

A Journey to Better Highways: 100 Years of Public Roads

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Summer 2018

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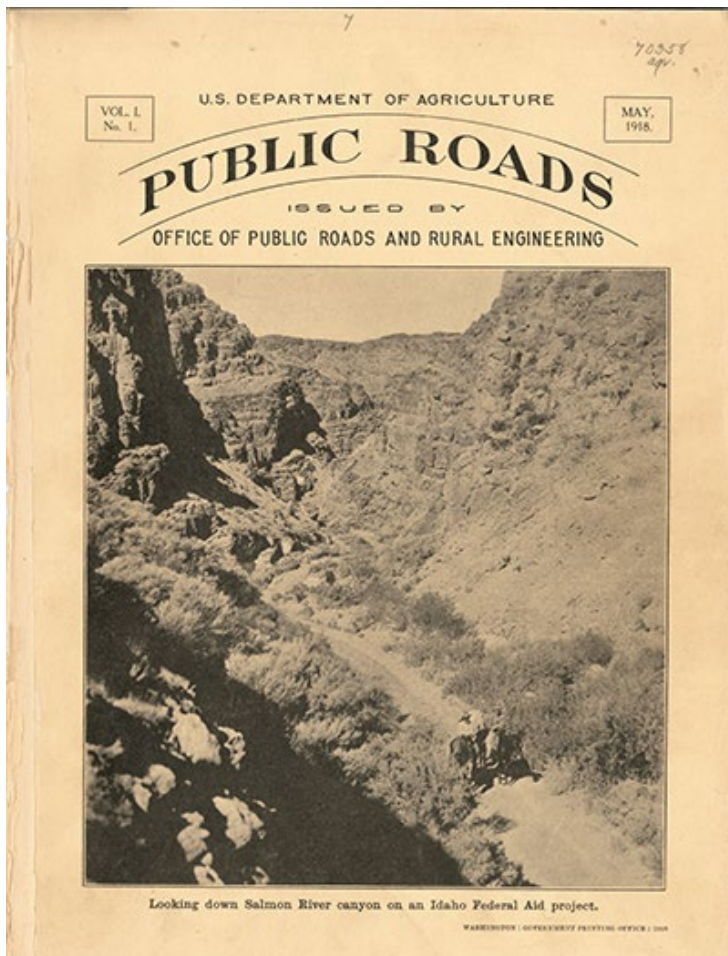
Public Roads - Summer 2018

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A Journey to Better Highways: 100 Years of Public Roads

by Richard F. Weingroff

As the magazine celebrates its anniversary, let's take a look back at its evolution.



The cover of Vol. 1, No. 1, featured the first Federal-aid highway project in Idaho. The issue included a list of every State's progress during the first 18 months of the Federal-aid highway program.

A century of change has affected nearly every aspect of life in the United States—from technological advances to recreation and work habits. Change is evident in the way

U.S. families and individuals travel and where they travel to. Change is also apparent in the sheer numbers marking the increase in the U.S. population and the shifts in urban and rural living. When the first issue of Public Roads was published in May 1918, the country's population was 103.2 million, with about half (nearly 52 million) living in rural areas. Today, the population has more than tripled to 327.2 million. According to the U.S. Census Bureau, rural areas cover 97 percent of the Nation's land area but contain only 19.3 percent of the population (about 63 million people).

Over the course of 100 years, the only constant is change. Public Roads is no exception. With this issue, the Federal Highway Administration's magazine reaches 100 years of providing information on every aspect of highway development and the role of highways in the country's transportation network. To reach this 100-year milestone, Public Roads has had to evolve with changing times. And yet its mission, in 1918 as in 2018, can be traced to the statutory mission of the country's first Federal road agency.

The Best Method of Road-Making

On October 3, 1893, General Roy Stone, a Civil War hero, began the work of the U.S. Office of Road Inquiry in the Department of Agriculture. Congress had appropriated \$10,000 for the Department to inquire about "the system of road management" in the country, investigate "the best method of road-making," prepare publications on the subject, and disseminate the information.

General Stone focused the tiny agency with a tiny budget on making inquiries and preparing publications. By December 1893, he had completed Office of Road Inquiry Bulletin No.1 (*State Laws Relating to the Management of Roads. Enacted in 1888-'93*), the first of many. Over the next decade and a half, the agency's mission evolved, but its leaders never lost sight of its original mission of gathering and distributing information on road management systems and the best methods of road-making. As General Stone put it in October 1894, "This country is so big that a great deal goes on that we don't all know about. What we are doing in Washington is simply to set up a watch, to keep an eye on the whole country, and report what is going on."



General Roy Stone, a Civil War hero, founded the U.S. Office of Road Inquiry in the Department of Agriculture on October 3, 1893. General Stone led the agency through 1899, with time off for Army service during the Spanish-American War in 1898.

Logan Waller Page

When General Stone's successor, Martin Dodge, established a road materials laboratory, he selected Logan Waller Page to head the scientific effort. Page became director of the renamed Office of Public Roads in 1905.

Page was from Virginia, graduated from Virginia Polytechnic Institute in 1889, and was one of the first to graduate from the highway engineering program that his uncle, Professor Nathaniel S. Shaler, had begun at Harvard. After graduating, Page served as a geologist and testing engineer for the Massachusetts State Highway Commission, as well as director of the testing laboratory of the Lawrence Scientific School at Harvard (1893–1900).

He embodied the Progressive Era, prominent in the early 20th century for its reliance on experts rather than political machines, to address problems caused by industrialization, urbanization, immigration, and corruption in government. Page continued the promotional activities of his predecessors, but he also emphasized the Office of Public Roads' scientific evaluation of road building to gather the technical data—the lifeblood of the Progressives—from which sound conclusions could be drawn. He also crusaded for creation of State highway agencies staffed with engineers instead of the farmers, local politicians, and business promoters who built and maintained many of the country's roads despite not understanding the modern engineering practices he advocated.

With enactment of the Federal Aid Road Act of 1916, the Office of Public Roads and Rural Engineering, as it was then called, had the mission that would define it into the 21st century: the Federal-aid highway program.

Page continued publishing bulletins and studies, and in 1918, he launched a new way to promote the Federal-aid highway program and highway practices based on sound scientific principles.

Salutatory

By 1918, the good roads community already had several magazines devoted to its cause, including *American Motorist*, *Better Roads and Streets*, and *Good Roads*. They published news, technical articles, and speeches, including material generated by Page's agency. However, Page wanted a magazine focused on his priorities.



Logan W. Page, founder of PUBLIC ROADS, headed the Federal road agency from 1905 until his death in December 1918. His Progressive Era views are reflected in this November 1911 statement: "The entire movement for better roads should be so systematized and everywhere placed on so high a plane of honest and earnest effort that the cheap charlatanism of the professional promoter and the bungling efforts of the well-meaning but uninformed citizen should be no longer permitted."

With the United States embroiled in World War I, the Office of Public Roads and Rural Engineering published the first issue of Public Roads, dated May 1918. On page 3, Page published a Salutory about the purpose of the new magazine. It began:

With this issue of Public Roads the Office of

Public Roads and Rural Engineering inaugurates the publication of a periodical devoted to better highways in the States of the Union and dedicated to those, both in official and private life, who are concerned in developing means of better rural communication, in facilitating the marketing of the crops of the Nation, and in aiding the solution of the daily more perplexing traffic problem.

