



Regional Rail Stations Closures Study



Delaware Valley Regional Planning Commission

November 2003



Regional Rail Stations Closures Study

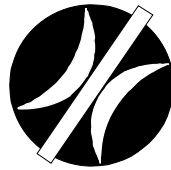


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Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency that provides continuing, comprehensive and coordinated planning to shape a vision for the future growth of the Delaware Valley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



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

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

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EXECUTIVE SUMMARY

In the Spring of 2003, the Southeastern Pennsylvania Transportation Authority (SEPTA) announced that it would institute fare increases and initiate major service cutbacks in its FY'04 service plan to stave off a \$55 million operating deficit. The proposed service cutbacks included reductions in scheduled transit services, closure of individual low volume regional rail stations and service discontinuance along selected rail lines within its system. Ultimately, a short-term solution was implemented, through its budgetary process, which had less severe impacts on its system.

Coincidentally, over the past three years, DVRPC staff has been engaged in the Regional Rail Improvement Study—a separate investigation of ways to make the regional rail component of the SEPTA system more efficient. Through the work, various improvement strategies were cataloged to reduce travel time and increase the reliability of regional rail service. The study was guided by a multijurisdictional Technical Advisory Committee (TAC) and supported by the technical expertise of Systra Consulting, Inc..

To date, strategies along the R5 - Lansdale / Doylestown and R3 - Media / Elwyn lines have been identified. The findings of both of the studies cited the closure of specific low activity stations as one means to improve onboard travel time. Systra's published recommendations acknowledged that more details needed to be examined before deciding to close a station and displace riders.

The Regional Rail Stations Closures Study was conducted to determine those details and provide the information which SEPTA needs to make those decisions, in regard to the following stations:

- Lamokin Street Station on the R2 - Wilmington and Newark Line
- Angora Station on the R3 - Media / Elwyn Line
- Delaware Valley College Station on the R5 - Lansdale / Doylestown Line
- New Britain Station on the R5 - Lansdale / Doylestown Line
- Link Belt Station on the R5 - Lansdale / Doylestown Line
- Fortuna Station on the R5 - Lansdale / Doylestown Line
- Wissinoming Station on the R7 - Trenton Line

Each of the seven stations served fewer than 100 boarding passengers per weekday, according to statistics contained in SEPTA's 2001 *Rail Ridership Census*. Some stations were below the threshold SEPTA actively considers for abandonment (fewer than 50 boardings per weekday).

To complete this detailed study, technical activities were undertaken by DVRPC staff to address 10 key issues identified by Systra in its evaluation of the R5 Line. The follow-up issues were:

1. The total additional travel time for those forced to access another station.
2. The number of people who presently walk, or use interconnecting transit services, between their homes and each of the lightly used stations.
3. The number of reverse commuters who presently walk, or use interconnecting transit services, between the lightly used station and their place of employment.
4. The proximity of that employment to an adjacent station or other transit service.
5. The ability of adjacent stations' parking supply (existing and proposed), and the availability of interconnecting transit services (existing and proposed) to absorb displaced riders.
6. The impact on land use, environmental justice, air quality, property values and automobile vehicle miles traveled, surrounding closed stations.
7. The expected number of additional riders (peak, reverse-peak and off-peak) attracted due to the resultant faster train travel time.
8. The expected number of riders lost due to the station closing.
9. The impact of the changes on operating, maintenance and capital costs, and on revenues.
10. The legal / institutional ramifications of closing a station.

To properly address the outlined issues, DVRPC staff performed three levels of data collection and analyses. Field views and passenger surveys were conducted at each low volume station. These served in assessing the consequences of closing stations at the station level. Second, DVRPC's travel demand forecasting model was employed to determine whether increased speed of train operations, resulting from the station closures, would induce increased ridership on each of the four affected rail lines (R2, R3, R5 and R7). Lastly, using supplemental data and its own resources, DVRPC staff prepared a financial analysis of the seven stations closures program.

Total daily boardings at all seven stations in 2001 was 341 patrons—ranging between 22 patrons at Wissinoming Station to 92 customers at the Fortuna Station. From the passenger survey results an understanding of existing and contingency travel patterns were ascertained. If the stations were to close:

- Almost one-half of all boarding patrons (166) would change to an alternate station (parking diversions can be absorbed into the present supply of SEPTA parking at the adjacent stations).
 - Thirteen percent of the boarding customers (45) would use an available public transportation alternative to complete their trip (most at Angora and Wissinoming stations).
-

- Thirty-eight percent of the boarding patrons (130) would leave SEPTA to drive to their destination or abandon the trip altogether (119 of these patrons used one of the four R5 - Doylestown branch stations—the majority were reverse commuters without public transportation alternatives).

Further analyses of the survey results, and supporting technical and financial data from in-house sources, SEPTA and Systra Consulting, Inc., allowed DVRPC staff to prepare performance measures to assess the station closures program. These are summarized below (complete narrative and tabulated details are contained in the full report).

Summary of Closure Program’s Performance Statistics

1. Additional travel time per day encountered by displaced station users	109.20 hrs.
2. Travel time saved per day by onboard regional rail passengers skipping the closed stations	337.60 hrs.
3. Overall travel time savings per day (#2 - #1)	228.40 hrs.
4. Range of changes in daily line ridership, resulting from faster train operations (based on DVRPC travel forecasts)	-1% to +3%

Summary of Closure Program’s Financial Analyses

1. Net annual operating and maintenance costs savings to SEPTA (includes power, snow removal, etc.)	\$159,100
2. Net capital costs savings to SEPTA (one-time expenditures avoided / repaid in the matters of providing ADA accessibility at the stations)	\$7.74 million+
3. Additional annual costs to PennDOT and FTA to fund proposed job access / reverse commute bus service for displaced R5 - Doylestown branch customers (jointly operated between Lansdale and Doylestown by the Bucks County and Partnership TMAs)	\$204,000
4. Additional annual fare revenue to SEPTA resulting from forecasted ridership changes	\$380,000 to \$390,000

Based upon the evaluation of human, economic and institutional factors, the study recommended a stepped station closures program to reduce travel times, increase the reliability and efficiency of the four affected regional rail lines, and accommodate the travel needs of displaced patrons that do not have transportation alternatives.

Recommended Implementation Steps

1. Plan for Closure:

- Lamokin Street Station on the R2 - Wilmington and Newark Line
- Angora Station on the R3 - Media / Elwyn Line
- Wissinoming Station on the R7 - Trenton Line

2. Plan for Closure - Contingent upon Proven Alternate Service:

- New Britain Station on the R5 - Lansdale / Doylestown Line
- Link Belt Station on the R5 - Lansdale / Doylestown Line

3. Maintain Service, but Monitor:

- Fortuna Station on the R5 - Lansdale / Doylestown Line

4. Maintain Rail Service at the Station:

- Delaware Valley College Station on the R5 - Lansdale / Doylestown Line

It is acknowledged that SEPTA has its own service standards in place with which it evaluates its efficiency. The evaluation methodology used in this effort provides a replicable procedure that comprehensively assessed station closures, quantified value and impact, and recommended alternatives so that transportation services are continued for a majority of the affected customers. In light of its present financial state, SEPTA may consider enlisting DVRPC's assistance to extend the analyses to other low volume regional rail stations to systematize or bolster its program of station closures, and/or to reevaluate its service standards threshold.

INTRODUCTION

For the past three years, DVRPC has been engaged in the Regional Rail Improvement Study. Through the work, various improvement strategies were cataloged to reduce travel time and increase the reliability of regional rail service. The study was guided by a multijurisdictional Technical Advisory Committee (TAC) and supported by the technical expertise of Systra Consulting, Inc..

To date, strategies along the R5 - Lansdale / Doylestown and R3 - Media / Elwyn lines have been identified. Both studies cited the closure of specific low activity stations as one means to improve onboard travel time. Systra's published recommendations acknowledged that more details needed to be examined before deciding to close a station and displace riders.

As a result of and as a complement to Systra's initial study findings, DVRPC prepared an initial region-wide inventory of 35 low volume SEPTA rail stations for possible inclusion into a detailed evaluation of station closures. As a consequence of the TAC's review, seven stations remained for detailed study. These were:

1. Lamokin Street Station on the R2 - Wilmington and Newark Line
2. Angora Station on the R3 - Media / Elwyn Line
3. Delaware Valley College Station on the R5 - Lansdale / Doylestown Line
4. New Britain Station on the R5 - Lansdale / Doylestown Line
5. Link Belt Station on the R5 - Lansdale / Doylestown Line
6. Fortuna Station on the R5 - Lansdale / Doylestown Line
7. Wissinoming Station on the R7 - Trenton Line

Each of the seven stations served fewer than 100 boarding passengers per weekday according to statistics contained in SEPTA's 2001 *Rail Ridership Census*. Some stations were below the threshold SEPTA actively considers for abandonment (fewer than 50 boardings per weekday). Other low volume stations in the region may have been omitted from this study's efforts because of the role they play in supporting municipal plans. Higher activity stations are represented in the list due, in part, to findings of the previous Systra studies.

To complete this detailed study, technical activities were undertaken by DVRPC staff to address ten key issues originally identified by Systra in its evaluation of the R5 Line. The follow-up issues were:

1. The total additional travel time for those forced to access another station.
 2. The number of people who presently walk, or use interconnecting transit services, between their homes and each of the lightly used stations.
-

3. The number of reverse commuters who presently walk, or use interconnecting transit services, between the lightly used station and their places of employment.
4. The proximity of that employment to an adjacent station or other transit service.
5. The ability of adjacent stations' parking supply (existing and proposed), and the availability of interconnecting transit services (existing and proposed) to absorb displaced riders.
6. The impact on land use, environmental justice, air quality, property values and automobile vehicle miles traveled, surrounding closed stations.
7. The expected number of additional riders (peak, reverse-peak and off-peak) attracted due to the resultant faster train travel time.
8. The expected number of riders lost due to the station closing.
9. The impact of the changes on operating, maintenance and capital costs, and on revenues.
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To properly address the outlined issues, DVRPC performed three levels of data collection and analyses. Field views and passenger surveys were conducted at each low volume station. These served in assessing the consequences of closing stations at the station level. Second, DVRPC's travel demand forecasting model was employed to determine whether increased speed of train operations, resulting from the station closures, would induce increased ridership on each of the four affected rail lines (R2, R3, R5 and R7). Lastly, using supplemental data and its own resources, DVRPC staff prepared a financial analysis of the seven stations closures program.

BACKGROUND

To initiate the work, DVRPC staff collected and analyzed a series of published data sets. A primary source was the 2001 SEPTA *Rail Ridership Census*, and each line's timetable.

Service along the regional rail system in the Delaware Valley generally spans the hours between 5:30 AM and 1:00 AM. R5 service north of Lansdale ends at 11:00 PM.

Levels of service to stations in the region varies. In this study's set of stations:

- Lamokin Street and Angora stations receive 30-minute headways in the peaks, in both the inbound and outbound directions. During the remaining times of the day, hourly headways prevail.
 - The R5 Line's set of stations receive 30-minute service intervals in the peaks for the predominant direction of travel. All other service is rendered at 60-minute headways.
 - Hourly train service is provided to Wissinoming all day long in both directions.
-

Table 1 provides a general description of the study station locations (fare zone and municipality) and tabulates weekday boarding activity at the stations. Each of the stations are low volume stations serving fewer than 100 boarding passengers per weekday. With the exception of the Lamokin Street Station, weekend ridership at each station was less than half the weekday levels. Lamokin Street's Saturday activity was approximately equal to weekday ons and offs.

Table 2 provides a breakdown of the weekday boarding activity by time period and direction. Shading is provided to help identify boarding and alighting patterns at the station. The patterns describe the function that the station serves and the degree to which the station is integrated within its neighborhood. In turn, that guided DVRPC staff in identifying the hours to conduct its station passenger surveys. For example:

- Lamokin Street - "Typical" commuter usage during weekday peak - AM inbound ons and PM outbound offs (yellow cells). The station is generally located at the residential end of the trip. Some midday use on weekdays (orange cells).
 - Angora - "Typical" commuter usage during weekday peak - AM inbound ons and PM outbound offs (yellow cells). The station is focused at the residential end of the trip.
 - Delaware Valley College - Serves residential end (yellow cells) and school / employment end (pink cells) trip-making during the peaks, i.e., two-directional travel. Employment end trips are characterized by alightings during the morning peak, and boarding during the evening peak. The station also experiences midday activity (orange cells) and evening activity (green cells), consistent with the comings and goings of student residents and evening classes at the college.
 - New Britain - Serves residential end (yellow cells) and employment end (pink cells) during the peaks, i.e., two-directional travel.
 - Link Belt - Overwhelmingly reflects reversed ridership - outbound offs in AM peak and inbound ons in PM (pink cells). The station is located at the employment end.
 - Fortuna - Serves residential end (yellow cells) and employment end (pink cells) trip-making during the peaks. Evening activity at the station (green cells) is also documented.
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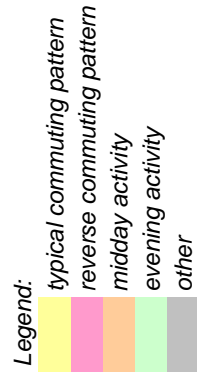
TABLE 1: Weekday Ridership

Station Name	Rail Line	fare zone	Municipality	County	Weekday Activity in 2001 (SEPTA Rail Census)					
					Inbound board	Inbound leave	Outbound board	Outbound leave	Total board	Total leave
1 Lamokin Street	R2 Wilmington and Newark	3	Chester City	Delaware	38	7	9	34	47	41
2 Angora	R3 Media / Elwyn	1	Southwest Phila.	Philadelphia	21	14	11	24	32	38
3 Delaware Valley College	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	62	1	0	53	62	54
4 New Britain	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	46	0	2	66	48	66
5 Link Belt	R5 Lansdale / Doylestown	5	HATFIELD	Montgomery	40	0	0	65	40	65
6 Fortuna	R5 Lansdale / Doylestown	5	HATFIELD	Montgomery	90	2	1	91	91	93
				<i>R5 subtotal</i>	238	3	3	275	241	278
7 Wissinoming	R7 Trenton	2	Bridesburg, Kensington, Richmond	Philadelphia	18	5	3	18	21	23
				Total	315	29	26	351	341	380

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TABLE 2: Ridership Breakdown by Time Period and Direction

Station Name		2001 Weekday Ridership (SEPTA Rail Census)															
		INBOUND							OUTBOUND								
		AM		MD		PM		EVE		AM		MD		PM		EVE	
brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve
Rail Line	Station Name	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve	brd	lve
1	Lamokin Street	18	0	13	1	4	4	3	2	1	4	4	10	1	10	3	10
2	Angora	15	0	5	4	1	5	0	5	5	2	4	2	1	12	1	8
3	Delaware Valley College	22	0	11	1	20	0	9	0	0	21	0	9	0	15	0	8
4	New Britain	21	0	5	0	19	0	1	0	0	24	0	9	2	26	0	7
5	Link Belt	0	0	2	0	35	0	3	0	0	44	0	13	0	5	0	3
6	Fortuna	52	0	7	1	17	0	14	1	0	10	1	29	0	43	0	9
7	Wissinoming	14	3	2	0	2	2	0	0	0	1	2	4	0	12	1	1



- WISSINOMING - “Typical” commuter usage during weekday peak periods, i.e., AM inbound ons and PM outbound offs (yellow cells). The station is situated at the residential end of the trip.

Table 3 contains some attributes at and surrounding the low volume stations and their neighboring stations. New items introduced in the Table include a summary of ridership and train service operating patterns, parking conditions and plans for expansion, interconnecting / alternate public transportation services, an inventory of ongoing plans and programs that may impact the station area, and environmental justice (EJ) considerations. EJ’s mission—that no racial, ethnic or socioeconomic group bears a disproportionate share of any negative environmental consequences.

The scores shown in the last column of Table 3 summarize potential EJ concerns represented by “degrees of disadvantage.”¹ Accordingly, a total of eight components² are used as indicators of the surrounding resident population’s ability to be fairly represented and treated, and meaningfully involved in the transportation improvement development process.

All station areas, except New Britain, had some EJ issues present in surrounding populations. Considering that New Britain served an almost equal number of reverse commuters, it was suspected that members of these special population groups were also using the station for their journey-to-work. To better understand these and other ridership issues, DVRPC staff conducted passenger surveys at the seven study rail stations.

PASSENGER SURVEYS

DVRPC prepared and administered (in March and April 2003) a questionnaire to station patrons to: gain an understanding of existing and contingency travel patterns, to estimate local impacts of closing stations, and to assist in the travel demand modeling work.

Figure 1 illustrates the final survey “instrument.” The questionnaire was administered:

- In person (quick and highest return rate expected)
- To boarding passengers (most time to interview)
- On both platforms (to get both directions of travel - for multiple trip purposes)
- During key weekday time periods (covering at least half of the expected weekday users)

¹ Source: “... and Justice for All”, DVRPC September 2002.

² The eight elements are: minority, Hispanic, low income, disabled, elderly, car-less, of limited English proficiency, and female head of household with child.

FIGURE 1: Passenger Survey

Station: _____

Platform: _____

Date: _____

Time: _____

Hello, the Delaware Valley Regional Planning Commission (DVRPC) is assisting SEPTA evaluate ways to improve the performance of its regional rail operations. Would you take a few moments to answer some questions which will allow us to properly conduct our evaluation? Thank you.

BOARDING CUSTOMERS

1	How many days of the week do you use this station?
2	How did you arrive at the station? 1.Walked 2.Biked 3.Drove & Parked 4.Dropped-off 5.SEPTA - Bus # ____ 6.Other: ____
3	What is the purpose of this trip? 1.Work 2.Home 3.School 4.Shopping 5.Recreation 6.Other: ____
4	Where did you begin this trip? (suggest: home, work, other)
5	Business name & address / Nearby intersection (if home, other or work?)
6	Municipality? (i.e., City / Township / Borough)
7	Zip Code?
8	To which station are you destined now?
9	What method for fare payment are you using? 1.Trail Pass: a.Monthly b.Weekly 2.Ten Trip 3.Cash
10	Do you know what alternatives exist if this station were to become unavailable for your use?
11	How would you complete your trip?

Thank You

No. _____

Comments / Suggestions (if time permits / if offered)

Various exhibits which summarize the performance and results of the survey effort are provided in the Appendix (in station order, as follows: Lamokin Street - Appendix A, Angora - Appendix B, Delaware Valley College - Appendix C, New Britain - Appendix D, Link Belt - Appendix E, Fortuna - Appendix F, Wissinoming - Appendix G). Provided for each station is a survey fact sheet (Figures A-G 1), a station passenger shed map (Figures A-G 2), and a database table of the tabulated responses (Tables A-G 1).

ESTIMATED STATION LEVEL IMPACTS

Station closures will certainly affect trip making by those who use the station. At the very least, adding travel time where alternatives can be found. Conversely, the closures will benefit onboard passenger travel times to the degree that delays would not be encountered at the skipped stations. Lastly, the closures will affect parking demand conditions at adjacent stations as alternate approaches to the rail lines are sought by displaced station users. The survey data was normalized with SEPTA's 2001 ridership census data and analyzed to estimate these impacts. The discussions that follow assume normalized data sets, not the survey returns.

