

EBR ROAD CONDITION RATING PROCESS

ROAD REHABILITATION DIVISION
DEPARTMENT OF TRANSPORTATION & DRAINAGE

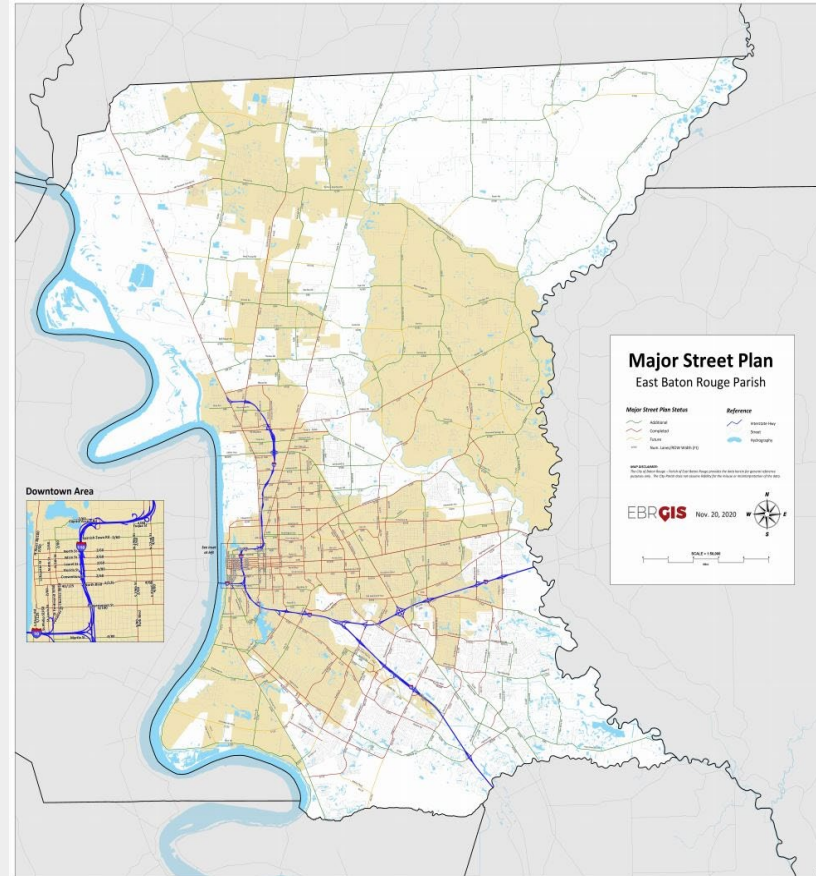


CITY OF BATON ROUGE
PARISH OF EAST BATON ROUGE

Inventory Background...

EBR City-Parish is Responsible for Maintaining Approximately 1700 miles of Streets (3600 lane miles)

- 80% Asphalt
- 13% PCC
- 6% Composite Asphalt Surface w/ PCC Base
- 1% Brick / Gravel / Unsurfaced



Funding Background....

The EBR SALES TAX STREET AND REHABILITATION PROGRAM (STSRRP) was established in 1990.

“Pothole Tax”

(One-half of One percent ($\frac{1}{2}\%$) General Sales and Use Tax)

Funding Background...

- (1990 – 1997) 100% of the ½ % General Sales and Use Tax to be used to fund the program (avg. » 21 mil/yr)
- (1997 – 2005) 40% of the ½ % General Sales and Use Tax was used to fund the program (avg. » 15 mil/yr)
- (2005 – 2030) 27% of the ½ % General Sales is currently funding the program (Currently averages »

Doing Quick Math....

Our Yearly Revenue = \$11 million

Typical Structural Rehab of Asphalt Street Averages 300k per mile

$\$11,000,000 / \$300,000 = 36.6$ Miles per year

We have = 1700 miles

$1700 / 36.6 =$ How often we get to structural rehab of each street?

= Once every 47 years

STSRR Program Team...

EBR City Parish Employees - Me & 1 Admin

GEC Provides the Construction Engineering & Inspection (CEI) Services

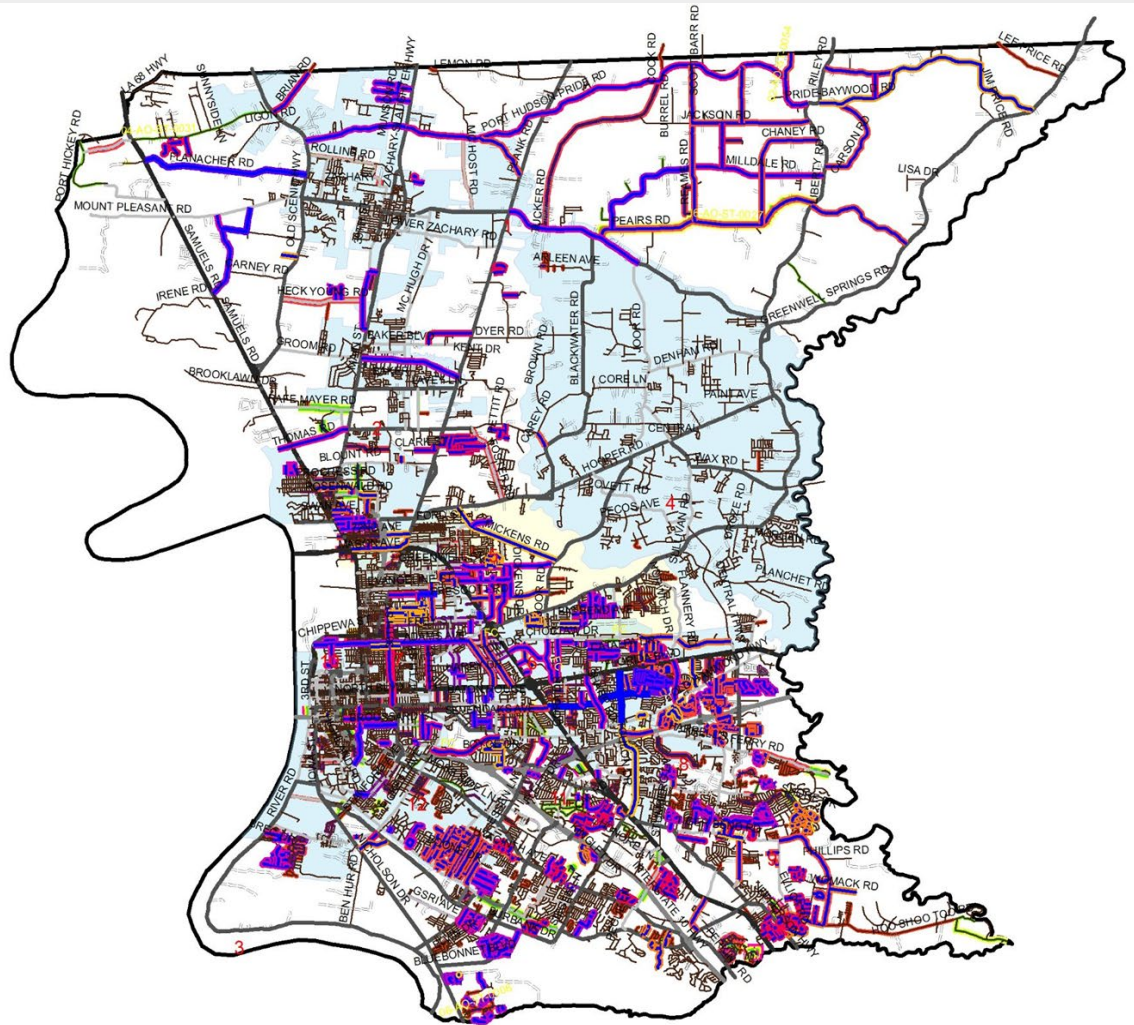
- 1 Project Engineer
- 1 Assistant Project Engineer
- 1 Admin
- 7 Project Inspectors

