project score well in terms of proximity to infrastructure, but poorly in terms of its proximity to public transit and other choices for getting around? Is the building design in keeping with the local architectural style, but inaccessible to pedestrian traffic? Making determinations of this nature will help guide a new development in the right direction, toward Smart Growth.

TABLE I

Smart Growth Criteria	Column 1 Total Possible	Column 2 Section Scores	Column 3 Calculation (Col 2/Col 1)	Column 4 Final Score (Col 3 x 100)	Column 5 Final Grade (A-F)
I. Near existing development and infrastructure	24				
II. Range of housing options*	7				
III. Protects open space, farmland and critical environmental areas	12				
IV. Mix of uses	17				
V. Provides choices for getting around	18				
VI. Walkable, designed for personal interaction	16				
VII. Respectful of community character, design and historic features	6				
TOTAL OVER ALL CRITERIA	100				

* If there is no housing component to the project under review, deduct 7 points from column 1, bringing the total possible to 93 points. Divide the total for column 2 by the new total possible (93 points) to find the project's overall score.

TABLE II

Final Score	Letter Grade
100 – 90	A
89 – 80	B
79 – 70	C
69 – 60	D
59 – 0	F

Delaware Valley Smart Growth Alliance Project Recognition Program Criteria

Two types of criteria are considered in reviewing a proposed project. First, a project must meet all of the base or threshold criteria. Projects meeting these five (5) base criteria are then reviewed against the detailed criteria. A set of questions tailored to each criterion will help the project sponsor determine whether the elements of the detailed criterion have been met.

I. Base Criteria (Prequalifying Standards):

At a minimum, a proposed project must meet **all** of these five criteria:

Location: The project must be in an area designated or appropriate for growth or revitalization, most particularly for infill development or sites adjacent or close to developed residential or commercial areas. It should take advantage of existing or short-term planned community or public water and sewer service, and should be accessible to existing or short-term planned public transportation.

Density, Design, and Diversity of Uses: The three Ds of good, smart growth development must be present, either within the proposed project or in the vicinity. That is, a project or an area must have sufficient density and scale to support a mix of uses, walkability, and public transit. The project should be designed so that it is integrated into the existing community fabric.

Transportation/Mobility/Accessibility: The project should be designed, located, and programmed to offer alternatives to single occupancy vehicle trips, by enabling safe and effective pedestrian and bicycle access to multiple uses and activities and by being accessible to public transportation.

Environment: The project should effectively protect, conserve, or mitigate damage to open space, water, and air quality, and important ecosystem components.

Community Assets and Participation: The project should generate benefits for the surrounding area and the host community. These may include positive economic impacts, affordable housing, support for the school system, historic preservation, public access to parks or open space, support for local efforts to encourage alternative transportation, adaptive reuse of obsolete buildings, or other improvements to the quality of community life.

II. Criteria

Following are the criteria that all selected projects must meet. Each criterion is accompanied by several questions. While not all projects must address all of the questions, a preponderance of positive answers will be required to win recognition.

Location. Base Criteria: The project must be in an area designated or appropriate for growth or revitalization, most particularly for infill development or sites adjacent or close to developed residential or commercial areas. It should take advantage of existing or short-term planned community or public water and sewer service, and should be accessible to public transportation.

1. Is the project in an area designated for growth, intensification, or revitalization by the 2025 plan of the Delaware Valley Regional Planning Commission, the New Jersey State Development and Redevelopment Plan, the Delaware Strategies for State Policies and Spending plan or another State or County plan?

2. Is the project a redevelopment or renovation on a site with previous disturbance?

3. Is the site within or adjacent to a city or town, or is it within a designated town center or village area, or will it effectively connect to a neighborhood, community, or town center, or is it a large development with a density that can support a balanced mix of employment, retail, entertainment and residential uses such that it can function as a self-sufficient economic unit?

4. Is the development within a current community or public sewer and water service area, or if the project is within a planned community or public sewer and water service area when will that service be delivered?

5. Is the project located in an area with existing or planned transportation infrastructure adequate to serve the project at build out?

