



PINAL COUNTY
wide open opportunity

Offer & Acceptance Form

Pinal County
Finance Department
31 N. Pinal St.
Bldg. A
P.O. Box 1348
Florence, AZ 85132

Original

OFFER AND ACCEPTANCE FORM

TO PINAL COUNTY:

The undersigned hereby offers and agrees to furnish the material, service, or construction in compliance with all terms, conditions, specifications, and amendments in the Solicitation.

<i>[Signature]</i>	Estimator
Authorized Signature	Title
<i>Michael J. Selby</i>	4/25/2012
Printed Name	Date
<i>Asphalt Busters Inc.</i>	623-936-8800
Company Name	Telephone
<i>801 South 71st Ave, Phoenix, AZ 85043</i>	
Address	City, State, Zip

For clarification of this offer, contact:

Name: Michael J. Selby Phone: 623-936-8800 Fax: 623-936-8810

ACCEPTANCE OF OFFER (For Pinal County Use Only)

The offer is hereby accepted and the Responder is now bound to sell or provide the materials, services, or construction as indicated by the Purchase Order or Notice of Award and based upon the solicitation, including all terms, conditions, specifications, amendments, etc. and the Offer as accepted by Pinal County.

The contract is for:

This contract shall henceforth be referenced to as Contract No. PC-111917. The Offeror is cautioned not to commence any billable work or to provide any material or service under this contract until Offeror receives an executed purchase order or notice to proceed.

Awarded this <u>23rd</u> day of <u>May</u> 2012.	<i>[Signature]</i>
<i>Pete Rios</i>	<i>[Signature]</i>
Name (Print)	Signature
<u>Chairman</u>	
Title	

Approved as to form:

[Signature]
Pinal County Attorney's Office



PINAL COUNTY
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Offer & Acceptance Form

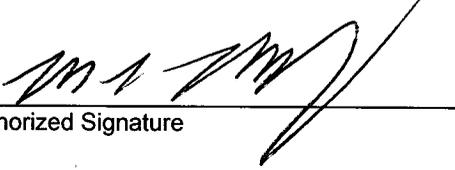
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OFFER AND ACCEPTANCE FORM – Page 2

By signing the previous page of the Offer and Acceptance Form, Responder certifies:

- A. The submission of the bid did not involve collusion or other anti-competitive practices.
- B. The Responder shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246.
- C. The Responder has not given, offered to give, nor intends to give at any time hereafter, any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the Submittal.
- D. The Responder certifies that it complies with Executive Order 12549 related to Federal Government Debarment and Suspension (see 4-7)
- E. The Responder certifies that the individual signing the bid is an authorized agent for the Responder and has the authority to bind them to the contract.

Asphalt Busters Inc.
Firm


Authorized Signature



**801 South 71st Avenue ■ Phoenix, Arizona 85043
(623) 936-8800 ■ FAX: (623) 936-8810**

Title Page

Solicitation # IFB PC-111917

Michael J. Selby
Asphalt Busters Inc.
801 South 71st Ave.
Phoenix, AZ 85043
623-936-8800

Solicitation Contact Person:

Elizabeth Zink, Buyer II



Member of the Asphalt Recycling
& Reclaiming Association
Contractor License #095361 AE

IFB PC-111917 Section 1



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Non-Collusion Statement

Pinal County
Finance Department
31 N. Pinal St.
Bldg. A
P.O. Box 1348
Florence, AZ 85132

NON-COLLUSION STATEMENT

State of Arizona)
County of Maricopa) ss.

Michael J. Selby, affiant,
(Name)

the Estimator
Asphalt Busters Inc.
(Contractor/Offeror)

the persons, corporation, or company who makes the accompanying Offer, having first been duly sworn, deposes and says:

That such Offer is genuine and not sham or collusive, nor made in the interest of, or behalf of, any persons not herein named, and that the Responder has not directly or indirectly induced or solicited any other Responder to put in a sham Offer, or any other person, firm or corporation to refrain from offering, and that the Responder has not in any manner sought by collusion to secure for itself an advantage over any other Responder.

[Signature]
(Name)

Estimator
(Title)

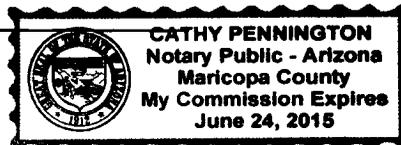
Subscribed and sworn to before me

this 21st day of April, 2011

[Signature]
Signature of Notary Public in and for the

State of Arizona

County of Maricopa



NAME AND ADDRESS OF CERTIFICATE HOLDER:	DATE ISSUED _____ AUTHORIZED REPRESENTATIVE _____
---	--



P I N A L • C O U N T Y
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Responders Checklist

Pinal County
 Finance Department
 31 N. Pinal St.
 Bldg. A
 P.O. Box 1348
 Florence, AZ 85132

RESPONDERS CHECKLIST

	Yes/No
Did you sign your Offer sheet?	Yes
Did you sign and notarize the Non-collusion statement?	Yes
Did you acknowledge all addendums, if any?	Yes
Did you complete all required Response Forms?	Yes
Did you include your W-9 Form?	Yes
Did you include any necessary attachments?	Yes
Is the outside of your submittal marked with the Solicitation #, Due Date and Time?	Yes
Did you include one original and the required number of copies?	Yes
Did you follow the order for submissions of documents?	Yes
Did you include proof of insurance(s) if requested?	Yes

IFB PC-111917 Section 2

 <p>PINAL COUNTY <i>wide open opportunity</i></p>	<p>PC-111917 Response Form 1 Responder's Profile</p>	<p>Pinal County Finance Department 31 N. Pinal St. Bldg. A P.O. Box 1348 Florence, AZ 85132</p>
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Responder Name: *Michael J. Selby, Asphalt Busters Inc.*

Responders shall complete the following Response Form, indicating their responses in the spaces provided. Additional pages may be added so long as they are clearly referenced in the spaces provided.

Acceptability of Responses

Offers that do not include this completed Response Form or that do include an incomplete Response Form or that include a completed Response Form with unacceptable responses may cause the entire offer to be deemed unacceptable and therefore non-responsive.

1 General Information

1.1 Responder shall provide:

1.1.1 Name, Title and email address of Primary Responder

Michael Jason Selby, Estimator, mselby@asphaltbusters.com

1.1.2 Address, phone, fax and email address of Primary Servicing Office

801 South 71st Avenue, Phoenix, AZ 85043, 623-936-8800, 623-936-8810, mselby@asphaltbusters.com

1.1.3 Address, phone, fax and email address of Local Servicing Office (if different than 1.1.2)

Same as above.

1.1.4 Name, Title and email address of Responder assigned to Pinal County

Michael Jason Selby, Estimator, mselby@asphaltbusters.com

1.2 Number of years Local Servicing Office has been working with County/State Agency clients.

Asphalt Busters has been in business for 23 years.

