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When a bridge recently collapsed, Caltrans used an innovative temporary bridge to reopen the route in only eight days.	
Navigating the Future <i>by James A. Arnold</i>	4
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Vehicle Compatibility With Roadside Safety Hardware <i>by Jerry A. Reagan</i>	11
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Narrow-Gap Improved Electroslag Welding for Bridges
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Demonstration Project 102 is designed to transfer a new advanced welding technology to state transportation agencies and bridge fabricators.

"Attention Motorists ... The Bats Have Landed on our Bridge!"
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Austin, Texas, has adopted the largest urban colony of bats in the world, roosting between the beams of the Congress Avenue Bridge, and publicizes the bats as a tourist attraction.

A Living Memorial
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The National Highway Institute: A 25-Year Record of Achievement
by Charles Barton 33
The National Highway Institute, 25 years old in 1995, has become highly esteemed both at home and abroad for its role in technology transfer and as a vital provider of highway technology to the national and international highway communities.

The CONMAT Initiative: Charting an Innovative Path to the Next Century
by Harvey M. Bernstein and Richard A. Belle..... 40
In August 1995, 11 different basic construction material (CONMAT) groups formally joined forces to take on the task of creating the high-performance construction materials and systems for a revitalized infrastructure capable of

withstanding the demands of the next century.

Aerodynamic Design of Highway Structures

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FHWA is developing improved design and retrofit methods and educating designers in the use of modern methods.

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The National Highway System: A Commitment to America’s Future

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The National Highway System is the centerpiece of the Federal Highway Administration’s commitment to provide a safe, modern, and efficient transportation system to serve the American people, and it is the backbone of our nation’s 21st century transportation system.

Road Tours: Reaching Out to the People

by Evelyn Fierro 7

Since April 1994, FHWA leaders have traveled 80,000 kilometers, coast to coast and border to border, to meet with thousands of people who use, construct, maintain, and manage our transportation system.

The National Highway System Designation Act of 1995

by Nancy Bennett..... 10

This article is a summary of the major provisions of the NHS Designation Act, including system designation, safety, motor carrier programs, funding and innovative financing, mandates and requirements, and other provisions.

Economic Importance of the National Highway System

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The signing of the NHS Designation Act released \$5.4 billion in federal-aid highway funds targeted to NHS. In addition, there are direct, indirect, and induced employment and financial benefits.

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FHWA is using available technology to ensure a future with a high-tech transportation network that meets our transportation needs, supports our national defense, provides economic growth, and adds to the quality of life in the United States well into the 21st century.

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This article highlights some of FHWA’s significant program accomplishments since June 1993.

The Secretary’s Highway Safety Action Plan

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This plan is a series of actions, some ongoing and some planned for the future, that addresses some of the specific safety issues of the NHS Designation Act and the emerging state responsibilities in the federal-state partnership in highway safety.

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This is a time line of significant events in the history of highway transportation in America from 1892 to the present.

FHWA’s Quality Journey
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Deeply imbedded in the tradition and core values of FHWA is the commitment to provide the highest quality services to our partners and, together with them, to deliver the very best highway transportation system to the nation. NHS is going to provide the future focus for applying quality improvement ideas, practices, approaches, and new technology.

A New Face for FHWA in a New Era
by David Smith..... 53
An effort to broaden and diversify the FHWA work force, particularly in senior management positions, is playing a significant role in ensuring that FHWA efficiently meets its operational requirements and maintains a highly effective and motivated work force.

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The Federal Aid Road Act of 1916 established the federal-aid highway program that transformed America’s roads from alternately dusty and muddy trails to the most advanced and comprehensive road network in the world.

From 1916 to 1939: The Federal-State Partnership at Work

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The period following World War I and through the 1920s was a golden age for road building, and although the federal-aid highway program felt the impact of the Great Depression in the 1930s, it was during this decade that the master plan for a system of interregional highways was developed.

Federal-Aid Highway Act of 1956: Creating the Interstate System

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This article explains the development of the interstate network from the initial master plan of 1939 to the 1956 act that created the National System of Interstate and Defense Highways.

Three States Claim First Interstate Highway

<i>by Richard F. Weingroff</i>	18
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Whether Missouri, Kansas, or Pennsylvania should be credited with the first interstate highway depends on how “first” is defined.

Poetry of the Open Road

by Tamara Broberg
Poets have long recognized the parallels between roads and life and have used roads in both the literal and metaphorical senses to express their insights to our culture.

Artists Look at Roads

<i>by Richard F. Weingroff</i>	22
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Art, as well as movies and poetry, is another form of cultural expression that “captures” the omnipresence of roads in our surroundings.

Local Government Highway Finance Trends, 1984-1993

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This article gives a brief historical overview of local government highway finance trends from 1921 to 1983, takes a closer look at the data from 1984 to 1993, and illustrates the important role played by local governments in the arena of public sector highway financing.

Engineering Marvels

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The Dwight D. Eisenhower System of Interstate and Defense Highways has been called one of the “Seven Wonders of the United States.” This article dis cusses a few of the extraordinary sections of the system.

Atlanta to Showcase ITS Traveler Information

by David F. Williams35
The Traveler Information Showcase in Atlanta this summer is a \$14 million partnership of federal, state, and local agencies and the private sector to provide the most complex, integrated transportation management and travel information system in the United States.

Condition and Performance of the Interstate System ? After 40 Years

by Clifford M. Comeau40
The interstate system has been incredibly successful. Consequently, the reliability of the system and the preservation of its physical assets are key policy and programmatic concerns for the entire transportation community.

Road Movies

by Richard F. Weingroff42
Roads are so much a part of our lives that it is natural that automobiles and highways have played significant roles in hundreds of movies. This is a partial listing of films in which highway travel plays a prominent part.

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Eight Steps Toward a “Smarter” National Highway System

by Christine M. Johnson2
The Federal Highway Administration has already begun to implement these steps to increase the capacity and efficiency of our existing highway systems.

Congestion Pricing: Reducing Traffic Jams Through Economics

by Ginny Finch4
Congestion pricing is a promising concept for reducing gridlock on major highways during peak travel periods and for reducing congestion costs -- wasted fuel, air pollution, and travel delays.

Performance of Epoxy-Coated Rebars in Bridge Decks

by Jeffrey L. Smith and Yash Paul Virmani6
Epoxy-coated reinforcing steel provides effective corrosion protection that can extend the service life of concrete bridge decks.

FHWA Launches New Nationwide Seismic Bridge Design Training

by James W. Keeley13
“Seismic Bridge Design Applications” is FHWA’s new training course for practicing bridge/geotechnical engineers on “how to” apply the American Association of State Highway and Transportation Officials (AASHTO) seismic analysis and design requirements for different bridge types across the United States.

Aftermath of the Kobe Earthquake

by Hamid Ghasemi, Hisanori Otsuka, James D. Cooper, and Hiroyuki Nakajima 16
The lessons learned in the aftermath of the Hanshin/Awaji Earthquake in the Kobe, Japan, area on Jan. 17, 1995, have real relevance for the United States. The bridges in central and eastern United States within the seismically active New Madrid Zone are very similar to the types of bridges in the Kobe area, 60 percent of which were damaged by the earthquake.

WesTrack: The Road to Solutions

by Terry Mitchell20
WesTrack, a new pavement test track in Nevada, uses four driverless trucks, operating about 20 hours per day, seven days a week, to apply load to its 26 test sections.

