

Westernite

Official Publication of District 6 of the Institute of Transportation Engineers

November-December 2006 Vol. 60 No. 6

PRESIDENT'S MESSAGE

Over the past year or so you may have noticed that the District 6 website and WesternITE carry more "Positions Available" ads than they used to. In fact, most issues of WesternITE now have 20 pages rather than the 16 that was standard for years, primarily to accommodate the growing demand for ad space. If your agency or company has had an opening for a Traffic Engineering professional in the recent past, you've probably experienced the shortage of traffic engineers that has led to the increased number of ads as employers throughout the Western District try, often unsuccessfully, to attract new employees.

Because there just aren't enough traffic engineers to fill all of the current job openings, much less the increased number that is likely in the future, ITE has for some time been emphasizing involvement at the college level through a host of student initiatives. One way we're doing this is to provide financial incentives to college and university students to join ITE and attend meetings at the Chapter, Section, and District levels. In addition to deeply discounting the cost of participating in such activities, there are also numerous



*Dalene J. Whitlock,
President*

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RIVERSIDE COUNTY - ORANGE COUNTY MAJOR INVESTMENT STUDY (MIS)

Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC) and Transportation Corridor Agencies (TCA) completed a Major Investment Study (MIS) for the Riverside and Orange County region that was awarded the 2006 transportation achievement award by ITE at the International meeting in August 2006. This article provides a brief highlight of the project and the factors that lead to selection for this award.

The purpose of the project was to identify a range of feasible multimodal alternatives to improve mobility between Riverside and Orange Counties. The MIS examined a comprehensive range of capital and operational improvement alternatives to congested State Route 91 (SR-91) and identified additional inter-county multimodal transportation corridor opportunities.

The MIS analyzed potential benefits, costs, and consequences (economic, social, and environmental) of alternative transportation investment strategies. Public agencies, elected officials, technical and stakeholder advisory committees, and the community, in a collaborative planning process. They assisted with development of a definition and general scope of potential solutions and evaluation criteria, culminating in a recommendation of a preferred transportation strategy in January 2006.

The project schedule was fast tracked from the typical schedule for a study of this scope and complexity. The MIS was no small undertaking including five separate study corridors, three potential corridors for new alignments, highway options ranging from two to six lanes, numerous transit options, and various potential alignment

connection areas to existing highway systems. Using traditional highway planning methods, few alignments would be generated and analyzed with relatively few constraints. Using an alignment analysis tool called Quantm, project planners and engineers efficiently generated hundreds of alignment alternatives, plan and profiles, cross-sections, quantities, cost estimates, and responded to concerned stakeholders within days, versus weeks.

The final report successfully recommended a Locally Preferred Strategy (LPS) of transportation improvements to minimize the burden on SR-91 between Riverside and Orange Counties by utilizing Quantm to evaluate portions of the project. Quantm enabled support by stakeholders (homeowners, business associations and environmental protection groups), technical committees, and elected officials by demonstrating the balance between engineering, environmental concerns and project construction costs. Changes in alignments (horizontal and/or vertical modifications) were provided quickly, usually within 24 hours, to respond to community concerns, updates to design parameters, and environmental concerns. To facilitate project acceptance, alignments were exported to CAD and to GIS for additional analysis and/or exhibit creation; extensive community outreach and project planning meetings were held. This analysis tool provided easily understood exhibit base maps, cross sections, construction costs and environmental factors for consideration. Quantm also allowed the project team to successfully use data from multiple sources to create and utilize terrain data, environmentally sensitive areas, geologic

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RIVERSIDE COUNTY - ORANGE COUNTY MAJOR INVESTMENT STUDY (MIS)

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and geotechnical features, engineering parameters, and cost values simultaneously in determining optimal highway alignments. Using Quantm allowed for avoidance or special consideration of sensitive habitat areas, landslides, lakes, terrain, wetlands/streams, landfills and calculated areas of impact for various layers of GIS data, which were incorporated into the modeling software as constraints or variables.

Exhibit 1 represents the Locally Preferred Strategy as recommended by the Riverside County - Orange County Major Investment Study. The suite of transportation improvements will include

additional lanes on SR-91, a new Corridor A facility, a new Corridor B facility as developed by the use of Quantm, and operational improvements to SR-74 (Ortega Highway).

