Abington Noble

TRANSIT-ORIENTED DEVELOPMENT PLAN

A B I N G T O N , P A

Prepared for **Township of Abington**

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1.0 INTRODUCTION

1.1 Purpose

The purpose of the Abington Noble Transit-Oriented Development project is to advance Abington Township's vision for a transit-oriented development (TOD) center near the SEPTA Noble Station. This study builds on the concepts recommended as part of the 2008 Old York Road Corridor Improvement Plan and coordinates with Penn DOT's Old York Road bridge project and SEPTA's planned Noble Station improvements. By leveraging the existing Old York Road/ PA 611 corridor, SEPTA's R-3 Regional Rail line, and other existing infrastructure assets; making strategic improvements to the public realm; and planning for follow-through private-sector investments, the Abington Noble Transit-Oriented Development project will have a profound impact on the safety, connectivity, quality of life, and economic viability of a critical area of Abington Township and be a catalyst for future, sustainable growth in the community.

The Abington Township Economic Development Committee (EDC) prepared the groundwork for this project. Realizing the importance of the project for the economic growth of the Township, EDC secured a Pennsylvania Community Transportation Initiative Grant to fund the study, coordinated stakeholder and community involvement, and organized the five-day, Public Planning Charrette.

This report documents the public-participatory process followed to engage stakeholders, options studied, as well as the subsequent, envisioned redevelopment strategy for the study area. The redevelopment strategy is supported by parking analysis and recommendations, traffic analysis, street and intersection improvement recommendations, market analysis, and financial and fiscal analysis.

The study area, as shown in the plan on the facing page, is bounded by the SEPTA rail line to the south, the Bryner Chevrolet property to the east, The Fairway to the north, and Old York Road (PA 611) to the west. The Noble Station is well-served by transit, located on SEPTA's R-3 Regional Rail line and accessed by the West Trenton Line, Bus Route 55, as well as the Penn State Abington Shuttle.

What is TOD?
Transit-oriented development, or TOD, is a type of community development that includes a mixture of housing, office, retail and/or other amenities integrated into a walkable neighborhood and located within a half-mile of public transportation. A primary goal of TOD planning is the creation of better access to jobs, housing, and opportunity for people of all ages and incomes. Successful TOD provides people from all walks of life with convenient, affordable, and active lifestyles and create places where our children can play and our parents can grow old comfortably.

Why plan for TOD?
- To enhance community character in Abington and create a focal point near transit
- Promote opportunities for transit-supportive redevelopment
- Promote local and regional walking, bicycling, and transit ridership
- Promote walkable communities that accommodate more healthy and active lifestyles
- Support local and state transportation policies and economic development initiatives, including SEPTA's SEPTAINABLE: The Route to Regional Sustainability initiative
- Embrace Abington's history while preparing for its future

For more information on the benefits of TOD planning, visit: http://www.reconnectingamerica.org/what-we-do/what-is-tod/

Figure 1.1.1 Existing Conditions Plans with Study Area Boundary

1.2 Background

Preparation of an Abington Noble Transit-Oriented Development Plan was a key early-implementation action outlined in Abington Township's 2008 Old York Road Corridor Improvement Plan, developed by McCormick Taylor Engineers and Planners. The Corridor Plan studied 2.6 miles of Old York Road/PA 611 through the township and made comprehensive recommendations to improve safety, mobility, land use integration, aesthetics, and sustainability on the corridor. The Plan identified the Noble Station/Fairway area for redevelopment and suggested transit-oriented development to enhance the economic viability of local commerce, improve the quality of life for area residents, and upgrade accessibility for improved transit use.

Strategically located where Old York Road crosses SEPTA's R-3 Regional Rail line, the Corridor Plan recommended the establishment of a new, mixed-use center here for Abington Township. Accessibility to multiple travel modes was encouraged, substituting future pedestrian, bicycle, and transit trips for what otherwise would remain private vehicle trips to under-utilized land uses, such as surface parking and one-story commercial buildings. While the nearby Noble Town Center, Noble Plaza, Baederwood shopping center, and multiple car dealerships draw considerable local and regional patronage to the area, the area lacks a sufficient street, bicycle, and sidewalk network to integrate these establishments with one another and with the Noble Station. This lack of connectivity undermines the probability of people using transit, walking, or biking to access these destinations.

Planning for the Noble Station area has been the subject of several previous studies as well, including Abington Township's New Visions: Abington Commercial Districts (2002) and the Delaware Valley Regional Planning Commission's Route 611 and 263 Corridor Study (2008). Proposed recommendations for the Noble Station/Fairway Area identified in the Old York Road Corridor Improvement Plan are consistent with these other studies, which recommend a Transit-Oriented Development overlay district for the Noble Station area and improvements to make the district more attractive for walking and shopping.

Following previous planning efforts, this current effort focuses on advancing the corridor vision plan with more detailed architectural and engineering design targeting the quarter-mile radius closest to the station. Additionally, it was decided that, while this planning effort should be informed by developer interests and new market realities, a goal should be to engage stakeholders and envision the area prior to receiving plans submitted by private developers, to be proactive rather than reactive.

Along with advancing adopted planning recommendations, the Abington Noble Transit-Oriented Development project coordinates with and builds on current plans for Penn DOT's Old York Road bridge project and SEPTA's Noble Station improvements. Penn DOT is currently engaged in the design of the new Old York Road Bridge over the R-3 railroad line, adjacent to the Noble Station. The new bridge is structurally necessary and will improve the safety of drivers, pedestrians, and transit riders. However, the Noble Station is depressed below the grade of Old York Road and the current bridge plans are not fully integrated with the Noble Station's presence. With a goal of increased transit ridership, convenient pedestrian access to the station platforms from Old York Road, as well as the Fairway, needs to be developed.

1.3 Process

Having secured a Pennsylvania Community Transportation Initiative Grant through the efforts of the Economic Development Committee (EDC), Abington Township took the opportunity to envision land use, streetscape, and open space improvements for the area surrounding the SEPTA Noble Station. In order to ensure a balanced, supported plan, and to increase participation in the planning process, the planning team conducted a five-day, Public Planning Charrette to allow all stakeholders to provide input, comment, and feedback on a variety of transit center redevelopment opportunities. In order to prepare for the Charrette and document the preferred redevelopment scenario, the project comprised three phases from July 1, 2011 to August 2012, including Pre-Charrette, Charrette, and Post-Charrette phases.

During the Pre-Charrette phase, the consultant team, including Design Collective, Partners for Economic Solutions, Pennoni Associates, and TimHaahs, met with the Abington Township Economic Development Committee, the steering committee for the project, as well as conducted interviews with area stakeholders, including Montgomery County Planning, SEPTA, Penn State Abington, Abington Memorial Hospital, and several local property owners and businesses. Additional Pre-Charrette tasks included data collection and review; precedent research; a market study update; site survey and reconnaissance; the production of a traffic model; a parking needs assessment; and the preparation of a base map, 3-D model of the site, and sketch concept plans. The consultant team and the project steering committee met at the following Abington Township Economic Development Committee Meetings, during the Pre-Charrette phase:

March 8, 2011
July 12, 2011
August 9, 2011
September 13, 2011
October 04, 2011

The Public Planning Charrette was held from October 25-29, 2011 at the SEPTA Noble Station near the intersection of Old York Road/PA 611 and Baeder Road. Through the course of the 5-day interactive event, stakeholders learned what makes transit-oriented communities successful, reviewed and commented on redevelopment options, and discussed their ideas, concerns, and goals. The planning team tested various building programs and produced plan alternatives, street sections, perspective sketches, and similar; analyzed market/economic scenarios for the plan alternatives; tested plan alternatives through the traffic model and developed intersection improvement recommendations; and analyzed parking scenarios. During business hours, the planning team conducted one-on-one meetings with key stakeholders including Montgomery County Planning, SEPTA, and several local property owners and businesses.

Charrette Schedule:

DATE	TIME	LOCATION	ACTIVITY
Tuesday, October 25, 2011	6:00 PM to 7:30 PM	Noble Train Station	Open House Gallery
Wednesday, October 26th	8:00 AM to 7:30 PM	Noble Train Station	Planning Studio Open
Wednesday, October 26th	6:30 PM Start	Abington Township Building	Opening Presentation
Thursday, October 27th	8:00 AM to 7:30 PM	Noble Train Station	Planning Studio Open
Thursday, October 27th	6:00 PM to 7:30 PM	Noble Train Station	Pin-up/Progress Report
Friday, October 28th	8:00 AM to 12:00 Noon	Noble Train Station	Planning Studio Open
Saturday, October 29th	8:00 AM to 9:30 AM	Noble Train Station	Planning Studio Open
Saturday, October 29th	3:00 PM Start	Abington Township Building	Closing Presentation

During the Post-Charrette phase, the preferred redevelopment strategy was discussed and refined, supported by parking analysis and recommendations, traffic analysis, street and intersection improvement recommendations, market analysis, and financial and fiscal analysis. Additionally, a 3-D animation video was produced for Abington Township's use to promote the envisioned plan. This report contains process concepts as well as the final, redevelopment concept.

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2.0 REDEVELOPMENT STRATEGY

2.1 Overview

The Abington Noble Transit-Oriented Development redevelopment strategy is based upon several important town goals that leverage the benefit of the Noble Station. Transit-oriented development (TOD) is compact, mixed-use development around transit stations that supports economic development and smart growth goals, increases transit ridership, and encourages a more vibrant, healthy, and active lifestyle. TOD is about creating more sustainable communities where walking, biking, and using transit reduces reliance on the automobile and puts residents within walking distance of employment, shopping, entertainment, and services.

TOD is distinguished by having: a mix of uses and building types that support spontaneous and vibrant street-level activities and socialization; diverse housing choices at relatively high densities immediately around the station; high quality open spaces, streetscape, and public spaces that support community events, festivals, and markets; and improved connectivity to/from surrounding neighborhoods in the form of more pedestrian-friendly streets, sidewalks, bicycle paths, and multi-modal transportation services.

Benefits of TOD often include increased tax base and revenues, increased transit ridership, more efficient use of public investments and infrastructure, reduced parking demands, improved access to jobs, services, and daily needs, and improved mobility, especially for seniors.

The Abington Noble TOD Plan aspires to achieve all of these goals and benefits.

The Redevelopment Strategy includes recommendations for improvements and redevelopment within the Abington Noble Transit-Oriented Development (TOD) study area , including private and/or public-private development, infrastructure and streetscape improvements, parking, traffic and roadway improvements, and open space. These recommendations are based on review of previous studies, existing zoning and recent development/rezoning activities, existing study area assets, property ownership patterns and intentions, traffic and parking analyses (see Section 3-4, pp. 44-101), financial and fiscal analysis (see Section 5, pp. 104-117), market analysis (see appendix A.1, pp. 122), and stakeholder feedback from Economic Development Committee (EDC) meetings and the Public Planning Charrette.

This section comprises two parts: Preliminary Concept Plans and Preferred Vision Plan.

The Preliminary Concept Plans include alternative development recommendations that were presented on the final day of the charrette held in October, 2011. These options outlined alternatives for land use, building height, circulation and connectivity from Baeder Road through the site to the Fairway, parking, architectural and streetscape character, and how such change may benefit and/or impact neighboring properties. The plans also include improving pedestrian and bicycle-friendliness of the Fairway, improving the area and open space around the station, improving the open space on the south side of the tracks to create a usable neighborhood park, and enhancing the overall character of the TOD study area.

The Preferred Vision Plan details the most preferred redevelopment strategy for the TOD, based upon stakeholder feedback at the charrette, input from property owners, and input from the Economic Development Committee. The Preferred Vision Plan is also informed by what is the most likely and economically feasible development strategy based upon market analysis, financial proforma, and TRID/funding expectations (see Section 5, pp. 104-117). The Preferred Vision Plan outlines details for the site and study area improvements, a new mixed-use building and multi-level parking structure on a portion of the Noble Plaza office building parcel, parking strategies for the new development, SEPTA, and replacement parking, and traffic, roadway, and infrastructure improvements.

Fig. 2.1.1 - Aerial Photo of Abington Noble TOD study area.

2.2 Market Recommendations

The Market Analysis, updates the 2007 market study prepared by AKRF for the Old York Road Corridor Improvement Study. The full Market Analysis is documented in Appendix A.1. Partners for Economic Solutions (PES) updated the market study's base data and conclusions to incorporate more recent information and to reflect changes in local market economics. The Market Analysis focuses on a study area for the Old York Corridor defined to include much of Abington Township (east of Tyson Avenue, Roslyn Road and Easton Road) and Jenkintown Borough, as shown on the map on the following page. Existing and proposed developments within the study area present the greatest direct competition to new developments within the Noble Station Area.

Summary Recommendations

The limited acreage available for new development at the Noble station is a major constraint. Combined with the structured parking required to replace SEPTA and Noble Plaza office parking spaces, the site can support one building. Building economics that favor wood-frame construction will likely limit the scale of supportable new development to five stories. The market overview identifies potential for 100 to 200 dwelling units and a 100- to 150-room hotel. The office market has excess supply relative to potential demand and would not support new office development, except perhaps one or two street-level professional offices.

PES recommends development of housing for a mix of college students, young professionals, and empty nesters with 100 to 200 dwelling units. Roughly one-half of the units should be designed for shared use by students in either two- or four-bed configurations. Quality design, finishes, and amenities would enhance the project's marketability, including a workout room and lounge.

Retail development on the first floor would help to further animate the site, taking advantage of the new streetscape and open space amenities. However, the limited visibility and the availability of vacant space locally suggests that new retail space should be limited to a sit-down restaurant and perhaps one or two small shops.

Parking on the site will need to serve the residential units and replace the displaced office and transit parking. In addition, Penn State Abington's severe parking shortages on-campus would justify University investment in off-site parking. Co-location with the train station and student housing would provide operational efficiencies for the campus shuttle buses.

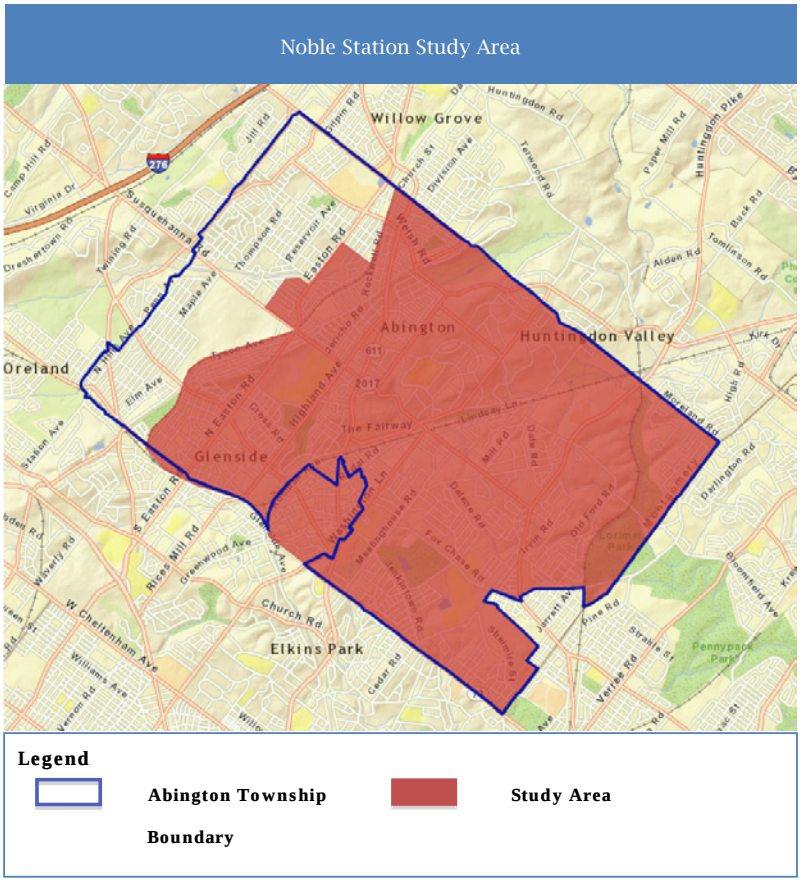

Fig. 2.2.1 - Noble Station Study Area

2.3 Preliminary Concept Plans

Fig. 2.3.1 - Charrette Opening Presentation

Fig. 2.3.2 - Charrette Open Studio

Fig. 2.3.3 - Charrette Closing Presentation

Several redevelopment options were developed and discussed during the week-long charrette and presented at the closing presentation of the charrette on October 29, 2011. These options were based on feedback from stakeholders and community members, as well as market, economic, and traffic analysis. Four options for the redevelopment of the parking lot east of the Noble Plaza office building were investigated, through the use of plans, sections, and perspectives. Before and after perspectives, along with sections, were used to compare various options and address community concerns of building heights and views. The Fairway roadway improvement options were also presented.

Several important objectives emerged from the charrette, supporting each of the four options, although how each objective is achieved varies between the options:

1. Connect Baeder Road at Old York Road through the study area and to the Fairway by creating a tree-lined, pedestrian-oriented street with sidewalks, on-street parking, light poles and banners. Buildings with ground-level retail and restaurants align this new street, transforming the study area from a "parking lot" into a series of walkable and attractive mixed-use blocks;
2. Construct a multi-level parking garage with additional net parking to serve area properties, SEPTA, and new development that is "wrapped" with a new building (residential, office, hotel, and/or retail uses) and a "green screen" that will screen the parking from public view;
3. Create a small park or neighborhood square around the existing station that can serve as a setting for town-wide events;
4. Transform the parking area and under-utilized land on the south side of the station into a community park;
5. Recommend area-wide roadway and intersection improvements that can improve both current and future traffic congestion along key roads and intersections;
6. Establish a framework plan of streets and blocks that may anticipate future redevelopment within the study area that will achieve, and enhance, project and TOD goals, objectives, and benefits;
7. Minimize visual impact of new development and especially the garage from nearby neighborhoods; and
8. Improve the streetscape character, overall attractiveness, and pedestrian safety and access along Old York Road and along the Fairway.

Concept 1: 7-Story Residential with Garage

Concept 1 is a seven-story residential building with ground level retail fronting a new proposed street and structured parking. The proposed building accommodates 138 market-rate dwelling units on the upper floors with ground-level lobby and amenity spaces, such as a fitness room. Above the garage is an amenity courtyard and green roof. The 11,000 square feet of ground-level retail faces a proposed plaza space adjacent to existing retail (see the 7-Story Ground Level Plan to the right). The parking garage is six levels with approximately 500 spaces, accommodating SEPTA station parking, existing commercial parking, and the new retail and residential parking.

The parking garage is wrapped on two sides, facing the new street, by retail and four-stories of residential, with an additional two floors on top of the garage forming the amenity courtyard space/green roof (see the 7-Story Typical Level Plan to the right).

The proposed new street connects the intersection of Old York Road/PA 611 and Baeder Road to The Fairway. The new street, utilizing Complete Street components, provides safer pedestrian access to the Noble Station as well as access to the commercial and residential uses.

On the facing page, the site sections highlight the proposed building's height in relationship to existing commercial and residential context. The conceptual elevation rendering illustrates potential contemporary architecture for the proposed building.

On the following pages are examples of "before and after" renderings showing the transformation of the existing parking lot into Concept 1.

Fig. 2.3.4 - Concept 1 - 7-Story Ground Level Plan

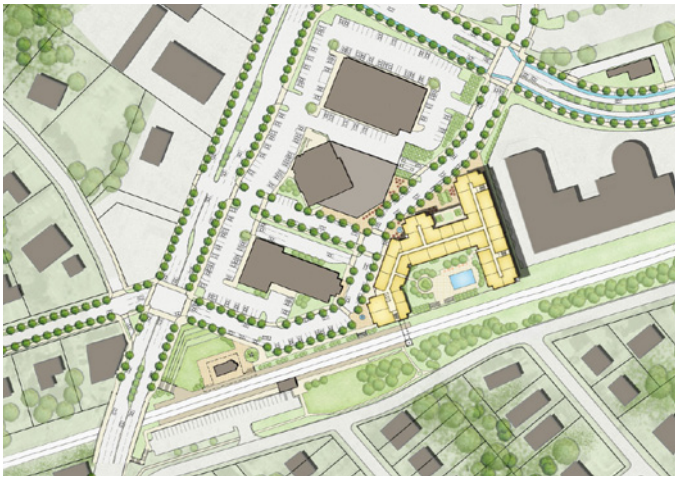

Fig. 2.3.5 - Concept 1 - 7-Story Typical Level Plan

Fig. 2.3.6 - Concept 1 - Street-level Perspective of 7-Story Building

Fig. 2.3.7 - North-South Site Section, through rail line and Rodman Avenue

Fig. 2.3.8 - East-West Site Section, through new street (the proposed building is to the left; the existing Noble Plaza office building is to the right)

Fig. 2.3.9 - Concept 1 - Conceptual Building Elevation

Fig. 2.3.10 - Before Photo of the SEPTA Noble Station and the Noble Plaza parking lot, at the intersection of Old York Road and Baeder Road

Fig. 2.3.11 - After Perspective of the SEPTA Noble Station and Proposed New Street, at the intersection of Old York Road and Baeder Road

Fig. 2.3.12 - Before Photo of the Noble Plaza parking lot

Fig. 2.3.13 - After Perspective of Proposed Building, at the intersection of The Fairway and the proposed new street

Concept 2: 5-Story Residential with Garage

Concept 2 is a five-story residential building with structured parking. The proposed building accommodates 85 market-rate dwelling units on five floors. The parking garage is six levels with approximately 500 spaces, accommodating SEPTA station parking, existing commercial parking, and new residential parking, as well as the potential for surplus parking that may be needed to support increased parking demands for Penn State Abington, Abington Memorial Hospital, Township offices, and other area institutions and properties.

The parking garage is wrapped on two sides, facing the new street, with five-stories of residential (see the 5-Story Typical Level Plan to the right).

Fig. 2.3.14 - Concepts 2 and 3: 5-Story Site Plan

Concept 3: 5-Story Hotel with Garage

Concept 3 is a five-story hotel building with ground-level retail fronting a new proposed street and structured parking, similar in configuration to Concept 2. The proposed building accommodates 120 hotel rooms on 4 floors with ground level lobby and amenity space. The 11,000 square feet of ground level retail faces a proposed plaza space adjacent to existing retail The parking garage is six levels with approximately 500 spaces, accommodating SEPTA station parking, existing commercial parking, new retail, and hotel parking, as well as the potential for surplus parking to support area institutions and properties.

Fig. 2.3.15 - Concept 4: 4-Story Site Plan

Concept 4: Parking Garage with Ground-level Retail

Concept 4 is a singular four-story parking garage with no other uses except for ground level retail fronting a new proposed street. The 11,000 square feet of ground level retail faces a proposed plaza space adjacent to existing retail The parking garage is four levels with approximately 500 spaces, accommodating SEPTA station parking, existing commercial parking, and new retail parking, with surplus to support additional area institutions and properties.

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As part of the Abington Noble TOD project, improvements to The Fairway were studied, including enhancements utilizing Complete Street components. Establishing clear routes for all modes of travel, particularly at the intersection of The Fairway and the proposed street was a priority to create safer environments for pedestrians and bicyclists as well as to strengthen the connections to the station. Improvements at the intersection reinforce the notion of this intersection as a primary entrance for the redevelopment site.

Fairway - Existing

The Fairway, as it exists today, is a two-lane road with a wide median and an occasional left turn lane. The travel lanes are excessively wide, with each travel lane twenty-two feet in width, compared to typical travel lanes of ten to twelve feet in width. There are currently no parallel parking spaces or bicycle facilities along The Fairway. Sidewalks are located against the curb with no buffer or planting strip.

Fairway - Option 1

Option 1 improvements are proposed within the same outside curb-to-curb dimension as the existing condition, requiring minimal, if any, major infrastructure or roadway investments. These improvements include narrowing, by re-striping, the travel lanes to ten feet and adding a five-foot dedicated bike lane and seven-foot parallel parking area. Minimal investments include adding pedestrian bumpouts at intersections with clearly marked pedestrian crosswalks. Left turn lanes remain at intersections. Sidewalk improvements include the addition of a planted buffer and tree pits along The Fairway. The benefits of Option 1 include: 1) minimal infrastructure impact; 2) additional parking; 3) bicycle lanes; 4) improved streetscape character; and 5) safer pedestrian crosswalks and sidewalks.

Fairway - Option 2

Option 2 improvements are proposed within the same outside curb-to-curb dimension as the existing condition. These improvements include increasing the median, narrowing the travel lanes to eleven feet, and adding a five-foot dedicated bike lane Left turn lanes remain at intersections. Increasing the median will require demolition and reconstruction of the median curb, in contrast to Option 1. Sidewalk improvements include the addition of rainwater planters along The Fairway. The benefits of Option 2 include: 1) moderate infrastructure impact; 2) bicycle lanes; 3) improved streetscape character; 4) increased pervious area and landscaping with the median; and 5) safer pedestrian crosswalks and sidewalks.

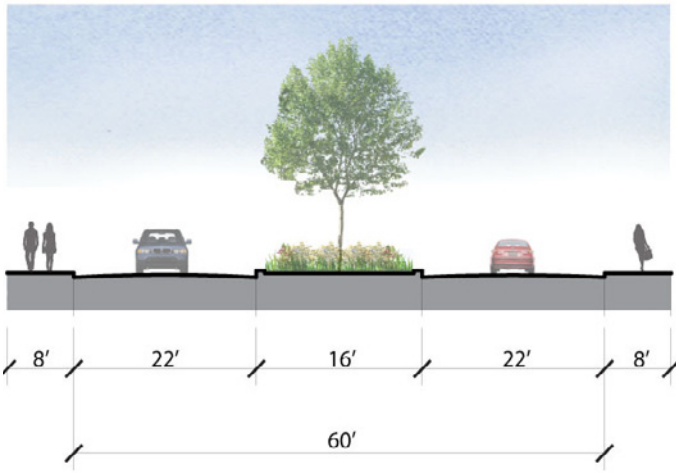


Fig. 2.3.16 - The Fairway - Existing Condition Section

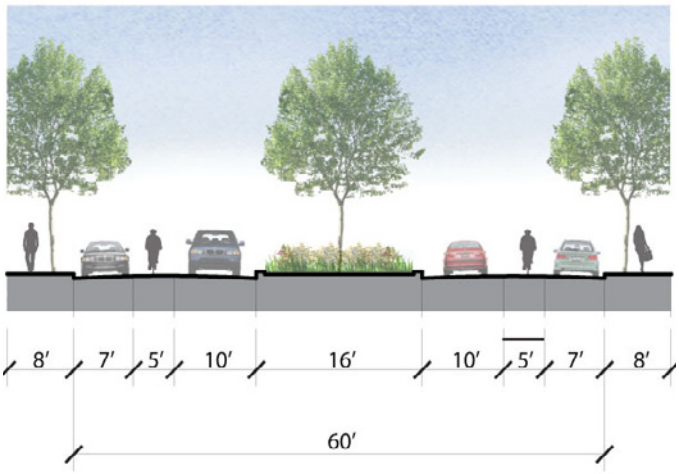


Fig. 2.3.17 - The Fairway - Preliminary Concept Section - Option 1

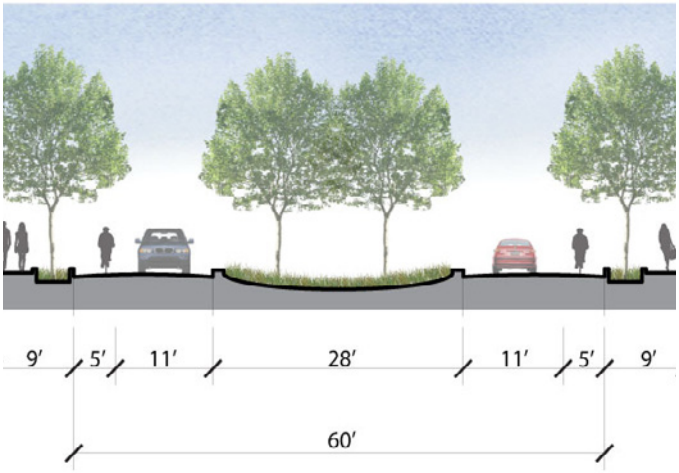


Fig. 2.3.18 - The Fairway - Preliminary Concept Section - Option 2

Fig. 2.3.19 - The Fairway - Existing Condition Plan

Fig. 2.3.20 - The Fairway - Preliminary Concept Plan - Option 1

Fig. 2.3.21 - The Fairway - Preliminary Concept Plan - Option 2

2.4 Preferred Vision Plan

The Preferred Vision Plan's primary elements follow Concept 2 of the Preliminary Concept Plans, and include: a proposed 5-story mixed-use Residential over Retail building with a "wrapped" 6-level parking structure; a new tree-lined, pedestrian-oriented street (Street 'A') connecting Old York Road to The Fairway; roadway improvements to The Fairway; a new community park south of the Noble Station and rail lines; and area-wide recommendations for improving traffic at key intersections (see Section 4, pp. 48-101, for traffic and transportation improvements recommendations).

The Preferred Vision Plan was refined and developed following the charrette, and based upon further steering committee and stakeholder input. The plan is described in the following components, including:

1. Vision Plan, including street and pedestrian network diagrams;
2. Building Plans, including ground level and typical level plans;
3. Street Design, including details of Complete Streets, bicycle facilities, and rainwater planters, as well as sections of Street 'A' and The Fairway; and,
4. Open Space including the new South Station Park and new plaza spaces along Street 'A.'

Vision Plan

The Abington Noble TOD Plan envisions a walkable, mixed-use district around the Noble Station. A new residential apartment building with ground-floor retail, together with an attractive streetscape and plazas for outdoor dining and shopping, will complement existing office, retail, restaurants, and bookstore to create a true live-work-shop-play environment. What exists today as a largely auto-oriented environment will be transformed into a vibrant mixed-use, transit-oriented development offering residents, office workers, and shoppers a more welcoming environment.

The images presented within the Vision Plan are conceptual and not intended as construction documents, but to illustrate the envisioned transformation of the study area.

Fig. 2.4.1 - Perspective of Street 'A' from The Fairway

Fig. 2.4.2 - Abington Noble TOD Vision Plan

Fig. 2.4.3 - Perspective of the Noble Center gateway from The Fairway

KEY

- Proposed Buildings
- Proposed Garage
- Existing Buildings

Fig. 2.4.4 - Street Network Diagram

Fig. 2.4.5 - Perspective of Street 'A'

KEY

- Old York Road/ PA 611
- The Fairway
- Neighborhood Streets
- Proposed Street A
- Train Station

Fig. 2.4.6 - Pedestrian Network

Fig. 2.4.7 - Perspective of Pedestrian Connection, from garage to train station

KEY

- Pedestrian Access
- Pedestrian Bridge/Stair
- Open Space
- Train Station

Following the charrette, building plans were investigated in further detail to understand the site constraints on the program. Program calculations, such as number of units, unit sizes, net rentable and gross square feet of development, were used within the financial model to compare the feasibility of each alternative and select a preferred building program that best reflected financial and stakeholder goals.

5-Story Residential over Retail

The preferred building plan is a 5-story residential building with ground-level retail. The residential program includes a lobby and amenity spaces (such as small fitness, meeting spaces, leasing offices, business/computer center, and/or lounge/ library for building residents) on the ground floor and 72 residential units on upper floors in a mix of 1- and 2-bedroom units. The building is anticipated to be market-rate or slightly higher rents, for young professionals, students, empty nesters, and similar users seeking a lifestyle that provides access to shops, dining, transit, and recreation.

The ground-level retail is approximately 12,000 square feet and fronts on the new street, opposite the existing Noble Square retail. With retail now on both sides of a new street (which currently exists as a parking lot), both the existing and new retail will align a more attractive and pedestrian-oriented retail "main street."

The parking garage is six levels with approximately 516 parking spaces. The garage accommodates parking needs for SEPTA, existing commercial and retail uses, proposed retail, and proposed residential units. The first floor of the garage is recommended to have a tall clear height (8 feet or more), ample lighting, and wayfinding signage that enables safe, well lit, and convenient access for pedestrians to and from the garage to the street-side retail and the existing office building. The garage should have electric charging stations and priority parking for electric and hybrid vehicles, as well as bike storage and convenient parking on the lower level(s) for retail and office patrons; office worker and residential parking should be located on the upper levels. For more detail on building program and cost, see Section 5 Financial and Fiscal Analysis, pp. 104-117.

Alternative Option: 5-Story Hotel

An alternative option was analyzed as well. This option includes a 5-story hotel with ground level retail and structured parking. The hotel accommodates 144 rooms and 12,000 square feet of retail. The parking garage is six levels with 516 parking spaces. Otherwise, the hotel option is very similar in plan layout to the 5-story residential option as described above. For more detail on the hotel program and cost, see Section 5 Financial and Fiscal Analysis, pp. 104-117.

Fig. 2.4.8 - Perspective of the Proposed Building

Fig. 2.4.9 - Perspective of the Proposed Building

Fig. 2.4.10 - Perspective of the Proposed Building

Fig. 2.4.11 - Perspective of the Proposed Building

Fig. 2.4.12 - Ground Level Plan - Retail, Parking, and Residential Lobby/Amenity Space

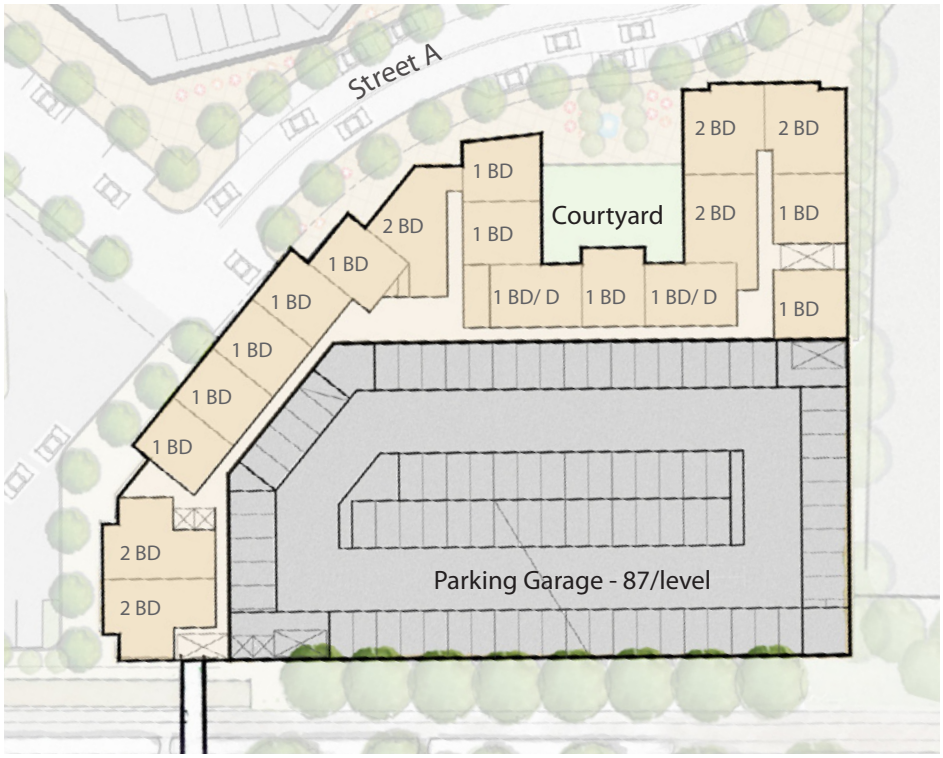


Fig. 2.4.13 - Typical Level Plan - Residential Units and Parking

Street Design

Street design criteria of the Preferred Vision Plan focus on the components of Complete Streets, including details for bicycle facilities and rainwater planters. Following the concept of Complete Streets, proposed sections for The Fairway and Street 'A' depict proposed improvements to the existing conditions.

Complete Streets

Complete Streets are streets that provide safe and convenient accommodation to all potential users, including pedestrians, cyclists, cars, and transit vehicles alike. Complete Streets recognize that crossing the street, walking to shops, and cycling to work are equally important as driving. Complete Streets enable transit to be an efficiently accommodated and recognized mode of transportation. Importantly, buses and similar multi-modal services should be accommodated within the TOD plan and, preferably, along Street 'A' proximate to the station. Since streets will play an important role in the functionality of the study area, they must accommodate all users, whether young or old, motorist or cyclist, walker or wheelchair user, bus rider or shopkeeper. Complete Streets, together with necessary physical, design, and visual elements, will enable the study area to be safer, more functional, and welcoming to everyone. Sustainable design elements including stormwater management, native planting, sustainable materials, and efficient lighting contribute to the overall comfort, safety, and natural resource benefits that are part of complete street design.

Complete Street design is broken down into the following two zones: the Travel Lane Zone which includes bicycle and vehicular travel lanes and the Sidewalk Zone which includes parking lanes, street trees, clear pedestrian passage, and similar elements within the sidewalk. (See the Complete Street Diagram on facing page)

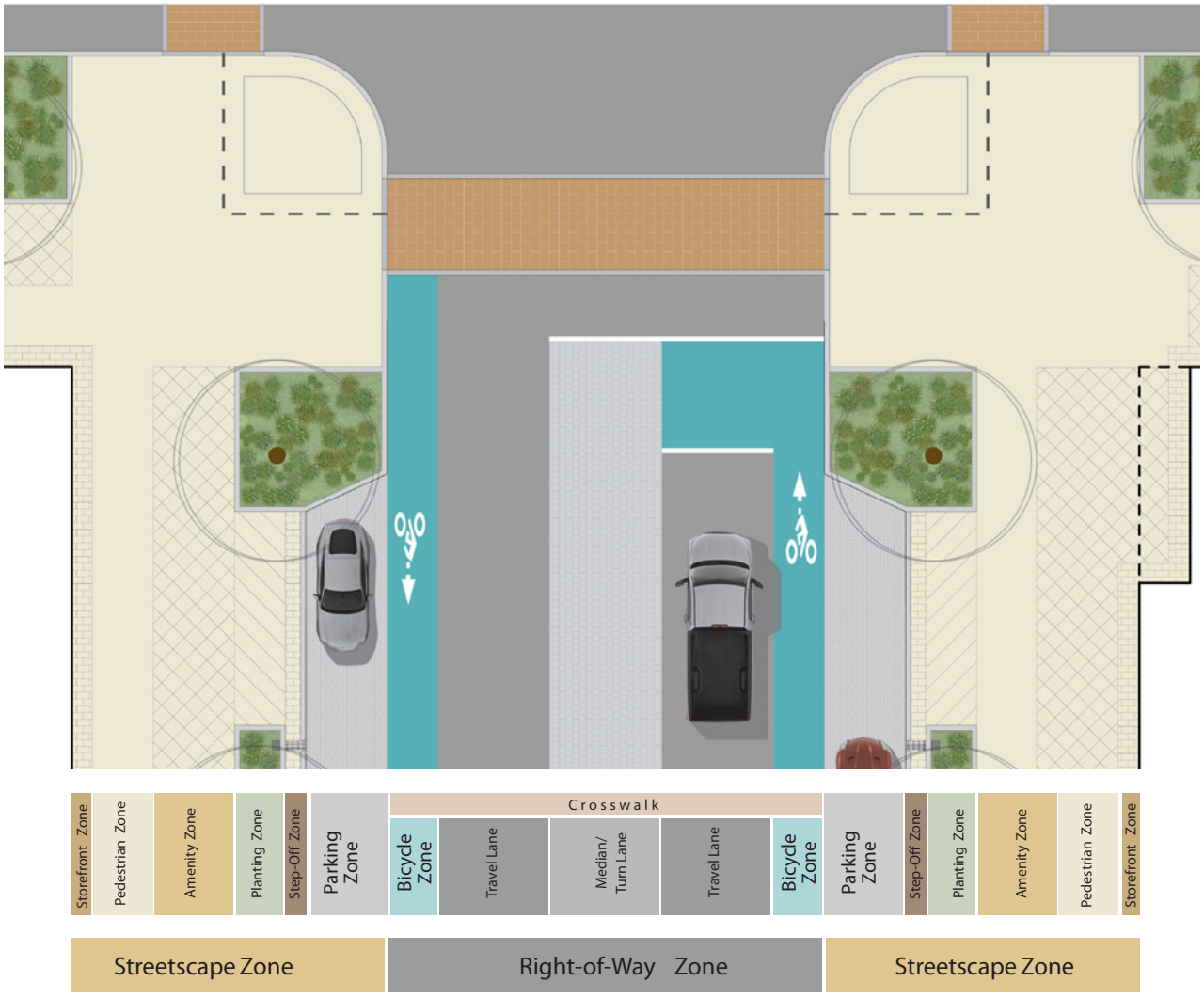


Fig. 2.4.14 - Complete Street Diagram

Dedicated Bicycle Lanes

As proposed on The Fairway, Dedicated Bicycle Lane delineation should be marked with a 6" solid white line. Bicycle lane width shall be 5' minimum from edge of curb to furthest edge of bicycle lane stripe. Solid colors may be used to fill in bicycle lanes to make drivers more aware of bicycle traffic. The solid color painted area should be 4' wide to allow 1' of unpainted concrete lip.

