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Intelligent Transportation Society

ROCKY MOUNTAIN CHAPTER

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Message from the President

Welcome to our Summer newsletter. The mission of the Rocky Mountain Chapter is to "develop partners for the effective deployment of ITS across all surface transportation modes, thus providing a viable and sustainable system for the Rocky Mountain Region that will benefit all users." This issue of the newsletter focuses on Commercial Vehicle Operations (CVO). We have articles describing projects and successes in Colorado, Utah and Alaska as well as regional updates and training opportunities in this issue.

If you have done any road travel this season, it is clear that commercial vehicles and freight have a tremendous impact across the nation and in the west. Our interstate facilities and state highways serve a steady stream of commercial traffic all day, every day. The monitoring and tracking of commercial traffic for both state revenue and safety remain very important and the application of technology to improve those revenue and safety systems continues across the nation and in our region. In an era of significant budget constraints, the pressure remains to continuously improve our performance and apply the appropriate technologies to improve the efficiency of our systems.

Additionally, Rocky Mountain Chapter members received a great deal of recognition at the 2003 ITS America Annual Meeting in Minneapolis receiving several nominations and winning two awards.

We are currently preparing for our 2004 Annual Meeting. As soon as details are finalized the information will be sent to you.

Thank you to those who submitted articles for this issue. It is sometimes quite a challenge to keep up with everything. Even during these

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allegedly "quiet" summer months.

Finally, we would like all members to become involved in the chapter and help get the word out about the quality of work being done in our region. Tell your peers, business and political contacts that the Rocky Mountain Chapter is an excellent source for networking and information exchange. Please phone, fax or email any comments, suggestions and opportunities to me or to our Chapter web site www.itsrm.org.

- Richard Hodges, Chapter President (RHodges@uta.cog.ut.us)

ITS Rocky Mountain To Offer Student Award

Following on the recent addition of the "Student Chapter" membership level, ITS Rocky Mountain will begin offering an annual *Student Paper Award & Scholarship.* The award will be open to any graduate or undergraduate student who is a member of the ITS Rocky Mountain Chapter. [The annual dues for an individual student are $25. However, students who are members of an ITS Rocky Mountain student chapter can join the chapter at no charge.]

The winning author(s) will receive transportation, hotel accommodations, complimentary registration and expenses (not to exceed $500) to attend either the ITS Rocky Mountain Conference (even-numbered years) or the ITS Rocky Mountain Training/Workshop (odd-numbered years). The winning paper will be published in the ITS Rocky Mountain Newsletter and website and the author will receive a $500 scholarship. Winners will also receive an invitation to present their winning paper during the ITS Rocky Mountain Conference.

Papers must address an Intelligent Transportation System (ITS) subject. Students who wish to submit a paper must have completed the work/research that provides the basis for the paper or had significant involvement in a portion or phase of the work/research that the paper is based on. They must also be the primary author.

Papers will be judged on their quality of composition, originality and depth of knowledge and awareness of ITS issues and challenges. Anyone wanting additional information can send an email to studentpaper@itsrm.org.

Technology and CVO:
Online Credentialing Becoming a Reality

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In support of Utah Governor Mike Leavitt's vision to "enable people to conduct business with government online 24 hours a day, 7 days a week, 365 days a year," public agencies and private industries have partnered to bring the Motor Carriers Electronic Services online for the trucking industry. Through the team-work of the Utah Department of Transportation (UDOT), the Utah State Tax Commission, the Utah Trucking Association (UTA) and Utah's Motor Carrier customers, the online system is becoming a reality and will make credentialing easier and more efficient for the trucking industry.

The project goals for these E-services were defined and presented to the UDOT Electronic Services Steering Committee in May 2002. Upon approval, strategies were soon underway for development and deployment of electronic services for Utah's Motor Carriers. The project plan was divided into three phases:

- Phase 1 – Achieve *Utah.gov* requirements and objectives
- Phase 2 – Conduct Feasibility Study and prioritize Motor Carrier E-services projects
- Phase 3 – Deploy Motor Carrier E-services

Figure 1: Utah Motor Carrier Website

Phase 1 objectives were achieved by contracting with a Web designer to redesign the UDOT Motor Carrier Web site as shown in Figure 1 and instituting regional Department of Motor Vehicles (DMV) offices to provide online fuel tax and registration services.

