



CENTRAL REGION UPDATE
SEAUPG State Update




Asphalt Tonnage

- Tons of HMA placed in your state:
 - 7.5 million tons total
 - 4 million tons for ALDOT projects
 - 2.5 million tons HMA, 1.5 million tons WMA




Asphalt Tonnage

- Tons of HMA placed in your state:
 - 9 – 10 Million Tons based on NAPA estimate
 - ~2.5 Million Tons by TDOT




Asphalt Tonnage

- Tons of HMA placed in your state:
 - FY 2019 – 4.67 million tons
 - FY 2018 – 4.40 million tons



Asphalt Tonnage


- Tons of HMA placed in your state:
 - 3.5 million tons with recycled material
 - 2 million tons HMA
 - 1.4 million tons WMA



Asphalt Resurfacing



- Budgeted resurfacing by FDOT

Description	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	Grand Total
Resurfacing							
Target Lane Miles	1,295	1,315	1,638	1,908	2,090	2,112	10,358





2020 Forecast

- What is the state of the DOT Funding for 2020?
 - \$190 million for interstate maintenance, \$260 for resurfacing, \$44 million safety, \$109 million capacity
 - Recently increased gas tax
 - \$0.06 increase to \$0.24/gal in September 2019
 - \$0.02 increase next 2 years (\$0.28/gal total)





2020 Forecast

- What is the state of the DOT Funding for 2020?
 - State funding should be good, gas tax was recently increased to \$0.26/gal
 - Federal funding is uncertain.
 - Tennessee as a rule does not issue bonds for roads, so if Fed money is less available some projects will be delayed.



2020 Forecast

- What is the state of the DOT Funding for 2020?
 - \$1.2 – \$1.6 billion with regular Federal (FAST) Act
 - \$800 million to \$1.2 billion with HB 170 – Transportation Funding Act of 2015
 - GDOT also has some General Obligation Bonds and TIFIA funds.
 - Overall, GDOT is good and has one of the bigger programs in the Southeast.



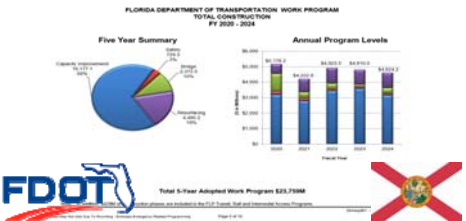
2020 Forecast

- What is the state of the DOT Funding for 2020?
 - Newly elected Governor, funding will be tight the next year but hopefully pick up in 2021 forward




2020 Forecast

- FDOT Funding for FY 2020



FLORIDA DEPARTMENT OF TRANSPORTATION WORK PROGRAM
TOTAL CONSTRUCTION
FY 2020 - 2024

Five Year Summary

Annual Program Levels

FDOT



Total 5-Year Adopted Work Program \$23.738B

2020 Forecast

- Is the level of asphalt work set to increase, decrease or hold steady in 2020?
 - ALDOT – Increase due to gas tax
 - TDOT - If funding is steady, the level of paving should remain steady for 2020
 - KYDOT – Hold steady
 - FDOT – Steady for 2020, significant increase in 2021

2020 Forecast

- Is the level of asphalt work set to increase, decrease or hold steady in 2020?
 - A little more funding was allocated to GDOT's Maintenance Resurfacing Program.
 - Therefore, there will be a slight increase over the next couple of fiscal years.



Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - Distributor Verification procedure
 - County Trial Projects for Approach 3 of Balanced Mix Design (BMD)
 - IDEAL-CT specification and rutting specification
 - Potential to run State pilot projects




Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - As of Dec 2019 TDOT will have a hard ban on REOB/VTAE
 - Probably no real need to use product in Tennessee as bottom temp as specified is -22C.
 - Poll of Binder suppliers showed no interest in REOBs
 - If someone has beneficial use, we would consider lifting with enough research





Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - Phase 2 of IC implementation
 - Weekly Contractor QC Report
 - Real time review rights for DOT inspector
 - Cloud storage/computing of IC data
 - Adding an additional 12 projects to bring total to roughly 50 projects per year.





Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - Yes, Section 820
- If so, can you explain?
 - MSCR requirement for polymer
 - Including Terminally Blended Polymer/Ground Tire Rubber Hybrid



Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - Yes
- If so, can you explain?
 - Transitioning to Balanced Mix Design
 - Moving toward 1 gyration (65) mix design, causing changes with the specs



Asphalt Program Updates

- Do you have any upcoming major specification changes?
 - Increase the allowable maximum lift thickness of Type SP-12.5 from 2.5" to 3".
 - Pave 3" of SP-12.5 with one pass. This will result in significant savings of both time and money.