Changes in Travel Patterns

Table 4 provides a magnitude of the local effects on trip-making patterns. Of the 341 boarding patrons at the stations 166 (49%) would change to an alternate station, 130 (38%) would leave SEPTA—either to drive or abandon the trip altogether, and 45 (13%) would use an available public transportation alternative. Descriptions at the station level follow:

- Lamokin Street Station conditions indicated that the vast majority of boarding patrons (40 of 47) would return to the R2 Line at the Chester Transportation Center (most by available bus routes or walking).
 - Angora Station conditions indicated in the majority (30 of 32) that alternate public transportation modes would be used to complete their trip (West Philadelphia's trolleys, the G bus and the Market-Frankford Elevated Line or "EL").
 - With the exception of Delaware Valley College, the R5 Line's stations (New Britain, Link Belt and Fortuna) are not presently served by alternate transit routes. As such, only a small amount of the R5 riders cited that alternate modes would be used to perform their trip (5 of 241). Interestingly, there was not much knowledge or reference by the Delaware Valley College Station users as to the availability of the Doylestown DART bus service operating between the college and the Doylestown Station.
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TABLE 4: Estimated Effects of Closures on Station Patrons

Station Name	Rail fare line zone	2001 daily boardings (SEPTA)	SEPTA's patrons will be...			Calculated additional daily travel time incurred by "kept" patrons (hh:mm:ss)	Estimated additional daily travel time incurred by "lost" patrons (hh:mm:ss)	Total additional daily travel time incurred by all patrons (hh:mm:ss)
			Lost, cited no alts. or will leave SEPTA*	Kept, at Alt. / Adj. Station*	which station?*			
1 Lamokin Street	R2 3	47	5	40	Chester Transportation Center - 40	18:01:00	01:36:00	19:37:00
2 Angora	R3 1	32	2	0		16:08:00	00:38:00	16:46:00
3 Delaware Valley College	R5 5	62	27	30	Doylestown - 21, New Britain - 9	22:46:00	08:39:00	31:25:00
4 New Britain	R5 5	48	21	27	Chalfont - 13, Doylestown - 8, Lansdale - 3, Colmar - 2, Warminster - 1	02:50:00	06:43:00	09:33:00
5 Link Belt	R5 5	40	29	11	Colmar - 7, Del. Val. Coll. - 4	04:11:00	09:17:00	13:28:00
6 Fortuna	R5 5	91	42	49	Lansdale 41, Colmar - 6, Pennbrook - 2	02:25:00	13:27:00	15:52:00
<i>R5 subtotal</i>		241	119	117		32:12:00	38:06:00	70:18:00
7 Wissinoming	R7 2	21	4	9	Bridesburg - 5, Tacony - 3, Holmesburg Junction - 1	01:13:00	01:17:00	02:30:00
<i>Total</i>		341	130	166				
Total Additional Travel Time (hh:mm:ss)						67:34:00	41:38:00	109:12:00

* values represent passenger survey response data factored to 2001 SEPTA ridership levels

Rather, individually and in total, conditions at the R5 Line stations indicated that roughly half (117 of 241) of the patrons would choose alternate regional rail stations (Delaware Valley College - 4, Doylestown - 29, New Britain - 9, Chalfont - 13, Colmar - 15, Lansdale - 44, Pennbrook - 2, Warminster - 1). The remaining half of users (119 of 241) indicated that they would abandon the SEPTA system to drive or not make the trip. The majority of patrons that indicated they would abandon the trip entirely were reverse commuters.

Major destinations of the R5 stations' reverse commuters were: Delaware Valley College, McKnight's Smoked Foods (served by the New Britain Station), R&B Industries (Link Belt Station), Brightfield's Nursing and Convalescent Center and M. H. Zeigler and Son's Juices & Apple Cider (at Fortuna Station). All these employers are within one-half mile of the respective stations.

- Wissinoming Station conditions indicated that only a minority of users (4 of 21) would be without an option if the station were to close. The remaining patrons would split equally between an alternate station or available public transportation options (the "EL" and the 56 bus).

Changes in Travel Times

Estimates of travel time changes were manually prepared.

At the station level, travel time differences were computed assuming identified travel alternatives according to the survey responses (using published transit schedules, and typical walking speeds or appropriate area-wide driving speeds versus travel distances). The data was then normalized to SEPTA 2001 ridership levels. Average system-wide travel time increases for those identifying alternatives (19 minutes per passenger per day) were applied to the "lost patrons"³ (rationally assuming that this group would do something with their time, which would be in line with the majority of the population) and summed with the estimated increases for "kept riders"—to complete the data set.

Table 4 details the estimated travel time increases which would be incurred by the present station users if the stations were closed. The grand total for added travel time due to the station closures is estimated at 109 hours, 12 minutes. The greatest individual surcharge is estimated at Delaware Valley College Station (31 hours, 25 minutes).

³ "Lost patrons" refers to those surveyed customers who responded that if the station closed—they didn't know what they'd do, they'd (buy a car and) drive, they'd hitch a ride with a friend or coworker, they'd get another job, or they'd lose their job.

Table 5 summarizes the travel time savings experienced by onboard train riders assuming skipped service at the seven closed stations. The underlying calculations for passenger trips “saved” used 2001 SEPTA ridership data for those onboard the trains currently stopping at the station⁴, adjusted with normalized survey data to account for the cited changes in travel patterns (i.e., those who would divert to an alternate / adjacent station⁵ or those who would leave the system). Trip-time-savings-per-passenger values were supplied by Systra Consulting, Inc. (and include time savings associated with the elimination of train slowing / stopping and accelerating back to maximum authorized speed, as well as the station dwell time itself)⁶. Total onboard passenger travel time savings, associated with closing the seven stations, are estimated at 337 hours, 35 minutes, and 46 seconds. The greatest time saving occurred at the closest-in stations where onboard ridership is highest (i.e., Lamokin Street, Angora and Wissinoming).

Differences between station level travel time changes and onboard travel time changes indicate a potential benefit of the closures program, and are tabulated below.

TABLE 6: Passenger Travel Time Changes

STATION	TRAVEL TIME INCREMENTS		
	Station Level (hh:mm:ss)	Onboard (hh:mm:ss)	Difference (hh:mm:ss)
1. Lamokin Street	+19:37:00	-79:49:55	-60:12:55
2. Angora	+16:46:00	-112:31:20	-95:45:20
3. Delaware Valley College	+31:25:00	-12:56:53	+18:28:07
4. New Britain	+09:33:00	-12:56:53	-03:23:53
5. Link Belt	+13:28:00	-11:36:16	+01:51:44
6. Fortuna	<u>+15:52:00</u>	<u>-25:35:52</u>	<u>-09:43:52</u>
subtotal - R5	+70:18:00	-63:05:53	+07:12:07
7. Wissinoming	+02:30:00	-82:08:38	-79:38:38
Total	+109:12:00	-337:35:46	-228:23:46

⁴ R3 Line and R7 Line riders currently onboard express trains which skip the stations are not included in the calculation.

⁵ Note: in this work the four Link Belt patrons indicating they would divert to Delaware Valley College were assigned to Doylestown, and the nine Delaware Valley College patrons indicating that they would divert to New Britain were assigned to Chalfont Station.

⁶ Per-train-per-station-trip time savings may vary by line, time of day and direction of travel. Ranges used in the analysis were between 56 seconds and 82 seconds, and are shown Table 5.

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TABLE 5: Estimated Effects of Closures on Onboard Passenger Travel Time

Station Name	Rail line	fare zone	time (and direction if pertinent)	onboard passenger trips "saved" by skipping the station	trip time savings per onboard passenger (in seconds)	hh:mm:ss saved
1 Lamokin Street	R2	3	day	3,522	81.6	79:49:55
2 Angora	R3	1	day	6,232	65.0	112:31:20
3 Delaware Valley College	R5	5	day	825	56.5	12:56:53
4 New Britain	R5	5	day	825	56.5	12:56:53
5 Link Belt	R5	5	am (inbound)	312	0.0	00:00:00
5 Link Belt	R5	5	rest of day	746	56.0	11:36:16
5 Link Belt	R5	5	day			11:36:16
6 Fortuna	R5	5	day	1,631	56.5	25:35:52
<i>R5 subtotal</i>	<i>R5</i>			<i>4,339</i>		63:05:53
7 Wisconsin	R7	2	day	3,801	77.8	82:08:38
TOTAL				17,894		337:35:46

Over the system, a little more than 228 hours of passenger travel time would be saved. The station closures with the greatest impact upon travel time savings are Lamokin Street, Angora and Wissinoming. In comparison, three of the five R5 Line stations reflect nominal passenger travel time differences (up and down) as a consequence of closure. The analysis reflects a moderate increase in overall travel time if the Delaware Valley College Station were to close.

Changes in Parking Conditions

Table 7 displays the likely effects station closures will have upon adjacent stations' parking conditions. This isn't a significant matter at or adjacent to Lamokin Street, Angora or Wissinoming stations, because few do or would drive to the stations and SEPTA doesn't provide parking, except for the Highland Avenue station on the R2 Line.

Along the R5 Line, at the eight stations between and including Lansdale and Doylestown, there is a total of 1,099 SEPTA parking spaces. Parking demand in the station parking lots totaled 817 vehicles (including nine parked cars at Delaware Valley College). Closing the four R5 stations and removing the related SEPTA parking supply (70 spaces) will still yield an overall surplus of available parking spaces (212 SEPTA spaces will remain available). Conclusion: parking diversions can be absorbed within the current supply of SEPTA parking spaces along the Doylestown branch.

TRAVEL DEMAND FORECASTING

DVRPC maintains a personal computer-based highway and public transportation travel simulation model that estimates travel behavior for a typical weekday and provides related travel data for different transportation network and demographic conditions⁷. A schematic portrayal of the four-step modeling process is shown in Figure 2.

Use of the travel demand forecasting model furnished the opportunity to obtain estimates of induced rail ridership along each of the four study rail lines (R2, R3, R5 and R7) as a consequence of faster train service. The study's modeling approach assumed the seven station closures and correspondingly altered travel times to reflect increased operating speeds along the lines. Comparisons were then drawn between modeled ridership forecasts associated with the station closures scenario and those associated with the existing station and operating configuration.

⁷ DVRPC's travel simulation is performed on desktop microcomputers running the Windows NT version of TRANPLAN.

Regional Rail Stations Closures Study

TABLE 7: Estimated Effects of Closures on Parking Demand

Rail Line & Station	fare zone	SEPTA Parking Report (November 2002)			SEPTA expansion plans? Other comments.
		SEPTA supply	SEPTA demand	SEPTA spaces available	
R2 WILMINGTON AND NEWARK LINE					
Highland Av.	4	30	2	28	No expansion plan.
Lamokin Street*	3	0	0	0	No expansion plan.
Ch. Trans. Ctr.	3	0	0	0	No expansion plan.
total		30	2	28	
total w/o * supply		30	2	28	
R3 MEDIA / ELWYN LINE					
Fernwood	2	0	0	0	No expansion plan.
Angora*	1	0	0	0	No expansion plan.
49 th Street	1	0	0	0	No expansion plan.
total		0	0	0	
total w/o * supply		0	0	0	
R7 TRENTON LINE					
Tacony	2	0	0	0	No expansion plan.
Wissinoming*	2	0	0	0	No expansion plan.
Bridesburg	2	0	0	0	No expansion plan.
total		0	0	0	
total w/o * supply		0	0	0	

* Estimates assume all current parkers divert to alternate stations.

Regional Rail Stations Closures Study

TABLE 7: Estimated Effects of Closures on Parking Demand

Rail Line & Station	fare zone	SEPTA Parking Report (November 2002)			SEPTA expansion plans? Other comments.
		SEPTA supply	SEPTA demand	SEPTA spaces available	
R5 LANSDALE / DOYLESTOWN LINE					
Doylestown	5	185	165	20	Candidate for expansion.
Delaware Valley College *	5	0**	9**	0**	Candidate for expansion. **Commuter parking permits are available from DVC. DVRPC's 4/1/03 survey at the station indicates that about 9 spaces are used in this way. Additionally, about 50 spaces (plus 4 H.C. spaces) remain available near the station, at the rear of DVC's main lot.
New Britain*	5	37	25	12	Candidate for expansion.
Chalfont	5	56	56	0	No expansion plan.
Link Belt*	5	0	0	0	No expansion plan.
Colmar	5	291	176	115	No expansion plan.
Fortuna *	5	33	24	9	No expansion plan.
Lansdale	5	497	362	135	No expansion plan. Large adjacent municipal lot's remote spaces are closest to the station. Plenty available at \$1/day – closer to the station than SEPTA's available supply.
total		1,099	817	291	
total w/o * supply		1,029	817	212	

* Estimates assume all current parkers divert to alternate stations.

FIGURE 2

DVRPC REGIONAL TRAVEL SIMULATION PROCESS

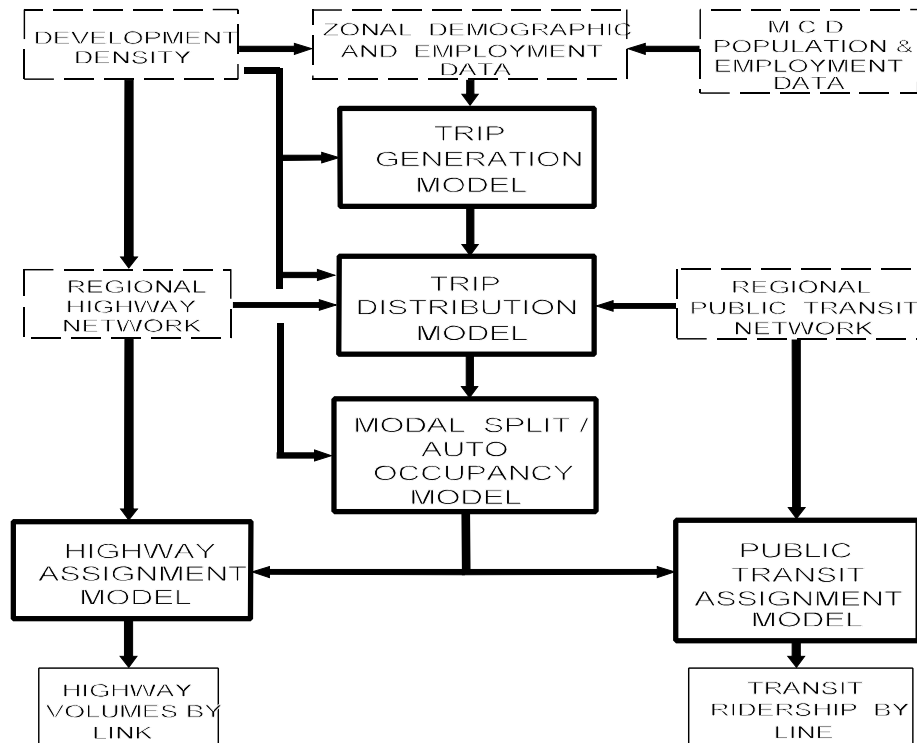


Table 8 presents the time and distance inputs, which were varied in the modeling exercise. Time and distance variables, between adjacent served stations, were changed by DVRPC staff⁸ to reflect faster regional rail operations resulting from skipping stops. Additionally, the model's station "loader links" were disconnected from the closed stations and reconnected to adjacent or alternate stations, in the station closures scenario, guided by the results of the passenger survey work.

Table 9 displays average daily two-way total onboard ridership estimates summarized on a fare zone basis. The changes are nominal, ranging from a small decline (-1% in fare zone 1 at Angora on the R3 Line) to small increases (+3% in fare zone 3 at Lamokin Street on the R2, and in fare zone 5 along the Doylestown branch of the R5). The ramifications of the forecasted ridership changes may be more precisely evaluated in the context of their effect upon revenue.

⁸ Sources influencing the values shown in Table 8 came from published timetables, and data contained in published reports or correspondence prepared by Systra Consulting, Inc.

Regional Rail Stations Closures Study

TABLE 8: Travel Demand Forecasting Model Inputs

Station Name / adjacent stations	Rail fare zone	Existing Conditions			Station Closure Scenario				
		dist. betw. adj. stations (mi. along tracks)	existing scheduled travel time (minutes)		travel time after closures (minutes)		dist. betw. adj. stations (mi. along trax)		
			peak	midday	evening	peak		midday	evening
Highland Avenue	R2 4	1.1	2	2	2	2			
1 Lamokin Street	R2 3	-	2	2	2.7	2.7	2.7	2.7	2.1
Chester Trans Ctr.	R2 3	1.0	2	2					
Fernwood	R3 2	1.0	2	2					
2 Angora	R3 2	-	2	2	3.3	2.8	2.8	2.8	2.2
49th Street	R3 1	1.2	3	3					
Doylestown	R5 5	1.9	2.5	4					
3 Delaware Valley College	R5 5	-	3	2					
New Britain	R5 5	1.0	3	2	9.1	11.8	11.8	11.8	4.7
Delaware Valley College	R5 5	1.0	3	2					
4 New Britain	R5 5	-	5	7					
Chalfont	R5 5	1.8	3.5	4					
Chalfont	R5 5	2.3	3	2	5.7	5.2	5.2	5.2	2.9
5 Link Belt	R5 5	-	3	2					
Colmar	R5 5	0.6	2	2					
Colmar	R5 5	0.9	2	3					
6 Fortuna	R5 5	-	5	3	6	5.2	5.2	5.2	2.3
Lansdale	R5 5	1.4	5	3					
Tacony	R7 2	1.1	2	2	2.7	2.7	2.7	2.7	1.9
7 Wissinoming	R7 2	-	2	2					
Bridesburg	R7 2	0.8	2	2					

Regional Rail Stations Closures Study

TABLE 9: Travel Demand Forecasts

Station Limits	fare zone	SEPTA 2001 Census Counts avg. fare zone, two-way total on-board volume*	Station Closures Scenario Forecasts avg. fare zone, two-way total on-board volume	Differences	
				absolute change	percent change
R2 Wilmington and Newark Line					
Newark to Churchman's Crossing	5	694	698	4	1%
Wilmington to Highland Avenue	4	2,902	2,955	53	2%
1 Lamokin Street to Ridley Park	3	4,195	4,326	131	3%
Prospect Park to Darby	2	5,861	5,959	98	2%
R3 Media / Elwyn Line					
Elwyn to Swarthmore	3	2,274	2,284	10	0%
Morton to Fernwood-Yeadon	2	6,592	6,641	49	1%
2 Angora to 49th Street	1	8,114	8,003	-111	-1%
R5 Lansdale / Doylestown Line					
3,4,5,6 Doylestown to Pennbrook	5	2,358	2,428	70	3%
North Wales to Penllyn	4	6,230	6,406	176	3%
Ambler to North Hills**	3	9,512	9,674	162	2%
R7 Trenton Line					
Trenton	6	2,727	2,734	7	0%
Levittown	5	3,471	3,512	41	1%
Bristol to Eddington	4	4,316	4,336	20	0%
Cornwells Heights to Torresdale	3	7,517	7,531	14	0%
7 Holmesburg Junction to Bridesburg	2	9,391	9,509	118	1%

* Average fare zone calculations exclude onboard volumes at closed station(s)

** Onboard volumes at Glenside and Jenkintown are omitted from R5 fare zone 3 calculations

Note: **highlighted rows are the fare zones which contain the 7 station closures**

FINANCIAL ANALYSIS

The financial assessment of the stations closures builds off the previous work and integrates new information obtained from SEPTA, Systra Consulting, Inc. and the Bucks County Transportation Management Association (TMA). Brief discussions follow which are directed to:

- Operating costs (power) savings
- Maintenance costs savings
- Costs associated with supplementary services (potentially provided by TMAs)
- Capital and institutional costs
- Revenue estimates

Detailed and summary spreadsheets are provided to show assumptions and calculations. A final table summarizes the financial evaluation.

Power Costs Savings

Power cost savings are anticipated from abandoning stations and skipping stops. Annual savings are itemized in Table 10 with sources and assumptions noted.

Power savings related to closing the Link Belt Station were computed assuming no delays experienced by four A.M. peak inbound trains—consistent with the calculations for onboard passenger travel time savings (refer to Table 5).

Station Maintenance Costs Savings

Avoiding maintenance at stations that would be closed and abandoned would yield savings to SEPTA. Preliminary information suggested that a system-wide average of \$10,000 per year is spent by SEPTA maintaining station properties (including snow removal). Information varying the annual maintenance costs—for individual stations, and/or for stations with or stations without parking was not available⁹. Therefore, the system average was used in the financial calculations.

