

# CLEAR VISION

Volume 1, Issue 2

Iowa Department of Transportation - Office of Materials

Winter 2000

## High Performance Concrete for Bridge Decks

By Cheng Ouyang

Durability is a major concern when designing and constructing concrete bridge decks. Two problems associated with the performance of concrete bridge decks are transverse cracking, resulting from drying shrinkage, and penetration of chloride ions from application of deicing salts during winter. These two mechanisms may initiate corrosion of the steel reinforcement and reduce service life of the decks. The use of high performance concrete can eliminate or reduce these problems and increase the service life of bridge decks.

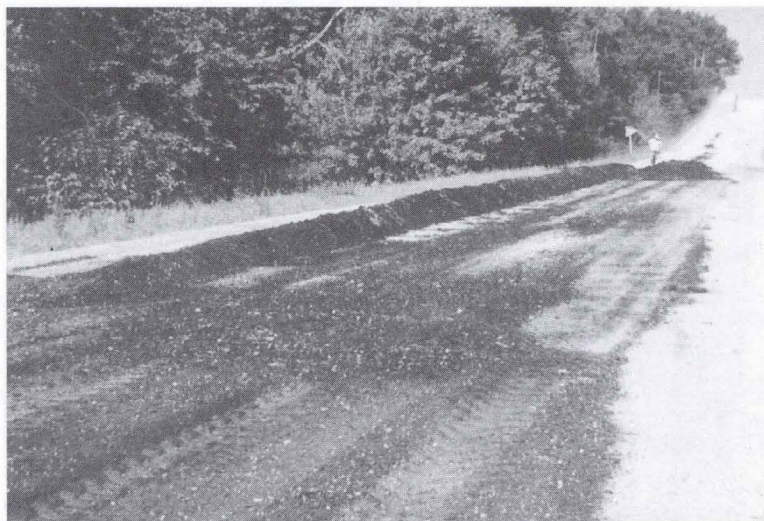
The Office of Materials at the Iowa Department of Transportation has developed a high performance concrete mixture for use on bridge decks

*(continued on page 4)*

## Research Pays Off Recycled Asphaltic Shingles for Granular Road Dust Control

By Bob Steffes

Asphalt shingles, according to some surveys, contribute twice as much waste per year to landfills than rubber tires, another major waste management concern. The two major components of shingles are sand and asphalt, with sand being about 60 percent and asphalt about 30 percent of the total product. In 1995 the engineer from Benton County initiated the idea of using recycled asphalt shingles as a dust control agent on granular roads. The first application was done using 500 tons of ground shingles spread on 0.3 mile of a Benton County road.



This use of shingles can provide an effective, efficient, and long-term alternative to the comparative short-lived calcium chloride treatments for dust control. This recycling process also helps eliminate the total waste of a huge volume of asphalt shingles going into our landfills each year.

The Iowa Department of Transportation Materials Research section became very interested and supportive of this project and has contributed to the nationwide promotion of research in this area.

The steps in the process are basically as follows: To comply with environmental standards, shingles are first tested for asbestos, which is a very minor constituent and is found in only a small percentage of shingles produced before 1973. The shingles are then ground to a particle size of 1 inch or less. Next, powerful magnets positioned

*(continued on page 4)*

### INSIDE THIS ISSUE:

- CoolCareers
- IM 204 Review Team
- Lab Quality Team
- Central Lab Inspection
- New TC Lab Equipment
- Hot, Black and Sticky
- Retroreflective
- TC Highlights
- Technical Training
- Materials Personnel
- Materials Welcomes...

## Entryway Redone



Eileen Buchanan and Donna Neubauer have done a nice job of making the front receptionist area more attractive. They have added some potted plants, some lighting to set it off, and a little water fountain in a pretty vase of rocks. They have also arranged a pleasant new waiting area for guests. Cliff Dalbey helped Eileen find the lighting, plants and planters.

Eileen and Donna, along with Al Defrancisco, also did a very nice job of redoing some of our flower gardens in front of the Materials Building to make them attractive to the people who pass by this area.