Test Roads: Designing the Pavements of the Future <i>by Terry Mitchell</i>	23
FHWA and a number of states and other partners are conducting pavement studies, using full-scale test tracks and machines that simulate traffic loads, to gain real-world experience that will result in improved roadway design and construction.	
The Promise of High-Performance Concrete <i>by David C. Smith</i>	27
The enhanced strength and durability of bridges that incorporate high-performance concrete (HPC) in beams, decks, and piers promise to reduce the lifetime cost and deterioration of these structures. To encourage further research and to promote the use of HPC, FHWA is showcasing HPC in regional events and demonstration projects in the eight states that have become active partners with FHWA by constructing or preparing to construct bridges with HPC.	
Intelligent Transportation Systems in Japan <i>by Hideo Tokuyama</i>	37
In Japan, intelligent transportation systems are one of several essential elements in creating a global advanced information and telecommunications society.	
Smart Road, Smart Car: The Automated Highway System <i>by Nita Congress</i>	42
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“Quality Journey” Update: Results That Make a Difference <i>by Margherita DiCenzo and Trish Day</i>	2
The Federal Highway Administration (FHWA) is on a “quality journey” to improve processes and procedures.	
The Highway Safety Information System: Transforming Data Into Knowledge <i>by Jeffrey F. Paniati and Forrest M. Council</i>	4
HSIS provides information about the safety performance of the highway system and, more specifically, the effects that changes in highway design and operations have on safety.	
Architects of Change: Creating America’s 21st Century Intermodal Transportation System <i>by Rodney E. Slater</i>	10
The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was the first step in adapting our post-Interstate, 20th century transportation network to the demands of the 21st century. Now, through the process of developing the post-ISTEA legislation in 1997, this administration, Congress, and the transportation community are architects of change.	
The National Highway System: A Commitment to America’s Future <i>by Cheryl Hoffman and Lawrence Paulson</i>	12
FHWA is well into the process of developing the post-ISTEA legislation that will usher the nation’s transportation system into the 21st century.	
Keep the Good Times Rolling: ISTEA Success Stories <i>by Cheryl Hoffman and Lawrence Paulson</i>	17
There are many “success stories” to illustrate the immense impact of ISTEA.	
Development of a Bridge Steel Database <i>by Glenn Washer and Greg Nelson</i>	27
The Historic Bridge Steel Database consolidates information from various studies so that it can be widely used.	
South Carolina Trooper Is Top Inspector	

by Stan Hamilton30
Trooper Alonzo Hutto comes out on top in a five-day, international contest to inspect commercial vehicles to detect mechanical defects and other vehicle and driver safety hazards.

Timber Bridges in the United States

by Sheila Rimal Duwadi and Michael A. Ritter32
Historically, timber was the primary material for bridges. Thousands of timber bridges still exist today, and state and local authorities continue to build some bridges with wood.

Internet Watch

by Dick Stirba37
This article introduces a new, regular feature in *Public Roads*; Internet Watch will track new and interesting developments in transportation resources on the Internet.

Geosynthetic Reinforced Soil Piers: A Bridge From the Past to the Present

by Doug Rekenhaller43
A GRS pier at the Turner-Fairbank Highway Research Center was loaded to 9800 kilonewtons (2.2 million pounds force) and could have supported more.

Closing the Technology Gap

by David C. Smith52
The state of the art in technology, in many cases, is well beyond the state of the practice in the U.S. transportation community. Addressing this “technology gap” is foremost in the minds of FHWA planners as reauthorization approaches.

Moving Forward Smartly: The Role of ITS in the NEXTEA

by Jeff Lindley57
Intelligent transportation systems are essential tools for improving the nation’s transportation system in the next century. The post-ISTEA legislation must address the challenges and choices to accelerate ITS deployment.

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CMCRA: Where the Tire Meets the Road

by Dr. Brian Chollar and Dr. Mohammed Memon2
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Another Step Toward a Nationally Integrated Traveler Information System

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by Frank W. Muchmore7
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FHWA Creates an Office of Asset Management

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Knowledge Management: Everyone Benefits by Sharing Information

by Mike Burk27

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In a report entitled *Are You Ready? Managing Transportation Resources Through the Y2K Weekend*, which is available on the Internet at <http://www.fhwa.dot.gov/Y2K/y2k.pdf>, FHWA and Public Technology Inc. provide information and suggestions to help governments to prepare for the Y2K weekend and to build public confidence in the adequacy of those preparations.

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by Larry A. Arneson.....32

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Highway Finance Information: A Key 21st Century Transportation Decision-Making Tool

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Condition and Performance of Epoxy-Coated Rebars in Bridge Decks

by Ali Akbar Sohaghpurwala and William T. Scannall44

FHWA and partners provided funding for a joint research project to evaluate in-service bridge decks constructed with epoxy-coated reinforcing steel. The study examines the long-term performance of epoxy-coated reinforcing steel in concrete bridges and structures exposed to salt.

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The Federal Highway Administration (FHWA) undertook a six-year research program focused on issues related to in-vehicle information displays in order to provide design assistance to advanced in-vehicle systems engineers.

A More Precise Sense of Where We Are

by James A. Arnold, Rudy Persaud, and David Smullen7

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National Research Projects on Recycling in Highway Construction

<i>by Marcia J. Simon, Warren H. Chesner, Taylor Eighmy, and Howard Jongedyk</i>2
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The Recycled Materials Resource Center

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Scanning European Advances in the Use of Recycled Materials in Highway Construction

<i>by Katherine Holtz and T. Taylor Eighmy</i>34
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by Richard F. Weingroff2
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The relationship between transportation and air quality is complex and will challenge researchers well into the future.

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Measuring Economic Impacts of Federal-Aid Highway Projects
by William P. Anderson and Arthur C. Jacoby37
A study is underway by FHWA and the Boston University Center for Transportation Studies to quantitatively assess the direct, indirect, and induced economic effects of several categories of highway improvement projects.

Transportation in the 21st Century
by Robert E. Skinner Jr.42
The executive director of the Transportation Research Board presents a broad view of transportation and change, discusses some important trends and characteristics of transportation that will influence its evolution in the United States, and comments on specific proposals that have been advanced for transportation.

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Using Monte Carlo Simulation for Pavement Cost Analysis

by Keith D. Herbold2

The Federal Highway Administration (FHWA) developed a model and made arrangements with 10 states and two pavement associations to prepare case studies illustrating the application of risk analysis to life-cycle cost analysis in pavement design. The studies show that with limited training in probabilistic principles and in the application of risk-analysis software, state highway agency personnel can apply the probabilistic approach to their current life-cycle cost-analysis procedures.

ITS Peer-to-Peer Program

by James Pol7

This program provides free technical assistance to agencies seeking to improve transportation operations through the deployment of intelligent transportation systems.

Design Evaluation and Model of Attention Demand (DEMA_{ND}): A Tool for In-Vehicle Information System Designers

by Christopher A. Monk, M. Joseph Moyer, Jonathan M. Hankey, Thomas A. Dingus, Richard J. Hanowski, and Walter W. Wierwille10

FHWA developed a behavioral model that predicts the performance of drivers interacting with an in-vehicle information system (IVIS) and a prototype software package that uses the behavioral model to evaluate the attention demanded to operate a given IVIS.

