

# ***The A.S.H.E. SCANNER***

VOLUME X, NO. II

THE AMERICAN SOCIETY OF HIGHWAY ENGINEERS

DECEMBER 1973

## ***BAD ROADS EATS GAS***

With the energy crisis causing many short term emergency decisions, longer term solutions should not be forgotten. The following article by Mr. LeRoy Pope in a special to the Philadelphia Inquirer is quite appropriate.

Between them, better roads and better driving habits could go a long way towards solving the gasoline crisis.

For years, the auto builders and oil companies have been saying that excessive speed on the highway wastes enormous amounts of fuel. The top speed capability of an automobile, they say, should be reserved as a safety factor, used only when needed in a moment of danger.

The Road Information Program (TRIP) a Washington-based non-profit research agency, says slow speeds over bumpy, crooked road with frequent stops waste even more fuel than speed on the highways. TRIP cites the case of Alex Chambers, a Bethesda, Maryland, masonry contractor. On a typical afternoon, Chambers drives 11 miles from his home to a lumberyard, then makes a quick stop seven miles away at a construction site. He also has to drive to a food store and to a dry cleaning shop — a total of 29.7 miles, all on bad roads. These trips in his station wagon eat up 3.1 gallons of fuel.

That's only 9.6 miles to the gallon. But Chambers has discovered that on a good road at a reasonable fast clip his station wagon will get 14.1 miles to the gallon.

TRIP says studies of experiences like Chambers had caused John Wendell, executive vice president of Union Refining Company, to say that "road improvement is the single largest untapped area of potential fuel savings" in America.

Wendell told the Pennsylvania Transportation Commission that improving poor roads could save the nation one billion gallons of gasoline each year. That's roughly half of what would be needed to comfortably solve the entire fuel problem.

Roads causing the worst waste are those in the 261 metropolitan areas that don't measure up to minimum federal

highway standards, according to TRIP.

Better surfaces are only part of the solution, TRIP says. Fuel saving improvements also would include:

—More overpasses and underpasses and special turn lanes to eliminate frequent stops and starts.

—Extra lanes in high traffic areas to lessen bumper-to-bumper crawls in rush hours.

—Straightening bad curves and flattening roller-coaster grades to permit steadier speeds and reduce traffic backups.

### **1974 NATIONAL CONVENTION**

The 1974 National Convention of the American Society of Highway Engineers will be held at Seven Springs (near Pittsburgh) from Thursday, May 23, 1974 thru Sunday May 26, 1974. More details will follow later. Keep this date open and plan to attend — this will be a very interesting Convention.

### **NOTE TO ALL SECTION PRESIDENTS**

Make certain that your nominations for National Offices and three new directors come in to National Nominating Committee Chairman, Donald Rimmer, in ample time to be included in the January meeting.

### **NATIONAL DIRECTORY**

The National Directory is off the press and will be distributed to all Sections very shortly.

Please see that address changes are sent to the National Secretary as soon as they occur so that corrections may be made.



### ***President's Message***

JAMES M. WEAVER  
Gibsonia, Pa.

Little did I realize when I picked the theme for my message of three months ago, I could run a carbon copy for this issue. It is hard to understand how such a large body of legislators in the State of Pennsylvania could do so little to try to solve a needed road repair program, let alone keep abreast of new construction.

Not only are our deplorable roads falling apart, but there is a real threat that snow will not be removed from our State highways this winter because of a lack of funds. This lack of funds is due solely to our obstructionists — our legislators and Governor. They have lost a whole year of badly needed highway maintenance projects and if they do not get their heads together soon, we will have little to look forward to next year.

Possibly Pennsylvania should take a look at a group known as the Minnesota Editors for Better Highways. This group is melding the skills and resources of editors throughout the state to work for needed highway improvements. Three newspaper editors got the organization going during the Summer and more than twenty others had signed up by September. The group, both non-partisan and bipartisan, is intended to exist only until the 1974 legislature takes action to meet Highway needs.

We have attempted to carry the message of Highway improvements directly to our legislators. Maybe it is time to solicit the aid of the news media in a concentrated effort to impress upon our elected officials that for safety and economy, they had better produce a budget complementary to Highway Improvements and Safety Upgrading.

As the Christmas season approaches, I

Continued on Page Four

**TECHNICAL CROSS SECTION***John H. Leapson, P.E.***EROSION CONTROL  
ON HIGHWAY CONSTRUCTION**

Just as one can't make an omelette without breaking eggs, it's impossible to build a highway without disturbing the natural terrain. This disturbance causes soil erosion, which causes pollution, which in turn degrades the environment. A highway project with a right-of-way width of 100 feet could conceivably cause erosion of as much as 15,000 tons per mile if no effort was made to minimize the problem or control the situation.