He hoped the magazine would stimulate “ideas making for a standardization of effort in road construction and maintenance during the stressful period through which the civilized world is passing.” To accomplish its goals, “there must be between Public Roads and those to whom it is dedicated a free and unrestricted interchange of honest, unbiased thought, and open mindedness to helpful suggestion, and a manful disposition to give and take constructive criticism, and with a single purpose—the greatest good for the greatest number.” If so, it would “be a source of satisfaction to both its sponsors and supporters.”



The December 1918 issue carried this ahead-of-its-time photograph with the caption: "Girls Drafted for Road Work in Wisconsin." With so many men diverted to the war, Wisconsin had to use retirees from farms for maintenance patrols. Even girls were recruited for road work, although they were not mentioned in the article.

The magazine would not replace the bulletins the Office had been issuing since 1894. It would “supplement these bulletins and add to their value by the regular and frequent incorporation in these pages of the results of researches, experiments, and studies of those connected with this Office, and of highway officials of the various States who have in mind the ambition and at heart the desire to advance to as near perfection as possible the science of road building.” The magazine would enable the Office of Public Roads and Rural Engineering to publish “the best of the results of its researches, studies, and efforts periodically, rather than at long intervals, as has been the practice through the publication of bulletins.”

The Office of Public Roads and Rural Engineering invited contributions from the “builders of highways, official and private, in both high and low stations.” The magazine would allow that information to be “spread for the benefit of their contemporaries.”

Page concluded the Salutatory:

Always with the single purpose and devout hope that from this closer association will be born a determined and united disposition to bring to road betterment that which is best in and for this generation, that which, in this period in our history, will make for the greatest strength of our Nation, that which in fullest measure will aid those who are leading us in this strife to bring it to a speedy and victorious issue.

The issue included a list of the Office’s 52 employees in military service and articles on the Nation’s 5 million motor cars (as of the end of 1917), Idaho’s Federal-aid highway program, the status of road work in Wisconsin and in Alaska’s wilderness, Rhode Island’s maintenance problems, and clearing roads of snow to allow passage of the Army’s test convoy to see if trucks could make the factory-to-port trip on their own instead of by being shipped by rail. The magazine, edited by Jules L. Goldberg, could be purchased from the Superintendent of Documents for 15 cents an issue.

On December 9, 1918, Page was attending a meeting of the Executive Committee of the American Association of State Highway Officials (AASHO), the predecessor to the American Association of State Highway and Transportation Officials, when he became ill during dinner and died a few hours later. He was 48 years old. Page was buried in Richmond's Hollywood Cemetery, where his epitaph describes him as a "Pioneer in the Science of Road Building in the United States."

The December 1918 issue of Public Roads reprinted a tribute to Page that was delivered in Chicago at the AASHO meeting. It ended, "His story is written, his life speaks, his works live and will live long after we have passed from this hall."

For more information on the first issue of Public Roads, see "Vol. I, No. 1 - The First Issue of Public Roads, May 1918," in the May/June 2000 issue of Public Roads, available at www.fhwa.dot.gov/publications/publicroads/00mayjun/volume1.cfm.

The First Stage

Like any publication that survives 100 years, Public Roads has been through several stages. The first version, based on Page's vision, lasted through December 1921.

The early issues reflected the wartime conditions the country experienced through armistice on November 11, 1918—and then the adjustment to peacetime. The second issue (June 1918), for example, discussed formation of the United States Highways Council, with Page as chairman, "primarily to prevent the interminable delays, financial loss, and the uncertainty incident to the method of taking up each highway problem in its turn with a separate and distinct Government agency."

The third issue began a multi-issue series by agency officials on "State Highway Management, Control, and Procedure," as if Page were trying to fulfill, once again, the agency's 1893 mission. Not unlike General Stone's Bulletin No.1, the series described each State's structure for addressing highway needs, including organization and revenue sources.

The mix of articles in these early issues included articles

bylined by officials of the Bureau of Public Roads (BPR, as the agency was called beginning July 1, 1918), but many were by State highway officials, often with a focus on dealing with damage from trucks carrying heavy loads.

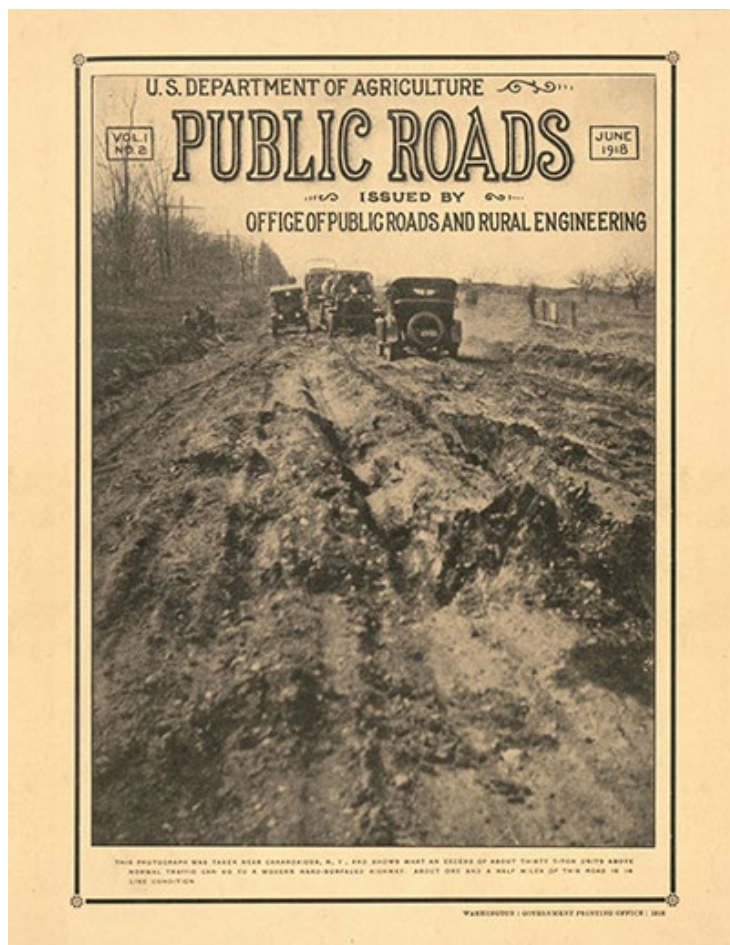
A Shift in Leadership and Priorities

The January 1919 issue began a practice of printing key speeches from AASHO's annual meetings for the benefit of those who could not attend. Thomas H. MacDonald, chief engineer of the Iowa State Highway Commission, wrote the first article of that issue, "The Federal Aid Road Law and Changes Suggested by its Practical Operation." He had helped draft AASHO's Federal-aid proposal, along lines consistent with Page's thinking, that had formed the basis for the Federal Aid Road Act of 1916. The law, he wrote, was "the product of cooperation."

