



FOCUS
TRAFFIC

Brainy byways

Motorists use their smarts and smart highways

American cities are beginning to use a wide range of intelligent transportation systems, or ITS, to smooth traffic flow, reduce delays and increase safety. For a fraction of the cost of building a transit system or freeway, ITS employs computers and communications technology to interconnect traffic controls, link emergency responders and reach motorists with up-to-the-minute information.

"What we want to do is use technology and transportation to save lives, save time and save money," says John Collins, president of Intelligent Transportation Society of America, a nonprofit educational and research organization based in Washington, D.C. "ITS is happening today," Collins adds. "It's not George Jetson technology."

Indeed, pieces of ITS have been used for decades. Metering on ramps of busy freeways, timing traffic signals electronically, posting messages on electronic signs, broadcasting traffic reports, collecting tolls electronically – these tools are nothing new in many urban areas.

But what is new today is the growing emphasis on linking all the pieces, new or old, in an integrated network—like components in a stereo system

Any commuter can confirm an integrated approach is needed. According to the Federal Transit Administration, U.S. traffic has increased 30 per-

cent in the past decade. The number of cars on the road is projected to increase 50 percent in the next 10 years. Americans sit stewing in traffic tie ups for two billion hours a year.

ITS won't erase the need to build new transit and highway systems. But with limited space and limited funds, cities must look for alternatives to road construction. "We're not going to be able to build our way out of congestion," Collins says. ITS can help.

The most common elements of ITS projects are varying methods to give commuters timely highway and transit information so they can choose routes with the least delays. ITS also links emergency, police, fire and other first responders so that incidents can be handled efficiently and with as little traffic disruption as possible. Typically, systems also use timed signals, ramp meters and other tools to keep traffic flowing. Beyond these basic elements is a host of choices that can be tailored to meet communities' needs.

"It's not one size fits all," says Toni Wilbur, FHWA team leader for the model deployments.

In fact, the future will bring more ITS projects to rural areas to improve emergency response and deliver weather warnings to motorists. With ever increasing applications, ITS will only grow in importance.

Slowing down road warriors

Roadways are becoming increasingly congested with people who largely are more mobile than their parents were and tend to live miles away from where they work. More and more, pedestrians, bicyclists and homeowners must put up with hyperactive traffic and inconsiderate drivers who seem always to be in a hurry. It can be an annoying – and dangerous – phenomenon.

The answer, many communities are finding, is traffic calming, or using engineering, street design and electronic means to lower traffic speed. Traffic

calming began more than 30 years ago in Europe, a land of narrower streets and smaller cars where "walkable" cities are more the norm.

Years ago "diversion projects" or "neighborhood traffic management" strategies served as passive precursors to traffic calming. Examples include the conversion of streets into one-way thoroughfares, the addition of traffic signals and signs and the implementation of educational programs.

Over time, traffic engineers have deployed vari-

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IN THIS ISSUE

- With summer being the heaviest travel season, the focus is on traffic-related issues (pages 1 and 3-7).
- The Nevada T² Center presented the Work Zone Signing Package award to the Lander County Road and Bridge Department (page 2).
- Letters to the editor offer additional information on a recent issue of *StreetWise* on culvert installation and the previous issue of the *Milepost* on the tunnel trail in the Lake Meade Recreation Area (page 2).
- **Aunt Jenny** reveals the intimate details of a no-frills wedding in Tonopah nearly 50 years ago between a Nevada billionaire and a Hollywood heartthrob (page 10).
- **L² on the Road** attended NDOT's second annual Nevada State Bicycle and Pedestrian Conference where he rode a high-tech contraption called a Segway. What's a Segway? Read the column and find out (page 11).

ROUTING SLIP

Don't file this Quarterly in your in-box. Please—read it, photocopy what you want, initial below, and send it on, especially to the frontline troops.

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FROM THE DIRECTOR



From the Director

Maria Ardila-Coulson
T² Center Director

Recently the Nevada T² Center awarded the Work Zone Signing Package to the Lander County Road and Bridge Department. It became the second winner since we established the program in 2001. The first winner was the City of Yerington.

The objective of the Work Zone Signing Package program is to promote safer work zones for Nevada transportation workers and motorists.

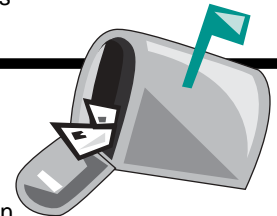
All cities and counties in the state can participate in this program. To apply for one of the packages, fill out an application form and agree to send all employees working in work zones to a training course on work zone safety offered by the T² Center. City and county workers also must participate in the Center's Roads Scholar Program.

Application forms are mailed to all cities and counties after July 31 each year. Awards are based on two criteria: 1) a demonstrated community need as determined by the quantitative data and the narrative justification and 2) the involvement of the city or county in training workshops offered by the Nevada T² Center and the Roads Scholar Program.

The package worth \$2,750 consists of:

- Two "Road Work Ahead" signs
- Two "Prepare to Stop" signs
- Two "Flagger Ahead" signs
- Two Flagger "Stop/Stop" paddles
- Two safety vests
- Six Sign stands
- Ten 28 inch cones

Letters to the Editor



Dear Ms. Coulson:

I liked the article published in the Spring 2003 issue of the *Nevada Milepost*. I am writing in the hope that you will be able to include some additional information about the tunnel trail.

The tunnels were reopened and the trail reconstructed because of the dedicated efforts of the River Mountains Trail Partnership. This is a nonprofit group overseeing the planning and implementation of the 35-mile River Mountain Loop Trail.

There are annual events happening along the trail and organized bike rides. Mr. Jim Holland, Lake Mead Recreation Area, Bill Laud, Southern Gas, and John Holman, River Mountains Trail Partnership chairman, should be applauded for their ongoing efforts.

Last fall, Mr. Holman was recognized for his leadership and volunteer efforts by the City of Henderson.

For more information visit
www.rivermountainstrail.org.

Thank you,
Kristine Roberts
River Mountains Train Partnership
(former trails coordinator for Clark County)

Dear Ms. Coulson:

I enjoyed reading the article "Install culverts correctly the first time" in the Fall 2002 issue of *StreetWise*. It was an informative article that described the sizing and installation concerns that should be addressed when replacing a culvert on local roads.

Another important aspect that should be considered in the design

for culvert pipes is the clear zone. Head walls, small culverts (less than 36 inches) not cut flush with traversable or recoverable slopes, large culverts, etc. can be hazards to vehicles if they fall within the clear zone for the particular classification of roadway.

The ASSHTO Roadside Design Guide provides good information to determine what the clear zone width for the different types of roadway will be. In section 3.4.2.1 the guide provides some excellent descriptions concerning traversable designs for small culvert pipes and the size of culverts that are suitable.