Typical Yearly Work Flow...

- Routine Inspections to help Identify Streets for Inclusion into the Program
- Develop the Phase of Projects
- Design The Projects
- Letting of Projects (Approx. 10 a yr)
- Managing the Construction Engineering and Inspection of the Projects

GIS

Road Rehab has been using GIS for Planning & Recording our Projects for many years however we didn't use it to document Road Condition Data.



LTAP INTRODUCED US TO PASER

In 2018 we attended a LTAP Pavement Condition Training and was introduced to the PASER Pavement Condition Assessment Method



Asphalt PASER

Modified for Michigan TAMC Data Collection

◆ Denotes Priority Distress

| | Asphalt 10 | Asphalt 9 | Asphalt 8 |
|------|--|--|--|
| Good | New construction No defects Less than 1 year old Only a "10" for 1 year <u>Recent base improvement</u> No action required | Like new condition No defects More than 1 year old <u>Recent overlay with or without a crush and shape</u> No action required | ◆ Occasional transverse crack >40' apart ◆ Crack width tight (hairline) or sealed Few if any longitudinal cracks on joints <u>Recent seal coat or slurry seal (*see below)</u> <u>Little or no maintenance required</u> |
| Fair | ◆ Trans. cracks 10'-40' apart ◆ Cracks open < ¼" Little or no crack erosion Little or no raveling Few if any patches in good condition <u>First signs of wear</u> <u>Suggested Action</u> <u>Maintain with crack seal</u> | ◆ Trans. cracks less than 10' apart ◆ Initial block cracking (6'-10' Blocks) ◆ Cracks open ¼" – ½" Blocks are large and stable Slight to moderate polishing or flushing No patches or few in good condition Slight raveling <u>Sound structural condition</u> <u>Suggested Action</u> <u>Maintain with sealcoat</u> | ◆ Secondary cracks (crack raveling) ◆ Moderate block cracking (1' – 5' blocks) ◆ First sign of longitudinal cracks at edge ◆ Cracks open >¼" Patching/wedging in good condition Moderate raveling Extensive to severe flushing & polishing <u>Sound structural condition</u> <u>Suggested Action</u> <u>Maintain with sealcoat or thin overlay</u> |
| Poor | ◆ Longitudinal cracking in the wheel paths ◆ Rutting ½" – 1" deep ◆ Severe block cracking: <1' blocks Severe surface raveling Multiple longitudinal & transverse cracks with slight crack erosion Patching in fair condition <u>First signs of structural weakening</u> <u>Suggested Action</u> <u>Structural overlay >2"</u> | ◆ < 25% alligator cracking (first signs) ◆ Moderate rutting 1"– 2" deep ◆ Severe block cracking (Alligator) Longitudinal & transverse cracks showing extensive crack erosion Occasional potholes Patches in fair/poor condition <u>Suggested Action</u> <u>Structural overlay >2"</u> <u>Patching & repair prior to a major overlay</u> <u>Milling would extend overlay life</u> | ◆ > 25% alligator cracking ◆ Severe rutting or distortion >2" ◆ Closely spaced cracks with erosion Frequent potholes Extensive patches in poor condition <u>Suggested Action</u> <u>Reconstruction with base repair</u> <u>Crush and shape possible</u> Asphalt 1 Loss of surface integrity Extensive surface distress <u>Suggested Action</u> <u>Reconstruction with base repair</u> |

General TAMC PASER Rating Tips

Rate surface distress, not ride quality. Be aware of cracks in the wheel path, they can be hard to see and don't affect the ride.

Disregard the shoulder. Rate only the drivable pavement, edge line to edge line.

Do not ignore reflective cracks. Rate them by assessing the type of crack they are (transverse, longitudinal, alligator...)

Rate the current surface condition. If construction is in progress (work is active), but you are driving on the old surface, go ahead and rate the new surface. Some barrels sitting on the side of the road is not construction in progress.

Rate what you see, not what distresses you think might happen in the future.

Rate roads with the same scrutiny regardless of their use, ownership or functional class.

Rate the lane with the worst condition when lanes have differing conditions. For variable surface types, rate the worst lane, and select it as the Surface Subtype.

Crush & Shape - A treatment is considered a reconstruct only if the base material is replaced or rehabilitated.

Rutting - Look for visual cues such as plow scars. Get out and measure using a

straight edge and tape measure. Use caution!

Rutting Revisions – See page 8 of the TAMC PASER Training Manual for rutting measurement changes.

Composite Pavement - When a concrete pavement has been overlaid with asphalt (composite pavement) rate it based on the uppermost surface, in this case, asphalt; but note the surface subtype as composite.

Concrete Joint Repairs - The highest rating a repaired concrete pavement can receive is a 9. No other defects can be present and the condition is "like new." However, this is not what the Concrete PASER Manual says.

Sealcoat- See pages 6-7 of the TAMC PASER Training Manual for rating sealcoat pavements. Sealcoat applied over asphalt is a treatment. A sealcoat "road" is simply sealcoat over gravel.