Expanded TMA Job Access / Reverse Commute (JARC) Services

Preliminary improvement strategies were identified to mitigate the public transportation service gaps that would result with the station closures along the R5 - Doylestown branch (especially for its reverse commuters). Suggestions for improving existing services and/or providing additional services and amenities, at the station level, were preliminarily identified through the technical and committee work. These were:

⁹ Of the stations examined, only New Britain and Fortuna are supported by SEPTA maintained parking lots, each very small in size. At the Delaware Valley College Station maintenance activities and costs are shared between SEPTA and the college.

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TABLE 10: Operating Costs - Power Savings

Station Name (kWh savings per car ^{**})	Rail Line	Stopping Trains / Cars*						Savings			Annual Savings ^{***}
		Weekdays		Saturdays		Sundays		Weekdays (255 per year ^{***})	Saturdays (52 per year ^{***})	Sundays (58 per year ^{***})	
		Trains	Cars	Trains	Cars	Trains	Cars				
1 Lamokin Street (7 kWh per car ^{**})	R2 Wilmington and Newark	52	159	24	48	20	41	\$ 19,867.05	\$ 1,223.04	\$ 1,165.22	\$ 22,255.31
2 Angora (3 kWh per car ^{**})	R3 Media / Elwyn	50	176	34	68	28	56	\$ 9,424.80	\$ 742.56	\$ 682.08	\$ 10,849.44
3 Delaware Valley College (4 kWh per car ^{**})	R5 Lansdale / Doylestown	37	126	34	68	34	74	\$ 8,996.40	\$ 990.08	\$ 1,201.76	\$ 11,188.24
4 New Britain (4 kWh per car ^{**})	R5 Lansdale / Doylestown	37	126	34	68	34	74	\$ 8,996.40	\$ 990.08	\$ 1,201.76	\$ 11,188.24
5 Link Belt (4 kWh per car ^{**})	R5 Lansdale / Doylestown	33	106	34	68	34	74	\$ 7,568.40	\$ 990.08	\$ 1,201.76	\$ 9,760.24
6 Fortuna (4 kWh per car ^{**})	R5 Lansdale / Doylestown	37	126	34	68	34	74	\$ 8,996.40	\$ 990.08	\$ 1,201.76	\$ 11,188.24
	<i>R5 subtotal</i>							\$ 34,557.60	\$ 3,960.32	\$ 4,807.04	\$ 43,324.96
7 Wissinoming (6 kWh per car ^{**})	R7 Trenton	29	96	17	51	17	51	\$ 10,281.60	\$ 1,113.84	\$ 1,242.36	\$ 12,637.80
	Total							\$ 74,131.05	\$ 7,039.76	\$ 7,896.70	\$ 89,067.51

notes:

* SEPTA's Consist Tables & Route Timetables

** Power savings estimates - courtesy of Systra Consulting, Inc.

*** assumes: SEPTA's annualization methodology, and current system-wide regional rail power costs @ \$0.07 per kWh (SEPTA)

- Delaware Valley College Station - Promote the availability of the Doylestown DART service between the college and the Doylestown Station. Few of the surveyed riders made reference to the service as an alternate to the train station, and SEPTA trailpasses are honored on the DART.
- New Britain Station–McKnight’s Smoked Foods - Extend Bucks County TMA’s Doylestown DART service southward from Delaware Valley College (+2.0 miles one-way).
- Link Belt Station - Provide continuous sidewalk along Walnut Street between Colmar Station and R&B Industries, Inc.. Alternately, SEPTA could continue to provide limited peak period reverse commute rail service to the station (i.e., two outbound stopping trains during the AM peak, and two inbound stopping trains in the PM) to fill the service void.
- Fortuna Station–Brightfield’s Nursing Facility, and Zeigler’s Ciders - The Bucks County TMA operates its Pennridge and Quakertown RUSH routes out from the Lansdale train station in the morning, and back in the afternoon. Routing in the station’s vicinity is flexible, and left to the driver’s discretion between the station and PA 309. More often than not, the van is operating along Broad Street, already passing these employers en route. An institutional challenge is presented by the fact that the employers are both located within the Partnership TMA’s service area in Montgomery County.

The Bucks County TMA was contacted while researching the practicality and costs of these strategies. As part of those conversations, it was learned that the Bucks County and Partnership¹⁰ TMAs have been examining potential joint transit service initiatives in the US 202 corridor between Lansdale and Doylestown. As part of that work, the agencies have developed a comprehensive strategy to address the reverse commuting patterns along the R5 - Doylestown branch. The TMAs have identified several dozen businesses with 100 or more employees within the corridor, and have developed a preliminary operating plan. The four Doylestown branch stations being examined for closure and the employers cited herein are targeted within that potential joint service.

The Bucks County TMA provided a cost estimate for the potential service expansion of \$204,000 per year (grant applications for funding the service are to be submitted through FTA and PennDOT).

¹⁰ The Partnership TMA services Northern Montgomery County.

Capital Costs

Station abandonment would yield capital costs savings for SEPTA by obviating the installation of accessibility improvements at stations that are not in compliance with the Americans with Disabilities Act (ADA). The applicable stations were: Lamokin Street, Angora, New Britain, Fortuna and Wissinoming stations.

Cost estimates to deliver ADA accessibility at the stations were obtained from SEPTA. Typical improvement elements include high level platforms, wheelchair ramps, and crossovers. The improvements necessary to accommodate multitrack cross sections and dual platforms yield substantially greater cost estimates at Lamokin Street and Angora stations (each estimated to be between \$3.0 and \$4.5 million) than the accessibility measures needed at New Britain and Fortuna. Each of the latter are single-track stations with one platform (estimated at \$300,000 each).

Cost estimates for making the Wissinoming Station accessible, which shares characteristics of the Lamokin Street and Angora stops, are compounded by the presence of a dedicated rail freight track adjacent to the outbound platform. The track's very poor condition, its lack of overhead catenary and its dual-need to serve mixed-passenger and freight traffic—precluded formulating a reliable cost estimate within the context of this study. It is fair to conclude, however, that while the station's costs are inestimable for this exercise, Wissinoming's costs would well exceed those cited for the Lamokin Street and Angora stations.

Institutional matters (included in Issue #10) were judged best addressed within the category of capital costs. The key point identified by the TAC would be the need for SEPTA to reimburse PennDOT for the present value¹¹ of state-funded ADA improvements installed at the stations that would close. The applicable stations in this category were the Delaware Valley College and Link Belt stations.

Conversely, SEPTA could relocate and reuse the ADA accessibility features found at Delaware Valley College and Link Belt elsewhere in its system. Were this to occur, SEPTA would be required to bear those additional costs. This latter option was judged to be less economical than reimbursing PennDOT and was dropped from further consideration in this study.

¹¹ Initial improvement costs depreciated over a 30-year useful life.

Revenues

Changes in revenues anticipated from the potential station closures program were calculated using outputs from the travel demand modeling exercises conducted to address Issue #7.

Annual revenue estimates are summarized in Table 11. The methodology and assumptions supporting the table are detailed in worksheets in Appendix H (Table H1 for the R2 Line, Table H2 for the R3 Line, Table H3 for the R5 Line, and Table H4 for the R7 Line).

TABLE 11: Estimated Additional Annual Revenue

Rail Line	Estimated Using Direct Model Outputs	Estimated Using Adjusted Model Outputs
R2 - Wilmington and Newark Line	\$102,969	\$128,627
R3 - Media / Elwyn Line	(\$45,637)	\$5,232
R5 - Lansdale / Doylestown Line	\$192,863	\$89,933
R7 - Trenton Line	\$129,288	\$164,570
Total:	\$379,483	\$388,362

Two levels of estimated revenues were provided for sensitivity purposes. One set assumed the direct model outputs as the basis for the estimates. The second set tempered the direct outputs based upon a closer examination of actual station boarding data and ridership patterns—in or between the fare zones. A brief account of the observations and changes made between the data sets follows.

- R2 Line - overstated relationship between fare zones 2 and 3 in the modeled output
- R3 Line - the model results overstated the relationship between Angora Station and 49th Street Station, both in fare zone 1
- R5 Line - overstated modeled relationships between fare zones 3 and 4 with fare zone 5
- R7 Line - modeled ridership in fare zone 2 shifted unreasonably to fare zones 3 and 4 (i.e., further out and more expensive) to take advantage of available express service on the line

Fares applied to the ridership changes within a fare zone were obtained from SEPTA. They are system-wide averages of fares collected in the specified fare zone on the Regional Railroad Division (during February 2003 and April 2003), and do not differentiate between time, day, direction, or length of trip. The relationships between Saturday, Sunday and weekday ridership levels were formulated by DVRPC staff—by fare zone along each studied rail line—according to onboard ridership trends documented in the 2001 SEPTA *Rail Ridership Census*.

Except for the R3 Line, revenue changes are forecasted to be positive assuming the direct or the adjusted model output. The modeled ridership associated with closing the R3 Line's Angora Station indicates a \$45,600 revenue loss. Applying the adjusted model outputs, in the methodology, indicates a small gain in revenue of \$5,200. The survey findings used in the station level analysis (presented in Table 4) indicated that displaced riders at Angora would in the vast majority use an alternate SEPTA mode to complete their trips. As a consequence, projected revenue declines on the Regional Railroad Division would be captured to some degree by SEPTA's City Transit Division.

In total, between \$380,000 and \$390,000 of additional annual fare revenue is estimated from forecasted ridership changes—attributed to increased train operating speeds attained through the stations closures program. The exercise adds dimension and clarity to the forecasted ridership changes developed in response to Issue #7.

Financial Analysis Summary

Table 12 reflects a balance sheet of expenditures, savings and revenues surrounding the seven station closures. Totals are provided by responsible agency and whether the costs are one-time expenditures or annually incurred.

While the revenue figures are a valuable index emanating from the work, it is judged that the cost calculations (i.e., savings versus expenditures) provide a more secure financial indicator for decision making. As such, SEPTA stands to save approximately \$159,100 annually in operating and maintenance costs, and in excess of \$7.74 million¹² in capital outlays if service to the seven stations were discontinued.

Individual station costs may be isolated in Table 12 to evaluate a lesser set of station closures.

¹² +8,100,000 - \$356,667 = +\$7,743,333

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TABLE 12 : Financial Analyses of 7 Station Closures

Item & Description	\$ per item	Expenditures	desc.	Savings	desc.	Revenues	desc.
OPERATING & MAINTENANCE COSTS:							
Power (savings accrued from abandoning stations & skipping stops)							
R2 Lamokin Street	\$ 22,255						
R3 Angora	\$ 10,849						
R5 Delaware Valley College	\$ 11,188						
R5 New Britain	\$ 11,188						
R5 Link Belt	\$ 9,760						
R5 Fortuna	\$ 11,188						
R7 Wissinoming	\$ 12,638			\$ 89,068	per yr.		
Station Maintenance (savings accrued from abandoning stations)							
R2 Lamokin Street	\$ 10,000						
R3 Angora	\$ 10,000						
R5 Delaware Valley College	\$ 10,000						
R5 New Britain	\$ 10,000						
R5 Link Belt	\$ 10,000						
R5 Fortuna	\$ 10,000						
R7 Wissinoming	\$ 10,000			\$ 70,000	per yr.		
Expanded Bucks & Partnership TMAs' JARC services (potential services provided by others to fill R5 reverse commuter service gaps)							
R5 Stations (4)	\$ 204,000	\$ 204,000	per yr.				
CAPITAL COSTS:							
Complying with & providing ADA Accessibility improvements (savings associated with abandoning stations not now in compliance)							
R2 Lamokin Street (\$3.5-\$4.5M)	\$ 4,000,000						
R3 Angora (\$3.0-\$4.0M)	\$ 3,500,000						
R5 New Britain (\$300K)	\$ 300,000						
R5 Fortuna (\$300K)	\$ 300,000						
R7 Wissinoming (inestimable)	+ n.a.			+ \$ 8,100,000	1-time		
INSTITUTIONAL COSTS:							
Pro-rated paybacks to PennDOT for implemented ADA improvements (expenditures required to reimburse state grants that provided accessibility)							
R5 Delaware Valley College (initially \$100K in 1996)	\$ 76,667						
R5 Link Belt (initially \$300K in 2001)	\$ 280,000	\$ 356,667	1-time				
REVENUES:							
Additional Revenue due to increased ridership (estimates assume direct model outputs)							
R2 Wilmington and Newark Line	\$ 102,969						
R3 Media / Elwyn Line	\$ (45,637)						
R5 Lansdale / Doylestown Line	\$ 192,863						
R7 Trenton Line	\$ 129,288					\$ 379,483	per yr.
TOTALS:							
Annual Costs to Others:		\$ 204,000					
Annual Costs / Savings / Revenues to SEPTA:				\$ 159,068		\$ 379,483	
1-Time Outlays by SEPTA:		\$ 356,667		+ \$ 8,100,000			

SUMMARY AND CONCLUSIONS

The completed technical work provided the basis for addressing the study's key issues. That discussion follows on a point-for-point basis.

1. The total additional travel time for those forced to access another station -

Addressed in detail in Table 4. A total of 109 additional hours per day will be encountered by the 341 daily boarding patrons forced to find alternatives to their present travel patterns. The estimate of added travel time includes driving to alternate stations or using alternate modes of travel to complete their present trips. The single greatest travel time surcharge is estimated for the 62 patrons using the Delaware Valley College Station (31 additional hours of travel time per day).

2. The number of people who presently walk, or use interconnecting transit services, between their homes and each of the lightly used stations -

Incorporated into Table 4, and identified below.

<u>station</u>	2001 <u>Boardings</u>	From home, the number:	
		<u>walking</u>	<u>taking transit</u>
Lamokin St.	47	39	0
Angora	32	30	0
Del. Val. Col.	62	0	0
New Britain	48	2	0
Link Belt	40	0	0
Fortuna	91	22	0
Wissinoming	21	12	0

The greatest impact to pedestrians accessing the stations from their homes will be at the Lamokin Street, Angora, Fortuna and Wissinoming stations. Alternate scheduled SEPTA transit service, to deliver patrons to adjacent stations or major destinations, is available in the vicinity of all but the Fortuna Station. Most of the riders are using a trailpass or transpass so that additional fares won't be necessary for those customers who do have a SEPTA alternative. On the other hand, it should be noted that according to the survey returns, few of the regional rail system's customers are presently accessing the trains via other public transportation services.

3. **The number of reverse commuters who presently walk, or use interconnecting transit services, between the lightly used station and their place of employment** - Incorporated into Table 4, and identified below.

<u>station</u>	2001 <u>Boardings</u>	From work or school, the number:		
		<u>walking</u>	<u>dropped-off</u>	<u>taking transit</u>
Lamokin St.	47	0	0	1
Angora	32	0	0	0
Del. Val. Col.	62	32	0	0
New Britain	48	10	13	0
Link Belt	40	34	6	0
Fortuna	91	24	0	0
Wissinoming	21	0	0	1

Reverse commuters will be most disadvantaged at the R5 Line's four stations, particularly at New Britain, Link Belt and Fortuna—where no interconnecting transit exists.

4. **The proximity of that employment to an adjacent station or other transit service** - Incorporated into Table 4. Sites attracting reverse commuters are presently within one-half mile of the R5 stations. Assuming station closures the distances will be increased, as follows:

<u>station</u>	<u>attraction</u>	existing <u>distance</u>	<u>alternate station</u>	new <u>distance</u>
Del. Val. Col.	Del. Val. Col.	-	Doylestown	2.30 mi
New Britain	McKnight's	0.50 mi	Doylestown	3.20 mi
			Chalfont	1.50 mi
Link Belt	R&B Inc.	-	Colmar	0.70 mi
Fortuna	Brightfield's	0.25 mi	Lansdale	2.25 mi
			Colmar	1.50 mi
			Lansdale	1.70 mi
	Zeigler's	0.50 mi	Colmar	1.40 mi

5. **The ability of adjacent stations' parking supply (existing and proposed), and the availability of interconnecting transit services (existing and proposed) to absorb displaced riders** - Addressed in Tables 3 and 7.

First, parking (Table 7). There is sufficient parking supply along the R5 - Doylestown branch, provided by SEPTA, to absorb the diverted parking demands of the four closed stations. Only a handful of the patrons at Lamokin Street, Angora and Wissinoming stations indicated that they would drive to an alternate rail station. SEPTA does not provide parking facilities at any of the cited alternates.

There are no firm plans for parking expansions at any of the stations identified in this study. However, some reasonable opportunities were identified through the work and are worthy of disclosure:

- Delaware Valley College - about 50 unoccupied parking spaces exist near the station in the school's general parking lot. A Delaware Valley College parking permit is required (\$10 / mo. or \$100 / yr.). Future expansions or additions to the college's facilities present opportunities to provide additional parking spaces for campus needs and potentially for commuter use.
- Fortuna - a large vacant field exists across the tracks from the station.
- Lansdale - a large underutilized municipal parking lot is adjacent to the station. The lot's remotest spaces are closest to the station—closer than SEPTA's available supply in the Lansdale Station lot—and cost one dollar for 12 hours.

The passenger survey results indicated that few patrons interconnect to the regional rail system from other transit modes. Still, alternate transit services do exist that directly serve Lamokin Street, Wissinoming and Delaware Valley College stations (Table 3) and could be used to access adjacent stations. At Angora Station alternate routes are provided that serve major destinations (Table 3). New Britain, Link Belt and Fortuna are not presently served by public modes. At New Britain an informal shuttle service is provided by McKnight's Smoked Foods coworkers / management. Whether the arrangement is employer-supported is not known. Not all commuters partake; many walk straight up or down the tracks between the company and the station.

Opportunities for improving existing services and/or providing additional services and amenities at the individual station level were preliminarily identified through the technical and committee work. Ultimately, a more comprehensive strategy to address the reverse commuting patterns along the R5 - Doylestown branch was identified, the plans for which are already in progress.

The Bucks County TMA and Partnership TMA are cooperating in planning and operating a joint JARC transportation initiative in the US 202 corridor between Lansdale and Doylestown. The four Doylestown branch stations being examined for closure and the employers cited herein are targets for that potential service. The TMAs have developed a preliminary operating description for the service (estimated to cost \$204,000 per year to be funded through FTA and PennDOT grants).

The TMAs' corridor-wide JARC transportation service would replace the station level mitigation suggestions / strategies preliminarily identified for New Britain, Link Belt and Fortuna stations.

- 6. The impact on land use, environmental justice (EJ), air quality, property values and automobile vehicle miles traveled, surrounding closed stations -** Addressed in Tables 3, 4 and 7. Each station is integrated into its environs. Pedestrian connections between the stations, and home and workplaces are evident at each station. Plans to promote the areas surrounding the stations have been identified for Lamokin Street, Delaware Valley College and Wissinoming, and are in varying states of readiness.

Each station contains some element of EJ concerns, whether in the surrounding neighborhoods or as involves its reverse commute patrons. Alternate public transportation services are available to accommodate displaced riders at all stations but New Britain, Link Belt and Fortuna stations. A service improvement plan is being pursued by the responsible TMAs to close those gaps.

Changes in regional vehicular travel will be imperceptible due to the station closures. Locally, there will be a displacement of small volumes of traffic from the closed train stations to the adjacent stations where parking spaces are available. At most, Lansdale can expect an additional 44 cars, Doylestown an additional 33 cars, Chalfont an additional 22 cars and Colmar an additional 15 cars. In whatever way the displaced demand distributes itself—there is sufficient overall supply to accommodate the demand along the Doylestown branch. The areas surrounding the destination stations are already subject to high local traffic activity due to larger station parking lots, nearby traffic arteries (e.g., US 202 and PA 309) and activity centers (the Doylestown and Lansdale commercial districts). The identified traffic volume increments are negligible in comparison.

