

Mass Transit in Boston: A Brief History of the Fixed Guideway Systems

Ever since the settlement of Boston, mass transit has played a significant role in the development of the area and in its viability as an economic and cultural center.

CLAY SCHOFIELD

Over one million passengers are carried every weekday on Boston's mass transit system. Governed by the Massachusetts Bay Transportation Authority (MBTA), the nation's sixth-largest and oldest transit system includes bus, trackless trolley, ferry, light rail and heavy rail transit, as well as commuter rail. In addition to its historical significance as a provider of transportation, the MBTA has had a major influence on the development of both transportation and the development of communities around Boston and Eastern Massachusetts.

Mass Transit for the Colony

Mass transit history in the Boston area can be

traced to 1630 when the Massachusetts Court of Assistants issued what was probably the first "request for proposals" for public transportation services in North America. Thomas Williams was granted a charter and began operation of a ferry from Chelsea to Charlestown (service was extended to Boston a year later). This 3-mile ferry service operated for almost 200 years and tackled many of the same issues the MBTA faces today: government subsidies, changing ridership and, later, competition with highways across the harbor. This old ferry service returns periodically and today includes service from Charlestown to Boston.

When the ferry service was introduced in 1631, Boston was quite different physically than it is today. The city was a small peninsula connected to the mainland by a narrow strip of land located in what is now the South End. Since there were no bridges and only limited access to the mainland, transporting freight by ox cart from Winnismet (now Chelsea) to Boston was a two-day journey through Malden, Cambridge, Brighton and Roxbury. Beginning shortly after gaining independence from England, Boston's demand for transportation mirrored the city's growth, both in population and in geography as many of new areas around the original landscape were created by filling in Boston Harbor and the Charles River.

As Boston grew, the city's street pattern also developed in what appears to be a disorderly fashion. The most common explanation for this "disorder" is that the roads were based on cow paths and Indian trails. However, that assertion does not have much veracity; the roadway system developed to fit, or accommodate, the geography of the area. Charles Street, for example, exists where the south bank of the river once was. (In fact, the portion of Charles Street along the Boston Common is where British troops embarked for Lexington and Concord to begin the War for Independence.)

The Transit Revolution

The end of the War for Independence saw a Boston that had grown to a size where people could no longer easily walk from one area to another. Communities around Boston (suburbs) began developing. These new communities created more transportation demands for links to Boston, which was the hub of commerce for the area. In 1793, the first stagecoach began operating between Boston and Cambridge over the West Boston Bridge (renamed the Longfellow Bridge in 1906 — it now carries the Red Line subway across the Charles River). Stagecoach service quickly expanded to link New England communities to Boston. In 1835, there were over 80 scheduled stagecoach routes to Boston, with most trips taking usually a day or less. Many of these original routes exist today, now served by the extensive intercity bus services that operate out of South Station.

In the 1820s a more urban form of transportation evolved in Boston called the *omnibus*. A horse-drawn version of the street car, the omnibus was longer than a stagecoach. Seating was arranged along the sides in a fashion similar to what is used in transit vehicles today. Around the same time, New York City was experimenting with a similar type of transit vehicle that ran on wooden rails. Running on rails made for a smoother ride and allowed horses to pull heavier loads. Due to reluctance by the general public, Boston did not invest in that technology until just before the Civil War. Boston's first "street railway" began service on March 26, 1856, between Central Square in Cambridge and Bowdoin Square in Boston over the West

Boston Bridge. The street railway service was extremely successful and the population in the "streetcar suburbs" around Boston grew from fewer than 75,000 in 1850 to more than 440,000 in 1900. However, service providers jumped into the market in a very unorganized way, which led to the duplication of service as well as fierce competition for customers. This chaos resulted in the West End Consolidation Act of 1887 that combined all of the competing services into one operation with the creation of the West End Street Railway. This consolidation of services under one operator was to play an important role in the development of Boston's transit system.

Electrification of Boston's Railway

The West End Street Railway was successful in solving some transportation problems, but it was burdened by attempting to maintain a balance between its motive power (horses) and the associated emissions (while the emissions are different today, it is still a dilemma that modern transportation engineering faces). The problem was the care and feeding of the thousands of horses required for service. Other cities were encountering similar problems and were turning to innovative technologies. One popular source of motive power was the pulley system that drives San Francisco's cable cars. Although this system was adopted by several large cities in the late 1800s, it did not appear to be the answer in Boston. High costs to build and maintain the cable systems and questions about reliability during the harsh New England winters did not foster their use in Boston.

