

THE SUBWAYS, RAILWAYS AND STATIONS OF PHILLY:

Written Material to Accompany a Mostly-Underground Tour from 30th Street Station to Market East Station

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INTRODUCTION

I have compiled and edited the following material from a variety of sources and from personal investigations to serve as an introduction and guide to Center City Philadelphia's transit infrastructure. The text contains a wealth of interesting information and little-known facts about how these rail systems and stations came to be, what happened to them subsequently, and what will happen to them in the near future. I've included several photographs showing how they appeared in the past, plus a few recent newspaper stories about them. This material can be used in conjunction with a tour of the rail networks described. I think this stuff is fascinating.

The text starts with 30th Street Station and proceeds to Suburban Station, then Market East Station. Along the way, Philly's Subway-Surface lines, the Market Street Subway, the Broad Street Subway, and the PATCO Hi-Speedline are discussed. I have **bolded** certain words and phrases to help point out how all these downtown transportation systems and rail stations originally and currently interrelate. Historic preservation and urban renewal efforts related to Philadelphia's railways and subways are also covered. These include Penn Center, the Market Street East Redevelopment Area, the Commuter Rail Tunnel, Reading Terminal and the Pennsylvania Convention Center. Note: I do not cover any rolling stock.

The base information for some of the accompanying text is from several Internet sources, as indicated at the top of each section. General information about Philadelphia's rail systems is also available at www.nycsubway.org/us/phila/, www.nycsubway.org/transfer/transfer3.html#phila, www.wam.umd.edu/~davago/architecture.html, and www.septa.org. In addition, the following print sources provided some information in the accompanying text, as well as some photographs:

- **1:** *Trains, Trolleys, & Transit: A Guide to Philadelphia Area Rail Transit* (Railpace Company, Inc., 1998), by Gerry Williams. Explore all of SEPTA's transit lines with this fine 112-page color publication from Railpace (www.railpace.com; www.railpace.com/store/septa_book.htm). The book covers the Broad Street Subway, Market-Frankford Subway/El, SEPTA Suburban trolley operations, Subway-Surface trolley operations, and the Commuter Rail lines. Other chapters examine the PATCO Hi-Speed Line, NJ Transit's Atlantic City service, and Amtrak Intercity service in Philadelphia.
- **2a and 2b:** *The Philadelphia Improvements* (Philadelphia Chapter of the Pennsylvania Railroad Technical & Historical Society (www.prrths.com)). Great stuff. Learn all the fascinating details about the Pennsylvania Railroad's "Philadelphia Improvements" of the 1920s and 1930s through these two special publications, which are available at www.prrths.com/Phila_Paoli_Local.htm: **Part I** (1979, 4th printing 1997); **Part II** (1980, 4th printing 1997).
- **3:** *Reading Terminal and Market: Philadelphia's Historic Gateway and Grand Convention Center* (Chelsea Publishing, 1994), by Carol M. Highsmith and James L. Holton. This well-illustrated publication relates the entire story of the Reading Terminal (and Railroad), as well as the farmer's market under the massive trainshed. It also looks at the station's transformation into part of the Pennsylvania Convention Center. An updated second edition of this book has recently been published.
- **4:** *The Road From Upper Darby: The Story of the Market Street Subway-Elevated* (New York: Electric Railroaders' Association, 1967), by Harold E. Cox. A rare find at the Free Library of Philadelphia (Central Library, Map Dept.), with lots of interesting historic photos.
- **5:** *History of the Pennsylvania Avenue Subway and Tunnel* (City of Philadelphia, 1899). An extremely rare find at the Free Library of Philadelphia (Central Library, Map Dept.), with lots of interesting historic photos.
- **6:** *PTC Rails* (Railroad Avenue Enterprises, Inc., 1996), by Frederick A. Kramer and Samuel L. James, Jr. A great recounting of Philadelphia's streetcar history.
- **7:** *Philadelphia Architecture: A Guide to the City*, 2nd ed. (Foundation for Architecture, 1994), John Andrew Gallery, ed. A 188-page catalog of Philadelphia's architectural wonders, complete with photographs of most entries. The Foundation's website is www.foundationforarchitecture.org.
- **8:** *Philadelphia Then and Now: 60 Sites Photographed in the Past and Present* (Dover Publications, 1988), by Kenneth Finkel. A fascinating collection of photographs with accompanying text.
- **9:** *Public Art in Philadelphia* (Temple University Press, 1992), by Penny Balkin Bach. A superb 288-page catalog of Philadelphia's vast collection of public art.

My thanks to Christopher T. Baer of the Hagley Museum & Library for looking over this material. The Hagley Museum & Library (www.hagley.lib.de.us) has the archival materials of the Pennsylvania and Reading Railroads, as well as Red Arrow and SEPTA. If any reader can supply me with corrections or additional relevant information for this text, please feel free to contact me at hkyriakodis@ali.org.

THE PENNSYLVANIA RAILROAD, THE PHILADELPHIA IMPROVEMENTS, BROAD STREET STATION, THE "CHINESE WALL," 30TH STREET (PENNSYLVANIA) STATION, SUBURBAN STATION, PENN CENTER, AND THE UNDERGROUND PEDESTRIAN CONCOURSE NETWORK

By Harry Kyriakodis, with information compiled, adapted and augmented from:

www.chesco.com/~apu/prr/prr_30.html and www.chesco.com/~apu/prr/suburban.html,

by Allen P. Underkofler, used with permission; www.uchs.net/HistoricDistricts/30thstreet.html, by Edward Dunson;

www.library.temple.edu/urbana/prr-01.htm; and The Philadelphia Improvements

(Philadelphia Chapter of the Pennsylvania Railroad Technical & Historical Society).

The **Pennsylvania Railroad Company** (PRR) was originally chartered by Philadelphia merchants in 1846 to build a trunk route from Philadelphia to Pittsburgh via the Allegheny Mountains. This rail line would compete for freight traffic that had begun to bypass Pennsylvania in favor of New York via the Erie Canal. From those humble beginnings, the Pennsylvania Railroad stretched into an 11,000-mile system running through the cities of New York, Washington, Chicago and Saint Louis. It became the largest railroad in the United States in terms of traffic and corporate assets from the last quarter of the 19th Century until the decline of northeastern and mid-western manufacturing. The conglomerate owned its own shops, coal mines, power plants and hotels—not to mention hundreds of depots, thousands of passenger cars, tens of thousands of freight cars, and a vast fleet of steam, electric and diesel locomotives. At its peak, the PRR employed 280,000 people who moved 5000 trains per day! *Fortune* magazine once called the mighty Pennsylvania Railroad a "nation unto itself."

Philadelphia served as the Pennsylvania Railroad's headquarters and base of operations from the beginning. By the 1920s, PRR facilities throughout the city had become woefully inadequate. After several attempts at modernization and enlargement, a plan developed to drastically revamp the PRR's rail system in and around Philadelphia, as well as correct some railroad-created eyesores. This huge project was called the "Philadelphia Passenger Terminal Improvements Projects," or simply "**The Philadelphia Improvements**." The end result of this city-wide enterprise would be a new Pennsylvania Railroad Station at 30th and Market Streets to accommodate through passenger rail traffic, while commuter service would be handled jointly by that station and a new terminal and office building northwest of old Broad Street Station (which would be demolished). The project would also produce prime real estate in Center City Philadelphia for commercial development.

Broad Street Station, a majestic Victorian structure designed by Joseph and John Wilson (the Wilson Brothers), opened in December of 1881. The medieval castle-like station brought the PRR's tracks right into downtown Philadelphia directly across from **City Hall**, then under construction. When expanded by Frank Furness twelve years later, Broad Street Station became one of the largest railroad passenger terminals in the world. Also at that time, the Wilson Brothers added a colossal glass and steel trainshed over the terminal's 16 tracks. It burned down in 1923 in one of the Philadelphia's most serious blazes and was not replaced. (Another big fire at the station gutted a block-square track and platform area twenty years later.)

As a stub-end station, however, Broad Street Station was not operationally efficient, since through-trains had to be reconfigured or run backwards to join the PRR Main Line in West Philadelphia. This created an intolerable level of congestion by the early 20th Century. The Pennsylvania Railroad critically needed a main through-station to improve service in the growing Philadelphia market. Plans for the Benjamin Franklin Parkway from Center (now Penn) Square to Fairmount Park prevented any further expansion of Broad Street Station, so the PRR boldly decided to replace the entire terminal, as well as the too-distant **West Philadelphia Station**. The 1903 West Philadelphia facility was located at 32nd and Market Streets where the former Bulletin Building now stands.

The Philadelphia Improvements would also eliminate the enormous viaduct that carried PRR tracks from West Philadelphia to Broad Street Station. Derogatorily called the "**Chinese Wall**" because of its resemblance to the Great Wall of China when viewed from below, this elevated structure was supported by earth-fill between two massive stone retaining walls. It was a block wide at places and effectively divided Philadelphia across the middle, along Market Street from 16th Street to the Schuylkill River. In addition, north-south pedestrian and vehicular traffic was hindered and discouraged by the dirty low-arched underpasses that penetrated the Wall at each block. Altogether, the approach was about three-quarters of a mile long and covered some of the city's most potentially-valuable property. Removing the Chinese Wall would open 18 acres of downtown space to office, commercial and recreational development. The PRR saw this as an economic opportunity.

