*Blue text is included as guidance. Some entire blocks of text preceded by "**IF**" present multiple outcomes that may occur in an investigation. Red text should be replaced with the appropriate information. Delete blue text along with any non-applicable text blocks, this heading, and change font color to black when finished. Use the Navigation Pane (Ctrl+F) in MS Word to preserve the formatting of the outline.*

Pavement Evaluation Summary
SR XXX, XXXX County
PI No. #######
September 22, 2022

1 Project Description

1.1 Introduction

At the request of the GDOT Office of Roadway Design (or Office making request), the Pavement Management Branch of the Office of Materials and Testing (OMAT) reviewed the suitability of the existing pavement to be retained for the proposed project. This Pavement Evaluation Summary (PES) report includes pavement design recommendations and pavement designs as a response to this request.

1.2 Purpose and Location

Project Identification (PI) Number (No.) ####### is located on XXX Road, near/outside City in XXXX County (see Appendix X for location map). The project proposes to widen/reconstruct/other XXX Road, beginning at X and terminating at Y. The project type is listed as (Maintenance, widening, roundabout, new alignment, intersection improvement, etc).

In the below area summarize functional classifications, extents of different types of work, total length including additional travel lanes, nearby projects, overall length of new pavement vs potential overlay, and any other relevant information regarding the project. The below paragraphs are examples of narratives for the purpose and location section. Not all potential project scenarios are presented. It is the responsibility of the author to detail all relevant information. For Example:

Within the project limits, XXX Road is classified as (functional classification) with a posted speed limit of xx miles per hour (mph). Currently, the road consists of (2-12 feet wide travel lanes with rural shoulders). The proposed project would add additional capacity by widening the existing road by xx feet on the outside, reconstructing the shoulders. The project consists of a new alignment called Exchange Blvd Extension, starting at the intersection of Exchange Blvd & Harry McCarty Rd and terminating at SR 11 (approximately milepost 3.2). The project proposes three alternate geometric designs for Exchange Blvd Extension: Design 1 has two signalized intersections at the termini of Exchange Blvd Extension; Design 2 has a different alignment but the same signalized termini; and Design 3 features the same alignment as Design 1 except with two roundabout intersections at the termini. The total project length is approximately one mile of new alignment and the addition of one travel lane Northbound on SR 11.

1.3 Prioritization

SR XXX is categorized as a Critical/High/Medium/Low Priority Route/Off-System per the State Functional Classification Application. The underdesign percentages should follow the guidelines set forth in the Revised Flexible Pavement Underdesign Policy Based on State Route Prioritization. The policy states that all flexible inlay, overlay, and temporary pavement designs, regardless of priority shall have an underdesign target of 15%. All full depth flexible pavement designs for routes categorized as Critical or High shall have an underdesign target of 5%. All full depth flexible pavement designs for routes categorized as Medium, Low, or Off-System shall have an underdesign target of 10%.

2 Project Data

2.1 Soil Survey Report

A Soil Survey Report was not available for this project. Therefore, a default Soil Support Value (SSV) of X.X for XXX County was used in development of the pavement designs. Lime Rock, Soil Cement, Graded Aggregate Base (GAB), and Hot Mix Asphalt (HMA) are the typical base types allowed in this area. However, pavement designs were developed using only GAB. If a Soil Survey Summary is later completed, these designs should be re-evaluated.

OR

A Soil Survey Report has been completed for this project. The report was approved by the Geotechnical Bureau of OMAT on Month Day, Year. The report recommended a Soil Support Value (SSV) of 2.5. The approved base types were GAB, Soil Cement, and Limerock bases. OR GAB is the only approved base type for this project.

2.2 Regional Factor

The Regional Factor (RF) for Henry County is 1.6.

2.3 Traffic

The below paragraphs are examples of narratives for the traffic section. Not all potential project scenarios or problems are presented. It is the responsibility of the author to detail all relevant information and any potential issues.

The Project Manager provided traffic diagrams that were approved by the GDOT Office of Planning on Month Day, Year (see Appendix X for traffic data). The highest one-way combination of AADT, 24-hour truck percentage, and directional distribution was used for the design analyses for this project. The data used in the pavement designs is summarized in Table X.

If only total truck percentages were provided with no MU/SU breakdown, use the ESAL values found in Table 2.2 in the Pavement Design Manual when performing the analysis and indicate this in the pavement design notes.

The table should include base year traffic and +2 year traffic for all included designs. If temporary pavement is needed, then also include the traffic for the temporary pavement designs in the table below.