Density, Design, and Diversity of Uses. Base Criteria: The three Ds of good, smart growth development must be present, either within the proposed project or in the vicinity. That is, a project or an area must have sufficient density and scale to support a mix of uses, walkability and public transit. The project should be designed so that it is integrated into the existing community fabric.

Density

a. Will net density[1] exceed the density of the surrounding area?

b. Is density sufficient to encourage mixed uses, walking, biking, use of civic spaces, increased public transportation, and the reduction of single-occupancy vehicle trips?

c. Will a project located within a half-mile of an existing or planned transit station[2] be dense and varied enough (compared with existing uses in the adjacent area) to help the neighborhood support 12- to 18-hour activity?

d. Will an infill project, located farther than a half-mile from an existing or planned transit station or a town, be dense and varied enough (compared with existing uses in the adjacent area) to enliven the

area, support public transportation, and take advantage of existing public infrastructure?

e. In suburban areas, will the residential density of the project or of expanding communities be high enough to support some retail, employment, civic uses, and increased public transportation in the community and does it allow for mixed uses?

f. In rural/village/small town areas, will density be sufficient to support and enhance existing development and use existing public infrastructure efficiently?

Design. The design of the project should be of high quality and should respect the visual character of the surrounding area.

a. Is the project designed to relate to and encourage connectivity with the surrounding community and not create an isolated enclave?

b. Is the project's design consistent with the vernacular architecture of the surrounding area, or will the project's visual character respect and make a positive contribution to the surrounding community?

c. Will the project include sidewalks, street trees, inviting street frontage, attractive street lighting, and human-scale streetscapes so that pedestrians feel safe and are buffered from traffic?

d. Will the project use lighting mechanisms that do not pollute the night sky or negatively affect the surrounding area?

e. Will the project incorporate usable public open space and public civic spaces?

f. Does the project's parking design promote pedestrian-friendly environments and lend to good-quality design by concentrating parking at the rear of buildings, underground, or in garages, and/or by using landscaping and other techniques to maintain high aesthetic qualities?

g. Is the project designed to accommodate the handicapped and elderly?

Diversity. Although mixed-use projects are preferred, at a minimum, the project should add to or complement the mix of uses in its surrounding area.

a. Will the proposed land uses help to balance the jobs, housing, and services mix of the surrounding community?

b. If the project is located within a half-mile of a transit station or an area of a single land use type, will the proposed development balance the jobs, housing, and services mix with the uses already there?

c. If the project is located farther than a half-mile from an existing or planned transit station or near an area of a single land use type, will the project offer an effective internal mix of residential, retail and commercial uses?

d. Will the project promote vertical integration of land uses, for example, housing above stores, or is there more than one use type in a single building?

e. In the absence of vertical mixing, does the project provide for well-integrated mixed uses with effective pedestrian and functional connections?

Affordable Housing[3]. If the project has a residential component, a mix of housing types that can accommodate all income levels is expected.

a. Will the development encourage and produce a mix of housing types for a range of income levels commensurate with job opportunities in that geographic area?

b. Will the development provide at least 10 percent of affordable housing?

Transportation, Mobility, Accessibility. Base Criteria: The project should be designed, located, and programmed to offer alternatives to single occupancy vehicle trips, by enabling safe and effective pedestrian and bicycle access to multiple uses and activities and by being accessible to public transportation to employment centers.

1. Is the project designed and located within a half-mile of other land uses and transportation options to encourage residents and workers to walk or bike to school, employment, parks, shops, and services and to use public transit?

2. Is there safe, convenient and attractive access to pedestrian, bicycle, and transit facilities through well-marked crosswalks on site and links to external areas, including public transit?

3. Does the pedestrian/bicycle design include landscaped, lighted trails that are independent of the street or highway edge and that go to adjoining communities and neighborhoods, and to other trail systems?

4. Will the project design support and encourage internal circulation and local pedestrian use (i.e., provide sidewalks between residences and other land uses, streetscaping, and traffic calming) and bike travel, including providing secure, convenient and sheltered bike parking facilities?

