

RoadBotics Road Assessments and the Montgomery, AL RoadBotics Project



City of **Montgomery**

CAPITAL OF DREAMS.

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City of Montgomery

Director of Traffic Engineering



RoadBotics

Miles Campbell

RoadBotics, Inc

Partnership Solutions Manager

WHO WE ARE

- Founded in 2016 (Carnegie Mellon University)
- Machine Vision/Machine Learning
- Data Collection with Smartphones
- Commercially Available in Fall 2017
- Over 125 customers in the US
- Over 20 Municipal Engineering Firms
- Projects in over 10 Countries



THE PROBLEM

Pavement maintenance decisions are made based on

perceptions, complaints, and estimations

which lead to wasted money and roads that don't improve

Unreliable Data 

Pavement Management
Guesses

 Bad Roads



Affordable

Objective

Fast



WE BELIEVE...

If road assessments were **affordable, objective, and fast** then they would be done more frequently.

Frequent &
Objective Data

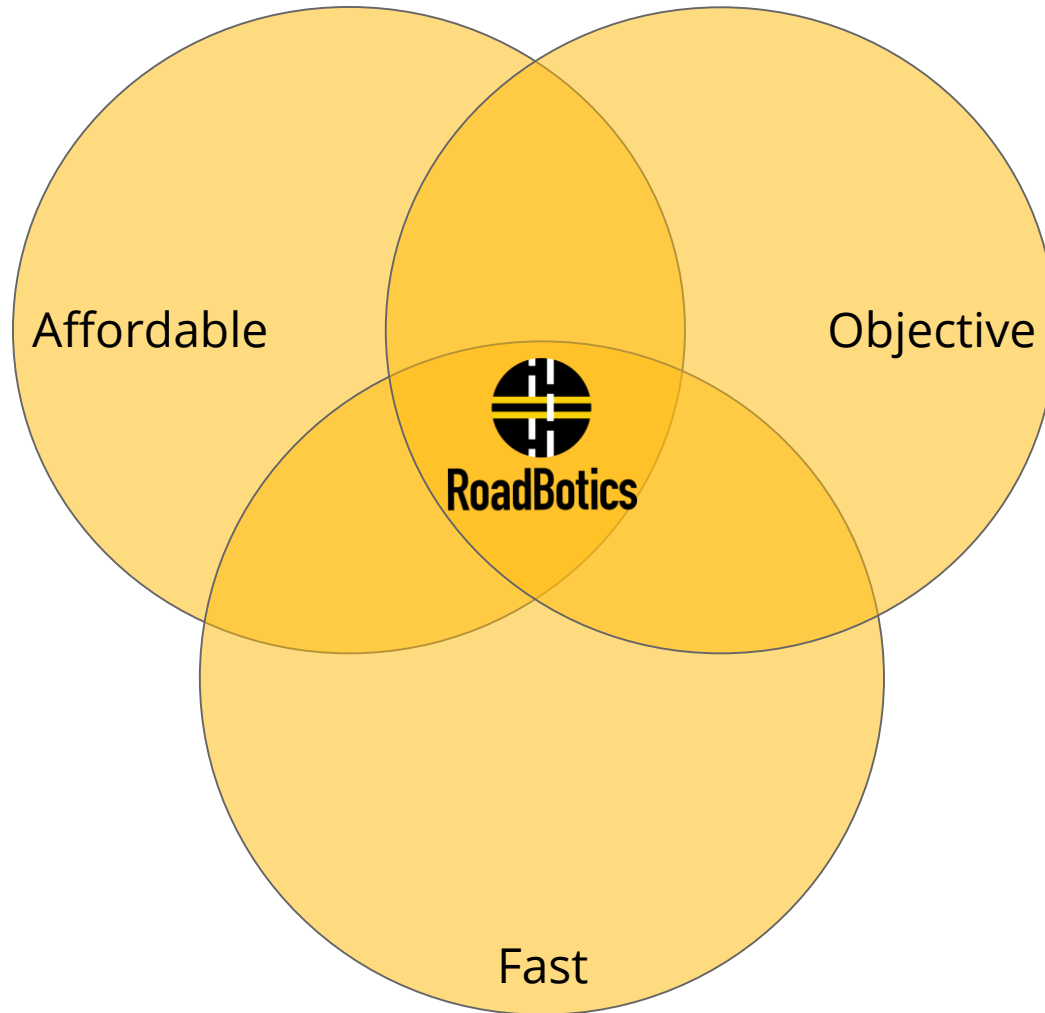


Data Driven Pavement
Management Decisions

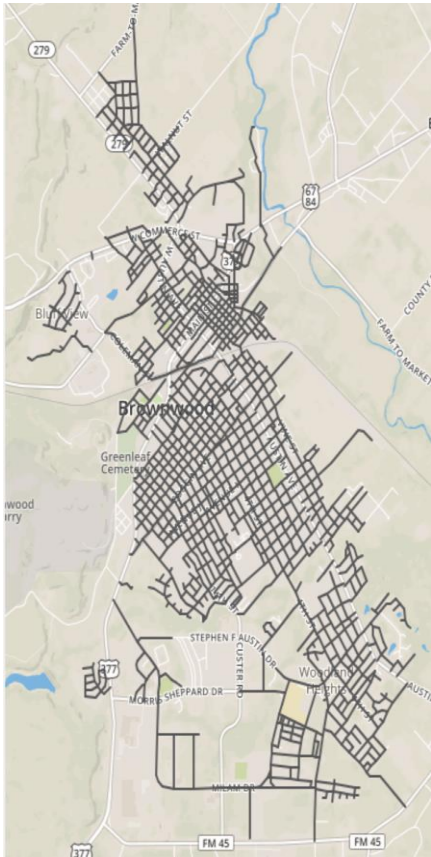
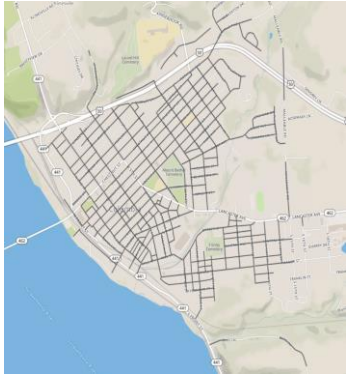


