

VI. BENCHMARK STUDY ANALYSIS OF URBAN DEVELOPMENT AND LAND USE IMPACTS NEAR HIGH-VOLUME AMTRAK STATIONS IN MAINE, PENNSYLVANIA, AND WISCONSIN

A. Introduction

One of the primary justifications for investing in a high-speed rail network is the potential long-run economic development benefits resulting from the investment and lower overall transportation costs. The benefits are potentially significant. Statewide benefits have been projected by Transportation Economics and Management Systems, Inc (TEMS) to generate between 14,000 and 30,000 jobs and increase property values by between \$3 billion and \$23 billion over the 25 year life of the project.¹ These benefits would be distributed throughout the statewide economy.

A closely related question considers the way high speed rail might spur economic development around the train stations. Several studies, for example, have documented increases in property values around light rail and commuter rails stations. In Dallas, the average increase in property values ranged from 25 to 32 percent for properties within walking distance of the light rail station (a quarter of a mile).² Investment around the light rail stations totaled more than \$3.3 billion between 1999 and 2005 in another study.³ The value of this investment ranged from \$2.5 million (Akard) to \$610 million (Park Lane).

Most of these studies have focused on the neighborhood impacts of commuter and light rail, not intercity passenger rail. An exception is a study conducted by the Economic Development Research Group for the Northern New England Rail Authority. The study analyzed economic development associated with the “Downeaster” rail corridor linking Portland, Maine to Boston and found that \$37 million in new private construction was attributable to the service.⁴

The logic is straightforward: train stops increase the amount of pedestrian foot traffic, potentially increasing the economic viability of businesses in the immediate area. In addition, improved access to rail service presumably lowers overall transportation costs, making properties within walking distance more valuable.

¹ *The Ohio and Lake Erie Regional Rail Ohio Hub Study: Draft Technical Memorandum and Business Plan*, report prepared by the Transportation Economics & Management Systems, Inc. and HNTB, Inc. for the Ohio Rail Development Commission and the Michigan, New York, and Pennsylvania Departments of Transportation, October 2004, Exhibit 9-5.

² Bernard L. Weinstein, Terry L. Clower, et al. “An Assessment of the DART LRT on Taxable Property Valuations and Transit Oriented Development,” Center for Economic Development and Research, University of North Texas, September 2002, report prepared for Dallas Area Rapid Transit.

³ Gernard L. Weinstein and Terry L. Clower, “The Estimated Value of New Investment Adjacent to DART LRT Stations: 1999 to 2005,” September 27, 2005, unpublished paper.

⁴ “Final Report: Economic Benefits of Amtrak *Downeaster* Service,” prepared by Economic Development Research Group, Boston, Massachusetts, February 2005.

These economic impacts are distinct from those expected from the overall system. The investment in the statewide rail system should reduce overall transportation costs (“generalized” transportation costs), increasing productivity and competitiveness of Ohio firms and employees. Station area impacts, however, are generated by geographic proximity to amenities and other land uses that increase the economic value of property near the station through better access to transportation services or increasing foot traffic. Retail and commercial businesses should presumably benefit from greater foot traffic, increasing the value of commercial property near rail stations, and improved mobility and access should increase the value of residential property for passengers.

Access to rail passenger service potentially creates benefits for tourists, commuters, and occasional travelers to key cities and destinations. If these benefits are incorporated into private market decisions, developers and builders will invest in new residential and commercial development near station stops. While improved speed and access to destinations is the primary driver of the economic benefits for the transportation system, ridership and potential customer flows will be the primary driver of economic value and benefit around rail station stops.

1. Selection of Rail Corridors

This report focuses narrowly on identifying and assessing economic development and demographic trends around intercity rail stations to develop a more complete understanding of the potential benefits of investments in high-speed rail systems. If intercity rail provides tangible benefits to a neighborhood or location, we would expect to see significant changes in land use and economic development surrounding the station area. These changes would be measurable and tangible, manifested in trends such as:

- Rising residential population
- Changing real-estate markets to reflect rail riders
- Rising property values
- Rising incomes

Most of these benefits would accrue within a quarter-mile (1,320 feet) of the rail station, the conventional standard for “walking distance”.⁵ Development further than a quarter mile is usually accessed via automobile, substantially reducing the economic impact in the immediate area of the station.

Assessing economic development trends around intercity rail stations was problematic for this study. Many major rail hubs, such as Philadelphia, Chicago, Boston, or Washington, D.C. are also intermodal, including multiple types of rail. Moreover, conventional intercity rail with average speeds of 79 mph provide the core service to these cities.

⁵ See, the discussions in Michael Bernick and Robert Cervero, *Transit Villages in the 21st Century* (New York: McGraw-Hill, 1997), pp. 121-129; Marlon G. Boarnet and Randall Crane, *Travel By Design: The Influence of Urban Form on Travel* (New York: Oxford University Press, 2001).

The Ohio Hub, on the other hand, is a high-speed rail corridor. Outside of Cleveland, no other station on the Ohio Hub will have links to other rail services (although feeder buses are planned). Moreover, high-speed rail, as an inter-city service, provides service primarily for non-commuters.

Three rail corridors were identified for study because they primarily provided intercity passenger rail service: the Keystone Corridor linking Philadelphia and Harrisburg, the Downeaster linking Portland to Boston, and the Hiawatha Line linking Milwaukee to Chicago (see also Appendix A). These corridors:

- rank among the highest performers in the Amtrak system;
- are considered most similar to the markets that would characterize the Ohio Hub;
- are similar in overall passenger traffic volume to those projected for the Ohio Hub stations (Table 1);
- provide enough variation in station area experience to draw preliminary conclusions about the potential impact of investments in inter-city rail passenger traffic in Ohio.

2. Effects of High Speed Rail Service

Notably, the projected daily boardings (and alightings) for the Ohio stations in Table VI.1 reflect high-speed rail service. This implies train speeds of 110 mph, significantly faster than current speeds of around 79 mph for most Amtrak corridors including the ones in this study. High speed rail is expected to boost ridership by about 30 percent.

Economic development trends, however, are not likely to be influenced by the speed of the train. Rather, the level of passenger traffic in and out of the stations is the key element. Speed, like frequency of service and scheduling, reflects the quality of the service provided that should be attractive to potential customers. The mechanism for generating passengers is less important than the actual flow of passengers into and out of the station. Moreover, the level of passenger traffic will be an indicator of the demand for ancillary uses, such as nearby housing or office space.

Proposed Ohio Station	Projected Daily Boardings	Station (State)	Daily Boardings (2005)
<i>Cleveland Hub</i>	2,749	<i>Philadelphia (PA)</i>	11,996
<i>N. Cincinnati</i>	1,367	<i>Lancaster (PA)</i>	1,070
<i>Dayton</i>	1,025	<i>Harrisburg (PA)</i>	1,088
<i>Toledo</i>	959	<i>Pittsburgh (PA)</i>	355
<i>Columbus</i>	888	<i>Portland (ME)</i>	368
<i>Elyria</i>	639	<i>Old Orchard Beach (ME)</i>	26
<i>Cincinnati</i>	503	<i>Saco (ME)</i>	69
<i>Sandusky</i>	448	<i>Wells (ME)</i>	91
<i>Cleveland Airport</i>	369	<i>Milwaukee (WI)</i>	1,522

3. Key Characteristics of Selected Corridors

Each of the three corridors has attributes useful for drawing implications for potential land development in and around stations in Ohio. The **Keystone Corridor** links the state capitol with a growing suburban county (Lancaster) and one of the East Coast's largest urban areas (Philadelphia). The trip from Harrisburg to Philadelphia on the Keystone Line is under three hours. Amtrak reports that ridership along the Keystone Corridor is at 1.068 million riders, an 18.5 percent increase over 2004 (and 20.1 percent increase over 2003).⁶ Ridership is likely to increase further now that high-speed capabilities were added to the line in 2006.

