



Boone County

PUBLIC WORKS MAINTENANCE OPERATIONS 2012 YEAR IN REVIEW

Presented to the

Boone County Commission

On

January 30, 2013

MAINTENANCE OPERATIONS 2012 HIGHLIGHTS

JANUARY 28, 2013

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SPECIAL POINTS OF INTEREST:

- Completed 35 miles of preservation seal coat
- Made numerous large-culvert drainage improvements
- Replaced 940 cubic yards of concrete
- Completed preventive maintenance on 37 bridges

LETTER TO THE BOONE COUNTY COMMISSION

Presiding Commissioner:
Dan Atwill

Karen M. Miller, District I
Commissioner

Janet Thompson, District II
Commissioner

The Boone County Public Works Department is pleased to present our Annual Report which highlights major activities and accomplishments for fiscal year 2012. Our mission is to maintain and improve the County's 800+ mile road network. We appreciate your support and especially that of our liaison, former Commissioner, Skip Elkin.

In many previous years, rainfall has created a major obstacle for the department. In 2012 it was extreme heat and a record breaking drought that presented some of our greatest challenges. Another challenge faced by the department in 2012 was simply a need to rethink our internal work flow and utilization of resources. Over time, our road inventory has gradually changed to include more paved surface roads which require a different and more systematic approach to maintenance. With the support and assistance of our liaison Commissioner, Skip Elkin, we were able to put our heads together and establish a proactive annual work plan, which improved the utilization of our staff and helped us get

ahead of the maintenance "curve."

By establishing a solid program of maintenance cycles and placing these preventive maintenance activities at the center of our annual work plan, we were able to accomplish a remarkable amount of work, even in the unrelenting heat of the 2012 construction season.

Maintenance achievements included replacement of several large culverts along with many other drainage improvements. The department has made road drainage a top priority to help preserve our roads and cut down on maintenance costs. Also included in our list of noteworthy 2012 achievements is the application of 35 miles of preservation chip seal as a part of the pavement preservation program and application of 20 miles of chip seal over gravel. Our maintenance forces also replaced nearly 1,000 cubic yards of concrete as a part of our concrete panel replacement program. It is far more desirable and efficient to prevent problems than it is to spend time and resources fixing them.

I would like to end with a special thanks to the Maintenance Operations employees. A work plan is only worth the paper it's written on unless individual workers make it happen. Public Works employees shared their expertise from years of field experience, cooperated with some major

work assignment changes, and finally labored in extreme heat to make the 2012 work plan happen.

Respectfully submitted,

Chet Dunn, Maintenance Operations Manager



Public Works Employees dug out and replaced an unprecedented 940 cubic yards of concrete in the hot dry summer of 2012.

THE HEART OF PREVENTIVE MAINTENANCE-DRAINAGE

In 2012, the department initiated a pilot gravel road rating program. The objective of the program was to identify those problem areas which could be corrected within the limitations of the annual maintenance department budget and work plan. The first step of this program was development of a systematic process for evaluating the condition of rural roads. Projects identified in 2012 included correction of some major drainage issues. Work on targeted locations typically involved installation of large pipe, raising a road-bed, extensive ditching, re-shaping back and end slopes or some combination of these activities. By making proper drainage our top priority, we can prevent many chronic maintenance problems.

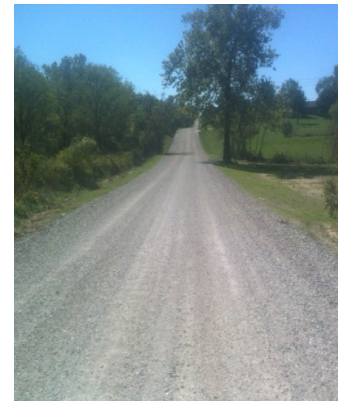
From our gravel road rating efforts in 2012, we realized the need to simplify our process. Using the evaluation criteria (traffic count, traffic type, maintenance costs, safety concerns and connec-

tivity) and standards (profile, crown and ditching) we plan to establish regular maintenance cycles that are very specific to each rural road district. Formally categorizing the maintenance needs within each district will target the locations for our rural road improvement projects each year.

Please refer to the project data pages at the back of this report for more information about some of the rural road improvement projects completed during 2012.



Gilbert Rd - Completed large pipe replacement.



Gilbert Rd after improvement project to raise the road and improve drainage.



Olden Rd.
After Drainage Improvements

MINIMIZING WASTE—RE-PURPOSING OLD CONCRETE

In only eight days during the late summer of 2012, maintenance crews constructed a new LOW WATER CROSSING on Slate Creek Road. It was no longer feasible to continue patching the old crossing. On Slate Creek as well as other concrete replacement projects, the old concrete was used to armor creek banks. By reusing a “waste” product in this way, the County was able to save money on rock needed to stabilize the creek banks.



Slate Creek
Low Water Crossing



Reusing old concrete to stabilize the creek bank reduced the rock needed to complete the project.

“The life of a road depends upon how well and quickly the water is drained from its various components.”



WILLIAMS RD
After large pipe installation

PRESERVATION SEAL COAT ON ASPHALT ROADS

The Maintenance Division works closely with the Design and Construction Division to implement a long-term strategy for preserving and improving our paved surface roads.

MAINTENANCE PREP

By pursuing a long-term plan, maintenance crews are able to schedule critical preparation work, such as corrective drainage, major dig-out repairs, shoulder and right-of-way work, crack sealing etc. well ahead of any planned

contract work. This approach allows for the efficient use of maintenance labor resources as well as the most economic use of funding for contracted work.

ALL HANDS ON DECK

The 2012 chip seal operation serves as a model of success for the 2012 organizational changes. For this activity, all employees work together to implement a well planned and choreographed operation. By utilizing and coordinating all of our labor re-

sources together, we were able to schedule and complete nearly twice as many chip seal miles as completed in 2011. In our third year of in-house responsibility for the **seal coat** component of the pavement preservation program, maintenance crews **chip sealed 35 miles of asphalt road** surface using 3/8" Trap rock at a material **cost per mile of \$15,252**. The difference in cost between the seal coat and reapplication of chip seal over gravel is due to the type of rock used.



