

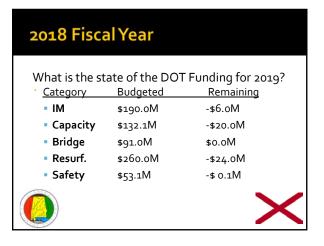
2019 Forecast

What is the state of the DOT Funding for 2019? Is the level of asphalt work set to increase / decrease / hold steady in 2019?

- Capacity and Resurfacing budgets ran over by \$20 million and \$24 million respectively.
- Large capacity projects in Shelby, Conecuh, and Tuscaloosa Counties contributing to overages.

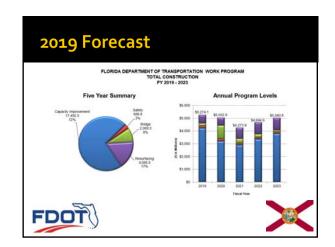


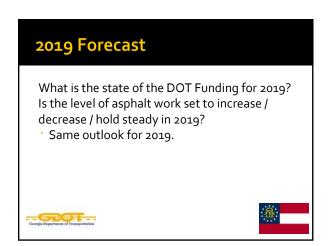




2019 Forecast What is the state of the DOT Funding for 2019? Category Budgeted Change IM \$174.0M -\$16.0M Capacity \$104.8M -\$27.3M Bridge \$92.0M \$1.0M Resurf. \$264.0M \$4.0M Safety \$54.2M \$1.1M







2019 Forecast

What is the state of the DOT Funding for 2019?

- Consistent with recent years
- Approx. \$700-800 million from state road fund
- \$30 million allocated for Preventative Maintenance Program





2019 Forecast

Is the level of asphalt work set to increase / decrease / hold steady in 2019?

* Hold steady with continued rise of Preventative Maintenance Program





2019 Forecast

What is the state of the DOT Funding for 2019? Is the level of asphalt work set to increase / decrease / hold steady in 2019?

- * Resurfacing Program:
 - Approx. \$230 million





Asphalt Program Updates

Do you have any upcoming major specification changes?

 Looking to add Distributor Truck Calibration at the project level.





Asphalt Program Updates

Do you have any upcoming major specification changes?

- * Implementation of ΔTc
 - Our binder specification will be modified to mandate a maximum of 8% REOBs; ΔTc requirement of >-5.0° C on 20 hour PAV aged material.





Asphalt Program Updates

Do you have any upcoming major specification changes?

- 400 Smoothness Requirements for Bridge Approaches
- 413 New tack coat materials and application rates
- 820 New Format, New Materials and MSCR
- 828 Change in Performance Testing Eliminating APA, Including Hamburg, new mix design verification requirements.





Asphalt Program Updates

Do you have any upcoming major specification changes?

- Single, low gyration level (Ndes = 65) for all mixtures
- Looking at adjustments to Dust to Binder ratio, Minimum Asphalt Contents, and Design VMA
- Simplified & Improved methods for mix design approvals





Asphalt Program Updates

Do you have any upcoming major specification changes?

- Changing ride spec from HCIRI/PRI/Profile Index to IRI across the board
- Tougher restrictions for cold weather paving
 - No exceptions to temp for OGFC/Thin Lifts
 - More comprehensive plans reg'd for dense mixes
- Pneumatic Roller method spec for non-surface mixes.





MSCR Implementation

- What level of implementation for MSCR are you?
 - Possibly this year.
- Do you specify Binder by M₃20 or M₃32?
- M320 and keeping the M320 designations for MSCR
- DSR testing temperature (by grade or climate)?
- Do you use the X1 Curve in the specification?
- Most likely will use it.





MSCR Implementation

- What level of implementation for MSCR are
 - Full implementation for both modified and neat binders.





MSCR Implementation

- Do you specify Binder by M320 or M332?
 - Both AASHTO M320 and M332
- DSR testing temperature (by grade or climate)?
- Both, depending on grade.
- Do you use the X1 Curve in the specification?
- Yes, except for High Polymer (HiMA) binders.