As can be seen in the diagram to the right, Bike Boxes may be added at intersections to create a stopping area for bicycles ahead of motor vehicles. The Advanced Stop Line, which outlines the 'Bike Box' stop area, shall measure 15' from edge of bike lane to edge of driving lane.

All bicycle lane markings should be white and retroreflective. Symbol spacing should be 2-4 per block in an urban setting and 0.1-0.5 miles in a suburban setting.

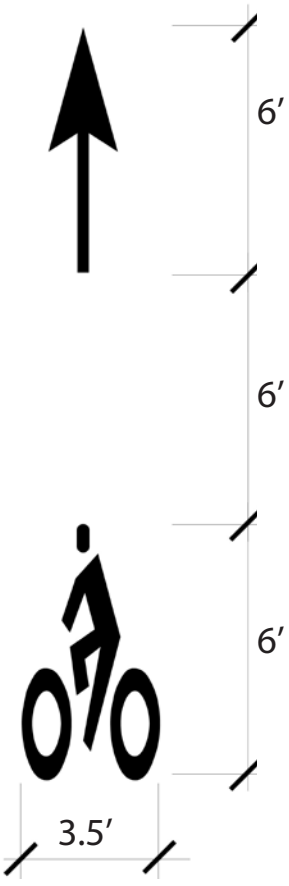


Fig. 2.4.17 - Bicycle Lane Marking Detail

Fig. 2.4.15 - Precedent of Bike Box

Fig. 2.4.16 - Precedent of Dedicated Bicycle Lane

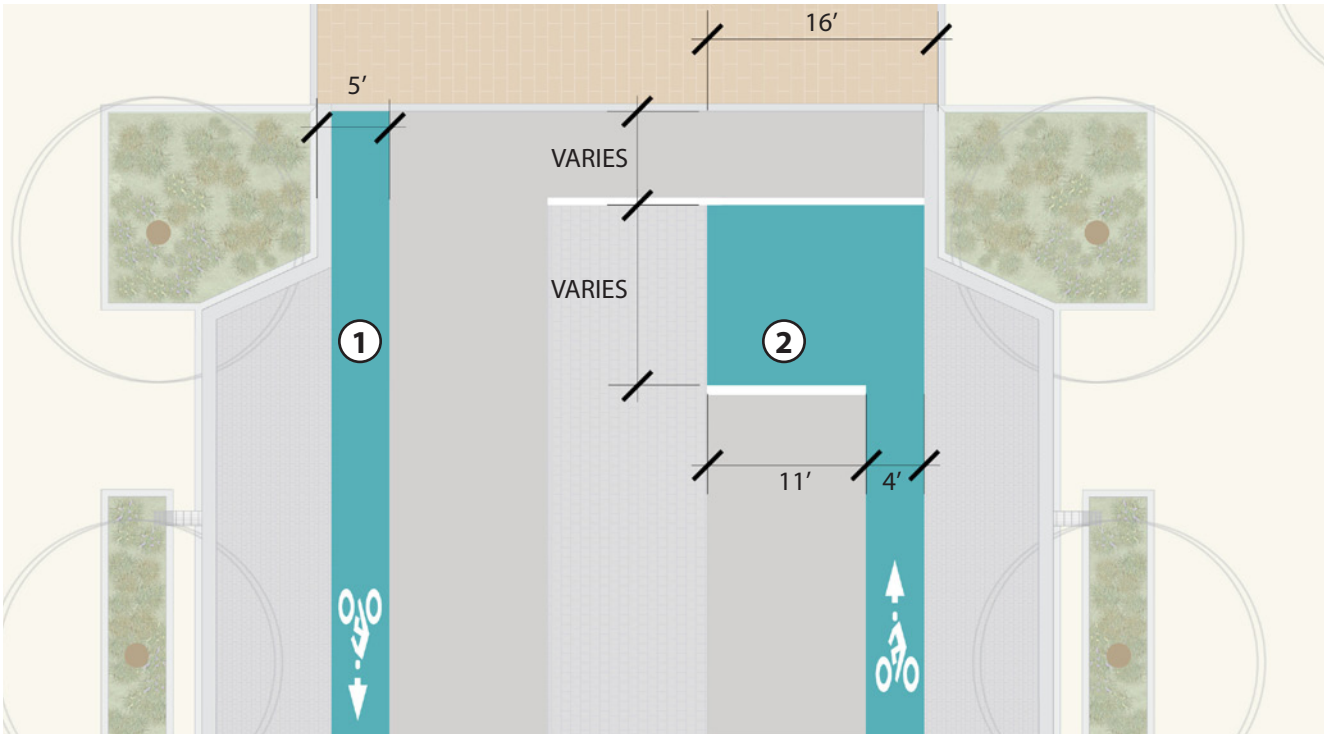


Fig 2.4.18 - Dedicated Bike Lanes Diagram

1 Bicycle Lanes

Bicycle lanes are clearly marked travel lanes designated for bicyclists only and within the street, adjacent to the curb edge or on-street parking. Bicycle lanes shall be separate from vehicular travel lanes. Bicycle lanes shall be one-way, with the flow of traffic, and on both sides of the street. A distinctive fill color may be used, as well as bicycle symbol stencils. All bicycle lanes should have the same width, color, and markings. Bicycle lanes should not extend through intersections.

2 Bike Box

At street intersections, bicycle lanes may include Bike Boxes that extend out into the travel lane and create a special stopping area allowing bicyclists to stop in front of vehicles. This area enables bicyclists and bicycle lanes to be clearly visible to turning vehicles. Bike boxes shall match the color and design of bicycle lanes.

Sharrow Lanes

For the Abington Noble TOD area, sharrows may be incorporated on streets, such as the proposed Street 'A' and other neighborhood streets, where the width, existing conditions, or proposed character cannot, or should not, include separate 5 foot bike lanes. Sharrow Bicycle Symbols (Bicycle Shared Lane Arrow) are used in vehicular lanes that have no delineating lines (or room) for separate bicycle lanes. Sharrows alert drivers to the presence of cyclists without adding width to the street and are appropriate for local streets and lower design speed streets (35 miles/hour or lower).

Sharrow Bicycle Symbols should be placed on roadway with 200' between each symbol.

For road conditions with curb/shoulder parking, Sharrow Bicycle Symbols should be 11' from edge of curb to centerline of symbol, comprised of a 7' minimum for a parked passenger vehicle width from curb, a 2.5' open door width, and 1.5' gap from centerline of symbol to open door swing area.

For road conditions with only a curb edge, and no shoulder parking, Sharrow Bicycle Symbols should be 4' from edge of curb to centerline of symbol.

All bicycle lane markings should be white and retroreflective.

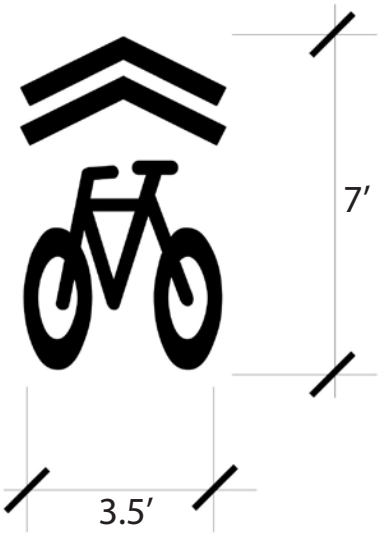


Fig. 2.4.19 - Precedent of Sharrow Lanes

Fig. 2.4.20 - Precedent of Sharrow Lanes

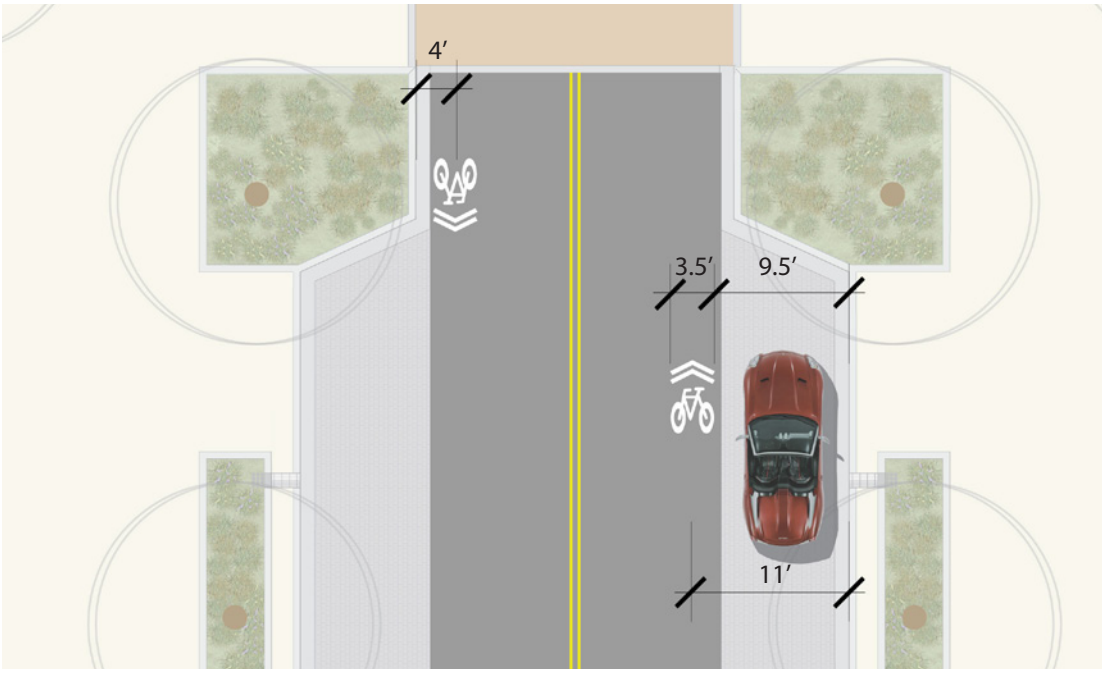


Fig. 2.4.21 - Sharrow Bicycle & Vehicular Lane

Sharrows

Sharrows are clearly marked stencils, within the street's travel lanes and spaced at appropriate intervals, used as an alternative to separate bike lanes. Sharrows provide a visual clue to motorists that they must share the street and be cognizant of bicyclists.

Rainwater Planters:

Rainwater planters by be incorporated along The Fairway and Street 'A' as a means of capturing, treating, and returning rainwater to the ground or allowing for evaporation. Along streets, rainwater planters may be used to increase the permeability of the ground plane and capture stormwater runoff from paved areas. These planters should be integrated into the overall design of the streetscape.

Recommended Rainwater Planter details follow:

- Rainwater planters shall be a minimum of 30 square feet and a minimum of 4 feet wide; 5 feet by 8 feet is recommended. Along residential streets or where limited pedestrian activity is anticipated, planters may be elongated.
- Rainwater planters shall be recessed to accommodate stormwater collection, with a 4-6 inch curb or border, or, a low, 8-12 inch fence.
- The design should be consistent along both sides of the street and for the entire block. However, the design of rainwater planters may vary from block to block, as long as the placement and rhythm is logical.
- Narrow, street edge rainwater planters should have a more formal planting arrangement.
- Transition zones close to natural or restoration areas or amenity spaces should have a more informal planting plan arrangement.
- Select plant species native to Pennsylvania.
- Choose plants that are tolerant of well-drained conditions, periods of drought, and periodic inundation, depending on the hydrologic design of the stormwater practice, per Pennsylvania Department of Environmental Protection (DEP) regulations.
- Select shade tolerant, partial shade, or full sun tolerant species based on site location, orientation, and proximity to tree cover and buildings.
- Consider maintenance and management (weeding) when designing and allow for access needs.
- Consider plant height at maturity and include consideration for sight lines (e.g., vehicular and pedestrian), safety and security, access to sidewalks, and overhead height restrictions.
- Along the street edge, trees shall be limbed to 8 feet clear for visibility and safety.
- Design for complementary mixtures of foliage, to provide interest and contrast in form, texture, and color; Select plants that provide diverse seasonal color and texture, as well as fragrance.

Fig. 2.4.22 - Precedent of Rainwater Planters - Portland, OR

Fig. 2.4.23 - Precedent of Rainwater Planter - Kitchener, Ontario

Fig. 2.4.24 - Precedent of Rainwater Planter - Kitchener, Ontario

Fig. 2.4.25 - Precedent of Rainwater Planter - Portland, OR

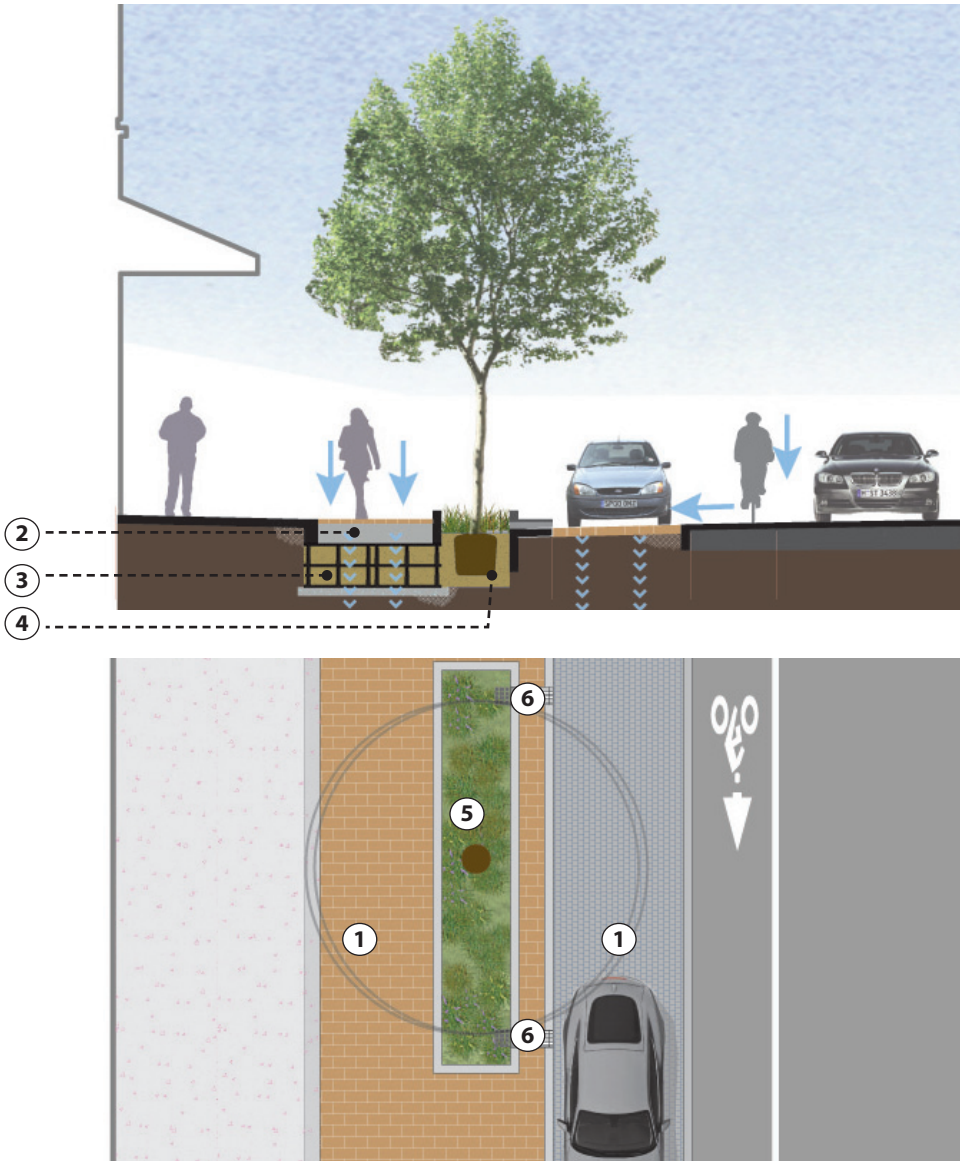


Fig. 2.4.26 - Rainwater Planter Diagram

1. Porous Pavement or Permeable Pavers for parallel parking and sidewalks (optional)
2. Permeable Sub-base (optional, with porous pavement or permeable pavers)
3. Uncompacted Soil Media (optional, with porous pavement or permeable pavers)
4. Silva Cell or other DEP approved systems (optional)
5. Rainwater planter
6. Curb Inlet

Rainwater Tree Pits

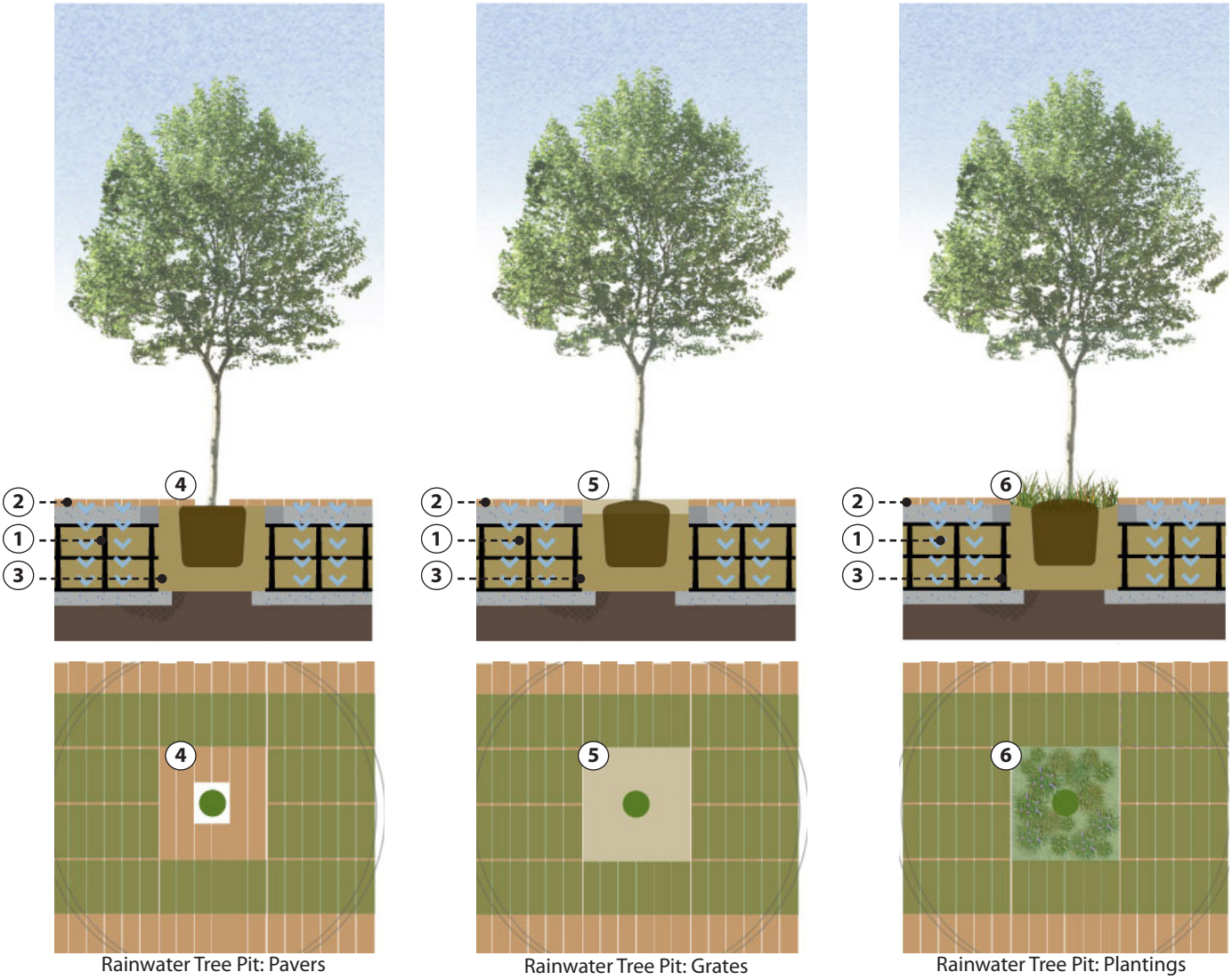
Rainwater tree pits, as illustrated on the facing page, can provide two advantages over the typical tree pit: longevity and stormwater infiltration. Rainwater tree pits capture and infiltrate stormwater along a street. When combined with a structural grid (such as Silva Cells or structural soil) the capacity to capture rainwater is increased, creating a cavity to store additional water while allowing tree root growth. The structural grid supports the hardscape and pedestrian or vehicular loads above while keeping the soil around tree roots from compacting and stunting the growth of the tree.

Rainwater tree pits can be detailed in three ways, with tree grates, permeable pavers, or plant materials at the surface (see images on the facing page). The method should be chosen appropriate to the volume of pedestrian traffic, the surrounding materials, and soil conditions.

Fig. 2.4.27 - Precedent of Tree Pit - Minneapolis, MN

Fig. 2.4.28 - Precedent of Tree Pits -
Lincoln Center, NYC

Fig. 2.4.29 - Precedent of Silva Cell construction



Rainwater Tree Pit: Pavers | Rainwater Tree Pit: Grates | Rainwater Tree Pit: Plantings

Fig. 2.4.30 - Rainwater Tree Pit Diagram

1. Silva Cell or other DEP approved systems (optional)
2. Permeable Sub-base
3. Uncompacted Soil Media
4. Permeable Pavers
5. Grates
6. Plantings

Street Design - Street A Section

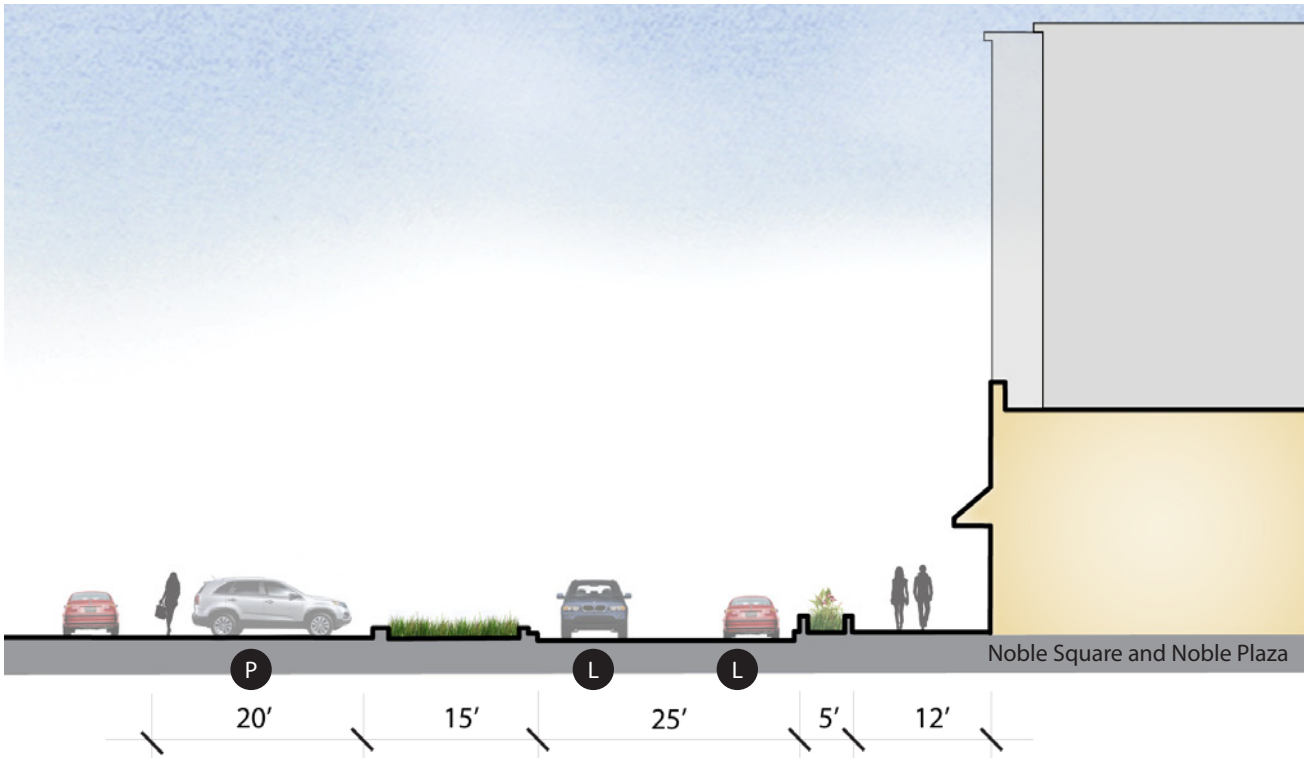


Fig. 2.4.31 - Existing Conditions - Street Section

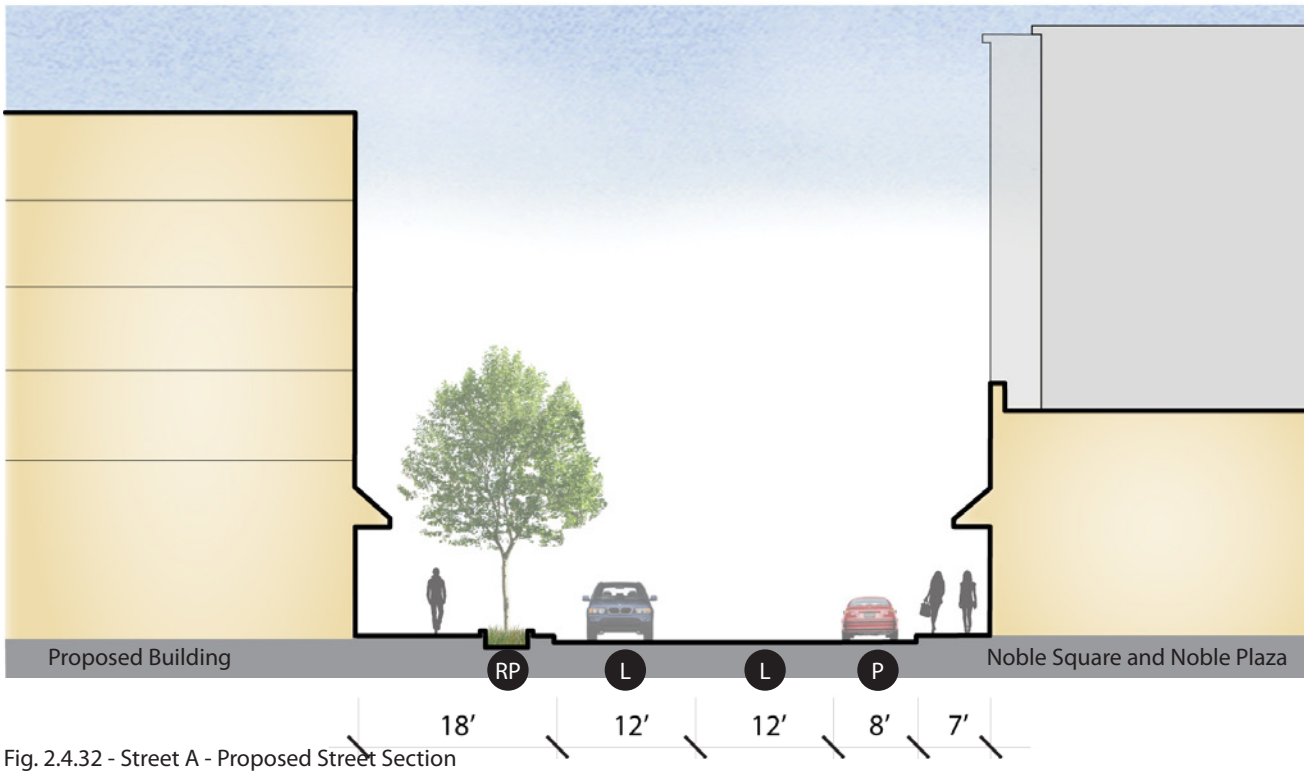


Fig. 2.4.32 - Street A - Proposed Street Section

- L Travel Lane
- P Parallel Parking
- RP Rainwater Planter (see pp. 32-33, for more detail)

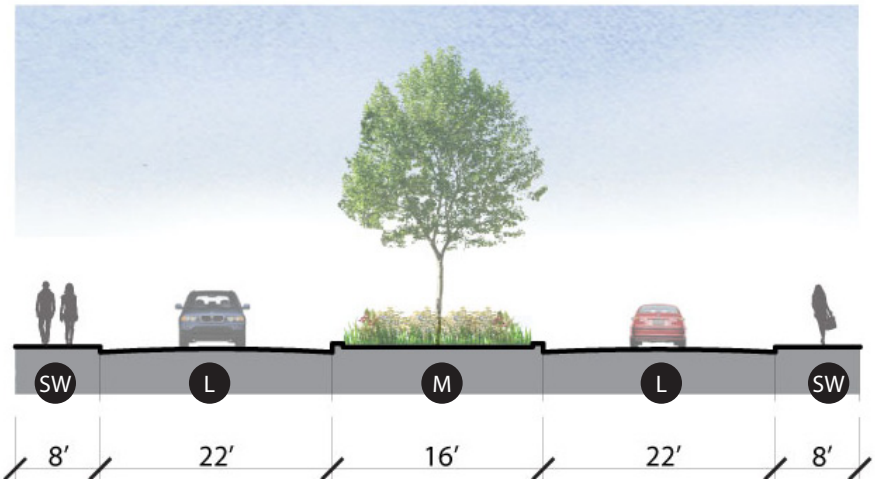


Fig. 2.4.33 - The Fairway - Existing Street Section

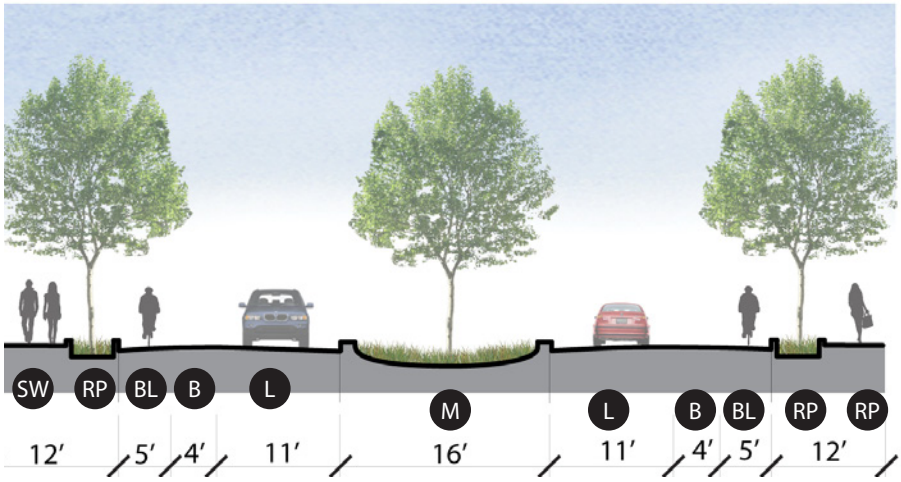


Fig. 2.4.34 - The Fairway - Proposed Street Section

- M Median
- L Travel Lane
- B Buffer Zone
- BL Bicycle Lane (see pp. 28-29, for more detail)
- RP Rainwater Planter - optional (see pp. 32-33, for more detail)
- SW Sidewalk

South Station Park

The proposed South Station Park is located on the existing SEPTA parking lot and buffer area, south of the station between the rail line and Rodman Road.

The existing SEPTA parking displaced by the park will be relocated in the proposed garage, north of the rail line. Exiting the garage, commuters can access the south platform (outbound) by using the pedestrian bridge, connecting from the garage to the park. Additionally, for outbound kiss-n-ride, a drop-off area is located with the park, off of Rodman Road.

As envisioned, the park will provide benches and lighting for commuters to use while waiting for their trains, as well as amenity spaces for the neighborhood. These amenity spaces may include an informal recreation space, gardens and quiet sitting areas, walkways, and a playground.

Fig. 2.4.35 - Precedent of a Natural Playground

Fig. 2.4.36 - Precedent of a Sculpture Garden

Fig. 2.4.37 - Precedent of a Park

Fig. 2.4.38 - Precedent of a Bike Path

Open Space - South Station Park

Fig. 2.4.39 - South Station Park Plan

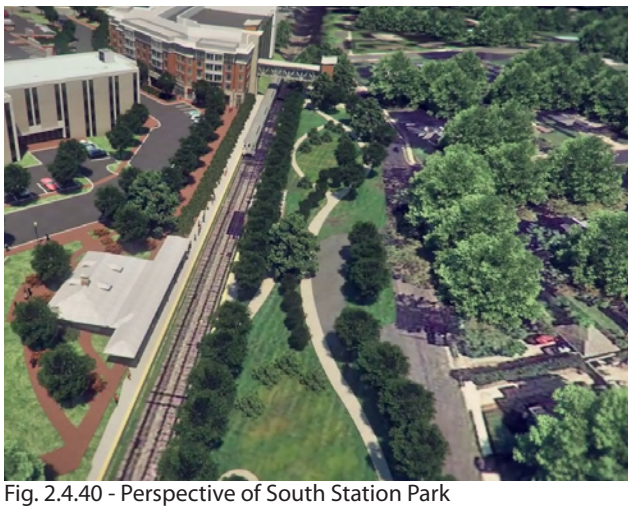


Fig. 2.4.40 - Perspective of South Station Park

KEY

1. Informal Recreation Space
2. Playground
3. Benches/Lighting
4. Train Station Drop-off
5. Pedestrian Bridge

Street 'A' Plaza

Street 'A' Plaza is located north of the proposed building, fronting on Street 'A' and on axis with The Fairway intersection.

This plaza acts as a small gathering place and focal point for the surrounding development. Cafe tables, planters, and benches may be incorporated here. Additionally, the plaza may accommodate small planned and spontaneous activities, such as a weekend farmers' market or art festival. Ideally, public art, water feature/fountain, and/or small shade/trellis structure may also be incorporated into the plaza.

Surrounding the plaza, along Street 'A', are additional areas that may accommodate outdoor dining or sidewalk sales. These areas help energize the streetscape and development, by bringing activity outside.

Fig. 2.4.41 - Precedent of a Sidewalk Amenity Space

Fig. 2.4.42 - Precedent of a Sidewalk Dining

Fig. 2.4.43 - Precedent of a Plaza

Fig. 2.4.44 - Precedent of a Sidewalk Amenity Space

Open Space - Street A Plaza

Fig. 2.4.45 - Ground Level Plan

Fig. 2.4.46 - Perspective of Street 'A' plaza

KEY

1. Plaza
2. Potential Outdoor Dining Areas

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3.0 PARKING ANALYSIS

3.1 Garage Design Aspects

The parking structure will provide 516 spaces on six levels with a single ramp for circulation. The structure will be wrapped on two sides and open on the remaining sides facing the rail line and car dealership. The garage will have three vehicular entry and exit lanes. The single threaded helix design, with one ramp, is applicable for a garage up to six levels. If an increase to seven levels is contemplated, a double-threaded helix, with two ramps, is recommended. Two ramps are required to raise the level of service for the patrons due to the increased number of turns to the top level of the garage.

Programming of the garage should be considered early in the design process. Programming involves understanding the user groups that the facility will serve, including commuters, residents, office and retail patrons. By planning early for these multiple user types, the garage can be specifically designed to accommodate the requirements of specific users. These requirements may include different access and payment methods, placement of shorter term parking adjacent to retail, and other strategies specific to user type.

The garage as envisioned, with two adjacent sides without residential or retail wrapping, is defined as an open parking structure per IBC code. If an open structure can be maintained, an automatic sprinkler system or mechanical ventilation can be eliminated, decreasing construction and maintenance costs and decreasing any impact to efficiency. An open structure also provides for more natural light and use comfort on each level.

For exposed sides of the garage, external screening, including vegetated walls and metal façade enhancements, can provide attractive façades and shield the view of the parking deck from surrounding properties. However, screening elements can create additional considerations, including limited visibility of the parking garage to new users or visitors and security concerns. If screening is designed, it is important to ensure that the user Level of Service is maintained. Both passive and active security measures such as clear lines of sight, visible parking signage, and adequate interior lighting are important elements of parking garage design and should be incorporated for proper function and operation.

The clear height of garage levels is also an important design consideration, especially at ground level. Increased floor to floor heights contribute to openness, visibility, and patron comfort. The ground level of the parking structure should be 11'-0" minimum (measured floor to floor) to allow for 8'-2" for a sense of openness as well as to accommodate van accessibility. Levels above are recommended to be approximately 10'-6" to allow for 7'-2" clearance. These heights are flexible considering the potential connection to adjacent uses.

Fig. 3.1.1 - Precedent Image of Internal Garage Lighting

Fig. 3.1.2 - Precedent Image of Screened Garage

Fig. 3.1.3 - Precedent Image of Green Screen

3.2 Shared Parking Strategies

Shared parking is defined as "the use of a parking space to serve multiple land uses without conflict." The utilization of the same parking space by multiple user groups (i.e., parking for commuters during the day and residents or retail patrons in the evening and weekends) maximizes the use of the parking structure, reduces the amount of parking to be built, and, if parking fees are charged, financially supports the facilities' capital and operating expenses.

Incorporating shared-use structured parking, mixed-use developments can maximize parking space utilization and reduce the parking required to serve multiple uses. Shared parking strategies can help to reduce the amount of parking supply required to support a development, while helping to preserve land for additional uses. Utilizing shared parking amongst all of the adjacent properties' parking facilities, including both structured parking garages and surface parking lots, will create further opportunities for green space, and a more effective use of land for other development in the future. For this study, transit uses are compatible with a number of other uses, including residential, restaurant, and retail uses.

3.3 Shared Parking Analysis

TimHaahs performed a shared parking analysis to determine the potential compatible uses in the garage facility for the two final scenarios. The primary scenario comprises a 5-story building including 4-stories of residential over a 1-story retail base/ground floor and a 6-level structured parking garage. The alternate scenario comprises a 5-story, 144-room hotel with retail on the ground floor and the 6-level structured parking garage.

The primary, residential plus retail concept includes 516 spaces in the structured parking garage. Before performing the shared-use analysis, individual user groups of the building generated a peak weekday demand of 159 spaces. With the addition of 184 replacement spaces for the existing surface lot, this scenario required a total of 343 spaces, allowing 173 spaces for SEPTA commuters. Peak weekend demand before shared use generated 165 spaces. With the 184 replacement spaces, this weekend scenario required a total of 348 spaces, allowing 168 spaces for SEPTA commuters.

After applying shared use strategies, peak weekday demand was reduced to 128 spaces, for a total of 312 accounting for 184 spaces of replacement parking. This allows for increased SEPTA parking, 204 spaces. Peak weekend demand generated 148 spaces, for a total of 332 spaces including the 184 replacement spaces, allowing for 184 spaces for SEPTA commuters.

The alternative concept of hotel plus retail also includes 516 spaces. Before performing the shared use analysis, individual user groups generated a peak weekday demand of 215 spaces. With the addition of the 184 replacement spaces, this scenario required a total of 399 spaces, allowing 117 spaces for SEPTA commuters. Peak weekend demand before shared use generated 210 spaces. With the 184 replacement spaces, this weekend scenario required a total of 394 spaces, allowing 122 spaces for SEPTA commuters.

After applying shared use strategies, peak weekday demand was reduced to 142 spaces, for a total of 326 accounting for the replacement parking. This allows for increased SEPTA parking, 190 spaces. Peak weekend demand generated 150 spaces, for a total of 334 spaces including the 184 replacement spaces, allowing for 182 spaces for SEPTA commuters.

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4.0 TRAFFIC ANALYSIS

4.1 Overview

Executive Summary

For this analysis, several future conditions were evaluated for the Abington Noble Transit Oriented Development plan in Abington, Pennsylvania. The conditions were analyzed to identify what roadway improvements would be required within the study area to accommodate increased vehicle trips generated by the Master Plan development.

The following intersections were chosen for study:

- Old York Road (SR 0611) and The Fairway
- Old York Road (SR 0611) and Baeder Road
- Old York Road (SR 0611) and Rodman Avenue
- Old York Road (SR 0611) and Madeira Avenue
- Old York Road (SR 0611) and Rydal Road/Cloverly Avenue
- Old York Road (SR 0611) and Raymour and Flannigan Driveway
- Old York Road (SR 0611) and Abington Library Driveway
- Old York Road (SR 0611) and Susquehanna Road (SR 2017)
- The Fairway and Noble Plaza/Barnes and Noble Driveway
- The Fairway and Rydal Road
- Rydal Road and Susquehanna Road (SR 2017)

Three build conditions were analyzed to determine the effects of the increased traffic on the roadway network in the study area.

2015 Build with improvements at Street A and The Fairway intersection

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.

2020 Build Condition 1 with improvements at Street A & The Fairway and Old York Road & Baeder Road

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.
- Modified lane usage at the Baeder Road and Old York Road intersection to provide dual left turns on the eastbound Baeder approach by making the right lane a right/through/left lane. Signal phasing is changed to split phasing for Baeder Road and the protected left turn phase is removed from Old York Road northbound.
- The proposed trip volumes are distributed to the existing roadway network without making any modifications to lane configurations, signal phasing, or signal timing.

