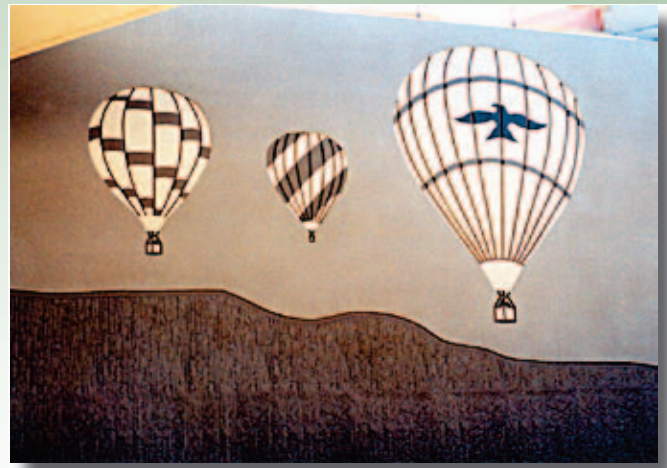


Lamb Boulevard Will Show "New Face" of NDOT

Architectural details such as hot air balloons and airplanes are set in concrete to tie in with nearby Nellis Air Force Base. Landscaping including palm trees is in place, and by the time this issue of NDOT News



UP, UP AND AWAY—Hot air balloons decorate one side of the underpass at Lamb Boulevard and I-15 in Las Vegas. The other side of the underpass has airplane figures stamped into concrete.



FINE GRADING—Sidewalks are being poured, trees are being planted and scrapers are making their final passes prior to paving at the Lamb Boulevard Interchange. The structure should be completed by August.

sees print, the Lamb Boulevard interchange in Las Vegas should be open for the public to use and admire. The department has had an aesthetics and landscaping program since 2002, when the Nevada Board of Transportation endorsed the plan.

The effect of the plan will readily be seen at the single point interchange at Lamb Boulevard and I-15. The \$17.4 million project replaces a partial interchange of a southbound off ramp and northbound on ramp to I-15. Approximately \$385,000 of the cost was devoted to aesthetics.



Statewide Maintenance Program



Preserves Roads & Improves Safety

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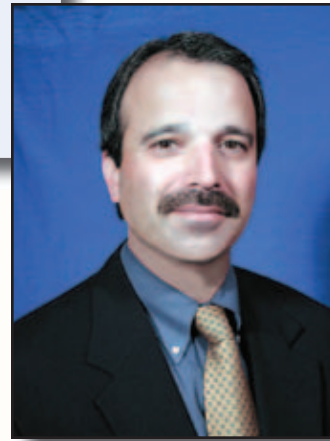
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NDOT NEWS SUMMER 2005



The Road Ahead

By Jeff Fontaine, P.E., Director



For the Nevada Department of Transportation, the routine business of roadway business is also big business. Statewide, NDOT has more than 740 full time employees dedicated to roadway maintenance activities, with budgeted expenditures exceeding \$75 million. It is a responsibility we at NDOT take seriously to use the money as efficiently as possible to create a safe transportation system that preserves the life of our roads.

Maintaining our highway system is absolutely vital to the welfare of the state. Daily, all of us depend upon the highway system to provide the mobility needed for work, school and shopping, as well as access for essential services such as fire, police and medical, not to mention meeting our recreational needs.



To preserve NDOT's sand and salt piles and to keep them from leaching into the environment, more domed structures are being used around the state.

is quite appropriate in managing pavement life cycle costs. NDOT maintenance crews routinely perform the minor pavement repairs that help provide a smooth and more comfortable ride. Finally, the maintenance crews are critically important to enhance safety by maintaining pavement markings, signs and the variety of other roadside features that many motorists take for granted. Our maintenance crews have difficult jobs, and they continually are faced with the hazards of working along busy roadways.

