

# SCANNER

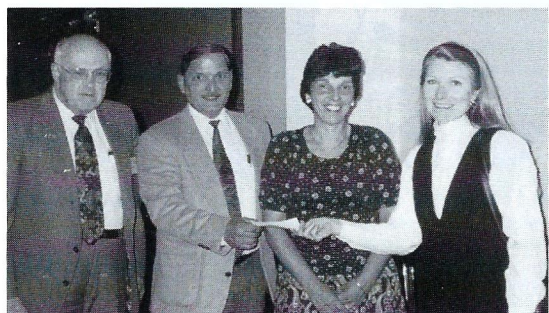
NEWSLETTER OF THE AMERICAN SOCIETY OF  
HIGHWAY ENGINEERS



March - 1995 - 1

## ASHE SECTIONS AWARD SCHOLARSHIPS

### *East Penn Section*



*Bob Donovan, Mr. & Mrs. Blackwell and Cindy Brown.*

The East Penn Section of the American Society of Highway Engineers at a monthly meeting awarded a scholarship to Scott W. Blackwell of Stroudsburg, Monroe County, Pennsylvania.

The scholarship was established in honor of the late Robert

L. Brown in appreciation of his many years of friendship and dedicated service as one of the founding members of the East Penn Section in 1965.

This year's recipient, Scott W. Blackwell, is a senior at Notre Dame High School in East Stroudsburg. His achievements as a student not only includes high academic performance, ranking second in his class, but also as a student athlete and captain in soccer, basketball, tennis, track, and cross country, and as a student leader serving as president of the student council and as the recipient of many student honors. Scott is also an eagle scout and has served as junior assistant scoutmaster. In addition he works in his spare time delivering papers for the Pocono Record and doing yard work in his neighborhood. Scott will attend the University of Maryland in the fall.

Scott was participating in a tennis tournament and could not be present for the presentation of the scholarship, but his mother and father, Marianne and Bill accepted the award in his absence from Cindy Brown, daughter of the late Robert L. Brown. ■

### *Harrisburg Section*

The Harrisburg Section presented scholarships to three high school students at their annual meeting in May. A \$1400 scholarship award was given to Gregory R. Rogalski, Harrisburg, PA who attends Susquehanna Twp. High School and has been accepted into Penn State's Civil Engineering program. Two \$350 scholarships were also awarded, one to Chad Ambrosius of Spring Grove and one to Christopher Rinehart of York. Chad is a student at South Western High School and has been accepted into Penn State's Civil Engineering program. Christopher is currently a student at York College; he will be transferring to Johns Hopkins University where he will study Bio-Medical Engineering.

The Harrisburg Section's scholarship program has a long history and has been successfully funded by donations from section members. The program awards scholarships to applicants who are enrolled in, or plan to enroll in, a four-year college program leading to a bachelor's degree in engineering, preferably civil engineering. Awards are based on evaluations of SAT scores, grade point average, activities and honors, and work experience. Each applicant must also submit a career goals narrative and be interviewed by the selection committee. ■

*Best Wishes for a Healthy, Prosperous New Year to  
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# NATIONAL BOARD NEWS

The National Board met for a regular board meeting on October 28, 1994 in Pittsburgh, Pa. National President Raymond Petrucci presided over the meeting. The following are highlights of the committee reports and actions:

## NEW SECTIONS COMMITTEE:

Chairman Greenwood presented reports on areas of expansion including:

\* **Bismarck, North Dakota** - Charter presentation was made on October 18, 1994; there are approximately 60 charter members; Central Ohio Section was instrumental in this effort.

\* **Atlanta Georgia** - an organizational luncheon meeting was scheduled for November 1994.

\* **Florida** - members of ASHE's Central Florida Section (Orlando) will be continuing their efforts to charter sections in other areas of the state such as Tallahassee and Tampa.

Organizational efforts will also

continue in Michigan, Illinois, Indiana and Charlotte, North Carolina.

## LEGISLATIVE REVIEW COMMITTEE:

NHS approval and its importance to the highway industry was discussed. Chairman Pearson will be notifying each section regarding these funding issues.