Recycled Materials

- Are there any changes to your current specifications concerning the amount of recycled materials allowed in your asphalt mixtures?
 - BMD will allow for more recycled materials
 - Transitioning to Hamburg for mix design
 - Possible rejuvenator approval criteria





Recycled Materials

- Are there any changes to your current specifications concerning the amount of recycled materials allowed in your asphalt mixtures?
 - Ban on REOB in AC.
 - No official change on RAP/RAS. However, a few trial BMD projects have been allowed to increase RAP 10% in surface mixes if can pass IDEAL-CT and Hamburg criteria.





Recycled Materials

- Are there any changes to your current specifications concerning the amount of recycled materials allowed in your asphalt mixtures?
 - Section 828/SOP 2
- If so, can you explain?
 - Increased Corrected Optimum AC Content (COAC) ratio
 - Reduced RAP binder replacement credit from 75% to 60%
 - Replaced APA with Hamburg Requirements for mix design approval





Recycled Materials

- Are there any changes to your current specifications concerning the amount of recycled materials allowed in your asphalt mixtures?
 - Yes
- If so, can you explain?
 - Lowered threshold of recycle in mixes (20% max for surface and 30% for base)
 - RAP/RAS-10% RAP, 3% RAS in surfaces



Recycled Materials

- Are there any changes to your current specifications concerning the amount of recycled materials allowed in your asphalt mixtures?
 - No.





Asphalt Binder

- Are you experiencing any trends in asphalt binder supply or overall binder quality in your state?
 - ALDOT - Small increase in binder products, no noticeable trend in quality
 - GDOT - No issues with binder supply or quality
 - FDOT - No issues
 - TDOT - Small increase in out of state products



Asphalt Binder

- Are you experiencing any trends in asphalt binder supply or overall binder quality in your state?
 - Binder quality has really decreased, especially in lab testing for the PG 76-22 binder




MSCR & Other Binder Testing

- Do you specify Binder by AASHTO M320 and grade bumping for increased traffic or AASHTO M332?
 - M320 with MSCR as a plus test
- Are you planning to implement AASHTO M332 in the future?
 - Not at this time.
- Do you use the X1 Curve in the specification?
 - For PG 76-22




MSCR & Other Binder Testing

- Do you specify Binder by AASHTO M320 and grade bumping for increased traffic or AASHTO M332?
 - We specify M320 bumped grades but use MSCR as a plus Test and require the TN version of R92 recovery.
- Are you planning to implement AASHTO M332 in the future?
 - We've implemented most but will keep M320 for DSR tests and binder grade naming for time being
- Do you use the X1(R92) Curve in the specification?
 - Yes for PG76-22 and PG82-22
 - PG70-22 Required Recovery >29%




MSCR & Other Binder Testing

- Do you specify Binder by AASHTO M320 and grade bumping for increased traffic or AASHTO M332?
 - In process of implementing AASHTO M332
 - Grade bump to PG 76-22 for ADT over 25,000
- Are you planning to implement AASHTO M332 in the future?
 - In process
- Do you use the X1 Curve in the specification?
 - Will use in upcoming Section 820





MSCR & Other Binder Testing

- Do you specify Binder by AASHTO M320 and grade bumping for increased traffic or AASHTO M332?
 - Currently M320, moving toward M332
- Are you planning to implement AASHTO M332 in the future?
 - Yes
- Do you use the X1 Curve in the specification?
 - When we move to M332



MSCR & Other Binder Testing

- Do you specify binder by AASHTO M 320 and grade bumping for increased traffic or AASHTO M 332?
 - Meet the requirements of both AASHTO M 320 and AASHTO M 332, depending on grade.
- Are you planning to implement AASHTO M 332 in the future?
 - Implemented.
- Do you use the X₁ Curve in the specification?
 - Yes, except for High Polymer binder.