- 7. The expected number of additional riders (peak, reverse-peak and off-peak) attracted due to the resultant faster train travel time -** Addressed in Table 9. Onboard daily ridership is estimated to change minimally (-1% to +3%) along segments of the four regional rail lines as a consequence of the increased operating speeds attained with the station closures. The ramifications of the forecasted ridership changes are more clearly appreciated in the context of their effect upon revenue (see item #9, below).
- 8. The expected number of riders lost due to the station closing -** Addressed in Table 4. Of the 341 daily boarding passengers at the seven stations studied for closure:
- 130 (38%) would leave SEPTA—35 would drive to their destination, while 95 would abandon the trip altogether (the vast majority in the latter category were reverse commuters)
-

- 45 (13%) indicated they would use an alternate mode—most operated by SEPTA)
- 166 (49%) indicated that they would access the regional rail system at an adjacent or alternate station

9. The impact of the changes on operating, maintenance and capital costs, and on revenues - Summarized in Table 12.

Closing the seven regional rail stations would yield an annual savings of \$159,100 in operating and maintenance costs for SEPTA (e.g., \$89,100 for power, and \$70,000 for station maintenance). Future capital outlays required of SEPTA would be reduced by at least \$7.74 million (e.g., \$8.1 million - by avoiding the costs of installing accessibility improvements at Lamokin Street, Angora, New Britain, Fortuna, and Wissinoming stations less \$357,000 - paybacks for PennDOT grants, which provided the accessibility elements in place at the Delaware Valley College and Link Belt stations).

SEPTA's annual revenues are estimated to increase between \$380,000 and \$390,000 as a result of forecasted ridership changes—induced by increased train operating speeds accompanying the station closures. It is concluded, however, that the cost calculations (i.e., savings versus expenditures) provide a more definitive indicator for decision making.

Annual operating costs to the two TMAs serving the Doylestown branch corridor are estimated to increase by a total of \$204,000—to fill the service gaps for reverse commuters within the broader US 202 corridor between Lansdale and Doylestown. Benefits from the potential service along the R5 Line will be shared by reverse commuters and the firms served by New Britain, Link Belt and Fortuna stations.

10. The legal / institutional ramifications of closing a station - Institutional matters were identified through the committee work. Assuming closure of the Delaware Valley College and Link Belt stations—the TAC recognized that SEPTA would be required to reimburse PennDOT for the present value of previously funded and installed ADA accessibility improvements at the stations. Ultimately, the topic was judged better addressed as a capital cost, and as such is covered in Issue #9 (above).

RECOMMENDATIONS

Based upon the preceding comprehensive evaluation of human, economic and institutional factors surrounding seven low volume SEPTA regional rail stations—the study's recommendations provide a stepped station closures program which will reduce travel times and increase the reliability and efficiency of the four affected regional rail lines, and accommodate the travel needs of displaced patrons that do not have transportation alternatives.

1. Plan for Closure:

- Lamokin Street Station on the R2 - Wilmington and Newark Line
- Angora Station on the R3 - Media / Elwyn Line
- Wissinoming Station on the R7 - Trenton Line

Each station has fewer than 50 boarding or alighting passengers per weekday. Alternate SEPTA transit services are provided at or near the stations.

Station service discontinuance proceedings are contained in SEPTA's FY '04 Annual Service Plan and Operating Budget. Lamokin Street service was permanently discontinued July 6, 2003, and service was permanently discontinued at Wissinoming on November 9, 2003. Angora Station's closure is subject to the results of a marketing campaign aimed at boosting ridership to a minimum of 50 boardings per weekday.

2. Plan for Closure - Contingent upon Proven Alternate Service:

- New Britain Station on the R5 - Lansdale / Doylestown Line
- Link Belt Station on the R5 - Lansdale / Doylestown Line

Both stations are below the minimum 50 weekday boarding passenger service standard, while departing patron volumes (i.e., leaves) exceed the threshold. As such, the average weekday activity at each station marginally exceeds 50 people. Forty percent of the New Britain patrons and 70 percent of the Link Belt patrons do not have alternatives for completing their trips. The majority of these customers are reverse commuters.

Ceasing service at the stations should be undertaken judiciously, and in tandem with potential TMA sponsored JARC transportation services (or limited reverse-oriented rail service provided) within the Doylestown branch corridor.

3. Maintain Service, but Monitor:

- Fortuna Station on the R5 - Lansdale / Doylestown Line

The station serves approximately 92 people in the course of a weekday, and is the highest activity station of the seven included in this evaluation. SEPTA has noted that Fortuna Station's boarding activity continues to rise—despite recently implemented renovations and parking expansions at adjacent stations. Almost one-half of the station's current users cited that no transportation alternatives exist to complete their trip. In contrast to New Britain and Link Belt, many of the Fortuna Station patrons were typical—predominant time and direction—commuters who walk to the station from their residences.

For these reasons, it is suggested that service to the Fortuna Station be maintained for the near term, but monitored as JARC transit service comes on-line to the corridor. Assuming success of the JARC, the shuttle's service and schedule could be expanded to accommodate two-directional travel throughout the day (akin to the Doylestown DART) to accompany the closure of Fortuna.

4. Maintain Rail Service at the Station:

- Delaware Valley College Station on the R5 - Lansdale / Doylestown Line

The station serves about 58 people per weekday, supports the college's marketing efforts and is supported by the campus' master plan. An \$8 million Pennsylvania Department of Agriculture grant is in hand to construct a biotech research center and related incubator space for biotech start-up companies on the campus. The development will strengthen the school's existing relationship with Thomas Jefferson University Hospital in Center City Philadelphia. All of which should generate additional rail ridership to and from the Delaware Valley College Station.

From a more remote perspective—the station is situated in close proximity to the regional highway network, and even though it is private property, public parking privileges are granted by DVC permit and spaces remain available near the station. The biotech center and/or other campus development proposals may provide the opportunity for more commuter parking at the college.

It is acknowledged that SEPTA has its own service standards in place with which it evaluates its efficiency. Still, the evaluation methodology used in this effort provides a replicable procedure that comprehensively assessed station closures, quantified value and impact, and recommended alternatives so that transportation services are continued for a majority of the affected customers. SEPTA may consider enlisting DVRPC's assistance to extend the analyses to other low volume regional rail stations to systematize or bolster its program of station closures, and/or to reevaluate its service standards threshold. ■

APPENDIX

Regional Rail Stations Closures Study

Delaware Valley Regional Planning Commission - November 2003

Figure A1: Lamokin Street Station - SEPTA R2 Wilmington and Newark Line



	Inbound	Outbound	Total
Survey conducted Tuesday, March 18, 2003 (5:54 am - 2:04 pm)			
Surveys conducted	21	3	24
Passengers missed	3	0	3
Total Boards	24	3	27
Summary of SEPTA 2001 Census Data			
Weekday Boards	38	9	47
5:54am - 2:04 pm Boards	31	5	36
Saturday Boards	29	5	34
Sunday Boards	16	0	16



View of station from outbound stairway

How many days of the week do you use this station? Average 4.63

How did you arrive at the station? Walked: 20, Dropped-off: 3, Bus #113: 1

What is the purpose of this trip?

Work:	15	Recreation:	1
School:	5	Medical:	1
Home:	1	N/A:	1

Where did you begin this trip? Home: 23, Work: 1

Business name & address / Nearby Intersection?

See shed map, 22 of 24 are shown on map

Municipality? All were Chester City

Zip Code? All were 19013

To which station are you destined now?

Suburban:	10	30 th Street:	1
Market East:	5	Temple:	1
Wilmington:	3	Curtis Park:	1
University City:	2	Prospect Park:	1

What payment method are you using?

Trailpass:	11	Senior Fare:	1
Cash:	10	N/A:	1
Single Ticket:	1		

Do you know what alternatives exist if this station were to become unavailable?

20 answered YES, or showed that they knew of one or more alternatives
4 answered NO

How would you complete your trip? (some gave more than one answer)

Chester Transportation Center (walk, bus, or drop off):	20
Bus (to other than Chester Trans. Center):	2
Swarthmore:	1
Drive:	1
No Idea:	1



Outbound platform and walkway for crossing tracks



Inbound platform (left) and outbound platform (right)

Comments / Suggestions:

very inconvenient if station closed
snow and ice not shoveled
more money if she had to use bus to train
walkway and sidewalk on Outbound side is unsafe
walkway unsafe and not shoveled (Outbound side)

serves center of Chester, weekends are busy too
senior - rarely uses system, 1st time in months
station is very convenient
increase amenities & security, work with Chester city
no service on sat. and sun., station is convenient and needed for work

Figure A2: Lamokin Street Station Shed Area



Table A1 - Lamokin Street Station Survey Database

ID	Station	Platform	Date	Time	DaysWk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alt.	Trip Complete	Comments
1	Lamokin Street	Inbound	3/18/03	5:53	3	walked	medical	home	5th & pennell	Chester	19013	university city	cash	no	Bus	none
2	Lamokin Street	Inbound	3/18/03	6:18	5	walked	work	home	2nd & kerlin	Chester	19013	university city	trailpass	yes	ctc	none
3	Lamokin Street	Inbound	3/18/03	6:19	n/a	walked	n/a	home	6th & pennell	Chester	19013	market east	n/a	yes	ctc	none
4	Lamokin Street	Inbound	3/18/03	6:55	5	walked	work	home	5th & Lloyd	Chester	19013	suburban	trailpass	yes	ctc	none
5	Lamokin Street	Inbound	3/18/03	6:56	5	walked	work	home	5th & kerlin	Chester	19013	market east	trailpass	yes	bus to ctc	none
6	Lamokin Street	Inbound	3/18/03	6:56	5	walked	school	home	5th & kerlin	Chester	19013	suburban	cash	yes	113 bus to ctc	none
7	Lamokin Street	Inbound	3/18/03	7:28	5	walked	work	home	8th & pennell	Chester	19013	suburban	weekly trailpass	yes	ctc or Swarthmore	increase amenities & security, work with Chester city
8	Lamokin Street	Inbound	3/18/03	7:28	5	walked	work	home	3rd & Broomall	Chester	19013	suburban	cash	no	no idea	none
9	Lamokin Street	Inbound	3/18/03	7:39	6	walked	work	home	3rd & Lloyd	Chester	19013	market east	monthly trailpass	yes	113 bus to ctc	very inconvenient if station closed
10	Lamokin Street	Inbound	3/18/03	7:45	5	walked	work	home	7th & Lloyd	Chester	19013	Curtis park	cash	no	bus to ctc	more money if she had to use bus to train
11	Lamokin Street	Inbound	3/18/03	7:58	7	walked	school	home	7th & Lloyd	Chester	19013	market east	weekly trailpass	yes	walk to ctc	none
12	Lamokin Street	Inbound	3/18/03	8:00	5	walked	work	home	5th & Lloyd	Chester	19013	market east	trailpass	yes	drop-off at ctc	none
13	Lamokin Street	Inbound	3/18/03	8:00	3	drop-off	school	home	9th & central	Chester	19013	suburban	cash	yes	bus to ctc	walkway and sidewalk on OB side is unsafe
14	Lamokin Street	Inbound	3/18/03	8:00	5	drop-off	school	home	9th & central	Chester	19013	suburban	cash	yes	bus to ctc	walkway unsafe and unshoveled (OB side)
15	Lamokin Street	Inbound	3/18/03	8:00	5	walked	work	home	2nd & kerlin	Chester	19013	suburban	weekly trailpass	yes	ctc	none
16	Lamokin Street	Inbound	3/18/03	8:02	5	drop-off	work	home	9th & pusey	Chester	19013	suburban	weekly trailpass	yes	drop-off/bus at ctc	none
17	Lamokin Street	Inbound	3/18/03	8:57	4	walked	work	home	3rd & Lloyd	Chester	19013	suburban	senior fare	yes	bus to ctc	none
18	Lamokin Street	Inbound	3/18/03	9:02	5	walked	school	home	9th & carla's	Chester	19013	30th street	cash	yes	bus to 69th street	snow and ice not shoveled
19	Lamokin Street	Inbound	3/18/03	9:50	3	walked	work	home	6th & Lloyd	Chester	19013	prospect park	cash	yes	bus to ctc	none
20	Lamokin Street	Inbound	3/18/03	9:58	0	walked	recreation	home	7th & Lincoln	Chester	19013	suburban	monthly trailpass	yes	ctc	senior - rarely uses system, 1st time in months
21	Lamokin Street	Inbound	3/18/03	11:58	7	walked	work	home	8th & Lloyd	Chester	19013	temple	cash	yes	bus to ctc	serves center of Chester, weekends are busy, too
22	Lamokin Street	Outbound	3/18/03	7:03	5	walked	work	home	9th & Lincoln	Chester	19013	Wilmington	single ticket	yes	ctc	station is very convenient
23	Lamokin Street	Outbound	3/18/03	7:40	7	bus 113	home	work	15th & arbor	Chester	19013	Wilmington	cash	yes	ctc	none
24	Lamokin Street	Outbound	3/18/03	9:40	6	walked	work	home	7th & Lloyd	Chester	19013	Wilmington	monthly trailpass	no	drive	no service on sat. anc sun., station is convenient and needed for work

Not Mapped

Figure B1: Angora Station - SEPTA R3 Media / Elwyn Line



	Inbound	Outbound	Total
Survey conducted Wednesday, March 19, 2003 (6:04 am - 12:19 pm)			
Surveys conducted	11	3	14
Passengers missed	2	1	3
<i>Total Boards</i>	13	4	17
Summary of SEPTA 2001 Census Data			
Weekday Boards	21	11	32
6:04am - 12:19 pm Boards	19	9	28
Saturday Boards	9	6	15
Sunday Boards	4	5	9



Inbound platform

How many days of the week do you use this station? Average 5.5
How did you arrive at the station? Walked: 13, Drove and Parked: 1
What is the purpose of this trip?

Work: 13 School: 1

Where did you begin this trip? Home: 14

Business name & address / Nearby Intersection?

See shed map, all 14 are shown on map

Municipality? All were Philadelphia City

Zip Code? All were 19143

To which station are you destined now?

30 th Street:	4	Bethayres:	1
University City:	2	Moylan Rose:	1
Market East:	1	Primos:	1
Suburban:	1	Swarthmore:	1
Fern Rock:	1	Woodbourne:	1

What payment method are you using?

Transpass:	10
Trailpass:	2
Cash:	2

Do you know what alternatives exist if this station were to become unavailable?

13 answered YES, or showed that they knew of one or more alternatives

1 answered NO

How would you complete your trip? (some gave more than one answer)

Trolley:	9
Bus:	8
Taxi Cab:	1



Inbound stairway and walkway



Inbound platform (left) and outbound platform (right)

Comments / Suggestions:

more convenient than trolley, train passing anyway - why not stop?

station is most convenient

too long other way

train is consistently off schedule

trolley breaks down a lot

Figure B2: Angora Station Shed Area

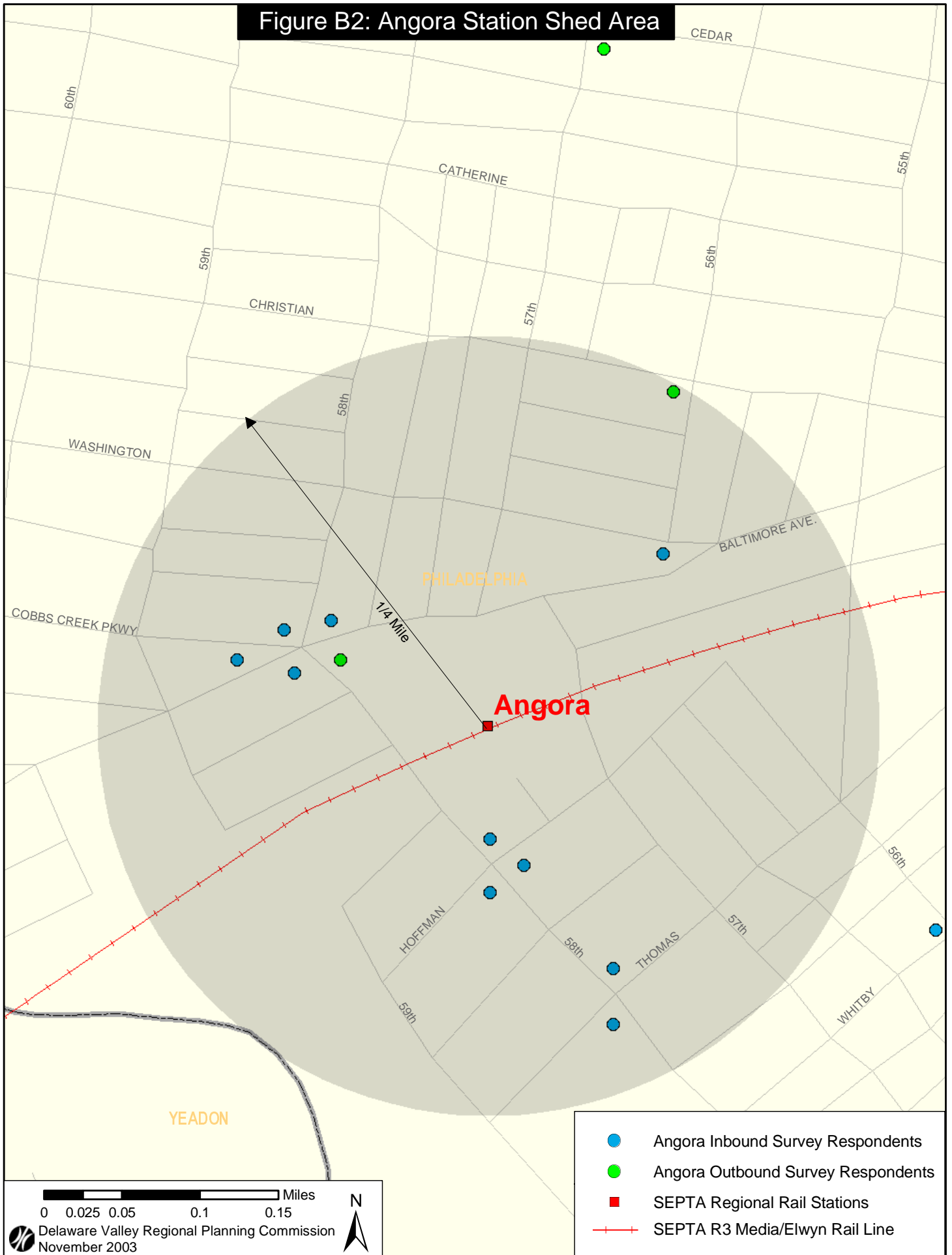


Table B1 - Angora Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alt.	Trip Complete	Comments
25	Angora	Inbound	3/19/03	6:38	5	walked	work	home	58th & baltimore	phila.	19143	30th street	weekly transpass	yes	taxi cab	none
26	Angora	Inbound	3/19/03	6:39	5	walked	work	home	58th & baltimore	phila.	19143	30th street	monthly trailpass	no	bus or trolley	none
27	Angora	Inbound	3/19/03	7:40	5	walked	work	home	58th & thomas	phila.	19143	university city	transpass	yes	trolley or bus to EI	none
28	Angora	Inbound	3/19/03	7:41	5	walked	work	home	58th & hoffman	phila.	19143	market east	monthly transpass	yes	34 trolley to CC, or 46 and G bus to EI	none
29	Angora	Inbound	3/19/03	7:58	5	drove & parked	work	home	56th & whitby	phila.	19143	bethayres	weekly transpass	yes	2 buses to EI	none
30	Angora	Inbound	3/19/03	7:59	5	walked	work	home	baltimore & washington	phila.	19143	woodbourne	weekly transpass	yes	34 trolley, el to 13	none
31	Angora	Inbound	3/19/03	8:29	5	walked	work	home	58th & baltimore	phila.	19143	university city	weekly transpass	yes	46 or 42 bus	station is most convenient
32	Angora	Inbound	3/19/03	8:29	7	walked	work	home	58th & hoffman	phila.	19143	fern rock	monthly transpass	yes	trolley to cc and out	none
33	Angora	Inbound	3/19/03	8:56	6	walked	work	home	58th & thomas	phila.	19143	30th street	monthly transpass	yes	trolley	trolley breaks down a lot
34	Angora	Inbound	3/19/03	8:57	6	walked	work	home	58th & hoffman	phila.	19143	30th street	weekly transpass	yes	34 trolley	more convenient than trolley, train passing anyway - why not stop?
35	Angora	Inbound	3/19/03	9:20	5	walked	work	home	58th & cobbs creek	phila.	19143	suburban	weekly transpass	yes	34 trolley, or 46 bus to el to bsl	none
36	Angora	Outbound	3/19/03	7:30	5	walked	work	home	56th & kitrin	phila.	19143	swarthmore	monthly trailpass	yes	97 bus to 69th street to 109 bus	too long other way
37	Angora	Outbound	3/19/03	9:05	7	walked	school	home	58th & baltimore	phila.	19143	moylan rose	cash	yes	trolley to 30th to EI to 69th to media	none
38	Angora	Outbound	3/19/03	12:10	6	walked	work	home	57th & cedar	phila.	19143	primos	cash	yes	g to EI to 69th street to 109 bus	train is consistently off schedule

Figure C1: Delaware Valley College Station - SEPTA R5 Lansdale/Doylestown Line



	Inbound	Outbound	Total
Survey conducted Tuesday, April 1, 2003 (6:20-10:25 am, 2:25-5:38pm)			
Surveys conducted	21	0	21
Passengers missed	1	0	1
Total Boards	22	0	22



Station shelter

Summary of SEPTA 2001 Census Data			
Weekday Boards	62	0	62
6:20-10:25 am, 2:25-5:38pm Boards	49	0	49
Saturday Boards	17	3	20
Sunday Boards	17	0	17

How many days of the week do you use this station? Average 4.10

How did you arrive at the station? Walked: 11, Drove & Parked: 9, Dropped-off: 1

What is the purpose of this trip?