Table X: Traffic Data

Years	Route	Lanes	Initial 1-way AADT	Final 1-way AADT	24-HR Truck %	SU Truck %
2021 - 2041	SR XX	2	6,650	8,350	23.0	4.5
2021 - 2041	Roundabout	1	6,750	8,650	23.0	4.5
2023 - 2043	CR XXX	1	4,350	5,600	8.5	3.0
2023 - 2043	Road name	1	1,050	1,450	8.5	3.0

2.4 Lane Distribution Factor

The Lane Distribution Factor (LDF) is used to determine the number of 18 kip Equivalent Single Axle Loads (ESALs) in the design lane. Typically as the number of lanes increase, the LDF will decrease. The recommended LDF values can be found in Table 2.3 of the Pavement Design Manual. The LDF used for SR XX is 95%.

3 Historic Information

3.1 Pavement Distress Data

3.1.1 PACES (Pavement Condition Evaluation System)

The GDOT Maintenance Office conducted visual pavement condition surveys{Discuss how historic values can relate to the existing pavement. i.e. many resurfacing projects could mean the traffic load is deteriorating the surface at an accelerated rate OR short time periods between maintenance projects could be indicative of a deeper issue, such as reflective cracking.}

{PACES charts are only included for projects when there are gaps in the historical review.}

3.1.2 Pathways

The below paragraphs are examples of narratives for the Pathways section. Not all potential project scenarios or problems are presented. It is the responsibility of the author to detail all relevant information and any potential issues.

The GDOT Maintenance Office has been utilizing automated pavement data from Pathway Services Inc. since 2017. The automated pavement condition survey identifies surface distresses. The survey showed XX% block cracking, XX% edge cracking, XX% load cracking, XX% reflective cracking, and XX% raveling. These distresses are (not)consistent with the distresses found during the field investigation. Pathway's data can be found in Appendix X.

{Discuss if the distresses observed in the field investigation are similar or differ from the Pathway data. If the distresses do not match, discuss possible reasons for the discrepancy. Examples: "A visual survey of the roadway indicated that the roadway was recently resurfaced. Therefore, the cracking shown in the Pathways data is no longer present on the surface but may still exist in the deeper layers." "The field survey revealed distresses more severe than those shown in the Pathways data. This discrepancy can be due to the continued aging of the pavement and/or load related stresses."}

3.2 Previous Projects

Any relevant construction activities and references to supporting documentation within the report should be listed in this section. Add sections for each maintenance cycle beginning with the most recent and ending with the initial construction. Historic records can be found via the Historical Plans Research Request or GeoPI. If you need to confirm if a Proposed Project was constructed, check the Historic GA State Maps: Historical Maps (ga.gov).

Historic plans can be found in Appendix X.

Table X: Historical Data for SR X

WB		PI#	Year	EB	
2	1			1	2
Surface layer Intermediate layer Asphalt base layer Base layer		XXXXXXX	XXXX	Surface layer Intermediate layer Asphalt base layer Base layer	
		XXXXXXX	XXXX		Surface layer Asphalt fill
	Surface layer Intermediate layer Asphalt base layer Base layer	XXXXXXX	XXXX	Surface layer Intermediate layer Asphalt base layer Base layer	

4 Field Data

4.1 Distress Survey

Discuss what you observed during the field investigation (especially all distresses) in detail, including the distress levels. Please keep in mind that reflective cracks may indicate an underlying rigid pavement or bound base (PCC, Soil-Cement, etc.). Distress survey should use the LTPP distress manual to summarize distresses throughout the project. No overall rating (PCI/OCI) of the roadway is required. The below paragraphs are examples of narratives for the distress survey section. Not all potential project scenarios or problems are presented. It is the responsibility of the author to detail all relevant information and any potential issues.