***Proactive Sealcoat treatments** – Do not downgrade an Asphalt PASER 9 or 10 (no defects) to an Asphalt PASER 8 because of the treatment. Rate it based on the distresses that are visible (see page 9 of TAMC PASER Training Manual).

Concrete PASER

Modified for Michigan TAMC Data Collection

◆ Denotes Priority Distress

| | Concrete 10 | Concrete 9 | Concrete 8 |
|------|---|--|---|
| Good | New construction No defects Less than 1 year old Only a "10" for 1 year <u>Recent reconstruction</u> No action required | ◆ Joint rehabilitation, only if no other defects are present Like NEW Slight traffic wear in wheel path Slight map cracking Few pop outs <u>Recent concrete overlay</u> No maintenance required | ◆ Joints all in good condition ◆ Partial loss of joint sealant ◆ No transverse cracks Minor surface defects - pop outs, map cracking or slight scaling Isolated meander cracks (cracks are well-sealed or tight) Light surface wear Isolated cracks at manholes (cracks are well-sealed or tight) <u>Little or no maintenance required</u> |
| Fair | ◆ Isolated transverse cracks ◆ Full depth repairs all in excellent condition Minor surface scaling Some open joints Some manhole cracks Isolated settlement or heave areas Pop outs could be extensive but sound <u>Suggested Action</u> <u>Seal open joints</u> <u>Spot repair surface defects</u> | ◆ Meander and transverse cracks ¼" open ◆ Transverse joints open ¼" ◆ Longitudinal joints open ¼" Moderate surface scaling <25% of surface Several corner cracks tight or well-sealed First signs of shallow reinforcement cracks <u>Suggested Action</u> <u>Seal open joints and cracks</u> <u>Overlay surface raveling areas</u> | ◆ First signs of crack/joint faulting up to ¼" ◆ First signs of joint or crack spalling Moderate to severe scaling or polishing between 25% to 50% of surface Spalling from shallow reinforcement Multiple corner cracks <u>Suggested Action</u> <u>Grind and repair surface defects</u> <u>Some partial depth joint repairs or patching may be needed</u> |
| Poor | ◆ Crack or joint faulting up to ½" ◆ Severe spalling on joints and cracks ◆ Multiple transverse or meander cracks Severe scaling, polishing, map cracking or spalling >50% of surface Corner cracks missing pieces or patches Pavement blowups <u>Suggested Action</u> <u>Some full depth repairs</u> <u>Asphalt overlay or extensive surface texturing</u> | ◆ Severe crack or joint faulting up to 1" ◆ D-Cracking evident ◆ Many joints, transverse and meander cracks open and severely spalled Extensive patching in fair to poor condition <u>Suggested Action</u> <u>Extensive full depth repairs</u> <u>Some full slab replacements</u> | Extensive and severely spalled slab cracks Extensive failed patches Joints failed Severe and extensive settlement & heaves <u>Suggested Action</u> <u>Recycle or rebuild pavement</u> Concrete 1 <u>Restricted speeds</u> Extensive potholes Total loss of pavement integrity <u>Suggested Action</u> <u>Total reconstruction</u> |

Contact Information

Roadsoft & LDC Technical Support: 906-487-2102

TAMC Coordinator: Roger Belknap, 517-373-2249

e-mail: belknapr@michigan.gov

TAMC Website: tamc.mgi.state.mi.us

Center for Shared Solutions (CSS) Framework Issues:

517-373-7910, ask for Josh Ross

PASER Data Submission via the CSS IRT web site

https://mlgointp.michigan.gov

What we liked about PASER

- Practical
- Simple
- Teachable
- High Confidence in Ratings

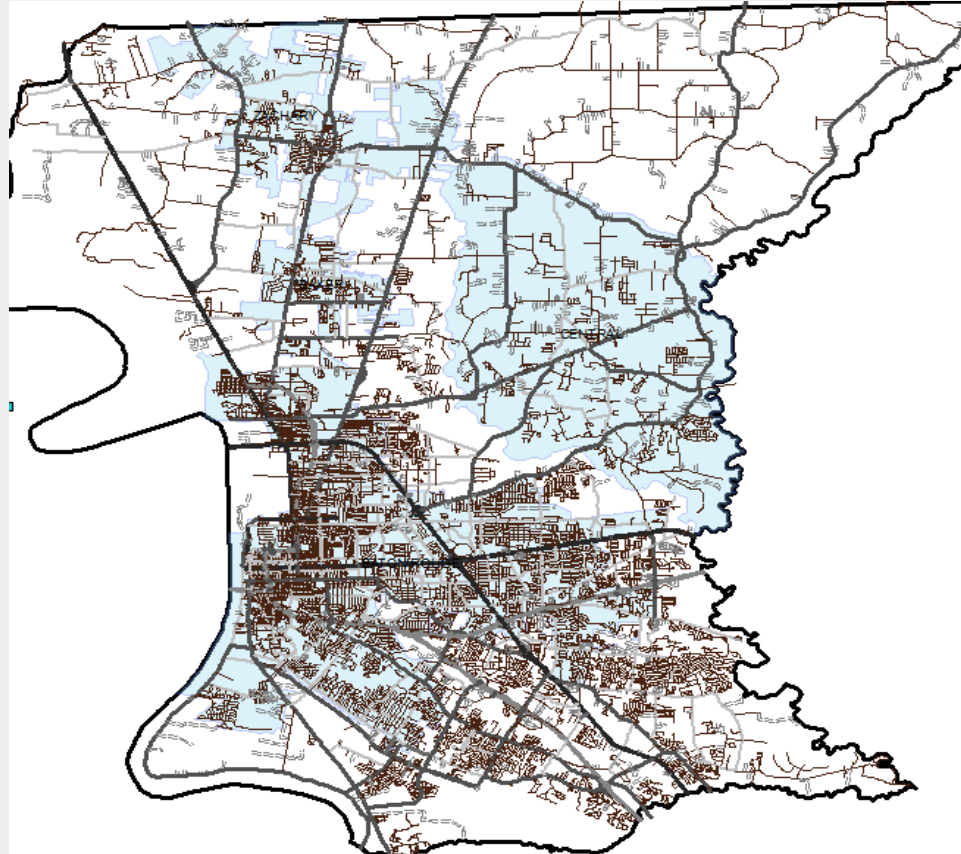
Rating system

| Surface rating | Visible distress* | General condition/ treatment measures |
|------------------------|---|---|
| 10 Excellent | None. | New construction. |
| 9 Excellent | None. | Recent overlay. Like new. |
| 8 Very Good | No longitudinal cracks except reflection of paving joints. Occasional transverse cracks, widely spaced (40' or greater). All cracks sealed or tight (open less than 1/4"). | Recent sealcoat or new cold mix. Little or no maintenance required. |
| 7 Good | Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10' or more apart, little or slight crack raveling. No patching or very few patches in excellent condition. | First signs of aging. Maintain with routine crack filling. |
| 6 Good | Slight raveling (loss of fines) and traffic wear. Longitudinal cracks (open 1/4"-1/2"), some spaced less than 10'. First sign of block cracking. Slight to moderate flushing or polishing. Occasional patching in good condition. | Shows signs of aging. Sound structural condition. Could extend life with sealcoat. |
| 5 Fair | Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2") show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition. | Surface aging. Sound structural condition. Needs sealcoat or thin non-structural overlay (less than 2") |
| 4 Fair | Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (1/2" deep or less). | Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more). |
| 3 Poor | Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25% of surface). Patches in fair to poor condition. Moderate rutting or distortion (1" or 2" deep). Occasional potholes. | Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay. |
| 2 Very Poor | Alligator cracking (over 25% of surface). Severe distortions (over 2" deep). Extensive patching in poor condition. Potholes. | Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective. |
| 1 Failed | Severe distress with extensive loss of surface integrity. | Failed. Needs total reconstruction. |

* Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.

So how do we collect ratings for 19,521+ segments?

The collection process that was described in the PASER training suggested using teams of three with cameras and collecting all the ratings at once. We explored using this method however...

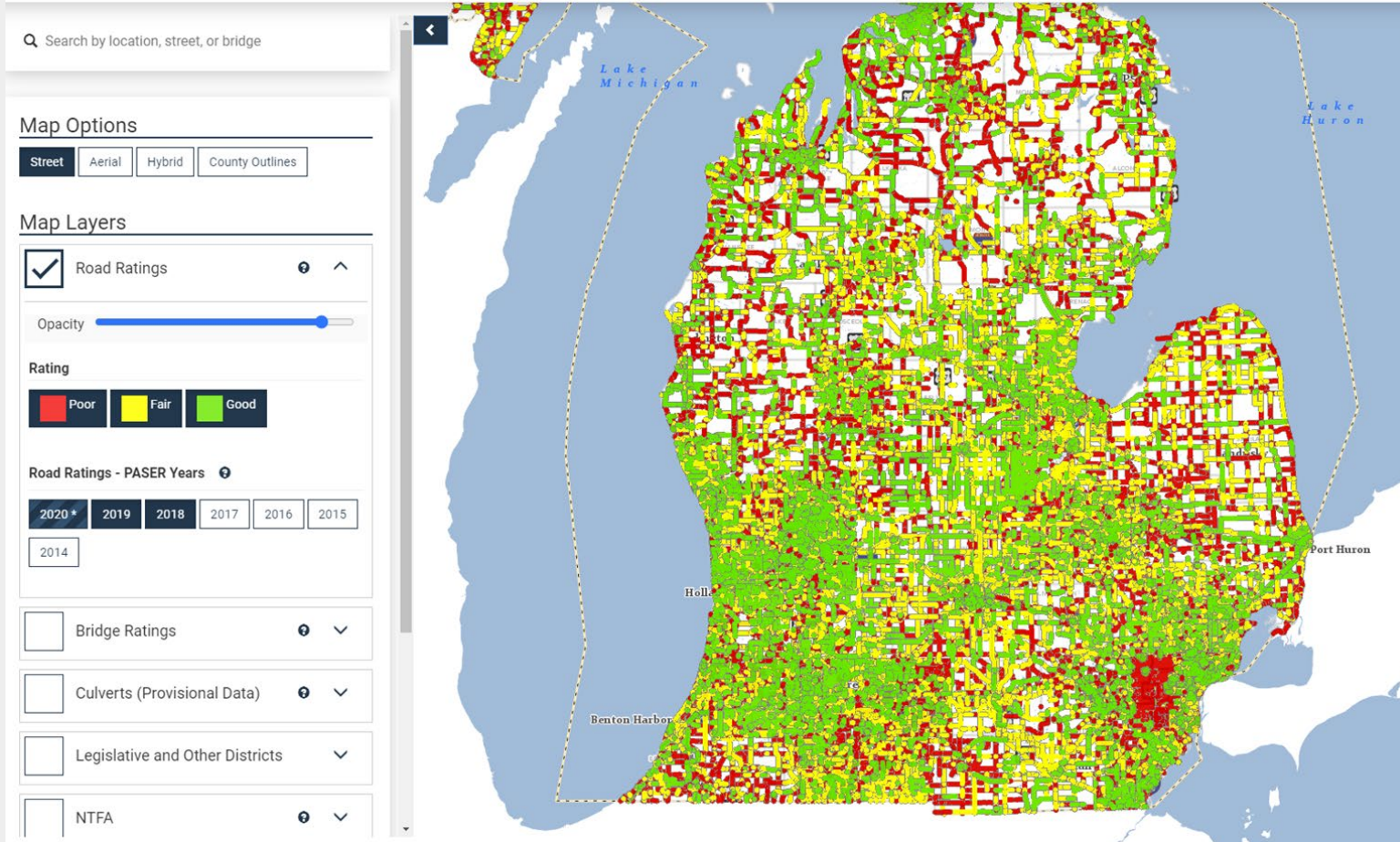


It just so happened that shortly after attending the PASER course our EBR GIS Department contracted with GIS Inc. to perform an audit of existing and potential GIS uses within the City-Parish Departments.

We brainstormed ideas which resulted in a pilot project to build a road condition rating collection process.