On The Cover: NDOT maintenance crews make all the difference. Without them, roads would literally be impassable. Around-the-clock snowplowing during winter storms, preserving roadways with chip seals, and installing signs and pavement markings are a few of the dozens of tasks that are all in a day's work for the local highway maintenance workers. In the lower cover photo Sally Goodwin of Crew 241 has to keep one eye on the road and one on the monitor as she watches the line laid down by her striping truck. On an annual basis, the amount of work performed by maintenance crews is truly amazing. We have the numbers on pages four and five.

Our businesses depend upon the highway system to provide services and move goods. We all know that in the business world time is money. In fact, many businesses heavily rely on "just in time" shipping to minimize the storage costs and inventory burdens.

Clearly, for our citizens and our businesses, it is critically important that our highways stay open. Whether it is snow removal, cleanup of debris, or providing traffic control at the scene of an accident, NDOT maintenance crews always respond promptly to maintain or restore the highest levels of mobility.

Further, the old adage that a "stitch in time saves nine"

I am proud of the great work done by NDOT maintenance forces across the state and know they will continue to serve the traveling public well.

Fallon Area Widening Project Includes Fernley Roundabout

Progress continues to be made on the US-50/US-50A Fallon to Fernley route, with two widening phases completed and a groundbreaking held in May for a Fernley roundabout that will replace an obsolete intersection. Granite Construction Co., the contractor, will also widen US-95A from three to five lanes from the US-50A intersection to Fremont Street in Fernley.

The reconstructed intersection of US-95A, US-50A and Farm District Road will result in a roundabout with free right turns. Another aspect of the \$12.5 million project will be replacement of a bridge in Fernley that spans the Union Pacific Railroad.

This is the latest contract in a multi-phase project that will expand the Fallon to Fernley

STARTING UP--With loaders and dump trucks working in the background, NDOT Assistant Director Ruedy Edgington listens to Fernley Mayor David Stix, Jr. discuss the cooperative effort for improvements to the highway between Fernley and Fallon.



The final phase, widening eight miles of US-50A from the Lyon/Churchill county line to the Leeterville Junction, a \$30 million project, is expected to begin in late 2006.

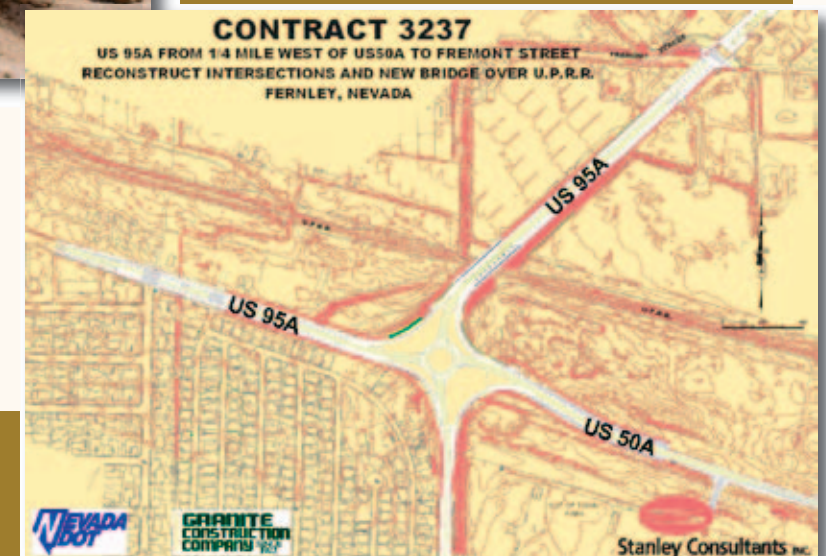
SHOVEL TIME--Turning the ceremonial first shovel are Shawn Fleming, Stanley Consultants; Ruedy Edgington, NDOT; Fernley Mayor David Stix, Jr.; Jason Fenhaus, Granite Construction Co.; Rand Pollard, NDOT; and Fernley City Councilman Joe Mortensen.



corridor to four or five lanes. The route has been improved from the Leeterville Junction to the Shekler Cutoff in Fallon.