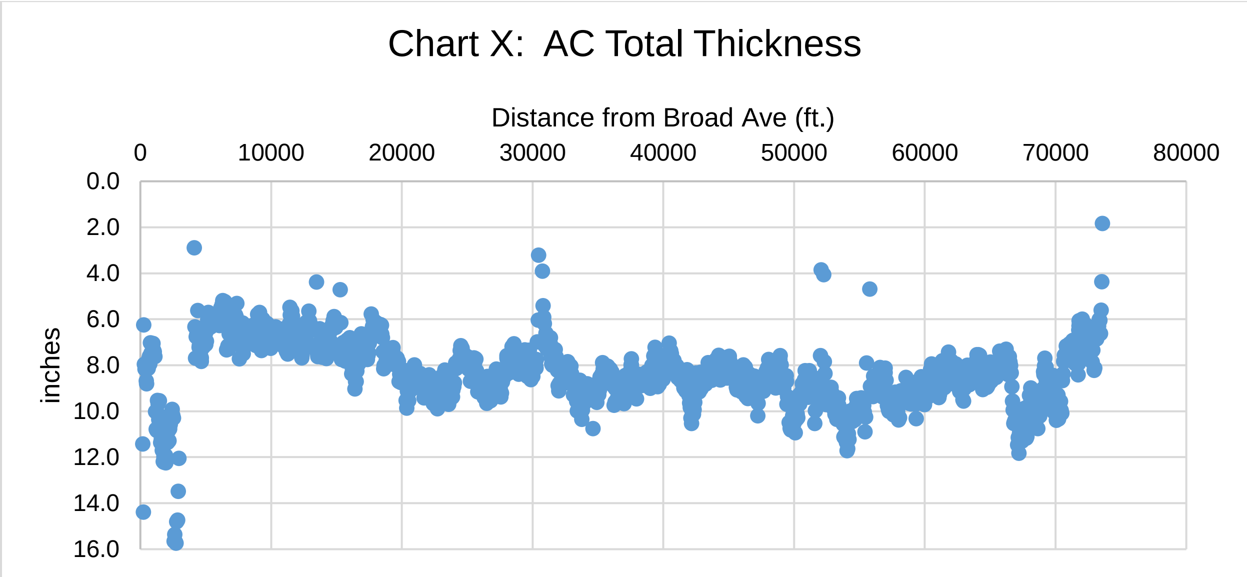
Personnel from the Pavement Management Branch conducted a field investigation on Month Day, Year. The investigator visually observed and photographed pavement distresses and retrieved core samples of the pavement. The investigator noted reflective, block and fatigue cracking throughout the project. Also noted were areas that appeared to have been recently crack-sealed and deep patched. Example pavement surface condition photographs are included in Appendix X.

4.2 Ground Penetrating Radar (GPR)

GPR was not used during the field investigation of this project and therefore no GPR data is included in this report. OR GPR was used on the project. The results are summarized in Appendix X. Chart X shows the relative pavement layer thicknesses.

This section is a work in progress and is just an example of what can be shown. Detail any data gained from testing using your engineering judgement to support your pavement recommendations.

(Interpreting GPR is an art – report thickness to nearest 10th decimal. Also, note core locations that were used to calibrate the GPR.)

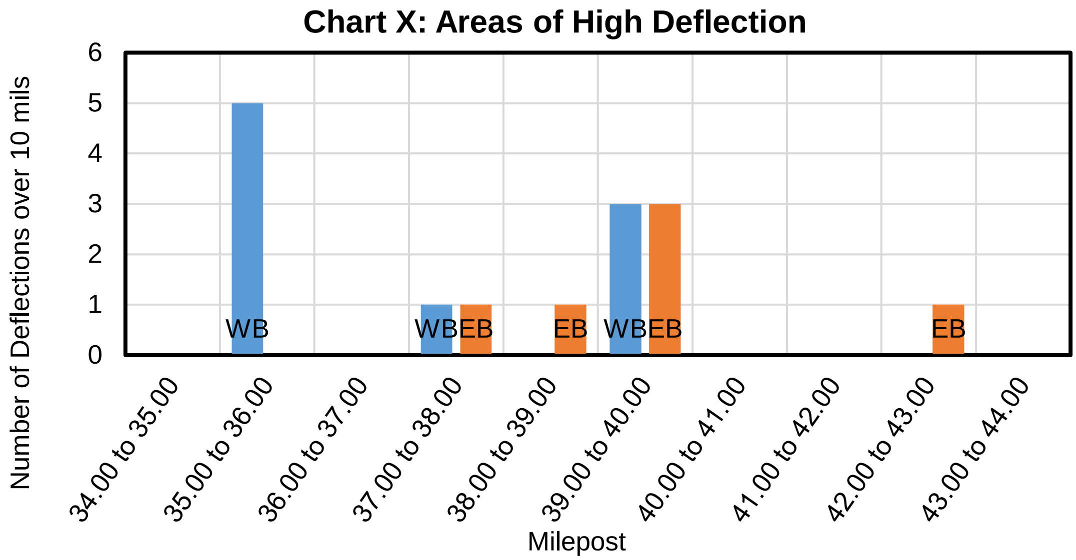


4.3 Falling Weight Deflectometer (FWD)

FWD was not used during the field investigation of this project and therefore no FWD data is included in this report. OR The FWD was used on the project. The results are summarized in Appendix X. Chart X shows area of high deflections which corresponds to areas of high distresses.

