

MINNESOTA HIGHWAYS

and 50 per cent state funds. For construction of the new Interstate system, the ratio is 90 per cent of federal funds matched by 10 per cent state funds.

Of course, all highways which are built with federal funds are subject to federal specifications and restrictions.

THE INTERSTATE SYSTEM



Present day scene on I-35W at Minnehaha Creek in south Minneapolis.

The Interstate system was born in the Federal-Aid Highway Act of 1944, but because of World War II, no definite steps were taken until 1954. The Federal-Aid Highway Act of 1956 actually activated the program and authorized apportionments for its construction.

The Interstate system is a network of super highways connecting every large community in the United States. It is being built as a defense measure as well as for the necessity of handling the ever-increasing highway traffic based on estimates of our needs up to 1975. This network was laid out on a national basis and submitted to the states for approval and recommendations. In total, it will comprise over 42,500 miles of multi-lane divided freeways, of which Minnesota will build 914 miles. The expected completion date of the program is 1977 at a national cost of more than 50 billion dollars.

When completed, this system will allow travel between all major centers of the country over multi-lane, high-speed highways with no grade intersections. Also, because of a controlled access feature (traffic will not be allowed to enter or leave except at interchanges) traffic can move in an uninterrupted flow from coast to coast.

The Minnesota State Highway Department does not actually build highways. Projects are planned, surveyed, designed, and supervised by the department, but actual construction is accomplished by private road-building contractors who are given the projects on the basis of the lowest bid.

When a segment of highway is to be built, the department publishes the necessary information, and contractors submit sealed bids which show how much they will charge to do the work. At a specified time, all bids are opened and the

contractor submitting the lowest bid is awarded the job. The time and place of the letting (when the opening of bids takes place) is published, and all interested parties are invited to attend.

Ordinary maintenance of Minnesota highways is handled by crews employed by the Highway Department. These crews are divided into 16 districts (maintenance areas) throughout the state, and handle all work within them.

Construction and maintenance of bridges is handled in the same manner.

SUMMARY

The planning, construction and maintenance of highways and bridges in Minnesota is a continuous job. There is always a demand for new facilities, either to replace old ones or to establish new routes. The day will never come when there will not be a great need for highway and bridge work in the country. The demands become greater each year, with the increase of automobiles, trucks and other vehicles on the highways, the curtailment of railroad lines in many areas, and the unlimited horizons of today as compared with those at the turn of the century.

PERCEPTIVE PEOPLE

The State Employees Merit Award Board has announced that Highway Department employees earned 60 of the 166 awards presented by the board in 1970. Savings of \$34,428.33 to the state resulted from the adoption of the ideas.

Six more of our employees have recently earned awards.

Sandra Thomas, highway technician, Duluth, suggested that plastic covers be purchased to cover the field diaries to prevent the necessity of cleaning them and, at times, the redoing and Leroy lettering of them. She received a certificate of award and \$10 check for the suggestion.

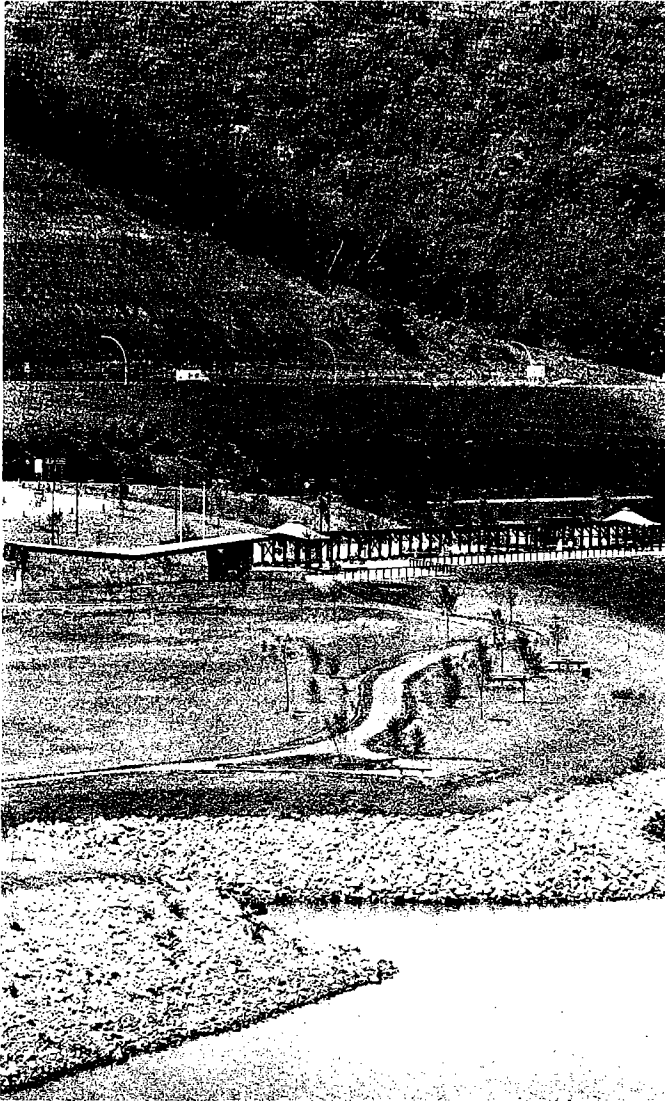
His idea to change the strength requirement in wire ties for chain link fencing resulted in Bruce Kastner, highway technician, District Nine (St. Paul), receiving a certificate and a check for \$10. Valid usage of his idea is limited but some maintenance expense will be saved.

Jim Maas, highway maintenance supervisor, and Fred Haas, office manager, both of Golden Valley, made the joint suggestion that the small tools be color-coded to help in internal control. They each received a certificate of award. Fred has been doing "right well" in the number of suggestions made by him that have been adopted.

LeRoy Mullerleile, senior systems analyst, Data Processing Section, Central Office, suggested that the phone numbers be typed in the office memorandums. "Oz" received a certificate and \$5 for his idea.

A certificate of award was received by Andrea Kortan, intermediate clerk steno, Brainerd, and District Three correspondent in this publication, for her suggestion for a change in the form letter 2128A so that there was a sixth copy.