The Improvements project was also prompted by the Philadelphia Art Commission, which desired the Chinese Wall's removal to make the city more aesthetically attractive. The Commission had recently undertaken its own city improvement effort that produced the Ben Franklin Parkway and the Philadelphia Museum of Art. Modeled after the Champs Elysees in Paris, the Parkway was constructed from 1917 to 1926. Work on the Museum of Art began in 1919 and the first finished section of the interior opened to the public in 1928.

Besides all this, the technology of the 1920s—especially the push for electrification—gave impetus for the Philadelphia Improvements. Underground rail stations became feasible once quiet electric-powered rail cars replaced loud steam locomotives with their problematic exhaust. A large portion of the PRR system that serviced commuters had already been electrified: the Main Line as far as Paoli in 1915; the Chestnut Hill branch in 1918; and the Media and West Chester branch in 1928. PRR tracks were later electrified between New York City and Washington, D.C., by 1935 and west to Harrisburg by 1938.

On July 13, 1925, the Pennsylvania Railroad entered into an agreement with the City of Philadelphia in which the railroad would release the corridor occupied by the Chinese Wall for development, plus some PRR property north of Broad Street Station for the Ben Franklin Parkway. In return, the PRR gained subway tunnel rights between Filbert and Cuthbert Streets from the west to 15th Street, near which

the railroad would build an underground commuter station serving the downtown area. Furthermore, the city would widen Filbert Street west of Broad Street to 90 feet and rename it "Pennsylvania Boulevard," at the PRR's request. The city would also construct a new Market Street Bridge over the Schuylkill River so that the roadway could be raised to clear the through-tracks that the new station at 30th Street would require. And the federal government would build the impressive Philadelphia Postal Service headquarters at 30th and Market Streets by 1930.

Two years passed before work on the Philadelphia Improvements started in earnest. The project finally began on July 28, 1927, with a ceremony at 20th and Cuthbert Streets. And with that, the city was soon to look very different. Besides building two new passenger stations and a connecting track between them, the Pennsylvania Railroad would also erect a new railway bridge over the Schuylkill River, remove three existing bridges over the river, relocate engine facilities at the Powelton Avenue Yard (near 30th Street), revise the city track plan, construct new tunnels and bridges within the city, demolish a powerhouse at 16th and Filbert Streets, enlarge the 46th Street engine facilities and freight yard, remove the West Philadelphia Station, and build a 14-story office building at 32nd Street.

The Pennsylvania Railroad erected its new main Philadelphia station at 30th and Market Streets from 1929 to 1933. Designed by the Chicago firm of Graham Anderson Probst & White, **30th Street Station** is a stately combination of Greek and Roman Revival and Art-Deco elements, 637 feet long on the side facing the Schuylkill River and 327 feet wide east to west. The exterior is faced with Alabama limestone. Its main concourse is 290 feet long and 135 feet wide, with a beautiful coffered ceiling rising 95 feet above a Tennessee marble floor. Furthermore, the building incorporated several features that were somewhat novel in station design at the time, such as a chapel, a mortuary, and 3300 square feet of hospital space. An elaborate buzzer/intercom system and a pneumatic tube network were integrated within the complex, providing an efficient internal communication system without compromising the station's monumentality. The reinforced concrete roof of the central concourse was even designed to allow landing space for small aircraft, in anticipation of air service to the facility! Named "Pennsylvania Station" when built, it was the most significant part of the Philadelphia Improvements. And it was one of the last of the old glorious "gateways" to a major American city.

Construction of 30th Street Station coincided with the onset of the Great Depression, resulting in slower progress than planned. The commuter section of station was the first part to open (on September 28, 1930), before construction started on the main part of the complex. Passengers had to walk through a wooden tunnel past the construction to get to the commuter facilities. On March 12, 1933, through passenger service began, but with only two of the ten main line tracks operational. The station was fully opened on December 15th of that year, but the remaining through-service tracks did not go into service until two decades later.

Unlike Broad Street Station, 30th Street Station has its passenger through-tracks passing underneath. This arrangement permits the routing of trains traveling north and south without the need to reconfigure the engine and cars. It also keeps local commuter traffic from interfering with this through service, since suburban trains are routed through an attached station above the main terminal, with tracks perpendicular to the main line tracks below. This layout totally separates the two forms of traffic and creates a very efficient traffic flow. (Freight trains bypass the Pennsylvania Station complex entirely by using a very long elevated trestle called the West Philadelphia Elevated Branch—the 1904 "High Line"—immediately west of the station.)

There were once plans to integrate the **Market Street Elevated-Subway Line** with 30th Street Station. The Market Street Line was an elevated running alongside the terminal in the 1920s, and a new stop at 30th Street would have been attached to the south side of Pennsylvania Station, similar to the commuter station on the north side. These plans were dropped when the city announced it would extend the Market Street Subway into West Philadelphia and remove the elevated tracks to 44th Street. (Due to the Depression and World War II, this did not occur until the mid-1950s.) And so today, the Market Street Line's 30th Street station is not directly connected to 30th Street Station. An underground passageway linking the two facilities has been closed for years due to security concerns.

Thirtieth Street Station was placed on the National Register of Historic Places on June 7, 1978. The grand passenger station and its trackage have changed little since their construction, although the chapel, mortuary and hospital have long been converted into office space, a conference room, and an infirmary. The internal communication system is no longer used, and neither is the aircraft landing space (if ever). But a food and retail emporium called "The Market at Thirtieth Street Station" opened in the south arcade sometime in the mid-1990s. It was around this period that **Amtrak** spent over \$100 million cleaning, restoring and renovating the structure to its original beauty. Today, Amtrak 30th Street Station is second only to New York City's Pennsylvania Station in national traffic. This makes it the busiest of all inter-city terminals remaining from the years before World War II. The landmark station is mentioned in many novels and is also one of the city's most well-known film locations, with several popular films (*Blow Out*, *Trading Places*, *Witness*) containing scenes shot within. And though the complex is now largely surrounded by the Schuylkill Expressway and other roadways, the absolute scale of the building allows it to retain its architectural integrity and forceful presence.

Suburban rail lines from points north and south come together at 30th Street Station and form a six-track commuter station with three platforms. Proceeding east, the tracks merge from six to four and cross the Schuylkill River on a stately concrete and stone-faced two-arch bridge built in 1930. They also cross over CSX's East Side line tracks, which were formerly the B&O Railroad's Philadelphia-Baltimore main line. The tracks then head on a 2.2 percent downgrade over an elevated length of track that replaced the Chinese Wall, but is reminiscent of that structure. Twenty-First Street ducks considerably to clear the tracks overhead. At 20th Street, the tracks enter a five-block long subway heading towards Suburban Station, where the four tracks fan into eight. Trains operate very slowly around here due to the maze of curves and turnouts.

Suburban Station is a large underground rail station running between 15th and 18th Streets. The station was originally planned to have twelve tracks, rather than eight, but interference with the Chinese Wall's foundations to the south prevented it from being built that wide. Also, Suburban Station was designed so that its two northern-most tracks could be extended eastward towards a proposed tunnel under the Delaware River to connect to Pennsylvania Railroad lines out of Camden, New Jersey. This was never done. An intricate mezzanine level provides space for shops, ticket offices, and services for Center City workers and visitors, as well as many

links to the area's extensive **underground concourse system**. Suburban Station opened for traffic on September 28, 1930, the same day as 30th Street Station's commuter station.

The 22-story office building above the rail station is situated between 16th and 17th Streets and Cuthbert Street and J.F.K. Boulevard (formerly Pennsylvania Boulevard and Filbert Street). Constructed of gray limestone with black marble ends decorated in ornate bronze and gold-colored fixtures with red marble inlays, it is one of the finest examples anywhere of the 1920s and 1930s Art Deco architectural style. The immense structure is also a standard of an integrated office building and passenger terminal. The PRR leased twenty floors of the edifice as convenient downtown office space. There are beautiful murals inside several entrances.

From conception and for many years following, the complex was called "Broad Street Suburban Station," mainly for continuity with Broad Street Station. It was renamed "Suburban Station" in the early 1950s and then "Penn Center Suburban Station" in the late 1960s. Now officially called "One Penn Center at Suburban Station," the office building above has been renovated to be both economically and operationally divorced from the station below. The structure was placed on the National Register of Historic Places on May 9, 1985. **SEPTA** estimates that 100,000 people pass through Suburban Station every day, on foot and on almost 500 **Regional Rail** commuter trains. There are plans for a \$42 million renovation of the station, with the enlargement of retail space and the installation of air conditioning and elevators.

