

The Expressway "Motorists Loved to Hate": Philadelphia and The First Era of Postwar Highway Planning, 1943-1956

AT EXACTLY 12:10 P.M. on November 25, 1958, Mayor Richardson Dilworth of Philadelphia radioed the city policemen stationed at the Vine Street entrance ramps to the new \$100 million Schuylkill Expressway and ordered the patrol to dismantle the wooden barriers blocking access to the untraveled ribbon of concrete roadway. To the sounds of music provided by the police and firemen's band, a line of traffic rolled across the gleaming Vine Street Bridge and onto the recently finished section of express highway linking downtown Philadelphia to the Valley Forge Interchange of the Pennsylvania Turnpike. First started in 1950, the twenty-mile highway had taken eight years to complete.¹ Probably because many of those motorists who braved the expressway that first day found the maze of access ramps confusing, traffic on the new roadway snarled immediately. More was involved than novice confusion. Less than a year later the *Philadelphia Evening Bulletin* carried a story about the "Schuylkill Clogway,"² and "Peak-Hour Nightmare."³

When vehicles were not stalled for hours on what irate commuters complained was the "largest parking lot in the world,"⁴ they were, according to other critics, careening into walls and up and over unprotected embankments. Very soon the highway "motorists loved to hate," was popularly reviled as the "Surekill Expressway."⁵ A decade later, hoping to relieve congestion, planners seriously considered building a

¹ *Philadelphia Evening Bulletin*, Nov. 25, 1958, p. 9; David Hackney, "Schuylkill: A Bummer from the Day It Opened," *ibid.*, July 2, 1979.

² *Ibid.*, Nov. 26, 1958, and Sept. 26, 1959.

³ *Ibid.*, Aug. 23, 1959.

⁴ Hackney, "Schuylkill."

⁵ *Ibid.*; "Gaps in Guard Rails Peril Motorists," *Philadelphia Evening Bulletin*, Jan. 7, 1962.

parallel expressway on the eastern bank of the Schuylkill River. That plan was rejected, but between 1970 and 1987 the entire length of the expressway was totally rebuilt.

The case of the Schuylkill Expressway, clogged on opening day, affords fresh insight into the frailty of human plans and, more importantly, the lofty but flawed assumptions undergirding urban America's first postwar expressway-building era, 1944-1956. The Federal-Aid Highway Act of 1956 launched a new era and new assumptions about the benefits and impact of highway building. This study focuses on pre-1956 assumptions about urban expressways shared by both city planners and highway engineers and attempts to show how these assumptions shaped the ill-fated design of Philadelphia's expressway system. City planners, determined to revive sluggish urban economies, allied themselves in the postwar era with downtown-based businessmen, civic leaders, reform politicians, and other members of that elite group labeled by sociologist John Mollenkopf as the "pro-growth coalition." These apostles of progress believed that urban survival rested upon the large-scale, federally funded, rebuilding of the downtown, including a modern highway system. They argued fervently that modern express highways would help revitalize blighted urban cores by unclogging traffic-jammed city streets and channeling free-flowing truck and automobile traffic into and out of the downtown. By making the downtown freely accessible, the expressway would enliven central-city business, restore a healthy urban residential environment, and in the face of stiff suburban competition, promote what planners called recentralization.⁶

Likewise, by 1945 federal and state highway engineers, who controlled the purse strings and much of the policy direction of postwar

⁶ Mark Rose, *Interstate: Express Highway Politics, 1914-1956* (Lawrence, 1979), passim; Mel Scott, *American City Planning Since 1890* (Berkeley, 1969), 536-37; Joseph S. Clark, "Radio Report to the People by Joseph S. Clark, on Traffic Problem and Its Solution," June 4, 1954, Pamphlet 413-10, in Temple University Urban Archives (Temple University) (hereafter, TUA). Note that earlier generations of planners and pro-growth interests had employed similar arguments to promote suburbs, elevated railroads, and City Beautiful / City Efficient projects: see Mark S. Foster, *From Streetcar to Superhighway: American City Planners and Urban Transportation, 1900-1940* (Philadelphia, 1981); and Charles W. Cheape, *Moving the Masses: Urban Public Transit in New York, Boston, and Philadelphia, 1880-1912* (Cambridge, 1980). Jon C. Teaford, in *The Rough Road to Renaissance: Urban Revitalization in America, 1940-1985* (Baltimore, 1990), 93-105, discusses the hope of postwar urban businessmen, planners, and politicians that highways would help recentralize the downtown. John Mollenkopf discusses the "pro-growth coalition" in his *The Contested City* (Princeton, 1983).

expressway building, shared the pro-growth belief that urban economic health rested on modern highways. Rather than constructing their models of practical expressway systems on a real or sentimental attachment to urbanism, engineers fashioned their blueprints out of hard data generated from traffic counts, commuter surveys, bore-hole tests, and slide-rule calculations. For the highway engineer, traffic volumes alone might dictate the alignment of a modern expressway.

Such beliefs or assumptions drove expressway planning in the years before 1956. Yet the planners and highway engineers who shared this expressway ethos either ignored or were blind to the larger social, economic, and political forces reshaping the postwar cityscape. Bureaucratic-minded proselytes of expertise, who trusted particularly in the infallibility of the engineering sciences, along with city boosters and highway engineers, like those who created the Schuylkill Expressway, believed accurate traffic data and the talents of trained architects and engineers were all that was needed to relieve downtown congestion and pave the way toward urban renaissance.⁷

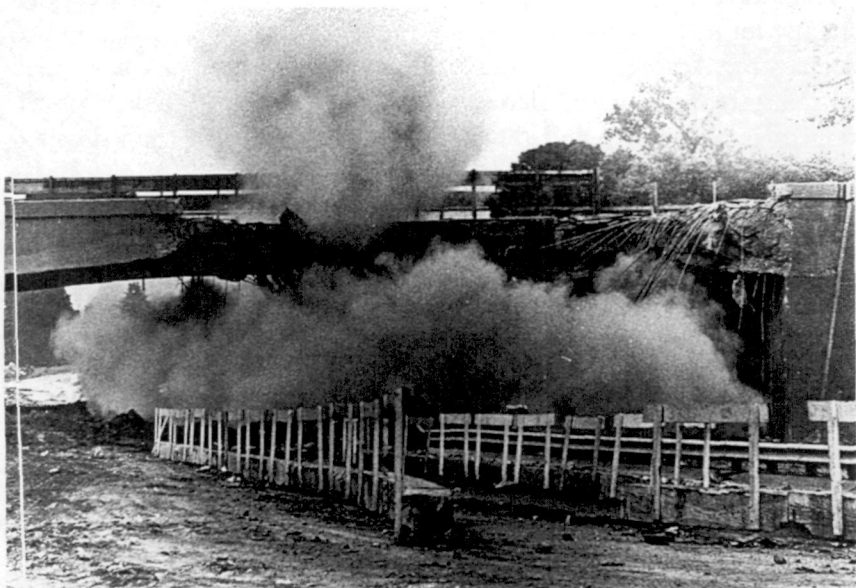
By 1940 traffic congestion in Philadelphia was miserable. A steady stream of automobile traffic poured onto a street system designed mainly for pedestrians, wagons, and carriages. Boosters of mass transit, such as the American Institute of Planners, urged the city to expand its rail system to unclog sclerotic city arteries, but by 1944 a combination of public policy and the allure of "automobility" had derailed mass railway transit in Philadelphia and elsewhere.⁸

⁷ Foster, in his *From Streetcar to Superhighway*, emphasizes the faith that earlier generations of planners placed in technological solutions to traffic ills.

