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D O W N T O W N

Its Rise and Fall, 1880–1950

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*Frontispiece: Lower Manhattan from New York harbor (*King's Views of New York, *Boston, 1915)*

To Donald and Dorothy Gonson

2 Derailing the Subways: The Politics of Rapid Transit

Downtown Boston, the Massachusetts Rapid Transit Commission of 1892 pointed out, was "the heart of the city," "literally, as well as metaphorically." As Mayor Nathan Matthews, Jr., chair of the commission, observed in 1894, it was there, on a "few acres between the Common and the harbor," that Greater Boston, a community of roughly one million, did its business. It was this district—a district, said Matthews, that was "smaller, more contracted, more congested than any similar part of any other large city in the world"—to which hundreds of thousands rushed in every morning and from which they rushed out every evening. Matthews and the other commissioners believed that people would routinely go downtown, provided they could get there quickly and conveniently. And if so, it followed that accessibility was the key to the well-being of downtown. It was accessibility that gave value to business property, declared Benjamin F. Butler, a former Civil War general, ex-congressman from Massachusetts, and sometime elevated railroad promoter. And it was accessibility, more than anything else, that concerned downtown businessmen and property owners. "Bring the people to our doors," J. D. Wallace urged a member of the Chicago city council, "and we will do the rest."[1]

By virtue of the separation of businesses and residences, few Americans lived within walking distance of downtown. To get there, some—5 to 10 percent in Philadelphia and 10 to 15 percent in New York—took ferries. Others—more than 20 percent in Boston and Minneapolis—came by steam railroads, most of which ran between the cities and the suburbs. But outside of New York, where many rode the elevated railroads, the great majority, perhaps as many as 80 percent in some cities, went downtown on the street railways (or streetcars). These vehicles, two-thirds of which were drawn by horses until the 1890s, when they were replaced by electricity, ran along tracks that radiated from the business district to the residential sections. Commonly likened

to the arteries of the body and spokes of a wheel, the street railways made downtown accessible. By carrying tens and even hundreds of thousands of people to the center, they made possible the huge department stores, tall office buildings, and other large-scale downtown enterprises.[2] In other words, they made the separation of businesses and residences a hallmark of the American metropolis in the late nineteenth century.

The street railway first appeared in the 1830s. After a sluggish start, it caught on in the 1850s and 1860s and supplanted the omnibus, a slow, unreliable, and uncomfortable stagecoach, as the primary means of mass transit in urban America. The industry expanded at a stupendous pace during the next two decades. By 1890 close to 800 companies operated more than 32,000 streetcars along almost 6,000 miles of line and carried roughly two billion passengers, nearly four-fifths of them in the nation's twenty largest cities. In no other country were the street railways so highly developed and so heavily patronized. Philadelphia, the third largest city, had 277 miles of street railways, about average for an American city of its size, but more than three times as many miles per capita as Berlin, more than five times as many as Paris, and more than eight times as many as London (excluding the Underground). Philadelphians rode the street railways slightly less often than the residents of other American cities. Yet what transit engineers would later call the riding habit—the average number of rides per capita per year—was nearly twice as high in Philadelphia as in Berlin, more than twice as high as in London (the Underground included), and almost four times as high as in Vienna. During the 1890s, when the street railways were electrified, the riding habit soared in Philadelphia and other American cities, doubling in some, tripling in others, and reached levels unmatched anywhere else in the world.[3]

Although a great improvement over the omnibus, the street railway left much to be desired. The cars were very crowded, especially during rush hour. "People are packed into them like sardines in a box, with perspiration for oil," wrote the *New York Herald* in 1864. "The seats being more than filled, the passengers are placed in rows down the middle, where they hang on by the straps, like smoked hams in a corner grocery." Passengers are packed so tightly, a New Yorker remarked, "that no man can tell which legs are his own, and which his neighbor's." The cars were badly heated in winter, poorly ventilated in summer, pervaded by "the fumes of bad rum and worse tobacco," plagued by pickpockets, and prone to occasional accidents and periodic breakdowns. Worst of all, the streetcars were very slow, running only four to six miles an hour under normal conditions and one to two miles an hour in heavy traffic. They were so slow in New York that many residents spent two hours or

more a day commuting to work. It was easier to cross the Great American Desert than Manhattan Island, the *Tribune* quipped. A Cambridge resident complained that it took him as long to get to downtown Boston, five miles away by streetcar, as it took his friends in Worcester, forty miles away by steam railroad. The electric railways went much faster than the horse cars in the outlying areas, but they too slowed to a crawl in the business districts. Jammed up, one on top of the other, they were "slower than a parade of cripples," said the *California Outlook* in 1911.[4]

As early as the mid 1860s some New Yorkers began to voice doubts that the street railways—or, for that matter, any form of surface transit—could be relied upon to carry people quickly and comfortably between the residential sections and the business district. During the next two or three decades these doubts grew, not only in New York, but also in Boston, Chicago, Philadelphia, and other cities. Fueling the doubts was an awareness that most of the main streets were already lined with streetcar tracks, on many of which, a Bostonian noted, "there can hardly be a place found between two cars from morning to night." The streetcar companies could have built additional tracks on the surface, but it would have been very expensive. In many cases the cost of widening the street alone would have been prohibitive. It would have been self-defeating, too. Additional tracks would have meant more streetcars; and more streetcars would have meant heavier traffic. Thus during the late nineteenth century, first in New York and later in other cities, many Americans came to the conclusion that there was only one way to transport people to and from the business district. And that was to separate the through traffic from the ordinary traffic, and especially from the carts, wagons, and carriages that clogged the main streets and blocked the major intersections. The only way to do that was to build a rapid transit system, a system that ran (on its own right of way) above or below the ground—in other words, a system of elevated railways or subways.[5]

The els came first. Built by private enterprise, they went up in New York in the 1870s and 1880s and in Brooklyn and Chicago not long after. Several companies made plans to erect els in Boston, Philadelphia, and other cities. If these plans had been carried out, most big cities would have had rapid transit by the late nineteenth and early twentieth centuries. But els aroused furious opposition, in the face of which advocates of rapid transit focused their efforts on promoting subways instead. During the late 1890s they prevailed on public authorities to build the nation's first subway in Boston and to begin building its largest in New York. Even before the New York subway was completed, Americans had come to believe that if rapid transit was to be built it should be

built underground. This was a momentous turn of events, one that was not lost on downtown businessmen and property owners in cities other than Boston and New York. And starting around the turn of the century, they mounted campaigns to build subways in Philadelphia, Pittsburgh, Cleveland, Cincinnati, Detroit, Chicago, St. Louis, San Francisco, Los Angeles, Seattle, and other big cities. The downtown business interests were confident that it was only a matter of time before they succeeded. But by 1930, if not earlier, it was clear they were wrong. Their campaigns failed everywhere but in Philadelphia.[6] And they failed for a number of reasons other than the development and proliferation of private automobiles in the first third of the twentieth century.

A good place to start the story is New York in the mid 1860s, when many residents, fed up with the street railways, decided that the city badly needed some kind of rapid transit. What kind was anything but clear. Of the scores of ingenious (if not necessarily practical) plans devised between the mid 1860s and mid 1870s, some called for els, others for subways, and at least one for both. To complicate matters, some els stood on columns, others on a viaduct; some subways were covered, others open; and though most lines ran over or under the streets, some even went through buildings. Few New Yorkers knew what to make of these plans. Even the experts were divided. After reviewing dozens of plans in the mid 1860s, a special commission appointed by the New York State Senate came out in favor of subways, partly on the grounds that els were as yet untested. Less than a decade later a blue-ribbon committee of the American Society of Civil Engineers reported that subways were too expensive and recommended els instead. Some New Yorkers insisted that it did not matter whether rapid transit went above or below ground. The issue, they held, was not els versus subways—"Both are good," wrote the *Times* in 1866; either will do, said the *Real Estate Record and Builders' Guide* two years later—but rapid transit versus surface transit.[7] It might not have mattered much to them, but it mattered a great deal to others, especially the promoters of the proposed els and subways and the property owners along their routes.

For a while it seemed that New York would follow the lead of London, where private enterprise had just constructed the world's first subway. In 1864, a year after the London Underground opened, the Metropolitan Railway Company, formed by Hugh B. Willson, a Michigan railroad man, and backed by John J. Astor, Jr., and other wealthy New Yorkers, asked the state legislature for a charter to build a subway under Broadway, the city's busiest and most congested street. To the dismay of the *Times* and others who believed that a

subway would have been "an immense boon to the city," the company's bill died in committee. The legislature passed a similar bill at the next session, but the governor vetoed it. And though the company kept trying, it was unable to obtain a charter. The Metropolitan's efforts were thwarted by the vigorous opposition of the powerful omnibus and streetcar companies, which feared that a subway would siphon off much of their business. No less important were the strenuous objections of the Broadway merchants and property owners, who were worried that the construction of the subway would block access to their stores and undermine the stability of their buildings. Exacerbating the Metropolitan's difficulties were the lobbying efforts of rival companies, which were seeking charters of their own to operate railways on, above, and under Broadway. If all this were not enough, some New Yorkers, including Alfred W. Craven, engineer of the Croton Aqueduct, were afraid that the excavation for the subway would disrupt the city's water supply and damage its sewer system.[8]

During the late 1860s and early 1870s other companies picked up where the Metropolitan left off. Among them were the New York City Central Underground Railroad Company, the New York City Rapid Transit Company, and the Metropolitan Transit Company, which proposed to build a combined underground, surface, and elevated railway along a private right of way through the middle of blocks. In the battle for a charter, these companies had two advantages over the old Metropolitan. They were willing to operate on streets other than Broadway, thus avoiding a major source of opposition. And they had the strong support of uptown property owners, who believed that rapid transit would enhance the value of their real estate. A few of these companies were able to obtain a charter, but none was able to raise the capital. A subway would cost a fortune, around $1–2 million per mile, or nearly twenty times as much as the most expensive streetcar line. And though the subway would be much faster than the streetcar, it would also be less pleasant and possibly more dangerous. Thus no one knew how much business a subway would do, especially if it did not run along Broadway. Indeed, no one even knew whether New Yorkers would willingly descend into what one journal called "a smoky, stinking, noisome hole in the ground." Given this uncertainty, investors were reluctant to get involved in subways, especially when the London Underground, which was very heavily patronized, paid only 4 percent a year, a small return by American standards.[9]

Short of capital, often beset by managerial problems, the companies foundered. By the early 1870s they had nothing to show for their efforts other than a short experimental tunnel built by the Beach Pneumatic Transit Company, whose chief distinction was that it planned to use compressed air rather

than steam to run its trains. If prospects for a subway were dim, prospects for an el were not much brighter. The efforts to build an el, which began in the late 1860s, were opposed "at every step," wrote an official of the U.S. Census Office.

> Horse-railroad companies and property-holders brought suits and laid injunctions at every move. Charters were declared unconstitutional, and cases were carried from tribunal to tribunal. The community cried out in anguish that the noise would kill business, the unsightly objects destroy the beauty of the city, and the moving of trains in the air frighten horses and endanger human lives. Neither the Erie canal nor the Croton aqueduct encountered more fierce and determined opposition.[10]

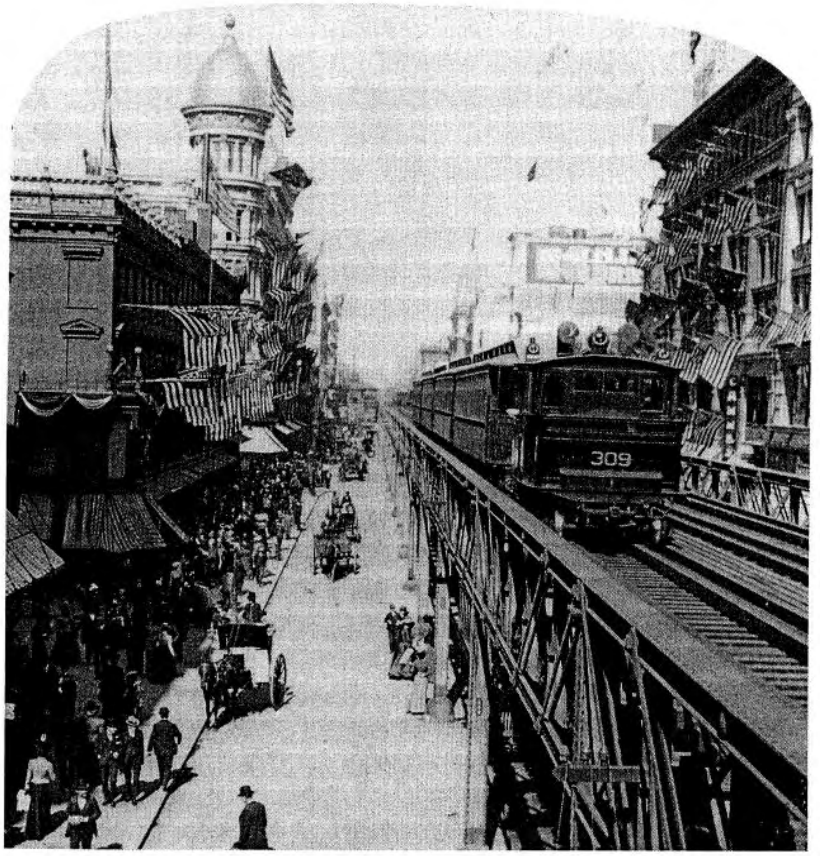
The opposition was too much for Charles T. Harvey's West Side and Yonkers Patent Railway, the world's first elevated railroad. With the approval of the state legislature and the backing of local businessmen, Harvey built a short one-track el, driven by cables attached to stationary steam engines, along Greenwich Street in 1868. But in the attempt to extend the line along Ninth Avenue to the New York Central depot at Thirtieth Street, the railroad had trouble raising capital. It was also plagued by frequent breakdowns, occasional accidents, and a stream of lawsuits, most of them brought by rival streetcar companies and abutting property owners. Late in 1870, by which time Harvey had been forced out of the company and his cable system had been discredited, the West Side and Yonkers went out of business.

Despite this inauspicious start, efforts to build els continued. In the forefront were two companies, the New York Elevated Railroad, the successor to the defunct West Side and Yonkers, and the Gilbert Elevated Railway, which was chartered in 1872 and renamed the Metropolitan Elevated a few years later. Both companies ran into heavy resistance, especially when they proposed to operate steam-powered railroads above some of the city's major north–south thoroughfares. Much of it came from abutting property owners, who feared that the els would leave the streets dark, dirty, and noisy, doing severe damage to their residences and businesses (for which, under existing law, they were not entitled to compensation) and lowering the value of their holdings. Also active in the opposition were rival streetcar and transit companies, one of which was headed by William Marcy Tweed, the city's most powerful politician. But the New York and the Metropolitan, whose leaders included some of the city's most successful businessmen, also had plenty of political clout. They had good access to capital, too. Exploiting the growing

pressure for rapid transit in New York, hammering away that the els would reduce crowding in lower Manhattan and stimulate development in upper Manhattan, they overcame the political and legal challenges to their plans. Commenting on these developments, the *Real Estate Record and Builders' Guide*, a strong advocate of rapid transit of whatever kind, predicted in 1876 that "the triumph of the elevated roads is as certain as any event of the future."[11]

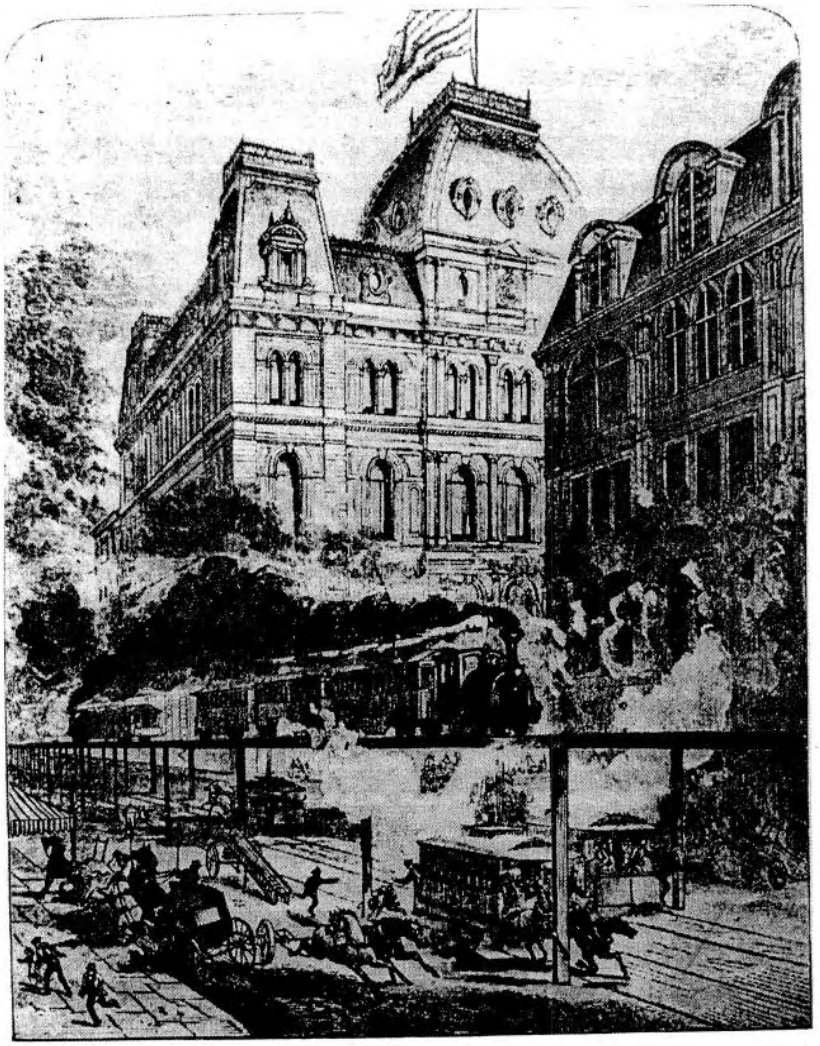
The prediction was on the mark—at least in the short run. During the late 1870s the New York Elevated extended the Ninth Avenue el and built the Second and Third avenue els. And the Metropolitan Elevated erected an el above Sixth Avenue. By 1880 New York City had the nation's first rapid transit system (and the world's only elevated railway lines). From the very start, however, the els aroused intense controversy. Critics complained that they blocked the sunlight, creating beneath them what the *Times* called "a perpetual city of night." Hot cinders dropped on passersby, as did oil, grease, and tobacco juice. Coal dust coated everything, especially in summer when windows were open. Worst of all was the noise—the rumbling of trains and screeching of brakes—which made it hard to do business and even harder to sleep. The els turned pleasant streets into "a howling wilderness," critics charged, driving property values down 25 to 50 percent. All told, a New York grand jury declared, the els were "a great calamity," an "unparalleled invasion of property rights and of public comfort, safety, and health." Supporters of the els conceded that they had injured some New Yorkers but contended that "where one has been injured, a hundred others have been benefited." As the *Real Estate Record* pointed out, they were "the most expeditious, cheapest and most comfortable" form of local transit in the world. They were much faster than streetcars, much more pleasant than subways. And they were extremely popular. Ridership jumped from 2 million in 1876 to 60 million in 1880 and soared to more than 180 million by 1890.[12] For some riders the els provided a way to shorten the journey to work, for others a chance to live in hitherto remote and relatively cheap sections of the city.