Upcoming projects include widening eight miles of US-50A from Farm District Road in Fernley to the Lyon/Churchill county line at a cost of \$26 million. Construction is expected to begin in late 2005.

ROUNDABOUT--A roundabout with free right turns will replace an obsolete intersection at the east end of Fernley. It's part of the highway widening project between Fallon and Fernley.



NDOT Works to Curb Auto-Pedestrian Crashes

It hasn't been the Nevada Highway Department for some time, but for many the Department of Transportation still means state routes and interstates. While NDOT encompasses road construction and maintenance, its responsibilities also touch upon bicycle, rail and even air travel.

Pedestrian safety is also important. NDOT's State Bicycle/Pedestrian Program Manager Eric Glick says the department has a newly created pedestrian plan in draft form. It provides data on collisions and can provide information on how to best allocate available

money for pedestrian safety improvement projects. The plan gives local governments guidance to bring them to the statewide standard. Communities need an approved plan to be eligible for enhancement grants that can pay for pedestrian facility improvements.

Even as the state continues to grow with more people, houses and vehicles, that growth can incorporate a pedestrian friendly environment if planning is done.

The reasons to pay attention to the needs of the walking public are many. There are health benefits, benefits to the environment and the need to remove barriers to access to public facilities.

Nevada's pedestrian plan covers traffic control devices, Americans With Disabilities Act-compliant sidewalks and walkways, trails and shared-use paths and such things as intersections, interchanges and roundabouts.

For more information, contact Eric Glick at eglick@dot.state.nv.us or by phone at 775-888-7433.



INNOVATIVE--A short pedestrian crossing light and the need to keep walkers from crossing Tropicana Avenue against the signal led to the innovative approach shown above. Those crossing the busy Las Vegas street cross halfway with one light and cross the second half at a second signal. The setup creates better traffic flow and protects pedestrians.

US-95 Las Vegas Settlement Puts Project Back on Track

Construction may resume as early as this fall on a US-95 widening project in northwest Las Vegas that had been stalled because of a lawsuit brought by the Sierra Club. Gov. Kenny Guinn announced in late June the agreement that allows:

- Addition of new lanes
- Construction of high occupancy lanes in each direction
- Monitoring systems and other technologies designed to reduce congestion and improve safety.

The agreement also includes measures designed to improve the environment by testing air filtration systems in nearby schools, reducing diesel emissions from Clark County school buses, and gathering information on vehicle emissions.

The governor was joined in making the announcement by Federal Highway Administrator Mary Peters.

"This has always been one of the most important highway projects for southern Nevada, and one of my highest priorities," Gov. Guinn said. "We can move forward now on a project that will certainly keep the families, the commuters and truckers traveling on US-95 much safer."

Peters said the FHWA worked closely with NDOT to reach the Sierra Club settlement as quickly as possible because the widening work is vital to the Las Vegas economy and quality of life for area residents. The project has been tied up since August 2004.

Nearly 12,000 vehicles use the six-lane highway during commute hours. The freeway was built in 1979 to handle up to 6,000 vehicles per hour. Vehicle counts are increasing while travel speeds are slowing. Estimates indicate that even a slight increase in the speed of vehicles would save the public more than \$8.5 million in delay costs.

As part of the lawsuit settlement, NDOT and FHWA will take steps to reduce school bus emissions and monitor air pollution, including:

- Install air filtration systems designed to monitor and evaluate mobile source air toxics at three schools next to US-395
- Relocating portable buildings and the playground at Fyfe Elementary to a greater distance away from US-95
- Conducting public outreach and education to reduce idling time of diesel vehicles.
- Retrofitting Clark County School District buses with filtration systems to reduce diesel emissions.