## CoolCareers 2000

On June 7, 1999, 49 new employees started with the DOT in the CoolCareers Program. The program had a 10-week classroom training program that covered math, CADD, survey, materials, construction, computer courses, and a variety of other subjects. After the 10 weeks of classroom training, employees were assigned to a field office for three months of field training. At the end of three months, they were given a permanent assignment in either Design, Bridges and Structures, Right-of-Way, Materials or Construction. These assignments were statewide. The Materials Office was active in the training of these employees by taking them on a lab tour and giving classroom instruction on aggregates, ACC paving, PCC paving, structural concrete, and prestress operations. They were also taken on tours of the Ames Mine, Montour Quarry, and on PCC and ACC construction sites. This program is similar to one developed in the early 1970s. There are several employees still with the DOT that participated in that early program. If one of these new faces show up in your office or area, please welcome them to the DOT!

## I.M. 204 Review Team

By John Adam

Materials Instructional Memorandum (I.M.) 204 is entitled "Inspection of Construction Projects: Sampling and Testing." The purpose of this memorandum is to prescribe general objectives, policies, procedures and guide schedules for sampling and testing materials incorporated into highway construction projects. Key components of this I.M. are sampling and testing guides which prescribe how and when a material is to be sampled and tested, who is responsible for the sampling and testing, and what the results will be used for. In short, this memorandum establishes a basic structure or mechanism for how materials and construction provided by contractors and suppliers is determined to be acceptable by the agency. Examples of items accepted through the procedures defined in this I.M. range from floor drains to asphalt cement, to any product incorporated into a project.

A team was recently put together to conduct a thorough review of this I.M., particularly the sampling and testing guides used for acceptance. The mission of this team is, "to improve efficiency and focus of the material quality control and quality assurance program by updating I.M. 204 and its appendices through the use of a risk assessment approach." Co-chairs for the team are Kevin Jones and John Adam. Field interests are represented by Shane Tymkowicz, NWITC Materials; John Vu, CITC Materials; and Leroy Robinson, SEITC Materials. Other members are Frank Howell, FHWA and Brian Corree, ISU. Mike Heitzman, Central Materials, is acting as facilitator for the group.

The team will be meeting throughout the fall and winter, and will be inviting personnel from field construction and materials offices to provide expertise on specific components of the sampling and testing guide. A draft I.M. is targeted to be ready for review by June 2000, with implementation planned for the October 2000 issue of the I.M. revisions.

# Laboratory Qualification Program

By John Adam

Federal Highway Administration regulations, "Quality Assurance for Procedures for Construction," was published as 23 CFR, Part 637, Subpart B, on June 29, 1995. Included in this regulation is a deadline of June 29, 2000,

requiring testing by all contractors, vendors, and DOTs used in project acceptance decisions be performed by qualified laboratories. The laboratory qualification program is intended to assure competence of laboratories performing

acceptance testing, and ultimately to assure that quality control processes used, and materials incorporated into highway projects, are in compliance with specifications.

To comply with this regulation, a specification change was implemented in the October 26, 1999, issue of the General Supplemental Specification, Article 1106.01. It requires contractor and supplier laboratories performing testing for all projects on interstate and primary routes be qualified laboratories in accordance with I.M. 208. Examples of the types of laboratories included in this program are transportation center materials laboratories, aggregate producer laboratories, ACC and PCC contractor laboratories, and ready-mix concrete laboratories.

I.M. 208 was revised in the October 26, 1999, issue to define qualified laboratory requirements. Elements of the program include experienced personnel, proper testing equipment, documentation procedures, and demonstration of testing proficiency through split samples or observation of testing personnel performing procedures.

Transportation center materials offices are responsible for reviewing and qualifying laboratories involved in materials acceptance. Qualification of labs will be conducted throughout the winter of 1999-2000 in anticipation of the June 29, 2000, deadline.

## Central Laboratory Completes AMRL and CCRL Inspections

By Kevin Jones

The Aggregate and Soils, Cement and Concrete, Metals, General Test, Bituminous, and Analytical Chemistry sections were visited this year for a rigorous inspection by the National Institute of Standards and Technology. Inspectors for two programs, the AASHTO Materials Reference Laboratory (AMRL), and the Cement and Concrete Reference Laboratory (CCRL), spent several days checking equipment, calibration records, training records, qualification records, and testing procedures. Having someone watching and critiquing technicians as they perform the test can be intimidating. Everyone performed very well, and only a few minor suggestions were noted by the inspectors who are notoriously thorough in their work.

