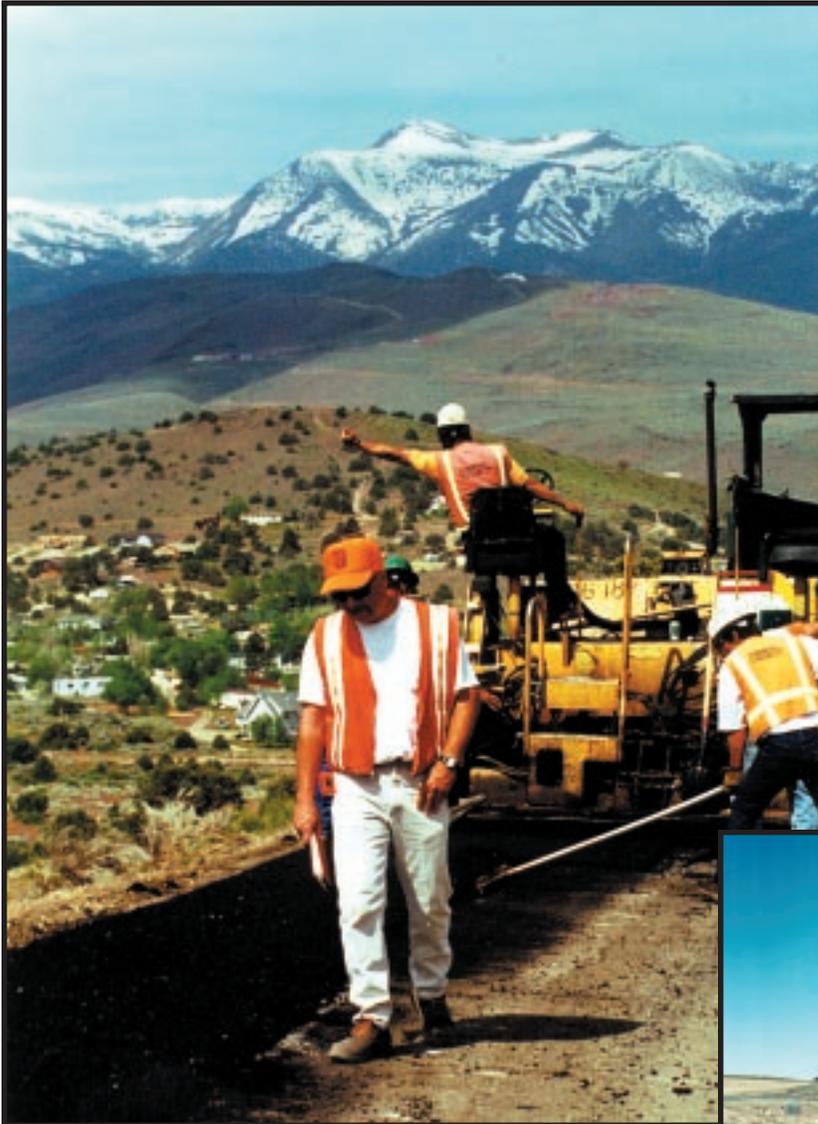
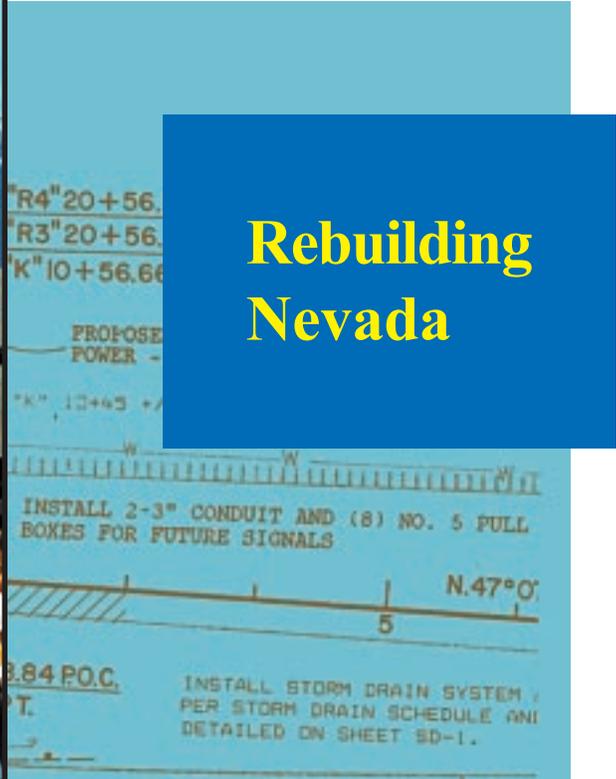


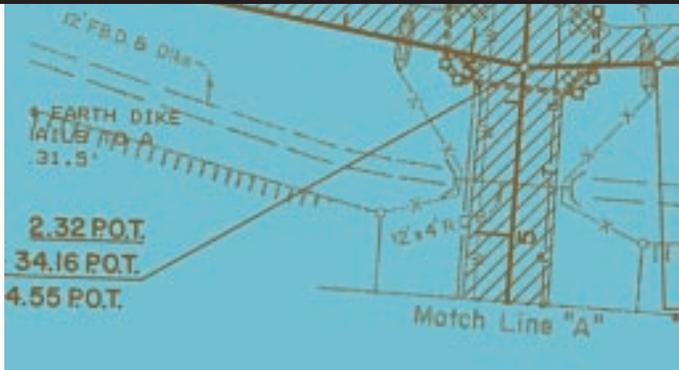
Quarterly News of the Nevada Department of Transportation



## Rebuilding Nevada



Technical drawing showing engineering specifications for a road project. The drawing includes stationing markers such as "R4" 20+56.6", "R3" 20+56.6", and "K" 10+56.66". It also includes instructions like "INSTALL 2-3" CONDUIT AND (8) NO. 5 PULL BOXES FOR FUTURE SIGNALS" and "INSTALL STORM DRAIN SYSTEM PER STORM DRAIN SCHEDULE AND DETAILED ON SHEET SD-1." A bearing of "N.47°0'" is also indicated.



## The Director's Corner

Tom Stephens, P.E.,  
Director

### Setting Speeds on Nevada's Highways



In view of the several bills considered by the Legislature changing Nevada speed limit laws, I thought it would be informative to publish an overview of

common approach sets the limit on the basis of an engineering study which takes into consideration such factors as the operating speed of free-flowing vehicles, crash experience, roadside development, roadway geometry (e.g. curvature, sight distance, roadway width) and parking and pedestrian levels. (note: Factors are set forth in the Manual on Uniform Traffic Control Devices.) In many speed zones, it is common practice to establish the speed limit near the 85th percentile speed, that is, the speed at or below which 85 percent of the drivers travel at representative locations on the highway. This approach assumes that most drivers are capable of judging the speed at which they can safely travel.