Better Roads

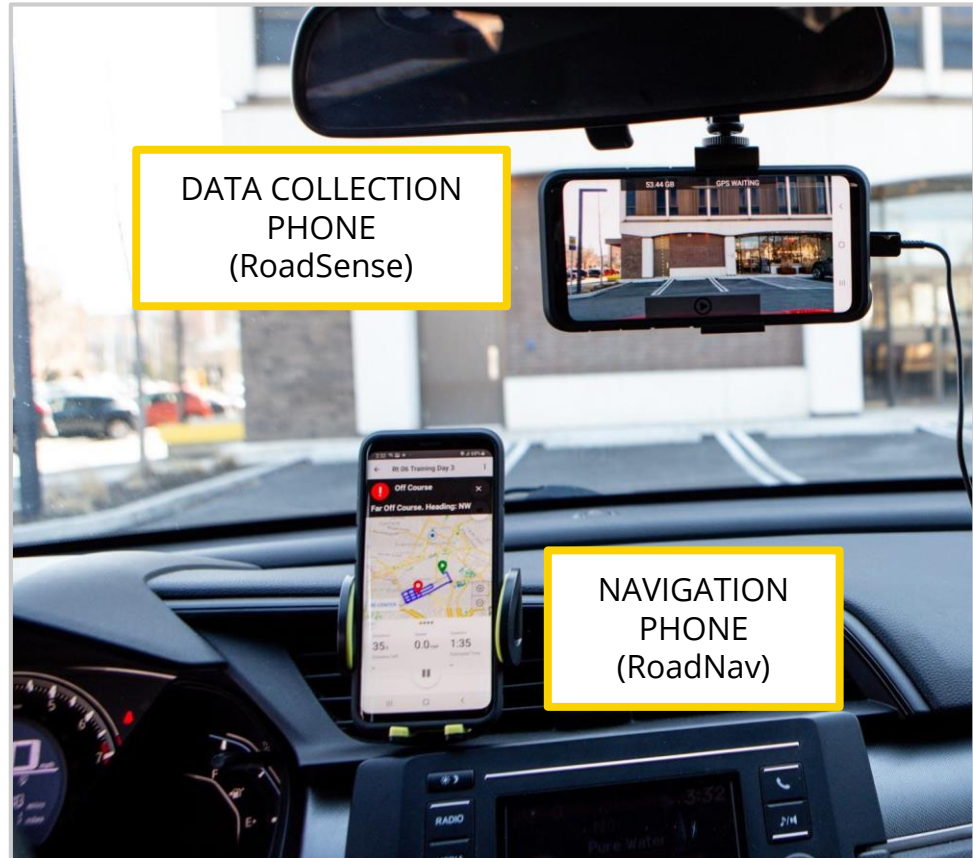




HOW IT WORKS



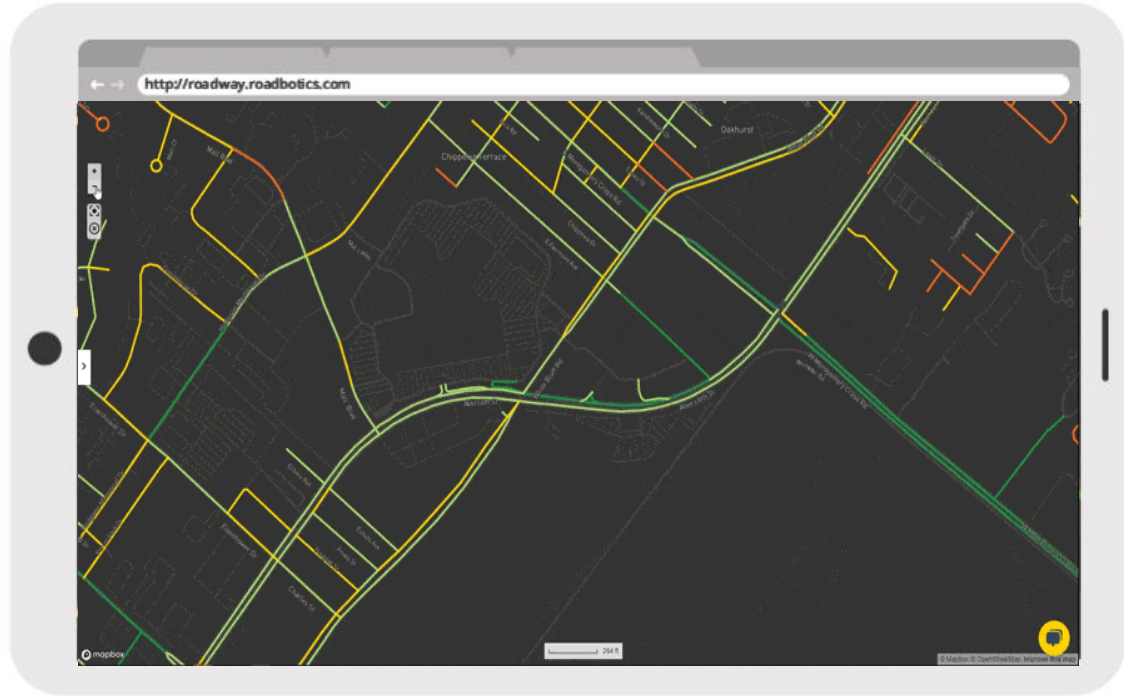
HOW IT WORKS



HOW IT WORKS



HOW IT WORKS



HISTORY OF PAVING IN MONTGOMERY

SEPTEMBER 28, 1966

Brick Streets Go In Paving Project

Montgomery's ancient brick streets had all but disappeared under a layer of blacktop this week as the city proceeded with a "beat winter" paving program.

Maintenance Engineer E. B. Lloyd of the Public Works Department said the brick surfaces finally had to give way to "progress."

"Those streets were rough and dangerous when they were wet," said Lloyd. "When you tried to pull away from a stop light, your tires would spin if the bricks were damp."

The last of the brick surface on Court Street was covered in a paving project that was completed yesterday. Recently, blacktop was put down on the brick stretches of Hall and Midred.

Lloyd said the only street left with bricks intact is Stevenson at Oak Park.

Court was one of 16 streets that are being resurfaced before

all of them before winter," Lloyd said. "But those we miss will be done next spring along with several other streets."

Streets already resurfaced are: Fifth from Pineleaf to Bryan, Robison Hill Road from Carter Hill to Central of Georgia Railroad.