The downtown Philadelphia station (30th Street) has the advantage of all the components necessary for economic development success—high frequency train service (including a stop for the high speed Acela train), intermodal connections, high levels of traffic congestion, and a concentrated urban setting. (Philadelphia's 30th street station is the second busiest in the national Amtrak network and is home to a 550 employee call center.⁷) Moreover, with the exception of Philadelphia, these Pennsylvania stations have ridership levels comparable to what the busier stations on the high-speed Ohio Hub are expected to experience.

The Milwaukee and Portland stations also have current ridership levels at conventional trains speeds that track with forecasted ridership at key stations along the high speed Ohio hub. They also are key terminal points on two of the most successful corridors in the Amtrak network. Wisconsin's **Hiawatha Line** links Milwaukee with Chicago and runs seven daily round trips. The Hiawatha Line is one of the most efficient and fastest growing in the national Amtrak network, and is similar to the intermediate trips anticipated along the 3-C corridor (Cleveland-Columbus-Cincinnati) in Ohio.

The **Downeaster's** ridership (Portland to Boston) is now about 275,000 passengers annually, of which 114,000 board in Portland.⁸ About 117,000 boardings on the Downeaster are in New Hampshire, although none of the New Hampshire stations rival Portland's in terms of overall ridership.⁹ In fact, boardings and alightings from Portland match the entire volume for the four stations in New Hampshire (which includes Dover and the University of New Hampshire). The Downeaster suffered declining ridership in the early years of the decade, but has rebounded as a result of improved service. Annual ridership is currently experiencing double-digit increases.

⁶ Amtrak Fact Sheet, Fiscal Year 2005, State of Pennsylvania, December 2006.

⁷ Ibid.

⁸ Amtrak Fact Sheet, Fiscal Year 2005, State of Maine, December 2005.

⁹ Ibid.

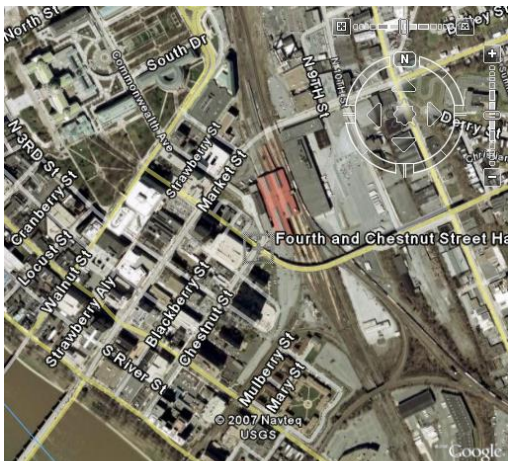
B. The Keystone Corridor

Pennsylvania's Keystone Corridor ranks among the busiest and most successful in the national Amtrak system. The corridor stretches from the Amtrak system's second busiest hub in Philadelphia to Harrisburg and includes 13 station stops. Rail service upgraded to 110 mph speeds opened in the summer 2006. Amtrak's Pennsylvanian links Pittsburgh, Harrisburg, Philadelphia, and New York City along the same rail corridor. For the purposes of this report, we have selected the areas around the Harrisburg, Lancaster, and Pittsburgh station stops for benchmarking.

The Harrisburg stop is a terminal point for commuter traffic between the nation's fourth largest metropolitan area (Philadelphia) and the state capital. Thus, the corridor represents intermediate rail traffic that would likely be similar between Cleveland and Columbus, or Cincinnati and Columbus. The Lancaster station represents an intermediate stop about equidistant between Philadelphia and Harrisburg and generates substantial commuter traffic to both locations.

All four stations are located in a downtown commercial district, providing easy access to key destinations by walking or alternative transportation (e.g., taxi or bus). The Philadelphia station at 30th street and John F. Kennedy Avenue is just a few blocks east of the city's main downtown area and north of the University of Pennsylvania and Drexel University. The Lancaster stop is in the city's downtown area on East McGovern Street while the Harrisburg station stop at Fourth and Chestnut is located a few blocks from the state capital (Figure VI.1). Within walking distance, Harrisburg and Lancaster have the largest residential population (Table VI.2).

Figure VI.1
Aerial Photo of Harrisburg
Amtrak Station



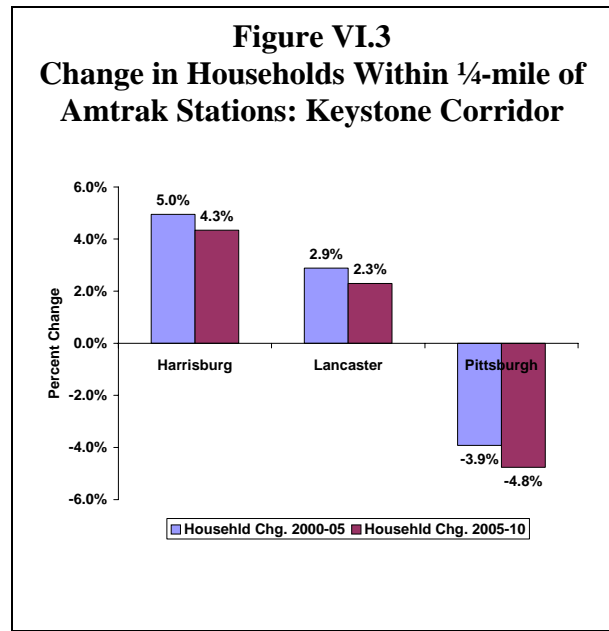
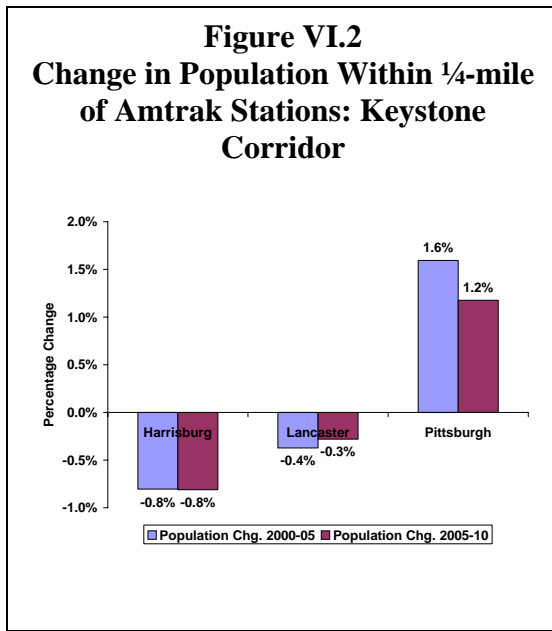
Station	Population	Households	Housing Units	Median Income
Pittsburgh	255	147	254	\$43,229
Harrisburg	1357	1060	1336	\$23,657
Lancaster	1070	392	416	\$35,203
Philadelphia	916	79	84	\$37,619

The Harrisburg station area, however, has the largest number of households. Indeed, the Harrisburg Amtrak station has as many housing units as people living nearby, suggesting substantial capacity to expand the neighborhood population.

