



REGIONAL PUBLIC TRANSPORTATION



FINAL REPORT
2010
UPDATED 2014

FOR THE LEHIGH VALLEY

Prepared for:
Lehigh and Northampton
Transportation Authority

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with
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The Board would like to express appreciation to outgoing Board members, Paul J. Marin and Donald J. Mahoney, for their participation in this planning process.

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DEPARTMENT OF TRANSPORTATION

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Our Mission

The Authority's mission is to provide access and mobility designed to enhance the quality of life within the region through an organizational structure under which a wide variety of transportation services can be delivered.

- Services are to meet basic transportation needs, support desired economic and environmental goals, and appeal to an increasing number of people.
- Services are to be comprised of a range of types, provided directly or through contract.
- Services are to be provided responsibly and cost effectively within budget.

Our Vision

LANTA is a team of dedicated board members and professional employees working in partnership with community stakeholders to provide customers and the Lehigh Valley with the finest public transportation services available.

WHAT IS LANTA?

The Lehigh and Northampton Transportation Authority (LANTA), created in the midst of a transportation crisis in March of 1972 by Lehigh and Northampton Counties, is charged with operating a "public transportation system for public use in the metropolitan area consisting of the Counties of Lehigh and Northampton." The Authority assumed responsibility for the transit system formerly owned and operated by Lehigh Valley Transit Company, a private, for-profit entity which, in 1970, petitioned the PUC to permit the cessation of services. A bi-county, municipal authority, LANTA, supplements passenger fares and other revenues with county, state and federal funding to support operating and capital expenses.

Of its twelve member Board of Directors (10 voting, 2 ex-officio), six are appointed by the Lehigh County Executive and six are appointed by the Northampton County Executive. The Board meets monthly to review operations, finance matters and establish the policies and direction for the organization. The Board appoints an Executive Director to manage the transit system on a day-to-day basis.

The Authority currently operates three different services including:

LANTaBus

LANTA operates the **LANTaBus** system, a network of 30 fixed bus routes throughout the Lehigh Valley providing daily, later evening, Saturday, and Sunday services. More than 380,000 people live within walking distance of a LANTaBus route.

There has been a 70% increase in ridership since 1997: currently more than 5.0 million rides are taken on the LANTaBus system annually. LANTA's 83 vehicle bus fleet has been continually modernized so that passengers may ride to work, school, shopping and medical services in safety and comfort. Transit fares have been maintained at reasonable levels, with discount tickets - including a \$4.00 day pass good for unlimited rides all day - are available to all riders.



The LANTaBus system is concentrated in the urbanized area of the Cities of Allentown, Bethlehem and Easton and surrounding boroughs and townships. Service spans from 5:30 AM – 12:30 AM Monday through Saturday, and 9:00 AM – 6:00 PM on Sunday.

LANTaVan

LANTA's LANTaVan Division, a brokerage operation, arranges special door-to-door transportation services for people with disabilities and the elderly who cannot access the LANTaBus route network. The 108 accessible vans and mini-buses available to LANTaVan customers are dispatched daily. More than 420,000 trips were arranged by LANTaVan last year. LANTaVan is operated under contract with Easton Coach Company, Inc. of Forks Township.

CCCT (Carbon County Community Transit)

LANTA manages the public transportation system for the County of Carbon. CCCT offers services - both shared-ride, door-to-door and fixed route - within Carbon County and to several points outside of the county

including the regional Mall area in Whitehall, Lehigh County. It is a service sponsored by Carbon County in cooperation with the Pennsylvania Department of Transportation's Shared Ride Lottery Program and Rural Transportation Division and the Federal Transit Administration.

LANTA's services act as an important element of the economic development and quality of life in the Lehigh Valley. A rider survey conducted as part of this study effort showed that:

- Approximately **50%** of LANTA Metro service riders use the service to travel back and forth to work. This represents approximately **10,000 work commutes daily**.
- The remaining 50% use LANTA Metro service for shopping, medical/dental appointments, personal business and other quality of life needs.
- On any given day, approximately 1,500 to 2,000 seniors will use LANTA Metro service allowing them to maintain independence and age in place. Allowing seniors to age in place helps to create more stability in the local real estate market.



WHAT IS MOVING LANTA FORWARD AND WHY WAS IT COMPLETED?

Over the past two decades the Lehigh Valley (Lehigh and Northampton Counties) has experienced significant residential growth and commercial development. According to Lehigh Valley Planning Commission (LVPC) population projections for 2010, the population of the Lehigh Valley will have grown by 11 percent between 1990 and 2010. The LVPC projects that the population will grow by another 19 percent between 2010 and 2030. **Over the past decade, LANTA has increased the overall level of transit service provided in the area, however growth in population, commercial development, and transit ridership have far outpaced these increases.**



These trends have resulted in overcrowding on certain LANTA routes and various unmet public transportation needs in the Lehigh Valley such as access to suburban employment or jobs with non-traditional work schedules. In addition, the Lehigh Valley now has a transit system which is undersized when compared the systems serving similarly sized communities in other parts of the country.

Regional Vision

In 2005 the LVPC completed the *Comprehensive Plan – The Lehigh Valley 2030*. The planning process for this document included numerous surveys and public workshops to develop a regional vision based on the preferences of residents. Major conclusions reached from these public outreach efforts include:

- Traffic congestion and sprawl are what residents like least about the Lehigh Valley;
- Residents place great importance on the preservation of farmland and open space;
- Residents feel that it is important to link land use decisions and transportation planning; and
- Residents feel that the cities and boroughs of the Lehigh Valley should be revitalized.

Based on the regional vision expressed by the public as well as analyses and projections of need, the LVPC developed regional goals for various areas such as Land Use, Transportation, and Economic Development. Goals relevant to regional transit service include:

Land Use

- To provide a regional framework for protecting natural and agricultural resources, guiding the location and intensity of development, and matching land development with appropriate infrastructure;
- Encourage the coupling of community development and economic development to give highest priority to the renewal of cities and boroughs; and
- Improved planning and management of growth in suburban townships in the Lehigh Valley.

Economic Development

- To locate future employment in areas where the comprehensive plan policies indicate that urban growth is appropriate; and
- Provide employment opportunities to all social and economic groups.

Transportation

- To alleviate and mitigate traffic congestion; and
- To support expansion of the public transit system and to advocate transit use as an alternative to single occupant driving.

There is growing recognition of the role of public transportation in facilitating and realizing the regional vision and goals communicated through the *Comprehensive Plan – The Lehigh Valley 2030* document. The *Moving LANTA Forward* study was initiated, in part, to develop the public transportation component of this regional plan.

Organizational Vision

In 2004, the LANTA Board adopted the *LANTA Strategic Plan 2004-2015*. The Strategic Plan document established the organizational Mission and Vision described at the outset of this document. The established Mission and Vision statements remain highly relevant today and have guided the ***Moving LANTA Forward*** planning process. Most importantly, the Mission Statement establishes that LANTA services should meet the transportation needs and support desired economic and environmental goals of the community while the Vision Statement prescribes that LANTA should strive to provide the Lehigh Valley with the finest public transportation services available. In addition, the *Strategic Plan* document includes a policy statement that LANTA should and will play an increased role in the region's transportation network.

The ***Moving LANTA Forward*** study is a step in LANTA's implementation of these established goals.

