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Over the last twenty years, project partners have been coordinating on plans for a new Paoli Intermodal Transportation Center and redevelopment of the Amtrak Rail Yards property. With these two major initiatives underway, Tredyffrin Township led the Paoli Road Improvement Feasibility Study to identify solutions that address existing and future multi-modal transportation needs that are consistent with the community’s overall vision for the heart of Paoli.

Study Goals

1. Implement an effective outreach program to engage the project stakeholders and public, to seek community input and obtain feedback on the transportation improvement options to accommodate motorists, pedestrians, bicyclists, and transit that will support a more “walkable” community offering multi-modal transportation choices.

2. Develop conceptual transportation improvement options to accommodate motorists, pedestrians, bicyclists, and transit that will support a more “walkable” community offering multi-modal transportation choices.

3. Support the Township in the selection of a preferred transportation improvement plan that addresses the project needs and Paoli community vision, while balancing the many factors affecting implementation feasibility, such as costs, safety, physical constraints, environmental impacts, and community impacts.

Introduction

The Paoli Train Station, located at Lancaster Avenue (U.S. Route 30) and North Valley Road, supports Amtrak and SEPTA regional rail service. It is the busiest rail station in Chester County. Design of a new Intermodal Transportation Center is underway, along with plans to redevelop the former rail yard adjacent to the station.

Lancaster Avenue (U.S. Route 30), North Valley Road, and East/West Central Avenues provide critical access to the Paoli Train Station and the Paoli Business District, while also supporting local and regional trips. The purpose of this project was to identify improvement concepts for key roadways and intersections that will fulfill the existing and future transportation demands.

Partnerships for Paoli’s Future

Concurrent with the Paoli Road Improvement Feasibility Study, SEPTA led the development of a concept plan for the new Paoli Intermodal Center. The two projects were closely coordinated with regard to both technical design issues and community outreach. The following project partners have been working together to improve the transportation system in Paoli and realize the vision of the new Paoli Intermodal Transportation Center and were integrally involved in the Paoli Roadway Feasibility Study.

Tredyffrin Township | Willistown Township | Chester County
Delaware Valley Regional Planning Commission
PennDOT | Amtrak | SEPTA
Transportation Setting

Lancaster Avenue (U.S. Route 30) carries over 21,000 vehicles per day and supports regional mobility, as well as local access to residential areas, businesses, and the Paoli Train Station. Several intersections along Lancaster Avenue operate with poor levels of service and are congested during weekday commuter peak periods.

Pedestrian facilities are inconsistent, incomplete, and inadequate to support safe access to the Paoli Train Station, businesses, and other destinations in the heart of Paoli.

Speeding and cut through traffic are issues, particularly on East and West Central Avenues. There is a lack of physical design elements and visual cues to alert motorists to the appropriate travel speeds in residential neighborhoods.

Top Ten Community Issues

1. Traffic congestion
2. Safety
3. Pedestrian access
4. Parking Availability
5. Economic Development
6. Streetscape Enhancements
7. Speeding/Cut Through
8. Environmental Sustainability
9. Bus/Truck Traffic
10. Bicycle Access
One of the primary goals of the Paoli Road Improvement Feasibility Study was to engage stakeholders and the public in the development of transportation improvement solutions. The public involvement process included four phases: Discovery, Listening, Options, and Deciding. Throughout the process, all stakeholders were given multiple opportunities and channels to communicate their ideas and shape the vision for the Paoli area. The community’s preferences are one of several important factors in the evaluation and selection of the preferred improvement concepts.

### Discovery
- Gather facts, agree on goals, engage the community and explain the study
- 260 people | 8 Stakeholder Meetings
- 23 people | Road Safety Audit

### Listening
- Determine the issues and concerns of the community as well as their vision for Paoli.
- 244 people | Community Survey & Questionnaire Responses
- 310 people | Online Visual Preference Survey Responses
- 300 people | Open House #1

### Concepts
- Identify preliminary improvement scenarios and refine them based on community feedback.
- 53 people | 2 Stakeholder Meetings
- 200 people | Open House #2

### Deciding
- Compare improvement scenarios based on critical performance measures, including public support and achievement of community vision.
- 224 people | Open House #3
- 2 Presentations to Board of Supervisors

To realize the goals for a safer, less congested, transit-friendly, more walkable, more vibrant village, the Paoli Road Improvement Feasibility Study calls for a combination of public infrastructure investments in streets, intersections, parking, and sidewalks, as well as refinements to Township ordinances. These public investments will create a positive environment for private investment consistent with the community goals for Paoli.