Ridgecrest — a 1,200-foot street west of Oak.

Dartmouth Circle from Woodley to Narrow Lane.

Mt. Vernon from Perry to Southmont.

Court from High to Fairview, Hall from Adams to Thurman.

On the list of streets to be done in this year's program are: Lelfron from Potts to Briarcliff.

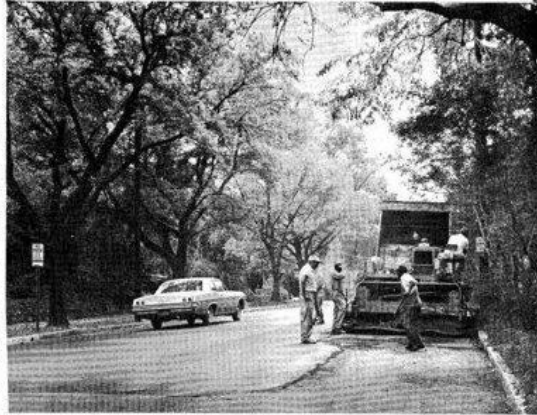
Delano from Norman Bridge to Bridlewood.

Southmont Circle from Court to Court.

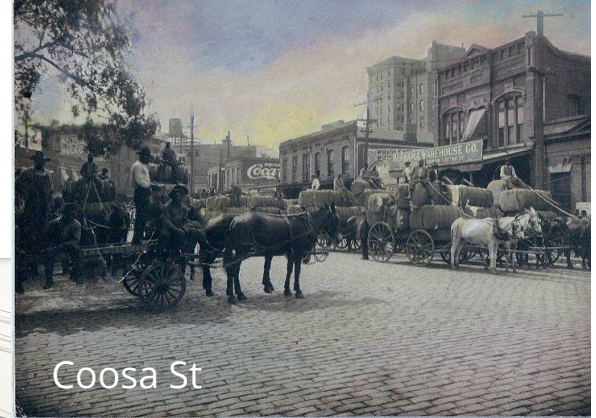
S. Perry from Fairview to Delano.

THE MONTGOMERY INDEPENDENT

PAGE 3



CITY WORKERS SEEN PAVING LAST OF COURT STREET YESTERDAY



- Ballast Stones
- Bricks
- Asphalt

HISTORY OF PAVING IN MONTGOMERY



- Ballast Stones
- Bricks
- Asphalt



EVALUATION OF PAVEMENT CONDITION

2007 - GIS Department created, roadway inventory needed

- Limited Funding + Personnel + Time
- Windshield survey of entire 1,100 miles in the city
- Rating of Good, Fair, or Poor



ANNUAL PAVING PLAN

Mayor Strange wanted a better system for spending paving dollars



- Begin selecting paving list from poor rated streets from survey
- 2010 bond issued to pave all poor rated streets
- Move to fair rated and reclassify remaining streets on list as “Needs Paving” and “Does Not Need Paving”
- Public Works recommends annual list, Council members review and approve for their respective district

Time to reevaluate streets - Efficiency - Data Driven



ROADBOTICS PARTNERSHIP

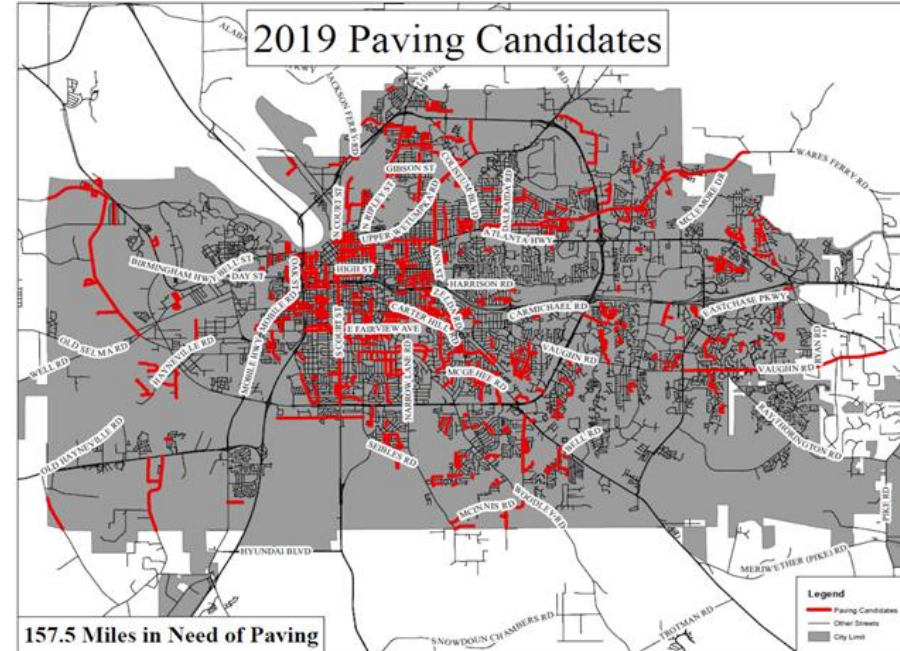
Currently **158 miles** of streets in need of paving