2020 Build Condition 2 with intersection improvements at Street A & The Fairway, Old York Road & Baeder Road, Rydal Road & Susquehanna Road, and at Rydal Road & The Fairway

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.
- Modified lane usage at the Baeder Road and Old York Road intersection to provide dual left turns on the eastbound Baeder approach by making the right lane a right/through/left lane. Signal phasing is changed to split phasing for Baeder Road and the protected left turn phase is removed from Old York Road northbound.
- The intersection of Rydal Road and Susquehanna Road is analyzed with the right turn lane converted to through/right lane in each direction on Rydal Road. A protected left turn phase is added to Rydal Road and the intersection timings are modified.
- The alternative of a two-lane roundabout replacing the traffic signal is presented for further study.
- Intersection geometry of Rydal Road and The Fairway modified to make The Fairway/Rydal Road to the east the major movement and Rydal Road to the west "T" into the intersection. New traffic signal installation.

The analyses resulted in the following conclusions:

- The planned development sizes of 72 residential units, 6,000 ft^2 of restaurant space, 2,000 ft^2 of retail space, and 4,000 ft^2 of office space and 516 parking spaces (150 dedicated to SEPTA patrons) resulted in the following trips generated during the morning and afternoon peak hours. The site is expected to generate **103** new vehicle trips and **0** pass-by trips during a typical weekday AM peak hour and **168** new vehicle trips and **25** pass-by trips during a typical weekday PM peak hour. Modal split reductions due to the site's proximity to transit were included in the trip generation calculations.
- The Abington Noble TOD site should have a new signalized intersection created where Street A intersects The Fairway. The intersection is proposed to combine the driveways of the Barnes and Noble and Walgreens with Street A to create a configuration that eliminates the multiple driveway entrances along this portion of The Fairway. The new signal will be coordinated with the adjacent signal at Old York Road and The Fairway to ensure progression along The Fairway. The signal will have two phases with Street A and the Walgreens driveway having actuation.
- The intersection of Old York Road and Baeder Road should be improved as part of the PennDOT bridge replacement project. Dual left turn lanes will be installed from Baeder Road eastbound and the intersection will be changed to split phasing. The minimum timings for split phasing will be dictated by the pedestrian clearance times across Old York Road. Pedestrian crosswalks across Old York Road should remain on each side of the intersection to help encourage walkability and improve pedestrian connections from the TOD site to the surrounding neighborhoods.
- The Noble Plaza access driveway at Baeder Road should be widened to 20 feet wide at the point where it meets the SEPTA parking lot. Center line striping should be added along this driveway to make it clear to vehicles that this is the main road they should queue on.

- Improvements were recommended to intersections within the study area that are not directly part of the TOD project. These improvements are recommended but not required as part of the TOD plan.
    - The intersection of The Fairway and Rydal Road should be reconfigured to make The Fairway eastbound to Rydal Road eastbound the primary through movement and have Rydal Road from the southwest "T" into the intersection. A traffic signal should be installed at this intersection and should be coordinated with the adjacent signal at Rydal Road and Susquehanna Road. The Rydal Road approach from the southwest should be actuated and the intersection should run on two phases.
    - Additional through lanes should be created along Rydal Road and Valley Road at their intersection with Susquehanna Road. These additional lanes will fit within the current roadway space where right turn lanes currently exist. The right turn lanes will be converted to thru/right turn lanes. The signal phasing should be modified to include protected left turn phases for the Rydal Road and Valley Road approaches.
- Pedestrian improvements are recommended at the intersection of Old York Road and The Fairway. The northeast corner of the intersection should be bumped out to provide a place that will make pedestrians more visible to drivers turning right on red from The Fairway to Old York Road northbound. Additionally, pedestrian countdown signals should be installed at this intersection and curb ramps should be updated to be ADA compliant.
- The increased traffic resulting from the TOD project results in increases to the overall intersection delays of less than 10 seconds from the respective no build scenarios. After the proposed modifications at The Fairway and Street A are complete, the roadway network is expected to be able to handle the additional traffic generated by the proposed development. The additional improvements at Old York & Baeder Road, Old York Road & The Fairway, The Fairway & Rydal Road, and Rydal & Susquehanna Road will help to reduce delays throughout the entire roadway network.

Introduction

This report addresses traffic access to and from future transit-oriented development (TOD) proposed adjacent to the SEPTA Noble Station in Abington Township, Pennsylvania. The site consists of the area bounded by Old York Road (SR 0611), The Fairway, the SEPTA West Trenton Regional Rail Line, and the Bryner Chevrolet Automobile dealership. The Noble TOD site contains a mix of office and retail space with several surface parking lots. Currently, the site contains four structures: the historic SEPTA Noble train station, the four-story Noble Plaza Office Building, the Noble Market Building, and the Barnes and Noble retail store. The project area is illustrated in **Figure 4.1.1**.

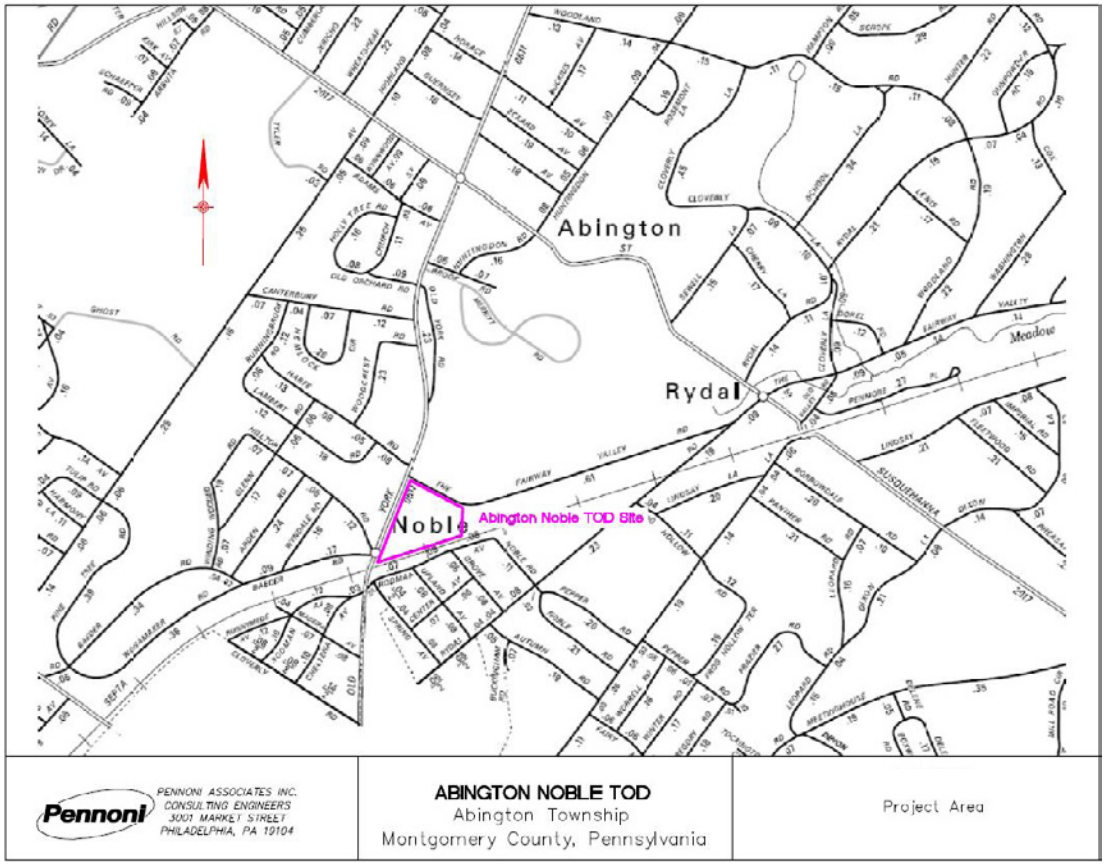

Fig. 4.1.1 - Abington Noble TOD Project Area

The development includes construction of a new mixed-use building and parking garage structure in place of surface parking. The master plan for the Abington Noble TOD proposes a five-story mixed-use building consisting of residential apartments, retail/office space, and a parking garage planned to be located in the southeast corner of the site bordering the SEPTA and Bryner Chevrolet property lines. The mixed-use building includes 72 apartment units, 6,000 ft^2 of space for a restaurant, 2,000 ft^2 of retail space, 4,000 ft^2 of office space, and a 516 space parking garage.

The purpose of this analysis is to determine what transportation improvements are required to accommodate increased vehicle trips generated by this new development. The study provides an assessment of the following improvements: design of an internal access roadway and pedestrian circulation enhancements through the site; intersection modifications at the access points; and roadway improvements along the Fairway and the additional study intersections on the adjacent roadway network.

In order to improve connections to the surrounding roadway network, the Master Plan proposes to create a new access road (Street A) traversing through the site. The new Street A alignment connects with the Fairway in the vicinity of the Noble Plaza and Walgreens driveways, traverses through the existing Noble Plaza parking lot and connects with Old York Road at an unsignalized midblock location between the Noble Plaza office building and the Noble Market building. The midblock access for the site along Old York Road will be restricted to right turns in and right turns out due to the median on Old York Road. The geometry of the intersection of Street A and The Fairway is designed to combine the Barnes and Noble and Noble Plaza driveways and align with the Walgreens driveway. A plan of the proposed transit-oriented development is provided in **Figure 4.1.2**.

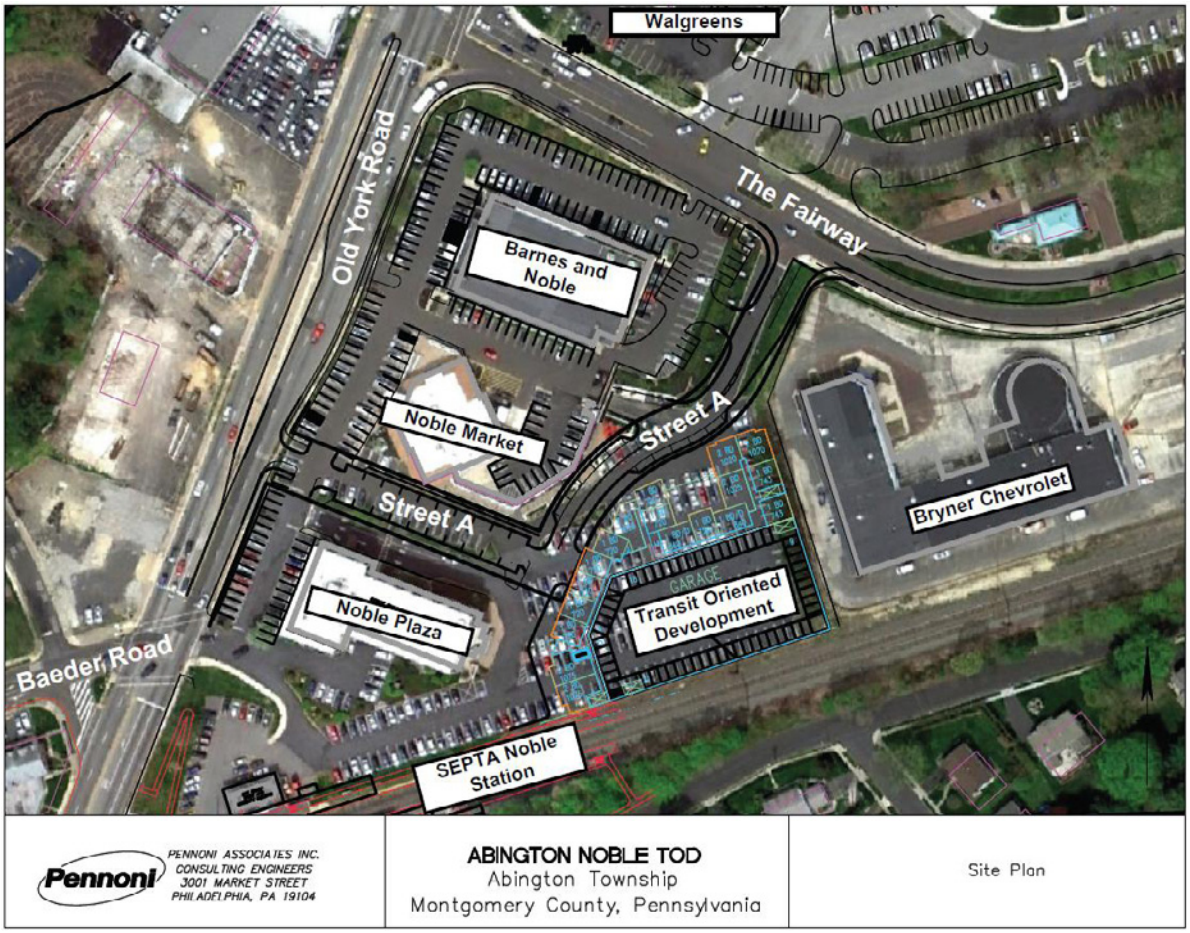

Figure 4.1.2 - Aerial Photo of Abington Noble Proposed TOD Development.

4.2 Transportation Study Area

The transportation study area for this analysis, shown in **Figure 4.2.1**, includes the area bounded by Old York Road (SR 0611), Rydal Road, and Susquehanna Road. The following intersections are included in the study area:

- Old York Road (SR 0611) and The Fairway
- Old York Road (SR 0611) and Baeder Road
- Old York Road (SR 0611) and Rodman Avenue
- Old York Road (SR 0611) and Madeira Avenue
- Old York Road (SR 0611) and Rydal Road/Cloverly Avenue
- Old York Road (SR 0611) and Raymour and Flannigan Driveway
- Old York Road (SR 0611) and Abington Library Driveway
- Old York Road (SR 0611) and Susquehanna Road (SR 2017)
- The Fairway and Noble Plaza/Barnes and Noble Driveway
- The Fairway and Rydal Road
- Rydal Road and Susquehanna Road (SR 2017)

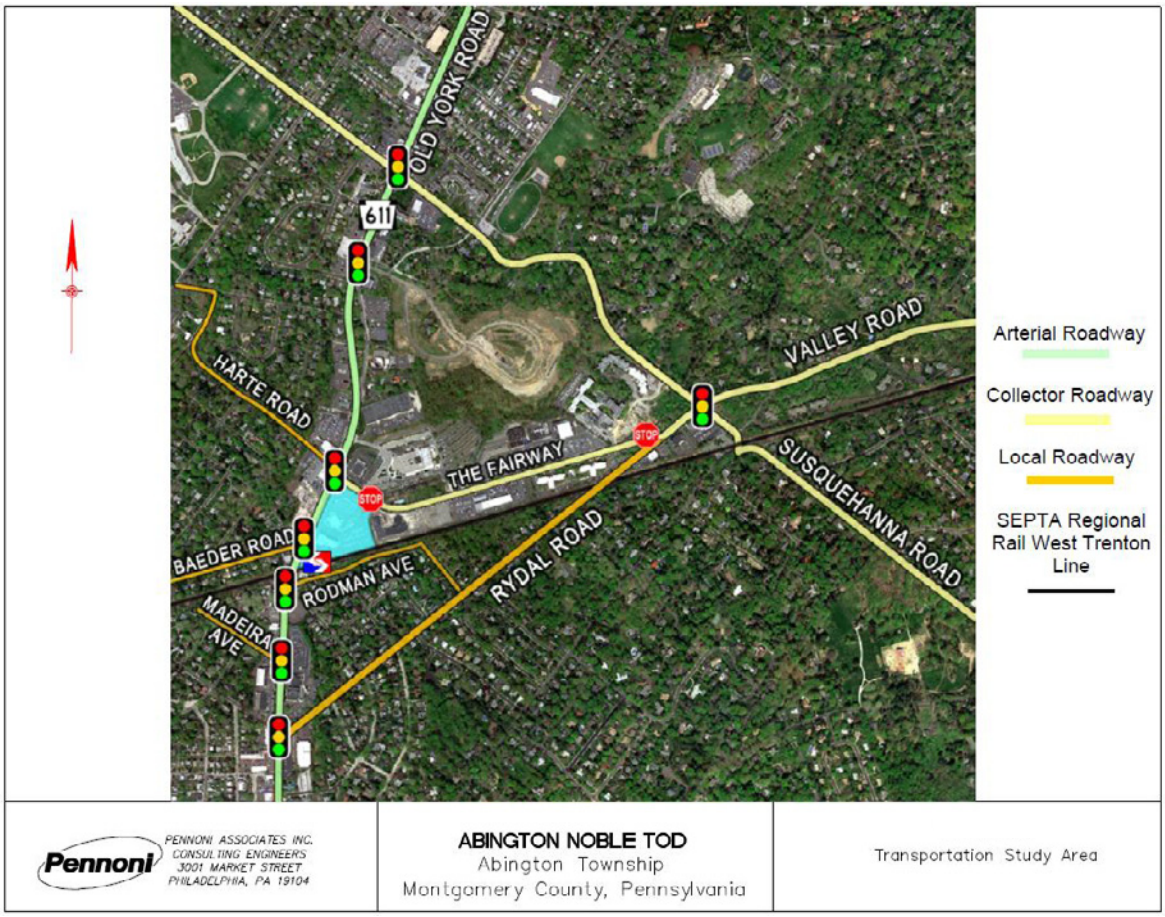

Figure 4.2.1 - Aerial Photo of Abington Noble Transportation Study Area

4.3 Study Methodology

The traffic analysis for this study considers three analysis years: existing baseline conditions; opening year analysis; and design horizon analysis (5 years after the opening year). The planned development for the Abington Noble TOD Site is expected to be completed by 2015. The opening year (2015) and horizon year (2020) analyses include an assessment of the operational conditions of the study intersections during the morning and afternoon peak hour periods under "no build" and "build" conditions.

4.4 Existing Transportation Network

Roadway Network

The existing roadway network within the transportation study area is summarized below.

- **Old York Road (SR 0611)** – Old York Road is a principal north-south arterial linking Abington Township with the communities of Jenkintown and Willow Grove and providing access to business and commercial uses within the corridor. The roadway section is typical of an urban arterial with two 11-foot travel lanes in each direction and a center median with breaks to accommodate left turning lanes at signalized intersections. Within the study area, curbing is present on both sides of the roadway and sidewalks are provided along the majority of this roadway. Dedicated right turn lanes are not present, right turns are typically made from the right most through lane. Due to the center median, minor midblock driveways are limited to right-turns in and right-turns out. Posted speeds range from 35 mph to 40 mph through the study area.
- **The Fairway** – The Fairway is a minor east-west arterial that runs adjacent to the TOD site. The Fairway provides one travel lane in each direction and a planted center median with breaks for left turn lanes at major intersections. Curbing and sidewalks are present along both sides. The roadway is 60 feet wide with wide 21-foot travel lanes, 10-foot left turn lanes, and the median taking up the remaining space. Dedicated right turn lanes are not present. Minor driveways along this roadway are limited to right turns in/right turns out due to the median. The posted speed on The Fairway is 35 mph.
- **Harte Road** – Harte Road is an east-west collector road providing one lane of travel in each direction. The roadway is 34 feet wide near its intersection with Old York Road and has curbing and sidewalks throughout. The posted speed on Harte Road is 25 mph.
- **Baeder Road** – Baeder Road is an east-west collector roadway. The roadway is 34 feet wide in the study area and provides one travel lane in each direction with curbing and sidewalks throughout. The posted speed on Baeder Road is 25 mph.

- **Rydal Road** – Rydal Road is a two lane east-west collector roadway. Near its intersection with Old York Road, Rydal Road is 24 feet wide with one through lane in each direction. Curbing is present on both sides of this roadway and sidewalks are provided on the south side of this roadway. Close to its intersection with Susquehanna Road, Rydal Road widens to 62 feet. East of The Fairway, Rydal Road provides 1 lane of travel in each direction, center turning lanes, and a center median. Curbs and sidewalks are present in the vicinity of The Fairway. Sidewalks are not found in the middle section of Rydal Road just west of the railroad crossing. The posted speed is 25 mph from Old York Road to Susquehanna Road. East of Susquehanna Road, Rydal Road becomes Valley Road and the posted speed is 45 mph.
- **Susquehanna Road (SR 2017)** – Susquehanna Road is a minor arterial that runs from northwest to southeast through the study area. Near its intersection with Old York Road, Susquehanna Road is 34 feet with one lane of travel in each direction. Curbs are present along each side of the roadway and sidewalk is only present along the south side. In between Old York Road and Rydal Road, Susquehanna Road provides two 11-foot lanes, narrow shoulders, and no sidewalk or curbing. At its intersection with Rydal Road, Susquehanna Road provides curbing and sidewalks on both sides. The posted speed on Susquehanna Road is 25 mph through the study area.
- **Rodman Avenue** – Rodman Avenue is a 30-foot wide east-west local roadway providing one lane of travel in each direction. Curbing and sidewalk are present along the south side of the roadway only. The posted speed on Rodman Avenue is 25 mph.
- **Madeira Avenue** – Madeira Avenue is a 30-foot wide east-west local roadway providing one lane of travel in each direction. Curbing and sidewalks are present along both sides of the roadway. The posted speed on Madeira Avenue is 25 mph.
- **Cloverly Avenue** – Cloverly Avenue is a 30-foot wide east-west local roadway providing one lane of travel in each direction. Curbing and sidewalks are present along both sides of the roadway. The posted speed on Cloverly Avenue is 25 mph.

Public Transportation

The proposed Abington Noble Transit Oriented Development is located adjacent to the SEPTA West Trenton Regional Rail line. The West Trenton Regional Rail Line provides direct service to Center City Philadelphia. In addition to its proximity to the Regional Rail Line, the Noble TOD is also located near the SEPTA Route 55 bus line. The Route 55 bus operates on Old York Road (SR 0611) and provides service to Doylestown and the Olney Transportation Center in North Philadelphia.

4.5 2011 Existing Traffic Conditions

Existing Traffic Volumes

As summarized below, peak hour traffic volume data was obtained for the study intersections from a number of sources.

- Old York Road and The Fairway *(2007 Old York Road Bridge Replacement Study)*
- Old York Road and Baeder Road *(2007 Old York Road Bridge Replacement Study)*
- Old York Road and Rodman Avenue *(2007 Old York Road Bridge Replacement Study)*
- Old York Road and Madeira Avenue *(2007 Old York Road Bridge Replacement Study)*
- Old York Road and Cloverly Avenue *(2007 Old York Road Bridge Replacement Study)*
- Old York Road and the Abington Library Driveway (2005 traffic signal plan)
- Old York Road and Susquehanna Road (2011 traffic count)
- The Fairway and Rydal Road (2011 traffic count)
- Rydal Road and Susquehanna Road (2011 traffic count)
- Old York Road and the Raymour and Flannigan Driveway (2011 traffic count)
- The Fairway and Noble Plaza/Barnes and Noble Driveway (2011 traffic count)
- The Fairway and the Walgreens driveway (2011 traffic count)
- The Fairway and the Barnes and Noble driveway (2011 traffic count)

Peak hour turning movement counts were obtained for a number of study intersections from the PennDOT *Old York Road Bridge Replacement Study* prepared by Pennoni Associates in 2007. The volumes, collected in 2007, were projected to 2011 volumes using the 1% annual growth rate established by PennDOT for the study. The rate was established based on PENNDOT's *Bureau of Planning and Research* for urban, non-interstate roadways in the study area in 2007-2008. The 2007-2008 growth rate table can be found in **Appendix F** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*)**.** The resulting 2015 projected volumes were checked against recent counts and verified to be consistent. The current annual growth rate has fallen to 0.8% per year.

Turning movement counts were obtained for the intersection of Old York Road and the Abington Library Driveway from 2005 volume data provided on the traffic signal permit plan. The volumes were projected to 2011 volumes using the 1% growth rate as noted above.

The existing traffic volume data was supplemented with manual traffic counts conducted at the remaining study intersections using hand-held electronic count boards. The traffic counts were conducted on September 15, 20, and 21, 2011 and on October 18, 2011 between the hours of 7-9 AM and 4-6 PM. The 2011 traffic volumes for the study intersections are provided in **Figures 4.5.1 and 4.5.2**. Copies of the traffic count data and traffic growth computations are provided in **Appendix A** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

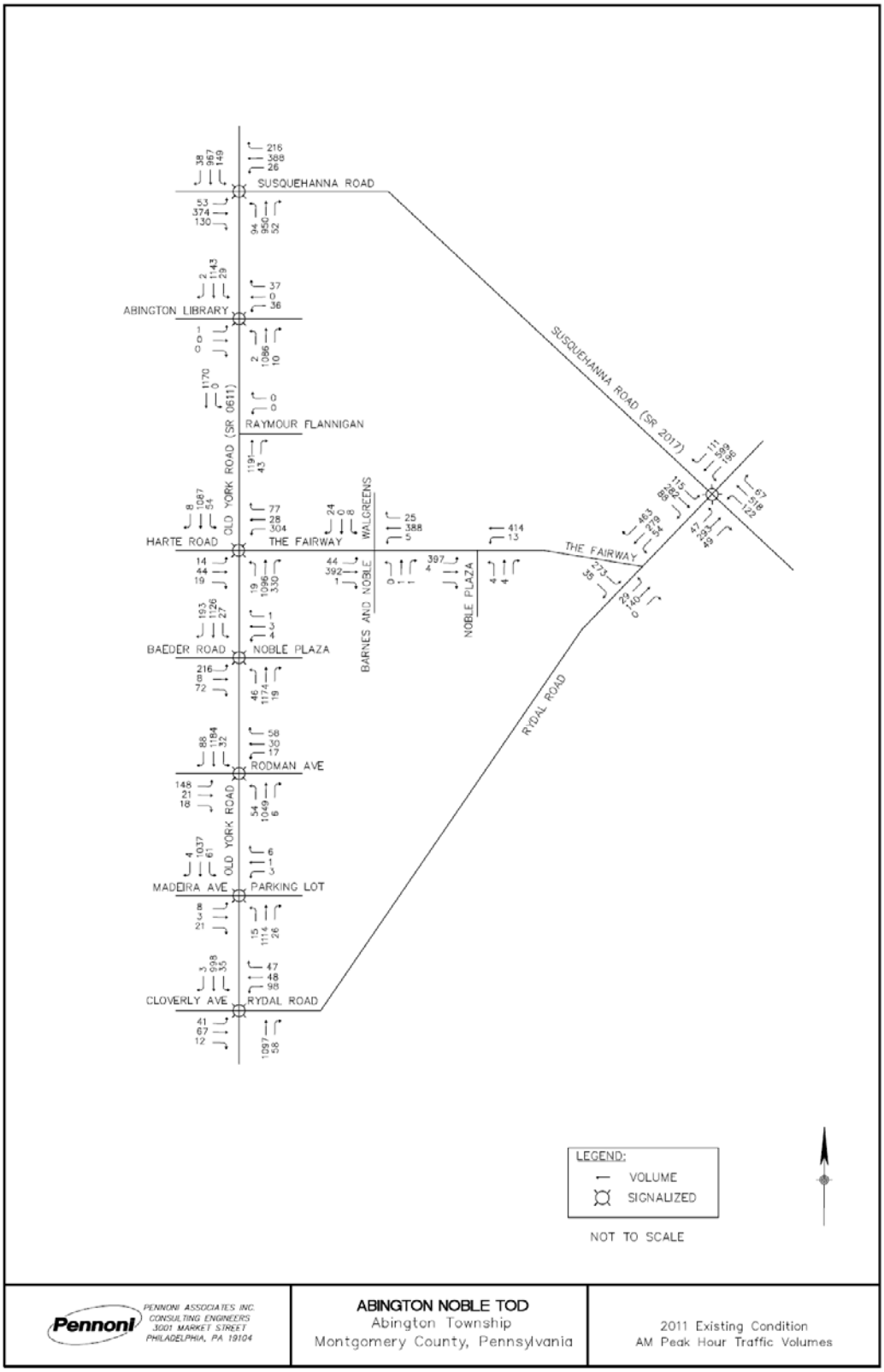

Fig. 4.5.1 - 2011 Existing Condition AM Peak Hour Traffic Volumes

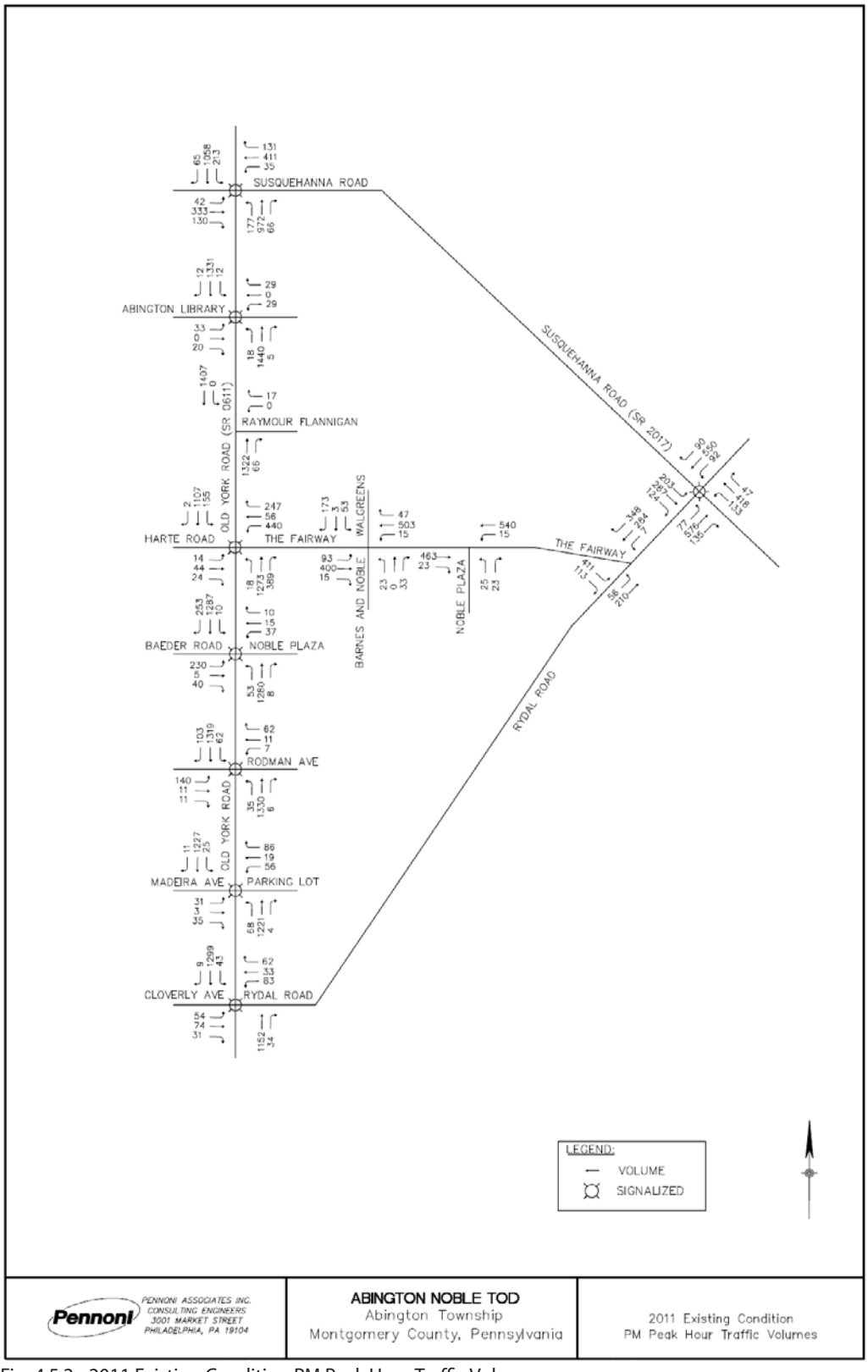

Fig. 4.5.2 - 2011 Existing Condition PM Peak Hour Traffic Volumes

Existing Levels of Service

The performance of the study intersections under 2011 existing traffic conditions were evaluated through a qualitative measure of operating conditions called Levels of Service. Six levels of Service (LOS) were defined with letter designations from 'A' to 'F', with Level of Service 'A' representing delays up to ten seconds and Level of Service 'F' indicating delays exceeding eighty seconds. Level of Service 'D' or better is considered acceptable in urban areas. Levels of Service are determined through analysis procedures outlined in the 2000 *Highway Capacity Manual* (Transportation Research Board, Washington, D.C.).

Levels of Service for signalized intersections are based on average delay experienced by motorists passing the intersection. The delay is based on the results of the capacity analysis (rate of demand flow to capacity) and other important variables such as quality of progression, cycle length, and ratio of green time.

Levels of Service for unsignalized intersections are defined in terms of delay to vehicles entering from the side road and turning left from a major road. Delay is a function of the capacity of the approach and degree of saturation. The capacity is based on the distribution of gaps in the major street traffic stream, driver judgment in selecting a gap through which to execute the desired maneuver, and follow-up time required by each driver in a queue. The Level of Service Criteria for signalized and unsignalized intersections is provided in **Appendix D** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*)**..**

During the existing AM peak conditions, all intersections operate at an overall Level of Service of 'C' or better except for the intersection of Old York Road and Susquehanna Road. Old York Road and Susquehanna Road operates at an overall LOS 'E' and experiences individual approach delays that operate at LOS 'F' on the eastbound and southbound left turn approaches. During the existing AM peak conditions, some individual approaches to the study area intersection experience large delays that result in LOS 'E' or 'F'. At the intersection of Old York Road and The Fairway, the southbound and northbound left turn movements operate at LOS 'E'. At the intersection of Rydal Road and The Fairway, the stop-controlled eastbound left turns from The Fairway to Rydal Road operate at LOS 'E'. At the intersection of Susquehanna Road and Rydal Road, the northeast left turns from Susquehanna Road to Rydal Road operate at LOS 'F' during the existing AM peak hour.

Typical of a commercial area, the existing PM peak hour exhibits larger delays than the AM peak hour as traffic volumes increase on the study area roadways. Several intersections operate at LOS 'D' or below during this time period. The intersections of Old York Road and The Fairway, Old York Road and Susquehanna Road, and Susquehanna Road and Rydal Road all operate at LOS 'D' while the intersection of The Fairway and Rydal Road operates at LOS 'E'. Many individual approaches on the study intersections experience large delays that result in LOS 'E' conditions or below. At the intersection of Old York Road and The Fairway, the northbound through movement and southbound left turn movement both operate at LOS 'F.' At the intersection of Old York Road and Baeder Road, the eastbound left turns from Baeder Road to Old York Road operate at LOS 'E'. At the stop-controlled intersection of The Fairway and Rydal Road, the stop-controlled eastbound left turns from The Fairway to Rydal Road operate at LOS 'F' during the existing PM peak hour. Under existing PM peak conditions, Old York Road is congested in the vicinity of its intersection with The Fairway and with Susquehanna Road.

Results of the existing conditions analysis are illustrated in **Figure 4.5.3** below and summarized in **Tables 4.9.2 and 4.9.3**. *Synchro* capacity summary outputs from the 2011 Existing Analyses are provided in **Appendix E** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

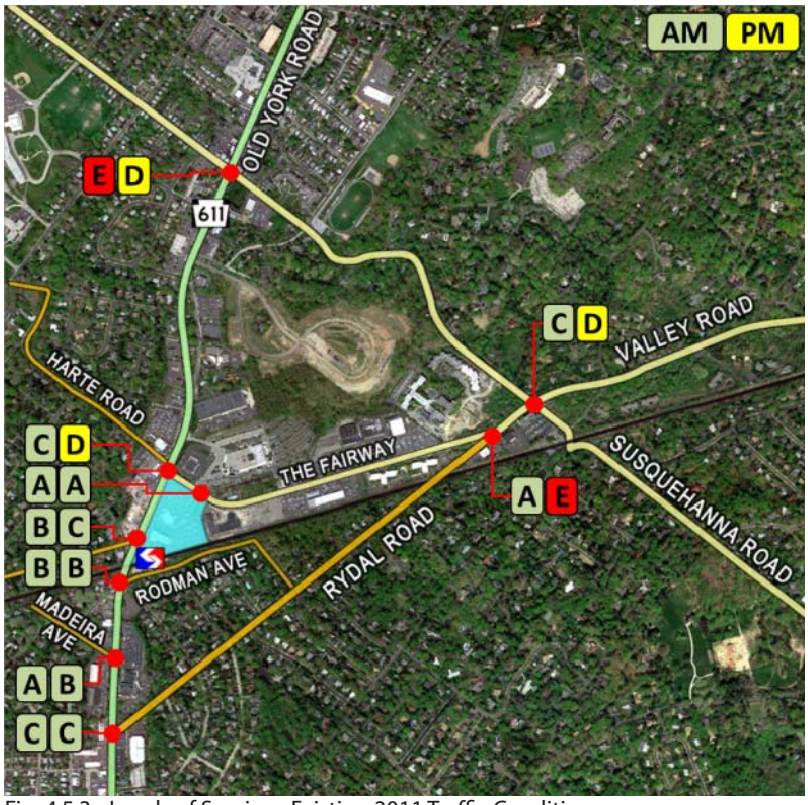

Fig. 4.5.3 - Levels of Service - Existing 2011 Traffic Conditions

The operational analyses of the study intersections under all conditions were performed using the *Synchro* Version 7.0 software. The levels of service and delays are based on the 2000 Highway Capacity Manual (HCM) analysis results. Signal timing data was obtained from existing signal and timing plans, which are included in **Appendix A** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*)..

4.6 Future No-Build Traffic Conditions

Programmed Roadway and Transit Improvements

PennDOT is planning to replace the Old York Road Bridge on SR 0611 over the SEPTA West Trenton Regional Rail Line. The project will include sidewalk replacement on Old York Road, new pedestrian walkways to the SEPTA Noble Station, and traffic signal improvements on Old York Road at Rydal Road and Baeder Road. The bridge replacement project will result in the intersection of Old York Road and Baeder Road being reconfigured to allow dual left turns from Baeder Road eastbound. This change in lane usage will require a change in the signal phasing at the intersection. The Baeder Road eastbound approach and Noble Plaza westbound approach will operate under split phasing rather than the same phase as currently programmed. The bridge project is currently in the preliminary design phase. It is assumed that this project would not be constructed by 2015 but will be completed by 2020.

SEPTA is planning an improvement project for the Noble Train station. As part of this project, the platforms will be raised.

No Build Traffic Volumes

In order to account for general traffic growth in the area, an annual background growth rate is applied to existing traffic volumes on the study area roadways. An annual background growth rate of 0.8% per year has been established by PENNDOT's *Bureau of Planning and Research* for urban, non-interstate roadways in the study area. A copy of the documentation on annual growth rates is provided in **Appendix F** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

Traffic volumes associated with specific developments in the study area are then added to the background traffic to determine the opening year (2015) and horizon (2020) "pre-development" traffic volumes. The Baederwood Shopping Center, located east of the Noble TOD site along The Fairway, currently has two-thirds (2/3) of its retail space vacant (45,000 ft^2) and one hundred percent (100%) of its office space vacant (16,000 ft^2). It is anticipated that both the office and retail space will be one hundred percent (100%) occupied by 2015.

A Baederwood residential development is also being planned near the shopping center. The development consists of 266 residential units and is anticipated to be fully occupied by 2020.

For this study, we have prepared estimates of traffic anticipated to be generated by these developments based on trip generation rates provided in the Institute of Transportation Engineers *Trip Generation Manual,* Eighth Edition (2008). Using rates defined for general office (Land Use Code 710) and specialty retail center (Land Use Code 814), the office is expected to generate **25 trips** in the weekday AM peak period and **24 trips** in the weekday PM peak period while the retail is expected to generate **0 trips** in the weekday AM peak period and **129 trips i**n the weekday PM peak period. The residential development will primarily consist of mid-rise apartments. Using rates defined for mid-rise apartments (Land Use Code 223), the residential component is expected to generate an additional **96 trips** in the weekday AM peak period and **117 trips** in the weekday PM peak period. Detailed trip generation calculations can be found in **Appendix C** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

Trips generated by the planned developments were distributed to the network based on existing traffic volume patterns in the study area. A modal split reduction of 10% *(ITE Trip Generation Handbook Second Edition 2004*, Table B.3) was applied to the office space and residential development. Due to the ease of automobile access and context of the site's placement in the surrounding suburban area, a modal split reduction was not applied to the retail space. It was also assumed that 65% of trips to the retail space would be new trips while 35% would be pass-by trips. Detailed trip generation and distribution computations for these developments are provided in **Appendix C** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

The anticipated trips generated by the occupancy of retail and commercial space in the Baederwood Shopping Center development have been included in the 2015 No-Build Conditions. The 2020 No-Build Condition includes trips generated by the planned Baederwood Residential Development in addition to the Baederwood Shopping Center. The 2015 and 2020 No Build peak hour traffic volumes are illustrated in **Figures 4.6.1 – 4.6.4**.