If the traversable design cannot be used and head walls are being considered, guard rail or barrier rail may be necessary. This often requires a comparison of costs to extend the culvert beyond clear zone versus the cost of adding guard rail to protect the head wall drop off if it falls within a clear zone. When considering extending the pipe, be sure to determine if you have adequate right of way, otherwise include the cost for obtaining permanent easement for the inlet, outlet and possible rip rap protection for the new pipe.

Last of all, make sure any environmental permits necessary for the work are obtained before you begin the project, otherwise your project could be delayed.

Sincerely,
Paul K. Sinnott
Principal Road Design Engineer
NDOT, Carson City

Slowing down road warriors *Continued from page 1*

ous other tools and techniques to help homeowners take back their neighborhoods. Medians, traffic circles, speed bumps, elevated sidewalks and sidewalk “bulbs” protruding into the street are among the wide arsenal from which traffic engineers can draw. They also can employ high-tech devices such as “photo radars” that check vehicle speeds, record the license plate numbers of violators and automatically issue speeding tickets which will be mailed to the offenders.

Traffic calming steps vary dramatically in cost. Modest efforts such as increased signage, “rumble strips” and narrower lane stripes may cost a few hundred dollars each. More elaborate projects such as raised intersections, full medians and traffic circles with landscaping and drainage could exceed \$40,000 each.

At least 350 jurisdictions across the country have engaged in traffic calming, according to a study by the University of California at Berkeley. It determined that most localities implement traffic calming on a location-by-location basis rather than comprehensively.

Furthermore, the study discovered that jurisdictions generally cede much decision making to residents, and traffic engineering divisions usually are put in charge of running traffic calming programs. It also concluded that most such programs are funded by local governments. Few rely on funding from residents, and very few have received state or federal money.

Variety of factors

Traffic calming has become a popular road building philosophy simply because many homeowners, traffic engineers and city planners have reached an almost unanimous conclusion: There are too many people driving too many places too fast.

Often people are stretched to the limit as they race from work to the dry cleaners to soccer practice. They must negotiate the sprawl that typifies so many American cities, trying to reach numerous far flung destinations in limited time.

The modern subdivision, in which cul-de-sacs proliferate and through streets are few, can exacerbate the problem. Paradoxically, the cul-de-sacs may calm traffic for a subdivision’s residents but worsen it for surrounding streets. Often only one street leads into and out of a subdivision. That means whenever residents leave they all exit onto the same arterial road or highway.

Besides the roads and sprawl, vehicle design also may contribute to the need for traffic calming. Today’s large vehicles insulate drivers from

the road, making them less aware of how fast they are traveling.

The irony is that traffic engineers have come full circle in their mission. Thirty or 40 years ago they focused on building straight, flat and broad roadways free of obstructions to encourage vehicle movement. Today, however, many of them do just the opposite. A key reason for that is Americans’ long-standing love affair with the automobile.

Critics’ complaints

Law enforcement officials and other emergency personnel such as fireman and paramedics are some of the main critics of traffic calming. They note that it results in speed bumps and humps, barriers and a variety of sidewalk and curb protrusions that can interfere with access and response times. For that reason city planners should always emergency personnel in the planning process.

Concerns about traffic calming devices involve other issues as well. For example, public works personnel in charge of snow removal may balk at traffic calming because speed humps, diverters and narrow turning circles are not necessarily snowplow friendly. Bicyclists and people with spinal injuries or other medical conditions also may object to traffic speed humps and bumps.

Devising a plan

Often initiated by a simple call or letter from a citizen or neighborhood group to an elected official, traffic calming is a quintessentially grass roots issue. That quality ensures citizen involvement, yet can confuse city leaders.

The problem is that often there is more than one vocal group, each with its own petitions and complaints. This sends an unclear message to city officials. The biggest concern is getting consensus in a neighborhood and making sure that it can define what the problem is.

A methodical process involving neighborhood petitions, ballots and public meetings is essential. Besides seeking input from residents, traffic planners must take other things into consideration, such as state statutes, liability risks and emergency response routes.

Unlike a major street or highway project that cannot be removed once it is put in place, traffic calming allows for inexpensive trial runs before a plan is implemented. It could be said that traffic calming offers planners the chance to mix and match various elements on a temporary basis until the right recipe is found.

Although cities can learn from one another to

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■ Reno's traffic calming program

The City of Reno developed a traffic calming program in 1993 that has four primary goals:

- To attain the highest quality of life possible for each resident.
- To have a community with safer streets.
- To create a "walkable" community.
- To educate residents and give them tools necessary to become active participants in addressing traffic concerns.

The first step to traffic calming is to submit a petition to the City of Reno with signatures from at least two-thirds of residents with addresses on the street where it is desired. Petitions are available through the Traffic Engineering Division at:

775/334-2264
or

<kapulerr@ci.reno.nv.us>

After receipt and verification of the petition, staff will gather traffic data to determine if traffic calming is needed. Staff will prioritize qualified streets for funding based on the ranking system described in the policy of traffic calming. Streets are ranked and prioritized on an annual basis.

The program is funded in part by the Office of Traffic Safety, a division of the Department of Motor Vehicles and Public Safety and the City of Reno.

Correct sign installation increases motorist safety

Eight-five percent of all motor vehicles that run off the road recover safely within 30 feet of the roadway in a clear zone, according to a General Motors safety study.

It is not always possible to provide a 30-foot clear zone, but it is a good concept to try to achieve. The more barrier free you can make the area adjacent to the road, the safer motorists will be.

Road signs are obstacles. Often signs are placed in the clear zone so they will be in drivers' line of sight. In such cases the signs should be placed on safe sign supports. Road signs should not become a bigger hazard than the situation they are meant to improve.

Support posts must be able to hold a sign in the proper position and withstand normal loads from wind and other sources and yet safely yield when struck by a vehicle.

Placement

A sign placed close to the roadway is more apt to be struck than one set farther out. If possible, avoid placing signs at locations where they are likely to be struck by out-of-control vehicles, such as on the outside of horizontal curves or next to lane drops, or other places where the pavement narrows.

Avoid placing signs on curves. Provide an unobstructed view of signs along the roadway. If possible, place signs behind guardrails or other barriers.

Avoid placing signs in the bottom of ditches. Space signs along the roadway so they do not obstruct the view of each other. Recommended spacing is 150 to 200 feet apart. Signs should not be clustered together.

In business and residential areas where motorists' views may be obstructed, the clearance to the bottom of the sign should be at least 7 feet. The height to the bottom of a secondary sign mounted below another sign may be 6 feet.

Signs should have the maximum practical lateral clearance from the edge of the traveled way for the safety of motorists who may leave the roadway and strike the sign supports. Advantage should be taken of existing guardrails, over-crossing structures and other conditions to minimize the exposure of sign supports to traffic. Otherwise, breakaway or yield sign supports should be used.

Normally, signs should not be closer than 6 feet from the edge of the roadway. In urban areas a lesser clearance may be used where necessary. Although 2 feet is recommended as a working urban

minimum, a clearance of 2 feet from the curb face is permissible where sidewalk width is limited or where existing poles are close to the curb.

