FRANCIS C. TURNER
Father of the U.S. Interstate Highway System

AN HISTORICAL APPRECIATION

BRUCE E. SEELY

The author is Professor of History, Science, Technology, and Society, Michigan Technological University, Houghton.

Among the many distinctions of his long and illustrious career, Frank Turner was the only person to rise through the ranks to serve as head of the Bureau of Public Roads (BPR)—the federal agency that, along with its successor, the Federal Highway Administration (FHWA), has guided American road-building efforts since the 1890s. Yet Turner shared with his predecessors at BPR certain common characteristics. Like them, he was an engineer devoted to public service. In a career that spanned decades, he was an unchallenged expert in his field, providing a remarkable degree of continuity and stability to the U.S. highway community. At the same time, like those before him at BPR, Turner was a self-effacing man who sought neither attention nor fame, while holding to the belief that the nation would be served best by letting nonpolitical technical experts oversee its road program. Turner also shared with his predecessors a deep commitment to the federal-aid system of shared federal–state funding and construction as the cornerstone of the nation's highway policy.

Francis C. Turner

Early Years

Turner as a student in his final year at Texas A&M University, 1929.

Turner studied civil engineering at Texas A&M College in the late 1920s, graduating just before the Depression in 1929. He joined BPR as a junior highway engineer and was assigned to its Division of Management. There he focused his attention on field studies of highway construction techniques aimed at increasing the efficiency of road-building machinery. Time-and-motion studies were much in vogue, and BPR conducted studies on the use of steam shovels and the application of trucks to road building. Turner was among those who used these and other techniques to improve the mechanization of road construction.

In 1933, Turner was posted to the Bureau's Arkansas division office. The division offices were BPR's front line, for they not only approved state plans and estimates for construction within the federal-aid system, but also helped upgrade the capabilities of state highway departments. Many rural and southern states had formed road-building organizations only after the Federal-Aid Road Act of 1916 made having such an organization a requirement for receiving federal funds. A number of these states lacked progressive traditions of engineering control, and many states allowed political influence free reign in their road-building programs.

BPR patiently pressed the states to embrace good engineering and efficiency, but Arkansas in particular appeared resistant to this approach. In the mid-1920s, Thomas H. MacDonald, then Chief of BPR, suspended the state's federal-aid construction funds to send a clear message to the politicians. The outlook had improved by the time Turner arrived in Little Rock in 1933, but he still gained first-hand experience in the delicate process of managing the federal-aid road program. MacDonald always insisted that federal engineers respect their state counterparts and seek to improve state capabilities. This effort required as much diplomatic skill as technical expertise.

Turner also developed an interest in maintenance issues during his years in Arkansas, and

In 1949, Turner was involved in U.S. efforts to develop and train an engineering organization to support a transportation network in the Philippines.

studied the connections between road maintenance problems and subgrade and soil base characteristics. Soil mechanics was just beginning to be recognized in highway engineering, thanks largely to BPR-funded research programs whose results were being reported at the annual meetings of the Highway Research Board, predecessor to the Transportation Research Board. Turner's work in this area, which earned him a graduate degree in civil engineering from Texas A&M University in 1940, revealed his understanding of the salient cutting-edge technical issues of the day.

From Alaska to the Philippines

Turner's next move within BPR was to the agency's Washington headquarters and the Construction Division in 1940. At the time, wartime priorities in the use of materials limited road construction to the most important projects, including emergency landing fields, access roads to military bases and vital production facilities, and a few urban projects. Then in 1943, MacDonald sent Turner to handle the maintenance challenges associated with the new Alaska Highway, which ran from Dawson Creek, British Columbia, to Fairbanks, Alaska. This feat of highway engineering was completed in months, despite its remote wilderness location, floods, and brutal winter weather. When the road opened in late 1943, Turner faced the challenging maintenance chore of keeping it passable and open. He was the last American to leave the road project after the war ended.

With a solid reputation for leadership, Turner returned to Washington in 1946, only to be sent off to the Philippines—a staggering shift in climate! Part of a U.S. mission to develop and train an engineering organization to support that country's transportation network, Turner was soon involved in all aspects of American efforts to rebuild and reconstruct the island nation. In 1949 he became the coordinator for aid efforts from nine different federal agencies. Again he proved a capable problem solver, and when he returned to Washington again in 1950, he became assistant to then-Commissioner MacDonald.

Among Turner's many new responsibilities was oversight of BPR's various foreign-aid programs related to highways. Turner coordinated the Inter-American Highway effort, as well as technical assistance programs in Ethiopia, Turkey, Liberia, and elsewhere. He also took on special assignments for MacDonald, who was nearing the end of a distinguished career. It was at this time that Turner found himself in a perfect position to contribute to the Washington debates concerning a massive new federal-aid highway initiative—the Interstate Highway program.

Father of the Interstate System

BPR's 1939 report *Toll Roads and Free Roads* had first proposed a national network of intercity roads. A more detailed vision was developed by the National Interregional Highway Committee, appointed by Franklin Roosevelt in 1941, and was accepted by Congress in 1944. BPR had urged the states to begin planning these interregional highways so work could begin when the war ended, and a map showing preliminary routes for a 40,000-mile network of express roads was authorized in 1947. Congress appropriated the first $25 million for construction in 1952, but this was a drop in the bucket considering the huge costs involved. Moreover, the states were under enormous pressure to improve other road systems to meet the postwar growth in new cars, and most states could not fund the usual federal-aid match of 50 percent of a project's cost. Through the early 1950s, even as traffic mounted in the states, Congress remained deadlocked on road spending, not just for the Interstate system, but for all elements of the federal-aid network.

Turner found himself squarely in the middle of this political struggle. Thomas MacDonald retired from BPR in 1953 and was succeeded by Francis DuPont, a strong supporter of the Interstate program. President Eisenhower also backed the initiative and grew increasingly frustrated at the congressional impasse. In 1954 he appointed the President's Advisory Committee on the National Highway Program, hopeful that chairperson and former wartime colleague General Lucius Clay would find a way to satisfy the many constituents of the nation's road-building program. Turner became the committee's executive secretary. In that capacity he performed much of the work behind the committee's final report, drawing on the full resources of the Bureau for statistics and other material.

Not surprisingly, BPR's ideas shaped many, but not all, elements of the committee's report. Among