Inspired by the great success, not to mention the huge profits, of New York's elevated railways, local businessmen mounted or renewed efforts to build els in other cities. Their spokesmen, usually supported by owners of outlying property and residents of nearby suburbs, claimed that els were desperately needed. Streetcars were too slow. And steam railways—which only served the distant suburbs and, in the interest of public safety, were often barred from the business district—were inconvenient. Spokesmen for the els also claimed that they would be designed to minimize their impact on the city's appearance, the surface traffic, and the abutting property. They would



New York's Sixth Avenue el, 1899 (© Collection of the New-York Historical Society, neg. no. 50220)

still be a little noisy, a Boston lawyer conceded, but a little noise was a normal feature of urban life, especially in a thriving business district. The els would raise property values on some streets. If they lowered them on others, the railway companies would compensate the owners—something that the courts required them to do in New York in 1882. Supporters also stressed that, by making outlying districts accessible and thus helping working people escape the overcrowded and unsanitary tenements, the els would improve public health. By enabling more and more Americans to reside on the periphery and work in the center, they would make the metropolis more pleasant for living and more efficient for doing business.[13]



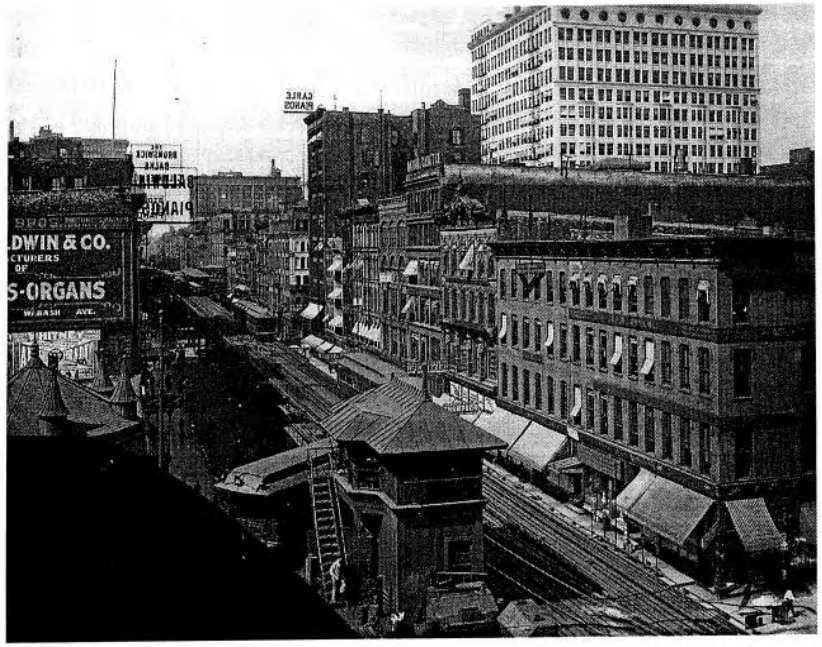
The hazards of elevated railways, 1877 (© Collection of the New-York Historical Society, neg. no. 17688)

Despite these claims, the efforts to build els generated a storm of opposition, much of it from abutting property owners and local streetcar companies. Their spokesmen argued that streetcars, combined with steam railroads, were more than adequate. Worse still, another Boston lawyer declared, the streetcars would be driven out of business by the els. Els might be necessary

in New York, but only because the island was so long and narrow that much of the traffic was concentrated along a few routes. And New Yorkers paid a high price for them. Drawing on statements by residents and observations by visitors, the opposition charged that els, no matter how well designed, would disfigure the city, obstruct the surface traffic, and, by leaving the streets below dark, dirty, and noisy, lower property values. They would also stunt the growth of children and cause hysteria, deafness, and paralysis in adults. If steam railroads were too dangerous to be allowed to run along the downtown streets, they were certainly too dangerous to be allowed to run above them. Some opponents also argued that by enhancing access between the periphery and the center the els would help the downtown merchants at the expense of the outlying merchants—although, interestingly, many downtown businessmen whose shops and office buildings were on the proposed routes protested that the els would drive away customers and tenants.[14]

Although well aware of the powerful opposition to els, many advocates of rapid transit believed it was only a matter of time before most big cities followed New York's lead. Some did. During the 1880s three els were built in Brooklyn, then an independent city (and the nation's third largest). And during the 1890s four were erected in Chicago, where, one alderman said, "every one is in favor of an elevated road, but . . . wants it on the other fellow's street." The companies circumvented the opposition by building the els through private property, usually in alleys, behind or between rows of houses, instead of along public streets. Sometimes they bought the property; sometimes they made deals with the owners, many of whom were willing to give their consent if the price was right. But most big cities did not follow New York's lead. In Boston the opposition blocked one plan after another in the 1880s; and in the early 1890s it prevailed on the voters to turn down a proposal to run an el along a viaduct through an alleyway in the business district. A coalition of property owners, streetcar companies, and steam railroads, which ran the commuter trains, thwarted attempts to build an el in Philadelphia. And nothing came of efforts in St. Louis.[15] Thus by the late 1890s there were only three elevated railway systems in the United States—one in New York, the largest and busiest in the world, another in Chicago, the second largest and busiest, and the other in Brooklyn, which became part of New York in 1898.

During the next three decades private companies, public agencies, and transit consultants put forward proposals to extend the existing systems in New York and Chicago and to build new systems in other cities. (More often than not they were included in comprehensive rapid transit plans—which called for the construction of subways as well as els.) Despite the dismal



Chicago's Wabash Avenue el, 1907 (Courtesy of the Library of Congress)

record of earlier efforts, there was reason to believe that these proposals might succeed. The demand for rapid transit was stronger than ever. Even if the railroad companies were obliged to compensate the property owners for damages, it was still much cheaper to build above ground than underground—except perhaps in the heart of downtown, where what one railroad executive called "the prohibitive value of abutting property" precluded the construction of els. Also, els were far less objectionable now. Having converted from steam to electricity, in Chicago and Brooklyn in the late 1890s and in New York a few years later, they no longer used steam locomotives, the source of the smoke, cinders, and dust that outraged nearby residents and businessmen. Els could be made even less objectionable in the future, less ugly by encasing the structures in concrete and less noisy by laying the rails in ballast. At a moderate increase in cost, it was possible to build els that were clean, quiet, and attractive, more like the Berlin el, widely regarded as the world's finest, than the New York el.[16]

But when Americans thought about elevated railroads, what came to mind was the New York el. And by 1900 it had a terrible reputation, the result of two

decades of relentless, often virulent criticism of the railroad and its management, the Manhattan Railway Company, which had leased the New York and the Metropolitan lines in 1880 and monopolized rapid transit in the city for the next twenty years. The New York el's reputation turned Americans everywhere against elevated railroads. In Pittsburgh, for example, supporters of rapid transit told Councilman Enoch Rauh in 1919 that "we can build elevated roads cheaper [than subways]." True enough, he replied. But when he asks them, "would you like to have an elevated road running along in front of your house," they "always say no." The *Los Angeles Times* opposed els too. Spearheading a campaign in 1926 against the Pacific Electric railway's proposal to run an el into downtown Los Angeles, the *Times* attacked elevated railways with the malevolence it usually reserved for labor unions. Also opposed to els was the St. Louis Building Owners and Managers Association, a group of downtown real estate interests that believed that the disadvantages of els were so obvious that it did not spell them out. It simply cited the experience of New York and Chicago, saying, "That in itself is sufficient."[17]

In view of the deep-seated opposition to elevated railways, most Americans doubted that any more els would be built—except perhaps in sparsely settled outlying sections or along private rights of way. They had outlived their usefulness. In the words of Lawrence Veiller, secretary of the City Club of New York (and a leading tenement house reformer), they were "a thing of the past." By and large they were. During the early twentieth century a few els were built in New York, but only in Brooklyn, Queens, and the Bronx, the so-called outer boroughs. A few others, most of which started in the outlying sections and went underground when they approached the business district, were erected in Boston and Philadelphia. But no more els were constructed in Chicago. And despite strong efforts in other cities, no new els went up elsewhere. Perhaps the most compelling evidence that elevated railways were "a thing of the past" was the movement to demolish them that was launched by abutting property owners in Boston in the 1910s and in New York a decade later.[18] This movement not only underscored the precarious position of the existing els but also reflected the widespread view that henceforth rapid transit should be built underground.

To understand why, it is necessary to go back to the late 1870s, by which time the initial interest in subways had waned in New York. As the *Real Estate Record and Builders' Guide* observed in 1881, "no sane capitalist would agree to put his money into an enterprise so very costly, which would be certain to prove a failure as a competitor against the elevated roads." But as time passed,

many New Yorkers grew disenchanted with els. They were not only dirty, smoky, and noisy; they were also extremely crowded. "It is not now a question as to whether there are seats enough in a car," complained one critic, "but how many people can be packed, like sheep in a pen, consistent with opening or closing the doors or gates." The els were extremely slow, too. The trains creep along, one behind the other, grumbled another critic. "Call that rapid transit?" he asked. To many New Yorkers it seemed that the els could not provide adequate transportation unless they occupied "nearly all the longitudinal streets in the lower half of the city"—and maybe not even then. As disenchantment with els grew, interest in subways revived—and not only in New York but also in Boston, Philadelphia, and Chicago.[19]

Subways, their backers had long contended, were far superior to els. They were faster and safer. They were less likely to fall off the rails; and if they did, they were less likely to injure or kill the passengers. Subways were also more reliable and comfortable than els. They were protected from snow and ice in winter, from rain and storms in summer, never too cold or too hot. If built in shallow tunnels, subways were more accessible than els, too. Subways, their supporters argued, did not mar the city's appearance or obstruct the surface traffic. Unlike els, with their large columns and wide railbeds, they were more or less invisible. No reasonable person would be offended or inconvenienced by their small, inconspicuous entrances. Perhaps most important of all, subways did not drop hot cinders, spew out dense smoke and noxious fumes, produce a nerve-wracking roar, and leave the streets in perpetual darkness. Nor did they do irreparable damage to the abutting property. If anything, subways increased values along their routes. During the late nineteenth century many Americans found these claims more and more persuasive. And by the late 1880s and early 1890s some thought it was time that American cities followed the lead of London and a few other European cities that were expanding, constructing, or considering underground rail systems.[20]

Hitherto the attempts to build subways had been stymied by political and economic constraints. The political constraints were very strong in New York, where a few more efforts were made to construct a subway beneath Broadway in the 1870s and 1880s. The Broadway merchants, among the most powerful businessmen in the city, strongly opposed these efforts, largely on the grounds that construction would block surface traffic and thus drive away customers. To block Broadway for one day would be "a great misfortune," they declared; to block it for two years, the time it would take to build a subway, would be "an irreparable calamity." The situation was much the same in Boston, where an attempt was made to construct a subway under Tremont Street in the early

1890s. Many merchants, fearful that construction would drive business to other streets, strenuously objected. "What, we ask," said one, "is to become of the business of hundreds of the merchants along the route during months if not years while the streets are impassable for travel? Are they to put up their shutters and go into the bankruptcy courts for assistance?" These businessmen were generally supported by the street and elevated railways, which saw subways as unwelcome competition. Also in the opposition were many outlying real estate owners, who believed that els still offered the best hope for rapid transit and feared that subways would impede their construction and expansion.[21]

The political constraints were powerful. But as the history of the els revealed, they could have been overcome. What could not have been overcome before the 1890s were the economic constraints. Subways were very expensive. During the late nineteenth century engineers estimated that they would cost $2–3 million a mile, depending on the location, the subsurface, and the water level—a vast sum at the time. By the early twentieth century the estimates were up to $2–4 million a mile, and even higher in and around the business district. (Disinterested experts held that subways were two to four, or even four to eight, times as expensive as els, depending on whether the els were built on the periphery or in the center, whether the railbeds were open or ballasted, and whether the property damages were low or high. Interested parties, like Cyrus W. Field, head of the New York Elevated, claimed that subways were ten to twelve times as expensive as els.) With such a tremendous capital outlay required, subways would have to generate an enormous amount of revenue to attract investors. This, well-informed financiers, like Jacob Schiff, a New York investment banker, doubted they could do.[22] For down through the 1880s it was widely believed that most Americans would not ride subways and that even if they did the number of riders would not be large enough to produce the necessary revenue.

The belief that most Americans would not ride subways had two principal sources. One was what a Chicago resident called a "horror of tunnels," a horror that grew out of the widespread association of the underground with the underworld, the world of the dead. Subways, one Bostonian said, were like "a long coffin underground." They gave him a "buried-alive feeling," wrote another. Testifying in opposition to a proposed subway, yet another Bostonian asked the members of a state legislative committee, "gentlemen, do you want to go underground [before] your time comes, [unless] it is necessary? I don't." Another source was the common perception, based in some cases on firsthand experience with the London Underground and the New York Central

Railroad tunnel under Park Avenue, that subways were invariably "dark, damp, [and] dank," "smoky and unsavory," and very noisy. The noise of the London Underground, wrote John E. Fitzgerald, a member of the Massachusetts Rapid Transit Commission of 1892, was like "the roaring of the ocean after a storm." To many Americans it seemed hard to believe that people would willingly "plunge from the [warmth] of our sunny streets in midsummer to the icy chill of these damp sub-cellars," and travel in "a place where the sun never shines," a place more suitable for the dead than the living. Especially when they could take the streetcars and, in New York, the els—which, in spite of the crowds and delays, were "a pleasure to ride," wrote one observer.[23]

During the 1890s, however, popular attitudes changed. By far the greatest impetus was the growing awareness that subways could be driven by electricity rather than steam. In 1890 a series of technological breakthroughs culminated in the opening of the world's first electric-powered underground railroad in London. The new underground had a great impact not only in Europe, where several cities soon followed London's lead, but in America as well. On the basis of several first-hand reports, most of which were highly favorable, many Americans were convinced by the mid and late 1890s that electric power was feasible, technically and financially, and that it was far superior to steam power. Speaking of a proposed electric-powered subway for New York, a subway that would be "run by electricity, lighted by electricity, ventilated by electricity," J. Hamilton Hunt, a West Side real estate agent, predicted that "it would be as different from the old, dark, smoky tunnels as daylight is from darkness." Alexander E. Orr, a prominent businessman and chairman of the New York Rapid Transit Commission of 1894, went even further, telling a British royal commission that if electric power had been available earlier subways would already have been built in New York and els would probably not have been built at all.[24]

From the perspective of riders, electricity had many advantages over steam. It was much safer—no mean thing in a society where a series of memorable disasters in Cincinnati, Hartford, and other cities in the mid nineteenth century had left people fearful of boiler explosions and terrified of the prospect of one in a tunnel. Another advantage of electricity was that it did not give off sulfuric fumes, the stench of which pervaded the old London Underground. The air would be as wholesome in electric-powered subways as in homes and schools, pointed out Professor S. Homer Woodbridge of MIT, and even more wholesome than in churches and theaters. Electric-powered subways would also be far brighter—"as light as day," said William Steinway, another member of the New York Rapid Transit Commission of 1894—and less noisy than steam-powered subways. Electricity would revolutionize rapid transit, wrote William Barclay Parsons, chief engineer of the New York Rapid Transit Commission, at the turn of the century.