All work groups come together under the coordinated direction of the road maintenance superintendents.

This approach, along with **"no rain days"** allowed the department to schedule and complete 35 miles of preservation seal coat (chip seal).

TARGETED CONCRETE PANEL REPLACEMENT

By removing and replacing individual panels of distressed concrete, we are able to preserve the satisfactory condition of adjacent areas. This proactive approach restores the overall integrity of the road and may delay the need for more extensive rehabilitation by many years. The hot dry summer allowed for an exceptionally productive season.

Crews exceeded expectations by placing a remarkable **4862 square yards of concrete** at a material cost of \$49/yd. We expect these repairs to provide long-lasting benefits, in part, due to the methods adopted for this process. The distressed panels are removed and replaced first with filter fabric, then base rock, rebar and finally new concrete.



Crew leader, Chris Jennings bull floating concrete panel in El Chaparral Subdivision.

Using the proactive approach of "targeted panel replacement," maintenance crews placed an astounding 4862 square yards of concrete in 2012.

REAPPLICATION—CHIP SEAL OVER GRAVEL

The department reapplied **20 miles of chip seal over gravel** with 5/8" limestone rock at a material **costs of \$10,736/mile**. County roads that had a chip seal application directly over gravel require frequent maintenance, including a regular reapplication of chips and sealant. Initially considered an economic means of converting dusty gravel roads to hard surface roads or as initial preparation for future asphalt paving, this treatment has proven to be high-maintenance over the long term. In future years, the department aims to reduce its *chip seal over gravel* inventory in favor of road surface treatments that are more cost-effective and appropriate to the specific use of the road.



CLAYSVILLE RD

Claysville Road in southern Boone County was upgraded from a chip and seal surface to an asphalt surface in 2012. The surface could no longer handle the demands of the traffic in the area. To protect the significant investment in the new asphalt surface, maintenance crews constructed new drainage systems and put in new culverts. Crews also back sloped the road banks in several areas to improve the sight distance. The time devoted to the extensive preparation

is expected to pay dividends in the long-term performance of the new road surface. After maintenance crews completed the prep work, a contractor laid the new asphalt surface. After the overlay was completed Boone County maintenance crews went back and constructed new shoulders and reestablished vegetation. Crews also installed erosion control devices. **The cost of the project was \$324,609.57**, including material and contracted overlay.



Maintenance crews constructing new shoulders on Claysville Rd.



Contractor laying asphalt on Claysville Rd.

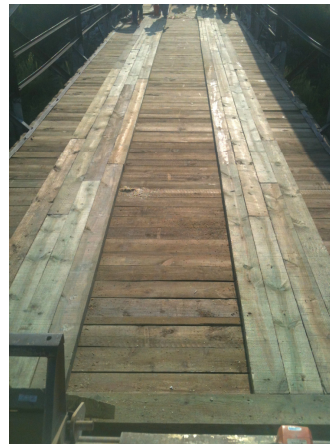
BRIDGES OF BOONE COUNTY

In 2010, the department initiated a preventative maintenance program to protect Boone County bridges from deterioration caused by weather and salt used for ice control. By resolutely sticking to our ambitious work plan, we cleaned and sealed 37 bridges in the fall of 2012. Additionally, other related maintenance was performed on selected bridges, as suggested in the MODOT Bridge Inspection Report. This included rust treatment to pil-

ings, armoring abutments, and cleaning channels. Completing all of the planned bridge maintenance for 2012 positions us nicely to begin a regular 3 year rotation of preventive maintenance in 2013.

Wooden bridges on Hartsburg Rd and King Rd were re-decked.

Please see project data sheets at the back of this report for bridge locations.



New bridge deck on Hartsburg Rd

Bridge preventative maintenance is a planned strategy of cost-effective treatments to extend the service life of the County's bridges.

SIGNS OF SAFETY

In the Traffic Division's first full year for in-house sign production, the time required to replace street name signs was reduced from 45 to 21 days. Further reduction in turnaround time is expected in the future as work continues with the Planning Department and Emergency Management Services on verification of street sign and address

EMS coordinate information. The coordinate address verification of the county street name signs is 64% complete after this first year.

Although the federal Highway Administration has postponed many of the initial deadlines for replacing traffic signs, the Boone County sign shop has continued to

make rapid progress in meeting the standards established by the MUTCD. The offset requirement for sign posts was met a full year ahead of MUTCD guidance and we are glad to report that 2/3 of Boone County traffic signs have already been replaced with the more visible, high-intensity prismatic face well ahead of MUTCD guidelines.



Teresa Shaw and Raenell Mackey installing county signs re-faced with high intensity prismatic background.