SETTLED--FHWA Administrator Mary Peters and Gov. Kenny Guinn address a press conference to announce the settlement of a lawsuit that tied up construction on US-95 in northwest Las Vegas.

Maintenance Crews Work to Keep Roads Safe, Clean and in Top Notch Condition

Top Ten Maintenance Activities

While maintenance crews perform dozens of activities on a daily basis to maintain Nevada's interstates, US routes and state routes, NDOT workers spend hundreds of thousands of hours on the top ten tasks listed below. This list does not include work considered winter maintenance, betterment projects such as chip sealing and fence repair, or jobs part of a safety or emergency response. Hours reported are for 2004.

1. Debris removal 68,359 person hours
2. Fill slope repair 44,151 person hours
3. Urban sweeping 29,291 person hours
4. Highway striping 20,565 person hours
5. Landscaping without turf 19,284 person hours
6. Maintain roadway markers 18,427 person hours
7. Repair and replace signs 18,320 person hours
8. Blade shoulders 13,877 person hours
9. Weeding and burning 13,047 person hours
10. Crack filling 12,339 person hours



Tahoe Projects Beautify and Protect Infrastructure

Good weather brings more people to Lake Tahoe, but that is also the time when construction projects have to be done. Paving, tree removal along the roadway, signal work, barrier rail construction and tunnel repair result in an improved transportation system.

Several highway projects have been completed at Lake Tahoe, including maintenance at the Cave Rock Tunnels and replacement of guardrails with concrete walls stained to look like natural rock.

Other projects include paving and signal work at South Lake Tahoe, replacing bin walls supporting the roadway and placing rip-rap along embankments to prevent erosion.

There are two tunnels at Cave Rock and routine maintenance calls for patching cracks in concrete walls in the longer tunnel and installing new weep holes in the concrete to replace holes that have silted up over the years.

Closing down a tunnel limits traffic to one direction at a time and NDOT is making the down time as productive as possible. The approaches to the tunnel are being milled and repaved, and in the tunnels themselves a special reinforcing fabric is being put down to prolong the life of the pavement.

Another improvement is steeper cross slope to improve draining and prevent ice from building up in the tunnel. The \$2.3 million project was awarded to Granite Construction.



DRILLING—A worker with Diversified Concrete Cutting drills a weep hole for draining the tunnel.



WALLS THAT BLEND—Concrete barrier walls have been installed that emulate the natural surroundings at Cave Rock.

IRWIN Project Will Take Department From Paper Shuffling to Computer Age

Instead of plunging into paper files of deeds and records to search right-of-way questions, NDOT is working on a new system that will provide information at the touch of a computer key.



RESEARCH—Charles Carter, Technician 5 shows Lisa Green, Technician 3, a pertinent right-of-way document at NDOT's archive building in Carson City. The two employees work in the Right-of-Way Engineering section.

It's not something that can be done quickly or easily, but the four-year project has been in the works for 18 months and will benefit those with construction projects abutting NDOT property, utility companies, local agencies, the general public and, of course, NDOT staff.

In addition, those who are interested in surplus property or want information on access to state roads will also have their questions answered quickly.

The project is called IRWIN, the Integrated Right-of-Way Information Network, which will be a new way to digitize and catalog documents and bring them up digitally as needed to research right-of-way questions.

At this time nearly all historic records are maintained in a non-computerized format. Document search involves files that are not centrally located, and records are in the form of maps, agreements and deeds that are decades old. Additionally, they are of various sizes, configurations and materials. The bulk, diversity and lack of central location for documents can lead to errors and delays in research,

affecting major projects.

But digitizing and cataloging documents will also have a beneficial impact on other parts of the agency, project manager Ben Grissom said. It will also assist Design and construction project management while also putting effective tools into hands at district offices.

"IRWIN will cost about \$3 million, but a lot of the cost is a one-time expense to digitize documents," Grissom said. "We have about a million documents to catalog at approximately a dollar each."