An Electronic Services Feasibility Study was conducted during Phase 2 by Meyer, Mohaddes Associates and included five major activities: 1) conduct a Motor Carrier customer survey; 2) conduct interviews and customer focus groups to identify customer preferences; 3) analyze customer preferences; 4) perform a cost-benefit analysis for UDOT's planned Motor Carrier Electronic Services; and 5) provide recommendations as to how the planned services should be implemented.

To accomplish these activities the UDOT Motor Carrier division mailed an electronic services survey to 1,540 randomly selected companies representing two populations:

1) 4,324 Utah-based trucking companies with IFTA fuel tax accounts
2) 10,237 non-Utah-based trucking companies who bought one or more permits last year

In addition to the surveys, focus groups were conducted to identify the opinions and preferences of large carriers (over 100 trucks) and small to medium carriers (1-100 trucks) who purchase many trip permits, permit agencies and IFTA and

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IRP reporting agencies.

Following are highlights of the study:

- Trucking companies preferred using Web-based services over computer-to-computer (e.g. EDI interfaces);
- 48% of respondents indicated that the oversize/overweight permit was the most likely credential/permit they would obtain via computer;
- Convenience was the greatest expected benefit (see Figure 2);
- The two preferred payment methods were credit card (38% preferred) and monthly account billing (31% preferred);
- 50% of respondents indicated that they would be willing to pay $3 per/vehicle for electronic services.

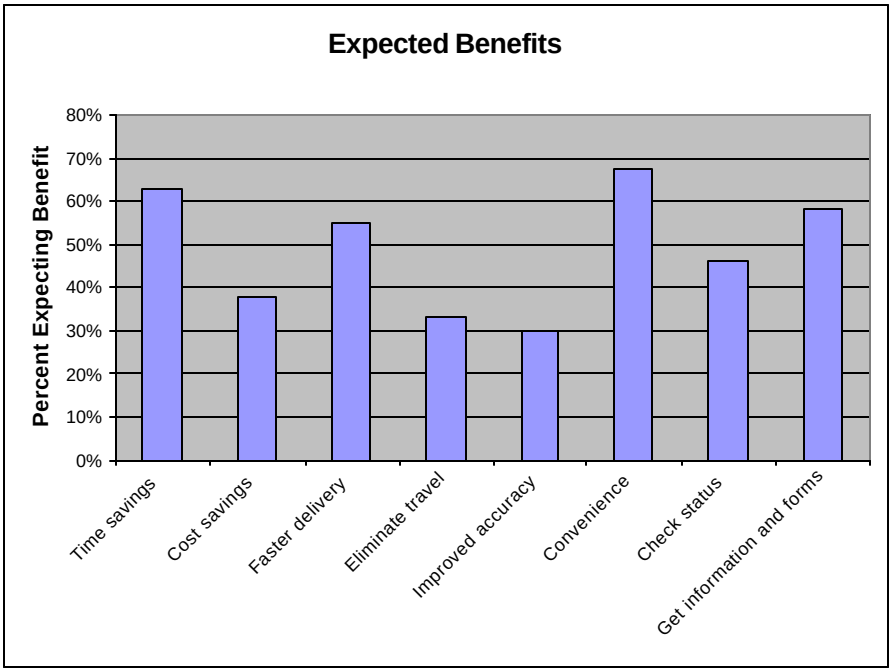

Figure 2 - Feasibility Study Expected Benefits From Online Services

Through these surveys and focus groups, it was determined that there was a high level of enthusiasm for the electronic services project. Based on the results of the surveys and focus groups, it was concluded that to be effective the Phase III component of the project plan should include the following:

- Implementation of a Web-based Oversize/Overweight permitting system—UDOT developers have begun to define a complete set of system requirements by building the system incrementally, starting with basic functions and adding more complex functions in a phased approach.

- Employment of a Web-based fuel tax and registration systems—The Utah State Tax Commission has secured the funding for development and maintenance of Web-based IFTA and IRP processing, and is currently negotiating with RL Polk to deploy the COVERSNet product.

- Improvement of the UDOT Motor Carrier Web site—The previous redesign of the UDOT Motor Carrier Web site has provided major improvements in the usability of the site. Additional enhancements are planned, including the following: 1) a one-stop portal to all state and federal credentialing and government services; 2) motor carrier specific traveler information; 3) a "getting started" application; and 4) the ability to establish user accounts/profiles.