- 500 street segments
- \$15 million cost to pave
- Paving candidates on Open Data Portal

Pilot Project to analyze the “Needs Paving” rated streets

Compare windshield surveys to RoadBotics ratings

Refine paving candidate list





DEMO



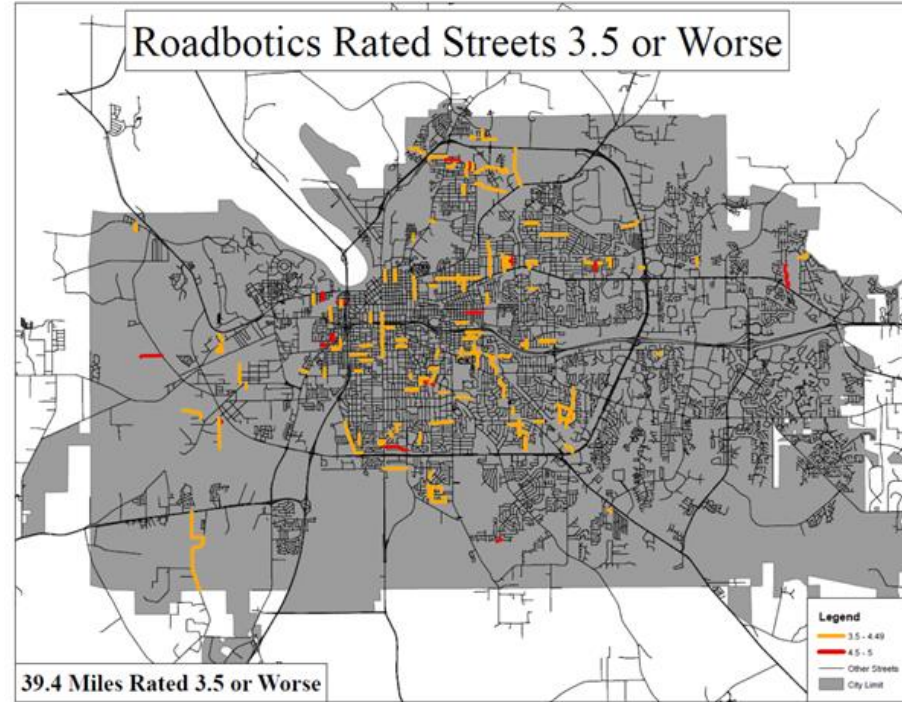
ROADBOTICS PARTNERSHIP

RoadBotics analysis showed that paving list could be reduced

158 miles	→	40
500 street segments	→	200
\$15 million cost	→	\$4 million

Unbiased and objective rating across the city

Eliminates need for in-house time and effort



ROADBOTICS PARTNERSHIP

CURRENT PAVING LIST

STREET NAME	DESCRIPTION	RATING
EASTWOOD DR	From Donovan Dr to End	3.5
COMINGTON ST	From Hemen St to Maxwell Blvd	4.22
GILLARD ST	From High St to HR St	4.71
OLDFIELD DR	From Atlanta Hwy to Old Barn Rd	4.6
SANDY ST	From Mobile Rd to Hickman St	4.23
PINECREST DR	From Green Oaks Dr to End	4.23
MARIE COOK DR *	From Chatsworth Dr to Georgetown Dr	4.16
DOGWOOD DR	From Redbud Ct to Old Selma Rd	4.13
LLOYD ST *	From Edgar St to Hopper St	4.11
MONTCLEAR DR	From Vandiver Blvd to Chisholm St	4.11
PARKER ST	From Greenpine Dr to End	4.09
LONGMEADOW DR	From Carter Hill Rd to End	4.04
CAMDEN ST	From Martha St to Maxwell Blvd	4.02
MARIA PL *	From Vista View Dr to End	4
STONEWOOD DR	From Tudor Dr to End	3.97
KINGSBURY DR	From Vaughn Rd to End	3.95
HINCHLIFF RD	From Gladstone Dr to End	3.9
CHELSEA DR *	From Vandiver Blvd to Park Ave	3.9
HIGHFIELD DRIVE	From Canterbury Dr to End	3.9
BURTON AVE	From Hull St to Decatur St	3.78
AVENUE L	From Travis St to Mill St	3.75
QUEENSBURY DR	From Bassett Dr to 2nd Falcon Ln	3.53
BRIARBROOK DR	From Brookview Dr to End	3.52
ARROWHEAD CT	From Arrowhead Dr to Arrowhead Dr	3.5
BETH MANOR DR *	From Perry Hill Rd to Hardee's (Ditch)	3.5
BIGFIELD RD	From Oldfield Dr to End	3.5
HWASEE DR	From Seminole Dr to End	3.5
LAKE FOREST CT	From Lake Forest Dr to End	3.5
OLD PUMP CT	From Old Pump Rd to End	3.5
OLD PUMP PL	From Old Pump Ct to End	3.5
FRESNO LN *	From Johnston Dr to Ray Dr	3.5