Depending on need, various NDOT offices have used different references for documents, including contract numbers, federal project numbers, mileposts, parcel numbers and section, township, range designation.

IRWIN will cross-reference any existing reference with a precise location determined through the Global Positioning System (GPS) and NDOT's newly created Linear Reference System. When IRWIN is operational, entering any one of several location methods will bring up all deeds, permits, utility easements,

etc. for the location.

The IRWIN system is being designed to improve business practices at NDOT in many ways. Three of the most critical goals are:

- To create and implement a computing environment which provides easy-to-use access to all DOT property inventory information, utility agreements, and encroachment permits for both the public and internal staff in support of right-of-way business processes.
- To create and implement a modern property inventory management system which supports inventory, access, retrieval and management reporting of all DOT right-of-way property.
- To improve the service to customers by providing internet/intranet capabilities to perform research, application requests, status tracking, on-line plan checking and fee payments.

By the Numbers: NDOT Puts Up Impressive Maintenance Statistics

Whether it is painting bright new highway stripes, repairing critical guardrail or welding a cattle guard that has come loose, NDOT's maintenance employees are jacks-of-all-trades who can take care of whatever problem arises.

Their work entails more than road work. Often, NDOT maintenance employees are the first ones to arrive on the scene of an accident. They put first aid and CPR skills to work and have saved several lives. When emergency responders arrive, their work continues in diverting traffic, securing the accident scene and warning approaching drivers.

Maintenance workers put their handiwork on display on literally tens of thousands of miles of Nevada roadway every year. Consider these numbers:

Striping miles	11,864.73
Miles of fence repaired	38.80
Miles of guardrail repaired.....	2.77
Square feet of signs repaired.....	67,202.97
Square feet of pavement markings laid down.....	15,297.00
Number of lights repaired	630
Guardrail end sections, attenuators repaired	153
Emergency response person hours.....	19,579.70



Progress Continues on Colorado Bridge; Nevada Approach is 90% Complete

The spectacular new Colorado River Bridge project linking Nevada and Arizona below Hoover Dam is well underway, with the promise of a modern structure that will eliminate the sharp turns, narrow roadways and low travel speeds that now plague the present route of US-93 in the area of the dam.

The Arizona approach to the bridge site is done, the Nevada approach is 90 percent completed, and work has begun on the Colorado River Bridge itself. Obayashi Corporation and PSM Construction USA, Inc., a joint venture partnership, were awarded the construction contract to build the bridge with a bid of \$114 million. The completion date is scheduled for June 2008.

The Nevada Approach will include:

- 2.2 miles of four-lane roadway (two lanes in each direction divided by a concrete median)
- Six New Bridges: Wildlife Underpass, Interchange Bridge, Nevada Canyon Bridge, Lower Portal Access Bridge, Bureau of Reclamation Warehouse Bridge, Old US 93 Bridge
- Traffic Interchange near the Hacienda Casino to provide access to existing US 93, which will become the Hoover Dam Access Road
- 1.6 million cubic yards of earthwork
- Retaining walls totaling 50,000 square feet
- Extension of the National Park Service River Mountain Loop Trail
- Wildlife crossings
- Drainage improvements
- Trail access parking
- Staining of newly exposed rock cuts as determined by the Design Advisory Panel



IN PROGRESS—View of Edward Kraemer & Sons constructing formwork for the girder sections at the Old US-93 overpass. Photo courtesy of FHWA.

Plotted, Mapped and Pinned Down by Satellites

Bit by bit, wide-open Nevada is becoming more precisely plotted, mapped and pinned down, thanks to GPS technology. The Global Positioning System (GPS) is a worldwide radio-navigation system formed from a constellation of satellites and their ground stations.

GPS uses these “man-made stars” as reference points to calculate positions accurate to a matter of meters. The technology allows precise measurement of roads, monuments and geographical features.