Changes to Transit Funding in Pennsylvania

In July 2007 the Commonwealth of Pennsylvania enacted Act 44 which changed and enhanced the level of public transportation funding to be provided in Pennsylvania at the state level. Under the funding formulae adopted to implement the legislation, areas of the state experiencing population growth could potentially receive significant increases in state assistance for public transportation. Additionally, the legislation also established increased requirements for local funding commitments to match those state funds.

The Moving LANTA Forward Study

In response to the demographic and development trends in the Lehigh Valley, the regional vision presented in the *Comprehensive Plan – The Lehigh Valley 2030*, LANTA's own goals as established in the *Strategic Plan* along with the changes in the state funding environment, LANTA commissioned a study to establish a transit vision for the Lehigh Valley that could guide the agency's operating and capital decisions over the next decade and beyond. The study effort had the following broad goals to develop a strategic transit vision which:

- Addresses identified unmet public transportation needs in the region;
- Expands mobility and access to employment opportunities;
- Increases the visibility and convenience of public transportation service in the region;
- Improves and builds upon the fundamentals of the public transportation network in the region;
- Establishes a blueprint towards higher modes such as Bus Rapid Transit (BRT); and
- Helps to realize the regional vision communicated through the *Comprehensive Plan – The Lehigh Valley 2030*.

LANTA also recognized that the effectiveness of a public transportation system is highly dependent upon the land use and development patterns and policies of the communities served. In addition, the overall level of public transportation use among a population served can be positively affected by an effective public information program.

To develop a regional public transportation vision that addresses these goals and issues in a comprehensive manner, LANTA included three elements in the ***Moving LANTA Forward*** planning effort. The first element represented an operating and capital plan to guide LANTA's development and growth over the next twelve years. The second element included the development of land use policy recommendations which could help to support increased transit investments in the Lehigh Valley. The land use element also provided LANTA with specific guidance on how to communicate with the planning and development community in the Lehigh Valley. The third of these elements is a review of LANTA's current public information program and the development of a marketing strategy to build upon and improve this key function.

Recommendations for all three elements resulted from a comprehensive planning process. The process, findings, and recommendations of each of the three elements are summarized and presented in this final report document. Comprehensive interim reports detailing methodology, findings and recommendations have been submitted to LANTA throughout the planning process. Recommendations were arrived at through an iterative process between the consultant team, LANTA staff, and the LANTA Board of Directors.

PLANNING INPUTS

The most significant element of the ***Moving LANTA Forward*** study was the development of a public transportation service vision **for the fixed route bus service, or Metro service, in the Lehigh Valley**. To prepare this vision, information from various analyses and input sources was collected and incorporated into the development of service improvement recommendations. This section describes these various inputs and the significant findings which guided the recommendations.

Peer Group Analysis

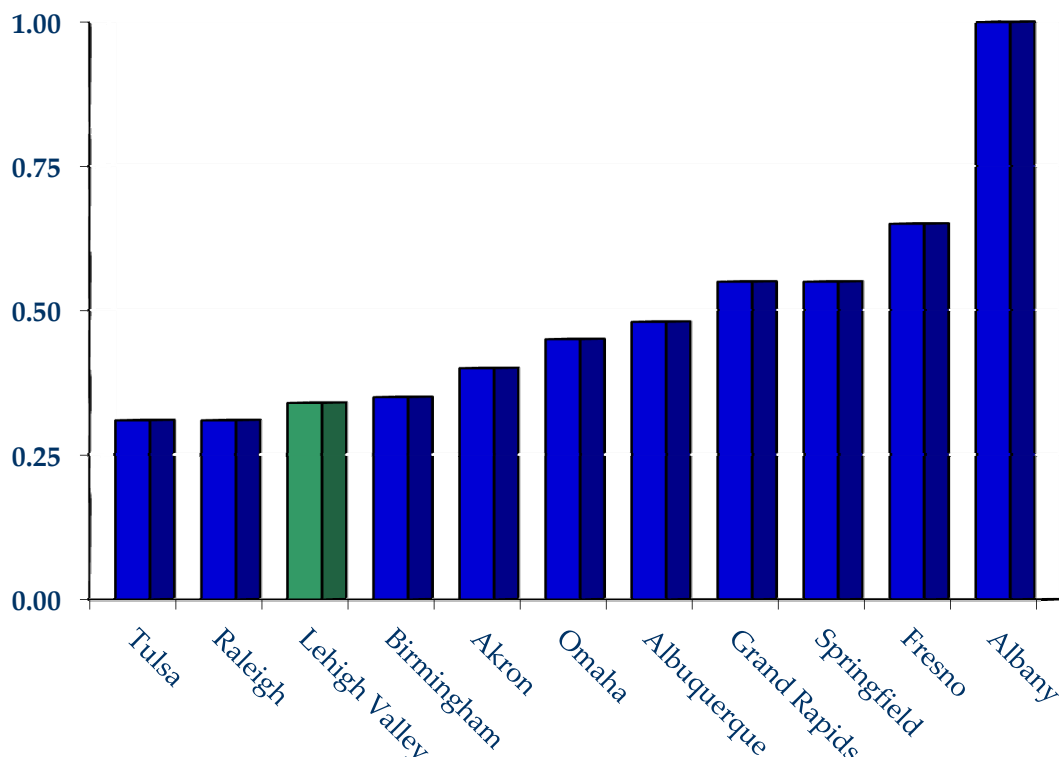
The first input to the planning process was a comparison of LANTA to a selected group of peer transit systems operating in similarly sized service areas. LANTA was compared to the peer group in over two dozen performance measures. Key findings showed:

- LANTA is much more productive than its peers measured in terms of passengers carried per revenue hour of service; and
- LANTA is also more cost efficient than its peers in terms of operating cost per revenue hour and operating cost per passenger trip.

However, the peer group analysis also showed that:

- LANTA provides a much lower level of service to the residents of its service area than do its peers. Measured in terms of operating cost per capita, LANTA is approximately 43 percent lower than its peers; and
- More importantly, measured in terms of revenue hours per capita, which is an effective indicator of the overall level of service available to the population, LANTA is 32 percent lower than its peers.

Revenue Hours per Capita



Study Advisory Committee

The effort was guided by a Study Advisory Committee made up of more than two dozen individuals representing municipal, county and regional agencies; social service agencies; major employers and institutions; private transportation providers; as well as interest and advocacy groups.

Throughout the process, six meetings were held with the Advisory Committee at which interim findings and preliminary recommendations were presented. These sessions allowed the members of the Advisory Committee to provide their input to the process at key milestones in the study process.

Rider Survey

Current LANTA riders were surveyed through an on-board survey effort in April through May 2008. As part of the survey, 5,500 survey cards were distributed and 2,389 valid responses were returned. The survey collected data regarding riders' opinion of service attributes, travel habits, demographic information and improvement suggestions.



Resident Survey

In May 2008, the residents of Lehigh and Northampton Counties were surveyed using a mail-out/mail-back format. A total of 3,000 randomly selected households in the service area received a survey packet and 546 returned a valid response. Similar to the rider survey, the resident survey collected data regarding the respondents' opinion of current services, travel habits, demographic information and service improvement suggestions. However, the resident survey was intended to reach primarily non-transit users. The survey effort was successful at reaching this market.

Public Meetings

The study effort included two rounds of public meetings held in September 2008 and July 2009. During each round, one or more meetings were held in each of the Cities of Allentown, Bethlehem, and Easton. The first round of meetings followed an open house format in which participants were invited to attend and provide their input to the planning team. The second round included a presentation summarizing the planning process and highlighting service improvement recommendations. Participants were again provided the opportunity to provide their input.