> When the people realize that they secure a railway well lighted, well ventilated, with a temperature cool in summer and warm in winter, whose operations at all times will be constant and free from interference by fires, congestion or street traffic, fogs, snows, or the other causes that so frequently interfere with the surface and elevated lines; and to secure this in a space not now used at all, and without encroaching on the already congested street surface, or without interfering with light, air, and access to abutting property, a new era in urban transportation will be begun.[25]

Indeed, "a new era in urban transportation" had already begun, at least in Boston and New York. In 1894, just a year after Bostonians had voted down the so-called alleyway el, the Massachusetts legislature authorized the Boston Transit Commission to build the nation's first subway. Roughly 1.5 miles long, the subway was designed to run under Tremont Street through the core of the retail district. Despite heavy opposition by Tremont Street merchants and the West End Street Railway Company, which monopolized the city's surface transit business, the voters endorsed the scheme by a narrow margin. Completed in 1898, the subway was leased to the West End Company, which ran its electric streetcars through it. Also in 1894, only three years after the New York Rapid Transit Commission of 1891 had failed to find anyone to bid on a franchise for a subway, the rapid transit commission of 1894 proposed that the city build a much larger subway that would run for about twenty-one miles under Broadway and up the West Side. The voters overwhelmingly approved the proposal later in the year. After a series of legal and political challenges, construction was started in 1900 and completed a few years later. From the outset both subways were very popular—the Boston subway, an integral part of the West End Company's street railway system, carrying tens of millions of riders a year, and the New York subway, an independent system operated by the Interborough Rapid Transit Company (IRT), hundreds of millions.[26]

By the early 1900s the notion that Americans would not ride subways was well on the wane. So was the belief that the number of riders would not be large enough to produce the necessary revenue. This belief had rested on two assumptions. The first was that all but a few American cities were too small, an assumption based on the rule of thumb that it took a population of at least one million to support a subway. As late as 1890 only two American cities

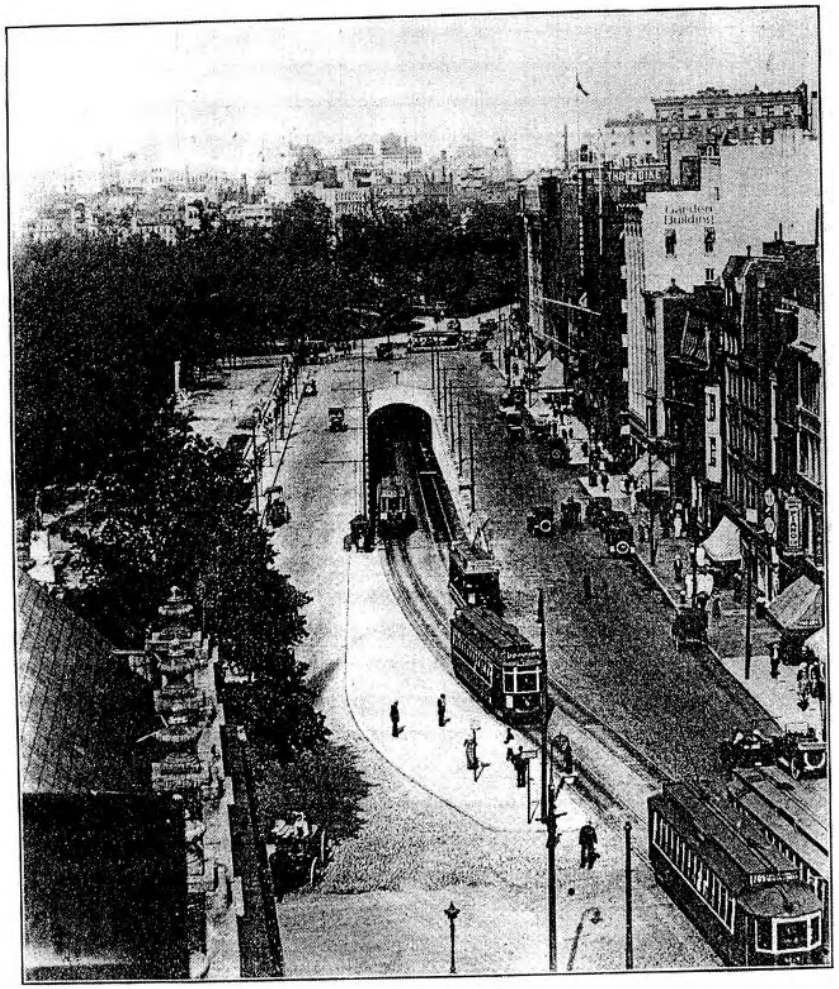
other than New York had a million people. With the exception of Brooklyn, which was in every way except legally part of New York, no other city had 500,000 people; only three others had 400,000, and only one other 300,000. By contrast, London, at that time the only city in the world with a subway, had roughly four million people. The second assumption was that in few if any cities would residents ride the subway often enough. Although the riding habit was very high in America, in no city except perhaps New York was it high enough to support a subway as well as the streetcars.[27] Moreover, a great many potential riders—among them short-haul riders, riders who were reluctant to travel underground, riders who lived far from the subway stations, and riders who were satisfied with the streetcars—would probably not use the subways.

By virtue largely of the work of a handful of transit engineers, of whom Bion J. Arnold of Chicago was the most influential, both assumptions were largely discredited soon after the turn of the century. According to the engineers, a city's capacity to support a subway depended not only on its size but also on its rate of growth. A function of birthrates, death rates, migration flows, and industrial developments, the rate of growth was very hard to predict. But extrapolating from population trends in large American and European cities, Arnold and his colleagues came up with a set of principles according to which big cities would continue to grow, but at a steadily decreasing rate. As the data on which the trends were based were drawn largely from the nineteenth century, a century of stupendous urban growth, the projected growth rates were very high. And so were the population projections. At the turn of the century Arnold predicted that Chicago, which then had fewer than two million people, would have more than five million by 1950. Two decades later, by which time the city had grown to about three million, Charles H. Wacker, a prominent businessman, forecast that Chicago would reach eighteen million in fifty years. Other studies done in the 1910s and 1920s concluded that other American cities (or metropolitan areas) would reach one and even two million in the next two or three decades.[28] If the studies were accurate, many American cities would be large enough to support a subway in the near future.

As the engineers were well aware, a city's capacity to support a subway also depended on how often people used mass transit. And by the early 1890s, if not earlier, some Americans had observed that as rapidly as population increased, ridership increased even more rapidly, twice as rapidly, according to some, three times as rapidly, according to others. By the turn of the century the engineers developed a theory to explain the relationship between ridership and population. According to this theory, ridership increased as the square of population growth—at least until the riding habit reached a "saturation point," after which ridership increased at the same rate as population growth. In other words, if the population of a city doubled, ridership would quadruple. If a city of 200,000 had 20 million riders a year, by the time it reached 400,000 it would have 80 million. Applying this theory, the engineers predicted that the riding habit would rise sharply in most cities over the next few decades. According to one study, it would go up in Chicago from 243 rides per capita annually in 1910 to 299 in 1920, 348 in 1930, and 406 in 1940. Other studies estimated that it would climb to more than 350 in Cleveland, nearly 400 in Detroit, and more than 450 in New York.[29] If these studies were reliable, not only would cities have more people in the future, but people would use mass transit more often.

As contemporaries saw it, the riding habit increased much faster than the population for two main reasons. As the cities grew, more people moved to outlying residential districts, far from their workplaces, far from their stores, theaters, and restaurants, and even far from their friends, many of whom lived in other outlying districts. For them mass transit was essential. Also, as mass transit improved, people rode it more often. "Where transportation is slow and infrequent," *American Architect and Building News* wrote, "people stay at home; where it is rapid and convenient, they find a multiplicity of errands which never occurred to them before." As New York City comptroller Theodore Myers put it, rapid transit creates "its own traffic." More important than the reasons were the consequences. Assuming a sizable growth in population and therefore a sharp increase in ridership, the inevitable result would be a tremendous rise in transit revenue. "Within reasonable limits," B. J. Arnold wrote in 1910, "the *annual transportation income of any large center of population increases approximately as the square of the population.*" If a city of one million generated $10 million in fares, it would generate $40 million when it reached two million. And, as the New York Public Service Commission pointed out, the additional revenue would go largely to rapid transit lines—as long as "they are provided as the need arises."[30] If so, many Americans came to believe, subways would produce more than enough revenue to offset the high cost of construction.

By the early twentieth century most Americans were convinced that no form of surface transit could carry people quickly and comfortably between the residential sections and the business districts. They were also convinced that underground railroads were far superior to elevated ones. It had long



The Boston subway, ca. 1926 (E. R. Kinsey and C. S. Smith, Rapid Transit for St. Louis, *St. Louis, 1926)*

been evident that subways were technologically feasible. As a result of the work of Arnold and other transit engineers, it now seemed clear that they were economically feasible as well. Reinforcing the view that subways were the wave of the future was the recent surge in underground construction both at home and abroad. The Boston subway was finished in 1898; a second tunnel was built to East Boston in 1904, a third under Washington Street four years later. An even more impressive achievement, the New York subway

opened in 1904, prompting Mayor George B. McClellan to predict that it would be "the first of many more" and leading residents of other cities to claim, "If New York can have a subway, so can we." During the late nineteenth century a few lines were added to the London Underground, by far the world's largest subway. Construction began on the Budapest subway in the early 1890s and, after a long battle, on the Paris subway a few years later. A subway opened in Glasgow in the mid 1890s and in Berlin in the early 1900s. During the 1910s work got under way on subways in Hamburg and Madrid (as well as in Buenos Aires, the first in South America).[31]

But Americans were well aware that to build subways would take a strong and sustained effort. Starting around the turn of the century and continuing until the onset of the Great Depression, advocates of rapid transit mounted campaigns to build subways in more than a dozen cities besides Boston and New York. These campaigns took place not only in most big cities but also in some medium-sized ones. A case in point that highlights the tremendous enthusiasm for subways in the first third of the twentieth century is Providence, Rhode Island, a city of only 225,000 in 1910. Responding to growing demands for rapid transit, the Providence city council hired B. J. Arnold in 1911 to make a study of the city's transportation problems. Arnold reported that a subway was not warranted then or in the foreseeable future. The Providence Board of Trade and other commercial and civic organizations disagreed. Impressed by the success of the Boston subway, confident that Providence's population would double and its ridership quadruple in the next two decades, they launched a campaign for a subway in 1913. A year later, on the basis of a favorable report by William W. Lewis, a civil engineer from Boston, the city council endorsed a proposed six-mile, $13.6 million subway, whose four lines all converged on downtown Providence.[32]

In the forefront of these campaigns were the downtown business interests, the most important of which were the department stores (and other retailers), the banks, utilities, and insurance companies, the major newspapers, the property owners (and managers), and the commercial realtors. Sometimes they acted on their own, more often through trade associations, like the Detroit Real Estate Board, commercial organizations, like the Chicago Association of Commerce, and civic groups, like the Los Angeles Traffic Commission. These business interests had a tremendous stake in the growth of downtown's trade and the rise of its property values. They firmly believed in the conventional wisdom that the well-being of downtown depended on its accessibility. Thus if a subway was needed to move people in and out of the business district, it should be built. Moreover, by the mid 1920s, at which time the

first signs of commercial decentralization appeared, many downtown businessmen and property owners were becoming extremely concerned. Watching the sharp increase in traffic congestion in and around downtown, an increase due largely to the proliferation of private automobiles, they began to fear that some downtown stores would move to other parts of the city. To prevent this, one businessman declared, it was vital to maintain "unimpaired access" to the existing business districts—or, in other words, to build subways.[33]

The downtown business interests were a formidable bunch. They had lots of money and plenty of clout, and they were willing to spend the one and use the other. In one city after another they pressed the municipal authorities to appropriate funds to retain Arnold or one of his colleagues to study the local transportation problem and draft a rapid transit plan. In some cities, including Cincinnati and Seattle, they supplied the money themselves. The downtown business interests also worked hard to persuade local officials (and, in some cases, state officials) to approve transit plans, to incorporate them into bond issues, and to place these issues on the ballot. Through trade and civic associations—as well as nonpartisan and purportedly nonpolitical groups like the All Chicago Council and the Detroit Citizens' Better Transportation Committee—they underwrote (and on occasion managed) the campaigns for the bond issues. Now and then downtown business interests opposed a subway proposal. The Cleveland Association of Building Owners and Managers came out against a $15 million bond issue for a subway in 1920. And seven years later downtown property owners in St. Louis refused to support state legislation that would have enabled city officials to assess their holdings for the cost of a subway.[34] But now that subway construction was less disruptive than it had been in the late nineteenth century, such opposition was rare even among abutting property owners.

Although the downtown business interests led the campaigns for subways, their efforts were usually supported by other groups. Among them were many outlying real estate interests, which backed rapid transit in the hope that it would stimulate the development of their remote (and otherwise inaccessible) property. Some large industrial firms, including the Ford Motor Company and other Detroit automakers, also endorsed subways on the grounds that they were the only way to reduce the commute of their employees, many of whom were spending an hour and a half getting to work. More often than not, organized labor supported subways—not so much to improve local transportation as to create jobs for union members. Also in favor of subways were streetcar riders and streetcar companies, two groups often at loggerheads with each other. Many riders were fed up with the frequent delays, recurrent accidents, and chronic overcrowding on the surface lines. Convinced that the companies cared more about stockholders than passengers, the straphangers thought an independent subway system would bring them better service. Some streetcar companies also supported subways—but only if they were designed to be used by the existing surface lines, not by an independent transit system. These companies assumed that the streetcars would run more rapidly (and hence more efficiently and more profitably) if they went underground as they approached the business district.[35]

As a rule the downtown business interests could also count on the support of a small but influential group of transit engineers that included B. J. Arnold, William Barclay Parsons, Charles De Leuw, R. F. Kelker, Jr., Henry M. Brinckerhoff, Daniel L. Turner, and John A. Beeler. Leaders in their field, these men were retained in one city after another to make a study of its transportation problems (and sometimes to serve as consultants to local transit commissions and other public agencies as well). With a few exceptions, of which Arnold's report to the Providence city council was one, these studies all came to the same conclusion—that what was needed to solve the problem was a rapid transit system, all or part of which should run underground. Although the engineers saw themselves as professionals whose judgment would not be influenced by political considerations, they were private consultants, well aware that their clients were very much in favor of subways. They were as deeply committed to railways as a later generation of highway engineers would be to automobiles. Most important of all, these engineers strongly believed that American cities had what Arnold called a "natural tendency" to develop around a highly concentrated business district and widely dispersed residential sections. From this belief it was only a short step to the conclusion that once a city reached a certain size, a population of a million or a radius of ten miles, it would be impossible for people to travel between their homes and workplaces in a reasonable time without a subway system (or a system of subways and els).[36]

In their efforts to mobilize support, downtown businessmen, transit engineers, and other advocates stressed that subways were badly needed to relieve traffic congestion. It was already a serious problem in the late nineteenth century. Indeed it was so bad in Boston that the city built the nation's first subway largely in the hope that by removing the streetcars from Tremont Street it would facilitate the flow of traffic downtown. But traffic congestion grew even worse in the early twentieth century, especially in the 1920s, when more and more Americans opted to drive downtown. The flood of streetcars, automo-

biles, and other vehicles left many major thoroughfares impassable, threatening the well-being of the business district, the viability of street railways, and the usefulness of private automobiles. Subways, their advocates contended, would resolve these problems. By providing unobstructed passage into the business district, subways would make it more accessible. By giving streetcars (and interurban railroads) their own rights of way, subways would improve their service, reduce their operating expenses, and increase their net earnings. (Some Americans even argued that without rapid transit many street railway companies, which were in desperate financial straits at the end of World War I, would go bankrupt.) By removing street and interurban railways from the surface, by putting mass transit underground and reserving the streets for what Daniel L. Turner called "individual transit on wheels"—by, in effect, enlarging the capacity of the streets—subways would also expedite the movement of automobiles and other motor vehicles.[37]

Subways were much more expensive than other forms of urban transportation, their advocates acknowledged, but they were also much more efficient. In the same (or even less) space, they carried far more passengers than other vehicles. According to the American Electric Railway Association, the industry's leading trade group, subways had a carrying capacity at least four and a half times as large as streetcars, eight times as large as motor buses, and fourteen times as large as private autos. Subways also ran much faster than other vehicles, especially during rush hour. Operating on a separate grade and an exclusive right of way, they sped along, unobstructed by pedestrians, other vehicles, cross traffic, and traffic signals, all of which slowed down surface traffic. If subways were not built, their supporters argued, cities would have no alternative but to widen the streets. But street widening, which involved not only grading and paving the roadway but also condemning the abutting property, was very expensive. It was prohibitively so in and around downtown. It was there, where traffic congestion was heaviest, that property values were highest. Although cities spent a great deal of money on street widening, tens of millions in the late nineteenth century and hundreds of millions in the early twentieth, traffic congestion got worse. As a St. Louis electric railway executive pointed out, wider streets attracted heavier traffic, which produced greater congestion. Subway advocates claimed that opening new streets and double-decking old ones would be no less expensive and no more effective.[38]

Subways, their advocates also contended, were badly needed to promote residential dispersal, a process that would reduce overcrowding, especially in working-class quarters. Overcrowding had emerged as a serious problem in New York and other big cities in the mid and late nineteenth century. Along

with inadequate sanitary facilities, it was widely regarded as one of the main reasons for the wretched conditions in the tenement houses—which, according to many upper-middle- and upper-class Americans who did not live in them, were the principal source of poverty, crime, vice, disease, and disorder. Tenement-house reformers believed that the enactment of restrictive legislation and the erection of model tenements would do much to alleviate overcrowding. But to eradicate it required the dispersal of the working classes, their movement from the center to the periphery, where, the Philadelphia *North American* wrote, "the hard-toiling mechanic" and his family could enjoy "the advantages of pure air, open grounds, and the quiet comforts of rural retirement." To make it possible for working people to live in outlying sections and still get to the business district in a reasonable time, quick and cheap mass transit was imperative. For several decades many Americans thought the streetcar—"the poor man's friend," as one contemporary called it—was the answer. And to some extent it was. Writing at the start of the twentieth century, a U.S. Census Bureau official remarked that the street railway had done much to foster residential dispersal and promote the practice, "so characteristically American, of living in independent houses instead of in tenements."[39]

But by the late nineteenth century (and in some cities even earlier), many Americans realized that once a city reached a certain size the streetcars could not solve this problem. To do that, it was necessary to make remote outlying sections accessible to working people. But as demographers and transit engineers pointed out, accessibility was a function of speed. Applying laws of geometry, they calculated that as the speed doubled, the accessible area quadrupled. Hence the need for rapid transit, which was twice as fast as surface transit and thus four times as effective in reducing overcrowding. During the late nineteenth century promoters of elevated railways repeatedly exploited the widespread concern about overcrowding in working-class quarters. The els, promised Cyrus Field, president of the New York Elevated, "will take [the] working class out of the tenement houses, the breeding-places of cholera, where they sicken and die, and give them neat little homes, where they can have pure air, and a bit of green grass before the door." Advocates of subways hammered away at the same point in the early twentieth century. Voicing the conventional wisdom, Fielder Sanders, a Cleveland Street Railway commissioner, declared in 1920 that a subway was imperative if Cleveland was to remain a "city of homes and not of tenements."[40]

Subways, their advocates also argued, gave the city an edge in its rivalry with other cities. Big cities are competitors, remarked Mayor E. V. Babcock of