Concurrent with the Paoli Road Improvement Feasibility Study, SEPTA developed a concept plan for the new Paoli Intermodal Transportation Center that included a new extension of Darby Road from Lancaster Avenue to North Valley Road, which would replace the existing North Valley Road bridge over the rail lines. Additionally, other potential new roadway connections were identified during the study process, including the extension of Paoli Plaza and development of a new “Spine” Road through the future development on the Amtrak rail yard site. These new connections can become Great Streets that help to ease congestion and create a Great Place in the heart of Paoli.
Focus Areas

- Lancaster Avenue
- East Central Avenue
- West Central Avenue
- Lancaster Avenue and Paoli Pike Intersection
- North Valley Road and E./W. Central Avenue Intersection

Goals

- Improve the overall transportation system for all users
- Achieve the community vision for Paoli
- Work within the context of the new Paoli Intermodal Transportation Center
- Offer a feasible solution for the existing and long-term transportation needs of the community

Based on the existing conditions and input from the community, improvement concepts were developed for three corridors and two intersections that provide critical multi-modal access within the study area. The improvement concepts reflect current design standards and were developed to address existing deficiencies and achieve project goals. Preliminary improvement concepts were evaluated based on community objectives and were vetted through the public involvement process and technical coordination meetings with PennDOT, SEPTA, and other project partners.

Achieving Community Objectives

<table>
<thead>
<tr>
<th>Lancaster Avenue</th>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ped-Behavior</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Walk-ability</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bike-ability</td>
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<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mobility</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Access Management</td>
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<td>✓</td>
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</tr>
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<td>✓</td>
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<tr>
<td>Parking</td>
<td>✓</td>
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<tr>
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</tr>
<tr>
<td>Legend</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Legend:
- ✓: Inclusion of objective
- ✓: Low Moderate satisfaction of objective
- ✓: High satisfaction of objective
One of the community objectives for Lancaster Avenue was to transform the corridor into a more pedestrian friendly destination. In addition to wider sidewalks, the concepts incorporate curb extensions, high visibility crosswalks, and pedestrian signal heads and push buttons at intersections to improve safety and comfort for pedestrians.
The key community concerns for East Central Avenue were improving bicycle and pedestrian access, reducing vehicular speeds, and providing environmentally sustainable stormwater management and streetscape improvements. In addition to narrowed travel lanes and continuous bicycle and pedestrian facilities, the concepts include raised crosswalks to calm traffic and improve safety.

**East Central Avenue Concepts**

- **Concept 1: Sidewalks on both sides, narrowed travel lanes, and bike lanes**
  - Estimated Cost: $2.5 M
  - Community Support: 17%

- **Concept 3: Sidewalks on both sides, maintain north side curbline, narrowed travel lanes and bike lanes**
  - Estimated Cost: $5.6 M
  - Community Support: 16%

- **Concept 4: Sidewalk on north side (optional) and multi-use trail on south side**
  - Estimated Cost: $5.0 M
  - Community Support: 67%

Notes: See Chapters 4 and 6 for additional details on improvement concepts. Concept 2 incorporated on-street parking and was eliminated based on comments given by the public during Open House #2. Community support based on public input during Open House #3.
Key objectives for the West Central Avenue concepts include better accommodations for bicyclists and pedestrians and calming or slowing traffic on the neighborhood street that carries significant commuter traffic. Concepts for West Central Avenue reflect the narrow right-of-way and road width, state ownership, and coordination with the plan for of a parallel “spine road” through the Amtrak Rail Yards property.

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Wide sidewalks, narrowed travel lanes, and striped shoulders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$2.8 M</td>
<td>Estimated Cost 80% Community Support</td>
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</table>

<table>
<thead>
<tr>
<th>Concept 2</th>
<th>Wide sidewalks and narrowed street width</th>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$3.1 M</td>
<td>Estimated Cost 20% Community Support</td>
</tr>
</tbody>
</table>

Notes: See Chapters 4 and 6 for additional details on improvement concepts. Community support based on public input during Open House #3.
The offset configuration of East/West Central Avenue and North Valley Road intersection and other deficiencies at the intersection present challenges to walkability, bikeability, overall mobility, safety, and congestion. All of the concepts include improved pedestrian accommodations to improve access to the Paoli Train Station and future Intermodal Transportation Center.

**North Valley Road and E./W. Central Avenue Intersection Concepts**

**Signalized offset intersections**

- **Concept A**
  - $6.3 M | Estimated Cost
  - 0% | Community Support

**Signalized realigned intersection**

- **Concept B**
  - $7.3 M | Estimated Cost
  - 40% | Community Support

**Roundabout**

- **Concept C**
  - $6.6 M | Estimated Cost
  - 60% | Community Support

Notes: See Chapters 4 and 6 for additional details on improvement concepts. Community support based on public input during Open House #3.
Key challenges associated with the Lancaster Avenue and Paoli Pike intersection include walkability, bikeability, congestion, safety, and access management. All three concepts incorporate the relocation of Greenwood Avenue opposite Paoli Pike, the extension of Paoli Plaza westward to Plank Avenue, and improved pedestrian accommodations.

Notes: See Chapters 4 and 6 for additional details on improvement concepts. Community support based on public input during Open House #3.
A Smart Transportation and Complete Streets Approach calls for considering the needs of all users of the transportation system (pedestrians, bicyclists, transit users, and motorists) and integrating transportation and land use planning, design, and investments.