GARDENDALE DR E *	From Coliseum Blvd to End	3.5
LAREDO CT	From Dubuque Dr to End	3.5
SANDY RIDGE CUR *	From Lakeland Ln to Dead End	3.5
WAKE ROBIN CT *	From Deenwood Pl to End	3.5
WINDY HILL CT *	From Deenwood Pl to End	3.5
INGLE CT *	From Ingle Dr to Ingle Dr	3.5
CAPITOL PLAZA DR	From Birmingham Hwy to End	3.5
CITRUS ST	From Margaret Ann Dr to End	3.5
EARLY ST	From I-65 to Mobile Rd	3.5

STREET NAME	DESCRIPTION	RATING
INDUSTRIAL DR	From Birmingham Hwy to Capitol Plaza Dr	3.5
KENSINGTON ST	From Oak St to Bragg St	3.5
MILL ST	From Hill St to Mobile Rd	3.5
RED BUD CT *	From Rosebud Ct to Dogwood Dr	3.5
ROSEBUD CT *	From Redbud Ct to Old Selma Rd	3.5
CAPSTONE CT	From Capstone Dr to End	3.5
MALLARD CT	From Mallard Ln to End	3.5
BALDWIN BROOK DR	From Endicott Dr to Ravenwood Dr	3.5
BROOKTREE RD	From Matterhorn St to End	3.5
LYNCHBURG CT E	From Lynchburg Dr to End	3.5
LYNCHBURG CT W	From Lynchburg Dr to End	3.5
MATTERHORN ST *	From Woodley Rd to End	3.5
SAWSTON CT	From Dead End to Dead End	3.5
JENELLA DR	From Robinson Hill Rd to Hill Hedge Rd	3.5
ALRED CT	From Laurewood Ln to End	3.5
APPLEWOOD CT	From Laurewood Ln to End	3.5
BENTLY CT	From Copperfield Dr to End	3.5
BROOKSTONE CT	From Brookstone Dr to End	3.5
CHESTERFIELD CT	From Chappell Ln to End	3.5
CHRISTINA CT	From Chappell Ln to End	3.5
DUNLEITH DR	From Wynlakes Blvd to Wynlakes Blvd	3.5
ENGLISH OAK CT	From English Oak Ct to English Oak Ct	3.5
ENGLISH OAK LOOP	From Meadow Oak Ct to Chappell Ln	3.5
GLENSIDE CT	From Chappell Ln to End	3.5
GREENWAY DR	From Woodmere Dr to End	3.5
GREENWAY PL	From Greenway Dr to End	3.5
GRETA PL	From Woodmere Loop to End	3.5
HELGA PL	From Woodmere Loop to End	3.5
HERITAGE OAK CT	From Dead End to Dead End	3.5
HILMAR CT	From Carmichael Rd to End	3.5
LIVE OAK CT	From White Ok Ln to End (two sections)	3.5
LOCHWOOD DR	From Parkview Dr to End	3.5
MONTECELLO CT	From Monticello Dr to End	3.5
ROYAL OAK CT	From Chappell Ln to End	3.5
STONEWOOD CT	From Tudor Dr to End	3.5
TALON CT	From Parkview Dr to End	3.5