This section is a work in progress and is just an example of what can be shown. Detail any data gained from testing using your engineering judgement to support your pavement recommendations.

Areas of high deflection usually are indicative of voids under the pavement. These areas might require deep patching.



4.4 Cores

Describe the pavement cores extracted during the field visit. Information that is better conveyed in tables or figures should be displayed as such, unless the author wishes to emphasize any important point. Please provide a description of the core condition. If the core is not intact (good), then say what condition it's in. For example, full-depth crack or 3-inch top-down crack or delamination at 3 inches from surface. Discuss if the cores did or did not correspond to historical documents found for this project. The below paragraphs are examples of narratives for each core section. Not all potential project scenarios or problems are presented. It is the responsibility of the author to detail all relevant information and any potential issues.

Cores were taken from 35 locations along SR 11 and the inside or outside shoulders to evaluate distresses and determine the pavement structure, condition, and layer thicknesses of the existing pavement. Core photos can be found in Appendix X.

The cores consisted of 6 inches to 19.5 inches of asphalt pavement on top of soil, sand, or GAB. Subgrade type was determined from visual observation during the coring process. *OR* Subgrade type was determined by sampling during the coring process. The subgrade materials were retrieved for potential lab testing. Of the recovered cores, 30 were selected for laboratory testing. The core data are summarized in Table X. Further analysis of the cores and base material can be found in Appendix X.

Table X: Core Data								
Core	Route	Direction	Lane	Mile Post or Station	Core Length [inches]		Base Material	Core Description
					AC	PCC		
1**	SR 407	NB	1	100±	12	6	GAB	Delamination @ 3 inches
2*	SR 407	NB	1	100±	10.75	0	GAB	Good
3**	SR 407	NB	1	101±	11.5	0	Soil-Cement	Top-down crack - 4 inches
4**	SR 407	NB	1	101±	11	12	Lime Rock	Good
5	SR 407	NB	1	102±	14.25	0	Sand-Clay	Reflective crack - 2 inches
6***	SR 407	SB	1	102±	9.5	0	Sand-Clay	Good
7	SR 407	SB	1	101±	11.5	0	Soil-Cement	Top-down crack - 4 inches
8	SR 407	SB	1	101±	11	12	GAB	Good
9	SR 407	SB	1	102±	14.25	0	GAB	
10	SR 407	SB	1	102±	9.5	0	Sand-Clay	Good

* Unable to retrieve full core from pavement

**Selected for the Hamburg Testing

***Core taken for thickness

4.5 Lab Testing **(only if applicable)**

The Hamburg Wheel Tracking Device (HWTD) AASHTO T234 was used to evaluate the condition of the existing pavement. The HWTD is the primary method of testing that GDOT has chosen to assess the rutting resistance and stripping potential of the existing Asphaltic Concrete (AC) pavement.

The HWTD measures the combined effects of rutting and moisture damage by rolling a steel wheel across the surface of a sample submerged in water at 50 °C for 20,000 cycles or until 12.5 mm of deformation occurs. The 12.5 mm deformation is the failure criterion used by GDOT.

Pavement cores were paired, and then cut to fit in a 60 mm deep testing mold. After the drainage course was removed, 60 mm thick slices were cut from the cores. Layer 1 was the first 60 mm beneath the drainage course. Layer 2 was the subsequent 60 mm slice. Paired cores ideally consist of similar layers obtained from two adjacent cores to represent the same mix lots. The test results are shown in following Tables # to #. Further laboratory test information can be found in Appendix X.

Please describe what layers were tested (very important). Also, provide any other detailed description of what was done during the test and an overall assessment from the test result. In other words, what do the laboratory test results indicate? Detail how many passes were completed for any failure and if any stripping inflection point occurred before 20,000 cycles.

Table X: Summary of SR #### Cores Tested on HWTD by Mile Point/Station					
Core Location (MP/Station)	Core No.	Layer 1	Layer 2	Layer 3	Layer 4
Passing					
Failing					
Total					
Percent Passing					

Table X should be grouped by travel direction and mile point/station respectively.