1.3 Responder shall provide general background information regarding their company.

Asphalt Busters has been in business since 1989. It was the first pulverizing company in Arizona. The company has grown to be the largest pulverizing and stabilizing company in Arizona. Every year we pulverized enough asphalt to cover a two-lane highway from Phoenix to Flagstaff. We also stabilize enough soil to cover an area the equivalent of 172 football fields. All of that being accomplished while meeting the design specifications for each project. Additional history and background information can be found at www.asphaltbusters.com.

1.4 Responder shall provide a list of products and or services provided by their company.

Asphalt pulverizing and soil stabilization services are our only business. The services provided are pulverizing of asphalt, cement stabilization, lime slurry stabilization, quicklime stabilization, and other stabilization mixing services.



PINAL • COUNTY
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PC-111917
Response Form 1
Responder's Profile

Pinal County
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- 1.5 Responder shall provide the Brand, Make and Model of equipment that will be used to provide the services requested in this IFB.

Asphalt Busters has 8 CMI machines, 7 spreaders, 7 water trucks, and many other pieces of support equipment. There is some marketing information provided showing the different pieces of equipment. You can also view more information at www.asphaltbusters.com.

- 1.6 Responder shall provide a list of all licenses and or certifications required to operate the machinery and equipment that would be utilized in the services covered under this Invitation to Bid.

Asphalt Busters contractors license number is ROC095361 Class AE. Specific employee information in regards to certifications or additional company information can be provided upon request.

- 1.7 Responder shall provide a list of all licenses and or certifications (if applicable) required to work with any of the soil stabilization products that would be utilized in the services covered under this Invitation to Bid.

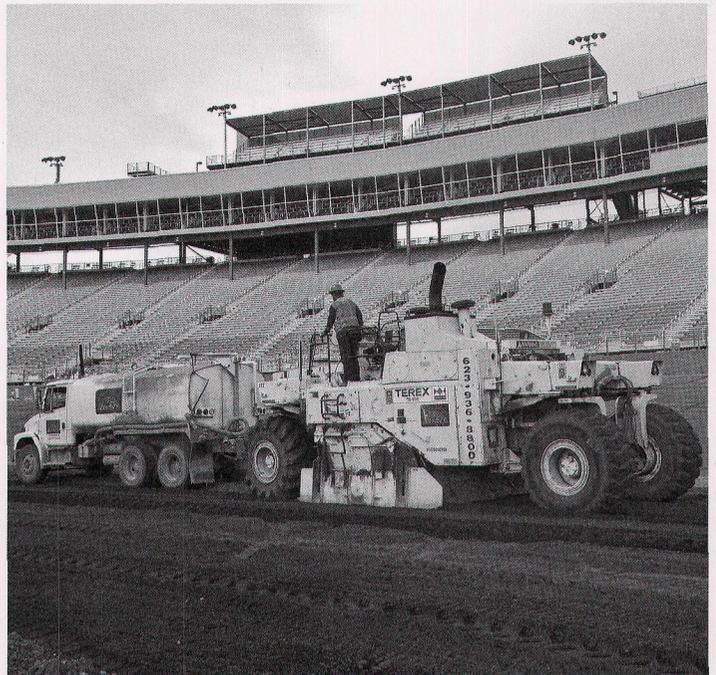
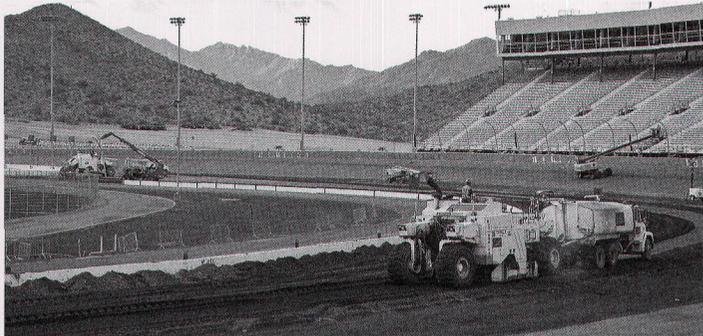
The contractor's license is listed above.

- 1.8 Responder shall state their compliance with the requirement of maintaining all federal, state and local licenses, permits and certifications in a current status.

Asphalt Busters is in compliance with all federal, state, and local licensees as needed, permits, and certifications and can provide additional proof upon request.

Working Fast to Get Ready for the Races

Asphalt Busters being the largest asphalt pulverizing and soil stabilization company in Arizona was chosen to pulverize the entire race track and infield roads at Phoenix International Raceway. Using just two of our eleven machines, we were able to produce a quality reusable product within the demanding schedules. The entire area consisted of 38,035 square yards with an average asphalt thickness of five inches.



"Success is simple. Do what's right, the right way, at the right time."



Pulverizing and Stabilizing Dirt Roads

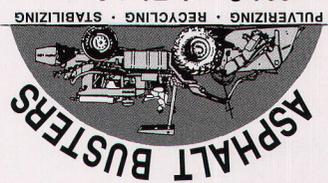
Asphalt Busters was hired to pulverize and stabilize existing rural dirt roads within Pinal County. We used a CMI RS800 and injected liquid stabilizers into the pulverized material. It was mixed six inches deep using the on board computer systems to maintain the correct application rate and depth. Using the high horse power machine we were able to meet the demanding schedule of 12,000 to 13,000 squares yards of finished area per day.



Introducing Our Newest Field Superintendent, Joe Murtishaw

Joe Murtishaw started working for Asphalt Busters in early 2007 as a truck driver hauling materials. He had a desire to learn how to run all the equipment so he requested to be trained as an operator. After extensive training, he met his goal and became an operator. That wasn't enough for Joe. He wanted to become a superintendent. Over the next several years Joe worked hard, showed he was a leader and was dedicated to producing quality work.

For his efforts and dedication, he was promoted to Field Superintendent in December 2010. Joe has received several compliments from Asphalt Busters customers over the last year. We know with Joe's hard work and attention to detail he will make sure the projects he supervises for you are completed with the high quality of work which you have come to expect from Asphalt Busters.