On many local roads it often is necessary to put the signs closer to the roadway so that they can be seen easily. In no case, however, should permanent signs be located within a shoulder area. At least 2 feet of clearance should be provided. Vegetation should be trimmed back to provide better lateral location and visibility.

Installation

Posts should be buried in firm ground 3.5 to 4 feet deep. Loose or sandy soil may require deeper post placement. Use an earth plate to prevent round posts from twisting. Breakaway sign supports should be used to enhance roadside safety. Sign panels should be bolted to the post with oversized washers. Use sign connections that prevent vandalism.

Wood posts

Consider material when choosing sign supports. Wood posts of the proper size and installation will break off when hit by a vehicle, as will specially designed breakaway supports.

Small supports have a cross section of less than 24 square inches. Posts should be buried in firm ground. Minimum recommended depth is 3.5 to 4 feet. You may need to bury deeper to reduce vandalism. Do not encase the post in concrete.

A post size of 4 by 4 inches does not need to be drilled as it meets the crash test requirements.

Large supports should be drilled. A 6- by 6-inch wood post can be used if the cross section is weakened by drilling two 2-inch holes.

All posts 4 by 6 inches and larger should be field drilled in accordance with the hole size requirements.

A 6- by 6-inch wood post is the largest size recommended to act as a breakaway support. Posts should be set in unreinforced concrete. Wrap 0.5-inch-thick-sheet Styrofoam around the post before setting it in concrete to make it easier to remove a broken post stub.

Sign panels should be bolted to the post with oversized washers. This will prevent the panel from separating from the post on impact and then penetrating a windshield. This also prevents the bolts from pulling through the sign panel from wind vibrations.

Set the bottom of the sign panel a minimum of 7 feet above the pavement or ground.



■ Highway fatalities highest since 1990

According to data released by the U.S. Department of Transportation's National Highway Traffic Safety Administration, an estimated 42,850 people died in 2002 on the nation's highways, up 1.7 percent from the 42,116 in 2001. The number of fatal crashes increased 1.5 percent to 38,356 in 2002. The number of fatalities for young drivers between the ages of 16 and 20 jumped 5.9 percent from 3,529 deaths to 3,738. NHTSA estimates that highway crashes cost \$260.6 billion a year.

Correct sign installation... *Continued from page 4*

All posts 4 by 6 inches and larger used in multiple post installations should be spaced with a minimum clear distance of 7 feet or more apart.

U-channel posts

The U-channel rolled-steel post is another common small sign support. It is considered breakaway because it will bend or break away at the post/base connection at ground line when it is hit.

These posts can be purchased commercially to break away at ground level. They allow the post to break off on impact. These devices improve safety when the post is hit, make repairs easier and make it possible to use an U-channel post when it has to be placed in the concrete.

The manufacturer should provide certification that the posts and hardware have essentially the same chemistry, mechanical properties and geometry as that used in Federal Highway Administration tests and will meet FHWA change in velocity requirements.

The manufacturer also should provide certification that the U-channel lap splice system will develop the full shear and bending yield strength of the sign post section being spliced.

The U-channel post base should be driven into the ground and encased in concrete. The posts come with a base that is 3.5 feet in length. When installation is completed, no more than 4 inches of the base sticks out of the ground.

Refer to manufacturers' wind load charts for determining post size for other sign panel sizes.

Drive a 3.5-foot base post to within approximately 12 inches above ground level. Place one bolt and cut washer in the fifth hole from the end and securely tighten a threaded spacer onto the bolt. Drive the base post to 4 inches above ground level. Place the remaining bolt and cut washer in the first hole from the end and securely tighten a threaded spacer onto the bolt.

Dig out approximately 2 inches from around the back of the base post to allow room for the sign post to be attached. Nest the sign post over the protruding base post bolts through the first and fifth holes of the top post. Place a lock washer and lock nut on each bolt. Tighten the nuts and tamp the earth around the base post firmly.

Steel pipe posts

Steel pipe posts are used less frequently than wood or U-channel posts but are often used in cities to support small signs. Standard galvanized steel pipe, schedule 40, should be used.

Steel pipe posts can be driven directly into the ground to a depth of at least 3.5 feet. A steel plate

measuring 4 by 12 by 0.25 inches should be welded or bolted to the pipe to keep the sign from rotating in the wind.

On breakaway devices a collar assembly is recommended if the sign is likely to be hit. A collar assembly consists of a concrete footing (usually 2.5 feet deep by 1 foot diameter), a 2-foot pipe base (usually one pipe size larger than the post) and a pipe reduction collar.

When the pipe post is hit, the post usually shears off just above the collar. This speeds repair and replacement by installing a new collar. Often the pipe post can be reused.

Sign panels should be securely attached to the pipe post using pipe clamps to prevent the sign panel from rotating or slipping loose from the post if it is hit. Tight fasteners will limit the danger of penetrating a windshield when a vehicle hits the sign.

Another sign post is the square steel tube design which is used in many rural and urban areas.

Post bases can be driven into the ground. Do not place concrete around the post. The post base should be a minimum of 3.5 feet in length and one size larger than the sign post. The post base should be driven to 1.5 feet above ground.

After the sign has been hit, the broken stub of the post can be removed from the base sleeve, and a new signpost put back in place.

Attach the sign panels tightly to the post and use oversized washers to keep the sign from breaking loose from the post when a vehicle hits it.

When a 30-foot safety zone next to the roadway cannot be provided, it is still important that the area adjacent to the roadway be as safe as possible. Correct sign installation will help accomplish this.

It also is important to use the *Manual on Uniform Traffic Control Devices* to ensure that your signs meet established requirements.

Signs installed in the correct manner will make roads safer for motorists.

Slowing down road warriors

Continued from page 3

some extent, it is not wise to assume that what works for one community will work for another. Each project is different, and each one needs to be specially designed.

Recognizing that the traffic calming process and solutions may vary from community to community, one thing remains constant: Planning and discussion generally take far longer than implementation.

■ What about roundabouts?

The modern roundabout is a circular intersection that features channelized approaches, yield control for entering vehicles and geometric curvatures that ensure travel speeds typically are 30 mph or less.

Roundabouts are usually built as alternatives to installing traffic signals at accident-prone intersections. Since conversion to roundabouts in one test area, the accidents for eight intersections dropped from an average of 5 to an average of 1.8 accidents per year, a reduction of 64 percent.

Accident severity also decreased. Injury accidents were reduced from an annual average of 3 to 0.5, a reduction of 83 percent.

What help's available?

A half dozen tools can help address the intersection safety problem

■ The AASHTO Strategic Highway Safety Plan.