*The primary reason for regulating individual choices (i.e. setting speed limits) is the significant risks drivers can impose on others. A driver with a higher tolerance for risk may decide to drive*

*anticipate roadway geometry and roadside conditions. This reason may not be as relevant for experienced motorists driving under familiar circumstances. In Nevada we have many tourists who are not as familiar with each highway as our residents. Young and inexperienced drivers also underestimate the effects of speed on crash probability and severity.*

#### Rural Interstate Rationale

*The risks imposed on others by individual driver speed choices are likely to be relatively small on rural interstate highways where free-flowing traffic creates fewer opportunities for conflict with other road users. In Nevada most low volume, rural highways have a 70 mph speed limit with the use of warning signs to alert drivers to slow down. In Nevada a 75 mph limit is set on most sections of rural interstate highways. On most rural interstate highways, under normal conditions, drivers typically have adequate information to determine appropriate driving speeds because these highways are usually built to the highest design standards, access is limited and roadside activity is minimal. In contrast, the risks imposed on others by individual driver speed choices may be large on urban arterials where roadside activities are numerous and traffic volumes are high. This is why urban freeways have lower speed limits. Additionally, the two heavily trafficked sections of I-80 and I-15 from California have limits set at 70 mph.*



how speed limits are typically set in Nevada. This explanation relies heavily on a recent Transportation Research Board Report titled "Managing Speed, Review of Current Practice for Setting and Enforcing Speed Limits." The wording in italics indicates quotes taken from the executive summary of this 427 page report. Nevada practice in setting speed limits closely mirrors what is outlined in this TRB report.

*Legislated limits are established for favorable conditions - good weather, free-flowing traffic and good visibility. Nationally, as well as at NDOT, the most*

*faster, accepting a higher probability of a crash, injury or even death in exchange for a shorter trip time. This driver's decision may not adequately take into consideration the risk his choices impose on the other road users. The imposition of risks on others is a primary reason for government intervention in many areas besides traffic safety, such as environmental protection and product safety.*

*Another reason for regulating speed is the inability of some drivers to correctly judge the capabilities of their vehicles (e.g., stopping, handling) and to*

*Multiple interests are involved, such as residents and commuters. In addition to safety, final selection of a speed limit should meet the requirements of enforceability and acceptance by the community at large.*

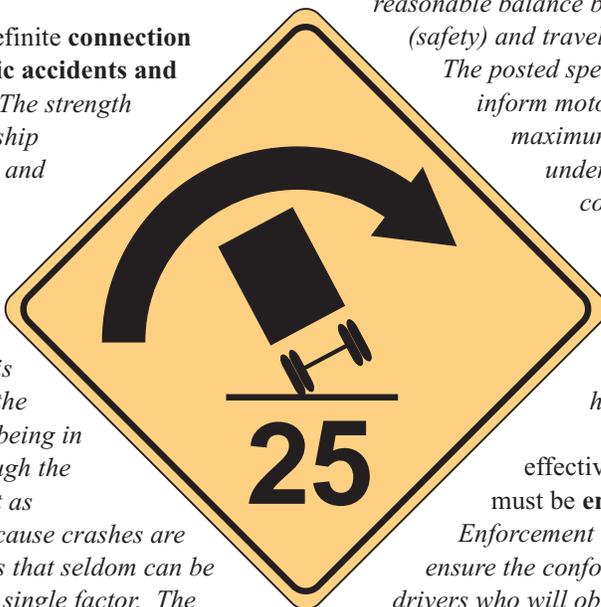
*Legislated speed limits are established for favorable conditions - good weather, free-flowing traffic and good visibility.*

### Safety and Enforcement at Issue

Many sections of state highways require additional consideration when setting speed limits. *Multiple interests are involved, such as residents and commuters. In addition to safety, final selection of a speed limit should meet the requirements of enforceability and acceptance by the community at large.* Design speed, vehicle operating speed (e.g. 85th percentile), safety experience, and enforcement experience can all play a part in setting an urban speed limit. *Safety and enforcement considerations should be given higher priority than design speeds or vehicle operating speeds on many urban roads. Driver misjudgment about speeds poses high risks to pedestrians and bicyclists on many urban roads.* On the other hand, using the 85th percentile to set limits enables the police to focus enforcement efforts on the most dangerous speed violators.

There is a definite **connection between traffic accidents and speed limits.** *The strength of the relationship between speed and crash severity alone is sufficient reason for managing speed. Speed is also linked to the probability of being in a crash, although the evidence is not as compelling because crashes are complex events that seldom can be attributed to a single factor. The objective is to reduce both the probability and the severity of crashes.*

*The intent is to reduce differences in speed among vehicles and thus reduce*



*the potential for vehicle conflicts. Decision makers attempt to establish a reasonable balance between risk (safety) and travel time (mobility).*

*The posted speed limit should inform motorists of maximum driving speeds under favorable conditions that decision makers consider reasonable and safe for a highway section.*

To be effective, speed limits must be **enforced.**

*Enforcement is necessary to ensure the conformity of those drivers who will obey traffic regulations only if they perceive a credible threat of punishment for noncompliance.*

*Alternatives to enforcement on local*



*roads include physical measures known as "traffic calming" (e.g., speed humps, roundabouts and raised intersections). These are not normally used on high speed highways in Nevada.*

*Traffic court judges are also important participants in effective speed enforcement. They may overturn speeding violations if they think the speed limits are unreasonable or reduce fines if they believe the sanctions are too harsh. Thus, it is important that traffic court judges -- as well as the police and motorists -- perceive that speed limits are reasonable and enforceable.*

*If drivers believe that a speed limit is unreasonable, enforcement will be difficult and expensive. In Nevada, I believe our speed limits are generally accepted by the public and considered reasonable and apparently the Legislature agreed since only minor changes were made to Nevada speed limit laws in the just completed legislative session.*

# Hot Season

## Contracts Set Records

Like no other time in Nevada's history the last year of the 1900s is destined to be ground-breaking. March indicators put casino income up 10.9 percent with the Las Vegas visitor count up 11.3 percent. On the horizon in the world's hospitality headquarters are six new hotels in an 18-month period, bringing an additional 15,800 hotel rooms. Movement of guests, employees, residents and business travelers within Nevada is NDOT's challenge for the 21<sup>st</sup> century.

Engineering News Record magazine predicts a 14 percent increase in highway construction contract awards in the West as a result of TEA-21, the transportation funding law passed by Congress in 1998. The \$175 billion appropriation over six years translates into a 62 percent increase in federal funding for the Silver State. When it comes to highway building, TEA-21 turned up the heat.

### Getting the Contracts Out

Between January and April, NDOT's Contract Services Division turned out a record 75 projects, what would have been a year's supply of roadwork any other time. By year's end the total could reach 140 projects. In addition, the division processed all requests for proposals which facilitate agreements for consultant design services and another 30 district contracts for maintenance and services under \$250,000.