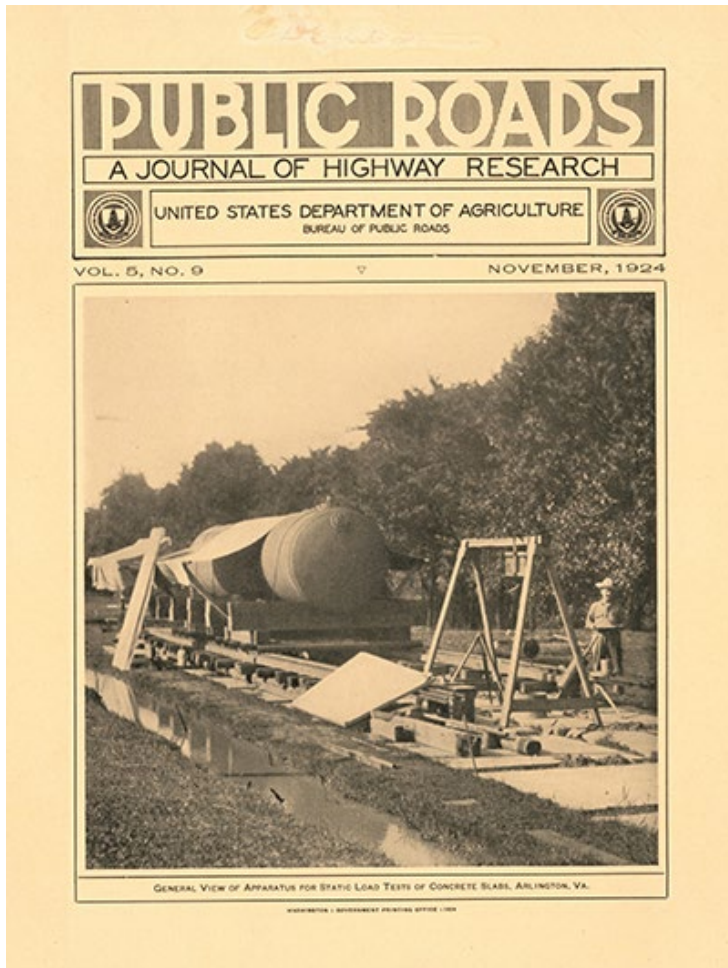


Iowa Chief Engineer Thomas H. MacDonald became

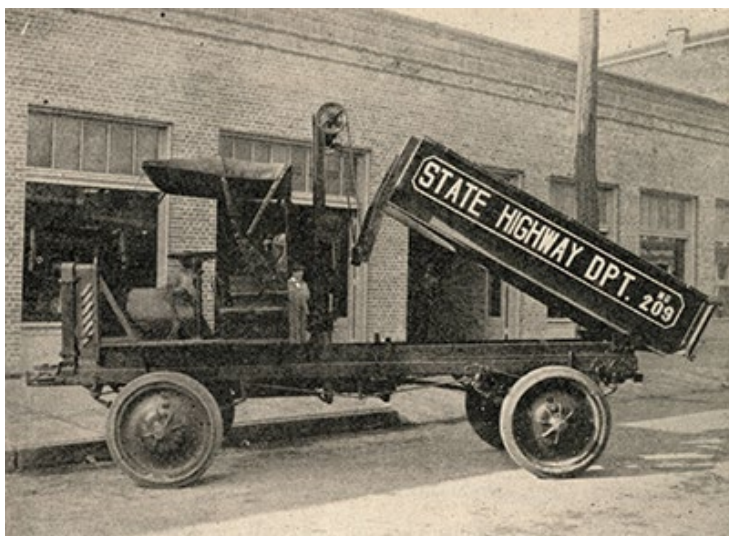
BPR's Chief in March 1919, a post he would hold through changes in title and agency name until March 1953, serving under seven Presidents. Having helped create the Federal-aid highway program as a member of AASHO, he put it on a sound foundation, built cooperative relationships with the State highway agencies, continued the agency's strong research and engineering focus, and left BPR after laying the foundation for the Interstate System. AASHO said his retirement "marks the end of an era of highway progress of proportions undreamed of at the time he assumed office."



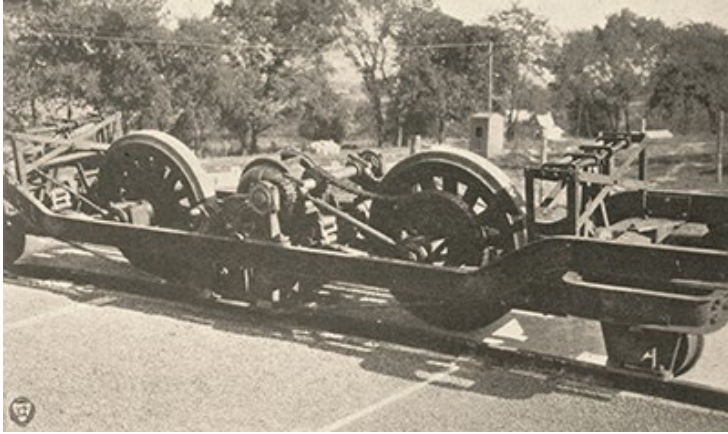
Early issues focused on the problems caused by increased truck use following the United States' entry into the war in Europe. The cover of the second issue illustrated the problem by depicting a road near Canandaigua, NY, showing "what an excess of about thirty 7-ton units above normal traffic can do to a modern hard-surfaced highway."



Much of BPR's early physical research took place at the U.S. Agriculture Department's Arlington Experimental Farm in Virginia. As a journal of highway research, PUBLIC ROADS often displayed its testing equipment, such as this device for static load tests of concrete slabs.



PUBLIC ROADS covered BPR's distribution of postwar surplus trucks and equipment, such as this Mississippi truck equipped with standard body and hand hoist. Distribution began in June 1919 and would not be completed until 1925.



The magazine often described the latest pavement tests, including the equipment used. The caption for this photograph from the May 1924 issue was: "The loaded, rubber-tired wheels of the testing machine bear with their full weight on the concrete. The machine is guided by the rails at the side of the experimental sections."

Two months later, Secretary of Agriculture David F. Houston selected MacDonald to succeed Page as chief of BPR, a post he would hold through March 1953. The entry of the United States into World War I in April 1917 blocked any initial accomplishments from the Federal Aid Road Act of 1916. With people, materials, and transportation facilities diverted to the war, little was left for road building for civilian needs. The announcement of MacDonald's selection as chief in the March 1919 issue of *Public Roads* added that efforts were underway "to expedite the resumption and extension of highway construction under the terms of the Federal law."

Many of the speeches reprinted in early 1919 issues concerned recovery from the destructive effects of the war on the Nation's roads. However, the magazine, like the larger highway community, soon returned to peacetime concerns, such as how to build better brick pavements, labor

saving devices in construction of concrete roads, the reasons for the success or failure of bituminous macadam pavements, and the use of asphalt in road construction. For example, the May 1919 issue contained articles about the benefits of convict labor for road construction.

To address pavement issues, BPR initiated road tests, known as the Arlington Road Test. As explained in the March 1921 issue of Public Roads, prewar roads had been built during the transition from horse-drawn to automobile and truck traffic. With railroads unable to carry wartime loads, heavy motor trucks took over the surplus. Their increasing loads during the war caused “many heretofore suitable roads” to be “completely destroyed.” BPR launched a series of road tests at the Agriculture Department’s Arlington Experimental Farm in Virginia to study the four important factors in road design: (1) impact, (2) pressure or weight of the passing load, (3) horizontal shear and tractive forces, and (4) subgrade and soil conditions. The results were reported in a series of Public Roads articles.