DRESBACH CENTER DEDICATED

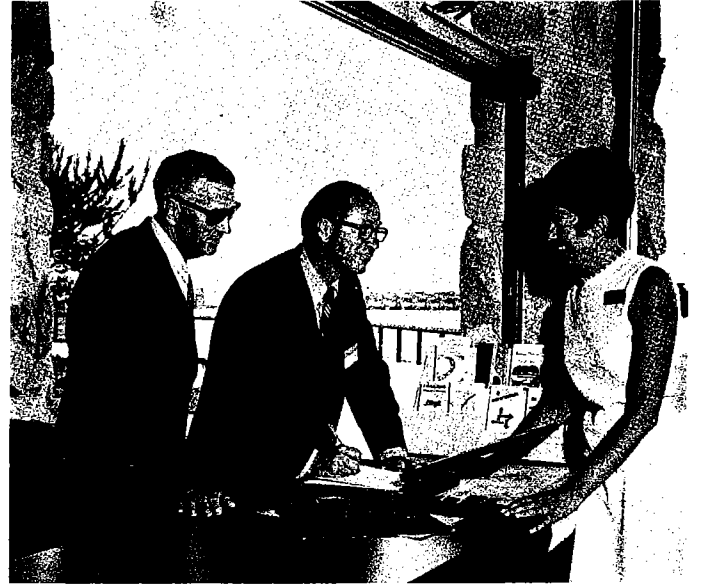


The scenic Dresbach Rest Area and Information Center.

Minnesota's newest state information center and rest area was dedicated and formally opened with civic ceremonies on June 24. It is the Dresbach center off the westbound lanes of I-90 on the banks of the Mississippi River, about one and a half miles north of LaCrescent.

State Highway Commissioner Ray Lappegaard joined officials and civic leaders of the area as a principal in the program sponsored by Hiawathaland Inc., regional tourism organization. Commissioner Lappegaard said, "It is a significant event marking the completion of a facility which will benefit thousands of people each year for many years to come."

As a "gateway" to Minnesota, the Dresbach Information Center and Rest Area is strategically located to accommodate travelers from the east via I-90 and motorists using the Great River Road of the Mississippi Parkway system. The facility has been in service on a limited basis since early March.



Commissioner Ray Lappegaard (center) signs the guest book at Dresbach as Aaron Husmann, manager of the center, looks over his shoulder while Dorothy Voshart, clerk at the center, smiles pleasantly.

The Dresbach facility is situated on a 26-acre site, the main building housing the information center and restrooms. Off the north side of the structure is a pergola set on a terraced overlook of the river valley. As an aid to the disabled, ramps over curbs and to the main building and wide closets in the washrooms are provided for the movement of wheelchairs. Lookout points and picnic tables are reached by pathways.



Allan Moore helps steady the big scissors as his mother, Helen Moore, and Commissioner Lappegaard prepare to release some balloons at the Dresbach dedication.

The information center is currently open from 7 a.m. to 10 p.m. with Aaron Husmann of our department as manager. Comfort facilities are open 24 hours a day. Husmann reported that about 19,000 visitors from all 50 states and 24 foreign countries had stopped at Dresbach since March.

The Dresbach installation is one of six combination information centers and rest areas on the Interstate highway system in Minnesota now in service, being built or planned. The center on I-94, eastbound lane, near Moorhead, was opened in July, 1969. Under construction by the Minnesota Highway Department are facilities on I-35, Duluth; near Albert Lea where I-90 and I-35 intersect; and on I-90, near the South Dakota line, west of Luverne. Proposed is a roadside "gateway" accommodation on I-94 in the Lakeland area near the St. Croix River.



James E. Gove (regional director of the Division of Tourism of the Minnesota Department of Economic Development) addresses the gathering at the Dresbach dedication. Standing (left to right) are: Allan Moore, Helen Moore, Judy Ganrude (Miss LaCrescent), and Sue Highberg (Miss Minnesota Highways). Seated (right) is Mayor John Kolb of Dakota.

David W. Dresbach had been invited to attend the Dresbach dedication but was unable to be present. He resides in Sebastopol, Calif. He wrote a letter to Doyle Sorenson, executive secretary of Hiawathaland, which is reproduced in part.

"Your letter came as a pleasant surprise, informing me that the Dresbach Interstate Rest Area and Information Center has been established in the township that was founded by my grandfather in 1857. When George Betts Dresbach and Mary Nichols Dresbach crossed the wide Father of Waters in the spring of 1857 to make their home where the village of Dresbach still exists, Minnesota was still a year away from being admitted as a state.

"My father, George B. Jr., was born that spring of 1857, and in October of 1858 the first daughter was born in the village. Her name was 'Minnesota' in honor of Minnesota's statehood. She was always known to me as 'Aunt Minnie' and she lived almost until the celebration of Minnesota's Centennial.

"In 1960, I visited the village as a guest of Mrs. George (Helen) Moore and her son, Allan, with whom I still regularly correspond. I was last there in the summer of 1967 and witnessed the Great River Road which had been built along the beautiful bluffs and hardwood-forested coves of the Hiawatha Valley."

Air Pollution From Autos Drops

The Minnesota Highway Department received confirmation from the pollution control agency that motor vehicles account for only 39 per cent of air pollution.

In addition, auto emissions of hydrocarbons and carbon dioxide have reached their peaks.

In a news release published by the Automobile Manufacturers Association, Peter Griskivich, AMA's Director of Information, reminded that the frequent statement that motor vehicles cause 60 per cent of all air pollution stems from a federal government estimate of total annual air pollution by weight made six years ago.

Continued Griskivich: "Based on the federal government's current test procedures, the hydrocarbon emission from 1971 vehicles has been lowered by about 80 per cent and carbon monoxide by about 65 per cent compared with cars having no emission controls. Considerable progress also has been made in lowering automotive emissions of oxides of nitrogen and of lead particulate matter. And we are confident that even further reductions will be possible in subsequent years."

Bridge On I-35E To Be Raised

Commissioner of Highways Ray Lappegaard announced that the bridge carrying I-35E over Pennsylvania Avenue in St. Paul near the State Capitol will be raised because of settlement.