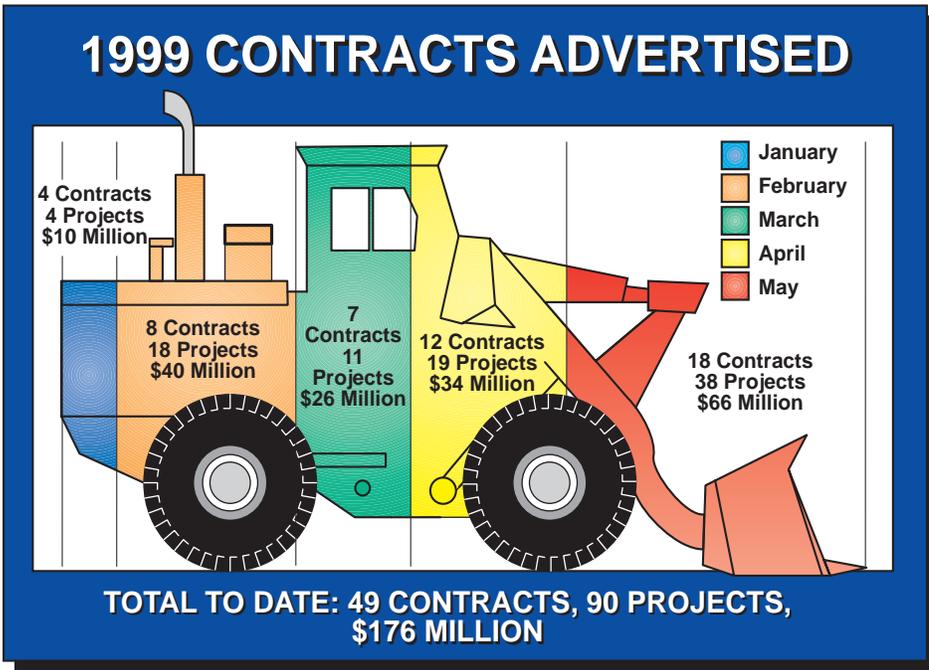
Bigger and better highways must be bid before they can be built. For Contract Services, the job begins even earlier.

The division's first contact comes at project status meetings. Partners with divisions such as Right of Way, Design and Environmental Services, which all have to clear hurdles for a project to make its way to construction, Contract Services must be brought on board to schedule jobs effectively, eliminating conflicts that can overload units that must reproduce plans, specifications, legal advertisements and other contract information that is critical to the process.

One contract can represent up to seven projects advertised together for efficiency.

"We are revolving contracts in various stages all of the time. They stay with us until they are finally complete," said Program Officer Dana Olivera who guides the jobs through a labyrinth of rules and regulations.

The process begins with prequalification of bidders, sort of a financial physical exam for companies wishing to do business with NDOT so the state's interests can be protected. Contractors must submit financial,



Above left: Dana Olivera shepherds contracts through the process. Above right: Melissa Costa logs in a record year. At right: Frehner Construction's Steve Gould, center, and Don Grock present their sealed bid to Stephanie Rasmussen.



bonding and historical information about their company that is then reviewed by NDOT's chief accountant.

NDOT deals only with licensed contractors although on federally funded projects companies can bid on a job but must be licensed by the time the contract is executed. Once qualified, contractors keep in touch with Contract Services for news of upcoming jobs and must submit their sealed bids to the division by the prescribed time.

Since the volume of contracts has been so great through spring, contracts normally bid each Thursday have been doubled up, with bid openings several days each week as necessary. Olivera's staff must advertise contracts each Wednesday, announcing them via local newspapers, a contractor's bulletin, and a hotline. A busy bulletin board wallpapered with orange and yellow announces upcoming jobs that plaster



**Sarah Vido gathers bid packages.**

the scenery of Administrative Services' Room 103, orange for federally funded jobs and yellow for state.

Then the phone calls begin. Contractors will need plans and specifications sold by the division. The team takes and fills orders and works with new contractors to facilitate bidding. Within a few weeks their bids will be due.

For Sarah Vido, Thursdays are animated when the bidders' deadline nears. Often contractors wait until the very last chance to bid, relying on last minute information from subcontractors and the stock market. Vido's job is to receive sealed bids, date and time stamp them and hold them until the prescribed time. Along with Melissa Costa, Stephanie Rasmussen and Diane Biggin she keeps a log of bids submitted and checks to make sure that all bids



**Keeping the contracts moving are, from left, Diane Biggin, Sarah Vido, Dana Olivera, Stephanie Rasmussen, Melissa Costa and chief Jan Christopherson.**

delivered wind up where they are supposed to when it is time to open them and select the apparent low bidder.

To meet state regulations and ensure a level playing field, the process is extremely confidential. Information on competitors is private until bids are opened publicly, usually in the department's third floor conference room. District I's Roland Taylor opens bids at the Las Vegas office for local projects. Once opened, bids begin their lives in Contract Services.

"It is now two o'clock and time to open bids on contract 2973," said Administrative Services Officer Jan Christopherson, with 14 years NDOT experience in Administrative Services, which oversees Contract Services. She reports to the audience, a gathering of contractors' representatives, that appropriate bonding and subcontractor documentation is attached and then she calls out the all-important figures—\$113,250 for lab trailers. Companies take notes and, on occasion may ask for a reading of the details of the bid.

Since much information must be verified, tabulated, checked and crosschecked, contracts are assigned an "apparent low bidder" until everything has been approved. With Contract Compliance Division's Roc Stacey, Olivera verifies subcontractor information and her crew goes to work putting in long hours meeting requirements in the complex and controlled process so that construction will start on time.

"We make sure that all the 'i's are dotted and the 't's are crossed," said Olivera. "We recheck every figure for every item in the contract." Sometimes a simple arithmetic error can drastically affect the outcome of a bid.

"Sometimes it comes down to something like 55 cents," said Christopherson, remembering a very close bidding contest. If the bids vary more than seven percent from the engineer's estimate, they must be reevaluated by Design Division before they can proceed and may have to begin the whole process again, readvertising the job. If everything is correct, contracts approved by the director and his staff are awarded within days.

Though it is out the door and on its way to reality, Contract Services continues to play a vital role in the contract's administration. Olivera's team creates a contract for the state and follows it through construction, working to make sure the documentation of work supplied is maintained. Then, when the job is complete, they receive and record information from Construction Division for final payments.

Christopherson said that the division maintains records on all contracts issued by the department back to contract number 1, providing a historical record of transportation in Nevada, every route, every mile and every dollar spent. With TEA-21, that means Contract Services will write many more volumes of roadwork ahead.

## Rock and Roll Act:

# Cracked Concrete and Moving Traffic Prepare I-80 for Rehabilitation

Interstate 80 is a highway of wear and tear. With 3,200 trucks a day, 70-degree temperature changes within 24 hours and marginal materials in Elko County, the Elko East Rehabilitation Project is an engineer's challenge at the very least. The five-mile concrete section was constructed more than 28 years ago and with the exception of some short sections of I-15 in Las Vegas it is the oldest section of concrete pavement in the state.