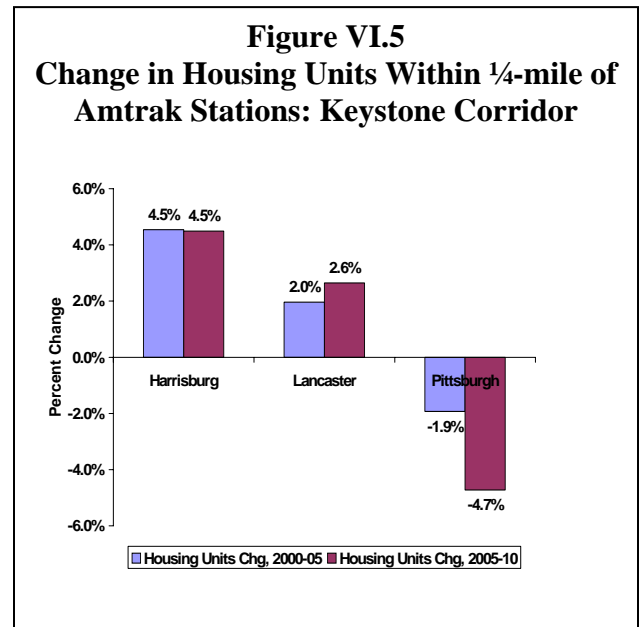
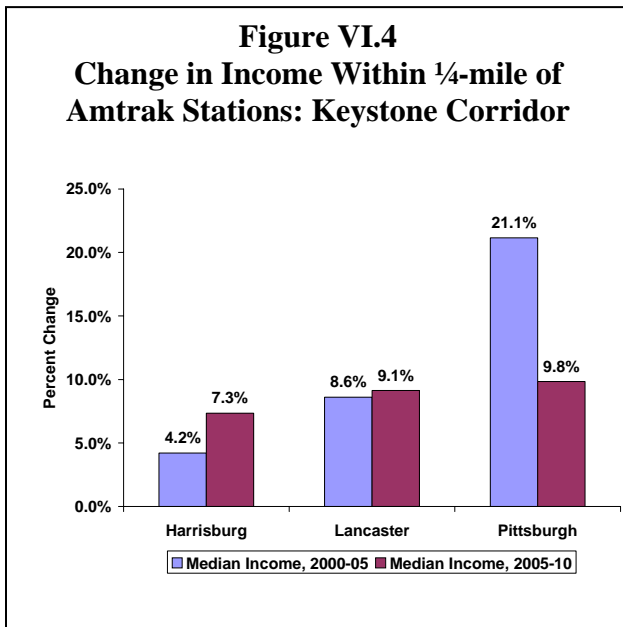
The Harrisburg and Lancaster stations experience rail passenger traffic at about the same level—330,000 boardings and alightings annually, or about 1,000 passengers entering and leaving the station each day. Traffic through the Pittsburgh station, in contrast, is about one third the levels reported in the other stations (and has the smallest neighborhood population).

Interestingly, despite the substantial size of the population near the Amtrak station, passenger traffic levels do not appear to influence population growth near the stations stop. The population living within one quarter mile of the station stop fell slightly in both Harrisburg and Lancaster from 2000 to 2005, but increased around the Pittsburgh station despite much lower overall activity (Figure VI.2). These trends are expected to continue from 2005 to 2010.

The number of households, on the other hand, increased around the station stops in both Harrisburg and Lancaster, but declined by similar proportions in Pittsburgh (Figure VI.3). This suggests that smaller households tended to locate near the station stop, a result predicted by the literature on transit oriented development. Households that place a high value on access to public transit tend to be smaller (single or couples) with professional occupations and tend to be childless. Transit stations, in particular, tend to take on more urban characteristics, attracting nontraditional families such as childless and two-income professional households.



1. Income Trends



Although population growth around the station stops is either stagnant or modest, *household incomes increased significantly* (Figure VI.4). The median income of households within one-quarter mile of the Harrisburg station stop increased by 4.2 percent between 2000 and 2005, and is expected to increase 7.3 percent between 2005 and 2010. The median income of households around the Lancaster station stop is projected to increase by almost 20 percent between 2000 and 2005.

The area around the Pittsburgh station appears to be experiencing the most dramatic increase. Thus, these station areas appear to be attracting a higher income demographic. Again, this is consistent with the research literature on transit-oriented development and the urban characteristics of these neighborhoods and station areas.

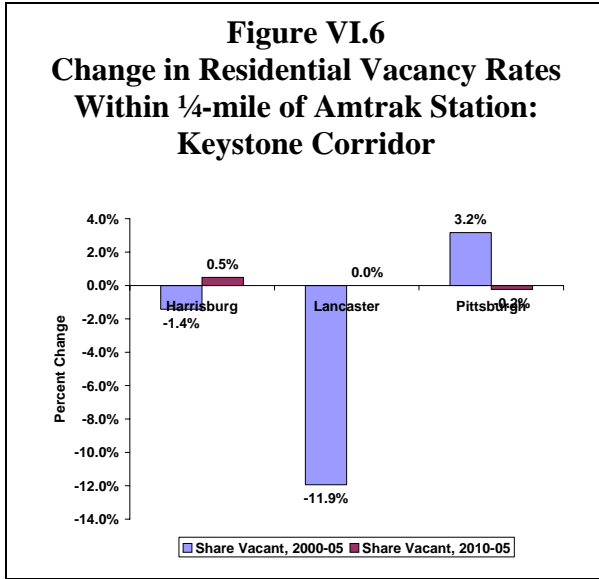
Higher incomes should translate into higher levels of spending around these transit stops. Table VI.3 provides data on changes in projected spending by households within walking distance (quarter mile) and larger accessibility rings (half- and one-mile benchmarks). Average household spending is higher within walking distance compared to the other benchmark areas by about two thirds in Pittsburgh, but only slightly higher in Harrisburg. Average spending is lower in Philadelphia. Average household spending within a quarter mile of the Amtrak station is expected to increase at higher rates than other areas of the city.

	Avg. Hshld Spending (2005)	change within ¼ mile	change within ½ mile	change within 1 mile
Pittsburgh	\$67,993	3.2%	6.6%	5.2%
Harrisburg	\$38,817	5.9%	4.9%	4.7%
Lancaster	\$40,367	4.7%	5.0%	4.2%
Philadelphia	\$35,927	5.4%	4.3%	4.5%

Higher incomes appear to be associated with modest increases in housing development in Harrisburg and Lancaster. The number of housing units increased by almost 5 percent in Harrisburg between 2000 and 2005, and forecasts suggest similar levels of growth in the second half of the decade (Figure VI.5). Housing unit growth was about the half the rate experienced in Lancaster. Despite the increased population growth around the Pittsburgh station area, the number of housing units fell during the first half of the decade and is expected to fall another 4.7 percent between 2005 and 2010. This may reflect the condition of the neighborhood in Pittsburgh.

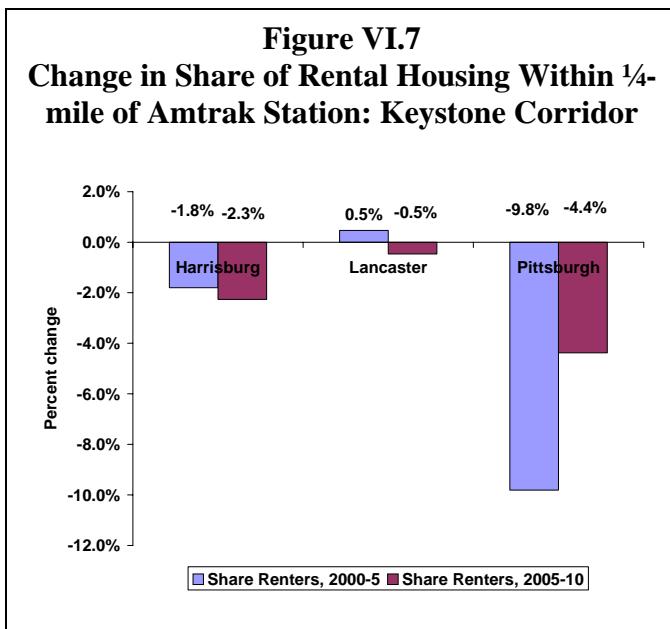
2. Housing Market Trends

The additional housing seems to have little consistent impact on the housing market in these areas. More housing appears to be matching demand in Harrisburg, where vacancy rates seem to have stabilized (Figure VI.6). Lancaster, however, experienced dramatic drops in vacancy rates during the first half of the decade, suggesting the housing market was unable to keep up with the demand for new units. Importantly, vacancy rates are projected to remain stable during the later half of the decade. Pittsburgh, in contrast, experienced an increase in vacancy rates during the first half of the decade despite a drop in the number of housing units near the Amtrak station.



All three stations expect to see a fall in the share of rental housing during the second half of the decade, suggesting a small but potentially important shift toward owner-occupied housing near these Amtrak stations.

Not surprisingly, vacancy rates are expected to fall in these areas. The share of vacant housing declined in Harrisburg and Lancaster from 2000 to 2005 and is expected to remain stable through 2020. Vacancy rates increased slightly in Pittsburgh, suggesting weak demand given the fall in the number of housing units located closest to the train station.