GPS technology is necessary for construction projects, but the benefits of using GPS are being seen in several ways. Precise area maps are being produced that have a photographic background and an overlay showing important man-made features.

For instance, the new Winnemucca area map highlights the names of all the paved streets, the Humboldt County Fairgrounds, the Humboldt River, parks, schools, cemetery, railroad lines and Nevada National Guard facility. It also helps NDOT employees by referencing bridge numbers, mileposts and survey control numbers.

“Small towns don’t have the resources to provide this service,” cartography chief Michael Turner said. “The larger cities have their own cartography staff.”

The new color maps on a muted photo background are a dramatic improvement on the previous area maps that are essentially black lines on white paper.

“Many of our area maps are 20 years old and older, and it will be a long term project to update all of them,” Turner said. “We have 77 area maps and 129 30-minute quadrangle maps.”

Turner said the oldest maps and the fastest growing Nevada communities will be the priority of the new process, with Lovelock, Golconda, Winnemucca and Battle Mountain already completed and available. Maps for the rapidly growing communities of Laughlin, Pahrump and Silver Springs are currently in progress.

Larger scale 30-minute quadrangle maps will show the communities and the areas surrounding them and will be included in the revised edition of the Nevada Atlas. For information on maps, contact NDOT Cartography at 775-888-7627.



UPGRADE—New maps produced by NDOT Cartography have a photo background superimposed with names of important landmarks such as roads, schools, reservoirs, parks, and railroads. Karl Yonkers and Jeff Dunn show the difference between new and old.

New Technology Brings Unified System

An effort begun four years ago to have all the offices of NDOT singing from the same sheet of music is beginning to come together, thanks to the use of geographic information systems.

GIS technology allows layers of data to be combined in a precise manner, and different layers used as needed. Employees from various departments travel the state with global positioning system equipment that provides an exact location for each second of travel, including the precise position of each mile marker on every interstate and state route.

That same technology is also being used to plot county, city and private roads with only a few rural counties in Nevada left to complete. "We need to study the traffic patterns of our feeders to find out why we might be having accidents and know what the pavement conditions are,"

cartography chief Mike Turner said. "It's important to get the big transportation picture."

Every state route and interstate has a milepost with the numbers rising west to east and south to north. When the milepost is plotted with the help of satellite technology, the location of each milepost in the state will be known within a couple of meters.

"We're building a database from scratch," Turner said. "Everything is going to be digital and much easier to maintain. We will be able to extract data as needed to put together a topographical map, a highway map, or something else."

Turner called the new system a "dynamic database" that will be easily updated when roads are changed or



REAL WORLD CHECK--The intersection of Camus Road and Pinion Hills Drive in Carson City is in a residential neighborhood, but Pinion Hills is also SR-513 owned by NDOT. Jeff Schmitz and Drew Anderson of Cartography use satellite technology to precisely plot the intersection's longitude, latitude and elevation.

added. Within the next year or so all county roads should be in the database and within two years private roads, dirt roads and roads on federal lands.

"With the database in place, everyone at NDOT will be talking about the same portion of the road, whether it's materials wanting to know the condition of the road or traffic safety and crash statistics," the cartography chief said.

Offices that have a need for additional data, such as traffic safety keeping track of crashes by street name and intersection, can still do so. But that data can be translated to a precise location with GPS technology for another office that needs the information.

"This is all about asset management," Turner said. "We'll all have a common framework and a common language to do the analyses we need to do."

Spaghetti Bowl Transformation: "Oasis for the Eyes" in Las Vegas

Construction has begun on transforming the Las Vegas Spaghetti Bowl from little more than concrete and dirt to a landscaped interchange with colorful rock, plants and other features. Works will include desert tortoise sculptures and symbols reminiscent of those created by Native Americans thousands of years ago. Highway funds will pay for the project, costing \$3.5 million.

The project will have several benefits, including dust control and the creation of a visual oasis that will bring life and color to one of the state's busiest freeway interchanges.