801 South 71st Avenue
Phoenix, AZ 85043

Pavement Pieces
March 2012
Inside this issue:

- Working Fast to Get Ready for the Races
- Pulverizing and Stabilizing Dirt Roads
- Introducing Our Newest Field Superintendent, Joe Murtishaw

Member of the
Asphalt Recycling
& Reclaiming
Association
100% RECYCLABLE
ASPHALT
Contractor License #ROC095361 AE

Pavement Pieces

Bits of News and Information about Asphalt Pavement Recycling
And Soil Stabilization

March 2012

A Periodic Publication from Asphalt Busters

801 South 71st Avenue • Phoenix, Arizona 85043 • (623) 936-8800 • www.asphaltbusters.com
Recycling and Stabilizing for a Cleaner, Harder Earth

Pavement Pieces

Bits of News and Information about Asphalt Pavement Recycling And Soil Stabilization

Feature Articles from Past Issues of the Asphalt Busters Newsletter

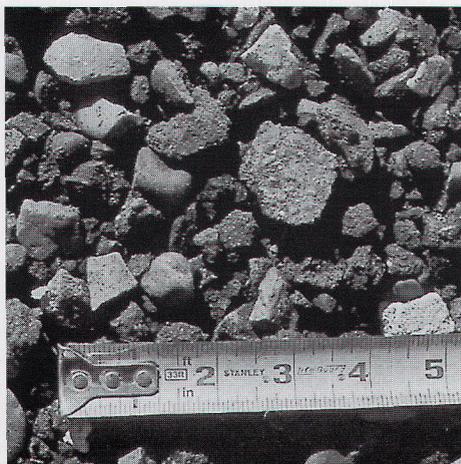
801 South 71st Avenue • Phoenix, Arizona 85043 • (623) 936-8800

Recycling and Stabilizing for a Cleaner, Harder Earth

From the December 1998 issue:

Measuring Quality in Pulverized Asphalt

Many factors determine the final results of the pulverizing process. Does it meet the design specifications? That is the first question to ask yourself. Each job has a specification for the gradation or maximum particle size. For most on-site projects the spec is 95% of the pulverized material passes through a one and a half inch screen. By digging through the pulverized layer to the bottom you can physically inspect the results. At Asphalt Busters, our machine operators are required to do this on a regular basis as they are doing the job.



Quality pulverized asphalt meets the design specifications for the full depth of the cut.

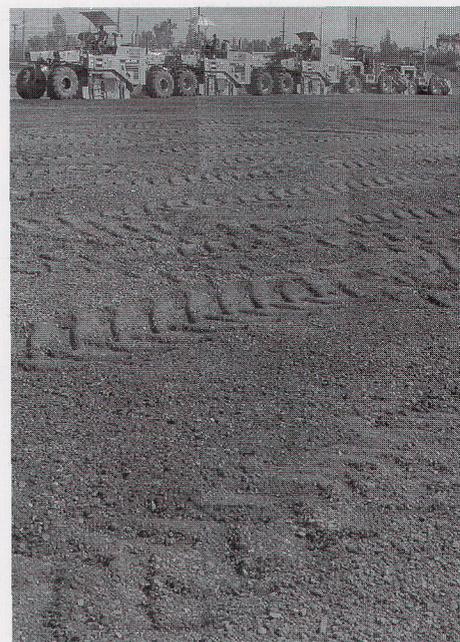
Here are some of the factors which go in to achieving the highest quality results:

- Design of the pulverizing drums and cutting tools to optimize results.
- Using the most appropriate machine for the particular job.
- Properly trained machine operators, both at the factory and on the job, to recognize and achieve quality results.
- Operating the machine at the correct speed for the particular asphalt conditions.

Asphalt Busters has done over 1600 pulverizing jobs in the last ten years. That amounts to around 100,000,000 square feet and 2,000,000 tons of asphalt. With that experience we have found that a small percentage of jobs present problems with gradation:

- Small areas requiring many short passes because every time the drum is lifted out of the cut results in chunks.
- Alligator cracked asphalt tends to break up in chunks rather than pulverizing.
- Overlaid asphalt, with or without Petromat, tends to lift and create more chunks.

Asphalt Busters was the first company in the Valley to offer asphalt pulverizing services. We set the standard—our pulverized material has been independently tested hundreds of times. Thousands of tons of this material have been sold to contractors having met gra-



Asphalt Busters fleet of five machines and experienced operators can handle any size job throughout Arizona.

gradation specs. We currently have a fleet of five machines to handle every type of job. Our operators are the best trained and most experienced in the business. The bottom line: our experience and commitment to quality will produce the highest quality result possible.



Plans get you into things but you've got to work your way out.—Will Rogers



From the December 1999 issue:

Maintaining High Quality Standards Benefits Us All

Can you remember what you had to do with old asphalt before pulverizing became an acceptable method of construction? You had to dig it up, load it in trucks, haul it off to the landfill, purchase virgin materials and haul back to the job—an expensive and wasteful operation. Before 1989, there was no alternative. Then Asphalt Busters went to work to prove that our pulverizing methods could produce high-quality material for ABC or structural backfill. The results: contractors saved time and money and did their part for the Earth by recycling rather than dumping.

The use of pulverizing as a method of construction only works when the material produced meets the specifications. In general that means a quality job with few or no chunks. Over the last ten years, Asphalt Busters has developed techniques and procedures that meet this standard over a wide range of asphalt depths and conditions. The key to our success is experienced machine operators supported by knowledgeable management and extensive, on-going training.

Now that pulverizing has been accepted



as a method of construction, we all need to continue to work together to maintain high quality standards. If the material produced does not meet the requirements of your specifications, you may be faced with additional expense and loss of time to remove and replace the material. In the worst case, you could lose pulverizing as a method of construction all together. Pulverizing has proven to be a less expensive construction technique, saving paving contractors and their clients hundreds of thousands of dollars over the years.

Should price be the only consideration when selecting a subcontractor for pulverizing? At Asphalt Busters we like to think that we deliver the best service possible at a fair price. In fact, our prices have remained virtually unchanged in ten years. What we promise is to give you and your client value for your dollar. That means we do the job at the promised time and produce the highest quality material. We do this so that we all can benefit from a method of construction that has proven to be both economical and good for the environment.



Price is what you pay. Value is what you get.—Warren Buffett



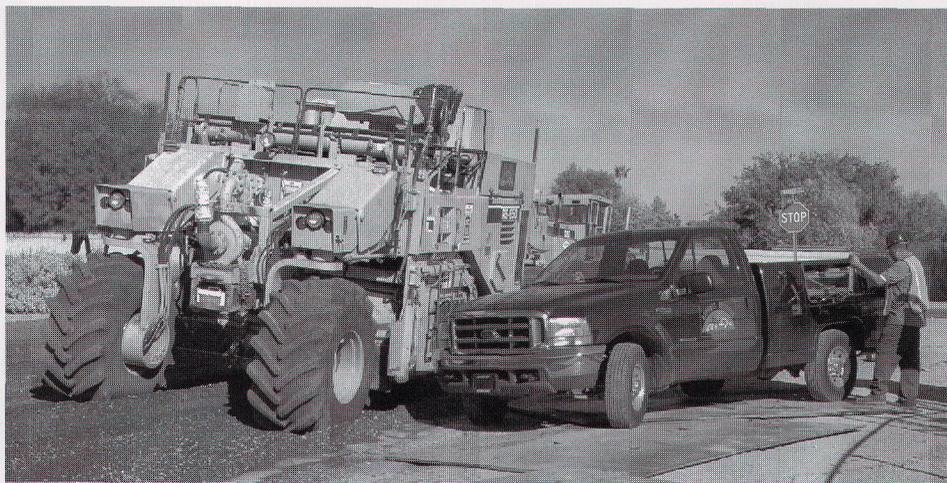
From the December 1999 issue:

Operators' Trucks Equipped for On-The-Job Safety and Maintenance

Each of our machine operators is furnished with a new truck equipped with all the tools needed in the field. Our first goal is to provide the operator with all required safety equipment such as hard hat, gloves, vest, and eye and ear protection. He also has a set of orange cones to use to mark a work area and close it to

traffic. In addition, a complete file of Material Safety Data Sheets on all our materials is kept in the truck.