The subway serving Suburban Station originally ended near 15th Street. The street level above was made into a park to serve as a transition between Penn Square and the Ben Franklin Parkway. The Philadelphia Visitors Center was built in 1960 within the park, above the east end of the station. (This flying saucer-shaped structure is slated to close in a few years.) Also, a multi-level parking garage is under the square, northeast of Suburban Station. This garage was constructed in 1967 when Philadelphia architect Vincent Kling redesigned the entire park, which was then renamed "John F. Kennedy Plaza" to honor the slain president. (The city also changed the name of Pennsylvania Boulevard to "John F. Kennedy Boulevard," after having extended the street to the front of 30th Street Station by erecting a vehicular bridge over the Schuylkill River.) J.F.K. Plaza is also known as "Love Park" since Robert Indiana's famous *LOVE* statue is located there. A major redesign of plaza has been proposed, with the goal of transforming it into an urban showplace friendly to both Center City workers and tourists.

The completion of Suburban and 30th Street Stations should have been the end of Broad Street Station and the Chinese Wall, but the Depression and World War II delayed their demolition until the 1950s. In addition, 30th Street Station did not have enough tracks to handle capacity until around that time, and Broad Street Station was still a more convenient way into town. But on April 27, 1952, the last train departed the station, ceremoniously accompanied by Eugene Ormandy conducting the Philadelphia Orchestra in a farewell concert. Demolition started soon after that. While there is only a historical marker across City Hall indicating the old terminal's site, parts of the Chinese Wall can still be seen between J.F.K. Boulevard and the replacement railroad viaduct. In fact, a portion of the Wall supports the boulevard from around 22nd Street to the Schuylkill River, as well as a narrow roadside park that has been created there. Also, several large pieces of artwork in Broad Street Station were transferred to 30th Street Station, where they can still be admired by harried travelers. One such piece is the large *Progress of Transportation* (1895) plaster mural in the station's north arcade.

Much of the remaining space where the Chinese Wall used to be was developed into the **Penn Center** complex. The Philadelphia Improvements had always supposed that a large collection of office buildings would be built on the site of the old viaduct, but formal plans for the Center did not appear until 1947. That was the year of the Better Philadelphia Exhibition, a large display of maps and models showing grand plans for Center City from the fledgling Philadelphia Planning Commission and other reform-minded agencies and organizations. Visionary city planner Edmund Bacon included Penn Center as part of the display, which was housed in Gimbels department store and viewed by nearly 400,000 people.

Penn Center's construction generated much excitement in the 1950s. Philadelphians saw the complex as a "progressive" vision of urban renewal. Its initial stages were designed by Bacon and Kling. Six Penn Center (at 17th Street) was built by the Pennsylvania Railroad itself and replaced Broad Street Station as the company's headquarters. Two and Three Penn Center were constructed in the space once occupied by the station's trainshed and tracks. Dilworth Plaza on the west side of City Hall was also built during that period and occupies the site of the station headhouse. In addition, the traffic circle around Penn Square was moved west to join with 15th Street. Five, Seven and Four Penn Center came later, along with an ice skating rink at 17th Street and J.F.K. Boulevard. The rink was replaced with Eight Penn Center in the 1970s. Other major office buildings have been erected along and between Market Street and J.F.K. Boulevard since then. Thus, the Philadelphia Improvements plan of the 1920s was not fully realized until over four decades later.

Almost all Penn Center buildings and nearby subway and commuter rail stations are linked together by the vast **underground pedestrian concourse network** running under J.F.K. Boulevard, Market Street, and most area cross streets, walkways and courtyards. Edmund Bacon's concept of a hidden, weather-protected concourse connecting urban office, transportation and retail facilities was innovative at the time and influenced other cities, as well as Philadelphia's subsequent **Market East Redevelopment**. Furthermore, the Penn Center complex includes an underground roadway that trucks use to service and supply the buildings. This significantly reduces the number of trucks traveling over and loading/unloading on the streets above. The entrance to this no-outlet road (called Commerce Street) is on 19th Street between Market Street and J.F.K. Boulevard.

Unfortunately, the Pennsylvania Railroad significantly compromised Bacon's plan—with enlarged buildings and less open space—to be more economically rewarding to the company. Thus, Penn Center and the underground concourse network became less pedestrian friendly and less attractive overall. Legitimate concerns about crime and homelessness in the area became evident as the years passed. And this type of overwhelmingly bold city-sculpting has been somewhat discredited since the Center's construction. In fact, Penn Center has been cited as an example of poor city planning, lamentable in the spare geometry of its boxy buildings and its disregard for the traditional street's vitality. However, there are plans to improve and enhance Penn Center and its concourse system. This should help make getting around the complex more appealing to downtown workers.

The Municipal Services Building, designed by Vincent Kling, is very much integrated into the concourse system. It was constructed from 1962 to 1965 on Reburn Plaza, north of City Hall. There had been plans for a new city office building on that site before the Depression, but they were not implemented until after most of the privately-developed buildings of Penn Center were completed. Plus, several large buildings were built over the subway on the blocks between 20th Street and Suburban Station. One of them is Kennedy House, a 30-story co-operative apartment completed in 1969.

The Pennsylvania Railroad merged with the New York Central in 1968 to form the **Penn Central Railroad**. Two years later, Penn Central went bankrupt and its freight, passenger and commuter services were split. Its freight lines eventually became **Conrail** (with the addition of a few more railroads), passenger service went to **Amtrak**, and local commuter lines went to Conrail and then to **SEPTA** in 1983. The rival **Reading Railroad** also went bankrupt (in 1971) and SEPTA took over its commuter rail network in 1976. With the longstanding competition between the PRR and the Reading Company eliminated by the financial collapse of both railroads, SEPTA began operating its **Regional Rail** service over the two systems without distinction. A few years later, in 1984, Suburban Station changed from a stub-end station to a through-station when the **Commuter Rail Tunnel** joined the formerly opposed Pennsylvania and Reading Railroad systems. This in effect was the final chapter of the Philadelphia Passenger Terminal Improvements Projects.

**THE READING COMPANY,
READING TERMINAL HEADHOUSE AND TRAINSHED,
READING TERMINAL MARKET,
AND THE PENNSYLVANIA CONVENTION CENTER**

By Harry Kyriakodis, with information compiled, adapted and augmented from:

www.paconvention.com/f1b1.html; www.paconvention.com/d1i1.html;
www.e-architect.com/gov/tea21/readingterminal.asp; www.readingrailroad.org/rr_hist.htm;
www.trainweb.org/pt/reading.html; <http://2000.philly.com/inquirer/toward0613.asp>;
www.rmsco.com/RTH.htm; www.libertynet.org/historic/pending.html;
and *Reading Terminal and Market* (Chelsea Publishing, 1994).

Although remembered primarily as a railroad, the **Reading Company** was a multifaceted industrial giant at its peak. It was originally chartered in 1833 as the **Philadelphia & Reading Railroad** (P&R) to transport anthracite coal to Philadelphia. Service started a few years later with the right-of-way going alongside the Schuylkill River through Reading to Pottsville, PA, a distance of 94 miles. Beginning in 1850, the pioneering line leased, purchased, or merged with numerous smaller railroads, thus evolving into a mighty corporation serving the densely industrialized areas of eastern Pennsylvania, New Jersey and Delaware. Operations included coal mining, iron making, canal and sea-going transportation, and so on. With its huge complex of shops for locomotive and car building and repair, and its constant advancement of railroad technology, the Reading Railroad held a position of leadership in the railroad industry for over a century. In its heyday, the P&R offered more than 2600 miles of track for freight and passengers, and carried 25 million riders annually.

In the 1870s, the P&R established a subsidiary, the Philadelphia & Reading Coal and Iron Company, to gain control over the vast anthracite deposits being mined for shipment over its lines. When the company attempted to further expand by controlling rail lines into New England, New York financier and railroad tycoon J.P. Morgan pulled the financial rug out from under the Reading. The P&R went into receivership on February 20, 1893, with Morgan restructuring it three years later. This was one of several bankruptcies during the Reading Railroad's long and tortured history. By the early 20th Century, stock control of the Reading was held by the New York Central and B&O Railroads. However, the company was managed locally and had settled into its traditional role as a regional railroad, mainly a carrier of anthracite and passengers. The railroad was also known as the "Reading Lines."

Driven by stiff competition with the **Pennsylvania Railroad**, the Reading built **Reading Terminal** in Philadelphia as the company's headquarters and as the base for its expanding passenger rail system. The terminal headhouse—an eight-story Italian Renaissance palazzo with an ornate terra-cotta encrusted façade designed by Francis Kimball—was situated on Market Street to create a suitably grand entrance for the public. When the facility opened on January 29, 1893, it was acclaimed not only for the richness and elegance of its Victorian architecture, but also for the immense scale of its trainshed, the largest in the country for a brief period. The 13-track shed was designed by the Wilson Brothers, who had worked on the Pennsylvania Railroad's **Broad Street Station** years earlier. Ironically, the high cost of the terminal project was partly blamed for the P&R being placed into receivership in 1893.