Fifteen beams at the south abutment will be raised by varying amounts from 4 to 15 inches to bring the bridge up to grade and provide a smoother riding road. As part of the project, a bituminous overlay will be placed adjacent to the bridge so there will be no "bump." Work will progress on one lane at a time, necessitating closure of that lane to traffic.

Although the bridge is supported by steel piling reaching down 150 feet, the southern abutment has been settling due to compression of a layer of peat 100 feet beneath the surface. As the fill settles it adheres to the piling thereby pulling it down.

When the bridge was constructed in 1965 test borings revealed the presence of this peat layer. Since this could produce settlement, the determination was made that the pilings should extend down to bedrock. During the construction of the bridge, however, difficulty was encountered in driving the pilings. When the "practical refusal" position was reached, determined by pile driving pressures of 200 tons, the judgment was made that to try to drive to bedrock would either be economically impractical or that damage would occur to the pilings, hence the decision to resort to future maintenance if the bridge settled.

Resident Engineer Tom Glasow anticipates completion of the project by October 1.

NOISE ABATEMENT ON I-35W IN MINNEAPOLIS



Noise abatement program shown in operation between Minnehaha Creek and Diamond Lake Road on I-35W in Minneapolis. Note that the southbound lane was covered with a bituminous overlay to smooth out the pavement surface while the northbound lane had not yet been resurfaced. We noticed a decrease in noise volume when standing on the overlay side of the freeway as opposed to the noise volume when standing on the side that had not been subjected to the overlay process.

Dealing with the problem of excessive noise on our urban highways constitutes a complex one to the Minnesota Highway Department.

A case in point is a section, approximately one-half mile in length, of I-35W between Minnehaha Creek and Diamond Lake Road in Minneapolis. When this section was constructed, some of it was depressed which tended to reduce traffic noise but other parts of the stretch are at grade and above grade. The problem is compounded by twin bridges over Minnehaha Creek and the Parkway.

A bituminous overlay project, recently completed, in this area has smoothed out the pavement which should bring about a small decrease in the traffic noise level.

If a 15 to 26-foot high wall were built along the roadway in this area, it is possible that traffic noise could be cut in half (a reduction of ten decibels) according to a report prepared by our department. The intensity of loudness, as discerned by the human ear, is reduced by half for every 10 decibel decrease.

While a wall would, in all probability, be effective in reducing noise from automobiles and the whine of tires, it might not be very effective in lessening the engine and exhaust noise of diesel trucks. The low frequency rumbles

produced by trucks are more apt to bend over the wall barrier.

Generally speaking, if the wall were constructed, there would be a lessening of the overall traffic noise level but noise peaks from passing trucks could prove to be more disturbing to nearby residents.

Designing a suitable wall next to the bridges over Minnehaha Creek would present a special problem, both from structural and aesthetic standpoints. Some residents might not be pleased by the erection of high barriers in front of homes, and motorists might feel hemmed-in by walls.

The problem of aesthetically designing a 15 to 26-foot high wall without overpowering adjacent scenery is virtually an insurmountable challenge.

F. W. Thorstenson, assistant commissioner, Research and Standards, entertains some doubts about the effectiveness of a high wall — both in terms of satisfactory performance and cost.

It would cost an estimated \$784,500 to construct a bare, straight high-density wall and \$1,163,100 to erect a landscaped, curved wall on both sides of I-35W on the half-mile stretch.

According to Assistant Commissioner Thorstenson, our department would lean toward an aesthetic approach if the wall

were to be built and our department does not plan to proceed with construction in the immediate foreseeable future.

We are, though, gathering data from similar-type noise reduction experiments from other states and Canada before proceeding further with any plans.

BJOSTAD BOWS OUT

by LINDA BROWN



LBB and Clerk Typist Bonnie White are pictured as LBB prepares to cut the cake.

L. B. Bjostad, AME, Duluth, retired on October 5. Bjostad had been in highway work for about 40 years in both state and county service. He retired after spending the last 12 years here in Duluth. He and his wife, Ruth, left for a three-week trip through the western part of the U.S. They planned on returning about the end of October. Sometime shortly after the first of the year they are going to spend about six weeks near LBB's son in El Paso, Tex. Next summer they plan to move to the Twin Cities area for their retirement years.

Bjostad was honored at a retirement party at the Highland Supper Club on the day of his retirement. Cake and coffee were served in the office on the same afternoon.

HOW THE GENERAL ANDREWS REST AREA GOT ITS NAME



Gen. Andrews

The General Andrews Safety Rest Area, located about eight miles south of Moose Lake serving southbound traffic on I-35, was named after Christopher C. Andrews — a man who is well-known for forest restoration and preservation in Minnesota.

Andrews was born in New Hampshire in 1829 and came to Minnesota, settling in St. Cloud, in 1856. He scarcely had time to establish his home there when the Civil War broke out. He joined the army and rose through the ranks from private to general.

In 1869 he was appointed minister to Sweden and Norway. While there, the problems of restoration and preservation of forests interested him. As a result he was able to study and observe a forest conservation program in action.

After eight years of serving in that capacity, he came to St. Paul and practiced law until 1881. He was then appointed consul-general to Brazil, returning to St. Paul in 1885.

In 1905, he acquired the title of forestry commissioner but had been active in the field of forest conservation for years before.

The creation of the General C. C. Andrews Nursery in Pine County by the Minnesota Department of Conservation (now the Department of Natural Resources) in 1940 was in commemoration of his achievements in forest

preservation. In 1943, the Minnesota legislature designated an area in Pine County as the General C. C. Andrews State Forest. This includes the nursery.

Federal Highway Chief Lauds Interstate Safety Features

Federal Highway Administrator F. C. Turner, in an address before the annual highway safety conference of the National Association of Women Highway Safety Leaders, stressed the inclusion of safety features in the new Interstate system. Said Turner:

“At the outset, let me state unequivocally to you that there is no greater priority in the Federal Highway Administration’s program than saving lives on the highways. Safety has been a primary factor in the Federal-aid highway program ever since the first Federal-Aid Highway Act was passed 55 years ago, back in 1916.

“As you know, there are three general factors that can be involved singly or in combination in highway accidents — the driver, the vehicle, and the road. The third area — the road — is obviously the responsibility of the Federal Highway Administration.