Our second goal is to minimize down-time for repairs and main-



tenance. Operators are trained to diagnose problems in the field and make necessary repairs on the spot. To that end, each truck carries tools and spare parts to perform most common repairs.

Finally, each truck is equipped with a *Jamar* measuring instrument attached to the odometer to quickly, safely and accurately determine

the quantity of asphalt to be pulverized.

Like the Boy Scouts, at Asphalt Busters our motto is "Be Prepared."

From the April 2000 issue:

Four Machines Make Short Work of Airport Project

Asphalt Busters was scheduled in early March of this year to pulverize the runway and taxi ways at San Carlos Apache Airport near Globe. This project called for pulverizing 73,777 square yards of three and a half inch thick asphalt in eight days. Then the drought ended with three days of rain delaying the start of the job.

To keep on schedule, our two transport trucks were pressed into service to mobilize four machines to the site. Two machines were transported from Phoenix and two were trucked 280 miles from Yuma. Because Asphalt Busters was able to put four machines

on the job, it was completed in under two days putting the contractor back on schedule. Customer service is our #1 goal. We will always do our best to provide the highest quality work, anywhere, and on time.

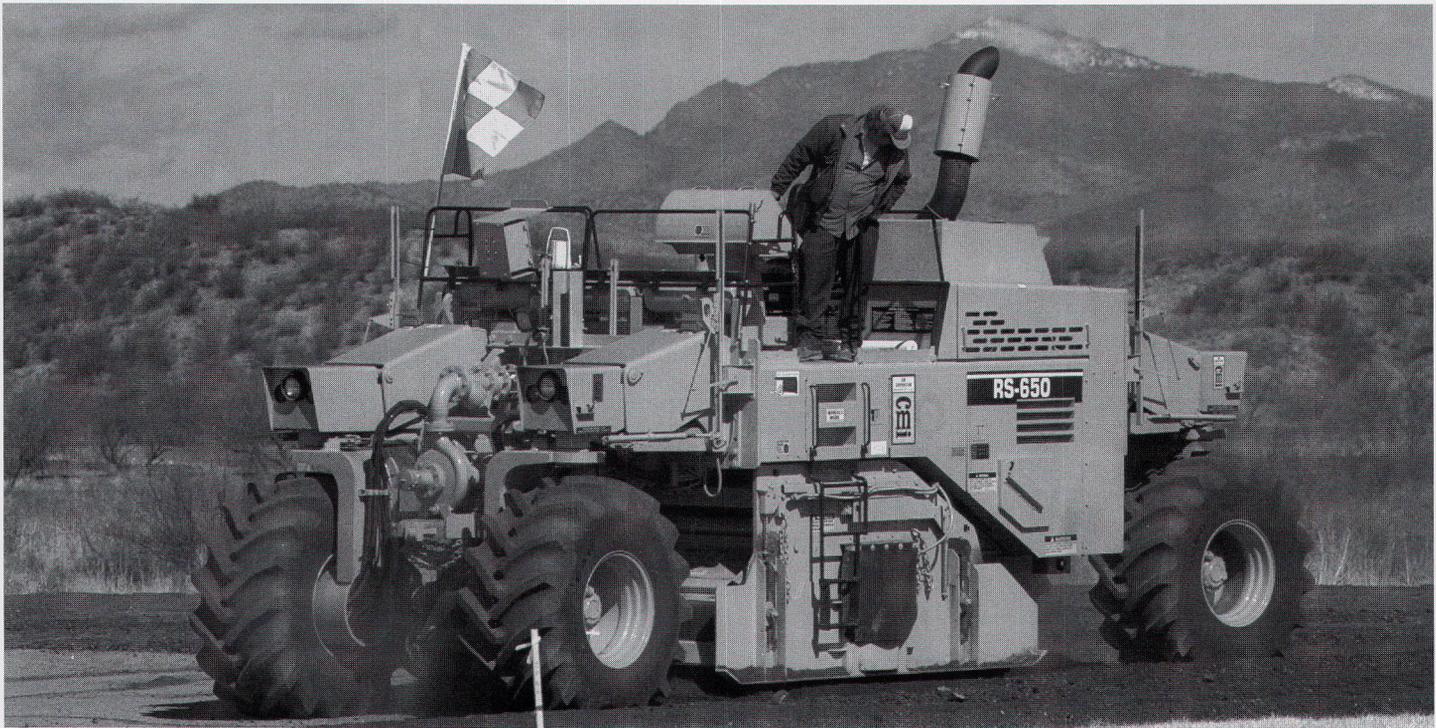


A problem is an opportunity in work clothes.—Henry J. Kaiser



From the April 2000 issue:

A New Machine to Serve You Better



Asphalt Busters has added a new CMI RS650 to the existing fleet of five machines. Here's a summary of the benefits for you:

- More horsepower for faster production and quicker completion of your job
- Eight-foot cutting width means fewer passes and greater efficiency
- Four-speed cutter drum gives you the optimum speed for the best gradation
- 218 tungsten carbide teeth properly spaced to yield better pulverized material
- Four-wheel drive gives better traction and the ability to work in softer grades
- Four-wheel steering provides more maneuverability
- Bidirectional operation gives greater flexibility in gradation and blending control
- Micro-processor control system maintains cutting depth and travel speed for most efficient operation
- Injection system rated at 500 gallons per minute to inject water or soil stabilizers at high volume for high production rates and lower cost
- Ten-foot machine width allows for trucking during the night for more flexible scheduling

From the August 2000 issue:

Cement Stabilization Improves Subgrade Soil

Does Asphalt Busters do cement stabilization? We are often asked this question and the answer is yes and we do it very well. During our 10 years in business we have used cement stabilization on a wide variety of projects.

Here are some examples of the types of projects that benefit from cement stabilization:

- Channel stabilization—cement treated subgrade is placed on the sides of channels for erosion control.
- Highway base stabilization—cement was added to strengthen the base to bridge over poor subgrades on numerous ADOT projects.
- Parking lot stabilization—mixing cement into poor subgrades stabilizes the base allowing for better final paving.

A good example of the use of cement stabilization on a large scale project is an aircraft storage area at the Goodyear Airport. The project called for the creation of taxiways and 26 parking pads for commercial aircraft weighing 300,000 pounds each. In the fall of 1997, Asphalt Busters spread over



Aerial view of Goodyear Airport during construction of taxiway and parking pads of aircraft storage. Asphalt Busters applied cement stabilization to strengthen the subgrade for subsequent paving.

2,000 tons of cement with our two spreader trucks. We then pulled water from our 10,000-gallon water truck and injected the water and mixed the cement and water with the subgrade. The contractor graded and compacted the subgrade and applied slurry

seal as the wearing course. If you have any questions about using cement as a stabilizer on your projects, call Dan Selby at Asphalt Busters or James Willson, P.E., at the Arizona Cement Association, (602) 952-1871.