The importance of customer input was critical in defining and achieving the project goals. By including the customers, UDOT was able to establish project goals that will streamline the credentialing process, saving time and money. Although much has been accomplished with the electronic services capabilities, this is just the beginning of a new way of doing business for Utah's Motor Carriers. ■

If you would like more information on the Feasibility Study or Utah's E-Services Plan, contact Sam Sherman, UDOT - ITS & CVO Engineer at (801) 887-3744 or ssherman@utah.gov.

Prepass - Efficiency and Safety for Ports-of-Entry and Commercial Carriers

Dave Judy
Colorado Department of Transportation

This article was originally published in the Fall 2001 issue of *TripQuarterly*, a publication of the ITS Branch of the Colorado Department of Transportation. Pictures by Dave Judy.

Colorado ports-of-entry enforce state and federal safety and operational regulations for commercial carriers. The facilities, however, are over 30 years old and designed for traffic nowhere near present day numbers. In 75 mph speed limit areas, driving past a port can be challenging when large trucks leaving or entering the highways cause sudden traffic slow downs.

At times, there are so many trucks waiting to clear the scales, commercial vehicles with one to three trailers back up onto the highways creating hazards for motorists. As a result, Colorado and a growing number of other states now operate ports-of-entry differently and more efficiently.

PrePass is a public/private entity created to automate commercial truck clearance procedures for Colorado ports of entry. The voluntary PrePass program involves Weigh-In-Motion (WIM) and Automatic Vehicle Identification (AVI) technology.

When a commercial trucking operator signs up for PrePass, a transponder for the AVI portion of the system is placed in the cabs of vehicles operated by the carrier. When a truck with a transponder nears a port of entry, system antennae at the port pick up the transponder identification tag for processing by the facility's PrePass computer. The computer quickly checks and verifies the vehicle's operating credentials as the truck continues down the highway toward the Weigh-In-Motion (WIM)—scale embedded in the pavement at most ports.

At highway speed, the WIM weighs each truck's axle, and pavement sensors count axle number and spacing. This automatically classifies the truck, checks gross vehicle weight and weight on each axle. If the truck's credentials and weight comply with regulations, the driver sees a green light on the cab transponder and the truck passes the port without stopping. A red light on the transponder signals a problem with the truck's credentials or weight and the driver has to stop at the port. The truck also may be called in for a random safety inspection.

The PrePass program charges each carrier a monthly flat rate of $14.99 per truck. Even with the fee, the carrier saves time and fuel. A commercial driver can spend up to 10 minutes waiting for a scale or parking to clear credentials in the port. Fuel costs increase when a truck accelerates to enter the highway and reach operating speed. In Colorado, approximately 30% of the trucks cleared through the state's ports-of-entry are now electronic bypasses.

Alaska Launches New Traveler Information System

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Residents and travelers in Alaska are now able to access weather-related road conditions, construction, and other relevant travel information by dialing 5-1-1 or logging on to 511.alaska.gov.

What is 511? In 2000 the Federal Communications Commission officially designated 511 as a nationwide number for travel information. Alaska is one of 8 states that have joined forces to launch this service using a cost-sharing approach. Sharing the development and operating costs enables the Alaska DOT&PF to achieve a level of service that is literally a small fraction of what they would pay to do this individually.

Easy Access, Easy to Remember! Dialing 511 is easy to remember, easy to access and is both voice and keypad activated. No more long 800 numbers to remember. This one-stop shop for travel information is available 24-7. The same information and more is available through a map based, user-friendly web page: http://511.alaska.gov.

Where does the data come from? 511 travel information originates from an on-line database called the Condition Acquisition & Reporting System (CARS). Through a password driven web page, any government agency can quickly enter relevant information into the user-friendly database. Once entered, the CARS database automatically updates both the web page and 511 telephone.

The Alaska DOT&PF use CARS to enter road conditions, construction and maintenance information on major highways. This summer, CARS will have an automatic tie-in to the Alaska Marine Highway System, offering real-time updates on ferry arrival and departures from the many different ports; a service that has never been offered to the public before.

CARS also automatically draws data from other agencies such as the National Weather Service to provide statewide weather forecasts. Soon State Trooper dispatch will be entering critical travel information such as major incidents.