5. Are the project's internal transportation connections linked (e.g., do they connect paths, sidewalks, or transit routes with each other?), and will its design and location enable the creation, extension, or improvement of additional public or private transit in the community?

6. If congestion is a problem, will the project contribute to/participate in transportation demand management and/or provide incentives to promote ridesharing and transit use?

7. Will the project minimize street widths and off-street parking by using good design, shared parking concepts, and transportation management techniques that reduce demand for parking?

8. Will the project minimize the use of surface parking where transit is located?

9. Does the development support external vehicular, transit, bicycle, and pedestrian connections?

10. Does the design of the project's road system support connectivity (including through trips) with the road system of the surrounding area?

Environment. Base Criteria: The project should effectively protect, conserve, or mitigate negative effects to open space, water, and air quality, and important ecosystem components. The project should be sensitive to existing environmental features and systems and should protect natural resources where feasible. Where possible, sustainable design features should be incorporated into the project's design.

1. Will the project sensitively preserve, protect, or enhance wetlands, forests, agricultural lands, and aquifer recharge areas and sustain areas of unfragmented ecosystems?

2. Will the project protect existing stream and river buffers or create new buffers?

3. Will the project avoid disturbing steep slopes and highly erodible or unstable soils?

4. Will the project incorporate natural or engineered solutions to prevent (or reduce existing) nonpoint source pollution within a single, small watershed?

5. Does the project reduce stormwater runoff by providing for on-site water retention, infiltration or staged release? Does the project incorporate a green roof? Does the project re-use gray water? Does the project contribute to off-site stormwater retrofits or other stormwater reduction solutions?

6. Will the project protect or restore a variety of on-site habitat, particularly for threatened or endangered species?

7. Will the project's open-space areas be connected to protect green infrastructure?

8. Will the project, by its location and design, help reduce air pollution?

9. Does the project systematically protect existing trees?

10. Are sustainable design techniques that will conserve and protect water, energy, air quality, and land incorporated into the project?

11. Will the developer or owner apply for LEED certification, and if so at what level?

12. Will the project reduce construction waste or use recycled materials?

13. Will the project redevelop a brownfields or greyfields site?

Community Assets and Participation. Base Criteria: The project should generate benefits for the surrounding area and the host community. These may include positive economic impacts, affordable housing, support for the school system, historic preservation, public access to parks or open space, support for local efforts to encourage alternative transportation, adaptive reuse of obsolete buildings, or other improvements to the quality of community life.

Benefits. A range of benefits should be considered.

a. Will the project fulfill the goals of an approved community revitalization or development plan?

b. Will the project offer the community a significant quality-of-life benefit such as a park, a school site, a civic structure or use?

c. Will the project offer a significant benefit to the arts community by creating exhibition space, theaters, studios, or other features?

d. Will the project offer the community a significant economic benefit such as jobs, tax base, cultural arts, etc.?

e. Will the project help support or benefit existing schools?

f. Will the project connect its open space internally, and will it link its open space to external or community open-space resources such as greenways?

g. Will the project retain, restore, and incorporate existing historic structures and sites?

h. Will the project work to retain or relocate any displaced business and residents?

i. Will the project provide pedestrian, bicycle, transit and other offsite transportation improvements for the community consistent with smart growth?

Participation. The developer should encourage substantial community participation during the development process.

a. Has the jurisdiction provided for meaningful community participation in planning and design review?

b. Has the developer worked responsibly with local groups to identify and resolve local concerns and needs?

c. Does the developer have a plan for community participation?

d. Does the developer have written support, e.g., letters from community members and groups?

e. Has the developer engaged public sector decision makers in the design and development of the project?

1 Net density represents the level of concentration (high or low) of buildings, including their total volume, within a given area, excluding land for streets, public playgrounds, and open space. Often expressed as a ratio, residential density is expressed as dwelling units/acre; nonresidential density is expressed as floor/area ratio (FAR).

2 The term "transit station" is defined as a heavy rail, light rail and/or bus hub facility that provides local or commuter service.