Pittsburgh, a strong supporter of a proposed subway, "and we must be alive and ready to act to see that no other city gets more for her people than Pittsburgh gets for hers." "If we want to stay in the big league while other cities are forging to the front," he warned, "we must play big league ball." In the late nineteenth century playing "big league ball" meant building an elevated railway. In the early twentieth century it meant constructing a subway. Hence the *Pittsburgh Post* backed a proposed subway in 1919 in order "to keep Pittsburgh from falling behind other cities." After visiting several eastern and midwestern cities, most of which had already built a rapid transit system or were planning to build one, a committee of the St. Louis board of aldermen reported in 1925 that unless St. Louis provided rapid transit in the near future, "it will be outclassed by other cities of about the same population and size." And the Detroit Rapid Transit Commission, which led the campaign for a subway in the "Motor City," declared in 1926 that rapid transit was essential if Detroit was "to become one of the world's greatest cities."[41]

Subways, most Americans believed, not only should be built; they would be built. The need was too pressing, the logic too compelling. It was only a matter of time before other big cities followed the lead of Boston and New York—and, as one engineer put it, "The ground beneath the city will be honeycombed with subways, one, two, three tiers deep." Commenting on a proposed subway for downtown Baltimore, which had been recommended by city electrical engineer Charles Phelps in 1905, John Gill, president of the Mercantile Trust and Deposit Company, said, "Ten years from now it will not only be an accomplished fact, but the citizens will derive so much comfort and satisfaction from its operation that they will wonder why it was not done sooner." Mayor P. H. McCarthy of San Francisco forecast in 1911, "The subway in this, as in other great cities, is inevitable." A subway would be expensive, Seattle mayor C. B. Fitzgerald said several years later, "but just as we would have to have water if it cost a dollar a gallon, so will we have to have a subway some day." And in 1925, by which time there was ample reason to think otherwise, a group of traffic experts insisted that underground railroads were destined to form "the backbone of the collective transportation of our great cities."[42]

At the outset, in New York in the 1860s and in other cities a decade or two later, it had been taken for granted that rapid transit would be built by private enterprise. After all, private enterprise had built the surface transit lines, all of which operated under a franchise, a contract by which the city granted a company permission to lay tracks and run cars along the streets provided it complied with terms that specified the schedule, fare, and level of service. And private enterprise was now willing, indeed eager, to build the rapid transit lines. In New York alone scores of companies were organized to construct and operate els, subways, and depressed railroads (and to do so, their promoters stressed, without a subsidy from the local authorities). Private enterprise had also built the London Underground, and at the end of the century it would build subways in other European cities. By the mid 1870s some New Yorkers, frustrated by the lack of progress, recommended that the city build a rapid transit system. But most New Yorkers (and, for that matter, most Americans) disagreed. As the blue-ribbon committee of the American Society of Civil Engineers pointed out in 1874, municipal enterprise (or, as it would soon be called, municipal ownership) "is so foreign to American ideas, so fraught with political dangers, that it is looked upon by taxpayers . . . with great suspicion."[43]

By the 1890s it was clear that private enterprise could build els. It had already built several in New York and Brooklyn (and, in an attempt to stop construction of a subway, was now offering to extend its lines into upper Manhattan and the Bronx). Before the decade was over, private enterprise would also build several els (and an elevated loop) in Chicago. Private capital was willing to finance els because they seemed to be good investments. The els had done well in New York, where the Manhattan Elevated Railway paid better than 6 percent on heavily watered stock. And according to the Massachusetts Rapid Transit Commission, they would have done well in Boston—well enough to retire the debt and still pay a dividend of 8 percent. Private enterprise constructed very few els after 1900, among them the Philadelphia Rapid Transit Company's Market Street line and the Boston Elevated Railway Company's line to Charlestown and Everett. But this was because of the deep-seated opposition to els, not because of a lack of capital. If not for this opposition, private enterprise could probably have found the capital to build els in a number of big cities until the outbreak of World War I, when a great surge of inflation exacerbated a host of long-term problems that drove the electric railway industry to the brink of bankruptcy.[44]

But it was not clear that private enterprise could build subways, even in New York. Although promoters had formed one company after another, capitalists had been extremely reluctant to invest. Indeed, some well-informed New Yorkers predicted that private enterprise would never be able to raise the capital to build a subway. The issue came to a head in 1891, when the city's rapid transit commission asked for bids for a franchise to build an electric-powered subway that would run from the Battery, along Broadway, up the

West Side, and through the Bronx to Yonkers. To the commission's dismay, no bids were submitted. Whatever the reasons—whether the huge capital outlay required, the competition of the elevated railroads, the $3 million security bond, the fixed five-cent fare, or the five-year completion deadline—private capital found the proposed subway too risky. After the commission's failure, many New Yorkers lost hope that private enterprise could build a subway. Referring to what had long been the prevailing view, the *Real Estate Record and Builder's Guide* declared in 1893, "Greater nonsense never got into the heads of people out of a lunatic asylum. The fact is, private capital *cannot* give New York the transit service it needs and is looking for." One year later the rapid transit commission told Mayor Thomas Gilroy that an underground railroad was unlikely to be built in New York in the near future "by private capital alone."[45]

By the early twentieth century few Americans believed that private enterprise could build subways anywhere. They had turned out to be very poor investments in Western Europe, wrote one transit expert in 1907, and there was no reason to think they would do better in the United States. If Arnold and his colleagues were right, subways would in time attract enough riders to justify their tremendous costs. But it would take too long, observed Philadelphia's transit commissioner in 1913, to interest private capital. Calling subways a luxury, even in New York, the *Electric Railway Journal* contended in 1914 that "as a purely commercial enterprise [a subway] is financially impracticable"—precisely the words used to describe it by the Massachusetts Rapid Transit Commission of 1892. If the prospects were bleak before World War I, they were hopeless afterward. As the costs of material and labor soared, Pittsburgh transit commissioner E. K. Morse declared, "there is not a single rapid transit system that can be laid out—long, short, elevated or subway, or both combined—that will to-day pay fixed expenses and a reasonable return on the investment." Frank O. Wetmore, president of the First National Bank of Chicago, agreed, as did the Cleveland Association of Building Owners and Managers and the Los Angeles City Club. R. F. Kelker, Jr., made the point even more bluntly. "There is not a subway anywhere that pays its own way," he told the Industrial Club of St. Louis in the late 1920s. If a subway was built in St. Louis, the fixed charges alone "would exceed the gross annual receipts of the surface street railway system."[46]

Despite the growing evidence that subways did not pay, promoters kept trying to obtain franchises to build them. In some cases they had no intention of building anything. In Seattle, for example, two shady characters, one of whom had been arrested a couple of times for financial chicanery, asked the city

council for a franchise to construct a $25 million subway in 1908. Given that the city had fewer than a quarter million people, far too few to support a subway, some councilmen speculated that the promoters saw the franchise as a gimmick by which "neatly engraved [but worthless] shares of stock could be sold to New England school teachers." In other cases the promoters hoped that the city officials would grant a franchise for a subway for such a long period or on such favorable terms that private capital might invest in it. The Pacific Electric railway said it could raise the money to build a subway if given a forty-year franchise. A Cleveland businessman made the same claim, provided that the city council earmarked one cent of every streetcar fare to pay the interest and principal on the subway's debt. But under pressure from riders and reformers, many of whom were extremely hostile to the street railway companies, the local politicians were seldom willing to oblige the promoters. After visiting several cities that were planning to build or expand rapid transit facilities, a St. Louis aldermanic committee found that by the mid 1920s nowhere was anyone even suggesting that private capital provide the funds.[47]

Realizing that private enterprise could not build subways, Americans turned to municipal ownership. Although Boston had made the decision to build subways with some misgivings, its success had demonstrated that this approach was feasible. For financial reasons it was also highly advantageous. As a result of their good credit ratings and the tax-exempt status of their bonds, cities could borrow money at very low rates. During the early 1890s municipal bonds could be sold at interest rates ranging from 2.5 to 3 percent, or roughly one-third to three-fifths the rates of corporate securities. The cities' ability to obtain capital at low rates was especially important because a subway's fixed costs were so high—and because under even the most optimistic projections it would be a long time before a subway would earn enough to cover these costs.[48] Whether the cities would operate the subways or, like Boston and New York, lease them to private companies was not yet resolved by the early twentieth century. Nor was it resolved whether the cities would rely entirely on general obligation bonds or also resort to revenue bonds and special assessments. But the issue was no longer whether subways would be built by corporations or cities but whether they would be built by cities or built at all.

For advocates of rapid transit, this was a mixed blessing. Its financial advantages notwithstanding, municipal ownership had serious drawbacks. One was political. During the late nineteenth century many Americans looked upon municipal ownership with dismay, believing, in the words of the Massachusetts Rapid Transit Commission of 1892, "that it is better to submit to almost any inconvenience and discomfort rather than to entrust to public ser-

vants work which they do so badly." A few years later a special committee of the New York State Assembly, which held hearings on municipal ownership of mass transit, reported that most witnesses, even William Steinway, a member of the commission that had designed the New York City subway, opposed it. So did the committee. The controversy over municipal ownership intensified in the early twentieth century, when many civic reformers, labor unions, and socialist organizations (and even some business groups) called upon the cities to take over the gas, telephone, electric power, and street railway companies. The private utilities, most of which commanded huge resources, wielded great clout, and as a rule could count on the support of local commercial associations, fought back—none harder than the street railways. The result was that in the early twentieth century, at just about the same time that the downtown business interests and their allies launched their campaigns to build subways, municipal ownership developed into one of the most contentious issues in urban America.[49]

Americans objected to municipal ownership on political, economic, and ideological grounds. Pointing to previous examples of municipal enterprise, like the Tweed Ring's exorbitant New York County Courthouse, they declared that every public work was a chance for graft, every public agency a source of patronage. As Steinway told the special committee of the New York State Assembly, a municipal transit system would inevitably be turned into "a huge political machine, a refuge for old political hacks." At a time when reformers everywhere were working hard to reduce the influence of the political machines, it made no sense to provide them with what one New Yorker called another "splendid big plum." Public officials were not just corrupt, opponents of municipal ownership contended; they were also incompetent. "The city government hasn't enough executive ability at present to run an inkstand," claimed a Chicago merchant in 1905. In the absence of personal interest, which was so essential for efficient management, municipal ownership led to waste, extravagance, delay, and ultimately poor service and high rates. By any measure, an opponent of public power argued in the 1920s, private enterprise was far superior to municipal ownership: "One is responsible and can be held to the performance of duty; the other cannot. One must keep its engagements, fulfill its promises, or lose money, while the other has no money to lose, no investment to safeguard, and can, therefore, promise anything under the dome of heaven, trusting that the people may forget, and if they don't, that they will have to pay anyhow."[50]

Municipal ownership, its opponents insisted, was also "inconsistent with our form of government." It was un-American, a forerunner of socialism and

Bolshevism. The system of municipal ownership "cannot continue in a democracy," contended the president of the Southern California Edison Company in the mid 1920s. "Either the democracy or the system must go." The Committee on Municipal Ownership of the American Street and Interurban Railway Association, the predecessor of the American Electric Railway Association, agreed. In a democracy, it argued, the function of government, "so far as the industrial well being of the governed is concerned," was to prevent fraud, enforce contracts, and safeguard individual freedom. It was not to engage in business, a practice that would sap individual initiative, undermine personal responsibility, and "impede industrial growth." Putting it bluntly, the special committee of the New York State Assembly declared, "no government, either national, state or municipal, should embark in a business that can be as well conducted by private enterprise." There might be exceptions to this rule, but urban transit was not one. Private enterprise had created the world's most highly developed local and interurban railway system, a system that operated under strict regulation by public authorities—and also provided very good service at very low fares. It now stood ready to make the system even better.[51]

Advocates of municipal ownership denied these charges. Many politicians were corrupt, they conceded, but it was the street railways and public utilities that corrupted them. With so much at stake, these companies were willing to go to almost any lengths to influence the public officials who regulated their activities. The tighter the regulation, the worse the corruption—and the greater the demoralization of local government. As Eugene N. Foss, former governor of Massachusetts, told the Federal Electric Railways Commission in 1919, municipal ownership would take utility companies out of politics. And in conjunction with civil service, nonpartisanship, and other Progressive reforms, it would keep politics out of public utilities. Municipal ownership was just as efficient as private enterprise, its advocates insisted. The construction of the Croton Aqueduct and the Brooklyn Bridge showed that cities were capable of building large-scale public works without undue delay or excessive cost. The operation of municipal waterworks in the United States and municipal gas plants in Western Europe proved that cities could provide essential services at reasonable prices. What held for water and gas also held for transit, wrote Professor Frank Parsons of Boston University in the mid 1890s. Guided by the well-being of the community, as opposed to the balance sheet of a corporation, municipal ownership of mass transit would not only bring about lower fares and safer (and more convenient) travel. It would also help to reduce the hostility between private and public interests in urban America.[52]

Nor was municipal ownership un-American, its advocates declared. It "is

not a step towards socialism," wrote New York's *Real Estate Record and Builders' Guide* in 1892; "it is not a blow at democracy; it is nothing more than a measure of economy." (To claims that if the city built a subway it might as well sell meat, the *Real Estate Record* replied, "Talk of this sort is theoretical chatter. Private enterprise to-day amply meets all our demands for butchers' meat; private enterprise to-day does not and . . . cannot supply us with Rapid Transit.") To socialists and capitalists, municipal ownership might well be an ideological issue, the Municipal League of Los Angeles pointed out in 1907. But to other citizens, it was a practical one. If asked if they believed in municipal ownership, most of them would probably answer, "Yes, at some times, in some places, of some things." One of these things was mass transit. Other than water, no public utility was so vital to daily life as mass transit—not gas, not electricity, and not telephone. As Mayor James Couzens of Detroit said in 1919, mass transit affected people in a much more personal way than other public services such as sanitation, sewerage, and waterworks. Cities were already responsible for highways; and as the Massachusetts Rapid Transit Commission of 1892 put it, a railway was "nothing but a special use of a highway." If cities build roads, why shouldn't they build railbeds—and if on the streets, why not below them? It would be very expensive, but the costs would be offset by a rise in property values and an increase in tax revenues.[53]

The opposition to municipal ownership could be overcome—provided the backers of rapid transit took certain steps. One was to make a compelling case that the city desperately needed a subway and that it would either be built by the public or not be built at all. Another step was to downplay the ideological significance of municipal ownership, to stress, as the *Real Estate Record* did, that whether the subway was built by a corporation or by the city was wholly a question of expediency. Yet another step was to ensure that after the city built the subway it would lease it to private enterprise, a step that would reduce the subway's value to the political machine as a source of graft and patronage. By taking these steps, the backers of rapid transit were able to persuade many Americans like B. F. Romaine, Jr., a New York lawyer and property owner who believed that municipal ownership "does some violence to our traditions," to support subways.[54] But other Americans remained opposed to municipal subways not so much because they objected to subways as because they objected to municipal ownership. If the controversy over municipal ownership did not make it impossible for cities to build a subway, it did make it harder.

Municipal ownership had two other serious drawbacks. By the turn of the century most American cities had the authority to grant franchises to private companies to build and operate mass transit. But few had the authority to do so themselves. To get it, a city needed a state law (or, in some cases, a charter amendment). Even if the state legislature passed the law, the city officials still had to approve a plan and submit a bond issue to the voters. It required a simple majority in some cities, two-thirds in others. If all went smoothly, which was exceedingly unlikely, it would take at least four years before construction began; and construction would take at least three or four more years. If time was one problem, priorities were another. To build a subway, a company had to be convinced it was a good idea. For a city, however, a subway had to be not only a good idea, but a better idea than others. For cities had limited resources, not to mention constitutionally imposed debt limits, and almost limitless needs, many of them for streets, parks, sewers, and other things that could not be provided by private enterprise. To gain approval for a subway, its backers had to persuade politicians and voters that it could be built without diverting resources from more pressing projects.[55] To appreciate the impact of these drawbacks, it is helpful to look at two abortive efforts to build subways in the early twentieth century, one in Pittsburgh and the other in Cleveland.

The efforts to build a subway in Pittsburgh began in earnest in 1910, when the city retained B. J. Arnold to make a study of the local transportation problem. To the more than half million residents of Pittsburgh, then the nation's eighth largest city, the problem was simple. The local streetcar service, provided by the Pittsburgh Railways Company, was awful. And each year it got worse. The service was especially bad in and around downtown Pittsburgh, an extremely compact business district that was hemmed in on all sides by rivers and hills. Between 1905 and 1910 local engineers and other citizens had discussed this problem. By the time Arnold arrived, there was a consensus that Pittsburgh had to do something to relieve traffic congestion downtown—but that under no circumstances should it permit els to run along the streets. In what was by far the most comprehensive such report in the city's history, Arnold concluded that the problem could be solved by improving the surface transit lines and building a downtown subway system that would cover roughly four square miles. Modeled on the Boston subway, it would give the existing street and interurban railways easy access to downtown Pittsburgh. Arnold did not design the subway or estimate its cost, but he forecast that though it would lose money during the first years of operation it would pay *"eventually."* It would make sense for a company to build the subway, he wrote, but only if it could obtain capital at 5 percent or less. If not, the city should build it.[56]

For a while it seemed that private enterprise might seize the opportunity.