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS

Public Roads



One of the early focuses of the magazine was to report on progress of the Federal-aid highway program. Many covers, such as this one from the September 1920 issue, featured photographs of roads improved with Federal-aid funds.

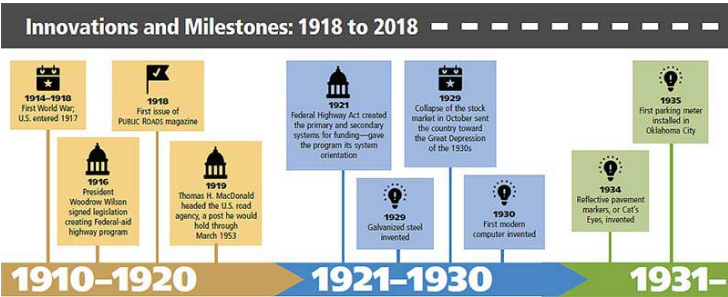
The End of the First Phase

The September 1920 issue was the first to list Herbert S. Fairbank as the editor. A 1910 graduate of Cornell University, Fairbank first joined the agency as a student engineer. As explained in FHWA's bicentennial publication, *America's Highways 1776–1976*, “the editor was expected to be not only a competent handler of the language but also an able appraiser of the technical soundness of the reports submitted for publication.” As “far and away the finest writer in the Bureau’s history,” Fairbank’s engineering experience made him “eminently qualified on both counts.”

Fairbank would continue as editor through the February

1927 issue. He then became chief of the new Division of Information. His achievements through his retirement in 1955, including providing the data and theory to support what became the Interstate System, resulted in the agency’s research station in Virginia being named the Herbert S. Fairbank Highway Research Station (now called the Turner-Fairbank Highway Research Center, also honoring former Federal Highway Administrator Francis C. “Frank” Turner, the only career employee to serve as Administrator).

The December 1921 issue described the Federal Highway Act that President Warren G. Harding had signed on November 9—without a hint of its landmark status. The act limited Federal-aid funds to a connected system of highways comprising no more than 7 percent of total mileage of highways in each State. The more important roads were to be known as primary or interstate highways, not to exceed three-sevenths of the mileage in the system; States could spend up to 60 percent of Federal-aid funds on this system. The second system consisted of secondary or intercountry highways. The designated primary routes launched the country’s largest road building activities to that date and resulted in a two-lane network of paved interstate roads by the end of the 1930s.





On June 24, 1964, BPR's research station in McLean, VA, was renamed the Herbert S. Fairbank Highway Research Station. Fairbank, who died on December 14, 1962, was represented by Mrs. Francis Fairbank, wife of his cousin, for the unveiling of the plaque. With her in this photo are Federal Highway Administrator Rex M. Whitton (center) and Fairbank's long-time friend and associate Pyke Johnson, retired president of the Automotive Safety Foundation.



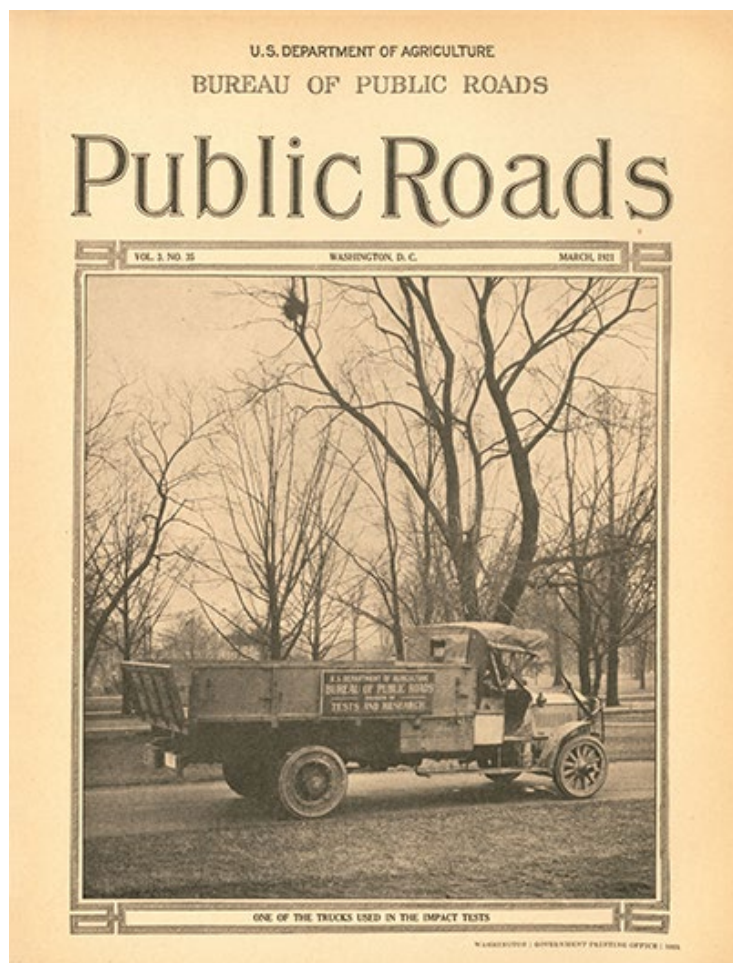
Herbert S. Fairbank was the editor of PUBLIC ROADS from the September 1920 issue until he left after the February 1927 issue to become chief of BPR's new Division of Information. His accomplishments before retiring in 1955 are memorialized in the name of FHWA's research facility in Virginia, the Turner-Fairbank Highway Research Center. The facility name also honors former Federal Highway Administrator Francis C. "Frank" Turner (1969–1972), the only career employee to head the agency.

The December 1921 issue was the last in the first era of Public Roads. In BPR's annual report for fiscal year 1922, MacDonald lamented that the magazine had been suspended and with it "the bureau was deprived of its most important education medium." Public Roads was "recognized by the engineering profession as one of the more important and useful engineering journals." Considering BPR's "many important researches... and the absolute necessity of a

medium by which the results of these investigations can be given to the public, it is hoped that authority to resume publication will be granted as promptly as possible.” MacDonald did not explain the discontinuation.

Journal of Highway Research

Public Roads resumed publication in March 1924 with Fairbank returning as editor. MacDonald discussed the resumption of the publication in his annual report for fiscal year 1924. Referring to public outreach, he said that resumption of the magazine was “the most important development in this field of the bureau’s activities.”



Many early issues of PUBLIC ROADS featured articles about impact tests. The March 1921 issue explained why. "When roads were built to carry the traffic of a few years ago they were built according to 'experience' and empirical rules, and the actual weight or speed of the load was only generally considered... . The transition from horse-drawn to automobile and

truck traffic has changed the surface and strength requirements of a road."

In its second incarnation, the magazine was different in several ways, including its title: Public Roads: A Journal of Highway Research. It would no longer feature articles by State or other officials or reprint speeches from AASHO’s annual meetings. In August 1922, AASHO had launched its own magazine, *American Highways*, which reprinted the speeches that had previously appeared in Public Roads.

As *America’s Highways 1776–1976* explained, this second incarnation was “exclusively a house research journal, and all of its contributors were engineers, scientists, and economists of the Bureau of Public Roads.” The magazine expanded its scope as BPR’s interests grew to every aspect of highway transportation: “finance and taxation, the economics of transport systems, the properties of soil and road materials, the management of construction operations by contractors, the characteristics of highway traffic, the strength of road slabs, and many others.”