3 As defined by the local jurisdiction.

RATING MUNICIPAL ACCEPTANCE AND PLANNING FOR SMART GROWTH

Smart Growth Scorecard for Municipal Review

New Jersey Future created the Smart Growth Scorecard for Municipal Review to identify smart growth strengths and weaknesses in municipal planning and decision-making. The Municipal Review Scorecard can determine whether a municipality is growing smart, and whether or not the right tools are in place to do so. Questions are asked about the community's land use plans and planning practices to determine overall commitment to smart growth in general, and measure municipal sophistication about land use issues. Specific questions are asked about the town's master plan, zoning code, affordable housing strategy and/or plan, parking regulations, and open space plan, among others. A grade of A through F is calculated to determine the municipality's smart growth strengths and weaknesses.

www.njfuture.org/Media/Docs/municipal_card.pdf

NEW JERSEY FUTURE

SMART GROWTH SCORECARD —
Municipal Review

An easy-to-use scorecard for identifying Smart Growth strengths and weaknesses in municipal planning and decision-making.

Scorecards are complimentary upon request. To become a friend of New Jersey Future, and to learn more about our efforts to bring smarter growth to New Jersey, visit our website at www.njfuture.org or call 609/393-0008.

What is Smart Growth?

Smart Growth means adding new homes, new offices and businesses and new jobs to New Jersey's economy in a way that enhances the communities where we already live – without requiring higher taxes, adding to our road and traffic woes and without consuming or polluting our remaining farmland, beachfronts, woodlands and open spaces.

How do you know Smart Growth when you see it?

Smart Growth has two primary features: the "where" and the "how." It happens "where" development can be accommodated with minimal adverse impact to the environment, and in places where development takes maximum advantage of public investments already made. Smart Growth also addresses "how" the finished development will work with neighboring development to restore choices that are missing in places marked by sprawl: such as the choice to walk or use public transit, the choice to meet neighbors in attractive common spaces, or the choice to live in an apartment, a house, or a condominium.

About this scorecard

This scorecard is as much a conceptual model as it is a practical tool. It should be viewed as a way to help citizens and local officials evaluate whether or not a municipality is "growing smart," and whether or not the right tools are in place to do so. A lack of smart growth on the ground often reflects problems with local plans and regulations. As a result, some of the questions in this survey may require a look at local planning documents and/or the zoning ordinance; others can be answered by observation. It may also be necessary to speak directly with your local planning and zoning office.

General Smart Growth criteria:

- Occurs near existing development and infrastructure
- Increases the range of housing options
- Creates or enhances a vibrant mix of uses (residential, retail, office)
- Creates or enhances choices for getting around
- Walkable, designed for personal interaction
- Protects open space, farmland and critical environmental areas
- Respects community character, design and historic features

Directions:

The scorecard is broken up into eight sections, one for each Smart Growth criterion (see above) plus a section to establish a general planning profile of the town. Read through the sections and circle the best answer for each measurement listed. The measurements are weighted differently so that the maximum score for each measurement reflects its importance to Smart Growth goals. To calculate the score, multiply the points for a given answer by the measurement's weight and enter it into the score column. Add up the scores for each measurement and write that number (subtotal) in the space provided.

Municipal Planning Profile – A snapshot of the town's land use plans and planning. This helps to get a sense of municipal commitment to land use planning in general, as well as municipal sophistication about land-use issues.

Measurement	Answer	Points	Weight	Score
Town Master Plan is current; it should be thoroughly examined, revised, and amended at least every 6 years	Yes No	1 0	X 2	
Town Master Plan incorporates State Plan concepts such as planning areas and centers	Yes No	1 0	X 2	
Town has a designated center (a defined area intended to accommodate growth) or endorsed plan as granted by the State Planning Commission	Yes No	1 0	X 1	
Town actively engages the public in its planning activities	Yes No	1 0	X 2	
Town has an affordable housing plan that is certified by the New Jersey Council on Affordable Housing (COAH), or has a judgment of repose from the courts	Yes No	1 0	X 1	

Subtotal	

I. Near existing development and infrastructure –
Makes the most of limited public resources and builds on public investments already made by encouraging new development where infrastructure and services already exist. Creates opportunity for infill or redevelopment of under-utilized, abandoned and brownfield sites.