Four years before Arnold submitted his report, the Pittsburgh Subway Company, a local firm backed by New York investors, had asked the city council for a franchise. During the next seven years the council received nearly a dozen other requests, some of which were supported by the Pittsburgh Chamber of Commerce and other groups. The promoters claimed that with a reasonable franchise they could raise the capital. But what was reasonable to the promoters was not necessarily reasonable to city officials. The two groups were sharply divided over fares and other issues. Attempts to reach a compromise were stymied by Mayor William A. Magee, a strong supporter of municipal ownership, who vetoed an ordinance granting a franchise to Pittsburgh Subway on the grounds that it did not give the city adequate control over the system. In the face of this impasse, the city asked the state legislature for permission to build a subway of its own. Despite opposition by the chamber of commerce, the legislature gave its approval in 1915. Two years later, seven years after Arnold's report, E. K. Morse, the city's newly appointed transit commissioner, proposed that the city build a subway from downtown Pittsburgh to the East End (and later a subway to the north side and elevated lines to the outlying districts). The initial line would cost $7 million, the entire system $35 million. If possible, the subway would be leased to Pittsburgh Railways; if not, it would be operated by the city.[57]

The campaign for a subway resumed shortly after World War I. But to the surprise of many, Pittsburgh's new mayor, E. V. Babcock, rejected Morse's plan in March 1919 and endorsed instead a far less ambitious one prepared by the city's Department of Public Works. This plan called for a downtown subway (consisting of a loop, about half a mile long, and a few portals) that would funnel the local streetcars in and out of the business district. The subway, which would be leased to Pittsburgh Railways, was estimated to cost $6 million. To pay for it, Babcock asked the city council to put a $6 million bond issue on the ballot in July. Morse and others sharply criticized Babcock's proposal, stressing that the DPW's plan would not provide Pittsburgh with rapid transit and that the city had no assurances that Pittsburgh Railways, then in receivership, would lease the subway. The $6 million bond issue would greatly reduce the city's bonding capacity, and in the end the subway would probably cost more like $12–18 million. The mayor responded not only that the subway was badly needed to relieve traffic congestion in downtown Pittsburgh but also that it could serve as the nucleus of a rapid transit system, if and when the city decided to build one. Caught between the mayor and the transit commissioner, between those who saw the subway as a way to relieve traffic congestion and those who saw it as a way to promote residential dispersal, the city council vacillated. But Babcock lobbied hard. And in late May, after a heated debate that foreshadowed the fierce battle to come, the council, which had approved several other bond issues unanimously, voted seven to three to put the $6 million subway on the ballot.[58]

The chamber of commerce supported the bond issue, but the Real Estate Board opposed it, as did the Allied Boards of Trade. The *Post* and the *Telegraph-Sun* endorsed it, but the *Dispatch* denounced it. Some city councillors sided with the mayor, others with the transit commissioner. Supporters of the bond issue argued that the subway would relieve traffic congestion in downtown Pittsburgh and that if it was not built the city might have to erect elevated railways. All big cities had to build subways sooner or later, supporters said, and after a decade of talk it was time for action. Babcock, to whom competition among cities was as natural as competition among companies, pointed out that Cleveland, Cincinnati, and other cities were planning to build subways and warned that if Pittsburgh did not do so it would fall behind. Opponents of the bond issue contended that it made no sense to spend $6 million (and perhaps two or three times as much) without getting rapid transit. Morse also dismissed the notion that the downtown subway loop could serve as the nucleus of a rapid transit system. Pittsburgh should either build rapid transit or save its money, he declared. Some opponents held that traffic congestion could be relieved by street widening, a bond issue for which was also on the ballot. Others objected to the subway on the grounds that the principal beneficiaries would be Pittsburgh Railways and a small group of downtown property owners. In the end, the voters approved the subway bond issue, though by a much narrower margin than the others on the ballot. A majority of the wards voted against it, but their opposition was offset by strong support in about half a dozen wards, most of which were in or adjacent to downtown Pittsburgh.[59]

Immediately after the election Mayor Babcock announced that the city would soon solicit bids from contractors. The *Electric Railway Journal* reported, "Construction is expected to start within sixty days." But to the dismay of its advocates, the subway ran into one obstacle after another. Opponents demanded a recount, which confirmed that the bond issue had passed, though by a very small margin. Also, the local officials and Pittsburgh Railways, to which the city intended to lease the subway, could not agree on terms. Worst of all, the Pennsylvania Supreme Court ruled that if the city could not complete the subway with the funds available it could not go ahead. And by virtue of the soaring inflation during and after World War I, the proposed subway could no longer be built for $6 million. During the next five or six years, citizens' groups, transit engineers, and downtown business interests came up

with several plans to resolve the dilemma, but nothing came of them. In the meantime Pittsburgh's street railways deteriorated; its residents relied increasingly on automobiles; and the value of the $6 million steadily eroded. By the late 1920s, the *Electric Railway Journal* wrote, it was clear that given the costs of a subway "$6,000,000 would not even pay for a good beginning." During the early 1930s the chamber of commerce, once a strong supporter of the bond issue, conceded, "What appeared advisable in 1919 is today of questionable wisdom."[60] And in 1934, twenty-four years after Arnold submitted his report and fifteen years after the voters approved the $6 million, the city council vacated the bond issue and gave up the attempt to build a subway in Pittsburgh.

The efforts to build a subway in Cleveland got under way in 1917, a little over a decade after a chamber of commerce committee had reported that it was "only a question of time when a complete system of subways will be required in Cleveland." Cleveland was then the nation's fifth largest city, a rapidly growing metropolis of about 800,000 people, many of whom were dissatisfied with the surface transit system, owned and operated by the Cleveland Railway Company. Although there was widespread sentiment that the city sorely needed a rapid transit system, there was no consensus about what kind to build or how much to spend. With the mayor, city council, and Cleveland Plan Commission unable to reach agreement, the city in 1918 retained Barclay Parsons & Klapp, a prominent transit engineering firm, to look into the issue. Barclay Parsons & Klapp reported that Cleveland's huge population and high riding habit made rapid transit imperative and recommended that it be built in two stages. The first stage called for a downtown subway consisting of short loops, a terminal, and feeder lines, all radiating from Public Square. Estimated to cost about $15 million, the subway, which would be leased to the Cleveland Railway Company, was designed to relieve traffic congestion downtown by removing the streetcars from the streets. The second stage called for a system of rapid transit lines running either above ground, in open cuts, or on private rights-of-way to the outlying sections.[61] At the urging of the Cleveland Rapid Transit Commission, which had been established a couple of years earlier, the city council voted in early 1920 to put a $15 million bond issue for a downtown subway on the April ballot.

The bond issue provoked a fierce struggle, which in some ways resembled the battle in Pittsburgh a year earlier. Supporters, among them the chamber of commerce, the builders' exchange, and the federation of labor, made the same claims that the subway would relieve traffic congestion downtown and could later become the nucleus of a rapid transit system. They said that the surface transit system was "breaking down" and that it was impossible for the streetcars to provide quick and comfortable service as long as they had to fight for space with private autos and trucks. Supporters also argued that the proposed subway would reduce traffic accidents, save commuting time, facilitate vehicular traffic, and, in the words of street-railway commissioner Fielder Sanders, raise property values in Cleveland "by an amount which will make the bond issue look small." Opponents, among them the Civic League, the real estate board, and the *Press* and *Plain Dealer,* countered that the subway would not provide Cleveland with rapid transit and that traffic congestion downtown could be relieved by tightening traffic regulations, rerouting streetcar lines, and adopting other less expensive measures. The proposed subway was very costly, they stressed; and even if the ultimate costs did not exceed $15 million, which was highly unlikely, they would drive property taxes up. The Civic League was particularly incensed that the suburbs, by far the fastest growing part of metropolitan Cleveland, were not required to pay a fair share of the subway's costs.[62]

Opponents of the bond issue also raised the issue of priorities, which had not been raised in Pittsburgh. As the *Cleveland Plain Dealer* pointed out, the city already had the second largest per capita debt in the nation; and it was "going into debt faster than any other large city." Moreover the proposed subway had to be considered "in connection with other urgent or prospective needs of the city." Among the most pressing of these needs were hospitals, jails, schools, and, above all, homes. "Which does Cleveland need most," the *Plain Dealer* asked, "homes and schools or a subway terminal?" All other considerations aside, can the city "afford to divert from the building of homes and schools the labor and material required for carrying out the recommendation of the rapid transit commission?" The *Cleveland Press* also hammered away at the issue of priorities. "What shall it be," it asked—"more homes and lower rents, or relief of downtown traffic conditions?" Even if the city could afford it, there were not enough workers and supplies to do both. Whereas homes were essential to life and health, even to "the future of the race," subways were not. Urging the citizens to "vote for homes and lower rents!" the *Press* argued shortly before the election that "a vote AGAINST the subway is a vote FOR more homes."[63]

Supporters of the bond issue did what they could to rebut these arguments. Cleveland could afford to build a subway; indeed, in the interest of its long-range prosperity, it could not afford not to. The city had a housing shortage, Charles A. Otis, head of the rapid transit commission, conceded. But construction of the subway would not block the building of homes. If anything, it

Opposition to the proposed Cleveland subway, 1920
(Cleveland Press, *April 26, 1920*)

would stimulate home building by opening up remote districts for residential development. Finally, construction of the subway would not start for six to eight months, "by which time the home-building program [which was then under way in the city] would have been completed." But these arguments did not carry much weight. Cleveland was caught up in a nationwide housing crisis. At the heart of it was the virtual standstill in construction during and immediately after World War I, a result first of a serious shortage of manpower and material and later of a sharp rise in their costs. The consequences were alarming. Rents climbed, in some cases by 100 percent a year, and evictions soared. "Women and babies have been driven into the streets," wrote the *Press*, "and their household effects thrown after them." At a time when a grand jury was probing the high costs of building, when the state legislature was considering laws to slow down evictions, and when the commercial and civic groups were mounting a campaign to build a thousand homes a year, Otis and his associates were hard pressed to generate popular support for the bond issue.[64]

The election, which was held in late April, went much worse than the subway's supporters expected. By a more than two-to-one majority, the voters turned down the $15 million bond issue. (A $2 million bond issue for jails also failed, though a $3.5 million bond issue for hospitals passed.) According to the *Cleveland Press*, the vote was a clear mandate to "build homes first." The voters had decided that the city should undertake virtually no public works that would divert labor and materials from home building and also that it should adopt stricter traffic regulations and other relatively inexpensive measures to relieve traffic congestion downtown. The *Cleveland Plain Dealer*, which had held that the city "will probably need subways one day," but that the day had not yet arrived, called the vote "a triumph for common sense." It also predicted that the subway "is not dead. It is merely postponed until some more favorable day." On that point, the paper was wrong. The subway was dead. Although a few private companies made efforts to obtain a franchise to build a subway in the late 1920s, nothing came of them—other than a rapid transit line that was built by the Van Sweringen brothers, Oris P. and Mantis J., and ran on a private right-of-way between their residential development in suburban Shaker Heights and their railroad terminal in downtown Cleveland.[65] The city would try again in the 1930s and 1940s, but it would never come as close to building a subway as it did in 1920.

Other cities that attempted to build a subway ran into many of the same problems as Pittsburgh and Cleveland. A case in point is Cincinnati, where in 1912 B. J. Arnold proposed that the city build a subway along an abandoned canal bed, a subway whose main purpose was to provide the interurban railways access to downtown. After a vigorous campaign, which was backed by nearly all the city's commercial and civic associations, the voters approved a $6 million bond issue for the subway in 1917. But construction, which was delayed by legal problems and wartime restrictions, did not get under way until 1919. By then inflation had so driven up costs that only part of the subway could be built. Moreover, by 1923, when this part was finished, Cincinnati's interurban railways were bankrupt. For years local officials debated whether to complete the subway, which would have cost at least another $10 million. But in time they gave up on the project (and later paved over the $6 million tunnel). Detroit is another case in point. The city began to think about building a subway a few years before the United States entered World War I, and by the time the war was over Barclay Parsons & Klapp had designed a $68 million rapid transit system. But the proposed system was shelved because the city was deeply involved in the last stage of a long-drawn-out struggle to take over the local streetcar lines, which were owned and operated by the Detroit

United Railway Company. Given its debt limit, not to mention its political divisions, Detroit could not have bought the street railways and constructed a rapid transit system at the same time. And Mayor James Couzens firmly believed that municipal ownership of the streetcar system took priority.[66] Not until after 1922, when Detroit finally acquired the street railways, did the city mount an all-out campaign to build a subway.

The campaigns to build subways ran into other formidable (and, to some extent, unanticipated) obstacles that made the job of mobilizing support for rapid transit even harder. Americans who were in favor of subways in general were often at odds over subways in particular. Assuming that the cities would build the subway, should they run it, too? Or should they lease it to private companies? If so, on what terms? Should the subway be integrated with the surface transit lines, as in Boston? Or should it be operated as an independent transit system, as in New York? Also, where should the subway run—along which streets, in which neighborhoods, and, in the case of Pittsburgh, along which side of the river? Where should the terminal be located—in the core of downtown, on the edge, or, in the case of Cincinnati, in a nearby business district adjacent to the old canal bed? Should there even be a downtown terminal? Some subway advocates called for a downtown loop instead; others claimed that through service was preferable. A few even argued that some subway lines should bypass the business district entirely. Lastly, how many stops should the subway make? And how far apart should they be? What came first—convenience, which meant many stops, or speed, which meant few stops?[67]

Although these issues were highly divisive, they were only moderately important. They often slowed down the campaigns to build subways but seldom brought them to a standstill. There were, however, more momentous issues that sharply divided subway advocates and did irreparable damage to their efforts. First, what was the primary purpose of the subways? Was it to relieve traffic congestion in the center or to promote residential dispersal on the periphery? If a city had to make a choice, should it build a downtown subway to remove the streetcars from the streets or a rapid transit system to connect the residential and business districts? Second, how should the subways be built? Should subways be constructed in a comprehensive manner, all the lines more or less at the same time, or in a piecemeal way, one or two lines at a time—first the lines with the greatest demand, and then, as resources became available, the less pressing ones?[68] Third, how should the subways be financed? If the taxpayers would have to bear part of the costs (which was generally taken for granted after World War I), how much should come from direct taxes on all property in the city and how much, if any, from special assessments on the properties that derived the largest benefit?

A look at the efforts to build a subway in Chicago in the early and mid 1910s helps to illuminate the first issue. The commercial, financial, and industrial capital of the Midwest, Chicago was then the country's second largest city, a huge and sprawling metropolis of more than two million people, many of whom were dissatisfied with the local transportation system. Consisting of one of the nation's most extensive street railway networks and an elevated railway network second only to New York's, the system had recently been renovated, the result of the "Settlement Ordinance," which embodied an agreement reached by the city and the railway companies in 1907. But it was still prone to chronic delays and severe overcrowding, particularly in and around the Loop. With the streetcars operating at full capacity (and with no space available downtown for additional tracks), many residents came to the conclusion that some sort of rapid transit was imperative. Given the antipathy to the els, a subway was the only alternative. A good deal of planning had already gone into a Chicago subway. B. J. Arnold alone had written three reports about the subject, one in 1902, another in 1906, and still another in 1911. Some of the plans called for a small downtown subway to ease traffic congestion, others for a large rapid transit system to link the residential and business districts. But nothing came of these efforts until July 1912, when the city council instructed the Harbor and Subway Commission, a municipal agency that had been set up by Mayor Carter H. Harrison, Jr., in 1911, to prepare a plan for a citywide subway system.[69]

The commission's plan, submitted a few months later, was very ambitious. It called for a huge subway system, 56 miles long (with 131 miles of track), that was estimated to cost $130 million ($95 million for construction and $35 million for equipment). The system, which was completely independent of the existing street and elevated railways, would radiate from the Loop to the outlying sections. It was so designed that roughly three-fourths of the population would live within half a mile of one of the lines and that anyone who lived within ten to twelve miles of the Loop could commute to and fro in less than an hour and a half. The system would not only provide rapid transit, said the commission; it would also relieve traffic congestion, speed up the surface railways, raise their revenues, and lower their expenses. To finance the subway, the city would issue bonds, which would be secured by the system's properties and revenues. Given the projected increases in the city's population and its riding habit, the subway would generate enough income to pay off the bonds

without imposing additional burdens on the taxpayers. In preparing the report, the commissioners had visited Boston, New York, and Philadelphia—the three American cities with rapid transit. But it was the New York system, the only independent rapid transit subway, that most impressed them. As John Ericson, city engineer and chairman of the Harbor and Subway Commission, pointed out, they were confident that if New York could build a first-rate subway, so could Chicago.[70]

From the very start, however, the commission's plan ran into strenuous opposition. Some of it came from groups that were against the building of any kind of subway anywhere in the city. But some came from groups that were in favor of subways in general but against the proposed subway in particular. The opposition claimed that there was no need to construct so expensive a subway. Chicago could obtain rapid transit and relieve traffic congestion by extending and improving the street and elevated railways and constructing a small downtown subway, which could be leased to the existing transit companies. The opposition also contended that the number of riders was not large enough to support both an independent subway system and the existing transit companies, and that the operation of yet another transit system would exacerbate the traffic problem in the Loop. The commission rebutted these claims. But a year later, at the behest of opponents of the commission and political rivals of the mayor, who supported the plan, the Board of Supervising Engineers, the overseer of the surface railway companies, made another study. It recommended the construction of a downtown subway, as opposed to an independent citywide rapid transit system, a subway that was designed primarily to relieve traffic congestion in the Loop. Estimated to cost about $18 million, most of which was already available in the traction fund, another product of the Settlement Ordinance, the subway would be built by the city and leased to the street railway companies.[71]

Shortly before the board of engineers issued its report, Harrison attempted to resolve the conflict by asking the city council to place two ordinances on the April 1914 ballot and leave the choice up to the voters. The first ordinance, a revised version of the commission's plan, called for a citywide rapid transit system, to be built and operated by private enterprise under terms that would guarantee municipal ownership in thirty years. The second, which embodied the recommendations of the report by the board of engineers, called for a downtown subway, to be built by the city and leased to the surface railway companies. Early in 1914, however, negotiations between the city and the companies broke down over the rent for the downtown subway, and the second ordinance was taken off the ballot. Supporters of the downtown subway

thereupon launched a vigorous attack on the first ordinance. They made the same objections that critics of the commission's original plan had. They also raised new ones. They said that it would be impossible for the city to attract private capital on terms guaranteeing municipal ownership and that under state law Chicago could not grant a franchise for a subway for thirty years. An independent subway would also undermine the ongoing campaign for a uniform fare and jeopardize the solvency of the existing transit companies. Whereas a downtown subway could be built right away—the money was in hand and the legislation in place—an independent citywide rapid transit system would be so hamstrung by financial, political, and legal problems that it would not be built for years and perhaps could not be built at all.[72]

Supporters of the ordinance, notably the Harrison administration, the Cook County Democratic machine, and the *Chicago Examiner,* responded that Chicago could not obtain rapid transit simply by running the streetcars through what the mayor derided as "the dinky [downtown] subway." They argued that an independent citywide subway would pay for itself and that a thirty-year franchise would induce private capital to build it, even on terms that would eventually lead to municipal ownership. Supporters also denied that the subway would intensify traffic congestion in the Loop and claimed that by promoting competition in the transit business it would hold down fares and improve service. They pointed out that many of the criticisms of the proposed Chicago subway had been made earlier about the New York subway, which had succeeded beyond expectations. These responses were not convincing, however. Not to the Cook County Real Estate Board and a host of outlying business associations and neighborhood improvement organizations, which represented non-Loop interests and opposed subways in general. Not to the street and elevated railways, which feared competition from an independent transit system. Not to most of the major newspapers, which favored the downtown subway. And not even to the Chicago Association of Commerce, whose members included the leading downtown business interests, most of which supported not only the downtown subway but subways in general. With subway advocates divided between some who wanted to relieve traffic congestion in the Loop and others who sought to provide rapid transit between the residential and business districts, the outcome was predictable. In April the voters rejected the ordinance by a majority of more than two to one.[73]

A look at the efforts to build a subway in Detroit in the mid and late 1920s illuminates the issue of how subways should be built. These efforts got under way late in 1922, shortly after the city took over the local street railways, when

Mayor James Couzens created the Detroit Rapid Transit Commission. The chairman (and driving force) of the commission, whose other members were three prominent businessmen and a former city engineer, was Sidney D. Waldon, a former vice president at both Packard and Cadillac. A millionaire, he had retired at forty-three and subsequently devoted himself to solving the city's transportation problem. To Waldon (and the other commissioners), the nub of the problem was that Detroit's facilities were lagging far behind its growth. Between 1900 and 1920 the city's railways and highways had grown very little, even though its population, stimulated by the tremendous expansion of the auto industry, had soared from less than 300,000 to nearly a million, making Detroit the fourth largest city in the country and, after Los Angeles, the fastest growing. To transport a population that had already passed one million and would probably reach two million in a decade or two, the commission concluded that the city needed both a system of superhighways (about which more later) and a rapid transit system. Besides designing a master plan of superhighways, the commission spent much of its first year developing a financial plan for a rapid transit system, a plan that relied heavily on special assessments. Late in 1924 the voters endorsed this plan in principle.[74] With the help of transit engineers Daniel L. Turner and John P. Hallihan, the commission then turned its attention to the job of designing a comprehensive system of subways for Detroit.