Expert Panel

One of the goals of the ***Moving LANTA Forward*** effort was to look at transit service from a strategic viewpoint and develop a plan that responds to the current setting in which LANTA operates and provides a vision of what transit can and should be. Responding effectively to broad strategic issues requires an understanding of what has been successful, and what has not, at other transit systems. To gain this outside perspective, the study effort included a session with a panel of four transit industry experts.

LANTA Employee/Driver Meetings

The process also included input from LANTA employees and bus drivers through open sessions in which members of the consultant team were available for employees to come in and provide their ideas for service improvements and priorities.

Board Workshops

Throughout the study process, six workshops were held with LANTA's Board of Directors. These sessions were used to present interim findings and initial recommendations to the Board. Each session included a discussion with the Board members to obtain their input and opinions regarding the issues being addressed. These sessions effectively set the direction for the study and guided the development of recommendations.

Several common themes emerged from these various sources of input. These included:

1. Core Service Improvements

- LANTA's current fixed route system is fundamentally sound but service dimensions are less than what would be expected given the size of the Lehigh Valley;
- LANTA should concentrate service on major corridors to maximize service frequency;
- LANTA should provide more direct connections and minimize the need for passengers to transfer; and
- There is potential for increased and redesigned public information regarding the services.



2. Expanded Service Coverage

- There is a desire for improved service to emerging employment areas and growing suburban areas;
- LANTA should use a network of suburban hubs as the basis for expansion into new areas; and
- There is the potential to use flexible routes to serve suburban areas and feed fixed routes at new hub locations.

3. Coordination with Commuter Bus Services to New York City and Philadelphia

- Improve connections with commuter bus services; and
- Co-locate hubs with commuter services where possible.



4. Planning for higher modes

- The future of public transportation in the Lehigh Valley could include higher modes such as Bus Rapid Transit (BRT) or commuter rail;
- LANTA has the opportunity to use short term improvements to establish conditions for higher modes by establishing corridors designated for higher levels of service and by making capital improvements along the designated corridors;
- Do not preclude higher modes by losing unused rail rights-of-way; and
- Pursue policies to increase employment and residential density along major corridors and in the Central Business Districts (CBD's) of Allentown, Bethlehem and Easton.



5. Technology

- Learn from other transit systems' experience and ensure that LANTA has sufficient in-house staff to maximize the benefit of implemented technology tools such as Automated Vehicle Locator (AVL) and Automated Passenger Counters (APC).



SERVICE PLAN OVERVIEW

To address the identified needs and input received, the service plan developed as part of the **Moving LANTA Forward** effort includes four primary elements. Each of these was described in a comprehensive manner in the interim report **Moving LANTA Forward – Technical Service Plan**, which was submitted to LANTA separately. It should be noted that the **Service Plan addresses the fixed route Metro system only** and is intended to provide a long term strategic guide for the system. The four elements of the service plan, along with the overall goals and recommendations of each, are listed below:

1. **Core Service Area Improvements Plan** – This element includes a series of recommendations designed to enhance and improve the LANTA fixed routes serving its core service area.



Recommendations include:

- Establish a tier system of corridors and establish target service levels for each corridor type as follows:

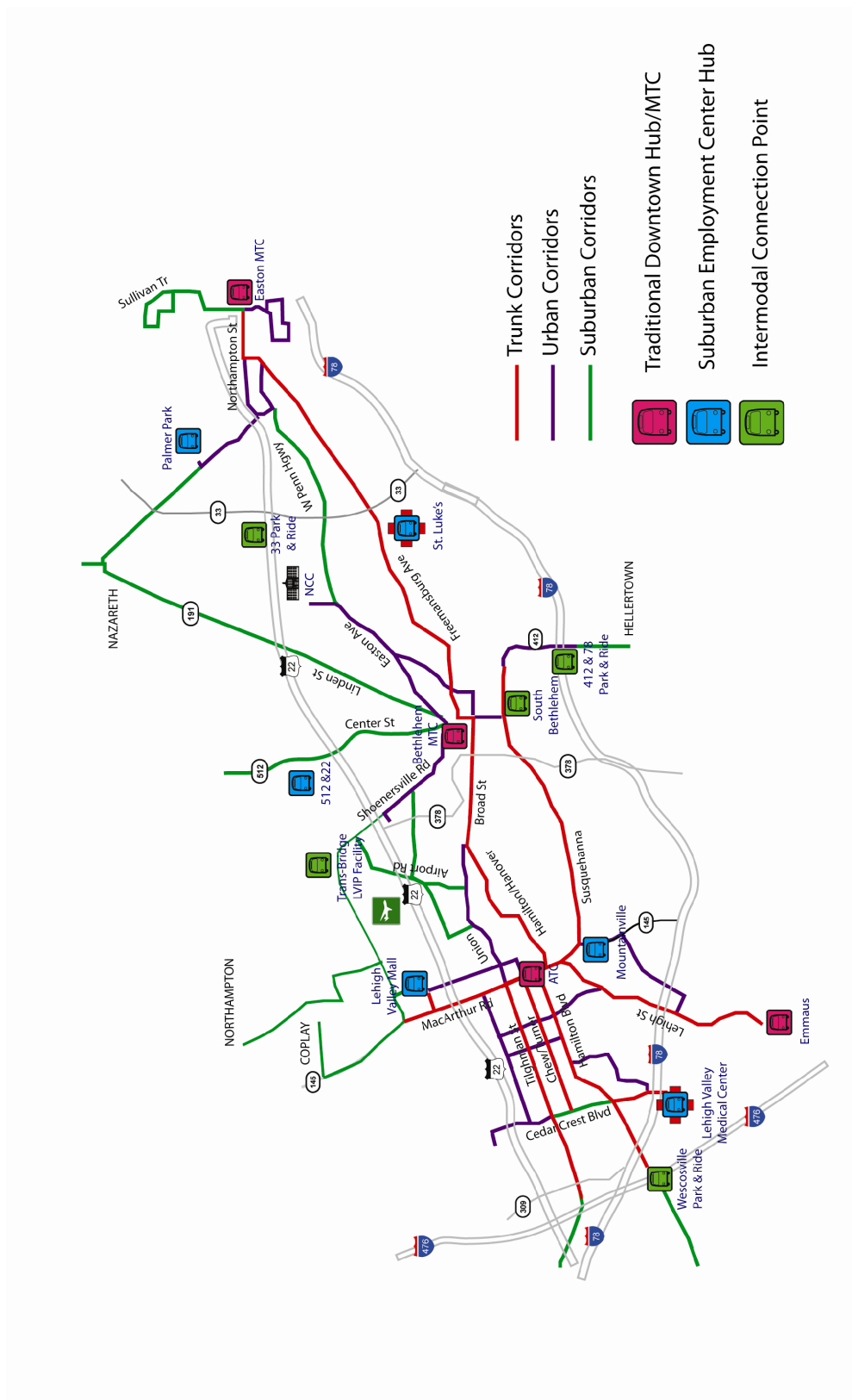
Frequency of Service

Type	Peak	Midday	Evening
Trunk	15	15	30
Urban	30	30	60
Suburban	60	60	60

Span of Service

Type	Weekday	Saturday	Sunday
Trunk	5:00AM-1:00AM	5:00AM-12:00AM	6:00AM-11:00PM
Urban	5:00AM-10:00PM	5:00AM-9:00PM	6:00AM-7:00PM
Suburban	5:00AM-9:00PM	6:00AM-9:00PM	8:00AM-6:00PM