Adding Urban Roads. The Alaska DOT&PF has invited municipalities to join CARS to relay local information such as traffic incidents, street maintenance, construction, and road conditions. The Municipality of Anchorage (MOA) has already joined the CARS/511 program to add Anchorage road condition information. The Alaska DOT&PF and the MOA are working together to provide this service to the largest city in Alaska, servicing over 1/3 of the States population. The MOA plans to have the Anchorage roads in CARS by Spring 2004.

What's the Purpose of CARS? CARS allows transportation related agencies to share information. Users of the system can view or enter relevant information adding to more efficient management practices and increased incident response. For example, the Alaska DOT&PF bridge engineers can share bridge construction information with commercial vehicle enforcement that use the information to issue commercial vehicle permits.

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This article relates the experiences of a municipality that recently converted many actuated signals from in-pavement loops to video detection. It provides information on specifications and recommended procedures for a conversion project, and guidelines based on the experience of the author managing a project to install over 1000 cameras in 2 years. It also provides information that can be used to justify the conversion based on costs, service level and other useful features of video detection. The experience noted in this article could help other agencies avoid difficulties and install better working video detection at lower cost.

Replacing In-Pavement Loops with Video Detection

Colorado Springs, Colorado, with the surrounding area, has a population of approximately 500,000 and serves as a major center of activity for much of southern Colorado. With over 300 days of sun, rolling to hilly terrain and an elevation from 6000' to 7000', the climate causes severe conditions for roadway maintenance and in-pavement loops. The high altitude & sunny weather results in extreme temperature changes daily, with day to night temperature changes of 50 degrees F common. During the fall, winter and spring, the road surface experiences frequent freeze-thaw cycles that reduce the life of typical in-pavement loops to 5 years or less, resulting in an 20% average annual failure rate for detector loops.

The signal system within the city includes 465 signals, 45 of which are fixed time (downtown). Geometrics of the remaining 420 intersections vary from 2 lane vs 2 lane to 6 lane vs 6 lane with auxiliary right turn and dual left turn lanes, requiring from 2 to 48 loops per intersection. With an average of 24 loops per intersection, the system depended on over 10,000 loops prior to the video project. The loop failure rate resulted in a need to replace an average of 2,000 annually. This work was contracted out to private industry at a cost of over $1,000,000 each year. However, typical of many cities, the maintenance budget did not keep up with demand. Therefore, service levels had been dropping to the point where some loops were not repaired for a period of over 2 years.

In-pavement loop failures place a constant call on the approaching cross street or left turn phase regardless of actual traffic present. This results in a significant reduction of intersection efficiency and capacity, providing max green time for nonexistent traffic, and interfering with effective, traffic responsive timing plans. The "phantom" calls also cause of a lot of irritation and negative phone calls from the public, especially during off-peak times. As volume to capacity ratios on many arterials exceed 85% and both congestion and accidents were increasing, city staff initiated research to find ways to increase efficiency of the roadways, especially signalized intersections. In addition to typical TSM improvements, (adding turn lanes, accel/decel lanes, etc.) the city needed to find a cost effective solution to the loss in efficiency from the loop failures, reduce maintenance costs, and keep up with rapid roadway lane configuration changes caused by the growth in traffic volumes.

Project Initiation - Specifications & Installation Process

Various solutions have been considered by many agencies to replace failing loops – microwave detection, under pavement "permanent" loops, in-pavement loops using modified installation techniques and/or materials, and video detection. Since frequent changes in lane configuration (minor widening for left turn lanes, converting to dual lefts, etc) requires a system that can be modified easily and inexpensively, the various in-ground products were eliminated for consideration. With the improvements in video detection technology in the past 10 years, the city tentatively chose video as the best system to replace the loops. During late 2000, a few intersections were converted for evaluation, and in April of 2001 the city advertised for what has become one of the largest video based detection projects in the United States.

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The equipment and installation were separated into two different bids because it was felt we would have better control over what equipment was provided and who would do the work with this approach. Often a signal contractor will have an exclusive working relationship with just one supplier who sells or promotes just one brand of equipment, so labor rates could dictate the equipment used. We preferred to review all the equipment options, limiting the equipment bid to those manufacturers who met stated needs and provided features for future uses, and let all the contractors bid on installation separately.