Measurement	Answer	Points	Weight	Score
New development does NOT require the extension of new roads and sewer lines into previously undeveloped lands	Yes No	1 0	X 5	
New development is occurring within 1/2 mile (walking distance) of existing development in a town center (Town centers are compact, walkable places intended to accommodate growth and include a variety of community services, employment, shopping, housing and public spaces.)	Yes No	1 0	X 5	
Public facilities (schools, libraries, etc.) are located centrally, within walking distance for most users	Yes No	1 0	X 4	
Town has looked into the capacity of its infrastructure and environment to accept new growth (carrying capacity analysis, build-out analysis)	Yes No	1 0	X 3	
Town has redeveloped, or has plans to redevelop vacant, under-utilized, and/or brownfield properties	Yes No	1 0	X 2	
			Subtotal	

II. Range of housing options –
Offers a range of housing types and sizes. Increases the choices available to households of all income levels.

Measurement	Answer	Points	Weight	Score
Zoning allows for a mix of housing types, including single-family homes, affordable housing, multi-family housing, apartments and senior housing	A good mix Limited mix No mix	2 1 0	X 1	
Town encourages affordable housing as a fixed percent (at least 15 percent) of new development	Required Encouraged Not mentioned	2 1 0	X 1	
Town has an affordable housing strategy that includes inclusionary zoning, new construction and rehabilitation programs for low- and moderate-income households. (Inclusionary zoning refers to the allowance of lot sizes [usually greater than 8 dwelling units per acre] that make the provision of affordable units by private developers feasible.)	Yes No	1 0	X 2	
Affordable housing opportunities are distributed throughout the community, integrated into market-rate communities	Yes No	1 0	X 1	
			Subtotal	

III. Mix of uses –
Creates a vibrant community where places to work, shop, live and play are integrated.

Measurement	Answer	Points	Weight	Score
Most daily shopping and service needs can be met in a central location or business district, without the use of a car to get between shops and services	All needs met Some needs met No needs met	2 1 0	X 2	
Zoning code encourages mixed-use development (commercial and residential uses in the same building and/or district), especially in a town center	Required Encouraged Allowed Not mentioned	3 2 1 0	X 2	
Local parking regulations support smart growth by allowing shared parking, credit for parking provided off-site, reduced parking requirements for mixed-use development and credit for on-street parking	Yes No	1 0	X 3	
Town has a Special Improvement District or economic development plan to attract new businesses and housing options to a town center	Yes No	1 0	X 2	
			Subtotal	

IV. Choices for Getting Around –
Maximizes use of existing transit service and other transportation options in order to decrease dependency on the automobile, thereby reducing traffic and encouraging walkability (see V. below).

Measurement	Answer	Points	Weight	Score
Town encourages multiple modes of transportation, as evidenced by on-street parking, bike lanes, sidewalks and frequent crosswalks in the town	Yes No	1 0	X 4	
Town has convenient access to public transit (bus, rail, jitney)	Yes No	1 0	X 3	
Town has a recent circulation plan element as part of its Master Plan	Yes No	1 0	X 2	
Zoning encourages more compact, higher-density development within 1/2 mile of transit stops (bus, train, shuttle, etc.)	Yes No	1 0	X 4	
Streets within the town are interconnected, in a clear pattern for getting around, with few cul-de-sacs or dead end streets that encumber traffic flow	Yes No	1 0	X 3	
			Subtotal	

V. Walkable, designed for personal interaction –
Designed for the human, rather than for the automobile. Helps to reduce traffic and create places with increased potential for social interaction, walking and sense of community.

Measurement	Answer	Points	Weight	Score
Town has a good network of sidewalks and safe pedestrian/bike paths, interconnecting the town	Yes No	1 0	X 4	
Zoning requires buildings to be close enough to each other to encourage walking and pedestrian activity (Average residential density greater than 8 dwelling units per acre; commercial floor area ratio (FAR) exceeding 1.0)	Yes No	1 0	X 5	
Town is designed with the pedestrian in mind; curb cuts favoring vehicular access are minimized, parking lots in the front of buildings are avoided and there are many crosswalks	Yes No	1 0	X 4	
			Subtotal	

VI. Protects open space, farmland and critical environmental areas –
Benefits the general public as it spares watersheds, scenic vistas and agricultural areas needed for drinking water, farm and tourism revenues and strong quality of life.