The goal for this strategic plan is to improve the country's current and predicted statistics on vehicular-related death and injury. The plan contains six main elements: drivers, special users, vehicles, highways, emergency medical services, and management. The National Agenda for Intersection Safety ties its recommendations to specific AASTHO emphasis areas to ensure coordination among various coalition partners. You can find plan information at < <http://safetyplan.tamu.edu> >.

■ Project 17-18(3), FY 2000: Guidance for Implementation of the AASTHO Strategic Highway Plan.

This research will develop guidance to help state and local highway agencies with implementing strategies to reduce fatalities by 10 percent to 15 percent in aggressive driving, head-on and run-off-the-road crashes on two-lane roads, people who drive with suspended and revoked licenses, hazardous trees that need to be handled in an environmentally acceptable manner and unsignalized intersections. Information can be found on the Transportation Research Board's Web site, < <http://www.trb.org/trb/crp.nsf> >. Click on NCHRP, *All Projects*, and go to *Area 17*.

■ **Outreach Toolkit.** This kit lets policy makers have a user friendly way to communicate and elevate awareness and understanding of intersection safety problems when speaking to the public. A set of briefing sheets include facts, issues and potential solutions about various aspects of intersection safety. Briefing sheets available include: The National Intersection Safety Problem, Red Light Running, Red Light Cameras, Basic Countermeasures to Enhance Intersection Safety, Traffic Control Devices, Intersection Safety Enforcement, Safety of Pedestrians and Bicyclists in Intersections, Human Factors' Issues in Intersection Safety, Intersection Safety Myths versus Reality, Highway Work Zone Intersection Safety Issues, and Intersection Safety Resources. The kit is available on Federal Highway Administration and Institute of Traffic Engineers Web sites.

■ **Intersection Safety Video.** This video *Red Light, Green Light* provides motorists and the transportation community with increased awareness of the critical importance of intersection safety. The video lets viewers identify steps they can take to improve their own safety and also provides data on what the transportation professional is doing to help create safer intersections. It is available from ITE.

■ **Infrastructure Intersection Collision Avoidance.** The FHWA has partnered with the departments of transportation in three states to form an infrastructure consortium. Their research effort includes analysis of crashes and mitigation concepts, development of intersection collision-avoidance concepts and algorithms, development of analytical models to assess safety countermeasures, development of infrastructure-based sensors, examination of human factor issues, definition of vehicle infrastructure communication methods, assessment of the benefits and costs as well as barriers to deployment, and development of in-vehicle systems.

■ **ITE Online Learning Gateway.** The Institute of Traffic Engineers has developed a course on transportation safety. *TSO2 Safety of Signalized Intersections* was developed as a guided tutorial approach to help transportation professionals analyze crash data and identify appropriate countermeasures to reduce the frequency of crashes and fatalities, personal injury and property damage. The course can be accessed at < www.ite.org >.

How to use a roundabout

- The car in the roundabout has the right of way.
- Drivers entering a roundabout are required to yield to the traffic on the left. You should merge only when there is a safe gap in traffic.
- You don't need to stop at the "yield" sign unless another car is too close.
- Continue counterclockwise around the roundabout until you reach your departure point.
- Do not stop in the circle to let people in.
- Bicycles treat the intersection the same as a car.
- Pedestrians pass one car length behind a car in the crosswalk, not in front of the car as in four-way intersections.



Extending culverts can make roads safer



The NDOT Tonopah Maintenance Station is working on a multi-year program to make roads safer.

Doug Pope, maintenance manager in Tonopah says that extending culverts and widening shoulders make the road safer. "If someone runs off the road where the culverts are, he says, there can be quite a drop. By extending the culverts and the shoulders, you give drivers more time to recover."

NDOT has extended 16 culverts on State Route 376 and US Highway 6. As his budget allows, Pope will work on more culverts in coming years.

Measures that prevent traffic accidents

Four crash types—running traffic controls, rear-end, left turn and running off the road—account for more than 75 percent of all urban injury accidents. A range of measures starting with traffic signal timing and visibility improvements can help.

Traffic signal timing

Some rear-end collisions could be prevented by improving the timing of traffic signals to reduce vehicle stops. Considerable advances have been made in designing and implementing computer-based signal control systems.

More specific and less expensive timing measures also can help. These include automatic methods that would reduce unnecessary traffic delays.

Another measure is to ensure adequate signal clearance intervals (yellow light plus brief red-in-all-directions that separate conflicting traffic flows). Inadequate clearances increase the proportion of drivers who enter intersections without enough time to go through before the light turns red.

Research indicates that small increases in the duration of the yellow and all-red could eliminate many cross-traffic conflicts. However, no universal practice exists for selecting the duration of intervals.

Illumination

Improving roadway lighting is effective, particularly where vehicle and pedestrian conflicts are likely. It makes sense to install better lighting at intersections and at dangerous curves, for example, where sight distances are reduced.

Lighting improvements have been shown to reduce nighttime crashes and death rates. Compared with other safety improvements such as new traffic signals or median barriers, lighting also has the most positive cost-benefit ratio.

Roadside hazards

Collisions with hazards like trees and poles are primarily a rural problem, but about a third of all roadside hazard crash deaths occur on urban roads. On both urban and rural routes, trees are the most frequently struck hazards. But on urban roads a greater proportion of fatal roadside hazard crashes involving hitting objects like bridge supports and utility poles.

The solutions are not one-size-fits-all. Instead, each solution depends on the specific hazard, and how the roadway is configured. The basic approach is removing the hazard or putting an appropriate energy-managing barrier between it and the roadway. Of course, it's always important to avoid building new roads with hazards.

■ Ultra Thin Whitetopping demonstration project

Last year the City of Henderson selected the westbound lanes on Sunset Road at the Boulder Highway for an Ultra Thin Whitetopping demonstration project. This intersection was chosen because it has moderate traffic with a heavy percentage of truck traffic and no water problems. The project was completed in 36 hours.

A high-performance concrete mixture was used. It contained a high cement factor, superplasticisers and a double dose of fibers to increase impact resistance and toughness.

Studies have shown that UTW projects should last 15 to 20 years. UTW is recommended for areas of high use and abuse such as:

- Approaches to intersections
- Entire intersections
- Bus lanes
- Urban and rural roadways
- Residential streets
- Interstate access/exit ramps
- Interstate weight stations
- Commercial parking lots

For more information on UTW call Rich Warren at the Southern Nevada Concrete and Aggregate Association at 702-283-2662 or e-mail him at rwarren@lasvegasconcrete.com

Community Profile

Company town without the company

Located on U.S. Highway 93 12 miles north of Ely, McGill was once one of the state's most famous and important towns. For 75 years the town smelted copper ore for the nation's industries, and it played an important role during World War II.

The copper ore was mined at Ruth, seven miles west of Ely, in large open pit mines then brought to McGill on the Nevada Northern Railroad. The ore was processed into 60 pound cakes of material called blister copper and sent 140 miles north on the railroad to the Southern Pacific Rail Line at Cobre, 39 miles east of Wells. On the return trip the rail cars brought coal to fire the smelter.