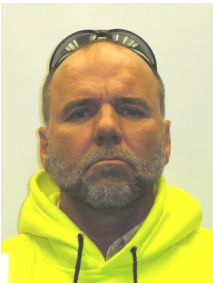
THE TEAM THAT MAKES IT HAPPEN



Bart Barner
Brandon Bennett
Ryan Bennett
Corey Bolles



Bryan Boyce
Tod Chandlee
Charly Clendenning
Bobby Craig



David Critchfield
Tony Crocker
Lee Crump
J.C. Csolak



Don DeMeyer
Mark Donoho
Chet Dunn
Allan Eberwein



Greg Edington
Darren Evans
Nick Fairley
Dustin Friedli



Randy Garrett
Mike Glascock
Margaret Green
Raymond Hackmann



Isaiah Harmon
Scott Harmon
Rickey Harvey
Robert Hostetter



Brandon Irwin
Chris Jennings
Darren Kimbrel
Dwayne Kimbrel



Terry Knight
Adam Lewis
Jim Lichtenthaler
Raenell Mackey



Mike Mattingly
Gordon McCune
Billy Montgomery
J.C. Nichols



Price Nichols
Ben Nieman
David Noble
Adam Reddick



Joe Reddick
Neal Roberts
Mark Rowland
Teresa Shaw



Willie Skouby
Bobby Smith
Lincoln Smith
Jane Telander

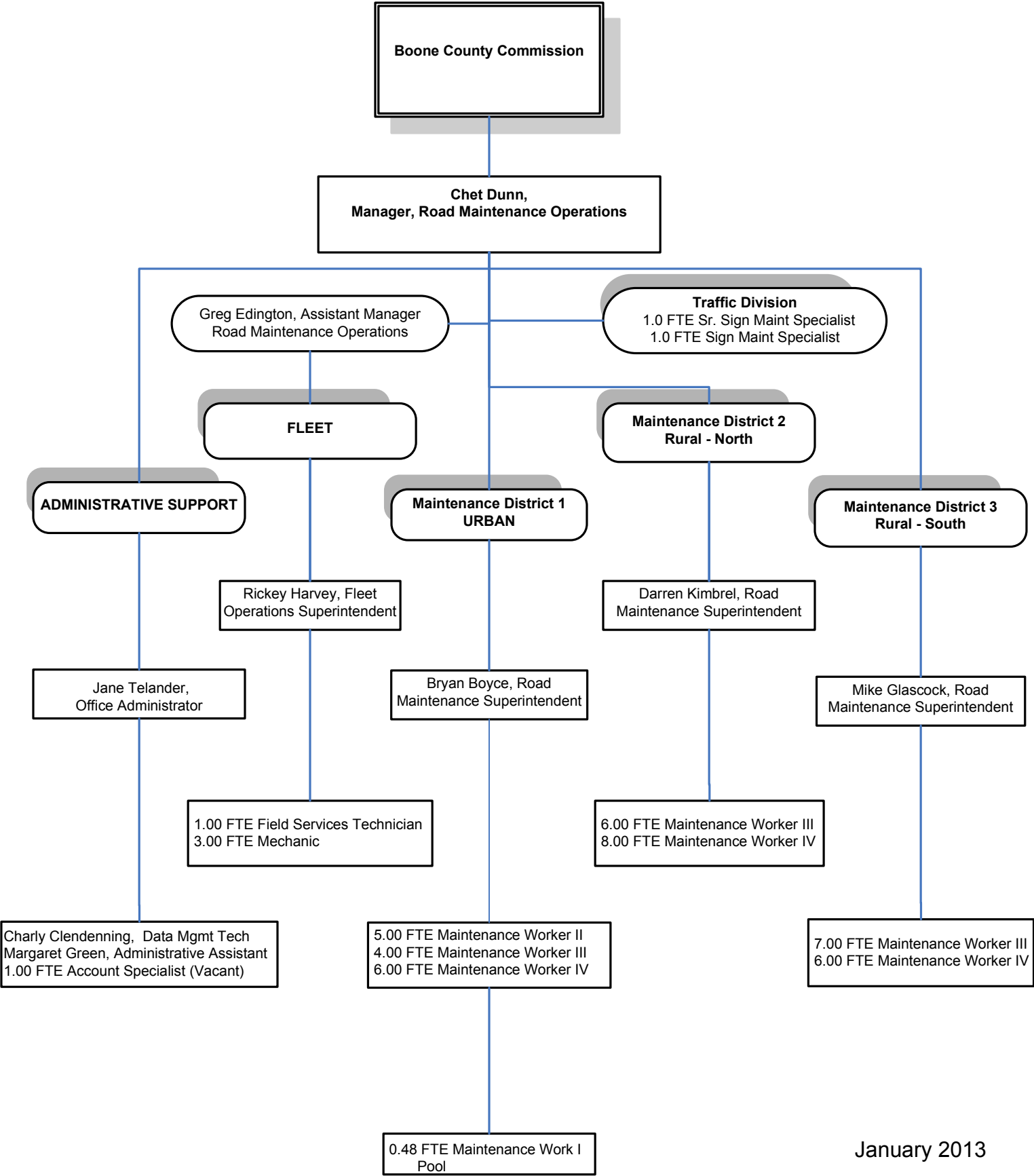


George Thurman
Jeff Wren
Roland Wren
Richard Yaeger

A Tribute to Public Works Employees

Before a job offer is ever made to a Boone County Public Works employee, they are advised of the need to report to work for public safety emergencies. This doesn't sound like a tremendous hardship **until** the call comes when you have just sat down to watch your child's basketball game, or snuggled into a warm bed on a cold winter night. When a tree blows down in the middle of the night, a drunk driver knocks down a stop sign, heavy rain creates flooding hazards, or snow moves into the area, maintenance employees respond. These are just some of the reasons they get called out on weekends, holidays and during the middle of the night. Invariably, those calls do come during meal time (especially Thanksgiving and Christmas), on family birthdays, and in the middle of stormy weather when most people are burrowed inside a warm, dry shelter. In 2012, the crews worked outside everyday in the searing heat during the hottest summer on record. Despite the heat, they were exceptionally productive, especially in placing concrete, chip sealing, and making major drainage improvements – all jobs requiring physical labor performed during the hottest period of the hottest summer anybody can remember. Employees might have rebelled in complaint of all the various harsh working conditions, but instead, this group has developed camaraderie from their shared experiences and shows pride in the job they do.

Boone County Public Works
Maintenance Operations



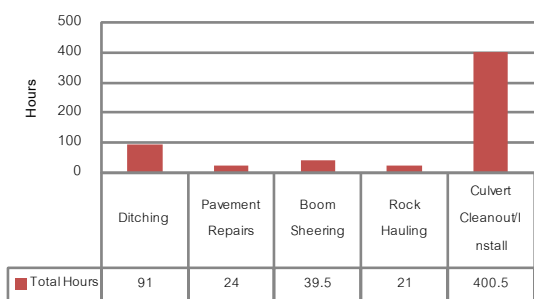


Summary of the Project:

Replacement of several crossroad and driveway culverts, ditching, culvert cleanout, pavement repair, boom shearing and rock hauling.