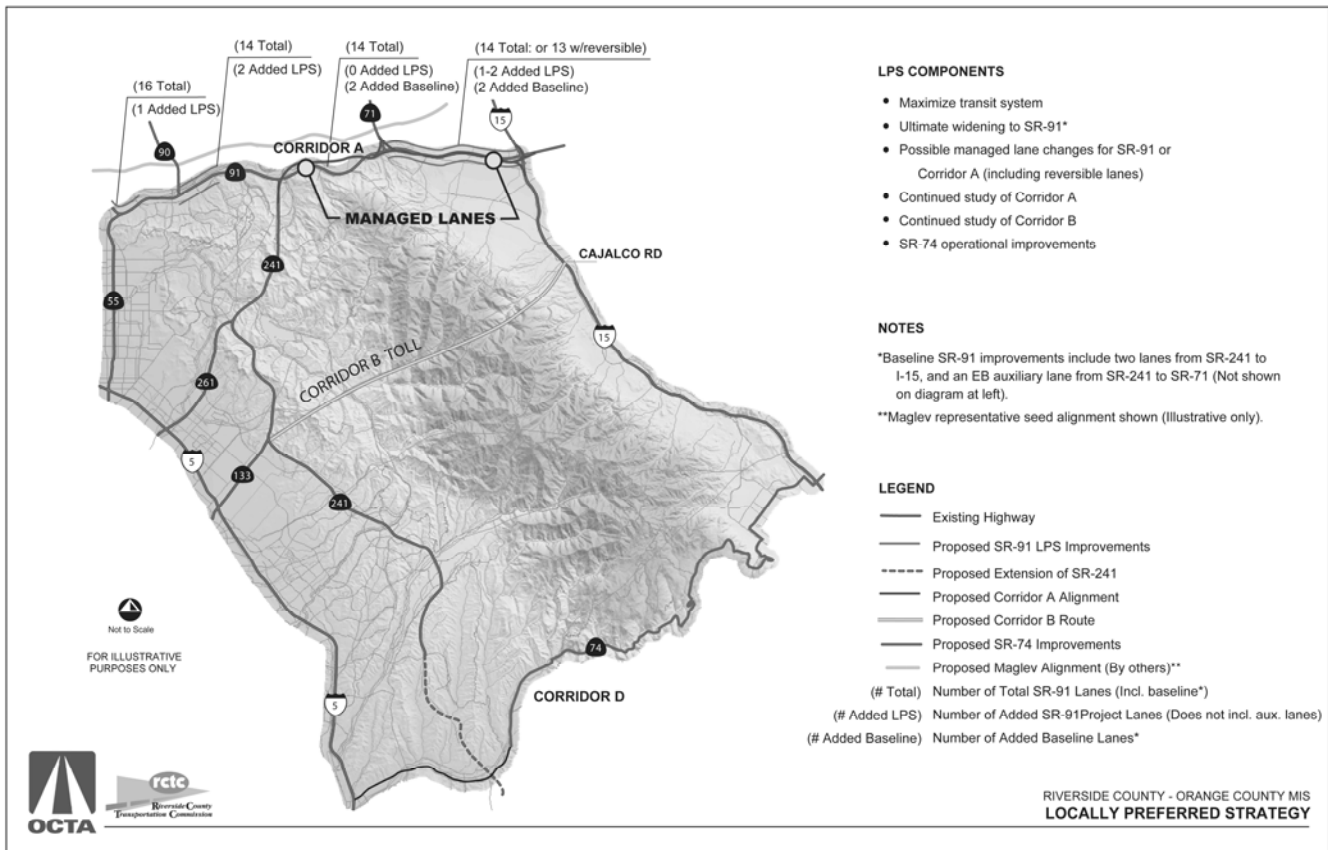
Exhibit 2 (page 3) identifies the typical output from a Quantm model run that shows the top 50 feasible alignments from the millions that are generated and analyzed by the software. The output allows planners to see the trends of alignments that are generated and to compare alignments based on cost or individual alignment characteristics (length of tunnel, maximum grades, length of bridges, etc.).

About the Author:

This article was authored by Tony Rahimian of Rahimian Management & Consulting, Inc. (RMC) in Irvine, California. Questions can be directed to: Tony@4RMCinc.com.

The project consulting team for this effort included: Jacobs Engineering, RBF Consulting, LSA Associates, Inc., Austin-Foust Associates, Inc., and Quantm, Inc.

**EXHIBIT 1
Locally Preferred Strategy**



PRESIDENTS MESSAGE

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cash prizes and awards for students and student chapters, and the District oversees several data collection projects each year for which the student chapters are paid.

These measures have been successful in getting students interested in ITE. An example of the extent to which students are finding ITE membership value can be seen in the extraordinary efforts undertaken by the Cal Poly Pomona Student Chapter; they raised more than \$13,000 so that 10 students could attend the Annual Meeting in Honolulu! Granted, going to Hawaii is pretty good incentive in itself, but we had 50 students at the meeting, and this shows that we're doing something right when students are willing to shell out that much money to travel to our meeting. I expect student attendance at the 2007 meeting in Portland will again be substantial, especially from schools within a reasonable driving distance.

For our industry to continue to grow, we need to build on the success we've had, and continue to expand our efforts to attract students to the field of traffic engineering. As with all worthy causes, this comes with a price, and thus far the District has been allocating a significant portion of its annual operating budget to underwrite the Student

Initiatives programs. Because this funding would become unstable in the event of a decline in membership, Past President Zaki Mustafa started looking around for ways to ensure that our Student Initiatives programs can be sustained.