Water was injected and mixed with the cement and soil. After compaction, the paving contractor applied slurry seal.



Three years after construction, the parking pads for the 300,000 pound aircraft are in great shape.

Tennis, Anyone?

Asphalt Busters now has three Bomags to handle your parking lot pulverizing and stabilization projects. These machines are particularly well suited to working in small, tight areas. With the drum at the back of the machine, we can reach more of the asphalt in corners and along fences. We can even pulverize tennis courts.



From the December 2000 issue:

Tres Rios Demonstration Project

South of the 91st Avenue Wastewater Treatment Plant the City of Phoenix has revived a wetland at the edge of the Salt River. This 19-acre project, called Tres Rios, was established to demonstrate the feasibility of using treated waste water to restore riparian habitat along the river. The project is accessible to the public with parking areas, information kiosks and walking trails.

As part of the demonstration project, the city is testing various types of roadway and trail construction methods for dust control and handicapped accessibility. Asphalt Busters worked with the general contractor to apply various stabilizing agents to roads and trails. The project was particularly challenging because of the narrowness of the trails and the requirement to not damage the surrounding vegetation.



A small tractor was used to mix stabilizer on one of the hiking trails.



A CMI 650 was used to mix cement stabilizer for the entrance road.

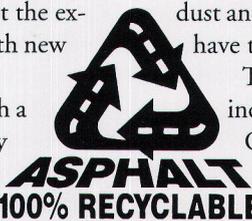
Cold In-Place Recycling

What do you do with a rotten road? Imagine six miles of deeply cracked asphalt from 8 to 12 inches thick. The problem to be solved is how to rehabilitate the road without the expense of digging it up, hauling it away and replacing it with new material. The solution is cold in-place recycling.

This past summer, Asphalt Busters completed just such a project on six miles of two-lane highway in Apache County near Show Low. The scope of work called for pulverizing asphalt up to 12 inches thick and then mixing an asphalt emulsion 4 inches deep on the entire roadway.

The pulverizing was accomplished with two CMI RS650's over a two week period. One pulled a specially modified trailer and the other

was hooked to our 10,000-gallon water truck to direct inject water. Injecting water during pulverization increased production, eliminated dust and brought the material to optimum so the contractor didn't have to process the material.



The next step was to mix asphalt emulsion into the top four inches of the roadway. This process took four days with a single CMI RS650. The contractor then finish-graded, compacted and applied a chip seal to the surface.

For more information on how cold in-place recycling can work on your next rehabilitation project, contact Dan Selby at Asphalt Busters or check out the Asphalt Recycling & Reclaiming Association web site at www.arra.org.

Your attitude, not your aptitude, will determine your altitude.—Zig Zigler

From the October 2001 issue:



New Spreader Truck

In our continuing effort to raise the quality standards for stabilization work, we have added a custom-built spreader truck to our fleet of equipment. The 4-wheel drive truck can be used to spread cement, flyash, lime and even lime slurry in the wettest of conditions. We had the truck equipped with radar to monitor ground speed and a computer to control the application rate of the stabilizers. The truck is also equipped with dust collectors to reduce the release of dust into the air when loading dry products. To date, we have spread over 18,000 tons of material with this truck.

From the May 2001 issue:

County Dust Control Testing Program

Asphalt Busters recently completed a Maricopa County Department of Transportation Dust Palliative Testing Program. The program was designed to test different four liquid stabilizers—Lignin-Based, Organic Resin, Acrylic Copolymer and Petroleum Resin which were supplied by Dust Pro of Phoenix. The test was performed on eight miles of dirt roadways and thirty-two miles of dirt roadway shoulders with the products being mixed to a depth of eight inches.

Asphalt Busters along with Dust Pro developed a special cost saving method to apply and mix the stabilizers. A train of equipment was assembled with meters and controls that would in a single pass blend the varying amounts of stabilizers with the correct

amount of water for product dilution and to achieve optimum moisture content. That mixture was then pumped, metered and accurately inject through a machine that would thoroughly mix the diluted stabilizer with the existing soil to the specified depth.

The train was designed so that the water and stabilizer could be loaded into the train while under production. This technique more than doubled the daily production rates and deliverer a higher quality end product at a lower overall cost.

If you have any questions regarding this process, contact Dan Selby. For questions about the specific dust control products and stabilizers used in this process, contact Lou Snow at Dust Pro, 602-251-3878.



Dust control products were mixed to a depth of 8 inches on 8 miles of dirt road to test four different agents.



Liquid stabilizer was pumped from the supply truck, then diluted to the proper concentration and mixed in to the roadway. The operation was carried out while the train of equipemt was moving to maximize production time and keep cost down.



You can't depend on your judgement when your imagination is out of focus—Mark Twain



From the May 2001 issue:

Stabilization of Sub-Base Soil

Stabilization is the process of preparing sub-base soils to provide a higher load bearing capacity so they can better withstand heavy traffic stresses. Stabilization involves pulverizing and mixing the soil thoroughly with binders, so that after proper compaction and curing the soil is more dense (stable) and provides the stronger base desired.

Proper stabilization of the sub-base soil, followed by appropriate compaction, is a major contribution to the integrity and longevity of the finished product.

Stability and load bearing capacity of a soil layer depends on two factors—the internal friction and cohesion of soil particles. The higher the internal friction, the better the cohesion, the better the load bearing capability of the soil layer. Internal friction is influ-

enced by particle shape, particle size (gradation) and compaction. Cohesion depends on the soil type; i.e. clay, sand, muck, etc. If the friction is too low, or cohesion inadequate, traffic will deform the soil layer which, in turn, affects the finished project. Substandard friction and/or cohesion of the soil must, therefore be improved. This is accomplished by adding a chemical binder to the soil to cause the particles to meet the desired properties of friction and cohesion.

The advantages of stabilization with binders are:

- Allows the use of unsuitable in-place soils.
- Eliminates the need and expense of excavating and removing unsuitable soils, since no soil exchange is necessary.
- Eliminates the cost of transporting and placing

new, more costly materials at the job site.

- Reduces cost by the “mixing in place” process.
- Reduces overall construction time, thereby enabling parking lots, roads and job sites to be open to traffic more quickly.

The following is a list of some of binders that Asphalt Busters has had experience working with:

- Cement
- Lime—dry and slurry
- Flyash
- Bituminous Binders
- Liquid non-traditional stabilizers

In future issues of Pavement Pieces we will address each binder and give specific information for your use. In the mean time, if you have any questions about using binders for stabilization please give Dan or Ken a call.