Total Approximate
Hours: 580

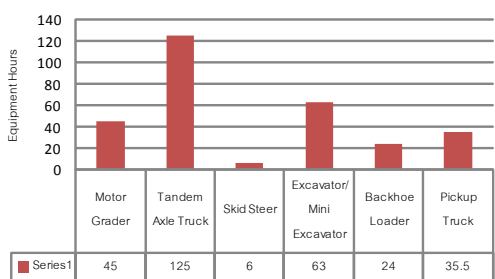
Total Hours by Activity



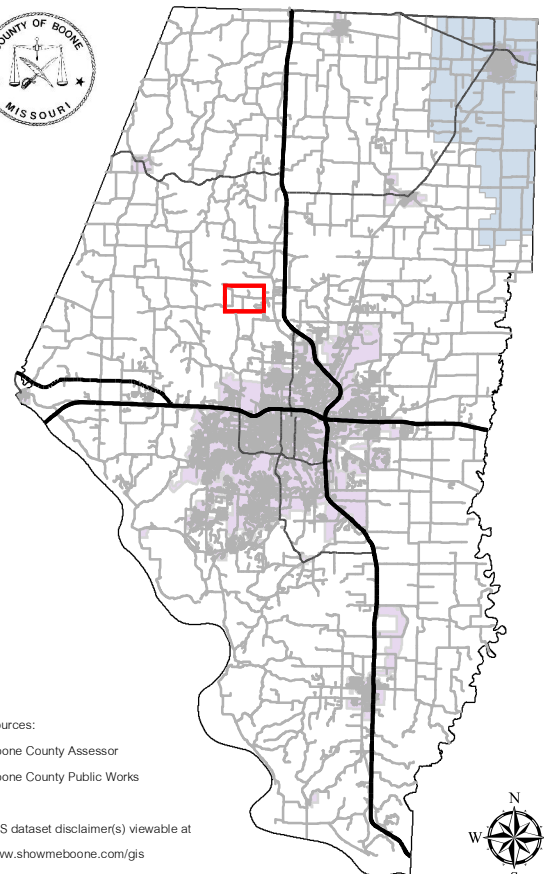
Crossroad culvert pipe along Akeman Bridge Rd.

Total Approximate Hours: 300

Equipment Types and Hours



Akeman Bridge Rd culvert pipes before installation



Sources:

Boone County Assessor
Boone County Public Works

GIS dataset disclaimer(s) viewable at
www.showmeboone.com/gis



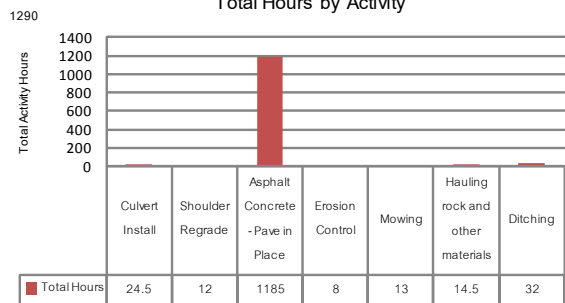


Summary of the Project:

Upgrading Claysville Rd from a chip and seal surface to an asphalt surface due to an increase in traffic on this route.

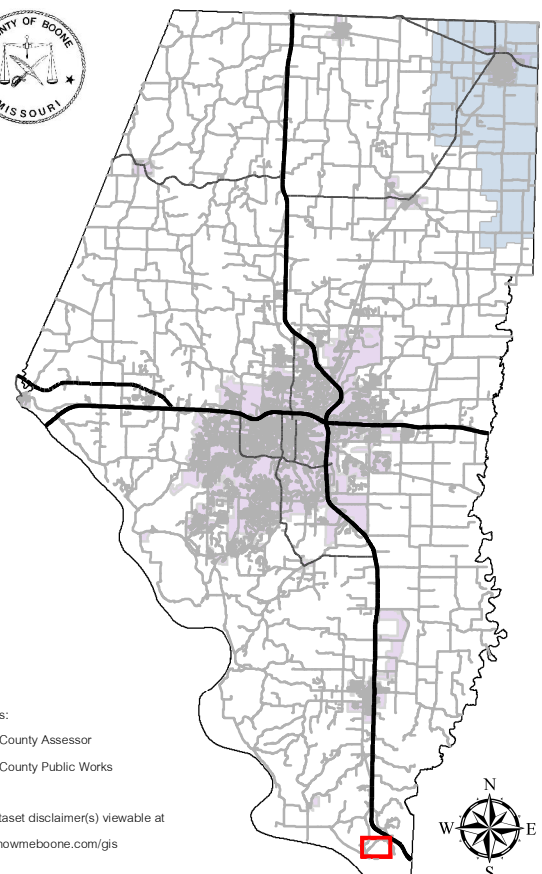
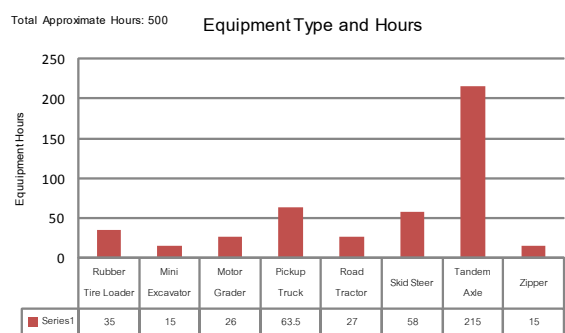
Activities done to complete this project were, shoulder reconstruct and regrade, erosion control, culvert installs, rock hauling, mowing and brush cutting and ditching.