## MEMBERSHIP COMMITTEE:

Co-chairmen Charles and Welsh gave a detailed report outlining the history of the Life Membership issue. Board members and Sections are invited to comment on the report before the January 1995 Board meeting.

## CONVENTION COMMITTEE:

The Pittsburgh '95 convention Committee gave a complete report and invited all ASHE members to attend. Cooper Curtis reported the Orlando '96 convention dates will be June 27 through 29, 1996 and that family participation is encouraged.

The Delaware Valley section formally requested hosting the national convention in 1997 and the action was approved by the Board.

## REORGANIZATION COMMITTEE:

Chairman Tim Haslett presented a second draft proposal for reorganization. This proposal will be sent to all section presidents for additional comments. Further action will be taken at the January 1995 Board meeting.

## EXECUTIVE DIRECTOR COMMITTEE:

Chairman Mike Martin presented a written report which addressed job description, contract language suggestions, cost/funding suggestions, short-listing and implementation timetable. The officers and National Directors were requested to promptly submit comments so that the Committee can continue their work. ■

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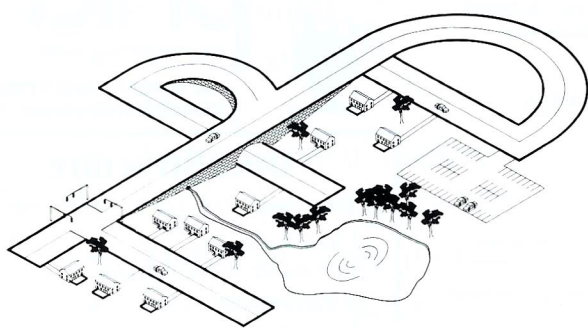
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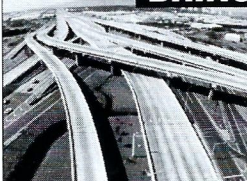
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# LYCOMING CREEK CHANNEL CHANGE ENABLES ECONOMICAL RELOCATION OF TRAFFIC ROUTE 15

U.S. Route 15 is a major north-south route traversing Central Pennsylvania. Because of its regional and economic importance, this route is being upgraded to a four-lane limited access highway for its entire length in Pennsylvania.

The section of Route 15 from Williamsport north to the New York State line is designated as an "Appalachian Development Highway Corridor," which makes it eligible for special Appalachian Development Highway Funds administered by the Federal Highway Administration.

In the late 1960's and 1970's, Pennsylvania received yearly allocations of Appalachian Development Highway Funds of approximately \$50 million. As Federal budgets became more restrictive, however, Pennsylvania's yearly allocation diminished to the current \$10 to 12 million range.

Four-lane limited access highway construction in the mountainous terrain that exists north of Williamsport typically costs \$10 to 12 million per mile. As the Appalachian Development Highway funds were reduced, it became imperative for Pennsylvania Department of Transportation (PennDOT) engineers, headquartered at the District 3-0 office in Montoursville, to develop innovative methods and designs to continue to upgrade Route 15. The final Environmental Impact Statement (EIS) for an 11 mile section of Route 15 from Williamsport north to the Village of Trout Run was approved in 1979. Construction of the south segment to just south of Perryville was complete when engineering and environmental studies were initiated to reevaluate a 3.5 mile section from south of Perryville to north of the small village of Powys.

The section of highway through the Powys area is notorious because Route 15 shares a narrow valley bottom with Lycoming Creek and a defunct railroad bed bordered by steep mountains in a sharp, sweeping curvilinear alignment. This curve once was the scene of many serious accidents. Relocated Route 15 also had to traverse this narrow restrictive valley while maintaining the existing Route 15 roadway for local traffic use.

Updated cost estimates for the alignment approved in the 1979 EIS for this 3.5 mile section totaled over \$43 mil-

lion with a major portion of the cost resulting from excavation into the steep mountainsides bordering the Powys Curve area. In an effort to reduce costs, PennDOT engineers developed an alignment that acquired a trailer court and relocated a 2,000-foot section of Lycoming Creek. This would also allow relocated Route 15 to occupy the narrow valley floor but would significantly reduce earthwork and lower construction costs to \$35 million.