The housing market appeared to shift in other important ways as well. The share of rental housing declined in Harrisburg and Pittsburgh, implying a substantial increase in homeownership in these neighborhoods (Figure VI.7). Notably, space within the Pittsburgh passenger rail station has been converted into condominium units. While rental housing's share of the market in Lancaster increased, the shift was small.

Demographic changes are only one measure of the effects of a transit station on a neighborhood. If the transit stop reduces overall transportation costs or is valued as an important asset for properties located nearby, property values should increase.

Unfortunately, detailed data on property values close to the transit stop were not available. Projections for future property taxes were available through DemographicsNow.com, a proprietary on-line database, and these data are reported in Table 4 for the immediate area and properties one-half mile and one mile away from the station. With the exception of Pittsburgh, property taxes are expected to increase faster or about the same rate as properties in neighborhoods further away from the transit station.

	¼ mile	½ mile	1 mile
Pittsburgh	5.6%	9.4%	7.7%
Harrisburg	8.1%	6.9%	6.6%
Lancaster	6.2%	6.4%	5.6%
Philadelphia	8.9%	7.7%	7.9%

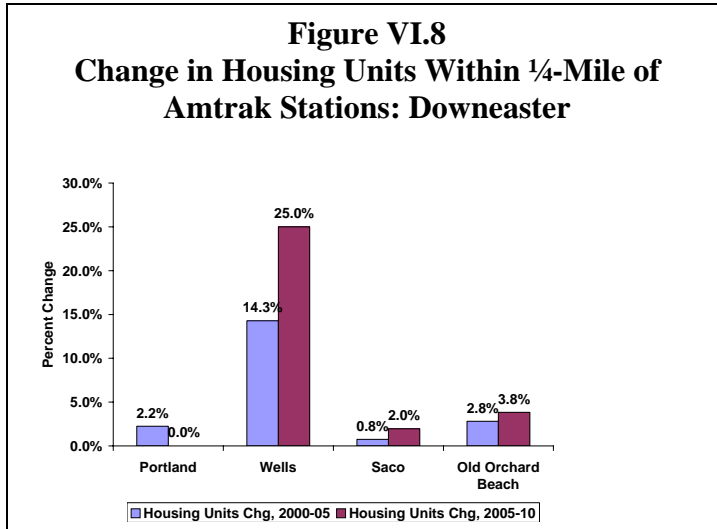
3. Summary

The data from development trends near the Amtrak stations in Pennsylvania suggest the immediate neighborhoods are becoming stronger and experiencing steady growth, but that growth is modest. Moreover, a direct positive impact from close proximity to the intercity rail stations seems weak.

The evidence reviewed in this section suggests

- Population trends within walking distance of the intercity rail stations are inconsistent. Population near the Pittsburgh stop has increased significantly but this station also has the lowest passenger volume among the stops examined.
- The number of households within walking distance of the rail station increased in Harrisburg and Lancaster as did the number of housing units. Vacancy rates, however, plunged in Lancaster suggesting demand outstripped supply from 2000 to 2005.
- Household incomes increased near each of the stations, but this did not necessarily translate into substantial increases in household spending.
- Rental housing was also expected to be less important part of the overall housing market as the proportion of owner-occupied housing units increased near the rail stations.

- Property values seemed to receive a slight boost near the rail stations, increasing faster than outlying areas in Philadelphia and Harrisburg, but not Pittsburgh, and about the same rate as areas further away from the stop in Lancaster.



C. The Downeaster and Maine Station Stops

In 2001, intercity passenger rail service began linking Portland, Maine to Boston with four daily round trips. The corridor, which includes station stops at the University of New Hampshire and in the northern suburbs of Boston, is comparable to the Keystone Corridor. Ten stations link the corridor, and the typical trip length is 2 hours and 30 minutes. The Downeaster has the second highest on-time performance (after the Hiawatha Line linking Milwaukee and Chicago), and ridership has been increasing at 10 percent per year since 2004 as a result of improved performance and train speeds.¹⁰

Passenger traffic, however, is well below the levels experienced by most stations along the Keystone Corridor despite a direct link to the nation's 11th largest metropolitan area. Portland's boardings and alightings are equivalent to Pittsburgh's Amtrak service, not the regular intercity service between Philadelphia and Harrisburg. The next highest volume station in Maine is Wells which reports 28,452 boardings and alightings, about the level experienced by the seventh busiest station along the Keystone Corridor.

The Downeaster is a new intercity rail service. Unlike the Keystone Corridor, the benefits of proximity to the rail service would not be fully capitalized into housing and property markets until after the service started up.

¹⁰ Amtrak Fact Sheet, Fiscal Year 2005, State of Maine, October 2006, p. 2,

While the effects near transit stations of changes in service along the Keystone Corridor reflect changes on the margin—incremental enhancements to an existing service—changes in land markets and demographics along the Downeaster will reflect influences from the creation of a new transportation alternative for regional travel.

1. Demographic Trends Near Rail Stations

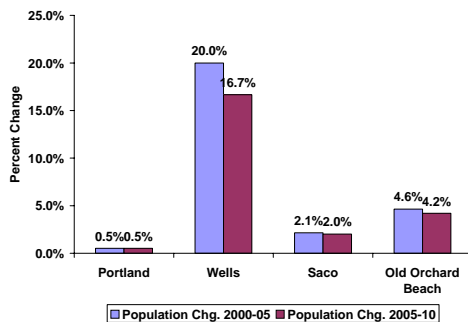
The immediate area surrounding the Downeaster rail stations show relatively small amounts of economic activity. The only station with a significant population is Saco, with a quarter mile population of 1,333, although its population within a half mile of the rail station is 4,156. Saco's population closest to the rail station is expected to grow just 2 percent over the next five years. All other station stops have very small local populations and households. Notably, Saco's station has the largest population and the lowest median household income.

With the exception of Wells, the population and households surrounding each of the station areas is expected to grow at modest levels. The area around Portland is expected to be stagnant, while Old Orchard Beach and Saco are expecting growth of under 5 percent between 2005 and 2010. Wells, in contrast, is anticipating a large percentage change in growth, but the population around this station area is very small—just 12 people in 2005. Wells expects the population within a quarter mile of the station stop to increase to 14 in 2010, and 55 within a half mile of the stop.

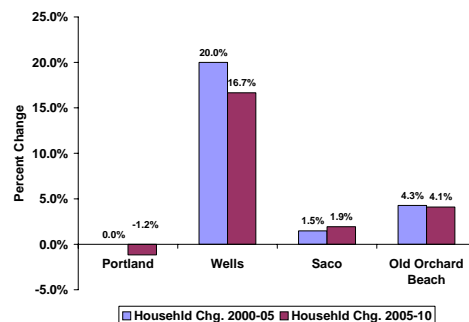
TABLE VI.5: Key Demographics Within ¼-Mile of Amtrak Stations in Maine

Station	Population	Households	Housing Units	Median Income
Portland	192	85	91	\$35,671
Wells	12	6	8	\$51,131
Saco	1,333	623	662	\$29,470
Old Orchard Beach	428	220	365	\$41,611

**Figure VI.9
Population Within ¼-mile of Amtrak
Stations: Downeaster**



**Figure VI.10
Household Growth Within ¼-Mile of
Amtrak Stations: Downeaster**



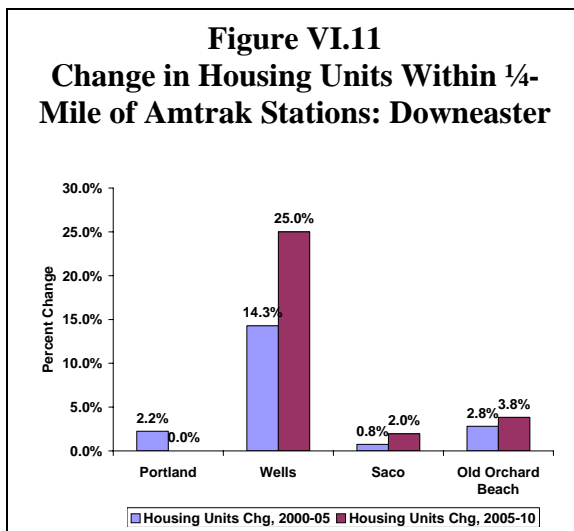
2. Housing Market Trends

The number of housing units is expected to increase around the rail stations as well, generally tracking with trends in population and households. Future growth (2005 to 2010), however, is expected to lag growth rates from 2001 to 2005 in each station except Wells. Once again, the high percentage change in growth may be an artifact of a small statistical base. In 2005, eight housing units were within a quarter mile of the Wells rail stop and 30 were within a half mile.