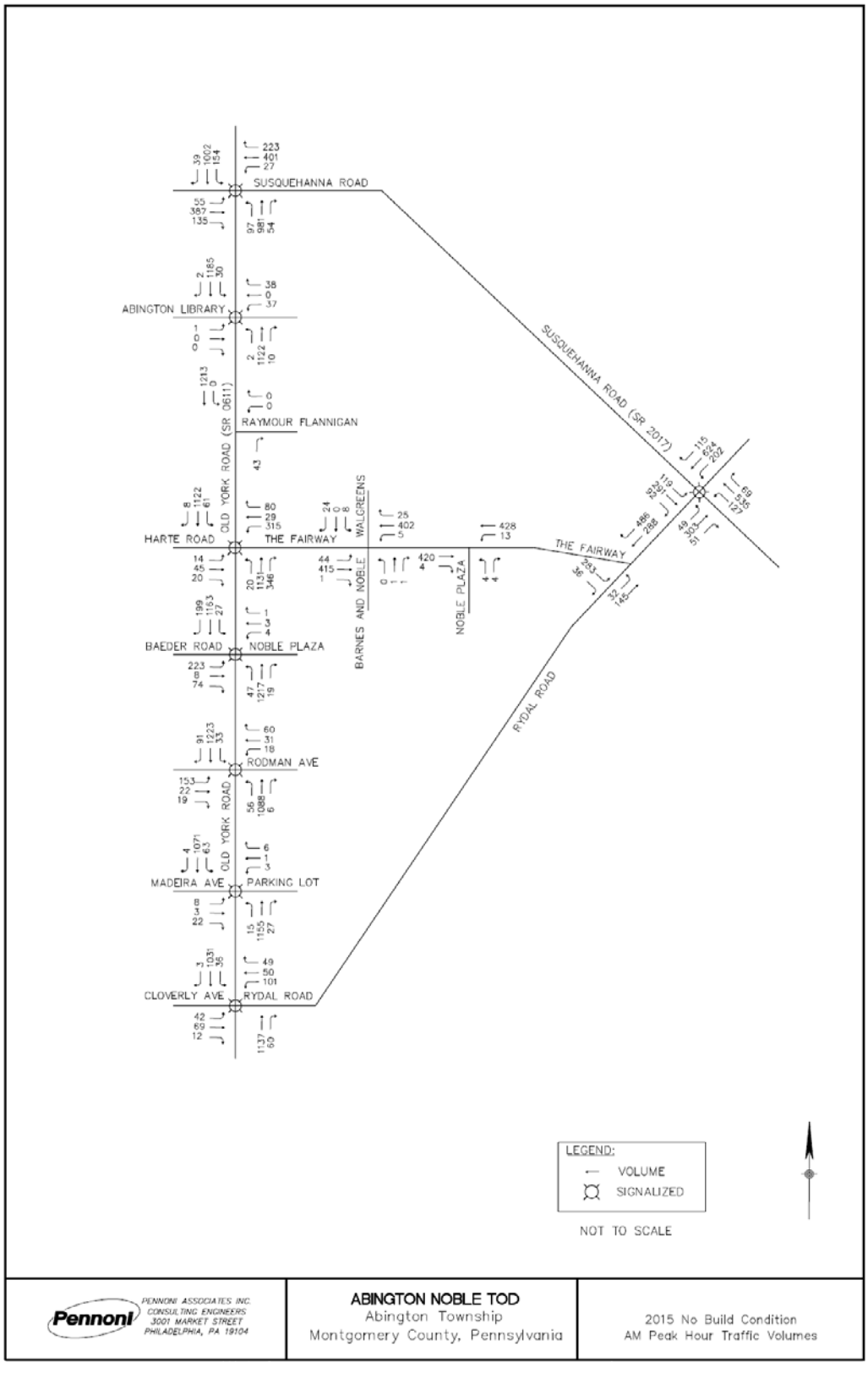

Fig. 4.6.1 - 2015 No Build Condition AM Peak Hour Traffic Volumes

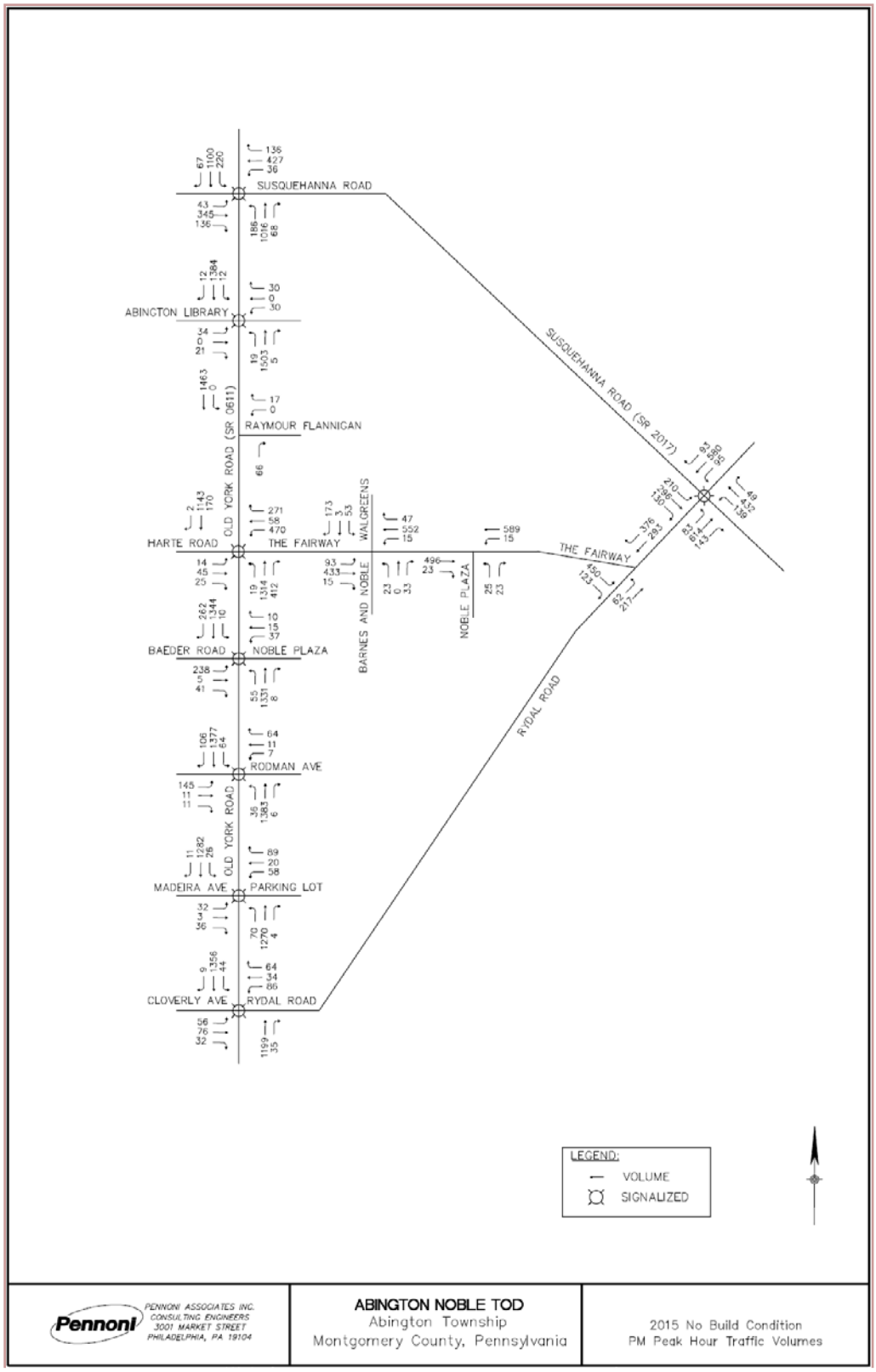

Fig. 4.6.2 - 2015 No Build Condition PM Peak Hour Traffic Volumes

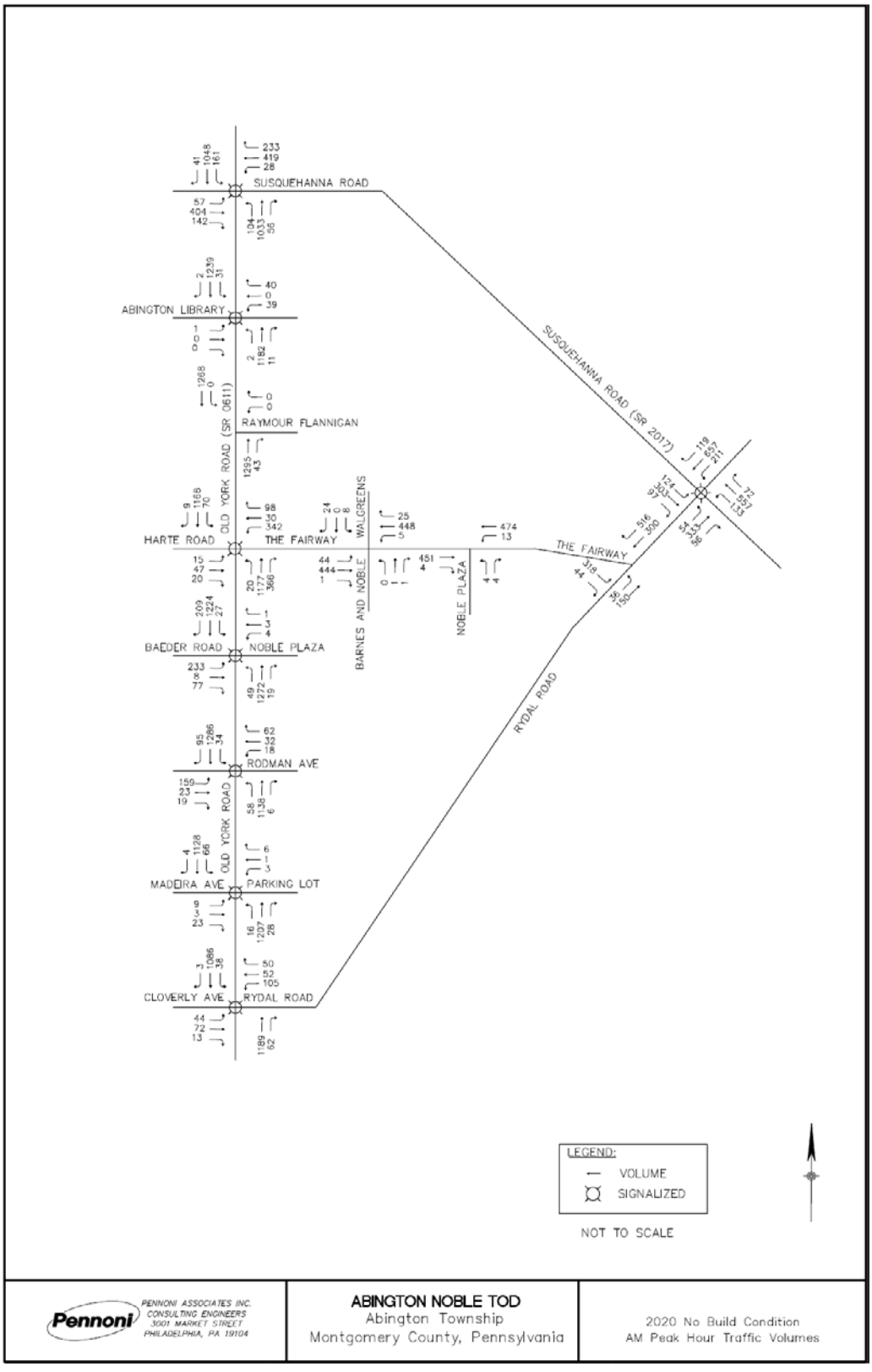

Fig. 4.6.3 - 2020 No Build Condition AM Peak Hour Traffic Volumes

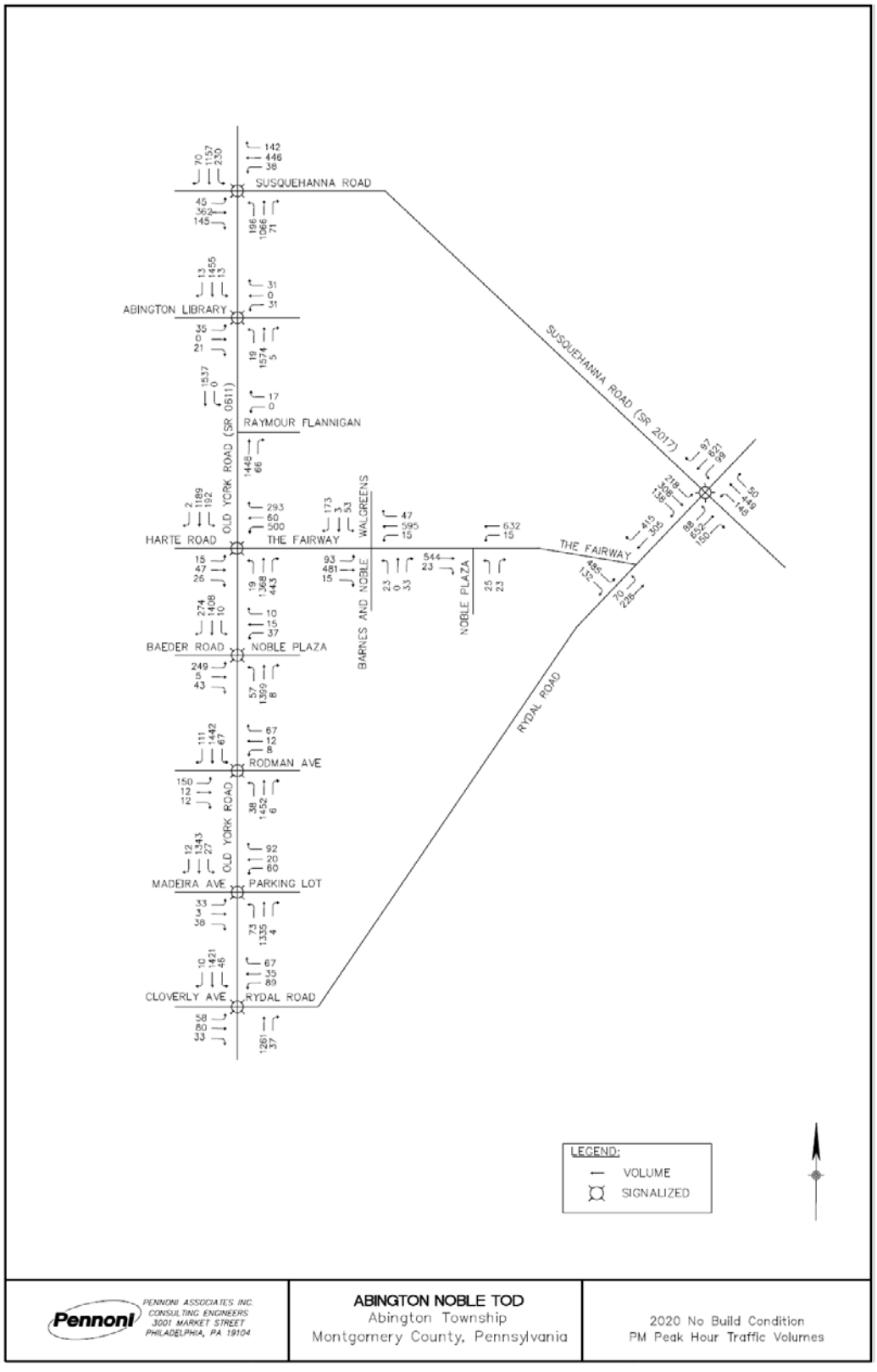

Fig. 4.6.4 - 2020 No Build Condition PM Peak Hour Traffic Volumes

No-Build Levels of Service

The performance of the study intersections under 2015 and 2020 No-Build traffic conditions was evaluated through a Level of Service Analysis. Operations of the study intersections during the peak hours were evaluated for each condition. **Tables 4.9.2 and 4.9.3** provide a summary of the results of the No-Build Conditions. The 2020 No-Build Condition is illustrated in **Figure 4.6.5.**

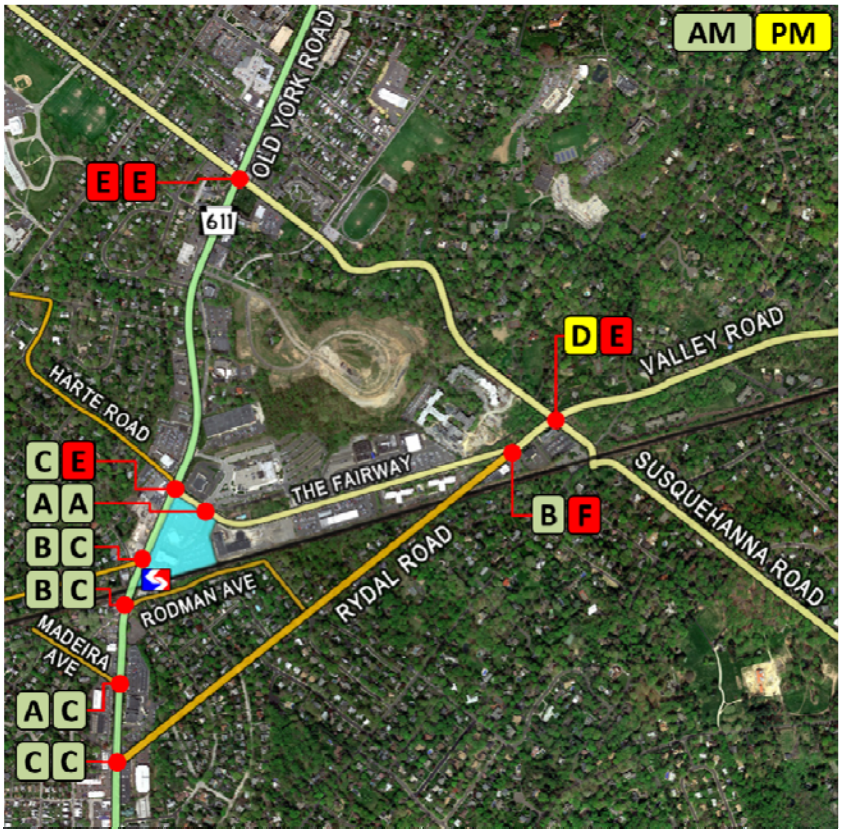

Fig. 4.6.5 - Levels of Service - 2020 No-Build Traffic Conditions

With the additional background traffic growth and the proposed Baederwood Development, the No-Build conditions saw a drop in level of service at several intersections as compared to the existing conditions. The intersection of The Fairway and Rydal Road went from an overall LOS 'A' and 'E' in the existing AM and PM peaks respectively to an overall LOS 'B' and 'F' during the 2020 No-Build AM and PM peaks respectively. This is due to the increase in traffic volume on the eastbound stop-controlled approach from the Fairway. The intersection of Old York Road and The Fairway also experienced increases in delay from the existing to No-Build conditions during the PM peak hour. The northbound through movements on Old York Road and the southbound left turn movements from Old York Road to The Fairway showed the largest increase in delay at this intersection. The increase in traffic to the Baederwood Development is expected to create increases in delay at the intersection of Susquehanna Road and Rydal Road compared to existing conditions. The overall intersection LOS is expected to drop from LOS 'C' to LOS 'D' during the AM Peak and from LOS 'D' to 'E' during the PM peak.

Synchro capacity summary outputs from the 2015 and 2020 No-Build conditions analysis are provided in **Appendix E** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

4.7 Future Build Traffic Conditions

The master plan developed for the Abington Noble TOD includes a five-story mixed-use building consisting of 72 apartment units, 6,000 ft^2 of space for a restaurant, 2,000 ft^2 of retail space, 4,000 ft^2 of office space, and a 516 space parking garage. It is anticipated that the building will be completed and occupied in 2015. The 2015 Build Condition includes the installation of a new signal at the intersection of Street A and The Fairway and the proposed consolidation of the Noble Plaza, Barnes and Noble and Walgreens driveways on The Fairway. The 2020 Build Condition includes additional roadway improvements at the intersections of Baeder Road & Old York Road, Rydal Road & The Fairway, and Susquehanna Road & Rydal Road.

Vehicular Site Access

The site is currently accessed from Old York Road and The Fairway. In order to improve connections to the surrounding roadway network, the Master Plan proposes to create a new access road (Street A) traversing through the site. The alignment of Street A will be developed from an unsignalized midblock location on Old York Road between Noble Plaza office building and the Noble Market building to the proposed garage entrance. This access will be limited to right turns in and right turns out due to the median. At the garage entrance, Street A will make a 90 degree turn north and extend to a proposed intersection with The Fairway in the vicinity of the Noble Plaza and Walgreens driveways. Consideration was given to extending Baeder Road through the Noble Plaza parking lot to meet Street A but this option is not being incorporated into the current plan. The Baeder Road extension is being considered as a long term option that could occur after 2020. **Figure 4.7.1** below illustrates the proposed access points for the site.

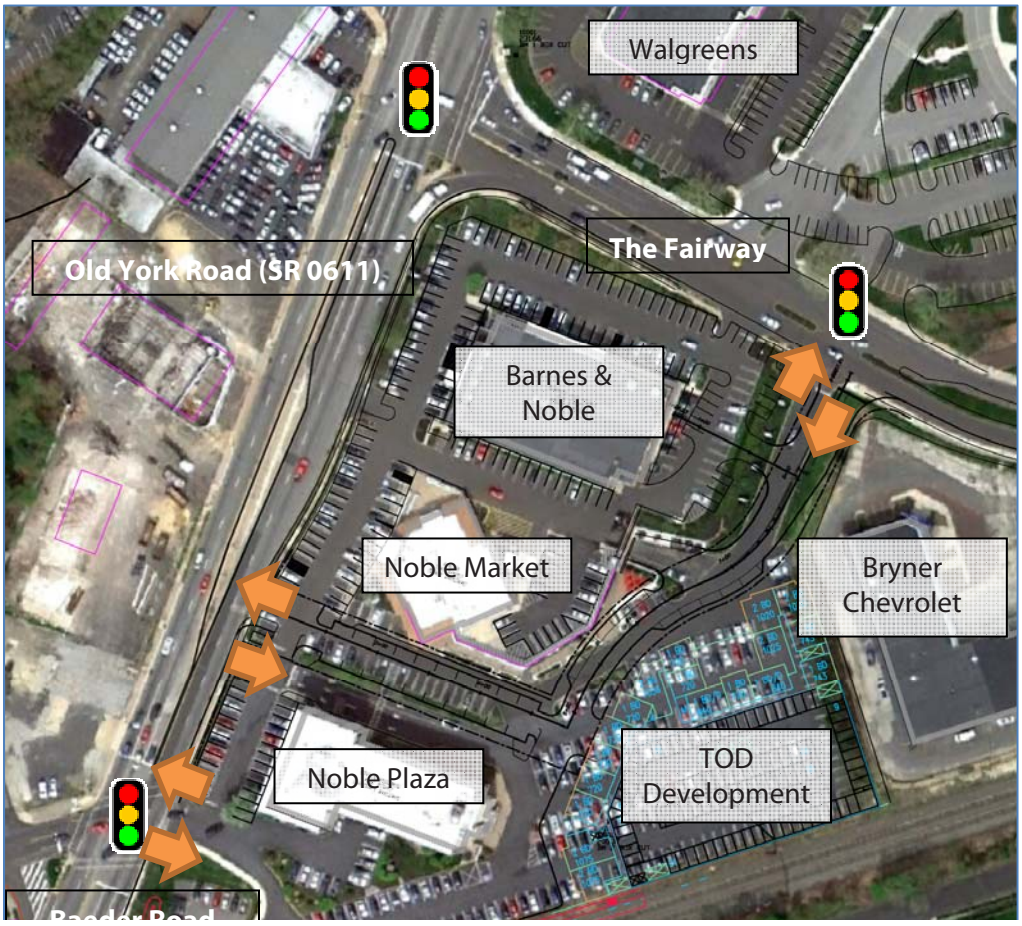

Fig. 4.7.1 - Site Access Routes

Site Generated Traffic Volumes

New trip generation computations were completed for the Noble TOD site based on the proposed uses as determined during the October 2011 Design Charrette and provided in the master plan. The traffic volumes for the proposed site were estimated based on information contained in the Institute of Transportation Engineers (ITE) publication *Trip Generation* (8th Edition, 2003) and in the ITE publication *Traffic Engineering Handbook* (6th Edition, 2009). The *ITE Trip Generation Manual* defines a trip as a "single or one-direction vehicle movement with either the origin or the destination (exiting or entering) inside a study site."

As a result of the design charrette, the mixed-use building is expected to include 72 residential units, 6,000 ft^2 of restaurant space, 2,000 ft^2 of retail space, and 4,000 ft^2 of office space in addition to 516 parking spaces. The expected trip generation for the residential units was based on the ITE Land Use Code 220 "Apartment," the restaurant space was based on the ITE Land Use Code 931 "Quality Restaurant," the retail space was based on the ITE Land Use Code 814 "Specialty Retail," and the office space was based on the ITE Land Use Code 715 "Single Tenant Office Building."

The parking garage is proposed to have 150 spaces dedicated to SEPTA passengers. It was assumed that the garage spaces would fill over the course of the morning period from 6-9 AM. During the AM peak hour, it was estimated that 40% of the spaces would fill with trips into the garage and there would be no trips out. It was assumed that the trips entering the garage during the AM peak would leave during the PM peak and there would be an additional small amount of additional trips to the garage during the PM Peak. During the PM peak hour, we estimated that 40% of the spaces would empty with trips exiting the garage while 10% of the spaces would fill with trips entering the garage. These assumptions resulted in a total of **60** trips into the garage during the AM peak hour and **15** trips in and **60** trips out during the PM peak hour.

Table 4.7.1 summarizes the anticipated peak hour trips to/from the proposed development during the morning and afternoon peak hours.

The site is expected to generate **103** new vehicle trips and **0** pass-by trips during a typical weekday AM peak hour and **168** new vehicle trips and **25** pass-by trips during a typical weekday PM peak hour.

The trips generated from the planned development include vehicular, bus, rail, walking, and biking trips. The ITE *Trip Generation Handbook* second edition (2004) contains guidance on modal split reductions that can be applied for development around transit and light rail stations. Based on Table B.3 from the handbook, a 10% trip reduction was applied to the residential units and office space. It was not anticipated that the retail and commercial space would become a destination for people to visit via the regional rail. Because of the ease of automobile access and context of the site's placement in the surrounding suburban area, a modal split reduction was not applied to the retail and commercial space. A copy of Table B.3 from the *Trip Generation Handbook* can be found in **Appendix B** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

ITE TRIP GENERATION	WEEKDAY					
	A.M. PEAK			P.M. PEAK		
LAND USE DESCRIPTION	IN	OUT	TOTAL	IN	OUT	TOTAL
#220 – Apartment – 72 units	7	30	37	29	16	45
Modal Split (10%)	-0	-4	-4	-3	-2	-5
Total Apartment	***7***	***26***	***33***	***26***	***14***	***40***
#814 – Specialty Retail – 2,000 sf	0	0	0	12	15	27
Pass-by Trips (35%)	-0	-0	-0	-4	-5	-9
Total Specialty Retail	***0***	***0***	***0***	***8***	***10***	***18***
#931 – Quality Restaurant – 6,000 sf	2	2	4	30	15	45
Pass-by Trips (35%)	-0	-0	-0	-11	-5	-16
Total Quality Restaurant	***2***	***2***	***4***	***19***	***10***	***29***
#715 – Single Tenant Office Building – 4,000 sf	6	1	7	1	6	7
Modal Split (10%)	-1	-0	-1	-0	-1	-1
Total Office	***5***	***1***	***6***	***1***	***5***	***6***
SEPTA Parking	***60***	***0***	***60***	***15***	***60***	***75***
TOTAL NEW TRIPS	**74**	**29**	**103**	**69**	**99**	**168**

Table. 4.7.1 - ITE Trip Generation

New trips versus pass-by trips were also taken into account when analyzing the trips generated by the proposed development. The ITE *Trip Generation Handbook* second edition (2004) defines a pass-by trip as one made as an intermediate stop on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are trips attracted from existing traffic already passing the site. For the new TOD development, it was assumed that the residential and office uses would not have any pass-by trips. To determine pass-by rates for the commercial space, shopping center pass-by trip data tables from the ITE *Trip Generation Handbook* were used. The shopping center land use data contains several data points from nearby Willow Grove, PA, Doylestown, PA, Upper Dublin Township, PA, Tredyffrin Township, PA, and Whitehall, PA. Using these data points, we determined that a pass-by trip rate of **35%** was appropriate to use for the proposed Noble development. This resulted in a total of **0** pass-by trips generated during the AM peak hour and **25** pass-by trips generated during the PM peak hour (**15 in/10 out**).

A summary of the trip generation calculations are provided in **Appendix C** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

Trip Distribution and Assignment

The trips generated by the development of the site are distributed in accordance with projected travel patterns on the study area roadways. Existing trips into and out of the study area were calculated based on existing traffic counts. Five main access roadways were considered when determining how trips would approach and leave the TOD site. These roads were Old York Road from the north, Old York Road from the south, Harte Road from the west, Baeder Road from the west, and The Fairway from the east. The anticipated distribution of site traffic is shown in **Figure 4.7.2** below.

Fig. 4.7.2 - Overall Site Trip Distribution

It was assumed that all traffic approaching from The Fairway from the west would enter and exit via the new signalized intersection on The Fairway. All traffic entering from Baeder Road from the west would enter via the Baeder Road signalized intersection on Old York Road. Traffic from the south would enter at the new Street A between Baeder Road and Old York Road. At the intersection of The Fairway and Old York Road, it was assumed that all vehicles approaching from Harte Road would travel straight through the intersection and enter the site from The Fairway. On Old York Road from the north, it was assumed that 10% of vehicles would make a left onto The Fairway while the remaining 27% would make a left into the site at the Baeder Road intersection. This assumption was made due to the already large volume of southbound left turns at The Fairway. During the 2020 No-Build condition this movement operates at LOS E during the AM peak and LOS F during the PM peak while the southbound left movement at Baeder Road operated at LOS B during both peaks. Additionally, it was anticipated that drivers may view the Baeder Road entrance as being closer to the proposed TOD building.

For vehicles exiting the site and traveling towards Old York Road to the north, a more even distribution of vehicles leaving from both site exits was assumed due to lower delays along both exiting routes. Of the 37% of vehicles traveling to Old York Road to the north, it was assumed 10% would leave via The Fairway exit and 27% would leave via the Street A exit. It was assumed that all vehicles traveling to Baeder Road westbound or Old York Road southbound from the site would use the existing signalized intersection at Baeder Road as opposed to traveling through two additional signalized intersections along The Fairway. It was also assumed that all vehicles exiting to The Fairway or Harte Road would use the new signalized intersection along The Fairway.

The trip distribution breakdown approaching and departing the site is depicted in **Figures 4.7.4 and 4.7.5**. **Figures 4.7.6 and 4.7.7** show how the trips were assigned to the roadway network for each of the AM and PM build conditions.

Pass-by Trips

As determined previously, 35% of trips to the site's commercial space will be pass-by trips. Pass-by trips are attributed to vehicles traveling along the major routes that pass the site, Old York Road and The Fairway. There are six possibilities for pass-by trips along these major routes: Old York Road SB to The Fairway EB, Old York Road SB, Old York Road NB to The Fairway EB, Old York Road NB, The Fairway WB to Old York Road NB, and The Fairway WB to Old York Road SB. To determine how many pass-by trips will be from each route, the percentage of existing turning movement volumes for each corresponding pass-by route at the intersection of Old York Road and The Fairway were calculated. The overall percentage of pass-by trips is shown in **Figure 4.7.3** below.

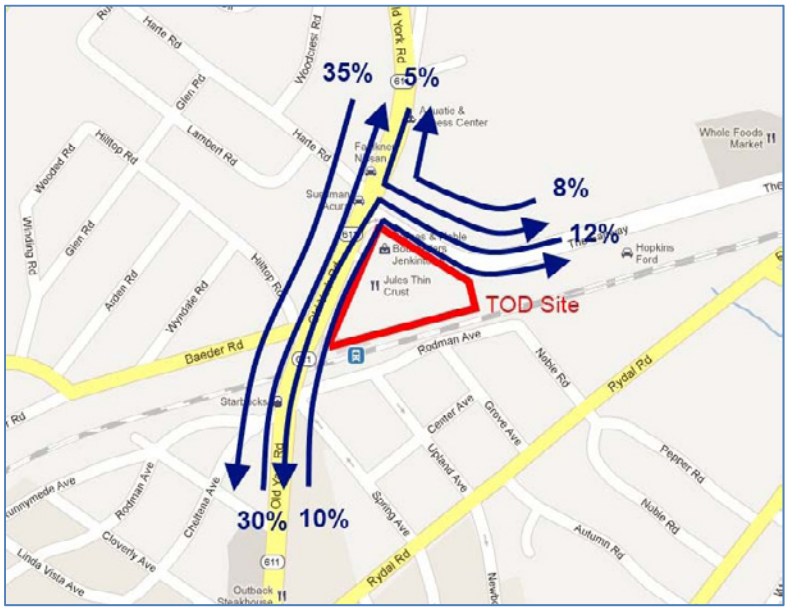

Fig. 4.7.3 - Overall Pass-By Distribution

Detailed figures outlining how the pass-by trips were distributed to the roadway network can be found in **Appendix C** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