For the equipment supply bid, performance, or functional specs were used instead of specific hardware specs. The problem with specific detailed hardware specs is that most are brand-specific, including a proprietary or unique connector, or gauge of wire, input keyboard, or something else, often minor and not really related to the function of video. A unique item, although only slightly different from other manufacturers, can result in a spec that is proprietary and exclusionary. All of the "sample specifications" the city reviewed had this flaw. Colorado Springs did, however, have two hardware based conditions: #1 – the video image processor (VIP) had to install directly into a 170 input file, because the city's older cabinets did not have room for any adapters or "black boxes", and #2 – all the intelligence must be in the VIP, in the cabinet, using "dumb" cameras. This condition was included because the rapidly changing video camera industry will improve the detection abilities in the future, and the city wanted to be able to switch out cameras now and in the future without having to change any of the in-cabinet video processing equipment. There was also concerns about being tied to any one brand of camera for replacement and it could help to keep costs down.

View of video image process (VIP) inside a cabinet.

The equipment bids opened in April 2001, and the west coast importer of Traficon equipment, Kargor from Salem, Oregon was the low bidder. The equipment purchase contract included cameras, brackets, dual and single camera input VIP units, wireless remote cameras (1000' range), viewcom communication modules (allowing one module to communicate with the entire rack from the traffic operations center), software, training and support. All the equipment had to have a 2 year warranty, including free upgrades during the warranty period. Combination video wire with power, focus, zoom, heater and video signal in one cable was purchased separately.

Two local contractors who had previously worked on signals were pre-qualified. We then required them to send personnel to training conducted jointly by Traficon (for the installation of the equipment), and city signal maintenance technicians on how they wanted wiring done in the cabinets. The contractors were used for the initial installations on a "time & materials" basis. However, a significant amount was saved on the second and later groupings by adding additional contractors and having them bid for the installation. Labor was bid as a "lump sum" for each of 5 groupings of intersections, each group made up of 8-12 intersections, for a total of 45 to 50 intersections

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in each phase. The lump sum bid included bucket truck usage, a licensed and unlicensed installer, miscellaneous materials & supplies, and traffic control. Installation details were provided to the bidders using a site survey for each intersection, which was provided two weeks prior to bidding.

Using the broken loop list, and complaints from the public, intersections were prioritized and put into bid groups by area of town. This method was well received by the contractors, as they would be solely responsible for the traffic control, equipment, labor and minor materials for the entire set of intersections, and if they miscalculated too high or too low on any one intersection, it would not have such a significant impact on their total profit or costs for the group. Each intersection was reviewed in the field to create a small drawing, or site survey identifying phases in recall vs actuated, each camera location and phases for the camera input, along with any other required work, such as addition of street lights, or conduit replacement.

Since each group of intersections was treated as a separate contract, more than one contractor could be working at the same time, if they split the bids. As it turned out, that was usually the case, with one contractor getting 2 or 3 groups each time. They were given 28 calendar days to complete installation, which seems fast, but after the initial group, none of the contractors had a problem with time count. This competitive method of bidding installation labor saved $2000 - $3000 per intersection, or approximately $1,000,000 over the entire project. Since we had previously purchased the equipment and wire, the installation went relatively quickly, with an average of 2 days per intersection. Installation was followed up by our 2-man video tech crew to fine tune the installation using a 19" high resolution monitor from inside a custom built video van.

Originally the contractors set up the cameras, but with the profit motive putting demands on their time, the city obtained better results with our own crews doing the fine-tuning. This process improved the aim, zoom & focus of the cameras, and made a significant improvement in detection. Then the VIPs were programmed with the various layouts of "virtual" loops, making sure outputs were correct, as well as other features, such as delay on right turn lanes, extension, or different configurations needed by time of day.

"...[the] competitive method of bidding installation labor saved $2000-$3000 per intersection, or approximately $1,000,000 over the entire project."

Costs of video conversion varied, based on type of intersection (span wire vs mast arm), number of cameras (from 1 to 8) and additional work required, such as adding street lighting. Over the 401 intersections completed, the average cost for all materials, equipment, and installation labor, not counting city staff time, has been slightly over $13,000 per intersection, with an average of 3.2 cameras per intersection. This is lower than typical costs for video, but it is based on a very large group of intersections. However, it does include the extra city costs of a custom built video van, an additional bucket truck, and various testing equipment. Significant savings have occurred by using the process of bidding video wire directly, keeping the labor and equipment bids separate, and using city forces to do the fine-tuning. Prior to using this procedure, costs on the initial 15 test intersections were approximately $22,000 per intersection. By committing to a large project, and following these procedures, the total project with 420 actuated intersections will be completed for about $5,600,000, compared to $10,000,000 estimated cost based on the initial intersections using the traditional method of bidding video installation with the contractor

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providing everything. This is a project savings of approximately $4,400,000.