Table X: Summary of Cores Tested on HWTD (Passing Rate %) by Lane						
Direction & Lane	SB Lane 3	SB Lane 2	SB Lane 1	NB Lane 1	NB Lane 2	NB Lane 3
Layer 1	9/9 (100%)	N/A	5/5 (100%)	4/4 (100%)	N/A	9/9 (100%)
Layer 2	9/9 (100%)	N/A	5/8 (63%)	4/8 (50%)	N/A	9/12 (75%)
Layer 3	N/A	N/A	N/A	N/A	N/A	N/A
Layer 4	N/A	N/A	N/A	N/A	N/A	N/A
Overall	18/18	N/A	10/13	8/12	N/A	18/21
Percentage	100%	N/A	77%	67%	N/A	86%

4.6 Existing Pavement Structure

The existing pavement structure was determine using the historic plans, cores, and GPR data. The historic plans show bases of GAB and Soil Cement ranging from 6 to 10 inches. The GAB section is from MP 0 to 1.5 with an average thickness of 8.5 inches. The Soil Cement section is from MP 1.5 to 2 with an average thickness of 7 inches. Since there is an obvious separation in the base types and locations, the GAB section and the Soil Cement section will have separate overlay/mill and inlay designs. OR Since there is no separation in the bases, as shown below, the overlay/mill and inlay design will be performed using the thinner base section.

The cores showed a range of thicknesses from 8 to 10 inches, which was verified by the GPR data. Therefore, the asphaltic concrete thickness used will be the average core thickness of 8.5 inches. OR The cores showed a range of thicknesses from 8 to 10 inches, but the GPR data shows a thin section of approximately 7 inches that should be taken into consideration.

If there are separate sections/breaks/lanes with differing bases, the following table can be used:

Table X: Existing Pavement Section				
WB		MP	EB	
2	1		1	2
6 in AC		1.0 to 2.5	6 in AC	

8 in GAB			8 in GAB	
8 in AC 6 in Soil Cement	6 in AC 8 in GAB	2.5 to 4	6 in AC 8 in GAB	8 in AC 6 in Soil Cement
8 in AC 6 in Soil Cement		4 to 6	8 in AC 6 in Soil Cement	

If the route is relatively uniform or the design is not being broken into separate sections, the following table can be used:

Table X: Existing Pavement Section			
Route	Average thickness (in)		
	AC	PCC	Base
SR X	8”	0	8” GAB
Side Road	6”	0	6” Soil Cement

5 Pavement Designs

5.1 Recommendations

Please tweak this entire section to include your recommendation(s) as applicable to the project. Provide support for each of your recommendations based your engineering judgement and the information provided in this report.

If there is concrete on the project without dowel bars and has faulting, then a potential recommendation for dowel bar retrofitting may be appropriate.

If there are stripped asphalt layers in the pavement structure within the project limits, recommend having them removed. If you think deep patching may be needed on sections of the project, recommend that.

Don’t forget to include recommendations for shoulders and any turn lanes. Discuss if any of the existing turn lanes/shoulders can/cannot be incorporated into the final pavement structure.)

The below paragraphs for Section 5 are examples of narratives for each recommendation section. Not all potential project scenarios or recommendations are presented. It is the responsibility of the author to detail all relevant alternatives and the reasoning for the recommendations.

Based on the existing pavement conditions, proposed project limits, and site limitations, full-depth reconstruction is recommended for this project. If this preferred solution is outside the scope and/or budget of the current project, we offer other alternatives. Each of these alternatives has limitations and thus, reduced design lives. Table X summarizes the various recommendations for this project. Individual designs may be found in the subsequent sub-sections.

Alternate 2 is based on the existing pavement conditions, project history and/or test results, Cement Stabilized Reclaimed Base (CSRB) is recommended for this project. Due to the underlying base problems, a mill and inlay would not be a viable option and Cement Stabilized Reclaimed Base (CSRB) is an alternative to Full Depth Reconstruction. CSRB would correct the cracking issues and provide a more stable base for future traffic.

Alternate 3 is a mill and inlay. Deep milling to XX inches or variable depth milling to the top of the underlying concrete pavement is recommended due to the field investigation of this project. Deep patch quantities should be established to address any potential roadway failures encountered in the construction operation.

Pavement Designs can be found in Appendix X. Table X shows the recommended pavement construction for this project.

Table X: Recommended Pavement Construction			
Location	Construction Limits	Lane(s) and/or Stations	Construction Recommendation
SR 407 SB	MP 315 - 327		Full-Depth
C	MP 315 - 330		Mill and Inlay
CR 25 EB & WB	MP 10 - 15		Mill and Overlay

5.2 Preferred Solution: Full Depth Reconstruction

This section is an example of a recommendation section. Not all preferred solutions will be full depth reconstruction. Therefore, this section should be changed or updated to reflect the actual preferred solution for the project, whether it is mill and inlay, CSRB, or other pavement recommendations.