By 2010, Wells is anticipating 10 housing units within a quarter mile and 34 within a half mile. (Seventy two units will be added one mile from the rail stop.)

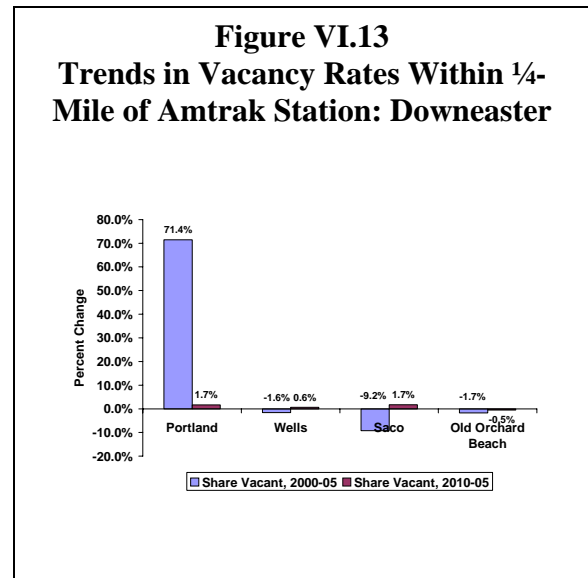
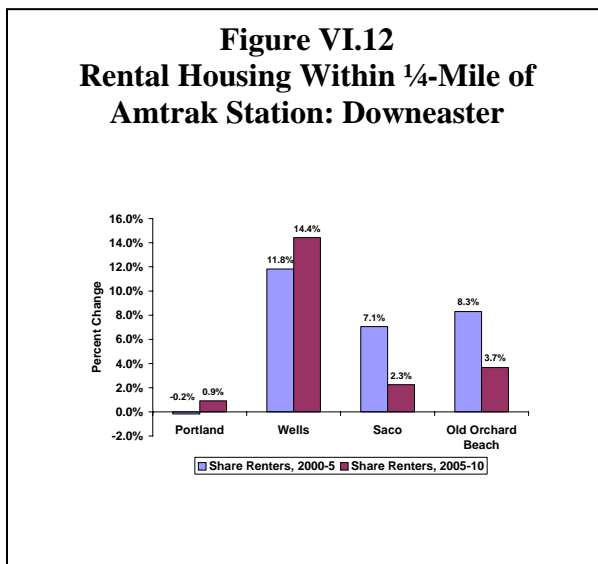
Proximity to the rail station seems to have little impact on the housing market in the immediate vicinity. More than half of the housing units were renter occupied in Portland and Saco, and the share of renters is expected to remain relatively stable through 2010. The largest change appears to be taking place in Old Orchard Beach. Three quarters of the housing units within one quarter mile of the rail station were owner occupied in 1990. This share is expected to drop to 69 percent by 2010. This pattern is similar to changes in occupancy for housing units one half mile and one mile from the station stop.

Vacancy rates appear to be relatively stable. Saco experienced a substantial drop in vacancy rates between 2000 and 2005 (declining 9.2 percent), but vacancy rates are expected to increase somewhat by 2010. While Portland's vacancy rate increased by 71 percent between 2000 and 2005, this represents an increase from 3.5 percent to 6.0 percent. Vacancy rates are expected to remain stable through 2010. (The vacancy rate is slightly lower than for housing units 1 mile from the rail stop where vacancy rates are 7.3 percent.)



3. Income Trends

While the housing market appears to be stable around the station stop, household incomes are expected to increase substantially between 2005 and 2010. Portland, Wells, and Old Orchard Beach expect median household incomes to increase by about 10 percent during this period. Saco, with the largest number of residents around the rail station, expects median household income to increase by 7.3 percent.



The neighborhoods surrounding the rail stations are economically comparable to the Lancaster, Harrisburg, and Philadelphia neighborhoods. Notably, the Wells, Saco, and Old Orchard Beach stops have substantial tourist activity since they are close to the Atlantic Ocean. Proximity to the rail station, however, does not appear to boost median household spending overall. Thus, based on current projections, the rail station *per se* does not appear to be attracting higher income households compared to other neighborhoods in these cities. Indeed, household spending in Portland and Saco is expected to increase faster the further the distance from the rail station.

Similarly, proximity to a Downeaster rail station appears to have little impact on local property markets. Property taxes are expected to increase at about the same rate as properties further away from the rail stations in Wells and Old Orchard Beach (Table 8). Property taxes in Portland and Saco are expected to increase at a lower rates than neighborhoods further away from the rail station.

TABLE VI.6: Projected Change in Household Spending Near Downeaster Rail Stops, 2005-2010.

Station	Avg. Hshld Spending (2005)	change within ¼ mile	change within ½ mile	change within 1 mile
Portland	\$42,199	5.8%	5.8%	7.2%
Wells	\$49,040	8.9%	8.8%	7.9%
Saco	\$38,441	6.5%	6.7%	6.9%
Old Orchard Beach	\$45,690	6.8%	6.4%	6.5%

Table VI.7: Projected Change in Property Taxes in Proximity to Downeaster Rail Stations: 2005-2010

	¼ mile	½ mile	1 mile
Portland	8.7%	8.7%	10.5%
Wells	11.7%	11.6%	10.4%
Saco	8.9%	9.1%	9.2%
Old Orchard Beach	9.5%	9.0%	9.0%

4. Summary for Downeaster

Proximity to the Downeaster rail stations does not appear to have significantly changed the immediate neighborhood based on demographic and economic trends. Even though ridership on the Downeaster is increasing at double digit rates, the growth in population, households and income is expected to slow between 2005 and 2010. This is notable since the immediate neighborhoods tend to be much smaller and less developed than stations in Harrisburg and Lancaster.

One reason for the lack of significant development around the rail stations is the very low levels of passenger traffic and volumes at every station except the Portland terminal. The Portland terminal is also in a commercial and industrial center, characterized by little residential development.

In addition, passenger traffic levels have been uneven. The service started in 2001 and passenger traffic increased to 291,794 in 2002. Passenger volumes fell in 2003 and 2004 and did not recover to 2001 levels until 2005. Thus, performance combined with declines in ridership suggest that real estate markets would be wary of making investments in intercity rail without a more solid track record, particularly given the relatively low volumes at most stations.

D. Comparison of Major City Station Stops

This report has focused on demographic trends and economic activity around station areas for specific intercity rail lines. These trends, however, might also be impacted by the size of the market; station areas with larger populations may benefit disproportionately from proximity to rail service because of synergies created by intermodal transportation opportunities and the larger, more urban environment. This section examines data for development around three cities with significant intercity rail ridership: Harrisburg, Milwaukee, and Portland.

Milwaukee has been added because it serves as a terminal point for the Hiawatha Line, a “short distance” service that links Milwaukee with Union Station in Chicago. The line has seven daily roundtrips, spans 85 miles, and ranks as the 8th busiest corridor in the nation.¹¹ Its on-time performance is the highest in the Amtrak system (91.6 percent), and it has attracted double-digit ridership growth since 2004.¹² While the line has been operable for several decades, recent upgrades and the addition of a station at George Mitchell Airport in Milwaukee have helped boost ridership. Thus, the relatively high volumes of the Hiawatha Line combined with Milwaukee’s role as a terminal point should provide some added context for understanding the effects of intercity passenger rail on development around major station areas. (Importantly, the Milwaukee Amtrak station is undergoing renovation, but this has not disrupted service or significantly changed the character of the real-estate market surrounding the station.)