Upon completion, maintenance needs will be approximately $200,000 per year, saving $800,000 annually for loop replacement. Over the past two years the city has experienced a maintenance rate of about 5% for video compared to the 20% for loops, including all causes of service call, from accident caused knock-downs to equipment failure. The 5% is made up of 0.67% failure of VIP's (4 per 600), 1.5% failure of cameras (15 per 1000), and a little over 2% caused by wind or traffic accidents. This a significant reduction in service needs compared to loops, it has resulted in greatly improved level of service to the public, improved capacity, reduced delay, air pollution, fuel usage, accidents and citizen complaints as well.

Tips for Successful Video Installation

After installing over 400 intersections, we have learned that video installation is as much art as science - camera placement cannot follow set standard layouts. Absolutely every camera location at every intersection must be established by a field trip, to visualize what the camera will "see". It helps significantly if the person creating the site survey has a background in video or still photography along with traffic engineering, so they can visualize the scene from a variety of camera placements, and will be aware of the lighting conditions expected over a 24 hour period. Site lighting is very important, especially the background, as it can affect the auto-iris in many cameras. The vertical angle of each camera vs the rising or setting sun, taking into account seasonal variations is important. Mast arm locations generally are much easier, as often span wire poles are shorter and placed further off the traveled roadway, creating more difficult viewing angles. Low mounting heights result in cameras installed nearly horizontal, which can lead to more snow or rain on the lens, and cause more glare, especially at night, from approaching headlights on wet surfaces. Many trouble calls are from the camera being blinded by the sun, for only a few minutes, and for just a few days in the spring and fall, but it still needs to be solved. Often problems can be reduced by increasing camera height for a better vertical angle. "Side shooting" can solve some difficult angles, although this should be done with care, as large trucks in the opposite direction travel lane can "swamp" the camera image eliminating detection calls.

Camera on mast arm.

Large horizontal angles can cause problems when vehicles in one lane block or put in a false call in another lane. Worn, polished and shinny pavement, especially at night and in wet conditions can allow reflections or glare from a vehicle to cause false calls in adjoining lanes. This is more likely if the camera chip does not control image bloom, or if the camera is shooting across a left turn lane to detect through moves. Each intersection is a unique environment, and taking adequate time in the field to create an effective site survey is critical to the success of the project, and best not left up to your contractor.

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Some suggestions:

- Keep the camera as high as possible, and zoom in to avoid unnecessary background
- Keep the view as straight on as possible to eliminate blocking the view by adjacent vehicles
- Never have the horizon in the picture (or bodies of water or other large reflective surfaces)
- Buy the best, highest resolution B/W camera available with a good quality auto iris lens
- Use a fast CCD chip without smear, bloom or memory
- Make sure the housing has internal heating (for cold climates)
- Buy or make hood extensions to eliminate sun glare when necessary and eliminate snow
- Get a good monitor for setup (19" min, high resolution) and modify a van for video only
- Include your signal techs in the project, but limit the setup to one person if possible
- Instead of shooting across too many lanes install additional cameras to eliminate occlusion
- Make sure your supplier will provide training for your technicians, contractors and staff
- Don't over sell the project to politicians or the public – it replaces loops, it doesn't fix bad signal timing!

Also, inform the public what you are doing and why. Even after creating a short public information video on the project for the local cable TV, I still get a lot of calls such as "Why are you spying on me?", "Will I get a ticket for running the light?", or "I need a copy of the video tape, we had an accident and I am sure it wasn't my fault." We are frequently explaining that we do not record anything, the video signal is used only by the video processor and signal controller.

Summary & Conclusion

After installing over 400 intersections, we firmly believe video was the right choice to replace in-ground loops. The project has improved service to our citizens, reduced delay caused by broken loops, and reduced signal installation and maintenance costs. During construction projects, different "virtual loops" can be set up to match temporary traffic control plans when traffic has to be shifted – then it can be shifted back after the work is done using alternate configurations – taking about 20 seconds to load. Other different configurations, such as third car actuation for left turn phases during off-peak hours, advance loops for volume-density, and other configurations can also be put into memory (the system allows up to 4 different configurations and 4 time of day schedules). Video loops have all the features of in-pavement loops, such as extension, delay, etc., without the drawbacks.

