



Chapter 1

Executive Summary

Linden Street Bridge in Allentown

Over the last 25 years, we have made tremendous progress in creating more transportation options for everyone who lives, works and plays in the Lehigh Valley. There is even more to come with significant capacity improvements planned for Route 22, a substantial restoration of the Route 33 corridor, emerging interest in alternative infrastructure improvements such as modern roundabouts, and innovative construction delivery techniques such as the rapid bridge replacement program.

Technology will lay the groundwork for future transportation innovations such as connected and autonomous vehicles and real time information services. Bridge and highway projects will move forward with greater speed and less disruption to the traveling public, and enhanced transit services will offer mobility options for younger populations, while allowing elderly population to age in place.

The Lehigh Valley Planning Commission (LVPC) and the Lehigh Valley Transportation Study (LVTS) will spend anticipated revenues upwards to \$2.5 billion over the coming decades to operate and maintain our current and planned system, continue to deliver on commitments and identify new projects, programs, and initiatives.

The process of developing a long range transportation plan (LRTP), as well as the content to be included in the plan, is federally mandated. The purpose of the LRTP is to guide decisions made in the investment of federal and state transportation funds to highway, bridge, air, transit and transportation alternative projects most in need. The plan also serves as a conduit for projects to enter the Transportation Improvement Program (TIP).

Two Lehigh Valley Transportation Study (LVTS) meetings were held on January 26 and February 2, 2015 for the purpose of soliciting projects for consideration into the plan, and 87 municipal project presentations were entertained. In addition, an evaluation was made against projects completed since the last update, the state's current 12-Year Program (TYP) project list and the state's Decade of Investment (DOI) project list. The various lists were reconciled and evaluated against project selection criteria addressed throughout the report.

To orient the reader, Lehigh Valley trends are shown in Chapter 3 and include data on population, households, employment, land use, income and other travel demand trends. Chapter 4 introduces the various travel modes found within the Valley and offers a brief description of each. Travel infrastructure within the Lehigh Valley includes highway, transit, rail freight, air, bicycling and pedestrian facilities. The highway network is by far the dominant system of travel infrastructure. It serves passenger vehicles, trucks and public bus transportation needs in the region.

In 2013, there were 13,693,885 daily vehicle miles of travel on the regional highway network. An average travel time of 24 minutes for Lehigh County and 27 minutes for Northampton County commuters, as derived from the 2009-2013 American Community Survey, makes the highway network attractive to personal vehicle use for economic and recreational purposes.

Chapter 4 also speaks to the importance of asset management, system maintenance, access management and public safety in the planning process. These themes are recurring throughout the plan. The LVTS continues to emphasize safety through policy that seeks to enhance existing infrastructure and reduce the number of crashes, fatalities and injuries on regional roadways. This approach is incorporated into every aspect of transportation planning and across all modes including highways, air, transit, pedestrian/bike and freight.



Police bicycle safety training in Bethlehem near the Hill-to-Hill Bridge

There is reference to several reports on traffic safety, the most recent being the *Traffic Safety Plan for the Lehigh Valley 2008-2012*. This report includes an analysis of crash types, crash contributing factors and general recommendations to mitigate crashes. The LVTS also employs the 4 E's of transportation safety: Education, Enforcement, Engineering, and Emergency response.

New to this plan is a section on mobility and the importance of measuring a balanced transportation system that looks beyond level of service (LOS) as the sole indicator behind capacity enhancements. The plan recognizes that a functional and successful transportation network will be one that considers existing and future land use, is contextually sensitive to its surroundings, and where success and efficiency are gained by policy that promotes quality of life, economic development, social justice and ecological sustainability measures. Modern concepts such as mobility corridor planning, complete streets and transit oriented development are then explained in an effort to highlight their importance to the planning process.

A look at the relationship between the economy and transportation planning is also made and it is here that the first-ever *Lehigh Valley Regional Freight Plan* is introduced. This regional effort compliments the state *Comprehensive Freight Movement Plan* (CFMP) and was developed under the direction of a regional Freight Advisory Committee. Considerations to be found in more detail within the *Regional Freight Plan* include:

- A summary of current freight flows, including inbound/outbound movements and movements within the Valley.
- An in-depth look at commodity type and year 2040 forecasts for tonnage and value.
- An employment analysis of the most freight-dependent

industries.

- An analysis of roadway and bridge assets, including pavement conditions, parking facilities, bridge condition, at-grade rail crossings, congestion and bottlenecks.
- An analysis of travel demand and growth on the local system.
- A review of existing modal facilities and a detailed overview of truck, rail and air movements.

Beyond the economy, the long range plan speaks to the relation between transportation projects and the natural environment by introducing a brief explanation of the Linking Planning to NEPA process and demonstrating the relationship to stormwater management, wetland preservation and threatened and endangered species. It also speaks to emerging engineering techniques, such as Green Infrastructure and Low Impact Development (LID), which are designed to mitigate environmental impacts.

PROJECT EVALUATION

Arguably the most important part of the plan is Chapter 5 and the introduction to project evaluation criteria. Projects originating at the LVTS level must pass through a screening process to determine how the project addresses transportation problems. The screening process seeks to determine if a proposed project is in accord with both federal and LVTS goals and policies. It is this screening process that differentiates a plan from a wish list. The major policies involved in the placement of projects in the long range plan are outlined in one or more of the policy statements listed under the plan goals and policies.