As a result of the public concern for the quality of the environment, as manifested by the National Environmental Policy Act of 1969, the control of soil erosion and sedimentation of streams on highway construction projects has received a great deal of attention. Highway construction work that may contribute to erosion include clearing and grubbing, construction of haul roads, earth moving and grading, ditch construction, and foundation excavation and channel changes at stream crossings. Curtailment of construction for the winter months without taking proper precautions to control erosion can result in severe erosion and sedimentation damage.

A new publication from the National Cooperative Highway Research Program (NCHRP), which is administered by the Highway Research Board, is designed to help solve the problem of erosion control. NCHRP Synthesis of Highway Practice 18, "Erosion Control of Highway Construction" provides information on design procedures to minimize erosion, construction practices to control erosion, beneficial landscaping procedures, and maintenance practices to sustain erosion control installations. More specifically, the report provides information on practices on: (a) seeding, planting, and mulching; (b) design of sediment basins and traps; (c) slope protection; and (d) berms.

To develop this synthesis in a comprehensive manner and to make sure that all significant knowledge was included, Highway Research Board researchers analyzed available information, such as current practices, manuals, and research recommendations, assembled from many highway departments and other agencies having erosion control responsibilities. An advisory panel of experts in the subject area was established to guide the research-

ers in organizing and evaluating the collected data and to review the final report.

Specific research needs identified in the report include information on best location and size of sediment traps and basins, evaluation of protective sprays and treatments that are commercially available, and the development of design and construction criteria for the management of storm water on construction projects.

NCHRP Synthesis of Highway Practice 18 is available for \$4.00 a copy from the Highway Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. (Advance payment is required on orders of \$5.00 or less.) †

**CORROSION, CONCRETE, AND  
QUALITY CONTROL**

Highway Research Record No. 433, "Corrosion, Concrete, and Quality Control," recently published by the Highway Research Board, contains five reports originally made at the 52nd Annual Meeting of HRB in January 1973. These papers will be of interest to those involved in the production and use of concrete and to research workers in this area.

In his two papers, Richard F. Stratfull (California Division of Highways) provides valuable information from his continuing investigation into the use of half-cell potential measurement as an indicator of impending or existing corrosion of reinforcing bars in concrete structures. In recent years Stratfull's work has received increasing attention and evaluation by several agencies.

The data from these most recent reports emphasize that the technique, when properly interpreted, is a valuable tool in laboratory experiments on the influence of various material factors on the protection of concrete from the damaging effect of corrosion as well as in the early detection of corrosion in the field.

Ronald O. Wrbas (Southwestern Laboratory) and William B. Ledbetter and Alvin H. Myer (Texas A & M University) present data from a sweep of slabs previously cured in artificially created environments intended to simulate those encountered in the field. The results confirm the detrimental effects of high curing temperature on surface properties. Although adequate strengths were obtained in all cases, there are differences attributable to the use of several curing techniques. Procedures previously developed and promoted for estimating evaporation from surfaces are called into question

by the data from this work.

Richard M. Weed (New Jersey Department of Transportation) uses data from a series of experiments to develop a rule-of-thumb for estimating a reduction of stress that accompanies increase in entrained air for the range of air content application to highway construction. These data are also used to develop criteria by which reduction rates can be predicted for concrete with various levels of air entrainment.

John B. DiCocco (New York State Department of Transportation) describes the use of statistical control charts and process controls for acceptance of the product. The important distinction between the two functions, not always understood, is emphasized. He concludes that control charts are valuable and assist in process control but that judgments as to acceptance are better made by using acceptance sampling plans based on lots, rather than the process, which is the focus of control charts.

As is often the case with a material as complex as concrete, some of the findings reported in Record 433 are subject to local variations in materials and environment. In some cases these papers confirm previously published works reporting on similar studies, whereas in others they call into question past results. As the introduction to Record 433 points out, this is to be expected, and emphasis is indicated for continued diligence in both the conduct and implementation of research findings.

Highway Research Record No. 433 is available for \$2.20 a copy from the Highway Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. (Advance payment is required on orders of \$5.00 or less.) †

**DESIGN, CONSTRUCTION, AND  
MAINTENANCE OF  
PCC PAVEMENT**

To the motorist driving on a modern portland cement concrete pavement, the joints that traverse the pavement at regular intervals make themselves felt only as an almost imperceptible break in the smooth surface. But, like an iceberg, a portland cement concrete pavement joint has a great deal more below the surface than meets the eye.

Since the first concrete pavement was laid in the United States in Bellefontaine, Ohio, more than ninety years ago, jointing practice has evolved from simple butt

joints to complex designs with load transfer assemblies and sealant reservoirs that preserve the ability of the joint to function under a wide variety of conditions.

Joint design involves knowledge of road use and traffic; pavement type; load transfer requirement; subgrade support, environment, including temperature extremes and freeze-thaw cycles; soil types and frost susceptibility; aggregate characteristics; and sealant properties.