“The inherently greater safety provided by Interstate freeways is pointed up graphically by comparative fatality rates. On the Interstate, the rate is 2.9, while on all other roads it is 5.6 deaths per 100 million miles of driving.

“One of the most obvious things that has been done in the highway program to provide greater built-in safety is the construction of the Interstate System of freeways. Already some 32,000 miles of the ultimate 42,500-mile system are in operation, and they are paying tremendous dividends. These are the best engineered and safest roads the world has ever known. Entirely divided highways, with a minimum of four lanes; with no intersections at grades; no stoplights; completely controlled access; with no sharp curves or steep grades, these freeways contain the ultimate that modern technology can provide.

“Thoreau said, ‘It is not enough to be busy; so are the ants. The question is: what are we busy about?’

“I think there is no better cause that we can busy ourselves in than this vital cause of highway safety.”

TEN YEARS AGO

To succeed Stan Ekern as MHD construction engineer, Commissioner Marshall has appointed Ed Heinen, who, since June, 1960, had been assistant maintenance engineer. Ekern’s promotion to deputy chief engineer for operations was reported in the November Minnesota Highways.

A big step in Austin area highway improvement was celebrated November 9 when Governor Andersen cut a ceremonial ribbon to open to traffic the newly completed 4½ miles long, east-west beltline freeway (I-90) around the northern section of the city.

In its annual election the Hiwayan Club elevated Myrton Charney of Finance Services from vice president to president. He succeeds Vince Bovitz. Gene Schmidt of Road Design was elected vice president; Darlene Johnson of District Nine, secretary; and Jack St. Martin, Safety, treasurer.

Clyde C. Colwell, recently retired MHD assistant chief engineer, is only the ninth person to receive the Associated General Contractors of Minnesota distinguished service award in that group’s 42-year history.

WE WIN AWARDS

The Minnesota Highway Department recently received certificates of commendation from the Greater Duluth Area Council on Employment of the Handicapped for the barrier-free architectural construction of the buildings at the General Andrews and Kettle River Rest areas on I-35.

The awards were made primarily for the installation of inclined wheelchair ramps and wide doors enabling disabled persons easy access to the facilities.

The awards, presented by William Bischoff, chairman of the Greater Duluth Area Council on Employment of the Handicapped, were received by Erling Jonassen, District One traffic engineer.

HENNEPIN-LYNDALE TUNNEL ON I-94 OPENED



Hennepin-Lyndale area in Minneapolis in 1918

On December 7, the Hennepin-Lyndale area on I-94 in Minneapolis, including the Lowry Hill tunnel which is over a quarter-mile long, was opened to traffic. It took about three and a half years to build and cost approximately \$8,000,000. The six-lane tunnel — the longest in the state — has an underground building adjacent to it to house four gigantic fans which provide ventilation.

The need for a tunnel became clear early in the alignment studies of Interstate Highway 94, which started in 1956. Proper laning was essential to carry traffic through a slot about 250 feet wide bordered by the Walker Art Center, and office building, and two large churches with Loring Park and The Parade recreational facilities in the proximity. Critical was the need for alleviating traffic congestion at the confluence of Hennepin and Lyndale avenues. The preservation of the cultural neighborhood also was a major consideration. With construction of the tunnel to carry the through-traffic of I-94, the vertical separation of vehicle movement is made.

THE TUNNEL

The freeway approaches Lowry Hill from the southeast in a depressed alignment and cuts through the hill on a descending slope, emerging at a portal just north of Vineland Place. I-94, on the national system, runs from Port Huron,

Mich., to Billings, Mont., a total of 1,607 miles, routed through Minnesota from near Hudson, Wis., via the Twin Cities metropolitan area northwestward to Moorhead.

The overall length of the tunnel is 1,492 feet. Vertical clearance is 15 feet, six inches. A center wall separates the two roadways, each made up of three 12-foot lanes, a six-foot shoulder on one side, a two-foot shoulder on the other and safety walks. About half of the tunnel is on a horizontal curve. A driver entering the tunnel from the north will leave it on a left-hand curve. At an average speed of 30 mph (the speed limit is 35mph), he will be in the tunnel for less than 35 seconds.

Oster & Pederson, Inc., Minneapolis, and Foley Brothers, Inc., St. Paul, prime contractors, began construction of the Lowry Hill tunnel in May, 1958. In the operation, they developed an overhead truss system to support "soldier piling" in providing a clear opening in which to work. Using a nylon reinforced vinyl covering, a heated bubble was erected over the site during cold weather construction. Among the problems encountered in the tunnel construction was that of high water content soils as the cut for the structure approached a nearby church. To prevent any possible damage to the building's foundation, steps were taken to freeze the subterranean section. Using a patented process, freeze tubes circulated brine at 5 degrees below zero

underground. The 50-foot deep ice along a 120-foot section actually served as a retaining wall.

The tunnel is built of reinforced concrete in sections designed as rigid frames with transverse expansion joints spaced a maximum of 90 feet. The interior walls were surfaced with tiling. With a tile veneer, there is reduced maintenance, improved illumination and a surface that is easily cleaned.