Employees that participated in the inspections were:

Rod Baker	Ken Kennedy	Joe Putherickal
Gary Begg	Rachel Lathrop	Wallace Rippie
Mike Coles	Leroy Lutjen	Dan Seward
Shane Fetters	Edna Maderios	Kevin Shirley
Rod Graven	Mike Marr	Todd Siefken
Steve Hagen	Bob Mattingly	Ken Spencer
Paul Hockett	Cathy Miskell	Steve Steel
Rhonda Jensen	Cheng Ouyang	Ron Stohr
	Fronzell Pankey	Steve Twohey

The AMRL accreditation provides us with the confidence and assurance that our staff and equipment are performing the needed testing correctly. Maintaining the accreditation takes time and diligence to keep up with the calibrations, reference samples, and documentation. The staff at the Iowa DOT Materials Laboratory obtained the accreditation when the program first started and has maintained that accreditation ever since.

The inspection is a good measure of how well we are doing. Based on these last two inspections, the Central Materials Laboratory staff is doing very well!

## Hot, Black & Sticky

What do research, training and specifications have in common? SUPERPAVE!

The Central Lab continues to examine the impact of the Superpave gyratory compaction system. Under the direction of John Hinrichsen and Dan Seward, the lab completed an analysis of gyratory compactors from four different manufacturers. A report on this effort is expected to be completed this year. The lab is currently examining the influence of the method of aggregate crushing on the compaction properties of the hot mix.

Since the implementation of the Superpave system, the Office of Materials' Technician Training Program has provided Superpave instruction to more than 200 agency and industry technicians. In April, Mike Heitzman and Brian Coree initiated a Superpave training program for the practicing engineers. Four sessions were held for the DOT's central office and field engineers. Additional sessions will be added to the regular winter training program.

Are you finding it difficult to follow current asphalt paving specifications? Well, relief is just around the corner. A team has been working for the better part of a year to consolidate the specification language of sections 2303, 1201, and the Superpave special provision. Most projects in the year 2000 construction season are expected to be using the new specification. A similar rewrite of the asphalt material instructional memorandums has started and is expected to be completed next year.

### *High performance concrete (continued from page 1)*

to overcome these problems. A study in the Office of Materials to develop a high performance concrete mixture for use in bridge decks in Iowa was completed in the spring of 1999. For a cubic yard of concrete, the proposed mix requires 513 lbs. of Type IS cement, 61 lbs. of Class C fly ash, 30 lbs. of silica fume, 1,612 lbs. of coarse aggregate, 1,340 lbs. of sand, and 240 lbs. of water. Adequate amounts of air entraining agent, retarder and superplasticizer are also needed. This high performance concrete has low permeability, low cracking tendency for drying shrinkage, and moderate strength. Compared to conventional concrete mixtures used in Iowa for bridge decks, the new mixture is approximately 70 percent lower in permeability, 10 percent higher in compressive strength, and somewhat lower in cracking tendency. The cost of the new mixture is expected to be slightly higher than for conventional mixtures.

Based on this research, a special provision has been developed to construct a bridge with the high performance concrete. A bridge on Fleur Drive near the Des Moines Airport has been selected for field construction. The Office of Materials will closely monitor this field implementation. More bridge decks in Iowa are to be constructed by using high performance concrete in coming years. The use of high performance concrete will increase longevity and reduce the life-cycle cost of Iowa bridges.

---

### *Research Pays Off (continued from page 1)*

above the conveyor belt moving the ground shingles removes any roofing nails from the material. Then the ground material is stockpiled or transported to the roadway site. Ground shingles are spread on the granular roadway surface and then mixed (bladed) into the top two inches of granular material. The result is an approximate three-inch layer of the aggregate and shingle mix.

Initial tests show recycled shingles can be very effective as a dust control agent. After four years, the 1995 application remains effective.