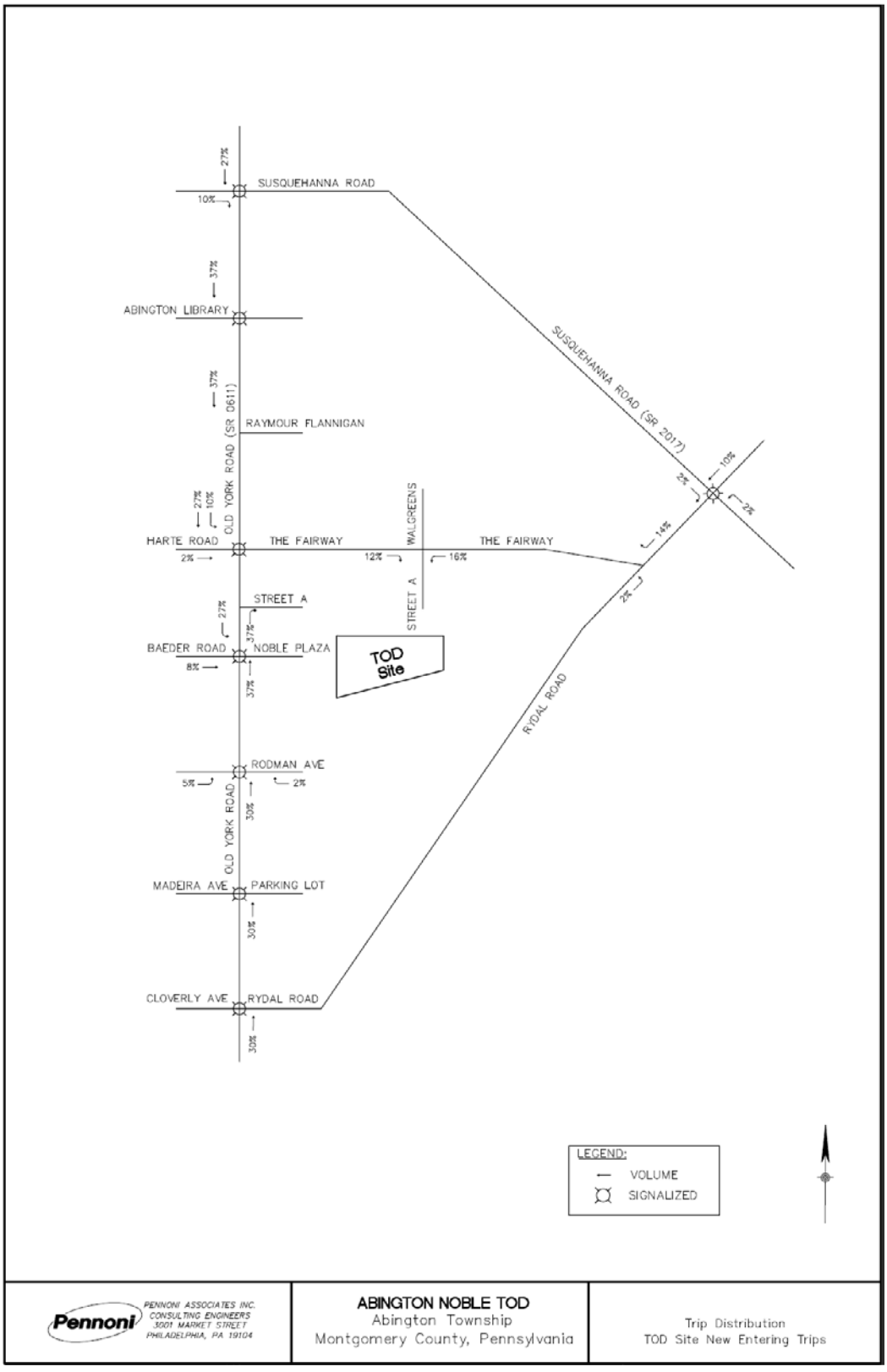

Fig. 4.7.4 - Trip Distribution TOD Site New Entering Trips

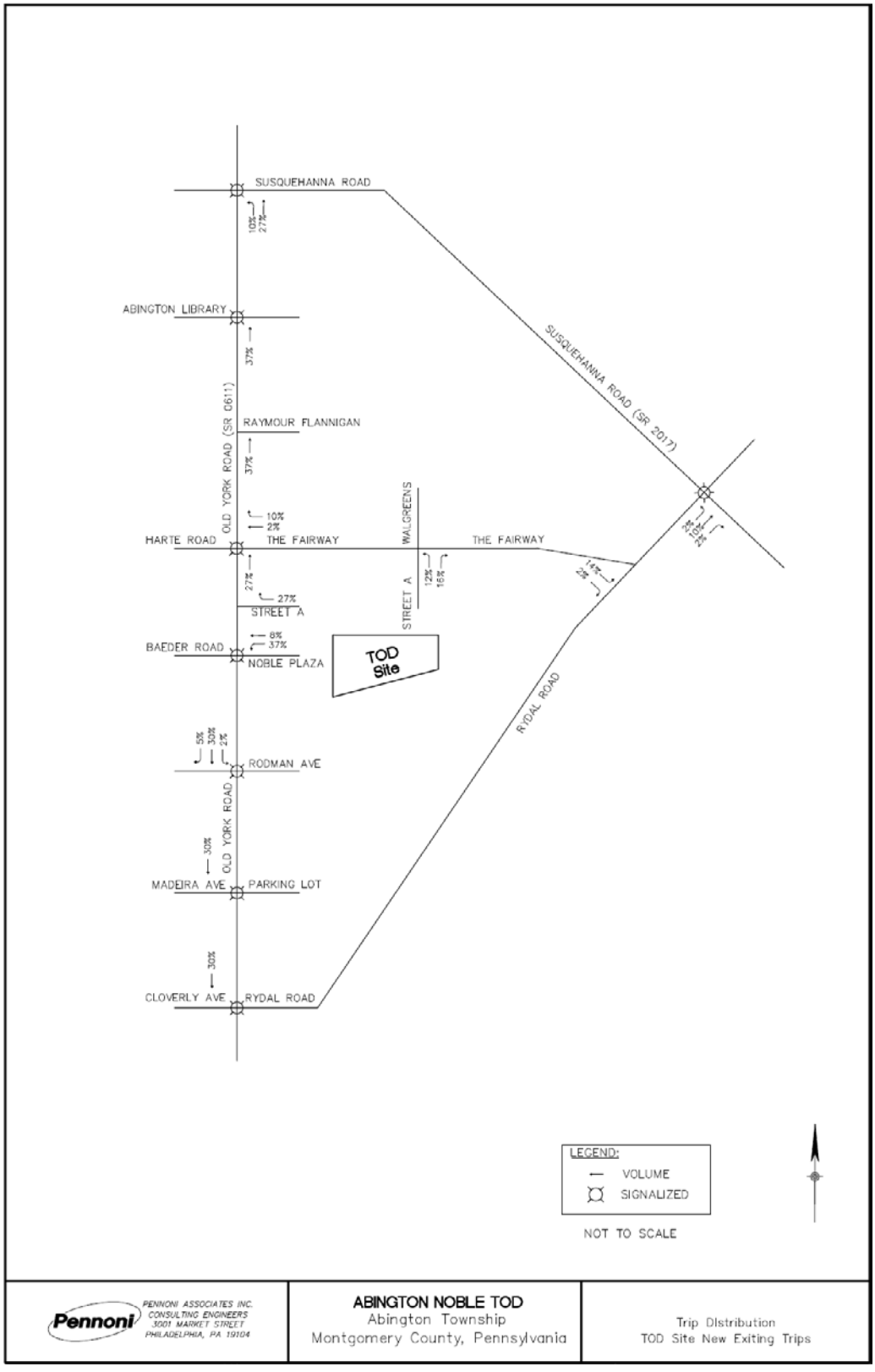

Fig. 4.7.5 - Trip Distribution TOD Site New Exiting Trips

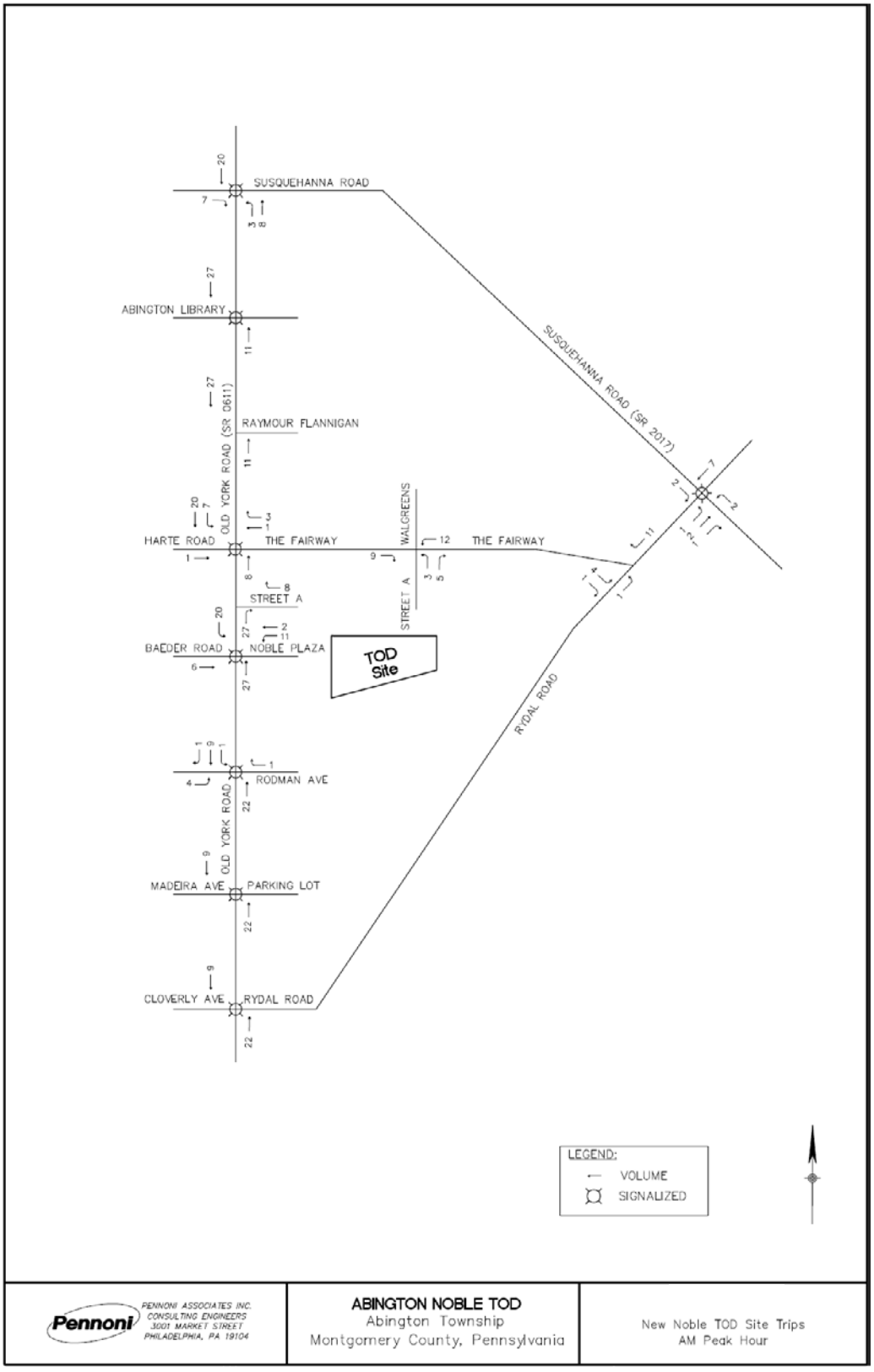

Fig. 4.7.6 - New Noble TOD Site Trips AM Peak Hour

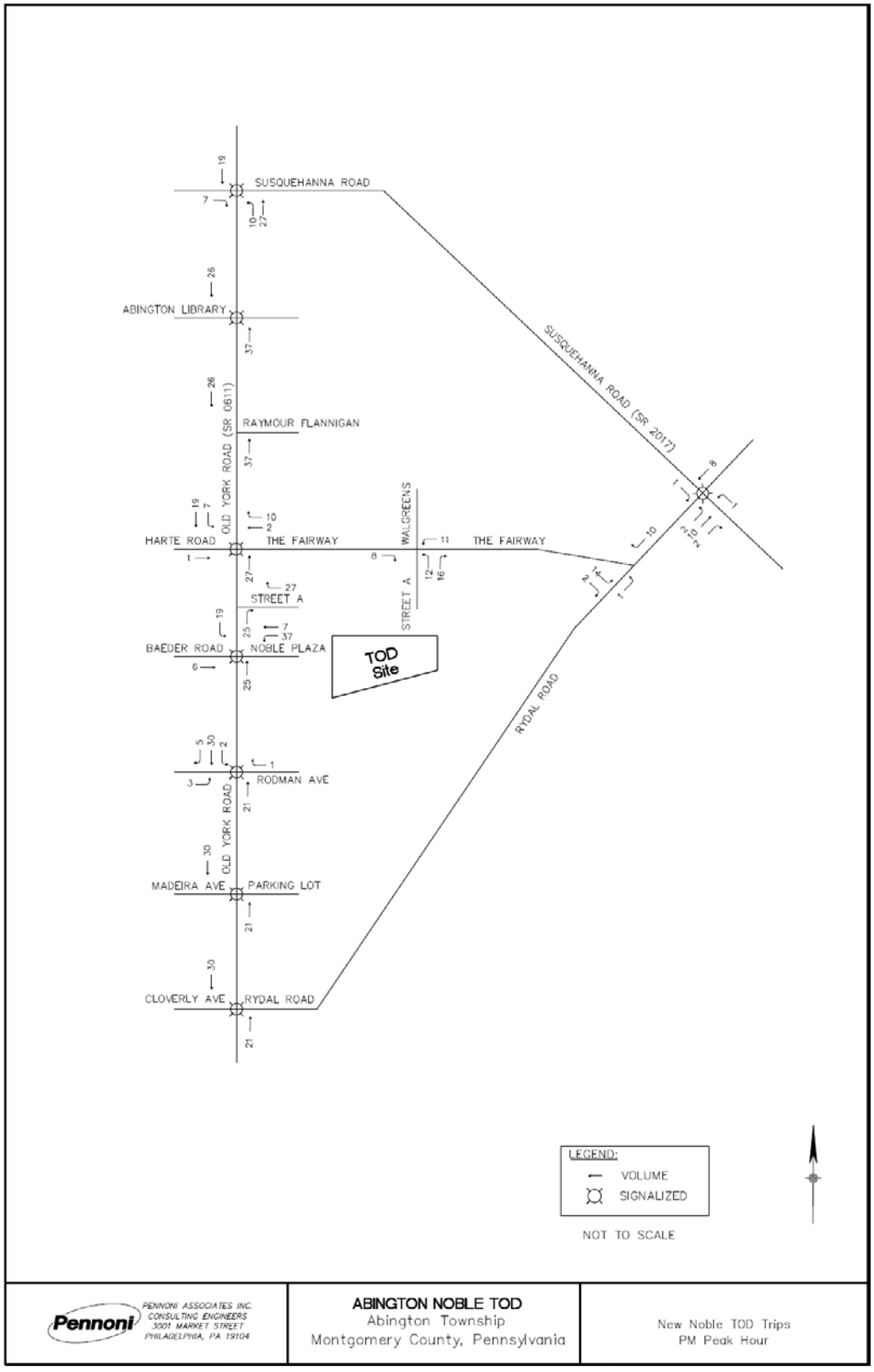

Fig. 4.7.7 - New Noble TOD Site Trips PM Peak Hour

Analysis Conditions

Three build conditions were analyzed to determine the effects of the increased traffic on the roadway network in the study area.

2015 Build with improvements at Street A and The Fairway intersection

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.

2020 Build Condition 1 with improvements at Street A & The Fairway and Old York Road & Baeder Road

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.
- Modified lane usage at the Baeder Road and Old York Road intersection to provide dual left turns on the eastbound Baeder approach by making the right lane a right/through/left lane. Signal phasing is changed to split phasing for Baeder Road and the protected left turn phase is removed from Old York Road northbound.
- The proposed trip volumes are distributed to the existing roadway network without making any modifications to lane configurations, signal phasing, or signal timing.

2020 Build Condition 2 with intersection improvements at Street A & The Fairway, Old York Road & Baeder Road, Rydal Road & Susquehanna Road, and at Rydal Road & The Fairway

- Construction of Street A
- New traffic signal on the Fairway at Street A and consolidation of the Barnes and Noble, Noble Plaza, and the Walgreens Driveways.
- Modified lane usage at the Baeder Road and Old York Road intersection to provide dual left turns on the eastbound Baeder approach by making the right lane a right/through/left lane. Signal phasing is changed to split phasing for Baeder Road and the protected left turn phase is removed from Old York Road northbound.
- The intersection of Rydal Road and Susquehanna Road is analyzed with the right turn lane converted to through/right lane in each direction on Rydal Road. A protected left turn phase is added to Rydal Road and the intersection timings are modified.
- The alternative of a two-lane roundabout replacing the traffic signal is presented for further study.
- Intersection geometry of Rydal Road and The Fairway modified to make The Fairway/Rydal Road to the east the major movement and Rydal Road to the west "T" into the intersection. New traffic signal installation.

Build Level of Service Analysis

Operations of the study intersections during the peak hours were evaluated based on the project build peak hour traffic volumes. The performance of the study intersections under future 2015 and 2020 traffic conditions is evaluated through Level of Service analysis. Future volumes for the 2015 build conditions can be found in **Figures 4.7.8 and 4.7.9** while future volumes for the 2020 build conditions can be found in **Figures 4.7.10 and 4.7.11**.

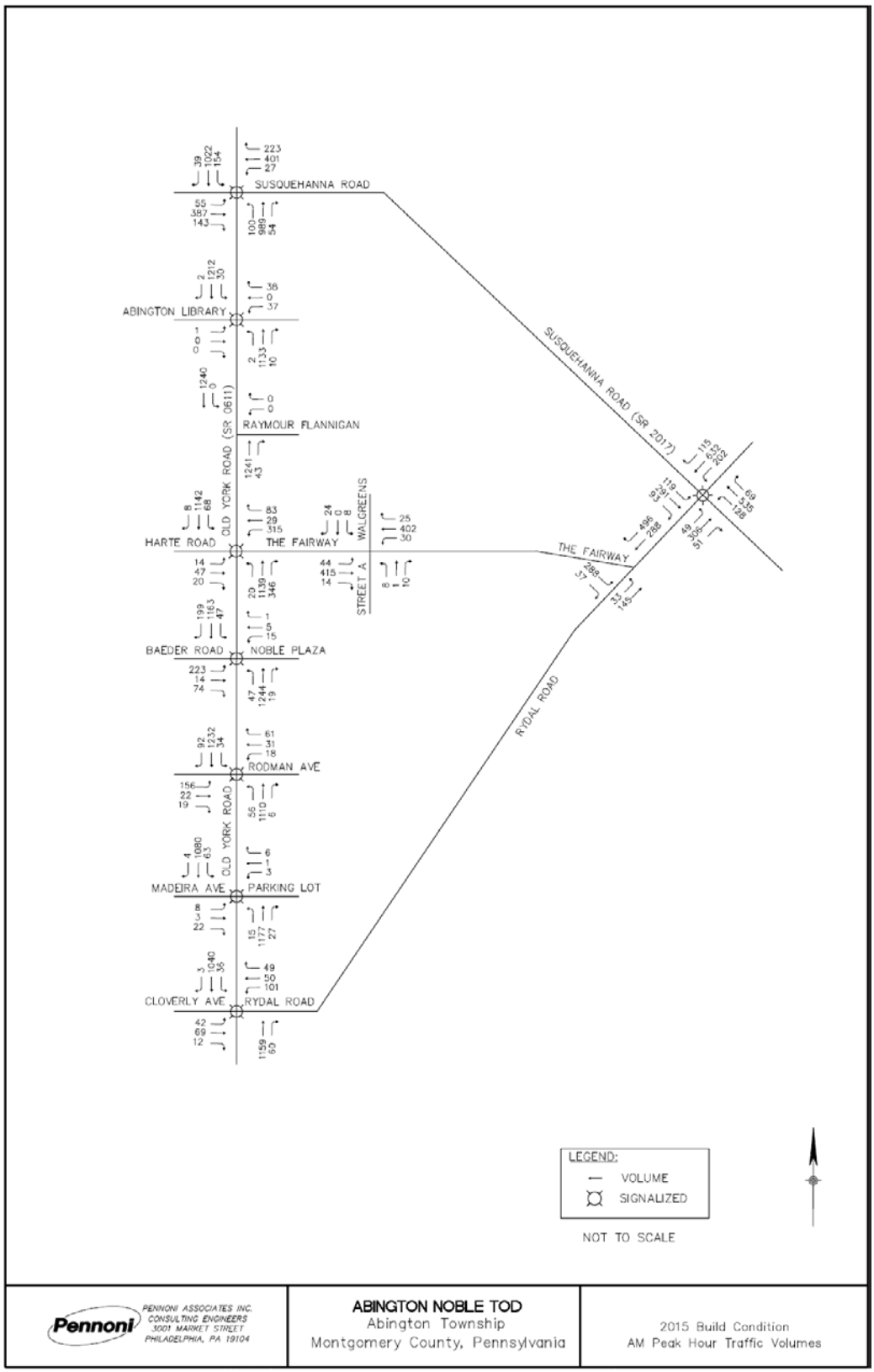

Fig. 4.7.8 - 2015 Build Condition AM Peak Hour Traffic Volumes

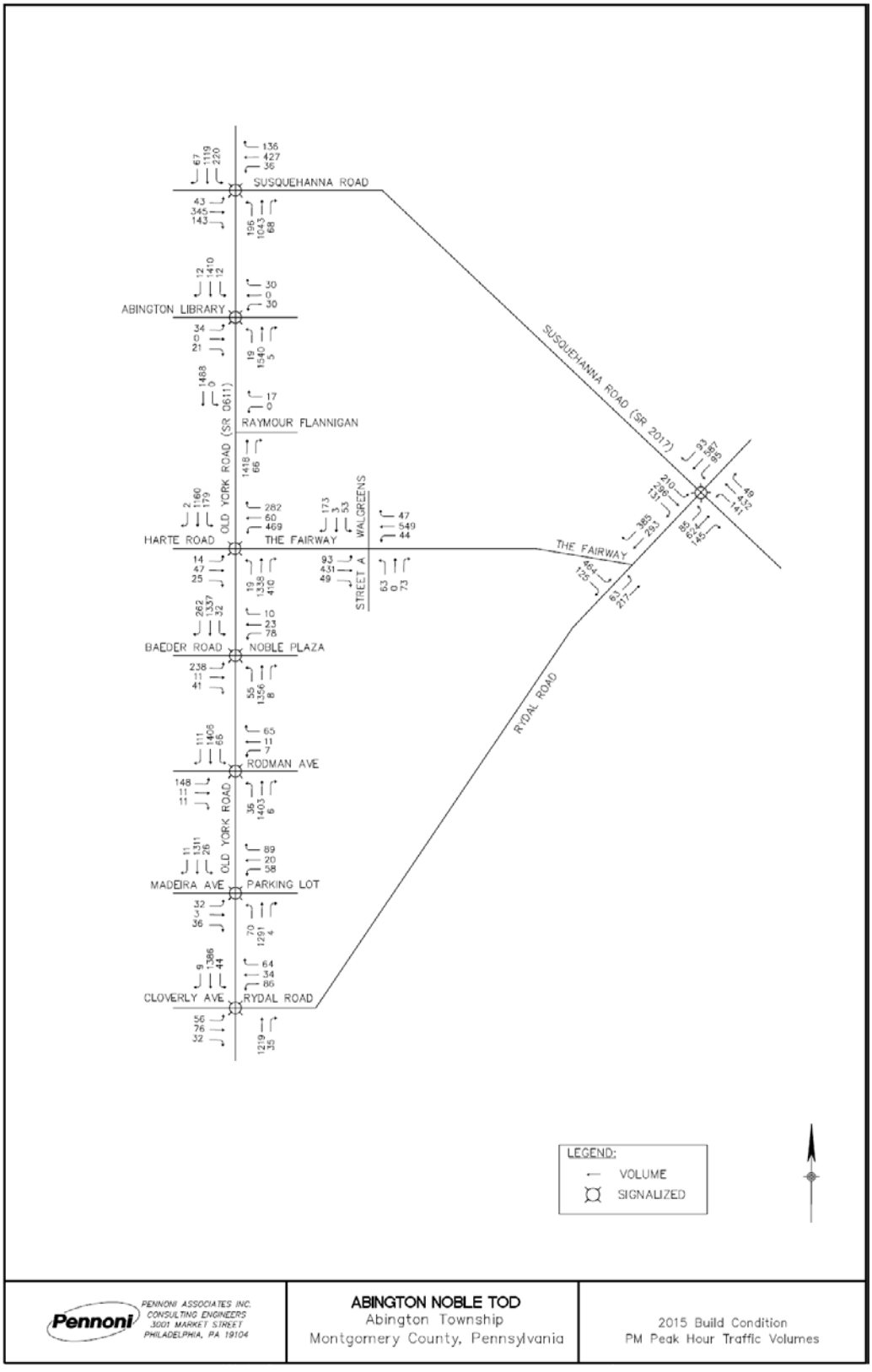

Fig. 4.7.9 - 2015 Build Condition PM Peak Hour Traffic Volumes

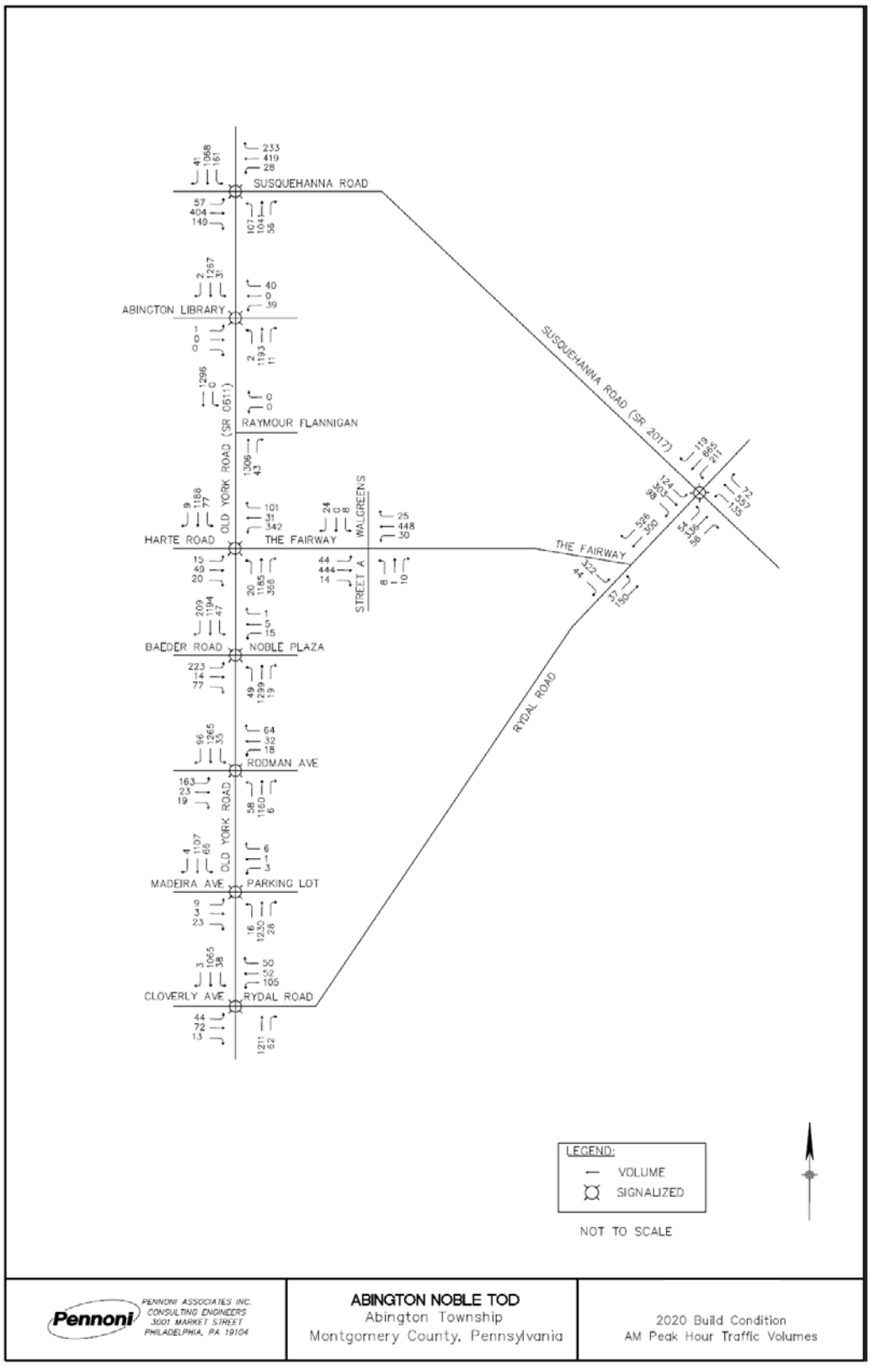

Fig. 4.7.10 - 2020 Build Condition AM Peak Hour Traffic Volumes

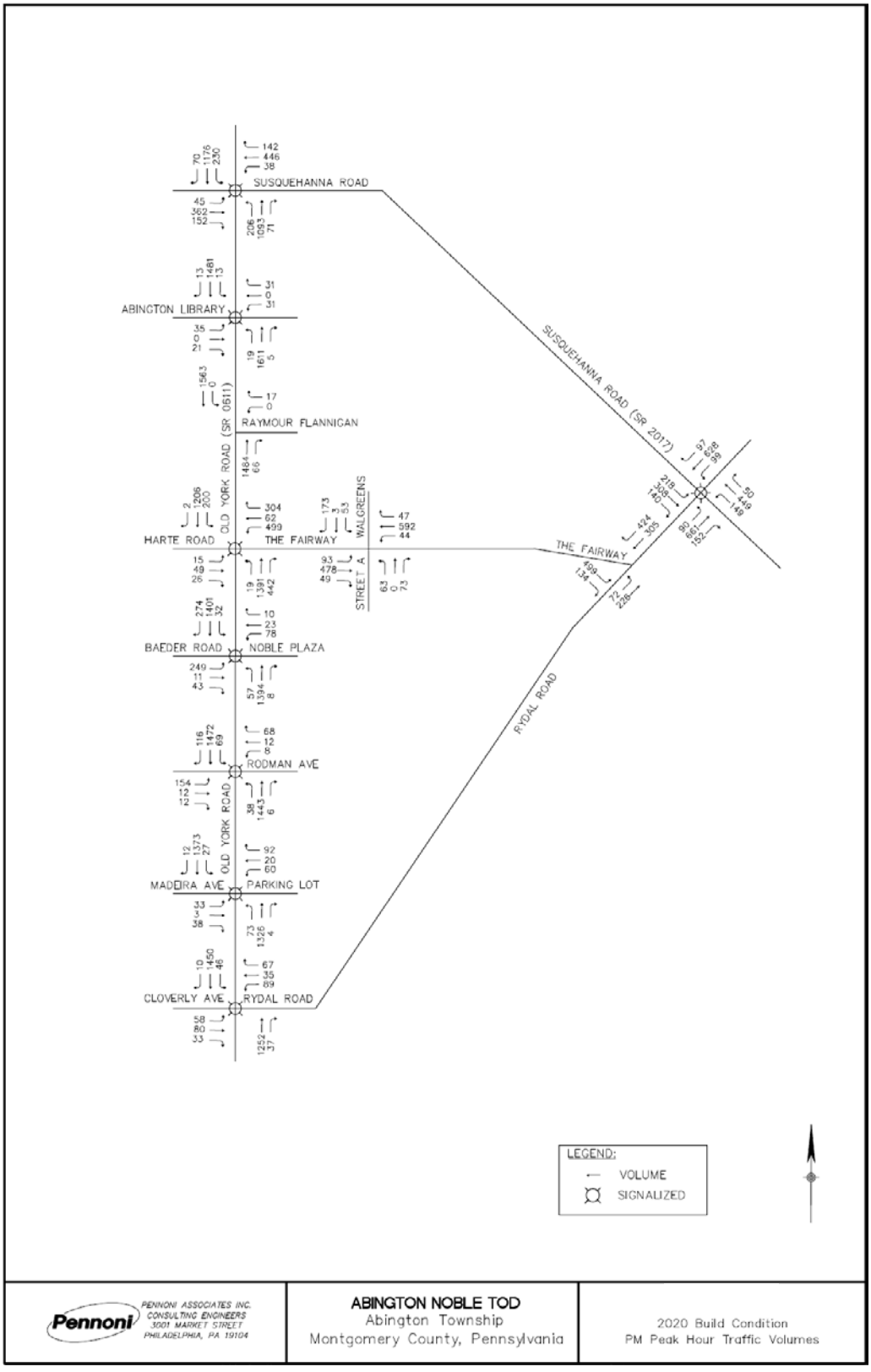

Fig. 4.7.11 - 2020 Build Condition PM Peak Hour Traffic Volumes

The analysis results including delays, service levels, and 95% queues for each lane group are summarized in **Tables 4.9.2 and 4.9.3**.

The Levels of Service for the study area intersections in the Future 2020 Build Conditions under Condition 1 (improvements at Street A & The Fairway and Old York Road & Baeder Road) are shown in **Figure 4.7.12** below. The Levels of Service for the study area intersections in the Future 2020 Build Conditions under Condition 2 (intersection improvements at Street A & The Fairway, Old York Road & Baeder Road, Rydal Road & Susquehanna Road, and at Rydal Road & The Fairway) are shown in **Figure 4.7.13** below.

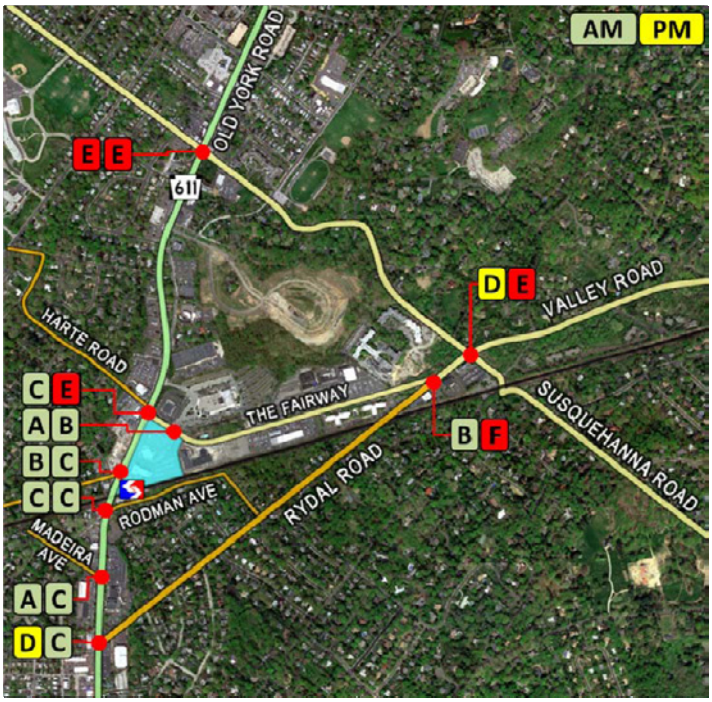

Fig. 4.7.12 - Levels of Service - 2020 Build Condition 1

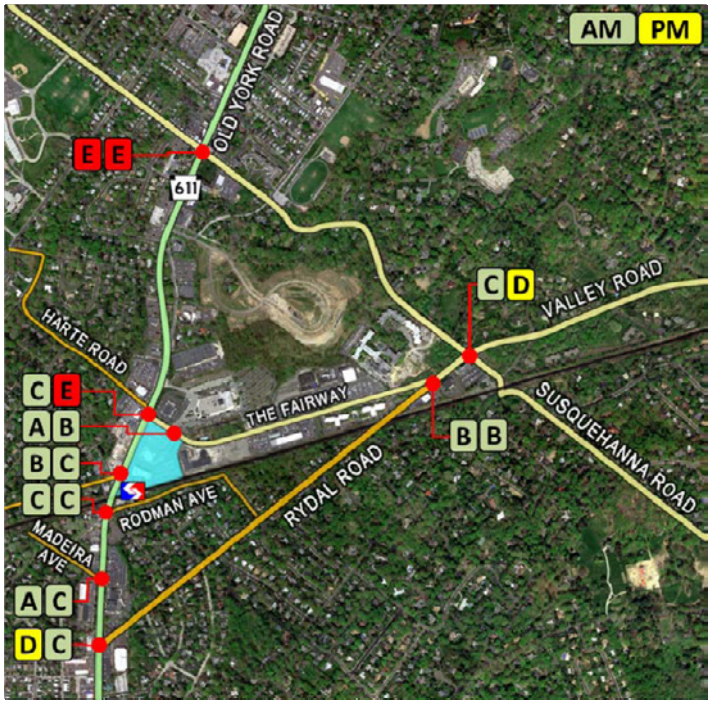

Fig. 4.7.13 - Site Access Routes

A discussion of the impacts of the proposed traffic volumes throughout the study area follows.

The Fairway and Street A/Walgreens Driveway

During the 2015 and 2020 PM No-Build conditions, the driveway to the Walgreens and Noble Plaza experiences large delays for vehicles exiting both locations. The unsignalized delay and LOS for the northbound approach (Noble Plaza Driveway) is 63.6 seconds (LOS F) and 88.7 seconds (LOS F) for the 2015 and 2020 PM no build conditions respectively. The delay is equally as high for the southbound approach (Walgreens Driveway) with delays and LOS of 74.5 seconds (LOS F) and 100.8 seconds (LOS F) for the 2015 and 2020 PM No-Build conditions. Under the Build Condition, volumes will increase on the northbound approach as a large portion of trips from the TOD site are expected to exit at this location along The Fairway. Due to the already large delays from the side street approaches, the justification for installation of the traffic signal was analyzed using the peak hour signal warrant criteria. Daily hourly data for the future conditions is not available to evaluate all warrants. The results of the analysis show that the peak hour warrant is met for the afternoon peak traffic period. The signal is proposed as a two phase actuated signal to be coordinated with the adjacent signal at the intersection of Old York Road and The Fairway. A conceptual drawing of the new intersection configuration is shown in **Figure 4.7.14**.

The installation of the signal for the PM Build conditions shows an increase to the overall intersection delay by less than 10 seconds from the No-Build to Build conditions. Although the overall intersection delay increases marginally, the northbound and southbound approaches experience large decreases in delay. During the 2015 PM Build condition, the northbound delay decreases by 24 seconds from the No-Build to Build conditions while the southbound delay decreases by 29 seconds.

Volumes approaching and departing Street A are expected to be low during the AM peak hour period. The installation of the signal resulted in minimal increases in overall intersection delay (3.6 seconds from the AM 2015 No-Build to Build conditions and an overall intersection delay increase of 3 seconds from the AM 2020 No-Build to Build conditions).

Fig. 4.7.14 - The Fairway and Street A Intersection Improvements

Old York Road and Baeder Road/Noble Plaza

As noted previously, it is anticipated that dual left turn lanes will be provided on eastbound Baeder Road. The 2015 No-Build and Build Conditions maintain the existing intersection configuration while the 2020 No-Build and Build Conditions were analyzed with the dual left turns and split phasing.

During the AM peak hour, the 2015 Build Condition increases the overall intersection delay by less than 1 second while the 2020 Build Conditions increase the overall intersection delay by less than 2 seconds. In all cases, the intersection remains at LOS B. During the AM peak hour, all intersection approaches are operating at LOS D or better.

During the PM peak hour, eastbound Baeder Road left turns currently operate at LOS E with a delay of 62.2 seconds in the 2011 existing conditions. This delay increases to 63.2 seconds during the 2015 No-Build and increases further to 76.1 seconds during the 2015 Build condition. A separate analysis was performed to assess the performance of the intersection without the proposed lane modifications that are being installed as part of the PennDOT bridge project. This analysis and supporting documentation can be found in **Appendix G** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*). This analysis found that eastbound Baeder Road left turns would operate at LOS F with a delay of 83.8 seconds during the 2020 PM Build condition if the split phasing and dual left turns were not implemented. The split phasing decreases the eastbound left turn delay to 47.2 seconds during the 2020 PM No-Build Condition and 47.3 seconds during the 2020 PM Build Condition.

To accommodate the split phasing, the northbound protected left turn movement was eliminated in the 2020 build models so that enough time for the pedestrian minimums on the side streets will be provided while ensuring Old York Road northbound and southbound receive sufficient green time. The northbound left turn delay increases by 30 seconds during the 2020 PM No-Build and Build conditions. The 95th percentile queues will still remain within the allowable storage space due to the low volume of left turning vehicles.

The analysis also evaluated the number of exit lanes required for vehicles leaving Noble Plaza and found that one shared left/thru/right turn lane could sufficiently handle the anticipated volumes. The 2020 PM Build conditions do not show an increase in delay on the westbound approach from Noble Plaza when compared to the No-Build condition. The study found that during the PM peak hour, the 95th percentile queue for the Noble Plaza exit westbound approach is expected to be approximately 123 ft. As a result, the queue would extend along the driveway to the SEPTA Station and SEPTA parking lot. This driveway currently narrows to 16 foot wide at its narrowest location and will need to be expanded to 20 feet wide to accommodate two lanes of traffic.

A conceptual drawing of the intersection lane use improvements for eastbound Baeder Road is found in **Figure 4.7.15** below.

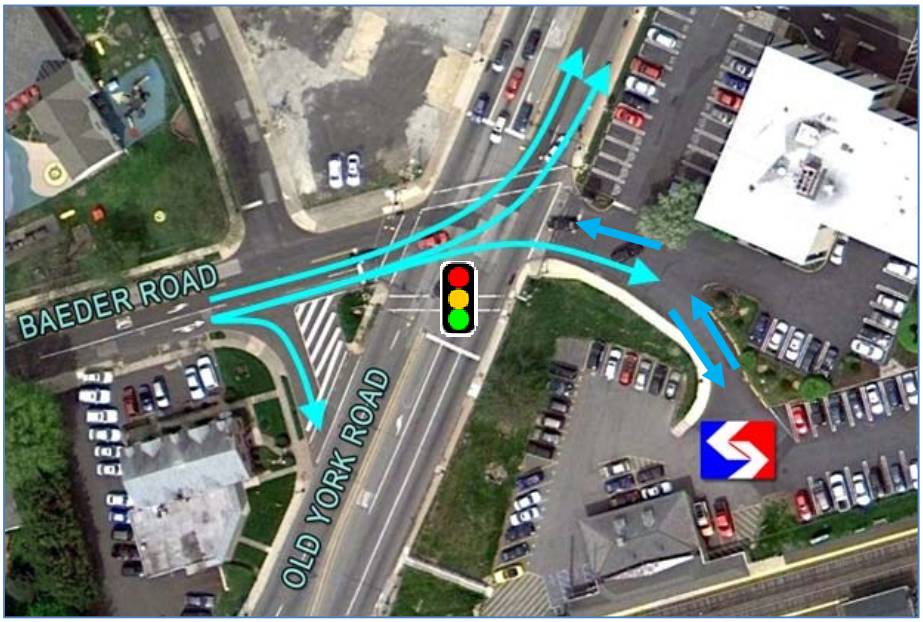

Fig. 4.7.15 - Old York Road and Baeder Road Improvements

Old York Road and The Fairway

During the AM peak period, the southbound lefts on Old York Road experience the largest delays of 65.3 seconds during the existing 2011 conditions. These delays do not increase more than 6 seconds during any of the future 2015 or 2020 conditions. This is due to the fact that a majority of trips generated as part of the adjacent development in Baederwood are residential trips leaving the study area by traveling westbound on The Fairway and a majority of trips generated at the TOD are residential and will be traveling westbound on The Fairway or northbound on Old York Road to leave the study area, not adding a significant amount of volume to the southbound left turns. With the exception of northbound left turns, the remaining approaches remain at LOS D or better for all of the future conditions.

The PM peak period experiences larger delays for the southbound left turn approach than delays occurring during the AM peak. Under existing conditions, the southbound left turn experiences a LOS F with a delay of 83.3 seconds. This delay increases to 116.4 seconds and 181.8 seconds for the 2015 and 2020 No-Build conditions. The 2015 and 2020 Build conditions experience increases in delay along this approach of 132.3 and 203.2 seconds respectively. These large delays were considered when assigning the trip distributions to the study area. The northbound through movements also experience large delays through this intersection with existing 2011 delays of 97.9 seconds, 2015 and 2020 No-Build condition delays of 113.0 seconds and 131.0 seconds, and 2015 and 2020 Build condition delays of 132.3 seconds and 203.2 seconds respectively. Because the northbound through and southbound left turn movements are conflicting, the only way to provide more time to these approaches would be by reducing the side street splits. This is not recommended as the side streets are already experiencing LOS D and E during the 2015 and 2020 build conditions. There are no simple

fixes to improve this intersection operation through signal timing or phasing changes. Any improvements will require large reconstruction efforts by adding features such as additional left turning lanes.

Old York Road and Susquehanna Road

This intersection is expected to experience large delays in both the AM and PM periods under No-Build conditions. However, the overall intersection delay does not significantly increase from the No-Build to Build conditions. During the AM peak, the overall intersection delay increases from 61.8 seconds to 63.8 seconds from the 2015 No-Build to Build conditions while the overall delay increases from 74.8 seconds to 77.3 seconds from the 2020 No-Build to Build conditions. Likewise during the PM peak, the overall intersection delay increases from 55.2 seconds to 56.8 seconds from the 2015 No-Build to Build conditions while the overall delay increases from 63.1 seconds to 65.5 seconds from the 2020 No-Build to Build conditions.

The eastbound Susquehanna Road left turns, westbound Susquehanna Road thru/right movements, northbound Old York Road thru/right movements, and southbound Old York Road left turns experience the largest delays during the AM peak period. Of these movements with the largest delay, traffic approaching and departing the TOD site only utilizes the northbound thru/right movements, it does not contribute to the other large delays during the AM peak. The PM peak experiences its largest delays along the eastbound left turns, westbound thru/right movements, and southbound left movements. Similar to the AM peak, the TOD site does not contribute trips to these movements with the largest delays.

Signal timing changes will not result in significant changes to the intersection operation. Therefore, larger construction efforts would be required to improve operation. This intersection is physically constrained by the buildings and properties located at all four corners. No intersection improvements have been developed as part of this study due to the space limitations.

The intersections of Old York Road with Rydal Road, Madeira Avenue, and Rodman Avenue

The southern intersections along Old York Road in the study area include Rydal Road, Madeira Avenue, and Rodman Avenue. These intersections all operate at LOS C or better during both the AM and PM peaks during all 2015 and 2020 Build Conditions.

The northbound and southbound Old York Road left turns and side street movements experience the largest delays. Traffic to and from the TOD site will not be using these movements and is instead anticipated to be utilizing northbound and southbound through movements on Old York Road. The northbound and southbound left turn movements show large delays but have low volumes of vehicles that will not cause the queues to impact traffic on Old York Road.

The Fairway and Rydal Road

The intersection of The Fairway and Rydal Road is currently stop-controlled with Rydal Road operating free flowing and The Fairway approach stop-controlled. The primary movements through this intersection include vehicles traveling from The Fairway to Rydal Road eastbound and from vehicles traveling on Rydal Road westbound to The Fairway. As the background traffic increased and the future development volumes were included in the analysis, the delay for the eastbound stop controlled left turns from The Fairway to Rydal Road is expected to increase.

During the AM peak period, the eastbound left turns from The Fairway experienced delays of 35.1 seconds and 55.0 seconds in the 2015 and 2020 No-Build conditions. The delays did not significantly increase during the 2015 and 2020 Build conditions, these conditions resulted in delays of 37.0 seconds and 58.2 seconds respectively. The PM peak period experienced much larger increases in delay. During the 2015 and 2020 No-Build conditions, eastbound left turns from The Fairway experienced delays of 238.1 seconds and 338.1 seconds respectively. The PM peak 2015 and 2020 Build conditions resulted in delays of 259.8 seconds and 366.2 seconds.

Under Build Condition 3, the intersection is proposed to be realigned to convert the eastbound left movement from The Fairway to Rydal Road to become the thru movement and for the Rydal Road approach from the southwest to enter the intersection in a T geometry. **Figure 4.7.16** below shows the proposed realignment.