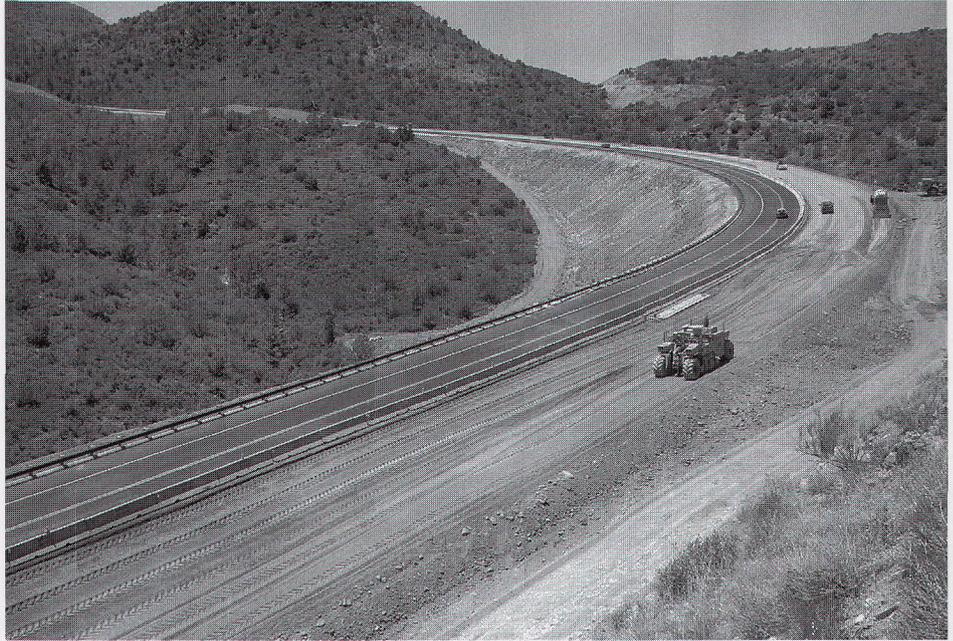
From the October 2001 issue:

Cement Stabilization Projects

Recently Asphalt Busters has been called on to perform cement stabilization on two highway projects that illustrate the value of this method of construction.

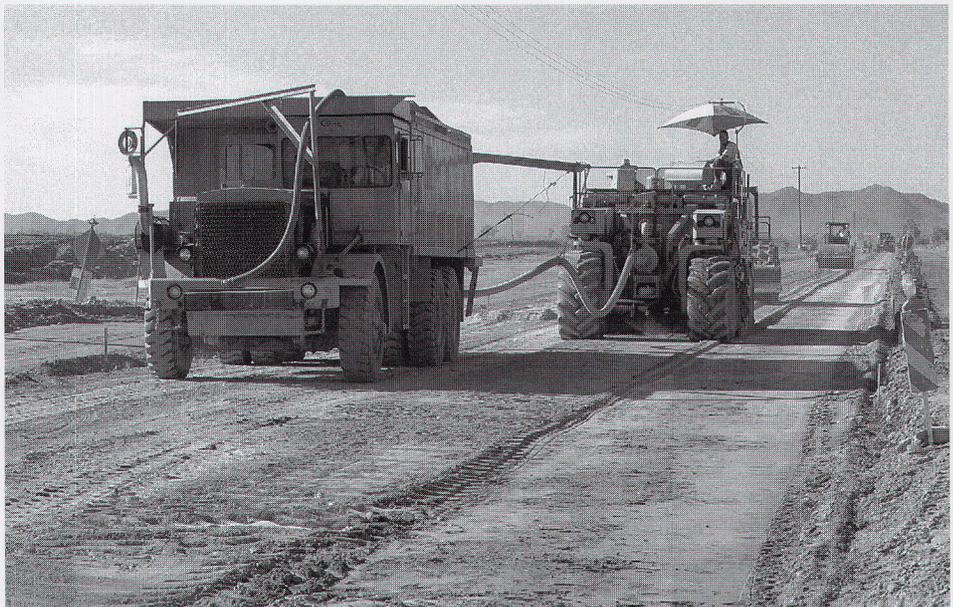
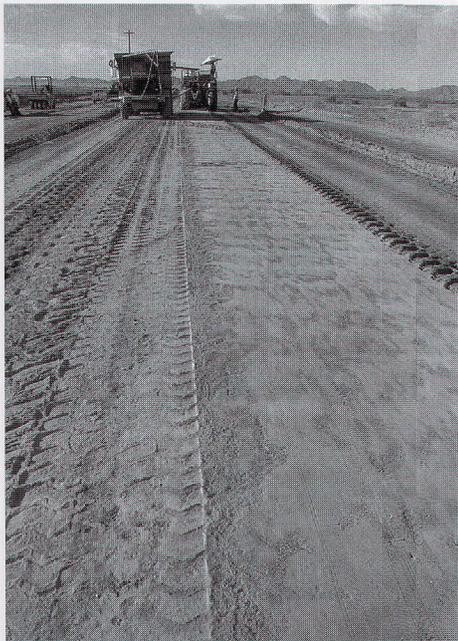
New Construction on State Route 87, Sunflower

A call came into our office around 2:00 on a Friday afternoon from a frantic contractor. The contractor was building State Route 87 north of Sunflower and encountered problems with a subgrade that would not support the loads of the paving equipment. The subgrade needed to be stabilized with cement immediately so that the paving could be finished and the road open to traffic for the upcoming Memorial Day weekend. The soonest that the cement could be delivered was Monday so we mobilized our equipment over the weekend and started on Monday. We spread the cement at 7% and mixed it into the base material 8" deep on about 110,000 square feet of area. We worked for 2 days and were able to stabilize the entire subgrade so that the paving could be finished. The highway was completed and open to traffic for the holiday weekend.



Reclamation of Rainbow Valley Road, Goodyear

This project was on 5 miles of chip sealed road which was badly deteriorated with huge potholes. The borings from the engineer's report showed poor subgrade support for the road. The design called for 4" of asphalt on 12" of ABC. As an economical alternative it was proposed to pulverize the existing roadway and mix cement into the base material instead of the 12" of ABC. A mix design was done and it was determined that 4% cement 8" deep would work. We pulverized the entire 5 miles of road. We then spread cement at 4%, injected water and mixed 8" deep. As the contractor was paving over the stabilized subgrade, a huge rainstorm moved in dropping a massive amount of water flooding the entire area. Water ran down the sides of the road and then across the cement-treated subgrade. Many areas of the road were under water. The next day



upon inspecting the road it was obvious the cement held up. There was no damage to the subgrade. The project could continue on schedule. If ABC had been used, the water would have penetrated to the subgrade and the project would have been shut down for weeks and taken thousands of dollars to repair the damage and dry out the subgrade.

From the February 2002 issue:

Stuck in the mud? Soft subgrade? Unable to pave? What's a contractor to do? Who are you going to call? Asphalt Busters, of course!

We do a lot more for contractors than just pulverize asphalt. We solve their subgrade problems. We can spread small amounts of quicklime or cement (usually 1%–4%) onto the subgrade and mix it 8 to 14 inches deep. This modified soil forms a layer to support loads and bridge over deeper subgrade problems. Such operations can usually be completed in one day.