Recognizing that many highway agencies and individuals have a great deal of experience and information on the subject, and that this information is to a great extent fragmented, scattered, and unevaluated, the National Cooperative Highway Research Program (NCHRP), which is administered by the Highway Research Board, solicited available information from highway departments and agencies responsible for highway planning, design, construction, operations, and maintenance. The resulting data was organized and evaluated by a panel of experts, and has now been published in the form of NCHRP Synthesis of Highway Practice 19, "Design, Construction, and Maintenance of PCC Pavement Joints."

Joints are placed in concrete pavements to control cracking and accommodate movements caused by changes in temperature and moisture, and to make construction easier. Types of joints range from the weakened-plane, which alleviates warping stresses only, to the expansion joint which permits longitudinal expansion, contraction, and warping relief. Special joints permitting large movements are used at bridge approaches.

Construction of pavement joints varies greatly in difficulty and cost. Mechanical placement of plastic inserts in longitudinal center-line joints is simple and cheap, and sawed contraction joints in plain pavements are relatively simple to build and are not difficult to seal. Contraction joints in reinforced pavements require preparation and staking of the dowel basket (or mechanically implanting the dowels), marking the dowel location outside the area of disturbance, grooving or sawing to the required depths and reservoir width, cleaning the groove, placing the seal, and protecting the joint from infiltration during early traffic. Expansion joint load transfer units require addition of a compressible filler and appropriately placed expansion caps on the dowels, and hand finishing of the groove. Most exacting is the preparation and placement of special bridge approach joints, which sometimes require sleeper slabs and anchor lugs.

Placing of the joint sealant is an

operation requiring meticulous care and thorough cleaning of the recess and groove. Poured sealants must be deposited to proper depths without air or moisture entrapment, while preformed sealants must be tailored to the correct width and placed mechanically to avoid detrimental elongation.

Problems at joints are related to magnitude of movement, load transfer mechanisms, base support, moisture and frost environment, compatibility of design and materials, presence of incompressible particles, use of deicing salts, and adequacy of slab thickness for current traffic. Common types of distress are raveling, spalling, faulting, pumping, and blowups.

To maintain joints properly, sources of contamination must be removed, the joints cleaned of old seals and infiltrated materials, and resealed. Remedial operations include correcting poor slab support, stabilizing moisture-susceptible soils, correcting drainage and removing sources of excess water, and repairing spalls. Maintenance also includes reconstruction activities following blow-ups, and replacement of "frozen" joints as well as those joints destroyed by frost action and pumping.

The report stresses the need for research to improve joint design, construction, and maintenance. Suggestions include the development of new paving types, such as a modification of continuously reinforced pavement with controlled cracking (elastic joints), and pavements that can be held in mild compression by improved prestressing techniques. More effort should be expended on joint seal development. Concepts of preassembled joints should be explored. There is a need for rapidly setting concretes that can minimize expressway maintenance delays.

Details of design, construction, and maintenance of concrete pavements are included in the many references in the main text and appendix of the report, which may stimulate paving engineers to re-examine their prevailing practices, to reassess the compatibility of their design with location and environment, and to use good design, construction, and preventive maintenance to obtain improved joint performance.

NCHRP Synthesis of Highway Practice 19 is available for \$3.60 a copy from the Highway Research Board, Publications Department 805, 2101 Constitution Avenue, N.W., Washington, D.C. 20418. (Advance payment is required on orders of \$5.00 or less.) †

He who drinks before he drives puts the quart before the hearse.

## UTILIZATION OF WASTE MATERIALS AND UPGRADING LOW-QUALITY AGGREGATES

Aggregates such as sand, gravel, and crushed stone make up much of the material needed to build and maintain highways. Most base courses and subbases are composed of 95 to 100 percent aggregate; asphalt base, binder, and surface courses usually more than 90 percent aggregate; and portland cement concrete averages about 75 percent aggregate.

It isn't surprising, therefore, that the annual aggregate requirements for highway construction currently exceeds 600 million tons every year, while maintenance needs take care of another 200 million tons annually. Approximately 40 percent of all the aggregate produced in the United States is used for highway construction, and the rate of aggregate use rises by about five percent every year.

The post-war increase in road-building and maintenance, and in all types of construction, seriously depleted the supply of conventional aggregates suitable for construction in some sections of the United States. There are geographical areas in the United States today in which the shortage of conventional aggregates is approaching the critical stage. Aggregates must be transported into these areas, often over great distances, at high costs. The problem is compounded by the increasing number of existing conventional aggregate sources that are now, or shortly will become available because of economic reasons, zoning restrictions, pollution control, and appreciating land values.

This problem, and a number of possible solutions to it, is spelled out in a recent publication from the Highway Research Board, Highway Research Record No. 430, "Utilization of Waste Materials and Upgrading of Low-Quality Aggregates" contains four papers on the subject.