Meanwhile, Richmond, Virginia, had adopted another form of motive power: electricity. Representatives of the West End Street Railway Company were so impressed with the Richmond system that the decision to electrify all of the Boston routes was made during their visit to Richmond. Conversion began in earnest upon their return and the first electric service started on January 1, 1889, with the existing Green Line transit service on Beacon Street in Brookline being the first application. Other major cities soon followed suit and converted to electrification, based on the success seen in Boston.

Boston's electric streetcar system was off and running. Bankers and developers saw an opportunity to develop suburbs and provide new housing a short trolley ride from Boston. This growing interurban system was consolidated into the Bay State Railway Company, which at its peak (around 1911) provided service as far north as Nashua, New Hampshire, and as far south as Newport, Rhode Island.

Passenger Rail Service

Boston is a city of transportation firsts — one of the claims is that Boston was the site of North America's first railroad. As described earlier, much of the geography that is now Boston was created by filling in Boston Harbor and the Charles River. The Back Bay area of Boston was filled in by lowering Beacon Hill. Excavated materials were transported by a wooden tramway down what is now Pickney Street around 1799.

The first scheduled commuter rail service for Boston was developed 35 years later between Boston and Newton by the Boston and Worcester Railroad. Planning for intercity railroads by the Massachusetts Legislature began in 1827 when a proposal for a canal between Boston and Albany was considered to be too expensive. However, the legislature was still unwilling to fund railroad construction and therefore granted the first railroad charters to private companies for service to Providence, Albany, Brattleboro and Lowell in 1830.

In that era, prior to the development of the electric street car, the commuter rail system was primarily responsible for the development of the suburbs around Boston. Passenger service developed the area approximately 15 miles from Boston and a trip cost about as much as an omnibus trip within Boston. By 1854, ridership had reached 30,000 trips a day on the eight lines to Boston. By 1870, Massachusetts had more miles of railroad per square mile than any other state or foreign country.

To regulate the rapidly growing freight and passenger rail industry, the Massachusetts Railroad Commission was established in 1869 with broad powers to order service changes. The commission was responsible for many of the changes that made the commuter system successful. The most significant change came

in 1885 with the beginning of the consolidation of the eight different railroads. Competition in the saturated market around Boston made the consolidation necessary. The current north and south terminal stations in Boston are a result of this consolidation effort.

Commuter rail ridership reached a temporary peak in 1893 with 174,000 trips a day (compared to the current MBTA commuter rail ridership of 100,000 trips a day). Ridership began to fall for the next eight years due to competition with the electric trolley system and a recession. However, as the suburbs continued to grow and spread, ridership began to grow again and average trip lengths increased to reach the emerging suburbs. In 1920, 240,000 trips a day were made to and from Boston. That ridership number has never been exceeded.

Auto ownership in the 1920s was on the rise and became the biggest competition for ridership on public transportation (as it is today). Massachusetts auto ownership went from 233,000 cars in 1920 to 549,000 in 1925. Ridership on commuter rail dropped by 30 percent during the period.

The Great Depression had a severe effect on the railroads, which caused many of them to declare bankruptcy. In July 1938, 88 stations and 65 trains were discontinued in Southeastern Massachusetts. However, World War II, and the associated gas rationing, dramatically increased ridership and wartime profits on freight brought some railroads out of bankruptcy. After the war, ridership fell again and, as the highway system developed, the commuter rail market virtually disappeared.

In 1959, commuter rail ridership to Boston was at an all-time low. That year the Mass Transportation Commission (MTC) of the Commonwealth of Massachusetts was formed. The MTC recommended that a system of subsidies be provided by an expanded Metropolitan Transit Authority (MTA). (Founded in August 1947, the MTA later became the MBTA on August 3, 1964.) The MBTA continued to subsidize some services and eventually began to purchase railroads. The first purchase was 145 miles of Penn Central in 1973 and then 250 miles of Boston and Maine (B&M) track (including rolling stock) and the Boston Engine terminal in 1976.