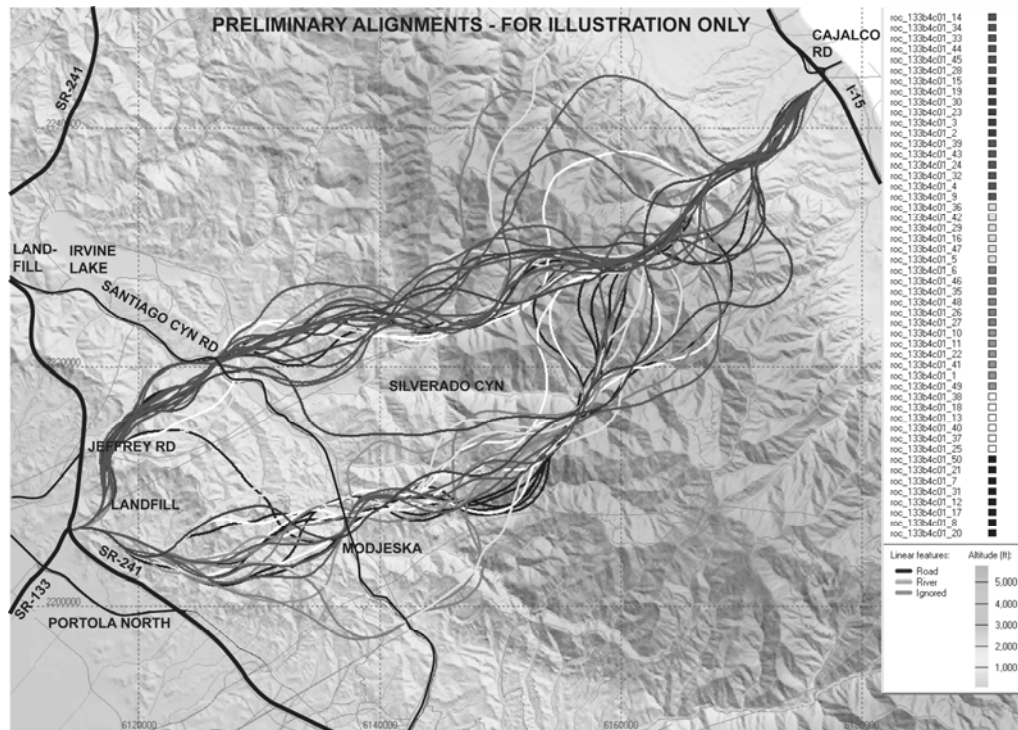
Five years ago the Montana State University Student Chapter decided that they needed a dedicated funding source for future ITE activities, so they started a fund-raising campaign to establish a \$100,000 Endowment Fund. This summer they received a donation that put them over the top! Two years ago Zaki saw the success that MSU was having, and appointed a committee to guide the establishment of an Endowment Fund for Student Initiatives in District 6. We opened an account with our first contribution, which came, not surprisingly, from Zaki. Since then the Southern California and Riverside-San Bernardino Sections have donated their award money at the Kalispell and Honolulu Annual Meetings, and the California Border Section contributed \$1,000. Individuals, like Steve Brown, have also contributed their cash awards from meetings. A mini-golf tournament during the Honolulu meeting netted more than \$3,500. Finally, the dues increase enacted for 2006 has already

provided more than \$4,100 toward the Endowment Fund, and will continue to generate additional revenue in upcoming years.

But it has taken us more than two years to top the \$10,000 mark, putting us on a pretty slow pace compared to the MSU Student Chapter at \$20,000 per year. With an ultimate goal of over \$300,000, additional efforts must be made to reach our goal so that we can provide for the future of our profession. International Director Julie Townsend has stepped up and is challenging the Sections that she visits by offering to match contributions of up to \$250. Our Endowment Committee is currently working on materials to provide all the pertinent details of the fund, at which point we will be asking for your support. Contributors will be acknowledged at the annual meeting, on the District's website and in WesternITE; various contribution levels will be established to ensure that everyone who gives is recognized. In the interest of sustaining the industry that provides all our livelihoods, I hope that you can give generously. After all, it's tax deductible! Thanks in advance for your continued support.

RIVERSIDE COUNTY - ORANGE COUNTY MAJOR INVESTMENT STUDY (MIS)

EXHIBIT 2



DESIGN/BUILD – MAKING IT WORK

Historically in the United States, design and construction of public works facilities have followed a rather fixed format:

- the consultant or the owner prepares plans, specifications and an estimate;
- the project is bid;
- the project is typically awarded to the lowest bidder; and
- the project is built with consultant and/or owner oversight.

Over the last few years, however, there has been a shift, particularly in major projects, to the design/build scenario where a single contract is let that encompasses both design and construction. One recent project has been on State Route 22 in Orange County, California. This project had several unique circumstances which set it apart from other design/build projects. It also has many similarities to other design/build projects. This paper will discuss this project and its applicability to other projects.

BACKGROUND

With respect to State Route 22 in Orange County, California, the Metropolitan Planning Organization for the area, Orange County Transportation Authority (OCTA), and the State of California Department of Transportation (Caltrans) are committed to developing effective regional transportation solutions that minimize impacts to local communities, including the study of ways to ease traffic congestion on SR-22. SR-22 is unique in that it crosses most of the major north/ south freeways and arterial corridors in central Orange County and consequently has become a vital east-west link in providing mobility to residents, employees and visitors. SR-22 is one of Orange County's older freeway facilities and it is in need of lane-capacity enhancements, roadway improvements, Intelligent Transportation Systems (ITS) element enhancements and structural retrofit of its bridges. Due to increased population and travel, SR-22 does not have the sufficient capacity to handle current and future traffic demands.