Named for an engineer who owned a ranch on the site of the town, McGill was founded in 1906 as a tent city by the Steptoe Valley Mining Company. Within a year houses for company officials and the workers and a small business district were built.

By 1910, the town had 2,000 people and peaked at 3,000 people in the 1930s. The population was made up of a large number of Greeks, Irish, Slavs and other immigrants who were recruited to work at the massive smelter.

The town was a planned community built and run by the company and segregated according to ethnicity, income and social factors. The McGill Drug Store and the post office were the only two establishments in town that everyone frequented and felt comfortable doing so.

In 1933, Kennecott Copper Corporation, or as locals called it "Uncle Kenny," took over the operation. Two years later workers were given the option to buy the houses they had been renting.

McGill's day of reckoning came in 1983 when the smelter completely shut down, and residents began drifting away.

With the construction of a maximum security prison near Ely in the late 1980s, a flow of new people moved into McGill. The new residents have renovated many of the houses, but the town has not fully recovered from the loss of the smelter. There are still many boarded up stores in the

downtown business district. The current population of McGill is 1,071.

Economy

Today McGill hangs on with town's people working in Ely at the prison or one of the small in town businesses. Quite a number of retired people live here who worked for Kennecott.

McGill is a quiet, orderly company town without the company. Much of the smelter is torn down, and the smoke stacks are gone.

The last big day in McGill was Sept. 3, 1993, when a crowd of about 1,000 people watched as the 750-foot smoke stack was taken down with explosives. The copper era was officially ended in a pile of rubble and a cloud of dust.

Climate

At an elevation of 6,193 feet, daily temperatures in McGill average about 65 degrees in August and 23 degrees in January. The average annual precipitation is 9.27 inches and the average annual snowfall is 49 inches. There is a 90-day growing season.

Attractions

The McGill Drug Store closed in the mid-'80s with all of its fixtures still intact. It contains products

from the '50s and '60s still sitting on the shelves.

The White Pine Public Museum has taken charge of the drug store opened in 1908 to give visitors a glimpse of what used to be fundamental part of every town in America. It is operated as a free public museum dedicated to preserving the small town drug store and soda fountain era that disappeared

with the large chain stores. The soda fountain works, and the visitor can buy an old fashioned ice cream soda.

The McGill Pool built by Kennecott is a country swimming hole with a dirt bottom and sand banks. The water comes from a hot spring bubbling up on the far side of the pool keeping the temperature at a comfortable 79 degrees. The pool is the recreational focus of the town between Memorial Day and Labor Day.

Continued on page 9



The original McGill drug store—now a museum.

Profile

NDOT employee of 33 years must work longer to match dad

Ross Sanborn has worked 33 years for NDOT. But he needs to go several more years to catch up with his father who put in 37 years with the department.

Ross first went to work full time for NDOT in Ely on a construction crew after working four years as temporary summer help. In his current position for two years as highway maintenance manager, he oversees 1,500 miles of road and 56 highway maintenance and shop workers.

"The Ely crews are like family," Ross says, "and are a vital part of our small community."

He says that NDOT has been great to him. "It has been my life. First with my father working there while I was growing up and now for me for more than three decades."

Born and raised in Ely, Ross graduated from White Pine High School. He then spent a year at the University of Nevada, Reno and two years in



the Army stationed in Germany. Upon returning to Ely, he started working for NDOT.

Ross and his wife, Cyndi, have been married for 30 years and have two grown sons. She's been a second grade teacher at Mountain View Elementary for 32 years. He's been a volunteer fireman for the City of Ely for 25 years and is now a member on inactive status.

Ross enjoys outdoor activities such as hunting, fishing and camping. Recently, he has gotten involved in long-distance target shooting.

"Shooting requires precision beginning at about 50 yards with very small targets working in stages to targets 700 yards away," he says. "Rifles must be very accurate and fitted with powerful scopes and ammunition is reloaded to rigid standards."

The T² Center, according to Ross, is a "big plus" for him and his employees. "It's very user friendly and is run in a very professional manner," he states.

Company town... *Continued from page 8*

Maybe the most unique place in town is the McGill Club. This local bar and social club in the center of town opened in 1907 and has a bar more than 100 years old. The club is a throw back to the days when neighborhood saloons had personality and character.

Fishing for northern pike and large mouth bass is available in nearby Bassett Lake, and trout fishing is good in the area's many streams. Hunting for deer and elk is best in the Schell Creek Mountain Range east of town.



Bicycling is safer than driving

Based on deaths in the United States, these are each American's risk of dying each year.

Motor vehicle accident	1 in 7,000
Shot by a gun	1 in 10,000
Falling down	1 in 20,000
Poison	1 in 40,000
Walking across the street	1 in 60,000
Drowning	1 in 75,000
House fire	1 in 100,000
Bicycle accident	1 in 500,000
Commercial plane crash	1 in 1 million
Lighting strike	1 in 3 million
Shark attack	1 in 100 million
Roller coaster accident	1 in 300 million

■ Nevada leads country in smooth roads

A study conducted by the Federal Highway Administration shows Nevada leading the country in having very good interstates and state routes. Seventy-five percent of the state-maintained roadways were classified as "very smooth" compared to most states classified well under 50 percent in the "very smooth" category.

NDOT devotes resources to roadways that are in relatively good shape. Sohila Bemanian, assistant chief materials engineer, said that this concept is not revolutionary. "If you change the oil in your car on a regular basis, the engine will last longer. If you preserve pavement with an overlay, you delay having to do a complete rebuilding of the road."

An interstate has to be reconstructed every 12 to 15 years at a cost of \$1 million per center lane mile. NDOT found that the optimum maintenance schedule for interstate highways and the highest traffic routes is to have one inch milled and two inches of overlay put down every eight years. This schedule saves the department approximately \$40 million a year in reconstruction costs.

Very smooth roads also save money for the traveling public: fewer wheel alignments and punctured tires.

■ Concrete used to reconstruct intersection

The truck traffic at the intersection of Longley Lane and Peckham in Reno had a dramatic increase due to development of the commercial/industrial area south of the intersection. It caused severe rutting. Something had to be done.

This intersection had been overlaid with asphalt (mill and fill) but continued to exhibit signs of rutting and fatigue. The City of Reno and the Regional Transportation Commission considered whitetopping as a rehabilitation option but decided to reconstruct it with concrete with a 25-year design life.

It is projected that traffic volume at this intersection will increase from 18,000 ADL to 30,000 ADL in the next 25 years. The concrete intersection will save the City of Reno costly maintenance dollars.

The mix design specified an eight-sack mix with a 0.35 water/cement ratio and 1 ½ inch aggregate. The concrete thickness is 8 ½ inches and all joints are dowel bar reinforced. The adjoining lanes are tied with tie bars. The concrete contains polypropylene fibers to aid in early shrinkage crack control. The project used 2,000 cubic yards of concrete.