About the superiority of comprehensive, as opposed to piecemeal, construction, the commission had no doubt. Comprehensive construction was more equitable. It would spread the benefits of rapid transit over the entire city, treating all sections alike and ensuring that no section would derive much of an advantage over another. Comprehensive construction was also less disruptive. Under piecemeal construction, the first line would act as "a magnet" to population and business. It would soon be saturated with traffic, leading to demands for additional lines along the route even before the other lines were built. Comprehensive construction was politically advantageous too. As Mayor Couzens observed, people were not likely to vote for a subway unless it served their neighborhoods. "Find a plan to serve the whole city," he recommended, "and then build it as a continuous project. That will win votes." Although a few groups, among them the Michigan Manufacturers' Association, which was dominated by the auto companies, had voiced concerns about the costs of a comprehensive system, the commission was not deterred. In August 1926 it unveiled a plan for a citywide subway completely independent of the street railways, a four-line, forty-seven mile system that was estimated to cost a whopping $280 million. With an unusual combination of

radial and crosstown lines, the subway was designed to connect the residential sections not only with the business district, but also with Ford's Highland Park plant and other major auto factories.[75]

The subway, declared the commission, was vital to Detroit's development as "one of the world's greatest cities." Designed to transport more than 90 percent of the work force to within half a mile of their jobs, the subway would reduce the journey to work and thereby increase Detroit's efficiency as an industrial metropolis. The subway was expensive, the commission conceded, but by virtue of the financial plan it would not raise property taxes or increase the city's debt; and the sooner the project was begun, the less expensive it would be. Detroit had delayed long enough. Other cities were even smaller when they started to build rapid transit; by the time the subway was finished, Detroit would have more than two million people. The Ford Motor Company was persuaded. So were the downtown business interests, which feared that without improved access to the business district stores and offices would move elsewhere, perhaps to General Motors' "New Center," a rival business district three miles from downtown Detroit. Other groups, however, were skeptical. The Michigan Manufacturers' Association, whose general manager lamented that "it takes an hour and a half for the average worker to get to his place of employment," agreed that Detroit needed a subway, but it did not believe that the city could afford to build one all at once. Other commercial associations took much the same position, as did many civic groups and local newspapers. Also opposed was Detroit's Street Railways Department, which was worried about the subway's impact on the city's surface transit system. In the face of widespread opposition, the commission was unable to prevail upon the city council to submit its plan to the voters at the November election.[76]

Hitherto the commission had withstood pressure to scale down the project. As late as November one member wrote that he "would rather see the whole thing go down to defeat than to [compromise on this issue]." But early in 1927 the commission gave in. Adopting the piecemeal approach, it drafted a modest plan for a two-line, twenty-two mile subway, which was estimated to cost $135 million. By then, however, the local economy was in trouble. Auto sales were down, unemployment was up, and property values were falling. Some residents held that even a $135 million subway was too expensive. Others believed that Detroit should not spend any money on a subway unless the suburbs, which would share in the benefits, agreed to pay part of the costs. Still others were critical of the commission's choice of routes and concerned about the subway's impact on the streetcar system. Not long after the mayor's

finance committee voted against including the subway in Detroit's long-term capital plan, Mayor John W. Smith shelved the proposal. The commission bided its time. When the economy picked up early in 1929, it submitted an even more modest plan, which called for one subway (and elevated) line, 13.3 miles long, and, as a concession to Detroit's Street Railways Department, two downtown streetcar tunnels, 2.5 miles long. The cost came to $91 million. The plan won the support not only of the downtown business interests but also of virtually all the city's newspapers, auto companies, and commercial and civic organizations. To finance the initial construction, the city council voted to put a $55 million bond issue on the April ballot. To lead the campaign for the bonds, senior executives at Ford, Packard, and other automakers formed the Citizens' Better Transportation Committee.[77]

What little organized opposition there was came mainly from the Committee of Fifty-One, a loose coalition of neighborhood improvement associations and outlying business interests that were opposed to rapid transit of any kind. Responding to the by then familiar arguments of the rapid transit commission and the Citizens' Better Transportation Committee, it charged that the subway would not pay and thus would impose additional burdens on the already hard-strapped taxpayers. The city should look for less expensive solutions to the traffic problem. Although it appeared that the opposition was fighting an uphill battle, the voters rejected the bond issue by a margin of more than two and a half to one, thereby putting an end to the campaign to build a subway in Detroit. Some voters, it turned out, were skeptical of municipal ownership and worried about higher property taxes. Others believed that the plan relied too heavily on special assessments, that the subway would benefit downtown Detroit at the expense of the outlying districts, and that mass transit was no longer the most effective way to solve the city's transportation problems. As Couzens had warned, still others, particularly residents of the north side, saw no reason to support a one-line subway that ran nowhere near their neighborhood.[78] How many of these residents would have voted for the commission's original plan is impossible to tell. But it is safe to say that the political drawbacks of the piecemeal approach did as much damage to the subway's prospects as the financial drawbacks of comprehensive construction.

Of the three momentous issues that sharply divided the advocates of rapid transit, by far the most nettlesome was how to pay for it. Given the tremendous costs of construction, the cities could not raise the money out of general funds. Hence they had only two choices. They could issue bonds of their own,

as Boston did. Or in some states they could guarantee bonds issued by a company that would construct and operate the subway for the city, as New York did. In either case the cities had to find a way to pay off the bonds. One option was to draw on fares, placing the burden entirely on the passengers, an approach adopted by Boston, which leased the subway to a company for a sum that covered interest, amortization, and maintenance. Another option was to draw on fares and, if need be, taxes, placing the burden partly on passengers and partly on property owners, an approach adopted by New York. It too leased the subway to a company, but in the event that the rent did not cover the costs the city would defray the deficit out of general funds. Yet another option was for the cities to pay for the bonds, in whole or in part, by assessing the property adjacent to the subway, which would presumably rise in value by virtue of its enhanced accessibility. Based on the principle that property owners who benefited from public improvements ought to pay for them, special assessments had long been used in American cities to finance streets, sewers, and parks.[79]

In practice, however, cities operated under strong constraints. Special assessments had never been used to finance rapid transit. Even those who favored using them conceded that it would be "a radical innovation"—one whose legality was very much in doubt. Moreover, most people believed that mass transit, subways and els included, should be self-supporting. Hence most cities were under considerable pressure to follow Boston's lead and rely exclusively on fares to pay off the bonds. This approach made good sense, provided that the subways were self-supporting. Initially, most Americans assumed they would be, that as the population grew and the riding habit rose, subways would generate more than enough income to cover the costs of construction. But this assumption was undermined before World War I and completely discredited soon after. Revenues did not increase as fast as expected, and expenses increased much faster. The Boston rapid transit system suffered such a grave fiscal crisis that in 1918 the Massachusetts legislature put it in the hands of a board of trustees, which raised the fare from five to ten cents. And in New York, when the companies that operated the city's second subway system, the so-called Dual System, were unable to pay the rent, local officials had to shell out $80 million to cover the interest and amortization charges on the bonds.[80] Even before the war was over, it was evident that no subway would generate enough income to pay the costs of construction, at least not on the basis of the traditional nickel fare.

One way to resolve the problem was to charge a higher fare. After all, the subways provided much better service than the streetcars. They were faster

and more reliable, less prone to delays and breakdowns. They saved riders a good deal of time and enabled many of them to live in outlying residential sections. If a streetcar ride was worth five cents, surely a subway ride was worth more. But as even subway advocates realized, this scheme had serious drawbacks. Except in cities where riders thought that it was already too high, the nickel fare was sacrosanct in the early twentieth century. Given the widespread view that the transit companies were extorting money from the public in order to pay high dividends on watered stock, an attempt to charge a higher fare would run into strenuous opposition. A higher fare might also be self-defeating, especially if many passengers opted to ride the streetcars or use their automobiles instead. Worst of all, a higher fare might well undermine the efforts to build subways. These efforts were justified in large part on the grounds that subways would enable the working class to escape the overcrowded inner-city slums. If the fare was high enough to cover the costs, it would be too high for most working people. For those who believed that rapid transit was more than "a purely business proposition" and that fares should be kept as low as possible, a subway of so little social value was hardly worth fighting for.[81]

Another way to resolve the problem was to subsidize the subway, to use general funds (or, in effect, property taxes) to make up the deficit between the income from fares and the costs of construction. This scheme had much to commend it. A subway benefited everyone, not just the riders. It relieved traffic congestion and reduced the need for street widening. It promoted residential development on the periphery and reduced severe overcrowding in the center. It raised property values and thus increased tax receipts. But this scheme had serious drawbacks too. A proposal to subsidize a subway normally required a bond issue, which would have to be approved by either a simple or two-thirds majority of the voters, no mean task. Most cities operated under various types of debt limits, as a rule constitutional provisions that restricted their capacity to issue general obligation bonds. Some cities were approaching these limits. Those that were not were under strong pressure to build other public facilities, which usually could not be financed except by general obligation bonds and were often viewed as more urgent than subways. As the abortive attempt to build a subway in Chicago in 1918 revealed, it was very hard to win popular approval for a rapid transit system. It was even harder when the proposed system depended on a subsidy from the taxpayers. At that point even many citizens who were otherwise inclined to support rapid transit drew the line.[82]

In the search for other ways to help finance rapid transit, some subway advocates decided that special assessments were worth another look. Instrumental in this decision was a report prepared by the City Club of New York, a prominent civic group, and submitted in 1908 to the city Board of Estimate and Apportionment and the state Public Service Commission. Based on the first systematic investigation into the relationship between rapid transit and real estate values, the study found a sharp rise in values in upper Manhattan and the Bronx after the construction of the subway. It calculated that the subway had boosted values north of 135th Street by more than $80 million, nearly twice as much as the cost of the entire line (and roughly six times as much as the cost of the line from 135th Street to the Bronx). In other words, the rise in real estate values in just one part of the city would have covered the whole cost of subway construction and generated a sizable surplus. Given these findings, the City Club asked, "would it not be reasonable to require property benefited in outlying districts to pay for the cost of a rapid transit line built to serve it?" The report's findings were confirmed five years later by A. Merritt Taylor, transit commissioner of Philadelphia, whose less systematic analysis revealed that real estate values had risen far more sharply than would otherwise have been expected along both the city's underground and elevated lines and in both the outlying sections and the business district. Here too the rise in values far exceeded the cost of construction. Subsequent studies came up with similar findings and thereby strengthened the case for special assessments.[83]

The first attempt to use them was made in New York. The results were not encouraging. Three years after the City Club submitted its report, the state legislature gave the city permission to assess property for rapid transit. In 1915 a proposal was made to use special assessments to finance construction of a subway along Utica Avenue in Brooklyn. A year later the Board of Estimate instructed its chief engineer to work out a plan and in particular to define the boundaries of the assessment district and develop a formula for apportioning costs. Although the Public Service Commission approved the plan, it was shelved. So were other proposals in the mid 1920s to use special assessments to construct other lines. These proposals went nowhere largely because of objections from property owners, who denounced special assessments as inequitable. They were already paying taxes to support the existing subways, they pointed out. There was no reason why they should be assessed to build the new subways when other property owners had not been assessed to build the old ones. New York's failure did not discourage supporters of special assessments in other cities. Only New Yorkers could reasonably object that special assessments were inequitable, because only New York had already built a vast subway system that was heavily subsidized by the taxpayers. Sup-

porters of special assessments drew a lesson from New York's experience. But it was not that cities should not use special assessments to build rapid transit. It was that they should not build so much as "one foot of rapid transit" without using special assessments lest they "be precluded from [resorting to] this important method of financing for all time to come."[84]

Although the idea of using special assessments for rapid transit was endorsed by a few influential groups in the 1910s and early 1920s, it did not take hold until the mid 1920s. The breakthrough occurred in November 1923, when the Detroit Rapid Transit Commission released its financial plan, the keystone of its proposed transit system. The commission took it for granted that in view of the current costs of labor and material a rapid transit system could not be built on the basis of a five-cent fare. It also took it for granted that under Detroit's debt limit the city could not build a rapid transit system by issuing general obligation bonds. Thus the commission reasoned that the only way to build a rapid transit system was to divide the costs equitably among the beneficiaries—namely the riders, the city, and the nearby property owners. Intent on keeping the fare as low as possible, it proposed that the riders pay only for equipment, cars, storage yards, and the like, which came to 32 percent of the cost. For what the commission referred to as the "permanent way," the structure, stations, and tracks, the city should pay one-fourth (or 17 percent of the total cost), which would come from property taxes, and the property owners three-fourths (or 51 percent of the total), which would come from special assessments. The assessments would be imposed on all real estate (except buildings) within half a mile of the tracks, with the rates governed by proximity to the stations and ranging from one to seven cents per square foot a year for seven years.[85]

Other transit planners soon followed the Detroit commission's lead. In 1925 Kelker, De Leuw, one of the nation's leading transit engineering firms, prepared a comprehensive rapid transit plan for Los Angeles. It recommended that three-fourths of the costs of the structure, a combination of subways and els, be paid for by special assessments, imposed, as in Detroit, on all land within half a mile of the tracks. A year later the St. Louis Board of Public Service, relying heavily on the work of consulting engineer C. E. Smith, submitted an ambitious rapid transit plan to the city's Board of Aldermen. Under the plan the operating company would pay for the equipment, and the city and nearby property owners would share the costs of the structure; one-quarter would be covered by public utility bonds and three-quarters by special assessments. The Greater Cleveland Transportation Committee came out in support of special assessments for rapid transit in 1925,

as did the Pittsburgh Transit Commission a year later. Also in 1926, the Chicago Subway Advisory Commission, an organization of downtown business interests, said that Chicago should use special assessments and declared that its members would be more than willing to pay their share. Toward the end of the decade, by which time most transit planners had come around, the Beeler Organization, another prominent engineering firm, recommended that Cincinnati consider using special assessments to finish its small subway. And the Seattle Traffic Commission, which was sponsored by the downtown business interests, proposed that special assessments be used to finance rapid transit.[86]

To many advocates of rapid transit, the case for special assessments was overwhelming. Given the support for low fares and the opposition to subsidies, special assessments were the only substantial source of funds available. Just how substantial was revealed by the enormous increase in property values along and near the subway lines in New York. What happened in New York, the Detroit Rapid Transit Commission contended, was "a fair indication of what will happen [in Detroit and other cities]." The use of special assessments, their supporters held, was not only a sound way to raise money, a way that would not increase the city's debt and impair its credit, but also an equitable way. It honored the principle that general benefits should be financed by general funds and local benefits by local funds. To tax all property owners for rapid transit, yet allow some property owners to retain the "unearned increments," was unfair, claimed the St. Louis Board of Public Service. "It favors the minority who are benefited and penalizes the majority who are not." The use of special assessments for rapid transit was not "a new principle," argued the Federal Electric Railways Commission, but "merely the application of an old principle." Special assessments had long been used to provide other public improvements in the United States, even, on two occasions (once in San Francisco and once in Denver), to build railroad tunnels. Their use for rapid transit did not differ in principle from their use for other public facilities.[87]

But to many Americans, including many who otherwise supported rapid transit, the case for special assessments was less compelling. The use of special assessments for rapid transit was a "radical departure," wrote the Seattle Municipal League, an "experiment" that had not yet been tried anywhere in the country. It was unjustified, said Greely Kolts, president of the Northwest Civic League, one of the many neighborhood improvement associations in Los Angeles. Mass transit was a business, and should be treated accordingly. There was no more reason for property owners to help pay to construct a subway for a railway company than to help pay to erect "a building for a depart-

ment store." The use of special assessments for rapid transit was neither sound nor equitable, opponents charged. It was very hard to foresee with accuracy the impact of rapid transit on property values. Some properties might be helped, others might be harmed. Even if property values increased, the increases were illusory, declared Howard A. Starret, one of the leaders of Detroit's Committee of Fifty-One. Property owners received no benefits at all until they sold their land. For investors and speculators, who were ready to sell at any time, this was not a problem. But for ordinary homeowners, who had no intention of selling, it was a very serious problem. Not only would they have to pay the assessments, but as their property was appraised at a higher value, they would also have to pay higher taxes. For small property owners the use of special assessments for rapid transit was "absolutely confiscatory," said a Detroit city councillor.[88]

In the end the proposals to use special assessments fared as poorly in other cities as they did in New York. During the late 1920s Pittsburgh and Allegheny County representatives asked the Pennsylvania legislature to submit to the voters a constitutional amendment allowing cities to assess property for rapid transit. Swayed by opposition from other parts of the state, the legislature refused. At around the same time a bill was introduced in the Missouri legislature permitting St. Louis to assess property for rapid transit, but the bill was shelved when transit advocates could not agree on how much of the costs should be paid for by special assessments. Nothing came of the proposals to resort to special assessments in Los Angeles, Chicago, and other cities either. Indeed, only in Detroit did a proposal that provided for special assessments even reach the voters. And as Sidney Waldon and other advocates of the rapid transit commission's 1929 plan conceded, the opposition to special assessments was a major reason for the failure of the bond issue.[89] Several months after the voters rejected the commission's plan, the Great Depression struck—leaving in its wake a wave of defaults among property owners all over urban America that buried the idea of using special assessments for rapid transit.