Measurement	Answer	Points	Weight	Score
Zoning regulations limit growth in critical environmental areas, including State Plan Planning Area 5, prime watersheds, unbroken forest and grassland areas and critical wildlife areas/wildlife habitat (Low densities should be in place in these areas with provisions for small, clustered lots in order to protect farmland and forest land. The more environmentally sensitive the land, the lower the density should be.)	Yes No	1 0	X 3	
Town has regulations that steer development away from unsuitable land, including (if applicable) steep slopes greater than 20 percent, floodplains, stream corridors, aquifers and aquifer recharge areas	Yes No	1 0	X 2	
Town has adopted an open space plan to strategically identify and preserve open lands, including public parks and recreation areas, farms, natural habitats and forests	Yes No	1 0	X 2	
Town has plans to clean up brownfield and unused industrial sites	Yes No	1 0	X 2	
Town requires that all new development exceed the standards in NJ's energy code	Yes No	1 0	X 2	
Town has an active Environmental Commission	Yes No	1 0	X 1	
			Subtotal	

VII. Respectful of community character and design – Growth is in keeping with the local architecture, especially if in historically significant area. Enhances the overall quality and values of the community. Enhances the community's desirability as a place to live, work, shop and recreate.

Measurement	Answer	Points	Weight	Score
Zoning has specific design guidelines, including graphic images, to ensure new development is in keeping with community character, especially in historic districts	Yes No	1 0	X 4	
Town has a historic district and/or historic preservation commission to protect important structures	Both Commission None	2 1 0	X 2	
Town has pedestrian-friendly amenities such as benches, lighting, street trees and trash cans, as well as windows at street level	Yes No	1 0	X 1	
Town has clean, well-lit community spaces such as public plazas, squares, parks, etc.	Yes No	1 0	X 1	
			Subtotal	

Final calculations:

1. Starting with Table I below, enter the subtotals for each section into Column 2 (Section Scores).
2. Divide Column 2 by Column 1 (Total Possible) and enter that number into Column 3 (Calculation).
3. Multiply Column 3 by 100 and enter that number into Column 4. This is the Final Score for the section.
4. Using Table II below, enter the letter grade for each section into Column 5 (Final Grade).

Once the calculations are complete, take a look at the areas in need of improvement. Does the town under evaluation score well in terms of efficient use of infrastructure, but poorly in terms of providing access to public transit and other choices for getting around? Are the building design standards in keeping with the local architectural style, but inaccessible to pedestrian traffic? Making determinations of this nature, and asking the right questions will help guide planning and new development in the right direction, toward Smart Growth.

TABLE I

Smart Growth Criteria	Column 1 Total Possible	Column 2 Section Scores	Column 3 Calculation (Col 2/Col 1)	Column 4 Final Score (Col 3 x 100)	Column 5 Final Grade (A-F)
Municipal planning profile	8				
I. Near existing development and infrastructure	19				
II. Range of housing options	7				
III. Mix of uses	15				
IV. Provides choices for getting around	16				
V. Walkable, designed for personal interaction	13				
VI. Protects open space, farmland and critical environmental areas	12				
VII. Respectful of community character, design and historic features	10				
TOTAL OVER ALL CRITERIA	100				

TABLE II

Final Score	**Letter Grade**
100 – 90	A
89 – 80	B
79 – 70	C
69 – 60	D
59 – 0	F

ASSESSING POTENTIAL TRANSPORTATION PROJECTS FOR ENVIRONMENTAL, CULTURAL, AND SOCIOECONOMIC FACTORS BEFORE STANDARD SCOPING

PennDOT Planning Partners Checklist (Planning and Programming Checklist) for Use by MPOs and RPOs in Transportation Project Development