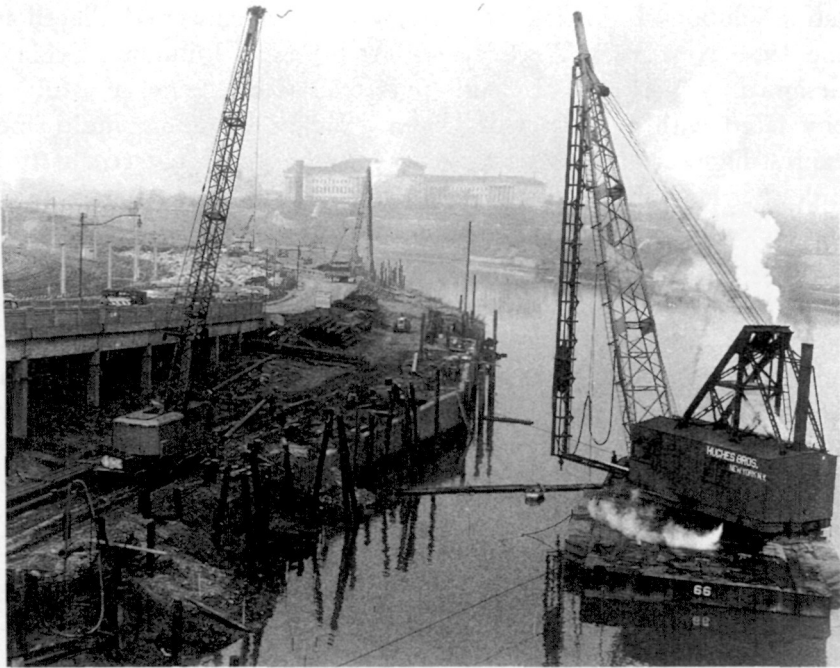
⁸ See Report of AIP Committee on Coordination of Urban Transportation (John T. Howard, Harold M. Mayer, Leslie Williams, and C. Earl Morrow), "Progress Report of ASPO Committee on Highways and Transportation," May 1944, in Folder 88, Box 13, Russell Van Nest Papers (Cornell University). Philadelphia's transit system carried close to 2,000,000 weekday riders in 1938. Because of the lingering effect of wartime, it still carried almost 3,600,000 riders in 1946. That number dropped to only 2,200,000 in 1954. Meanwhile, auto and truck licenses in the city rose from 290,776 in 1938 to 451,676 in 1952. On the evolution of street use and public transportation systems, including mass transit, see Cheape, *Moving the Masses*; and Foster, *From Streetcar to Superhighway*. See also Clay McShane, "Transforming the Use of Urban Space: A Look at the Revolution in Street Pavement, 1880-1924," *Journal of Urban History* 5 (1979), 279-308. On automobility, see John B. Rae, *The Road and the Car in American Life* (Cambridge, 1971); James J. Flink, *The Car Culture* (Cambridge, 1975); and Paul Barrett, *The Automobile and Urban Transit: The Formation of Public Policy in Chicago, 1900-1930* (Philadelphia, 1983).



Schuylkill Expressway being built through Fairmount Park ca. 1955. Courtesy of Temple University Urban Archives.



Existing highway overpass in Fairmount Park being dynamited to clear way for expressway route, ca. 1955. Courtesy of Temple University Urban Archives.



Schuylkill Expressway being constructed at point where highway skirts river and narrows to two lanes to plunge under 30th Street (Railroad) Station. Courtesy of Temple University Urban Archives.

Traffic delays were longstanding urban problems. Early in the Progressive era cities such as Chicago, Saint Louis, Pittsburgh, and Philadelphia first addressed congestion as part of the so-called City Beautiful / City Efficient movement. In the 1930s, to overcome urban traffic problems, several New Deal work relief programs paved and widened streets, built bridges, and removed hazardous grade crossings.⁹ In New York planner and “power broker” Robert Moses corralled \$1.15 billion in New Deal Works Progress Administration and Public Works Administration funds to build a modern 153-mile system of parkways, tunnels, and bridges. Most cities, including Philadelphia, used federal relief dollars on a less grandiose scale, preferring specific projects such as street widening over an integrated system of roadways.⁹ This is not to say that prewar Philadelphians ignored the more scintil-

⁹ See Robert Caro, *The Power Broker: Robert Moses and the Fall of New York* (New York, 1975), 426-575.

lating solutions to traffic congestion, some of which were displayed at the 1939 New York World's Fair. At the fair's Futurama display, designed by Norman Bel Geddes, visitors saw the model of a future city laced with a fantasia of looping, diving, spiraling, multi-lane express highways upon which cars traveled at speeds in excess of 100 miles per hour. Most highway officials viewed Futurama as fantasy, but they still valued it as a public relations tool to build public support for expressway highway building.¹⁰ In 1941 the *Philadelphia Evening Bulletin* touted a less ambitious version of Futurama. The story featured city highway plans—fashioned mainly in the City Department of Streets—that included a proposed Delaware River Tunnel, a “main line speedway” joining suburban Malvern to industrial Chester, a new Powelton Avenue span across the Schuylkill River, and Vine Street as a widened elevated highway extending from 6th Street to the Benjamin Franklin Parkway. The plans also contained a proposed “Right-of-Way for Industry” (called first the Industrial Highway, and after 1950 the Delaware Expressway) linking the Pennsylvania Turnpike and the Delaware River Tunnel, as well as a “parkway” following the Schuylkill River from City Line Avenue to Valley Forge.¹¹

In 1941, with war raging in Europe and threatening to embroil America, and with the city still reeling from the Great Depression, elaborate parkway and tunnel plans seemed more City Beautiful hyperbole rather than serious blueprints for the future. City parking lots, off-street parking, and timed traffic lights offered more immediate,

¹⁰ On Futurama, see Scott, *American City Planning*, 361-65. Robert Moses once made a critical assessment of Norman Bel Geddes's expertise regarding public improvements. In a letter to Geoffrey T. Hellman of the *New Yorker*, Moses wrote:

As to Norman Bel Geddes, I have considerable respect for him as an artist, creator, and purveyor of original or unusual ideas. I like him personally. He has imagination. . . . Yet, I have misgivings about Geddes when he begins to pose as an expert on public improvements.

The funniest thing in Geddes's career was the summons to come to the White House to explain the Futurama to the President, senators, and representatives to whom the President at the time was trying to sell the idea of great transcontinental super-highways. Almost overnight Geddes realized that he was an expert and began to be authoritative and pontifical. This, of course, was a mistake, because Geddes is essentially a pretty shrewd and humorous fellow. I hope he will get over this phase.

See Moses to Hellman, June 18, 1940, Robert Moses Papers (New York Public Library).

¹¹ *Philadelphia Evening Bulletin*, May 17, 1941.

practical prospects for traffic control. Even then, the city was unable to invest in such practical solutions until after the war.¹²

Washington provided considerable impetus for post-World War II urban highway planning. Since 1916, when it originated as an agency under the U.S. Department of Agriculture, the Bureau of Public Roads (BPR) had taken the lead in supplying engineering support and aid for the construction of a modern, efficient system of roads and highways. Thomas MacDonald, who headed the bureau until 1953, shaped it into the apotheosis of engineering efficiency. During the 1920s and 1930s, the BPR conducted highway research, disseminating volumes of technical information and some funding for states, which at the BPR's behest had created highway departments. In particular, it orchestrated the nation's highway-building program by sponsoring a national federally aided system of primary and secondary roads.¹³

The BPR managed its federal role masterfully. It left the active planning and construction of roadways to state highway department engineers who initiated and designed projects in consultation with county, township, and municipal authorities. Meanwhile, the BPR took credit for efficiently guiding the development of an extensive network of state highways hailed for getting American farmers "out of the mud." Professional civil engineers lauded the agency. Writing in 1953 about the importance of a federally aided highway system, Robert Moses situated the BPR at "the apex of the federal [highway building] triangle." According to Moses, the BPR "set the standards, determining what routes should have federal aid, [giving] advice and help, [assuming] responsibility for integrating the state system, . . . and encouraging a national program." "Over the years," wrote Moses, "[the BPR] has functioned well. . . . It has generally been intelligent, persuasive, diplomatic but incorruptible, and reasonably firm as to standards."¹⁴

Historians Bruce Seely and Mark Rose both contend that Thomas MacDonald masterfully tapped the BPR's reservoir of moral authority

¹² See David Wallace, "Renaissancemanship," *Journal of the American Institute of Planners* 26 (Aug. 1960), 157-76.

¹³ For the history of the Bureau of Public Roads, see Bruce E. Seely, *Building the American Highway System: Engineers as Policy Makers* (Philadelphia, 1987); and Rose, *Interstate*, passim.

¹⁴ For Robert Moses and his award-winning ideas on highway planning, see Moses's essay in General Motors, *How to Plan and Pay for Better Highways* (1953).

to extend federal influence over road building. Until the late 1930s, however, MacDonald and the BPR mainly concentrated on improving rural roads and essentially ignored urban traffic congestion. Advised by Harvard University "traffic expert" Miller McClintock, the BPR urged automobile-beleaguered cities to adopt "engineering solutions"—namely, one-way streets, the prohibition of left-hand turns, street widening, and the construction of parkways, or roadways, through city parks. McClintock's strategy mirrored the inherited wisdom of late nineteenth- and early twentieth-century City Beautiful planning. In the 1920s and 1930s, Detroit, Chicago, and New York designed and built extensive parkway systems, none of which succeeded in unclotting traffic-coagulated urban arteries.¹⁵

Mounting evidence of rising automobile registrations, declining transit ridership, and increasing urban gridlock convinced MacDonald by 1936 that urban America needed to be incorporated into the federal-aid system.¹⁶ Increasingly, the federal bureau chief embraced the express highway or freeway model for the solution to urban traffic congestion. MacDonald's interest in urban freeways had been whetted by Norman Bel Geddes's dizzying highway spectacular featured at the 1939 New York World's Fair.¹⁷ Pressed by MacDonald, the automobile and trucking industries, and national defense concerns, President Franklin D. Roosevelt in 1941 created the Interregional Highway Committee that included as members, MacDonald, National Resources Planning Board head Frederic Delano, city planner Harland Bartholomew, and New York City Planning Commissioner and former head of Roosevelt's Resettlement Administration Rexford Tugwell. Following the recommendations of a lengthy 1939 Bureau of Public Roads study, entitled *Toll Roads and Free Roads*, the Interregional Highway Committee proposed a 39,000-mile federal interregional highway system containing a sizeable urban component and including circumferential as well as radial highways to ease the flow of traffic into and out of central business districts.¹⁸

¹⁵ Seely, *Building the American Highway System*, 151-52; Caro, *The Power Broker*, 299-636.

