Updated
10/09/2026

Chesapeake Bay Program

Phase 7 Agricultural Modeling Team (AMT)

Log of Actions and Decisions

AMT Homepage

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*NOTE Sandbox decisions are tentative decisions made with the intent of providing a direction to allow test runs of CAST to facilitate the development of Phase 7.

October 9, 2026| Meeting Materials

Action: AMT members are encouraged to attend and track upcoming Clean Water Goal Team and Modeling Workgroup meetings over the next few months, given relevant Phase 7 decision-making.

Action: The AMT will work to respond to the Clean Water Goal Team request to develop Workgroup Workplans. AMT staff will compile a high level bulleted list of activities the group will pursue, and will incorporate the responsibilities outlined in this presentation. Please reach out to Tom (Butler.Thomas01@epa.gov) if there are other things you would like to see documented in our workplan.

> **Post Meeting Note:** As of the October 23rd deadline for comments no feedback was received. As such we have assembled our workplan items list on the October AMT page for review.

Action: A visualization tool will be made available to help aid in the review of Model inputs on October 13th. AMT staff will follow up with the group once this viewer has been posted.

> **Post Meeting Note:** These visualizations have now been posted to the CAST Model Documentation Page. You can view them here.

Action: AMT staff will work with Jess Rigelman, J7 LLC, to produce a list of key changes from the Phase 6 to Phase 7 Model that are relevant to the AMT.

> **Post Meeting Note:** This is currently under development. We will follow-up with a draft once it is complete.

August 14, 2026| Meeting Materials

Action: Tom Butler, EPA, will update the example calculations used in the slide showing how to calculate pounds of nitrogen from animal populations/manure numbers.

> **Post Meeting Note:** Complete. You can access the updated slides here.

Action: Tom Butler, EPA, will correct the slide “what if we don’t have a direct data source?” to have 2.25 flocks per year be listed under the pullets calculation, instead of the broilers and turkey calculation.

> **Post Meeting Note:** Complete. You can access the updated slides here.

Action: AMT staff will send Phase 7 data broken down by county and animal type to AMT members.

> **Post Meeting Note:** Complete. You can access the data here.

June 12, 2026| Meeting Materials

Action: The AMT will continue to meet through the completion of the Phase 7 Model (through 2027). The AMT will remain an action team under the Clean Water Goal Team and will be called upon as needed for agricultural data inputs and future model/Phase updates beyond Phase 7.

Action: The AMT will continue to review data for informational/familiarization purposes (no changes) to help aid in the official Model review post February 2027. The tentative AMT timeline is as follows:

a. Stage 1: Source Data (April 1- July 31). *No Changes.*
b. Stage 2: Input Data (August 1- October 31). *No Changes.*
c. Stage 3: Output Data (November 1- February 1, 2027). *No Changes.*
d. Post February 2027: Examine loads and connect to information from the associated source/input data. *Make changes as needed.*

Action: Tom Butler, EPA, will update the manure generation diagram slide to note manure transport and manure treatment as the transport BMPs in manure generation diagram.

Action: AMT members are encouraged to note areas of potential concern as a result of these bi-monthly reviews of source, input, and output data and begin internal jurisdictional discussions ahead of the official model review period.

Action: Following the meeting, the source data discussed on the call will be circulated to the group. Please reach out to Tom Butler (Butler.Thomas01@epa.gov) with any questions and/or additional requests for calculations or information.

Post Meeting Note: Data was distributed via email from Caroline Kleis (Kleis.Caroline@epa.gov) on 6/12 and is also accessible on the calendar page linked here. Please contact Tom Butler (Butler.Thomas01@epa.gov) and Caroline Kleis (Kleis.Caroline@epa.gov) if you are unable to access this data file.

Action: AMT members should reach out to Tom Butler (Butler.Thomas01@epa.gov) and Caroline Kleis (Kleis.Caroline@epa.gov) with any topics you would like to discuss at the August 14th AMT meeting.

April 10, 2026| Meeting Materials

Action: Tom Butler, EPA, will add an additional column to the data provided in Appendix B to include pounds per pound of bird and continue additional data analysis and visualizations of broiler data for the AMT's reference.