Aunt Jenny's post-retirement job is to let you know what you should read and view from the T² Center library. No, we don't know how old she really is, but she often saw the "invisible man" of Nevada.



Advice from Aunt Jenny

Sweeties, take it from me that the last thing Howard Hughes wanted when he married a Hollywood heartthrob was a media frenzy.

Paul McCartney and other celebrities might marry in such romantic getaways as Irish castles, but the reclusive billionaire tied the knot with actress Jean Peters in—of all places—Tonopah. Even by Nevada standards the struggling mining town is miles from nowhere.

Nearly a half century later, I've joined with a group of Tonopah residents to try to save the obscure site of the secret Jan. 12, 1957, wedding in room 33 of the L&L Motel.

We want to turn the room and office below into a Howard Hughes Museum and Wedding Chapel to lure visitors to the town I once called home when it was a center of political and financial influence in Nevada. But that was a long, long time ago. Today it is little more than a pit stop on U.S. Highway 95.

As the only person other than his new bride to embrace Howard on his wedding day, I still get a big kick out of the wedding's novelty. It was as improbable as Bill Gates getting married at a Motel 6.

I and others want to restore the room and office to their original condition and raze the rest of the shuttered 51-year-old motel. Our plans call for the room to be available for weddings and the office to house a museum featuring exhibits on the mysterious wedding and Hughes' role in Nevada history.

While holed up at the Desert Inn in Las Vegas from 1966 to 1970, Howard bought seven casinos and scores of mines, including one in Tonopah. He helped transform Las Vegas from a mob-dominated gambling town to a corporate-owned modern resort destination.

Before becoming the "invisible man" in Nevada, Howard couldn't have been any more visible. He was a movie producer, record-setting aviator, Trans World Airlines owner and major defense contractor not to mention a dashing and debonair lady's man. Dearies, there wasn't a woman alive who didn't have her hat set for that dark and handsome devil. I'd nearly swoon just being in the same room with him.

When I stood near him during the quickie, no-frills wedding in Tonopah, I could hardly catch my breath my heart was pounding so hard. I was afraid I was going to faint. I felt so foolish as the bride was holding up much better than me. What I'd given to be in her shoes, but then there'd been no one to attend the wedding.

I'll be attending a number of weddings this summer, but none I can assure you anything like the Tonopah nuptial. Before I get too caught up in wed-

ding festivities, let me tell you about some great publications and videos we have for you on traffic topics in the T² Center library.

Human Factors Issues in Traffic Signing examines the problems associated with the programming of signs for evaluation of driver response and provides an assessment of signage in different driving environments. **Improving Traffic Signal Operations** describes how some relatively simple, low-cost adjustments to a traffic signal system can reduce traffic congestion and lead to big payoffs in time savings and safety.

The **Manual of Traffic Signal Design**, published by the Institute of Transportation Engineers, explains the fundamental concepts and standard practices related to traffic signal design.

A two-page booklet **Paint Stripping** discusses paint stripping and where it is normally located.

An FHWA publication **Roadside Improvements for Local Roads and Streets** provides a guide to an effective low-cost method for improving roadside safety. **Pedestrian Signals** answers questions about different aspects of pedestrian signals.

You may want to view an FHWA video. **The Low Volume Roads Series** covers the basis of setting maintenance priorities for rural roads. It also shows how to reduce road deterioration and how to keep roads open.

The Traffic Control – What Works video, offers information on how public officials can develop reasonable, research-based traffic control strategies and how to choose traffic control devices. And **Traffic Signal Placement and Location** covers the placement and location of signs in three areas: urban, rural and freeways.

With summer quickly approaching, you should view the video titled **Handling the Heat**. It shows a program about ventilation, liquid consumption and clothing choices in hot environments.

Sweeties, let me tell you more about the wedding ceremony shrouded in a cloud of secrecy all these many years.

The wedding became the subject of lore in the central Nevada town of 2,800 residents. Surrounded by stark mountains, sagebrush and mine shafts, Tonopah features the grandiose Mizpah Hotel, ramshackle old buildings and other reminders of its glory years a century ago when mining thrived.

The site is not surprising if you understood Howard as only I and a few others did. I recommended he get married in Tonopah as I knew privacy was more important to him than glamorous surroundings.



Vehicle controlled by body movements

Gyroscopic and tilt-sensor ride

A few months ago found me on the road to Las Vegas for NDOT's second annual Nevada State Bicycle and Pedestrian Conference. The two-day event was put together by Erik Glick and Bob Mercer of NDOT.

The T² Center provided three instructors for half-day workshops. Dr. Ron Eck was brought in all the way from the T² Center at West Virginia University to teach "Bicycle and Pedestrian Accommodation and Traffic Calming" and also lead field reviews. City of Reno attorney Karen Fraley taught "Tort Liability" and Dr. David Coulson of the School of Journalism at the University of Nevada, Reno taught "How to Deal with the Media." All three are excellent instructors and teach on a regular basis for the Nevada T² Center.

The conference also offered a number of 50-minute sessions covering a variety of subjects such as "Pedestrian Safety Issues," "Safe Pedaling Across Nevada," "Pedestrian Studies," "Conducting Feasibility Studies" and "Bicycles, Pedestrians and ADA."

Arizona Bicycle and Pedestrian Coordinator Matt Zoll led the session that drew the most interest: "What to do with the Segway?" So what is a Segway, you ask?

Answer: An upright battery-operated, two-wheeled mobile device resembling a cross between a hand lawn mower and a "Razor" scooter. It is controlled by body movements with the help of tiny computers and balance-sensing gyroscopes.

The manufacturer of the Segway touts it as a transportation device that can reduce automobile traffic congestion and emissions and assist the elderly and disabled to get around.

It has been tested by postal workers, police officers and meter readers. Segway spokesmen say that 33 states and the District of Columbia have passed laws allowing the vehicles on public pathways, such as sidewalks and bike paths. While Nevada is looking at similar authorization for the transporter, San Francisco has prohibited it.

What made Matt's session so popular was that he actually had a Segway to demonstrate. A number of people tried it and found it fairly easy to ride.

The Segway can be operated at a quick clip or a casual pace. It can travel up to 12 miles per hour, has no accelerator pedal nor brake. Lean forward and it moves forward. Lean back and it slows and stops. Turn the hand grip and it swivels in place.

So is the Segway for you? It is pricey at \$5,000, but you want to keep in mind that it took \$100 million to design.

The Segway has a one-year warranty, but if you crashed it you'd have to pay to have it fixed by an authorized mechanic because of the gyroscopic and tilt-sensor that keeps you upright.

The operating range for the Segway is between 10 and 15 miles per recharge depending on speed, terrain and the rider's weight. The batteries last about 18 months and cost \$590 to replace.

If you'd like more information on the Segway, go to <www.segway.com>.