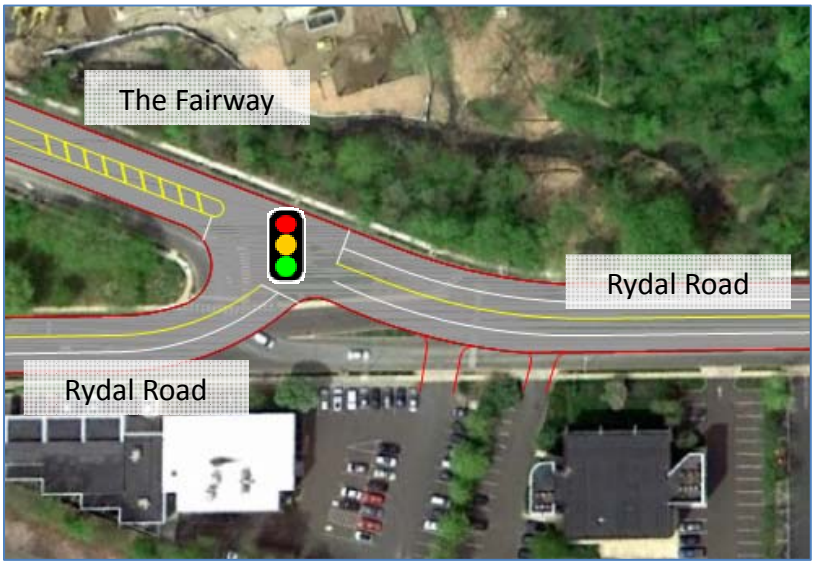

Fig. 4.7.16 - Rydal Road and Fairway Realignment

In addition to modifying the alignment at this intersection, the justification for installation of a traffic signal is also analyzed. Peak Hour Signal warrants were evaluated for both the existing and proposed intersection configurations. Daily hourly data for the future 2020 conditions was not available to evaluate the other warrants. The results of the analysis show that the peak hour warrant was met for both intersection configurations during the 2020 PM build peak.

The roadway realignment and installation of a traffic signal resulted in a significant decrease in delays during the PM peak hour. The overall intersection LOS decreased by 90.8 seconds during the PM peak hour after the intersection was realigned and proposed signal installed.

Rydal Road and Susquehanna Road

During the AM peak hour, this intersection experiences large delays for the northeast left turn movement on Rydal Road. The PM peak hour analysis shows large delays on the southeast left turn and southwest left turn approaches. Currently, the intersection only provides protected left turn phases for vehicles traveling northwest or southeast on Susquehanna Road. The thru movement phases on each approach at the intersection experience LOS C or D during the AM and PM peak hour future No-Build and Build conditions. If time was taken from these approaches to add a protected left turn phase to Rydal Road or to provide more time to the left turn phase on Susquehanna Road, the through movement delays would increase.

Based on field observations, there is enough roadway width on Rydal Road to accommodate two through lanes in each direction while providing enough space to merge after the intersection. The intersection was analyzed in Condition 3 with Rydal Road having a left turn lane, a thru lane, and a thru/right turn lane on each approach and Susquehanna Road remaining in its current configuration. A protected left turn phase was also provided on northeast and southwest Rydal Road due to the reduction in green time on Rydal Road required with the two through lanes. **Figure 4.7.17** below shows the proposed intersection layout.

Fig. 4.7.17 - Rydal and Susquehanna Road Lane Reconfiguration

The modified intersection geometry and signal phasing were analyzed during the AM and PM peak hour 2020 Build Conditions. During the 2020 Build AM peak, the northeast left turn delay decreased from 201.0 seconds to 59.8 seconds while the overall intersection delay decreased from 38.8 seconds (LOS D) to 27.1 seconds (LOS C). During the 2020 build PM peak, the southeast left turn delay decreased from 162.8 seconds to 81.5 seconds, the northeast left turn delay decreased from 166.0 seconds to 23.3 seconds, and the southwest left turn delay decreased from 277.4 seconds to 27.9 seconds while the overall intersection delay decreased from 60.0 seconds (LOS E) to 40.9 seconds (LOS D).

The large footprint of this intersection combined with undeveloped space on the eastern side of Susquehanna Road provides space for other types of potential intersection modifications. Although it was not analyzed as part of this study, a two-lane roundabout would fit at this intersection without interfering with any existing buildings or structures. To avoid impacting existing structures and to remain within the physical constraints of the creek and bridge on the southbound Susquehanna Road approach, the eastbound Rydal Road and southbound Susquehanna Road approaches need to be located directly next to each other with a right turn bypass lane included from southbound Susquehanna Road to Rydal Road. The roundabout option is shown in **Figure 4.7.18** below and further analysis is recommended to determine its performance.

Fig. 4.7.18 - Rydal and Susquehanna Road Roundabout

4.8 Recommendations

The following is a list of recommended improvements for the study area intersections. As listed below, some improvements are recommended to be implemented when the Noble TOD project opens in 2015 while others should be implemented in 2020 or at a time beyond.

2015 Improvements

Street A

As part of the Noble TOD project, the Master Plan proposes to create a new access road (Street A) traversing through the site. The alignment of Street A will be developed from an unsignalized midblock location on Old York Road between Noble Plaza office building and the Noble Market building to the proposed garage entrance. This access will be limited to right turns in and right turns out due to the median. At the garage entrance, Street A will make a 90 degree turn north and extend to a proposed intersection with The Fairway in the vicinity of the Noble Plaza and Walgreens driveways.

A conceptual design of Street A as shown on the master plan has been developed based on very limited field survey. The proposed Street A alignment meets a design speed of 20 mph in accordance with the American Association of State Highway and Transportation Engineers (AASHTO) design criteria. This 20 mph speed is a result of the horizontal roadway curves along Street A between the garage and The Fairway. A design speed of 25 mph is normally recommended for local streets per Abington Township Code (Chater 156-7); however, it is

our engineering opinion that a 20 mph design speed is appropriate for this urban, transit-oriented, pedestrian-friendly corridor taking into consideration the limiting site conditions.

The cross-section of Street A consists of one twelve-foot (12') curbed travel lane in each direction and eight-foot (8') parking lanes on each side (where appropriate). A minimum width of five-foot (5') has been maintained between the face of curb and the right-of-way line to accommodate sidewalk along both sides. Approvals will be required for the roadway width, right-of-way width, and sidewalk setbacks which deviate from the Abington Township Code (146-24).Specifically, a 24-foot cartway is currently proposed in areas without parking. However, a 30-foot cartway and 50-foot cartway would be required for residential and commercial corridors respectively. Similarly, the proposed 50-foot right-of-way is acceptable for a residential street, but a 70-foot right-of-way is required for commercial streets. The proposed fifty-foot right-of-way extends close to the existing and proposed buildings and makes the adjacent parcels nonconforming in accordance with the zoning ordinance setback requirements. Finally, five feet are available between the curbline and right-of-way line to accommodate the sidewalk. However, the Abington Code requires a minimum offset of 2 feet between the curb and sidewalk.

On-street parking and other street furniture, vegetation, or hardscape items that may be placed adjacent to the roadway will need to be restricted on Street A to provide adequate sight distance for existing and proposed driveways. Of particular concern is the right for vehicles exiting the garage. It may be beneficial to consider relocating the parking garage driveway to the north side of the building to maximize sight distance, maximize on-street parking spaces, and limit impacts to potential development and landscaping opportunities along the patio and outdoor areas.

The proposed Street A alignment with the shown travel lane widths and geometry can accommodate a Single Unit Truck as the design vehicle. A WB-50 can navigate the corridor if permitted to encroach upon the adjacent, oncoming travel lane, and can still access the existing loading dock across from the proposed building. If only off-peak/night deliveries are expected, this lane encroachment may be acceptable; however, the WB-50 cannot safely navigate the corridor during the day and/or peak hours.

The Fairway and Street A/Walgreens Driveway

The geometry of the intersection of Street A and The Fairway is recommended to be designed to combine the Barnes and Noble and Noble Plaza driveways and align with the Walgreens driveway. Separate left turn lanes should be provided on the Street A and Walgreens approaches. A retaining wall will be required along the Bryner Chevrolet property to support roadway slopes. Retaining walls may be required in other areas along Street A depending on the final roadway profile.

Conceptual designs have determined that the slope of the relocated Barnes and Noble Driveway where it meets Street A may only work if the driveway is designed at a steep grade or the Street A profile raised significantly to match a reconstructed Barnes and Noble parking area. If an acceptable design cannot be developed for the relocation of this driveway and it remains in its current location, it is recommended to operate as a right turn in/right turn out only driveway at its intersection with The Fairway.

This intersection is proposed to be signalized and coordinated with the adjacent signal at Old York Road and The Fairway. The signal is recommended to operate with two phases and be actuated on the Street A and Walgreens approaches. A conceptual drawing of the new intersection configuration is previously shown in **Figure 4.7.14**.

Old York Road and Baeder Road/Noble Plaza

It is recommended that the Noble Plaza driveway be widened from 16 feet to 20 feet to accommodate one full lane of traffic in each direction providing storage for eastbound queues which may extend into the SEPTA station driveway during peak hours. Centerline striping and appropriate lane markings should be placed on the driveway.

Pedestrian and Bike Enhancements

As part of the Old York Road bridge project, it is anticipated that ADA ramps will be replaced at the intersections of Old York Road and Baeder Road and that any sidewalk improvements will connect with the existing sidewalk on the Noble Plaza site.

Pedestrian improvements are recommended at the northeast corner of the intersection of Old York Road and the Fairway. It is recommended that a bump-out be constructed on the northeast corner to minimize the crossing distance for pedestrians crossing The Fairway. Currently, the corner has a very large radius and right turns on red are allowed from The Fairway to Old York Road northbound. Old York Road northbound has a shoulder the width of a travel lane that right turn motorists can use to help them merge into northbound traffic after turning right on red. The design allows vehicles to proceed through the intersection at higher speeds and the drivers may not be aware of pedestrians attempting to cross The Fairway. **Figure 4.8.1** shows the proposed bump out.

Fig. 4.8.1 - Old York Road and The Fairway Pedestrian Improvements

It is also recommended that pedestrian signal heads with countdown timers are installed at the intersection of Old York Road and The Fairway. Currently, pedestrian crossings are controlled by 8 inch traffic signal heads. ADA compliant curb ramps should also be installed at each pedestrian crossing.

The Fairway currently has two 20 foot travel lanes running in each direction separated by a planted median. The 20 foot travel lanes only carry one lane of traffic. It is recommended that this space is restriped to include a 5 foot bike lane in each direction adjacent to the travel lanes. It is recommended that bicycle way finding signs are installed along each end of The Fairway to help provide cyclists with connections to other routes through the area that will help them avoid high traffic roads with no bicycle facilities or shoulders, such as Old York Road. Additionally, it is recommended that bicycle racks are installed as part of the new TOD project to help encourage visitors to the site to bike by providing a safe place to park their bike.

2020 Improvements

Old York Road and Baeder Road/Noble Plaza

This intersection is proposed to be modified as part of the PennDOT Old York Road Bridge replacement project. It was anticipated that the PennDOT bridge replacement project would not be complete by 2015 but would be completed by 2020. Coordination is recommended with PennDOT and the project consultants to incorporate the following into the project.

The intersection of Old York Road and Baeder Road will support the proposed TOD project during the 2015 build without creating significant queues or delays at the westbound Noble Plaza exit. Although the eastbound left turns show large delays without the intersection reconfiguration as outlined previously, the 2015 build condition will only increase overall intersection delay from 22.5 seconds to 24.2 seconds during the PM peak hour.

As part of the PennDOT bridge replacement project, it is recommended that the intersection is reconfigured to allow dual left turn lanes from Baeder Road eastbound. The eastbound approach lanes will be configured with a left turn only lane and a left/thru/right turn lane. The intersection will need to become split phased to accommodate the dual left turns. The minimum split timings for the Baeder Road and Noble Plaza approaches will be controlled by the minimum pedestrian signal timings across Old York Road.

To accommodate these splits and allow enough through movement time on Old York Road, it is recommended that the northbound protected left turn phase is removed or that its split timing is reduced. A proposed Wawa is being considered at the northwest corner of Baeder Road and Old York Road. If this Wawa is built, the northbound left turn volumes at this intersection may increase significantly. Under this scenario, consideration may need to be given to maintaining the protected northbound left turn phase. Pedestrian clearance times dictate the side street split times. The intersection was modeled with a 100 second background cycle and the side streets required a pedestrian walk time of 7 seconds and 15 seconds of pedestrian clearance. It was assumed that the pedestrian clearance time would be allowed to continue through the yellow phase, resulting in side street splits of 25 seconds. The northbound and southbound through movements on Old York Road received a 50 second split time. Even with the full side street green time called for both side street approaches, the green time on Old York Road exceeds the green time on the adjacent intersections north and south of Baeder Road. Traffic entering and exiting the Baeder Road intersection will be metered by the adjacent signals. To accommodate a protected northbound left turn phase, a shorter 4 second walk time could be given to the side street phase and the pedestrian clearance time could run through the all red phase, shortening each side street minimum split by 6 seconds. These options would need to be approved by PennDOT.

Currently pedestrian crosswalks are found on all four approaches to the intersection. It is not recommended that pedestrian crosswalks are eliminated on any approach to reduce the minimum split times. The transit-oriented development is intended to encourage a walkable environment and removing crosswalks will not help contribute to making the area more walkable.

The Fairway and Rydal Road

It is recommended that the intersection is realigned to have the eastbound left turn movement from The Fairway to Rydal Road eastbound become the through movement and to have Rydal Road from the southwest "T" into the intersection as shown previously in **Figure 4.7.16**. It is recommended that a signal is installed at the realigned intersection and that the intersection is coordinated with the adjacent signal at Susquehanna and Rydal Roads. A two phase semi-actuated signal is recommended with Rydal Road from the southwest having detection.

The intersection should be configured with one eastbound thru/right turn lane from The Fairway, separate left and right turn lanes from Rydal Road from the southwest, and separate thru and left turn lanes from Rydal Road from the east. The separate through and right turn lanes from Rydal Road from the east will develop from the two through lanes that are recommended at the intersection of Rydal and Susquehanna Road. Two eastbound receiving lanes will exit the intersection of The Fairway and Rydal Road to turn into the two northeastbound through lanes at Rydal and Susquehanna Road.

Rydal Road and Susquehanna Road

Sufficient width exists along Rydal Road and Valley Road to create two through lanes in each direction through the roadway's intersection with Susquehanna Road. As previously shown in **Figure 4.7.17**, the two lane configuration would turn the existing right turn lanes on Rydal and Valley Road into shared thru/right turn lanes. The additional capacity provided by the dual through lanes would allow a protected left turn phase on Rydal and Valley Roads to be inserted into the signal program while still maintaining the protected left turn phases on

Susquehanna Road. The two lane configuration on the southwest side of the intersection on Rydal Road would develop at the intersection of Rydal Road and The Fairway. When traveling southwest on Rydal Road, the two lane configuration would turn into a thru lane and left turn only lane at the modified intersection of The Fairway and Rydal Road.

Conceptual design has shown that a two lane roundabout has the potential to fit at this intersection (see **Figure 4.7.18**). Future consideration should be given to a roundabout design at this location and how it would function.

Improvements beyond 2020

Street A

The analysis indicates that capacity constraints at the intersection of Old York Road and the Fairway will limit the of the effectiveness of the Street A access on The Fairway. Motorists will continue to utilize the southern access on Old York Road at Baeder/Noble Driveway. The Noble driveway will function sufficiently in the short term. However, it recommended that a full roadway be constructed from Old York Road at Baeder Road to Street A. The Noble driveway is proposed to be relocated to connect with this roadway. Street A has been designed to accommodate this future extension of Baeder Road from its intersection with Old York Road through the Noble Plaza parking lot. A conceptual drawing of the new Old York Road, Baeder Road, and Street A intersection configuration is shown in **Figure 4.8.2** below.

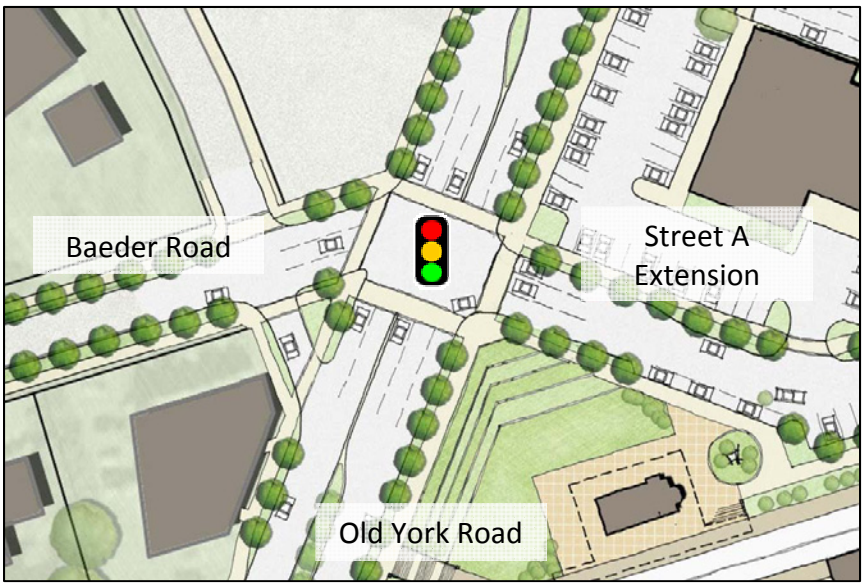

Fig. 4.8.2 - Conceptual Drawing of Old York Road, Baeder Road, and Street A Intersection

4.9 Cost Estimate

A conceptual cost estimate has been prepared for the recommended improvements within the study area. A separate cost estimate has been prepared for the following improvements:

- Street A construction at the Noble Plaza Site
- Rydal Road and The Fairway intersection realignment
- Rydal Road and Susquehanna Road intersection improvements
- Old York Road and The Fairway pedestrian improvements
- The Fairway bike lane striping

The cost estimates have been based on conceptual engineering only. A summary of the conceptual cost estimate of each improvement can be found in **Table 4.9.1** below:

Improvement	Total Cost Estimate
Street A Construction	$2,391,270
Rydal Road and The Fairway	$863,460
Rydal Road and Susquehanna Road	$183,150
Old York Road and The Fairway Pedestrian Improvements	$47,190
The Fairway Bike Lane Striping	$13,200
Total Estimated Cost	**$3,498,270**

Table 4.9.1 - Conceptual Cost Estimate

The Street A conceptual cost estimate is based on the construction of Street A from The Fairway to the midblock Old York Road location. The estimate includes the cost of installing a signal at the intersection of Street A and The Fairway as well as the associated intersection improvements. The estimate also includes curbing and pavement modifications to the Noble Market and Barnes & Noble parking lots. The realignment of the Walgreens shopping center driveway on the north side of The Fairway has also been included within the cost estimate. It was assumed that retaining walls would be needed along the east side of Street A between the proposed TOD building and The Fairway. Finally, curbing improvements and striping on the westbound Noble Plaza driveway at the intersection of Old York Road and Baeder Road were also included.

The Fairway and Rydal Road cost estimate includes the realignment of Rydal Road and The Fairway as previously discussed and the installation of a new traffic signal. The estimate also includes the costs of removing and replacing the landscaped elements at the intersection.

The Rydal Road and Susquehanna Road cost estimate includes milling and overlay for the restriping of Rydal Road to create two through lanes in each direction and signal modifications to add a protected left turn phase on Rydal Road.

The Fairway and Old York Road cost estimate includes installation of a curb bump out on the northeast corner of the intersection and installation of pedestrian signals at each pedestrian crossing.

The Fairway cost estimate includes restriping on The Fairway to add a 5' bike lane. The Fairway currently provides a wide 20' lane in each direction. We are proposing to stripe out an eleven foot travel lane, a four foot buffer, and a five foot bike lane in each direction. The other alternatives involving relocation of the curb lines are not cost effective.

A detailed breakdown of each conceptual cost estimate can be found in **Appendix H** (see report *Abington Noble Transit Oriented Development Plan Traffic Analysis Technical Appendix*).

Operation Analysis Summary

Abington Noble TOD

AM Peak Hour

AM PEAK HOUR												
Intersection	**2011 Existing**		**2015 No Build**		**2015 Build - Intersection Improvements at Street A & the Fairway**		**2020 No Build**		**2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road**		**2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna**	
	Delay (Secs)	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**
Old York Road and Rydal Road	**27.2**	**C**	**30.3**	**C**	**31.1**	**C**	**34.2**	**C**	**35.7**	**D**	**35.7**	**D**
EB Left	48.5	D	46.7	D	46.7	D	46.5	D	46.5	D	46.5	D
EB Thru/Right	54.1	D	49.6	D	49.6	D	49.7	D	49.7	D	49.7	D
WB Left/Thru/Right	51.5	D	51.1	D	51.1	D	51.2	D	51.2	D	51.2	D
NB Thru/Right	32.0	C	37.9	D	39.5	D	45.8	D	48.7	D	48.7	D
SB Left	17.0	B	19.7	B	20.2	C	21.6	C	21.9	C	21.9	C
SB Thru/Right	13.0	B	14.7	B	14.8	B	15.9	B	15.7	B	15.7	B
Old York Road and Madeira Ave	**5.8**	**A**	**6.1**	**A**	**6.2**	**A**	**6.7**	**A**	**6.8**	**A**	**6.8**	**A**
EB Left/Thru/Right	51.3	D	51.3	D	51.3	D	51.3	D	51.3	D	51.3	D
WB Left/Thru/Right	48.9	D	48.9	D	48.9	D	48.8	D	48.8	D	48.8	D
NB Left	0.9	A	0.9	A	0.9	A	0.9	A	0.9	A	0.9	A
NB Thru/Right	2.9	A	3.4	A	3.6	A	4.3	A	4.6	A	4.6	A
SB Left	3.8	A	4.1	A	4.3	A	4.8	A	5.0	A	5.0	A
SB Thru/Right	5.9	A	6.0	A	6.0	A	6.3	A	6.2	A	6.2	A

Table 4.9.2 - Operation Analysis Summary - AM Peak Hour

Operational Analysis Summary (continued)

AM Peak Hour

AM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
Old York Road and Rodman Ave	**16.0**	**B**	**17.3**	**B**	**18.0**	**B**	**18.2**	**B**	**20.9**	**C**	**20.9**	**C**
EB Left/Thru/Right	49.0	D	49.6	D	50.2	D	51.0	D	51.1	D	51.1	D
WB Left/Thru/Right	45.3	D	45.4	D	45.4	D	45.7	D	45.5	D	45.5	D
NB Left	59.0	E	86.2	F	83.4	F	95.4	F	95.6	F	95.6	F
NB Thru/Right	18.1	B	19.0	B	19.4	B	20.0	B	20.7	C	20.7	C
SB Left	4.3	A	5.2	A	6.6	A	6.5	A	11.9	B	11.9	B
SB Thru/Right	4.8	A	5.6	A	6.5	A	6.2	A	10.8	B	10.8	B
Old York Road and Baeder Road	**15.7**	**B**	**15.9**	**B**	**16.4**	**B**	**15.7**	**B**	**17.2**	**B**	**17.2**	**B**
EB Left	48.3	D	48.6	D	49.7	D	48.4	D	48.4	D	48.4	D
EB Thru/Right	32.0	C	31.6	C	31.6	C	40.1	D	40.6	D	40.6	D
WB Left/Thru/Right	31.7	C	31.3	C	31.9	C	51.0	D	49.1	D	49.1	D
NB Left	49.0	D	38.4	D	37.7	D	38.9	D	46.7	D	46.7	D
NB Thru/Right	7.9	A	8.6	A	9.0	A	10.7	B	11.9	B	11.9	B
SB Left	11.7	B	12.2	B	17.8	B	11.5	B	33.2	C	33.2	C
SB Thru/Right	15.0	B	15.4	B	15.6	B	12.8	B	12.9	B	12.9	B
Old York Road and The Fairway	**25.4**	**C**	**26.1**	**C**	**26.9**	**C**	**28.3**	**C**	**28.8**	**C**	**28.8**	**C**
EB Left/Thru	47.4	D	48.1	D	48.1	D	49.3	D	49.3	D	49.3	D
EB Right	44.3	D	44.4	D	44.3	D	44.4	D	44.3	D	44.3	D
WB Left	42.8	D	42.6	D	44.2	D	42.5	D	42.5	D	41.4	D
WB Thru/Right	38.0	D	37.7	D	45.3	D	37.2	D	38.9	D	40.9	D
NB Left	58.5	E	59.0	E	59.6	E	59.3	E	57.3	E	57.3	E
NB Thru	24.8	C	25.9	C	26.5	C	30.7	C	31.1	C	31.1	C
NB Right	27.2	C	25.0	C	24.0	C	24.5	C	24.0	C	24.0	C
SB Left	65.3	E	68.8	E	71.4	E	63.3	E	64.1	E	64.1	E
SB Thru/Right	15.6	B	16.5	B	17.0	B	18.2	B	19.0	B	19.0	B

Table 4.9.2 - Operation Analysis Summary - AM Peak Hour (continued)

Operational Analysis Summary (continued)

AM Peak Hour

AM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
Old York Road and Susquehanna Road	**56.3**	**E**	**61.8**	**E**	**63.4**	**E**	**74.8**	**E**	**77.3**	**E**	**77.3**	**E**
EB Left	133.7	F	145.0	F	145.0	F	152.9	F	152.9	F	152.9	F
EB Thru/Right	35.7	D	38.5	D	40.2	D	43.3	D	45.5	D	45.5	D
WB Left	22.2	C	23.4	C	23.9	C	25.4	C	26.5	C	26.5	C
WB Thru/Right	67.1	E	76.8	E	76.8	E	92.8	F	92.8	F	92.8	F
NB Left	52.1	D	53.4	D	54.8	D	50.6	D	51.0	D	50.9	D
NB Thru/Right	56.2	E	59.5	E	60.7	E	66.2	E	68.1	E	68.0	E
SB Left	130.5	F	145.1	F	145.2	F	167.1	F	167.2	F	167.2	F
SB Thru/Right	42.4	D	47.4	D	50.9	D	68.6	E	74.5	E	74.5	E
The Fairway and Barnes and Noble/Walgreens Driveway	**1.0**	**A**	**1.0**	**A**	**4.6**	**A**	**0.9**	**A**	**4.1**	**A**	**4.0**	**A**
EB Left	8.4	A	8.4	A	1.1	A	8.6	A	1.0	A	1.0	A
EB Thru/Right	0.0	A	0.0	A	1.8	A	0.0	A	1.8	A	1.8	A
WB Left	8.2	A	8.2	A	1.6	A	8.3	A	1.3	A	1.2	A
WB Thru/Right	0.0	A	0.0	A	2.7	A	0.0	A	2.1	A	1.9	A
NB Left/Thru/Right	15.4	C	16.0	C	-	-	17.0	C	-	-	-	-
SB Left/Thru	21.6	C	22.8	C	-	-	25.4	D	-	-	-	-
SB Right	11.0	B	11.1	B	-	-	11.6	B	-	-	-	-
NB Left	-	-	-	-	46.2	D	-	-	46.2	D	46.2	D
NB Thru/Right	-	-	-	-	46.4	D	-	-	46.4	D	46.4	D
SB Left	-	-	-	-	46.2	D	-	-	46.2	D	46.2	D
SB Thru/Right	-	-	-	-	48.4	D	-	-	48.4	D	48.4	D

Table 4.9.2 - Operation Analysis Summary - AM Peak Hour (continued)

Operational Analysis Summary (continued)

AM Peak Hour

AM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
The Fairway and Rydal Road	**7.5**	**A**	**8.8**	**A**	**9.2**	**A**	**14.0**	**B**	**14.8**	**B**	**10.4**	**B**
EB Left	45.0	E	35.1	E	37.0	E	55.0	F	58.2	F	4.0	A
EB Right	10.1	B	10.1	B	10.1	B	10.3	B	10.3	B	-	-
NE Left	7.9	A	7.9	A	7.9	A	8.0	A	8.0	A	44.1	D
NE Thru	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	42.4	D
SW Thru	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	5.0	A
SW Right	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	4.0	A
Susquehanna Road and Rydal Road	**31.5**	**C**	**34.1**	**C**	**34.3**	**C**	**38.4**	**D**	**38.8**	**D**	**27.1**	**C**
SE Left	20.6	C	24.4	C	26.0	C	35.7	D	35.7	D	17.5	B
SE Thru/Right	27.5	C	29.3	C	30.2	C	32.3	C	32.4	C	23.9	C
NW Left	17.7	B	18.9	B	19.6	B	20.9	C	21.0	C	14.7	B
NW Thru	34.4	C	37.9	D	39.3	D	44.6	D	44.6	D	29.9	C
NW Right	19.2	B	20.0	B	20.5	C	21.2	C	21.2	C	16.2	B
NE Left	111.1	F	152.9	F	152.9	F	201.0	F	201.0	F	59.8	E
NE Thru	21.3	C	21.0	C	20.8	C	20.9	C	21.0	C	21.5	C
NE Right	17.4	B	17.1	B	16.9	B	16.6	B	16.6	B	-	-
SW Left	27.6	C	27.9	C	27.2	C	30.5	C	31.2	C	43.9	D
SW Thru	40.1	D	41.3	D	40.6	D	42.8	D	44.6	D	27.0	C
SW Right	18.1	B	17.8	B	17.6	B	17.4	B	17.4	B	-	-

Table 4.9.2 - Operation Analysis Summary - AM Peak Hour (continued)

Notes: LOS shown for both signalized and unsignalized intersections

Operation Analysis Summary

Abington Noble TOD

PM Peak Hour

PM PEAK HOUR												
Intersection	**2011 Existing**		**2015 No Build**		**2015 Build - Intersection Improvements at Street A & the Fairway**		**2020 No Build**		**2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road**		**2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna**	
	Delay (Secs)	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**	**Delay (Secs)**	**LOS**
Old York Road and Rydal Road	**27.0**	**C**	**29.0**	**C**	**29.4**	**C**	**31.7**	**C**	**31.7**	**C**	**31.7**	**C**
EB Left	50.0	D	49.8	D	49.8	D	49.6	D	49.6	D	49.6	D
EB Thru/Right	56.1	E	56.4	E	56.4	E	56.7	E	56.7	E	56.7	E
WB Left/Thru/Right	58.3	E	59.3	E	59.3	E	60.6	E	60.6	E	60.6	E
NB Thru/Right	33.2	C	36.2	D	37.1	D	41.1	D	40.5	D	40.5	D
SB Left	23.6	C	32.1	C	32.2	C	33.9	C	33.0	C	33.0	C
SB Thru/Right	12.1	B	13.4	B	13.9	B	15.0	B	15.9	B	15.9	B
Old York Road and Madeira Ave	**18.9**	**B**	**20.0**	**B**	**20.3**	**C**	**21.7**	**C**	**21.9**	**C**	**21.9**	**C**
EB Left/Thru/Right	39.8	D	39.5	D	39.5	D	39.2	D	39.2	D	39.2	D
WB Left/Thru/Right	66.4	E	68.1	E	68.1	E	70.9	E	70.9	E	70.9	E
NB Left	14.8	B	21.0	C	24.0	C	30.4	C	34.7	C	34.7	C
NB Thru/Right	9.0	A	9.6	A	9.9	A	11.3	B	11.0	B	11.0	B
SB Left	11.6	B	12.7	B	13.0	B	14.3	B	14.1	B	14.1	B
SB Thru/Right	17.5	B	18.7	B	19.2	B	20.1	C	20.6	C	20.6	C

Table 4.9.3 - Operation Analysis Summary - PM Peak Hour

Operational Analysis Summary (continued)

PM Peak Hour

PM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
Old York Road and Rodman Ave	**16.1**	**B**	**17.7**	**B**	**19.0**	**B**	**21.6**	**C**	**22.2**	**C**	**22.2**	**C**
EB Left/Thru/Right	45.4	D	45.4	D	45.4	D	45.4	D	45.6	D	45.6	D
WB Left/Thru/Right	49.7	D	49.7	D	49.5	D	44.8	D	45.1	D	45.1	D
NB Left	88.5	F	109.7	F	105.8	F	121.5	F	126.2	F	126.2	F
NB Thru/Right	17.4	B	18.6	B	19.1	B	22.2	C	22.2	C	22.2	C
SB Left	25.1	C	43.8	D	64.5	E	100.7	F	105.9	F	105.9	F
SB Thru/Right	5.6	A	6.3	A	8.0	A	8.7	A	9.5	A	9.5	A
Old York Road and Baeder Road	**20.9**	**C**	**22.5**	**C**	**24.2**	**C**	**21.4**	**C**	**28.9**	**C**	**28.9**	**C**
EB Left	62.2	E	63.2	E	76.1	E	47.2	D	47.3	D	47.3	D
EB Thru/Right	32.0	C	31.6	C	31.2	C	44.0	D	44.3	D	44.3	D
WB Left/Thru/Right	33.9	C	33.4	C	35.3	D	46.7	D	45.2	D	45.2	D
NB Left	52.3	D	43.3	D	43.9	D	66.6	E	71.8	E	71.8	E
NB Thru/Right	8.7	A	9.3	A	9.9	A	13.5	B	16.5	B	16.5	B
SB Left	14.8	B	15.0	B	17.6	B	13.9	B	31.2	C	31.1	C
SB Thru/Right	22.7	C	25.7	C	26.6	C	20.9	C	33.2	C	33.2	C
Old York Road and The Fairway	**54.1**	**D**	**61.3**	**E**	**65.0**	**E**	**71.8**	**E**	**73.9**	**E**	**73.4**	**E**
EB Left/Thru	54.1	D	58.8	E	60.3	E	63.9	E	66.3	E	66.3	E
EB Right	46.5	D	47.1	D	47.1	D	47.4	D	47.4	D	47.4	D
WB Left	41.8	D	42.2	D	39.4	D	43.1	D	39.9	D	37.9	D
WB Thru/Right	37.2	D	37.7	D	35.5	D	38.4	D	35.3	D	31.9	C
NB Left	48.7	D	49.0	D	49.4	D	49.6	D	66.1	E	66.1	E
NB Thru	97.9	F	113.0	F	121.7	F	131.0	F	136.6	F	136.6	F
NB Right	23.9	C	23.8	C	23.5	C	23.1	C	15.1	B	15.1	B
SB Left	83.3	F	116.4	F	132.3	F	181.8	F	203.2	F	203.2	F
SB Thru/Right	25.3	C	27.8	C	28.9	C	31.3	C	32.5	C	32.5	C

Table 4.9.3 - Operation Analysis Summary - PM Peak Hour (continued)

Operational Analysis Summary (continued)

PM Peak Hour

PM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
Old York Road and Susquehanna Road	**50.2**	**D**	**55.2**	**E**	**56.8**	**E**	**63.1**	**E**	**65.5**	**E**	**65.5**	**E**
EB Left	108.0	F	113.1	F	113.1	F	132.0	F	132.0	F	132.0	F
EB Thru/Right	43.1	D	47.6	D	49.7	D	56.1	E	59.0	E	59.0	E
WB Left	31.5	C	44.8	D	53.6	D	62.7	E	62.7	E	62.7	E
WB Thru/Right	68.7	E	79.9	E	79.9	E	94.9	F	94.9	F	94.9	F
NB Left	44.8	D	49.8	D	58.2	E	58.7	E	68.8	E	68.8	E
NB Thru/Right	51.0	D	52.5	D	53.9	D	55.3	E	57.8	E	57.8	E
SB Left	71.5	E	81.2	F	81.4	F	93.6	F	93.8	F	93.8	F
SB Thru/Right	37.1	D	41.0	D	42.8	D	47.8	D	50.8	D	50.8	D
The Fairway and Barnes and Noble/Walgreens Driveway	**7.1**	**A**	**8.1**	**A**	**16.0**	**B**	**9.6**	**A**	**15.7**	**B**	**15.3**	**B**
EB Left	9.1	A	9.3	A	8.6	A	9.5	A	8.1	A	8.1	A
EB Thru/Right	0.0	A	0.0	A	10.5	B	0.0	A	10.3	B	10.3	B
WB Left	8.3	A	8.4	A	4.2	A	8.5	A	4.2	A	3.6	A
WB Thru/Right	0.0	A	0.0	A	6.8	A	0.0	A	7.2	A	6.2	A
NB Left/Thru/Right	48.7	E	63.6	F	-	-	88.7	F	-	-	-	-
SB Left/Thru	58.2	F	74.5	F	-	-	100.8	F	-	-	-	-
SB Right	15.7	C	16.9	C	-	-	18.2	C	-	-	-	-
NB Left	-	-	-	-	39.5	D	-	-	39.5	D	39.5	D
NB Thru/Right	-	-	-	-	36.7	D	-	-	36.7	D	36.7	D
SB Left	-	-	-	-	36.5	D	-	-	36.5	D	36.5	D
SB Thru/Right	-	-	-	-	45.9	D	-	-	45.9	D	45.9	D

Table 4.9.3 - Operation Analysis Summary - PM Peak Hour (continued)

Operational Analysis Summary (continued)

PM Peak Hour

PM PEAK HOUR												
Intersection	2011 Existing		2015 No Build		2015 Build - Intersection Improvements at Street A & the Fairway		2020 No Build		2020 Build - Intersection Improvements at Street A & the Fairway and Old York & Baeder Road		2020 Build - Intersection Improvements at Street & the Fairway, Old York & Baeder, Rydal & the Fairway, and Rydal & Susquehanna	
	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS	Delay (Secs)	LOS
The Fairway and Rydal Road	**44.6**	**E**	**68.0**	**F**	**75.2**	**F**	**96.5**	**F**	**105.7**	**F**	**14.9**	**B**
EB Left	158.3	F	238.1	F	259.8	F	338.1	F	366.3	F	7.8	A
EB Right	11.5	B	11.7	B	11.8	B	12.1	B	12.1	B	-	-
NE Left	8.1	A	8.2	A	8.2	A	8.3	A	8.3	A	44.2	D
NE Thru	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	41.1	D
SW Thru	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	14.5	B
SW Right	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	3.9	A
Susquehanna Road and Rydal Road	**35.5**	**D**	**43.1**	**D**	**44.3**	**D**	**57.0**	**E**	**60.0**	**E**	**40.9**	**D**
SE Left	93.3	F	131.7	F	131.7	F	162.8	F	162.8	F	81.5	F
SE Thru/Right	38.7	D	42.0	D	42.3	D	44.1	D	44.6	D	42.2	D
NW Left	22.3	C	24.7	C	25.0	C	27.2	C	27.6	C	24.5	C
NW Thru	42.2	D	45.2	D	45.2	D	46.7	D	46.7	D	53.7	D
NW Right	23.5	C	24.0	C	24.0	C	23.7	C	23.7	C	25.6	C
NE Left	23.8	C	35.5	D	42.7	D	134.2	F	166.0	F	23.3	C
NE Thru	24.7	C	26.8	C	27.4	C	30.7	C	31.8	C	36.2	D
NE Right	14.9	B	15.0	B	15.0	B	15.4	B	15.4	B	-	-
SW Left	45.7	D	95.5	F	114.7	F	237.6	F	277.4	F	27.9	C
SW Thru	25.5	C	27.2	C	27.8	C	32.2	C	33.1	C	31.5	C
SW Right	14.8	B	14.9	B	14.9	B	15.4	B	15.4	B	-	-

Table 4.9.3 - Operation Analysis Summary - PM Peak Hour (continued)

Notes: LOS shown for both signalized and unsignalized intersections

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5.0 FINANCIAL & FISCAL ANALYSIS

5.1 Financial Analysis

Market analysis is only half of the development feasibility equation. Also critical is the financial feasibility. If the development cannot provide a sufficient return to justify private investment, it will not attract a developer. Faced with many choices on where to invest their dollars, investors distinguish among the options by considering the financial return. The following financial analysis compares the feasibility of two alternative developments:

- Option 1 – a five-story residential development with four floors of apartments above first-floor retail and a parking garage; and
- Option 2 – a five-story hotel with first-floor retail and a parking garage.

It demonstrates a significant financial gap between the costs of development and the private investment that future revenues would support. Assuming that SEPTA pays for its parking spaces and a pro rata share of the replacement parking ($4.6 to $5.2 million) and that the property owner requires $1 million for the site to justify the risks and inconvenience, the analysis shows a gap of $9.5 million for Option 1 (residential) and $2.4 million for Option 2 (hotel).

Also needed would be $3.8 million for the public infrastructure improvements, including the spine road through the developments, realignment of Rydal Road and The Fairway, intersection improvements at Rydal Road and Susquehanna Road, pedestrian improvements and bike lane striping on The Fairway.

The Transit Revitalization Investment District (TRID) financing mechanism leverages the value of the new construction on the site and along Old York Road. The TRID could support $2.8 million in revenue bonds under Option 1 in 2016 once the project is complete and paying taxes and $4.7 million under Option 2.

This suggests that the Option 1 residential/retail development is not feasible without significant outside financial support beyond that from the TRID. The Option 2 hotel development would be financially viable with an infusion of TRID funds and some additional grant funds or Township capital budget investments in infrastructure.

Pro Forma Analysis

A financial pro forma compares the costs of development to the private investment that can be justified by future revenues. The market analysis, parking analysis and the preliminary designs determined the type and amount of buildings that could be developed. Revenues and operating performance assumptions reflect the market findings. Information from comparable projects supported the cost estimates.

The structure of a financial pro forma begins with estimated potential annual revenues in the stabilized year – after completion of building construction and lease-up. From that total potential revenue, vacancy and collection losses and operating costs are deducted along with contributions to the replacement reserves for future capital maintenance (e.g., a new roof). On the cost side, it considers the hard "bricks and mortar" costs of construction based on cost factors per square foot and per parking space. Also included are site improvement costs. Soft costs involve architectural and engineering fees, permits and fees, insurance, legal and accounting fees, real estate taxes during construction, developer fee, contingencies and construction-period financing costs.