¹⁶ Seely, *Building the American Highway System*, 157.

¹⁷ On MacDonald and Futurama, see Rose, *Interstate*, 19-20.

¹⁸ Department of Agriculture, Bureau of Public Roads, *Toll Roads and Free Roads*, House Document No. 272, 76th Congress, 1st Session, 1939; see also Rose, *Interstate*, 19-20.

World War II delayed legislative action on such a national urban highway system until 1944, when Congress passed a \$500 million federal-aid highway act. In addition to authorizing a large postwar program of improvements to the nation's rural and secondary roads, the 1944 act called for the creation of a 40,000-mile national system of interstate highways; 6,700 of those miles were to be within cities.¹⁹ As summarized by the Philadelphia Bureau of Municipal Research, the new national federally aided system "connect[ed], as directly as practicable, principal metropolitan areas, cities, and industrial centers."²⁰ Routes were to be selected by "joint action" of the Public Roads Administration (PRA)—the new name for the BPR after 1939—and the state highway department.²¹ Thus, the 1944 law preserved the key role of the state highway engineer in the highway building hierarchy. Indeed, all federal-aid highway projects originated within state highway departments.²²

The prospect of federal highway funds rekindled hope among downtown-based business and civic leaders who despaired at the increasingly grim spectacle of a disintegrating central-city retail/manufacturing economy. A 1942 report on Philadelphia's downtown by the Urban Land Institute—the research arm of the National Association of Real Estate Boards—belabored the malignancy of traffic congestion

¹⁹ See Bureau of Municipal Research, "Summary of the Federal-Aid Highway Act of 1944 prepared by the Bureau of Municipal Research," June 13, 1946, mimeograph in Folder 193, Box 23, Citizens' Council on City Planning Papers (TUA) (hereafter, CCCP Papers); Rose, *Interstate*, 22-26; and Bureau of Public Records, "Preliminary Inventory of Bureau of Public Roads Records," Record Group 30 (National Archives and Records Center, Suitlands, Maryland; hereafter, NARC).

²⁰ Bureau of Municipal Research, "Summary of the Federal-Aid Highway Act of 1944," June 13, 1946.

²¹ In a memorandum from H.E. Hilts (Public Roads Administration) to H.A. Thompson (Secretary, Pennsylvania State Association of Township Supervisors), Nov. 2, 1945, Bureau of Public Roads Records, Record Group 30, File 481 Pa., Box 2853 (NARC) (hereafter, BPR Records, File 481 Pa.), Hilts noted that beginning in 1916 the state highway department "had been recognized by Washington, as the legal representative not only of the state, but of all governmental subdivisions of the state in its [the state's] cooperation with the Federal Government." In 1939, under Roosevelt's Government Reorganization Plan, the BPR was transferred to the Federal Works Agency, and its name was changed to the Public Roads Administration (PRA). In 1949 the PRA was transferred to the Department of Commerce, and its name was changed back to the Bureau of Public Roads.

²² H.S. Fairbanks to Joseph Malin, May 20, 1946, BPR Records, File 481 Pa., Box 2852.

and recommended as panaceas the familiar proposal for downtown parking garages and the new one of expressways. During the 1940s and early 1950s, the horrifying monster of traffic congestion, more than any concern about the sources of congestion, stalked the pages of city planning reports and official correspondence. Portrayed as a behemoth, a giant serpent bent on destruction, automobile congestion was shown squeezing the vitality from urban life. Other reports followed. Indeed, the first report of the Philadelphia Traffic Board (1948), an agency founded as an advisory body to City Council, featured on its cover a huge, green boa constrictor, with its formidable scales shaped like millions of automobiles, coiled in a death grip around the downtown. Philadelphia, warned the Traffic Board, "is threatened by a powerful and growing monster—traffic congestion. When traffic congestion and lack of parking space make it difficult for people to shop downtown, they will fill their need elsewhere. The resulting decay of downtown business and the compensating growth of the perimeter . . . [has] produce[d] what is called an exploding city. There are ample signs that Philadelphia is exploding right now. If the process is not arrested, the whole city will suffer." Automobile congestion, continued the report, triggered a "deadly chain reaction, . . . loss of downtown business, . . . unemployment, property devaluation, . . . a breakdown of municipal services. . . . But the first and heaviest losers are those in the heart of the city; the merchants, industrialists, and business and professional men who make 'downtown' not only the nerve center but the most valuable section of Philadelphia."²³ Tremulous observers of urban traffic bewailed city streets "paralyzed" or convulsed by "acute attack[s]" of traffic congestion. Others—equally perplexed— inveighed against traffic "clog[ing downtown arteries] . . . chok[ing out] the lifestream of the heart of our city [that is] . . . the safe and expeditious movement of people and goods."²⁴

²³ Philadelphia Highway Traffic Board, untitled brochure on the "Traffic Congestion Problem," in [Highway Traffic Board], *Philadelphia* (Philadelphia, ca. 1948), pamphlet in TUA. On the Urban Land Institute's report on Philadelphia's downtown, see Teaford, *The Rough Road to Renaissance*, 27.

²⁴ Philadelphia Department of Streets to Thomas H. McDonald, Feb. 20, 1953, BPR Records, File 481 Pa., Box 222.

While employing less vivid, non-reptilian imagery to express their anxiety, city planners such as Philadelphia's Edmund Bacon and Robert B. Mitchell were equally worried about traffic congestion. Concern for automobile traffic appeared among Philadelphia professional city planners as early as the 1920s and 1930s. The "Regional Plan of the Tri-State Regional Planning Federation" (1931) contained a "proposed regional [highway] system" that listed the Valley Forge Parkway as a potential east-west artery. But serious professional planning languished in Philadelphia until the 1940s, when civic reformer Walter Phillips raised city planning as the standard behind which to rally doctors, lawyers, architects, housing experts, social workers, and business leaders pledged to urban reform. In 1943 Phillips helped found the Citizens' Council on City Planning (CCCCP) that successfully exacted from the city's "Old Guard" Republican political machine the creation of a new planning commission headed by Mitchell, formerly of the National Resources Planning Board.²⁵

Philadelphia's planning commission played a key role in postwar highway planning even though, as noted, the Pennsylvania Department of Highways in consultation with the mayor's office and City Council initiated all new local highway projects. The planning commission derived some power as the principal advisor to the mayor on planning matters. Its alliance with the Citizens' Council, and through them with Philadelphia's powerful business community, added luster. More importantly, Harrisburg's entrenched anti-urban bias created a vacuum in the realm of state highway planning—a void Mitchell's commission moved to fill for Philadelphia-based projects.

Until the mid 1930s, the BPR allowed states no voice in selecting federal-aid routes. During the 1930s state highway engineers did collect traffic volume data and identify congested areas in the Philadelphia metropolitan region, but state planning for those areas was at best perfunctory.

²⁵ "Philadelphia Plans Again: William Penn's Green Countrie Town, . . . Its Ills in Dramatic Exhibition Designed to Capture Citizens' Support for Planning," *Architectural Forum* 87 (Dec. 1947), 66-75; David Wallace, "Renaissancemanship," 157-76; and Kirk Petshek, *The Challenge of Urban Reform: Policies and Programs in Philadelphia* (Philadelphia, 1973). See also Regional Planning Federation of the Tri-State District, *Regional Planning: The Region-Past, Present, Future* (n.p., 1931), 22-25.