However, being a state route, it is under the control and ownership of Caltrans. Caltrans did not have the funds to complete the necessary improvements. As a result, in 2001 OCTA proposed to act as the contracting agency for the improvement and approved proceeding with the design-build approach.

Through a detailed prequalification and bid approach (including a best and final offer), the joint venture of Granite-Meyers-Rados (GMR) was selected to be the contractor. Work was initiated in September 2004 and is to be substantially complete by November 2006. The total work effort cost approximately \$550million.

Part of this work will involve the design and implementation of an Intelligent Transportation System (ITS) on SR 22 that will be connected to the Caltrans District 12 Transportation Management Center. The following sections provide an overview of some of the issues on this project.

LESSONS LEARNED AND APPLIED Pre-Award Effort

One of the most significant tasks in the design/build process is the level of effort required by all parties in preparing and reviewing a bid. From the contractor's side, he is typically given a set of plans at the 30% level. This is insufficient for a contractor to develop a bid with any confidence. The design had to further develop these plans in the prebid stage to allow GMR to develop their bid. This involved developing more detailed ITS plans at the same time that alternative roadway plans/drainage plans/bridge plans were being prepared. A great deal of coordination was required to ensure the ITS components were being designed with the latest base map. Alternatives were also proposed.

As part of the bid process, GMR was directed to submit a best and final offer. This involved going back over the ITS design and further detailing what it really needed as opposed to what was desired. This was particularly true for traffic signals where the Technical Provisions required "upgrading" of all components regardless of their current age/status.

There are several lessons here. One is that all parties, the contractor and the owner, should not underestimate the level of effort involved in preparing and reviewing a bid. Hence, the owner should not request more documentation and meetings than are considered necessary. This in turn will require a well written specification. Additionally, the owner needs to be flexible in reviewing alternatives due to the ever-changing technologies and the potential to save money both by the owner and the contractor.

Partnership

One of the unique attributes of a design/build project is that the specifications and

plans are rarely complete to the extent they would normally be if a project were being bid in the typical low bid environment. As noted above and is true with most design/build projects, SR-22 had a bid set that was only at a 30% level. Some leeway was therefore granted to the design/build contracting team to meet the performance requirements and/or the intent of the Technical Provisions and plans. In that it is not always clear whether a proposed design or implementation completely meets the specifications, it is necessary that the designers, the field contractor and the owner be flexible in their interpretations of the plans/specifications if the project is to proceed. This results in the forming of a partnership, either officially or unofficially.

In addition, with the owner (Caltrans) not being the contracting party, there was the potential for conflicts to arise between what Caltrans desired, what OCTA was willing to fund and what GMR was willing to provide per their bid. Additionally, the BAFO had a lower order of precedence than the Technical Provisions with some saying GMR should be held to the original Technical Provisions and at the BAFO bid price. This resulted in several discussions where agreements were reached that were acceptable to all parties.

The lessons learned here are that even under difficult working conditions, it is possible to reach agreements that are acceptable to all parties. Everyone had a vested interest in having this project be successful so it was in their best interests to work towards this common goal. Another lesson learned was that partnering is very dependent on personal relationships. It is necessary to develop individual trust between one another to allow the respective parties to champion the various views within their organizations.

Design Details

On the SR-22 project, the Technical Provisions were both functional and performance related. In addition, they referenced a large number of other documents. It would have been physically impossible for the GMR team to have reviewed all these documents prior to bid time. Hence, the bid was developed based on an "educated guess" scenario. In addition, once the design work started, GMR was asked several times to modify the ITS plans to bring them in line with local "agency policies", most of which were unwritten. As a result, there was the potential for GMR to have to supply an ITS that was well beyond

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what was actually bid. Again, this is where partnering came in. All parties were placed in a position that they had to be somewhat flexible in order for the project to move forward. This involved a great deal of give and take so that additional costs were held to a minimum and the local agencies received a product they could accept.

The lesson learned here is that the Technical Provisions need to be clear and succinct. Adding requirements (particularly referencing documents not provided as part of the bid package) will not only result in a potentially higher bid but could lead to disagreements following bid award. The other lesson learned is that policies need to be in writing and included as part of the bid package. Lastly, this was another example of where partnering does work when all parties are willing to seek agreement.

Conclusion

The SR-22 project involved several challenges, not the least of which was the contracting relationship and institutional issues. However, partnering between all parties resulted in the project being able to move forward and be completed.

About the Author:



Syd Bowcott

Syd Bowcott, PE, TE, has more than 35 years of experience in transportation engineering, most notably in ITS. He has worked in both the public and private sector. He is currently a Senior Project Manager/Vice President with URS Corporation. Syd received his Bachelor's and Master's degrees from the University of California, Berkeley. He is a member of ITE, ITS California and ASCE. Syd has served in many positions in local sections and is a frequent presenter at ITE and ITSA.



Prepare. Evaluate. Innovate. Sustain.

Planning for the 2007 District 6 meeting in Portland, Oregon is underway and on behalf of the Local Arrangements Committee, I invite you to visit our wonderful community. Portland is known for its excellent transit and expansive bike-friendly paths that have earned Portland, Oregon, the distinction of being named Bicycling magazine's No. 1 cycling city in America for several years. Our meeting will feature several transportation tours that are one of a kind experiences. As the Best Cycling City in America, we're planning a bike tour of Portland's waterfront path system. On the tour, you can learn first hand how our communities have fostered bike programs and developed innovative

treatments such as a bike only traffic signal and other unique applications. The Portland meeting will also feature technical tours of the Portland Streetcar, the light rail system, and Portland's new Aerial Tramway project. There's a lot more that is being planned and more information will come shortly in the Newsletter.