Studying the Reliability of Bridge Inspection

by Brent M. Phares, Dennis D. Rolander, Benjamin A. Graybeal, and Glenn A. Washer15

FHWA's Nondestructive Evaluation Validation Center initiated a comprehensive study to determine the reliability of visual inspection of highway bridges. The general objective was to provide an overall measure of the reliability and accuracy of routine and in-depth inspections and to study the influence of human and environmental factors on inspection reliability.

Ultrasonic Inspection of Bridge Hanger Pins

by Benjamin A. Graybeal, R.A. Walther, Glenn A. Washer, and Amy M. Waters20

FHWA's Nondestructive Evaluation Validation Center conducted a study to determine the reliability of contact ultrasonic techniques in the field to accurately locate defects in hanger pins.

The Northwest Transportation Technology Exposition

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State and local transportation maintenance and engineering specialists from throughout the Pacific Northwest attended a technology exposition in September 2000 at Moses Lake, Wash., to observe new technologies and equipment in action.

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by Sybil Hatch36

Two concurrent research programs funded by FHWA, ADSC, and others are being conducted to study anomalies in drilled shaft construction.

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by Jose E. Hernandez and Sheila Rimal Duwadi39

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and because its imaging capability is expected to accurately show the extent and location of problem areas and to produce data that can be more easily interpreted than conventional ground-penetrating radar data.

Strategic Work-Zone Analysis Tools

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Safe Plowing — Applying Intelligent Vehicle Technology <i>by Robert A. Ferlis, Shahed Rowshan, and Cathy Frye</i>	3
The California and Minnesota departments of transportation use the Global Positioning System, a geo-spatial database, radar, and intelligent vehicle technologies to enable snowplow operators to “see” snow-covered roads and obstacles.	

Improving Roadside Safety by Computer Simulation <i>by Dean L. Sicking and King K. Mak</i>	9
Computer simulation of vehicular impacts is rapidly developing as a reliable alternative to full-scale crash testing.	

Using the Computer and DYNA3D to Save Lives <i>by Martin W. Hargrave and David Smith</i>	13
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Preservation of Wetlands on the Federal-Aid Highway System <i>by Kirstyn White</i>	26
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Internal FHWA Partnership Leverages Technology and Innovation <i>by Bob Bryant</i>	30
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New Applications Make NDGPS More Pervasive <i>by James A. Arnold</i>	39
The Nationwide Differential Global Positioning System offers such a dramatic improvement in the accuracy of positioning information obtained via radio signals emitted by the 24 Global Positioning System satellites orbiting the Earth that it makes possible a myriad of new applications and enables other technologies to function at improved levels.	

Center for Excellence in Advanced Traffic and Logistics Algorithms and Systems (ATLAS) <i>by David Gibson, Alan Hansen, and Pitu Mirchandani</i>	44
The University of Arizona with the support of FHWA established a center of excellence for the research and	

development of algorithms, software, and systems to advance the state of the art and the state of the practice in traffic management systems and logistics management systems.

National Work Zone Awareness Week (April 9 to 12) — Enhancing Safety and Mobility in Work Zones 60
In a continuing effort to promote safety and mobility in work zones, FHWA, ATSSA, and AASHTO will sponsor the second annual National Work Zone Awareness Week from April 9 to 12, 2001.

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DOT's Comprehensive Truck Size and Weight Study — A Summary by *James W. March*.....2
The U.S. Department of Transportation (DOT) presented to Congress the results of a comprehensive examination of issues surrounding the current federal truck size and weight limits and the potential impacts of changes to those limits.

Giving Freight a Voice by *S. Lawrence Paulson*10
DOT has begun a major effort to give visibility to freight issues and to coordinate the modes of transportation. Accordingly, the Federal Highway Administration (FHWA) established an Office of Freight Management and Operations as "Freight's Voice in FHWA."

FORETELL — Finally, someone is doing something about the weather! by *Paul Pisano*.....15
FORETELL provides, via Internet, the timely, detailed, and relevant weather-related road information needed by state highway managers and the public.

Steel Fabrication Technologies Observed in Japan and Europe by *Krishna K. Verma*17
A team of steel bridge experts visited leading steel fabrication facilities in Japan, Italy, Germany, and the United Kingdom to identify practices that may have current or future value to transportation agencies in the United States.

Reliability of Visual Bridge Inspection by *Brent M. Phares, Dennis D. Rolander, Benjamin A. Graybeal, and Glenn A. Washer*.....22
This article is the second of two on the visual inspection study conducted at FHWA's Nondestructive Evaluation Validation Center and describes the results of this recently completed study.

For the Common Good: The 85th Anniversary of a Historic Partnership
by *Richard F. Weingroff*.....30
The collaboration to establish a federal-aid highway program in 1916 was the beginning of an enduring partnership between FHWA and the American Association of State Highway and Transportation Officials.

Telecommunications — Getting More for Your Money by *William S. Jones*46
New telecommunications developments, even those not designed specifically for transportation uses, bring opportunities and benefits to transportation engineers.

Celebrating National Transportation Week, May 13-1956
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No. 6, May/June 2001

5-1-1: Traffic Help May Soon Be Three Digits Away by *S. Lawrence Paulson*.....2
The Federal Communications Commission has approved the use of a three-digit telephone number (5-1-1) by states and local jurisdictions for the dissemination of travel information.

Using the Dynamic Modulus Test to Assess the Mix Strength of HMA by *Thomas Harman*6
The dynamic modulus test (E*) is currently under consideration to be added to the Superpave mix design system as a simple performance test.

The ITS Public Safety Program: Creating a Public Safety Coalition by William Baker and Melissa A. Winn9
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Handling the Worst Crash Ever in Virginia by Melissa A. Winn.....14
Through a massive, cooperative effort by fire and rescue units, state police, and the Virginia Department of Transportation, the scene of a 117-vehicle crash was cleared and the highway reopened in only 12 hours.

Moving Ahead — The American Public Speaks on Roadways and Transportation in Communities
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Branding America’s Byways by Sharon Hurt Davidson26
Over the past year, FHWA has been researching, defining, and beginning to build a brand for the collection of National Scenic Byways and All-American Roads.

Travelers Seek Byway Experiences by Cheryl Newman.....33
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National Work-Zone Awareness Week Commemorated Across the Nation by Ann Walls40
The second annual National Work-Zone Awareness Week, April 9 to 12, 2001, to boost awareness of the need to be especially alert and concerned with safety in work zones, was well-received throughout the country. The campaign included activities in 45 states, the District of Columbia, and Puerto Rico.

Work-Zone Traffic Control: Survey of Contracting Techniques by Angela Johnson, Lloyd Rue, Ted Burch, and Dick Clark43
The Montana Department of Transportation (DOT) and FHWA’s Montana Division conducted a survey to gain a comprehensive perspective of state contracting practices across the country. The survey results, reflecting the responses from 35 state DOTs, present valuable insights that will help state DOTs to improve their procedures and save money.

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HELP WANTED — Meeting the Need for Tomorrow’s Transportation Work Force

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The entire transportation community — public and private sectors — is facing a very critical work force problem, primarily because of the pending retirement of the Baby Boomer generation. To avoid serious repercussions, a more proactive approach to work force planning and development is required.