Pennsylvania limited federal-aid dollars to actual physical improvement on the federal-aid highway system, and it expended state funds for engineering and survey plans. Still, few federal dollars did arrive in Philadelphia. By 1944 Pennsylvania had earned Washington's disdain for a certain provincial rudeness in highway planning. Harrisburg's reports, wrote the Public Roads Administration's H.E. Hiltz in 1944, lacked "traffic background." Hiltz accused Pennsylvania's Assistant Secretary of Highways, C.H. Buckius, of not "fully comprehend[ing] the nature of area and particularly internal O. and D. [origin and destination] studies. His thinking is quite obviously closely connected with individual routes and individual projects." Moreover, continued Hiltz, Buckius "evidenced no real interest in [metropolitan] area studies." When Washington, in 1945, requested "proposed additions to the Federal-Aid System," the Pennsylvania secretary forwarded a state highway map of the Philadelphia area with several routes cursorily highlighted. There is, to my knowledge, no evidence that state engineers drafted more serious plans for the Philadelphia area prior to 1945. After World War II Mitchell and the young Philadelphia Planning Commission, heading a vanguard of business and other city boosters, took the lead in promoting a modern urban highway system.²⁶

Like realtors and other downtown businessmen, Philadelphia planners linked traffic-clogged streets to the incipient forces of decentralization that threatened permanently to depress central-city property values and sap the economic and cultural vitality of the urban core. Traffic relief promised to usher in a golden age. As Mark Rose has noted, postwar highway planners envisioned highway planning and traffic congestion solutions creating a highly desirable urban life built around revitalized central-city neighborhoods.²⁷

Immediately after the war, Philadelphia business and civic leaders resurrected older remedies for downtown traffic congestion. In 1946, for example, the CCCP formed a parking committee headed by Molly Yard, which pressed the city to imitate the San Francisco model for

²⁶ For quotation, see H.E. Hiltz, "Memorandum for the Files," Sept. 29, 1944, BPR Records, File 481 Pa., Box 285; John U. Shroyer to Thomas H. MacDonald, Sept. 7, 1943, *ibid.*

²⁷ Rose, *Interstate*, 57.

underground parking garages.²⁸ But it was expressways, not parking garages or synchronized traffic lights, that ignited urban imaginations and galvanized the determination of Philadelphia's pro-growth coalition.²⁹ The seed of Philadelphia's modern expressway system was planted in 1941. That year in his annual message Governor Arthur H. James first announced that he was requesting the state highway department to earmark \$50 million of its funds so that "Philadelphia may receive, not only the critically needed approaches to the Delaware River Bridge, but also the opening of arterial highways so badly needed to the North, South and West."³⁰ In December City Council, the State Highway Department, and the City Department of Streets together unveiled a plan to correct one of the city's most notorious traffic bottlenecks by widening Vine Street to 160 feet at the approaches to the Delaware River Bridge. Unfortunately, Pearl Harbor halted all city projects.³¹ Still, Philadelphia planners did not forget the expressway promise. In 1943 Mitchell, in one of his first actions as the new head of the city's planning commission, wrote to MacDonald questioning the progress of the federal-aid highway legislation and

²⁸ In 1948 Philadelphia began planning a giant parking garage facility to be located beneath Rebyburn Plaza. See Leonard Drake to Molly Yard, Feb. 28, 1947, Folder 196, Box 23, CCCP Papers.

²⁹ John H. Mollenkopf included among coalition members, local urban politicians, downtown-based businessmen, professionals, and civic leaders. This was essentially the make-up of the CCCP. See Mollenkopf, *The Contested City*, 3-11. Teafor, in *The Rough Road to Renaissance*, 89, emphasizes that in the immediate postwar years cities such as Philadelphia were preoccupied with critical infrastructural repairs to their water and sewer systems. This, of course, does not lessen the depth of their concern for traffic congestion and the need for highway projects. Elsewhere, Mark Rose, in the "Epilogue" to the revised edition of his *Interstate: Express Highway Politics, 1939-1989* (Knoxville, 1990), 103, contends that the state and federal highway engineers were deeply implicated in the pro-growth movement. These engineers, argues Rose convincingly, found "enthusiastic support" from these postwar "businessmen's governments . . . for the idea that traffic took precedence over ordinary political considerations." This was certainly true in Philadelphia. With the election in 1951 of Joseph S. Clark as Mayor of Philadelphia, the CCCP, the Greater Philadelphia Movement, and the Chamber of Commerce fully coalesced around urban redevelopment and expressway building as keys to urban prosperity. See also John F. Bauman, *Public Housing, Race, and Renewal: Urban Planning in Philadelphia, 1920-1974* (Philadelphia, 1987), 79-117.

³⁰ On Governor James's quote on Philadelphia's need for approach to Delaware Bridge and highways, see Keystone Automobile Club, "A Statement to the Citizens' Council," Dec. 27, 1945, Folder 193, Box 23, CCCP Papers.

³¹ See Walter Phillips, "History of Vine Street Improvement," mimeograph (ca. 1945), Box 12, Walter Phillips Papers (TUA).

expressing serious interest in having Philadelphia undertake a traffic survey as part of the city's effort to combat traffic congestion.³²

Postwar highway planning switched into high gear in 1944, now buoyed by \$31 million in federal-aid highway dollars apparently designated for urban highway projects in Pennsylvania. Rather than just dusting off the 1941 plan to widen Vine Street, Mitchell and the planning commission joined city boosters in a noisy campaign to reject the widening plan and to press instead for rebuilding Vine Street as a "modern depressed express highway." Pro-growth apostles, planners, civic associations, and trade organizations, among others, assembled on July 5, 1945, at the Waldorf Astoria Hotel to resolve that Vine Street should be an expressway. Their rhetoric envisioned Vine Street as the nucleus of a grand expressway system.³³

Chaired by Mitchell, a newly formed traffic congestion committee exhorted City Council that "the future economic welfare and expansion of business in the central business district depended upon expediting the movement of vehicular traffic in and out of the district and encouraging more traffic to patronize the district." They looked to Vine Street, built as a modern expressway using expectantly bountiful federal highway funds, to "become a vital link in the postwar development of expressways and parkways for the Metropolitan area for which considerably more federal and state funds are available than in 1941." Such an expanded express highway system "was in line with modern trends of highway development" already underway in New York,

³² H.S. Fairbanks to Robert Mitchell, Sept. 2, 1943, BPR Records, File 481 Pa., Box 2853.

³³ See Phillips, "History of Vine Street Improvement"; Citizens' Council on City Planning, *Express Highways for Philadelphia* (Philadelphia, 1947), in TUA; and J. Maxwell Smith (president of Keystone Automobile Club) to Walter Phillips, March 25, 1947, Box 14, Walter Phillips Papers, stating that it is "tragic" to build Vine Street as an on-grade highway and supporting the CCCP's crusade to have it made an expressway. Note that nationwide chambers of commerce were pressing for better highways. The Chamber's Conference Committee on Urban Problems published a pamphlet entitled *Here's How You Can Help Redevelop Your City with Modern Highways* (n.d.), written by G. Donald Kennedy, a copy of which is in Housing Association of Delaware Valley Pamphlets (TUA) (hereafter, HADV Pamphlets). Among those at the Waldorf Astoria meeting were Walter Phillips, Robert Mitchell, Edmund Bacon, and representatives of such organizations as the Citizens' Council, the Greater Philadelphia Movement, the Keystone Automobile Club, the American Society of Civil Engineers, the American Institute of Architects, the Chamber of Commerce, the Board of Trade, and the Philadelphia Committee for the Relief of Traffic Congestion.

Chicago, Detroit, Dallas, Washington, San Francisco, and Pittsburgh.³⁴

This Vine Street crusade launched Philadelphia's expressway era. It especially underscored the importance of highway-building to the postwar, pro-growth agenda. In the mind of Walter Phillips and his CCCP colleagues, Philadelphia's future hinged on "expressway development for safe and swift movement to all parts of the city and its environs." Committee literature stressed that "All big cities are projecting [expressways] . . . [and that] Vine Street must in the future be included in such a system." In fact, emphasized Phillips's group, "[Vine Street] must be the terminal core of expressways leading in different directions from the center of the city." The CCCP beseeched the mayor and City Council, "in the interests of Philadelphia development as a modern city," to appropriate \$2 million for additional right-of-way purchase "so that the first steps in the Vine Street improvement can be taken without delay and at the same time be in accord with things to come."³⁵

The CCCP's plea and the commission's plans embodied the essence of the pro-growth expressway argument: modern limited-access highways would recentralize and accordingly revitalize the downtown; the downtown would thus improve both physically and economically.³⁶ This message burst from the pages of the committee's 1947 brochure *Express Highways for Philadelphia*: "Traffic congestion . . . [is] strangling our major cities, [and] Philadelphia is no exception. [O]ur cities," explained the brochure, "were neither planned nor built for the modern 'auto age.' . . . [E]xisting streets cannot possibly handle the traffic, and that patchwork will not bring relief." The greatest problem, asserted the CCCP, was "the conflict between express and local traffic.

³⁴ For resolution, see Phillips, "History of Vine Street Improvement."

³⁵ For quotation, see "Walter: This has also gone to Ray Larson," memorandum (ca. March 1947), Box 14, Walter Phillips Papers; for 1945 Vine Street plan, see Philadelphia City Planning Commission, *Vine Street Expressway* (Philadelphia, 1945), copy in HADV Pamphlets.

³⁶ The argument centered on the hub-spokes traffic system model where expressways radiated from the downtown hub. Peripheral circumferential highways completed the wheel configuration. Although highway planners confessed the immutability of such social forces as automobile and suburbanization, they believed the design would ensure the historic dominance of the downtown: see Teaford, *Rough Road to Renaissance*, 102-3.