Peter Koonce, General Chair

The website is now up and running. Abstracts may be submitted through www.oregonite.org. The deadline for submittal is December 15th. Questions may be directed to Massoud Saberian, Technical Chair, at msaberian@ci.oswego.or.us.



SECTION AND CHAPTER ACTIVITIES

CENTRAL CALIFORNIA SECTION



October 18, 2006

Our Central California Section quarterly meeting was held October 18, 2006 at Grand Occasions in Fresno. The meeting was sponsored by Prism Engineering. More than 55 members and guests attended.

Business Meeting

Our new section president Gary Mills started the meeting with a short business report.

Technical Session

Our technical session was sponsored by Grant Johnson and Prism Engineering who also provided the raffle prize.

www.prismworld.com

Grant Johnson's presentation was on "Roundabouts, a Traffic Operations Perspective". Modern Roundabouts are more than a traffic calming tool. Sometimes they are a better solution than a traffic signal, from a traffic operations standpoint, or from a capacity standpoint. Traffic signals sometimes depend on the traffic operations of adjacent intersections, and a system of signals is necessary for proper flow of traffic. A modern roundabout on the other hand can sometimes operate as a governing meter to negative traffic flow impacts, and provide needed capacity improvements at the same time. PRISM Engineering conducted several traffic operations studies, with the building of various micro-simulation models in relation to the installation of a modern roundabout at the busiest intersection in the City of Grass Valley, and on one of Caltrans' most challenging on-ramp systems (300 foot weave at base of curve and steep grade) on the Golden Center Freeway. The modern roundabout mitigation was the only solution that Caltrans would accept short of a new interchange.

Grant Johnson began preparing traffic engineering studies and signal designs in 1984. In 1994 he founded SPECTRUM Engineering, which has grown into PRISM Engineering, and has been active in many cities and counties in Northern California providing on-call traffic engineering

services to San Joaquin, El Dorado and Nevada County. He is a registered Traffic Engineer, has 22 years of experience as such, and was also one of the first recipients of the national title of Professional Traffic Operations Engineer, or PTOE. He has been involved in numerous traffic operations studies, and is knowledgeable in the use of technical software applications relating to micro-simulation.

Raffle

LaVerne Bitner was the winner of the portable DVD player donated by Grant Johnson and Prism Engineering.

Future Meetings

January 17, 2006 - Visalia

Nazir Lalani—Tort Liability: The Public Agency Perspective, and Tort Liability: The Civil Engineer's Role as a Witness.



Mike Bitner,
Past President

Development Manager for the City of Walnut Creek.

Ms. Knepper presented the MTC's Smart Growth Parking Policy Study which they are currently conducting. The study includes eight case studies of the parking policies of several Bay Area municipalities of all sizes as well as a series of Best Practices and suggestions for policies and programs that would be possible to implement in other locales. Michael Vecchio and Dan Zack presented the parking policies for Walnut Creek and Redwood City respectively. They explained the permit, pricing and timing policies of parking in their cities and how they had come to adopt them. Dan Zack also demonstrated a series of progressive policies that Redwood City had implemented with inspiration from the work of Donald Shoup, Professor of Urban Planning at UCLA. These policies were implemented with input from the community to help spur economic development and to provide funds for improving the business district.

For detailed PowerPoint presentations of the meeting, please visit <http://www.sfbayite.org/>.

SAN FRANCISCO BAY AREA ITE/SBTOA



October 2006

The October meeting was held on the 19th at the Gordon Biersch Brewery on The Embarcadero in San Francisco and over 50 members were able to attend the event. The topic of the luncheon was "Downtown Parking Innovations: Avoiding the High Costs of Free Parking." Three speakers were invited to present on the subject: Ms. Valerie Knepper of the Metropolitan Transportation Commission; Mr. Michael Vecchio, the Transportation Specialist from the City of Walnut Creek; and Mr. Dan Zack, the Downtown



Toshi Shepard-Ohta,
Co-Scribe



Allen Huang,
Co-Scribe

GRANDFATHER OF THE INTERSTATE SYSTEM

Dwight Eisenhower is known as the Father of the Interstate System because he moved the system from concept to pavement. Similarly, the title of Grandfather of the Interstate System should belong to none other than Thomas Jefferson. It was Jefferson who, in 1806, signed the legislation authorizing construction of the nation's first federally funded interstate highway.

When Jefferson assumed the Presidency in 1801, the fledgling United States faced a significant geographical challenge. The future states of Ohio, Indiana, Illinois, Michigan, and Wisconsin were being formed out of the 260,000-square-mile Northwest Territory, which was separated from the eastern states by the Appalachian Mountains. Easterners wanted easier access to plentiful western land, including both the Northwest Territory and, after 1803, the Louisiana Purchase. On the other hand, recalcitrant westerners distrusted the federal government and disdained its authority. Jefferson agreed, especially in the wake of the Whiskey Rebellion, with George Washington's opinion that improved transportation would decrease the isolation of the westerners and improve national unity.