A year or so after taking over as the first chairman of the New York City Board of Transportation, an agency that had been created by the state legislature in 1924 and empowered to build new rapid transit lines, John H. Delaney spelled out the financial problems facing the board. "Apparently, everybody wants more subways," he wrote; "everybody wants to preserve a uniform five-cent fare and everybody wants to have the new subways financed in the same way as the existing lines were financed, and nobody wants to pay any of the cost of building the new line by taxation or assessment upon property." This, Delaney pointed out, "is impossible."[90] A strong supporter of special assessments, Delaney may have exaggerated, but not by much. Most riders favored maintaining the five-cent fare; most taxpayers opposed additional taxes; and most property owners objected to special assessments. About the only thing these groups agreed on was that one or both of the others should pay all or most of the cost of rapid transit. Despite these problems, New York managed to embark on the construction of the Independent Subway System (IND) in the mid 1920s, the last major expansion of the city's subway system. But in the absence of a consensus about how to pay for subways, other cities were severely hampered in their attempts to build them. As the Detroit Rapid Transit Commission found out, it was one thing to make the case that the costs of rapid transit should be distributed equitably among the beneficiaries. It was quite another to prevail on the beneficiaries to go along.

On one point, however, Delaney was wrong. By the mid 1920s, if not earlier, not everyone in New York wanted more subways. Indeed, some New Yorkers believed that the city had already built too many. In other cities a small but growing number of residents did not want a subway at all. These Americans were opposed to subways in general, as opposed to specific subway proposals. They held that cities should not build subways, even if they could find ways to resolve the many issues that sharply divided advocates of rapid transit. Some were opposed to subways on the grounds that they would impose too heavy a burden on the city and its hard-strapped taxpayers. Often they suspected that by the time the subway was finished it would cost much more than estimated.[91] Others objected to subways because they were opposed to municipal ownership, suspicious of local officials, doubtful that they could run anything, much less a complicated rapid transit system—still others because they were opposed to private operation of mass transit. Others, notably the streetcar companies and elevated railways, were opposed to subways for fear that they would siphon off much of their business. Still other opponents held that subways would not relieve traffic congestion in the center or promote residential dispersal on the periphery, the two principal rationales for rapid transit since the late 1860s.

Although much of the opposition was expected—for example, there was no reason to expect that els would be less hostile to subways than street railways had been to els and omnibuses had been to street railways—some of it was not. A case in point is the opposition to subways on the grounds that they were a ploy to build up downtown at the expense of the outlying sections, and especially of the outlying business districts. The principal spokesmen for this position were neighborhood improvement associations and outlying business-

men's organizations. This opposition was unexpected because it ran counter to the widespread belief in spatial harmony, the belief that intra-city rivalry was unnatural, that the fortunes of the center and periphery were inseparable. The opposition was also unexpected because the outlying real estate interests had long been strong supporters of rapid transit. Indeed, other Americans had complained that they would do anything to raise the value of their property, even campaign for elevated railways, not caring if they did irreparable damage to residences and businesses along their routes and elsewhere in the city.[92]

Although this opposition was unexpected, the idea underlying it—that rapid transit might serve to build up one part of the city at the expense of another—was not new. It had surfaced in the late 1870s and 1880s, when some New Yorkers predicted that the elevated railways would not only foster residential dispersal but also promote commercial concentration. Downtown would prosper, but the outlying business districts would decline. Once residents could travel quickly and comfortably between their homes on the periphery and what the *Real Estate Record* called "the great depots of trade" in the center, neighborhood stores would founder. So would suburban stores. The idea spread to Chicago in the late 1880s and 1890s. Observers there forecast that the elevated railways would encourage residents to move to outlying sections—leaving the close-in residential neighborhoods with higher vacancy rates and lower property values—and also to shop in the Loop. By enabling people, as one businessman put it, to "fly over the midway districts from the suburbs to the [Loop] and back again," the els would sap much of the vitality out of the outlying business districts.[93] This idea began to catch on in the early twentieth century, a time when the outlying business districts were rapidly growing in number, size, and importance—a time also when small homeowners were replacing large subdividers and speculators in the outlying residential sections.

The idea did not catch on everywhere. During the mid 1910s property owners in upper Manhattan called on the city to extend the subway into their territory; so did real estate interests in the outer boroughs. Some New Yorkers even thought subways would stimulate commercial development outside Manhattan, especially in the vicinity of the stations. At about the same time a host of commercial organizations, civic groups, and improvement associations from all over Philadelphia endorsed a $6 million bond issue to build a subway and el in the business district. And a decade later property owners in the San Fernando Valley, an as yet largely undeveloped part of Los Angeles, backed rapid transit as the only way to open their remote holdings for residential development. But the idea did take hold elsewhere. In Detroit the Committee of Fifty-One, which spoke for outlying real estate and business interests, attacked the rapid transit commission's 1929 plan as a ploy to enrich the downtown merchants at the expense of the rest of the city. Many residents agreed. "Home owners would have to pay the bulk of the [subway's] cost as usual," one wrote, "while the downtown business people will be the chief beneficiaries." The same was true in Los Angeles, where many outlying business interests viewed rapid transit as a ploy by the downtown business interests to strengthen their weakening hold over the commercial life of the metropolis (and to pass the costs on to property owners elsewhere in the city).[94]

Nowhere did the outlying business interests oppose subways more vigorously, implacably, and effectively than in Chicago. By the early twentieth century downtown Chicago was one of the nation's marvels, an extremely compact, highly concentrated business district widely known for its palatial department stores, towering office buildings, and imposing elevated railway loop. The commercial hub of the Midwest, it did more trade than any business district except downtown New York. But even if most of Chicago's trade was done in the Loop, a good deal was done in dozens of outlying business districts all over the city, most of them located along transit lines and major thoroughfares. By the 1910s and 1920s the small ones consisted of a few groceries, drug stores, bakeries, hardware stores, and taverns that served nearby residents. The large ones—the ones, for example, at Milwaukee and Logan Square, Halsted and Sixty-third, and Madison and Crawford—drew customers from a wider area and also included branch banks, movie houses, professional offices, furniture stores, and real estate firms.[95] These outlying business interests were organized into a host of often overlapping street, neighborhood, district, and even citywide associations. Among them were two of the strongest opponents of subways, the Northwest Side Commercial Association, which was led by Tomaz F. Deuther, and the Cook County Real Estate Board, most of whose members dealt in real estate outside the Loop.

For the outlying business interests, the issue first came to a head in early 1909, when the Chicago Subway Bureau recommended the construction of a $100 million subway that radiated from the Loop into the north, south, and west sides. Even before the bureau made its report public, west-side merchants mounted a campaign against the plan. It soon spread to other parts of the city. The campaign was then taken over by the Chicago Retail Merchants' Association "Outside the Loop," an organization of about five thousand outlying merchants that had just been formed to lobby against an eight-hour-day bill supported by Loop merchants. The association contended that the pro-

posed subway was designed to increase trade and raise property values in the Loop at the expense of the outlying business districts. As Robert W. Schoenfeld, who owned a department store at Halsted and Sixty-third, declared, "Every merchant outside the loop knows that if a subway were built it would practically mean his end so far as business is concerned. It would take most of the trade to the loop and leave us nothing." A small downtown subway might be acceptable, said R. J. Carroll, a Milwaukee Avenue merchant and president of the association. "But the minute it is proposed to extend it outside the loop we are against it. It would tend to take most of our business away, and in a short time we would all be going into bankruptcy." Far better, the association argued, to spend the money on new streets and other much needed improvements. Although Mayor Fred A. Busse, Alderman Milton J. Foreman, chairman of the city council's Local Transportation Committee, and the *Chicago Tribune* called on the outlying merchants to abandon this shortsighted opposition, they refused to back down. The Subway Bureau's plan was subsequently shelved, at least in part because of their efforts.[96]

This campaign was only the first of many. With the Northwest Side Commercial Association and the Cook County Real Estate Board spearheading the efforts, the outlying business interests joined the opposition to the Chicago Harbor and Subway Commission's rapid transit plan of 1912. With funds provided by a dozen or so outlying businessmen's associations (and a couple of neighborhood improvement and taxpayers' organizations), they mounted a campaign that helped persuade the voters to reject the proposed subway in 1914. Two years later Deuther and W. D. Kerr, a spokesman for the Cook County Real Estate Board, spelled out their objections to subways at a hearing of the Chicago Traction and Subway Commission. This commission, which consisted of Parsons, Arnold, and Robert Ridgway, then prepared another transit plan that made several significant concessions to the outlying sections. But when a revised version of this plan, which was strongly supported by the Chicago Association of Commerce and other downtown business interests, was put on the ballot in 1918, the outlying business districts fought against it, too—again with success. Things changed somewhat in the early and mid 1920s, when the Association of Commerce, still strongly committed to a subway, made an effort to coopt the outlying business districts, inviting them to join the All Chicago Council, a citywide group whose goal was to develop a rapid transit plan acceptable to both Loop and non-Loop interests. Some outlying districts favored its plan, which called for streetcars and els as well as subways and provided additional service to the periphery. Others opposed it. A revised version of this plan was submitted to the voters in 1925. Although

the Association of Commerce and Mayor William E. Dever lobbied hard for it, the plan was rejected—even losing heavily in many of the outlying sections that were supposed to be the chief beneficiaries.[97]

To the advocates of rapid transit, the outlying business interests were at once selfish and wrongheaded. Selfish, said John Ericson, chairman of the Harbor and Subway Commission, because they were willing to "sacrifice the welfare of the entire community rather than see any action taken whereby some section of the city would profit more than the one in which they live and own property." Wrongheaded, insisted Walter L. Fisher, one of the architects of the 1918 ordinance, because they were wedded to the preposterous notion that "they are somehow going to build up the business of the outlying districts by making it difficult for the people who live in those districts to come downtown." Subways, their advocates contended, were not designed to build up the Loop at the expense of the outlying business districts; they were designed to benefit the entire city. Once the subway was built, the outlying business districts would lose some customers but gain others. In general their business would increase, as would their property values. The streetcars and els had stimulated development in the outlying districts. So would the subways. Drawing on the traditional notion of spatial harmony, the advocates of rapid transit dismissed the idea that there was a conflict of interest between the center and the periphery. Speaking at a conference of Loop and non-Loop interests, a leader of the Chicago Association of Commerce declared in 1911, "our interests are yours and your interests are ours." The Chicago Subway Advisory Commission made the same point a decade and a half later.[98]

The well-being of the Loop depended on the growth and prosperity of the outlying districts, the subway advisory commission conceded. But by the same token the growth and prosperity of the outlying districts depended on the well-being of the Loop. Calling it "a great economic fact," the *Chicago Tribune* wrote in 1915 that "the Chicago loop is the most efficient natural organization to do business possessed by any city in the world. It is, indeed, to the city of Chicago what the city is to the surrounding territory. It is centralization within centralization." It was reasonable for the outlying business interests to try to increase their trade and raise their property values. But it was not reasonable for them to think they could do so "by killing the business center," said Mayor Carter H. Harrison, Jr. "You cannot wipe out this great center," a leader of the Chicago Association of Commerce advised representatives of several outlying businessmen's associations in 1911; "you cannot eliminate it, it is here to stay." In the interest of the entire city, it was incumbent upon the outlying business districts to acknowledge the importance of the Loop and to

lend their support to the efforts to enhance its accessibility. As the subway advisory commission put it:

> There would seem to be little question as to the interest of the outside districts of Chicago in a downtown district from which a half a million of their residents derive their livelihood. There would seem to be no doubt of the intimate dependence, in considerable part, of every outside district upon that downtown district from which they so extensively draw. There would seem to be no proper improvement in the downtown district, no just encouragement of its growth, no reasonable measure to increase its prosperity, in which the outside districts may not well cooperate. To their own and distinct advantage.[99]

To Deuther and other spokesmen for the outlying business districts, these arguments were disingenuous at best and self-serving at worst. Subways, they contended, would build up the Loop at the expense of the outlying business districts. Everyone knew it, even the downtown business interests, which were the major force behind what the Cook County Real Estate Board's transportation committee labeled in 1912 "the past eight years of subway agitation." Contrary to their rhetoric, the downtown business interests were well aware that they were locked in competition with the outlying business districts, the outcome of which would have profound impact on profits and property values. Deuther and his associates argued that the downtown business interests were not concerned about improving transportation for the entire city. That could be done more effectively and less expensively by upgrading and extending the streetcar lines and by rerouting them so that it was no longer necessary for residents to travel through the Loop to get from one part of the city to another. Nor were the downtown business interests concerned about relieving congestion. To the contrary, wrote Benjamin Levering, a local lawyer on whom Deuther relied heavily, the Loop merchants and property owners "want to intensify and perpetuate it, for the congestion means good business to them and increase in values of real estate." They want to perpetuate "our present policy of development," said Deuther, a policy of "centralization within a small and limited area" that well serves the Loop, but not the rest of the city.[100]

As spokesmen for the outlying business interests saw it, the Loop was anything but a natural development, much less a beneficial one. It was, wrote Levering, "a vast monopoly of mercantile business and unearned increment of land values" which should be spread over the whole city, a monopoly that thrives "at the expense of the outside sections" and that "works great hardship

and injustice to the millions who are not interested in loop real estate or in loop stores and shops." The Loop was the product not of geography but of transit policy, a policy whereby nearly all streetcars and els converged on the same small spot. Now that traffic was growing worse in the Loop, shoppers were finding it harder to get to State Street, and trade was on the verge of expanding to the outlying sections, the Loop merchants and property owners were demanding a subway. But a subway—in Levering's words, the "greatest instrumentality which has ever been devised for shoveling business and people into [the Loop]"—was exactly what Chicago did not need. It would lead to more concentration, more traffic, more congestion, and eventually to demands for more subways—until a point was reached at which the congestion would grow so intolerable that, in Deuther's words, "strangulation might set in," bringing about a much needed dispersal of business, doing "a job which our mayors and alderman[,] either through ignorance or through fear, [have] failed to do."[101]

Late in 1926 the subway advisory commission finally conceded that subways would benefit the Loop more than other parts of the city. In yet another proposal for a rapid transit system, the commission therefore recommended

Opposition to the Loop and a Chicago subway, 1910s (Tomaz F. Deuther, Local Transportation, *Chicago, 1924)*

that the city pay for it largely by special assessments, a fair share of which would have fallen on downtown real estate. Like the previous proposals, this one went nowhere. By the late 1920s Chicago had little to show for the many attempts to build a subway other than a shelf full of reports and studies. There were several reasons that the city was unable to build a subway, some of which have already been mentioned. But according to two Chicago aldermen who were involved in the struggle, the opposition of the outlying business interests was the most important. It is not clear that a subway would have built up the Loop at the expense of the outlying business districts, although according to Homer Hoyt, the leading authority on land values in Chicago, the construction of the els in the 1890s did slow the development of some of these districts.[102] But many of the outlying business interests believed that it would—and that belief fueled the opposition to subways at what was perhaps the one time in Chicago's history that the city could have built them.

Also fueling much of the opposition to subways was a small but influential group of social reformers, city planners, and transit engineers who had gradually come to believe that subways would neither relieve traffic congestion nor promote residential dispersal.[103] Their opposition was as unexpected as the opposition of the outlying business interests. Down through the late nineteenth century it had been taken for granted that subways, no matter how expensive and unpleasant, would relieve traffic congestion by removing streetcars from the streets and diverting passengers from surface transit to underground transit—by, in other words, increasing the capacity of the streets without increasing their load. It had also been taken for granted that subways would promote residential dispersal by opening up remote and relatively cheap sections for development, thereby enabling workingmen and their families to move from tenement houses to single-family homes.