In the introduction, the Record points out that the demand for aggregates will continue to increase in all areas of the United States in the years ahead. Under this stress, more and more geographic areas may fall into the category of "conventional aggregate-deficient areas." In these areas, selective use of conventional aggregates, beneficiated low-quality aggregates and some waste materials may offer economic solutions to the problem of a diminishing aggregate supply.

Throughout the country there are substantial quantities of low-quality aggregates and some waste materials that do not meet existing construction specifi-



cations and therefore have been rejected for use in construction activities. Many agencies are beginning to take a second look at these materials for use in construction.

Some natural aggregates have serious deficiencies, such as poor abrasion resistance or reactive constituents, and thus are of low quality. Poor gradation is another common problem of some natural aggregates. It may be entirely possible and practical to use such low-quality aggregates, which may have been beneficiated or improved prior to use, in highway construction in areas that are experiencing shortages of quality conventional aggregates.

There are a number of solid wastes that can be used to build highways. Included in this category are rubble from buildings and replaced highways, battery cases, rubber tires, scrap iron and steel, glass, and mine tailings. Some waste materials have already been used on a limited basis. Unfortunately, with regard to aggregate production, the supply of many waste materials is small, and, except in unusual circumstances, cannot justify the facilities needed to convert the wastes into suitable aggregates. Other wastes occur in such quantities and in a sufficiently continuous supply that they do warrant the research effort and facilities required to transform them into suitable aggregates.

Three of the papers contained in Highway Research Record No. 430 are directed to the use of specific waste materials in highway construction. The paper by A.D. Buck (U.S. Army Engineer Waterways Experiment Station) reports the results of an investigation made to evaluate the use of crushed waste concrete as concrete aggregate. Michael L. Hughes (Oklahoma Gas and Electric Company) and T. Allan Haliburton (Oklahoma State University) evaluate four types of zinc smelter waste for suitability as aggregate in Oklahoma. The paper by Lyle K. Moulton, Roger K. Seals, and David A. Anderson (West Virginia University) is concerned with the use of ash from coal-burning power plants in highway construction.

The paper by W. B. Ledbetter (Texas A & M University) relates criteria for performance of synthetic aggregate. Physical, chemical, mechanical, and volume change performance are considered.

Although nonconventional aggregates cannot and indeed should not be used indiscriminately in a pavement system, the authors of the papers contained in Record 430 conclude that each material

studied can be successfully incorporated into a pavement. Some materials are suitable only for use in the base courses, whereas others can be used in asphalt concrete or portland cement concrete surface layers or both. Sound, durable, high-quality highways can be built with nonconventional aggregates when proper engineering judgment is exercised.

Highway Research Record No. 430 is available for \$2.00 a copy from the Highway Research Board, Publications Department 805, 2101 Constitution Avenue, N. W., Washington, D. C. 20418. (Payment in advance is required on orders of \$5.00 or less.) †

## PRESIDENT'S MESSAGE

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suggest you get out and do your shopping early, for if it is a "White Christmas" you may find yourselves inside because the State's snow removal equipment will be inside waiting for funds to plow the snow from the highways.

I wish all of you and your families a joyful Christmas and a happy and prosperous New Year.

*"MERRY CHRISTMAS" TO ALL!*

*Jim*

## AMOS PROMOTED BY PENNDOT



Amos

There's a new sign on a desk up on the 12th floor of the Highway and Safety Building in Harrisburg and it reads . . . "Philip W. Amos, P.E. Deputy Chief Highway Engineer."

PennDOT Secretary Jacob Kassab made it official, effective August 9, 1973 and Phil became the new Deputy Chief Highway Engineer in charge of Eastern Pennsylvania.

Phil's rise has really been "up through the ranks" starting with PennDOT in 1958 as a Bridge Design Engineer I. From 1960 to 1964 as a Bridge Design Engineer III; in 1968 Civil Engineer VI and Assistant Chief Engineer and Director, Bureau of Construction. In 1972, Phil moved up to Highway District Engineer III rating and Assistant Deputy Chief Highway Engineer East; and now . . . the well deserved new position. Our best to our friend Phil.

Phil is a Senior Member of the Harrisburg Section. †

## SOCIETY MEMBERS FORM NEW CONSULTING FIRM



Past National President Jack Leapson, left, and Delaware Valley Senior Member Joe DiCroce, right.

Jack Leapson and Joe DiCroce have formed a new consulting engineering firm. Leapson, first a member of the Clearfield Section later became active in forming the Delaware Valley Section. Both DiCroce and Leapson are Charter Senior Members of the Delaware Valley Section. Leapson was President of the Delaware Valley Section in 1967 and National ASHE President in 1971.

The new firm is named DiCroce and Leapson - Consulting Engineers and offers a wide range of civil engineering services. †

## JOHN GALBRAITH PROMOTED

At a recent meeting of the Board of Directors of Rignani Associates, Inc., John C. Galbraith was elected as Vice President of the corporation and a member of the Board of Directors.

John has been associated with civil engineering consultants in the Harrisburg area since 1956, joining the Rignani staff in 1972.