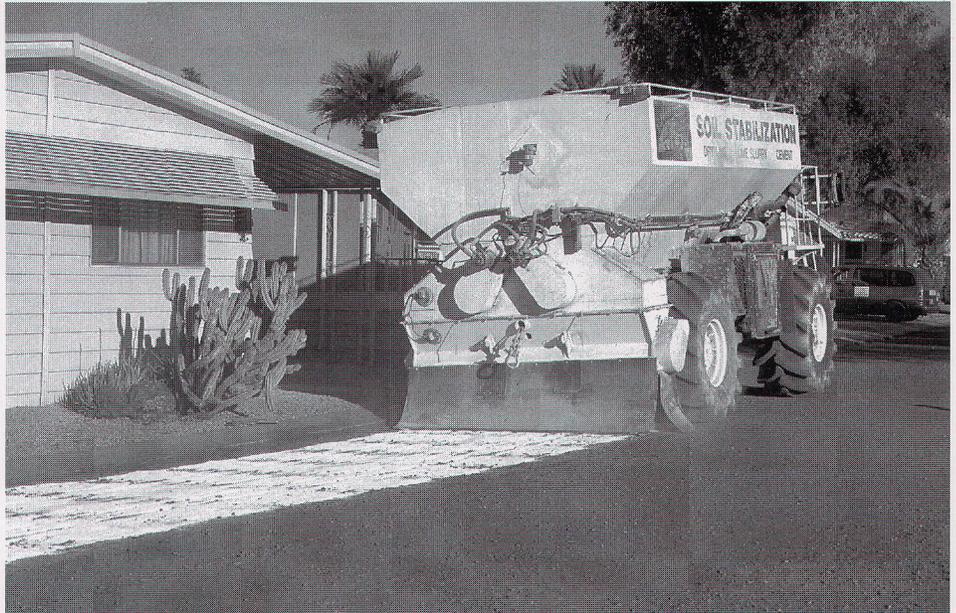
Here are two examples of how this process can benefit the paving contractor. On one parking lot after a rain storm, water was standing one to two inches deep in many spots and the contractor was unable to finish the grading to lay the ABC. An Asphalt Busters crew started spreading quicklime and mixing twelve inches deep at 8:00 am and by 11:00 am the subgrade was so dry that it started to dust and the contractor had to wet the grade with their water truck.

In a mobile home park where Asphalt Busters had pulverized the asphalt, the subgrade was wet over three feet deep and excavating was impossible due to existing utilities. We spread cement and mixed eight inches deep. The contractor graded, compacted, let the grade cure for two days and was able to complete the paving with no

subgrade problems.

Over the last twelve years we have solved subgrade problems on hundreds of projects—state highways, airports, parking lots, construction sites and even tennis courts. In 2001

alone, we stabilized over 12 million square feet—the equivalent of 250 football fields—1.4 million square feet using cement, 8.6 million using lime and 2 million using other stabilizers.



After Asphalt Busters pulverized the streets in this mobile home park, the contractor found the grade was too wet for paving. We used our new spreader truck with on-board computer controls to apply a uniform layer of quicklime without any dust to disturb the residents.



After the quicklime was applied, Steve Waddy mixed it with 8 inches of existing wet grade using one of our CMI RS650's. The depth was maintained by computer controls to ensure accuracy. After mixing, the contractor was able to grade, compact and schedule the paving.



Our newest spreader truck is equipped with sophisticated computer controls. Operator Thom Roadruck programs the computer so that the specified amount of quicklime is uniformly applied on the wet grade.



801 South 71st Avenue • Phoenix, AZ 85043
(623) 936-8800 • Fax: (623) 936-8810



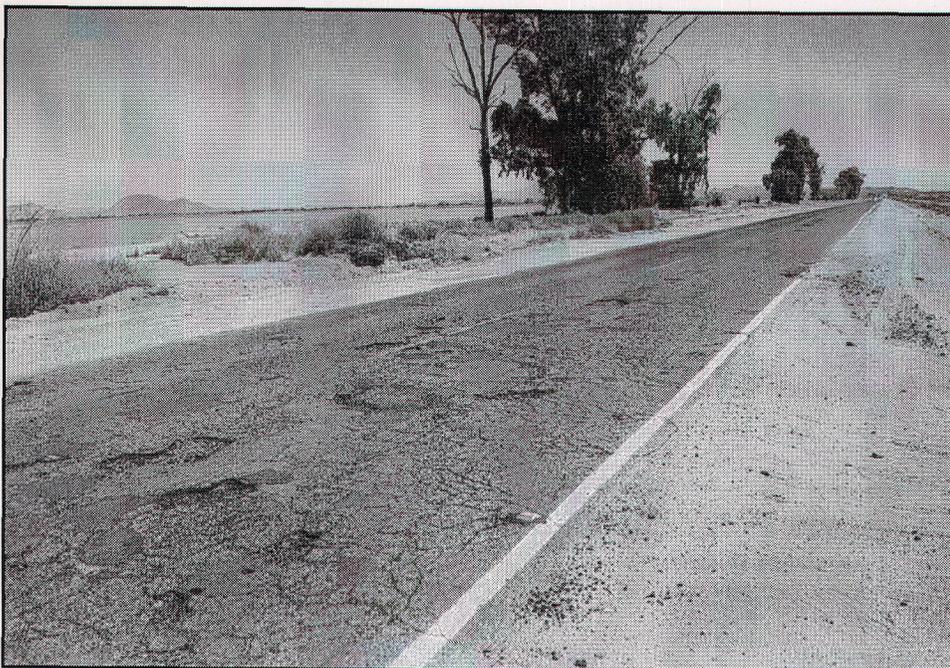
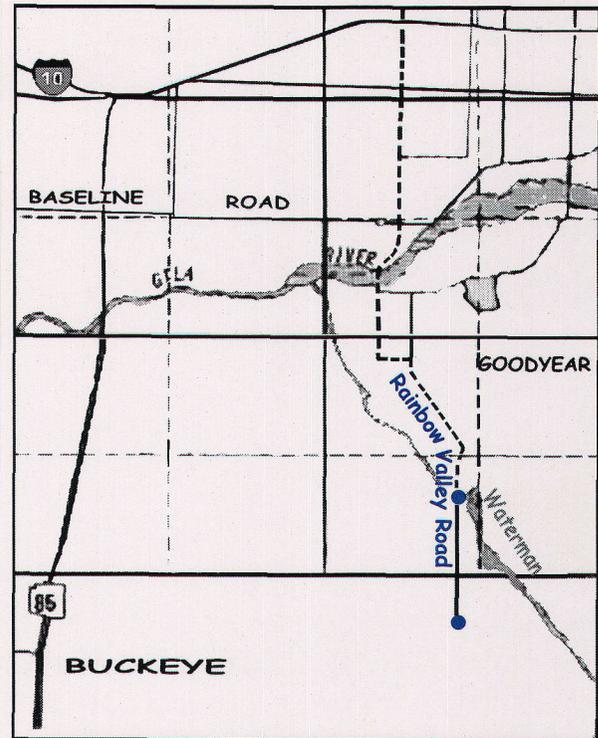
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RECYCLED ROAD SOLVES PROBLEM IN RAINBOW VALLEY

Located twenty-five miles west of Phoenix and south of I-10 is a farm and ranch area called *Rainbow Valley*. The only access to the community is on Rainbow Valley Road which was severely damaged in a thunderstorm in March 2001. Unsafe driving conditions through large sections of the roadway necessitated detours to dirt shoulders. The speed limit was re-posted from 45 to 15 mph, due to the high severity of potholes and alligator cracking. Patching was futile.