Corridor Designations



- Re-design of the current route structure in the core area. This new structure should:
 - Improve user-friendliness through streamlined routes and a new route classification system;
 - Reduce complexity through route schedules with few or no variations;
 - Provide more direct connections through new and increased through-routing patterns; and
 - Allow for re-timing of routes and increase the reliability of running times.
- Improve evening service by eliminating Starlight routes and replacing that with regular routes that operate during the evening hours;
- Service improvements to existing and emerging employment centers such as:
 - Bethlehem – Sands Casino;
 - Easton – retail developments on Nazareth Road; and
 - Allentown – new retail developments off Airport Road.
- Improved intra-regional connections including improved service on limited stop services such as Silver Line;
- Improved connections with long distance commuter bus services through more frequent fixed route service to intermodal connection points; and
- Improved mobility options through new crosstown routes such as Cedar Crest Boulevard.

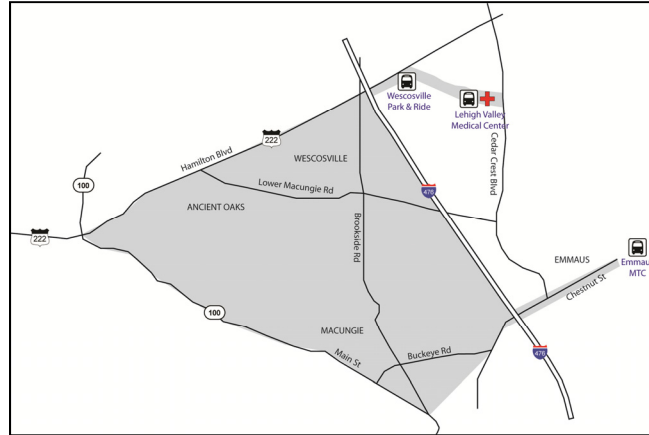


UPDATE – In August 2011, LANTA implemented a complete restructuring of its Metro service making many of the changes recommended in this section. At the time, LANTA also replaced the Metro and Metro Plus branding scheme for its services with LANTaBus and LANTaVan.

2. Service Coverage Expansion Plan – The second element of the service plan outlines a model for the expansion of LANTA service into the more suburban and rural areas that are currently not served by the Metro system or are served by infrequent fixed route services. The plan recommends:

- Establish a network of satellite hubs at major employment locations and traditional urban centers including:
 - Lehigh Valley Medical Center;
 - Emmaus center;
 - Lehigh Valley International Airport;
 - Routes 512 & 22; and
 - New St. Luke's Anderson campus.
- Enhance fixed route and flexible services to Intermodal Connection Points including:
 - Wescosville Park-n-Ride;
 - William Penn Highway & 33 Park-n-Ride; and
 - Trans-Bridge LVIP facility.

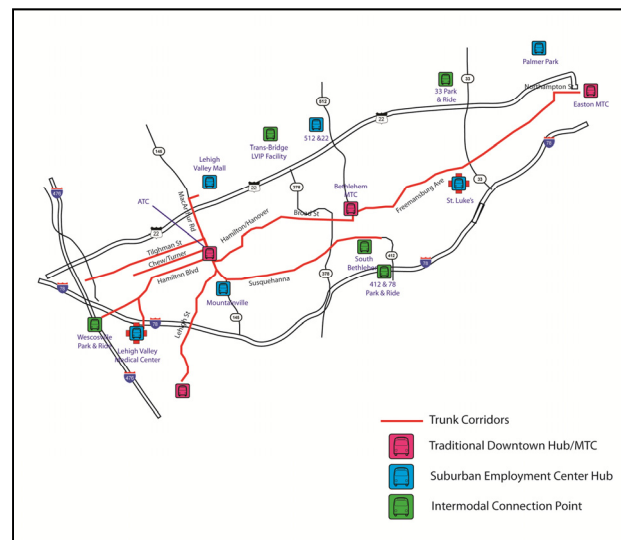
- Employ flexible service models to serve outlying areas and act as feeders to fixed routes at hub locations. One candidate location for this model would be to establish a flexible zone in the Macungie/Ancient Oaks area which allows residents to make reservations to be taken to long distance commuter bus services at the Wescosville Park & Ride and allows for connections to LANTA trunk services at the Lehigh Valley Medical Center or Emmaus hubs.



UPDATE – As part of the 2011 service restructuring, LANTA implemented the Macungie/Alburtis Flex service as a pilot. Demand on the service has steadily grown and LANTA is looking to expand the model to other locations in the region.

- 3. Bus Rapid Transit Plan** – The third element of the service plan identifies corridors with potential to become Bus Rapid Transit (BRT) corridors as the transit system in the Leigh Valley develops. A BRT corridor would be characterized as having high frequency service with a unique brand, as well as transit first improvements to the corridor. The *Moving LANTA Forward* service plan recommends a multi-year strategy including:

- Build upon established trunk corridors in the Core Service Area Improvements Plan;
- Target capital improvements to trunk corridors (i.e., roadway improvements, transit amenities);
- Coordinate capital and service improvements with local transportation and economic development plans;
- Pursue transit first improvements along trunk corridors such as traffic signal prioritization; and
- Implement north-south and east-west BRT services along trunk corridors.



UPDATE – In 2014 LANTA completed and adopted the Lehigh Valley Enhanced Bus/Bus Rapid Transit Plan which establishes a phased implementation approach to address the strategy described above.

4. **Rail Modes Planning** – The final element of the service plan recognizes the ongoing planning efforts regarding commuter rail service in the Lehigh Valley. While the **Moving LANTA Forward** effort was not intended to address the feasibility of commuter rail in the area, the service plan includes the following recommendations:

- LANTA should continue to participate in rail modes planning efforts;
- The transit system should be prepared to modify bus service to respond to potential commuter rail services; and
- No actions should be taken that would preclude the implementation of commuter rail services in the future.

MARKETING PLAN

The effort to develop a marketing strategy to support the **Moving LANTA Forward** included comparing LANTA's current public information core elements to a set of industry best practice guidelines. In addition, LANTA's current public information materials, staffing, and budget were compared to that of a peer group of similarly sized public transportation agencies.

Based on this review, specific recommendations were developed within six overall goals for the public information program:

1. Assure effectiveness of public information core elements;
2. Support the implementation of the Service Plan;
3. Implement an enhanced brand;
4. Launch a relationship marketing program;
5. Study and initiate partnership programs such as employer passes or UPass; and
6. Resume market research and create an annual research cycle.

The Implementation Requirements section of this report identifies specific marketing activities that will need to be pursued to support each phase of the recommended implementation program.



UPDATE – In 2011, LANTA implemented a redesign of its internet website as well as its printed service information materials. LANTA also established employer supported service programs as well as transit pass discount programs with various area colleges. In addition, in 2011, LANTA implemented its GPS based Automated Transit Management System (ATMS). The ATMS provides LANTA with computer aided dispatch capabilities and allows for the provision of real-time bus arrival information to passengers through LANTA's internet website, text messages, phone based interactive voice recognition, or smart phone apps.