NDOT's challenge was to design an overlay that would overcome the environmental as well as structural conditions and also build a cost-effective project.

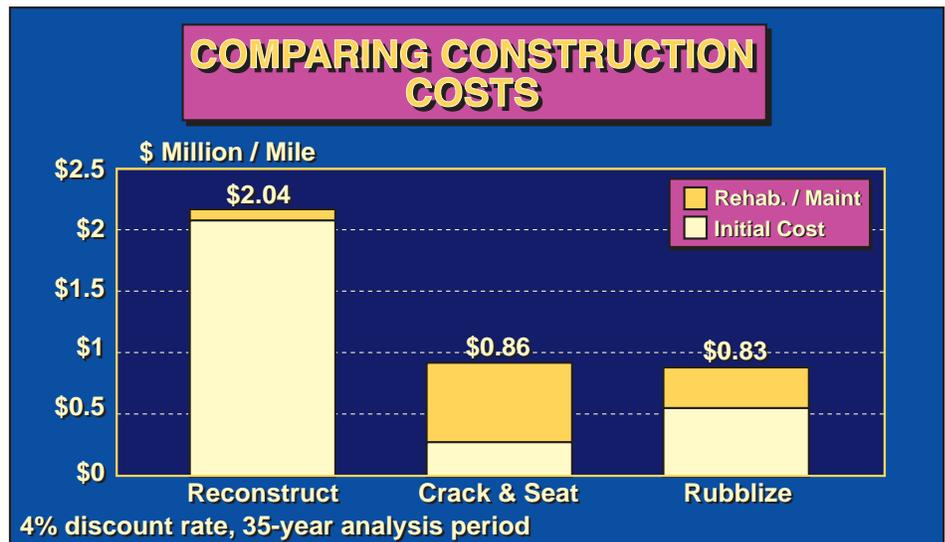
"Timely preventive maintenance is a key to good roads at optimum cost," according to Assistant Chief Materials Engineer Sohila Bemanian.

Following the adage, "An ounce of prevention is worth a pound of cure," NDOT constantly evaluates the pavement condition of Nevada's state highways intending to fix deficiencies early, before they require a greater investment.

When faced with rehabilitating this concrete highway, NDOT evaluated three options including reconstruction with a high initial cost, rubblization, and asphalt overlay with a crack and seat process.

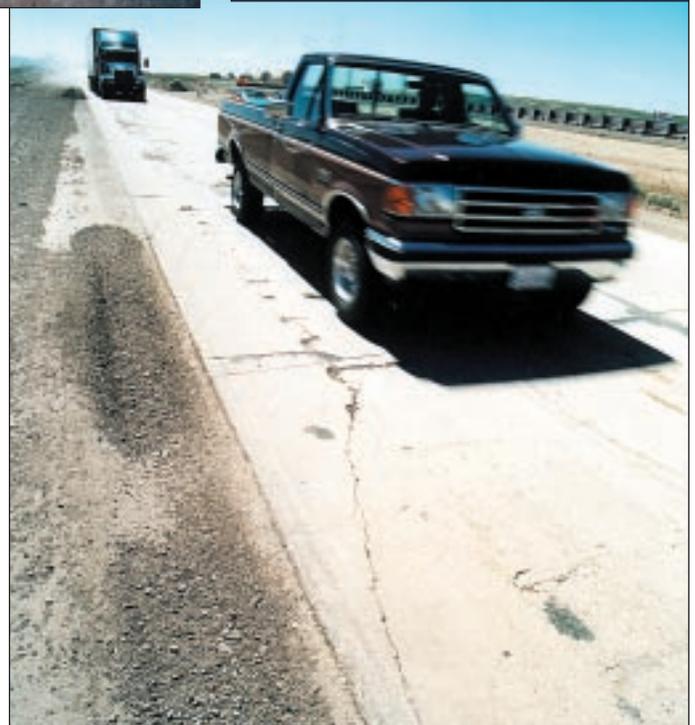
Total concrete reconstruction would have meant major disruption to motorists and to the community served by I-80 along with a hefty price tag. A second option known as rubblizing could have retained existing concrete after totally demolishing it in place. Rubblizing would be necessary if tests showed that pavement was deteriorated far beneath the surface. A third choice, known as crack and seat, offered the best and most cost-effective solution for pavement rehabilitation, Bemanian said. Extensive research and a successful nearby project now five years old showed the potential for great savings over the life of the pavement.

"That's why crack and seating of the existing concrete pavement with an asphalt overlay was determined to be the most cost-effective solution for the



project. This is the third crack and seat project in the state. The first one was done immediately west of the Elko East project five years ago and it is performing exceptionally well," Bemanian said.

Crack and seat technology breaks the existing pavement into two-foot slabs and then relies on traffic to reseat the concrete, stabilizing the slabs before a new asphalt surface is put in place.



When a six-ton hammer hits the highway every two feet, vertical cracks appear in the concrete. For at least seven days, traffic plays a role in eliminating slab movement before asphalt overlay.

### STUDY OBJECTIVES

1. Identify causes of concrete pavement failure.
2. Evaluate techniques/methods to improve performance.
3. Develop a systematic process for selecting cost-effective repair strategies.
4. Develop design and construction specifications.
5. Develop performance models and life-cycle costs.

Bemanian met with Federal Highway Administration representatives in 1992 to study conditions of the department's 870 lane miles of concrete pavement. About 50 percent of them required major reconstruction within five years. Materials Division engineers and an FHWA pavement team began evaluating different strategies for the area.

While the crack and seat process had been used in California, Elko's temperature extremes which can vary as much as 70 degrees in one day were a new variable. After much study and evaluation, NDOT chose the 1994 Elko Bypass resurfacing for the first crack and seat job, just west of this summer's project.

"There were concerns about future performance," Bemanian said, "but it seemed like it was well worth a try. Based on the cost savings, we couldn't afford not to try it." It was a calculated risk. Reconstruction rings up at about \$3 million per mile with crack and seating at a cost of about \$1 million for the same stretch, she said. More than five years later, the first job continues to pay off with performance that more than meets Bemanian's expectations.

The challenge, Bemanian said, is to see that two incompatible materials, concrete and asphalt, fit together even though they expand and contract at different rates, especially in the extreme temperatures of Nevada's desert.

***Crack and seating technology breaks the existing pavement into two-foot slabs and then relies on traffic to reseal the concrete, stabilizing the slabs before a new asphalt surface is put in place.***

Concrete can expand at a rate seven to 10 times higher than asphalt in Elko's climate. Like frosting slips into the layers of a cake, when asphalt is placed over a cracked concrete surface, reflective cracks can appear in the asphalt layer.