VENTILATION

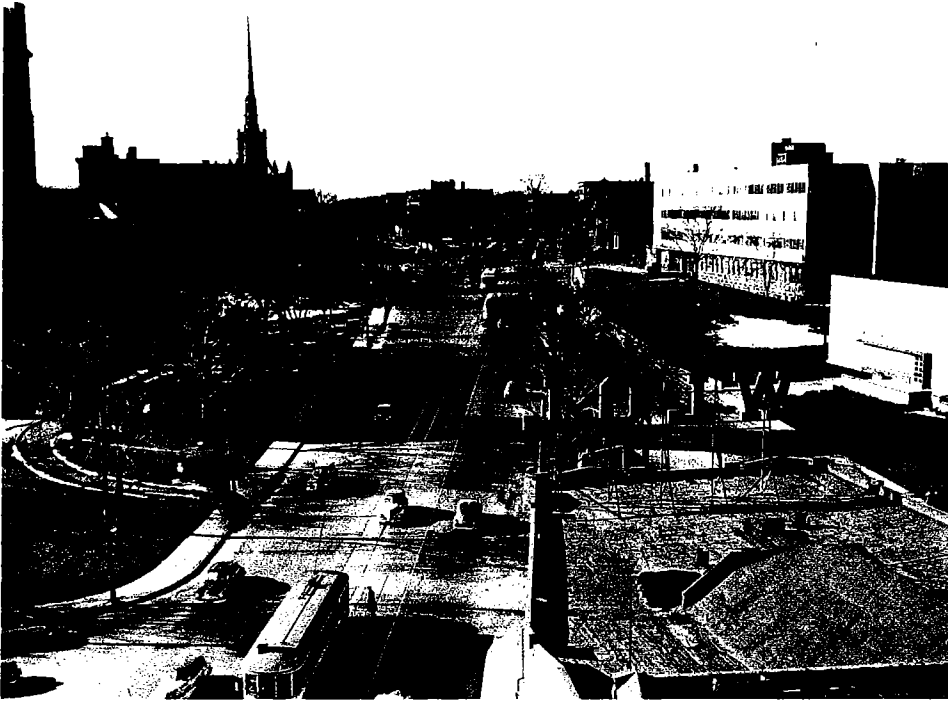
Four 150-horsepower vane-axial fans, each having a capacity of 268,000 cubic feet per minute, activate the ventilation system. Fresh air, at four volume levels (depending on traffic conditions), is blown into the plenum chamber above the tunnel ceiling through a series of ducts, for discharge into the tunnel space. In diluting the tunnel atmosphere, the ventilation system is designed to keep carbon monoxide content below .5 parts in 10,000 parts of air. The tunnel air is sampled from three points in each roadway and analyzed automatically. Each of the six analyzers has an automatic recording graph to maintain records of carbon monoxide concentrations. The huge fans, their sound attenuators and electrical control equipment, are housed in a three-and-half story building constructed below ground and adjacent to the tunnel.

LIGHTING

Lighting consists of continuous rows of slim-line fluorescent lamps in glass waterproof jackets mounted on both sides of each tunnel roadway. The system utilizes multiple wiring for "day-night" and zone levels of intensity. When it was found that the threshold lighting at the North Portal was not up to the safety level desired, sets of a new high-intensity metal-halide vapor lamps were installed.

OTHER SAFETY MEASURES

Vehicles carrying cargoes of hazardous materials are prohibited from using the Lowry Hill tunnel. The restrictions, given in a directive by State Highway Commissioner Ray Lappegaard, are in line with regulations of the U.S. Department of



Hennepin-Lyndale area in Minneapolis in 1949

Transportation. While the commissioner's order applies specifically to vehicles over 9,000 lbs. gross weight, any motor vehicle carrying quantities of materials defined by federal regulations as dangerous also is banned as to tunnel use.

Camper vehicles with propane tanks of more than 45 pounds would be in violation of tunnel restrictions.

As on all Interstate highways, all non-motorized traffic such as pedestrians, bicycles and animal-drawn vehicles, is prohibited from the tunnel.

Safety features of the tunnel include instruments for monitoring by radio transmitter to a receiver at the highway department's District Five office in Golden Valley. Relayed is the condition of the many functions of the tunnel apparatus including the carbon monoxide analyzers, temperatures of the fan motors, lighting system and the fire detectors. Fire hydrants are located at the four portals with a dry-line system extending through the sub-ceiling of the tunnel structure. Steel doors located in

the center dividing wall of the tunnel provide rapid access to the roadways in case of emergencies.

The 16 telephones in the tunnel, for use in case of emergencies, provide a direct line to the dispatcher of the State Highway Patrol.

COMPUTERIZED TRAFFIC CONTROL

A highly refined traffic control system is built into the Interstate 94 - tunnel complex. A wire antenna set in the pavement (loop detector) functions when the magnetic field is broken by the passage of vehicles. The system will operate as a traffic counter, detect stoppage in each lane of the roadway and indicate traffic speed. With the installation of the basic system, provision has been made for television surveillance equipment in the future. Planned is monitoring by computer of traffic on Interstate routes in an enlarged area within the Twin Cities.

DATES SET FOR ANNUAL EMPLOYEE MEETINGS

The 41st series of annual employee meetings for the field offices has been set for an 11-week period early in 1972. Evolving from early safety meetings, the 1972 sessions will cover a variety of

subjects to keep the highway employees informed about current programs, developments, plans and operations.

Highlighting the 22 day-long sessions will be the individual and district awards

to be presented in recognition of accident-free work during 1971. Nearly 4,000 employees are included in the program where safe worker or safe driver awards are given to those who complete the calendar year without a preventable accident.

During the day, employees will have the opportunity to visit with representatives of the state's insurance carriers, the Hiway Credit Union, and Central Office personnel in attendance.

Carrying out the informative programs, subjects to be included cover latest personnel policies, department construction and maintenance planning and other subjects of current interest to employees.

The Office of Personnel coordinates the agenda with the cooperation of the district and area engineers and safety committees.

The schedule is: Central Shop, February 23, Training Center; St. Paul (District Nine), February 24, Training Center; Bemidji, March 7, Highway Building; Crookston, March 8, Eagles Hall; Detroit Lakes, March 9, Highway Building; Morris, March 10, VFW Club; Windom, March 21, Highway Building; Mankato, March 22, VFW Club; Rochester, District Six, March 24, Elks Club; Golden Valley, District Five, March 30, Training Center; Virginia, April 4, Highway Building; Duluth, April 5, Duluth Arena; Brainerd, April 6, Highway Building; St. Cloud, April 7, Moose Lodge; Willmar, April 11, Armory; Marshall, April 12, Armory; Rochester, 6A, April 13, Elks Club; Owatonna, 6B, April 14, Highway Building; Golden Valley, 5A, May 2 and 3, Training Center; and St. Paul Park, 9A, May 4 and 5, Training Center.

Kathleen Ferber

Is Second Runner-up In Miss St. Paul Contest

Miss Minnesota Highways Kathleen Ferber was chosen second runner-up in the Miss St. Paul competition on November 20. In the talent event she performed an interpretive dance.

Thank you, Kathy, for representing us and congratulations on your selection.

Linda Hagen of Hastings, a co-ed at the University of Minnesota, was chosen to reign as Miss St. Paul.