1. Demographic Characteristics

As Table VI.8 suggests, the populations of the three cities varies greatly. Milwaukee is a medium sized city with a population comparable to Cincinnati, Columbus, and Cleveland. Harrisburg and Portland are much smaller although Harrisburg serves as a state capital (and major destination point for travelers) and Portland is the largest city in Maine (an “entry point” for travelers and tourists).

The size of the resident populations near the rail stations vary significantly. Harrisburg has the largest population and number of housing units. Despite Milwaukee’s larger size, the immediate neighborhood is similar in size and scale to Portland’s. This reflects the Milwaukee station’s location near a major highway and in an older commercial and industrial area (see the description in the next section). The Portland station is also bounded by a tributary of the Penobscott river (to the south), I-395 to the east, and a major arterial to the north.

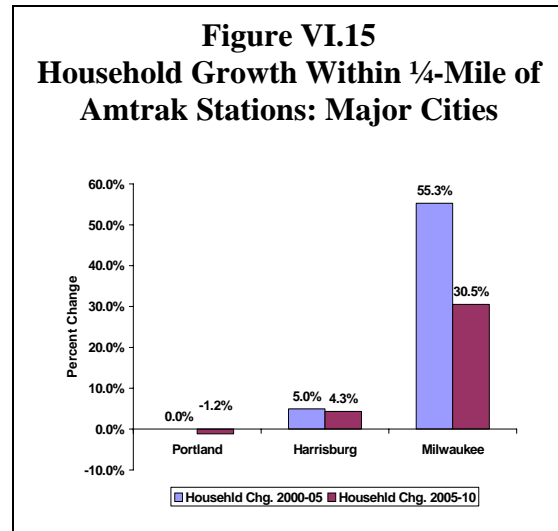
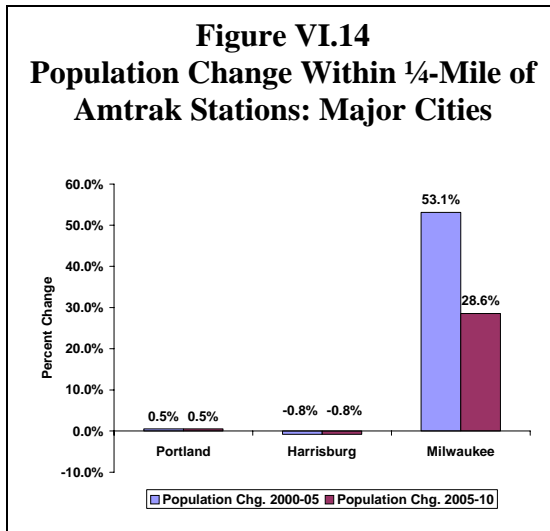
¹¹ Amtrak Fact Sheet, Fiscal Year 2006, “State of Wisconsin,” December 2006.

¹² Ibid.

While housing is within a quarter mile of the station, the homes are predominantly low density and functionally separated from the transportation center. Thus, access to the Amtrak station is not pedestrian friendly for immediate neighbors.

City	City Population	Population ¼ mile	Households ¼ mile	Housing Units	Daily Ridership
Harrisburg	47,904	1,357	1,060	1,336	1,088
Milwaukee	584,038	98	59	84	1,522
Portland	64,946	192	86	91	368

Not surprisingly, then, population and household growth has been anemic around the Portland rail station. Despite the Milwaukee station's location in a commercial area, population and residential growth was significant, increasing by more than 50 percent between 2000 and 2005. Projected residential growth is strong, but significantly slower than the previous five years. Harrisburg, the station with the largest nearby population, has experienced stagnant population growth and moderate household growth over the same period.

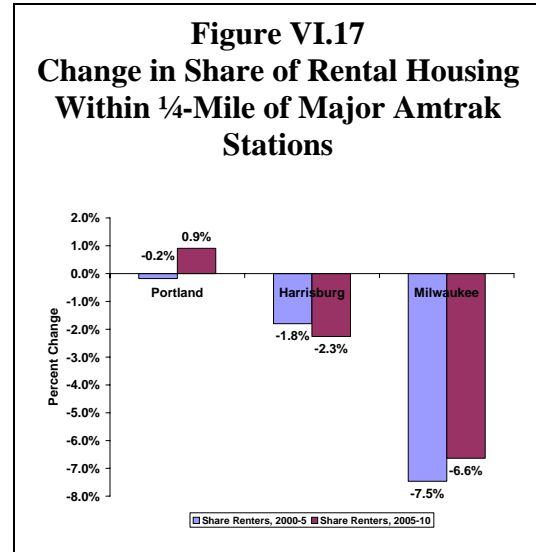
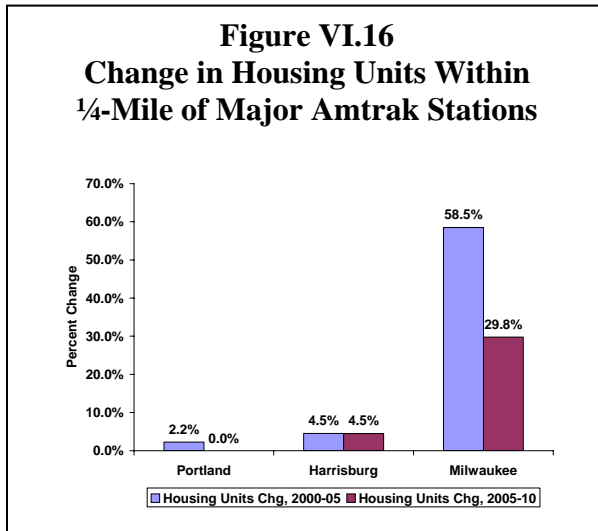


2. Housing Market Trends

The number of housing units near rail stations is expected to be stagnant at the Portland terminal point, most likely reflecting its role as a transportation center and hub and not a coherent neighborhood (Figure VI.15). Housing is expected to increase at modest but consistent rates in the more densely populated neighborhoods in Harrisburg. Milwaukee, in contrast, experienced a substantial increase in the number of housing units within walking distance of the Amtrak station between 2000 and 2005.

Milwaukee expects this growth to continue until 2010, but at a lower overall growth rate. Importantly, much of this growth is likely connected to waterfront development around a canal with several marinas leading to Lake Michigan.

The character of the housing around the stations appears to be shifting as well (Figure VI.16). While Portland's housing market has not shifted significantly, rental housing has declined around the Harrisburg and Milwaukee stations areas.



3. Income Trends

Proximity to the intercity rail stations does not appear to provide a systematic advantage for households and new development (Table VI.9). While household expenditures are the highest around the Milwaukee stop—far exceeding any of the other rail stations examined in this study—growth is expected to be anemic over the next five years. Moreover, household spending growth is expected to increase at significantly faster rates in neighborhoods a half mile and one mile further away from the rail station. Harrisburg is the exception. Household spending is expected to increase modestly faster than in neighborhoods further away from the rail station.

TABLE VI.9: Projected Change in Household Spending Near Major City Rail Stops, 2005-2010.

Station	Avg. Hshld Spending (2005)	change within ¼ mile	change within ½ mile	change within 1 mile
Portland	\$42,199	5.8%	5.8%	7.2%
Harrisburg	\$38,817	5.9%	4.9%	4.7%
Milwaukee	\$91,368	1.0%	3.4%	5.1%

Similarly, proximity to an intercity rail station does not appear to significantly boost property values (Table VI.10). Property values are expected to increase faster in neighborhoods further away from the rail station in each of the major cities.