"As a result, we have to do something to prepare the surface before the asphalt is placed," Bemanian said. General contractor Frehner Construction of North



**Crew 918 checks that work and materials meet standards in a 65 mph I-80 work zone.**

Las Vegas and subcontractor Antigo Construction of Boise, Idaho were up for the task designed by NDOT's Monte Bliss.

The preparation process begins when hairline cracks develop after the pavement takes a blow from a 6-ton hammer. An eight-inch bar drops from four and a half feet above the pavement every two feet along each lane, said Resident Engineer Todd Scott who, along with his Crew 918, oversees the latest job.

Traffic control is minimized with the crack and seat process. Motorists continue to use adjacent lanes while work is in progress even in tight quarters. Crews can crack at night and open the lane to traffic the next day, Scott said.

Traffic then plays its role in the repair, running over the cracked pieces a minimum of seven days to eliminate slab movement. It is like replacing an uneven brick in a walkway and stepping on it to get it in the right place.

Next, a 30-ton pneumatic roller, a load heavier than any truck, makes three passes to put everything in its place. Then, no traffic is allowed until the roadway is paved. In the end, the new pavement will be five and three quarters inches thick and it will last for

10 to 15 years. At \$1 million per mile, it is a real bargain for a small investment. Bridge approaches are tapered and the contract includes slope modification to shoulders after first pulverizing them. A machine almost like a rototiller, Scott said, has teeth to chew up the existing shoulder on site. It is converted to a base-like material, compacted and resurfaced too.

"Keeping materials on site keeps costs down and less plant mix is needed," said Scott, a 27-year NDOT employee who has spent his career building District III's highways. His crew's role in the crack and seat process is to evaluate soil types and oil contents among many other tests and construction conditions that are NDOT's concern as projects are built.

"We'll have to watch it," Scott said to crewmember Robert Scilacci on site to monitor conditions and construction progress. They interact with Carson City's Materials Lab for confirmation of field tests and they take care that specifications are met, taking two core samples per lane mile with traffic whizzing by at 65 mph.

"It's actually a quick process," said Scott, adding that the job is expected to be completed this summer at a total cost of \$5 million. A second project, a \$15 million job to rehabilitate 15 miles of I-80 at the Utah/Nevada state line is also underway by Frehner Construction.

# A Presence at Lake Tahoe

## Pioneering Project in the Tahoe Basin Earns FHWA'S Environmental Excellence Award

NDOT's Water Quality and Erosion Control Demonstration Project for Lake Tahoe's State Route 28 has earned the Federal Highway Administration's 1999 Environmental Excellence Award for Water Quality. Hydraulics Division's Amir Soltani accepted the award on behalf of the department, the Tahoe Regional Planning Agency and consultants Harding Lawson Associates at a Washington, D.C., ceremony celebrating Earth Day.



Samplings show 15 percent less phosphorous, 20 percent less dissolved iron and 65 percent less suspended sediment discharged into Lake Tahoe after improvements such as the installation of sediment catchment and oil and water separation facilities. Hydraulics Division's Amir Soltani is shown with drainage improvements within the State Route 28 project.

The FHWA biennial awards recognize environmental leadership, innovative processes and cooperative partnerships.

"These award-winning projects show how local and federal governments, industry and community groups can work



Nevada's congressional delegation has been a great asset in support of the Tahoe Basin projects. U.S. Senator Harry Reid, right, congratulated Hydraulics Division's Amir Soltani, who received the award on behalf of NDOT. In Washington, Congressman Jim Gibbons honored the partners on their award.

together to make a difference building strong communities," said FHWA Administrator Kenneth Wykle. "As we move into the new millennium, these winning efforts and others like them can serve as models for helping to build transportation systems that protect and enhance the environment.

FHWA received 121 nominations from 35 states for 12 categories, honoring NDOT efforts "to preserve and protect Lake Tahoe's water quality. NDOT's multi-faceted four-year program to improve water quality on Lake Tahoe roadways resulted in the reduction of pollutants in the lake."

In 1995, NDOT launched an aggressive four-year, \$5 million roadway water quality improvement planning program for the environmentally sensitive region that surrounds the 39-mile State Route 28 Corridor. The lifeblood of the



From left: FHWA Administrator Kenneth Wykle, M... Gerry Hester, Paul Pettersen and Mark Gookin, and



A \$700,000 improvement project at the Memorial Point Overlook just north of Sand Harbor in Lake Tahoe added restroom facilities, lake access, observation decks, landscaping, interpretative trails and a trash enclosure. Consultants Eissman-Pence designed the project built by K.W. Western, Inc. NDOT's Architecture Division administered the contract. From left: NDOT Architect Dennis Freitas, State Parks Division Administrator Wayne Perock, K.W. Western Vice President Sid Williams, Department of Conservation Assistant Director Freeman Johnson, NDOT Architecture Division Chief Brett Frey and Director Tom Stephens.



NDOT's Amir Soltani, Harding Lawson Associates' and FHWA's Deputy Administrator Gloria Jeff.

lake communities, the narrow winding lakeside road tolerates the harsh winter climate of the Sierra Nevada Mountains that ages pavement quickly and requires winter de-icing treatment to remain open. It endures summer travel that brings recreational roadside parking and erosion. Runoff carries oil, grease and other pollutants to the lake.

Water quality is a chief concern for the Lake Tahoe community. A presidential summit in 1997 focused the nation's attention on the lake's complicated environmental issues. A multi-agency team working with NDOT to develop a master plan for erosion control and stormwater management was among active groups involved in the summit.

A two-mile water quality demonstration project was completed in 1996 along the east shore. Lessons learned from this project resulted in a

## The Investment

- In 1998, NDOT initiated several Tahoe Basin roadway improvements worth more than \$13 million.
- An additional \$43 million worth of projects will be constructed before 2002 with state, Tahoe bond and federal funds.
- Between 2002 and 2010, \$38 million in projects are planned.

partnering process with 15 agencies in 1997, finalizing a \$1 million water quality master plan along eight miles of S.R. 28 and nine miles of U.S. 50.

Field crews and many other NDOT divisions included in the planning and design share the award.

## Taking the High Roads **First Two New Spaghetti Bowl Structures Open for Business**

With big smiles, great fanfare and blustering desert winds, the first leg of the Las Vegas Spaghetti Bowl's \$92 million reconstruction, the north I-15/west U.S. 95 connector, opened to traffic March 31. Gov. Kenny Guinn was first to make the trek across the high-rise highway, the first of eight freeway to freeway flyovers to open in the three-year project.

"I have been waiting for this for 34 years. It's a great day," Guinn said, getting straight to the point. "Where are the scissors?"

The two-lane structure more than doubled the capacity of the retiring facility and can carry 3,600 vehicles per hour. It was an overnight success when it eliminated a bottleneck where I-15 traffic battled to make its way east or west on U.S. 95.