Lycoming Creek is a major stream having a drainage area of 200 square miles. It has a high water quality and is an excellent trout fishery. Approvals of the various environmental agencies and specifically, the Pennsylvania Fish Commission, were needed before the new alignment and channel change could be built.

In 1988, PennDOT engineers first proposed the Lycoming Creek channel change to the Pennsylvania Fish and Boat Commission. The first reaction of Commission Fisheries Biologists in charge of Environmental Services was, "Surely PennDOT must be kidding." Up until that point, it was virtually unheard of to do a channel change of the magnitude we proposed on a high quality trout stream.

After further field evaluation, the Commission concluded the creek was eroding the now defunct railroad embankment, creating an unstable condition that should be addressed. They also agreed that the aquatic habitat and trout fishery could be improved if proper mitigation measures were incorporated into the relocated channel. Specifically, the Commission required that: fish habitat structures will be provided; an additional 1,000-foot section of the downstream channel will be improved to compensate for lost stream length; and, public angler access must be maintained to the stream relocation.

The channel change design provided for the construction of riffle-pool complexes by providing large limestone deflectors protruding from the west bank alternating with limestone lining across the channel bottom and varying channel gradients. The entire western bank and sections

*Continued on page 5*

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# LYCOMING CREEK CHANNEL CHANGE ENABLES ECONOMICAL RELOCATION OF TRAFFIC ROUTE 15

*Continued from page 4*

of the eastern bank were riprapped to stabilize and guard the channel against flood flows. Large random boulders also were to be placed throughout the improved channel area to provide fish habitat and provide channel roughness to retard flood flow velocities.

In preparation for the channel change, the existing stream was electro-fished by Fish Commission personnel to establish a statistical base line for both aquatic insects and fish life. It also was agreed that fish life in the existing stream would be moved to the new channel during construction and the new channel again electro-fished two years after construction to compare insect and fish life results to the existing stream statistical baseline.

Conti Enterprises was the successful contractor for the Route 15 embankment construction and the Lycoming Creek channel relocation. Construction began in the late winter of 1992. No work was permitted in the stream during March through June because of the possibility of sediment in the stream during trout season. Contractor and PennDOT inspection personnel realized up front that the channel change could be a construction showcase for the transportation industry. Channel construction was completed in the late summer of 1992 at a cost of approximately \$2.5 million.

Trout stockings were placed in the relocated section of Lycoming Creek in the spring of 1993 and anglers enjoyed excellent success in this section of stream during the 1993 trout season.

The Lycoming Creek stream relocation has been visited and reviewed by all the appropriate environmental agencies. By all indications, the results obtained to date exceeded all their expectations. They fully expect that the electro-fishing

planned for the summer of 1994 to greatly exceed the old channel statistical baseline.

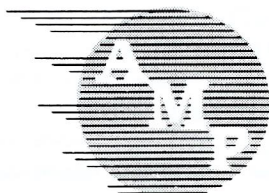
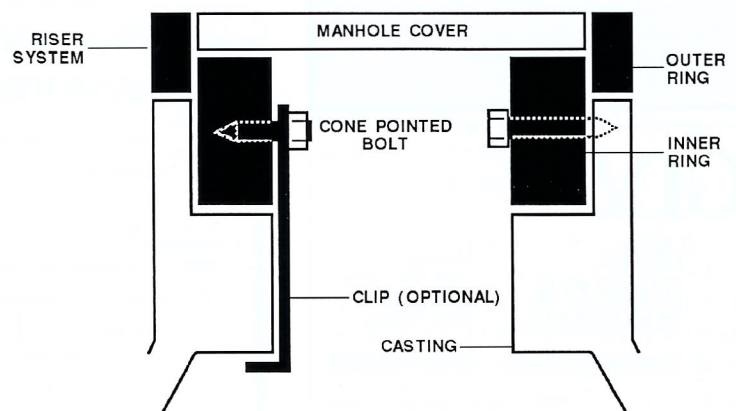
This project exemplifies that innovative, economical highways that are environmentally sensitive can be provided when properly coordinated with environmental agencies and appropriate mitigation measures are incorporated into the project design and construction.