Total Approximate Hours:



Note: The "Asphalt - Concrete Pave in Place" activity is grouped under one work order therefore recording several activities under the general name, "Pave in Place". The remaining activities displayed in the chart are separate work orders for Claysville Rd that occurred during a different time of year.

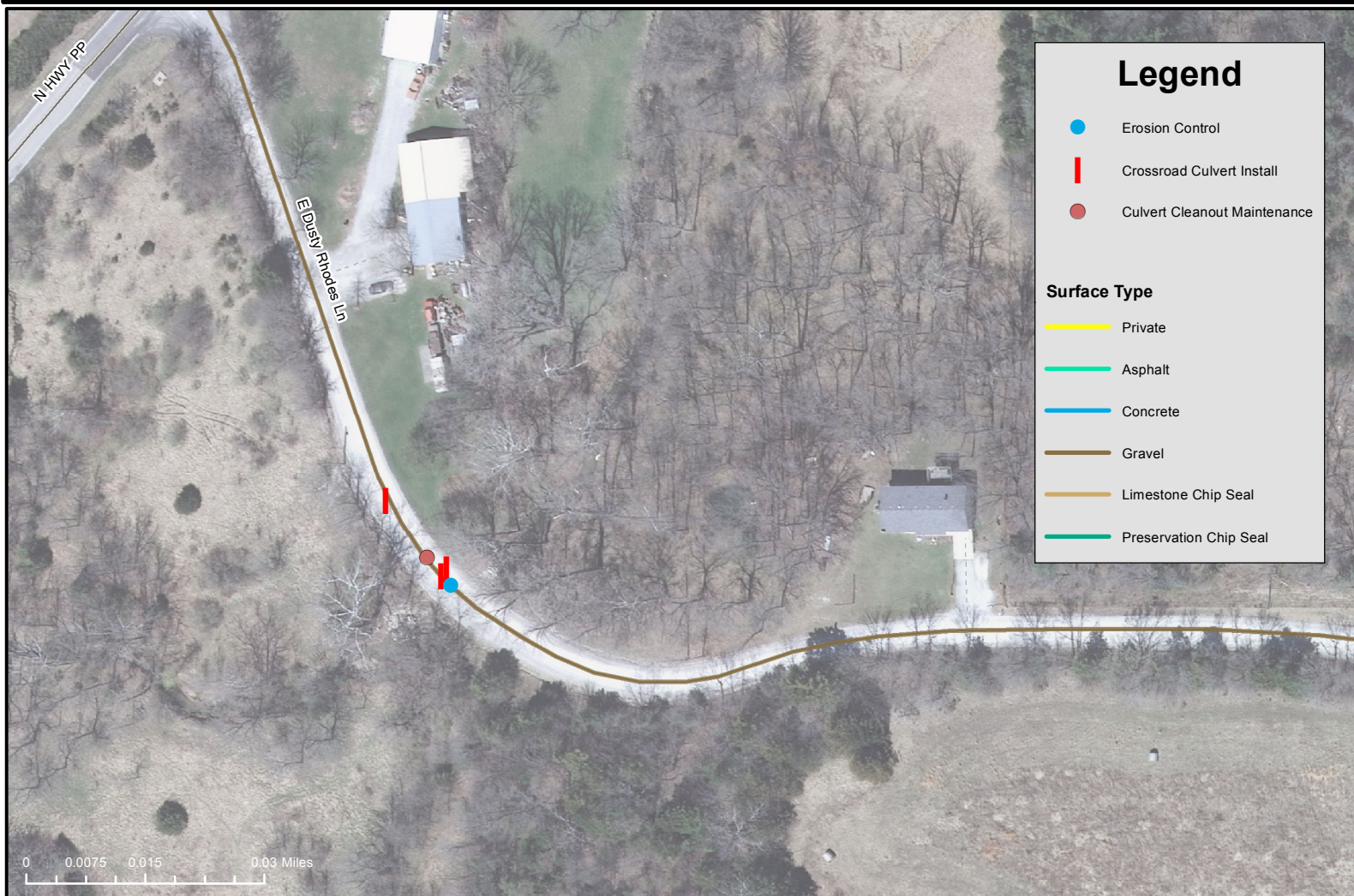
Total Approximate Hours: 500



Sources:
Boone County Assessor
Boone County Public Works

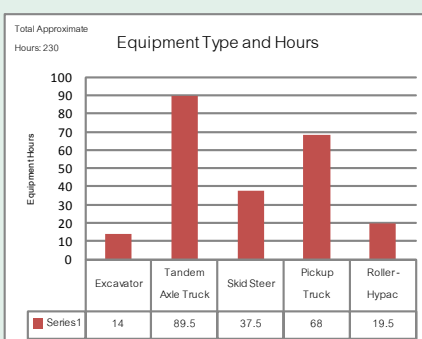
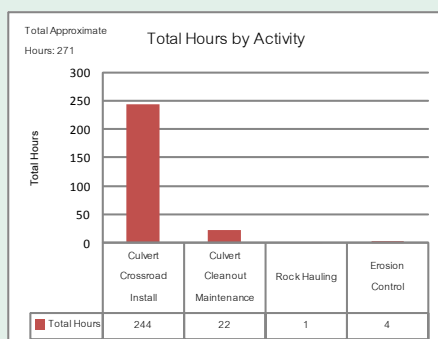
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Summary of the Project:

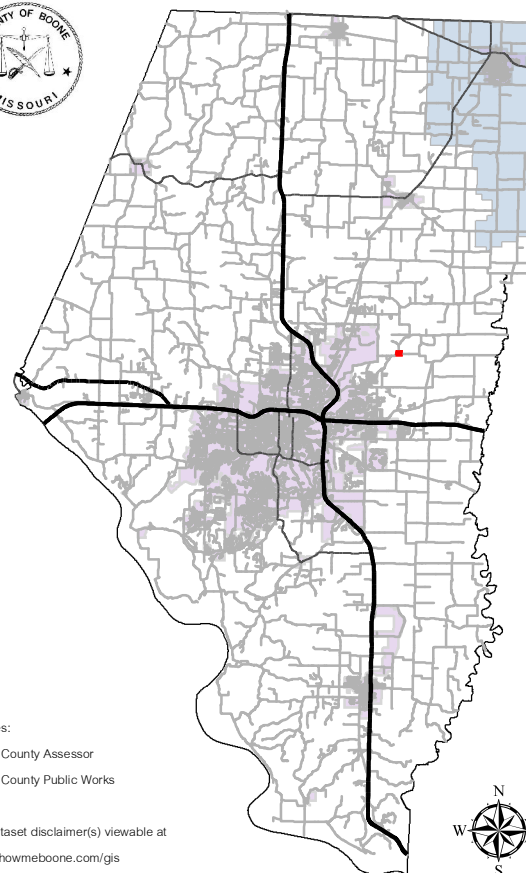
Installing, cleaning out and maintaining crossroad culvert pipes along Dusty Rhodes Ln. At the same time, erosion control and rock hauling were completed to improve the safety of the road.



Current view of Dusty Rhodes Ln. crossroad culvert



Preparing to bed the culvert pipe on Dusty Rhodes Ln.



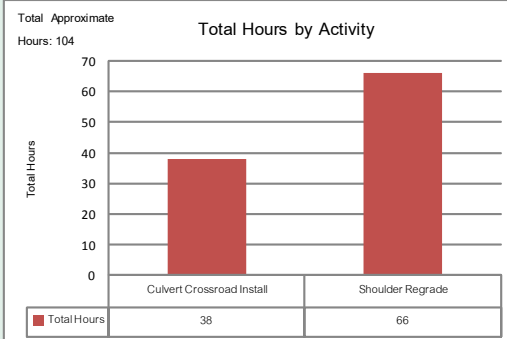
Sources:
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Boone County Public Works

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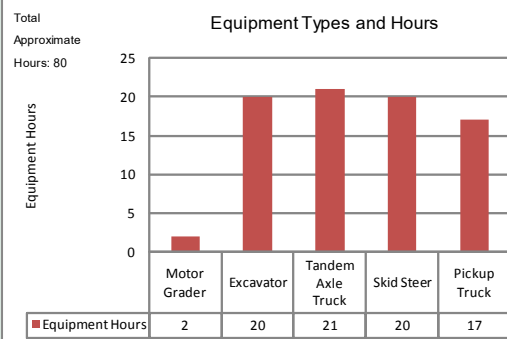


Summary of the Project:

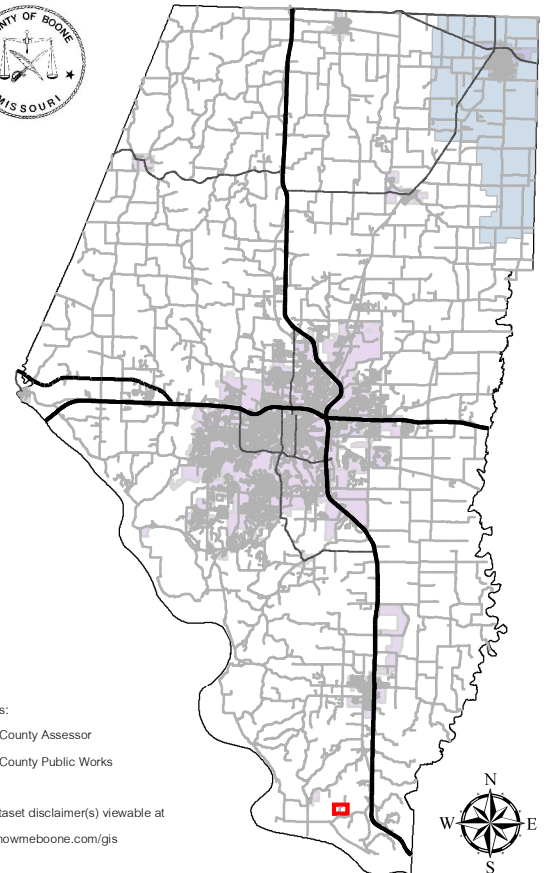
Shoulder regrade and reconstruct along Slate Creek Rd along with a crossroad culvert installation. Other activities completed on this route were rock hauling.