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He has been active in the Harrisburg Section of ASHE serving as Secretary and presently as Director, and Chairman of the Awards Committee.

John, his wife Nancy, and son Jay, live at 971 Bradford Road East of Harrisburg. †

### CLEARFIELD SECTION

Mrs. Yvonne Buck who has served for the past three years as Chapter Treasurer, recently received her PA Professional Engineer License after passing the written EIT and the written exam for P.E.



Mrs. Buck The Clearfield Chapter President wishes to thank all those members who took a day vacation to work at the annual chicken barbecue and clam bake. It was a huge success. †

### HARRISBURG SECTION

The Harrisburg Section has a new Vice President.

Mr. David C. Sims, P.E., PennDOT Deputy Secretary for Highway Administration, has been appointed second Vice President of the Harrisburg Section. Dave, who is a member of the American Association of State Highway Officials, the American Society of Civil Engineers, the American Roadbuilders Association, and the American Management Association, brings a wealth of professional experience to the Section.

Mr. Sims lives in Camp Hill and is married to the former Lois M. McCormick. Two of their three children, Mark and Wendy, are students at Penn State University. Carol attends Junior High School.

#### NEW MEMBERS

Rodney Keefer, Dillsburg, PennDOT.  
Edward C. Gregorich, Highspire, Consultant.  
Thomas L. Morrett, Harrisburg, Consultant. †

### WILLIAMSPORT SECTION

#### NEW MEMBERS

Robert Koser, Williamsport, Construction.  
John T. Keliher, Williamsport, Contractor.  
Walter E. Betts, Montoursville, Contractor.

### PITTSBURGH SECTION

Mr. David Sims, Deputy Secretary of Pennsylvania Department of Transportation was the main speaker at the September 12, 1973 meeting of the Pittsburgh Chapter. Mr. Sims discussed and reviewed the current problems PennDOT was experiencing in their present Highway Program. In attendance at the meeting was Mr. Jim Weaver, National President, and Mr. John DeRoss, National Director.

Because of the conflict with planning for a National Convention, the Pittsburgh Chapter held an early "Ladies Night" at the Holiday House Supper Club, Monroeville. Mr. Marty Allen was the main attraction and the well attended affair was enjoyed by all.

The Convention Committee with Mr. Rudy Melani as Chairman, has started work on planning the Convention. The site of Seven Springs has been chosen for May 23 through May 26, 1974.

#### NEW MEMBERS

Raymond Manning, Carnegie, PennDOT.  
Rick O'Brien, Trafford, Contractor.  
Robert Malmberg, North Braddock, PennDOT.  
William J. Peters, Pittsburgh, U.S. Steel.†

### NORTH EAST PENN SECTION

The first fall meeting of the North-East Penn Section of the American Society of Highway Engineers was held on September 11, 1973 at Ernie's, formerly the Ru Val Lounge, Route 6 Scranton-Carbon-dale Highway.

The Guest Speaker for the evening was Mr. Paul Koval, Department of Environmental Resources, Chief Operations Section; his topic being "Erosion Control" with film included.

The speaker of the evening was introduced to the guests by Mr. George J. Parrs, P.E., PennDOT, First Vice-President.

The October meeting of the Society was held on October 9, 1973 at the Regal Room, Lackawanna Avenue in Olyphant.

The speaker for the evening was Mr. Paul C. Peterson, P.E. Bridge Engineer. His subject was "Galvanized Reinforced Steel for Bridge Decks."

#### NEW MEMBERS

Elmer K. Acker, Moscow, Consultant.  
Bernard J. Bronsberg, Swoyerville, Consultant.  
John P. DeFazio, Sugar Notch, Consultant.  
Dennis L. Irace, Duryea, Consultant.  
Walter M. Karkut, Dupont, Consultant.  
Carmen A. Longo, Dickson City, Construction Contractor.

Michael R. Milano, Old Forge, Equipment Supplier.

Jeffrey F. M. Smith, Kingston, Consultant.  
Gerald D. Brown, EIT, Dickson City, Consultant.

Ronald P. Bonacci, EIT, Olyphant, PennDOT.

Joseph A. Grzybowski, Jr., Moosic, Consultant.

John K. Seamans, R.S., Factoryville, Consultant.

Carl A. Taddonio, EIT, Lake Ariel, PennDOT. †

### SOUTHWESTERN PENNSYLVANIA

Forty members of the Section held their September meeting at Howard Johnson's, Hopwood. Chef International's Baron Harold Gayland prepared a gourmet's delight for all members present. The social hour was provided by Interstate Amiesite, and the Baron's mountain of shrimp horsd'oeuvres blended perfectly with the liquid refreshments.