The rapid movement of through traffic and the servicing of adjacent properties cannot be satisfactorily accomplished on the same roadway. . . . Using business streets for both local and through traffic reduces the effectiveness of frontage for business," and, exhorted the CCCP, "reduces the value of the street for through traffic. . . . [A] basic solution is not only imperative, but unavoidable. That basic solution is the EXPRESS HIGHWAY." In the planners' minds, Vine Street and the urban expressway system that it anchored would cause social and economic life to flourish in the decongested downtown that *mirabile dictu* would rise again not only as an attractive location for business but also for middle-class residence.³⁷

Enthusiasm for the Vine Street Expressway peaked and then just as suddenly slackened in 1947, despite both an endorsement in the 1946 Democratic gubernatorial platform and strenuous lobbying by the CCCP's Vine Street Action Committee. Support flagged because the project involved extensive property demolition at a time when housing-starved veterans lived in automobiles and barrack-like shelters plunked on vacant city lots.³⁸ Equally devastating, the Vine Street Expressway project floundered in Pennsylvania's notoriously anti-urban state legislature. In seeking expressway funds, Philadelphia demanded its "fair share" of state gas tax revenues and its rightful portion of 1944 federal-aid dollars. Harrisburg countered that converting Vine Street to an expressway would be both too costly and too time-consuming. Washington refused to intervene in this city-state dispute, clinging to its position, stated categorically in 1945, that "it is the state highway department by law that initiates the detailed engineering designs for federal-aid projects and it's our usual custom to deal with the state highway department and through them with the city engineering staff." Not until the early 1950s did Harrisburg and Washington finally approve Vine Street as a multi-lane, depressed

³⁷ Citizens' Council on City Planning, *Express Highways for Philadelphia*, 2-3.

³⁸ The "Young Turk" socialite reformer and future mayor of Philadelphia, Richardson Dilworth, headed the committee: "Vine Street Action Committee Appointed," in Citizens' Council on City Planning *Newsletter* (March 1947), Box 14, Walter Phillips Papers. On the expressway project and the 1946 gubernatorial campaign, see Robert Maine (Transportation Committee) to Hiram Andrews (Chairman, Democratic Platform Committee), Aug. 12, 1946, Folder 193, Box 23, CCCP Papers; and Phillips, "History of Vine Street Improvement."

highway. But the limited access highway under construction in 1956 unfolded not as the keystone of the modern network of urban highways imagined by Philadelphia pro-growth apostles, but rather as a downtown extension of the Schuylkill Expressway then nearing completion.³⁹

The Vine Street crusade produced considerable momentum behind the postwar movement in Philadelphia to build an expressway system. The planning-oriented Citizens' Council, the Greater Philadelphia Movement, the local Chamber of Commerce, the Philadelphia Board of Trade, and the Keystone Automobile Club all coalesced around expressway building and urban redevelopment as twin keys to urban prosperity.⁴⁰ By 1945 the Philadelphia Planning Commission had already produced illustrative plans for a network of highways facilitating the efficient circulation of downtown traffic and aiding the flow of suburban and regional traffic into and out of the central city. These plans included Vine Street as a modern depressed highway. Philadelphia's illustrative plans in truth differed little from the postwar hub-spoke highway plans of other cities. Vine Street comprised the northern edge of an inner loop or circumferential highway system; the primary east-west artery—now called the Schuylkill Expressway—had appeared on the city's 1941 plans as the Valley Forge Parkway.⁴¹

Washington fueled the movement. After the war MacDonald and the PRA placed massive expressway systems at the center of urban redevelopment plans, but they approached their work largely as highway engineers rather than as urban planners. A strong engineering mentality dominated the PRA, where daily operations revolved principally around generating and analyzing traffic flow data, monitoring

³⁹ See H.E. Hilts to Roy F. Leonard, Dec. 26, 1945, BPR Records, File 481 Pa., Box 2853; "Philadelphia's Urgent Need," CCCP Transportation Committee memorandum, Sept. 19, 1946, Folder 193, Box 23, CCCP Papers; also "Philadelphia's Share of State and Federal Funds for Highway Maintenance," Folder 195, Box 23, *ibid*.

⁴⁰ See Keystone Automobile Club, "A Statement to the Citizens' Council," Dec. 27, 1945, Folder 193, Box 23, CCCP Papers; and Bauman, *Public Housing, Race, and Renewal*, 79-117.

⁴¹ Note that in 1944 the Regional Association of Cleveland produced plans very similar to the Philadelphia plans: Regional Association of Cleveland, *Express Highway Plan: for the Cleveland Metropolitan Area*, Publication No. 18 (Nov. 1944), copy in HADV Pamphlets; Regional Planning Federation of the Philadelphia Tri-State District, *Regional Planning: The Region-Past, Present, Future* (Philadelphia, 1931), 22-25; and *Philadelphia Evening Bulletin*, May 17, 1941, pp. 7-8.

highway design and construction standards, and testing building materials. While local planners and other pro-growth people viewed routes such as Vine Street and the Schuylkill Expressway as vital elements in the urban social and economic renaissance equation—a means, that is, to counter and survive the emerging postwar suburban settlement pattern—Washington, like Harrisburg, narrowly interpreted expressways as urban traffic conveyors. State and federal engineers focused especially on highway alignments and how those alignments contributed to the main goal of efficiently and cost-effectively building highways that safely accommodated the maximum volume of traffic.⁴²

Since the late 1930s, when BPR engineer H.S. Fairbanks produced the model for collecting “desire-line” data (used to produce maps explaining popular preference for heavily traveled routes and purportedly yielding information on “ideal” lines or routes of travel), the agency insisted that the first step in the development of any highway system should be an origin-and-destination survey.⁴³ As early as May 1944, Fairbanks had urged Philadelphia to take advantage of the newly enacted federal-aid highway law to fund a metropolitan traffic study. Between 1946 and early 1947, Philadelphia Planning Commission director Mitchell held several meetings with Fairbanks and Butler to plan a survey that in its final form encompassed the entire Philadelphia-Camden metropolitan area. Launched in June 1947, and continuing throughout the summer, the survey involved stationing personnel to observe traffic patterns at strategic locations in the metropolitan area, particularly at bridges, toll booths, subway stops, City Hall courtyard, and along main arteries leading into and out of the two cities.⁴⁴ The survey data, key-punched on computer cards, reported the origin and destination of over 36,000 motorists, pedestrians, and

⁴² Rose, *Interstate*, 60.

⁴³ Seely, *Building the American Highway System*, 166-68; Altshuler, “The Intercity Freeway,” 198.

⁴⁴ H.S. Fairbanks to Robert Mitchell, Jan. 24, 1947, BPR Records, Record Group 30, File 701.6 Pa. (NARC) (hereafter, BPR Records, File 701.6 Pa.); Pennsylvania Department of Highways and New Jersey Highway Department in Cooperation with Bureau of Public Roads, *Philadelphia-Camden Area Traffic Survey, Volume 1* (n.p., 1950) (hereafter, *PCATS*), BPR Records, File 701.6 Pa., Box 3566; Philadelphia City Planning Commission, *Characteristics of Person-Trips to the Philadelphia Central City: As Obtained from the Philadelphia Area Traffic Survey, June-November 1947* (Philadelphia, 1954).

transit riders in the Philadelphia-Camden area. It enabled engineers to subject alternative route proposals to "comprehensive economic analysis" and to produce a "factually [or scientifically] supported selection of routes."⁴⁵

The main objective of the 1947 Philadelphia-Camden Origin and Destination Survey was to determine the exact alignments for a new east-west expressway intended, in the words of the PRA, to ease traffic congestion on the heavily traveled and historic Lincoln Highway, U.S. Route 30, that ran through the Main Line communities of Overbrook, Wynnewood, Ardmore, Haverford, Bryn Mawr, Villanova, and Wayne. A Pennsylvania Highway Department photograph, taken in the 1930s, showed Route 30 through Ardmore choked with traffic. Department traffic studies indicated that daily traffic on the Lincoln Highway at City Line Avenue averaged 10,300-13,000 vehicles per day, of which 20 percent represented truck traffic.⁴⁶ Signals dogged motorists at every intersection. In spring 1946, the Ardmore Community Health and Civic Association had written to the CCCP asking it to join in urging state and city authorities to plan "a new through route to carry motor vehicle traffic between Philadelphia and the west." The solution, wrote the association's acting president, Andrew Mutch, "is the provision of a limited access highway or 'thru-way,' which will remove through traffic from the Lancaster Pike, Haverford Road, and West Chester Pike. . . . So far there appear to be no plans formulated for such a route." Mutch mentioned two possible routes for such a thru-way—one via Newtown Square, the Cobbs Creek, and Market Street, and the other following the Chester Valley and down the west bank of the Schuylkill River (the familiar Valley Forge Parkway route).⁴⁷

To planners and the pro-growth forces, stalled traffic on Lancaster Avenue seemed as much an urban as a suburban problem. Trucks and automobiles idling and overheating at Main Line traffic lights

⁴⁵ Butler to E.L. Schmidt, April 4, 1949, BPR Records, File 481 Pa., Box 2851. See also *PCATS*.