FIGURE 1. Streetcars on Tremont Street (Boston's most congested) in April 1895, looking toward Boylston Street from the intersection of Tremont and Park streets. It was said at the time that it was quicker to walk on the roofs of stalled streetcars than to ride inside.

MBTA's commuter rail service operations began to expand, with B&M running the system as a sole operator under contract to the MBTA in 1977. This expansion of service, along with the purchase of new equipment that year, started the modernization of the MBTA commuter rail system. The service is now operated through a contract with Amtrak.

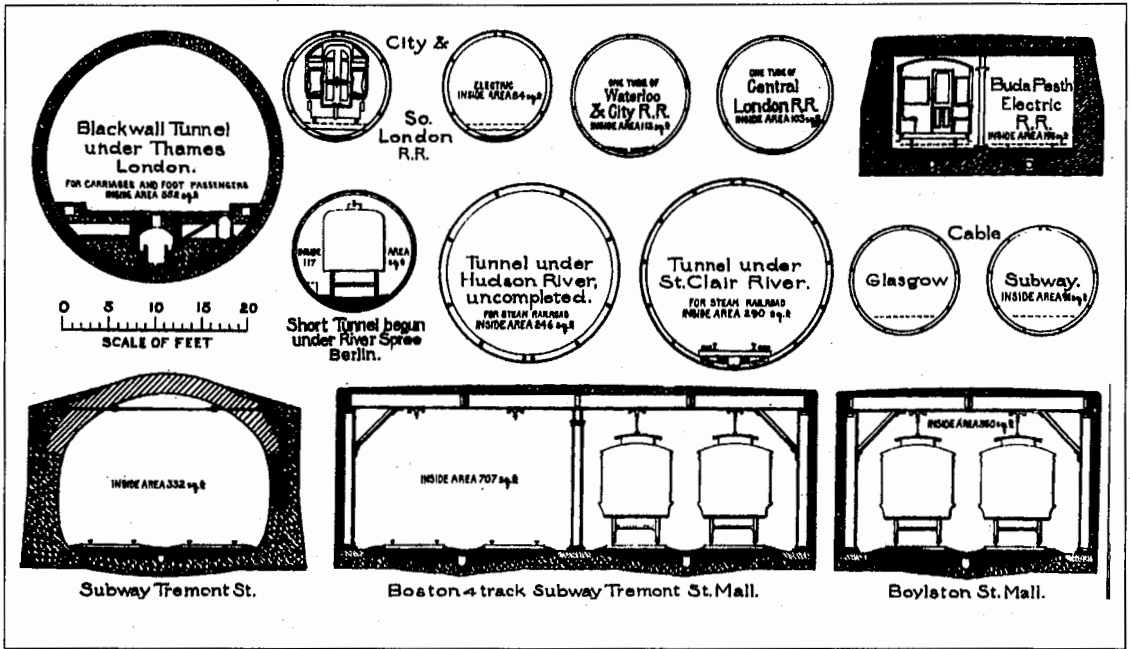
Planning for the Twentieth Century

In the late nineteenth century, Boston was still growing and downtown congestion was severe (see Figure 1). The congestion — consisting of pedestrians and street cars — begged for solution. Two alternatives became apparent: going under the streets or going over them.

The Rapid Transit Commission. The history of the MBTA includes numerous commissions,

companies, and operating entities. The Rapid Transit Commission, appointed by the Governor and the Mayor of Boston on June 18, 1891 (a precursor to the MBTA), was entrusted with the task of solving Boston's traffic congestion problem. The Rapid Transit Commission formed two entities that were created to explore transit underground and transit above ground solutions:

- The Boston Elevated Railway Company (BERY) was created on July 2, 1894, to address the alternatives recommended by the Rapid Transit Commission for elevated railway lines. (The BERY eventually became the MTA on August 29, 1947.) The BERY was authorized by the Massachusetts Legislature to be privately owned



Source: Boston Transit Commission (Second Annual Report, 1898).

FIGURE 2. The Tremont Street subway compared to other contemporaneous projects.

and to concentrate on the development of a system of elevated suburban railway lines.

- The Boston Transit Commission was to be a governmental agency responsible for the development of subway lines.