Following the business meeting, Dr. John A. Lieb, Associate Professor of Pennsylvania State University Fayette Campus, gave an interesting and informative lecture on ecology. His presentation on mine acid waste, pesticides, and their effect upon the environment captivated the audience. Dr. Lieb has had a varied career as a chemist for Pittsburgh's crime lab, businessman, teacher in the public school system and presently a college professor. The Chapter extends their gratitude to Paul H. Miller and Frank B. Patrarca for arranging this fine evening of entertainment.

President John S. Fleming presented membership certificates and pins to Bill Jordan, PennDOT, Donald Metzler, S.J. Groves, Clarence Flynn and Wilson Roth, Eidemiller.

Clem Sweeney, PennDOT mining engineer and past president of the Society of Professional Engineers expressed his appreciation of the evening's activities and the meeting was adjourned.

Howard Johnson's Restaurant, Hopwood, was the site of the Section's October meeting. The fifty-one members and guests enjoyed another of Chef International's Baron Harold Gayland's exquisite dinners. Our thanks are extended to to Eidemiller Enterprises Inc. for providing the social hour.

As a change of taste, the evening's entertainment was a very interesting and informative film on the Restoration and Maintenance of the Wild Turkey population in Pennsylvania, presented by our District Game Protector, Mr. Alex Ziros.

Mr. Fleming congratulated two of our members who recently received their Professional Engineer License, J.E. McCune and R.L. Garbart, employees of PennDOT.

#### NEW MEMBERS

Orville R. Leer, Rockwood, Contractor.  
William C. Reahard, McClellandtown, PennDOT. †

#### EAST PENN SECTION

The October meeting of the East Penn Section was held at Trainers in Lehighton; 49 members attended. Program Speaker was Tom Sands, President of Interstate Asphalt. He gave a short talk on highway engineers taking the offense instead of being defensive about the construction of Roads. Upon conclusion of the talk he showed a film on the Alaska Pipe Line. Response of the members was enthusiastic due to the timely presentation.

The November meeting of the East Penn Section was held at Trainers in Lehighton with 48 members attending.

The Speaker's subject was use of Latex Modified Compositions for Bridge Deck

Overlayments. Messrs. Daniel F. Noerr and Harvey H. Shafer of DOW Chemical made the presentation. Mr. Shafer was the main speaker. He is a member of American Concrete Institute Committee 546 (Repair of Concrete) and Highway Research Board Committee A3D02 (Maintenance of Structures). He has been with DOW Chemical Company for 22 years of which 13 years has been spent in the development of latex modified portland cement compositions.

The program was well received by the members, since a recent installation of the overlayment was performed in District 5 at the TR 22 Airport Road Interchange, which is under contract with No. 1 Contracting Corporation. The work was under the supervision of DOW Chemical construction people, with Howard Winters Superintendent for No. 1 Contracting Corporation and L. Cannavo Resident Engineer for PennDOT. The work was completed over a three day period and a Gamaco finishing machine was used to finish the overlayment. The installation will be monitored by District and Central Office personnel.

Albert P. Dusey recently passed his Professional Engineers' test in Pennsylvania.

#### NEW MEMBERS

Brian Lee Harle, Temple, PennDOT  
Richard J. Baransky, Allentown, PennDOT †

#### FRANKLIN SECTION

The Franklin Section of the American Society of Highway Engineers held their September meeting at Jackson Valley Country Club in Warren County. The weatherman cooperated and approximately 40 members played golf on the beautiful 18 hole course. Mr. William Jones, Program Chairman, introduced the featured speaker Mr. David Reidenauer, P.E. who presented an interesting discussion, accompanied by slides, on the petrographic analysis of reinforced concrete. Sixty-five members enjoyed the cocktail hour and roast beef dinner.

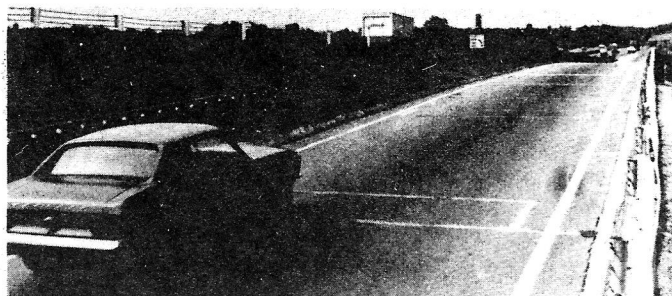
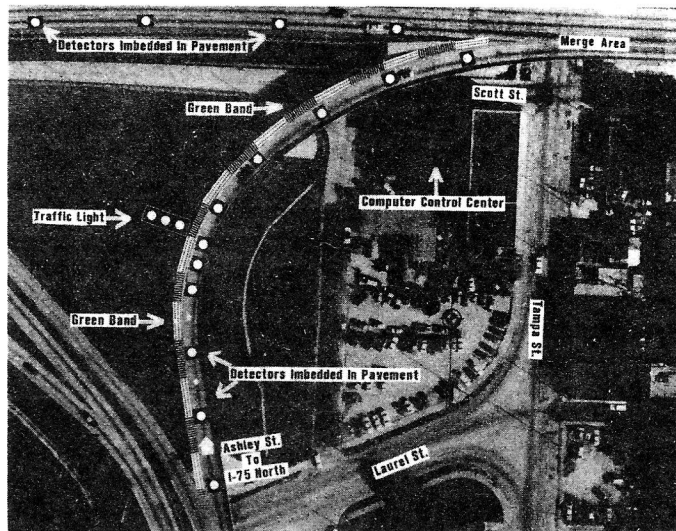
The October meeting was held at Lake Latonka Restaurant in Mercer County. Seventy-eight members and guests were