Jefferson's Treasury Secretary, a surveyor named Albert Gallatin, devised a plan to unite the two disparate parts of the nation. At Gallatin's urging, the Ohio statehood act passed by Congress in 1802 provided for construction of a road connecting the new state with the Eastern seaboard. The act authorized the federal government to pay for the road from a fund created by reserving 2 percent of the proceeds from selling public land located in Ohio. Four years later, Congress passed legislation that furthered Gallatin's plan by authorizing construction of a "National Road" that would reach from the Ohio River to Cumberland, Maryland, where it would connect with an existing road leading to Baltimore. By signing this legislation, Jefferson paved the way for federal involvement in the construction of interstate roads.

This project was a monumental undertaking for the young republic. Construction of the 131-mile road from Cumberland to Wheeling, West Virginia, took seven years to complete. It cost \$1.75 million — more than double the original estimate of \$6,000 per mile. The cost would have been even higher, but much of the right-of-way was donated by landowners anxious to have their property served by the new road.

The National Road, also known as the Cumberland Road, used the best technology available and was designed for efficient travel. Although the road crossed the Appalachian Mountain range, the grade was limited

to a maximum of 5 degrees (8.75 percent). The roadway consisted of a traffic-bearing structure with what amounted to 6-foot-wide shoulders with a finished surface.

Construction began by clearing the 66-foot-wide right-of-way of obstacles such as trees and rocks. To prepare the travel "lanes," workers then hand dug a 20-foot-wide trench down the center of the right-of-way. Using round-headed iron hammers, workers broke rocks and sorted them by passing them through 7-inch and 3-inch rings. A layer of the larger stones was placed first and then topped with a layer of the smaller ones. Together, the two layers filled the 12-inch-deep trench, and a crown was created by piling the stones to a depth of 18 inches at the roadway center. The rock base was covered with gravel or sand and compacted with a 3-ton roller.

By the time the road reached Wheeling in 1818, plans called for extension of the route through Ohio, Indiana, and Illinois — all the way to St. Louis. That would bring its overall length to 812 miles. Even as preparations for the extension proceeded, repair work began on the original road, as heavy use by horses, herds, covered wagons, and stagecoaches had caused deterioration. By the late 1820s, the McAdam process was being used for repairs and construction.

During the original construction, stone mile markers were placed along the south side of the road at 5-mile intervals. In 1835, the stone markers were replaced with cast iron obelisks placed 1 mile apart. With a level of detail unlikely to be seen today, each marker displayed the distances to Wheeling, Cumberland, and the nearest town. At that same time, the federal government chose to turn over responsibility for the road to the states through which it passed, allowing them to finance repairs by collecting tolls (giving rise to the route being called the National or Cumberland Pike).

The National Road became the primary corridor for interstate travel, commerce, and mail delivery (including the Pony Express). Inns and taverns sprouted along its route, and nearby towns thrived because of the access. Its occasional title of the "Road that Built the Nation" attests to its success in unifying the established East and the developing West. When the Federal-Aid Highway System was defined in the 1920s, the road was absorbed as part of US 40. After the modern Interstate system was launched in 1956, I-68 and I-70 offered limited-access, high-speed alternatives to long-distance travelers.

The Adobe Tower



About the Authors:

Jerry Hall, a professor of Civil Engineering at the University of New Mexico, has served District 6 as president and international director.

Loretta Hall, a member of the Society for Technical Communication and the Construction Writers Association, is a freelance writer concentrating on engineering and construction.

They can be contacted at jerome@unm.edu and lorettahall@constructionwriters.org, respectively.

Editors Note

At the Annual Meeting in Hawaii, Dr. Jerry Hall presented a paper on the history of the interstate system in honor of its 50th anniversary. This article is the first in a series expanding on that paper. WesternITE is proud to present our readers with this invaluable story of the building of our transportation system.

ALL ABOARD THE SKI TRAIN!



The Colorado-Wyoming Section invites you and your family to join us on Saturday, January 27th, 2007 for our 5th annual winter party train ride from historic Denver Union Station in the heart of Lower

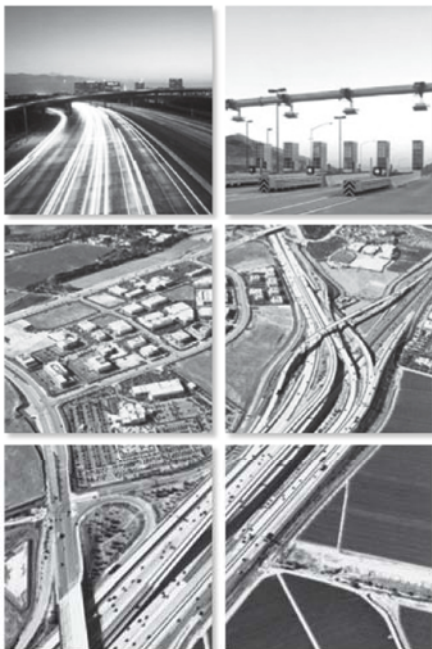
Downtown to magnificent Winter Park Ski Resort and its wilder sister resort, Mary Jane. Ride in luxurious Club Car splendor (big comfy seats, and each car has its own bar) with your ITE pals, without the hassle, headaches, delays, and peril of I-70 driving. The train leaves Denver at 7:15 a.m. and returns from Winter Park at around 6:30 p.m. Heavily discounted tickets for the train ride are only available through the Section's Activities Coordinator, Eric Boivin, at 303.216.2439 or ericboivin@alltrafficdata.net. For more information about the Ski Train, visit www.skitrain.com or call 303.296.4754. Learn more about Winter Park (not just for skiers) at www.skiwinterpark.com. Space is limited, so call today, and we'll see you on the Ski Train!