⁴⁶ *PCATS*; Bureau of Public Roads Office memorandum, C.N. Conner to A.G. Siegle, July 20, 1949, BPR Records, File 481 Pa., Box 2851; Fredric Miller, Morris J. Vogel, and Allen F. Davis, *Philadelphia Stories: A Photographic History, 1920-1960* (Philadelphia, 1988), 20.

⁴⁷ Andrew Mutch to Walter Phillips, May 2 1946, Folder 193, Box 23, CCCP Papers.

threatened Philadelphia's downtown economy as surely as cars jamming midtown Vine Street. Just months after Mutch had expressed concern about traffic tie-ups on the Lincoln Highway, Philadelphia's planning director mailed Harrisburg a set of the "Illustrative Plans for the Philadelphia Metropolitan District."⁴⁸ During their 1947 visit to Philadelphia to inspect the progress of the already underway origin-and-destination (O & D) survey, McDonald and Fairbanks reviewed these "Illustrative Plans." Mitchell's impression of the visit illuminates the nuances of emphasis distinguishing the commission's broader vision of expressways from the PRA's traffic orientation. Mitchell confessed that, while the ongoing survey entailed modifying the CCCP's "Preliminary Expressway Plan, great weight has been laid [by the PRA] on . . . constructing a modernized system of traffic highways . . . to serve the present and estimated future traffic resulting from industrial, commercial, and residential land use studies of the commission."⁴⁹

The planning commission publicly unveiled its "Illustrative Plans" in the giant 1947 "Philadelphia of the Future" model featured at Gimbels Department Store as part of the "Better Philadelphia Exhibit." The PRA's traffic bias was conspicuously absent here. City planner Edmund Bacon and Russian-born architect Oscar Stonorov, the designers of the exhibit, had produced a 30' by 14' scale model of the city's aging, congested downtown. At the flip of a button the model revolved to reveal the streamlined modern Philadelphia of the future—should the planners prevail. Bacon's and Stonorov's model of well-housed, economically revitalized Philadelphia showed the sleek, sunken Vine Street expressway slicing through the heart of the central city; another freeway, the "Industrial Highway" (today U.S. Route I-95) ran along the Delaware River waterfront; a multi-laned Schuylkill expressway skirted the river's edge.⁵⁰

⁴⁸ Robert B. Mitchell to H.S. Fairbanks, Oct. 17, 1947, BPR Records, File 481 Pa., Box 2852; on the sequence of events leading to the expressway decision, see also Edmund Bacon, "Philadelphia: Development of Projects," *Journal of Town Planning Institute* (Jan. 1950), copy in Folder 4, Box 14, Edmund Bacon Papers (Cornell University).

⁴⁹ Robert B. Mitchell to H.S. Fairbanks, Oct. 17, 1947, BPR Records, File 481 Pa., Box 2852.

⁵⁰ See Edmund Bacon, "Are Exhibitions Useful?" *Journal of the American Institute of Planners* 16 (Spring 1948), 23-28; and Bacon, "Philadelphia Plans Again: The Story of the Better Philadelphia Exhibit—Report of the Philadelphia Planning Commission," Dec. 1947, Folder 3023, Box 1, Bacon Papers; Philadelphia Planning Commission, *Progress in Rebuilding*

A year later both the Delaware Expressway (the new name for the Industrial Highway) and Vine Street appeared on the penultimate expressway plans that the city forwarded to the PRA. These 1948 highway plans, however, incorporated a new expressway to follow the Schuylkill River "into the heart of Philadelphia," bypassing Route 30.⁵¹ This general alignment evidently had been officially fixed at least as early as July 1948, when, at a meeting convened by the Philadelphia Chamber of Commerce at the downtown Ritz Carlton Hotel, the chief engineer of the state highway department voiced his "firm opinion that the crying need for the City of Philadelphia was a controlled access highway down into and through the City and that it appeared . . . that such a highway would have to be in or near the Schuylkill River Valley and extend northwestward from City Line to the vicinity of King of Prussia."⁵²

By 1948 the imminent arrival of the Pennsylvania Turnpike at Valley Forge pushed the Schuylkill Expressway plan to the top of the state's and the city's highway agenda. Encouraged by the state highway department, the Philadelphia Planning Commission, the Citizens' Council, the Greater Philadelphia Movement, and the Chamber of Commerce all came to view the turnpike extension to Valley Forge, coupled with the New Jersey Turnpike, "as part of an unbroken expressway system from Portland, Maine, to Washington, D.C., plac[ing] Philadelphia at the crossroads of the principal North-South and East-West highways in the Northeastern United States." Bacon, in 1953, clearly recalled the commission's anxiety. The city planning commission, observed Bacon, saw the expressway link to the turnpike "as a race, the problem of completing a net, connecting these great commercial arteries with the industries, the commercial centers, and

Philadelphia, 1947-1950 (n.p.), copy in HADV Pamphlets; Citizens' Council on City Planning, *Youth Shares in Planning a Better Philadelphia* (1947), copy in HADV Pamphlets.

⁵¹ A chronology of Philadelphia's expressway planning was given in C.H. Buckius (Assistant Chief Engineer, Pennsylvania Department of Highways) to William P. Butler, June 20, 1949, BPR Records, File 481 Pa., Box 2851; and in Bacon, "Philadelphia Development of Projects."

⁵² C.H. Buckius described the July 30, 1948, Ritz Carlton meeting and quoted the chief engineer in a letter to William P. Butler, June 20, 1949, BPR Records, File 481 Pa., Box 2851. Those attending the meeting included delegates from the Philadelphia Department of Public Works, the Planning Commission, the Better Traffic Bureau, the Fairmount Park Commission, and the Keystone Automobile Club.

the Port of Philadelphia before the completion of the inevitable by-pass Turnpike connection to New York.”⁵³

Philadelphia pro-growth boosters in the early 1950s heralded the proposed Schuylkill Expressway as “essential for the full economic and physical development of Philadelphia and the Commonwealth.”⁵⁴ The impending completion of the turnpike link to Philadelphia integrating the Quaker City into a national highway network caused the Philadelphia Planning Commission to shift its energies away from planning Vine Street, the Delaware and Tacony expressways, and the other components of the “Illustrative Plans” and toward the Schuylkill project. The turnpike interchange at Valley Forge actually opened November 20, 1950.⁵⁵

City planners, however, strenuously denied that the expressway was simply either an extension of the turnpike or a Route 30 bypass. Indeed, Bacon decried the misconception that the expressway and its Roosevelt Boulevard and Vine Street extensions would carry mostly turnpike traffic. Through traffic, he argued, would represent less than a third of its volume. “[T]he overwhelming majority of [the volume] will be Philadelphia traffic.”⁵⁶

As designed, from the turnpike interchange at King of Prussia (Valley Forge), the expressway angles east toward industrial Conshohocken, then skirts the edge of both the Schuylkill River and Philadelphia’s plush Main Line suburbs on its route southeasterly to City Line Avenue. There the expressway plunges into the city, heading

⁵³ Edmund Bacon, “Delaware Valley—The Challenge of the Region: Talk before the Greater Philadelphia Movement,” Nov. 4, 1953, Folder 13, Box 17, Bacon Papers; see also memorandum, C.N. Conner to A.G. Siegle, July 20, 1949, regarding “Addition of Route 264 to FAS [Federal-Aid System],” and where it is stated that “At this conference it was agreed that the obvious reason for activating this route was to connect the eastern terminus of the Pennsylvania Turnpike with the heart of Philadelphia, yet this should not deter us from aiding in its development since it will constitute a much needed route and relieve congestion on the Lincoln Highway”: BPR Records, File 481 Pa., Box 2851.

⁵⁴ Philadelphia City Planning Commission, “Statement on Highway Planning Submitted to Pennsylvania Highway Planning Commission,” May 17, 1950, File 1, Folder 3023, Box 1, Bacon Papers; Greater Philadelphia Movement, *Annual Report 1953* (n.p., 1954), copy in HADV Pamphlets; and *Philadelphia Inquirer*, Nov. 24, 1952.

⁵⁵ Pennsylvania Turnpike Commission, *The Pennsylvania Turnpike: Its History and Financing* (n.p., ca. 1967).

⁵⁶ Philadelphia City Planning Commission, “For Immediate Release,” Feb. 23, 1950, Folder 3023, Box 1, Bacon Papers.

downtown via exits at Girard Avenue, 30th Street, and the Vine Street Expressway. A look at how the design emerged for this final "urban section" of the expressway suggests somewhat the clash of assumptions that undermined modern highway planning in the postwar era.