Staff has started to explore the other features of the system – count loops can be set up independently of the phase detection loops for turning movement counts, and a "Viewcom" module can allow us to communicate from our Traffic Operations Center to the individual intersection over phone, fiber or radio, which allows remote download/upload of different configurations, traffic count determination, camera checks, glare or false call verification, and remote trouble shooting. Colorado Springs now has more flexible, less expensive and more dependable detection for our actuated signals. ■

Andi Balla
Laramie Daily Boomerang

This article orginally appeared in the Friday, July 25, 2003 edition of the Laramie Boomerang.

WYDOT to Invest $3.2 million in 'Intelligent' Highway Safety

An Interstate 80 stretch in the Laramie area will pioneer the introduction of "intelligent traffic signs and monitoring" in Wyoming, according to state transportation officials. The $3.2 million Intelligent Transportation Systems (ITS) project includes dynamic signs, speed monitors, zooming webcams and improved traffic radio information.

The project aims to improve the department's ability to react to weather, road and traffic conditions and inform travelers more quickly of them, according to Dave Kingham, a spokesman with the Wyoming Department of Transportation (WYDOT).

Kingham said a contract would be awarded in August to use ITS technologies on I-80 between Laramie and Cheyenne. "If the contract is awarded as expected, the work could be done by the end of the year," Kingham said. The work will be concentrated in the 10-mile section of I-80 between the Summit and Buford, mileposts 325 to 335, but some of the technology will also be installed between Laramie and the Summit.

Kingham said the project would serve as a model for future work on other sections of Wyoming highways where weather is often a factor for travelers. "Even though accident numbers (around Laramie) are not the highest in the state, we are still concerned about it," Kingham said. "That's why we are going to be spending $3.2 million to get this technology out here."

Laramie-based WYDOT engineer Jay Gould said replacing the existing signs with dynamic ones will be of great help to motorists. "By going to the dynamic signs, you open up what you can do tremendously," Gould said.

Current traffic signs have drums that rotate, forcing engineers to select from a limited number of messages, according to Gould. Dynamic messages have a lot of small-dot-lights allowing for an infinite number of messages in the remotely controlled signs. "We can warn people when they are headed down the hill (from the Summit) if the roadways are slick or there is an accident where there is lane blockage," Gould said.

WYDOT's first priority will be to replace the signs at Cheyenne and Laramie, because the structures are already there. "This is our first attempt of concentrated ITS," Gould said. "We are going to see how the motorists will respond to the messages we are giving them."

A WYDOT radio room in Laramie will be able to closely watch I-80 traffic trough ITS speed monitors. If speeds start to drop, it would be an indication road conditions are bad or that an accident has occurred. The radio room would then dispatch the appropriate people to the scene and notify motorists of the situation through ITS.

To aid in the process, the project will also include installing six closed circuit video cameras and additional roadway lighting to help monitor the highway surface conditions. The cameras will pan, tilt and zoom to assist in the monitoring. The existing Webcam west of the Summit will be replaced with two cam-

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eras, one looking in each direction.

The existing road and weather information systems (RWIS) remote processing unit, will also be upgraded. A Highway Advisory Radio (HAR) will be added at Buford to supplement existing units at Laramie and Cheyenne, and the power of the Laramie HAR will be increased. The HAR is used to inform drivers of road closures and other emergency situations by tuning to 1610 AM.

The federal government will pay $2.5 million in the project with the rest of the money being matched by the state. ■

News from around the Region...

ATMS in Rio Rancho

RIO RANCHO, NM -- The City of Rio Rancho, in conjunction with the New Mexico Department of Transportation (NMDOT), has upgraded 12 of its coordinated traffic signals on NM 528 (Rio Rancho Boulevard) to the ICONS ATMS software (July 2003). As part of this upgrade and in conjunction with a roadway widening project 6 traffic signal intersections were completely replaced and six additional intersections upgraded to TS2 Type I cabinets with Econolite ASC/2S local controllers. The six new intersections are using upgraded video detection with the capability of collecting traffic turning movement counts, speed detection and vehicular classification. PTZ Cameras (2) were also installed to aid in vehicle incident detection. This information will be brought back to Public Works Engineering and routed to the DPS 911 Center via the City's Computer Network.