DISTRICT 6 NOMINATIONS

District 6 is seeking nominations from those individuals who would like to further serve ITE as the District's next Secretary - Treasurer or as our future International Director. Nominations for Secretary-Treasurer for 2007-2008 will be accepted from individuals living outside of California, while our next International Director will be selected from an individual from California. Anyone interested in learning more about the nomination process or have a name to submit should contact District 6 Past President Ken Ackeret at (702) 862 - 3601 or e-mail at ken.ackeret@kimley-horn.com.



WHERE EXCEPTIONAL PEOPLE ARE THE RULE!



RBF Consulting is a multi-disciplinary civil engineering and planning firm established in 1944. RBF's reputation and success are founded on our commitment to quality, professionalism, and continuing innovation. We are currently seeking Traffic Engineers and Transportation Planners with 1-4 years of experience to join our Carlsbad, Irvine and Ontario, CA offices. RBF has 14 offices located throughout California, Arizona and Nevada, and provides a family-oriented environment with exceptional opportunities for professional success, continued learning and personal growth. RBF offers an excellent compensation and benefits package, including a generous matching 401(k) plan, profit sharing and bonus programs, and relocation assistance.

Please visit our website www.RBF.com and send your resume to:

Fax: (949) 855-7060

Email: hrmail@rbf.com

EOE M/F/D/V

**CE NEWS TOP 2
BEST FIRM**
To Work For

POSITIONS AVAILABLE

ASSISTANT TRAFFIC ENGINEER City of Yuma, AZ

Salary: \$55,257 - \$77,361 annually, plus benefits. Potential signing bonus of up to 10% of salary, depending on qualifications. The ideal candidate will be an experienced professional, with excellent interpersonal and communications skills and five years of professional traffic engineering experience with a municipality. He/she will also be self-directed and make effective decisions and a candidate will possess a Bachelor's degree in transportation/traffic engineering, electrical engineering or civil engineering and possess current Registration in the US as a professional engineer. He/she must be able to obtain Arizona Registration as a professional engineer within one year of hire.

APPLY IMMEDIATELY: Position is open until filled. For information on how to apply, contact our Human Resources office at: (928) 373-5145; e-mail: human.resources@ci.yuma.az.us; or visit our website at: www.ci.yuma.az.us.

SANTA CLARA VALLEY TRANSPORTATION AUTHORITY (VTA)

Senior Transportation Planner –
Transportation Systems & Operations
\$6,823 - \$7,915 (Mid-point) - \$9,006/month

This position reports to the Transportation Engineering Manager and offers an opportunity to contribute to a wide variety of transportation system projects, studies and programs including:

- Congestion Management Program
- South County Circulation Study
- I-880 Corridor Study
- High Occupancy Toll Lane Demonstration Project
- Dynamic Passenger Information Project
- VTA Rapid/Bus Rapid Transit (development of bus signal priority system)
- Countywide ITS Planning
- Silicon Valley Rapid Transit Project
- Participation on steering and advisory committees, and working groups

This position requires strong traffic operations analysis skills, the ability to manage challenging studies, and strong verbal and written communication skills.

VTA offers a generous benefit package including paying the employee's retirement

contribution to PERS, vision care, a choice of health plans, dental coverage, an employee assistance program, life insurance, holiday, vacation, and sick leave. A credit union and deferred compensation are also available to employees at their option.

Application, supplemental questions and job announcement are available at: www.vta.org/jobs.



SACRAMENTO OFFICE

CH2M HILL is an employee-owned, leading International Transportation, Water, and Energy, Environment & Systems Engineering Consulting Firm. We employ approximately 15,000 employees throughout our more than 200 worldwide offices. We are seeking highly motivated, results-oriented professionals in our Sacramento Office. We are an Equal Opportunity/Affirmative Action employer and as such, encourage females and minorities to apply.

We offer a full benefit package including health, life, dental, and disability insurance, as well as vacation and sick leave. The position is generally 8-5 M-F, with an hour lunch. Rates are based on a 40-hour work week, some overtime may be needed.

ENTRY-LEVEL TRANSPORTATION ENGINEER

Position Details: Entry-level civil engineer to work on bridge and/or roadway/highway projects. In this position, you will be exposed to a wide range of engineering projects with the opportunity to gain valuable experience by utilizing your engineering knowledge and complete your assigned tasks in a team environment. Under the supervision of mid to senior level staff, you will have the opportunity to exercise judgment and make recommendations in the development and creation of designs for conventional to complex, multi-disciplined transportation projects.