FEMA granted funding to the City of Goodyear for restoration of Rainbow Valley Road. The City requested proposals for a design/build reconstruction using the nominal design of 4 inches of asphalt on 12 inches of granular base material.



Original deteriorated road.

The design/build team of Sunrise Engineering and contractor Sunland, Inc. proposed a design of 8 inches of mixed-in-place recycled asphalt pavement (RAP) stabilized with portland cement as a base, surfaced with 4 inches of asphalt.

Cost savings over 30% were found in the elimination of placing new aggregate base material and the trucking and disposal of the old base and asphalt materials.

The nearest dumpsite and aggregate source were approximately seventeen miles away. If the nominal design was selected, an estimated 32,000+ cubic yards of over-burden and 28,500 tons of existing base and surfacing material would be required to be hauled away. A 16" open cut, which would provide for a section thickness of 12 inches of ABC and 4 inches of asphalt, would create major traffic maintenance and safety concerns. With the mixed-in-place method, autos and trucks could continue

Typically, a seven-day age compressive strength of 400 psi is a target value for cement stabilization. Laboratory testing determined that 4 percent portland cement would be required to obtain that strength. The existing structure appeared to have been one inch of DBST (Double Bituminous Surface Treatment) over 6 inches of granular base on a sub-grade of silty clay soil material. All existing material was pulverized to a depth of 9 inches and used for the stabilized base for the 4 inches of new asphalt surface.



Contractor's pulverizers preparing the RAP for stabilization.

Portland cement was applied using a spreader box. The CMI RS-650 pulverizer/mixer blended the cement and the pulverized material. A water transfer truck supplied mixing water to the pulverizer/mixer to obtain an optimum moisture of 8.5%.

A nurse water wagon supplied constant flow to the water transfer truck, thus eliminating dry and wet spots and insuring a uniform mixing process.

to utilize the pulverized surface after the contractor had removed equipment from the roadway. The design/build team estimated that the mixed-in-place stabilization with cement saved 6 to 8 weeks in construction time over the original design concept.

The pulverizing was performed by Asphalt Busters of Phoenix, using CMI RS-650 pulverizers. They operated in echelon, pulverizing and mixing the old asphalt and base material. Grading to the required cross section followed. No new base material was needed and excess overburden was used as shoulder material.



The pulverized recycled asphalt product.

Compaction began immediately. The chemical reaction of water and cement begins immediately and compaction is required to be completed within 2 hours after mixing begins.

Curing is required and best accomplished by spraying a bituminous material such as emulsion at the rate of about 0.15 gallons per square yard. Light traffic can utilize the curing surface as soon as pick up is not an issue. These procedures were effective.



Water fed directly into mixing machine

For strength gain, curing should be maintained for as long as possible and until the final bituminous surface is applied. Before the asphalt surface had been placed on the first mile of this project, a thunderstorm deposited 1-1/2 inches of rainwater in approximately 2 hours. After the rains stopped and flood waters subsided, only slight damage to the base was observed. Conventional ABC would have had severe damage.

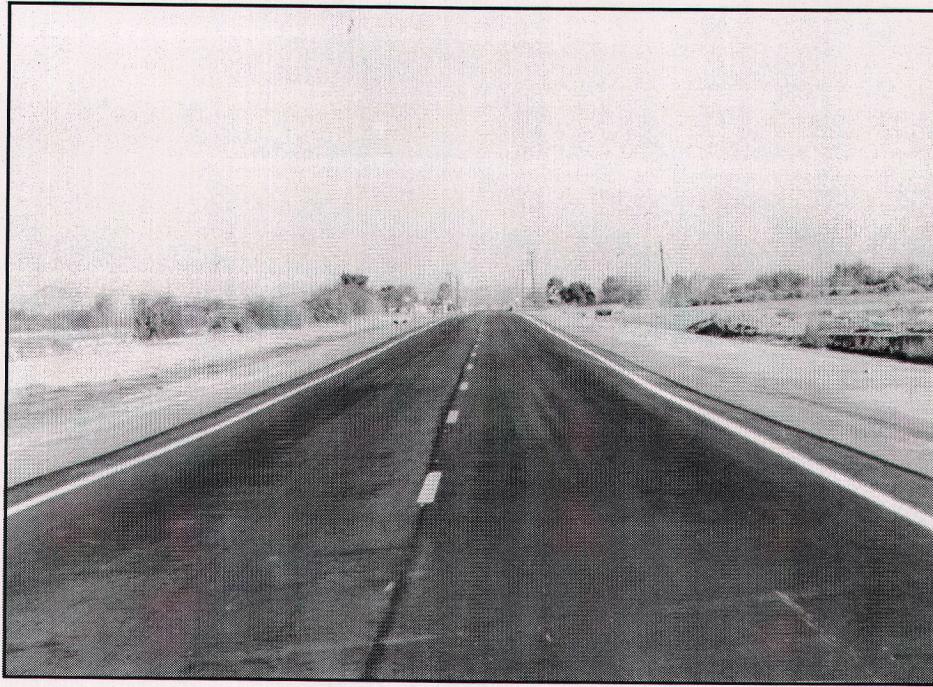
To complete the construction, 4 inches of hot mix asphalt surface was placed on the cement-stabilized RAP base.



A thunderstorm inundated the area during construction but did not disturb cement stabilized base.

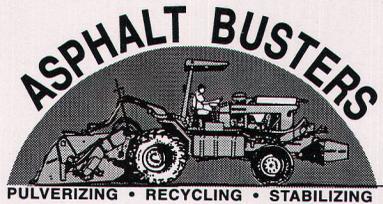
The newly reconstructed road was opened ahead of schedule and under the estimated cost of the original design. A total of 4.5 miles of reconstructed asphalt roadway was completed in four months. This timetable included construction and survey as well as design and engineering by Sunrise Engineering, Inc. This project is an excellent example of the design/build concept.

Significant cost savings were realized with the use of RAP, stabilized with portland cement. This process results in rapid construction and economies by using all the existing materials. There is little or no damage impact on local roads, less inconvenience to motorists, and safer conditions for motorists and workers.



The 4.5 miles of reconstructed asphalt roadway completed in 4 months.

For further information, contact:



(623) 936-8800

Fax: (623) 936-8810

801 South 71st Avenue

Phoenix, AZ 85043

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Arizona Cement Association

3033 North 44th Street, #264, Phoenix, Arizona 85018

602-952-1871