The following full-depth flexible/rigid pavement structure(s) is/are recommended for the proposed reconstruction/widening of Road name from Location to Location.

Table X: Full-Depth Flexible Pavement Section SR #### **(Delete rows and edit spread rates as necessary)**				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
400-3206	12.5 mm OGFC, GP 2 only, polymer-modified bitum matl & H. lime	Surface	-	100 lbs/yd2
402-3102	9.5 mm Superpave, Type II, blend 1, & H. Lime	Surface	1.25 inches	135 lbs/yd^2
402-3103	9.5 mm Superpave, Type II, GP 2 only, & H. Lime	Surface	1.25 inches	135 lbs/yd^2
402-3130	12.5 mm Superpave, GP 2 only, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3600	12.5 mm, SMA, GP 2 only, Poly-Mod. & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-4510	12.5 mm Superpave, GP 2 only, Poly-Mod & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3190	19 mm Superpave, GP 1 or 2 & H. Lime	Binder	2 inches	220 lbs/yd^2
402-3121	25 mm Superpave, GP 1 or 2, & H. Lime	Asphalt Base	X inches	X*110 lbs/yd^2

Table X: Full-Depth Flexible Pavement Section SR #### (Delete rows and edit spread rates as necessary)				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
310-5080	Graded Aggregate Base (Sq Yds for South Georgia)	Base	8 inches	N/A
310-5100	Graded Aggregate Base (Sq Yds for South Georgia)	Base	10 inches	N/A
310-5120	Graded Aggregate Base (Sq Yds for South Georgia)	Base	12 inches	N/A
310-5140	Graded Aggregate Base (Sq Yds for South Georgia)	Base	14 inches	N/A
301-4121	Pre-mixed Soil-Cement Stabilized Base	Base	4 inches	N/A
301-4131	Pre-mixed Soil-Cement Stabilized Base	Base	5 inches	N/A
301-4141	Pre-mixed Soil-Cement Stabilized Base	Base	6 inches	N/A
301-4151	Pre-mixed Soil-Cement Stabilized Base	Base	7 inches	N/A
301-4161	Pre-mixed Soil-Cement Stabilized Base	Base	8 inches	N/A
301-4181	Pre-mixed Soil-Cement Stabilized Base	Base	10 inches	N/A
301-4191	Pre-mixed Soil-Cement Stabilized Base	Base	12 inches	N/A
310-1101	Graded Aggregate Base (Tons for North Georgia)	Base	8-14 inches	N/A

The following full-depth rigid pavement structure on Table # is recommended for the proposed new construction of SR ####.

Table X: Full Depth Rigid Pavement Section SR #### (delete rows as necessary)				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
430-0180	Plain PC Concrete Pavement (Class I)	Surface	8 inches	N/A
430-0185	Plain PC Concrete Pavement (Class I)	Surface	8 1/2 inches	N/A
430-0190	Plain PC Concrete Pavement (Class I)	Surface	9 inches	N/A
430-0195	Plain PC Concrete Pavement (Class I)	Surface	9 1/2 inches	N/A
430-0200	Plain PC Concrete Pavement (Class I)	Surface	10 inches	N/A
430-0205	Plain PC Concrete Pavement (Class I)	Surface	10 1/2 inches	N/A
430-0210	Plain PC Concrete Pavement (Class I)	Surface	11 inches	N/A
430-0211	Plain PC Concrete Pavement (Class I)	Surface	11 1/2 inches	N/A
430-0220	Plain PC Concrete Pavement (Class I)	Surface	12 inches	N/A
430-0810	Continuously Reinforced Concrete Pavement (Class I)	Surface	11 inches	N/A
430-0820	Continuously Reinforced Concrete Pavement (Class I)	Surface	12 inches	N/A
439-0018	Plain PC Concrete Pavement (Class III)	Surface	8 inches	N/A
439-0019	Plain PC Concrete Pavement (Class III)	Surface	8 1/2 inches	N/A
439-0020	Plain PC Concrete Pavement (Class III)	Surface	9 inches	N/A
439-0021	Plain PC Concrete Pavement (Class III)	Surface	9 1/2 inches	N/A
439-0022	Plain PC Concrete Pavement (Class III)	Surface	10 inches	N/A