Qualifications: B.S. degree in civil engineering with emphasis on bridge and/or roadway/highway design. EIT preferred. Competency in either Microstation or AutoCAD is highly

desirable. Position is entry level requiring 0 to 2 years experience. California Department of Transportation (Caltrans) experience is highly desirable.

www.ch2m.com

Reference codes: 11564BR

CH2M HILL is an EEO/AA employer, and as such, we encourage females and minorities to apply.

CH2M HILL SACRAMENTO OFFICE

CH2M HILL is an employee-owned, leading International Transportation, Water, and Energy, Environment & Systems Engineering Consulting Firm. We employ approximately 15,000 employees throughout our more than 200 worldwide offices. We are seeking highly motivated, results-oriented professionals in our Sacramento Office. We are an Equal Opportunity/Affirmative Action employer and as such, encourage females and minorities to apply.

We offer a full benefit package including health, life, dental, and disability insurance, as well as vacation and sick leave. The position is generally 8-5 M-F, with an hour lunch. Rates are based on a 40-hour work week, some overtime may be needed.

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POSITIONS AVAILABLE

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http://www.cityofpasadena.net/humanresources/Job_listing/Engineer.asp.

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Traffic Operations Center Manager - Tucson: Responsible for start-up, management and operation of a new Traffic Operations Center in the Tucson area during the upcoming I-10 widening project. The ideal candidate will be a licensed professional engineer in Arizona with 4 plus years of traffic engineering experience. Previous management experience is required. Previous experience operating traffic signal systems or a TOC/TMC is preferred. Familiarity with Synchro, HCS, and CORSIM required. Knowledge of Work Zone Safety (IMSA or ATSSA training) and detour planning strongly desired. Familiarity with the ADOT partnering process helpful.

Traffic Operations Center Engineer - Tucson: Responsible for Traffic Signal Timing, Highway Capacity Analysis, Workzone Traffic Control, CORSIM modeling, detour strategy development, technical report writing and consensus building. Requires Arizona PE and 3 years of experience in traffic engineering. Responsible for supervising TOC operators.

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Requires Bachelor's degree in Civil Engineering, Traffic Engineering, or closely related field; supplemented by six years progressively responsible experience and/or training in traffic engineering, civil engineering, traffic operations, computerized traffic signal control systems, traffic studies, traffic development plan review, computer-aided design, budget administration, and management. Must possess and maintain a valid Arizona driver's license. Must possess and maintain valid Arizona Professional Engineer (P.E.) certification. Out of state candidate, if selected, will be given 4 months to gain certification. Closes 5:00 PM, Friday, December 8. \$74,222 to \$103,909 annually.

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TRANSPORTATION OPERATIONS MANAGER

Salary Range: \$71,304 to \$86,904 annually (2006 Rate)
Date Open: November 3, 2006
Open Until Filled

This position in the Transportation Division is responsible for all traffic engineering responsibilities in the city including: the operations and maintenance of the city's traffic control devices (over 100 signals), street illumination, street channelization, communications equipment, and neighborhood traffic calming. This position supervises 16 employees.
MINIMUM REQUIREMENTS: A degree in civil engineering with preference for traffic engineering training and experience, and at least five years experience in traffic engineering, including two years of supervisory experience. A professional engineering license is preferred.

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\$63,744 to \$77,676 annually (2006 Rate)
Date Open: October 6, 2006
Open Until Filled

Coordinates and prepares the transportation capital improvement program for the Transportation Systems Division, including accountability for funding, preparation of the annual Six-Year Transportation Improvement Program, submittal of grant proposals and coordination of transportation program and funding activities with developers, consultants and other departments and agencies.

To be considered for either of these positions, complete and submit a City of Renton Application Form, Cover Letter, and Resume to HR & RM, 1055 South Grady Way, Renton, WA 98055. Please visit our website for detailed information about these opportunities, how to apply and to download an application www.rentonwa.gov. For questions, email bsandler@ci.renton.wa.us.
EOE

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EDUCATION AND EXPERIENCE:

Any combination of education and experience equivalent to: Bachelor's degree in Civil Engineering, Transportation Planning or related field with emphasis in traffic or transportation and three years of increasingly responsible traffic engineering and/or transportation planning experience. Valid Washington driver's license.

TO APPLY: Please complete a required City of Federal Way application form and attach resume and cover letter. Applications available at City Hall, 33325 8th Avenue South/P.O. Box 9718, Federal Way on our website at www.cityoffederalway.com or by calling 253-835-2531.

POSITIONS AVAILABLE



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Call (949) 724-6200 to obtain application materials. This recruitment is **OPEN UNTIL FILLED**. The first application review is scheduled for **Thursday, November 2, 2006**. Visit our web site at www.ci.irvine.ca.us for additional information. EOE

TRAFFIC ENGINEERING ASSOCIATE City of Camarillo, CA

Salary \$62,621—\$84,467/annually, plus excl. benefit package, incl. PERS 2% at 55.

Participates in traffic engineering including transportation planning, signal timing and design, prepares traffic studies. Reviews environmental assessments and environmental impact reports. Minimum qualifications include a Bachelor's degree in Traffic Engineering or a closely related field. Registration as Traffic Engineer with the State of California or certification as Professional Traffic Operations Engineer is desirable. Apply by 12/1/06.

City of Camarillo,
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