In 2006, PennDOT created a checklist for MPOs/RPOs and counties to use when assessing a transportation project to identify potential environmental, cultural, and socioeconomic factors that might impact the schedule, budget, or level of documentation required for a specific transportation project. This checklist is intended to precede the standard scoping process. The information on the checklist is intended to be shared with PennDOT officials after its completion, early in the process of transportation project development. The items on the checklist can be fairly in-depth, ranging from the presence of wild trout and HQ/EV waters to known archaeology, environmental justice populations, and public involvement activities. For many of the checklist items, PennDOT has provided an entry on its accompanying "Planning and Programming Checklist Pop-Up Document" with clarifications and links to additional resources pertaining to a particular item. This accompanying document is intended to guide users of the checklist in fully comprehending the scope and method of assessment for each checklist item.

www.dot.state.pa.us/Internet/Bureaus/CPDM.nsf

Planning and Programming Checklist

The Planning and Programming Checklist provides a summary of the various resources and topics to be considered during project planning. This checklist serves as a tool to identify potential socioeconomic, cultural, and natural resources, which could affect the type of project, project planning, and/or the level of environmental documentation related to that project, and should be used to identify other efforts/projects in the region to promote coordination of such efforts to improve overall planning. This is a precursor to the formal scoping process under NEPA. The information collected and documented here will serve as the basis for the Scoping Document prepared as part of the NEPA process.

The most up-to-date available data should be used when completing the checklist. This could include local, regional, or statewide GIS Databases and/or any or all of the suggested sources provided in the checklist. Whenever possible, the data source should be referenced in the attached remarks. (DEP's eMapPA http://www.emappa.dep.state.pa.us/emappa/viewer.htm is one potential GIS source for project information.) Aerial mapping from sites such as http://local.live.com/ and Google Earth http://earth.google.com/ may also be of help in identifying resources. A cursory field view of the site should be conducted to verify data accuracy. Where remarks are warranted, please attach them to the checklist, and note in the checklist where remarks have been included. Remarks should be included when Potential Impacts is "Yes". Suggested information to be included in the remarks is provided in the checklist. A potential project would be considered to have an impact if it would directly or indirectly affect a particular resource.

Project Information:

Counties:

Municipalities:

Related SR/LR:

Segment/Offset, BMS, MPMS, etc (if available):

Brief Description:

Resource	Presence		Potential Impacts		Remarks Attached	
	Yes	No	Yes	No	Yes	No
Aquatic Resources						
A. Surface Waters [i]	☐	☐	☐	☐	☐	☐
1. Rivers/Streams [i]	☐	☐	☐	☐	☐	☐
2. Wild Trout [i]	☐	☐	☐	☐	☐	☐
3. Navigable [i]	☐	☐	☐	☐	☐	☐
4. HQ/EV Waters [i]	☐	☐	☐	☐	☐	☐
5. Federal/State Scenic and/or River Conservation Program River/Streams [i]	☐	☐	☐	☐	☐	☐
6. Other Surface Waters [i]	☐	☐	☐	☐	☐	☐