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#### GUIDING LIGHT FOR MOTORISTS

Motorists trying to enter I-75 at Ashley Street in Tampa, Florida soon will have a "guiding light", when a new Green and Merging Control System is installed in a joint program of four government agencies. Assisting motorists in merging smoothly and safely with freeway traffic is the goal of the experimental control system, being installed by the Florida DOT, the City of Tampa, the FHWA and the University of Florida.

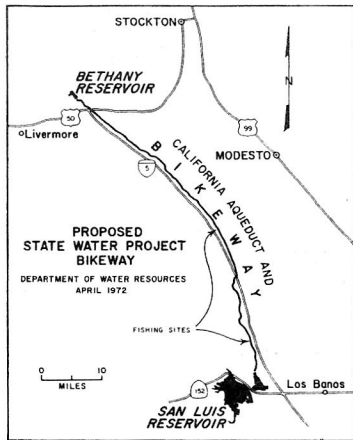
Basic components of the control system include electronic sensor loops embedded in the on-ramp and in the right traffic lane of the Interstate approaching the ramp area, a traffic light, appropriate informational signing and a series of green lights, located on the left side of the Ashley Street ramp. (See aerial photo.) Equally important, but unseen by motorists, is the computer which gathers information from



the ramp and Interstate sensors and translates the data into guidance for the motorist.

Motorists entering the on-ramp may be stopped by a standard traffic signal, which will indicate the absence of a safe entering gap in Interstate traffic. When such a traffic gap appears, the traffic light will signal "go" to the waiting driver. The speed of the green light band displayed along the shoulder will indicate the speed at which the motorist is to travel to synchronize his car's speed with the safe entering gap existing in the right hand Interstate traffic lane. The motorist will follow the lighted "green band" into the acceleration lane and make a safe entrance into the Interstate traffic pattern.

## CALIFORNIA BIKEWAYS



*California Aqueduct Bikeway* — Intended as a recreational facility through the San Joaquin Valley, some 60 miles of paved maintenance road have been specially barricaded and signed for bicycle use. The aqueduct itself carries water along a 440-mile route from Lake Oroville in Northern California to distribution in cities around the Los Angeles Area in Southern California.

*Experimental Facility* — The California Department of Water Resources considers this 60-mile stretch of "maintenance-road-turned-bikeway" as an experiment. As indicated on the map, it is available to bicyclists from Bethany Reservoir near Stockton to O'Neil Forbay below San Luis Reservoir near Los Banos. A special brochure has been distributed, calling attention to recreational features such as fishing, camping and swimming. State Water Resources Director William R. Gianelli states "If the experimental bicycle project shows sufficient public use, we would certainly want to extend it. We have literally hundreds of miles of potential trails in a rural setting with views of vast areas of open lands, clean air and no noise. This may be highly attractive to bicyclists and should have great advantages over similar trails along freeways and city streets."

*Expanding System* — Although pleased with the prospects for expanding systems of recreational trails, there is a growing number of Californians who see the bicycle as inexpensive, healthful and pollution-free transportation. Part of their enthusiasm is the result of the introduction of the lightweight 10-speed bicycle into the American transportation market during the last decade. In line with new Department policy, the California Division of Highways has announced plans for construction of a bikeway in Northern California at Redding. Linking up with local frontage roads along Highway 299, it provides a bicycle route to the Shasta

Junior College Campus east of town. (See photo.) The Department also cooperated with Marin County and Bay Area cities, as well as with the Division of Bay Toll Crossings in the development of a 24-mile bicycle route system through the County, across the Golden Gate Bridge and into San Francisco.

Anticipating the trend, the 1971 California Legislature passed laws prohibiting elimination of non-motorized routes by new highway construction. Where local governments already have approved bicycle route master plans, and where no other facility exists (such as a river crossing), such facilities may be constructed with highway funds as part of highway construction. The 1972 Legislature has authorized \$360,000 annually for construction of bikeways from State Highway Funds. Bay Area Rapid Transit is installing special bicycle lockers at its stations in further anticipation of the growth of this trend.