Early issues of volume 5 featured technical articles on pavement tests, protecting concrete from alkali, impact tests on bridges, sand-clay and gravel roads, economical use of wheel scrapers, the brick roads of Florida, and the percentage of water freezable in soil. The early issues also carried a table revealing that the country had 15 million motor vehicle registrations, and articles on ways to promote highway safety, motor vehicle fees and gasoline taxes, and the constitutionality of motor vehicle license fees.

For many years, the magazine would continue a similar mix

of articles as contained in volume 5, with reports on research in highway and bridge design, load tests, and statewide traffic surveys. Some research reports took up entire issues, such as “Light Asphaltic Oil Road Surfaces” (September 1927), “Computation of Stresses in Bridge Slabs Due to Wheel Loads” (March 1930), and “The Design of Street and Highway Intersections” (July 1932).

Thoughts on the Interstate System

By the early 1930s, BPR was heavily involved in combating the Great Depression by providing road jobs for the unemployed. BPR efforts included putting limits on hours worked to provide hours to other workers and stressing hand labor over equipment. Rather than addressing the changed environment, Public Roads continued to focus on research studies. For example, the October 1935 issue began a series of articles on “The Structural Design of Concrete Pavements” that continued sporadically through the April-May-June 1943 issue.

The March 1935 issue published Chief MacDonald’s speech to the annual convention of the American Road Builders’ Association, titled “Broadening the Highway Program.” Since 1921, he said, some 200,000 miles (322,000 kilometers) of highways had been improved under the Federal-aid highway program. “Our long-distance highways have come as a byproduct of the careful planning and coordination of the most important highways within and between the States.” For all these advances, the roads represented the pioneer stage of highway development.

MacDonald was, in short, introducing the first stage of thinking about the modern Interstate System. The traffic studies of the 1920s were refined to gather information in the 1930s about statewide traffic patterns that would provide the data framework in the 1940s for the initial steps in creating the country’s interstate expressway network. Subsequent issues contained articles summarizing the traffic studies in the States.

The June 1939 issue included a summary of the report to Congress on *Toll Roads and Free Roads*, the first formal discussion of what became the Interstate System. The report rejected the idea of a toll superhighway network, as suggested by Congress and favored by President Franklin D.

Roosevelt, arguing that it “would not come within 50 percent of being self-supporting.” Instead, the report endorsed a plan Congress had not requested for study: a toll-free express highway network described under the heading “Master Plan for the improvement of roads and streets to meet the real needs of highway transportation.”

The June 1941 issue contained a followup article by the agency’s H.E. Hilts on “Planning the Interregional Highway System,” as the network was originally called. The article discussed the problems encountered in studying construction of a special, tentatively designated system of direct, interregional highways, with all necessary connections through and around cities, designed to meet the needs of growing peacetime traffic and the national defense in time of war.



Following U.S. entry into World War II, PUBLIC ROADS published an article about its research on driving during blackout conditions in the event of enemy bombing. Signage would have to be adjusted to accommodate the War Department-approved arrangement of lights for safe driving in blackouts. The front of an automobile was equipped with a driving lamp mounted as near to the front as possible to see ahead and two marker lamps as far apart and as near the normal headlights as possible to display the width of the vehicle. The rear included a combination stop and tail lamp mounted as practicable to the left side of the vehicle.

World War II

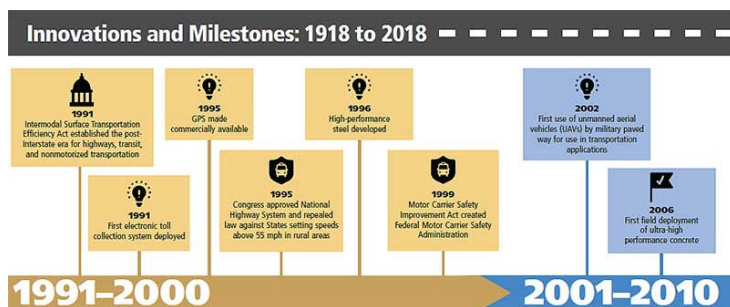
Following the Japanese attack on the U.S. naval base at Pearl Harbor, HI, on December 7, 1941, the United States

entered World War II. The normal activities of the Public Roads Administration (as it was called in the 1940s) were interrupted because its facilities and personnel were diverted to support the war.

During the war, Public Roads mostly published the results of its prewar research, rather than new material related to wartime subjects. Probably because of the diversion of people, funds, and focus to the war, Public Roads changed from a monthly to a quarterly journal starting with the issue identified as July-August-September 1942.

One of the few war-themed articles appeared in the October-November-December 1942 issue. “Highway Signs and Markings for Blackout Conditions” began, “The complete elimination of all lights that would be visible at night to enemy aircraft has thus far been ordered by military authorities in very few sections of the United States, and then only for relatively short periods.” Special head and tail lamps, approved by the War Department, would be placed on vehicles, creating a need to modify signs and pavement markings so they could be seen by drivers.

The Alaska Highway was another wartime initiative of the Public Roads Administration that made occasional appearances in the magazine during and after the war. Articles included “Some Problems of Road Construction and Maintenance in Alaska” (July - August - September 1943), “Ice Formation on the Alaska Highway” (January - February - March 1945), and “Aerial Surveying on the Alaska Highway, 1942” (January - February - March 1947). For more information on the Alaska Highway, see “America’s Glory Road” in the Autumn 2017 issue of Public Roads at www.fhwa.dot.gov/publications/publicroads/18autumn/02.cfm.



PUBLIC ROADS

A JOURNAL OF HIGHWAY RESEARCH

FEDERAL WORKS AGENCY
PUBLIC ROADS ADMINISTRATION

VOL. 24, No. 3

JANUARY-FEBRUARY-MARCH 1945



DITCH BLASTED IN ICE—ALASKA HIGHWAY

For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. See page 2 of cover for prices

Although **PUBLIC ROADS** published few articles related to World War II, the cover article in this early 1945 issue was about construction of the Alaska Highway (a wartime initiative of the Public Roads Administration). Engineers had to overcome the challenges of the area's wet, relatively short summers and long, cold, dry winters.

Public Roads

A JOURNAL OF HIGHWAY RESEARCH



The triaxial compression test apparatus

PUBLISHED BY
THE PUBLIC ROADS
ADMINISTRATION,
FEDERAL WORKS
AGENCY, WASHINGTON

With the September 1947 issue, **PUBLIC ROADS** underwent a redesign that changed the cover, inside front cover, and article layout. Despite the redesign, the cover photograph illustrated the editor's intention to honor the subtitle, **A JOURNAL OF HIGHWAY RESEARCH**.