Construction on this section of Traffic Route 15 was completed and opened to traffic in the fall of 1994. ■

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## HAPPY NEW YEAR GREAT CONVENTION AHEAD

As we begin a new year, I hope you will take the time to mark your 1995 calendar for May 18-21 to attend the 33rd Annual National Convention to be held at the Greentree Marriott. The Pittsburgh Section looks forward to your attendance and participation at this event.

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A variety of ASHE activities have been arranged because we are individuals working toward the same goal - **Promoting the Highway Industry!** Share your enthusiasm and invite colleagues to join us for the 33rd Annual ASHE National Convention in Pittsburgh. Our convention committee is in the process of planning an exciting three (3) days at the Greentree Marriott for May 18th through the 21st, 1995. Plan now to attend and invite others to participate. See you there!

Lisle E. Williams, P.E., P.L.S.  
*Convention General Chairman*

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# PA WELCOME CENTER/SAFETY REST AREA

The State Department of Transportation (PennDOT) is preparing to welcome visitors from other states to southwestern Pennsylvania with the opening of a new Welcome Center/Safety Rest Area.

Scheduled for completion in February 1995, the \$4 million facility is a beautiful addition to the Greene County countryside as visitors enter the Commonwealth on I-79 northbound from West Virginia.

Located just south of the Kirby interchange, the Welcome Center is one of two under construction in District 12. The Claysville facility on I-70 just west of Washington is scheduled for completion a year from now.

With the rise of tourism as Pennsylvania's second leading industry (behind agriculture), the Department of Transportation is committed to provide motorists traveling along the Commonwealth's highways with modern Welcome Center/Safety Rest Areas.

Since 1987, the Commonwealth has committed more than \$20 million to the design and construction of new Welcome Centers at key border locations around the state.

Each facility is uniquely designed to provide a positive first impression of the Commonwealth. They are also designed to support and promote the growth and expansion of the tourism industry.

Completion of the Greene facility brings the total to 12 Welcome Centers in Pennsylvania, 10 operated by PennDOT and two, located on the Pennsylvania Turnpike, operated in a joint venture with the Turnpike Commission.

In 1993, more than 1.5 million guests used Pennsylvania's Welcome Centers and took advantage of tourism and customer services provided at the sites.

There they are able to receive from professional hosts or through more than 500 brochures information on the state's natural, scenic, historic and private attractions. Guests are also able to make reservations at more than 1,000 Pennsylvania hotels, motels, bed and breakfasts and campgrounds.

The Greene Welcome Center was constructed on a 4.2-acre site and is unique in that a key attraction is a



monument dedicated to the coal mining industry of Southwestern Pennsylvania and is directly above the site where 37 Robena miners were killed in a Dec. 6, 1962 explosion.

Designed by Gannett Flemming, Inc., the building is an 8,000-square-foot single-story brick structure with a curved front colonnade and a gabled roof over the "Welcome Center" portion.

It is faced with a light gray brick veneer and the front colonnade is faced with a dark green glazed brick. A dark green standing seam metal roof is utilized on the gabled roof portion of the building as well as the picnic pavilion roofs.

The building is a very dramatic space with its high sloping ceiling, continuous ridge skylight and full height glass curtain walls.

The high space created by the vaulted ceiling is filled with suspended lights and custom-made banners depicting various Pennsylvania themes.

The interior finish used throughout the building includes plastered walls and ceilings, except for the restroom walls which are tiled, multi-colored oak trim, acoustical wall panel accents, oak and bronze display cases, vinyl wall coverings and plastic laminate-covered literature display racks.

A variety of deep rich colors and soft pastel colors are used throughout the facility to create a lively and interesting environment.

The flooring consists of terrazzo and several different types of tile in bold geometric patterns and colors.

The combination of the varied colors and patterns with the bold forms and shapes of the building results in unique and exciting spaces with a lot of character and spatial quality.

Construction of the Greene facility was accomplished through Partnering, an effort to bring together principals involved in a project to draw on the strengths of each organization.

Its purpose is to identify and achieve reciprocal goals, including performing and completing all project work within budget, on schedule and in accordance with the plans and specifications.

In the case of construction of the Greene facility, a two-day workshop held in the spring of 1994 brought together key Department management personnel associated with the project and the general contractor and other contractors, material supplier representatives and design consultant. Bids were received for five (5) separate contracts (General, Mechanical, Plumbing, Electrical and Civil.)