Harrisburg assigned to the Philadelphia Planning Commission responsibility for preparing first-phase engineering plans for the urban section of the expressway, which extended from City Line Avenue to University Avenue. The commission contracted the drafting of the expressway design to the consulting engineering firm of Clark, Rapuano and Holleran, Hardesty and Hanover (hereafter, Clark/Rapuano), who worked closely with state and federal highway engineers, and the commission's own Technical Advisory Committee on Local Transportation.

Correspondence between Clark/Rapuano and the BPR (the Public Roads Administration became the Bureau of Public Roads again in 1949) between 1949 and 1951 revealed the problems and shortcomings of expressway design in this first postwar era. It also confirmed that by 1950 the pro-growth momentum behind highway building overrode every obstacle in its path.

Clark/Rapuano's preliminary expressway reports crossed the BPR District Engineer's desk in the fall of 1949; a complete draft of the report arrived March 1950. Although the BPR applauded the excellent presentation of the study and praised the resulting recommendations, including the "precision of the consultant's drawings," from the start it questioned the basis for the firm's decisions, especially how Clark/Rapuano had used traffic survey data.⁵⁷ Apparently, the consulting engineers never convinced the BPR that they had effectively used the O & D study.⁵⁸ The BPR had two principal objections to Clark/Rapuano's methodology. First, it charged that, rather than

⁵⁷ H.E. Hilts to S.L. Taylor, March 14, 1950, BPR Records, File 481 Pa., Box 2851; memorandum, S.L. Taylor to J.L. Stinson, April 18, 1950, BPR Records, File 481 Pa., Box 222.

⁵⁸ Philadelphia City Planning Commission, *Annual Report 1949* (n.p., 1950), copy in HADV Pamphlets; memorandum, R.W. Darling to J.L. Stinson, Sept. 21, 1949, describing conference he attended at Hilts's office in Washington, D.C., to hear Clark/Rapuano report, BPR Records, File 481 Pa., Box 2851; C.G. Davis "Memorandum for Division Files," July 20, 1950, concerning July 12 and 13 conferences with Clark/Rapuano, in Philadelphia Planning Commission offices, BPR Records, File 481 Pa., Box 222.

considering the full body of O & D data, the consultants had selected "representative districts" and merely sampled data from these districts to construct their estimates of present and future traffic volumes on the expressway. Second, the BPR protested that Clark/Rapuano overemphasized the volume of traffic originating externally, especially from the turnpike interchange at King of Prussia. The BPR insisted that these "externally generated traffic volumes would be small compared to the volumes originating within the urban area itself," and it further charged that the report's reliance upon "representative" districts tended to inflate the importance of traffic originating in the downtown. Such emphasis on traffic generated from approach roads rather than from intracity trips, wrote Commissioner Hilts, created "a misleading impression as to the need and use to which this expressway will be put."⁵⁹

Hilts and the BPR saw the expressway serving local as well as interstate traffic needs. For example, the BPR's readings of the Philadelphia O & D data convinced the agency that 80 percent of the internal traffic diverted to the expressway would come from Broad Street, the wide, once fashionable, thoroughfare that bisected the city north and south. BPR also objected that Clark/Rapuano ignored "large volumes of traffic with origins and destinations either west or due south of the city center which ultimately will need relief."⁶⁰

The bureau immediately branded Clark/Rapuano's use of the O & D data as at best "unorthodox" and impugned as "too conservative" the consultants' method for projecting future traffic volumes on the proposed expressway. In the bureau's eyes, the method served merely to predict "a low traffic forecast,"⁶¹ and it dismissed Clark/Rapuano's "expanded traffic figures [for 1960-1970] as . . . mere gestures that are practically meaningless for the purposes of rating the ability of the

⁵⁹ Memorandum, H.E. Hilts to S.L. Taylor, March 14, 1950, regarding Schuylkill Expressway, BPR Records, File 481 Pa., Box 2851.

⁶⁰ See, for example, memorandum, J.L. Stinson to S.L. Taylor, March 24, 1950, BPR Records, File 481 Pa., Box 222; and J.L. Stinson to R.W. Darling, Sept. 21, 1949, BPR Records, File 481 Pa., Box 2851.

⁶¹ Memorandum, R.W. Darling to J.L. Stinson, Sept. 21, 1949, BPR Records, File 481 Pa., Box 2851; Clark/Rapuano's method was called "unorthodox" in memorandum, Stinson to Taylor, March 24, 1950, BPR Records, File 481 Pa., Box 222.

expressway system to render service.”⁶² Nevertheless, having chastened Clark/Rapuano for producing artificially low traffic figures, the bureau conceded fatefully that “the actual traffic volumes drawn to the expressway upon completion should be sufficient to assure no over-design.” That meant that in the cost-conscious bureau’s calculations, Clark/Rapuano’s conservative traffic data, however “scary,” supported a design that was not prohibitively expensive.⁶³

State engineers ardently embraced Clark/Rapuano’s conservatism. Already predisposed to keeping the highway program “balanced” between rural and urban constituencies, the state highway department insisted that “anticipated traffic [on the Schuylkill Expressway failed to] justify more than a four lane highway.”⁶⁴ By 1949 Harrisburg had created a Highway and Bridge Authority to raise funds for larger and more expansive projects in urban areas, but the state assiduously pursued a “balanced” program that scattered projects statewide, aimed mainly and politically at relieving the most notorious traffic bottlenecks.⁶⁵

Traffic data and the engineers’ narrow obsession with solving traffic problems drove the Schuylkill Expressway project. Rather than Bacon’s and the pro-growth coalition’s vision of an expansive, regional transportation system articulated in the “Illustrative Plans” and the Better Philadelphia Exhibit, the Schuylkill Expressway plans reflected the BPR’s fixation on traffic volumes and “desire-lines”—that is, a highway design serving quantitatively derived traffic needs presently

⁶² Memorandum, J.L. Stinson to S.L. Taylor, Oct. 25, 1949, BPR Records, File 481 Pa., Box 2851.

⁶³ The first use of “no over-design” phase appears in memorandum, R.W. Darling to J.L. Stinson, Sept. 21, 1949, BPR Records, File 481 Pa., Box 2851; but it appeared often afterward (see, for example, memorandum, Stinson to Taylor, Oct. 25, 1949, BPR Records, File 481 Pa., Box 2851). In the years 1945-1956 the federal government did not represent a mother lode of money for urban highway or other “renaissance” projects. Cost-cutting efficiencies were taken very seriously, since, as Teaford makes clear, in *The Rough Road to Renaissance*, 94, state and municipal bonds and local tax receipts continued to fund a significant part of postwar highway projects. Nevertheless, federal highway aid was crucial to realizing postwar highway plans even in the pre-1956 era.

⁶⁴ Memorandum, J.L. Stinson to S.L. Taylor, Jan. 12, 1950, BPR Records, File 481 Pa., Box 2851.

⁶⁵ Ray Smock (Secretary of State Highway and Bridge Authority), “Memorandum for the Board—Subject: Proposed Project Program” (ca. 1950), Pennsylvania Department of Transportation Papers (Pennsylvania State Archives, Harrisburg).

unmet by overtaxed existing arteries. This engineering mentality ultimately produced an expressway blueprint incapable of handling even the comparatively modest traffic volumes of the 1950s. BPR Division Engineer S.L. Taylor stated his fears bluntly in an April 1950 memo:

The anticipated [traffic] volumes for these expressways [Schuylkill, Vine Street, and Roosevelt Boulevard] appear to us to have been estimated with assumptions favoring minimum volumes. . . . If the [proposed] industrial expressway system along the Delaware River is not realized, congestion on the Schuylkill-Roosevelt Expressway may become frequent during the early life of the proposed facility.⁶⁶

The BPR worried that congestion was inevitable on the urban section of the expressway between City Line Avenue and University Avenue, so it recommended alternative routing, and additional lanes, better ramp designs, and more flexible access to downtown streets. Bureau engineers acknowledged that topography posed a serious constraint in designing the Schuylkill Expressway. The narrow flood plain separating the river and the Fairmount Park plateau already accommodated the right-of-way of the Pennsylvania Railroad, leaving minimal space for the six lanes necessary on an urban expressway. (Only four lanes carried the highway along its suburban course from City Line Avenue to Valley Forge.) Scant room remained for guard rails and shoulders to allow distressed motorists to pull over for repairs. In the most constricted area, where the proposed roadway plunged beneath the Pennsylvania Railroad's 30th Street Station and emerged at University Avenue, the expressway topography forced Clark/Rapuanano to narrow the expressway to four lanes, creating a nightmarish bottleneck. At the behest of the BPR, Clark/Rapuanano had considered several alternative locations for the expressway. One ran along Hunting Park Avenue; another detoured west of the city's zoological gardens; and another crossed from the west to the east side of the Schuylkill River and skirted the east bank from Vine Street to the University Avenue Bridge. For reasons of economy, all of these alternatives were rejected.⁶⁷

⁶⁶ S.L. Taylor to J.L. Stinson, April 13, 1950, BPR Records, File 481 Pa., Box 222.