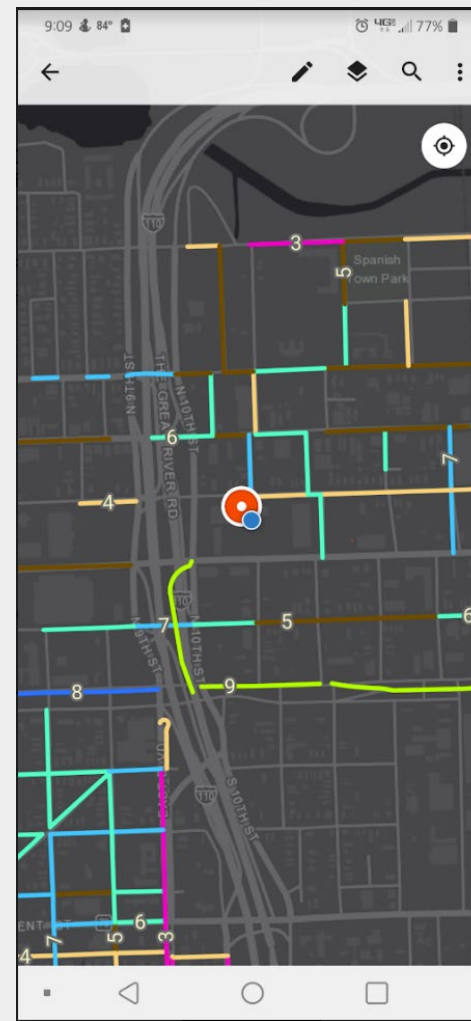
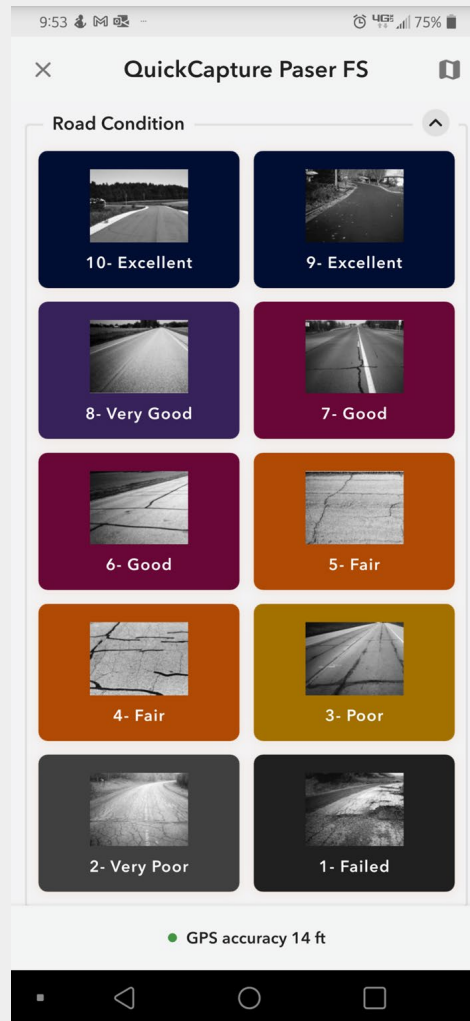


I told them we would like to be able to do this... <https://www.mcgi.state.mi.us/tamcMap/>



Pilot Project Delivered Us..

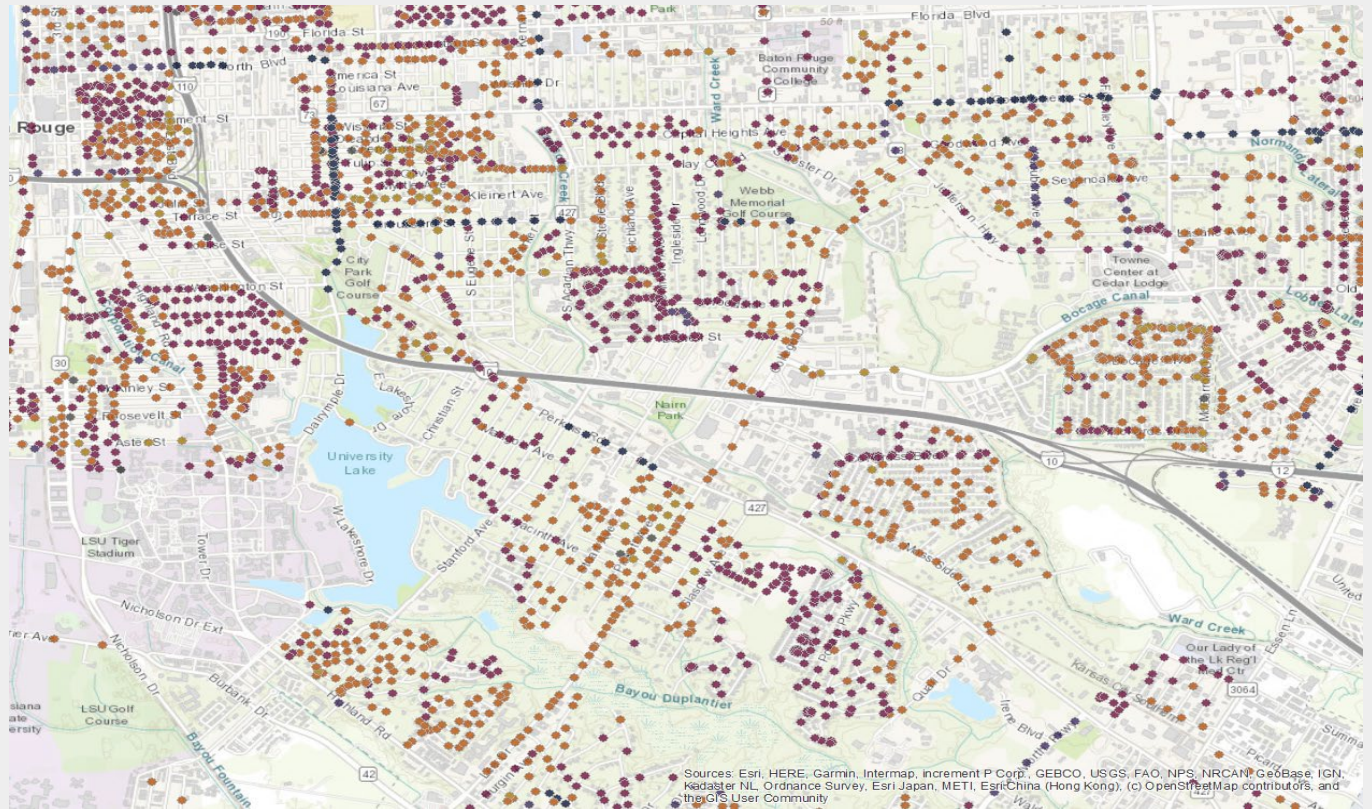
A collection process that allows us to easily log ratings from our phones while in the field.



How it works..

Anytime we log a condition rating on our cell phone it is automatically uploaded to a City-Parish GIS database.

Each afternoon, a script is run to associate the point taken to the nearest road segment within our existing GIS road layer.