The Paoli Road Improvement Feasibility Study includes a streetscape plan to show how the potential roadway and intersection improvements can incorporate a variety of streetscape elements, including street trees and landscape elements, lighting, sidewalks, and crosswalks. Community preferences for streetscape elements and materials were identified as part of the Visual Preference Survey. The improvement concepts and streetscape plan also reflect a Smart Transportation and Complete Streets approach and incorporate current best practices for bicycle and pedestrian facilities, traffic calming, access management, and green streets.

Streetscape Plan

**Best Practices**

**Bicycle and Pedestrian Facilities**
The improvement concepts include a broad range of bicycle and pedestrian facilities to improve safety and mobility for all users of the transportation system.
- Sidewalks
- Multi-use trails
- Bicycle lanes
- Paved Shoulders
- Shared Lanes

**Traffic Calming**
The improvement concepts include several traffic calming measures to slow travel speeds, discourage cut-through traffic, and create a safer and more comfortable environment for walking and biking.
- Roundabouts
- Curb Extensions
- Raised Crosswalks
- Reduced Lane Widths
- On-Street Parking

**Access Management**
Access management strategies were incorporated into the improvement concepts, particularly for Lancaster Avenue, to reduce congestion and provide safe and efficient access to businesses along the corridor.
- Joint and Cross Access
- Driveway Spacing
- Frontage and Reverse Frontage Roads

**Green Streets**
Sustainable stormwater strategies manage and treat stormwater at the source and within the street improvements and also provide plantings and landscaping to visually enhance the community.
- Tree Trenches
- Bioswales
- Bioretention

Notes: Since the Study does not designate a preferred improvement concept, the streetscape plans are based on the most popular concepts from the final open house.
Implementation Plan

Due to the large scope of improvements identified in the Paoli Road Improvement Feasibility Study, as well as their associated costs, the transportation improvements will likely be implemented in a phased approach over time. The implementation plan outlines short, intermediate, and long term priority actions, starting with selecting the preferred transportation improvement concepts. Since funding is a critical issue for advancing projects, potential funding opportunities have been identified in the Study.

**Short-term | 0 - 4 years**
- Select preferred transportation improvements and consider project phasing.
- Modify regulatory policies and ordinances.
- Identify funding sources to advance the various transportation projects. Coordinate with project partners to secure funding.
- Provide traffic calming and pedestrian improvements in advance of larger transportation projects.
- Develop a parking management plan.

**Intermediate | 4 - 8 years**
- Continue to implement elements of the preferred transportation improvements.
- Secure needed rights-of-way and easements.

**Long-term | Beyond 8 years**
- Complete the selected transportation improvements.

**Ongoing**
- Maintain roadways and sidewalks.
- Monitor land development activities.

**Funding for Paoli Transportation Projects**

**Paoli Intermodal Transportation Center—Phase 1**
Amtrak, SEPTA, and PennDOT have allocated $36 million for engineering and construction of the first phase of improvements to the Paoli Train Station. This project will improve accessibility of station facilities with construction of a pedestrian overpass, a new high level center platform, and the installation of three elevators linking the inbound and outbound parking lots.

**Darby Road Extension Bridge and Associated Road Improvements**
The Delaware Valley Regional Planning Commission’s FY2015 Transportation Improvement Program (TIP) includes almost $16 million in FY15—FY18 for design on the new Darby Road Extension Bridge, in conjunction with the planned improvements for the Paoli Intermodal Transportation Center.

**Traffic Signal Upgrades along Lancaster Avenue**
Tredyffrin Township was awarded approximately $565,000 through PennDOT’s Automated Red Light Enforcement (ARLE) Grant Program to upgrade and provide adaptive traffic control for signals along Lancaster Avenue between Plank Avenue and PA Route 252 through the heart of Paoli and pedestrian improvements at the signalized intersections. As an initial phase for improvements along Lancaster Avenue, this project will help to reduce congestion, improve safety, and promote mobility.
A significant amount of collaboration with project partners and other organizations was required to complete this Study. Staff from the following organizations were instrumental in providing input, feedback, time, and ideas that were instrumental in the evaluation of the study area and in developing improvement recommendations:

- Southeast Pennsylvania Transportation Authority (SEPTA) and their Paoli Station Design Team
- Pennsylvania Department of Transportation (PennDOT)
- Delaware Valley Regional Planning Commission
- Amtrak
- Chester County Planning Commission
- Paoli Transit Associates—Station Area Developer
- Paoli Business Association
- Tredyffrin Township Planning Commission
- Willistown Township, Chester County

The Delaware Valley Friends School also opened their facilities to host several community events.

Tredyffrin Township staff from many departments also provided assistance throughout the Study process.

In addition, the number of community members that came to meetings and went to the project website was exceptional, which allowed for a “community driven” process and Study. Throughout the process, the community engaged the project team to learn about the project, identify problems and potential solutions, and provide feedback on potential improvement concepts.