They reviewed the principles of partnering, defining the structured problem-solving procedures and ultimately developed a project charter obligating the participants to deal in good faith and assist each other in the success of their performance.

The cost? Five thousand dollars which was split between PennDOT and the prime contractor, Carmen Paliotta Contracting Co. of Library, Pa.

The results? Completion of a \$4 million project, on schedule, with very little cost over-run and all parties concerned still speaking to one another. ■



# 1994 ASHE ANNUAL CONVENTION ATLANTIC CITY, NEW JERSEY

The Southern New Jersey Section of the American Society of Highway Engineers was host to the 32nd annual convention at the Trop World Casino and Entertainment Resort in Atlantic City, New Jersey. Approximately 300 people attended the event held Wednesday, May 18, through Saturday, May 21, 1994.

The convention began with social activities Wednesday morning. Approximately 50 brave members of ASHE weathered the rain and enjoyed a fine 18 holes of golf at the Blue Heron Pines Golf Club in Galloway Twp., N.J. Meanwhile, 20 of the Spouses were enjoying a trip to Historic Smithville. Obviously, there were a few shops around town that kept them occupied for most of the day. At another remote location, 10 daring ASHE members went on a three hour tour. It resembled a fishing trip until the weather started getting rough. They promptly returned in plenty of time to kick off the Ice Breaker Reception.

The Ice Breaker Reception was a well attended social event consisting of a fine buffet of various types of entree's and desserts located in the exhibit area. This provided everyone with the opportunity to view and discuss, with each exhibitor, the many new technologies in the highway industry. As the event-filled day ended, many of the attendees visited the hospitality room to prepare for the next day's events.

The technical portion of the convention began Thursday morning with the Annual Meeting followed by the General Session. The keynote speaker was Dr. Anthony R. Kane, Associate Administrator for Program Development, FHWA. Dr. Kane enlightened our session with his discussion of the FHWA as it relates to the following topics: 1) the role of the federal government with regard to transportation expenditures, specifically ISTEA, 2) key policy issues driving FHWA, 3) intermodalism, and 4) transportation expenditures. He focused the remainder of his speech on the establishment of the National Highway System. He emphasized that everyone should contact their legislator and push for its passage. Without an established National Highway System, federal funding for highway projects could be more difficult to attain, especially at the local level. Dr. Kane completed his program with a lively question and answer period.

Immediately following the general session was an open forum-type technical session addressing the topic of "Intermodalism at Work". The speakers were Mr. Frank Vacca, Project Director of AMTRAK, Mr. Joseph Polizzi, Vice President for Public Affairs of the United Parcel Service, and Mr. Robert Fryling, Partner of Blank, Rome, Comisky, & McCauley, Counselors at Law.

Mr. Vacca started the open forum with an informational speech concerning the current and future operations of AMTRAK. His presentation proceeded to show the need for high-speed rail along AMTRAK's northeast corridor and for the development of alternate modes of transportation. The intermodalism theme was continued by Mr. Polizzi with a slide presentation and discussion about the creation of UPS. In addition, he informed our

group that a new 1.9 million square foot UPS complex, "The Chicago Area Consolidated Hub", has been constructed in Chicago.

The final speaker of this open forum panel was Mr. Fryling who discussed specific funding issues pertaining to ISTEA and how the Federal Transit Administration planned to implement them.

Thursday's activities concluded with the Man of the Year/Past Presidents Luncheon. Ellis Vieser, President of the New Jersey Alliance for Action Inc., was introduced as the "Man of the Year". Mr. Vieser provided everyone with his knowledge and philosophy on how to accomplish goals. Mr. Vieser was delightful, and insightful, and is a long time friend of the luncheon keynote speaker, New Jersey Congressman Robert A. Roe. As the author of ISTEA, Congressman Roe provided an informational speech concerning the various strategies and political incentives that were used to enable the passage of ISTEA.

During Thursday's convention activities, 30 spouses visited Wheaton Village and Renault Winery. As the spouses returned from their trip, they all agreed that it was time again to visit the hospitality room and prepare for the next day's events.