LAND USE TOOLKIT

LANTA does not control land use and development decisions or policy making in the Lehigh Valley. These decisions are primarily addressed at the municipal level. However, the viability of public transportation service is significantly dependent upon these factors. To pursue a more active and effective role in shaping the character of development in the Lehigh Valley, LANTA has entered into a Memorandum of Understanding with the LVPC which identifies activities to be pursued by both agencies to ensure that public transportation is represented and considered in land use and development decisions made by planning bodies in the region.

Since LANTA is not a land use planning agency, the land use element of the ***Moving LANTA Forward*** study focused on providing LANTA with two important tools. First, a Land Use Toolkit document was developed which provides a specific list of policy and ordinance stipulations that would be supportive of public transportation in general, as well as policies that would specifically support the service enhancements recommended as part of this plan. The second tool represented a presentation that explains the relationship between land use and public transportation and summarizes the policy recommendations outlined in the Land Use Toolkit document. LANTA and LVPC plan to present the Land Use Toolkit presentation to local planning bodies to raise awareness of the potential for public transportation in the Lehigh Valley and educate them on their role in implementing the vision developed as part of this planning effort.

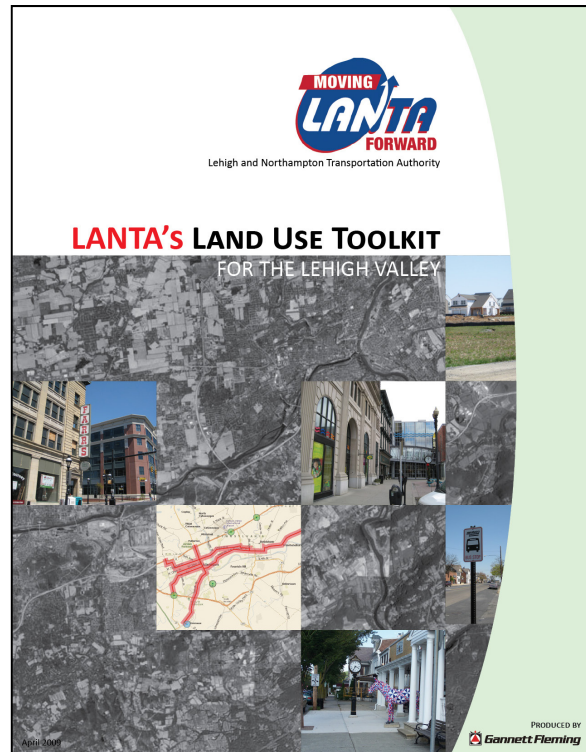
The Land Use Toolkit document provides recommendations for how each community's planning documents and ordinances can support public transportation. This includes the:

- Comprehensive Plan;
- Zoning Ordinance;
- Subdivision and Land Development Ordinance (SALDO); and
- Subdivision and Site Plan Review.

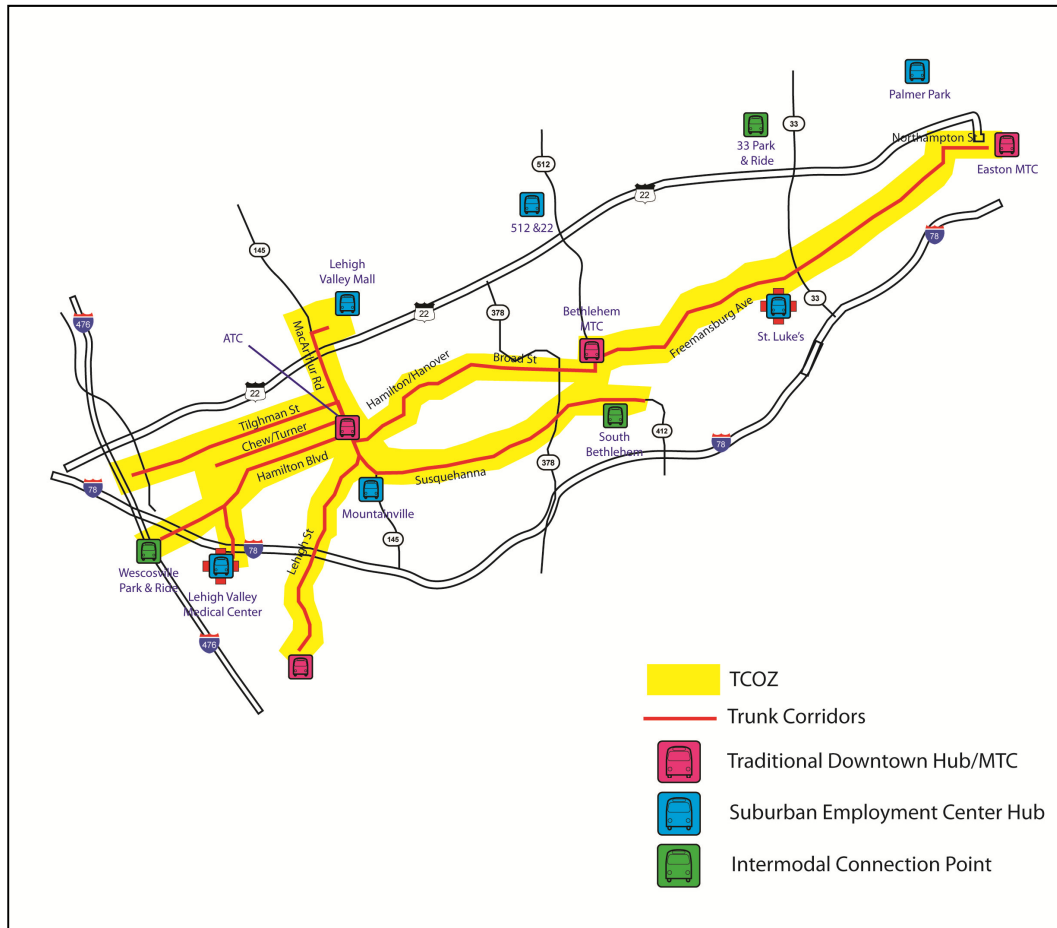
For each of these documents, the Land Use Toolkit provides LANTA with guidance regarding:

- Who to talk to;
- What to say; and
- What to ask for.

As noted above, the Land Use Toolkit provides some general recommendations for how to make land use and development decisions that are supportive of transit service, while other recommendations respond specifically to service enhancement recommendations developed as part of the ***Moving LANTA Forward*** study. Most importantly, the Land Use Toolkit provides numerous SALDO and Site Plan recommendations for developments



along corridors envisioned for higher levels of service. In addition, the Land Use Toolkit recommends the adoption of a Transit Corridor Overlay Zone (TCOZ) along identified “trunks” which the service plan envisions for potential higher modes such as Bus Rapid Transit (BRT).



The overall goal of the land use element of the ***Moving LANTA Forward*** study is to provide LANTA with the tools that will allow the agency to take a continuous, active and effective role in shaping the environment which it must serve. The Implementation Requirements section of this report identifies specific land use policy actions that should be taken to support the recommended implementation phasing of the service plan.

UPDATE – Since the adoption of the Moving LANTA Forward plan, LANTA has conducted numerous presentations with municipal planning commissions throughout the Lehigh Valley and has expended significant effort to build relationships with municipal planning staffs resulting in much more involvement on the part of LANTA in the review of plans for proposed developments. In addition, as part of the U.S. Department of Housing and Urban Development's Sustainable Communities Planning Grant Program funding awarded to the region in 2011, LANTA created and published an updated document regarding desired land use practices entitled *Transit Supportive Land Use for the Lehigh Valley*.