Table X: Full Depth Rigid Pavement Section SR #### (delete rows as necessary)				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
439-0023	Plain PC Concrete Pavement (Class III)	Surface	10 1/2 inches	N/A
439-0024	Plain PC Concrete Pavement (Class III)	Surface	11 inches	N/A
439-0025	Plain PC Concrete Pavement (Class III)	Surface	11 1/2 inches	N/A
439-0026	Plain PC Concrete Pavement (Class III)	Surface	12 inches	N/A
439-0082	Continuously Reinforced Concrete Pavement (Class III)	Surface	10 inches	N/A
439-0084	Continuously Reinforced Concrete Pavement (Class III)	Surface	11 inches	N/A
439-0086	Continuously Reinforced Concrete Pavement (Class III)	Surface	12 inches	N/A
402-3190	19 mm Superpave	Asphalt Interlayer	3 inches	330 lbs/yd^2
310-5080	Graded Aggregate Base (Sq Yds for South Georgia)	Base	8 inches	N/A
310-5100	Graded Aggregate Base (Sq Yds for South Georgia)	Base	10 inches	N/A
310-5120	Graded Aggregate Base (Sq Yds for South Georgia)	Base	12 inches	N/A
310-5140	Graded Aggregate Base (Sq Yds for South Georgia)	Base	14 inches	N/A
310-1101	Graded Aggregate Base (Tons for North Georgia)	Base	8 inches	N/A

Select the appropriate course as relating to your project. Pay items for GAB can be in square yards or tons depending on project location. Please make sure the right pay item is selected.

Per the Design Policy Manual Chapter 10.5.2 If the total area of concrete pavement on a project is over 50,000 square yards, Section 430 applies. If less than 50,000 square yards, Section 439 applies.

If staging requires High Early Strength (HES) concrete, replace the pay item above with its equivalent HES pay item number and description.

Additional pay items can be found here. Make sure to use the most current specification year.

5.3 Alternate 2: Cement Stabilized Reclaimed Base (CSRB)

This section is an example of a recommendation section for an alternate pavement design. This section should be changed or updated to reflect the alternate solution for the project, whether it is mill and inlay, CSRB, or other pavement recommendations.

The following CSRB pavement structure is recommended for the proposed rehabilitation of SR 20. Based on the existing pay items CSRB has a minimum thickness of 6 inches and a maximum thickness of 12 inches.

Table X: Cement Stabilized Reclaimed Base Section SR XXX				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
402-3102	9.5 mm Superpave, Type II, blend 1, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3103	9.5 mm Superpave, Type II, GP 2 only, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3130	12.5 mm Superpave, GP 2 only, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-4510	12.5 mm Superpave, GP 2 only, Poly-Mod & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3600	12.5 mm, SMA, GP 2 only, Poly-Mod. & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd^2
402-3121	25 mm Superpave	Asphalt Base	X inches	X *110 lbs/yd^2
315-1060	Cement Stabilized Reclaimed Base	Base	6 inches	N/A
315-1080	Cement Stabilized Reclaimed Base	Base	8 inches	N/A
315-1010	Cement Stabilized Reclaimed Base	Base	10 inches	N/A
315-1012	Cement Stabilized Reclaimed Base	Base	12 inches	N/A
315-1000	Portland Cement	Cement for Base	8%	XX lbs/yd^2

The Cement Stabilized Reclaimed Base should be constructed as per Special Provision 315. Preliminary cost estimates for CSRB should assume a cement quantity of 1,580 tons. To calculate the amount of cement needed, assume a cement density of 44lbs/sy for 6 inches, 58lbs/sy for 8 inches, 72lbs/sy for 10 inches, and 87lbs/sy for 12 inches. The equation then would be:

$$\text{Cement density X } \left(\text{\# of miles x}\frac{5280}{3}\right) \text{ X } \left(\frac{\text{\# affected lanes x lane widths}}{3}\right) \text{X } \left(\frac{1}{2000}\right) \text{=tons of cement needed}$$

5.4 Alternate 3: Mill and Inlay (Overlay)

This section is an example of a recommendation section for an alternate pavement design. This section should be changed or updated to reflect the alternate solution for the project, whether it is mill and inlay, CSRB, or other pavement recommendations.

The existing pavement on Road name can be milled and inlaid/overlaid as shown on Table X. The milling depths are based on coring information and lab test results. Using the average (core lengths/GPR section) of 7 inches with a 2-inch mill, the asphaltic concrete thickness will be approximately 5 inches. The proposed structure for milling at XX inches is 4.02 % under-designed for a projected design period of XX years. See Table X for the proposed recommended pavement structure.