Friday's events opened with two simultaneous technical sessions. The "Newly Opened Transportation Center in Montvale N.J." was the topic for technical session "A". Mr. James Schultz, P.E., Senior Engineer and Mr. Greg Solomon, Contract Services Coordinator, both from the N.J. Highway Authority presented the attendees with graphic displays and an interesting slide presentation on the development, construction, and current day-to-day operations of the transportation center.

The program for technical session "B" concerned the "High Speed Rail/Maglev Impact on Airport/Highway Congestion". Mr. Jack Hargrove, Director of Transportation Systems for Gannett Fleming, discussed the many aspects of these rail systems and how they can and are aiding in reducing congestion along the existing transportation modes, especially our beloved highway and airway systems. Also discussed was the advancement of high speed rail and maglev technologies in Japan and Europe as compared to the United States.

Immediately following these two sessions was the second open forum-type technical session entitled "How ISTEA Impacts Government and Private Agencies' Policy Making Decisions". The speakers were Mr. Gary Corino, District Engineer for FHWA, Mr. Dennis Keck, Assistant Commissioner of Policy and Planning for NJDOT, Ms. Mary Murphy, Executive Manager for the Port Authority of N.Y. and N.J., and Dr. Donna C. Nelson, Ph.D., P.E., Senior Staff Engineer for IVHS of America. Each distinguished speaker provided a brief synopsis of their role within their respective agencies as well as insight on how each agency will be influenced by the ISTEA legislation. There was sufficient time after this open forum for a delightful lunch, and then it was rendezvous time for the field trip.

*Continued on page 9*



# 1994 ASHE ANNUAL CONVENTION ATLANTIC CITY, NEW JERSEY

*Continued from page 8*

The field trip to the FAA Technical Center in Pomona N.J. was attended by 27 ASHE members. After a slight delay, they returned to the casino in time for the Annual Banquet.

The Annual Banquet began with the Pittsburgh Section presenting the 1995 convention followed by several acknowledgments and awards. The George K. Hart and Gene G. Smith awards for membership were presented to First State. The convention attendance award was presented to Delaware Valley. Mr. Robert E. Hetherington was acknowledged to be recipient of the Outstanding Service Award. Finally, President Nesslinger presented a special "Presidents Award" to Mr. James Charles for the significant contributions he has given to ASHE.

President Roland Nesslinger passed the president's gavel to Incoming President Ray Petrucci. President Nesslinger followed with his closing remarks mainly focussing on the need to revise the structure of ASHE. Incoming President Petrucci then gave an acceptance speech. His thoughts covered the need to continue expanding careers in the highway industry and his dedication to the reorganization of ASHE. Finally, the newly elected officers were installed and all members were delighted with the musical entertainment of "Central Park". At the conclusion of the musical interlude, everyone agreed that the hospitality room must be visited one last time to reflect on the 1994 ASHE National Convention.

The Southern New Jersey Section thanks all who supported a very successful convention. ■

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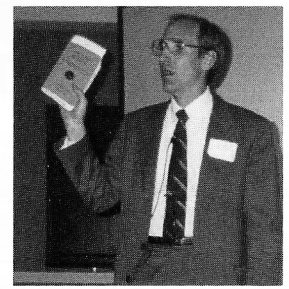
# CENTRAL OHIO HOLDS PAVEMENT DESIGN SEMINAR



Left to right: Warren Baas & Vince Amato

The Central Ohio Section held its first design seminar in April at the Columbus Hilton-North. The one day Pavement Design Seminar was attended by nearly 50 A.S.H.E. members and non-members from the consulting industry and local governmental agencies. Presentations were made by the Ohio Department of Transportation covering pavement performance, traffic loadings, pavement drainage and reliability.

Cliff Ursich, P.E., Flexible Pavements, Inc. (see photo below) gave a presentation on flexible pavement design including actual design situations using the AASHTO method. Practical recommendations were also presented for designs



Cliff Ursich

with light traffic loadings in which the AASHTO method does not apply. Rigid pavement design was presented by William Feltz, P.E., Anderson Concrete Co. and Warren Baas, P.E., Ohio Ready Mix Concrete Association (ORMCA). Mr. Feltz spoke on rigid pavement design concepts including a composite pavement design procedure. A demonstration was also provided on ORMCA's AASHTO Pavement Design Program, patent pending. Mr. Baas followed with tips on jointing details and proper subbase preparation for rigid pavement.