MSCR & Other Binder Testing

- Is pavement durability (cracking and raveling) an issue in your state?
 - ALDOT – Cracking
 - TDOT – Cracking
 - GDOT – Yes
 - KYDOT – Yes
 - FDOT – Cracking along with raveling of OGFC layers

MSCR & Other Binder Testing

- To what degree is durability an issue in your pavement network?
 - ALDOT – 10 – 25%
 - TDOT – 10 – 25%
 - GDOT – 25 – 50% (older roads)
 - FDOT – Less than 12%

MSCR & Other Binder Testing

- Do you have plans for implementation of the ΔT_c parameter into your specifications?
 - ALDOT - Not at this time
 - GDOT - Not at this time
 - KYDOT - Not at this time
 - TDOT - No, focused on BMD

MSCR & Other Binder Testing

- Do you have plans for implementation of the ΔT_c parameter into your specifications?
 - Implemented. January 2019 specification.
- What are the proposed limits and aging requirements for ΔT_c being considered?
 - ASTM D7643-16
 - 20 hours PAV aging
 - S (Stiffness) & m-value, @ 60 sec.
 - $\Delta T_c \geq -5.0^\circ\text{C}$.




Ground Tire Rubber

- Do you allow or specify use of ground tire rubber (GTR) to produce modified asphalt binders or mixtures?
 - Allow
- If so, how is GTR specified, recipe or performance graded specifications?
 - May be used, binder has to meet Grade requirements
- What is the most common type of GTR used, Wet process (blended at or near the HMA plant), Terminal Blend, Hybrid Terminal Blend, or Dry Process (blended at the HMA plant)?
 - Only allow terminal blending currently





Ground Tire Rubber

- Do you allow or specify use of ground tire rubber (GTR) to produce modified asphalt binders or mixtures?
 - Yes
- If so, how is GTR specified, recipe or performance graded specifications?
 - Both recipe and performance graded
- What is the most common type of GTR used, Wet process (blended at or near the HMA plant), Terminal Blend, Hybrid Terminal Blend, or Dry Process (blended at the HMA plant)
 - Dry method





Ground Tire Rubber

- Do you allow or specify use of ground tire rubber (GTR) to produce modified asphalt binders or mixtures?
 - Yes, but on a limited basis
- If so, how is GTR specified, recipe or performance graded specifications?
 - Recipe to produce PG 64-22TR
- What is the most common type of GTR used, Wet process (blended at or near the HMA plant), Terminal Blend, Hybrid Terminal Blend, or Dry Process (blended at the HMA plant)
 - GTR blended with PG 64-22 at the terminal. Have also used crumb rubber on a project





Ground Tire Rubber

- Do you allow or specify use of ground tire rubber (GTR) to produce modified asphalt binders or mixtures?
 - Allow.
- If so, how is GTR specified, recipe or performance graded specifications?
 - Performance graded specifications which include Physical Requirements and Chemical Requirements.
- What is the most common type of GTR used, Wet Process (blended at or near the HMA plant), Terminal Blend, Hybrid Terminal Blend, or Dry Process (blended at the HMA plant).
 - Wet process. Terminal blend only. Blending at the HMA plant is not allowed.





Ground Tire Rubber

- Do you allow or specify use of ground tire rubber (GTR) to produce modified asphalt binders or mixtures?
 - No
- If so, how is GTR specified, recipe or performance graded specifications?
- What is the most common type of GTR used, Wet process (blended at or near the HMA plant), Terminal Blend, Hybrid Terminal Blend, or Dry Process (blended at the HMA plant)




Balanced Mix Design

- Have you implemented or plan on implementing a Balanced Mix Design Method into your specifications?
 - Yes
- If so, where are you in your implementation process?
 - County pilot projects to let early 2020.
- Which tests are you using/considering?
 - IDEAL-CT, APA, Hot IDT





Balanced Mix Design

- Have you implemented or plan on implementing a Balanced Mix Design Method into your specifications?
 - Yes
- If so, where are you in your implementation process?
 - Research (in-house and university) as well as a couple trial projects with willing HMA Contractors have been placed.
- Which tests are you using/considering?
 - IDEAL-CT, Hamburg, (IDEAL-RT maybe)



Balanced Mix Design

Summer of 2019 collected ~10,000 lb of aggregate and 140 gal of AC from across the state to begin university study of current mixes



Balanced Mix Design

- Have you implemented or plan on implementing a Balanced Mix Design Method into your specifications?
 - Currently have a research project with NCAT
- If so, where are you in your implementation process?
 - See above
- Which tests are you using/considering?
 - Hamburg and a cracking test to be determined
 - Leaning towards IDEAL CT



Balanced Mix Design

- Have you implemented or plan on implementing a Balanced Mix Design Method into your specifications?
 - Yes
- If so, where are you in your implementation process?
 - Specifying certain projects to obtain mix IDEAL CT & Hamburg pills. Will gather information for this paving season and maybe more until comfortable with specifying performance based specs.
- Which tests are you using/considering?
 - IDEAL CT and APA/Hamburg