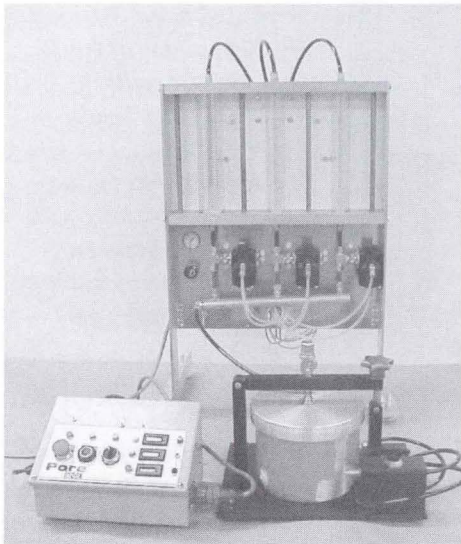
Financially, the bottom line is positive. The typical landfill-tipping fee is \$40 per ton. The testing process, grinding, and transport costs total about \$30 per ton. This process results in a road with dust control and a little profit left over. Some additional benefits are a quieter ride and a reduction in the annual loss of aggregate from the roadway. **Research pays off!**

## New TC Laboratory Equipment

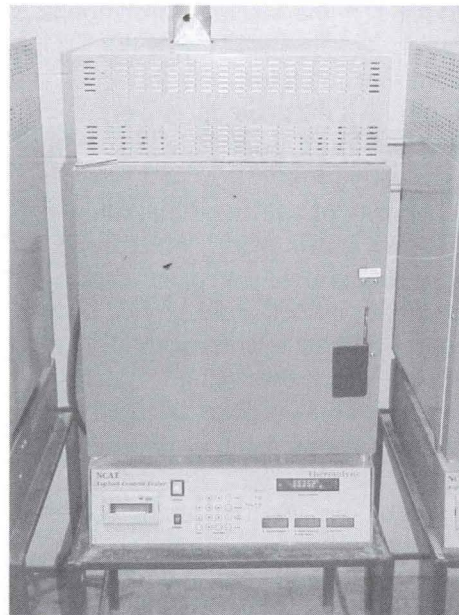
By Kevin Jones

The materials laboratories at each of the transportation centers will be getting some new equipment, thanks to some changes in technology. A new pore index test unit, a new sand equivalency test unit, and a new ignition oven will soon be a part of the laboratories.

A new automated pore index test unit was designed and built by the Materials Testing support staff and Geology staff. Rufus Brown, Mike Lauzon, Ron Stephens and Steve Upchurch worked together to fabricate test units for four of the TCs and for the Central Laboratory. The units measure the pore size and pore system volume of limestone aggregates. The Central Laboratory has been using the test for several years to help the geologists evaluate the suitability of new and existing aggregate sources. Wendell Dubberke and Vernon Marks of the Office of Materials reported on the development of the original unit that was designed and built in Iowa. The pore index test unit will allow the TCs to work with producers directly to assess the quality and variability of the aggregates at that source.



*Pore index test unit*



*Ignition oven*

Another new piece of equipment the laboratories will be getting is a sand equivalency test unit. The new requirement for hot mix asphalt (HMA) includes a requirement for measuring sand equivalency. The test determines the relative portion of the aggregate that is detrimental fine dust or clay-like materials. This fine material can reduce adhesion of the asphalt binder to the aggregate.

A new solution to an old problem is the asphalt ignition oven. Determining how much asphalt binder is in the hot mix asphalt, or what the aggregate gradation is, has always been a challenge. Earlier, solvents were used to remove the asphalt binder from the aggregate. Then came the nuclear asphalt content gauge for determining asphalt binder content. Now there is the asphalt ignition oven that actually burns away all the asphalt binder from the aggregate. Using temperatures around 1,000 degrees Fahrenheit, the oven can burn away the asphalt binder in less than one hour. The oven has a built-in electronic balance that continually weighs the sample as it is being tested. Gone are the hassles of solvents and nuclear equipment. In the future, this type of test may be used in the field as one of the contractor's quality tests to control the process.

## Retroreflectivity

By Kurtis Younkin

When driving at night, visual information is greatly decreased. Traffic signs, pavement markings and various reflectors help guide motorists at night. All these products work by reflecting light back towards the light source; this is called retroreflectivity.