By the early 1910s, however, some Americans began to have second thoughts about these notions. One was Charles K. Mohler, consulting engineer to the Chicago City Club, who could not understand how the proposed subways would relieve congestion if they were designed to carry even more people into the city's small and already overcrowded business district. Another was Ernest P. Goodrich, a New York city planner, whose doubts were inspired largely by the experience of New York's first subway. From the start the IRT had attracted far more riders than anticipated; within a decade it poured a million or so people a day into the already packed streets and sidewalks of lower and midtown Manhattan. By the 1920s many other Americans believed that subways intensified traffic congestion. They too pointed to New York

City, where after nearly three decades of subway construction congestion was worse than ever. "Despite every scheme of traffic control so far devised," the *New Republic* wrote in 1928, "New York ties itself up in a knot twice a day from Thirty-fourth to Fifty-ninth Street and almost from river to river." It was even worse in lower Manhattan, others pointed out, especially in the financial district. On the basis largely of New York's experience, a blue-ribbon group of municipal officials, traffic engineers, and city planners, some of whom had once been strong advocates of subways, concluded in 1927 that "congestion in the business centers of our great cities is a malady which cannot be cured by providing facilities for greater congestion." The Regional Plan Association of New York took the same position, as did the National Municipal Review and the American Institute of Architects.[104]

At the core of this position was the theory of what Daniel Turner, consulting engineer to the New York Transit Commission, called "a vicious circle of transit development and city congestion." Subways, Turner wrote, did more than just remove traffic from the surface. They also created additional traffic. And they drove up the value of real estate along the lines, which encouraged property owners to replace small office building and retail shops with giant skyscrapers. These generated even more traffic—transit, vehicular, and pedestrian—and even more congestion. The downtown businessmen and property owners then demanded new subways to relieve the increasing congestion. "In this way," argued Turner, "the problem has gone around and around in a circle, from congestion to new subways—and then again to congestion." No city could possibly build enough subways to keep up with the demand, wrote Henry H. Curran, a former New York City alderman and later counsel to the New York City Club, not even New York. The city had already spent $700 million on subways without solving the traffic problem and now found itself with "a coagulated bunch of skyscrapers" and no money to spare for bridges, schools, parks, and playgrounds. New York was an object lesson for Chicago, Detroit, and other cities thinking of building a subway, Curran warned. It was an object lesson of what "not to do."[105]

During the 1910s and 1920s many Americans were also having second thoughts about the notion that subways would promote residential dispersal. These were an outgrowth of one of the principal paradoxes of rapid transit. Rapid transit, its supporters had long believed, was needed to open outlying sections for residential development, to enable the middle and working classes to live in single-family homes in sparsely settled neighborhoods. But as even B. J. Arnold and other experts who were favorably disposed toward rapid transit pointed out, subways were very expensive. Whether built by pri-

vate enterprise or public authority, they were invariably saddled with heavy fixed charges. To meet these charges, subways had to carry many passengers. But many passengers meant "dense traffic," argued planner Milo R. Maltbie in 1913; and dense traffic meant "congestion of population." A district of single-family houses, "each with its own grass plot and garden," could not support a subway at anything like what Americans considered a reasonable fare. (Indeed, such a district could not even support a combined elevated and subway line, claimed Henry C. Wright, deputy commissioner of the New York City Department of Charities.) Unless cities can find ways to defray part of the cost of construction, Maltbie said, "it is impossible for [them] to have subways unless at the same time they are content to have congestion—tenement houses, solidly built blocks[,] and not separate dwellings."[106]

But most Americans were not content to have tenement houses. As Wright put it, "the apartment or tenement house . . . tends to destroy the sense of individual responsibility and loyalty to the community." Others viewed the tenements as a threat to public health, personal morality, family stability, political integrity, and public order. It was hard for them to see why they should campaign hard for subways if the result would be to replace tenement or apartment houses near the center with tenement or apartment houses on the periphery. This paradox also raised knotty questions. Take the case of St. Louis, one of many American cities that were already built up mainly of one- and two-family houses. According to Kelker, De Leuw, a subway there could only cover its costs if much of the city "changed from a residence to an apartment district." (To many Americans, an apartment did not qualify as a residence.) But if the population of St. Louis was already widely dispersed, what sense did it make to build a subway to promote residential dispersal?[107] A subway might have done better in New York and Boston, two of the nation's most densely populated cities. But if it succeeded in promoting residential dispersal, if it managed to reduce population density, the subway would not attract enough passengers to cover its fixed charges and operating expenses. If the subway could not meet its obligations, who would put up the money to ensure that the residents who had moved to the periphery would be able to travel to and from the business district?

Most Americans who doubted that subways would relieve traffic congestion and promote residential dispersal fell into one of two groups. One believed that subways were not the only cause of overcrowding. Subways could relieve congestion and promote dispersal, provided that they were designed to serve the outlying residential sections, to connect these sections with the outlying business districts, and to bypass the downtown business district—provided, in other words, that they were designed to distribute residences and businesses, not to concentrate them. And provided also that they were built according to a comprehensive land-use plan that included measures to prevent the erection of giant skyscrapers and thereby break the "vicious circle of transit development and city congestion." The other group believed that subways, no matter how designed, would only make things worse, that the solution to overcrowding would be found not in rapid transit but in other policies. Chief among them were the proposals to impose height restrictions on office buildings, a measure that would spread out commercial activities; to promote the deconcentration of industry, a step that would allow people to live in suburbs not far from their workplaces; and, not least of all, to encourage the shift from streetcars to automobiles, a move that would further stimulate the decentralization of the American metropolis.[108]

By the mid and late 1920s a good many Americans viewed subways as a problem rather than a solution. Nowhere was this view held more strongly than in Los Angeles. The story began in 1906, when E. H. Harriman, a national railroad magnate whose company owned a local interurban railway, announced a plan to build a four-mile subway running west from downtown Los Angeles. Nothing came of the plan, which was abandoned because of the panic of 1907. Nor did anything come of a more ambitious plan prepared by B. J. Arnold a few years later. As late as the mid 1910s, by which time Los Angeles was well established as the metropolis of southern California, most residents believed that the city was too small (and too widely dispersed) to support a rapid transit system. During the 1910s, however, the population soared from 319,000 to 576,000, making Los Angeles the largest city west of Chicago and the tenth largest (and fastest growing) in the nation. In the meantime, traffic congestion in and around downtown Los Angeles, which had been bad enough in 1910, grew much worse. With the Los Angeles Railway streetcars, the Pacific Electric trains, and a rapidly growing number of autos and trucks pouring into the business district, the streets were close to impassable during rush hour. The downtown business interests, afraid that their stores and offices would soon become inaccessible to the outlying residential sections, began to call for rapid transit. Joining them were some outlying real estate interests, which were dissatisfied with the surface transit systems, and the local railway companies, particularly the Pacific Electric, which regarded rapid transit as the only way to relieve traffic congestion and thereby reduce its expenses, improve its service, and eliminate its chronic deficits.[109]

The issue came to a head in the mid 1920s, when the Los Angeles Traffic Commission, a recently formed but very influential advisory group on which

the downtown business interests were well represented, called on the city and county governments to underwrite a study of the transit problem. At the urging of the Los Angeles Board of Public Utilities, a municipal agency whose chief engineer had recently come out in favor of a subway system for central Los Angeles, the city council appropriated $20,000 for the study, a sum that was matched by the county board of supervisors. On the advice of the Board of Public Utilities, the council retained Kelker, De Leuw, whose principals took it for granted that rapid transit was essential for the continued growth and prosperity of Los Angeles. The firm began work in May 1924 and submitted a report about a year later. It recommended a vast rapid transit system, coordinated with the existing surface lines, operated and managed by one agency, and constructed in two stages, the first of which would cost an estimated $130 million, the second an additional $190 million. Two features of the Kelker, De Leuw plan were especially noteworthy—and extremely controversial. In an attempt to design a comprehensive system at a reasonable cost, a difficult task in such a dispersed metropolis, Kelker, De Leuw favored els, which were much cheaper than subways, on most of the lines outside downtown Los Angeles. For each mile of subways, it proposed more than three miles of els in the first stage and about ten miles of els in the second. In an attempt to keep fares as low as possible and to rely as little as possible on property taxes, Kelker, De Leuw also recommended financing the system largely by special assessments—which would have covered 51 percent of the total cost (and 75 percent of the cost of construction).[110]

The report sparked a heated debate that raged for several years. In favor of the plan were the downtown business interests, some outlying real estate interests, and the surface transit companies. Allied with them were the Los Angeles Traffic Commission and the Board of Public Utilities (as well as Mayor George E. Cryer). Spokesmen for these groups defended the plan on the grounds that Los Angeles sorely needed a rapid transit system not only to relieve traffic congestion and stimulate residential development but also to affirm its standing as a great metropolis. They also said that Los Angeles should follow the lead of New York, Boston, and Chicago, all of which had begun to build a rapid transit system at about the time their population reached a million. Opposed to the plan were a good many small residential property owners, not all of whom objected to rapid transit per se. Some of them were opposed—"unalterably opposed," wrote the head of the Taxpayers' Anti-Elevated League—to the construction of elevated railways, which were an integral part of the plan. They rejected Kelker, De Leuw's position, one held by many transit engineers in the mid 1920s, that els could be built in a way that would not darken the street, disfigure the city, or lower the value of the abutting property. Others were opposed to the imposition of special assessments. How, their spokesmen asked, could the authorities even think about imposing so heavy a burden on property owners in order to build a transit facility that would reduce the value of their holdings?[111]

Also opposed to the plan were two groups that objected to rapid transit per se—whether built above ground or below ground and whether financed by special assessments or property taxes. Many outlying businessmen regarded rapid transit as a ploy to build up downtown Los Angeles at their expense. And many other residents feared that rapid transit would do there what it had done in other cities, namely "increase congestion and the evils which flow from it." In this group were the members of a special committee of the Los Angeles City Club that urged the city to reject the Kelker, De Leuw plan. Applying Turner's theory of the "vicious circle," it pointed out that subways and els would drive up downtown property values, triggering skyscraper construction and thereby exacerbating traffic congestion. The problem would be solved by enabling residents to work and shop on the periphery, not by building new facilities to carry them into the center. The committee also held that rapid transit was not needed to promote residential dispersal. A city mainly of single-family houses, Los Angeles was already extremely dispersed. Given the incipient movement toward the decentralization of commerce and industry, plus the growing reliance on automobiles and telephones, it was likely to become even more dispersed in the future—even without rapid transit. "Considering the results obtained in cities like New York, Boston, and Philadelphia," the committee declared, "we may well ask whether Los Angeles is justified in beginning the endless chain program of expenditures in subway and elevated structures which inevitably have tended to increase the congestion in those centers of population."[112]

C. A. Dykstra, a well-known city planner who opposed the Kelker, De Leuw plan, made the same point. Writing in the *National Municipal Review* in 1926, he pointed out that rapid transit would funnel more and more people into downtown Los Angeles, thereby creating a more centralized business district. But, he asked, is that what Los Angeles needs or wants? "Is it inevitable or basically sound or desirable that larger and larger crowds be brought into the city's center; do we want to stimulate housing congestion along subway lines and develop an intensive rather than an extensive city; . . . is it ultimately desirable to have an area of abnormally high land values with its consequent demand for the removal of all building height restrictions; must all large business, professional and financial operations be conducted in a restricted area[?]"

Dykstra held that the answer was no. So did most residents of Los Angeles, who no longer believed that an extremely compact, highly concentrated business district was either inevitable or desirable. Far more attractive to them was a more decentralized metropolis in which the populace, in Dykstra's words, "for the most part lives near its work, has its individual lawns and gardens, [and] finds its market and commercialized recreational facilities right around the corner." Dykstra and many others envisioned the future Los Angeles as a huge metropolis of small but largely self-contained communities, each of which revolved around its own business center, one that would have little need for rapid transit because it would have little traffic congestion in the center and little long-distance commuting on the periphery.[113]

The debate over rapid transit dragged on into the early 1930s. But by then the Kelker, De Leuw plan was dead, as were the prospects for rapid transit in Los Angeles. As even its supporters conceded, rapid transit could not be built by private enterprise, certainly not by the Los Angeles Railway or the Pacific Electric, both of which were in serious financial trouble. Nor was public authority a viable alternative. Given the fiscal constraints, it could not build a comprehensive rapid transit system; but given the political constraints, it could not build anything else. The downtown business interests still supported rapid transit, but this was offset to a considerable extent by the opposition of the outlying business districts. A few large landowners in the San Fernando Valley and other remote sections also favored rapid transit, but they were outnumbered by the many small property owners elsewhere in greater Los Angeles. As C. J. S. Williamson, a member of the Santa Monica Planning Commission, explained, many of these people were already relying heavily on their automobiles. They were unlikely to use rapid transit and unwilling to help pay for it, especially when they were already supporting a local highway system that served them pretty well. They were interested in keeping their property taxes and special assessments as low as possible, not in seeing remote sections opened for residential development—and not in helping out the local transit companies. And for the most part they subscribed to the emerging conventional wisdom that rapid transit would slow down the movement toward a decentralized metropolis, which was viewed as the ultimate solution to the local transportation problem.[114]

By the late 1920s America's cities had built about 350 miles of rapid transit lines, of which a little more than one-third ran below ground, a little less than two-thirds above. That may seem like a lot, but in a country with almost 41,000 miles of street railways, it was not. Moreover, about two-thirds of the

rapid transit lines—close to three-fifths of the els and roughly five-sixths of the subways—were located in New York. Most of the other elevated lines were in Chicago, and most of the other subway lines were in Boston. To put it another way, by the late 1920s, after more than two decades of vigorous efforts, after the preparation of scores of studies and reports, after the expenditure of millions of dollars, and after a host of predictions that most big cities would soon build a rapid transit system, nearly 90 percent of the els, close to half of which had gone up before the turn of the century, were in New York and Chicago. And more than 90 percent of the subways were in New York and Boston, both of which had begun to build their first underground lines before 1900.[115]

The campaign for rapid transit made some progress in Philadelphia, where the city and the Philadelphia Rapid Transit Company joined forces to build roughly forty miles of els and subways by the late 1920s (and about thirty additional miles of subways by the early 1930s). But it went nowhere in the dozen or so other cities that attempted to follow in the steps of New York and Boston.[116] Pittsburgh approved a bond issue for a subway, but as a result of wartime inflation did not build it. By the early 1930s even former supporters were no longer certain that a subway was the solution to the city's traffic problem. With money from a bond issue, Cincinnati constructed a large part of a small subway. But it did not finish it, partly because the city officials were reluctant to submit another bond issue to the voters and partly because the local transit company was unwilling to lease the subway without a guarantee against any losses. Cleveland turned down a bond issue for a rapid transit system, as did Detroit. Chicago rejected several different transit proposals. The Kelker, De Leuw plan never even made it to the ballot; neither did an ambitious plan prepared by the St. Louis Board of Public Service. Nothing came of several much less ambitious (though probably even less promising) schemes submitted in Baltimore, Milwaukee, and San Francisco. Despite Mayor C. B. Fitzgerald's remarks that Seattle needed a subway as much as it needed water, nothing came of the proposals to build one there either.

Several transit plans were still under consideration in the late 1920s. But even before the depression hit, leaving most big cities in no position to build much of anything, there was little chance that these plans would be adopted. The downtown business interests backed rapid transit as strongly as ever. But they faced heavy opposition, and they could no longer count on much support from their traditional allies. Most outlying real estate interests, now made up of small homeowners as opposed to large subdividers, were more concerned about holding down property taxes than opening up remote sections for resi-

dential development. Many outlying residents were by now firmly wedded to the automobile. Many transit engineers, including some who had designed major rapid transit plans in the early and mid 1920s, now held that subways and els should not be built anywhere except in a few very large and extremely dense cities. According to Kelker, De Leuw, even St. Louis, the nation's seventh largest city in 1930, was too small and too diffuse for rapid transit. Moreover, the Boston and New York rapid transit systems, long the models for other cities, were in trouble. The Boston system was so plagued by financial problems that the state legislature put it in the hands of a board of public trustees, which raised the fare and then assessed the deficit against the cities and towns served by the system. Some Bostonians held that the els should be demolished, and others believed that their grandchildren would live to see the subways "converted into catacombs." The New York transit system was running a huge deficit too. It was draining the city of much-needed funds, critics charged, and filling it with little-needed skyscrapers. Its service was deplorable, wrote the City Club of New York, which strongly objected to the "uncomfortable, unsanitary, indecent, offensive and dangerous crowding and packing and crushing of people" on the trains.[117]

The long and unsuccessful campaign for rapid transit had far-reaching consequences, some of which were noticeable as early as the late 1920s. The failure to build rapid transit had a profound impact on the many Americans who went downtown regularly to work, to shop, to do business, and to amuse themselves, the many Americans whose trade was crucial to the well-being of the business district. A few could walk downtown or commute by steam railroad, but in the absence of rapid transit, most had to rely on the streetcars, which were getting slower and less comfortable. And the streetcar companies, most of which were in financial trouble, could not raise the capital to upgrade equipment or otherwise improve service. Some Americans continued to use mass transit anyway. (By the late 1920s, though, they were much more likely to do so in the few cities that had built rapid transit than in the many cities that had not. Indeed, in the cities without rapid transit the riding habit, which had risen steadily in the 1900s and 1910s, fell sharply in the 1920s, in some cases dropping below prewar levels.)[118] But others, fed up with paying higher fares for poorer service, stopped riding the streetcars, a development the full impact of which would not be felt until the 1930s. Some went downtown by auto. And others went downtown less often, doing more of their shopping and business in outlying districts.

The failure to build rapid transit had a profound impact on the downtown business interests too. It made them aware of the limits of their power. It

showed that despite their great wealth and political influence—despite the support of other business interests and most transit engineers, despite the widespread enthusiasm for traffic relief and residential dispersal, and despite the undeniable advantages of rapid transit—they could not always get what they wanted. The long struggle over rapid transit also led many downtown businessmen and property owners to the conclusion that they could no longer depend exclusively on citywide organizations to promote their interests—that much like the outlying business districts, they would have to form associations of their own.[119] Assuming that accessibility was the key to their well-being, as most of them still did, they were left with three options, all of which would be exercised in the 1930s and 1940s. One was to continue to press for rapid transit—and in particular to look for other ways to underwrite the tremendous costs of construction, which were widely viewed as the principal obstacle. Another option, the repercussions of which were not foreseen, was to push instead for highways and parking lots to make it easier for residents to drive downtown. Still another option, which would have been unthinkable a generation earlier, was to move their offices and stores to the outlying business districts, an option that was extremely unnerving to the downtown property owners.

The campaign for rapid transit also forced many Americans to question the underlying assumptions about downtown and the structure of the American metropolis that had emerged in the late nineteenth century. Most Americans still believed that downtown was inevitable and desirable—that the cities would always revolve around an extremely compact, highly concentrated, and largely depopulated business district to which most people would go every day. But the struggles over rapid transit prompted some Americans to begin to ask whether it might be possible and even preferable for the metropolis to be organized around a host of business districts, of which downtown would be only one. Many Americans still held that rivalry between the business districts and residential sections was unnatural. But in light of the battles over rapid transit, in light especially of the deep hostility toward downtown in the outlying business districts, some Americans began to lose faith in the concept of spatial harmony, to wonder whether rivalry within cities might well be as natural as rivalry among cities. And some Americans also started to have second thoughts about the conventional wisdom that the equilibrium between residential dispersal and business concentration would hold indefinitely.