Precast concrete bridge segments were lowered into place using a \$2 million gantry crane that became a star in its own right, featured on the cover of Engineering News Record magazine.

### **Second Ramp Completed within Four Weeks**

Now three decades old, the Spaghetti Bowl interchange was originally built for a much smaller town. Experts say that five years in Las Vegas is like 10 to 15 anywhere else. True to the saying, traffic was rolling on the second ramp, bridging eastbound U.S. 95 and southbound I-15, within four weeks of the first ribbon cutting and four months ahead of schedule.

The second ramp brings long-awaited relief to the west valley residents who endured much congestion in approaching the city. It was built on site simultaneously with the north-to-west ramp. Meadow Valley Contractors Inc. served as contractor for the state, with heavy bonuses and penalties built into the job to meet the 34-month schedule.

On the horizon, the Martin Luther King Boulevard exit from I-15 is set to be completed next, later this year.

The town's 24-hour tourist lifestyle does not allow for closing lanes if there is any other way to get the job done. Work continues on the remaining bridges and the 13 miles of new highway included in the project, making use of precast segments and nighttime construction to keep traffic moving to the heartbeat of Las Vegas.



**Gov. Kenny Guinn gives the okay to cut the ribbon on the first new Spaghetti Bowl ramp that jets above I-15 and U.S. 95, his first official NDOT opening.**



**Above: Nevada's first precast segmental bridge crosses the Las Vegas Spaghetti Bowl, a brand new northbound I-15 flyover connection to westbound U.S. 95.**

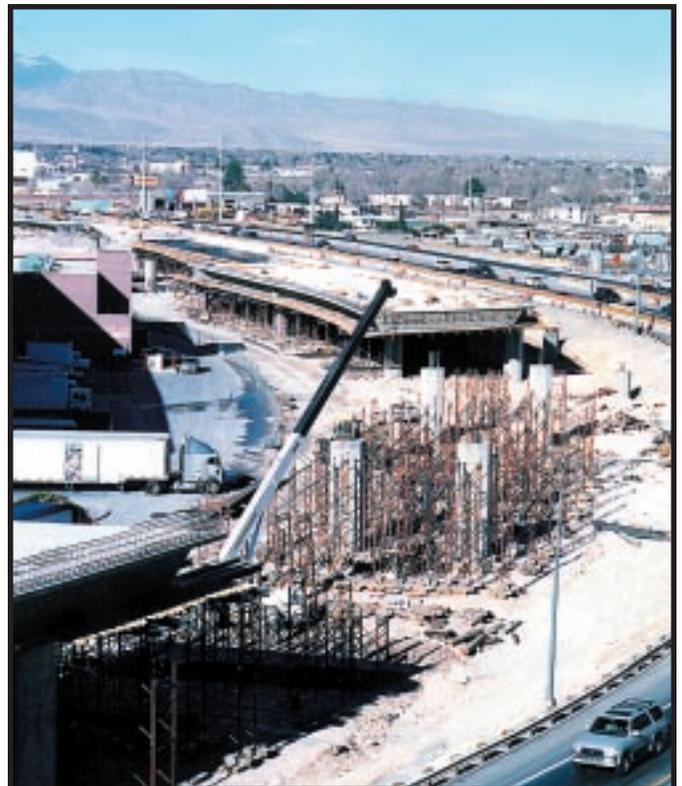
**Right: Unwrapping the second course are, from left, FHWA's John Price, Boulder City Councilman Bryan Nix, Clark County Commissioner Lance Malone, Director Tom Stephens, Las Vegas City Councilman Larry Brown, Meadow Valley's Tom Patton, Las Vegas City Councilman Arnie Adamsen, District I Engineer Gene Weight (hidden), and Parsons Brinckerhoff Vice President Sam Tso.**

**Far Right: The cast in place U.S. 95 east to I-15 south bridge was built simultaneously with its precast neighbor.**





Elected officials join Gov. Kenny Guinn in bringing good news and the first new Spaghetti Bowl ramp, I-15 north to U.S. 95 west, to Las Vegas. From left are: State Controller Kathy Augustine, Clark County Commissioner Lance Malone, North Las Vegas City Councilman John Rhodes, Boulder City Councilman Bryan Nix, Las Vegas City Councilmen Larry Brown and Arnie Adamsen, Gov. Guinn and a crowd of guests eager to use their new highway.



## Historic Hawthorne: Colorful Past, Promising Future

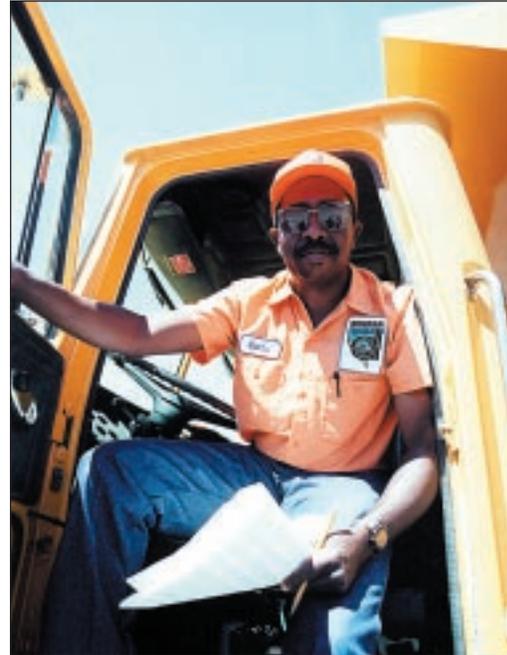
Legend has it that the town of Hawthorne was settled on the wisdom of mules. H.M. Yerington, president and superintendent of the Carson and Colorado Railroad, located his freight depot at the south end of Walker Lake around 1880. Miners and freighters attracted to rich deposits in the area set up camp and their mules carried freight by day. But by night, perhaps to escape the camp's cold winds, they say, the mules ventured off, seeking shelter a few miles away.

Originally known as Milbrae, the mules' preferred spot was eventually chosen to be the stop off on Yerington's 160-mile rail line between Mound House and Candelaria. Milbrae was later renamed for road contractor W.A. Hawthorne, who was building a wagon trail from Bodie to Milbrae. Hawthorne served as an outfitting point for miners and ranchers. But after the governor made a rail trip to Hawthorne, land sales boomed in the little town 132 miles southeast of Reno.