The pro forma translates the potential revenues into a total value using a "capitalization rate" that is determined from market transactions. That rate reflects the cost of money, the relative attractiveness of real estate as an investment and the level of risk typically involved in developments of that land use. From that total value, the total development cost is deducted as well as the required return to the developer. That return, estimated at 8 percent of total development costs for housing and 9 percent for hotel development, also is determined by the market and reflects the potential returns from competitive investments and the risks associated with this development.

What is left after deducting development costs and the developer's return is Residual Land Value – how much a developer could afford to pay for the land while still making an adequate return on investment.

SEPTA is assumed to pay for its parking as well as a pro rata share of the replacement parking constructed to replace the existing surface parking lot. This capital contribution is estimated at $5.2 million for 214 parking spaces under Option 1 with the five-story residential and retail building. Under Option 2 with the hotel and retail building, SEPTA would contribute $4.6 million for 190 spaces.

To incentivize development of the parking lot, the required land price is assumed to be roughly $1 million. A residual land value of less than that amount indicates a financial gap that would need to be filled by outside public or non-profit development. The next section discusses a Transit Revitalization Investment District (TRID) as a possible source of public investment dollars.

As an example, the following table presents the pro forma analysis of the five-story residential/retail building with a 516-space parking garage. The annual net operating income of $827,500 suggests a project value of $11,820,000. That compares with a total development cost of $18,796,000. After deducting development costs and the required 8-percent return on costs, the residual land value is $8.5 million short of the value of the site. To be feasible, the developer would need outside funding of $9.5 million not dependent on project revenues for repayment, to fill that gap and compensate the landowner. The gap is caused, in part, by the high cost of building structured parking, particularly the cost of replacing existing surface parking.

Option 1 - Five-Story Residential Building with First-Floor Retail						
Characteristics of Project			**Square Feet**	**Mix**	**Units**	**Rents**
Base Project Size (Units)	72	Studio Market Rate	-	0%	-	
Site Size (acres)	1.50	1 BR Market Rate	720	31%	22	$1,130
Project Density (DU/AC)	48	1 BR+Den Market Rate	840	11%	8	$1,310
FAR	1.25	2 BR Market Rate	1,023	8%	6	$1,560
Market Rate Units	72	2 Bed Student Unit	730	25%	18	$1,230
Below Market Rate Units	0	4 Bed Student Unit	1,052	25%	18	$2,050
Parking Ratio (spaces per unit)	1.20	Total Rentable Square Feet	60,774		72	
Residential Parking Spaces	97	Common Area	20,638			
Monthly Parking Rate	$50	Total Residential	81,412			
Commercial - Office Gross SF	0	Average Unit Size	844			
Commercial - Retail Gross SF	13,824	Operating Expense per Unit	$6,300	$475	per parking space	
Total Net Commercial SF	12,000	Commercial - Retail SF - Rent	$18	NNN		
Total Parking Spaces	516	Retail Tenant Improvements	$45			
Development Costs						
	Residential/ Commercial	SEPTA				
Residential Unit Construction Cost	$8,955,300					
Commercial Hard Construction Costs	$1,520,600					
Site Improvement Costs	$327,000					
Parking Construction Cost	$3,405,000	$4,335,000				
Soft Costs	$4,138,000	$867,000				
Commercial Tenant Improv. Costs	$450,000					
Total Development Costs	**$18,795,900**	**$5,202,000**				
		Development Feasibility				
Gross Residential Rent (100% Occupancy)	$1,303,100					
Vacancy Rate for Residential	5.0%	Net Operating Income	$827,500			
Gross Commercial Rent (100% Occupancy)	$216,000	Return on TDC	4.4%			
Vacancy Rate for Commercial	10.0%					
Gross Scheduled Rent	**$1,432,300**	**Capitalized Value**	**$11,820,000**			
Operating Expenses	$579,600	**Land Residual Value**	**-$8,500,000**			
Garage Expenses	$116,400					
Replacement Reserves	$25,200	**Financial Gap**	**$9,500,000**			
Source: Design Collective, Inc.; TimHaahs & Associates; Partners for Economic Solutions, LLC, 2012.						

Table 5.1.1 - Five-Story Residential Building with First-Floor Retail

The following table provides the pro forma for Option 2, a five-story hotel with first-floor retail and a 516-space parking garage. It indicates a much smaller financial gap of $2,400,000.

Option 2 - Five-Story Hotel with First-Floor Retail						
Characteristics of Project						
Base Project Size (Rooms)	144	Average Daily Rate	$110			
Site Size (acres)	1.50	Occupancy Rate	75%			
Project Density (DU/AC)	NA	Additional Revenue	0.25%	of room revenue		
FAR	0.00	Franchise, Reservation and Mgmt Fees	16.3%	of room revenue		
Market Rate Units	NA	Payroll & Benefits	16.0%			
Below Market Rate Units	NA	Operating Expenses	14.7%	$475	per parking space	
Parking Ratio (spaces per room)	1.00	Real Estate Taxes	4.8%			
Hotel Parking Spaces	144	Depreciation	4.2%			
Monthly Parking Rate	$0					
Commercial - Office Gross SF	0	Total Hotel Square Feet	83,264			
Commercial - Retail Gross SF	12,618	Commercial - Retail SF - Rent	$18	NNN		
Total Net Commercial SF	12,000	Office Tenant Improvements	$0			
Total Parking Spaces	516	Retail Tenant Improvements	$45			
Development Costs						
	Hotel/ Commercial	SEPTA				
Hotel Construction Cost	$9,159,000					
Retail Hard Construction Costs	$1,388,000					
Site Improvement Costs	$327,000					
Parking Construction Cost	$3,885,000	$3,855,000				
Soft Costs	$4,257,000	$771,000				
Hotel Furniture, Fixtures & Equipment	$1,296,000					
Commercial Tenant Improv. Costs	$540,000					
Total Development Costs	**$20,852,000**	**$4,626,000**				
		Development Feasibility				
Potential Revenues	$5,796,000					
Achieved Revenues (75% Occupancy)	$4,347,000	Net Operating Income	$1,902,400			
Gross Commercial Rent (100% Occupancy)	$216,000	Return on TDC	9.1%			
Vacancy Rate for Commercial	10.0%					
Total Revenue	**$4,541,400**	**Capitalized Value**	**$21,140,000**			
Operating Expenses	$2,567,000	**Land Residual Value**	**-$1,400,000**			
Replacement Reserves	$72,000	**Financial Gap**	**$2,400,000**			

Source: Design Collective, Inc.; TimHaahs & Associates; Partners for Economic Solutions, LLC, 2012.

Table 5.1.2 - Five-Story Hotel with First-Floor Retail

Required Public Infrastructure Improvements

Based on the design plans and the traffic analysis, Pennoni Associates has identified and estimated $3.5 million in costs for five major infrastructure investments:

• Street A construction and realignment of driveway at The Fairway	$2,391,270
• Realignment of Rydal Road and The Fairway	$863,460
• Intersection improvements at Rydal Road and Susquehanna Road	$183,150
• Pedestrian improvements at Old York Road and The Fairway	$47,190
• Restriping on The Fairway to add bike lanes	$13,200

In addition, an estimated 0.9 acres of land would need to be acquired for right-of-way. At an average of $1.2 million per acre, that would bring the total infrastructure cost to $4.5 million. While some of that land acquisition cost might be offset by the replacement of existing surface parking with spaces in the new garage, we have included the full cost so as to be conservative.

Closing the Financial Gap with TRID Financing

Funding for public investments to close the financial gap between what the project costs and the amount a private developer/investor can pay can come from different sources. One key tool already approved for use in the Noble Station Area is the Transit Revitalization Investment District (TRID)[1]. Authorized by the Pennsylvania Legislature, TRID allows a jurisdiction to devote the incremental new property taxes generated by new development within one-half mile of the station to pay for public infrastructure, community facilities and transit-related improvements to support transit-oriented development.

The legislation calls for definition of the TRID within the one-half-mile radius of the station. The current value of existing land and improvements is calculated and then "frozen" at its value as of January 1. The jurisdiction continues to receive the taxes generated by that base assessed value. Future incremental taxes generated by the increased value are earmarked and diverted into a separate fund for public investment within the TRID. The revenues can be spent annually or pledged to support bonds to fund the up-front improvements. TRID funds can be used for infrastructure, parking and community facilities. The amount of supportable bonds depends on interest rates, debt service coverage ratios and the cost of issuance. Once the bonds are repaid, the full amount of property taxes again flows to the taxing entities. Included are taxes of each jurisdiction or taxing entity. In this case, it is assumed that Abington Township, Montgomery County and Abington School District would each participate.

The following graphic depicts the basic logic and functioning of Tax-Increment Financing (TIF) and TRID funding. One key variation in Pennsylvania as compared with other states results from the infrequency of reassessments. In most states, properties are reassessed on a regular periodic basis, typically every one to five years. Maryland, for example, reassesses each property every three years. Historically, this has resulted in steady periodic increases that varied in size according to conditions in the economy and the local real estate market. Nominal property tax rates may remain steady or even decrease depending on the value of the total tax roll. In those cases, the TIF revenues include both taxes generated by new development and taxes generated by existing development where values have increased.

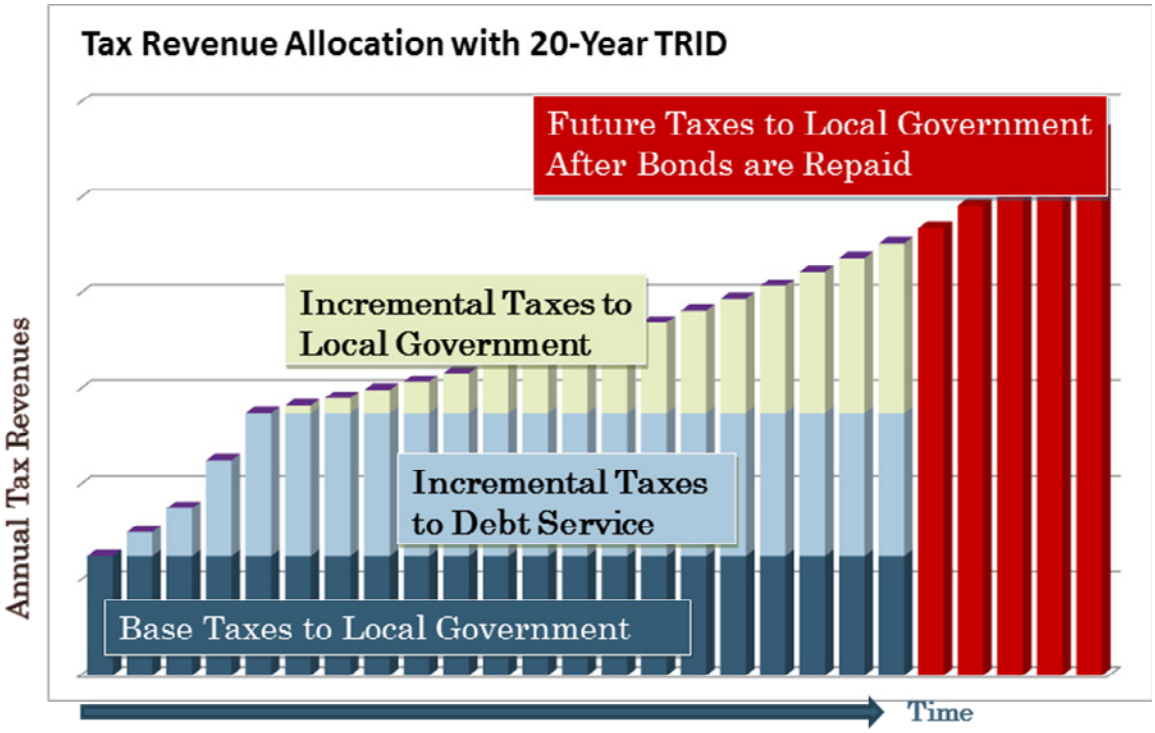

Fig. 5.1.1 - Tax Revenue Allocation with 20-Year TRID

1. House Bill No. 994 Session of 2003. Accessed at http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2003&sessInd=0&billBody=H&billTyp=B&billnbr=0994&pn=4760

Abington Township, Montgomery County and Abington School District would need to commit their incremental real property taxes to the TRID for 20 years. With reassessment at some point in the future, it is possible that additional new property taxes will be generated in excess of those needed to repay TRID bonds. Until the bonds are repaid, the Township, County and School District would receive earned income, mercantile, business privilege and other non-property taxes. At the end of the 20-year bond period, all incremental taxes would then come back to each entity.

Assessment Practices and Ratios

Montgomery County has not reassessed since 1998, meaning that the assessed values of existing development have not increased since that time. Existing development is reassessed only when it is significantly modified or replaced. A sale of the property is not sufficient to trigger reassessment. New development is valued at its current market value, which is then adjusted by the Common Level Ratio to determine its assessed value as of the 1998 base year. The Pennsylvania Department of Revenue estimates the CLR by relating the value of properties sold in the year to their assessed values. Currently, Montgomery County assessed values are 58 percent of market values. Therefore, until county-wide reassessment, there is no adjustment to a property's assessed value to reflect the fact that its market value was enhanced by public investments in streetscape and other infrastructure. The incremental value available to TRID is almost exclusively the value of the new development.

The future CLR will determine the assessed value of the new development. Table 5.1.3 shows the county's CLR on an annual basis since its last reassessment in 1998. The CLR relates the value of property today to the value of property in the 1998 base year. Dividing market values in 2012 by 1.72 (or multiplying by the inverse 0.58) yields assessed values. For future years, PES has assumed that values would continue to fall to 2013, stabilizing in 2014 and then increasing 2.0 percent annually.

Montgomery County Common Level Ratio Determined by Pennsylvania Department of Revenue	
Fiscal Year	**Common Level Ratio**
Actual	
1998	1.00
1999	1.00
2000	1.04
2001	1.07
2002	1.12
2003	1.18
2004	1.30
2005	1.46
2006	1.66
2007	1.87
2008	1.97
2009	1.97
2010	1.85
2011	1.78
2012	1.72
Projected	
2013	1.68
2014	1.68
2015	1.71
2016	1.74
2017	1.77
2018	1.81
Source: Pennsylvania Department of Revenue; Partners for Economic Solutions, 2012.	

Table 5.1.3 - Montgomery County Common Level Ration Determined by Pennsylvania Department of Revenue

Property Tax Rates

As a result of the largely stable property value base, Pennsylvania municipalities respond to their need for additional property tax revenues by changing the real property tax rate. Table 5.1.4 summarizes the milleage rates for Abington Township, Montgomery County and Abington Public Schools. It shows that the Township and County have increased their rates an average of 1.1 to 1.2 percent annually from 2001 through 2010, while the school district increased its rate an average of 4.0 percent per year. On a year-by-year basis, the total rate for the three jurisdictions increased by as much as 8.8 percent in Fiscal Year 2005 and declined by 0.5 percent in Fiscal Year 2009. Increases since 2006 have been more moderate. For projection purposes, Abington Township and Abington Public Schools are projected to increase their tax rates annually by the same rates they increased annually from 2006 to 2010. Montgomery County's rate is assumed to remain steady, as it has for the three previous years.

Total Milleage Rate for Abington Township Property					
Fiscal Year	Abington Township	Montgomery County	Abington Schools	Total	Annual Change
2001	3.330	2.450	19.586	25.366	
2002	3.330	2.840	20.426	26.596	4.8%
2003	3.330	2.840	20.610	26.780	0.7%
2004	3.330	2.840	21.450	27.620	3.1%
2005	3.540	2.890	23.630	30.060	8.8%
2006	3.540	2.890	25.390	31.820	5.9%
2007	3.597	2.840	26.620	33.057	3.9%
2008	3.597	2.695	27.290	33.582	1.6%
2009	3.637	2.695	27.090	33.422	-0.5%
2010	3.721	2.695	27.800	34.216	2.4%
2001-2010					
Change	0.391	0.245	8.214	8.850	
Percent Change	11.7%	10.0%	41.9%	34.9%	
Ave. Annual Change	1.2%	1.1%	4.0%	3.4%	
2006-2010					
Change	0.181	(0.195)	2.410	2.396	
Percent Change	5.1%	-6.7%	9.5%	7.5%	
Ave. Annual Change	1.2%	-1.7%	2.3%	1.8%	
Projected Rates*					
2012	3.811	2.695	29.093	35.599	
2013	3.857	2.695	29.762	36.314	
2014	3.903	2.695	30.447	37.045	
2015	3.950	2.695	31.147	37.792	
2016	3.997	2.695	31.863	38.555	
2017	4.045	2.695	32.596	39.336	
2018	4.094	2.695	33.346	40.135	
Note: *Township and School District rates projected based on the average annual change from 2006 to 2010.					
Source: Abington Township; Partners for Economic Solutions, 2012.					

Table 5.1.4 - Total Milleage Rate for Abington Township Property

TRID Definition

To estimate the potential TRID funding that would be generated by each redevelopment, PES defined the TRID district in two parts – one that defined the TRID narrowly to coincide with the study area, bounded by Old York Road, the Fairway, Bryner Chevrolet and the railroad, and a second one that defined the TRID by a one-half-mile radius around the train station. The study area has existing properties assessed at $7.4 million (58 percent of market value). Properties within the larger half-mile radius area have a total assessed value of $172 million, including $71 million in commercial uses and $101 million in residential properties.

However, the definition of the TRID is important primarily in cases of significant new development or reassessment. The residential area offers limited opportunities for new development, though additions or improvements could increase the assessed values by a small amount. The most significant opportunities relate to the frontage properties on Old York Road and the Fairway. At this point in time, two known development projects are underway and potentially could be captured by the TRID to help support the Noble Station Area TOD: new WaWa and Tony Roni outlets. Assuming that the TRID is formed before January 1, 2013, the value of these properties would be available to the TRID financing. They are assumed to have a total assessed value of $700,000.

Development Options

With the future value of the new development, annual new revenues to fund the TRID are projected to reach $292,300 based on the projected tax rate of $38.555 mills in 2016 under Option 1, the five-story residential and retail building. Assuming 20-year bonds with an interest rate of 4.5 percent, a debt coverage ratio of 1.3 and a 5.0-percent cost of issuance, this annual cash flow could support $2.8 million in TRID bonds in 2016. If the bonds needed to be issued in advance of the development, the supportable amount would be significantly lower due to the need to establish a reserve to pay interest on the bonds during the construction period. The marketability of those bonds issued in advance of construction would depend on the investors' assessment of the risk that the development would not be completed on time to generate property taxes as projected.

Under Option 2 with a hotel and retail building, the annual tax revenues available for TRID financing would total $495,600, an income stream that could support $4.7 million in TRID bonds in 2016.

The calculations of the incremental taxes available for the TRID are shown in Tables 5.2.4 and 5.2.5 for the two options.

Additional Funding Resources

As transit-oriented development that improves walkability and reduces dependence on automobile travel, the proposed project infrastructure is eligible for funding from the Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program. These grants are awarded competitively by the U.S. Department of Transportation subject to rules developed for each annual round of grants. The transit parking, bike lanes and supportive road improvements would qualify for grant funding. To be most competitive, they should be included in a larger package of transportation improvements. Federal funding is limited to no more than 80 percent of the project costs, and projects with a higher level of local funding are typically more competitive. These grant applications require support from the Metropolitan Planning Organization (Delaware Valley Regional Planning Commission in this case) as well as State and local elected officials. The improvements must be included in the Metropolitan Transportation Plan and the Transportation Improvement Program.

Special assessment district funding taxes the properties that would benefit from the proposed improvement. The Fairway improvements would benefit all the properties along the road and could be funded by a small assessment collected annually and used to repay the Township. It should be noted, however, that payments from the TOD project would reduce the private dollars that could be invested. Other communities pledge capital improvement dollars from general obligation bonds.

Given the extent of train station commuters' use of the new road and improved intersections at The Fairway and Old York Road, SEPTA could be asked to contribute to that road infrastructure. SEPTA support would be available only if a dedicated revenue source can be found to meet SEPTA's operating and capital funding needs.

The Pennsylvania Economic Development Financing Authority can provide access to taxable bond financing for the land acquisition and private construction. The Pennsylvania Infrastructure Bank can provide access to low-cost bond financing for roadway and public transportation improvements; repayment sources must be identified by the municipality. The Department of Economic and Community Development's (DECD) High Performance Building program provides up to the lesser of $500,000 or 10 percent of the total eligible building construction costs for buildings that are highly energy-efficient. The Municipal Assistance Program also administered by DECD can fund TRID planning studies.

5.2 Fiscal and Economic Impact Analysis

The fiscal impact analysis compares the Township and School District revenues and costs associated with the new development. It shows an annual Township deficit of $34,600 for Option 1 on the basis of the new residents requiring public services equal to the per capita average cost of services provided to current residents; in fact, Township costs are not likely to increase as a result of one new building. The Option 2 hotel would generate a positive Township return of $43,400 per year. Excluding the real property taxes which would be dedicated to TRID funding, the Township would break even with new revenues roughly equal to the cost of providing services under Option 2.

Due to the small number of school children associated with the development, the Abington School District would enjoy an annual operating surplus of $110,600 under Option 1 and $377,200 under Option 2. These public returns would be reduced with introduction of a TRID to help finance the project. The hotel development under Option 2 would generate an annual net surplus to the Abington School District of $9,100 if all the new real property taxes were dedicated to TRID financing.

The new development would create 105 to 109 construction-period jobs as well as 45 to 77 permanent, on-going jobs.

Township and School District Tax Structure

New development in the Noble Station Area would have fiscal impacts on the Abington Township and Abington School District budgets. On the revenue side, the Township's General Fund would benefit from five primary taxes:

- Real property taxes levied at $3.7211 per $1,000 of assessed property value;
- Mercantile taxes equal to 0.15 percent of gross retail receipts;
- Business Privilege taxes equal to 0.4 percent of gross receipts for service businesses, rentals and contractors;
- Earned Income taxes equal to 0.5 percent of employee wages; and
- Local Services taxes levied at $52 per employee.

These five taxes currently generate $23.5 million in annual revenues or 69 percent of the total Township budget.

The School District collects real property taxes at the rate of $27.80 per $1,000 of assessed property value and Earned Income taxes at 0.5 percent of employee wages.

From those revenues, the Township's General Fund supports general government and administration, police, parks & recreation, fire, library, insurance, engineering, code enforcement, miscellaneous and debt service costs for total expenditures of $33.9 million for Fiscal Year 2011.

Impacts on Abington Township Revenues and Costs

As shown in Table 5.2.1, new development would generate $45,900 to $63,100 in total annual revenues for the Township's General Fund. Of that total, about one-half would come from real property taxes. If TRID financing is pursued, most of these property taxes would not be available to the General Fund for the life of the bonds.

The new development would be responsible for its pro rata share of Township expenditures, estimated at $80,500 annually for the residential Option 1 and $19,700 for the hotel Option 2. However, in reality, the Township's

Fiscal Impacts on Abington Township General Fund		
	Option 1	Option 2
	5-Story Residential with Retail	5-Story Hotel with Retail
Revenues		
Real Property Tax	$22,100	$43,300
Mercantile Tax	$3,900	$4,600
Business Privilege	$5,800	$2,900
Earned Income Tax	$8,100	$9,100
Local Service Tax	$2,000	$3,200
Fees, Licenses and Fines	$4,000	$0
Total Revenues	**$45,900**	**$63,100**
Expenditures		
General Government	$10,100	$3,100
Public Safety	$40,500	$12,700
Code Enforcement	$2,000	$600
Public Works & Engineering	$10,600	$3,300
Library, Parks & Recreation	$17,300	$0
Total Expenditures	**$80,500**	**$19,700**
Net Surplus/(Deficit)	**-$34,600**	**$43,400**
Note: Calculated on an average cost basis and current tax rates.		
Source: Abington Township Fiscal Year 2011 Budget; Partners for Economic Solutions, 2012.		

Table 5.2.1 - Fiscal Impacts on Abington Township General Fund

expenditures are unlikely to increase as the result of one additional building other than any public capital investments to enhance the public realm and road access.

Impacts on Abington Public Schools Revenues and Costs

The School District would bear the largest fiscal burden with the addition of new pupils in the schools if the site were developed for housing. However, one-half of the new units are expected to be occupied by Penn State-Abington students with no associated children. Though no definitive data on pupil generation were available from the School District, the American Community Survey of 2005-2009 indicates that only 16.6 percent of renter households in Abington Township include any children under the age of 18. Assuming conservatively that one-half of those households have two children, that suggests a total of 0.25 school-aged children per rental unit or nine children in Option 1's 36 market-rate units. The 2010 age distribution of Abington's children has 50 percent aged 5 to 13 (elementary school ages) and 25 percent aged 14 to 17, typical ages for secondary school students. The market-rate units would generate five elementary school students and two secondary students.

The School District's cost of educating students averaged $12,150 per elementary student and $11,976 per secondary school student in the 2011-2012 budget. To the extent that the Noble TOD serves primarily young professionals and empty nesters in addition to college students, the projected student count could overestimate the impact on the schools.

Table 5.2.2 compares the development options' fiscal impacts on the School District. Option 1 would generate $195,600 in new revenues and $85,000 in costs for a net surplus of $110,600 per year. With devotion of real property taxes to the TRID, that surplus would become an annual deficit of $76,900. The hotel development in Option

Fiscal Impacts on Abington School District Budget		
	Option 1	Option 2
	5-Story Residential with Retail	5-Story Hotel with Retail
Revenues		
Real Property Tax	$187,500	$368,100
Earned Income Tax	$8,100	$9,100
Total Revenues	**$195,600**	**$377,200**
Expenditures		
Elementary School Pupils	5	-
Secondary School Pupils	2	-
Cost per Elementary Pupil	$12,150	$12,150
Cost per Secondary Pupil	$11,976	$11,976
Total Expenditures	$85,000	$0
Net Surplus/(Deficit)	**$110,600**	**$377,200**
Note: Calculated on an average cost basis.		
Source: Abington School District Fiscal Year 2011 Budget; Partners for Economic Solutions, 2012.		

Table 5.2.2 - Fiscal Impacts on Abington Township Abington School District Budget

2 would generate a net surplus of $377,200 in annual new taxes for the School District with no corresponding increase in student enrollment and costs. With the real property taxes pledged to the TRID, the project would still generate an annual surplus of $9,100.

Job Creation

Construction of the new development would generate one-time construction-period jobs as well as spin-off jobs in the Township and Montgomery County economies. The number of direct one-year, full-time-equivalent construction jobs would total 76 jobs under Option 1 and 79 jobs under the Option 2 hotel/commercial building. These direct jobs would generate additional jobs indirectly as the construction workers spend their paychecks for housing, transportation, groceries and other retail goods, and services. The economic multipliers estimated by the U.S. Bureau of Economic Analysis indicate that for every one construction industry job created in Montgomery County, another 0.3821 jobs are created in retail, service, government and other industries in the county. Total

construction-related jobs would range from 105 to 109 one-year jobs.

The commercial space in Option 1 would include 12,000 square feet of restaurant, retail and office-based businesses with an estimated 39 employees once opened and operating. The Option 2 hotel and associated commercial space would generate 62 on-going jobs. Those jobs also would generate indirect jobs elsewhere in the county economy, as shown in Table 5.2.3. New direct and indirect jobs would total 45 full-time equivalents under Option 1 and 77 jobs under Option 2.

Jobs Created by Noble Station Area TOD		
	Option 1	Option 2
	5-Story Residential with Retail	5-Story Hotel with Retail
Construction Period		
Direct	76	79
Indirect	29	30
Total	105	109
On-Going Operations		
Direct	39	62
Indirect	6	15
Total	45	77
Sources: U.S. Bureau of Economic Analysis; Partners for Economic Solutions, 2012.		

Table 5.2.3 - Jobs Created By Noble Station Area TOD

Noble Station TRID, Option 1 - Five-Story Residential Building with First-Floor Retail							
Property Type	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
	(Assessed values in thousands of current, inflated dollars)						
Assessed Valuation							
Existing Properties[1]							
Study Area Properties							
Beginning Value	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449
Less Improvements Cleared							
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
End-of-Year Value	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449
Other TRID Area Properties							
Beginning Value	$ 164,520	$ 164,520	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220
Plus New Development		700					
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
End-of-Year Value	$ 164,520	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220
New Improvements							
Beginning Value of Previous New Development	$ -	$ -	$ -	$ -	$ 6,881	$ 6,881	$ 6,881
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Square Feet of New Apartments on Tax Rolls				81,412			
Assessed Value per Gross Square Foot	$69	$70	$70	$69	$68	$67	$65
Square Feet of New Commercial Space				12,000		-	
Assessed Value per Net Square Foot	$105	$107	$107	$105	$103	$102	$99
Taxable Value of New Space	$ -	$ -	$ -	$ 6,881	$ -	$ -	$ -
End-of-Year Value	$ -	$ -	$ -	$ 6,881	$ 6,881	$ 6,881	$ 6,881
Total Assessed Value							
Total Assessed Value	$ 171,969	$ 171,969	$ 172,669	$ 172,669	$ 179,550	$ 179,550	$ 179,550
Less Base Year Assessment		$ 171,969	$ 171,969	$ 171,969	$ 171,969	$ 171,969	$ 171,969
Incremental Assessed Value		$ -	$ 700	$ 700	$ 7,581	$ 7,581	$ 7,581
Incremental Property Taxes	$ -	$ -	$ 25,932	$ 26,454	$ 292,285	$ 298,206	$ 304,263

Note: [1]Property within one-half mile of the station. Excludes tax-exempt properties.

Source: Partners for Economic Solutions, 2012.

Table 5.2.4 - Noble Station TRID, Option 1 - Five-Story Residential Building with First-Floor Retail

Table 5.2.5 - Noble Station TRID, Option 1 - Five-Story Hotel with First-Floor Retail

Noble Station TRID, Option 2 - Five-Story Hotel Building with First-Floor Retail							
Property Type	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
	(Assessed values in thousands of current, inflated dollars)						
Assessed Valuation							
Existing Properties[1]							
Study Area Properties							
Beginning Value	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449
Less Improvements Cleared							
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
End-of-Year Value	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449	$ 7,449
Other TRID Area Properties							
Beginning Value	$ 164,520	$ 164,520	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220
Plus New Development		700					
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
End-of-Year Value	$ 164,520	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220	$ 165,220
New Improvements							
Beginning Value of Previous New Development	$ -	$ -	$ -	$ -	$ 12,154	$ 12,154	$ 12,154
Appreciation Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Square Feet of New Hotel Rooms on Tax Rolls				83,264			
Assessed Value per Gross Square Foot	$133	$136	$136	$133	$131	$129	$126
Square Feet of New Commercial Space				10,000		-	
Assessed Value per Net Square Foot	$105	$107	$107	$105	$103	$102	$99
Taxable Value of New Space	$ -	$ -	$ -	$ 12,154	$ -	$ -	$ -
End-of-Year Value	$ -	$ -	$ -	$ 12,154	$ 12,154	$ 12,154	$ 12,154
Total Assessed Value							
Total Assessed Value	$ 171,969	$ 171,969	$ 172,669	$ 172,669	$ 184,823	$ 184,823	$ 184,823
Less Base Year Assessment		$ 171,969	$ 171,969	$ 171,969	$ 171,969	$ 171,969	$ 171,969
Incremental Assessed Value		$ -	$ 700	$ 700	$ 12,854	$ 12,854	$ 12,854
Incremental Property Taxes	$ -	$ -	$ 25,932	$ 26,454	$ 495,586	$ 505,625	$ 515,895

Note: [1]Property within one-half mile of the station. Excludes tax-exempt properties.

Source: Partners for Economic Solutions, 2012.

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A APPENDIX

A.1 MARKET OVERVIEW

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A.1 MARKET ANALYSIS

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Noble Station Market Analysis

This market analysis updates the 2007 market study prepared by AKRF for the Old York Road Corridor Improvement Study[1]. Partners for Economic Solutions (PES) updated the market study's base data and conclusions to incorporate more recent information and to reflect changes in local market economics. The market analysis focuses on a study area for the Old York Corridor defined to include much of Abington Township (east of Tyson Avenue, Roslyn Road and Easton Road) and Jenkintown Borough, as shown on the map on the following page. Existing and proposed developments within the study area present the greatest direct competition to new developments within the Noble Station Area.

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Demographics

The study area and Abington Township have a steady to slightly declining population. The study area's population declined by 225 persons or 0.5 percent from 2000 to a 2010 total of 42,831 residents. (See Appendix Table A-1.) This decline occurred despite a 1.5-percent increase in the number of households with the addition of 271 households over the 10-year period, as shown in Appendix Table A-2. The population loss relates to the declining average household size and rising vacancy rate (Appendix Table A-3). From 2000 to 2010, the size of study area households fell from 2.42 to 2.38 persons per household. In Abington Township as a whole, the number of three-person households increased while smaller and larger households declined in number (Appendix Table A-4).

The declining household size reflects, in part, an aging population with fewer children living at home. The median age of study area residents increased 6.9 percent from 2000 to 2010 as compared with a 6.3-percent increase in Montgomery County as a whole. In 2010, the median age of study area residents was 45.2 (Appendix Table A-5). The number of children under the age of 18 fell from 22.7 percent of the study area population to 20.1 percent at the same time that the number of residents aged 50 to 64 climbed from 16.2 percent to 21.7 percent and those 65 and over grew from 20.6 percent to 21.1 percent as baby boomers aged (Appendix Table A-6). These trends toward an aging population result from low levels of new housing construction, a stable base of households aging in place after their children are gone, and relatively high housing costs that exclude younger families with lower incomes.

Study area households had a median income of $77,330 in 2010, as estimated by ESRI, a national data provider (Appendix Table A-7). This compares with $80,500 in Montgomery County as a whole. From 2000 to 2010, study area household incomes increased 0.3 percent in real terms, excluding the effects of inflation. Study area households are distributed across the income spectrum (Appendix Table A-8). More than 72 percent of study area households owned their own homes with only 28 percent renting in 2010. Abington Township had an even higher ownership rate at 78 percent in 2010, as shown in Appendix Table A-9.

Housing Potentials

From 2000 to 2010, the study area added roughly 400 new housing units, increasing the inventory from 17,995 units to 18,404 units. (See Appendix Table A-10.) In the same period, Abington Township added a net of only two dwelling units. Single-family units dominated the housing supply with 62.9 percent single-family detached and 11.5 percent

single-family attached (townhouse) units in 2000 (Appendix Table A-11). Large-scale multi-family buildings of 50 units or more provided only 14.2 percent of all study area units and 9.0 percent of Abington Township units at that time. From 2000 through 2010, Abington Township had 217 new housing units authorized by building permits, averaging 22 new units per year, as shown in Appendix Table A-12. Of those, 90 percent were single-family detached and attached units with only 21 new multi-family units built during the period, all in buildings of three or four units. This construction represented only 0.8 percent of Montgomery County housing development in contrast to the township's 6.9-percent share of county households, reflecting the built-out nature of the township.

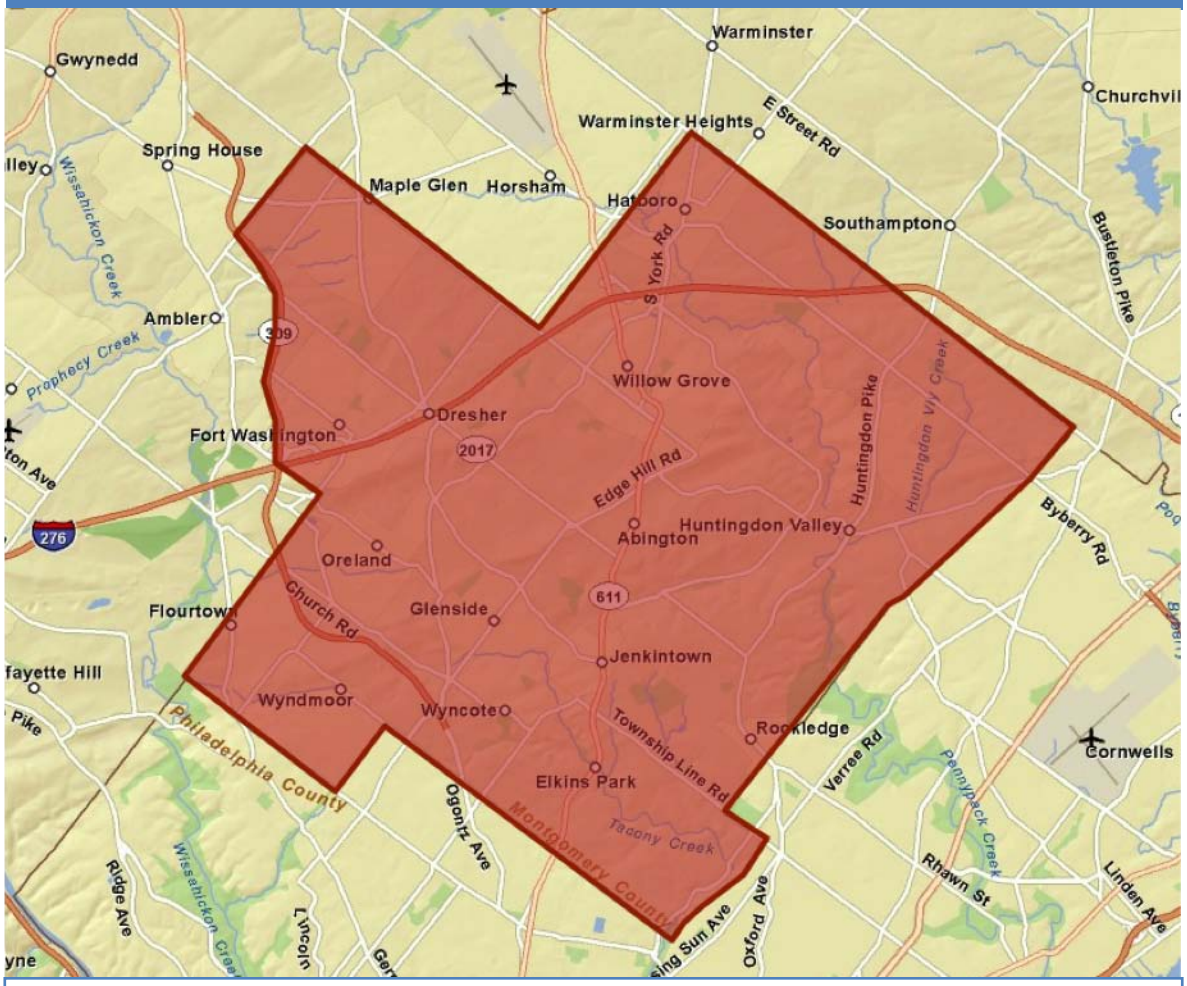
Study area housing vacancies grew from 3.3 percent in 2000 to 3.6 percent in 2007 to 4.1 percent in 2010, in response to economic conditions, as shown in Appendix Table A-13. However, the study area's vacancy level was still well below the county's average of 5.5 percent in 2010. Within the vacant units, 8.4 percent of rental units were vacant and 0.9 percent of ownership units were vacant in Abington Township in 2010. Typically, a five-percent rental vacancy rate and a one-percent ownership housing vacancy rate indicate a healthy balance between supply and demand.

Rental Developments

REIS, a national provider of real estate market data, profiles rental apartment trends for the Moreland/Abington/Upper Dublin submarket, which includes the three townships and is shown on Figure A.1.1. The submarket's inventory of 8,983 apartments has been unchanged over the last five years. Vacancies have fluctuated from a low of 4.3 percent in 2007 up to 8.0 percent in 2008 before falling to 7.4 percent in 2009, 4.3 percent in 2010 and 4.5 percent in the first quarter of 2011, as shown in Appendix Table A-14. The average asking rent has not changed appreciably from $1,202 in 2007 to $1,209 in the first quarter of 2011. Effective rents, which net out free rent concessions, increased 1.9 percent from $1,152 in 2007 to $1,174 in the first quarter of 2011.

Rents in structures built after 1999 averaged $1,944 in early 2011. (See Appendix Table A-15.) Vacancy rates also varied by age of the apartment complex with units built after 1999 averaging 3.8-percent vacancies as opposed to those built in the 1990s with an average 6.0 percent vacancy rate. By unit size (Appendix Table A-16), average monthly rents ranged from $879 for a studio apartment to $2,156 for a three-bedroom unit and from $1.27 to $1.90 per square foot. The inventory includes very few studio units, with one- and two-bedroom units forming 90 percent of the stock.

Moreland/Abington/Upper Dublin Submarket



Legend

Housing Submarket Area

Fig. A.1.1 - Moreland/Abington/Upper Dublin Submarket

Six comparable rental developments provide examples of rent levels in the area in Appendix Table A-17. The availability of studio apartments is relatively limited with units in the Colonade renting from $600 to $920 per month or $1.90 to $2.26 per square foot. One-bedroom units rent for $1.06 to $1.74 per square foot per month or $695 to $1,110 for units with 562 to 800 square feet. Two-bedroom apartments have rents from $875 to $1,675 or $1.08 to $1.36 per square foot. Three-bedroom townhouses are available at $1.13 to $1.34 per square foot or $1,500 to $1,925 per month. Amenities typically include air conditioning, dishwasher, off-street parking, laundry facilities, and high-speed Internet.