It is my guess that for \$5,000 if the Segway could be used for hunting many of you might buy one. However, because I don't think a deer could be packed out on it, you probably won't see many of the vehicles around Nevada.



Matt Zoll demonstrates the Segway.

Mark your calendars

The first annual Nevada Infrastructure Concrete Workshop will be held November 4 in Reno and November 6 in Las Vegas. For more information, Mark the **No-Brainer Mail-in** page.



Deadly trucks in work zones

The number of people killed in motor vehicle crashes in work zones went from 693 in 1997 to 1,079 in 2001. Two-hundred and forty-nine resulted from large truck crashes.

An estimated 5,000 people were injured in large truck crashes in work zones in 2001.



I've noticed that bills travel through the mail at twice the speed of checks.

The Practical Man tolerates no nonsense and minces few words. He doesn't stand on formality and isn't easily amused. Aunt Jenny's shenanigans annoy him, and he lets her know it in no uncertain terms. He grudgingly appears here to offer us hard-bitten practical advice to make your job easier.

Guardrail cleaner cuts costs

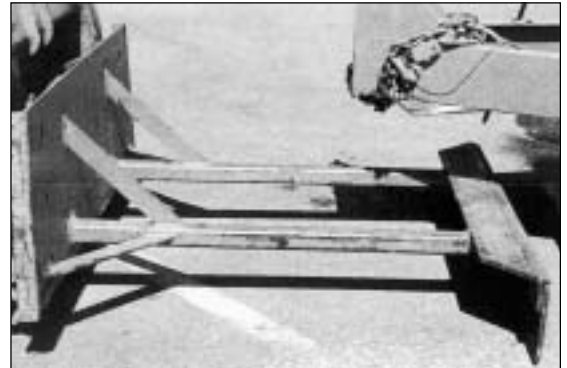
Cleaning guardrails is easier with a cleaning tool designed by the Iowa DOT. The tool, which attaches to a skid loader, is able to reach under a guardrail and push or pull debris out of the way.

The Iowa DOT found that using the cleaning tool cuts labor by 60 percent and saved approximately \$11 per hour.

The guardrail cleaner is 44 inches long by 42 inches wide. It is attached to a skid loader with a quick-tach plate. To make the quick-tach plate the following materials are needed:

- 5 feet of 3/8 inch x 2 inch flat steel
- 8 feet of 2 inch x 2 inch square tubing
- 4 feet of 3' x 5 inch x 12 inch angle

Including paint, the material cost is about \$125.



This close up shows the guardrail cleaning tool in detail.



Recycle Michael is as tight fisted as his ol' buddy The Practical Man is tight lipped. He has the first dollar he ever earned and expects the government to be frugal as well. He's always on the lookout for ways to reuse things to save a little money while helping to preserve the environment.

Toilet flush marsh revisited

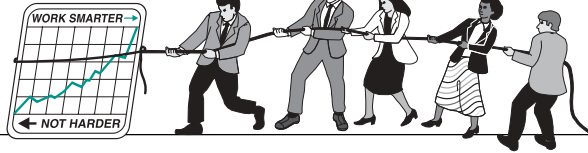
As expertly reported in the spring issue of the *Milepost*, Carson City was required to create a wetlands to replace those lost to construction of a new freeway.

With development of the wetlands just completed, the marsh is already attracting waterfowl, shore birds and white-faced ibis feeding on seeds and insects.

City officials negotiated with landowners to lease water from Mexican Ditch for the next two years until the pipeline from the sewer treatment

plant is completed to supply effluent water to the wetlands. Officials do not expect the use of recycled water to affect birds and other wildlife or the fresh water supply nearby.

Effluent water costs the city about half as much as drinkable water—21 cents per 1,000 gallons compared to 40 cents per 1,000 gallons. Last year the city supplied more than 1.8 billion gallons of recycled water for irrigation of parks, ballfields, golf courses and the cemetery.



Make your ideas heard

Are you having difficulty getting people at work listen to your ideas? If so, you need to figure out why before you start pitching more of them. Subtle changes in the way you express your ideas can make a world of difference.

Consider the following: You could lack confidence in your presentation, causing listeners to tune out. Perhaps your ideas are not as good as you think they are, or you have a history of off-the-wall brainstorms that never come to fruition.

Ask your boss or a colleague what you can do to improve. Listen to their feedback and don't be discouraged.

It is important to ask yourself if your idea is really practical, and how would the agency benefit if

the idea was carried out. Do you have evidence to back up your idea, and are there any negative consequences? Keep an "idea log" handy and whenever a new idea comes to mind, jot it down. As you refine your pitch remember to ask:

- Who in the agency needs to agree with your idea?
- How long would it take to implement, and what are the costs?
- Are there any risks?
- What strategies can you use to influence people to buy into the idea?

Just remember, innovation is as much about implementation as it is about creativity.

■ Would you hire any of them?

Julius Caesar: "My last job involved a lot of office politics and back stabbing. I'd like to get away from all that."

Joseph Guillotine: I can give your agency a head start on the competition."

Genghis Khan: "My primary talent is downsizing. On my last job I downsized my staff, my organization and the populations of several countries."

Lady Godiva: "What do you mean this isn't business casual?"

Elvis: "My last boss and I... say, are you going to eat those fries?"

Tips for a better work environment

- Always believe in yourself because others will respect you more.
- Try to turn crisis into opportunities.
- Overcome any obstacle.
- Be committed and focus. The difference between the successful and unsuccessful is the difference between the approach and attitude.
- Don't be afraid to change your mind. Things have a way of changing and any good plan of action will incorporate flexibility and change.
- Communicate well with your immediate supervisor. Good working relationships can make the difference between a job you like and one you hate.

Aunt Jenny... *Continued from page 10*

To avoid publicity Howard and Jean registered under fictitious names: he as G.A. Johnson and she as Marian Evans. I also used a false name as the witness for the wedding ceremony.

I arranged for Howard and his actress bride to fly in and out of Tonopah that day from Los Angeles, with the entire Nevada stay lasting about two hours.

Jean Peters and I got along famously. The brunette beauty appeared in 19 films with such stars as Marlon Brando, Marilyn Monroe, Ray Milland and Spencer Tracy. She left Hollywood after marrying Howard, who was 21 years her senior.

Jean didn't seem the least bit bothered about getting married in an upstairs room of the modest hotel. She was dressed in casual clothes: a skirt and blouse. She was extremely happy. It was obvious to me that they were in love.

Sadly, shortly after their marriage, Howard's mental condition deteriorated, and both he and Jean vanished from public view. Except for a brief period they lived apart. I lost touch with Jean, and Howard lost touch with reality.

A Howard Hughes Museum in Tonopah will not bring them back, but Howard's mystique may help the town survive a mining slump and other setbacks. I'm betting on it!