IMPLEMENTATION PHASING

The service plan outlines an implementation phasing strategy which incorporates each of the recommendations from the four elements described earlier into three implementation periods. These implementation time frames are listed below along with a list of the major improvements to be made.

1. Short Term Implementation Plan (1 – 3 Years) – The Short Term Implementation Plan will be used to establish the re-designed route structure and make various improvements to the core services including:

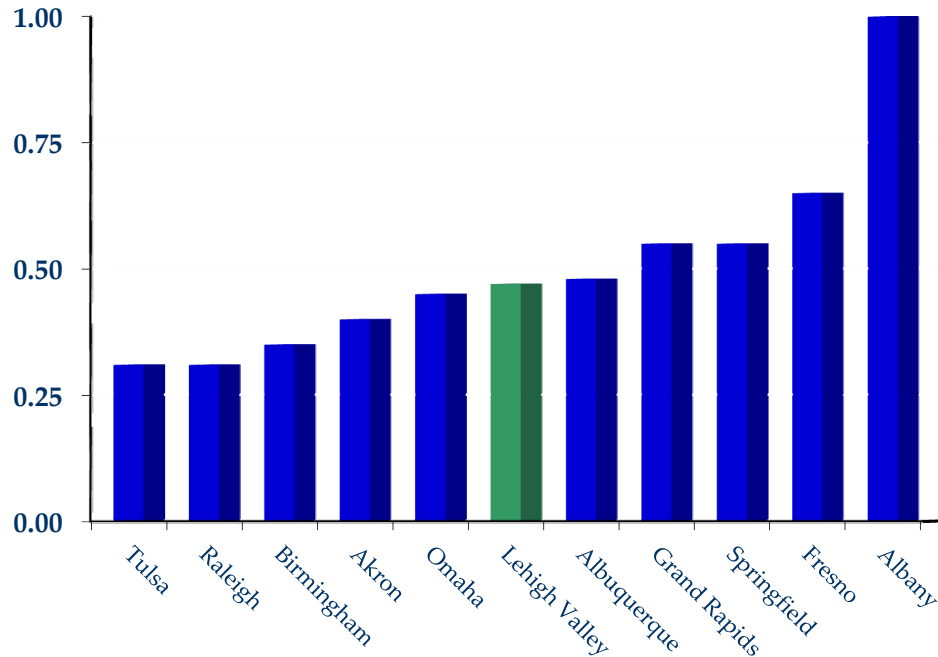
- A majority of the route structure proposed as part of the Core Service Area Improvements Plan will be put into place and trunk corridor routes will be established;
- All routes will be re-designated to comply with new classification system;
- Starlight and Night Owl service will be eliminated with certain routes continuing operation into the late evening;
- Evening service will be enhanced;
- Frequency of service enhancements will be implemented on certain key corridors; Tilghman, Hamilton, Susquehanna;
- Routes will re-timed and rescheduled to establish reliable running times;
- New direct links will be created; and
- Continued involvement in rail modes planning efforts.

UPDATE – The Metro service restructuring and the introduction of the LANtaBus system in 2011 addressed many of these goals. In addition, service levels on the LANtaBus system since 2011 have increased approximately 5% measured in terms of annual revenue hours of service.

2. Intermediate Term Implementation Plan (3 – 6 Years) – The primary goals of the Intermediate Term Implementation Plan will be to make further enhancements to the core service area and begin to introduce elements of the Service Coverage Expansion Plan. Key elements include:

- The amount of service provided will be increased to a level that brings LANTA to the peer group average in terms of per capita measures;
- Additional elements of the route structure proposed under the Core Service Area Improvements Plan will be implemented;
- Additional enhancements to night and weekend coverage will be instituted;
- Further frequency enhancements on certain key corridors will be implemented (i.e., Hamilton and Susquehanna); and
- Elements of the Service Coverage Expansion Plan will be implemented (i.e., Flexible services such as Macungie to Emmaus and LVMC, Egypt to Lehigh Valley Mall, etc.).

Revenue Hours per Capita in the Lehigh Valley Compared to Peers
After Implementation of the Intermediate Term Implementation Plan



3. **Long Term Implementation Plan (Beyond 6 years)** – The final implementation period will be used to implement the remaining recommendations. The period of the Long Term Implementation Plan **will depend upon the availability of resources and funding**. The elements of the Long Term Implementation Plan include:

- Remaining recommendations proposed under the Core Area Service Improvements Plan;
- Remaining recommendations proposed under the Service Coverage Expansion Plan;
- BRT Plan recommendations; and
- Bus service changes to coordinate with rail service when applicable.

IMPLEMENTATION PROJECTIONS

Based on the elements of the three Implementation Plans outlined above, the resource impacts of each of these three phases have been calculated in terms of revenue hours, peak vehicle requirements, and ridership.

Term	Changes in				
	Revenue Hours		Peak Vehicles	Ridership*	
	Incremental	% from Current		Incremental	% from Current
Short	28,200	14.0	4	562,500	7.0
Intermediate	47,000	25.0	8	691,400	13.0
Long	148,000	78.0	26	1,779,000	39.0
Total	223,200	117.0	38	3,032,900	59.0

* Assumes a demand elasticity of 0.5; recent LANTA performance suggests ridership increases could be higher than those presented here.

IMPLEMENTATION REQUIREMENTS

Numerous actions need to be taken to successfully implement new transit services or modify existing routes. This section outlines specific actions that would need to be taken to support the implementation of the various recommendations outlined above within certain key functions.

At the outset, it is important to note that certain assumptions have been made in developing these lists of requirements. First, for the operations staffing and facility requirements, it was assumed that all services recommended in this plan would be operated in-house by LANTA. It should be noted, however, that certain services, such as the flexible services recommended as part of the Service Coverage Expansion Plan, could potentially be operated by a contract provider. This would reduce LANTA's projected operations staffing need as well as the necessary vehicle storage capacity at LANTA facilities.

Revenue Vehicles

Using the implementation projections provided above, the number of revenue vehicles required to implement the ***Moving LANTA Forward*** plan have been calculated. These figures differ from those presented in the Implementation Projections section since these figures account for the need for spare vehicles.

Term	Vehicles Required
Short	5
Intermediate	10
Long	32
Total	47

Operating and Maintenance Facilities

Based on the projected revenue vehicle requirements, upon full implementation of the ***Moving LANTA Forward*** plan, LANTA facilities would need a combined storage capacity of approximately 125 vehicles.

Other Capital Needs

In addition to the purchase of vehicles and the planning for operations and maintenance facilities, LANTA will also need to implement various other capital program improvements to support the various implementation phases of the ***Moving LANTA Forward*** plan.



These include:

- **Short Term Implementation Plan**
 - Implement the Automated Passenger Counter/Automated Vehicle Locator (APC/AVL) systems elements of the Advanced Transit Management System (ATMS) program; and
 - Initiate passenger amenity program along the established trunk corridors.
- **Intermediate Term Implementation Plan**
 - Continue to make passenger amenity improvements along trunk corridors;
 - Secure sites/agreements for satellite hubs; and
 - Construct the first of the satellite hubs at the Lehigh Valley Medical Center (LVMC) on Cedar Crest Boulevard.