The vast majority of pavement markings in Iowa are waterborne traffic paint. Waterborne paint is the most economical pavement marking. Small glass beads are immediately applied on top of the wet paint to provide retroreflectivity. In urban areas, where waterborne paint is quickly worn away, more durable products are used, such as a two-component epoxy paint, or pavement marking tape.

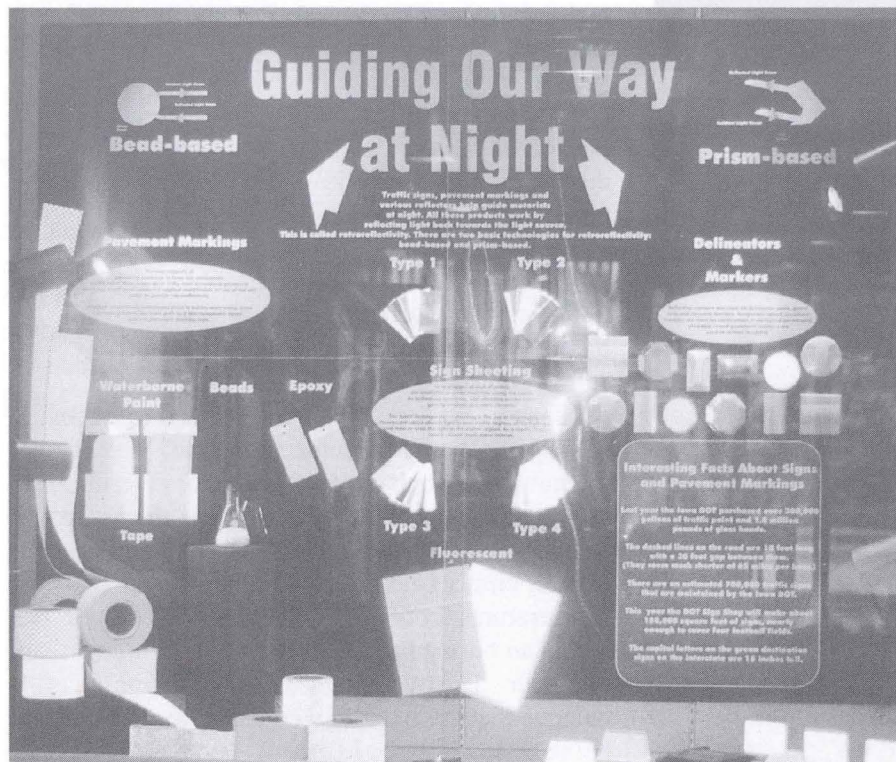
Several types of sign sheeting are available to guide motorists along the roads. In the sheeting, either glass beads or microprisms are used to retroreflect the light back to the motorist. As technology improves, sign sheeting products are getting brighter and more durable. The latest

development in sheeting is the use of fluorescent colors. Fluorescent colors absorb light in non-visible regions of the light spectrum and then re-emit the light in the visible region. As a result, fluorescent colors appear more intense.

Reflective markers are used on delineator posts, guard rails, and concrete barriers. Temporary raised pavement markers are used on construction projects, and permanent, plowable raised pavement markers are used in certain locations.

The General Test section performs the tests on sign sheeting, pavement marking tape, glass beads, and reflective markers. The Analytical Chemistry section performs tests on traffic paint.

## Interesting Facts About Signs and Pavement Markings



*Last year the Iowa DOT purchased more than 300,000 gallons of traffic paint and 1.8 million pounds of glass beads.*

*The dashed lines on the road are 10 feet long with a 30-foot gap between them. (They seem much shorter at 65 miles per hour.)*

*There are an estimated 700,000 traffic signs that are maintained by the Iowa DOT.*

*This year the DOT Sign Shop will make about 180,000 square feet of signs, nearly enough to cover four football fields.*

*The capital letters on the green destination signs on the Interstate are 16 inches tall.*

# Transportation Center Highlights

## News from NEITC

Like everyone else, we've been busy and things are only getting worse! There doesn't seem to be any break between the winter instruction programs and summer construction. The Avenue of the Saints had numerous bridge decks ready and the asphalt contractors were delivering mix designs before spring had sprung.