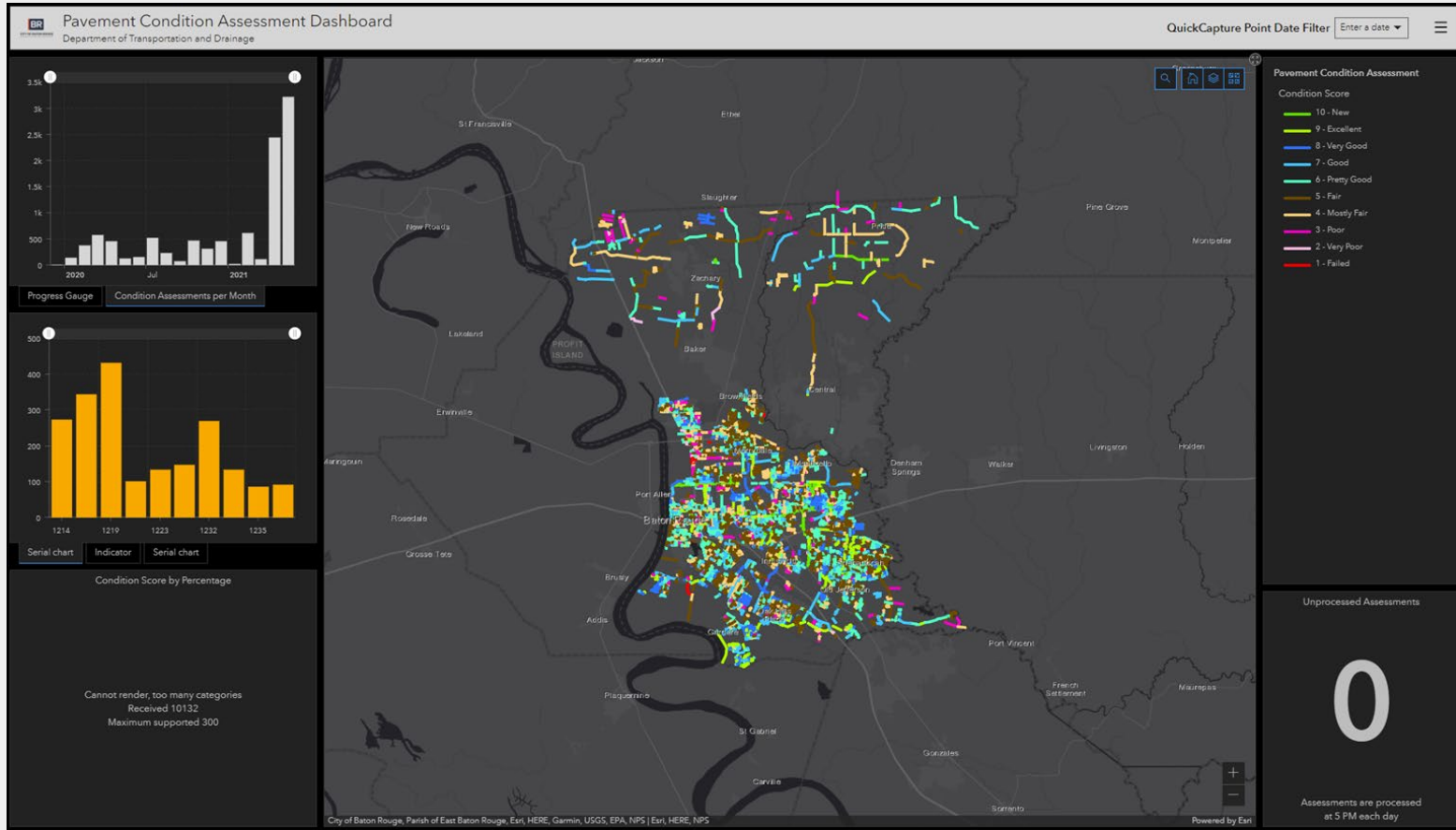


Dashboard

<https://ebrgis.maps.arcgis.com/home/group.html?id=bfd9a5466a4a49fe99559467f52eddfc>

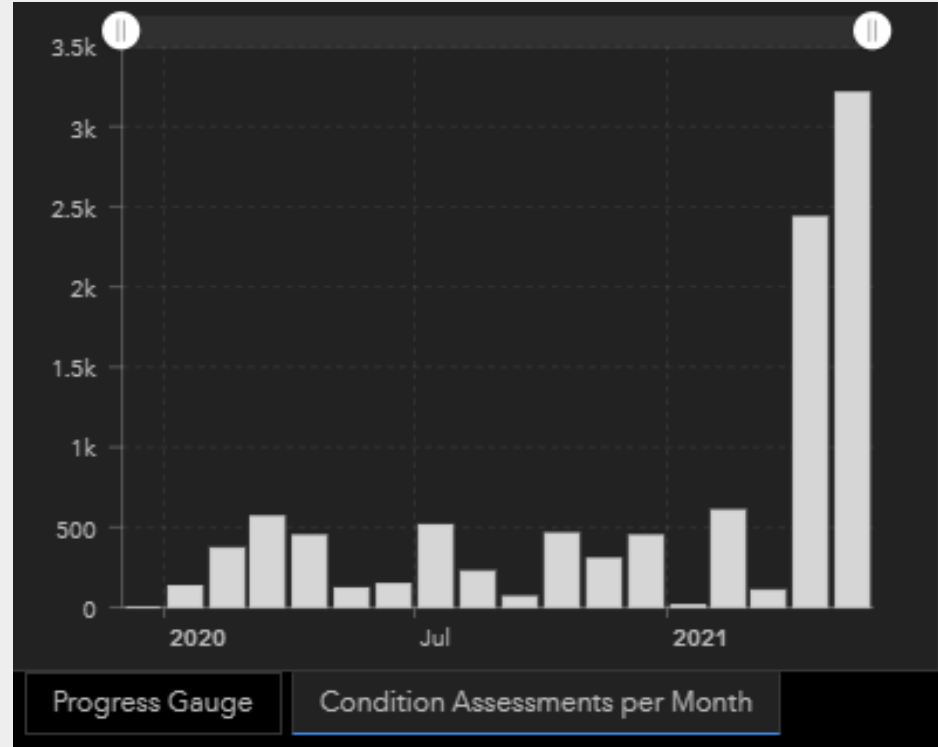
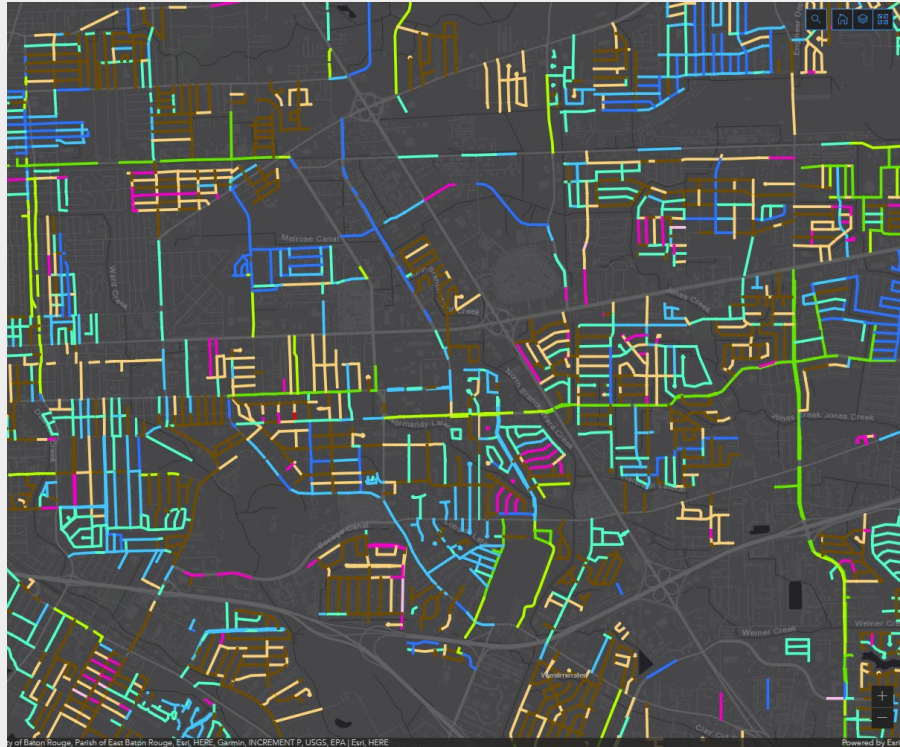