After War's End

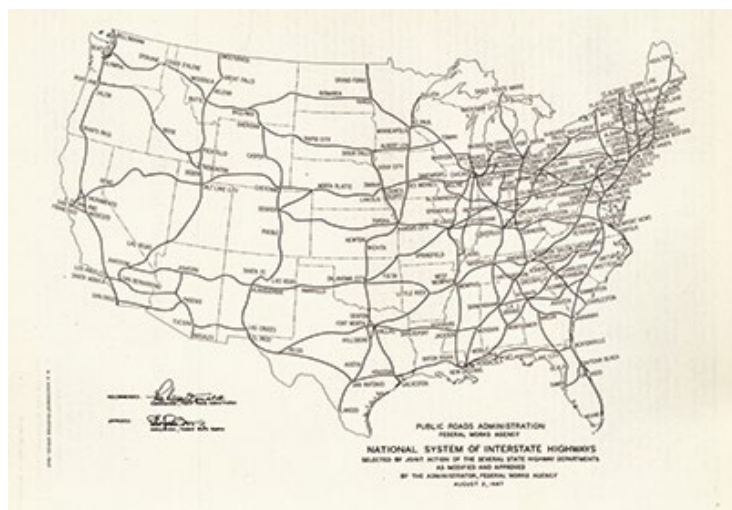
With the September 1947 issue, Public Roads received its first design makeover since its rebirth in 1924 as A Journal of Highway Research. The cover, inside cover, and layout of the articles changed. However, Public Roads continued to publish reports on the agency's often landmark research. This issue, only 20 pages long, contained two research articles by Public Roads Administration engineers as well as a note that the Public Roads Administration and its parent agency, the Federal Works Administration, had approved 37,681 miles (60,642 kilometers) of the 40,000-mile (64,000-kilometer) "National System of Interstate Highways" as called for in the Federal-Aid Highway Act of 1944.

The publication switched again from quarterly to bimonthly with the June 1949 issue. The October and December 1949 issues were devoted to reports on “Highway Capacity: Practical Applications of Research” by O. K. Normann and W. P. Walker of BPR, as the agency was once again called. A note on the inside cover informed readers that the articles were “an important work on highway capacity and its practical application.” The two Public Roads articles formed the core of the landmark 1950 *Highway Capacity Manual*, which helped engineers calculate the number of vehicles a highway could carry without restricting speed or movement to an extent that drivers would find intolerable.



The October and December 1949 issues of PUBLIC ROADS were devoted to landmark research on determining highway capacity. The caption on this photo read: "High traffic density on a one-way street in a downtown area. Where buses continuously load and unload, a negligible number of passenger cars utilize the first lane."

Since becoming A Journal of Highway Research, Public Roads had relied exclusively on articles by BPR's officials, particularly those from its research staff. That policy changed in the 1950s when the magazine occasionally published articles from outside sources such as "Highway Transportation Economics" by Richard M. Zettel of the University of California (August 1952) and "Crash-Barrier Tests on Multiflora Rose Hedges" by Russell R. Skelton of the University of New Hampshire (December 1957).



PUBLIC ROADS published articles about the early planning and policy stages of the Interstate System, including this map of rural segments designated in August 1947 (from the September 1947 issue).

Vol. 35/No. 1

April 1968

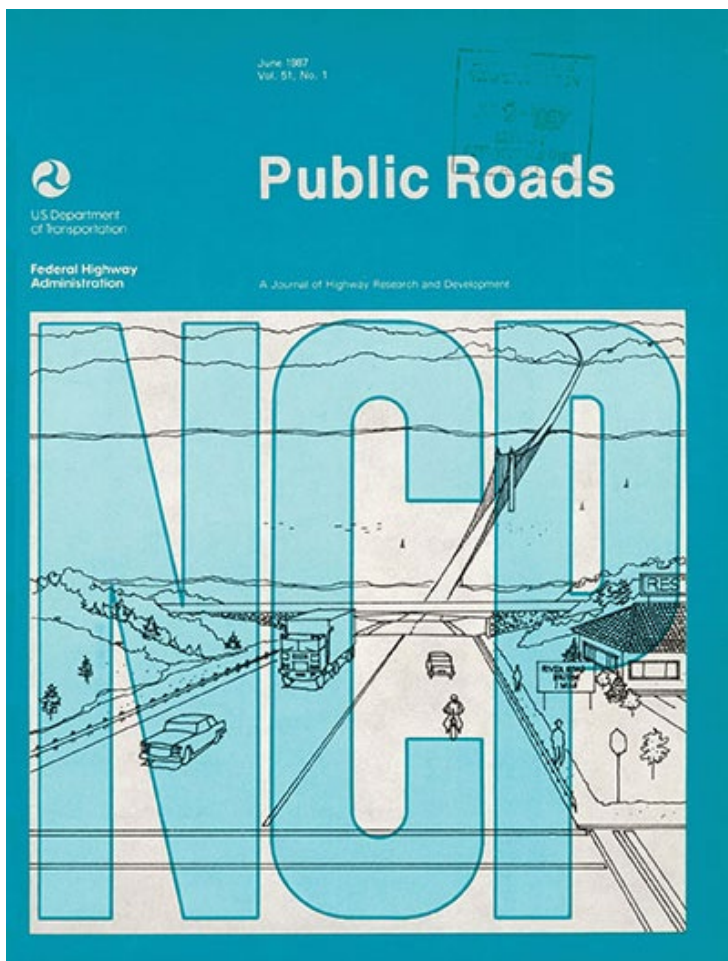
Public Roads

A JOURNAL OF HIGHWAY RESEARCH



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
BUREAU OF PUBLIC ROADS

As late as February 1968, the covers of **PUBLIC ROADS** often featured research results. The April 1968 issue, with a new cover format, heralded a change in the mix of research and general topics the magazine covered.



Beginning in 1974, most **PUBLIC ROADS** covers used illustrations or impressionistic images instead of photographs. This run ended with the June 1987 issue with an illustrated cover article on the National Coordinated Program of Highway Research, Development, and Technology, initiated in 1986.

The Interstate Era

After President Dwight D. Eisenhower launched construction of the renamed National System of Interstate and Defense Highways by signing the Federal-Aid Highway Act of 1956, the magazine carried articles related to the topic, such as:

- “Financial Planning For an Expanded Highway Program” (April 1957)
- “Life-Saving Benefits of the Interstate System” (December 1961)
- “The Effect of Expressway Design on Driver Tension Responses” (December 1962)

“Interstate System Accident Research”

(December 1963)

- “Highway Interchange Area Development” (June 1965)

On April 1, 1967, BPR left the Department of Commerce to join the new U.S. Department of Transportation as a bureau in the equally new Federal Highway Administration. Public Roads noted the change on the cover where the standard “Published Bimonthly by” now added FHWA and the new Department. Otherwise, the magazine continued featuring articles about design and operation issues, but sometimes articles of arcane interest (for example, “Ultraviolet Spectrophotometric Detection of Adulteration in Traffic Paint Vehicles” was the lead article in the February 1968 issue).

With the April 1968 issue, the magazine introduced changes. The front and back covers had a color tint and the number of articles in each issue increased while their length decreased. The October 1968 issue contained four articles, while future issues would carry as many as five.

The mix of articles remained the same. The issues addressed trends in the transportation network. For example, the December 1968 issue contained two articles on intermodal freight transportation “as it is in the United States today and as it is expected to evolve in the next decade or two,” with special reference to the container revolution (“Intermodal Freight Transportation in the United States” and “Highways and Rail Piggybacking”). Other issues discussed topics such as quality assurance in highway construction, electronic route guidance systems, billboards, highway safety, adaptations of computers to highway uses, the collapse of the Silver Bridge in December 1967 at Point Pleasant, WV, and advances in roadside safety.

With the June 1972 issue, the magazine was once again a quarterly publication. A note explained that, “The same amount of material will be published, but the average size of each issue will be larger than the previous bimonthly issues.” Issues carried as many as six articles, plus regular departments. FHWA’s quarterly maps showing the status of the rural Interstate System also appeared as they were issued.