As many as 45,000 passengers passed through the Reading Terminal complex every day during World War II. But by the 1950s, much of the terminal's attractive public space had been converted into dingy retail areas, and the facility had undergone at least one misguided "modernization," particularly to the headhouse's façade (in 1948). Much of the original granite cladding was broken or removed to accommodate installation of contemporary glass panels. The six large arches on the second floor along Market Street were bricked in and a simple brick parapet replaced the balustrade and ornate copper cornice. Plus, a stainless steel canopy was substituted for the old black marquee that bore the railroad's logo. Even neon lighting was installed!

Then years of neglect followed as the Reading experienced declining long-distance passenger service and only modest commuter rail service. Reading Terminal became a sad shadow of its former grandeur as one of the East Coast's great railroad hubs. And while this was happening, the Reading's freight business diminished as America turned away from coal as its major fuel. All this resulted in the Reading Company declaring bankruptcy for the fourth and final time on November 23, 1971. In 1976 (on April Fool's Day, no less), the 143-year old P&R ceased to exist as a railroad company. Most of the Reading's assets were transferred to **Conrail**, although **SEPTA** took over its lackluster commuter rail operations. Meanwhile, the forlorn station's decline continued.

The last train departed Reading Terminal on November 6, 1984. It was a nine-car special to Lansdale made up of 1931 Reading multiple-unit commuter cars painted in a blue and cream color scheme and called **Blueliners**. The closing ceremony was accompanied by much fanfare in Center City. Immediately thereafter, the dark and gloomy Reading Terminal was replaced by the new and shiny **Market East Station**, a block northeast and part of the early 1980s **Commuter Rail Tunnel** project. Interestingly, the Reading Company emerged from bankruptcy on January 1, 1981, and redirected its efforts towards real estate development, mostly of property it owned along its old right-of-way. Nowadays, the company is a Los Angeles-based entertainment firm!

The Reading Terminal's fate was in serious jeopardy in the years following, with several plans offered for its demolition or adaptive reuse. Fortunately, it was located squarely within the **Market Street East Redevelopment Area**, a colossal urban renewal effort east of **City Hall** envisioned by city planner Edmund Bacon. After many years of negotiations with the Reading Company, the Redevelopment Authority of Philadelphia purchased the historic terminal so that it could be incorporated into the **Pennsylvania Convention Center** (PACC).

The Convention Center is the largest public construction project undertaken in Pennsylvania, and is one of few such major facilities actively integrated into an urban center. Work on the \$525 million facility began in 1990. The PACC filled in and revitalized four derelict

city blocks between Arch and Race Streets from 11th to 13th Streets, and fit in well with the area's street infrastructure and transportation routes. Its urban neighborhood to the east includes Philadelphia's Chinatown community, which did not want to be swallowed up by the complex and its attendant traffic. So an innovative scheme was devised to separate truck traffic from the neighborhood: an elevated truck dock from Vine Street uses part of the Reading Railroad's old right-of-way to service the Center's Exhibit Hall. The facility's façade facing Chinatown contains retail spaces that further connect the Convention Center to the neighborhood's commercial activity.

Since opening in 1993, the PACC has become so successful that there are now plans to extend it west to Broad Street. The goal is to expand the facility from its current total size of 1.3 million square feet to just over 2.2 million square feet with 650,000 to 700,000 square feet of exhibit hall space.

Conventioneers can easily access a variety of restaurants, shops, cultural institutions, and other nearby Center City amenities. Very popular with both visitors and downtown workers is the **Reading Terminal Farmer's Market** on the ground level under the trainshed. This well-known tourist attraction contains stalls for a diverse selection of merchants, most selling fresh produce, choice meats and ethnic foods. The 12th and Market Street location has been in continuous use as a marketplace since 1860. A condition of the property's initial sale to the Reading Railroad was that the market would relocate to its original location after the terminal overhead was completed. The Reading Terminal Market maintains its historic ambiance today, even after having been renovated in the early 1990s to meet modern building codes. Thousands of Philadelphians and tourists pass through the lively marketplace every week.

The abandoned Reading Terminal trainshed was rehabilitated and converted into the PACC's Grand Hall ballroom. It is the oldest surviving single-span arched trainshed roof structure in the world, as well as the only one of its kind left in the United States. The shed was placed on the National Register of Historic Places in 1972 and was declared a National Historic Landmark in 1976. Furthermore, according to architect Hyman Myers of the Vitetta Group: "The trainshed was the keystone of the Convention Center project. There were hardly any other choices to reuse such a huge building—without the renovation the building probably couldn't have been saved. Also, the renovation of the trainshed had a ripple effect. By saving and reusing the trainshed, the oldest operational farmer's market in the U.S. was saved..."

Historical design cues are incorporated throughout the facility and especially within the trainshed. While its exterior was restored to original appearance, a free-standing "building within a building" was added inside to contain meeting rooms and a ballroom, yet still preserving a sense of the shed's historic open quality. The Grand Hall has a terrazzo and marble floor with ten pairs of stainless steel rails inserted to represent the thirteen train tracks that had once been there. And twelve large pylons providing HVAC air intake, lighting and power mimic the former station's train bumpers. The iron trusses overhead were repaired and painted their original color, and the original south curtain wall of glass and copper was cleaned and restored. Murals on the wall facing the Grand Hall depict classic Reading Railroad locomotives. The trainshed is connected to the PACC's Exhibit Hall by a pedestrian bridge over Arch Street located in the exact place where tracks used to enter and exit the shed.

The Reading Terminal headhouse revealed itself to be quite a handsome edifice once cleaned of its generations of dirt and with its original façade restored. The building's windows were replaced, its exterior granite cladding and terra cotta details were repaired or replaced, and all masonry joints were repointed. A new anodized aluminum cornice was installed that matches the shape and profile of the original. Interior renovation work included extensive demolition to create an open multi-level atrium with escalator, grand stair and skylights. This public atrium provides direct access to the Grand Hall, Market East Station, the **Gallery**, and the area's extensive **underground pedestrian concourse network**.

The headhouse's old entrance lobby on Market Street reopened in 1998. A Hard Rock Café opened in part of the ground floor the same year. The rest of the historic structure is now part of the Philadelphia Marriott Hotel across 12th Street, connected by a foot bridge over the street. The hotel expanded into the long-abandoned upper floors of the headhouse, creating meeting rooms and 210 new guestrooms by demolishing the building's old partitions and ceilings. An elegant ballroom on the second floor has a 35-foot vaulted ceiling and occupies the space of the station's former passenger waiting room, as well as the Horn & Hardart automat that once served hungry Reading Railroad passengers!

PENNSYLVANIA CONVENTION CENTER HISTORY TIMELINE

November 1984: Last train departs Reading Terminal
October 1987: Pennsylvania Convention Center Authority created
March 1991: Pennsylvania Convention Center ground breaking
June 1993: Pennsylvania Convention Center Opening
March 1994: Opening of Reading Terminal Trainshed and PACC's Grand Hall
April 1994: Reading Terminal Market renovations completed
January 1995: Opening of Philadelphia Marriott
May 1996: Pennsylvania Convention Center retail stores official opening
July 1996: PACC Authority Board approves funding for Headhouse Project
January 1997: PACC reached \$1 Billion in economic impact with definite bookings through 2006
February 1998: Headhouse renovations completed and it opens as the new entrance to the Center



SEPTA REGIONAL RAIL SYSTEM, THE COMMUTER RAIL TUNNEL, MARKET EAST STATION, MARKET EAST REDEVELOPMENT AREA, THE GALLERY, AND THE CITY BRANCH ROUTE

By Harry Kyriakodis, with information compiled, adapted and augmented from:

www.pennways.com/Commuter_Tunnel.html, by Scott M. Kozel, containing information from:

"The Tunnel That Transformed Philadelphia," *Civil Engineering/ASCE Magazine*, July 1985, and several Philadelphia railroad history buffs: Sandy Smith, John Hay, George Scithers, and Harry Kyriakodis; used with permission; and www.nycsubway.org/us/phila/regionalrail/#center, by Bob Wright (bogawrt@erols.com), used with permission.

SEPTA's Regional Rail system provides service on thirteen commuter routes covering some 500 miles in the Philadelphia area. One line is a seven-mile route to Philadelphia International Airport built by SEPTA and opening in April of 1985. But the twelve other lines of this comprehensive rail network had previously been routes of the **Penn Central** and **Reading Railroads**. In 1970, two years after the **Pennsylvania Railroad** merged with the New York Central, the Penn Central Railroad had gone bankrupt and its freight, passenger and commuter services were split. Its local commuter service went to **Conrail** and then to SEPTA in 1983. The rival Reading Company had also gone bankrupt (in 1971) and SEPTA took over its commuter rail operations in 1976. With the longstanding competition between the Pennsylvania Railroad and the Reading Railroad eliminated by the financial collapse of both companies, SEPTA could run its Regional Rail service over the two systems without distinction.

However, the two electrified rail networks were not operationally integrated until completion of the **Commuter Rail Tunnel** in

late 1984. Officially known as the Center City Commuter Connection (CCCC), the 1.7-mile long tunnel essentially connected Suburban Station and Reading Terminal. Both of these were inefficient stub-end terminals that had formerly competed for commuter traffic. The CCCC enabled the through-routing of commuter trains and eliminated capacity limitations and operational difficulties imposed by stub-end terminal designs. This was a first for any U.S. city.



