

Welcome, New Research Staff Members

We are happy to introduce the newest members of the Research section: Heather Manzo and Christianah Akinola. Heather is the new Product Evaluation Coordinator, and Christianah is our Research Analyst.

Heather comes to us from another section within Planning (Transportation Multimodal Planning) where she maintained the Statewide Transportation Improvement Program (STIP) and participated in corridor studies. Her experience coordinating projects and programs with a diverse array of entities, and excellent computer and communication skills, give Heather a strong start in her new endeavor. Heather graduated from UNR

with a B.S. in Geography, and applied that in the planning arena working for the cities of Reno and Sparks. Heather and her family spend a lot of time outdoors bicycling, hiking, riding horses, and raising and showing the cutest little bitty goats you can imagine.



Heather Manzo (left) and Christianah Akinola (right)

Christianah got her bachelor's in Civil Engineering from UNR, and has spent a number of years in the private sector doing designs and planning for Theil Engineering Consultants and Lumos and Associates. She has simultaneously been a part-time book-keeper for a supermarket chain for many years. As you would expect, she is very well organized and brings a fresh perspective to our routine. Christianah is health-conscious and likes to cook outdoors in the summer months. She claims to have an excellent recipe for barbecued goat.

Please come by to meet and welcome Heather and Christianah in headquarters, Room 115, if you have a moment.

Research, Development and Technology (RD&T Program Development for Federal Fiscal Year 2013 (FFY 2013))

We would like to thank all of you at NDOT, the universities, and other participants for your active engagement in the annual Nevada DOT Research, Development, and Technology Transfer program development process.

Continued on page 2



In This Issue:

Page 1-2
New Staff Members
RD&T Program Development

Page 3-4
Speed Reduction Guidelines

Page 5
Product Evaluation Updates

Page 6
Fun Facts
Library Corner

We are pleased to announce that the Research Management Committee (RMC) met on May 31st 2012 and approved the following eleven research projects for Federal FY 2013 starting in October, 2012.

Please contact us if you need any additional information or have concerns. Thanks again for your help with this annual RDT program development effort.

Proposal Title	Selected Principal Investigators	Organizations
Post-Tensioning Web Cracking	Dr. David Sanders	University of Nevada, Reno
Evaluation of Pervious Concrete Mixes in Areas Subject to Snow Plow Operations and Abrasive and Salt Application	Dr. Xianming Shi	Western Transportation Institute (WTI)
Right-turn Traffic Volume Adjustment in Traffic Signal Warrants	Dr. Zong Tian	University of Nevada, Reno
Development of Specifications for Engineered Cementitious Composites for use in Bridge Deck Overlays	Drs. Elie Y. Hajj and David Sanders	University of Nevada, Reno
Correlation of in situ test data with shear strength for deep foundation design	Drs. Barbara Luke and Raj Siddharthan	University of Nevada, Las Vegas and University of Nevada, Reno
Nevada Intelligent Mobile Observations (Nevada IMO) Project: Multi-Modal Telemetry Capability	Drs. Eric Wang and Jeffrey C. LaCombe	University of Nevada, Reno
Next Generation Performance Monitoring Data Needs for Nevada DOT	Drs. Brendan Morris and Alexander Paz	University of Nevada, Las Vegas
Evaluation of Short and Long Term Dimensional Properties of Self Consolidating Concrete	Drs. Aly Said, Ying Tian and Pramen P. Shrestha	University of Nevada, Las Vegas
Automated Intersection Volume Counts Using Existing Signal Control Devices	Drs. Zong Tian and Pitu Mirchandani	Transportation Institute (TTI)
Estimating Fine Sediment Generation from Highway Cut Slopes in the Lake Tahoe Basin	Dr. Keith Dennett and Mr. Brian Janes	University of Nevada, Reno and ATKINS
Field Test of Speed Advising on Freeway System in Las Vegas	Dr. Harry Teng	University of Nevada, Las Vegas

NDOT's participation in three pooled-fund projects was also approved by the RMC:

Pooled-Fund Projects Selected for FFY 2013 Participation

1. \$ 20,000 - TPF-5(237) Transportation Library Connectivity and Development
2. \$ 25,000 - SPR-2(207) Transportation Management Center
3. \$ 7,000 - TPF-5(159) Technology Transfer Concrete Consortium

Preparing Guidelines for Speed Reduction in Towns Along Nevada Rural Highways

By: Dr. Pramen P. Shrestha

The Howard R. Hughes College of Engineering, Department of Civil and Environmental Engineering and Construction at the University of Nevada, Las Vegas (UNLV) and the Nevada Department of Transportation (NDOT) have been conducting a study to prepare guidelines for establishing speed limit in towns along Nevada's rural highways.

Due to complaints of excessive speeding through various rural towns, NDOT has installed speed reduction traffic signs at rural roads passing through several densely populated towns. Typically, the speed limit on rural highways is 55 mph or higher, but is reduced to 30 mph or lower when these roads pass through some towns. Even though this speed reduction is expected to contribute to reducing speed-related crashes in these towns, unsolved problems still exist. First, motivated by safety reasons, more towns have increasingly requested speed reduction be put in place. However, inconsistency in terms of reduced speed limits exists among different towns, and even different areas in the same town. Second, a significant and frequent speed reduction imposed over even a relatively short distance -- not uncommon in rural highways -- may bring traffic authorities into conflict with motorists.

There is a lack of guidance to help NDOT traffic engineers determine whether speed reductions should be implemented in towns along rural highways, and to what extent. As a result, NDOT funded this research to develop effective guidelines regarding speed limits for towns along Nevada's rural roads, based on the key parameters that control the local speed limits. UNLV's research team is working closely with NDOT's Technical Advisory Panel (TAP) to develop these guidelines and solve these issues. The research tasks for this study are shown in Figure 1.

Recently, the research team has completed the literature review, which will be reviewed by NDOT-TAP. The team and the NDOT -TAP together have identified 11 towns along Nevada rural highways to be included in this study, as shown in Table 1.

Currently, the research team is analyzing 10 years' crash data from these 11 towns of rural Nevada. The crash data parameters collected for analysis are shown in Table 2.

During this coming summer, the team will conduct site visits in these towns to collect traffic data. The team also will conduct interviews with NDOT traffic personnel. In addition, a questionnaire has been prepared to survey traffic engineers from the 50 state DOTs around the nation in order to determine their current practices in speed reduction in towns along rural highways.

After all the crash data, survey data, interview data, and site data have been analyzed, the team will develop a set of guidelines for effective speed reduction in towns of Nevada's rural highways. The guidelines will facilitate decision making by NDOT personnel regarding the speed

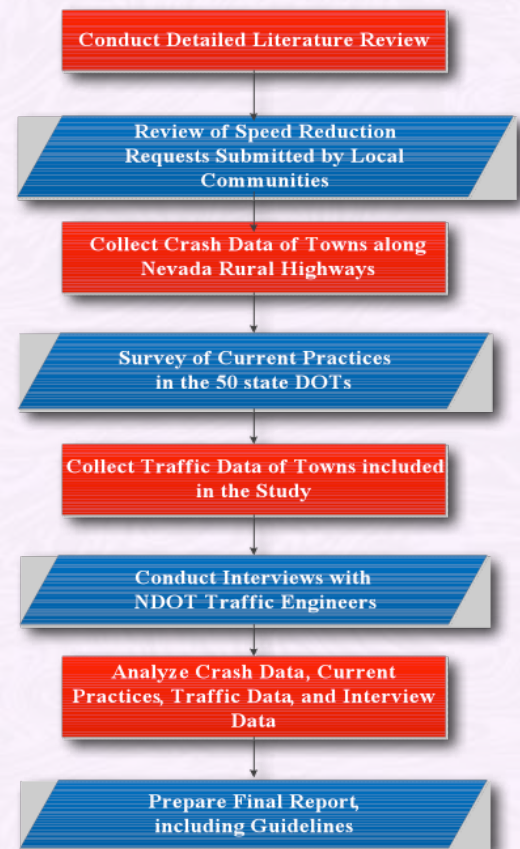


Figure 1: Research tasks

Continued on page 4

limits, and will help them to become more responsive in terms of the time it takes to make these decisions. These guidelines also will help to make the speed limits more consistent among the towns along rural highways. Finally, unnecessary time dealing with these complaints will be reduced.