The main trunk of this corridor's interconnect was upgraded to fiber (36) with room for future growth. A spare conduit was placed in anticipation of a future tie-in by the NMDOT to the Rio Rancho ATMS. The City of Albuquerque will also be installing ICONS in the very near future. ICONS is NTCIP compliant. This will allow for interjurisdictional coordination/ integration of traffic signals. This may include carrying signal coordination plans across jurisdictional boundaries on shared corridors as well as data sharing of traffic speed/ volumes and available incident data information. The City of Rio Rancho will be bringing an additional 9 signals online to ICONS this fall with a planned upgrade of controllers on Southern Blvd. A small run of fiber optics will also be run on this corridor as well as installation of video incident detection at the intersection of Unser Boulevard and Southern Boulevard.

Utah Implementing Multi-Jurisdictional Computer-Aided Dispatch Software

SALT LAKE CITY, UT -- The Utah Department of Transportation (UDOT) and its ITS partners are using a $1 million grant from the Federal Highway Administration to enhance emergency response in Utah by developing an open architecture interface (based on IEEE 1512 standards) to automatically share data between multiple organizations. The interface will connect UDOT's Traffic Operations Center (TOC) with the Utah Department of Public Safety, Valley Emergency Communications Center, Salt Lake City Police and Fire Departments, and the Utah Transit Authority. The project is slated for completion in approximately 11 months and is intended for eventual use on a national level to facilitate communication across jurisdictions.

CommuterLink Extends ITS Connectivity

SALT LAKE CITY, UT -- In order to improve operations and raise service standards, CommuterLink (Utah's Intelligent Transportation System) is enhancing communication

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connectivity into two additional counties through fiber and wireless links. The extensive fiber network throughout the Salt Lake valley is being extended to UDOT's Region 1 headquarters in Ogden, 45 miles north of the TOC in Salt Lake City. The connection will facilitate a fully functioning work station in Region 1, allowing personnel to control and monitor traffic signals, access closed-circuit TV (CCTV) cameras, post messages on variable message signs, and use other system functions. Completing the fiber network to the Region 3 headquarters in Orem, 36 miles south of the TOC, was not feasible due to budget constraints. The interim solution is a 100 megabit wireless radio connection that shoots radio signals over a 14-mile stretch and then feeds them into existing fiber. This will give Region 3 access to more ITS components while allowing TOC personnel to tap into Region 3 CCTV cameras with full motion video without incurring long-distance modem dial-up charges.

Utah Implements Statewide ITS Deployment Plan

SALT LAKE CITY, UT -- To facilitate statewide ITS coverage, UDOT upper management has directed that ITS components be considered as a "mainstream part" of all projects. In the past, ITS tools have been added in pieces, but now UDOT planners and project managers are advised to set aside up to five percent of the overall project budget for installation of ITS components in all areas of the state. ITS officials have created an interactive, web-based, internal-use map that shows existing and planned ATMS components statewide. This visual reminder of the long-term vision for statewide coverage will be easier to maintain than a written document.

UTA's Connection Protection Saves $$

SALT LAKE CITY, UT -- The Utah Transit Authority's (UTA) Connection Protection system uses advanced technology and communications to track and predict train departure times, provide the information to electronic platform signs, send location and status information to TRAX Controllers and send a data message to specific buses waiting at TRAX stations. If a TRAX train is delayed past the scheduled transfer window, the system will automatically generate a message to the mobile data terminals of specific buses giving hold or other information to the bus operator and radio control. This protects the connection between trains and buses giving passengers a true protected connection from their train to their bus.

Connection Protection also ensures that if a train is running late, its connecting buses wait. Initial estimates indicate that the program saved UTA customers between $60,500 and $173,000 during a single train trip by minimizing or eliminating time delays that would have been caused by missing transit connections. The public benefit resulting from this single incident was more than one-half of UTA's cost of the implementation of Connection Protection.

Submit an Article...

You can submit an article for publication in the ITS Rocky Mountain Newsletter! Articles must be no more than 3 pages in length and must contain contact information for the author. While any article may be submitted, publication priority will be given to articles that match the respective Newsletter's theme. Feel free to send graphics/photos!

2003 submission deadlines are as follows;
October/November/December (Fall) - October 17th. Theme: "EMS"
2004 submission deadlines are as follows;
January/February/March (Winter) - January 23rd. Theme: "Operations Integration and Coordination"