Keith Norris (NEITC Materials Engineer) helped teach the prestress inspection courses that were a joint venture between the DOT and the prestress industry. The new I.M. 570 was implemented in April, and training for quality control and quality assurance was held in April and May. The program showed a positive effort between the industry and the DOT, and hopefully will promote higher quality with less inspection.

The Asphalt section and "Lab Rats" have been "swampen busy," as Kelli would say. They were on their 37th design by July 1. They had that many the entire year in 1998!

George Perdue worked with Julie Snyder (Southwest Iowa Transportation Center Materials), Jim Webb (Southeast Iowa Transportation Center Materials), Brian Gossman and Bob Dawson (Central geologists) to put together the second annual Area Inspectors Meeting. The meeting was a great success.

The PCC section waded through the barrage of bridge deck pours on the Avenue of the Saints this spring, and then shifted gears to accommodate the paving contractors. Of special note was a project using IS cement that appeared to have the chips floating to the surface and pulled out of the matrix during the longitudinal tining process. Further investigation of the headers, and from observing the cores, did not indicate any segregation of the aggregate distribution. The IS cement appears to have a more creamy surface texture. Consequently, the pressure applied by the tining process may have been pulling some of the aggregate out. Another paver using the same process with type 2 cement didn't indicate any problems, even though they had applied more pressure to the tines than on the IS project.

## Technical Training & Certification Program 1999-2000 Season

The Registration and Information Booklet has been distributed for the technician training and certification classes for the 1999-2000 season. Changes have been made to the program over the past two years, so be sure to read the booklet before signing up for class.

Level I and II Aggregate, Level I PCC, updates, and recertification classes will be held in the transportation centers. Check the dates for those classes in the Registration and Information Booklet.

The ACC mix design and PCC mix design information will be sent out later. You can not register for these courses at this time. If you are interested in receiving information on these courses, let your transportation center materials office know and they'll make sure you get the information.

Contact persons in the TC Materials offices and the Ames complex are listed on page 9. Also on page 9, are the locations of the TC training facilities used for the Technical Training and Certification Program.



# Central Materials Office Personnel

## Materials

1843 - Champak Narotam - Materials Engineer  
 1819 - Chris Anderson - Training Coordinator  
 1130 - John Adam - Asst. Materials Engineer  
 1600 - Eileen Buchanan - Secretary  
 1339 - Bob Dawson - Geologist  
 1159 - Al DeFrancisco - Metals Technician  
 1447 - Mark Dunn - Research Engineer  
 1204 - Brian Gossman - Chief Geologist  
 1226 - Todd Hanson - PCC Engineer  
 1088 - John Hart - Asst. PCC Engineer  
 1003 - Mike Heitzman - Bituminous Engineer  
 1601 - John Hinrichsen - Asphalt Technician  
 1237 - Kevin Jones - Testing Engineer  
 1649 - Mahbub Khoda - Technical Services Engineer  
 1547 - Sam Moussalli - Structural Matls. Engineer  
 7837 - Cheng Ouyang - Asst. Pavement Engineer  
 1259 - Joe Putherickal - Struct. Coatings Engineer  
 1604 - Dan Redmond - T.E. Intern  
 1232 - John Sommers - Special Investigations Engineer  
 1712 - Kurtis Younkin - Manufactured Matls. Engineer

## Administration

Ron Bloomquist - 1370  
 Becky Hanson - 1087  
 Paul Hockett - 233-7743  
 Roger Jones - 233-7868  
 Toni Wicks - 1919

## Bituminous

Rod Baker - 1563  
 Shanna Ekle - 1563  
 Jolene Hynes - 1563  
 Dan Seward - 1563  
 Todd Siefken - 1320  
 Kevin Shirley - 1563  
 Ron Stohr - 1320

## Cement

Mike Coles - 1196  
 Ken Kennedy - 1196  
 Leroy Lutjen - 1196  
 Kevin Shirley - 1196