The Boston Elevated Railway Company. The development of the elevated lines in Boston began with the construction of an elevated railway from Sullivan Square to Dudley Street. That line opened on June 10, 1901, and connected to the Tremont Street subway between North Station and Boylston Street. The elevated line was extended further from Dudley Square to Forest Hills in 1909 and eventually became the Orange Line (which was revamped by the Southwest Corridor Project 70 years later). The BERY was responsible for development of the existing Lechmere viaduct, the Atlantic Avenue Loop and several other elevated structures and stations that have disappeared or will soon disappear (due to the current Central Artery/Tunnel highway project in Boston).

The Boston Transit Commission. In 1844, Robert Gourlay proposed a grand plan for the Back Bay area of Boston that included a network of suburban railway lines that would travel

through the city in subways. Gourlay's plan included subways and a subterranean hub called the *Centre Platform* below the recently completed Bulfinch State House (foreshadowing the existing Park Street Station, which would be built near the same location more than 50 years later). America's oldest subway was finally realized conceptually on April 6, 1892, with the recommendation by the new Rapid Transit Commission that a trolley subway be built under Tremont Street and the Boston Common. Construction began on March 28, 1895, and the first segment was completed on September 1, 1897 (see Figures 2 to 5). This segment ran between the Boylston Street and Park Street stations (the American Society of Civil Engineers designated it as a National Historic Civil Engineering Landmark in 1978). Both stations are still operating and the original granite head houses stand generally as they did 100 years ago. The second phase between Pleasant Street and Park Street was opened a month later and the extension under Beacon Hill from Park Street to Haymarket, Adams Square, Scollay Square, and North Station was opened on September 3, 1898.

The Boston Transit Commission continued to develop the subway system and built the

Source: Boston Transit Commission (Second Annual Report, 1898).

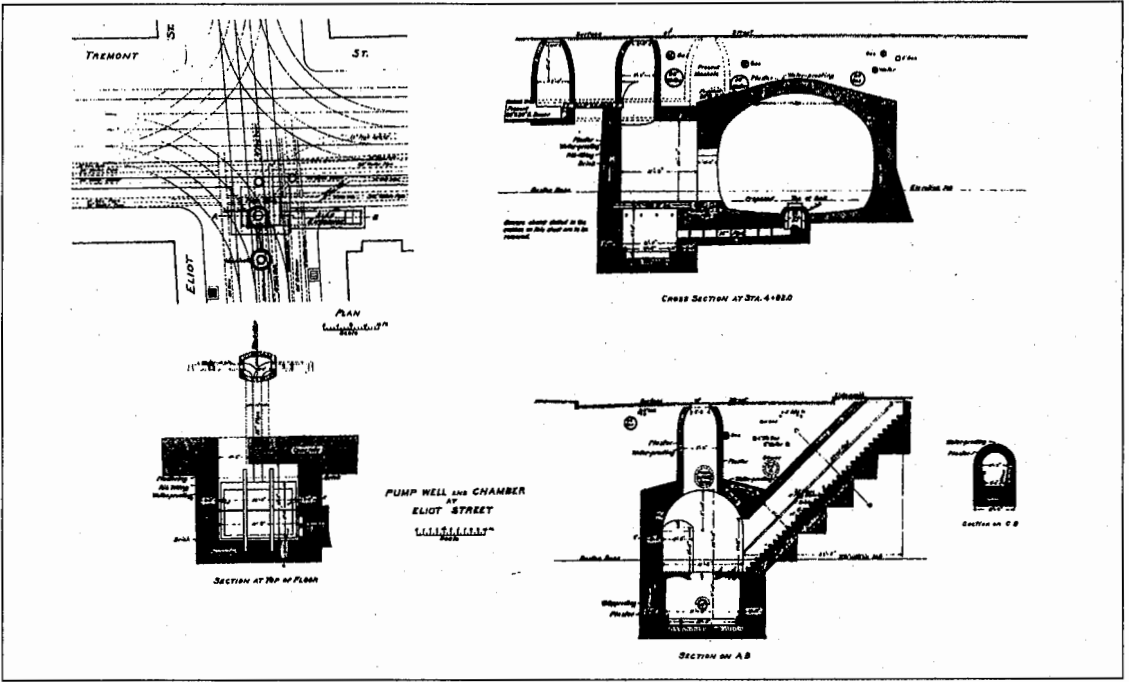


FIGURE 3. Miscellaneous construction and station details for the Tremont Street subway.