Home:	9	School:	5
Work:	7		

Where did you begin this trip? Home: 10, School: 6, Work: 5

Business name & address / Nearby Intersection?

See shed map, 20 of 21 are shown on map

Municipality? Doylestown Twp: 11, New Britain Boro: 6, Buckingham Twp: 1, Hilltown Twp: 1, Plumstead Twp: 1, Towamencin Twp: 1

Zip Code? 18901: 17, 18917:1, 18944:1, 18947:1, 19446:1

To which station are you destined now?

Market East:	7	30 th Street:	1
Fern Rock:	5	Glenside:	1
Suburban:	4	Melrose Park:	1
Temple:	2		

What payment method are you using?

Trailpass:	14	Ten Trip:	1
Cash:	4	Round Trip:	1
Single Ticket:	1		

Do you know what alternatives exist if this station were to become unavailable?

13 answered YES, or showed that they knew of one or more alternatives
8 answered NO

How would you complete your trip?

Doylestown Station:	5
Bus# 55 (via DART, walk, drive, or drop-off):	4
New Britain Station:	3
Drive or Get a Ride:	3
Chalfont Station:	1
Not Sure:	5

Comments / Suggestions:

9:25 train didn't stop, didn't slow

very convenient station

knew of New Britain station, but not where it is or how to get there

SEPTA service and personnel are excellent, station is important to students

more express time



Station platform, shelter, and parking lot



Station platform and shelter

Figure C2: Delaware Valley College Station Shed Area

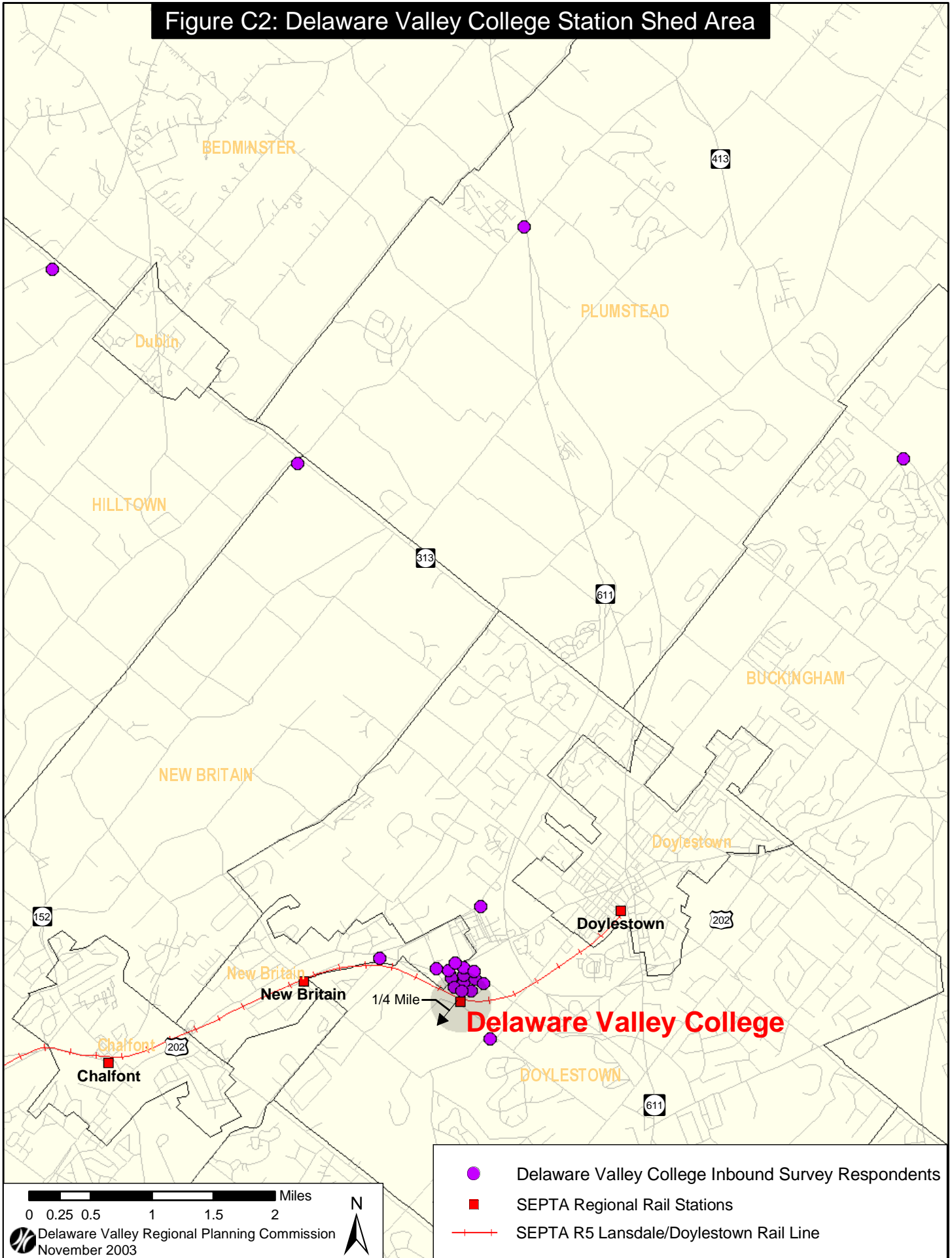


Table C1 - Delaware Valley College Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alternative	Trip Complete	Comments
39	Del Val Col	Inbound	4/1/03	6:18	5	drove & parked	work	home	Lower State & Wells	doylestown twp	18901	market east	monthly trailpass	yes	drive to doylestown station	very convenient station
40	Del Val Col	Inbound	4/1/03	6:19	5	drove & parked	work	home	shady retreat & burpee	doylestown	18901	suburban	monthly trailpass	yes	doylestown station	more express time
41	Del Val Col	Inbound	4/1/03	6:19	5	dropped off	work	home	202 & buelah	new britain	18901	suburban	weekly trailpass	yes	new britain station	none
42	Del Val Col	Inbound	4/1/03	6:30	1	drove & parked	school	home	bethlehem pk & forty foot rd	towamencin	19446	market east	round trip	yes	drive to new britain station	SEPTA service and personnel are excellent, station is important to students
43	Del Val Col	Inbound	4/1/03	6:38	5	drove & parked	work	home	413 & coldsprings creamery	doylestown	18901	market east	monthly trailpass	yes	doylestown station	none
44	Del Val Col	Inbound	4/1/03	6:40	5	walked	home	work	del val col	doylestown	18901	30th street	monthly trailpass	yes	dart to 55 to broad olney terminal	none
45	Del Val Col	Inbound	4/1/03	7:10	3	drove & parked	work	home	611 & stump	plumstead	18947	suburban	ten trip	yes	drive to doylestown station	none
46	Del Val Col	Inbound	4/1/03	7:11	5	drove & parked	work	home	113 & 313	dublin	18917	market east	monthly trailpass	yes	doylestown station	none
47	Del Val Col	Inbound	4/1/03	8:12	1	drove & parked	school	home	313 & stump	hilltown	18944	temple	cash	yes	drive to chalfont	none
48	Del Val Col	Inbound	4/1/03	8:15	1	drove & parked	school	home	del val col	doylestown	18901	temple	cash	no	drive	none
49	Del Val Col	Inbound	4/1/03	9:25	5	walked	home	school	del val col	doylestown	18901	glenside	monthly trailpass	yes	hitch a ride	9:25 didn't stop & didn't slow, customer returned to campus for breakfast, "no problem"
50	Del Val Col	Inbound	4/1/03	2:10	6	walked	home	school	del val col	doylestown	18901	fern rock	weekly trailpass	yes	get a ride to doylestown to 55 bus	none
51	Del Val Col	Inbound	4/1/03	3:00	5	walked	home	school	del val col	doylestown	18901	suburban	monthly trailpass	no	none	knew of new britain station but not where it is or how to get there
52	Del Val Col	Inbound	4/1/03	3:18	1	walked	work	school	del val col	doylestown	18901	fern rock	cash	no	drive or walk to 55 bus	none
53	Del Val Col	Inbound	4/1/03	3:20	5	drove & parked	school	home	202 & iron	doylestown	18901	market east	monthly trailpass	yes	new britain station	none
54	Del Val Col	Inbound	4/1/03	4:10	5	walked	home	school	del val col	doylestown	18901	market east	single ticket	no	no	none
55	Del Val Col	Inbound	4/1/03	4:15	5	walked	home	work	del val col	doylestown	18901	market east	monthly trailpass	no	get a ride	none
56	Del Val Col	Inbound	4/1/03	4:17	3	walked	school	work	del val col	doylestown	18901	fern rock	cash	no	not sure	none
57	Del Val Col	Inbound	4/1/03	4:17	5	walked	home	work	del val col	doylestown	18901	fern rock	monthly trailpass	yes	drive to doylestown to 55 bus	none
58	Del Val Col	Inbound	4/1/03	4:20	5	walked	home	work	330 east butler ave	doylestown	18901	melrose park	monthly trailpass	no	no	none
59	Del Val Col	Inbound	4/1/03	5:35	5	walked	home	school	del val col	doylestown	18901	fern rock	monthly trailpass	no	no	none

Not Mapped

Figure D1: New Britain Station - SEPTA R5 Lansdale/Doylestown Line



	Inbound	Outbound	Total
Survey conducted Wednesday April 2, 2003 (6:23-10:28 am, 2:28-7:06pm)			
Surveys conducted	50	3	53
Passengers missed	11	1	12
Total Boards	61	4	65



Station platform

Summary of SEPTA 2001 Census Data			
Weekday Boards	46	2	48
6:23-10:28am, 2:28-7:06pm Boards	42	2	44
Saturday Boards	10	0	10
Sunday Boards	4	0	4

How many days of the week do you use this station? Average 4.70

How did you arrive at the station? Drove & Parked: 21, Dropped-off: 19, Walked: 13

What is the purpose of this trip?

Work:	26	Recreation:	2
Home:	24	Medical:	1

Where did you begin this trip? Home: 27, Work: 25, N/A: 5

Business name & address / Nearby Intersection?

See shed map, 48 of 53 are shown on map

Municipality? New Britain Boro: 32, New Britain Twp: 5, Doylestown Twp: 5,
Plumstead Twp: 3, Doylestown Boro: 2, Warrington Twp: 2
Buckingham Twp: 1, Chalfont Boro: 1, Dublin Boro: 1, N/A: 1

Zip Code? 18901: 46, 18976:2, 18914:2, 18947:1, 18917:1, N/A: 1

To which station are you destined now?

Market East:	15	Fort Washington:	2
Suburban:	14	Ambler:	1
Fern Rock:	10	Del. Val. College:	1
Wayne Junction:	3	North Broad:	1
30 th Street:	3	N/A:	1
Doylestown:	2		

What payment method are you using?

Trailpass:	34	Single Ticket:	1
Cash:	10	N/A:	1
Ten Trip:	7		

Do you know what alternatives exist if this station were to become unavailable?

30 answered YES, or showed that they knew of one or more alternatives

22 answered NO, 1 was N/A

How would you complete your trip? (some gave more than one answer)

Chalfont Station (via walk, drive, or drop-off):	13	Bus:	2
Doylestown Station:	8	Colmar Station:	1
Lansdale Station:	3	North Penn Station:	1
Delaware Valley College Station:	3	Warminster Station:	1
Drive:	3	Not Sure:	17
Get a Ride:	3		



Station platform, inbound train approaching



Shelter and amenities

Figure D1: New Britain Station - SEPTA R5 Lansdale/Doylestown Line (con't)



Comments / Suggestions:

very convenient, many people stand on outbound train until Fort Washington station