*For any items mentioned in this column, call Aunt Jenny at 775/784-1433 or turn to the **No-Brainer Mail-In Page**. When she's not attending weddings, auntie also is available to do a computer search for you on any transportation-related topic, or she'll hook you up with an expert.*

■ Traffic control info exchange

The Federal Highway Administration offers online discussions in 222 areas covered by the *Manual on Uniform Traffic Control Devices*. Found at <http://mutcd.fhwa.dot.gov/threads.cfm>, the most popular traffic control discussions are:

- Speed limit criteria
- Work zone control
- Dead end/no outlet problems
- Speed humps
- Yellow light timing
- MUTCD enforcement
- Drivers' color blindness

Three wise men—latest Roads Scholars

Here's a little bit about the three most recent Roads Scholars to graduate from the Nevada T² Center program.



Danny Rogers is a highway maintenance worker III for NDOT in Reno. With the agency for 18 years, his work area is US Highway 395 North to Border Town and the Pyramid Highway to Warrior Point.

Danny was born and raised in Oakland, Calif., and graduated from St. Elizabeth High School. He attended a local community college and played on the football team. Before going to work for NDOT, he worked for Golden West Paving in Reno.

His favorite activities are hunting and fishing. After 18 years of trying to draw an Elk tag, he finally succeeded last fall and bagged a bull elk near Majors Place south of Ely.

Danny says he enjoyed the Roads Scholar program, and what he learned is "very useful" on the job.



With NDOT for 14 years, **Frank Gamboa** is also a highway maintenance worker III and works with Danny on NDOT crew 251.

Born in Mexico and raised in Fernley, Frank graduated from Fernley High School. He has a daughter, Kasandra, who is 10 years old.

Frank likes hot rods and restoring old cars. Currently, he is working on a 1932 Plymouth.

"I got a lot out of the T² Center program," he says. "I particularly liked the good lunches and the friendly atmosphere."



Norman Rockwell is the district engineer for the Elko District of the Bureau of Land Management. Prior to starting with the BLM in 1983, he was an engineering and surveying consultant in and around Elko.

An Elko native, Norman graduated from Elko High School and the University of Nevada, Reno with a degree in civil engineering. He is a registered professional engineer in Nevada and Idaho and a registered land surveyor in Nevada.

Norman enjoys flying and is a lieutenant colonel in the Civil Air Patrol. Although not a famous painter like his name sake, he did have the pleasure of meeting American icon Norman Rockwell in Stockbridge, Massachusetts.

With regard to the Roads Scholar program, Norman says, "It is a good way to interact on common problems through discussions at the workshops. It's been a real pleasure working with the T² Center staff and instructors."

Asset management Web site

Many transportation officials are applying the asset management principles. To enhance the asset management learning process, the American Association of State and Highway Transportation Officials in partnership with the Federal Highway Administration and the Transportation Research Board created the *Transportation Asset Management Today* Web site. It can be found at: <http://assetmanagement.transportation.org>.

The purpose of the Web site is to connect transportation practitioners from state and local agencies with experts in the asset management field. Although the site has been on line for a very short

time, more than 31,000 pages are being viewed monthly.

The site is organized into a number of different topic areas. Viewers can sign up for e-mail updates about the areas they are most interested in. Topic areas include:

- Asset Management 101
- AASHTO Guide for Asset Management
- Innovation and Success
- Pavement Management System
- Bridge Management System
- Tunnel Management System
- Roadway Hardware Management System
- Maintenance Management System

- Integration of Data and Management Systems
- Transportation Preservation
- Engineering Economic Analysis Tools
- Research
- GASB 34
- AASHTO Asset Management Task Force
- Asset Management at TRB
- Asset Management Education

Each topic area is hosted by an expert. Each area contains a growing library of reference materials, information about upcoming conferences and workshops and a directory of other transportation officials interested in the particular topic.

No-Brainer Mail-In Page

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Circle Yes where appropriate

Items from Aunt Jenny's advice column

Do you want information on the first annual Nevada Infrastructure Concrete Workshop Yes

Publications

Do you want a copy of Human Factors Issues in Traffic Signing? Yes

Do you want a copy of Improving Traffic Signal Operations? Yes

Do you want a copy of The Manual of Traffic Signal Design Yes

Do you want a copy of Paint Stripping? Yes

Do you want a copy of Roadside Improvements for Local Roads and Streets? Yes

Do you want a copy of Pedestrian Signals? Yes

Videos

Do you want to borrow The Low Volume Roads Series? Yes

Do you want to borrow The Traffic Control—What Works? Yes

Do you want to borrow Traffic Signal Placement and Location? Yes

Do you want to borrow Handling the Heat? Yes

Bumper sticker snickers

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Nevada Milepost

is published quarterly by the Transportation Technology Transfer Center at the University of Nevada, Reno. Its purpose is to provide the latest information on transportation in a way that is useful to local and county highway personnel.

Nevada Milepost contains original and rewritten material compiled from reliable sources. It assumes no responsibility for the correctness of the information.

The Nevada T² Center is part of the nationwide **Local Technical Assistance Program**. It is financed jointly by the Nevada Department of Transportation and the Federal Highway Administration.

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Road guide gives glimpse of past

With the advent of the automobile came the cry for more and better roads. A direct response was the formation of the Lincoln Highway Association in 1913 with the purpose of building a highway across the country from New York to San Francisco.

The Lincoln Highway's original route ran through Ibapah, Utah, and over Schellbourne Pass to Ely. The 1916 Official Road Guide describes the natural gravel route as 90 percent excellent and 10 percent fair.

The stops along the way listed in the Guide are interesting to reflect on nearly 90 years later.

Tippett—Population 10. General store, meals, lodging, camp site. Route marked through county. Extensive road improvement. Snow capped Mt. Wheeler in sight to the south: 13,058 feet high. Miles to New York, 2655, to San Francisco, 676.

Anderson's Ranch—Meals, lodging, gas, oil, drinking water, radiator water, camp site. Miles to New York, 2677, to San Francisco, 654.

Shellbourne—Ranch and post office once a government post on the Emigrant Trail and Pony Express. Route marked across county. Meals, lodg-

ing, drinking water, radiator water, camp site. Miles to New York, 2684, to San Francisco, 647.

McGill—Population 2500. No hotels, several lodging and boarding houses. Route marked through town and county. One bank, 1 railroad, 25 general businesses, 1 express company, 1 telegraph company, telephone, 1 public school, electric lights, water works. Smelting plant which normally handles from 12,000 to 15,000 tons of copper ore per day. Miles to New York, 2712, to San Francisco, 619.

As progress on Lincoln Highway improvements were made, the section from Ibapah to Ely was discontinued in favor of a route through Wendover.

The road over Shellbourne Pass has received improvements to alignment and drainage over the years, but it still remains gravel. By current day standards we probably would not rate the road's condition as 90 percent excellent and 10 percent fair.

However, the old route makes for an adventurous drive, and a chance to glance through your rear view mirror at yesteryear.



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