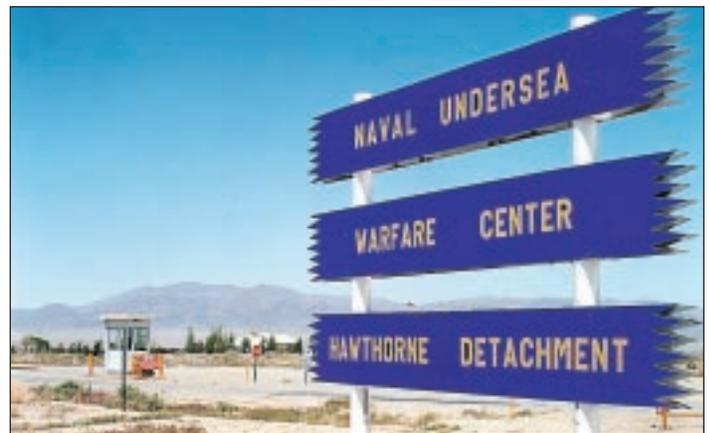
With the rise and fall of mining along with a devastating fire that left the business district in ashes, Hawthorne nearly went the way of the historic ghost towns that surround it today, like Aurora, Beatty, Bodie and Candelaria.

But out of a dark cloud came a silver lining for the town. An East Coast ammunition explosion in 1926 brought the relocation of an arsenal to Hawthorne, known for its rail service, limited population and unlimited expanse.

During WWII and the Korean and Vietnam conflicts, the depot quietly stocked and serviced ammunition important to national security. Today, the Army Ammunition Depot pumps



At left: Hawthorne's Charles Jones conducts the annual pavement management survey along U.S. 95. Bottom left: Crew 237's A.J. Kintz and Juan Lopez check their remote control sweeper.



\$25 million annually into the local economy and Hawthorne is now home to the Naval Undersea Warfare Center also.

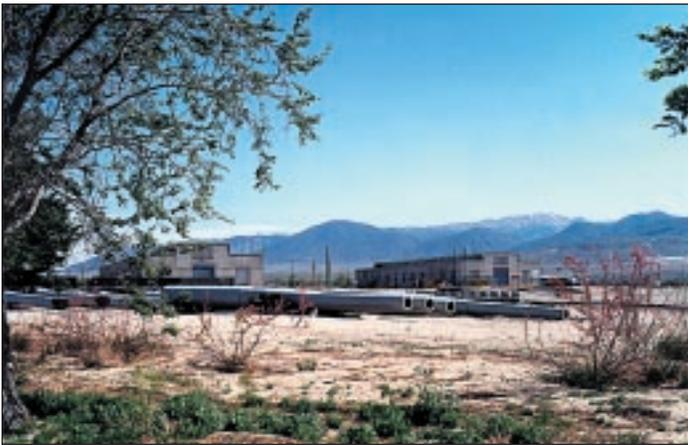
With all the presence of the armed forces Hawthorne cannot help but show its patriotic colors, celebrating Armed Forces Week each May with a collection of hometown, all-American events that include a flag ceremony, F18 flyovers and a Miss Armed Forces Contest. A pancake breakfast, horseshoe contest and a military ball bring out the hometown spirit.

"It's the biggest deal in Hawthorne," said NDOT's A.J. Kintz.

"I like to watch the parade myself. I have horses and I like to watch them," said partner Juan Lopez, a 20-year Hawthorne resident. The Hawthorne Convention Center's marquee welcomed the Lopez family reunion, set during the festivities.

NDOT's Crew 237 is a big part of the local activity. Maintenance Supervisor Dave Ives, with crew Charles Jones, Lopez and Kintz cleaned the route before the big event and when it is over they were back at their major responsibilities, maintaining the local highways.

Their days may find them sweeping up to 24 lane miles preparing the road for striping. A summer day may find them flush sealing State Route 359 which leads south to Mono Lake, a



Besides its nearby mining deposits of gold, silver, copper, tungsten, iron, coal, borax, lead and gemstones, the town is filled with riches. New business, a thriving depot, 17 churches, 28 community service clubs and a branch of the Western Nevada Community College keep Hawthorne a busy place. High desert scenery, recreation at Walker Lake, hunting, fishing and skiing make the town attractive to visitors, tourist trade and those who live and work in Mineral County.

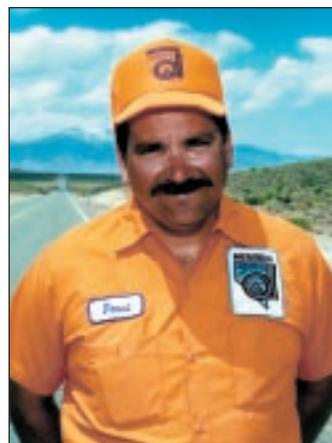
Perhaps the mules were right.



road that also gets about a foot of snow each year, Kintz said, or they will chip seal a truck route on S.R. 362, but their main drag is U.S. 95. Another of the crew's jobs is to annually inspect every mile of their highways for the department's pavement management survey, looking for cracks, rutting and stress, said Jones.

"We also give information to resident engineers," he said. Construction crews will be putting that information to use throughout the summer on U.S. 95 as it undergoes major rehabilitation. NDOT has contracted with Granite Construction to complete an \$8.2 million roadway improvement now underway on U.S. 95 at the south junction of S.R. 362 outside of Hawthorne.

A vital airport also serves the community's transportation needs. With a 4,800-foot runway that can land military cargo planes, the facility is being expanded to 6,000 feet with the opening of one of the biggest businesses to ever hit the town. Delta Star, a major manufacturer of 75-ton industrial transformers for power substations, has committed to investing \$25 million in new facilities. With plans to open the Hawthorne site before year's end, the company expects to employ 350 people.



**Top right: Local library and memorial garden. Top left: Gun barrels stored at the Hawthorne Army Depot. Center left: Construction's Wendy Weitzel and Consultant Pentacore's Assistant Resident Engineer John McKenzie examine Granite Construction's hot mix plant near Walker Lake. Above: Northbound S.R. 359 heads to Hawthorne. Left: Maintenance Supervisor Dave Ives.**

# Partners Navigate Airport Development and Aviation Planning for

When it comes to navigating the needs of the aviation community within the state, the Nevada Aviation Technical Advisory Committee gears itself to helping keep the players informed of issues and regulations that will affect flight enthusiasts from small plane pilots to international airport operators.

In 1979, NDOT gained the task of inspection and data collection for general aviation airports in Nevada. During World War II, the department was instrumental in building several of Nevada's airports including Battle Mountain's. Among the department's goals was the compilation of a system plan, a comprehensive evaluation of operations as they existed and a blueprint for meeting future needs.

To meet their goal, the department's division of aviation staff created an inventory of the 97 general aviation airports, a system to monitor trends in airport usage and an evaluation of pavement conditions for runways. Keeping a finger on the pulse of the industry was the ultimate



**From left, Dennis Taylor and Vic Redding, NDOT Aviation; Jim Braswell, Minden-Tahoe Airport; Jack Kemmerly, Airport Owners and Pilots Association; and Jim Mallery, NDOT Aviation meet at NATAC. Braswell is the new chairman.**

goal, and from the stakeholders who represent varied and diverse interests, the Nevada Aviation Technical Advisory Committee was born.