CITY OF BATON ROUGE
PARISH OF EAST BATON ROUGE



We are about half way done...

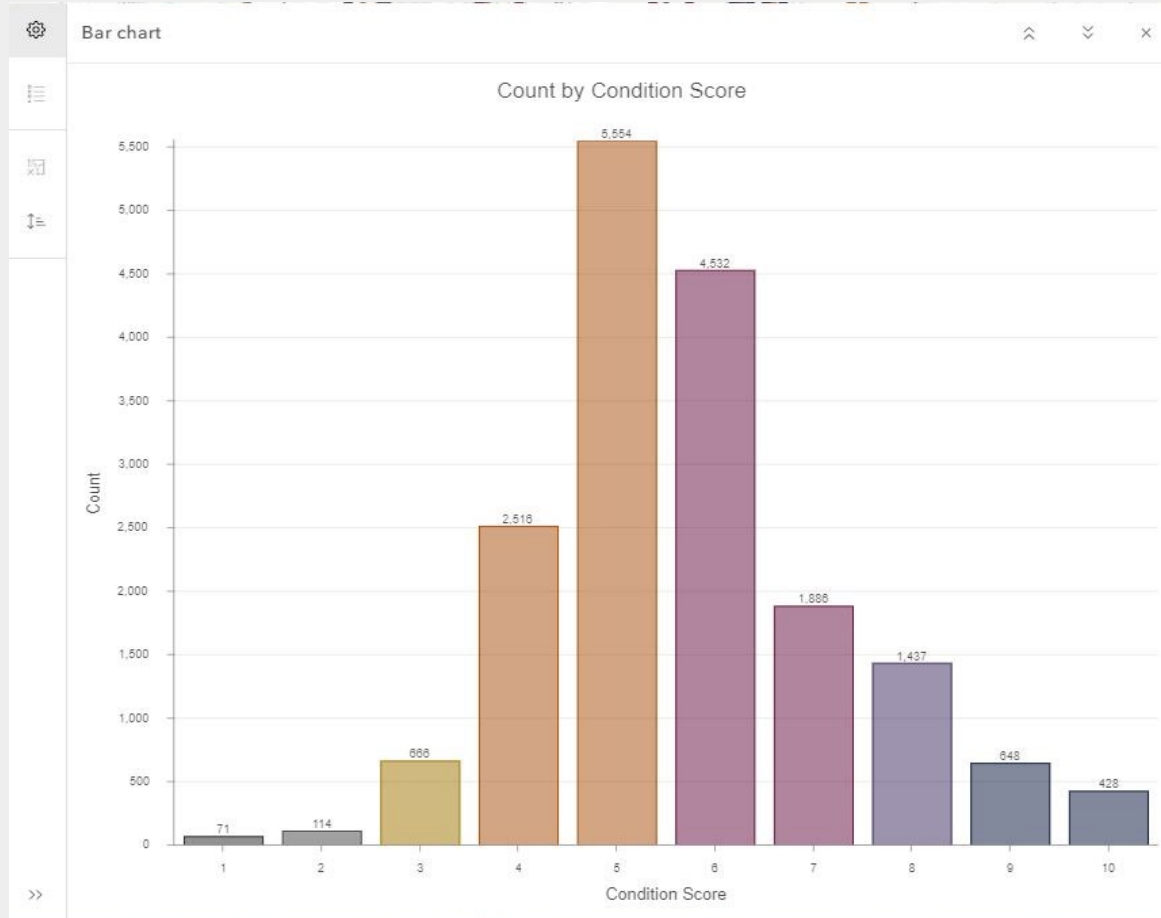
Logged 18k Ratings = 10,132 of our 19,521 Street Segments



Progress Gauge

Condition Assessments per Month

Distribution of ratings so far...



So how is the helping us...

- Helps us identify and define limits for both our structural rehab treatments and our preservation treatment projects
- Helps avoid the “Why are you doing that street when mine is worse”
- Really helps planning our preservation type projects where we need to identify a good grouping of streets in good condition
- Helps tremendously with responding to the neverending requests to inspect a street / neighborhood
- Helps protect us against the political cherry-picking of projects

Example 1...

From: Kelvin J. Hill Sent: Wed 5/19/2021 8:54 AM
To: Daniel Rosenquist; Fred Raiford
Cc: Laurie Adams (District 11); Jonathan Tittlebaum (District 11)
Subject: Street Overlay in Westminster

Dan,

Do we have plans for any street overlays, sealing, or rehab in the Westminster area..... particular Chelsea Drive?