SEGMENT OF TH 280 OPENS



Pictured in the foreground at the ribbon cutting ceremony at the TH 280 (from I-94 to Kasota Avenue in St. Paul) opening on October 19 are from left to right: Miss Roseville (Joyce Anderson), Miss Minnesota Highways Kathleen Ferber, St. Paul Mayor Charles McCarty, Miss St. Paul (Debbie Olson) and F. C. Marshall, assistant commissioner, Government and Community Relations.

Interstate Openings

The 23 miles of I-90 between the communities of Stewartville and St. Charles in southeastern Minnesota were opened to traffic on December 13.

The new segment will provide freeway travel on I-90 from St. Charles westward via Austin to the junction with T.H. 13, northwest of Albert Lea, a distance of 78 miles.

The longest freeway section opened in the state this year, the 23-mile link will bring the total of Interstate system routes in Minnesota in use by motorists to 612 miles. This is 67 per cent of Minnesota's 914-mile proposed Interstate system.

Opened in the past six weeks were I-35 in the western area of Duluth and I-535, a spur to the John A. Blatnik bridge, which connects Duluth and Superior; an 8.1-mile segment of I-35 between Clarks Grove and Albert Lea, and a 1.3-mile extension of I-94, including the Lowry Hill Tunnel, in Minneapolis.

Work on the St. Charles-Stewartville portion of I-90 to be completed next spring will involve shoulder surfacing, sodding for erosion control and plantings.

Besides the 612 open-to-traffic miles on the state's Interstate routes, 159 miles currently are under construction. Not under construction are the remaining 143 miles or 15.6 percent. Planning and

right-of-way acquisition are well along for most of that, according to the department.

When the Interstate system was authorized by Congress in 1956, a target year of 1972 was set for its completion. But inflation, additional mileage, Federal-aid cutbacks, higher standards for safety and aesthetics have led to increased costs and the full system is not likely to be finished before the late 1970s. It is being financed with 90 per cent Federal and 10 per cent state (road user) funds for construction.

The following is the status of through-routes in Minnesota on the Interstate system:

Interstate 35, to extend 261 miles from Duluth via the Twin Cities to the Iowa line, south of Albert Lea, 231 miles in use; 21 miles (including I-35E and I-35W sections) under construction.

Interstate 90, Minnesota's longest Interstate highway, stretching 276 miles across southern Minnesota from the Mississippi River near Dresbach to the South Dakota line, west of Beaver Creek, 129 miles in service; 92 miles under construction.

Interstate 94, a 259-mile artery from Lakeland on the St. Croix river opposite

Hudson, Wisc., through the Twin Cities area and northwesterly to the North Dakota border at Moorhead, 171 miles completed; 44 miles under construction.

Aeronautics Official To Retire

by EDDIE HENDRICKSON

Aeronautics

A retirement dinner party is to be held at the Thunderbird Motel for M. C. Solberg, former Highway Department employee, on January 19. Joining us in 1929, he served in the field, became a project engineer and transferred to Right of Way.

In 1946 Solberg began work for Aeronautics and became chief engineer. He has been involved in the development of every public airport in the state.

Solberg plans to take a month to get his feet on the ground. Then he and his wife are heading for warmer climes.

McCANN SLAIN

Donald J. McCann, 56, highway project technician, in the Utilities Section of the Right of Way Division, Central Office, died under mysterious circumstances as the result of bullet wounds on December 1. McCann of 925 Laurel Avenue, St. Paul, apparently had his wallet when he went outside. This was missing when his body was found. His death was the third, recently, under similar circumstances in the same general area.

He is survived by his wife, Thelma; a son, Clifford; three daughters: Mrs. Harold (Christine) Bentfield of Pontiac, Mich.; and Nancy and Laura, at home; his mother, Mrs. Emily Dubee of Boston; and four grandchildren.

Recent Deaths

Donald J. McCann, St. Paul, Project Highway Technician.....Waldo J. Plinske, Marshall, Highway Technician.....Donald A. Stene, Albert Lea, Senior Highway Technician.

MINNESOTA HIGHWAYS

Jan 1972

B. J. PINSONNEAULT TO RETIRE

Wabasha County Engineer Bert J. Pinsonneault will be retiring on May 1. He was county engineer for Red Lake County from 1937 until going to Wabasha County in 1946.

He is a past president of both the Minnesota County Highway Engineers Association and the Minnesota Surveyors and Engineers Society and, in addition, is a member of several local organizations. Pinsonneault and his wife plan to continue on living in Wabasha.



District Engineer W. C. "Bill" Merritt and Secretary Darlene Lazer are emptying the moving boxes and making things nice and neat for Bill's second day in his office.



Rosemary Porwoll, office manager, looks on as two co-workers unpack material needed to resume the district's work interrupted by the move.

VALENTINE'S DAY CANDY SALE



John Horsch, senior highway technician, Right of Way, and Miss Minnesota Highways Kathleen Ferber are shown selling a box of candy to Elinor Hester, secretary, Collection Agency Division, Department of Labor and Industry, on February 9. The goodies were sold by the Hiwayan Club at a public sale in front of the cafeteria in the State Highway Building. The Hiwayan Club Easter Candy Sale will take place on March 23 and 24 at the same location. Highway employees will have the opportunity of ordering candy direct from their Hiwayan Club councilman.

When completed, the National System of Interstate and Defense Highways will carry 20 per cent of all traffic although it will include only about one per cent of the Nation's total road and street mileage.

MYTH: Highways bulldoze people out of their homes and businesses with callous disregard for the consequences.

FACT: Highway departments are required by law to relocate families and businesses in equal or better quarters and to pay homeowners up to \$15,000 above fair market value for their homes, as well as provide other social services.



Diners eat their first meal in the lunchroom at the new District Nine Headquarters building. Seated at the table nearest the camera are Marilyn Liebsch, Joyce Brennhofner, Naomi Anderson and Hildur Ryan.

DO YOU RECOGNIZE THIS?



See next month's issue for identification

SAFETY UPPERMOST IN I-94 WORK

Asked why construction has to tie up traffic on I-94 between the Twin Cities for the better part of the summer, Assistant District Nine Engineer Charles Siggerud explained "We're trying to clean up all the work that needs to be done at one time, so we won't have to come back and tie up traffic again, year after year."