⁶⁷ See G.C. Davis, "For the [BPR] Files," July 20, 1950, *ibid*.

Clark/Rapuano's final plan aligned the expressway right-of-way just east of the zoological gardens, through Fairmount Park, behind Sweetbriar Mansion, and along the river, requiring the city to relocate the West River Drive eastward and in the process destroying the historic Fairmount locks of the early nineteenth-century Schuylkill Navigation Canal. It was not until fall 1952 that, for political and aesthetic reasons, the Fairmount Park Commission chose to fight the Fairmount lock route, not on modern historic preservation grounds but on the basis that the locks were still practical for navigation. The park commission's stance attracted support from friends of the park who, in the words of Hannah Sweeton, were enraged at the expressway "goug[ing] out the natural beauty of our state . . . because it is necessary for progress! Where there is no vision," wrote Sweeton, "the people perish: Money comes and goes, but great treasures like our Fairmount Park (and Valley Forge Parks) should not be left to the ruthless who are for nothing but what they can get out of it." Sweeton and her "save the park" friends favored the route west of the zoo. The protest and a suit filed by the Fairmount Park Commission against the city delayed expressway progress for a short time. Yet, the "save the park" campaign posed little more than a minor problem. The city planning commission, the state, the city, the press, the Chamber of Commerce, the Better Philadelphia Movement, and the public at large regarded the Fairmount Park Commission's action as obstructionist and elitist. After several months in limbo, Clark/Rapuano's original route was reconfirmed.⁶⁸

If alternative routes were not feasible, then what about adding extra lanes? In early discussions about the Schuylkill Expressway, the BPR argued that traffic volumes on the urban section of the expressway from City Line to University Avenue dictated a minimum of six lanes, three lanes directional north and south. Topographical problems, noted earlier, compelled reducing the expressway to only four lanes in the section between 30th Street Station and University Avenue. Here the bureau futilely begged state and city planners to consider an alternative

⁶⁸ Hannah Sweeton to CCCP, Oct. 15, 1953, File 196, Box 23, CCCP Papers; "Expressway in Fairmount Park," in *Philadelphia Evening Bulletin*, June 22, 1953; and Paul MacMurry to Robert K. Sawyer, Sept. 23, 1952, Box A 674, Schuylkill Expressway Records (Philadelphia City Archives).

route located on the east side of the Schuylkill River, where the flat unobstructed terrain favored the preferred six-lane design. Likewise, for the potentially congested on-and-off ramps of the Vine Street and Roosevelt Boulevard expressway extensions, the BPR unsuccessfully pressed for six lane approaches and the more accommodating "direct access" ramps rather than the "trumpet" design favored by Clark/Rapuano.⁶⁹

Despite their harping about peak-hour congestion and other design problems, state and federal highway engineers seemed resigned to the expressway's shortcomings. "If it is determined that the design will not include added lanes," then, conceded the BPR's Taylor, "careful consideration [must] be given to providing expressway exits into the street or park systems." Thus, reasoned Taylor, "in the event of congestion on short sections of the expressway, this congestion will not become progressive and trap vehicles throughout extended sections of the expressway but will permit orderly relief."⁷⁰ To mitigate the "inevitable traffic jams" predicted by Washington, Clark/Rapuano incorporated into their design several strategically located "relief exits" to drain excess traffic onto existing streets and into the Fairmount Park road system. One such exit location near the Strawberry Mansion Bridge siphoned west-lane traffic onto the West River Drive and Belmont Avenue. There was always the hope as well that twenty-four-hour towing service would effectively remove stranded vehicles from the congested highway.

Construction of the western or suburban section of the Schuylkill Expressway between King of Prussia and City Line Avenue began in 1950. This suburban section of the expressway opened to City Line Avenue on September 1, 1954. Four years later and at a cost of \$14 million, the expressway reached center city. Traffic in 1958 was routed from the expressway downtown, using ramps located at Girard Avenue, Spring Garden Street, and 30th Street. Work on the six-lane Vine Street Expressway linking the expressway and the center city finally began in 1957; it first carried traffic in June 1959.

⁶⁹ C.G. Davis, "Memorandum for the Division Two Files," July 20, 1950, BPR Records, File 481 Pa., Box 222.

⁷⁰ Taylor to Stinson, April 18, 1950; Stinson to E.L. Schmidt, May 12, 1950; and Stinson to Taylor, March 24, 1950—all in BPR Records, File 481 Pa., Box 222.

Trouble plagued the Schuylkill Expressway from the day the urban section opened in 1958. The urban expressway's six lanes, sandwiched between the river and the right-of-way of the Pennsylvania Railroad, were solid with traffic and unsafe. By 1962 fatal accidents occurred frequently, and experts had identified ten potential deathtraps, including embankments unprotected by guard rails and inadequate shoulders. That same year Park Martin, the retiring Secretary of the Pennsylvania Department of Highways, joined the growing band of critics who contended that the only recourse was construction of a parallel expressway aligned on the eastern side of the Schuylkill River. This never happened, but by 1970, using federal funds, the Pennsylvania Department of Transportation completely redesigned and rebuilt the entire complex of on-and-off ramps in the vicinity of City Line Avenue and the Roosevelt Boulevard Extension of the expressway. Later, in the 1980s, new lanes were added and shoulders were rebuilt along the entire twenty-mile length of the highway.

After World War II state and federal highway engineers, in concert with urban planners, designed express highways that, together with urban redevelopment schemes, promised to end traffic congestion, halt and remove blight, and revitalize center-city economies. Highway engineers viewed these modern highways as the most efficient, effective way to move traffic into, out of, and through urban areas. Planners saw them quickening the flow of urban commerce, modernizing residential patterns, and recentralizing and restoring the primacy of the historic downtown threatened by decay and rising competition from suburban shopping centers and industrial parks.

The history of Philadelphia's Schuylkill Expressway underscores the significance of the Bureau of Public Roads and state highway engineers, and the Federal-Aid Highway Act of 1944, in guiding and shaping postwar highway development. City planners in Philadelphia communicated frequently with Washington, believed the bureau's gospel of traffic surveys, and consulted the BPR step-by-step in the preparation of the final Schuylkill Expressway design. Although planners such as Bacon espoused a system of urban highways linked to broader social and economic goals, they deferred to the engineers' narrower traffic-oriented mission and saw the Schuylkill Expressway as only one part of a soon-to-be-implemented express highway complex.

All of this illustrates as well the powerful momentum behind expressways, which pro-highway groups such as the Citizens' Council on City Planning, the Philadelphia Planning Commission, Keystone Automobile Club, and the Chamber of Commerce generated between 1943 and 1950. That momentum produced a Schuylkill Expressway decision that, despite serious, undisguised flaws, remained unaltered. Not only were the number of lanes insufficient but the design reflected an inaccurate estimate of the traffic that jammed the roadway from opening day afterward.

The explanation for Philadelphia's expressway debacle transcends Clark/Rapuano's misinterpretation of origin-and-destination data, a charge made and then promptly ignored by the Bureau of Public Roads. Rather, the roots of the "Surekill Expressway" lie in the postwar era's unbounded faith in engineering expertise—that the kind of flashy expressway technology displayed at the Better Philadelphia Exhibit of 1947 foreshadowed a "Golden Age" for urban America and that, conversely, failure to adopt the technology would seal Philadelphia's doom. Although planners and the city's business and professional elites had a broader vision of expressways, they subscribed to the expressway ethos just as passionately as state and federal engineers.⁷¹ Obstacles such as parks, historic canal structures, and even questionable traffic data paled in importance next to the greater goal of linking the city to a network of interstate and express highways. Moreover, lacking that expansive regional perspective urged by "visionaries," such as Lewis Mumford and Catherine Bauer, and many planners, including Bacon, highway engineers who guided the design of the Schuylkill Expressway gave little thought to emerging patterns of urban growth, which by the 1970s had transformed the Philadelphia region giving birth to such satellite cities as Willow Grove and King of Prussia. Instead, Philadelphia's immediate postwar expressway priorities derived mainly from more narrow concerns for the traffic-clogged Lin-

⁷¹ This pro-growth ethos was nothing new to urban America, particularly Philadelphia. Convinced that urban economic survival was at stake, in the 1830s Philadelphia boosters rushed to build the Pennsylvania Main Line Canal to compete with New York's Erie Canal. In the 1850s Philadelphians vied with Baltimore to build railroads. See Diane Lindstrom, *Economic Development in the Philadelphia Region, 1810-1850* (New York, 1978).

coln Highway and Broad Street, for linking Philadelphia to the newly completed Pennsylvania Turnpike, and, of course, for expressways as the latest and most visible symbol of urban progress.

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