Regards,

Kelvin J Hill
Assistant Chief Administrative Officer
Office of the Mayor-President
Department of Public Works
222 St. Louis Street, 8th Floor
Baton Rouge, La 70802
(225) 389-3100

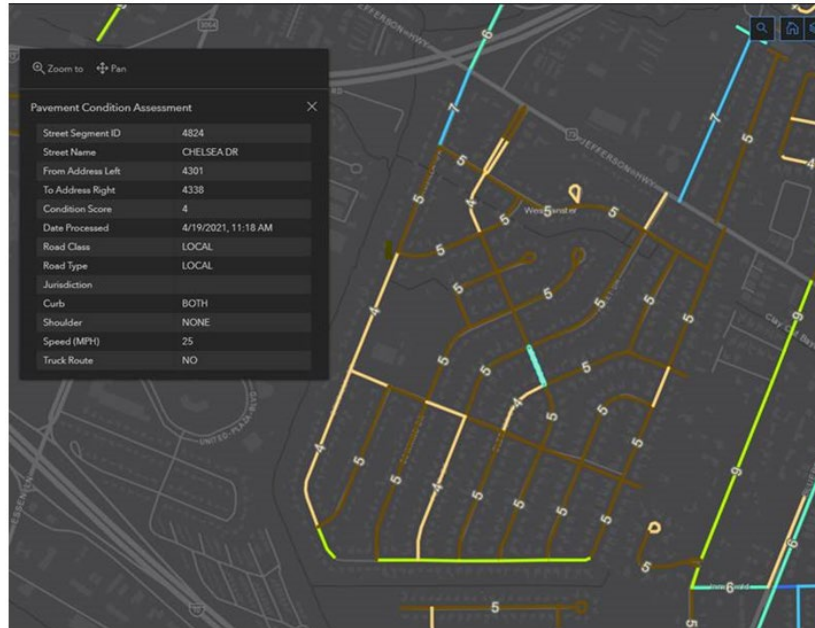
RE: Street Overlay in Westminster

Daniel Rosenquist

Sent: Wed 5/19/2021 9:15 AM
To: Kelvin J. Hill; Fred Raiford
Cc: Laurie Adams (District 11); Jonathan Tittlebaum (District 11)

No these streets are not currently slated for rehab....

The streets in Westminster were rated recently (4/19/21) and given 4's & 5's which indicates a "Fair" street condition. Ratings of 4's generally indicate that the streets only have a few years left of service life and are on the cusp of warranting structural rehab. Due to funding constraints we generally consider a street warranting rehab once they receive a rating of 3 or less. We will continue to monitor and rate these streets for future inclusion within the road rehab program.



Please keep in mind, our ratings represent the entire section with regards to the structural integrity & remaining service life that we may expect. Potholes and other isolated failures can be present within a section that receives a good rating as long as the majority of the section is considered to be in good shape.

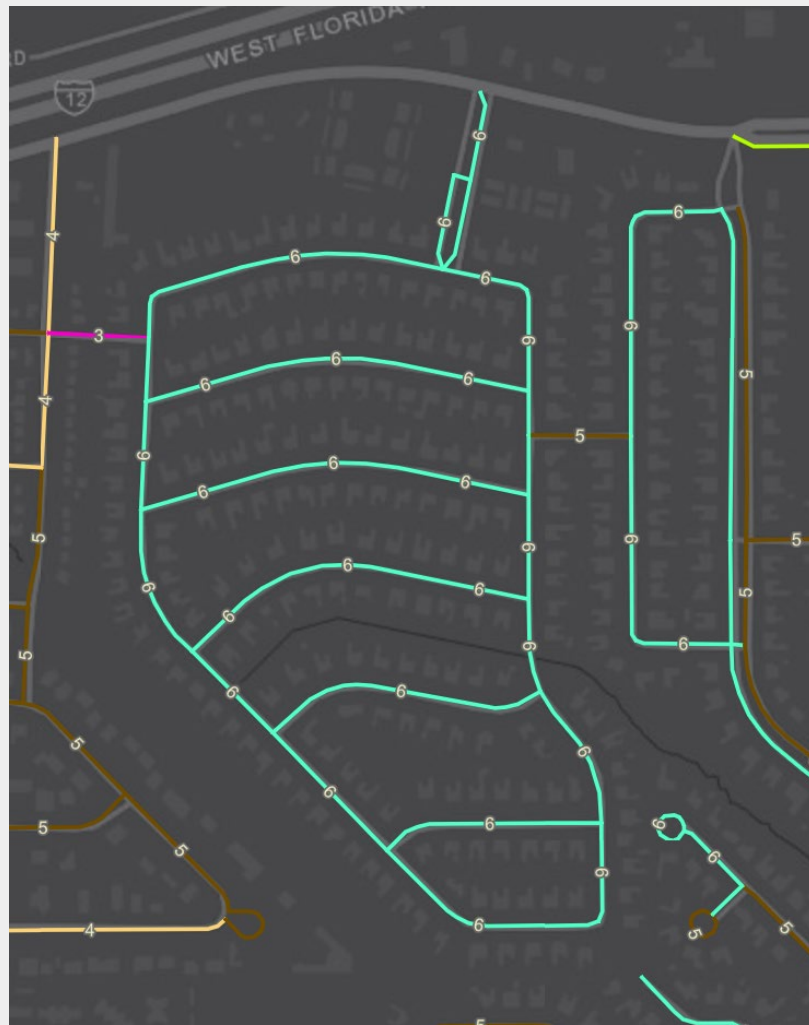
5 Rating "Fair" – Moderate to severe raveling (loss of fine and course aggregate). Longitudinal and transverse cracks (open 1/8" or more) show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near the pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.

4 Rating "Fair" – Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (1/2" or less).



Example 2...

What streets are good candidates for our upcoming Asphaltic Texture Seal Treatment project?



Example 2...

How should we tackle structural rehab in these neighborhoods?



What next...

- Ratings will be continuously be collected by all team members associated with the road rehab program.
- Once we get the 100% of the streets rated we can develop performance measures to help us better understand and explain the overall health of our road network with the public and policy makers - <https://www.mcgi.state.mi.us/mitrp/tamcDashboards/reports/pavement/forecast>
- Having good information will help us continue our move away from “Worst First” to a “Mix of Fixes”



CITY OF BATON ROUGE
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Any Questions?

Dan Rosenquist, PE

drosenquist@brla.gov

225-389-3106