The \$3.6 million job on I-94 is actually a combination of several projects, any one of which could tie up freeway traffic for a considerable time, he said. By doing them all at the same time, the Highway Department hopes to reduce inconvenience to motorists to the minimum.

Safety aspects of the work are held to be of prime importance. The stretch of freeway under improvement is Minnesota's most heavily traveled road, whose average daily traffic count reached a record 105,000 vehicles in June of last year.

During 1972 there were approximately 980 accidents on that eight-mile stretch. Two were fatal crashes, 200 resulted in personal injuries, and the remainder in property damage running into thousands of dollars.

A major feature of the work is replacement of 36,000 feet of chain-link median barrier fence, presently separating opposing lanes of high-speed traffic, with a "New Jersey" type concrete median barrier. The latter, held to be more effective under high volume traffic conditions, also occasions fewer traffic tie-ups for maintenance.

Every time the chain-link median barrier "netted" a vehicle straying across the center line, freeway traffic had to be tied up while the barrier was repaired. Last year 10,600 feet of chain-link median barrier between Cedar Avenue in Minneapolis and John Ireland Boulevard in St. Paul had to be replaced at a cost to the state in excess of \$63,000.

Similarly, 76 of the 320 lighting standards situated on the highway's shoulders were hit by vehicles in the last three years. Every mishap of this kind cost the state between \$300 and \$400 to repair, and resulted in traffic tie-ups while repairs were being made.

The 142 new high-pressure sodium-type luminaires soon to replace them will be mounted atop the concrete

median barrier, where they will be less likely to be destroyed. In addition, the new lamps will provide a comparable illumination with an energy savings of 36 per cent.

Both the old light standards and the chain-link median barrier fence are being salvaged by the Highway Department for use elsewhere.

"Last year the U.S. Department of Transportation cited Minnesota's Interstates as the nation's safest, and attributed it to our readiness to incorporate the latest safety features into them," Siggerud said. "We aim to keep them the safest."

Other safety features being incorporated into the highway at this time are 17,000 feet of "glare screen" mounted on the median barrier to reduce the glare of headlights, grooving of the pavement in certain locations to prevent skidding in wet weather, and a new skid-resistant bauxite surfacing to be bonded to the decks of nine bridges with epoxy cement.

The new zinc-rich paint being applied to 18 bridges on this stretch, intended to preclude maintenance of this kind for some time, is said to last 30 years.

SOMETHING HARD HEADED YOUR WAY?

by MARK MARKSON

You'd have to be pretty hard-headed not to wear a hard hat on the job.

Consider: If a worker dropped a 12-ounce crescent wrench from the top of a silo, it would take him half a second to realize the mistake and yell, "Head-ache!" A man below would hear the warning and begin to react about three-quarters of a second later. Even then he would not know which way to dodge until he looked up. That would take another half second. By that time, the wrench would be approximately six feet from his head and traveling at 60 mph with a striking force of 120 foot-pounds.

If your head is hard enough to take that kind of punishment, go ahead — remove your hard hat, but keep a king-size bottle of aspirin handy!

Recent Retirement

Happy retirement days to: Hokan Sonnee, St. Paul, Storage Garage Supervisor.

COMMISSIONER'S COMMENTS

One of the questions I hear a lot, and I suspect that you do too, is "What are you doing in that Highway Department? What's going on? How come you never get the road fixed up?" Well, there is an answer. There is a lot going on.

Ordinarily, we don't use this space to put in a lot of figures about the work we are doing, but perhaps it is appropriate to do so from time to time. Here is some information that may be of interest to someone who asks you, "What are you doing in that Highway Department?" The work under way, all over the State at the middle of 1973, is as follows:



Lappegaard

INTERSTATE TRUNK HIGHWAYS

Interstate projects under contract total \$109,100,078. The work includes 111 miles of grading, 124 miles of surfacing, 98 bridges, and other related work—such as fencing, signing, lighting, and miscellaneous safety improvements. We are hopeful that 78 miles of interstate roads will be completed and open to traffic by the end of 1973. Our hopes could change due to weather conditions.

REGULAR TRUNK HIGHWAYS

Trunk highway projects under way at the present time total \$82,616,579. This work includes 217 miles of grading, 368 miles of surfacing, and 49 bridges.

MAINTENANCE RESURFACING

There are 496 miles of resurfacing under contract, costing \$10,500,914. These projects are designed to maintain the roadway in a good, serviceable condition. All of these projects to be completed by the end of 1973.

SAFETY IMPROVEMENT

At the present time we have 42 projects, costing \$3,659,829. These projects consist of installation or upgrading of signs, lighting, signals, turn lanes or other related work. All of these projects should be completed by the end of 1973.

BRIDGE REPAIR

There are 24 bridges in the State that are under contract for repair, such as painting, new decks, etc. The cost of these

improvements is \$2,626,100. They are scheduled to be completed by the end of 1973.

The summary of work under way then is as follows:

(Includes Through June 22, 1973 Letting)

Major Interstate Projects	\$109,100,078
Major Regular Projects	82,616,579
Maintenance Resurfacing Projects	10,500,914
Safety Improvement Projects	3,659,829
Bridge Repair Projects	<u>2,626,100</u>
TOTAL UNDERWAY	\$208,503,500
Total Miles Grading Underway (Interstate)	111
Total Miles Grading Underway (Regular)	<u>217</u>
TOTAL BOTH PROGRAMS	328
Total Miles Surfacing Underway (Interstate)	124
Total Miles Surfacing Underway (Regular)	<u>368</u>
TOTAL BOTH PROGRAMS	492
Total New Bridges (Interstate)	98
Total New Bridges (Regular)	<u>49</u>
TOTAL BOTH PROGRAMS	147
TOTAL NUMBER OF BRIDGES BEING REPAIRED	24
TOTAL MILES IN RESURFACING PROGRAM	496
TOTAL PROJECTS - SAFETY IMPROVEMENT PROGRAM	42

So, obviously, something is going on. Much good work, much desired work, much needed work is being performed even though we recognize all too clearly that more work is requested of us than we are able to do. Nevertheless, we are making some progress.