Table VI.10: Projected Change in Property Taxes in Proximity to Major City Rail Stations: 2005-2010

	¼ mile	½ mile	1 mile
Portland	8.7%	8.7%	10.5%
Harrisburg	8.1%	8.7%	10.4%
Milwaukee	3.2%	6.1%	8.3%

4. Summary for Major Cities

An examination of demographic and housing trends around the intercity rail stations in Milwaukee, Portland, and Harrisburg finds little direct relationship between proximity to the station and local development trends. Population and Household growth is modest or stagnant around the Portland and Harrisburg stations while growth in the Milwaukee station's neighborhood is expected to increase significantly. Notably, Milwaukee has a higher level of passenger rail traffic than the other two stations, but its station is also close to waterfront development on one of the city's internal canals. More notably, Harrisburg is the smallest city (and smallest metropolitan area) but has the largest population living within walking distance of the rail station. Thus, overall trends appear to track more directly with general development patterns within the city than direct proximity to the rail station.

E. Insights from the Hiawatha Line

Overall, the economic and land use impacts around Amtrak stations are mixed. Some station areas experienced increases in housing, population, and wealth, while others have stagnated. In order to develop a more complete understanding of the effects of intercity passenger rail stations on development around station stops, this section examines the land use and development around intercity passenger rail stations visually, using satellite photos of rail station and photographs taken by one of the researchers while riding the Hiawatha Line.

Table VI.11: Boardings and Alightings for Hiawatha Line (2005)

Station	Annual	Daily
Milwaukee	474,808	1,522
Sturtevant/Racine	52,235	167
Glenview (IL)	40,726	131
General Mitchell Airport	30,415	98

Source: Amtrak Fact Sheet, Fiscal Year 2005, State of Wisconsin, December 2005.

**Figure VI.18
Aerial View of Downtown
Milwaukee Amtrak Station**



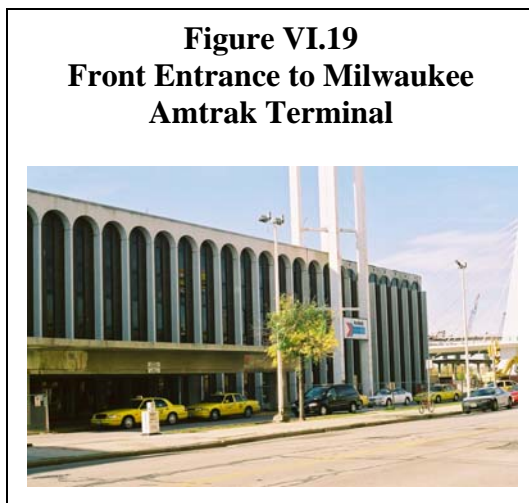
Source: Google Earth

As mentioned in the previous section, the Hiawatha line is particularly relevant for examining potential impacts around the Ohio Hub stations. The line leads the Amtrak network for on-time performance, and ridership on the Hiawatha line has been experiencing steady increases, suggesting the market potential is expanding at station stops along the line. The time traveled from Milwaukee to Chicago is also close to the estimated travel time between Cincinnati and Columbus, or Cleveland and Columbus. These are likely to be among the most highly traveled segments of the corridor and key elements of the Ohio Hub's success. The Milwaukee station, in particular, already has daily boardings that exceed all projections for the station areas on the Ohio Hub 3-C corridor.

Even though the Hiawatha Line has been running steadily for several years, several stations have been upgraded. The Milwaukee Amtrak terminal is currently undergoing significant renovation. The Sturtevant/Racine station was a deteriorating shelter for passengers and completely renovated and reopened in the summer of 2006.

1. Milwaukee Amtrak Terminal

The Milwaukee Amtrak station is a dated facility located in an older commercial and industrial section of the city (Figure VI.19). Current ridership levels at the station, however, exceed the projected ridership at every Ohio Hub station except the major intermodal terminal in downtown Cleveland (Table VI.11). To the immediate east of the station is 6th street, and to the north is I-794 which also connects travelers to I-94 and I-43. Just south of the complex is Hogan's Canal that winds through the city and eventually empties out into Lake Michigan (under Lake Parkway). The Amtrak train ride into the station suggested substantial waterfront revitalization along the canal. New investments in apartments and lofts are evident and several marinas host recreational boats.



The revitalization along the canal contrasts with the immediate vicinity of the train station. Immediately adjacent to the station is the Milwaukee post office. The station services both the Hiawatha Line and the long-distance Empire Builder, a daily route linking Chicago to Seattle and Portland, Oregon. The Hiawathatha Line, with seven daily round-trips to Chicago, provides most of the activity in the station.

Figure VI.20
Ticketing and Passenger Waiting
Area in Milwaukee Amtrak
Terminal



Amtrak employs about 107 Wisconsin residents, and most of them are stationed in the Milwaukee terminal area.¹³ Inside the station, three windows provide ticket sales to customers (Figure VI.20). The waiting area has hard tile floors and chairs that resemble conventional office furniture with foam cloth seats and metal arm rests. Baggage is handled manually through a door adjacent to the queue for boarding the train. Food and beverages are provided through vending machines (Figure VI.21).

Figure VI.21
Vending Area in Milwaukee
Amtrak Station



¹³ Amtrak Fact Sheet, Fiscal Year 21006: State of Wisconsin, December 2006.

The Wisconsin Department of Transportation launched a \$15.8 million renovation effort in the summer of 2006.¹⁴ The new facility will accommodate Greyhound bus service and a potential commuter service linking Racine, Kenosha, and Chicago. The new station is expected to open in fall 2007. The station will provide functions similar to the current Portland, Maine terminal which services intercity rail as well as three intercity bus lines. The Portland terminal is also serviced by manned ticket agent windows, vending machines, and an enclosed waiting area.

Figure VI.22
Commercial Office Building Across
from Milwaukee Amtrak Terminal



The effect of the renovations on passenger traffic is unclear, but little evidence indicates the current investment in the station is jump starting development immediately around the station (Figure VI.22). No new buildings have been constructed in the immediate vicinity. An older, seven story office building across from the Amtrak station has few visible signs of renovation, and a query to the Wisconsin Department of Transportation suggested no new investment was planned as of the fall of 2006 (Figure VI.22). The area immediately surrounding the Amtrak station consists mainly of surface parking, and train station parking is advertised at \$5 per day. Thus, little development appears to be stimulated in anticipation of the investment by WDOT or as a result of the rising passenger traffic from the Hiawatha Line.

2. General Mitchell Airport

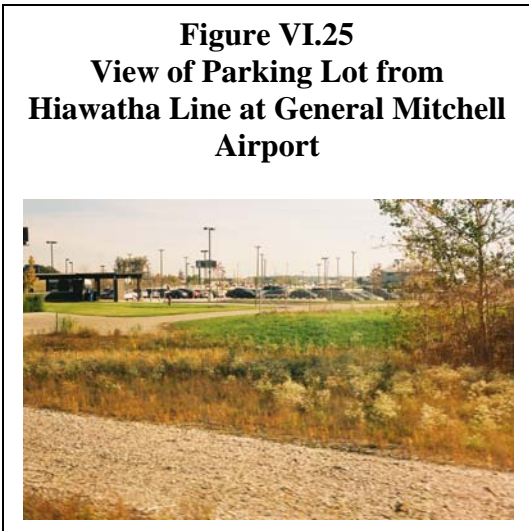
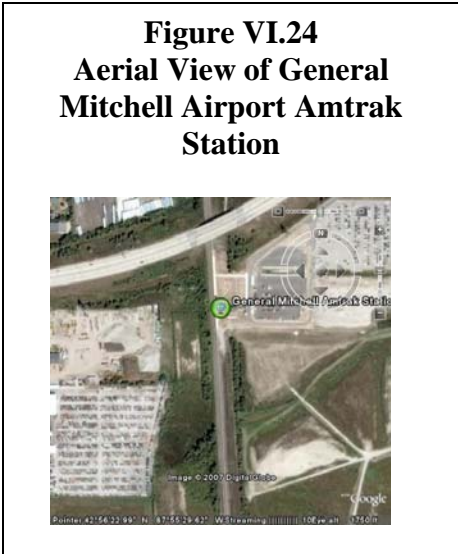
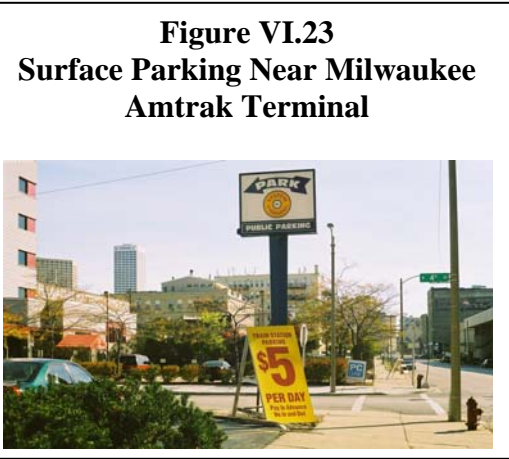
The Amtrak station at Mitchell International Airport opened in January 2005. During its first year, the station reported just 98 daily boardings. Boardings had risen to 248 by 2006, ranking the stop as the second busiest after Milwaukee and clearly accounting for a significant portion of the increased ridership on the Hiawatha Line.¹⁵ In fact, daily boardings at the Milwaukee terminal increased by just 22 from 2005 to 2006, suggesting that the increased ridership at the airport terminal has been driven by origins and destinations outside of Wisconsin.