## Chemical - Analytical

Rachel Lathrop - 1163  
 Wally Rippie - 1163

## Equipment & Receiving

Cliff Dalbey - 1484  
 Jim Frette - 1484  
 Ron Stephens - 1484

## Instrumentation

Mike Lauzon - 1456  
 Steve Upchurch - 1502  
 Rufus Brown - 1444

## General Tests

Steve Hagen - 1350  
 Edna Maderios - 1350  
 Ken Spencer - 1350

## Geology

Bob Dawson - 1339  
 Neal Tieck - 1714  
 Adriana Phelps - 1085

## Lab

Kristine Brinkman - 233-7915  
 Sara Buseman - 1433  
 Shirley Hovde - 1590  
 Karla Vaubel - 233-7762

## Metals

Gary Begg - 1244  
 Bob Mattingly - 1244  
 Steve Twohey - 1244

## Research

Ed Engle - 1382  
 Mohammad Mujeeb - 1086  
 Bob Steffes - 1392

## Soils/Aggregates

Shane Fetters - 1230  
 Rod Graven - 1230  
 Rhonda Jensen - 1436  
 Mike Marr - 1436  
 Cathy Miskell - 1436  
 Fronzell Pankey - 1230  
 Pat Page - 1230  
 Steve Steel - 1436

## Special Investigations

Kevin Bartleson - 1150  
 Burton Chaska - 1150  
 Chase Colton - 1150  
 Kathy Davis - 1603  
 Karm Kellogg - 1158  
 Jon Kleven - 1150  
 Steve McCauley - 1387  
 Jason Omundson - 1357  
 Charlie Potter - 1309  
 Elwood Ramsey - 1150  
 Ken Schmidt - 1150



# Transportation Center Locations

## Central Materials Complex

**800 Lincoln Way - Ames**

U.S. 30 to Duff exit; north on Duff to 3rd St.; west on 3rd St. (turns into 4th St.) to first DOT gate (north side of street) near Motor Pool; turn right into DOT; Materials Building is the first building on the west (left) side. Parking is east of the building.

## Central Iowa Transportation Center

**1020 S. Fourth -Ames**

U.S. 30 to Duff exit; north on Duff to 3rd St.; west on 3rd St. (turns into 4th St.). CITC Lab is first building of DOT complex on south side of 4th St. Parking is south and east of CITC Lab building.

## Northeast Iowa Transportation Center

**672 61 St. SE - Mason City**

U.S. 18 to Virginia Avenue (east side of Mason City); south on Virginia Avenue to 6th St. S.E.; west on 6th St. to transportation center on north side of street. Parking on north side of building.

## Southeast Iowa Transportation Center

**307 W. Briggs - Fairfield**

U.S. 34 to 4th St.; north on 4th St. to W. Briggs; east on W. Briggs; DOT building is on north side of street. Parking on the street.

## East Central Iowa Transportation Center

**430 16th Ave. SW - Cedar Rapids**

U.S. 30 to Kirkwood Blvd.; south on Kirkwood; DOT is on east side of street. Conference room is in south building. Lab is in north building. Parking is south of the south building.

## Northwest Iowa Transportation Center

**Conference Room: 2800 Gordon Drive - Sioux City**

Iowa 12 & U.S. 20 to just east of Fairmont St.; turn into drive at Colortile on south side of highway. Parking on south side of building.

**Lab: 4623 Hwy. U.S. 75 North - Sioux City**

U.S. 75 to 46th St. exit (north side of Sioux City); go through underpass to Cleveland St.; go up hill on Cleveland; then turn right. Lab is in back half of maintenance office. Parking on north side of the building.

## Southwest Iowa Transportation Center

**U.S. 71 & U.S. 6 - Atlantic**

U.S. 71 & U.S. 6 on east side of Atlantic (north side of highway across from cemetery). Conference room is in brick building; Lab in tan metal building. Park on south side of the lab.