- **Long Term Implementation Plan**

- Plan and implement traffic engineering improvements along trunk (potential BRT) corridors (i.e., signal prioritization, transit first design elements); this would have to be initiated far in advance of the implementation of BRT services and therefore should begin in the Near and Short Term timeframes;
- Construct network of satellite hubs including structures, passenger amenities, real-time information, and information kiosks; and
- Continue to make passenger amenity improvements along trunk corridors.

Marketing

Public information and other Marketing efforts will need to be ongoing to support the implementation of the ***Moving LANTA Forward*** plan. The various recommendations outlined in the Marketing Plan developed as part of this process have been assigned to particular implementation periods and are listed below:

- **Short Term Implementation Plan**

- Implement the rebranding effort;
- Establish staffed customer service during all hours of operation; and
- Implement the bus stop signage program.

- **Intermediate Term Implementation Plan**

- Design and install information materials at the Lehigh Valley Medical Center hub and other hubs.

- **Long Term Implementation Plan**

- Design and install information materials at hub locations.

- **Ongoing**

- Update public information core elements to reflect service changes during each phase;
- Plan and implement specific information campaigns for service changes during each phase;
- Implement a relationship marketing program;
- Initiate partnership programs such as employer passes or UPass; these are programs that provide employees of participating companies or students of participating institutions access to the transit system through pre-paid fare arrangements; and
- Design and implement an enhanced market research program.

Land Use

The recommendations outlined in the Land Use Toolkit have been assigned to appropriate implementation periods and are listed below:

- **Short Term Implementation Plan**

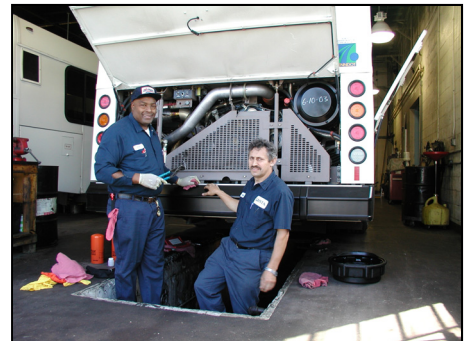
- Continue outreach program to planners and developers through the presentation and toolkit document; and
- Pursue SALDO changes for trunks and other key corridors.

- **Intermediate Term Implementation Plan**
 - Pursue recommended SALDO changes surrounding identified hub locations.
- **Long Term Implementation Plan**
 - Adoption of the Transit Corridor Overlay Zone (TCOZ) along potential BRT corridors will be necessary for BRT implementation.
- **Ongoing**
 - Ongoing outreach;
 - Ongoing monitoring and input to planned development; and
 - Monitor and provide input to economic development plans to ensure development is targeted towards trunk corridors.

Staffing

The operations and necessary support activities outlined in the ***Moving LANTA Forward*** plan will require significant changes to LANTA's staffing. Key points are highlighted below:

- **Operations Staffing** – The complete implementation of the ***Moving LANTA Forward*** plan would double the amount of revenue hours operated by LANTA. Additional drivers will be needed to operate those new hours. During the same period, many of LANTA's current operators will retire and need to be replaced. As the plan is implemented, LANTA will need to be in a position to hire and train drivers almost on a continuous basis. Programs to facilitate this process will need to be in place before implementation begins.
- **Maintenance Staffing** – As LANTA adds revenue hours to its service, it will also be adding revenue miles and increasing its fleet. As the fleet grows and more miles are operated, there will be a need for additional maintenance staff to keep LANTA's fleet in safe and optimal running condition. It should also be noted that new skills will need to be pursued through maintenance staff development to address greater use of alternative propulsion technologies on vehicles as well as other technology components such as APC/AVL and farebox equipment.
- **Administrative Staffing** – LANTA's peer transit systems exhibit an administrative staffing ratio of 0.3 administrative employees per peak bus; currently LANTA's ratio is approximately half that rate at 0.16. To address this deficiency and to effectively respond to growth, LANTA will need to enhance its administrative staffing in all areas including Business Development, Planning, Human Resources, Payroll, and Finance.



FINANCIAL PLAN

This section provides projections for the operating and capital costs needed to implement the ***Moving LANTA Forward*** Plan as well as projections for the funding sources to support this implementation.

Operating Costs

A three-variable cost model which takes into account the amount of revenue hours and miles operated as well as the number of peak vehicles required was developed as part of the planning process. The projected variables for each phase were then entered into the model to project the operating costs of the system for each of the implementation phases. Ridership projections and an average fare per passenger rate were then used to estimate passenger revenue for each phase.

The table below shows these operating cost projections **for the fixed route system only**. For each phase, cost projections are provided in a constant year dollar amount based on LANTA's 2008 financial data, and a current year dollar amount escalated to an appropriate year based on the implementation phase time frame (i.e., Year 2013 for Short Term, Year 2016 for Intermediate Term, Year 2022 for Long Term) to indicate what the costs may be upon full implementation.

Operating Cost Projections

Measure	Amount (\$)	
Short Term		
	2008 Dollars	Escalated to 2013
Operating Cost	19,920,000	24,235,000
Revenue	4,760,000	5,515,000
Funding Need	15,160,000	18,720,000
Intermediate Term		
	2008 Dollars	Escalated to 2016
Operating Cost	24,254,000	33,193,000
Revenue	5,655,000	7,163,000
Funding Need	18,599,000	26,030,000
Long Term		
	2008 Dollars	Escalated to Year 2022
Operating Cost	37,670,000	65,234,000
Revenue	7,965,000	12,048,000
Funding Need	29,705,000	53,186,000

The operating costs projections were then used to project the funding need by source. To calculate funding projections, the projected operating statistics for the plan were inserted into the formulae currently used to determine federal and state funding levels. Assumptions were then made regarding the escalation of the overall amounts of federal and state funding sources. The resulting projections are provided in the following table.

Funding Projections by Source

Measure	Amount (\$)
Short Term	
	Escalated to 2013
Federal	6,010,000
State	11,872,000
Local	838,000
Intermediate Term	
	Escalated to 2016
Federal	7,670,000
State	15,367,000
Local	2,993,000
Long Term	
	Escalated to 2022
Federal	13,673,000
State	26,612,000
Local	12,901,000

Certain points to note include the fact that under Act 44 the Commonwealth of Pennsylvania requires a 15 percent local match to operating funds provided by the State. Local governments can increase their match by 5 percent per year from the current levels until the 15 percent threshold is reached.

Another important point regarding funding is that full implementation of the ***Moving LANTA Forward*** plan will require a significant increase in the local funding commitment. ***Moving LANTA Forward*** includes an ambitious vision for public transportation in the Lehigh Valley which is a desire the community expressed throughout the planning process. Implementation may require the consideration of alternative sources of local funding such as a dedicated sales tax or other mechanism dedicated at its source.

Capital Costs

A significant capital program will need to be implemented to support and facilitate the service plan envisioned in the ***Moving LANTA Forward*** plan. This will include:

- Fleet replacement and expansion program;
- Bus stop signage program;
- Construction of a network of satellite hubs;
- Passenger amenity program;
- Public information technology program (real time signs, kiosks);
- Bus Rapid Transit (BRT) program; and
- Operating and Maintenance facility expansion.



Transit buses typically have an economic useful life of twelve years. Therefore, over the planning horizon of this document, each vehicle currently in LANTA's fleet will need to be replaced at some point. In addition, LANTA's fleet will need to be expanded by approximately 47 vehicles to implement the recommended service enhancements.