The design is true to the department's aesthetics and landscaping program of a corridor study of the interchange where I-15 and US-95 meet in downtown Las Vegas. The design also reflects a Landscape and Aesthetics Plan adopted in 2002 that recognized an on-going need to improve landscaping standards, policies, and practices within NDOT, as well as an increasing public demand for environmental protection and highway beautification.



Corridor Studies Evaluate Transportation Alternatives

In the same way that no one would start excavating in their backyard without knowing where the water and utility lines were located, NDOT is looking at a dozen growing areas of the state to see where the best transportation solutions lie.

The studies are to plan for increased capacity, but there are also several studies for landscape and aesthetics planning.

Called "corridor studies," the planning group at NDOT gathers information, involves the public, and forms stakeholder working groups.

"These corridor studies are a prelude to spending millions, sometimes tens of millions of dollars, in



PYRAMID HIGHWAY--More houses and more vehicles are the order of the day for the valleys north of Reno. SR-445, the Pyramid Highway, is the subject of a corridor study led by the Washoe County Regional Transportation Commission.

projects," Program Development Chief Dennis Taylor said. "We want to get the most bang for our buck and the best solutions to problems."

Every major project NDOT undertakes has a number of issues, including access, drainage, utilities and right-of-way. Once a transportation alternative is chosen, that choice itself has implications on the surrounding area.

"Our job is to develop a list of alternatives that provides the best solution," Taylor said. "If we are



JOBS PEAK—One northern Nevada corridor study includes US-395 from Carson City to the California border, but it also touches West Jacks Valley Road and Foothill Road, routes providing an excellent view of Jobs Peak.

looking at the US-395 corridor between Carson City and Gardnerville, for instance, some of the approaches might be changing the speed limit, widening the road, or perhaps an alternative route such as a freeway bypass."

Taylor said that a bypass would bring in a whole new set of considerations, such as the effect a new route would have on historically significant structures, and all the other evaluations that would have to be made.

"Corridor studies are an excellent planning tool," said project manager Scott Rawlins. "They provide the long range element of our work program identifying what projects need to be undertaken. Information from a corridor study can be used to begin the environmental study and that can be rolled into the design process."

Current Corridor Studies—Southern Nevada

- US-95 from Washington to Kyle Canyon, including Beltway Interchange--underway
- I-515 from Spaghetti Bowl to Foothill-Eastern and Southeast--underway
- I-15 North Corridor from Spaghetti Bowl to Apex in Northeast Las Vegas--underway
- Boulder City US 93 from Foothill grade separation to the Hacienda Resort--completed
- Project NEON from Sahara to the Spaghetti Bowl--completed
- I-15 from Tropicana to Sloan--underway



INTERSTATE 15—A 12-mile corridor study from Tropicana Boulevard to Sloan Road in Las Vegas is underway. Plans include evaluation of a 14-lane corridor to accommodate the growing number of vehicles.

Spring Mountain National Recreation Area in Clark and Nye counties, (being led by the U.S. Forest Service)--underway

Mag-Lev Super Speed Train from Anaheim, CA to Las Vegas--underway

Current Corridor Studies—Northern Nevada

- US-395 Carson City to the California border, including West Jacks Valley Road and Foothill Road--underway
- SR-445 Pyramid Highway (being led by Washoe County RTC)--underway
- US-395 North, from I-80 to Stead--underway
- US-50 from Carson City Freeway to Leeteveille Junction--underway



US-395—A four-lane divided highway is already in place from Reno north to Stead, but long-range planning demands more study on how this area is to be served.



I-515—One of several corridor studies is I-515 from the Spaghetti Bowl in Las Vegas to Foothill-Eastern and Southeast.



US-95—Growth in the northwest Las Vegas Valley requires a corridor study along US-95 from Washington to Kyle Canyon and the Beltway Interchange.