The Dwight David Eisenhower Transportation Fellowship Program: Preparing for the Future of Transportation *by*

Ilene D. Payne, Leslie C. Porter, and Lisa Crye.....13

DDETFP awards \$2 million annually in six fellowship award categories to undergraduates, graduate students, and selected faculty. In the last decade, about 2,000 fellowships, worth \$20 million, have been awarded.

The Millennium Manual Matters *by David Smith*.....17

FHWA releases the 2000 Millennium Edition of the Manual for Uniform Traffic Control Devices, a significantly updated version of the classic manual.

QuickZone *by Deborah Curtis*20

QuickZone is software that will estimate traveler delay due to work zones, and by doing so, it will provide a more complete and realistic view of the total construction costs of a road project.

Iowa’s Approach to Environmental Stewardship *by Dena M. Gray-Fisher*22

The Iowa Department of Transportation has developed a multiyear education and communication plan to help both its employees and the public to fully grasp the importance of DOT’s actions to balance the state’s transportation needs and the preservation of its environmental resources.

Moveable Barrier Solves Work-Zone Dilemma *by Cathy Satterfield*.....26

While repairs are being made to one of the two bridges carrying U.S. 24/150 over the Illinois River in Peoria, Illinois DOT uses a moveable barrier system to facilitate the most efficient flow of traffic as the other bridge is pressed into “two-way duty.”

Learning From the Big Dig *by Daniel C. Wood*.....30

Boston’s Central Artery/Tunnel Project — the Big Dig — is providing plenty of lessons for transportation planners and engineers from all over the world.

A Light at the End of the Tunnel *by Frank V. Botelho*37

To help ensure the proper preservation of the nation’s tunnels, the Federal Highway Administration and the Federal Transit Administration joined forces to develop a state-of-the-art tunnel management system, a process that will extend the service life and reduce the operating expenses of tunnels throughout the country.

International Cooperation to Prevent Collisions at Intersections *by Cathy Frye*.....41

The United States and Japan have established the U.S.-Japan Intelligent Transportation Systems Joint Research Program to find technology-based solutions to reduce the high incidence of crashes at intersections.

Pay Attention — Buckle Up: Safe Driving Is a Full-Time Job *from the Network of Employers for Traffic Safety*47
To help educate employees about distracted driving and combat the human and economic costs of traffic crashes, NETS has made distracted driving the focus of the fifth annual Drive Safely Work Week campaign — Sept. 10-14.

No. 2, September/October 2001

Low-Altitude Laser Surveys Provide Flexibility and Savings *by Lisa Crye*..... 2
For two recent road surveys, the Central Federal Lands Highway Division of the Federal Highway Administration (FHWA) used a helicopter equipped with a low-power laser to collect in a few hours the complete range of required information that would have taken several weeks for a ground survey crew to collect.

The Marriage of Safety and Land-Use Planning: A Fresh Look at Local Roadways *by Aida Berkovitz* 7
A national focus on the safety of local roadways is needed, and mixed land use and smart-growth policies can ultimately result in safer local roadways through the use of appropriate designs and slower speeds.

Strengthening the Connection Between Transportation and Land Use *by Stephanie Roth and Ashby Johnson*20
From a transportation perspective, smart growth includes the building of walkable communities and providing a variety of transportation choices so that residents have alternatives to the single-occupant motor vehicle to get from one place to another.

Iron and Asphalt: The Evolution of the Spiral Curve in Railroads and Parkways *by Mary E. Myers*23
This article, reflecting the perspective of a landscape architect, explores the background, evolution, and aesthetic application of the spiral curve and suggests that it be reintroduced into educational programs for landscape architects.

New Life for Old Transmitters: Converting GWEN to NDGPS *by James A. Arnold*.....28
The recent conversion of two Ground Wave Emergency Network (GWEN) sites in Maryland to National Differential Global Positioning System (NDGPS) broadcast stations is the latest chapter in the emerging NDGPS.

Colossal Partnership: Denver's \$1.67 Billion T-REX Project *by Steve Moler*..... 30
Metro Denver's Transportation Expansion Project (T-REX), a combined freeway reconstruction and light-rail extension, is as massive as the name implies, and it has gone from a dream to construction in a little more than three years.

One-of-a-Kind Bridge Project Protects National Bird *by Dena M. Gray-Fisher* 37
The Iowa Department of Transportation and its construction and design partners are taking extreme measures to protect the environment and our national symbol, the bald eagle, during the relocation of a 40-mile (64-kilometer) segment of U.S. Route 20.

Partnership Protects Pristine Estuary and Wetlands *by Maria Koklanaris*43
The Western Federal Lands Highway Division contributed \$500,000 to help purchase Whalen Island, Ore., and save it from development.

Relationship Marketing: A Key to Success and Survival *by Kathleen A. Bergeron* 48
Customers tend to keeping going back to people and places they trust, and organizations are learning that moving from simply knowing customers to having customer relationships and managing those relationships appropriately can increase both profits and efficiency.

No. 3, November/December 2001

Legacy of a Landmark: ISTEA After 10 Years *by Ellen Schweppe*.....2
The Intermodal Surface Transportation Efficiency Act of 1991 changed the way federal highway programs are structured, planned, developed, and financed.

Creating a Landmark: The Intermodal Surface Transportation Efficiency Act of 1991

by Richard F. Weingroff.....7
On the 10th anniversary of this landmark, Richard Weingroff, the unofficial historian of the Federal Highway Administration, presents a comprehensive account of the issues and politics that shaped the creation of ISTEA and changed the “way we do business” for surface transportation in the United States.

Put the Brakes on Fatalities Day *by Ann Walls*.....49
On Oct. 10, the Department of Transportation and several organizations celebrated the first annual Put the Brakes on Fatalities Day, and they signed a memorandum designating Oct. 10 of every year as Put the Brakes on Fatalities Day.

No. 4, January/February 2002

A Report of the National Highway R&T Partnership Initiative *by Jason McConachy and Robert E. Spicher*.....2
This article provides an update on the work and findings of the National Highway Research and Technology Partnership, an initiative in which 160 organizations participated to assess the needs of highway research and technology.

Managing Traffic Flow Through Signal Timing *by S. Lawrence Paulson*.....6
Traffic signal management is one of the most cost-effective ways to keep traffic moving smoothly and to make streets safer. Efficient traffic signal control systems improve air quality and reduce fuel consumption, reduce traffic congestion, reduce the number of crashes, reduce red-light running, and postpone or eliminate the need to construct additional road capacity.

An Olympic Event: Handling Transportation During the Olympics *by John R. Njord*10
Studying all relevant information, including the lessons learned from previous Olympic Games, the Utah Department of Transportation (UDOT) created and implemented an effective travel demand program to handle the anticipated increase in traffic during the Winter Olympics in February 2002. UDOT’s goals are to get the athletes and spectators to Olympic venues in an efficient and timely manner and to reduce background traffic by 20 percent.

It’s the Ride That Counts *by Rick Boeger and Roberta J. Crowe*.....17
The Maricopa County (Ariz.) Department of Transportation in Phoenix has put in place a program that makes contractors on roadway paving projects put their money where the ride is. Contractors, under this incentive program, can earn as much as an additional 10 percent of total paving costs in incentive bonuses by exceeding the preset standard for smoothness. Conversely, contractors are hit in the pocketbook if they don’t meet the standard.