The project was first proposed in 1958 by R. Damon Childs, a planner with the Philadelphia Planning Commission. At first, city planner Edmund Bacon was doubtful about the tunnel, but he incorporated it into his 1960 Comprehensive Plan for the city's future development once he grasped the project's viability and usefulness. Yet the widely-maligned tunnel was considered for years to be a dream that would not come to pass. Eventually, however, it was realized that such a tunnel would greatly improve the Regional Rail system's performance by allowing Philadelphia's two original rail networks to work together. Ground was finally broken on June 22, 1978, during Mayor Frank Rizzo's administration. The \$330 million project received 80 percent of its funding from the Urban Mass Transit Administration, now the Federal Transit Administration.

The CCCC is a reinforced concrete box tunnel of cut-and-cover construction. Its design and construction were very challenging, as the tunnel weaves both above and below pre-existing subway lines. Also, several historic and high-rise buildings along the route required a great amount of underpinning. The 14-story City Hall Annex (built in 1926; now the Marriott Courtyard Hotel) needed special treatment, since one track of the tunnel box passes directly under the building's support columns along Filbert Street. The Masonic Temple, completed in 1873, required an even stronger underpinning method when cracks appeared in its ornate interior plaster. To keep train noise and vibration from disturbing downtown buildings and their occupants, the subway's tracks use continuously-welded rails on specially cushioned concrete ties. Track level insulation and acoustic panels between the four tracks further deaden train noise. The concrete tunnel structure itself is isolated from adjacent structures by a two-inch layer of cork. In addition, complex construction scheduling was required to maintain vehicle, pedestrian and rail traffic at street level and in the multiple levels of subways and pedestrian concourses. And there was a monumental relocation of utilities, all of which had to be kept in service without disruption.

The Commuter Rail Tunnel actually lengthened the existing five-block subway built by the Pennsylvania Railroad in the late 1920s from **Suburban Station** towards **30th Street Station**. Thus, the entire rail tunnel is almost 2.5 miles long, right through the heart of Center City Philadelphia. As originally constructed, Suburban Station's eight tracks ended at a concrete wall near 15th Street. The CCCC extended four of the station's tracks—two in each direction—eastward. The tunnel project also included removing two of Suburban Station's original tracks. In their place, the two island platforms serving the CCCC's through-tracks were widened to about double their previous width. The rarely used Track 0, a stub, shares a platform with the southernmost Track 1, and there are three stub tracks north of the four through-tracks. Several trains can be seen on the stubs during mid-days. Interestingly, although the station's four through-tracks are on the south side, Suburban Station was originally designed so that its two northernmost tracks could be extended east towards a proposed tunnel under the Delaware River to connect to Pennsylvania Railroad lines out of Camden, New Jersey. This was never done.

Leaving Suburban Station, the tracks head east through a small interlocking area and pass over the **Broad Street Subway**. Even though this north-south line was designed to allow a future subway above it north of **City Hall**, clearances were barely adequate for the Commuter Rail Tunnel. A 20-foot wide section of subway roof was demolished and a new one built while maintaining Broad Street Subway service on at least two tracks. Furthermore, a 400-foot length of SEPTA **Subway-Surface** trolley line parallel to the new tunnel was moved 16 feet south. A new westbound 15th Street trolley stop was also built, all while keeping service running.

Next is **Market East Station**, a \$75 million transportation center completed in 1984. This exciting, modern facility is 120 feet wide and two blocks long between 10th and 12th Streets. A huge atrium filters daylight down to the track level 35 feet below the street, and a large abstract wall mural of a forest—made with a quarter million tiles arranged with the help of computer programs—enlivens the place. Market East Station is also fully integrated with the **underground pedestrian concourse network** connecting the **Market Street Subway**, the Subway-Surface line, the Broad Street Subway, City Hall, and **Penn Center**.



The station is the centerpiece of the **Market Street East Redevelopment Area**, a colossal urban renewal effort east of City Hall envisioned by Edmund Bacon. All nearby office, commercial and hotel buildings constructed during and since Market East Station's opening were designed for easy access to the station.



Redevelopment construction began with the **Gallery**, a three-story high, four-block long complex of department stores, retail shops and food courts meant to compete with established and growing suburban shopping malls. (Gallery I was completed in 1977; Gallery II in 1983.) This was the first inner-city shopping center built after World War II, and its construction was seen as a positive return of retail shopping to Center City, as well as a failure waiting to happen. It is now among the most successful urban shopping malls in the country.

The Gallery's basement level adjoins Market East Station's mezzanine. In fact, this level of the Gallery extends the city's underground pedestrian concourse network all the way to 8th Street. It is thus possible to walk entirely underground in downtown Philadelphia from 19th Street to 8th Street! The nearby intersection of 8th and Market Streets is a key transportation hub, with access to stations for the Market Street Subway, the **Broad Street Spur/Ridge Avenue Subway**, and the **PATCO Hi-Speedline**.

The **Reading Company** built One Reading Center at 11th and Market Streets contemporaneously with the Commuter Rail Tunnel. This was the Reading Company's first substantial effort in real estate development after quitting the railroad business and emerging from bankruptcy on January 1, 1981. Now known as the Aramark Tower, the handsome edifice was completed in 1984 and was the first major office high-rise constructed on east Market Street in fifty years. The building has 31 office floors above two retail levels and incorporates special curved corners and stepped terraces on the exterior. Each of its dark reflective glass façades was designed to respond to neighboring buildings in a unique fashion. The tower's 11-story glass-enclosed lobby atrium contains an art deco marble lobby, a reflecting pool and a sculpture garden.

Reading Terminal's headhouse is adjacent to the Aramark Tower. When Market East Station opened, it effectively replaced the old terminal's function. The CCCC passes under the near-center of the Reading Terminal trainshed, far below its elevation and perpendicular to it. Special challenges arose here during the tunnel's construction, since full commuter train service had to be maintained inside the shed while extensive underpinning was done below. The historic trainshed is now part of the **Pennsylvania Convention Center**, which was constructed nearby (between Arch and Race Streets from 11th to 13th Streets) in the early 1990s. SEPTA headquarters are across the street from Reading Terminal, at 1234 Market Street, next to the PSFS Building (now a Loews Hotel). And the Philadelphia Greyhound bus terminal is at 10th and Filbert Streets, very close to Market East Station.

Commuter Rail Tunnel construction very much disrupted Chinatown, under which the subway curves north. The city and project engineers worked closely with local residents and business owners to solve business disruption, noise, dust, parking and traffic flow problems. In addition, the 9th and Vine Street station of the Broad Street Spur/Ridge Avenue Subway lay directly in the path of the tunnel and had to be demolished. A replacement station was built near 8th and Race Streets as that line's Chinatown stop. The lowest point of the CCCC is under this station, about twenty feet below sea level. The tunnel then passes under the **Vine Street Expressway** near this spot. On the northern side of the expressway, the Philadelphia Chinatown Development Corporation constructed a fine village of mixed-income residences on the undesirable land alongside the expressway from 8th to 9th Streets, with parking and green space over the CCCC. This was a creative way to comply with regulations prohibiting heavy construction on land above a subway.

Proceeding north, the tunnel rises on a steep 2.8 percent grade as it ends at the Green Street portal. A few blocks later, the tracks connect on a direct high-speed alignment to the old elevated Reading main line—the 9th Street Branch—that used to take trains into Reading Terminal. The southern part of this viaduct from Vine Street to the Pennsylvania Convention Center was torn down in the early 1990s since it was no longer needed after the CCCC's completion. The remaining abandoned viaduct is still an impressive site and is reminiscent of the demolished **Chinese Wall** of the Pennsylvania Railroad. Much of it would have been obliterated had plans gone through for a baseball stadium in that vicinity.

It is around this area that the old Reading right-of-way splits, with the **City Branch** route heading westwards between Callowhill and Spring Garden Streets. This open subway was completed in the late 1890s to eliminate traffic problems caused by the Reading Railroad's tracks that had originally crossed most of the city's north-south streets at grade from around Broad Street to almost the Schuylkill River. Over a million cubic yards of earth were excavated to create this sunken line, which is apparently the first subway project undertaken in Philadelphia. The **Broad Street Subway** would later pass under the City Branch near Callowhill Street, at the point where Broad Street rises a bit in front of the *Philadelphia Inquirer* building. The *Inquirer* was a steady customer of this Reading line for many years, using it for the delivery of giant rolls of newspaper and for shipping out its finished papers.

As easily seen from several streets crossing overhead, the tracks of this abandoned rail line have been removed and nature has reclaimed much of the old right-of-way. Some of this forgotten route is even used for parking! The City Branch turns northwest near the Rodin Museum and continues under Pennsylvania Avenue as a closed subway. Several ventilation grates mark the way. Part of the Pennsylvania Avenue subway is still actively used by CSX's East Side line, which was formerly the B&O Railroad's Philadelphia-Baltimore main line. The tracks connect to the subway underground immediately east of the Philadelphia Museum of Art. The route then continues northwest aboveground.