Photo courtesy of the Society for the Preservation of New England Antiquities.



FIGURE 4. Construction along the Tremont Street side of Boston Common on June 2, 1896.



FIGURE 5. Traffic on Tremont Street, August 1899, looking toward Boylston Street along Boston Common from the intersection of Tremont and Park streets. The streetcar tracks on the formerly gridlocked Tremont Street had been removed, leaving a wide-open boulevard for pedestrians and horse carts.

United States's first sub-aqueous transit tunnel under Boston Harbor. This tunnel opened on December 30, 1904, and ran from Court Street in Boston to Maverick Square in East Boston (it is still in operation as part of the existing Blue Line subway). Tunnel construction continued and a large portion of the current subway system was constructed in the period from 1898 to 1925.

Commission on Metropolitan Improvements. The transit system was growing and the railroad system had become a major mode of transportation for the general public as well as for the transportation of freight. The Commission on Metropolitan Improvements was appointed by the Governor of Massachusetts and the Mayor of Boston in 1907 to:

"[I]nvestigate and report as to the advisability of any public works in the metropolitan district which in its opinion will tend to the convenience of the people, the development of local business, the beautifying of the district, or the improvement of the same as a place of residence. It shall consider the establishment of a systematic method of internal communication by highways, the control or direction of traffic and transportation, and the location of such docks and terminals as the interests of the district may demand."

The enabling legislation called for the commission to be voluntary but authorized \$25,000 for expenses to be born by the Metropolitan Parks District.

The 1909 report *Public Improvements for the Metropolitan District* was a comprehensive and visionary work that defined a wide range of transportation and highway projects. The report included the suggestion of public/private partnerships and recommended that tax exempt bonds be made available and be guaranteed by the Commonwealth of Massachusetts. Transportation projects envisioned by the report included:

- A Comprehensive Terminal Improvement Plan for freight and passenger facilities. In recommending that a series of civic centers be built at the terminals, the report may have been instrumental in the construction of North Station, along with the Boston Garden sports facility (which began much later, in 1927). The development of North Station and the Boston Garden occurred through a series of agreements and concessions between the city, the Boston and Maine Railroad, and the Boston Madison Square Garden Corporation.
- The development of a tunnel between East Boston and Boston. This tunnel was proposed to serve the Boston, Revere Beach and Lynn railroads and, ultimately, was built as the Callahan/Sumner highway tunnel.
- The development of a connection between North and South stations. The report called for a four-track tunnel that would allow 45 second head ways, would accommodate 320 trains per hour and would serve 184,000 passengers an hour. Presently, the MBTA and Amtrak have developed a major investment study that includes a four-track connection between North and South stations, but the current study falls short of the capacity expected in 1909. This connection was also envisioned in the median of the Central Artery/Tunnel Project as it was proposed in 1974.
- Increasing the size of North and South stations to accommodate the growth anticipated in passenger traffic. The plan included double-decking South Station, since trains would soon all be electric and that would eliminate the need for a

large shed to dissipate smoke. (The MBTA expects to reach terminal capacity at both North and South stations in the near future and is seeking solutions through operational and schedule improvements.)

The 1945 Coolidge Commission Report. The Coolidge Commission was developed in 1943 to study rapid transit in the Boston metropolitan area (see Figure 6). This report addressed the urban sprawl that Boston was experiencing beyond what was served by the existing rapid transit facilities. The report described the Boston metropolitan area as "the twenty-nine cities and towns which are contained within the arc of the twelve mile radius of the center of the city." Currently, the Boston metropolitan region has grown to 101 cities and towns, with the MBTA district serving 78 cities and towns with basic transit services and serving more with commuter rail. The report recommended long extensions of the rapid transit system along the existing railroad rights of way. These extensions included the following transit lines:

- *Braintree to Arlington Heights.* This project consisted of the Braintree branch of the existing Red Line with an extension from Alewife to Arlington Heights.
- *Dedham to Reading.* This project consisted of the current Orange Line extended from Forest Hills to Dedham to the south and from Sullivan Square to Reading to the north (this portion of the extension exists as far as Oak Grove in Malden).
- *Needham and Riverside to Park Street Loop.* This segment exists as the Riverside Green Line branch. The Needham branch was to join the Riverside Line at Newton Highlands. The Needham commuter rail serves all but one of the stops contemplated by the proposed service.
- *Riverside to Woburn via the Tremont Street Subway.* This segment would have been an extension of the existing Riverside Green Line branch north of North Station along the Lowell Commuter Rail (which currently serves the proposed market between Woburn and North Station).