Lessons Learned About Bridges From Earthquake in Taiwan *by Wen-Huei (Phillip) Yen*20
A U.S.-Japanese team visited 10 bridge sites in Taiwan to evaluate Taiwanese bridge performance during the devastating Chi-chi Earthquake, which occurred on Sept. 21, 1999. The earthquake measured 7.6 on the moment magnitude scale, and more than 2,400 lives were lost as a result of the earthquake.

A Legacy in Art in a New Exhibition *by George Austin Hay*.....24
The collection of Carl Rakeman’s 109 original paintings documenting the history of highway transportation in America finds a new home at the Texas Transportation Institute. From 1921 to 1952, Rakeman painted this extraordinary pictorial record of the development of travel in this nation. These paintings cover American travel from frontier Indian trails and pre-colonial times to modern highways.

FHWA and Nevada DOT Create a Wetland in Nevada *by D. Gail Bellenger*.....34
It may be surprising to some, but even Nevada with its desert climate has wetlands. The Federal Highway Administration (FHWA) and the Nevada Department of Transportation created a large wetlands area adjacent to the scenic Washoe Lake to offset the unavoidable loss of wetlands areas as a result of highway construction and maintenance projects in and around Reno and Carson City.

No. 5, March/April 2002

“Stone-Walling” in Arkansas *by Laurin R. Lineman*.....2
The Arkansas State Highway and Department of Transportation (AHDT) invited the Eastern Federal Lands Highway

Division (EFLHD) of the Federal Highway Administration (FHWA) to assist in the reconstruction of a portion of Forest Highway 65 between Cass and Oark. One of the goals was to “maintain the unique physical relationship of the sheer bluffs [along the Mulberry River], the natural scenery of the Mulberry Valley, and the scenic experience this provides for viewing from the river and road.” To satisfy this goal, EFLHD designed and constructed an aesthetic, natural stone retaining wall.

Arkansas Combines Best Practices for an Innovative Interstate Rehabilitation Program
by Dan Flowers and Sandra L. Otto.....6

AHDT is rehabilitating 380 miles (612 kilometers) or 60 percent of its interstate highways in five years. The department has put together numerous best practices—in financing, project management, construction, and communications—that together create a compelling model for tackling a project of this scope.

Small Investment, Dramatic Dividends—Saving Lives in “Blood Alley” *by Dave Davis*.....14

The Oregon Department of Transportation, three northwest Oregon counties, a community traffic safety committee, and a Native American tribe worked together to improve a dangerous corridor, dubbed “Blood Alley” by local residents, and as a result, traffic fatalities along the corridor have dropped dramatically over the past three years.

National Review of the Highway Safety Improvement Program *by Kenneth Epstein, Gary Corino, and Donald Neumann*.....18

Last year, a national review was conducted of the highway improvement programs in six states. The primary purpose of this review was to document the best, unique safety practices of each State.

Weather: A Research Agenda for Surface Transportation Operations
by Gary G. Nelson and Rudy Persaud24

Weather crosscuts almost every goal, use, and operation of highways, and yet, meteorology, from a transportation perspective, is focused mostly on the flight operations. To make weather issues an important part of highway programs, people who manage highway operations must seek new techniques and intelligent transportation systems that complement the amazing system of weather-information collection, analysis, and forecasting that exists in the United States.

Highway Quality Awards *by the National Partnership for Highway Quality*.....30

The National Partnership for Highway Quality recognized 26 States for their outstanding highway projects. The award winners were selected on the basis of the following criteria: quality process and results, customer focus, teamwork, innovation and value, and long-term improvement.

FHWA Model Predicts Noise Impacts *by Cynthia Lee and Judith Rochat*.....44

The FHWA Traffic Noise Model (TNM) is a new state-of-the-art computerized model used to predict noise levels in the vicinity of highways. TNM uses advanced acoustics and computer technology to improve the accuracy and ease of modeling highway traffic noise, including the design of efficient, cost-effective highway noise barriers.

Synergy in Action: FHWA’s Transportation Pooled-Fund Program *by Brett Joseph*.....46

The Transportation Pooled-Fund Program enables various public and private entities to “pool” their resources to jointly fund research aimed at solving a wide variety of transportation-related problems. FHWA’s central role is to administer the program and to act as a broker of the funds obligated to pooled-fund projects.

No. 6, May/June 2002

Arizona Tackles Work Zone Delays *by Alan Hansen*.....2

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- Data is Key to Understanding and Improving Safety** by *Michael S. Griffith, Carl Hayden, and Hari Kalla*42
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- Managing Speed** by *Elizabeth Alicandri and Davey L. Warren*48
Interagency collaboration could curb speeding and save lives.

No. 5, March/April 2003

- A Natural Choice** by *Lloyd Middleton and Mitch King*2
Using compost for environmentally sound roadside slopes is one time when waste pays off.
EFLHD investigated the use of compost as an alternate technique to hydroseeding and silt fences for revegetating a steep rockslide on a section of the National Park Service's Blue Ridge Parkway. The article describes the steps taken in the compost installation, the results, and the economics of compost as an alternate method. The authors conclude by suggesting that FHWA adopt compost as a best management practice for some situations.
- Behind the Scenes at the Olympics** by *Pamela Mathis*6
The Utah DOT shares the know-how that it gained from managing transportation for such a major event.
This post-Olympics article—a follow-up to the pre-Olympics piece that was published in the Jan/Feb 2002 issue of PUBLIC ROADS—is substantially different from the earlier article in that it shares the lessons learned from managing transportation for such a major event. The advice that the Utah DOT provides could be useful to any transportation agency for events such as football games, concerts, and major holiday events. FHWA's Paul Mooney advised us to focus solely on the Utah DOT's efforts, for political reasons, so we just mentioned FHWA in passing along with UTA, SLOC, Salt Lake City, and others. The information provided by Utah DOT focuses on interagency cooperation through a jointly staffed TOC, a public relations information campaign, various

operational tools such as increasing the size of the IMT crews and instituting a traffic observers program, making use of CCTVs and VMSs, and extensive training simulations.

Technology Goes Local by *John J. Sullivan IV*10

A showcase program in Florida spurs local implementation of proven highway technologies.

The Florida LTAP center initiated a demonstration program that aims to improve technology transfer and implementation at the local level. The article explores Florida’s innovative showcase program and offers several examples of technologies highlighted during these events (equipment for collecting data on pavement resurfacing, open-graded emulsified mix for paving unpaved roads, in-road warning system for occupied pedestrian crosswalks, roundabout for reducing traffic congestion, and construction of a multiuse pedestrian and bike trail through multiagency jurisdictions). The article also discusses guidelines for and evaluation of a showcase, and suggests that other States consider using a similar approach to spurring technology adoption by municipalities and counties.

A Conduit for New Technology by *Kathleen A. Bergeron*.....15

Videoconferencing can be a cheaper, faster, safer way to spread the news about the latest transportation innovations.