The following year, in the March 1973 issue, the magazine changed its subtitle to A Journal of Highway Research and Development. Although the magazine did not explain the change, it appeared to reflect the importance of ensuring that the products of research found their way into the mainstream. Despite a green-tinted photograph of Idaho State Highway 55 on the cover, the four feature articles in the issue retained the technical focus of past issues and contained tables, graphs, formulas, and lab-oriented photographs.

Change in Direction

The December 1973 issue was the first featuring color throughout. The cover of the issue showed the Fairbank Highway Research Station, the magazine's home. Within the articles, color was limited to headings and subheads, with some photographs tinted a single color.

The articles published in this era focused on more practical topics. For example, the issues of volume 38 (1974–1975) included topics such as training for highway maintenance managers, development of a traffic control systems handbook, highway engineers looking at rivers as a system, and an urban traffic control/bus priority system.

The March 1975 issue included an editor's note that acknowledged the recent changes to content, format, and design and sought reader feedback to plan for a more effective magazine. The issue included a readership survey that could be clipped from the magazine and mailed at no cost. The magazine did not print the results, but it continued to focus on day-to-day concerns, with increased visual enhancement, such as photographs or the contents listed on the back covers.

By the mid-1980s, Public Roads continued to focus on practical topics of the modern highway era. Volume 50 (June 1986–March 1987) was typical. It featured articles such as "Traffic Control for Reversible Flow Two-Way Left-Turn Lanes," "Toward Improved Highway Safety Analysis," and "Roadside Safety – A National Perspective." These articles were mixed with graph-, table-, and chart-heavy research on such subjects as "The Potential for Reduced Lighting on Roadways" and "The Use of Oil and

Gas Field Brines as Highway Deicing Agents.” The issues included back-of-the-magazine features such as “Recent Research Reports,” “Implementation/User Items,” and “New Research in Progress.”

Full-color covers began with the December 1987 issue. The first full-color cover photograph showed a vehicle that had crashed into a guardrail/bridge rail transition. This image accompanied the feature article by Charles F. McDevitt on “Crash Testing Bridge Rails and Transitions.” Internal color was still limited to headings and subheads, with tints used for graphs and tables. Internal photographs remained mostly black-and-white.

The Evolution Continues

In its earliest incarnation, Public Roads reflected the views of the agency’s leader, Logan Page, who believed in a scientific approach to road building. In the early 1990s, the magazine would evolve as a reflection of a new leader, Federal Highway Administrator Dr. Thomas D. Larson, who took office on August 10, 1989, under President George H. W. Bush.

A professor of civil engineering and administrator at Pennsylvania State University, and Pennsylvania’s Secretary of Transportation (1979–1987), Larson brought a new perspective to FHWA. He was focused on creating an intermodal transportation system and a multicultural workforce to help the country advance in a global marketplace. As Administrator, he was a guiding spirit in creating the landmark, post-interstate era reauthorization legislation, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The legislation reshaped the Federal-aid highway program in ways that remain in place today.

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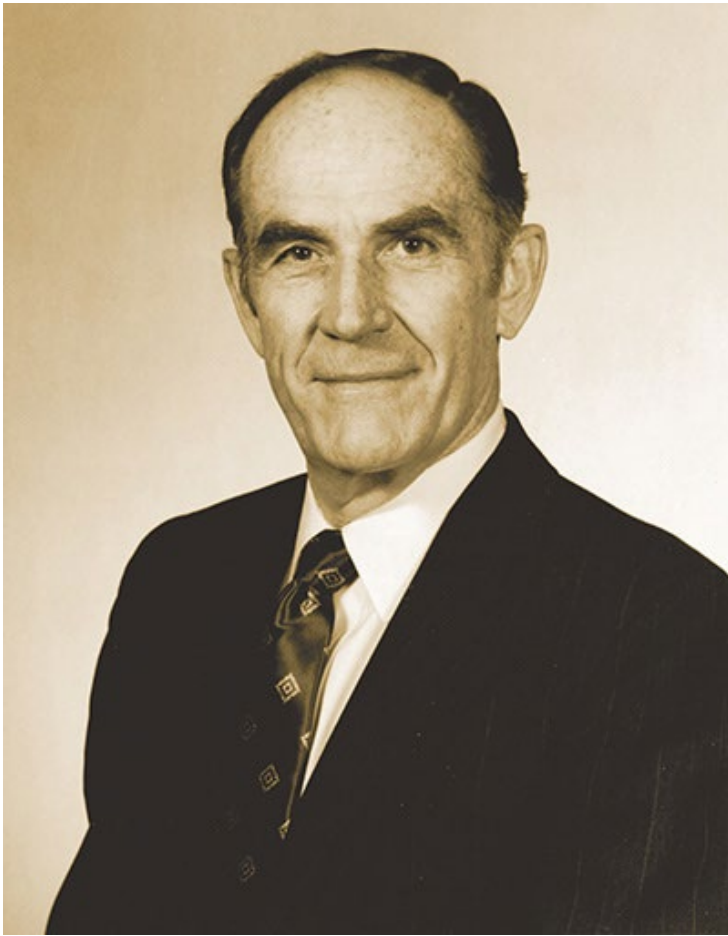
Public Roads

A Journal of Highway Research and Development



Safer Guardrail/Bridge Rail Transition
Designs Have Been Developed

Full-color covers began with the December 1987 issue, this one illustrating the feature article on "Crash Testing Bridge Rails and Transitions."



Dr. Thomas D. Larson served as Federal Highway Administrator from August 1989 until the end of President George H. W. Bush's term on January 20, 1993. Known for his work that helped shape the landmark Intermodal Surface Transportation Efficiency Act of 1991, Larson also reshaped FHWA's public outreach and communications, including the role of PUBLIC ROADS magazine.

One of Larson's goals was to reform how FHWA communicated internally and externally. He saw Public Roads as part of that change—a way to support the agency's current goals.

The March 1992 issue alerted readers to the changes ahead in the magazine's first editorial, written by Anne N. Barsanti. She had been on the editorial staff for several years, but became editor with the September 1991 issue. "A time of change is coming," she began. ISTEA underscored "expansion of research, development, and technology programs." Its emphasis on innovation demanded "that we expand and upgrade the means through which we

communicate research results.” To meet this new challenge, the magazine was undertaking “a series of initiatives,” such as creating an editorial board to “manage the actual review of articles for technical content.”

In closing, Barsanti said those involved in publishing the magazine looked forward to the challenge “to define Public Roads’ mission and to expand our vehicle for communicating achievements in technology and innovation.”

Broadening Its Scope

Through 55 volumes beginning in 1918, Public Roads had been a product of the agency’s research office, with editors drawn from within its ranks. That changed in volume 56 when a contractor, Robert B. Bryant, appeared in the September 1992 issue as a member of the editorial staff. The appearance was part of an evolution that was explained in a two-page article in the December 1992 issue.

Citing Page’s Salutory, Bryant, who was then the editor, wrote, “Almost from the beginning, Public Roads has been exclusively a house research journal for engineers, scientists, and economists.” Because the highway community was in the era of intermodalism, Public Roads was broadening its scope and audience “to address critical national transportation issues and subjects of interest to highway industry professionals as well as advances in research and technology.” Content would emphasize FHWA’s commitment to remain a world leader in promoting highway research and technology, the transition to a transportation system fully integrated to meet the complex needs of society, the role of highways in an integrated transportation network, and the importance of considering environmental quality and traffic congestion in highway project development.