don't close Warminster

more express time

most convenient

don't close station, don't raise fares - high enough

Chalfont needs more parking

Chalfont needs parking

don't close

would have to quit job

wouldn't be able to get to work

no alternatives

I wouldn't be able to get to work

please don't close station

express with 18 stops is not express, 80% get on at 5 stops

1. Parking availability, 2. Chalfont needs parking, 3. Please don't close

if station becomes unavailable he would have to quit job

Chalfont has no parking

more service to Doylestown is desirable

company is considering a shuttle bus

would have to quit

lose job

no alternatives

Figure D2: New Britain Station Shed Area

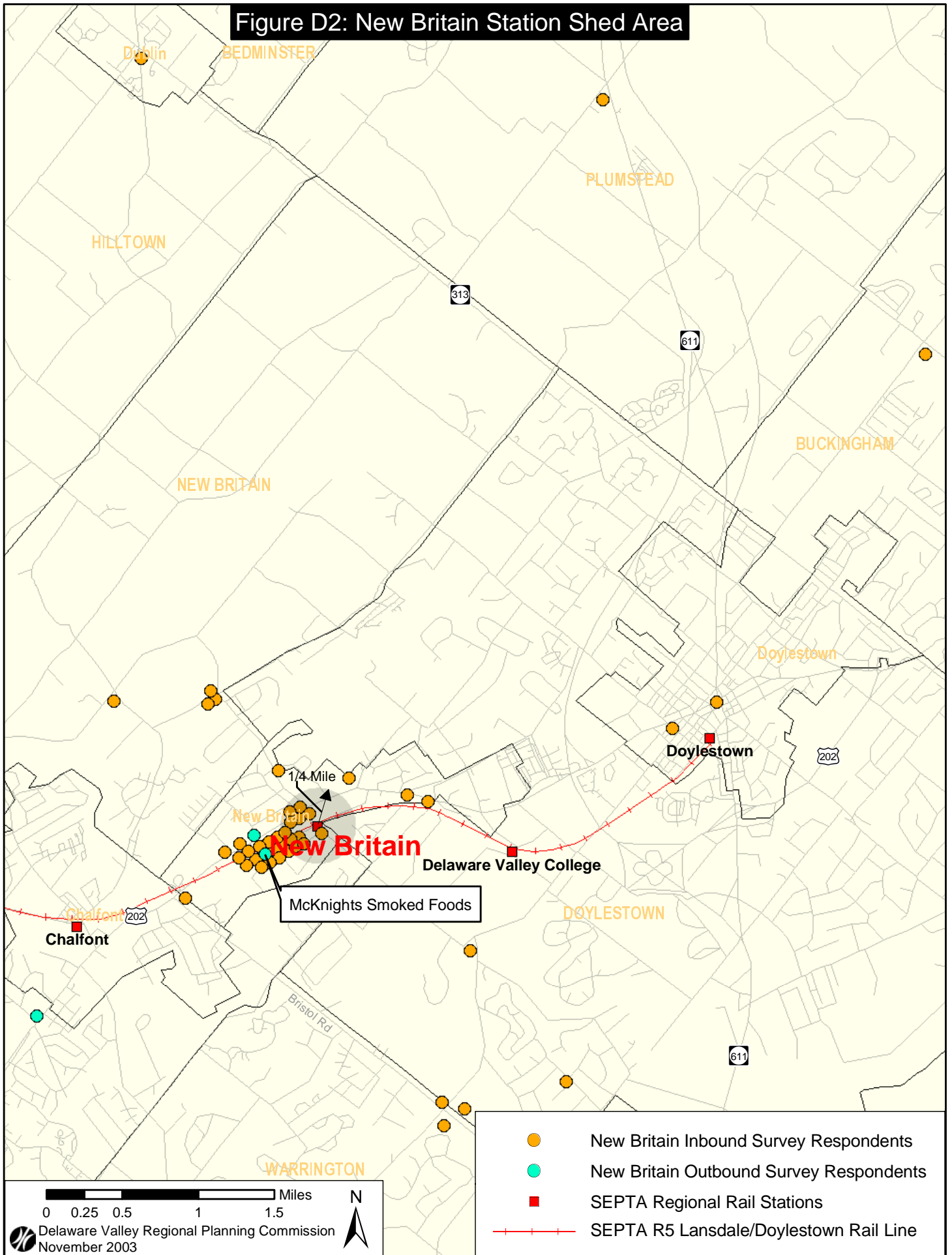


Table D1 - New British Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alternative	Trip Complete	Comments
60	New Britain	Inbound	4/2/03	6:20	5 walked	work	home	202 & lamender	new britain	18901	suburban	monthly trailpass	yes	next station	none	very convenient, many people stand on outbound train until fort washington station
61	New Britain	Inbound	4/2/03	6:20	5 walked	work	home	lamerend & mathews	doylestown	18901	market east	monthly trailpass	yes	drive to adjacent station	none	none
62	New Britain	Inbound	4/2/03	6:21	5 drive & parked	work	home	202 & lamerend	new britain boro	18901	market east	monthly trailpass	no	no	none	don't close warminster
63	New Britain	Inbound	4/2/03	6:40	5 drive & parked	work	home	202 & bristol	doylestown	18901	30th street	ten trip	yes	warminster station	none	none
64	New Britain	Inbound	4/2/03	6:42	5 dropped off	work	home	turf & almshouse	doylestown	18901	ambler	cash	no	no	none	most convenient
65	New Britain	Inbound	4/2/03	6:45	5 drive & parked	work	home	202 & lamerend	new britain boro	18901	suburban	monthly trailpass	yes	north penn station	none	none
66	New Britain	Inbound	4/2/03	6:46	5 drive & parked	work	home	bristol & lower state	doylestown twp	18901	suburban	monthly trailpass	yes	doylestown station	none	don't close station, don't raise fares - high enough
67	New Britain	Inbound	4/2/03	6:47	5 drive & parked	work	home	202 & shady retreat	doylestown	18901	suburban	ten trip	yes	drive or bus	none	none
68	New Britain	Inbound	4/2/03	6:48	5 drive & parked	work	home	lamp post & keeley	new britain	18901	30th street	monthly trailpass	yes	chalfont station or d/c	none	none
69	New Britain	Inbound	4/2/03	6:49	5 drive & parked	work	home	202 & main (doylestown)	doylestown	18901	suburban	monthly trailpass	yes	lansdale station	none	none
70	New Britain	Inbound	4/2/03	7:04	1 drive & parked	work	home	creek & callowhill	new britain twp	18914	market east	cash	yes	chalfont station	none	chalfont needs more parking
71	New Britain	Inbound	4/2/03	7:05	5 drive & parked	work	home	condesping creamery & burnt hills	doylestown	18901	market east	monthly trailpass	yes	doylestown station	none	none
72	New Britain	Inbound	4/2/03	7:10	5 drive & parked	work	home	611 & haring	plumstead	18901	suburban	monthly trailpass	no	drive to work	none	none
73	New Britain	Inbound	4/2/03	7:10	5 drive & parked	work	home	sandy ridge & 202	new britain boro	18901	market east	monthly trailpass	yes	doylestown station	none	chalfont needs parking
74	New Britain	Inbound	4/2/03	7:10	5 drive & parked	work	home	bristol & lower state	warrington	18976	suburban	ten trip	yes	drive to different station	none	don't close
75	New Britain	Inbound	4/2/03	7:10	4 drive & parked	work	home	almshouse & l. almshouse	doylestown	18901	market east	monthly trailpass	no	no	would have to quit job	none
76	New Britain	Inbound	4/2/03	7:12	5 drive & parked	work	home	611 & slump	plumstead	18947	suburban	monthly trailpass	yes	colmar or lansdale station	none	none
77	New Britain	Inbound	4/2/03	7:13	5 drive & parked	work	home	202 & lamerend	new britain boro	18901	suburban	monthly trailpass	yes	doylestown station	none	please don't close station
78	New Britain	Inbound	4/2/03	7:14	5 drive & parked	work	home	new britain & main st	doylestown	18901	suburban	ten trip	yes	chalfont station	none	express with 18 stops is not express, 80% get on
79	New Britain	Inbound	4/2/03	7:15	5 drive & parked	work	home	611 & slump	doylestown	18901	suburban	monthly trailpass	yes	doylestown station	none	none
80	New Britain	Inbound	4/2/03	8:15	4 drive & parked	work	home	bristol & lower state	warrington	18914	market east	ten trip	yes	doylestown station	none	1. Parking availability, 2. Chalfont needs parking,
81	New Britain	Inbound	4/2/03	8:20	4 drive & parked	work	home	ute & 202	new britain boro	18901	suburban	ten trip	yes	doylestown station	none	3. Please don't close
82	New Britain	Inbound	4/2/03	8:20	3 drive & parked	work	home	woodridge & stoney lane	doylestown	18976	suburban	single ticket	no	drive	none	none
83	New Britain	Inbound	4/2/03	8:22	7 walked	home	work	beulah & 202	doylestown	18901	market east	weekly trailpass	yes	doylestown station	none	is station becomes unavailable he would have to quit job
84	New Britain	Inbound	4/2/03	8:22	3 drive & parked	work	home	313 & maple	dublin	18917	suburban	ten trip	yes	chalfont or del val col station	none	chalfont has no parking
85	New Britain	Inbound	4/2/03	8:24	2 dropped off	work	home	west & berk	doylestown	18901	market east	monthly trailpass	yes	doylestown station	none	more service to doylestown is desirable
86	New Britain	Inbound	4/2/03	9:00	5 walked	medical	work	spring lake	new britain	18901	market east	weekly trailpass	no	no	none	none
87	New Britain	Inbound	4/2/03	2:35	5 dropped off	work	work	202 & sand drive	doylestown	18901	fort washington	weekly trailpass	yes	walk to chalfont	none	none
88	New Britain	Inbound	4/2/03	5:30	3 dropped off	recreation	home	202 & lamerend	new britain	18901	fort washington	cash	yes	chalfont station	none	none
89	New Britain	Inbound	4/2/03	5:41	5 dropped off	home	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	domestic assign to Chalfont	none
90	New Britain	Outbound	4/2/03	3:27	1 walked	home	work	mcdonald's at town center	new britain	18901	del val col	cash	no	catch a lift	none	none
91	New Britain	Outbound	4/2/03	3:29	5 walked	home	work	97 britain drive	new britain	18901	doylestown	cash	no	get a ride	none	none
177	New Britain	Inbound	4/15/03	5:21	5 dropped off	home	work	iron hill & ferry	new britain	18901	market east	weekly trailpass	yes	drop off at chalfont	none	none
178	New Britain	Inbound	4/15/03	5:22	5 dropped off	home	work	iron hill & ferry	new britain	18901	wayne junction	weekly trailpass	yes	drop off at chalfont	none	none
179	New Britain	Inbound	4/15/03	5:24	5 dropped off	home	work	iron hill & ferry	new britain	18901	wayne junction	weekly trailpass	yes	drop off at chalfont	none	none
180	New Britain	Inbound	4/15/03	5:28	6 dropped off	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	yes	drop off at chalfont	none	shift ends at 6:30pm
181	New Britain	Inbound	4/15/03	5:40	1 dropped off	home	work	lamerend & 202	new britain boro	18901	fern rock	cash	yes	lansdale station	none	none
182	New Britain	Inbound	4/15/03	6:47	7 dropped off	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	no	would get a lift	none	company is considering a shuttle bus
183	New Britain	Inbound	4/15/03	6:50	4 walked	home	work	15 britain dr	new britain	18901	fern rock	cash	no	no	would have to quit	none
184	New Britain	Inbound	4/15/03	6:55	5 dropped off	home	work	15 britain dr	new britain	18901	market east	weekly trailpass	no	no	none	none
185	New Britain	Inbound	4/15/03	6:56	5 dropped off	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	no	no	none	none
186	New Britain	Inbound	4/15/03	6:59	7 dropped off	home	work	15 britain dr	new britain	18901	fern rock	cash	no	no	lose job	none
187	New Britain	Inbound	4/15/03	7:00	5 dropped off	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	yes	55 bus, but won't use	none	none
188	New Britain	Inbound	4/15/03	7:02	6 dropped off	home	work	15 britain dr	new britain	18901	fern rock	cash	no	no	none	none
189	New Britain	Inbound	4/15/03	7:05	5 walked	home	work	15 britain dr	new britain	18901	market east	weekly trailpass	no	no	none	wouldn't be able to get to work
190	New Britain	Inbound	4/15/03	7:06	5 walked	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	no	no	no alternatives	none
191	New Britain	Inbound	4/15/03	7:12	5 walked	home	work	15 britain dr	new britain	18901	market east	weekly trailpass	no	no	no alternatives	none
192	New Britain	Inbound	4/15/03	7:07	5 dropped off	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	no	no	no alternatives	none
193	New Britain	Inbound	4/15/03	7:10	5 dropped off	home	work	15 britain dr	new britain	18901	market east	weekly trailpass	no	no	I wouldn't be able to get to work	none
194	New Britain	Inbound	4/15/03	7:15	5 walked	home	work	15 britain dr	new britain	18901	fern rock	weekly trailpass	no	no	none	none
195	New Britain	Inbound	4/15/03	7:15	5 walked	home	work	15 britain dr	new britain	18901	30th street	weekly trailpass	no	no	none	none
196	New Britain	Inbound	4/15/03	7:18	6 walked	home	work	15 britain dr	new britain	18901	north broad	monthly trailpass	no	no	none	none
197	New Britain	Outbound	4/15/03	5:24	5 dropped off	home	work	202 & skyline	chalfont	18901	doylestown	cash	yes	drive to chalfont station	none	none

Not Mapped

Figure E1: Link Belt Station - SEPTA R5 Lansdale/Doylestown Line



	Inbound	Outbound	Total
Survey conducted Wednesday, April 16, 2003 (4:20pm - 5:53pm)			
Surveys conducted	19	1	20
Passengers missed	5	0	5
<i>Total Boards</i>	<i>24</i>	<i>1</i>	<i>25</i>
Summary of SEPTA 2001 Census Data			
Weekday Boards	40	0	40
4:20 - 5:53pm Boards	35	0	35
Saturday Boards	2	0	2
Sunday Boards	4	0	4



Station platform and shelters

How many days of the week do you use this station? Average 4.45

How did you arrive at the station? Walked: 17, Dropped-off: 3

What is the purpose of this trip?

Home:	14	School:	2
Work:	4		

Where did you begin this trip? Home: 18, Other: 2

Business name & address / Nearby Intersection?

See shed map, 17 of 20 are shown on map

Municipality? Hatfield Twp: 17, Allentown City: 2, Collegeville Boro: 1

Zip Code? 18915: 17, 19426:1, N/A: 2

To which station are you destined now?

Market East:	6	Doylestown:	1
Fern Rock:	3	Lansdale:	1
Glenside:	2	Mount Airy:	1
Wayne Jct:	2	North Broad:	1
30 th Street:	2	North Wales:	1

What payment method are you using?

Trailpass:	14	Single Ticket:	1
Cash:	2	Child Ticket:	1
Cross County Pass:	2		

Do you know what alternatives exist if this station were to become unavailable?

9 answered YES, or showed that they knew of one or more alternatives

11 answered NO

How would you complete your trip?

Colmar Station:	3
Drive or Get a Ride:	3
Delaware Valley College Station:	2
Bus #23:	1
Not Sure:	11



Station platform, shelters, and passenger drop-off area



Station platform, shelters, and amenities

Comments / Suggestions:

wouldn't work here anymore, late everyday

would walk but would be late

would like a bus service

will use a car instead

walk is about 15-20 minutes

uses Warminster line from Glenside

no other way to get here

Figure E2: Link Belt Station Shed Area

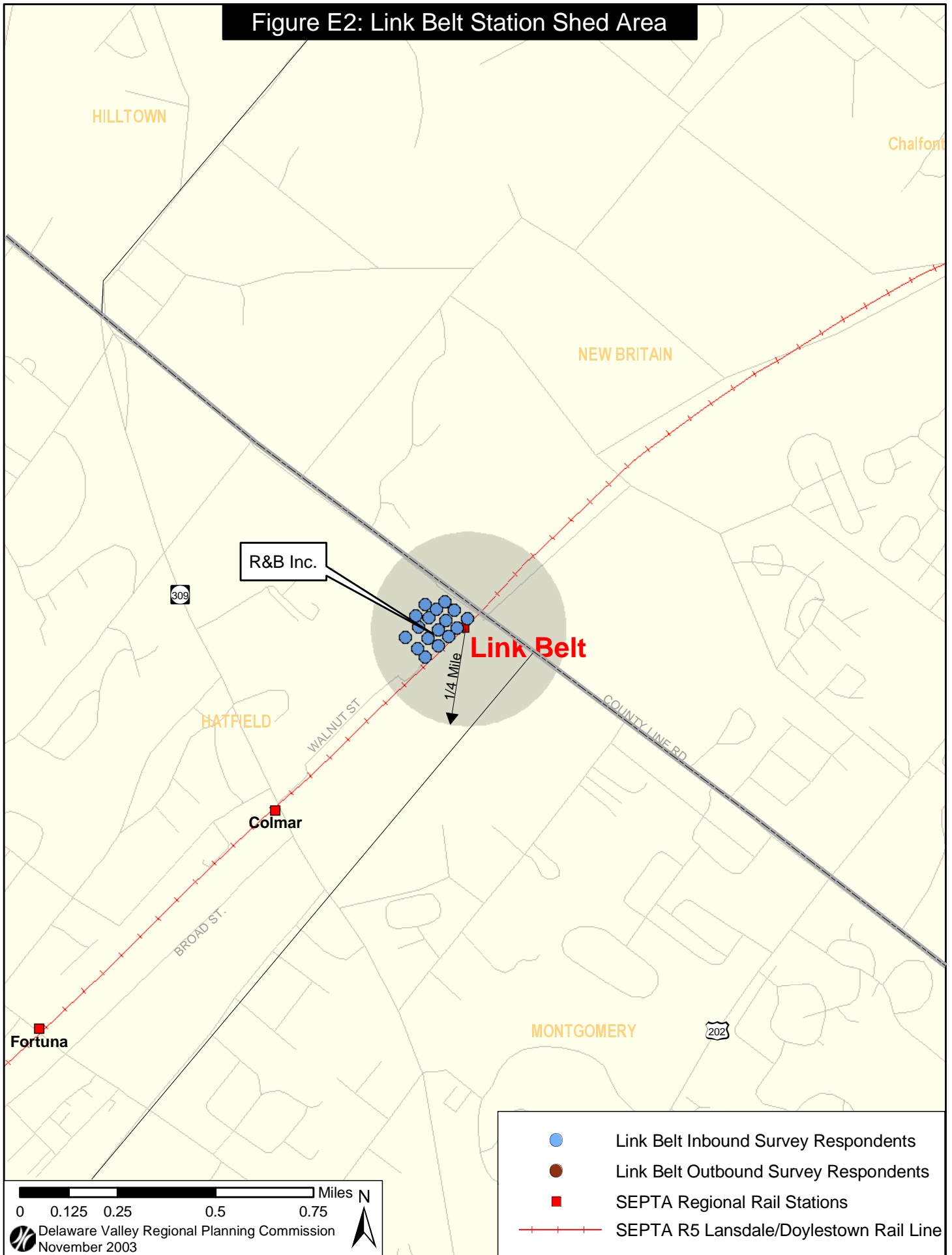


Table E1 - Link Belt Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alternative	Trip Complete	Comments
138	Link Belt	inbound	4/16/03	4:25	5	walked	home	work	r&b walnut	hatfield	18915	market east	monthly trailpass	yes	drive	none
139	Link Belt	inbound	4/16/03	4:27	5	walked	home	work	r&b walnut	hatfield	18915	fern rock	monthly trailpass	no	none	none
140	Link Belt	inbound	4/16/03	4:30	5	walked	home	work	r&b walnut	hatfield	18915	wayne jct	weekly trailpass	yes	drive	no other way to get here
141	Link Belt	inbound	4/16/03	4:30	5	walked	home	work	r&b walnut	hatfield	18915	market east	monthly trailpass	no	no	none
142	Link Belt	inbound	4/16/03	4:31	5	walked	work	work	r&b walnut	hatfield	18915	market east	monthly trailpass	yes	colmar station	would walk but would be late
143	Link Belt	inbound	4/16/03	4:31	5	walked	home	work	r&b walnut	hatfield	18915	glenside	cross county pass	no	no	uses warminster line from glenside
144	Link Belt	inbound	4/16/03	4:32	5	walked	home	work	r&b walnut	hatfield	18915	mount airy	trailpass	yes	bus#23	none
145	Link Belt	inbound	4/16/03	4:32	5	walked	work	work	r&b walnut	hatfield	18915	fern rock	trailpass	no	no	none
146	Link Belt	inbound	4/16/03	4:35	5	walked	home	work	r&b walnut	hatfield	18915	wayne jct	cross county pass	yes	walk to colmar	will use a car instead
147	Link Belt	inbound	4/16/03	4:40	5	walked	home	work	r&b walnut	hatfield	18915	glenside	monthly trailpass	no	no	none
148	Link Belt	inbound	4/16/03	4:40	5	walked	work	work	r&b walnut	hatfield	18915	market east	weekly trailpass	no	no	wouldn't work here anymore, late everyday
149	Link Belt	inbound	4/16/03	4:40	5	walked	home	work	r&b walnut	hatfield	18915	lansdale	monthly trailpass	no	no	none
150	Link Belt	inbound	4/16/03	4:42	5	walked	home	work	r&b walnut	hatfield	18915	north broad	weekly trailpass	no	no	none
151	Link Belt	inbound	4/16/03	4:43	5	walked	home	work	r&b walnut	hatfield	18915	north wales	cash	yes	get a ride	none
152	Link Belt	inbound	4/16/03	4:45	6	walked	home	work	r&b walnut	hatfield	18915	fern rock	weekly trailpass	no	no	would like a bus service
153	Link Belt	inbound	4/16/03	4:46	5	walked	work	work	r&b walnut	hatfield	18915	market east	weekly trailpass	yes	colmar station	walk is about 15-20 minutes
154	Link Belt	inbound	4/16/03	4:50	5	walked	home	work	r&b walnut	hatfield	18915	market east	trailpass	no	no	none
155	Link Belt	inbound	4/16/03	5:48	1	dropped off	other	other	allentown (bethlehem bridge)	allentown	n/a	30th street	single ticket	yes	would drive to Del Val College	Scott Maits (dvarp) plus one child
156	Link Belt	inbound	4/16/03	5:48	1	dropped off	other	other	allentown (bethlehem bridge)	allentown	n/a	30th street	child ticket	yes	accompanied by adult	child with survey 155
157	Link Belt	outbound	4/16/03	5:23	1	dropped off	home	work	collegetown	collegetown	19426	doylestown	cash	no	no	none

Not Mapped

Figure F1: Fortuna Station - SEPTA R5 Lansdale/Doylestown Line



	Inbound	Outbound	Total
Survey conducted Wednesday April 8, 2003 (6:36-8:39 am, 2:42-4:37pm)			
Surveys conducted	45	1	46
Passengers missed	7	0	7
Total Boards	52	1	53
Summary of SEPTA 2001 Census Data			
Weekday Boards	90	1	91
6:36-8:39am, 2:42-4:37pm Boards	68	1	69
Saturday Boards	31	5	36
Sunday Boards	35	0	35



Station platform and shelter

How many days of the week do you use this station? Average 4.76

How did you arrive at the station? Walked: 23, Drove & Parked: 17, Dropped-off: 5, Carpooled: 1

What is the purpose of this trip?

Work:	32	School:	2
Home:	12		

Where did you begin this trip? Home: 34, Work: 12

Business name & address / Nearby Intersection?

See shed map, 43 of 46 are shown on map

Municipality? Hatfield Twp: 37, Franconia Twp: 2, Hatfield Boro: 2,
Montgomery Twp: 1, Lower Salford Twp: 1, Souderton :1, N/A: 2

Zip Code? 19440: 26, 19446: 13, 18964: 4, 18969: 1, 18932: 1, N/A: 1



Station parking lot

To which station are you destined now?

Suburban:	19	Ambler:	1
Market East:	9	Doylestown:	1
Wayne Junction:	6	Lansdale:	1
North Broad:	3	Norristown:	1
30 th Street:	2	Temple:	1
Fern Rock:	2		

What payment method are you using?

Trailpass:	37	Senior Ticket:	1
Cash:	6	Half-fare card:	1
Ten Trip:	1		



View of Cowpath Rd. grade crossing (foreground) as inbound train approaches

Do you know what alternatives exist if this station were to become unavailable?