Videoconferencing offers a potentially cheaper way to transfer transportation technologies, versus meetings involving physical travel to demonstrate technological innovations. By eliminating travel, videoconferencing means that technology transfer also can occur more quickly and safely. State DOT engineers, for example, may work under a quota policy that permits only one out-of-state business trip per year. The article describes the history of these “virtual meetings” and their use by universities, Federal agencies (including a sidebar on FHWA’s use), the highway industry’s use for training, use by State DOTs and WASHTO-X (a research study of telecommunications by the Western Association of State Highway and Transportation Officials). The article concludes by examining the historical reasons why “picture phones” were slow to catch on and mentions how WASHTO-X is examining why users potentially may be slow to adapt to the changes required by teleconferencing, how people can become comfortable with the equipment, and the differences in meeting style and etiquette. The author had decided to include a brief sidebar comparing the costs of a sample meeting with the costs of videoconferencing, but has not yet provided the sidebar.

The Man Who Changed America, Part I by *Richard F. Weingroff*20

President Eisenhower’s interest in good roads began in 1919 and resulted in the Federal-Aid Highway Act of 1956—but he had to fight for his Grand Plan.

This lengthy historical article by Richard Weingroff of FHWA is similar to other Weingroff articles that we’ve published in the past in that the article details the political and legislative process during the Eisenhower years of the 1950s when Ike brought the Interstate System into existence. The article begins with 8 pages of background information setting the stage and then begins the legislative process with Truman’s Federal-Aid Highway Act of 1952. Then the author provides a blow-by-blow account of the battle with the Governors over the controversial issue of State versus Federal funding of the Interstate System. The story continues in Part II of the article, which will be published in the following issue of PUBLIC ROADS.

Living Up to a Landmark by *Norah Davis*36

Building a bridge that will overlook Hoover Dam—and enhance it—is a once-in-a-lifetime engineering challenge.

The article begins and ends with the aesthetic challenges of constructing a bypass and bridge in close proximity to Hoover Dam that will be worthy of this national historic landmark. Addressing the aesthetic challenge, selecting a route for the bypass, addressing various cultural and historical challenges, and choosing the type of bridge involved an interagency partnership and consultation with local Native American tribes. The article contains quotes by Administrator Mary Peters, introducing various safety, congestion, environmental, and security problems with the existing road over the dam. Funding is a mix of Federal and State monies.

Putting the Pieces Together by *Dan Sunde*40

Washington State’s safety management system helps communities to reduce crash rates and save lives.

Although the original ISTEA mandate was later repealed, the Washington State Department of Transportation (WSDOT) embarked on a mission in 1991 to develop a manual to help local agencies implement SMS’s, known as a local agency safety management system (LASMS). WSDOT designed the LASMS manual as a tool to help local

agencies take a broader approach to transportation safety and design projects that would prevent and reduce the number and severity of roadway collisions, transportation-related injuries, and property damage. According to WSDOT, an LASMS should have two primary components: a local SMS committee and an eight-step transportation safety decision-support process. The manual contains information on the tools and processes needed by local agencies to implement these two components, including a list of the positions that should be represented on the SMS committee, a description of steps involved in developing a comprehensive safety policy, and information on the data elements needed to identify high-collision locations.

Where the Rail Meets the Road by Tracy N. Busch and Keri A. Funderburg.....44

A tunneling method used in Russia to run a highway beneath a train track could prove beneficial in the United States in some situations.

Engineers in Perm, Russia, chose to tunnel under railroad tracks to construct a new road for vehicle traffic, and U.S. transportation officials from FHWA and Kentucky visited Perm to view the tunnel. The Russians opted for the tunnel instead of an overpass or an at-grade crossing to avoid disruption of rail traffic during construction. They also believe that tunnels offer safety and economic advantages over bridges, which require more land, and economic benefits compared with at-grade crossings, which disrupt vehicle traffic. The article describes the safety and technical aspects of constructing the tunnel and concludes with possible applications in the United States, mentioning the safety, cost, and drainage issues that would need to be addressed.

No. 6, May/June 2003

Avoiding Voids by Thomas E. Lefchik, L. Rick Ruegsegger, and Robert W. Henthorne.....2

Abandoned mines jeopardize the transportation system and public safety, but States are addressing this underground threat.

The authors open by describing several incidents involving abandoned underground mines, including a sinkhole that appeared on I-70 in Ohio in 1995. This incident resulted in formation of the Interstate Technical Group on Abandoned Underground Mines (ITGAUM) in 1997. ITGAUM's members today include FHWA, 15 States, a turnpike authority, Canadians, and other groups. ITGAUM has held four workshops since then to explore ways to use modern technologies to locate, assess, and repair mines beneath roadways. The article explores the extent of the problem, providing examples from Pennsylvania, Missouri, and Ohio. The authors conclude by describing other related activities, such as development of a manual by ODOT, a FHWA Web site, and creation of a TRB subcommittee.

Proactive Approach to Safety Planning by Roger Petzold.....6

The annual death toll on our Nation's highways remains unchanged, but safety-conscious planning may be the answer.

Safety-conscious planning (SCP) may be the answer to the static traffic fatality and injury numbers. The article opens with quotes by Mineta and Peters. The author then defines SCP by listing the range of activities that might be included and the requirements needed to implement it. Next, the article provides State examples of SCP activities—from Iowa, Michigan, and Oregon. Finally, the article describes the TRB multimodal SCP working group's activities (a publication and forums).

Walls of Fame by John J. Sullivan IV.....10

States share successful strategies for partnering with the public to design aesthetically pleasing noise barriers. This article focuses on the aesthetic qualities of noise barriers rather than their technical effectiveness at reducing noise. The author discusses ways to involve the public in making decisions about the appearance of the barriers, cost of aesthetic treatments, materials, and construction techniques for aesthetic treatments, using case studies from Arizona, Pennsylvania, and Washington State. A sidebar discusses the issue of traffic noise in general, the major mitigation techniques, and FHWA's handbook on noise barrier design. Another sidebar discusses sample costs for aesthetic treatments, and a third sidebar compares the advantages and disadvantages of common barrier materials.

Lessons Learned by Tianjia Tang and Steve Tonjes.....18

A major highway reconstruction in Orlando, FL, provides clues on how to streamline environmental studies.

The EIS process for the reconstruction and extension of the John Young Parkway in Orlando, FL, provides

several clues for streamlining the environmental study process. The authors' first advice is to start with a solid transportation needs analysis that discusses the problems the project is expected to solve. The John Young Parkway process started with thorough modeling of needs, and this process and the NEPA process were integrated, reducing the time involved and enabling fatal flaws to be identified early. The second lesson learned was the importance of teamwork. In the JYP project, the project engineer and environmental scientist each had to agree on project scheduling, engineering design, cost, and the environmental reports. The third was to employ a concurrent review process to avoid down time between review and resubmit phases. The fourth lesson learned was to smooth the public involvement process by paying special attention to mandatory requirements such as timing of the public meeting. Also pay attention to the public's substantive needs such as the right-of-way acquisition and driveway connections to businesses (e.g., take advantage of the expertise of a right-of-way specialist and subdivide controversial issues until you can find common ground). Lastly, pay attention to the public's emotional needs by working proactively with advocacy groups. The final lesson learned was to think outside the box. In the JYP process, the team sought help from FHWA's Civil Rights Team to deal with one potentially explosive issue. I've added a short version of this summary as a "Results at a Glance" sidebar that will go early in the article, and I'm working on obtaining an endorsement-type quote that will also go in the beginning (placeholder marked).

The Man Who Changed America, Part II by *Richard F. Weingroff*.....22

President Eisenhower achieved his Grand Plan for the Interstate System with passage of the Federal-Aid Highway Act of 1956—but his interest in the new highways didn't end there.