Roy Lappegaard

VIETNAM BONUS

Vietnam veterans' bonus application forms have been available in the Highway Department Personnel office since August

15. Trained personnel are available to assist in preparing these applications and to assist in screening the applications for

proper documentation. Vietnam veterans are requested to bring their DD214 discharge form or a legible copy.

NEW GROOVED PAVEMENT SAFER

A new form of grooved pavement that will help motorists maintain directional control in driving under wet pavement conditions and which contributes to safer stopping is a feature of Minnesota's newest Interstate system freeway section. It is a coarse texture built into the outside lanes of a segment of Interstate Highway 94 in Maple Grove. A 12-mile section of I-94 northwest of the Twin Cities was opened to traffic last December 21.

"The grooved pattern is a part of the Highway Department's continuing effort to improve Minnesota's highways for the safety of the motoring public," Commissioner Ray Lappegaard said. "The grooves in the concrete surface also help to prevent hydroplaning."

Hydroplaning is a condition that occurs on a wet pavement when the tires of a car are riding on a layer of water rather than on the surface of the highway. Grooving helps prevent hydroplaning by allowing water to drain from beneath the tires.

Unlike the symmetrical grooves cut into curves on the highway by diamond-tipped circular saws, the new-type grooves are relatively shallow and are formed when the concrete is still in a plastic state. In the pavement finishing process, large spikes fastened across the edge of a burlap drag indent the wet surface. A variation of the "spike technique" involves the use of 10-inch-long welding rods spaced an inch apart on a horizontal bar that moves above the finished concrete surface.

Various techniques are being evaluated by the Department's Materials Office, Division of Materials, Research and Standards. Grooving by the drag method does not add greatly to construction costs since contractors must apply a finish of some type on all highways, it was explained. The process is considerably less costly than that of a grooving machine equipped with diamond-tipped saws.

The spike or rod drag method will be used on construction this summer on a section of I-90 in the Lakefield area in southern Minnesota.

In evaluating the surface textures, periodic tests are made as to skid resistance and rideability of the pavements.

On the Maple Grove area freeway, bumpometer readings proved satisfactory, highway engineers found. The comment of one was "the motorist is not aware of anything new or different in the pave-

ment as he rolls along. The grooving or new-type texture on I-94 would not be noticed unless it was pointed out to the individual."

Interstate 99 Per Cent Complete Nationally

Nationally, work has either been completed or is under way on 99 per cent of the 42,500-mile system of Interstate and Defense Highways. Only 472 miles of the system have not yet advanced to the public hearings stage, according to U.S. Transportation Secretary Claude Brinegar.

In Minnesota, work has either been completed or is under way on 76 per cent of the designated 914-mile system. Only 1 per cent, or 9.17 miles, remains in a preliminary status, Brinegar said.

Of the 696 miles open to traffic in Minnesota, 576 miles have been completed to full or acceptable Interstate standards, while 120 miles have been improved to standards adequate to present traffic. There are 102 miles under construction at present, and 107 miles in the engineering or right-of-way acquisition stages, Brinegar reported.

In 43 per cent of the states, portions of the Interstate system are toll roads. In New York 37 per cent of the state Interstate network consists of toll roads; in Massachusetts, 28 per cent; and in Pennsylvania and Kansas, 23 per cent. The entire Interstate system in Minnesota is toll-free.

HIGH WATER MARKS



This sign, showing spring high water marks due to flooding by the Minnesota river, was recently reinstalled on TH 169 near Shakopee.



Management Committee Chairman Stanley J. Olander (left), Woodbury, presents I-94 Report to State Highway Commissioner Frank D. Marzitelli. Observing the presentation are Vice Chairman Francis J. Pott (far left), Lake Elmo, and Project Manager Dave Ekern (far right), State Highway Department.

Study Of Location And Design Of I-94

A 22-month cooperative study of the location and design of I-94 in Washington County is documented in a report received by Commissioner Frank D. Marzitelli. The 200-page report, prepared for the Commissioner by an 18-member Management Committee, summarizes the Committee's findings and recommends that I-94 be located approximately one-half mile north of and parallel to existing TH 12.

Committee Chairman Stanley Olander, in presenting the report, said, "We are indebted to the many agencies, groups, communities, citizens, and members of your Department who have been a part of this effort over the many months."

In receiving the report Marzitelli told the Committee that he would "give careful consideration and significant weight to the findings and recommendations."

He went on to say, "The study has been a learning experience for this Department and the citizens who served on the Committee. It has received national attention as an innovative attempt to solicit public input in the evaluation of the environmentally related effects of a highway project. There is no question in my mind that this cooperative study effort has been

extremely valuable to the Minnesota Highway Department—both in its substantive findings and recommendations, and in the experience we have gained for future public involvement."

As part of its environmental and public involvement program, our department invited representatives from six area communities, Washington County, the Metropolitan Council, the Metropolitan Transit Commission, and the Federal Highway Administration to study and make recommendations regarding the 10-mile uncompleted Interstate between the St. Croix River and the I-494/I-694 beltline. The Committee began its work in July 1973 after former Commissioner Ray Lappgaard halted construction of the

roadway in response to the concerns of local citizens.

The two-phase study effort began with an extensive review of the project area. Included were 42 presentations from 33 organizations and agencies. This information allowed the Committee to define two alternative routes for further study. Detailed impacts of the two alternates were examined in the second phase of the study. Fifteen technical reports supplemented by a variety of oral presentations provided the basis for the examinations and resulted in the present report.

In addition to the basic location recommendation, the Committee also recommended:

- that interchanges be constructed at TH 12, County Road 19/19B, and TH 95, and that provision be made for construction of an interchange at County Road 80 in the future;

- that a rest area/information center be located along the bluff of the St. Croix River, and a truck weighing station be sited near County Road 21;

- that a bicycle trail be included in the design and construction of I-94; and

- that the Department study a minor alignment revision on the eastern portion of the project.

The Committee's recommendations will be included in the draft Environmental Impact Statement which our Commissioner expects to circulate for public review in January.

♦ ♦ ♦ ♦ ♦ ♦ ♦ ♦

TOUCH AND GO . . .

Had too many ups and downs?
Maybe you're sitting beside the aisle in
the theater of life.