A combination of private and government officials, airport operators,

pilots, local and national leaders, the committee works to advocate for aviation. Among those assembled are several representatives of the armed forces, since 40 percent of Nevada's air space is dedicated to military use.

"Does Nevada want a healthy aviation system?" asks Jack Kemmerly, representing the Aircraft Owners and Pilots Association and retiring chair of the committee that meets semi-annually to discuss common issues and recommend actions. Together they strive to balance the needs of large and small airports, such as matching grant money, fuel tax distribution, protecting approaches and competition for air space.

The division evaluates and recommends improvements to pavement, runways, communication and other airport facilities working closely with the Federal Aviation Administration.

Jim Mallery heads the Intermodal Planning Division which oversees Aviation's statewide aviation planning coordinators Dennis Taylor and Vic Redding and analyst Pat Ferreira. Among NDOT Aviation



**Outgoing Chairman Kemmerly confers with NDOT's Taylor and Mallery.**

# Air Facilities that Fuel Nevada's Economy

Division's job is the responsibility to administer the Federal Aviation Administration's mandated Statewide Airport Systems Plan. This document coordinates Nevada airport development and addresses long-term planning issues. The division is also responsible for completing the annual FAA Airport Safety inspections at each noncommercial public use airport and for providing technical assistance to many rural airports. NATAAC is a great help.

Henry Ogrodzinski, president of the National Association of State Airport Officials rallied the committee on national issues facing Congress. Called "Tea 21's brother," a five-year spending plan known as AIR 21 could increase funding to \$5 billion.

"In Elko, for instance," he said, "\$763,000 could become \$2.2 million," under the proposal.

Ogrodzinski stressed a need for adequate dependable funding. "Without it, we cripple planning."

From this group he got no argument.

"General aviation airports really need assistance," agreed Jim Braswell, Minden-Tahoe Airport manager who was just elected new chair of NATAAC. He will lead the group working to benefit air travel and show that air travel benefits Nevada.

Each general aviation airport generates money and interest in the community it services, according to an economic analysis prepared by NDOT's Aviation Division.

"Analysis of the airports was able to show the counties that a significant amount of money was brought into the community via the airport," Redding told the committee.

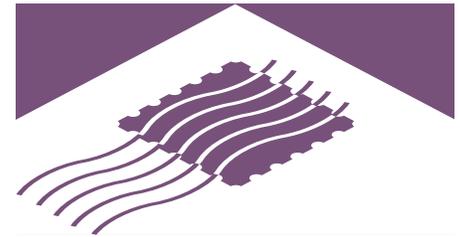
Airport-county relationships reap unexpected benefits, said Redding. Business travelers reported that they stopped their small plane in Hawthorne for a rest one afternoon. Before long they had decided to locate a \$12 million facility



**National Association of State Airport Officials President Henry Ogrodzinski, right, and Redding share information on pending federal legislation at the Reno NATAAC meeting.**

with 350 jobs in the tiny western Nevada town. Hawthorne's airport businesses already employ 11 people on site with a \$255,000 payroll. Drawing 13,500 passengers per year, visitor impact at this one location is estimated at \$1.3 million with a total airport impact to the community of \$3.5 million.

NDOT will report results of four more airport analyses this year, Mallery said, and the airports' impact will not surprise NATAAC. In the end, there are plenty of stakeholders and a lot at stake in keeping Nevada's general aviation airports healthy.



## In the Mail

# Thanks for a Great New Roadway

## Dear NDOT:

Did you see my big smile? I was the one with the ear-to-ear grin as I used the new ramp at the Spaghetti Bowl this morning! What a treat—what an accomplishment! Many kudos to your department, the engineers and the construction company that turned a prospective nightmare into sheer perfection in execution.

As an everyday commuter through the Spaghetti Bowl, I remembered groaning aloud when I heard the construction was to begin. I was convinced that my commute would from that point on be a daily incubus from which there was no escape. However, as the weeks rolled by, I noticed that your efforts didn't hurt a bit. The traffic was just as bad as it always was, but certainly no worse. I "rubbernecked" with much interest as the northbound flyover neared completion, thinking, "How on earth could they have done this and not have major traffic repercussions?" I was so very impressed. Then when I heard not only would that ramp be opening, but the southbound ramp would soon be completed, I could hardly believe it.

So I just wanted you to hear from one of us out there who is truly appreciative of your efforts. This project obviously took extensive forethought, and the logistics must have been mind-boggling. It is also very obvious that one of the highest priorities in this project was to inconvenience the commuter as little as possible. From the chief engineer to the dozens of workers who toiled night after night while I slept, I extend my heartfelt gratitude and congratulations for a beautiful job and for making our lives a little less stressful!

Most sincerely,  
Marilyn Work

# NDOT Work Honored As Nevada's 1998 APWA Project of the Year

NDOT has earned the 1998 Project of the Year Award for projects under \$1 million from the Nevada Chapter of the American Public Works Association. NDOT's efforts to protect several Nevada structures in anticipation of increased precipitation and possible flooding



Hydraulics Division, standing from left, Amir Soltani, Chris Miller, Chuck Reider, Paul Frost, Theresa Jones, Ron Schilling. Seated, Bill Gall and Steve Merrill.

due to 1997's El Niño warnings were recognized for special achievement. Projects are evaluated on service to the public, community need, intricacy of design, aesthetic consideration, and difficulty of construction.

Six susceptible sites were identified where storms were expected to hit hardest, qualifying for federal assistance. In addition, \$75,000 in scour monitors were installed using technology new to Nevada. The units talk to a central computer and automatically dial pagers assigned to NDOT staff. Engineers and District I staff were on call to assess developments.

Among the project contributors were: the Federal Highway Administration's Arlo Waddoup; NDOT District I's Ed Milliren, Dave Sangster, Lee McCurdy, Jay Tobler and Terry Zach; Bridge Division's Marc Gruenert, Dave Schwartz and Bernie Ponte; Construction Division's Mark Elicegui, Dave Titzel



Concrete scour deflector pads around piers on northbound I-15 at the California Wash north of Las Vegas.

and Neil Kumar; Design Division's Frank Csiga, Dennis Coyle, Ken Mammen, Scott Rawlins, Steve Bird, Gary Anderson and Kevin Baxter; Materials Division's Parviz Noori and Jeff Palmer; Environmental Services Division's Lynette Johnson; Right of Way's Heidi Mireles, Patrice Burke and Kevin Leany; Data Processing Division's Greg Fitch and Herb Horner; Administrative Services Division's Jan Christopherson and Hydraulics Division's Chris Miller, Bill Gall, Chuck Reider, Theresa Jones, Ron Schilling and Amir Soltani, who presented the project at the APWA Spring Conference.

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On the Cover: The summer season finds NDOT reconstruction projects in full swing. Above: Crew 911's Steve Smith inspects roadwork underway on State Route 341 in historic Virginia City. Below: NDOT and contractor crews confer on crack and seat technology in Elko.

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