This continuation of the interstate story has been condensed to run the same length as Part I. The author begins with a 400-word recap of the defeat of the first interstate bill, enough for readers to remember or figure out what is happening. The story then picks up in 1956 with Ike's State of the Union and budget messages, the search for a funding mechanism for the interstates, the mounting support for the Federal Highway Act of 1956, and the ultimate passage of the Act. The author then turns to the Act that created the position of Federal Highway Administrator and the appointment of Administrators Tallamy and Volpe. The narrative continues with the early days of construction of the Interstate System, including discussion of funding problems and Ike's belated discovery that the system included urban freeways. Then comes a description of Eisenhower's attempt to convince the Soviet Premier Khrushchev of the superiority of the modern U.S. highway system. This is followed by the tax increases to keep the interstate program on schedule during the final days of Eisenhower's presidency. After he left office, his interest in the interstates continued, and the author's wrap-up includes mention of a Reader's Digest article on the interstates that greatly alarmed Eisenhower by describing "corrupt land deals and contracts, shoddy construction, and government officials 'on the take. Sidebars deal with the place of Ike in history and civil defense.

A Lifeline Link by *Sybil E. Hatch*.....38

After the wake-up call of the Loma Prieta earthquake, which rocked the San Francisco Bay area in 1989, Caltrans is building what may be the strongest bridge in America.

The collapse of the east span of the San Francisco-Oakland Bay Bridge during the earthquake of 1989 triggered a flurry of activity by Caltrans: major seismic upgrades of bridges in the area and rebuilding of the east span to make it perhaps the strongest bridge in America. It will be a self-anchored suspension bridge and the largest public works project in California history, and it will be designed to withstand an earthquake so severe that it is expected to occur only once every 1,500 years. The article describes the seismic safety advances that will help this monumental structure absorb shock, the construction to date, and environmental protection measures.

A Benchmark for Livable Progress by *Robert B. King*.....42

Transportation finds common ground with environmental, economic, historic, and community concerns in northern Delaware.

The author describes a new Delaware transportation project in Wilmington that is combining transportation improvements with addressing environmental, economic, historic preservation, and quality of life concerns. The catalyst was the merger of two firms to form AstraZeneca, the third largest pharmaceutical company in the world. Delaware's DOT, Department of Natural Resources, and Economic Development Office worked together with 125 representatives from environmental groups, historic preservationists, business leaders, and area residents to develop a master plan that includes a roadway network that separates regional from local traffic and a trail system for pedestrians and bicyclists; wetland preservation and creation, stream restoration, management of stormwater

runoff, and seeding of meadows; preservation of the historic Blue Ball Dairy Barn and an archaeological site; two parks with recreational amenities; and landscaping and a public art process.

The Fast Lane to Innovation by *Marci Kenney and Amy Stearns*.....46

University Transportation Centers provide our Nation with an effective vehicle for transportation progress.

After a general introduction, this overview of the University Transportation Centers (UTC) program provides a brief history of the Congressional authorization for the UTCs. The authors then describe UTC grant work in 7 areas. Under safety, for example, the UTC in Alabama is studying more effective ways of identifying drivers with diminished physical capabilities, specifically poor vision. The Rhode Island UTC is researching quantification of driver distraction from use of cell phones. Under security, the Mineta Transportation Institute in California has published five research reports on transportation preparedness, including 14 detailed case studies of major attacks and 9 vulnerability assessments of major bridges, tunnels, and transit agencies. In addition, MTI has compiled a running chronology of every reported attack on a surface transportation system that has occurred worldwide since 1920. Finally, it has hosted four national symposia on transportation security summarized on TransWeb, the MTI Web page. Researchers at the Southeastern Transportation Center, University of Tennessee, conducted additional work focusing on the risks of terrorism-related cargo passing through intermodal freight terminals. Having assessed the potential risks at seaports, air cargo facilities, and rail-truck intermodal terminals, they published their findings in a report that is being shared with transportation officials to increase awareness and solicit recommendations for security improvements. I have included detailed summaries of the sections on security, but the authors also describe UTC grant work in the following areas: organizational excellence, mobility, economic growth, and human and natural environments.

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A Natural Balance by *Cynthia J. Burbank*..... 2

During decades of controversy, FHWA and its State and local partners consistently included environmental stewardship as a goal of transportation projects.

The author's overview begins with historical background on the interstate construction era, the start of the environmental movement, and NEPA. The article continues with a sidebar on environmentally sensitive interstate projects and other good news, such as improvement in air quality, provision of enhancements such as bike paths and historic preservation, context-sensitive solutions, and the net gain in restored wetlands. The author then turns to a discussion of NEPA, streamlining, categorical exclusions, TEA -21, the other articles in the issue, and context-sensitive solutions (using an example of US 93 in Montana). The article concludes with a mention of the emerging environmental ethic in transportation agencies.

Nurturing an Environmental Perspective by *Ruth Rentch and Rachael Barolsky* 6

A scan tour of seven States sheds light on best practices for honoring environmental commitments in transportation projects.

This article about a scan tour of seven States focuses on the issue of honoring planned environmental commitments during the construction and operation stages. The scan team included representatives from FHWA, State DOTs, EPA, the Volpe Center, AASHTO, and ARTBA. The article describes various themes that emerges from the tour:

- The need to institutionalize an environmental ethic, a top-down commitment to environmental compliance by the leadership and staff at all levels. The authors provide an example from New York.
- Staff positions focused on environmental compliance at the construction and maintenance levels. Texas is the example provided.
- Training courses. Again, Texas is the example.
- Guidance documents, including field pocket guides, manuals and guidelines, and videos.
- Commitment assurance through planning sheets and summaries, forms, meetings, and field reviews.
- Tracking mechanisms, such as databases, forms, and lists.
- Public involvement in an open, cooperative process. The Wyoming DOT recently revamped its system for public involvement. Context-sensitive design is another way to involve the public and preserve environmental resources by building a highway that blends with the landscape.
- Interagency coordination, especially to build trust with resource agencies.

The authors conclude by providing a set of recommendations based on these findings.

The Road to Streamlining by *Kreig Larson* 10

An indepth look at the NEPA process and ways to expedite it.

The author begins with a statement about NEPA's benefits and its history of being perceived as a source of delay (see note to FHWA reviewers). A quote by Peters follows and then the article introduces the FHWA study of the impacts of NEPA on the timing and cost of project delivery. This baseline study found that the average time to complete an EIS is 3.6 years. Follow-up research with different parameters determined that the average time is actually 5.1 years and that the time is longest in the Southeast, shortest in Regions 8 and 6. FHWA identified eight case studies that demonstrate successful streamlining measures, and the article summarizes tips from these

examples. The author concludes by describing a Gallup survey to view how stakeholders in the NEPA process view the duration of the process, its quality, and areas for improvement.

Executing the Executive Order by *Frederick Skaer* 14

Federal agencies today are collaborating more effectively on environmental reviews of major transportation projects, thanks to a new Presidential mandate.

The article begins with an explanation of executive orders and then describes the environmental stewardship and transportation executive order, which sets up a task force chaired by Mineta to implement the order. Mineta selected 13 number of projects to receive priority treatment. The author identifies some issues common to the projects and lessons learned to date. The task force is exploring process improvements for streamlining procedures under four laws: the Clean Water, Endangered Species, National Historic Preservation, and the Department of Transportation Act. The author concludes with two examples of environmental stewardship: North Carolina’s ecosystem enhancement program and wildlife corridors.