The Commuter Rail Tunnel was originally scheduled for completion in 1981. But serious delays occurred, not on construction of the tunnel itself, but in finishing connecting trackwork, interlockings and signaling (due to the exit of Conrail from commuter rail operation), and on the power supply (due to a City-Federal-Amtrak squabble over whether to use 11 or 25 kV). SEPTA's lack of qualified engineers for its trains after Conrail left also delayed opening.

Furthermore, less than a week after opening on November 10th, 1984, the tunnel was closed north of Market East Station when the 83-year old Columbia Avenue Bridge at Temple University station was discovered to be in imminent danger of collapse. (Though a fine railroad company, the Reading Railroad did not construct its routes as solidly and long-lasting as did the Pennsylvania Railroad.) A temporary earth embankment was built within a month so that full service could resume. This incident led to SEPTA's huge RailWorks project, which rebuilt the four-mile 9th Street Branch—now the SEPTA main line—between the CCC and Wayne Junction in 1992 and 1993. Twenty bridges were replaced, five rebuilt, track, signals and power were totally redone, and a new Temple station was built two blocks north of the old location. SEPTA spent several hundred million dollars on this work.

Daily ridership on the SEPTA Regional Rail system increased to about 85,000 right after the Commuter Rail Tunnel fully opened, up from around 72,300 before. All SEPTA commuter lines use the tunnel to some extent, with almost 500 trains traversing it every weekday. The CCC provides much more capacity in the corridor and offers suburban commuters three downtown stations in Philadelphia for distribution.

The 1.7-mile long tunnel, which belongs to the City of Philadelphia, was elected the Outstanding Civil Engineering Achievement for 1985 by the American Society of Civil Engineers. A plaque to that effect is on the south wall in Market East Station's mezzanine between 11th and 12th Streets.

THE READING TERMINAL CLOCK (RESTORATION OF)

Adapted by Harry Kyriakodis from a 10/30/98 Office of the City (Philadelphia) Representative press release

The distinctive Victorian street clock in front of Reading Terminal headhouse was manufactured around 1885 by the E. Howard Clock Company of Boston. Such American "street" or "post" clocks were an early form of advertisement, adapted from the popular public clocks of Victorian England. The ornate Reading clock stands about 20 feet high and originally had four opal glass dials with spade-shaped hands. The clock's body, trim work, top decorative pieces were made of wood; the post was cast iron, painted green with gold leaf accents. It was first installed in 1892 at Broad and Chestnut Streets in front of a ticket office jointly operated by the Reading and B&O Railroads. When public opinion urged that the new Reading Terminal needed a street clock to inform train passengers of the time, the clock was moved in 1897 to 12th and Market Streets, where it became a Center City landmark and an indispensable aid to commuters and city workers. It was wound every Saturday morning until an electric motor was installed, probably in the 1950s or 60s.

The Reading Company dismantled the clock in 1984 due to its need for restoration. Years after the railroad part of the company went out of business, the Reading sold the historic terminal—and the clock—to the Redevelopment Authority of Philadelphia. The Reading Terminal Market Preservation Fund obtained a \$30,000 grant from the Pennsylvania Historical and Museum Commission to restore the clock. An additional \$30,000 was raised from private donors, including the Host Marriott Corporation, whose Philadelphia Marriott Hotel is located across the street from Reading Terminal. The Marriott has also expanded to the upper floors of the headhouse building. Following its unveiling on December 2, 1998, the fully-restored and functioning Reading Terminal Clock once again tells time in all its glory at 12th and Market Streets.

SEPTA: (THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY)

SEPTA (www.septa.org) was created in 1964 to subsidize most of the suburban (commuter) transit rail lines originally operated by the **Pennsylvania and Reading Railroads**. Such subsidies had started in the late 1950s under other local transit agencies to help keep the commuter lines of these railroads running in the face of growing operating losses. SEPTA initially made operating contracts which provided funds in return for concessions on fares and service improvements. The Authority would later own and operate these lines outright. Furthermore, in 1968, SEPTA took over the Philadelphia Transportation Company (PTC), which had operated the city's network of subways, elevated trains, bus routes, and trolley lines since 1940. The PTC was the largest transit company still in public hands by the time of the SEPTA takeover. It had come into existence as successor to the city's first major transit enterprise, the Philadelphia Rapid Transit Company (PRTC). The PRTC built most of Philadelphia's subway and elevated rail lines, long before going bankrupt in 1939. That company had been organized in 1902 from several Philadelphia-area surface and elevated railway companies.

Adapted from www.nacto.org/NACTO/cities/Philadelphia/philagov.htm (defunct): SEPTA is a corporate body of the Commonwealth of Pennsylvania, and operates three divisions within its five-county service area. The City Transit Division (CTD) provides rapid transit, light rail, trackless trolley, and motor bus service primarily within the City/County of Philadelphia; about one-third of the eighty-one routes extend into the suburban counties. The CTD serves 858,000 weekday boardings on 69 bus routes, 5 light rail routes, 5 trackless trolley routes, and two rapid transit lines, which together utilize 1,304 peak-period vehicles. The Suburban Transit Division (STD) provides light rail and motor bus service mainly within the four suburban Counties of Bucks, Chester, Delaware, and Montgomery, although portions of a few routes extend into the City. The STD serves 55,000 weekday boardings on 37 bus routes and 3 light rail routes, which together utilize 182 peak-period vehicles. The Regional Rail Division (RRD) provides commuter railroad service on thirteen lines within the entire five-county region. The RRD serves 85,000 weekday riders on 279 peak-period rail cars. SEPTA also sponsors privately-operated paratransit service, and shared-ride service for senior citizens, within the five-county region. The City of Philadelphia owns most of the CTD rapid transit infrastructure and rolling stock, and some of the light rail and trackless trolley infrastructure, and has a leasehold interest in the balance of the CTD system. With respect to the RRD, the City owns the 1.7-mile Center City Commuter Connection (comprised of the four-track commuter rail tunnel through Center City plus the Market East Station), the Airport Rail Line, the Fox Chase Line Electrification, several stations and park-and-ride lots, and about one-third of the RRD rolling stock. The City provides about 85% of the operating and capital local matching subsidies to SEPTA. The City has two seats on the fifteen-member SEPTA Board of Directors.



Adapted from www.septa.org/store/museum.html: The SEPTA Transit Museum is located at 1234 Market Street. Its history boards and display cases contain archival photographs depicting the history of public transit in the Philadelphia vicinity, and an authentic President's Conference Car (PCC Trolley Car) is displayed in the building's lower level.

THE SUBWAY-SURFACE (GREEN) LINES

*By Harry Kyriakodis, with information from www.nycsubway.org/us/phil/subway-surface,
by Bob Wright (bogawrt@erols.com), used with permission.*

Subway-Surface trolleys run on broad gauge track (5 feet, 2.25/50 inches), just like the **Market-Frankford Line** (the "EI"). The Subway-Surface line tunnel in Center City was built as part of the Market Street Subway and shares much of its right-of-way with the EI. The subway loop around **City Hall** connects inbound and outbound Subway-Surface routes at the Juniper Street station. The loop dips below the Market Street Subway but remains above the **Broad Street Subway** around this vicinity.

SEPTA Light Rail Vehicle (LRV) trolley cars proceed out of Juniper Street station, curving severely to the left around the loop until 15th Street station. This is not the original location of the westbound 15th Street stop. Along with a 400-foot length of track, the station was moved 16 feet south in the late 1970s as a result of the **Commuter Rail Tunnel's** construction. Some daylight makes it into the station through a planter that extends up through Dilworth Plaza above. Free transfers to the EI and the Broad Street Line can be made here.

Cars leave 15th Street and curve slightly to the right, passing the Market Street Subway's 15th Street station and then sharing the tunnel towards West Philadelphia with the EI. Nineteenth Street station is next, showing the old style architecture of the original 1907 subway. (This station marks the start of stops where fares must be paid on the car; 30th Street is the only exception.) The next stop is 22nd Street, which reflects a 1950s style of construction and which is close to the portal where the subway tunnel originally ended before being extended westwards in 1955. The subway portal was located at 23rd Street where the Philadelphia Electric Company's "Tower of Light" building now stands. The 22nd Street stop essentially took the place of a little-used stop at 24th Street, which was eliminated in the reconfiguration.

Trolleys proceed into the Schuylkill River tunnel with timed signals controlling the downslope speed, quickly climbing back out and reaching 30th Street. Leaving 30th Street, the LRVs rise above the EI tracks to a separate subway alignment. The tracks curve left to 33rd Street station, then curve right towards the junction with the 36th Street portal. At this point, SEPTA Route 10 cars climb the incline and leave the subway at 36th and Ludlow Streets. Other trolleys move slowly around the incline, make a sharp left, and go on to Sansom Street station. Past Sansom, cars continue beneath the University of Pennsylvania campus and the former Woodland Avenue to 37th Street station. Here, the inbound and outbound stations are offset to straddle the angle of Spruce Street above.