THE COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN TRANSIT RECESS COMMISSION
PROPOSED ALTERATIONS TO TREMONT ST. SUBWAY
PARK - BOYLSTON STATIONS

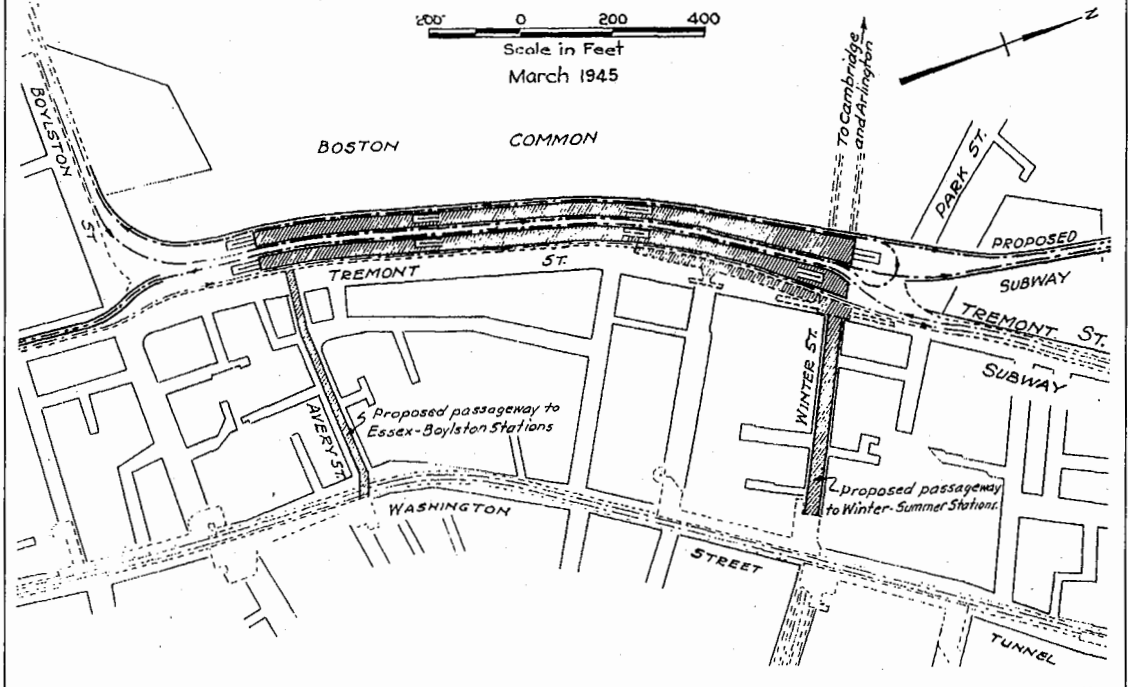


FIGURE 6. A proposed change from the Coolidge report to the Tremont Street subway.

- *Lynn to Bowdoin Square.* This segment is an extension of the existing Blue Line north from Revere to Lynn. It is interesting to note that the current TEA-21 federal transportation bill has earmarked \$50 million for an extension of the Blue Line to Lynn and beyond to Beverly.

The Boston Transportation Planning Review (BTPR). The BTPR was established by Governor Francis Sargent in 1970 to advise him on a number of major transportation issues within Route 128, the beltway around the Boston region.

Highway planning in the 1940s and 1950s included expressways into Boston such as I-95, Route 2 and the Innerbelt. The feeling in Boston, as in many other cities in the 1970s, was anti-highway and the BTPR was to find a solution to the transportation problems evolving in Boston that included a more moderate highway component. The BTPR created a public

process that incorporated the concerns of metropolitan area communities and a process for considering intermodal alternatives other than highways. The BTPR principles were incorporated into the formation of the Intermodal Surface Transportation Enhancement Act (ISTEA) and the current TEA-21 transportation legislation.