Although the magazine continued to publish research articles, Public Roads became “the magazine of the entire FHWA.” As such, Public Roads would “fill a void in the transportation community not currently occupied by academic journals, trade publications, or association magazines.” Its expanded mandate aimed to attract “technical personnel interested in the latest highway research and technology; international, national, State, and

local transportation officials; and others interested in the highway industry.”

The magazine also underwent a design transformation to include use of full color in some internal sections of the magazine, more color photographs, and a more lively layout. “The magazine will look sharp and fresh, while still conveying a large amount of information. It will communicate through a balance of text and visual elements and through a balance of substantive feature articles and technical articles.”



To celebrate the 40th anniversary of the Eisenhower Interstate System, PUBLIC ROADS secured permission to reprint "Urban Freeways," a 1980 painting by Wayne Thiebaud, on the cover of the Summer 1996 issue.

These changes took place between December 1992 and December 1993. By then, Larson was no longer head of

FHWA. However, the new Federal Highway Administrator, Rodney E. Slater, a former Arkansas State Highway Commissioner and future U.S. Secretary of Transportation, did not interfere with the transformation of Public Roads that his predecessor had initiated.

Transitions

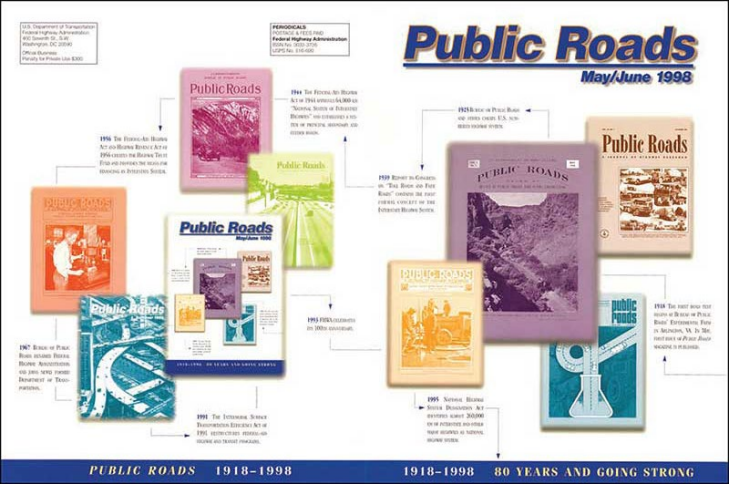
In the Summer 1993 issue, Bryant wrote the lead article, which began: “Wow! Public Roads has just turned 75.” The magazine’s longevity, he wrote, was “a testament to its importance to the community of highway engineers and other transportation professionals. But in some ways, this issue of the magazine marks a rebirth.” After quoting the Salutory’s reference to research, Bryant wrote that the magazine was “becoming more relevant for the future by picking up part of its past—the other part of its original mission, which was to be a forum for the discussion of current problems including ‘the dissemination of such information as the officials of the various States may desire to spread for the benefit of their contemporaries.’”

Public Roads would remain “a predominantly research-oriented publication,” but to reflect the intention to cover the entire scope of FHWA’s activities, the subtitle, A Journal of Highway Research and Development, was dropped. The new scope reflected the transition “to a transportation system that is more fully integrated to meet the more complex needs of society.” Bryant concluded that “this birthday is a celebration of the strength of tradition and the dynamics of changing times.”

The magazine also saw more design changes, which according to Bryant were “more than a facelift for a 75 year old; the magazine is developing a ‘new attitude.’”

The mix of articles reflected the changing editorial perspective as well as the era’s hot topics. For example, among the topics included in the Summer 1994 issue were an automated highway system, intelligent vehicle-highway system architecture, highway finance, technology transfer from conservation science to infrastructure renewal, preservation of historic roads and bridges, and the interactive highway safety design model. The cover article discussed lessons learned about seismic-resistant bridge design in the wake of the 1994 Northridge Earthquake in the

Los Angeles, CA, area.



For the magazine's 80th anniversary, PUBLIC ROADS featured a wraparound cover depicting the covers of classic issues.



Only one First Lady has appeared on the cover of PUBLIC ROADS. Lady Bird Johnson, wife of President

Lyndon B. Johnson, appeared on the cover of the March/April 2008 issue in connection with an article paying homage to her efforts to beautify America's highways.

Several issues would be focused on single themes, such as protecting the environment (Spring 1995), the newly designated National Highway System (Spring 1996), and the 40th anniversary of the Interstate System (Summer 1996).

In the Spring 1996 issue, “Along the Road” informed readers that Public Roads was “now on-line in the Internet.” Past issues remain online, dating to the Summer 1993 issue, at www.fhwa.dot.gov/publications/publicroads/past.cfm. With the July/August 1997 issue, Public Roads returned to being a bimonthly publication, which it would remain for 20 years (until the Autumn 2017 issue).

The May/June 1998 issue celebrated Public Roads’ 80th anniversary with a wraparound cover showing issues from its long history. Bryant penned a two-page article about the anniversary, titled “Public Roads: 80 Years Old, But the Best Is Yet to Come.” He discussed the origins of the magazine and its evolution over the years, particularly its most recent redesign. “For 80 years, the magazine has been a chronicle of advancements in surface transportation, and we are proud to continue in that tradition.”

With Bryant’s departure as editor in 2002, the magazine replaced his Editor’s Notes with guest editorials by FHWA leaders as well as officials from other agencies who discuss topics related to the issue’s articles. The first guest editorial appeared in the May/June 2002 issue. Executive Director Frederick G. “Bud” Wright discussed “Raising the Bar on Effective Communication,” in which he announced, “Our new editorial staff will help you use Public Roads for connecting with the transportation population and conveying your message clearly, concisely, and in a timely manner. Guest editorials in each issue will provide an FHWA focus to issues and priorities that shape our national agenda.”

Eras of Change

Throughout history, transportation has been about finding ways to overcome distance. In dealing with that challenge, each generation thinks its time is the most complex in history—and each generation is right. The nature of the complexities is what separates generations. In the 1910s, highway officials saw themselves as addressing not just the technical complexities of road and bridge building to overcome distance, but of improving rural lives, aiding in the marketing of crops, and solving “the daily more perplexing traffic problem,” as Page put it in his Salutory. In the 21st century, transportation officials are still trying to close distance gaps to improve the lives of travelers (rural and urban), seeking ways to facilitate freight movement in a global marketplace, and still finding the daily traffic problem “perplexing.”

Public Roads, like anything that lasts 100 years, has been through many changes as our transportation system, technology, social concerns, and country have evolved amid a revolution of instant communication and computer applications. More changes are ahead, inevitably, but looking back from 2018, we can see that Public Roads more than fulfilled Logan Page’s vision of a magazine that would “advance to as near perfection as possible the science of road building.” His successors built on the foundation his untimely death left behind so that the magazine he created would reflect the times in which it was published.

For 100 years, Public Roads has reflected the complexities of evolving times while contributing to the betterment of our lives. To paraphrase General Stone, the magazine set up a watch, kept an eye on the whole country, and reported what was going on.

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