STREET NAME	DESCRIPTION	RATING
LESTER LN	From Hinchliff Rd to Wares Ferry Rd	2.96
CECIL LN	From Atlanta Hwy to End	2.95
WOODRUN DR	From Woodmere Loop to End	2.93
TUDOR DR	From Greenway Pl to Carmichael Rd	2.88
CLOVERDALE RD	From Hull St to Norman Bridge Rd	2.58
HEATH DR	From Mill St to End	2.49
CVTAN ST	From E Vandiver Blvd to Rotary St	2.32
HATHAWAY PL	From Highfield Dr to Highfield Dr	2.28
CHATTAHOOCHEE DR	From Seminole Dr to End	2.25
SARLTON ST	From Magnolia Ave to Navarro Ave	2.24
GREYFIELD DR	From Parkview Dr to Lochwood Dr	2.2
WILLIAMSON RD	From Sarver Ave to Ray Dr	2.02

FY2019 Paving List:

88 total street segments
12 segments (14%) rated < 3.5

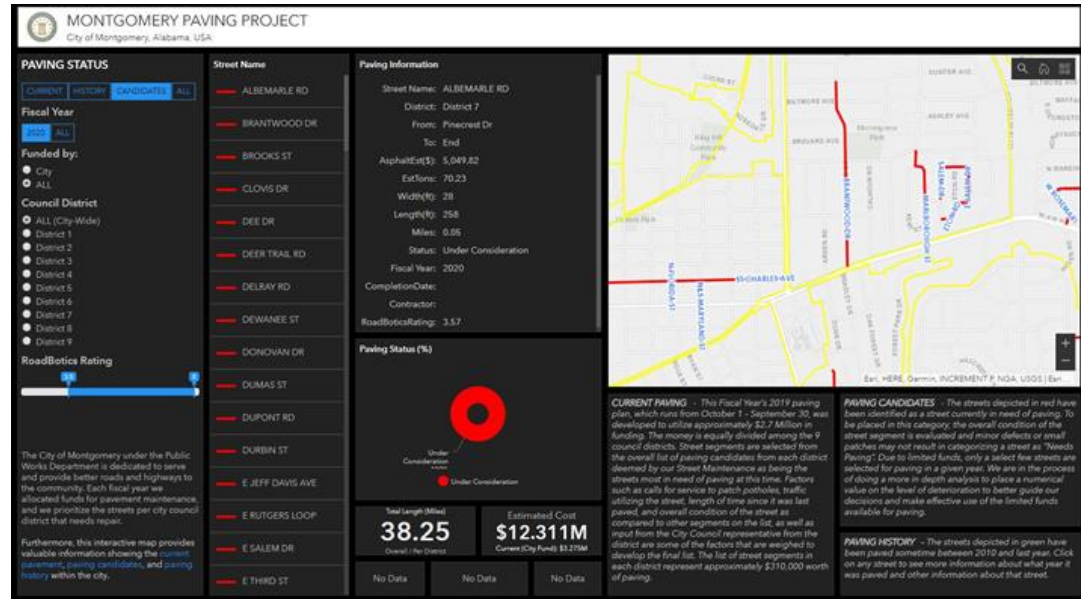


DATA DRIVEN DECISIONS & OPEN DATA

RoadBotics analysis incorporated in 2020 paving plan and displayed to the public through the Open Data Portal

Moving forward with RoadBotics:

- Begin rating 3 council districts annually
- Create shorter paving segments
- Identify patch and pothole repair locations
- Partner on future A.I. capabilities as made available



Make **data-driven pavement decisions**

www.roadbotics.com

THANK YOU

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