Plaza Apartments, Wyncote House and Regency Towers have attracted a large number of seniors by offering luxury amenities in a walkable environment. The new Fairway Transit District overlay zoning on the Baederwood Shopping Center site allows for up to 480 new multi-family units, though a lawsuit and financing constraints have delayed that development.

For-Sale Housing

In the for-sale housing market, ESRI estimates that 61.5 percent of study area ownership housing units have values between $200,000 and $399,999 with 20.9 percent valued over $400,000 (Appendix Table A-18). This compares with 65.8 percent and 25.0 percent, respectively, in 2007. Recent Abington Township sales transactions from February through July 2011 showed average prices of $202,500 or $195 per square foot for a two-bedroom unit (presumably condominiums), $226,270 or $148 per square foot for a three-bedroom house and $252,133 or $137 per square foot for four-bedroom houses, as shown in Appendix Table A-19. For-sale listings are down from 34 in 2007 to 27 in 2011. Listings for resale of existing condominiums range from $69,999 to $160,000 in Abington Township or $108 to $197 per square foot based on three listings, down from $130,000 to $208,000 for listings in November 2007 (Appendix Table A-20).

Opportunities for Noble Station TOD

The nature of developable properties in the Noble Station area restricts housing potentials to multi-family structures – either apartments or condominiums. The study area demographics show an aging, middle- to upper-middle-income population primarily in ownership housing. Given the surge of baby boomers entering their 60s over the next decade that profile would argue for developing condominiums or apartments for empty nesters seeking to downsize and for those who can no longer manage stairs and maintaining a large home and yard. Abington Township homeownership rates fall from 87.1 percent for householders aged 55 to 64 to 78.1 percent for householders aged 75 to 84 and 57.3 percent for those 85 and older. Rydal Park development along the Fairway just one mile east of the Noble Station has targeted the niche of households aged 75 and over.

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Currently under construction, Rydal Park includes assisted living, skilled nursing and single-story houses in duplex, triplex and quad-plex configuration for independent living.

One market segment not well supported by existing housing developments is young adults from 18 to 34. In part, this is because the suburban setting does not appeal to many young people who prefer an urban setting with access to night life and other amenities.

Penn State University – Abington is shifting from a commuter college to one with a growing enrollment of out-of-state and international students. Current enrollment includes 40 international and about 100 other out-of-state students. PSU-A is the only one of roughly 80 local colleges that does not offer student housing. Without being able to offer the full campus experience of living away from home while attending college, PSU-A is at a significant competitive disadvantage in recruiting students. Currently, more than 200 students rent nearby housing in such apartment complexes as the Colonade in Jenkintown and Regency Towers in Willow Grove. The University supports that housing choice by running shuttle buses to campus that pick up students at complexes with a significant number of students in residence. Though PSU-A has the ability to steer students to appropriate housing, it does not have the authority to enter into a master lease guaranteeing occupancy. A developer has been pursuing student housing development in Willow Grove, but has been delayed by financing issues.

The alternative market of empty-nesters aged 55 to 74 would better match the area's current population; however, that would compete directly with the Rydal Park and Baederwood site offerings. That market is also likely to prefer ownership units. The condominium market has been depressed nationally by the housing crisis, declining housing values and tightening financing standards. Recovery in that market may require five or more years.

The access that the Southeastern Pennsylvania Transportation Authority (SEPTA) provides to Center City is an attractive feature for students and other potential residents. A quality pedestrian environment that provides access to restaurants and a bookstore would be a highly competitive setting for new housing.

Feasibility will turn on the question of development costs and parking requirements. The most popular student housing now includes suites of two to four bedrooms with a shared kitchen and living room. Monthly rents would likely range from $540 to $590 per bed or $1,180 to $2,150 for units of 750 to 1,050 square feet. The University's student body could support 240 to 320 beds at the Noble station. The private market for young professionals and empty nesters could support an additional 100 units.

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Retail Potentials

Abington Township and Jenkintown offer a wide array of community and neighborhood shopping centers as well as independent retailers lining much of Old York Road, summarized in Appendix Table A-21. At the northern edge of the township, the Willow Grove Park Mall and surrounding developments serve much of the regional demand for department stores and shoppers goods[2] merchandise. Anchored by Macy's, Bloomingdale's, Sears and JC Penney (new lease), the variety and quality of retail goods available in the 1.2 million square-foot mall draw customers from the study area and large portions of Montgomery County. Constrained by the Willow Grove competition, Abington Township's strip retail centers include such retailers as Target, TJ Maxx, Bed Bath & Beyond, and Stein Mart as well as grocery stores (Giant, Whole Foods and Genuardi's). Auto dealers occupy many acres of prime land along Old York Road and the Fairway.

Shown on Figure A.1,2, the Primary Market Area (PMA) from which Noble TOD retailers would draw roughly 80 to 90 percent of their customers is defined to include much of Abington Township and Jenkintown Borough. The PMA residents' expenditures, shown in Appendix Table A-22, totaled $531 million in 2010. ESRI estimates that PMA retailers had total sales of $699 million in 2010, excluding gasoline stations and non-store retailers (Appendix Table A-23). Of that total, $251 million was in motor vehicle and parts dealers and $234 million was in food and beverage stores.

Comparing sales to expenditures by PMA residents by retail category in Appendix Table A-24 indicates major inflow of $125 million to motor vehicle and parts dealers, $111 million to food and beverage stores, and $22 million to health and personal care stores. That is to say that these types of stores are attracting significant numbers of shoppers from beyond the primary market area. Clearly, the concentration of car dealers represents a regional cluster that serves a much larger area. One would not typically expect such high levels of inflow (almost half of their sales) for grocery stores and drugstores, which typically serve a nearby population. This points to Old York Road's role as a major shopping destination serving this portion of Montgomery County. The surplus of residents' expenditures over PMA sales in general merchandise, apparel, furniture, electronics and miscellaneous retail goods ($54 million) reflects Willow Grove's competitive impact.

The outflow of $19 million (of the $71 million total) in eating and drinking expenditures poses opportunities for an expanded array of restaurants. This confirms residents'

[2] Shoppers goods are retail goods for which consumers prefer to comparison shop, including apparel and accessories, furniture and home furnishings, general merchandise and other miscellaneous retail goods.

Retail Primary Market Area

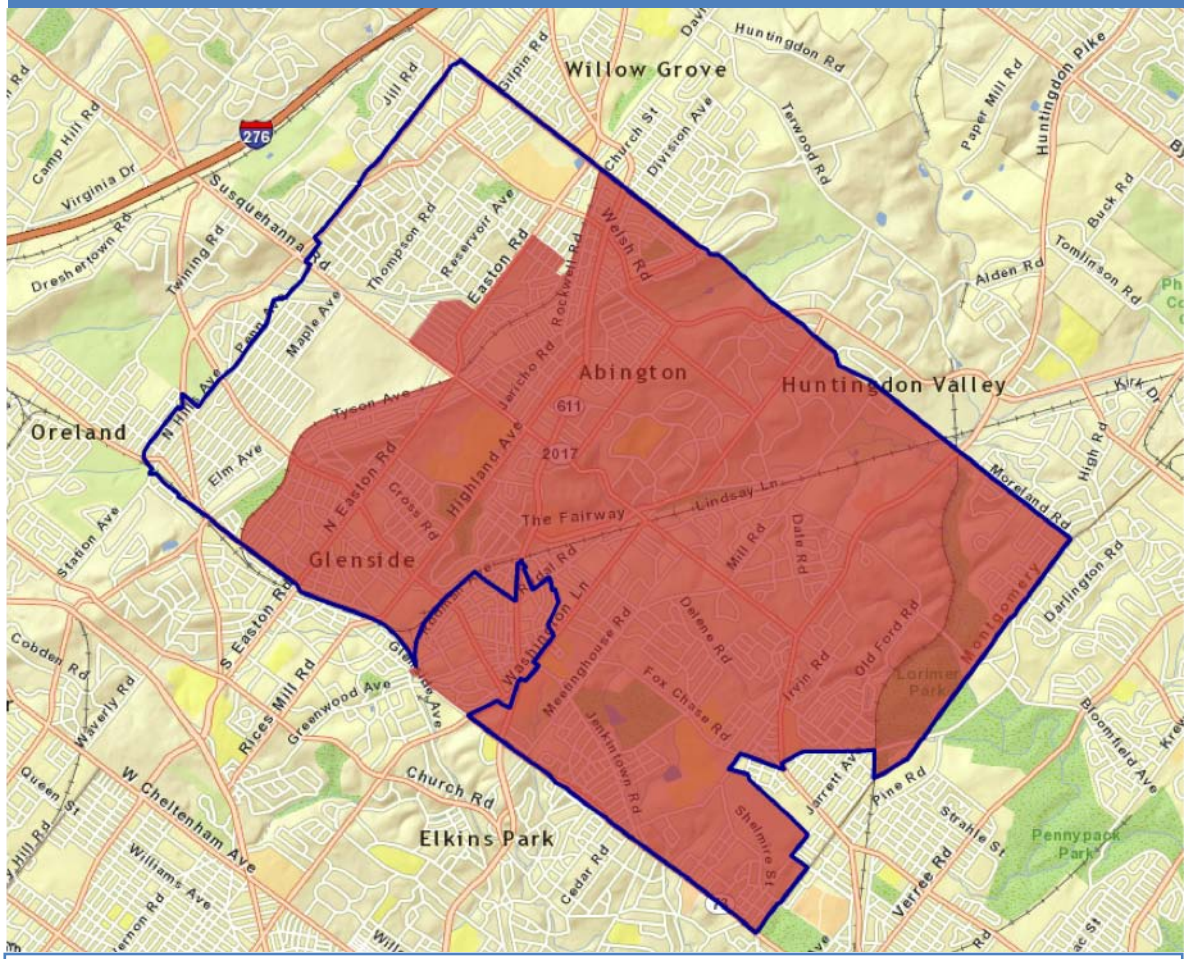

Fig. A.1.2 - Retail Primary Market Area

comments about limited restaurant choices. However, a certain level of outflow is natural given the tendency to spend money near the workplace for lunches and while on vacation.

Opportunities for Noble Station TOD

Noble Square within the station area is anchored by Barnes & Noble and includes Chili's, Linda's Loft, Jules Pizza and Curds & Whey. Each does well in part because of established clientele that followed some of the stores from other locations. Of the 29,130 square feet, 12,180 square feet are currently vacant.

The station area benefits from some key competitive advantages. Its location at the intersection of Old York Road and The Fairway is excellent, offering visibility on two heavily traveled arterials. The SEPTA station's presence attracts an average of 232 passengers daily five days a week. That advantage will grow in importance as high gasoline prices encourage greater transit use. Barnes & Noble is a strong anchor to bring in shoppers, who can then be attracted into neighboring restaurants and shops. Introduction of new TOD uses will generate potential new customers in new apartments and/or office space.

Despite these locational advantages, the station area's configuration and topography are significant constraints on attracting additional retailers. The undeveloped properties are all internal to the site and lack visibility from either Old York Road or The Fairway. The proposed extension of Baeder Road will increase the number of passing cars, but the counts will still be far below those typically sought by retailers. However, the creation of "place" associated with the proposed site improvements coupled with the presence of Noble Station and Barnes & Noble can help to make the TOD something of a destination not wholly dependent on visibility to pass-by traffic.

Only a small amount of new retail space should be designed into the new development, including a sit-down restaurant and one or two small shops.

Office Potentials

The Philadelphia downtown and suburban areas[3] had an inventory of 102 square feet of office space in the first quarter of 2011, according to CBRE. Of that total, 19 million square feet or 18.4 percent was vacant. Over the 2006-2011 period, REIS estimates that the metropolitan market added 1.04 million square feet of space while absorbing (i.e., occupying) only 21,000 square feet more space than in 2006. Last year, the area's occupancy declined by 1.88 million square feet with the economic downturn.

[3] Includes Philadelphia, Montgomery, Bucks, Chester and Delaware counties.

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The Jenkintown submarket (defined by REIS to include Jenkintown and Abington, Cheltenham and Upper Moreland townships and shown in Figure A.1.3) is a relatively stable and self-contained market. The total inventory of 1.85 million square feet lost only a net 10,000 square feet of occupied space over the last five years. However, occupancy was down 30,000 square feet in the first quarter of 2011. Vacant space stands at 331,000 square feet or 17.9 percent of the inventory. Effective rents (after the effect of concessions such as free rent) are relatively low at $17.20 per square foot – roughly equal to rents in 2008 but down 1.6 percent from the 2007 average rent of $17.48. That rent level is below the rent necessary to support and justify new construction.

Among the two percent of submarket office space built since 2000, market performance is somewhat better than for older buildings. That space had vacancies of 11.2 percent in the first quarter of 2011 and average rents of $26.23.

Until the economy recovers and blocks of available office space are leased up in the Jenkintown submarket, opportunities for new office development are limited.

Opportunities for Noble Station TOD

Noble Plaza, immediately adjacent to the Noble Station, has 55,000 square feet of office space, including roughly 17,000 square feet of vacant space following the departure of the Internal Revenue Service from an entire floor. Office opportunities in the station area are limited to that development and possibly one or two street-level professional offices for real estate and insurance agents, attorneys or accountants.

Hotel Potentials

The local area hotel market is dominated by offerings at the I-276 Willow Grove exit. Eight hotels provide 1,105 rooms, distributed among upscale (422 rooms), economy (423 rooms), upper midscale (150 rooms) and midscale (110 rooms) developments. The hotel inventory appears in Appendix Table A-27. To a lesser extent, three hotels (Best Western, Holiday Inn Express and Hilton Garden Inn) at the Fort Washington exit on I-276 also serve the Abington market.

Shown in Appendix Table A-28, the local hotels have recovered somewhat from the recession. Occupancy rates of 69.0 percent in 2010 and 73.3 percent from January through July, 2011 compare with pre-recession levels of 69.1 percent in 2006 and 73.2 percent in 2005. However, room rates have not yet recovered to their previous heights. Their average daily rate of $81.87 in 2010 and $83.58 from January through July, 2011 are substantially

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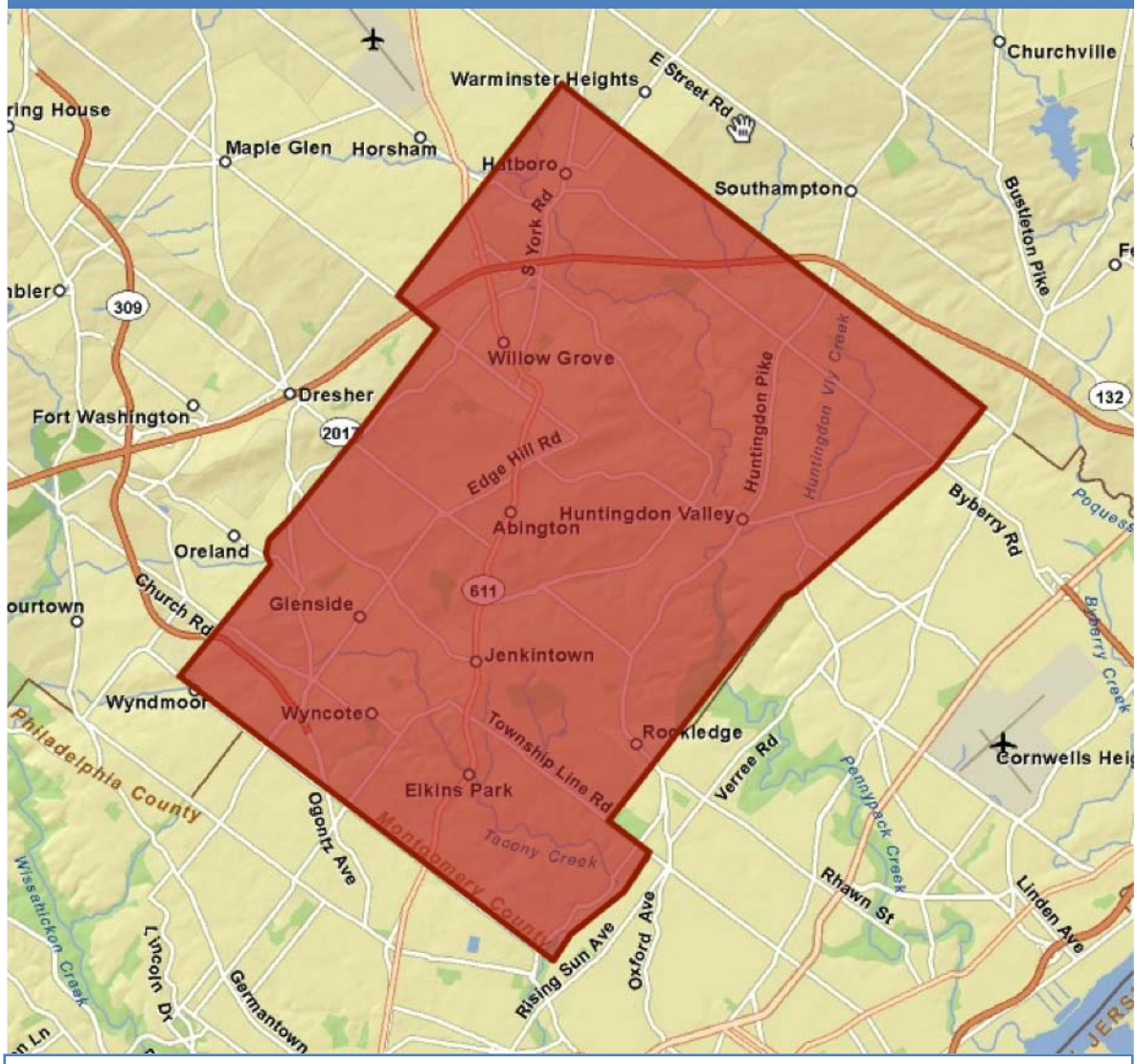
Jenkintown Submarket



Legend

Submarket Area

Fig. A.1.3 - Jenkintown Submarket

below average rates of $104.40 in 2007. Occupancy by day of the week (Appendix Table A-29) shows significantly higher occupancy Monday through Wednesday and Saturday nights, indicating that the hotels serve both business and leisure travelers. The performance by month also indicates a mix of travelers with summer occupancy and room rates at their highest followed by spring rates. Their clustering near I-276 provides a valuable source of pass-by business.

There is a marked shortage of venues for meetings, weddings and other events. Banquet facilities would be a useful addition to the local inventory.

Opportunities for Noble Station TOD

The key sources of demand for a Noble Station Area hotel would be Penn State University – Abington (which serves primarily Montgomery and Bucks counties), Abington Memorial Hospital, Salus University, Manor College and Arcadia University as well as visits to local residents. SEPTA service from the Noble Station also would allow the area to serve tourists to Philadelphia who do not want to spend enough for Center City hotels.

The Noble Station area would be a competitive location given the train access and on-site restaurants, but it could not serve pass-by highway travelers. The study area's businesses primarily serve the local population with limited draw for business visitors. With economic recovery over the next two to three years, a mid-scale limited-service hotel of 100 to 150 rooms could be successful at the Noble station. Though a full-service hotel with restaurant is not recommended for the site, inclusion of a banquet room equipped for caterers could be successful.

Recommended Development

The limited acreage available for new development at the Noble station is a major constraint. Combined with the structured parking required to replace SEPTA and Noble Plaza office parking spaces, the site can support one building. Building economics that favor wood-frame construction will likely limit the scale of supportable new development to five stories. These site limitations suggest that a developer would need to choose between building multi-family residential units or a hotel.

PES would recommend development of housing for a mix of college students, young professionals and empty nesters with 100 to 200 units. Roughly one-half of the units should be designed for shared use by students in either two- or four-bed configurations. Quality design, finishes and amenities would enhance the project's marketability, including a workout room and lounge.

Retail development on the first floor would help to further animate the site, taking advantage of the new public space amenities. However, the limited visibility and the availability of vacant space in Noble Square suggests that new retail space should be limited to a sit-down restaurant and possibly one or two small shops.

Parking on the site will need to serve the residential units and replace the displaced office and transit parking. In addition, Penn State University – Abington's severe parking shortages would justify University investment in off-site parking. Co-location with the train station and student housing would provide operational efficiencies for the campus shuttle buses. The number of required spaces has not been determined yet.

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Appendix Tables

Table A-1
Population Change

	Total Population			Percent Change 1990 - 2000	Percent Change 2000 - 2010
	1990	2000	2010		
Study Area	42,236	43,056	42,831	1.9%	-0.5%
Abington Township	56,322	56,103	55,310	-0.4%	-1.4%
Montgomery County	678,111	750,097	799,874	10.6%	6.6%

Sources: U.S. Census 1990, 2000 and 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-2
Number of Households

	Total Households			% Change 1990 - 2000	% Change 2000 - 2010
	1990	2000	2010		
Study Area	17,061	17,379	17,650	1.9%	1.5%
Abington Township	21,543	21,690	21,382	0.7%	-1.4%
Montgomery County	254,596	286,098	307,750	12.4%	7.0%

Sources: U.S. Census 1990, 2000 and 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-3
Average Household Size

	Household Size			% Change 1990 - 2000	% Change 2000 - 2010
	1990	2000	2010		
Study Area	2.37	2.42	2.38	2.3%	-1.7%
Abington Township	2.52	2.54	2.55	1.0%	0.4%
Montgomery County	2.48	2.54	2.53	2.6%	-0.4%

Sources: U.S. Census 2000 and 2010; ESRI , 2010; Partners for Economic Solutions, 2011.

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Table A-4						
Households by Number of Persons						
	Abington Township			Montgomery County		
	1990	2000	2010	1990	2000	2010
Number of Persons in Household						
1	5,181	5,618	5,544	61,888	73,241	80,881
2	7,333	7,288	7,009	83,044	95,271	101,109
3	3,598	3,405	3,600	43,893	46,920	51,150
4	3,167	3,210	3,139	39,926	43,773	45,890
5	1,618	1,497	1,392	18,345	18,882	19,328
6	524	477	444	5,404	5,722	6,115
7 or More	143	195	254	2,096	2,575	3,277
Total	21,564	21,690	21,382	254,596	286,098	307,750
Average HH Size	2.52	2.54	2.55	2.48	2.54	2.53
Percent of Households by Number of Persons						
1	24.0%	25.9%	25.9%	24.3%	25.6%	26.3%
2	34.0%	33.6%	32.8%	32.6%	33.3%	32.9%
3	16.7%	15.7%	16.8%	17.2%	16.4%	16.6%
4	14.7%	14.8%	14.7%	15.7%	15.3%	14.9%
5	7.5%	6.9%	6.5%	7.2%	6.6%	6.3%
6	2.4%	2.2%	2.1%	2.1%	2.0%	2.0%
7 or More	0.7%	0.9%	1.2%	0.8%	0.9%	1.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Source: U.S. Census 1990, 2000, and 2010; Partners for Economic Solutions, 2011.						

Table A-5
Median Age

	2000	2010	Percent Change 2000 - 2010
Study Area	42.3*	45.2	6.9%
Abington Township	40.6	42.8	5.4%
Montgomery County	38.2	40.6	6.3%

*Study Area median age is a weighted average of all Census tracts.

Sources: U.S. Census 2000; 2007; 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-6
Age Distribution

	0-17 Years		18-34 Years		35-49 Years		50-64 Years		65+ Years	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Study Area	22.7%	20.1%	16.9%	17.3%	23.6%	19.8%	16.2%	21.7%	20.6%	21.1%
Abington Township	23.6%	22.5%	17.6%	18.3%	24.0%	20.3%	15.8%	21.7%	19.1%	17.6%
Montgomery County	24.1%	23.0%	20.5%	19.8%	24.6%	21.7%	15.8%	20.5%	14.9%	15.1%

Sources: U.S. Census 2000, 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-7
Median Household Income (In 2010 Dollars)

	Median HH Income			% Change 1990 - 2000	% Change 2000 - 2010	% Change 1990 - 2010
	1990	2000	2010			
Study Area	$77,170	$77,063	$77,330	-0.1%	0.3%	0.2%
Abington Township	$75,514	$76,083	$76,807	0.8%	1.0%	1.7%
Montgomery County	$74,871	$78,101	$80,500	4.3%	3.1%	7.5%

Sources: U.S. Census 1990 and 2000; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-8
Household Income Distribution: 2010

	Less than $30,000	$30,000 to $74,999	$75,000 to $124,999	$125,000 and over
Study Area	14.6%	33.6%	27.0%	24.8%
Abington Township	14.6%	33.8%	29.8%	22.0%
Montgomery County	13.7%	31.8%	30.0%	24.7%

Source: ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-9
Housing Tenure

	Percent of Occupied Units					
	Owner-Occupied			Renter-Occupied		
	1990	2000	2010	1990	2000	2010
Study Area	72.8%	73.7%	72.2%	27.2%	26.3%	27.8%
Abington Township	78.5%	79.3%	78.2%	21.5%	20.7%	21.8%
Montgomery County	72.3%	73.5%	73.1%	27.7%	26.5%	26.9%

Sources: U.S. Census 2000 and 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

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Table A-10
Housing Units

	1990	2000	2010	Percent Change 1990 - 2000	Percent Change 2000 - 2010
Study Area	17,594	17,995	18,404	2.3%	2.3%
Abington Township	22,116	22,367	22,369	1.1%	0.0%
Montgomery County	265,856	297,434	325,735	11.9%	9.5%

Sources: U.S. Census 1990, 2000 and 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-11
Housing Type

	Single-Family Home		Townhouses		Medium Scale Multi-Family		Large Scale Multi-Family Building		Other	
	1, detached		1 or 2 units		3 to 49 units		50 or more units		Mobile Homes, RVs,	
	1990	2000	1990	2000	1990	2000	1990	2000	1990	2000
Study Area	62.3%	62.9%	11.4%	11.5%	12.4%	11.3%	12.6%	14.2%	0.3%	0.1%
Abington Township	70.5%	71.0%	11.2%	11.6%	9.3%	8.4%	8.0%	9.0%	0.9%	0.1%
Montgomery County	55.5%	56.0%	20.9%	22.3%	12.3%	11.3%	9.3%	9.4%	2.0%	0.9%

Sources: U.S. Census 1990 and 2000.

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Table A-12. Housing Units Authorized by Building Permits												
Unit Type	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Total**
Abington Township												
Single-Family Units	15	13	16	35	23	23	19	15	11	16	10	196
Two-Family Units	-	-	-	-	-	-	-	-	-	-	-	-
Three- & Four-Family Units	-	-	-	-	3	6	6	6	-	-	-	21
Five or more Family Units	-	-	-	-	-	-	-	-	-	-	-	-
Total New Units	15	13	16	35	26	29	25	21	11	16	10	217
Montgomery County												
Single-Family Units	2,780	2,644	2,352	2,132	2,254	2,300	1,911	1,599	1,274	643	879	20,768
Two-Family Units	12	4	16	84	4	14	22	40	8	22	50	276
Three- & Four-Family Units	102	36	8	49	76	76	76	65	26	4	4	522
Five or more Family Units	164	190	277	333	353	1,278	603	619	26	131	128	4,102
Total New Units	3,058	2,874	2,653	2,598	2,687	3,668	2,612	2,323	1,334	800	1,061	25,668

Sources: U.S. Census Bureau; Partners for Economic Solutions, 2011.

Table A-13
Housing Vacancy

	Vacancy Rate		
	1990	**2000**	**2010**
Study Area	3.4%	3.3%	4.1%
Abington Township	2.6%	3.0%	4.4%
Montgomery County	4.1%	3.8%	5.5%

Sources: U.S. Census 1990, 2000 and 2010; ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-14
Apartment Inventory, Moreland/Abington/Upper Dublin Subarea

Year	Number of Units	Vacancy Rate	Asking Rent	Effective Rent
2006	8,993	5.4%	$1,125	$1,065
2007	8,993	4.3%	$1,202	$1,152
2008	8,993	8.0%	$1,230	$1,186
2009	8,993	7.4%	$1,212	$1,159
2010	8,993	4.3%	$1,220	$1,186
First Quarter, 2011	8,993	4.5%	$1,209	$1,174

Sources: REIS, 2011; and Partners for Economic Solutions, 2011.

Table A-15
Rent and Vacancy by Age of Building

Year Built	Asking Rent	Vacancy Rate
Before 1970	$1,145	4.7%
1970-1979	$1,405	3.6%
1980-1989	$1,156	3.1%
1990-1999	$1,416	6.0%
2000-2009	$1,944	3.8%
After 2009	NA	NA
Total	$1,209	4.5%

Sources: REIS, 2011; Partners for Economic Solutions, 2011.

Table A-16
Average Apartment Rents and Sizes, Moreland/Abington/Upper Dublin Subarea

Size	Rent	Average Square Feet	Average Rent per Sq. Ft.
Studio/Efficiency	$879	462	$1.90
One Bedroom	$993	694	$1.43
Two Bedrooms	$1,254	989	$1.27
Three Bedrooms	$2,156	1,591	$1.36

Sources: REIS, 2011; Partners for Economic Solutions, 2011.

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Table A-17
Comparable Rentals in the Abington Area

	Monthly Rent	Square Feet	Monthly Rent Per Square Foot
The New Lynnewood Gardens			
1BR	$695 - $900	575 - 657	$1.21 - $1.37
2BR	$875 - $1,000	810 - 831	$1.08 - $1.20
3BR (Townhomes)	$1,500	1,120	$1.34
Rosedale Court			
1BR	$825 - $875	775	$1.06 - $1.13
2BR	$975 - $1,050	902	$1.08 - $1.16
Jericho Manor			
1BR	$980 - $1,110	562 - 767	$1.44 - $1.74
2BR	$1,150 - $1,615	878 - 1313	$1.23 - $1.31
3BR (Townhomes)	$1,780 - $1,925	1481 - 1698	$1.13 - $1.20
The Colonade			
Studio	$600 - $920	265 - 485	$1.90 - $2.26
1BR	$792 - $979	640 - 800	$1.22 - $1.24
2BR	$1,200 - $1,675	1,000 - 1,235	$1.20 - $1.36
3BR	$1,500 - $1,833	1,250 - 1,500	$1.20 - $1.22
Edge Hill Apartments			
1BR	$740 - $756	700	$1.06 - $1.08
2BR	$925	850	$1.09
Bradfield Court Apartments			
1BR	$860	600	$1.43
2BR	$970	810	$1.20

Sources: Listings provided at www.rent.com and www.apartments.com, August 2011; Partners for Economic Solutions, 2011.

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Table A-18 Distribution of Housing Value						
Housing Value	Study Area		Abington		Montgomery County	
2007						
<$10,000 to $199,000	1,192	9.0%	1,503	8.6%	30,496	13.6%
$200,000 to $399,999	8,581	65.8%	12,781	73.5%	154,211	68.9%
$400,000 to $1,000,000+	3,257	25.0%	3,101	17.8%	39,135	17.5%
Total	13,030	100.0%	17,385	100.0%	223,842	100.0%
2010						
<$10,000 to $199,000	2,241	17.6%	3,627	21.1%	47,259	21.3%
$200,000 to $399,999	7,839	61.5%	11,083	64.4%	121,399	54.8%
$400,000 to $1,000,000+	2,664	20.9%	2,499	14.5%	53,045	23.9%
Total	12,744	100.0%	17,209	100.0%	221,703	100.0%

Sources: ESRI, 2010; Partners for Economic Solutions, 2011.

Table A-19
Single-Family Home Sales in Abington Township: 2011*

Number of Bedrooms	Average Selling Price	Average Price per Square Foot
2	$202,500	$195
3	$226,270	$148
4	$252,133	$137
5	$216,000	$138
6	$320,000	$118

Notes: *Averages based on homes sold in zip code 19001 from February through July 2011 listed on Trulia as of August 2011.
Sources: Trulia.com, August 2011; Partners for Economic Solutions, 2011.

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Table A-20
Listing Prices for Condominiums

Town/Borough	Listing Prices for One- to Two-Bedroom Condominiums	Price Per Square Foot
Abington[1]	$69,990 - $160,000	$108 - $197
Elkins Park[2]	$58,900 - $399,900	$80 - $244
Wyncote[3]	$68,900 - $104,900	$77 - $105

Notes: [1] Sample of 3 listings; [2] Sample of 21 listings; [3] Sample of 3 listings.

Sources: Listings provided at www.trulia.com, August, 2011; Partners for Economic Solutions, 2011.

Table A-21
Primary Market Area Retail Centers

Name	Town/ Borough	Type	Square Feet (including anchors)	Anchors
Abington Shopping Center	Abington	Neighborhood	74,000	Rite Aid, Giant
Abington Towne Center	Abington	Community	216,000	Target, TJ Maxx
Baederwood Shopping Center[1]	Abington	Neighborhood	106,000	Chico's, Whole Foods
Huntingdon Valley Shopping Center	Abington	Community	198,000	Genuardi's, Rite Aid
Noble Square	Abington	Neighborhood	29,000	Chili's
Noble Town Center	Abington	Community	168,000	Stein Mart, Bed Bath & Beyond, Petsmart, Walgreens
Cloverly Plaza	Jenkintown	Neighborhood	29,000	CVS
Jenkintown Commons	Jenkintown	Neighborhood	36,000	Pearle Vision
Jenkintown Square	Jenkintown	Neighborhood	29,000	Dunkin' Donuts
The Pavilion	Jenkintown	Neighborhood	95,000	Nicole's Bridal
The Shops at The Pavilion	Jenkintown	Community	173,000	Acme, Burlington Coat Factory

Notes: [1] Reflects approximate square footage after planned expansion

Sources: Shopping Center Directory, 2005; Times Chronicle Glenside News, August 2007; LoopNet, 2011; Project websites; Partners for Economic Solutions, 2011.

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Table A-22
Primary Market Area Retail Expenditures, 2010

Industry Group	Expenditure Potential
Motor Vehicle & Parts Dealers (NAICS 441)	$126,080,653
Furniture & Home Furnishings Stores (NAICS 442)	$18,782,599
Electronics & Appliance Stores (NAICS 443/NAICS 4431)	$19,342,861
Bldg Materials, Garden Equip. & Supply Stores (NAICS 444)	$24,991,094
Food & Beverage Stores (NAICS 445)	$122,186,123
Health & Personal Care Stores (NAICS 446/NAICS 4461)	$23,835,211
Clothing and Clothing Accessories Stores (NAICS 448)	$27,698,110
Sporting Goods, Hobby, Book, and Music Stores (NAICS 451)	$7,842,738
General Merchandise Stores (NAICS 452)	$58,200,216
Miscellaneous Store Retailers (NAICS 453)	$11,458,962
Food Services & Drinking Places (NAICS 722)	$90,044,151

Source: ESRI Business Analyst, 2010; Partners for Economic Solutions, 2011.

Table A-23
Primary Market Area Retail Sales, 2010

Industry Group	Total Retail Sales
Motor Vehicle & Parts Dealers (NAICS 441)	$250,714,575
Furniture & Home Furnishings Stores (NAICS 442)	$17,393,982
Electronics & Appliance Stores (NAICS 443/NAICS 4431)	$15,205,547
Bldg Materials, Garden Equip. & Supply Stores (NAICS 444)	$6,063,798
Food & Beverage Stores (NAICS 445)	$233,661,177
Health & Personal Care Stores (NAICS 446/NAICS 4461)	$45,547,251
Clothing and Clothing Accessories Stores (NAICS 448)	$17,626,851
Sporting Goods, Hobby, Book, and Music Stores (NAICS 451)	$10,706,447
General Merchandise Stores (NAICS 452)	$22,780,531
Miscellaneous Store Retailers (NAICS 453)	$8,335,626
Food Services & Drinking Places (NAICS 722)	$71,032,627

Source: ESRI Business Analyst, 2010; Partners for Economic Solutions, 2011.

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Table A-24
Primary Market Area Retail Leakage/(Surplus), 2010

Industry Group	Retail Gap
Motor Vehicle & Parts Dealers (NAICS 441)	($124,633,922)
Furniture & Home Furnishings Stores (NAICS 442)	$1,388,617
Electronics & Appliance Stores (NAICS 443/NAICS 4431)	$4,137,314
Bldg Materials, Garden Equip. & Supply Stores (NAICS 444)	$18,927,296
Food & Beverage Stores (NAICS 445)	($111,475,054)
Health & Personal Care Stores (NAICS 446/NAICS 4461)	($21,712,040)
Clothing and Clothing Accessories Stores (NAICS 448)	$10,071,259
Sporting Goods, Hobby, Book, and Music Stores (NAICS 451)	($2,863,709)
General Merchandise Stores (NAICS 452)	$35,419,685
Miscellaneous Store Retailers (NAICS 453)	$3,123,336
Food Services & Drinking Places (NAICS 722)	$19,011,524

Source: ESRI Business Analyst, 2010; Partners for Economic Solutions, 2011.

Table A-25
Office Trends, Jenkintown Submarket

Year	Square Feet	Occupied Square Feet	Absorption	Vacancy Rate	Asking Rent	Effective Rent
2006	1,752,000	1,565,000	(31,000)	10.7%	$19.32	$16.54
2007	1,847,000	1,720,000	155,000	6.9%	$19.67	$17.48
2008	1,847,000	1,563,000	(157,000)	15.4%	$20.06	$17.21
2009	1,847,000	1,557,000	(6,000)	15.7%	$19.35	$16.37
2010	1,847,000	1,546,000	(11,000)	16.3%	$19.86	$17.00
First Quarter, 2011	1,847,000	1,516,000	(30,000)	17.9%	$20.11	$17.20

Sources: REIS, 2011; and Partners for Economic Solutions, 2011.

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Table A-26
Office Inventory by Building Age

Year Built	Percent of Total Space	Vacancy Rate	Asking Rent
Before 1970	23%	21.0%	$17.43
1970-1979	35%	23.2%	$20.89
1980-1989	31%	12.5%	$19.97
1990-1999	8%	10.0%	$22.79
2000-2009	2%	11.2%	$26.23
After 2009	0%	NA	NA
Total	100%	17.9%	$20.11

Sources: REIS, 2011; Partners for Economic Solutions, 2011.

Table A-27
Competitive Hotel Inventory

Hotel	Number of Rooms	Date Opened	Type
Days Inn Horsham Philadelphia	171	Nov-87	Economy
Springhill Suites Philadelphia Willow Grove	155	Mar-02	Upscale
Hampton Inn Philadelphia Willow Grove	150	Aug-91	Upper Midscale
Courtyard by Marriott, Philadelphia Willow Grove	149	Jul-89	Upscale
Homestead Horsham Willow Grove	136	Jun-98	Economy
Residence Inn Philadelphia Willow Grove	118	Dec-90	Upscale
Extended Stay America Philadelphia Horsham	116	Dec-01	Economy
Candlewood Suites Philadelphia Willow Grove	110	Oct-97	Midscale
Total	1,105		

Sources: STR Global, 2011; Partners for Economic Solutions, 2011.

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Table A-28
Hotel Performance Trends

Year	Percent Occupied	Average Daily Rate	Revenue per Available Room (RevPar)
2005	73.2%	$94.66	$69.32
2006	69.1%	$100.86	$69.68
2007	66.2%	$104.40	$69.08
2008	61.5%	$105.34	$64.76
2009	60.6%	$85.87	$52.05
2010	69.0%	$81.87	$56.52
Jan.-July 2011	73.3%	$83.58	$61.27

Sources: STR Global, 2011; Partners for Economic Solutions, 2011.

Table A-29
Hotel Performance by Day of the Week, August 2010-July 2011

Day	Percent Occupied	Average Daily Rate	Revenue per Available Room (RevPar)
Monday	74.5%	$90.47	$67.38
Tuesday	82.9%	$94.67	$78.48
Wednesday	80.9%	$92.78	$75.04
Thursday	67.6%	$82.48	$55.73
Friday	65.1%	$69.97	$45.56
Saturday	72.9%	$71.84	$52.36
Sunday	53.9%	$74.35	$40.10
Average	71.1%	$83.28	$59.18

Sources: STR Global, 2011; Partners for Economic Solutions, 2011.

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Table A-30
Hotel Performance by Month, August 2010-July 2011

Day	Percent Occupied	Average Daily Rate	Revenue per Available Room (RevPar)
August	79.0%	$82.96	$65.53
September	69.9%	$83.14	$58.10
October	70.0%	$86.28	$60.39
November	65.6%	$84.64	$55.50
December	55.3%	$75.88	$41.98
January	60.5%	$76.64	$46.35
February	66.0%	$80.27	$52.95
March	76.8%	$82.50	$63.34
April	76.7%	$81.51	$62.48
May	76.0%	$88.17	$66.99
June	80.6%	$88.54	$71.39
July	76.3%	$85.13	$64.93
Average	71.1%	$83.28	$59.18

Sources: STR Global, 2011; Partners for Economic Solutions, 2011.

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