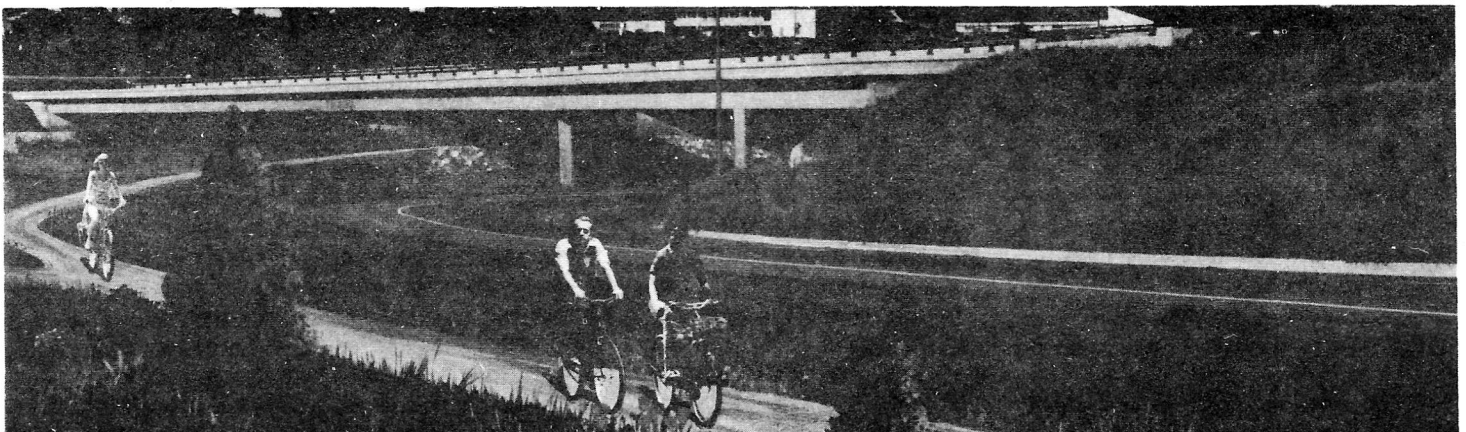
A. D. Skelton

## TOLL EXPERIMENT ON BAY BRIDGE, SAN FRANCISCO

The experiment, to see whether the number of cars using the bridge for peak hour work trips could be cut down, has proved a partial success since its inception in December, 1971. The usual toll for a round trip using the bridge is 50 cents; drivers were encouraged to travel 3-or-more to a car, and use special permits, costing only \$12.00/year, which they showed to toll-collectors without stopping. The aversion of the normal driver to time delay was amply demonstrated by the numbers of ordinary drivers who "inadvertently" took the special lanes reserved for the permit-holders; this number was anything up to 600/day, but is being reduced now with on-the-spot fines. (The delay to the normal driver is of the order of 10 minutes in the peak hour.)

Although the experiment has removed some car traffic from the bridge, which is the country's second busiest after the George Washington Bridge, this has been more than offset by normal traffic growth over the period of operation. The outcome of the experiment is naturally of much interest to other bridge authorities, because of difficulties in increasing capacity of an existing span; it may be considered a success in terms of people movement.

M. A. SARGIOUS



Reprinted from ASCE-Urban Transportation Division News.



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## MEMBERSHIP FACTS

SECTION	MEMBERS
Altoona	136
Clearfield	85
Delaware Valley	256
East Penn	148
Franklin	179
Harrisburg	284
North East Penn	102
Pittsburgh	235
Southwestern Pennsylvania	111
Williamsport	115
Total	1651

Paul F. McNulty, Altoona, Contractor.  
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## IT PAYS TO SLOW DOWN

According to the Governor's Highway Safety Council in Florida, two identical cars, intermediate size, were driven over a 319 mile route - one at an average speed of 67.7 miles an hour and the other at 53.6, based on elapsed time. The faster car used 22.8 gallons of gas - 14 miles a gallon, while the slower used 18.8 gallons - 17 miles a gallon.

## Secretary's Corner

To help make The Scanner more personal, when your Public Relations representative sends in his copy, include items of marriage, births, engagements, fishing or hunting news, anything which may be of interest to all our members. I feel certain there are many happenings which could be included in these reports.

If any member has information related to the whereabouts of the East Penn Section banner, please contact Bob Sherr.

†

## FRANKLIN SECTION

Continued from Page Six

present and enjoyed a delicious steak dinner, followed by a very interesting discussion and slide presentation on the use of latex cement protective layer for bridge decks. Mr. William Jones, Program Chairman, introduced the speaker, Mr. David Irvin, from Dow Chemical Company.

## NEW MEMBERS

Larry L. Bowie, Grove City, PennDOT  
 Charles K. Adams, Fairmount City, Materials Producer  
 Patrick A. Harrington, Bethlehem, Materials Producer  
 Allen C. Koch, Sr., Orwigsburg, PennDOT  
 Earl W. Capron, Sugar Grove, PennDOT  
 Frank B. Taylor, P.E., New Castle, Consultant. †

## ALTOONA SECTION

## NEW MEMBERS

Osbert J. Patton, Ebensburg, Consultant.