The BTPR plan included the concept of the current Central Artery/Tunnel Project, with its third harbor crossing. The study stopped the extension of Route 2 into Boston at Alewife and proposed the extension of the Red Line subway to meet Route 2. It also stopped the innerbelt highway and proposed the Urban Ring Project (currently the subject of a major investment study that is considering using the right-of-way obtained for the highway for portions of the alignment). The 1973 final report even included a provision that "right-of-way will also be reserved for high speed ground transportation between Boston and New York City," a vi-

sion that will be realized in 1999 with the electrification of the Amtrak line from New Haven, Connecticut, to Boston.

The most significant recommendation that became reality was the replacement of the highway extensions into Boston with transit solutions. That shift announced the first flexing of highway funding to mass transit, and the birth of one of the key elements in the ISTEA legislation — “flexible” funding that could be used at the discretion of the local metropolitan planning organizations.

Expansion in the Modern Era

Boston's mass transit system continued to develop in the 1950s and 1960s, but the next major era of subway construction would not begin until 1966 with the construction of the Orange Line extension from Haymarket north through Somerville, Medford and Malden. The Haymarket Project was completed in 1977 and was followed by groundbreaking for the Southwest Corridor Project on January 16, 1978. The \$740 million Southwest Corridor Project was the first transit project to be funded with highway money. This project consolidated the Orange Line mass transit, the commuter rail system and the existing Massachusetts Turnpike into an intermodal corridor. The Southwest Corridor Project relocated the elevated portion of the Orange Line along Washington Street and consolidated the transportation corridor with the existing Boston and Albany rail lines and the Massachusetts Turnpike. (This project won the 1988 ASCE award for Outstanding Civil Engineering Achievement.) The groundbreaking for the extension of the Red Line subway from Harvard Square to the Cambridge/Arlington city boundary at Route 2 (including the Alewife Garage) was held one week after the initiation of the Southwest Corridor Project. The extension of the Red Line south from Quincy to Braintree also began that year.

Old Colony Railroad. More recently, the MBTA has focused on the expansion of the suburban commuter rail system. The Old Colony line was opened in late 1997 and includes the Middleboro and the Kingston/Plymouth lines. A third line known as the Greenbush Line is currently in design. Historically, the Old Colony service began operations in 1845 but it was

discontinued in 1959 when the Southeast Expressway (Route 3) was completed and ridership declined.

Worcester Commuter Rail. The extension of commuter rail service to Worcester from Framingham was opened in 1996. The existing route is mostly single track shared with Conrail. The construction of a second track is underway and four additional stations are currently being designed.

Boston Engine Terminal. The newest Boston Engine Terminal (BET) was opened in 1997 to replace the “new” BET built in 1930 that replaced the “old” terminal dating from the nineteenth century and that was rebuilt in 1918. The newest BET was built to keep up with the growing commuter rail fleet and is designed to service the MBTA's 600 coaches and 83 locomotives. The newest BET was built on the site of the “old new” BET in Somerville.

Current Projects

The South Boston Piers Transitway. The South Boston Piers Transitway is under construction and the first segments are being built in conjunction with the Central Artery/Tunnel Project in Dewey Square at South Station. The transitway will be an underground busway that will be upgradable to light rail running from the South Station Transportation Center to the new Federal Courthouse and the World Trade Center in South Boston. The buses will travel from South Boston and serve the emerging Seaport District, including the recently proposed Convention Center, via surface routes. Construction is expected to be finished in 2002.

Massport is planning an additional route for the transitway. This route is called the Airport Intermodal Transit Connector (AITC) and would run through the Transitway and serve Logan Airport via the new Ted Williams Tunnel (the third Boston Harbor tunnel crossing constructed under the Central Artery/Tunnel Project).

Newburyport Extension. The extension of commuter rail service from Ipswich to Newburyport will be complete in October 1998. The project includes two new stations and restores service that existed on the eastern route in the nineteenth century.

Blue Line Modernization. The majority of the Blue Line stations can only accommodate four-

car trains. The system is at capacity and the project will expand station capacity for the entire line to handle six-car trains. Completion of this project is expected in 2004.