The seminar was a success due to the efforts and planning by the committee which consisted of Technical Director - Cliff Ursich, President - Dave Jones, 1st Vice President - Warren Baas. This program marks what is planned to be an annual event for the Central Ohio Section. Topics being discussed for future seminars include highway drainage, construction specification writing for highway materials and converting to metric. Future seminars will be publicized throughout the other Ohio ASHE sections.

by: Kathy L. Vogt, P.E.

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# HIGHWAY MANAGEMENT BY NETWORK CLASSIFICATIONS

## PENNDOT - DISTRICT 1-0

Through the 1980's and into the 90's, many state and municipal highway organizations have been faced with tightening budgets due to increased labor and material costs, and lagging fuel consumption tax dollars. This has resulted in the need for a balancing act between existing funding and highway maintenance needs.

Faced with this need, PennDOT's Engineering District 1-0, under the leadership of District Engineer John L. Baker, P.E., has developed a network classification system to be used as an additional management tool. Counties within Pennsylvania typically have more than 500 miles of roadways to improve and maintain, ranging from interstate highways to unpaved roadways.

In 1988, a thorough review of the state highway system in the six (6) county region was performed by a PennDOT management team consisting of District and County managers. Each roadway section was reviewed to take into consideration the levels of service, as outlined in Department documents, as well as the average daily traffic, and the maintenance functional classification. The various networks such as Agricultural Access Network (AAN) and the Priority Commercial Network (PCN) were also considered. Each section was also reviewed to determine whether it was primarily a through highway, a collector highway, or a local access road.

Taking all these factors into consideration, the roadways were divided into five (5) maintenance networks. The five (5) basic networks are defined as the Interstate Network, the Betterment Network, the Resurfacing Network, the Level and Seal Network, and the Unpaved Roadway Network.

As the names indicate, the desired treatment for each type of roadway is as follows:

1. Interstate Network - Roadways on this network are federal interstates. These roadways would be reconstructed to meet current federal design criteria.
2. Betterment Network - Roadways on this network would be targeted to eventually be brought up to the criteria required for the federal primary system. This would include roadway width, safety features, drainage, paved shoulders and guiderail.
3. Resurfacing Network - Roadways on this network are primarily major collector routes to the through highway system in the counties. These roadways would be developed to an adequate width with paved shoulders, updated drainage and guiderail, but not necessarily to the full betterment criteria.
4. Level and Seal Network - Roadways on this network are primarily local access rural routes which would be maintained by periodic leveling courses of bituminous material with seal coats of oil and stone.
5. Unpaved Roadway Network - Roadways on this network would be maintained in accordance with approved gravel road maintenance criteria.

Since the development of this management tool, the benefits have become increasingly evident. First, the review of the system helped us develop goals, and a plan to follow for highway enhancement projects such as widening and paved shoulders.

Second, it provides a continuity of treatments for roadway sections which cross local municipality or county borders. That is, we now have a planning tool in place to manage the roadway system to avoid widening of a road to 20 feet, and having it lead into a 22 foot roadway in another county.

Third, this established standards of highway improvements to allow for continuity through management changes within the Department, as well as the varying funding levels within each county.

Fourth, it allowed management to become more aware of the inventory of highways they have within each category. This now lends itself to cyclical maintenance of the highway systems. For example, if a particular county knows they have 200 miles on the Level and Seal Network, and it should be levelled every ten (10) years, then there needs to be money available to treat 20 miles per year.

Regardless of the system that you are managing, that being a township, city or statewide level network, this type of approach can lead to more efficient management of maintenance, improvements, and budgets.

Questions about the development or use of this management tool can be answered by the authors, Brian Yedinak, P.E., County Manager of Venango County for PennDOT (814-432-3115) or Christopher Drda, P.E., Maintenance Programs Engineer of Engineering District 1-0 (814)-437-4238) who are both members of the Franklin section of ASHE. ■

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