OR

The existing pavement on Road name is structurally insufficient for future traffic conditions. Due to the high traffic volume/excessive cracking/poor unstable base, this roadway should not be considered for a mill and inlay/overlay. Discuss reasons why the roadway would not be a good candidate for mill and inlay/overlay: is there a high volume of trucks that are causing rapid deterioration, is there an abundance of block cracking that will continue to perpetuate through the pavement until the issue are addressed, are there areas where the base is unstable or has moisture penetration that could lead to washout and larger distresses/potholes in the future.

Table X: Mill and Inlay/Overlay Sections

Pay item number	Material	Course	Thickness	Spread rate
	Mill XX inches	---	XX inches	---
400-3206	12.5 mm OGFC	Drainage	---	100 lbs/yd^2
400-3604	12.5 mm SMA	Surface	1.5 inches	165 lbs/yd^2
402-3102	9.5 mm Superpave, Type II, blend 1, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3103	9.5 mm Superpave, Type II, GP 2 only, & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3130	12.5 mm Superpave, GP 2 only, & H. Lime	Surface	1.5 inches	165 lbs/yd^2

Table X: Mill and Inlay/Overlay Sections				
Pay item number	**Material**	**Course**	**Thickness**	**Spread rate**
402-3600	12.5 mm, SMA, GP 2 only, Poly-Mod. & H. Lime	Surface	1.5 inches	165 lbs/yd^2
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd^2
402-3121	25 mm Superpave	Asphalt Base	X inches	X * 110 lbs/yd^2
Existing Pavement	HMA	Existing	XX inches	N/A

Select the appropriate courses as needed.

5.5 Temporary Pavement Sections

The following temporary pavement design in Table X can be used for the construction period of 36 months. The temporary pavement will be removed after construction; therefore, the terminal serviceability will be lowered to 2.0.

Table X: Temporary Pavement Sections				
Pay item number	**Material**	**Course**	**Thickness**	**Spread rate**
402-3103	9.5 mm Type II Superpave	Surface	1.25 inches	135 lbs/yd^2
402-3130	12.5 mm Superpave	Surface	1.5 inches	165 lbs/yd^2
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd^2
402-3121	25 mm Superpave	Asphalt Base	X inches	X * 110 lbs/yd^2
310-5060	Graded Aggregate Base (Sq Yds for South Georgia)	Base	6 inches	N/A
310-5080	Graded Aggregate Base (Sq Yds for South Georgia)	Base	8 inches	N/A
310-5100	Graded Aggregate Base (Sq Yds for South Georgia)	Base	10 inches	N/A
310-5120	Graded Aggregate Base (Sq Yds for South Georgia)	Base	12 inches	N/A
310-1101	Graded Aggregate Base (Tons for North Georgia)	Base	8 inches	N/A

6 Other Information

- The use of asphalt mixes recommended in this report meet the Criteria for Use of Asphaltic Concrete Layer and Mix Types established on January 19, 2018.
- Extra depth milling should be provided in the contract to address areas where pavement distresses remain after conventional milling, for use at the discretion of the engineer. An extra 10% (confirm that this is enough) of the original milling quantities should be adequate for extra depth milling. Calculate how many tons this is estimated to be. (Calculate total SY of milling, multiply by lay rate of surface material (100 lb/sy OGFC, 110 lb/sy other), then convert to tonnage (2000 lb = 1 ton).) Asphaltic concrete 19 mm Superpave binder mix should be used to inlay any extra depth milling to bring the area even with the adjacent milled surface. If in a heavy truck traffic area, this may need to be a poly-mod mix. Check with the Bituminous Branch.

Table X: Extra depth milling areas	
Stations	Milling depth

- Joints and cracks in concrete pavement should be waterproofed prior to the overlaying operation, as per Section 445 of the Standard Specifications.
- After milling and prior to overlaying, all surface cracks still present should be sealed with Type M crack sealant as per Section 407 of the GDOT Standard Specifications.
- The asphaltic concrete pavement should be milled as per Section 432 of the GDOT Standard Specifications.
- Corner breaks and joint spalls should be repaired according to Section 451 of the GDOT Standard Specifications.
- Cracked Slabs should be replaced according to Section 452 of the GDOT Standard Specification. If time permits, concrete meeting Section 439 Class HES may be used in lieu of 24-hour accelerated concrete.