North Station "Super Station." The Orange Line and the Green Line serve North Station in a variety of ways with elevated, subway and surface lines. This project will combine all three modes into one and allow passengers coming inbound to access both the Orange and the Green lines from one platform. The two lines essentially run parallel to each other through the downtown core, and inbound passengers to the downtown area will be able to take the first available line with out much difference in the time to their destinations.

The project will also eliminate one of the last elevated structures in Boston over Causeway Street and is expected to improve the urban streetscape of this portion of the historic Bulfinch Triangle. Construction is expected to be completed in the year 2000.

Projects on the Horizon

The Silverline. The Southwest Corridor Project relocated the elevated Orange Line from Washington Street to the current subway location. The Washington Street corridor still has a very high demand for service and additional capacity options are limited. The new low-floor light rail vehicles require platforms for accessibility. Right-of-way limitations preclude building platforms in the corridor. The Silverline will be a limited-stop low-floor articulated bus service that will serve the corridor. Planned features include stations with intelligent transportation system (ITS) amenities (instead of stops) and a design approach that integrates the service with the concurrent urban design and reconstruction of the street. This project is expected to be operational by the year 2000.

Transitway II. The second phase of the South Boston Piers Transitway Project would extend the Transitway from South Station to the vicinity of Boylston Street Station. The current planning includes integration of the Silverline service that would allow the articulated vehicles to enter a portal at Boylston Street and proceed through the Transitway to South Boston and Logan Airport.

North/South Rail Link. First proposed in the 1909 report *Public Improvements for the Metropolitan District*, this project would link the two MBTA commuter rail systems into one regional system. It would also allow the extension of Amtrak's Northeast Corridor north of Boston and allow the Portland to Boston service expected in 1999 to continue south. Currently, a major investment study and draft environmental documents are being worked on for this project.

Urban Ring. The Urban Ring is a circumferential transit project around the outskirts of the Boston urban core. The project will provide access to areas currently not well served by mass transit. The project goal is to cut down on the number of connections transit riders currently use to travel cross town. The Urban Ring is in the major investment study stage, which it is expected to complete in early 1999.

Boston Transit: Some Attractions

There are numerous locations within the Boston area that are suitable for observing notable transportation projects. Among these sites are:

- *The Tremont Street Subway.* "America's Oldest Subway" is on the Green Line subway between Boylston and Park Street stations. When in the Boylston Street Station's below ground (or underground) platform, note the outside tracks emerging from underneath. Those tracks are a remnant of an old abandoned trolley line. Boston has a whole system of unused tunnels and stations such as these.
- *The Mattapan High-Speed Line.* This service is at the end of the Ashmont Red Line Branch and still uses Presidential Conference Cars (PCCs) from the 1940s. Recently, the MBTA has decided to preserve this fleet for economic and historical reasons rather than scrap them for a more modern vehicle.
- *Fields Corner.* While heading down the Ashmont Branch of the Red Line to see the PCCs, travelers will pass through Fields Corner Station. This multilevel intermodal facility needs some work but it is a very interesting station architecturally. The nearby Dudley Street Station, an in-

teresting bus facility, is also worth viewing.

- *South Station.* This station is 100 years old this year. South Station was reconstructed in the 1980s and is now an intermodal center for local bus, intercity bus, commuter rail, Amtrak, the Red Line and, soon, the Transitway. The station is in the midst of the Central Artery/Tunnel Project construction and a trip to the top of the bus terminal provides great views of the nearby construction.
- *North Station.* While the demolition of the old Boston Garden should be complete, the Central Artery construction, the Super Station construction and the Green Line viaduct may be of some interest. The new

North Station Railroad Terminal and the Fleet Center are also worthy of note.

- *Ferry Service.* There is no cheaper way to get a Boston Harbor cruise. Try the 1631 service from Rowes Wharf to Charlestown for a sense of colonial history.

CLAY SCHOFIELD is currently Deputy Director of Planning at the Massachusetts Bay Transportation Authority and a member of the BSCE Transportation Technical Group. He started his 19-year transportation career in San Francisco working for the California Department of Transportation (Caltrans). He then worked for various West Coast consulting firms designing and building highways. He is a graduate in Civil Engineering from the University of Lowell.