28 answered YES, or showed that they knew of one or more alternatives

17 answered NO, 1 was N/A

How would you complete your trip? (some gave more than one answer)

Lansdale Station (via walk, drive, or taxi):	21	North Wales Station:	1
Colmar Station:	5	Pennbrook Station:	1
Drive:	6	Get a Ride:	1
Cornwells Heights Station:	1	Not Sure:	13
Narberth Station:	1		

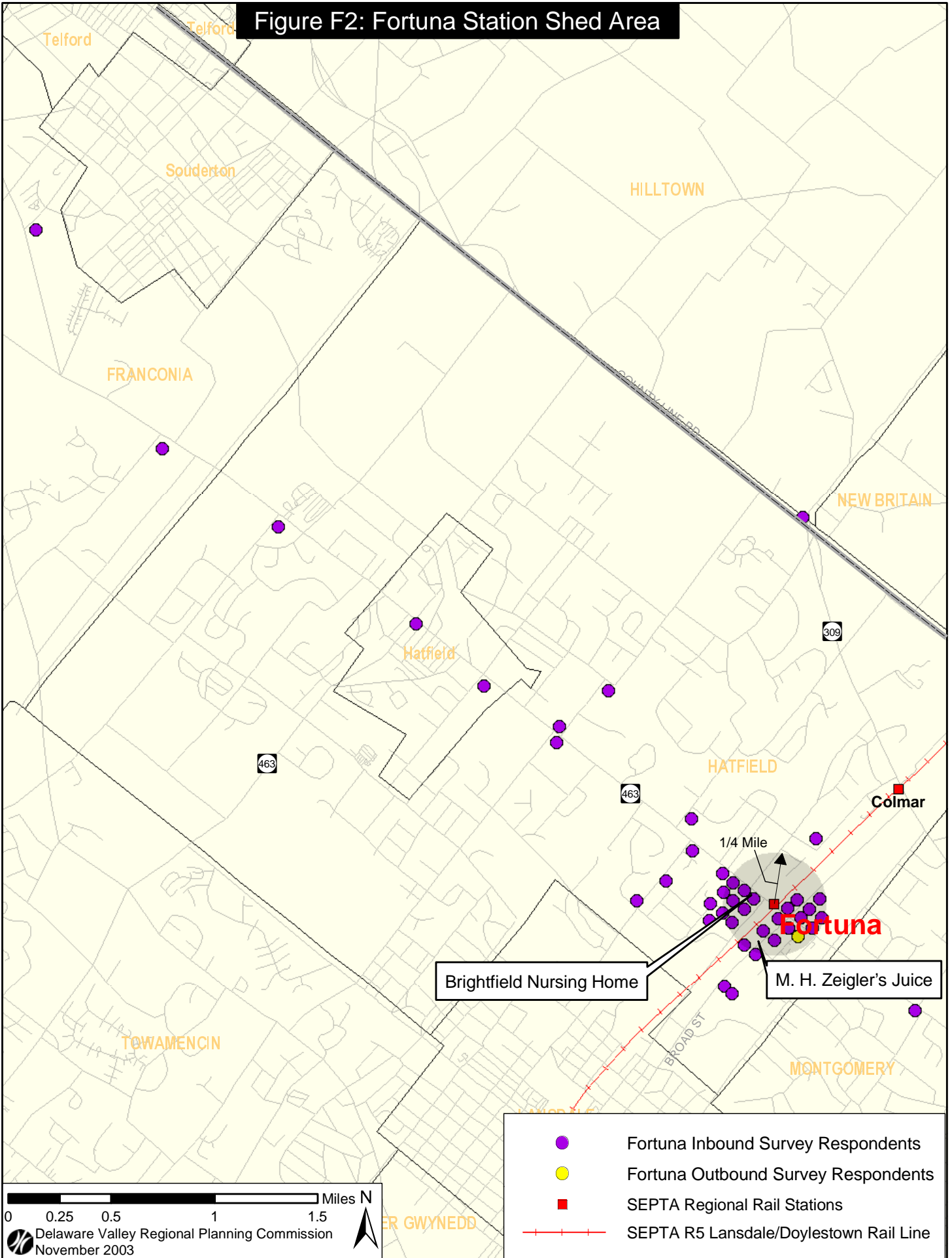
Figure F1: Fortuna Station - SEPTA R5 Lansdale/Doylestown Line (con't)



Comments / Suggestions:

no close	get a ride or be out of a job
reopen Hatfield station	does not know any alternatives
inconvenient if station closed	no other way but Fortuna station
don't close it, usually walks to the station	couldn't make the trip
don't close this station	would be out of a job
this station is most convenient	no alternative
would have to quit job	don't close station
do not close station	would find another station, would drive to work
no parking at Temple	nothing else to use
needs the train	would be out of a job, 3 shifts affected

Figure F2: Fortuna Station Shed Area



- Fortuna Inbound Survey Respondents
- Fortuna Outbound Survey Respondents
- SEPTA Regional Rail Stations
- SEPTA R5 Lansdale/Doylestown Rail Line

Table F1 - Fortuna Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alternative	Trip Complete	Comments
92	Fortuna	inbound	4/8/03	2:30	2	walked	home	work	walnut & cowpath	hatfield	19440	lansdale	half fare card	no	no	no close
93	Fortuna	inbound	4/8/03	7:03	5	drove & parked	work	home	hilltown & 309	hilltown	18932	market east	monthly trailpass	yes	lansdale station	reopen halfid station
94	Fortuna	inbound	4/8/03	4:35	1	drove & parked	work	home	broad & cowpath (in boro)	hatfield boro	19440	fern rock	cash	yes	lansdale station	inconvenient if station closed
95	Fortuna	inbound	4/8/03	7:30	1	dropped off	work	home	market (?)	souderton	18964	market east	monthly trailpass	yes	narberth station	don't close it, usually walks to the station
96	Fortuna	inbound	4/8/03	6:20	5	carpooled	work	home	rebecca & line lexington	hatfield twp	19440	market east	monthly trailpass	yes	drive to colmar station	don't close this station
97	Fortuna	inbound	4/8/03	6:34	5	dropped off	work	home	broad & 463	hatfield twp	19446	suburban	monthly trailpass	yes	lansdale station	this station is most convenient
98	Fortuna	inbound	4/8/03	4:36	6	walked	home	work	walnut & 463	hatfield	19440	wayne junction	weekly trailpass	no	no	would have to quit job
99	Fortuna	inbound	4/8/03	6:58	5	walked	work	home	463 & Broad	hatfield	19446	suburban	monthly trailpass	no	no	none
100	Fortuna	inbound	4/8/03	6:25	5	drove & parked	work	home	cowpath & forty foot	hatfield boro	19440	market east	monthly trailpass	yes	colmar station or lansdale	none
101	Fortuna	inbound	4/8/03	7:27	3	walked	work	home	cowpath & broad	hatfield twp	19446	suburban	cash	yes	drive to work	none
102	Fortuna	inbound	4/8/03	7:05	5	drove & parked	work	home	orvilla & 463	hatfield	19440	30th street	monthly trailpass	yes	drive to lansdale station	none
103	Fortuna	inbound	4/8/03	7:20	5	walked	work	home	walnut & 463	hatfield boro	19440	market east	monthly trailpass	yes	drive to lansdale station	do not close station
104	Fortuna	inbound	4/8/03	3:25	7	walked	home	work	1415 broad street	hatfield	19440	market east	weekly trailpass	yes	walk or taxi to lansdale station	no parking at temple
105	Fortuna	inbound	4/8/03	7:02	5	walked	work	home	cowpath & broad	hatfield	19446	market east	monthly trailpass	no	no	none
106	Fortuna	inbound	4/8/03	7:27	5	walked	work	home	broad & 463	hatfield	19446	market east	monthly trailpass	yes	lansdale or colmar station	none
107	Fortuna	inbound	4/8/03	7:25	5	drove & parked	work	home	maple & orvilla	hatfield	19440	30th street	monthly trailpass	yes	drive	none
108	Fortuna	inbound	4/8/03	7:27	5	walked	work	home	463 & broad	hatfield	19446	suburban	monthly trailpass	yes	lansdale station	none
109	Fortuna	inbound	4/8/03	7:24	5	walked	work	home	cowpath & broad	hatfield	19446	ambler	monthly trailpass	yes	friends to drive	none
110	Fortuna	inbound	4/8/03	7:29	5	drove & parked	work	home	lansdale & cowpath	hatfield	19446	market east	monthly trailpass	yes	pembroke station	none
111	Fortuna	inbound	4/8/03	6:35	5	dropped off	school	home	n/a	n/a	n/a	n/a	cash	n/a	n/a	none
112	Fortuna	inbound	4/8/03	7:28	3	dropped off	work	home	broad & lynnwood	lansdale boro	19446	suburban	ten trip	yes	drive and park at lansdale station	none
113	Fortuna	inbound	4/8/03	7:30	5	walked	work	home	cowpath & broad	hatfield	19446	suburban	monthly trailpass	yes	taxi or drive to lansdale station	none
114	Fortuna	inbound	4/8/03	8:39	4	walked	work	home	broad & cowpath	hatfield	19446	suburban	cash	no	cab ride to lansdale	needs the train
115	Fortuna	inbound	4/8/03	4:28	1	walked	home	work	walnut & 463	hatfield	19440	north broad	weekly trailpass	no	no	get a ride or be out of a job
116	Fortuna	inbound	4/8/03	3:30	5	walked	school	home	walnut & 463	hatfield	19446	temple	cash	no	drive	none
117	Fortuna	inbound	4/8/03	4:32	6	walked	home	work	walnut & 463	hatfield	19440	wayne junction	monthly trailpass	no	no	does not know any alternatives
118	Fortuna	outbound	4/8/03	7:38	6	walked	work	home	broad & cowpath	hatfield	19446	doylestown	cash	no	no	none
119	Fortuna	inbound	4/8/03	4:33	6	walked	home	work	walnut & 463	hatfield	19440	wayne junction	monthly trailpass	no	no	none
120	Fortuna	inbound	4/8/03	4:36	5	walked	home	work	broad & lynnwood	hatfield	19440	north broad	weekly trailpass	no	walk	no other way but fortuna station
121	Fortuna	inbound	4/8/03	4:30	6	walked	home	work	walnut & 463	hatfield	19440	fern rock	weekly trailpass	no	no	couldn't make the trip
122	Fortuna	inbound	4/8/03	4:33	6	walked	home	work	walnut & 463	hatfield	19440	wayne junction	weekly trailpass	no	no	would be out of a job
123	Fortuna	inbound	4/8/03	4:32	6	walked	home	work	walnut & 463	hatfield	19440	north broad	weekly trailpass	no	no	no alternative
124	Fortuna	inbound	4/8/03	7:20	3	drove & parked	work	home	cowpath & derstein	hatfield	18964	suburban	monthly trailpass	yes	drive to lansdale station	don't close station
125	Fortuna	inbound	4/8/03	4:34	6	walked	home	work	walnut & 463	hatfield	19440	wayne junction	monthly trailpass	no	no	none
126	Fortuna	inbound	4/8/03	7:25	5	drove & parked	work	home	cowpath & beck	franconia	18964	suburban	monthly trailpass	yes	lansdale station	none
127	Fortuna	inbound	4/8/03	7:29	5	drove & parked	work	home	green & cowpath	franconia	18964	suburban	senior ticket	yes	lansdale station	none
128	Fortuna	inbound	4/8/03	6:26	6	drove & parked	work	home	63 & 113	telford	18969	suburban	monthly trailpass	yes	lansdale station or colmar station	none
129	Fortuna	inbound	4/8/03	6:30	5	drove & parked	work	home	broad & 463	hatfield	19440	suburban	monthly trailpass	yes	lansdale or colmar station	would find another station, would drive to work
130	Fortuna	inbound	4/8/03	6:32	5	drove & parked	work	home	moyer & wimbeldon	hatfield	19440	suburban	monthly trailpass	no	lansdale station	nothing else to use
131	Fortuna	inbound	4/8/03	7:00	5	dropped off	work	home	moyer & carpenter	hatfield	19440	suburban	monthly trailpass	yes	drive	none
132	Fortuna	inbound	4/8/03	7:04	5	drove & parked	work	home	main & vine (hatfield)	hatfield	19440	suburban	monthly trailpass	yes	lansdale or cornwell stations	none
133	Fortuna	inbound	4/8/03	7:20	5	drove & parked	work	home	norman & walnut	hatfield	19440	suburban	monthly trailpass	yes	drive car	none
134	Fortuna	inbound	4/8/03	7:26	5	drove & parked	work	home	n/a	n/a	19440	suburban	monthly trailpass	yes	drive	none
135	Fortuna	inbound	4/8/03	7:27	5	drove & parked	work	home	moyer & cowpath	hatfield	19440	suburban	monthly trailpass	yes	drive to lansdale station	none
136	Fortuna	inbound	4/8/03	4:35	5	walked	home	work	1415 broad street	hatfield	19440	wayne junction	monthly trailpass	no	no	would be out of a job, 3 shifts affected
137	Fortuna	inbound	4/8/03	7:30	5	drove & parked	work	home	cowpath & orvilla	hatfield	19440	suburban	monthly trailpass	yes	north wales or lansdale station	none

Not Mapped

Figure G1: Wissinoming Station - SEPTA R7 Trenton Line



	Inbound	Outbound	Total
Survey conducted Wednesday, April 16, 2003 (6:16am - 12:22pm)			
Surveys conducted	16	3	19
Passengers missed	2	0	2
Total Boards	18	3	21



Inbound walkway and shelter

Summary of SEPTA 2001 Census Data			
Weekday Boards	18	3	21
6:16am - 12:22pm Boards	16	2	18
Saturday Boards	0	1	1
Sunday Boards	2	4	6

How many days of the week do you use this station? Average 3.47

How did you arrive at the station? Walked: 12, Dropped-off: 4, Drove & Parked: 2
Train: 1

What is the purpose of this trip?

Work: 15 School: 4

Where did you begin this trip? Work: 15, School: 4

Business name & address / Nearby Intersection?

See shed map, 17 of 19 are shown on map

Municipality? Philadelphia City: 18, Levittown: 1

Zip Code? 19135: 16, 19057:1, 19124: 1, 19136: 1

To which station are you destined now?

Suburban: 8 Levittown: 2

30th Street: 4 Cornwells Heights: 1

Temple: 3 Market East: 1

What payment method are you using?

Trailpass: 13 Single Ticket: 1

Cash: 5

Do you know what alternatives exist if this station were to become unavailable?

17 answered YES, or showed that they knew of one or more alternatives

2 answered NO

How would you complete your trip?

Market/Frankford Line (via Bus #56 or walk): 7

Bridesburg Station: 5

Tacony Station: 3

Drive: 2

Not Sure: 2



Inbound platform



Outbound platform

Comments / Suggestions:

don't close station, no car

usually uses Holmesburg Junction station

don't close station

long walk (to el), hopes they don't close station

hopes they don't close station

Figure G2:Wissinoming Station Shed Area

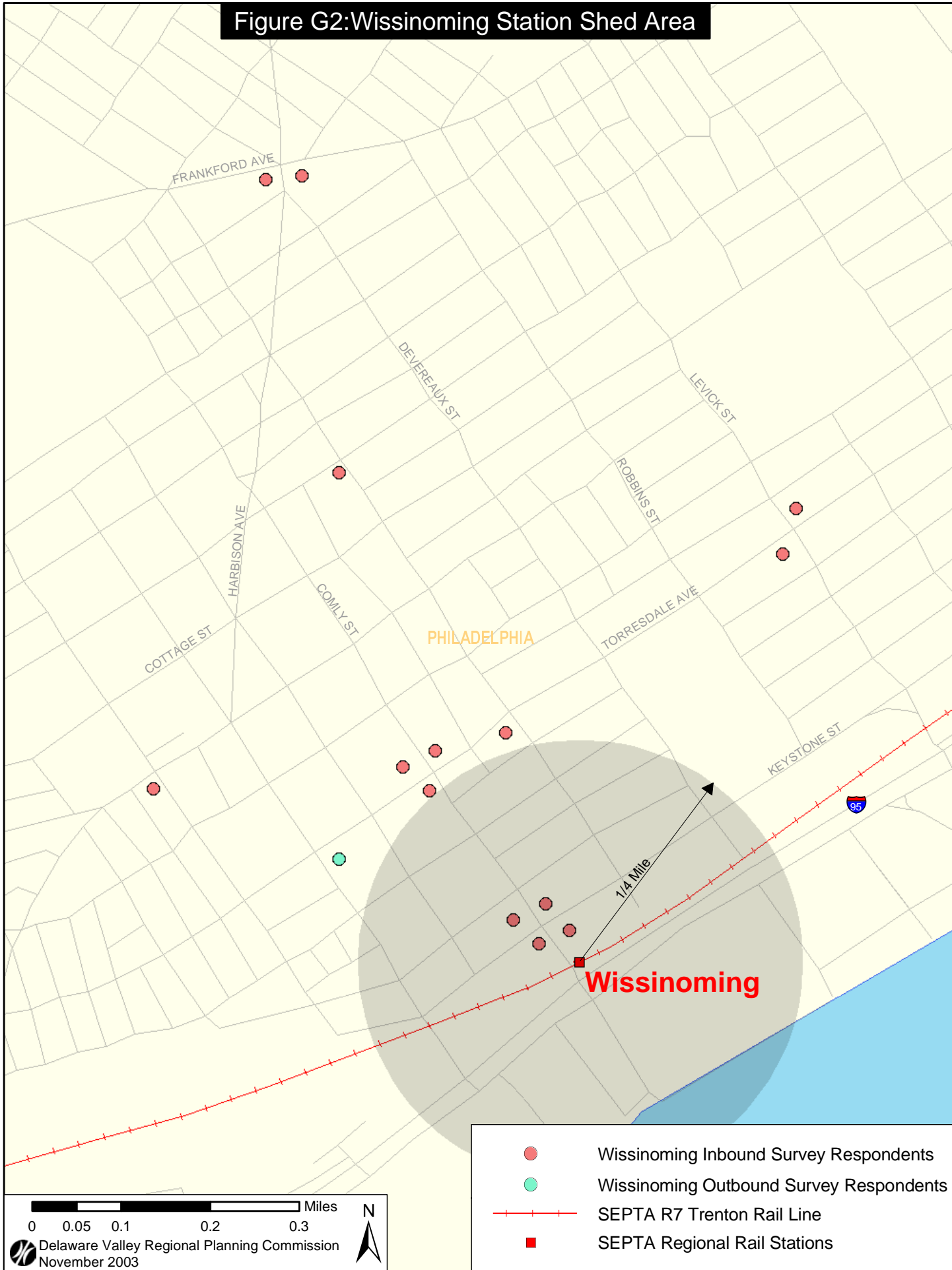


Table G1 - Wissinoming Station Survey Database

ID	Station	Platform	Date	Time	Days/Wk	Mode	Purpose	Begin	Address/Int	MCD	Zip	Destination	Payment	Alternative	Trip Complete	Comments
158	Wissinoming	inbound	4/16/03	6:10	1	walked	work	other	comly & keystone	philadelphia	19135	suburban	weekly trailpass	yes	56 bus	none
159	Wissinoming	inbound	4/16/03	6:14	5	walked	work	home	harbison & cheltenham	philadelphia	19124	suburban	monthly trailpass	yes	walk to bridesburg station	none
160	Wissinoming	inbound	4/16/03	6:15	5	walked	work	home	walker & benner	philadelphia	19135	30th street	monthly trailpass	yes	drive to work	none
161	Wissinoming	inbound	4/16/03	7:25	1	drove & parked	work	home	frankford & deveaux	philadelphia	19135	suburban	cash	yes	the el	none
162	Wissinoming	inbound	4/16/03	7:30	3	walked	work	home	torresdale & comly	philadelphia	19135	suburban	monthly trailpass	yes	the el	long walk (to el), hopes they don't close station
163	Wissinoming	inbound	4/16/03	7:31	5	dropped off	school	home	wissinoming & comly	philadelphia	19135	temple	cash	no	no	new to area
164	Wissinoming	inbound	4/16/03	7:33	5	walked	work	home	torresdale & comly	philadelphia	19135	suburban	monthly trailpass	yes	drive to bridesburg	hopes they don't close station
165	Wissinoming	inbound	4/16/03	7:33	3	walked	school	home	levick & torresdale	philadelphia	19135	temple	weekly trailpass	yes	56 to el to Market east to train back to temple	none
166	Wissinoming	inbound	4/16/03	7:33	5	drove & parked	work	home	new falls rd & woodbourne	levittown	19057	suburban	monthly trailpass	yes	drive to bridesburg	none
167	Wissinoming	inbound	4/16/03	7:34	5	walked	work	home	torresdale & benner	philadelphia	19135	suburban	monthly trailpass	yes	bus to el	none
168	Wissinoming	inbound	4/16/03	7:58	6	walked	work	home	keystone & comly	philadelphia	19135	30th street	monthly trailpass	yes	56 bus to el to 30th street	don't close station, no car
169	Wissinoming	inbound	4/16/03	7:59	3	walked	school	home	keystone & comly	philadelphia	19135	suburban	cash	yes	walk to tacony station	none
170	Wissinoming	inbound	4/16/03	8:02	5	walked	work	home	comly & torresdale	philadelphia	19135	30th street	monthly trailpass	yes	car	don't close station
171	Wissinoming	inbound	4/16/03	8:03	5	dropped off	school	home	deveraux & frankford	philadelphia	19135	temple	cash	yes	drop off at bridesburg	none
172	Wissinoming	inbound	4/16/03	8:05	1	walked	work	home	keystone & comly	philadelphia	19135	market east	monthly trailpass	yes	56 to el to market east	none
173	Wissinoming	inbound	4/16/03	9:09	1	dropped off	work	home	levick & torresdale	philadelphia	19135	30th street	weekly trailpass	yes	tacony (station) by foot	none
174	Wissinoming	outbound	4/16/03	6:55	5	walked	work	home	torresdale & van kirk	philadelphia	19135	cornwell heights	cash	yes	walk to bridesburg	none
175	Wissinoming	outbound	4/16/03	7:45	1	dropped off	work	home	torresdale & shelmire	philadelphia	19135	levittown	single ticket	no	no	usually uses holmesburg junction station
176	Wissinoming	outbound	4/16/03	12:15	1	by train	work	work	holmesburg train station	philadelphia	19136	levittown	monthly trailpass	yes	use tacony station	none