¹⁴ Ibid.

¹⁵ Amtrak Fact Sheet, Fiscal Year 2006, State of Wisconsin, December 2006.

Since ridership also increased only modestly at the Sturtevant/Racine stop, many of these riders were likely destined for points in Illinois, including Union Station in downtown Chicago.

The prospects for substantial economic development around the Airport station, however, appear limited. The station is located south of the airport access road. Immediately to the east is the airport parking lot. Immediately to the west is a dirt barrier and hedge and additional parking without access to the train station. To the southeast of the Amtrak station is undeveloped land that is potentially suitable for commercial and/or industrial development. This land is bordered on the east by South 6th Street, and is at the end of a major runway. Further south, at the intersection of South 6th Street and West College Avenue, is a significant commercial warehousing and distribution facility with a rail spur. Any development closer to the Amtrak station is likely to be similar in land use, providing little opportunity to substantially increase passenger traffic through adjacent land development. Thus, future passenger rail traffic is likely to be generated by the airport role as an origin and final destination for air travelers.



3. Sturtevant/Racine

The Amtrak station at Sturtevant/Racine was a deteriorating structure until the Village of Sturtevant spent \$3 million to build a new station. The new facility opened in August 2006 and includes a substantially upgraded parking lot and pedestrian bridge over the tracks. The station is located one block south of Washington Avenue, a major four lane, median separated arterial, providing easy access to Racine. Daily boardings increased by 21 (12.6 percent) between 2005 and 2006.¹⁶

The land immediately surrounding the Amtrak station is either vacant land or commercial use, suggesting substantial potential for new development that could take advantage of the access to intercity rail. To date, however, that development appears to be minimal. The station is surrounded by vacant land and open space (Figure VI.26). Thus, the potential for higher density commercial residential and commercial land uses exists. Notably, the existence of the upgraded, expanding Hiawatha Line does not seem to have stimulated substantial new development.

Figure VI.26
New Parking Lot at
Sturtevant/Racine Amtrak Station



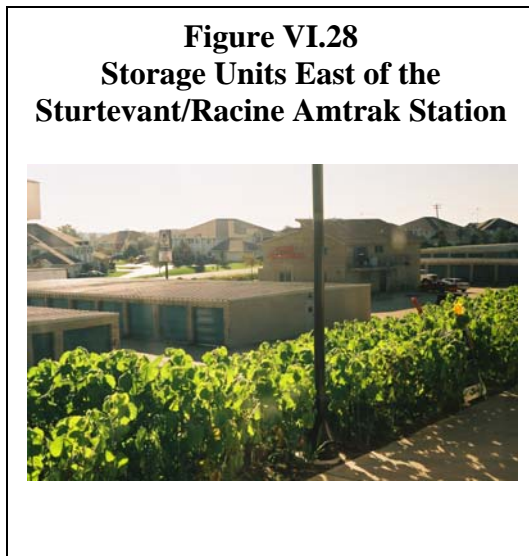
Note: This photograph was taken on a Sunday, and should not be considered indicative of passenger traffic or station volume.

Figure VI.27
Recently Renovated Amtrak
Station at Sturtevant/Racine



¹⁶ Amtrak Fact Sheets, Fiscal Years 2005 and 2006, State of Wisconsin.

Indeed, most development appears to be on the east side of the tracks and opposite the station. This land appears to be in the westward growth path from Racine, and land uses include an automobile dealership and personal self storage units.



Higher density housing and commercial office space appears to have been developed south of the storage units but within walking distance of the station. (Passengers, however, would have to cross the tracks to purchase tickets.)

New, multifamily housing is located north of Washington Avenue, several blocks from the station and can potentially generate significant passenger ridership. Riders, however, would have to negotiate a major road intersection, and open space buffers the housing units and roadway, extending the pedestrian walk to the station. Little of the development near the Amtrak station appears to be stimulated or the result of access to intercity passenger rail, particularly given the modest increase in the absolute numbers of passengers from this station given the scale of the development in the immediate vicinity. Nevertheless, access to the intercity passenger rail station provide accessibility to a new mode of transportation that likely enhances the attractiveness of this area even though the overall development pattern appears to have been set by broader regional growth trends. The area also has the potential to development further commercial development and higher density housing, both of which could stimulate larger numbers of commuters and business traffic.

F. Conclusions

This section has attempted to assess development trends around intercity rail stations in Pennsylvania, Maine, and Wisconsin to identify impacts on land development resulting from proximity to this transportation service. Several conclusions can be drawn from the evidence so far.

The analysis was constrained by a surprising lack of rigorous analysis or assessment of land development impacts focused on intercity passenger rail. To some extent, this is understandable given the relatively new investments in this type of rail service.

The highest performing intercity lines analyzed here as well as rail lines in other parts of the nation are less than a decade old. The Downeaster began service in 2001, and the Keystone and Hiawatha Lines experienced substantial new commitments and investments within the last decade.

Nevertheless, we can draw the following conclusions:

- *The impacts of proximity to intercity passenger rail service on residential development are modest and mixed.* Some stations experienced substantial increase in population and housing while others experienced declines or stagnant markets.
- *Proximity to an intercity passenger rail station had little direct impact on projected household spending or increases in property values based on projected property tax revenue increases.*
- *Stations in existing built up urban neighborhoods, most notably Harrisburg and Lancaster, appeared to have stronger and more robust housing and residential trends.*
- *Stations with the highest ridership tended to be terminal stations (e.g., Milwaukee, Portland, Harrisburg). These stations also tended to be located in industrial and commercial districts facilitating their use as intermodal hubs but limiting the ability for access to rail service to stimulate land development.*
- *No evidence suggested that the existence of the rail station significantly impacted overall development trends, suggesting investments in intercity passenger rail stations would support, rather than drive, existing real estate markets.*

In sum, intercity passenger rail stations may have modest impacts on land development in the immediate vicinity and neighborhood, but they have not yet become drivers of local or regional development. New development from investments in intercity passenger rail are unlikely to have significant short or intermediate term impacts on their own. Maximizing the long-term impacts of these investments will require considering the local economic context and investment climate since regional development patterns are determined by larger, regional factors that are likely to overwhelm the impact of a transit station. The economic success of stations will likely be determined on a case-by-case basis.

Thus, any economic development that is likely to occur will be part of a comprehensive, broad-based approach to redevelopment. The station investments and passenger traffic can provide a supporting role, but they are unlikely to be a driving force behind new development or neighborhood revitalization. Maximizing the potential for development around rail stations requires ensuring other supporting policies are in place, including zoning and planning policies that support higher density and mixed use development and convenience access by automobiles, pedestrians, and other transit services.

These conclusions could change, however, if ridership increases significantly. Based on the experiences around the station stops in this study, ridership would likely have to increase by several orders of magnitude to have significant, independent impacts on economic development in the immediate neighborhood.