MSCR Implementation

- What level of implementation for MSCR are you?
- New Specification includes it.
- Do you specify Binder by M₃20 or M₃32?
- Both
- DSR testing temperature (by grade or climate)?
- Do you use the X1 Curve in the specification?
- Yes





MSCR Implementation

- What level of implementation for MSCR are vou?
 - MSCR implementation for polymer-modified hinders
- Do you have plans for further implementation?
- Yes, for all binders





MSCR Implementation

- Do you specify Binder by M320 or M332?
- M320
- DSR testing temperature (by grade or climate)?
 - By climate
- Do you use the X1 Curve in the specification?
 - No





MSCR Implementation

- What level of implementation for MSCR are you?
 - Adopted MSCR as our new "Plus Tests" replacing Elastic Recovery and Ring and Ball.
 - I.e. M320 requirements plus MSCR
- Do you have plans for further implementation?
 - No plans for further implementation





MSCR Implementation

- Do you specify Binder by M320 or M332?
 - M320
- DSR testing temperature (by grade or climate)?
 - Grade
- Do you use the X1 Curve in the specification?
 - Yes for PG76-22 & Flat 29% min. for PG70-22





Balanced Mix Design

- Have you or do you plan on a Balanced Mix Design Method?
- Yes, would like to head that direction.
- If yes, where are you in implementation?
- Still trying to determine which cracking test will work best with our mixes.





Balanced Mix Design

- Have you or do you plan on a Balanced Mix Design Method?
- Not at this time.
- If yes, where are you in implementation?
 - We are interested observers.
- Which tests are you using/considering?
 - APA and Hamburg plus cracking tests when it all gets sorted out.





Balanced Mix Design

- Have you or do you plan on a Balanced Mix Design Method?
- Working toward mix design improvements.
- If yes, where are you in implementation?
- Still researching performance tests.
- Which tests are you using/considering?
- IDEAL-CT being considered and studied, Hamburg just implemented, permeability required, moisture susceptibility currently required.





Balanced Mix Design

- Have you or do you plan on a Balanced Mix Design Method?
 - Yes
- If yes, where are you in implementation?
- Planning stages with experimental projects in
- Which tests are you using/considering?
- IDEAL-CT & Hamburg Wheel Track Test





Balanced Mix Design

- Have you or do you plan on a Balanced Mix Design Method?
 - Yes, currently in development.
- If yes, where are you in implementation?
- Internal research, attempting to catalog values for existing mixes.
- Which tests are you using/considering?
 - Hamburg, IDEAL-CT





2018/2019 Initiatives

- Did you have any new product/method initiative in 2018, if so what was learned?
 - Would like to do some 100% recycle mixes using the cold central plant process.





2018/2019 Initiatives

- Did you have any new product/method initiative in 2018, if so what was learned?
 - Cantabro testing for OGFC.
 - FTIR, e.g. does the binder contain polymer.
 - OGFC Mixtures containing more dust.
 - ΔTc
- REOB Testing





2018/2019 Initiatives

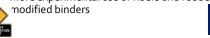
- Did you have any new product/method initiative in 2018, if so what was learned?
 - Modifying current recognized RAP binder replacement credit from 75% to 60%.

Georgia Department of Transportation



2018/2019 Initiatives

- Did you have any new product/method initiative in 2018, if so what was learned?
 - Non-Tracking Tacks
 - Time Sensitive for laboratory testing
 - Questions about bond stress between surface and tack
 - 65 Gyration Mixtures (4 Trial Projects)
 - Thus far, durability comparable to conventional
 - More experimental use of fibers and rubber





Additional Info

- Gas Tax
- No additional revenue since 1992.
- 2017: AL, LA, & MS Rest have added funding.
- Every 1 cent covers about \$26 million in debt.
- Current gas tax allocates certain formula to cities and
- 6 cents needed to cover debt and locals.
- Would break even starting in 2020.





Additional Info

- Is there anything else that you would like to share?
 - Trackless tack. There are isolated issues, but contractors are learning how to handle and apply the material.





Additional Info

- Is there anything else that you would like to share?
 - Currently plan to fully implement Balance Mix Design practices by 2021





Additional Info

- Is there anything else that you would like to share?
 - Dynamic modulus and fatigue testing once our AMPT is operational again.
 - · Catalog our mixes.