Out of 37th Street, the trolleys speed through the tunnel to the 40th and Woodland Avenue portal. Route 11, 13 and 36 cars take the switch to the left, with Route 34 turning to the right. Before the portal area trackage was realigned in 1983 (to allow turnarounds in each direction), tracks came to a "T" configuration then split, which limited turnbacks in both directions. Also, before the late 1970s, 40th Street crossed the tracks just outside the portal, which caused some traffic difficulties. All routes then proceed to points west.

STREETCAR PHILADELPHIA



From www.netreach.net/~szilagyi/philly1.htm: Twenty years ago, Philadelphia's fleet of PCC cars was the second largest in the western hemisphere, with 300 PCC trolleys remaining—only Toronto Ontario had more trolleys. Philadelphia's fleet was comprised of two main classes: 102 prewar "air cars" built between 1940 and 1942, and 198 postwar "all-electrics" built in 1946-1948. The streetcars operated from three depots over twelve routes, spread over most of the city. Five routes ran on city streets and through a trolley subway under University City and Center City; the remaining seven ran entirely in city streets in traditional streetcar fashion... Much of the system has been paved over since then. Today, only the five routes that operate through the Subway-Surface tunnel in southwest Philadelphia remain, equipped with Japanese-built [Kawasaki] Light Rail Vehicles. Until 1992, rebuilt postwar PCCs remained in revenue service on three lines, the 15, 23, and 56. PCC cars on these last three lines were replaced by diesel buses in September of that year, with many of the PCCs sold to transit operations and museums all over the country. The tracks and wires remain in place however, with both City Council and [former] mayor Rendell's office opposed to their removal (see [1997] City Council hearing article). Ominously, June 15, 1996, was the last day for the weekend-only PCC service in on the extreme north end of the Route 23 in Chestnut Hill, ending 58 years of regular PCC service in Philadelphia. Another tourist-oriented PCC service, the Route 51, or Welcome Line, connecting Center City with Philadelphia Zoo, ceased operation the year before. SEPTA budget cuts were the stated reason.

From *early-2001 SEPTA press releases* and www.netreach.net/~szilagyi/streetcar_index.html: SEPTA's Girard Avenue Light Rail Project will restore light rail (i.e., trolley) service along Route 15 from Port Richmond to Overbrook. (Streetcars were withdrawn from this route in 1992.) This line will not only provide east-to-west travel on Girard Avenue, but it will also serve as a link to nearly two dozen other routes, including the **Broad Street Subway** and **Market-Frankford Line**. SEPTA will repair and replace track, install overhead wiring, and erect safe pedestrian islands. When work is complete in 2002 or so, the \$37 million project will complement various renewal projects taking place throughout the corridor. In addition, 18 of SEPTA's stored late-1940s "all-electric" PCC cars will be selected for a complete rebuilding. Each car will be stripped and reassembled to "like new" condition, with a new air conditioning and heating system, a wheelchair lift, and a complete upgrade of all car systems.

From www.netreach.net/~szilagyi/ptc-map.htm: This is the Center City map from the **Philadelphia Transportation Company**, printed in January 1953. This detailed map is printed on the back of the main map, which shows the entire city, and its transit network, at smaller scale.

STREET MAP OF PHILADELPHIA AND VICINITY Showing Streetcar, Bus and Subway-Elevated Lines



THE MARKET (SUBWAY)-FRANKFORD EL (BLUE) LINE AND THE DELAWARE AVENUE EL (FERRY LINE/BRANCH)

By Harry Kyriakodis, with information from
www.nycsubway.org/us/phila/blue, by Peggy Darlington.

Popularly known as "the El," the 13-mile **Market-Frankford Line** is Philadelphia's most successful and heavily-used transit route. The El consists of two sections:

- the **Market Street Line**, a subway and elevated route along Market Street to 69th Street Terminal in West Philadelphia; and
- the **Frankford Elevated Line**, an entirely elevated route from Old City to Frankford Terminal in Northeast Philadelphia.

The Market Street Line dates back to 1901 when the Market Street Elevated Passenger Railway Company incorporated. The Philadelphia Rapid Transit Company soon acquired this enterprise and began construction in 1903 by erecting a multi-arch steel truss bridge over the Schuylkill River a bit north of the then-existing Market Street bridge. The next year it started work on the concrete support foundations for the elevated in West Philadelphia, with the first columns and girders going up at 45th and Market Streets on August 22, 1905. Underground construction from 23rd Street east to 15th Street was progressing at a rapid pace in the meantime. The Market Street Subway opened soon, using surface trolley cars at the outset while the rest of the line was being built. The first heavy rail subway train to 69th Street ran in January of 1907, with regular service beginning on March 4th. The subway's western portal was located at 23rd Street where the Philadelphia Electric Company's "Tower of Light" building now stands.

Service was extended eastwards from 15th Street by the next year. The subway's tracks originally shifted to the south side of **City Hall** under Center (Penn) Square, but were later relocated straight under the building (in 1936). The subway tunnel continued to 2nd Street, then curved northward and emerged from a portal near Front and Arch Streets in Old City. At that point, the line looped around 180 degrees in hairpin fashion over Arch Street and proceeded south above Delaware Avenue as an elevated. Completed in 1908, this route was known as the **Ferry Line** (or the **Delaware Avenue El**), since the stops served the various ferries to New Jersey along what is now Penn's Landing. There were two stops, one at Market-Chestnut and one at South Street where the line stub-ended. The Ferry Branch gradually lost passengers as ferry traffic diminished after the Delaware River (Ben Franklin) Bridge opened in 1926, and especially after the **Philadelphia-Camden Bridge Line** opened in 1936. The ferries ceased operating in 1938 and the Delaware Avenue El stopped running in May of the next year, replaced by shuttle bus service. The line was torn down a few years later. Today, there are no traces whatsoever of this elevated structure along Delaware Avenue (Columbus Boulevard).

Since the Market Street Line in West Philadelphia ran as an elevated alongside the **Pennsylvania Railroad's 30th Street Station**, there were once plans to integrate the line with the passenger terminal. A new stop at 30th Street would have easily attached to the south side of the station, similar to the commuter station on the north side. But these plans were dropped when the City of Philadelphia announced in the late 1920s that it would extend the Market Street Subway west to 44th Street. And so today, the subway's 30th Street station is not directly connected to 30th Street Station. An underground passageway linking the two facilities has been closed for years due to security concerns.

The subway's extension from 22nd Street under the Schuylkill River to 32nd Street was completed in the 1930s, but clearance problems arose and funds ran out during the Great Depression, so the tunnel remained unused. Then in 1947, construction resumed on a subway from 32nd to 44th Streets. This tunnel connected to the previously-built Schuylkill River tunnel by 1953 and service began on October 31, 1955. Original Market Street Line stops at 32nd and 36th Streets moved to 30th and 34th Streets as a result of the reconfiguration. The Schuylkill River bridge and the elevated structure from 30th to 45th Street were removed by 1956.

The Market Street Subway tunnel is shared with the **Subway-Surface** trolley line from 15th Street to around 33rd Street. The subway's downtown concourse runs along both sides of the line from 11th to 15th Streets and includes the area around City Hall. Completed by 1936, this concourse connects to the **Broad Street Subway's** concourse and is an integral part of Center City's vast **underground pedestrian concourse network**. The Market Street Subway's 8th Street station provides access to the **Broad-Ridge Spur** and the **PATCO Hi-Speedline**.



The Frankford Elevated was built by the city between 1915 and 1922 and connected to the Market Street Subway at the Front and Arch Street portal. It opened on November 5, 1922. The Frankford and Ferry lines alternated service to 69th Street until 1937. The Ferry Branch then ran only during the daytime, until it stopped operating regularly in 1939.

Construction of Interstate 95 forced the relocation of the original eastern subway portal to an area between the highway median in 1977. This construction also closed the Frankford El's Fairmount station, which was replaced by the current Spring Garden station also within the I-95 median.

Having rebuilt the Frankford side of the line in the early to mid-1990s, **SEPTA** is now constructing a larger Frankford Transportation Center to replace Frankford Terminal. This \$140 million project includes a new train platform and track structure, an intermodal terminal building, rehabilitation of the historic Bridge-Pratt station building, new bus and trackless trolley berths (at street level), a pedestrian bridge over Bridge Street, and a 1100-car parking garage. SEPTA also has plans to completely rebuild the remaining Market Street Elevated portion in West Philadelphia, including 46th, 52nd, 56th, 60th, 63rd, and Millbourne stations. The 69th Street Terminal was rebuilt in the late 1980s.

Interestingly, the Market-Frankford Line does not share the same track gauge with Philadelphia's other subway systems. Trains run on broad gauge track (5 feet, 2.25/50 inches, the same as the Subway-Surface trolleys) with under-running third rail. The line's A/B skip stop rush hour service pattern dates from January of 1956. Photo of 15th Street stop by David Pirmann.

THE BROAD STREET SUBWAY (ORANGE) LINE AND THE BROAD-RIDGE SPUR/RIDGE AVENUE SUBWAY

By Harry Kyriakodis, with information from
www.nycsubway.org/us/phila/orange, by Peggy Darlington.