Slate Creek Rd. - Front View



Slate Creek Rd. - Upstream Side



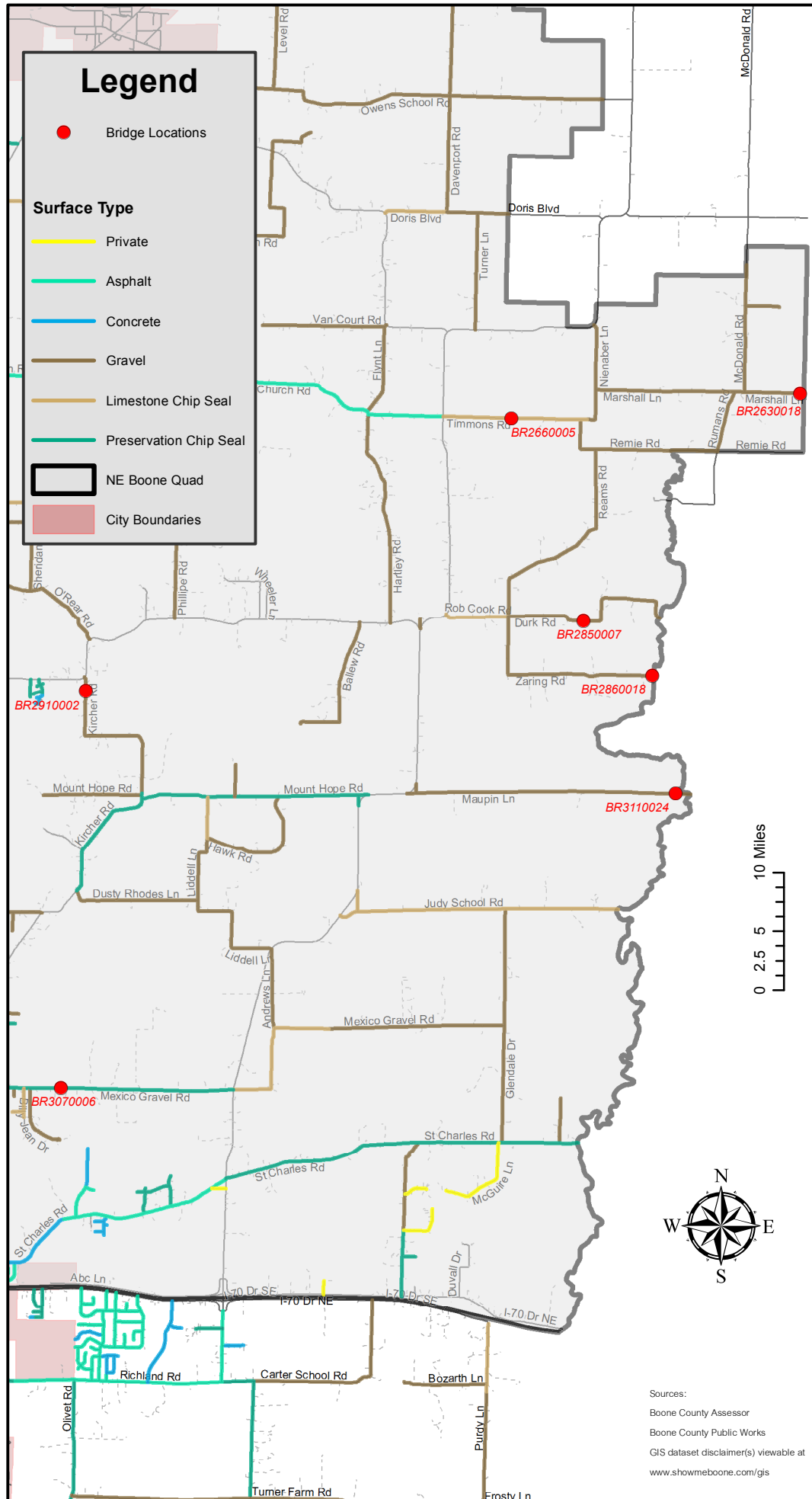
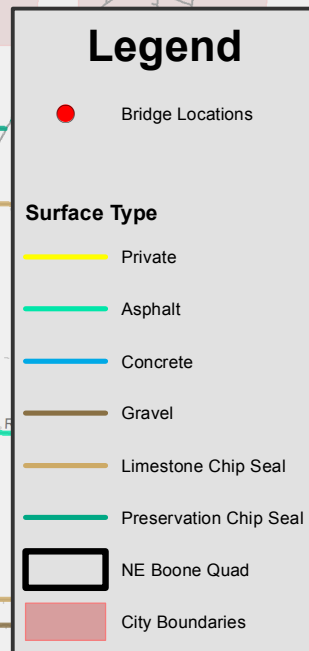
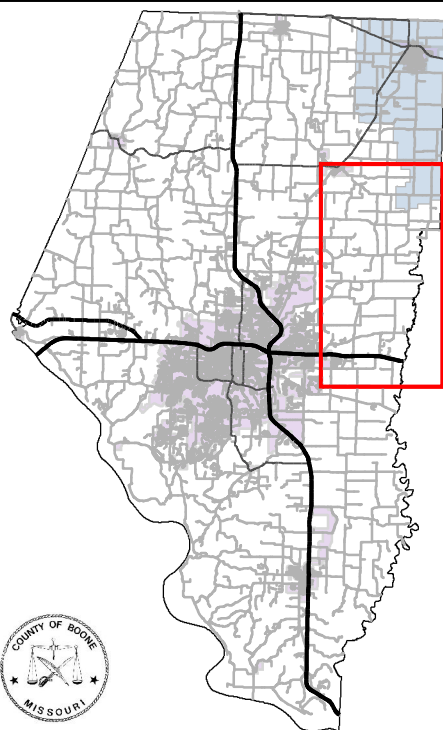
Sources:
Boone County Assessor
Boone County Public Works

GIS dataset disclaimer(s) viewable at
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Project Summary:

Preventative maintenance on county bridges by powerwashing and using a bridge deck sealant that will protect the bridges from deterioration caused by weather and salt used for ice control.