A New Approach to Road Building by *Lori Irving* 18

Can a new policy change the way people think about transportation agencies and the projects they deliver?

The author describes how context-sensitive design has changed how the public thinks about transportation projects. In defining context sensitivity, she quotes Mary Peters and then provides examples of context-sensitive projects from Delaware and Kentucky that dramatically changed the public’s perceptions. The author then maintains that context-sensitive design and improving the safety of transportation facilities go hand in hand. She concludes with the Kentucky example that makes the point that the extra cost of contest-sensitive design (25 percent) was worth it because of the positive response of the community.

Living with Noise by *Chris Corbisier* 22

Planning land use with highway traffic noise in mind can help local agencies improve residents’ quality of life.

The author describes the concept of noise-compatible land-use planning, which encourages the location of less noise-sensitive land uses near highways, promotes the use of open space separating roads from developments, and suggests special construction techniques that minimize the impact of traffic noise. After introducing some basics about sound and steps that the Federal government has taken to reduce traffic noise, the author goes on to explain the benefits of noise-compatible land-use planning and highlight specific strategies, such as guiding development through zoning and incorporating acoustical solutions into buildings. The author highlights one case study—the Carrington development in Fairfax County, VA—and cites a Washington Post article from November 2002 that reports that Americans are willing to accept higher noise levels outdoors in return for convenient access to a highway. The article concludes by noting the costs associated with planning land uses with regard to noise.

Bikeways and Pathways by *Andy Clarke* 26

Accommodating bicyclists and walkers will promote a healthier transportation system, a healthier environment—and healthier Americans.

The author opens with quotes from Cindy Burbank and Tom Larson, then discusses use and safety statistics on walking and bicycles. He continues by mentioning the environmental, health, and security benefits of increasing bicycle and pedestrian use. The article continues with a discussion of USDOT and FHWA reports and policy guidance on promoting bike use and walking, and then the funding under ISTEA, TEA -21, CMAQ, NHS, Hazard Elimination for Safe Routes to Schools, and Scenic Byways. Turning to technical knowledge, the author continues with a discussion of AASHTO’s guidebook on developing bike facilities and the software and other technical tools developed by FHWA and NHTS, including the Pedestrian and Bicycle Information Center. San Diego’s *Street Design Manual* is provided as a successful example of combining multiple objectives and serving diverse users. A more traditional approach is design manuals specifically for biking and walking improvements, such as publications produced by Florida, Oregon, and New Jersey. The author turns to Oregon for examples of some of the benefits of biking and walking improvements, and to Pennsylvania, Colorado, and California for the importance of better conditions for bicycling and walking for transit. The article concludes with the future potential to increase bicycle and walking use, a shining success story from Portland, OR, and a final quote from Cindy Burbank.

Centering on Environmental Excellence by *Kris Hoellen* 32

AASHTO is helping State DOTs and others make environmental stewardship and streamlining part of their mission and everyday activities.

The AASHTO Center for Environmental Excellence is a one-stop resource for technical assistance, training, and access to environmental tools. The first goal of the center—sharing information on best practices—is met through a Web site, an award competition, a demonstration program, teleconferences, and an educational report. The center’s second goal is training, problem solving, and partnership building—being achieved through a workshop on environmental management systems, draft EMS templates, a team of technical experts on call, and a CD-ROM on programmatic agreements. The third service—technical assistance—is achieved through the team of on-call experts. The author concludes with a quote from Horsley, who is AASHTO’s executive director.

New Life for Brownfields by *Constance M. Hill* 36

Across the country, transportation projects play a critical role in revitalizing abandoned industrial properties.

The author opens with a quote by Assistant Secretary for Transportation Policy Emil Frankel about transportation fostering brownfield redevelopment and economic development. (He has approved the quote, as has Cindy Burbank.) The Bush Administration and EPA have identified sites as priorities, and FHWA uses Federal-aid highway funds to help develop brownfields. FHWA also funded a research study to increase understanding of transportation’s role in brownfield redevelopment. The author provides three case studies from the research study: North Marine Drive for a deepwater port in Portland, OR; a bicycle and pedestrian trail in Kansas City, MO and KS for the urban riverfront; and freight-related development on abandoned industrial sites in NJ. The article concludes with further discussion of the research results.

Air Quality and Transportation by *Gary Jensen* 40

Emissions are on the decline, and efforts from the Federal to the local levels will help continue this trend.

Gary Jensen discusses the success the United States has had in reducing transportation-related air emissions, especially with on-road mobile (automobile) sources. He notes that EPA estimates show that emissions reductions from motor vehicles have accounted for 84 percent of the total emissions reductions of the six criteria pollutants since 1970. He provides basics on air pollution and describes Federal legislation to protect air quality, including the Clean Air Act and air quality standards. Jensen defines nonattainment areas and explains how ISTEA and TEA -21 provide State and local officials with tools and programs, like CMAQ, to improve air quality. He offers Los Angeles, Denver, and Atlanta as examples of metropolitan areas that have improved air quality significantly since 1970. Jensen explains that emissions from motor vehicles have decreased in spite of growth in the U.S. population and the number of vehicle-miles traveled. He concludes by describing new EPA emissions standards and cleaner fuel requirements that will be phased in by 2007, helping further reduce the transportation industry’s contribution to air pollution.

Solutions from the Sunbelt by *Alex Levy*..... 44

The southeastern States share strategies to protect wildlife and fragile habitats.

With a growing population and highway network, the Southeast’s ecosystems are under stress. But State DOTs are protecting wildlife habitats throughout the region. The author explores what 9 States are doing to improve ecosystem connectivity, reduce roadkills, and protect human lives and property from animal-vehicle collisions. Florida: While upgrading Alligator Alley, the State found ways to protect the federally endangered Florida panther: underpasses and right-of-way fencing. The State also hosted the first International Conference on Wildlife Ecology and Transportation, signed a MOU streamlining environmental planning, and created habitat banks. Alabama: Wetlands banks to mitigate the impacts of transportation projects are one effort, and another is a habitat bank on US 98 for the federally threatened gopher tortoise. Georgia: Habitat banks for the federally protected red-cockaded woodpecker and State-listed gopher tortoise are one effort, and another is red spheres on power lines above roadside foraging areas for woodstorks. The article continues in this way through the other southeastern States: North Carolina, Tennessee, Kentucky (prismatic reflectors), Arkansas, Louisiana (prairie preservation), and South Carolina. Federal funding through ISTEA and TEA -21 is mentioned at the end of the article.

Reviews on the Fast Track by *Cassandra Callaway Allwell* 49

A step-by-step guide to practices that States employ to streamline the environmental review process.

This article on practices that States employ to streamline the environmental review process begins with a success story from Colorado on multihabitat mitigation purchases. The author then defines environmental streamlining

and describes various streamlining practices with brief examples (sometimes only a line or two) from a number of States. The practices are described under six categories: integrated planning; context-sensitive designs; programmatic agreements for historic preservation, wetlands, endangered species, and public lands; flexible mitigation such as wetlands banks and regional mitigation; technologies, cross-training, and interagency personnel agreements; and alternative dispute resolution. The author concludes with lessons learned, providing six tips.

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