The Research Team

Pramen P. Shrestha is an Assistant Professor of Department of Civil and Environmental Engineering and Construction at UNLV. Dr. Shrestha joined the department after earning his Ph.D. in Civil Engineering from the University of Texas at Austin in 2007. He has worked in the transportation sector for eight years, including as an assistant resident engineer and resident engineer on three different highway construction projects. He has a P.E. license from the State of Texas. He has conducted research related to highway projects during his graduate studies; as faculty at UNLV, his research activities have been sponsored by the Occupational Safety and Health Administration (OSHA), NDOT, and UNLV research offices. He has published 32 peer-reviewed papers, including in the *Transportation Research Record (TRR)*

and several ASCE journals. He is an active committee member of NCHRP Project 20-59(36).

Aly Said is an Associate Professor of Department of Civil and Environmental Engineering and Construction at UNLV. Dr. Said earned his PhD at the University of Western Ontario in 2004, after which he worked for two years in the industry. Dr. Said has 50 reviewed publications and is a licensed P.E. in the State of Nevada. His area of research covers areas of knowledge-base techniques in data analysis and concrete materials and durability.

Ying Tian is an Assistant Professor of Department of Civil and Environmental Engineering and Construction at UNLV. Dr. Tian joined UNLV in 2007 after obtaining his Ph.D. from the University of Texas at Austin. He is a P.E. licensed in the state of Nevada. His research has been funded by the National Science Foundation and UNLV. Dr. Tian is an active member of ACI Committee 369, Seismic Repair and Rehabilitation; Joint ACI-ASCE Committee 421, Design of Reinforced Concrete Slabs; and ASCE/SEI Committee, Disproportionate Collapse Standards and Guidance.

Table 1. List of towns included in the study

No.	Name Towns	Highway Number	NDOT District
1	Searchlight	US 95	I
2	Beatty	US 95	I
3	Goldfield	US 95	I
4	Tonopah	US 95/ US 96	I
5	Luning	US 95	I
6	Alamo	US 93	I
7	Panaca	SR 319	I
8	Schurz	US 95/ US 95A	II
9	Fernley	US 50 A	II
10	McGill	US 93	III
11	Austin	US 50	III

Table 2. Crash data parameters

No.	Crash Data Parameters
1	Crash Year
2	Crash Time
3	No. of Crashes
4	No. of Fatalities
5	Number of Injuries
6	Number of Property Damages
7	Crash Types
8	Injury Types
9	No. of Vehicles Involved
10	Types of Vehicles Involved
11	Most Harmful Events
12	Crash Time Weather Condition
13	Crash Time Road Condition
14	Crash Time Roadway Lightning
15	Crash Time Driver Condition

Nevada LTAP

By: Beverly Amundson-Hall

The Nevada Local Technical Assistance Program (LTAP) conducted six 3.5-hour seminars throughout the State (Las Vegas, Ely, Elko, Winnemucca, Reno and Tonopah) on *Sign Retroreflectivity* from July 16-24. Registration responses for the seminar in Reno exceeded the training room capacity by about three times, requiring relocation to the Holiday Inn in Sparks. The seminars were attended by 154 individuals, 36 (23.4%) were from Local Municipal Agencies; 115 (74.7%) were NDOT employees; and 3 (1.9%) were from the private sector.

A 5-hour seminar for *Work Zone Safety & Traffic Control* was conducted August 13-21 for the same six locations with both Reno and Elko registrations exceeding the training room capacities. There were 213 individuals registered to attend, 92 (43%) were from Local Municipal Agencies.

A third 6-hour seminar for *Asphalt Pavement Maintenance* was conducted September 21-28, also in the same six locations with 200 individuals registered.

By the end of FFY 2012 Nevada LTAP completed 18 seminars, covering three topics. Many individuals from Local Agencies expressed their appreciation that the training came to them in their communities.