---



---

## Materials Engineers/Contact Persons

Location	Phone Number	Fax Number	Materials Engineer/Contact Person
Central Iowa Transportation Center	515-239-1488	515-239-1943	John Vu/Mark Trueblood
Northeast Iowa Transportation Center	515-423-7676	515-424-2203	Keith Norris/Mark Picht/Eileen West
Northwest Iowa Transportation Center	712-276-0933	712-276-2822	Shane Tymkowicz/Joan Johnson
Southwest Iowa Transportation Center	712-243-2346	712-243-6788	William Cook/Jim Conn
Southeast Iowa Transportation Center	515-472-3103	515-469-3427	James Webb/Ellen Davidson
East Central Iowa Transportation Center	319-366-0446	319-366-1580	Roger Boulet/John Couser
Central Complex	515-239-1819	515-239-1092	Chris Anderson Technical Training Coordinator
	515-233-7868	515-239-1092	Roger Jones Asst. Technical Training Coordinator

# Des Moines Area Community College and the Iowa DOT Technical Training and Certification Program

The Technical Training and Certification Program (TTCP) was originally developed to train and certify technicians and inspectors to perform the duties needed to do quality control(QC) and/or quality assurance(QA) work. Since the beginning of the TTCP, the Iowa DOT Materials Office has managed both the training and the certification portions of the program. They have been assisted with help from the industry organizations and the construction office.

Over the years, contractors have taken more responsibility for their product. They have started doing QC work in most areas of the production and construction process, and are

even performing acceptance testing in some areas. The Iowa DOT performs monitoring of these processes and QC/QA work. With this transition, more and more technicians are being hired, trained, and certified by producers and contractors. With attrition at the Iowa DOT, they have also had to hire, train and certify more technicians. Currently, the TTCP has almost 2,000 certified technicians with close to 10,000 certifications. The TTCP is offering more than 200 classes annually and continues to grow.

It has become evident the TTCP needs assistance with the training portion of the program to be able to offer all the classes

necessary to keep up with the demand of producers, contractors, counties, cities and the Iowa DOT.

In 1999 the Iowa DOT began working with the Des Moines Area Community College (DMACC) to develop a civil engineering technician program to train prospective employees in the areas necessary to do inspection, design, survey, etc. Included in this program is the training necessary to certify an individual to do inspection and testing for the Iowa DOT. The certification test is also issued. If the individual passes all tests he/she will be certified in all levels offered by the Iowa DOT upon graduation.

With DMACC's familiarity with the TTCP from working with the department on the civil engineering program, Materials asked them to assist our office with the training for the TTCP.

They have been taking care of our added classes this year, and will be offering summer classes in aggregate, portland cement concrete, and asphalt cement concrete. The partnership seems to be moving along well, and over the next few years they will be handling more of the training for the TTCP.

## Computer Reporting Programs

By Chris Anderson

The ACC and PCC plant programs used for Iowa DOT projects are currently in Lotus 1-2-3™. These programs will soon be available in Microsoft ACCESS™. The Lotus 1-2-3™ software is a spreadsheet so every time information is saved, the entire program must be saved. ACCESS™ is a database, so as the program is saved, only the new information entered is saved. This saves the user a lot of disk space when they are saving the program for a project. The ACCESS™ version was developed using ACCESS 2000,™ so your computer must have that software to use the new ACCESS™ Plant Program.

Reports using either the Lotus™ software or the ACCESS™ software may be used in the upcoming construction season.

Instruction on both of these programs will be included in the TTCP computer courses this winter. Cliff Schultz, who developed the program in ACCESS,™ will be instructing these courses. If anyone is interested, information on this course and the application is in the TTCP Information and Registration Booklet. The application and fee should be sent directly to DMACC.

It should also be noted that the current SHADES™ program won't run on any Lotus™ software newer than Lotus 97,™ and the plant programs won't run correctly on some of the newer Lotus™ software. Please keep this in mind when buying a new system since you will probably want to keep your old Lotus™ software.



### Project Development Division Office of Materials

CLEAR VISION is produced and distributed by the Technical Training and Certification Program in the Office of Materials, electronically published by the Office of Media and Marketing Services, and printed by Office of Document Services at the Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa 50010. Please direct your comments about the newsletter to: Chris Anderson, 515-239-1819, Fax 515-239-1092. Any reference to a commercial organization or product in this newsletter is not intended for endorsement, and is only intended for informational purposes. Some of the material herein does not necessarily reflect the view of the Iowa Department of Transportation, or the Federal Highway Administration.