The following table provides a potential fleet replacement and expansion schedule.

Term	Purchase	Retire	Fleet
Short	25*	20	83
Intermediate	35	26	92
Long	65	32	125
Total	125	78	-

* Includes 5 expansion vehicles already in fleet

To address the capital items that will need to be addressed over the course of the implementation of the **Moving LANTA Forward** plan, a capital plan has been developed which assigns capital purchases into appropriate years over the 12 year horizon of **Moving LANTA Forward**. Assuming an annual cost escalation of 3 percent, a total 12 year cost for the capital program has been calculated.

Twelve Year Capital Program Cost (Costs escalated to year of expenditure)

Capital Program Item	Total Units	12 Year Cost (\$)
Fleet Replacement and Expansion	125	44,159,400*
Hybrid Add-On	125	25,000,000 (!)
Bus Stop Signs	3,600	464,400
Hubs	8	3,857,800
Passenger Waiting Shelters	200	2,833,800
Electronic Information Kiosks	50	145,000
Bus Rapid Transit (BRT) Routes	3	50,829,100
Operating and Maintenance Facility	1	30,000,000
Total		157,289,500

* Assumes the purchase of all full sized buses.

(!) Assumes \$200,000 per hybrid bus.

Using the current funding formula for transit capital funding (i.e., 80% from federal grant sources, 15% from the Commonwealth of Pennsylvania, and 5% from local sources), the funding source for the 12 year capital program was projected.

Source	12 Year Cost (\$)
Federal	125,831,600
State	23,593,400
Local	7,864,500
Total	157,289,500

UPDATE – Since 2010, LANTA has replaced 24 of the buses in its fleet with diesel hybrid electric vehicles. In addition, the bus stop signage program has been completed. Other elements of the capital plan which have been addressed include the fact that in 2013, LANTA completed an expansion and modernization of its bus maintenance garage in Allentown. This project will accommodate any growth that is called for in this plan. LANTA has also initiated the bus stop shelter program and has, to date, installed approximately 25 new bus shelters.

Technology

There are several modern technology tools available to the transit industry to improve the quality and efficiency of service while also significantly increasing the amount of up to the minute information available to passengers. LANTA's incorporation of these tools into its operations and planning will be an important part of the **Moving LANTA Forward** effort. LANTA has already initiated its **Advanced Transit Management System (ATMS)** program. The ATMS program will bring about several changes to LANTA including:

- New farebox technology and new fare media options for passengers;
- Real time bus location data available to the public through the internet and wireless telecommunications;
- Computer aided dispatch to improve the effectiveness of service supervision; and
- Automated collection of ridership and running time data to allow for more effective planning decisions

UPDATE – In 2011, LANTA implemented its GPS based Automated Transit Management System (ATMS). The ATMS provides LANTA with computer aided dispatch capabilities and allows for the provision of real-time bus arrival information to passengers through LANTA's internet website, text messages, phone based interactive voice recognition, or smart phone apps.

SUMMARY

This document provided a summary of the ***Moving LANTA Forward*** planning process. This was an eighteen month process which included the eliciting and incorporation of various sources of local input. Based on various analyses as well as the desires of the community expressed through the *Comprehensive Plan – the Lehigh Valley 2030* as well as during this planning process, an ambitious vision for public transportation in the Lehigh Valley was developed and presented. In addition, the financial and organizational requirements to implement this vision have been outlined in this report. More comprehensive descriptions of methodologies, findings and recommendations have been documented in various interim reports that have been submitted to LANTA as part of this process. Copies of all of these documents can be found at LANTA's website www.lantabus.com.

UPDATE –In 2011, a regional consortium of sixteen partners in the Lehigh Valley was awarded funding under the U.S. Department of Housing and Urban Development's Sustainable Communities Planning Grant program. Under the grant, various planning efforts were to be completed with the overall goal of developing a regional sustainable development plan. One of LANTA's responsibilities under the grant was to ensure that a transit plan was in place that addressed the various goals of the other planning efforts being completed through the grant. After reviewing the goals set forth in all the planning efforts completed by the consortium, it was determined that this Moving LANTA Forward plan addresses the goals established therein. The pursuit of the recommendations in Moving LANTA Forward will help to further any and all goals established by the other planning efforts. Therefore, LANTA has used resources from the grant to update, republish and promote the Moving LANTA Forward document and plan recommendations to address that element of the grant work program.

APPENDIX A

**MOVING LANTA FORWARD
REGIONAL TRANSPORTATION PLAN FOR THE LEHIGH VALLEY
SUPPORTING RESOLUTION
LEHIGH AND NORTHAMPTON TRANSPORTATION AUTHORITY**

The following resolution is approved by the Lehigh and Northampton Transportation Authority (LANTA) in support of the recommendations resulting from a planning process completed in November 2009, which sets forth a long range vision for the Lehigh Valley Public Transportation System. The process and plan has been identified as the Moving LANTA Forward, A Regional Public Transportation Plan for the Lehigh Valley (MLF).

WHEREAS, over the last two decades the Lehigh Valley has experienced significant residential and commercial growth and as a result the LANTA has experienced a significant increase in the overall level of transit demand, as demonstrated by a 75 percent increase in transit riders since 1997, and

WHEREAS, there is a growing recognition of the role of public transportation in facilitating and realizing a regional vision and goals communicated through the Lehigh Valley Planning Commission's Comprehensive Plan – Lehigh Valley 2030, and

WHEREAS, recognizing the demographic and development trends of the Lehigh Valley, LANTA, in March 2008, commissioned a study to establish a vision for the Lehigh Valley's public transportation system designed to guide LANTA's operation and capital decisions over the next decade, and


WHEREAS, LANTA also recognized that the effectiveness of public transportation is highly dependent upon the land use and the development patterns and policies of the communities it serves, and

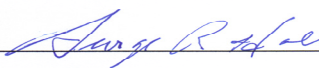
WHEREAS, the completed MLF plan includes a vision that addresses these issues and sets forth goals in a comprehensive manner.

NOW, THEREFORE, be it resolved by the Lehigh and Northampton Transportation Authority that:

1. LANTA supports the multiple elements set forth in the MLF plan, which includes:
 - a. An operating and capital plan to guide LANTA development and growth over the next 12 years,
 - b. The development of a land use policy with recommendations which will help support an increase in transit investment in the Lehigh Valley, and
 - c. The program to develop a marketing strategy to support plan implementation.
2. LANTA support the restructuring of LANTA Metro routes and schedules in accordance with the MLF plan, with the intention of simplifying the service structure and growing the system in a manner that will effectively serve current and future public transportation needs of the Lehigh Valley.
3. LANTA, in accordance with the Memorandum of Understanding signed with the Lehigh Valley Planning Commission, will support and work towards the improvement of land uses along key transit corridors. This is in full recognition that the achievement of the MLF plan is subject to a changing regional development patterns to include densities that can support expanded transit services.
4. LANTA will continue to investigate new transit service types and models, and will introduce new and more effective transit services as appropriate.
5. LANTA recognizes that the program set forth in the MLF document represents a very aggressive expansion program. The Authority is committed to moving forward on all elements of the plan, but acknowledges that financial sustainability of the system is essential.

IN WITNESS THEREOF, the Lehigh and Northampton Transit Authority hereby adopts this resolution on this 9th day of February 2010.

By: 
Fred A. Williams – Chairman

Attest: 
George R. Hall - Secretary