In addition to the policy considerations, projects are evaluated and prioritized against a series of planning documents and

data metrics. These metrics are applicable to a variety of project types, including road capacity, corridor, safety and rehabilitation improvements. A listing of those criteria include:

Mobility – Priority to projects that include and/or recognize multiple transportation modes.

Partnerships – Priority if a project includes a public and private arrangement for funding and/or maintenance.

Municipal Considerations – A project rises in priority if a municipality has a strategic plan for transportation improvements, which may include:

- Access management – The inclusion and adoption of comprehensive strategies that account for the entire network can serve to elevate project status.
- Municipal capital improvement programming – Projects are identified and programmed over time.
- Transportation impact fees – Assessed against the land development community to assure appropriate improvements are made commensurate with the development proposed. Municipalities should assure that surrounding road networks are upgraded with new development and at the expense of the developer.
- Design contributions – Engineering design consistent with PennDOT standards and performed at the expense of the municipality or the expense of the developer can serve to elevate project status.

Consistency with Regional Comprehensive Plan – A project rises in priority when it is consistent with relevant policy. This includes the location of projects within urban boundaries and the proximity to historic structures and sensitive environmental features, such as wetlands, protected species habitat, parklands, etc.

Air Quality – A project rises in priority when it improves air quality within the Valley, which is a designated non-attainment area.

- Proposed projects that use congestion mitigation/air quality funds must be modeled to assure reductions in Volatile Organic Compounds (VOCs) and Nitrous Oxides (NOx).

Environmental Justice – A project rises in priority when it has little to no adverse impact on disadvantaged communities.

Transportation Alternatives – Projects that do not meet federal and local requirements for funding may be eligible for alternative programs such as:

- The Green Light-Go Program provides state funds for the operation and maintenance of traffic signals along critical and designated corridors on state highways.
- The Pennsylvania Infrastructure Bank (PIB) is a PennDOT operated program that provides low interest loans to help fund transportation projects. The goal of the PIB is to leverage state and federal funds, accelerate priority transportation projects, spur economic development and assist local governments with their transportation needs.
- The Multimodal Program provides for transportation alternative projects that enhance pedestrian and bicycle facilities, improve access to public transportation, create safe routes to school, preserve historic transportation structures, provide environmental mitigation, create trails that serve a transportation purpose and promote safety and mobility.
- The Rail Transportation Assistance Program (RTAP) is a capital budget grant program providing financial assistance for investment in rail freight

infrastructure. The intent of the program is to 1) preserve essential rail freight service where economically feasible, and 2) preserve or stimulate economic development through the generation of new or expanded rail freight service.

- Local Safe Roads Community Program (LSRCP)/ Walkable Communities Program (WCP) are two programs focused on local road safety and offer a process of identification and recommendation for low cost remediation of high safety risk areas to municipal leaders at no cost for the service.
- The Automated Red Light Enforcement (ARLE) Grant Program provides PennDOT with quarterly deposits of revenue, generated by automated red light enforcement violations, into a restricted Motor License Fund account that is made eligible for grant funding.

Data Inputs – A project rises in priority when it meets certain warrants for Average Annual Daily Traffic (AADT) and peak hour trips, level of service, inclusion on the Federal Aid System, pavement condition, degree of congestion and accident history. Additional input for bridges may include sufficiency rating and posting/closure determinations. Data considerations include:

- Congestion Management
 - ✓ Priority goes to projects contained within the LVTS Congestion Management Program (CMP). CMP corridors are identified by traffic volumes, accident rates, corridor length and level of service.
 - ✓ Congestion outside of the urban development boundary will not be addressed through projects that add physical infrastructure capacity.

- ✓ Project locations that have utilized funding for capacity improvements within the past 20 years are not eligible for additional funding.
- Safety
 - ✓ Priority goes to projects in high crash corridors and intersections.
 - ✓ Projects are evaluated using PennDOT safety data, comparing local crash rates against state-wide crash rates.
 - ✓ Projects must have a crash rate greater than the statewide average.
- Maintenance
 - ✓ Projects are generally proposed and prioritized by PennDOT through the 12-Year Program and Decade of Investment programs.
- Bridges
 - ✓ Bridge projects must have a sufficiency rating between 50 and 80 to be eligible for rehabilitation.
 - ✓ Bridge projects must have a sufficiency rating below 50 to be eligible for replacement.
 - ✓ Highest priority goes to closed, posted and structurally deficient bridges.
 - ✓ Bridges must be on the Billion Dollar Bridge Bill for state funding consideration.

The policies within this plan drive the investment of public money to qualifying projects. It is important to understand the impact of these decisions and to track and monitor progress over time. Accordingly, this plan includes a number of performance standards designed to determine the effectiveness of policy consideration.

FUNDING

The LRTP is required to be fiscally constrained, and federal planning regulations require that a transportation plan “include a financial plan that demonstrates the consistency of proposed transportation investments with already available and projected sources of revenue.” Cost and revenue projections reflect existing funding conditions and historic trends. The long range plan should be in accord with projections of future revenues.

The plan documents the assumptions and methods for projecting future revenues, calculating future costs and reconciling the plan with projections of future revenues. Costs reflect estimated future rates of inflation and revenues presume known funding sources will continue. With funding estimated at \$2.5 billion over the life of the plan, it is clear that there are more projects and need than can be accommodated. Accordingly, it is the policy and evaluation criteria that will become more important to the planning process as projects mature and make themselves available for entry onto the Transportation Improvement Program.