Balanced Mix Design

- Have you implemented or plan on implementing a Balanced Mix Design Method into your specifications?
 - Have not implemented. Keeping aware of the latest developments.
- If so, where are you in your implementation process?
 - Research and evaluation stage.
- Which tests are you using/considering?
 - TBD



Pavement Design

- Do you use or plan on using the Mechanistic Empirical Pavement Design Guide Method (MEPDG)?
 - ALDOT - Not at the present time.
 - KYDOT – Currently upgrading for future use.
 - FDOT – Not at this time. Waiting for top-down cracking model.



Pavement Design

- Do you use or plan on using the Mechanistic Empirical Pavement Design Guide Method (MEPDG)?
 - Yes
- If so, where are you in the implementation process?
 - Research/Development of factors





Pavement Design

- Do you use or plan on using the Mechanistic Empirical Pavement Design Guide Method (MEPDG)?
 - Not currently but GDOT is moving towards using MEPDG in the future.
- If so, where are you in the implementation process?
 - Technically, while locally calibrated for a previous version of Pavement ME, additional research and data is needed to move towards the more recent version.





Pavement Design (continued)

- If so, where are you in the implementation process? (continued)
 - By FY 2021, GDOT will be running concurrent designs for concrete with the AASHTO 1972 guide still being the determining design.
 - Following shortly after, GDOT will be doing the same with asphalt. (Making some engineering decisions on moduli and some climate inputs.)





Non-Tracking Materials

- Do you allow specialized non-tracking materials to be used for tack and underseal on paving projects?
 - Yes
- If so, what is your experience with these types of materials?
 - Contractors/DOT Areas like using them
 - Works good if applied correctly





Non-Tracking Materials

- Do you allow specialized non-tracking materials to be used for tack and underseal on paving projects?
 - Yes
- If so, what is your experience with these types of materials?
 - + Overall contractors that have used them seem to like them.
 - + We like that the tack tends to stay in place under traffic.
 - Verification testing is very difficult, especially at central lab days/weeks after



Non-Tracking Materials

- Do you allow specialized non-tracking materials to be used for tack and underseal on paving projects?
 - Yes
- If so, what is your experience with these types of materials?
 - Hot applied seems to perform well
 - Inconsistent results with regular applied



Non-Tracking Materials

- Do you allow specialized non-tracking materials to be used for tack and underseal on paving projects?
 - Allow non-tracking products
- If so, what is your experience with these types of materials?
 - Some good, some bad.
 - Contractor has to know how to store and apply material





Non-Tracking Materials

- Do you allow specialized non-tracking materials to be used for tack and underseal on paving projects?
 - Yes, non-tracking tack required since 2015.
- If so, what is your experience with these types of materials?
 - Good results. Contractors need to be aware of proper handling procedures. As with other materials, the surface has to be cleaned prior to application.





Cold Mix

- Are specialized cold mix products allowed and used in your state?
 - Only for maintenance patching
- If so, what is your experience with these types of products?
 - Don't seem durable but unsure if that is workmanship or material related.



Cold Mix

- Are specialized cold mix products allowed and used in your state?
 - Allowed for maintenance work





Cold Mix

- Are specialized cold mix products allowed and used in your state?
 - See below
- Is so, what is your experience with these types of products?
 - Limited experience but interested in technology
 - One CIR project
 - One CCPR 1000' Test Section



Cold Mix

- Are specialized cold mix products allowed and used in your state?
 - Yes
- Is so, what is your experience with these types of products?
 - Very good experience with specialized cold mix
 - Better gradation and AC with the specialized products





Cold Mix

- Are specialized cold mix products allowed and used in your state?
 - Has not been used for FDOT projects.





Additional Info

- Fiberless/WMA OGFC
 - Trial Section placed July 2019 on non-interstate route
 - Currently evaluating section
 - Possible test section on interstate in 2020





Additional Info

- PG Trackless Tack products
 - Currently 2 approved products
 - Third product currently being evaluated



Additional Info

- Fiberless/WMA OGFC
 - Trial section went well
 - Currently, evaluating durability of test section and will go from there.



Additional Info

- Any additional information?
 - Performing bond strength tests for tack coats. May be part of performance specification.
 - Fibers seem to be helping our surface mixes regarding Hamburg & cracking testing.



SPECIAL THANKS!

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