This concludes the Nevada LTAP seminars being conducted through NDOT Research. TMCC has been awarded the contract to conduct the training for FFY 2013. Please contact Jim Nichols at 775-850-4015 for future training information.

It has been a pleasure working with NDOT Research and the instructors who have provided the training seminars.

NDOT Product Evaluation Coordination Program

By: Heather Manzo

Product Evaluation has undergone a change with my recent move to Research as the Product Evaluation Coordinator. I started in early June and have been working diligently to get up to speed in my new role. The Product Evaluation Committee (PEC) met September 11th where I had a chance to meet with the Committee for the first time.

At the PEC meeting the committee voted to create a new QPL category 406.02.01 Prime Coat Material. Specifications will be revised to incorporate language pertaining to this change. It was agreed upon by the Committee the table of contents of the QPL would be reorganized to follow the same order as the QPL which is organized in order of section number. The latest and greatest QPL was published September 18, 2012 and may be found on the Research page of the NDOT website.

The next Product Evaluation Committee meeting is scheduled for December 11, 2012.

Library Corner

By: Sena Loyd

Lynda.com Online Training Library

Logins will be available for a 14 day check out available on a first come first served basis. Renewals will be available as long as no hold is placed on the item. To access this database, please email a request to Sena Loyd, ndotlibrary@dot.state.nv.us.

About lynda.com

Lynda.com is an online learning company that helps anyone learn software, creative, and business skills to achieve their personal and professional goals. Take a look at the course selection here: <http://www.lynda.com/allcourses>.

ASTM DOT Web Portal

The ASTM DOT Web Portal can be accessed from any desktop on the NDOT network (verified by IP Address) from this web address: <http://nvdot.cyberregs.com/>. ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards.

ASCE Journal Publications Electronic Access

After giving the NDOT Librarian your input, Research decided to try online access for all ASCE (American Society of Civil Engineers) Publications. This library of journals is accessible at each of your workstations authenticated by an IP Address (NDOT employees only). This means that by accessing this web address: <http://www.ascelibrary.org/>, you will have access to approximately 73,000 papers.

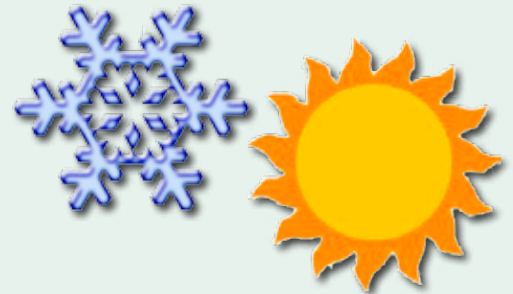
If you have questions, are in need of assistance, or have special circumstances that surround your request please email ndotlibrary@dot.state.nv.us.

Nevada Fun Fact

By: Chris Akinola

The lowest temperature ever recorded in Nevada was -50 degrees. This plunge in the mercury occurred on January 8, 1937 at the site of San Jacinto near Jackpot.

In comparison, the highest temperature ever recorded in Nevada was 125 degrees. This stifling heat was recorded on June 29, 1994 in Laughlin.



The NDOT Research Section administers the NDOT's research, development and technology transfer program and serves as the "clearing-house" for product evaluations. Research and Technology Review is published quarterly by the NDOT Research Section. Its purpose is to provide the latest information on the NDOT research activities including product information and other pertinent research topics.

If you have comments or need additional information regarding any of the topics discussed in this issue, please contact the Research Section. Edited by: Christianah Akinola

Contact Information • Research Section

1263 S. Stewart Street Rm. 115 • Carson City, NV 89712
Phone: 775-888-7223 • Fax: 775-888-7203

Research Chief

Ken Chambers

kchambers@dot.state.nv.us

775-888-7220

Research Coord.

Manju Kumar

mkumar@dot.state.nv.us

775-888-7803

Product Evaluation Coord.

Heather Manzo

hmanzo@dot.state.nv.us

775-888-7894

Research Analyst

Christianah Akinola

cakinola@dot.state.nv.us

775-888-7223

Research Librarian

Vacant

ndotlibrary@dot.state.nv.us