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Resource	Presence		Potential Impacts		Remarks Attached	
	Yes	No	Yes	No	Yes	No
B. **Public Water Supplies** [i]	☐	☐	☐	☐	☐	☐
C. **Wetlands** [i]	☐	☐	☐	☐	☐	☐
D. **Floodways/Floodplains** [i]	☐	☐	☐	☐	☐	☐
E. **Coastal Zone** [i]	☐	☐	☐	☐	☐	☐
Land						
A. **Agricultural Resources**	☐	☐	☐	☐	☐	☐
1. Active Farms [i]	☐	☐	☐	☐	☐	☐
2. Agricultural Protection [i]	☐	☐	☐	☐	☐	☐
B. **Geotechnical Concerns** [i]	☐	☐	☐	☐	☐	☐
C. **Wilderness, Natural, & Wild Areas** [i]	☐	☐	☐	☐	☐	☐
D. **CERCLA/Superfund Site** [i]	☐	☐	☐	☐	☐	☐
E. **Utility/Rail/Pipe Lines** [i]	☐	☐	☐	☐	☐	☐
F. **Other Initiatives**	☐	☐	☐	☐	☐	☐
1. Conservation Easements [i]	☐	☐	☐	☐	☐	☐
2. Stream Restoration	☐	☐	☐	☐	☐	☐
3. Wetland Creation/Enhancements	☐	☐	☐	☐	☐	☐
4. Cultural Preservation/Heritage Efforts [i]	☐	☐	☐	☐	☐	☐
5. Economic Growth Investments	☐	☐	☐	☐	☐	☐
6. Other Investments	☐	☐	☐	☐	☐	☐
Flora/Fauna						
A. **PNDI ER Identified Threatened or Endangered Species** [i]	☐	☐	☐	☐	☐	☐
Section 4(f) Resources						
A. **Cultural Resource(s)**	☐	☐	☐	☐	☐	☐
1. National Historic Landmarks [i]	☐	☐	☐	☐	☐	☐
2. Historic Property(s) [i]	☐	☐	☐	☐	☐	☐
3. Historic District(s) [i]	☐	☐	☐	☐	☐	☐
4. Historic Transportation Corridor(s) [i]	☐	☐	☐	☐	☐	☐
5. Known or Potential Archaeology [i]	☐	☐	☐	☐	☐	☐
B. **Publicly Owned Park/Recreation Areas** [i]	☐	☐	☐	☐	☐	☐
C. **Wildlife/Waterfowl Refuge(s)** [i]	☐	☐	☐	☐	☐	☐
D. **National/State Forests or State Gamelands** [i]	☐	☐	☐	☐	☐	☐

Resource	Presence		Potential Impacts		Remarks Attached	
	Yes	No	Yes	No	Yes	No
Socioeconomic Resources						
A. Public Facilities/Services [i]	☐	☐	☐	☐	☐	☐
B. Environmental Justice Populations [i]	☐	☐	☐	☐	☐	☐
C. Displacements [i]	☐	☐	☐	☐	☐	☐
D. Cemeteries [i]	☐	☐	☐	☐	☐	☐

Resource	Yes	No	Remarks Attached	
			Yes	No
Public Involvement Activities				
A. Public Involvement Activities Held To-Date [i]	☐	☐	☐	☐
Socioeconomic Coordination/Considerations				
A. Community Characteristics/Setting: [i]				
Urban	☐	☐	☐	☐
Suburban	☐	☐		
Rural	☐	☐		
Combination of the Above	☐	☐		
B. Consistent with Municipal, Multi-municipal and County Comprehensive Plans, Including Existing and/or Future Land Use Plans [i]	☐	☐	☐	☐
C. Special Area with a Special Designation [i]	☐	☐	☐	☐
D. Existing or Planned Developments of Regional Significance and Impact [i]	☐	☐	☐	☐
E. Official Map for the Municipality [i]	☐	☐	☐	☐
F. Impacts to Public Spaces, Facilities, Special Events, or Features [i]	☐	☐	☐	☐
G. Community or Traffic Safety Issues [i]	☐	☐	☐	☐
H. Public Controversy on Environmental Grounds [i]	☐	☐	☐	☐
I. Special Studies Completed or Underway for the Project Area [i]	☐	☐	☐	☐
Agency Coordination Considerations				
A. Permits Anticipated to be Needed for the Project [i]	☐	☐	☐	☐
B. Project is Part of Mobility Plan/Area Targeted for Investment(s) [i]	☐	☐	☐	☐
C. Project Should Be Targeted For a Master Plan, and Other Co-Lead Agencies Identified (specify)	☐	☐	☐	☐

Preparer(s): [   ] *Date Prepared:* [   ]

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River LINE
3616 B

NJ TRANSIT

CORRIDOR PLANNING GUIDE

TOWARDS A MORE MEANINGFUL INTEGRATION OF TRANSPORTATION AND LAND USE

Abstract: This study, *Corridor Planning Guide*, is designed to review how corridor studies are completed at DVRPC, and to explore various approaches to corridor planning to inform DVRPC and partner agencies' (including the state departments of transportation and county planning agencies) work on corridor studies. Developing a stronger land use and transportation linkage is an important part of DVRPC's mission.

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