The idea for a **Broad Street Subway** dates back to 1912, when Philadelphia Transit Commissioner A. Merritt Taylor was appointed to study transit expansion in the city. Among the options he came up with were the Broad Street Line and what became the Broad-Ridge Spur. Typical to big cities, the ideas were studied, restudied and then changed, and the process repeated.

The decision was finally made to construct the Broad Street Line in 1923, with the City of Philadelphia building it and the Philadelphia Rapid Transit Company operating it. On September 2, 1928, service started from **City Hall** north to Olney Avenue via two tracks and with flying junctions at Erie and Olney for future extensions. The line's southern portion took longer to complete due to the Great Depression. The subway from City Hall to South Street opened in April of 1930. The tunnel from South Street to Snyder Avenue was built by 1933, but with no tracks or finished stations since money had ran out. Also, a junction built for a branch to West Philadelphia was never completed; today it remains as an odd jog in the tracks north of Snyder station. The Broad Street Subway was finished in 1937 (after finances improved) and trains began running the next year. The southern part of the line is two-tracked, while the rest of the subway (from Walnut-Locust to the Fern Rock Transportation Center in North Philadelphia) is four-tracked.

The subway was extended north from Olney Avenue to Fern Rock in 1956 and south to Pattison Avenue by 1973. The Pattison station was built with upper and lower platform levels to handle large crowds from the Sports Complex. Express service was introduced on the line in 1959 with the installation of twin express tracks between Walnut-Locust and Erie stations, extended to Olney station in 1991. Around that time, part of the Vine Street station's mezzanine was eliminated and the station's entrance/exits were moved when the **Vine Street Expressway** was constructed.

Approaching City Hall station, the line's tracks shift to the west to avoid the massive foundations of City Hall tower. At the station, huge columns between the tracks and on the platforms support the foundations of City Hall above, as well as the **Market Street Subway** (the Market-Frankford El). There are plans for the rehabilitation and improvement of City Hall station, in conjunction with the city's plan for the building's restoration. The station is somewhat integrated with the area's **underground pedestrian concourse network**, which allows access to the Market Street and **Subway-Surface** lines. In addition, the Broad Street Subway's downtown concourse runs above the subway from City Hall to Spruce Street. This cavernous concourse intersects with the **Locust Street Subway** concourse, and the Broad Street Line crosses over the Locust Street Line underneath that spot.



The **Broad-Ridge Spur**—also known as the Ridge Avenue Subway and the Broad Street Spur—runs under eastern Ridge Avenue. It was finished in December of 1932 along with the **8th Street Subway**. These lines were related to plans for a Center City delivery subway loop, which included a proposed subway under Arch Street. The Arch Street subway was not completed, but a small amount of tunneling work under Arch Street east of Broad Street was done before World War I. The Locust Street Subway was also related to this proposed loop.

Through-service into New Jersey from Girard Avenue via the Broad-Ridge Spur began when the **Philadelphia-Camden (Benjamin Franklin) Bridge Line** opened in 1936. When the Locust Street Subway was finally completed and connected to the 8th Street Subway in 1953, this enabled through-service via those routes and the Broad-Ridge Spur. This service ended in mid-1968 when much of the line was routed into New Jersey with the new **PATCO Hi-Speedline**.

From its Market Street terminal heading north, the Broad-Ridge Spur runs under 8th Street, on top of the Hi-Speedline's tracks. The two routes split at Race Street, where the Spur curves northwest. The Spur's 9th and Vine Street station had to be demolished in the early 1980s because it lay directly in the path of the **Commuter Rail Tunnel**. A replacement station was built near 8th and Race Streets as the present Chinatown stop. The Spur passes over the commuter tunnel and under the **Vine Street Expressway** near this spot. It then proceeds under Ridge Avenue towards Broad Street, passing the abandoned Spring Garden Street station along the way.

Broad-Ridge Spur trains run on the express tracks from Girard station north to Erie station, usually with two cars during off-peak hours. Meanwhile, Broad Street Line trains normally use five cars, with six as a maximum length. A local trip from Pattison to Fern Rock takes about 35 minutes. SEPTA is slowly renovating most of the stations along the line.

Both of these lines are reminiscent of a New York subway in look and feel. Trains run on standard gauge track (4 feet, 8.5 inches) with overrunning third rail. They see the light of day only at the Fern Rock Transportation Center. Photo of City Hall station by Richard Brome.

THE PATCO HI-SPEEDLINE, THE PHILADELPHIA-CAMDEN (BEN FRANKLIN) BRIDGE LINE, THE 8TH STREET SUBWAY, AND THE LOCUST STREET SUBWAY

By Harry Kyriakodis, with information from: www.drpa.org/patco/hist.html
and www.nycsubway.org/us/philsa/patco, by Peggy Darlington.

PATCO (www.drpa.org/patco/index.html), a subsidiary of the bi-state Delaware River Port Authority (DRPA), operates the 14.2-mile rapid transit line between Center City Philadelphia and Lindenwold, New Jersey. The **PATCO Hi-Speedline** serves about 41,000 weekday riders using a peak-period assignment of 102 rapid transit cars, with nine stations in New Jersey and four in Philadelphia. The line is a compilation of new construction, track connections and old lines. PATCO service into the city began on February 15, 1969.

The history of the PATCO Hi-Speedline began in 1926 with the construction of the Delaware River Bridge—later renamed the Benjamin Franklin Bridge—by the Delaware River Bridge Commission. The Commission was reorganized in 1931 as the Delaware River Joint Commission (DRJC) and was given the authority to construct a high-speed transit line between Philadelphia and Camden. On June 7, 1936, the new **Philadelphia-Camden Bridge Line** opened from 8th and Market Streets over the bridge to Broadway station (now the Walter Rand Camden Transportation Center) in downtown Camden. Through-service from Girard Avenue via the **Broad-Ridge Spur/Ridge Avenue Subway** began at that time. The Philadelphia Rapid Transit Company operated the line on behalf of the DRJC at first, followed by the Philadelphia Transportation Company in 1940.

There soon was pressure from community groups for a more integrated line linking the nearby New Jersey suburbs with the Bridge Line. With those concerns in mind, Pennsylvania and New Jersey created the Delaware River Port Authority in 1951, allowing for the construction of a more comprehensive transit line. When the DRPA took over the Bridge Line, it extended the route from Broadway station to Ashland, and then to Kirkwood (Lindenwold), the current terminal. The PTC continued to operate the line until PATCO assumed control of it.

The PATCO Hi-Speedline includes the **Locust Street Subway** in Philadelphia. This line was related to plans for a Center City delivery subway loop, along with the Broad-Ridge Spur and the **8th Street Subway**. A subway under Arch Street was also part of this plan, but it was never completed, except for a small amount of tunneling work east of Broad Street done before World War I. A three-block tunnel under Locust Street was built around 1918 but apparently was abandoned as well. Work resumed years later and the Locust Street Subway was completed in 1931 from 8th to 18th Streets. However, it was only a bare tunnel with no tracks since money to finish the line had run out during the Great Depression. A plan to extend the subway across the Schuylkill River to 49th Street in West Philadelphia came about in 1936, but the idea died due to lack of funding. The Locust Street Subway was finally completed and connected to the 8th Street Subway by 1953. This enabled through-service via those routes and the Broad-Ridge Spur. This service ended in mid-1968 when much of the line was routed into New Jersey over the Ben Franklin Bridge with the new PATCO Hi-Speedline.

The 8th Street Subway crosses under the **Market Street Subway** (the Market-Frankford El) at 8th and Market. The Hi-Speedline runs underneath the Broad-Ridge Spur along 8th Street until the two lines split at Race Street. There, the Hi-Speedline turns east, running under Franklin Square towards the Ben Franklin Bridge. It then passes above the **Frankford Elevated** by Race Street in Old City as it goes over the bridge.

PATCO has four active stations in Philadelphia: three along Locust Street and the one at 8th and Market. There is actually an abandoned station under Franklin Square. This original Bridge Line stop was opened and closed several times since the 1930s, but was permanently closed and sealed in 1979 due to low patronage and concerns about crime and homelessness. (The park is on the eastern edge of what was once Philadelphia's Skid Row area, which was mostly eliminated by the early 1970s through urban renewal projects.) There are virtually no traces of the station aboveground within Franklin Square, although it can easily be seen from PATCO trains running through it. Ventilation grates for the subway are located throughout the Square, as are a few manhole covers with "DRJC" markings on them.



The Locust Street Subway has a long downtown concourse that runs above the subway from the 12th-13th Street station to the 15th-16th Street station. This concourse intersects with the **Broad Street Subway's** concourse and is thus part of Center City's **underground pedestrian concourse network**. The Locust Street Line crosses under the Broad Street line in this area. There is a separate concourse between 9th and 10th Streets and another one under 8th Street between Chestnut and Market Streets.

The City of Philadelphia owns the 8th Street and Locust Street part of the Hi-Speedline, and receives several million dollars in annual rental payments from the DRPA. As with the Broad Street Subway and the Broad-Ridge Spur, trains run on standard gauge track (4 feet, 8.5 inches) with overrunning third rail.