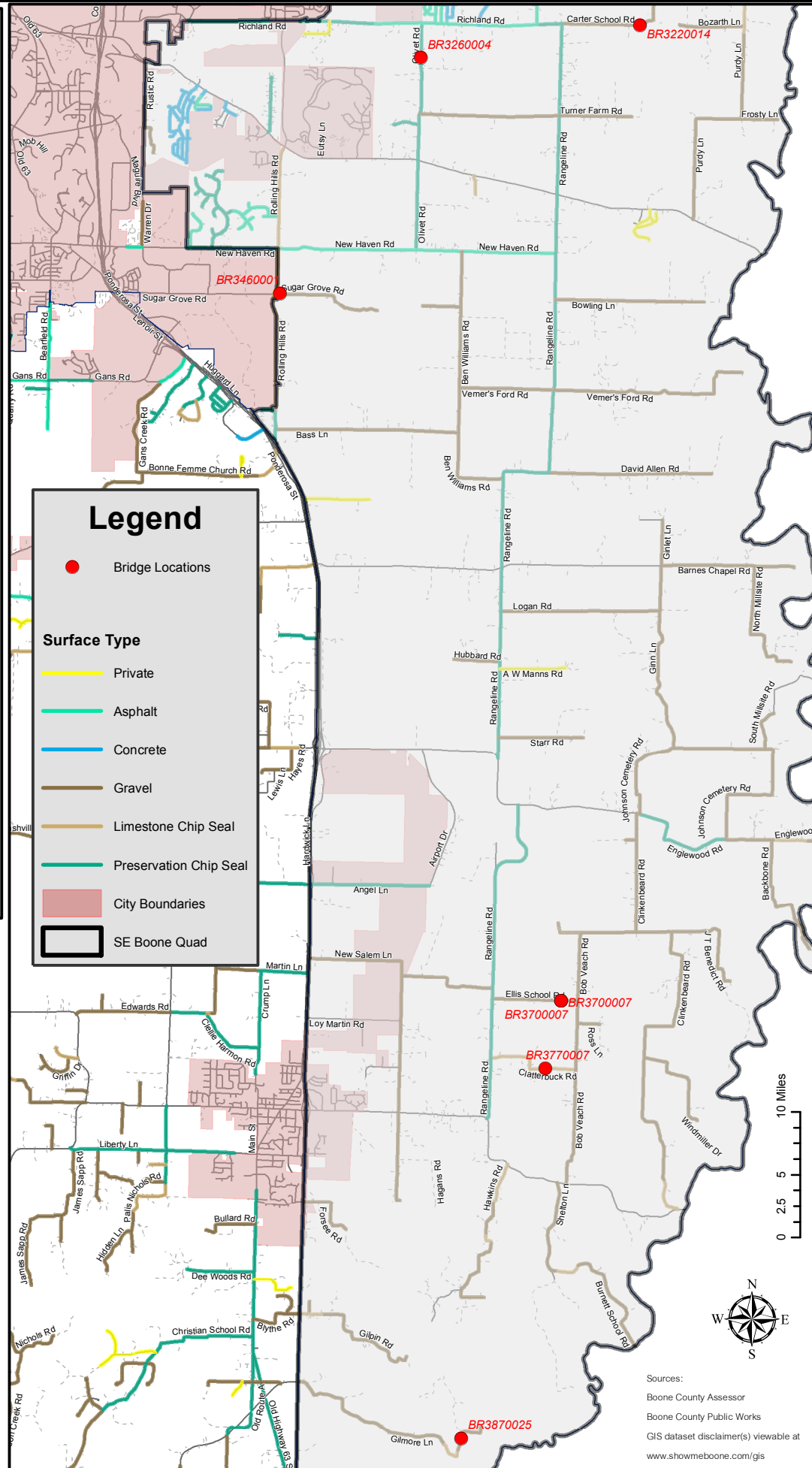
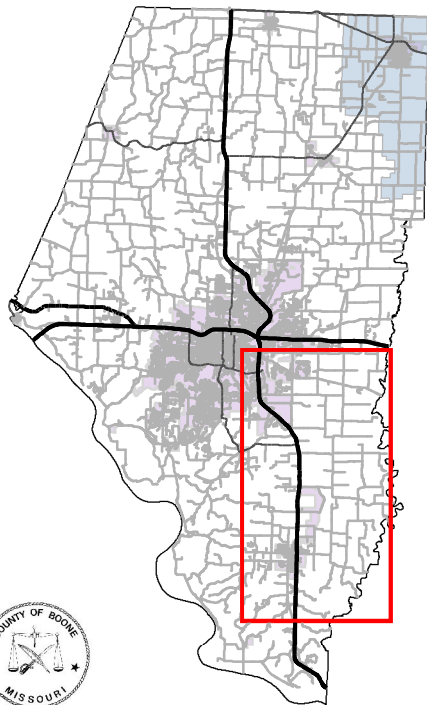
Road Name	Bridge ID	Hours
DURK RD	BR2850007	18
KIRCHER RD	BR2910002	10.5
MARSHALL LN	BR2630018	8
MAUPIN LN	BR3110024	13.5
MEXICO GRAVEL RD	BR3070006	12
TIMMONS RD	BR2660005	8
ZARING RD	BR2860018	10.5
Total Hours		80.5



Project Summary:

Preventative maintenance on county bridges by powerwashing and using a bridge deck sealant that will protect the bridges from deterioration caused by weather and salt used for ice control.

Road Name	Bridge ID	Hours
CARTER SCHOOL RD	BR3220014	8
CLATTERBUCK RD	BR3770007	10
ELLIS SCHOOL RD	BR3700007	18
GILMORE LN	BR3870025	18
OLIVET RD	BR3260004	15
SUGAR GROVE RD	BR3460001	8
Total Hours		77



Sources:
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Project Summary:

Preventative maintenance on county bridges by powerwashing and using a bridge deck sealant that will protect the bridges from deterioration caused by weather and salt used for ice control.

Road Name	Bridge ID	Hours
BURR OAK RD	BR48700342	17
CEDAR TREE LN	BR4150002	13
COATS LN	BR4710016	13
CRUMP LN	BR4300003	10
GANS CREEK RD	BR4480009	8
GIESING HILL RD	BR3960015	8
HAROLD CUNNINGHAM RD	BR4180001	5
HART CREEK RD	BR4000001	12
HARTSBURG BOTTOM RD	BR3950001	7
HARTSBURG BOTTOM RD	BR3950026	7
JEMERSON CREEK RD	BR4060025	12
MARTIN LN	BR4310005	10
MINOR HILL RD	LWC20443	16
NASHVILLE CHURCH RD	BR4340020	13
NASHVILLE CHURCH RD	BR4340007	8
RIPPETO RD	BR4220008	5
RIVER RD	BR40300071	8
RIVER RD	BR4030052	10
SMITH HATCHERY RD	BR4980018	5
SOFT PIT HILL RD	BR3990025	10
SOUTH MOUNT PLEASANT RD	BR3960010	13
WEHMEYER RD	BR4760030	11
Total Hours		221