Not Mapped

Regional Rail Stations Closures Study

Table H1: Estimated Additional Annual Revenue for the R2 Wilmington and Newark Line

	Fare Zone						Estimated Additional Annual Fares
	1	2	3	4	5	6	
RRD Average Fare Per Zone \$							6,945
	1,950	2,820	3,375	3,870	4,390	\$	6,945
Estimate Using Direct Model Outputs							
SEPTA 2001 Census Onboard Avg.	5,861	4,195	2,902	694			
Station Closures Scenario Forecast Avg.	5,959	4,326	2,955	698			
Change in Onboard Avg.	98	131	53	4			
R2							
New Boards:	-33	78	49	4			
Saturday Factor	0.259	0.275	0.240	0.000			
New Saturday Boards:	-9	21	12	0			
Sunday Factor	0.125	0.104	0.086	0.000			
New Sunday Boards:	-4	8	4	0			
Annual Weekday Fares	\$ (23,730.30)	\$ 67,128.75	\$ 48,355.65	\$ 4,477.80			\$ 96,231.90
Annual Saturday Fares	\$ (1,253.33)	\$ 3,764.48	\$ 2,366.58	\$ -			\$ 4,877.73
Annual Sunday Fares	\$ (674.69)	\$ 1,587.92	\$ 945.87	\$ -			\$ 1,859.10
							Total: \$ 102,968.73
Estimate Using Adjusted Model Outputs							
SEPTA 2001 Census Onboard Avg.	5,861	4,195	2,902	694			
Station Closures Scenario Forecast Avg.	5,959	4,326	2,955	698			
Change in Onboard Avg.	98	131	53	4			
R2							
New Boards:	0	78	49	4			
Saturday Factor	0.259	0.275	0.240	0.000			
New Saturday Boards:	0	21	12	0			
Sunday Factor	0.125	0.104	0.086	0.000			
New Sunday Boards:	0	8	4	0			
Annual Weekday Fares	\$ -	\$ 67,128.75	\$ 48,355.65	\$ 4,477.80			\$ 119,962.20
Annual Saturday Fares	\$ -	\$ 3,764.48	\$ 2,366.58	\$ -			\$ 6,131.06
Annual Sunday Fares	\$ -	\$ 1,587.92	\$ 945.87	\$ -			\$ 2,533.79
							Total: \$ 128,627.05

Regional Rail Stations Closures Study

Table H2: Estimated Additional Annual Revenue for the R3 Media / Elwyn Line

	Fare Zone						Estimated Additional Annual Fares
	1	2	3	4	5	6	
RRD Average Fare Per Zone \$	1,950 \$	2,820 \$	3,375 \$	3,870 \$	4,390 \$	6,945 \$	
Estimate Using Direct Model Outputs							
SEPTA 2001 Census Onboard Avg.	8,114	6,592	2,274				
Station Closures Scenario Forecast Avg.	8,003	6,641	2,284				
Change in Onboard Avg.	-111	49	10				
R3							
New Boards:	-160	39	10				
Saturday Factor	0.188	0.198	0.187				
New Saturday Boards:	-30	8	2				
Sunday Factor	0.120	0.126	0.117				
New Sunday Boards:	-19	5	1				
Annual Weekday Fares	\$(79,560.00)	\$ 28,044.90	\$ 8,606.25				\$(42,908.85)
Annual Saturday Fares	\$(3,050.11)	\$ 1,132.35	\$ 328.19				\$ (1,589.57)
Annual Sunday Fares	\$(2,171.52)	\$ 803.73	\$ 229.03				\$ (1,138.76)
Total:							\$(45,637.18)
Estimate Using Adjusted Model Outputs							
SEPTA 2001 Census Onboard Avg.	8,114	6,592	2,274				
Station Closures Scenario Forecast Avg.	8,003	6,641	2,284				
Change in Onboard Avg.	-111	49	10				
R3							
New Boards:	-64	39	10				
Saturday Factor	0.188	0.198	0.187				
New Saturday Boards:	-12	8	2				
Sunday Factor	0.120	0.126	0.117				
New Sunday Boards:	-8	5	1				
Annual Weekday Fares	\$(31,824.00)	\$ 28,044.90	\$ 8,606.25				\$ 4,827.15
Annual Saturday Fares	\$(1,220.04)	\$ 1,132.35	\$ 328.19				\$ 240.50
Annual Sunday Fares	\$(868.61)	\$ 803.73	\$ 229.03				\$ 164.15
Total:							\$ 5,231.80

Regional Rail Stations Closures Study

Table H3: Estimated Additional Annual Revenue for the R5 Lansdale / Doylestown Line

	Fare Zone						Estimated Additional Annual Fares
	1	2	3	4	5	6	
RRD Average Fare Per Zone	\$ 1,950	\$ 2,820	\$ 3,375	\$ 3,870	\$ 4,390	\$ 6,945	
Estimate Using Direct Model Outputs							
SEPTA 2001 Census Onboard Avg.			9,512	6,230	2,358		
Station Closures Scenario Forecast Avg.			9,674	6,406	2,428		
Change in Onboard Avg.			162	176	70		
R5	New Boards:		-14	106	70		
	Saturday Factor		0.259	0.300	0.404		
	New Saturday Boards:		-4	32	28		
	Sunday Factor		0.193	0.216	0.287		
	New Sunday Boards:		-3	23	20		
Annual Weekday Fares		\$ (12,048.75)	\$ 104,606.10	\$ 78,361.50			\$ 170,918.85
Annual Saturday Fares		\$ (636.36)	\$ 6,399.43	\$ 6,455.76			\$ 12,218.83
Annual Sunday Fares		\$ (528.92)	\$ 5,139.24	\$ 5,115.32			\$ 9,725.64
							Total: \$ 192,863.31
Estimate Using Adjusted Model Outputs							
SEPTA 2001 Census Onboard Avg.			9,512	6,230	2,358		
Station Closures Scenario Forecast Avg.			9,674	6,406	2,428		
Change in Onboard Avg.			162	176	70		
R5	New Boards:		0	0	70		
	Saturday Factor		0.259	0.300	0.404		
	New Saturday Boards:		0	0	28		
	Sunday Factor		0.193	0.216	0.287		
	New Sunday Boards:		0	0	20		
Annual Weekday Fares		\$ -	\$ -	\$ 78,361.50			\$ 78,361.50
Annual Saturday Fares		\$ -	\$ -	\$ 6,455.76			\$ 6,455.76
Annual Sunday Fares		\$ -	\$ -	\$ 5,115.32			\$ 5,115.32
							Total: \$ 89,932.57

Regional Rail Stations Closures Study

Table H4: Estimated Additional Annual Revenue for the R7 Trenton Line

	Fare Zone						Estimated Additional Annual Fares
	1	2	3	4	5	6	
RRD Average Fare Per Zone \$	1,950 \$	2,820 \$	3,375 \$	3,870 \$	4,390 \$	6,945	
Estimate Using Direct Model Outputs							
SEPTA 2001 Census Onboard Avg.	9,391	7,517	4,316	3,471	2,727		
Station Closures Scenario Forecast Avg.	9,509	7,531	4,336	3,512	2,734		
Change in Onboard Avg.	118	14	20	41	7		
R7							
New Boards:	104	-6	-21	34	7		
Saturday Factor	0.463	0.570	0.962	1.152	1.432		
New Saturday Boards:	48	-3	-20	39	10		
Sunday Factor	0.403	0.506	0.877	1.059	1.31		
New Sunday Boards:	42	-3	-18	36	9		
Annual Weekday Fares	\$ 74,786.40	\$ (5,163.75)	\$(20,723.85)	\$ 38,061.30	\$ 12,396.83		\$ 99,356.93
Annual Saturday Fares	\$ 7,061.01	\$ (600.21)	\$(4,065.45)	\$ 8,941.27	\$ 3,620.07		\$ 14,956.69
Annual Sunday Fares	\$ 6,855.13	\$ (594.30)	\$(4,133.88)	\$ 9,167.85	\$ 3,679.67		\$ 14,974.47
						Total:	\$ 129,288.08
Estimate Using Adjusted Model Outputs							
SEPTA 2001 Census Onboard Avg.	9,391	7,517	4,316	3,471	2,727		
Station Closures Scenario Forecast Avg.	9,509	7,531	4,336	3,512	2,734		
Change in Onboard Avg.	118	14	20	41	7		
R7							
New Boards:	104	0	0	34	7		
Saturday Factor	0.463	0.570	0.962	1.152	1.432		
New Saturday Boards:	48	0	0	39	10		
Sunday Factor	0.403	0.506	0.877	1.059	1.31		
New Sunday Boards:	42	0	0	36	9		
Annual Weekday Fares	\$ 74,786.40	\$ -	\$ -	\$ 38,061.30	\$ 12,396.83		\$ 125,244.53
Annual Saturday Fares	\$ 7,061.01	\$ -	\$ -	\$ 8,941.27	\$ 3,620.07		\$ 19,622.35
Annual Sunday Fares	\$ 6,855.13	\$ -	\$ -	\$ 9,167.85	\$ 3,679.67		\$ 19,702.65
						Total:	\$ 164,569.52

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DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Publication Abstract

Title: Regional Rail Stations Closures Study	Date Published: November 2003
	Publication No.: 03034

Geographic Area Covered: Seven SEPTA regional rail stations (Lamokin Street, Angora, Delaware Valley College, New Britain, Link Belt, Fortuna and Wissinoming) served by the R2 - Wilmington and Newark Line, the R3 - Media / Elwyn Line, the R5 - Lansdale / Doylestown Line, and the R7 - Trenton Line

Key Words: regional rail service, regional rail station, service standards, rail ridership, passenger survey, station shed, performance measures, financial analyses, environmental justice

ABSTRACT

DVRPC undertook the detailed study of closing seven low activity SEPTA regional rail stations, as a follow-up to the recommendations of the Regional Rail Improvement Study. The "Station Closures" study was guided by the same multijurisdictional Technical Advisory Committee as guided its parent study. Staff from SEPTA, NJ Transit, Amtrak, the City of Philadelphia, the suburban Pennsylvania counties, among others, were represented on the TAC.

To complete the detailed study and evaluate the potential station closures program, DVRPC staff performed three levels of data collection and analyses—performing passenger surveys, preparing travel demand forecasts, and developing financial analyses. The methodology provided a replicable procedure to assess station closures, quantify value and impact, and identify alternatives so that transportation services are continued for the majority of affected riders.

The study's comprehensive review of human, economic and institutional factors involved in the matter, culminated with a stepped station closures program. The recommended closures program will reduce travel times and increase the reliability and efficiency of the four affected regional rail lines, and accommodate the travel needs of displaced patrons who do not have transportation alternatives.

To stave off operating deficits, SEPTA has already begun closing stations included on the recommended station closures program. SEPTA may also consider extending the analyses to evaluate other low volume regional rail stations within its system and/or to reevaluate its service standards threshold as a means of continuing its economizing.

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Regional Rail Stations Closures Study

TABLE 3: Station Area Snap Shots

Station Name / adjacent stations	Rail Line	fare zone	Municipality	County	2001 Avg Wkday Passenger Activity [B + L] / 2	Weekday Patterns at Station		SEPTA's Parking (2002)			comments on parking	
						Ridership / Operating	Station is at:	supply	demand	available		exp. plans ?
Highland Avenue	R2 Wilmington and Newark	4	Chester City	Dela.	95	Ridership: 30% - travel the predominant directions in peaks, 25% - in midday and 20% - in evening; Operating: Full service	Residential end, w/ midday activity & some evening	30	2	28	No	
1 Lamokin Street	R2 Wilmington and Newark	3	Chester City	Dela.	44			0	0	0	No	
Chester Trans Ctr.	R2 Wilmington and Newark	3	Chester City	Dela.	277			0	0	0	No	
Fernwood	R3 Media / Elwyn	2	UPPER DARBY	Dela.	132	Ridership: 40% - travel in predominant direction during peak, 15% - in midday and evening - in & out; Operating: Flag stop - all trains	Residential end, typical activity	0	0	0	No	
2 Angora	R3 Media / Elwyn	1	Southwest Philadelphia	Phila.	35			0	0	0	No	
49th Street	R3 Media / Elwyn	1	Southwest Philadelphia	Phila.	55			0	0	0	No	
Doylestown	R5 Lansdale / Doylestown	5	Doylestown	Bucks	380	Ridership: 35% - travel predominant directions + 35% - reverse outb. off in AM and inb. on in PM peaks; 15% in midday and evening; Operating: Flag stop - all trains, may depart early - PM outb.	Residential & Job end, midday & evening activity	185	165	20	candidate	* Private property - DVC commuter permit parking spaces available on campus \$10-mo./\$100 -yr.
3 Delaware Valley College	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	58			0*	9*	0*	candidate	
New Britain	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	57			37	25	12	candidate	
Delaware Valley College	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	58	Ridership: 40% - travel predominant directions + 40% - reverse outb. off in AM and inb. on in PM peaks; Operating: Flag stop - most trains, may depart early - PM outb.	Residential & Job end	0	0	0	candidate	
4 New Britain	R5 Lansdale / Doylestown	5	DOYLESTOWN	Bucks	57			37	25	12	candidate	
Chalfont	R5 Lansdale / Doylestown	5	Chalfont	Bucks	110			56	56	0	No	
Chalfont	R5 Lansdale / Doylestown	5	Chalfont	Bucks	110	Ridership: 75% reverse riders arriving on 1 outb. train in the AM & departing on 1 inb. train in the PM, 20% - in midday and less than 10% in evening; Operating: Flag stop - all trains	Job end, some midday activity	56	56	0	No	
5 Link Belt	R5 Lansdale / Doylestown	5	HATFIELD	Montg.	53			0	0	0	No	
Colmar	R5 Lansdale / Doylestown	5	HATFIELD	Montg.	282			291	176	115	No	
Colmar	R5 Lansdale / Doylestown	5	HATFIELD	Montg.	282	Ridership: 50% - predominant direction + 15% reverse outb. off in AM and inb. on in PM peaks; 30% - midday; 10% in evening; Operating: Flag stop - most trains, may depart early - PM outb.	Residential & Job end, midday & evening activity	291	176	115	No	Large vacant lot opposite side of trax from platform, same side of Cowpath Rd.
6 Fortuna	R5 Lansdale / Doylestown	5	HATFIELD	Montg.	92			33	24	9	No	
Lansdale	R5 Lansdale / Doylestown	5	Lansdale	Montg.	899			497	362	135	No	Large adj. underutilized munic. lot
Tacony	R7 Trenton	2	Near Northeast Philadelphia	Phila.	180	Ridership: 60% - "typical" time & predominant direction, 10% or less - in midday & evening - in & out; Operating: Limited service to station w/ flag stops inb. - evening, and outb. - midday and evening	Residential end, typical activity	0	0	0	No	
7 Wissinoming	R7 Trenton	2	Bridesburg, Kensington, Richmond	Phila.	22			0	0	0	No	
Bridesburg	R7 Trenton	2	Bridesburg, Kensington, Richmond	Phila.	153			0	0	0	No	

Regional Rail Stations Closures Study

TABLE 3: Station Area Snap Shots

Station Name / adjacent stations	Rail Line	dist. betw. adj. stations (mi. along tracks)	interconnecting SEPTA transit service to station	suggestions for interconnecting services	Surrounding Developments, Plans and Programs	
					SEPTA FY '03 Annual Service Plan	County / Municipal / Private Plans / E.J. ("degrees of disadvantage")
Highland Avenue	R2 Wilmington and Newark	1.1	113 to CTC, 114 to CTC, 117-119 to CTC	none, adj stations served by common routes (113, 114 & 117-119). [Potential Rte 113 deviation to serve Rivertown, if warranted summer 2004]	proposes discontinuance	"Rivertown" office building redevelopment. Potential TOD study to integrate office, potential race track & CTC -- poss. include Highland Av.
1 Lamokin Street	R2 Wilmington and Newark	-	113 to CTC, 114 to CTC, 117-119 to CTC			5 to 8
Chester Trans Ctr.	R2 Wilmington and Newark	1.0	113 to CTC, 114 to CTC, 117-119 to CTC			
Fernwood	R3 Media / Elwyn	1.0	108 to MFL at 69 Street			
2 Angora	R3 Media / Elwyn	-	34 trolley (to Center City), G to MFL at 56 Street, 46 to MFL at 60 Street	Center City served (34), other primary destinations served via MFL, adj stations served by routes interconnecting with MFL	proposes discontinuance	5 to 8
49th Street	R3 Media / Elwyn	1.2	13 trolley (to Center City), 64 to MFL at 46 Street, 64 to BSS at Ellsworth-Federal			
Doylestown	R5 Lansdale / Doylestown	1.9	55 to BSS at Olney, Doylestown DART			
3 Delaware Valley College	R5 Lansdale / Doylestown	-	Doylestown DART	none, adjacent station (Doylestown) served by common route (Doylestown DART)	"recently relocated station facility"	1 to 4
New Britain	R5 Lansdale / Doylestown	1.0	none			
Delaware Valley College	R5 Lansdale / Doylestown	1.0	none			
4 New Britain	R5 Lansdale / Doylestown	-	none	Extend Doylestown DART service from Delaware Valley College		0
Chalfont	R5 Lansdale / Doylestown	1.8	none			
Chalfont	R5 Lansdale / Doylestown	2.3	none			
5 Link Belt	R5 Lansdale / Doylestown	-	none			1 to 4
Colmar	R5 Lansdale / Doylestown	0.6	none			
Colmar	R5 Lansdale / Doylestown	0.9	none			
6 Fortuna	R5 Lansdale / Doylestown	-	none	Potentially: reroute 96 for connection at Lansdale Sta; extend 94's terminus from Montgomery Mall for connecting service at Pennbrook Sta or direct Pennridge RUSH and/or Quakertown RUSH for connection at Lansdale fb ; Bucks Co TMA services, potential service area is MontgCol		1 to 4
Lansdale	R5 Lansdale / Doylestown	1.4	96 to NTC, Pennridge RUSH, Quakertown RUSH			
Tacony	R7 Trenton	1.1	56 to MFL at Erie-Torresdale, 84 to MFL at Bridge-Pratt			
7 Wissinoming	R7 Trenton	-	56 to MFL at Erie-Torresdale, 84 to MFL at Bridge-Pratt	none, adj stations served by common routes (56 & 84)		1 to 4
Bridesburg	R7 Trenton	0.8	56 to MFL at Erie-Torresdale, and 73 or 84 to MFL at Bridge-Pratt		Supports master plan for the North Delaware Riverfront corridor. PCPC to initiate TSP funded study which will include the station.	