Action: Please provide feedback and suggestions by 4/24 to Tom Butler (Butler.Thomas01@epa.gov), and Caroline Kleis (Kleis.Caroline@epa.gov) regarding additional topics you would like to discuss at upcoming AMT meetings. In addition to other potential suggestions solicited via email, the group expressed interest in viewing results of the state's inputs relative to high hay and high pasture over time and across BMPs, once the Phase 7 Model development process is further along.

February 27, 2026| Meeting Materials

Decision: The AMT approved the February 13th meeting minutes.

Decision: The AMT agreed to update the relevant broiler data in the Delmarva region of the Chesapeake Bay Watershed, with notification to the PSC from relevant parties regarding timeline adjustments. The data will be provided to the Chesapeake Bay Modeling team by March 31, 2026.

Action: The group will continue to meet throughout 2026, and a calendar invitation will be sent to the group once the final meeting schedule has been determined. Among other informational topics at future meetings in 2026, it was requested by an AMT member that we continue to explore nutrient application rates for inorganic fertilizer. At this time, it is anticipated that the group will reconvene in April.

February 13, 2026| Meeting Materials

Decision: The AMT approved the January 2026 meeting minutes.

Action: The AMT will decide on its meeting frequency past February at their next meeting. It has been recommended that the AMT meet bi-monthly (every two months) starting in April until we have outputs for the Phase 7 model. This would include a three stage review of the following:

a. Source Data (April-July)
b. Input Data (August- October)
c. Output Data (November-February)

Decision: The AMT recommends the Watershed Technical Workgroup adopt the following supplemental nutrient management efficiencies for hay high and pasture high.

	Placement		Rate		Timing	
Load Source	N	P	N	P	N	P
Hay High	5.00	10.00	15.00	5.00	5.00	1.00
Pasture High	3.00	10.00	5.00	5.00	5.00	1.0

Decision: The group endorsed continued investigation of data required to make the proposed updates to broiler populations, litter, and nutrient concentrations. The final progress on updated broiler data will be shared at the February 27th AMT meeting, and the group will vote on the adoption of this updated data for Phase 7. Additional coordination will take place offline as needed, in advance of the second February AMT meeting.

Action: Please reach out to Tom Butler (Butler.Thomas01@epa.gov) with any remaining questions or concerns regarding the broiler data update, ahead of the February 27th AMT meeting.

Action: A conclusion was not reached regarding options for the backfilling of organic sources with inorganic sources. Please provide any remaining insights on how to proceed with the nutrient

application algorithm by Wednesday February 18th. If there are no proposed paths forward, the group will determine this topic finished and instead focus on the inclusion of updated broiler data at the next meeting.

January 9, 2026| Meeting Materials

Decision: The AMT approved the December 2025 meeting minutes.

Action: Please submit acres for pasture high and hay high to Jess Rigelman (jrigelman@j7llc.com) by the end of January 2026 if you have not done so already.

Action: Tom Butler will edit the application algorithm presentation to reflect the correct groups for inorganic nitrogen in Phase 6 and will change the mentions of small grains and soybeans to be double cropped land.

Action: Tom Butler, Jess Rigelman, and Joseph Delesantro will investigate state and county specific examples of nitrogen replacement to further understand the implications of a cap on fertilizer at a subsequent meeting. Additional follow up will take place with AMT members to get a sense of high/low manure counties or additional counties of interest in a respective state.

Action: Joseph Delesantro and Robert Sabo will follow-up to discuss the best options for visualization and analysis of Phase 7 inputs/outputs for AMT review.

Action: The AMT generally supported meeting bi-monthly with the option to cancel post-February 2026 to continue their familiarization with source data and eventual review of inputs. An additional calendar invitation will be sent to the group once this meeting frequency has been finalized.

December 12, 2025| Meeting Materials

Action: Please submit Pasture High and Hay High acres from 1985-2025 to Jess Rigelman (jrigelman@j7llc.com) as soon as possible, but no later than January 2026, with the following information:

- Year: 1985-2025
- Geography: County, HUC12, State Whole geography or CBWSOnly.
- LoadSourceGroup: Hay or Pasture or PastureHay
- Acres: Any area in the state that is not reported will get 0 acres of high since there is no default.

Decision: The AMT approved the September meeting minutes, October meeting minutes, and November meeting minutes.

Decision: The AMT approved renaming existing pasture and hay classes to be “Hay Low” and “Pasture Low”. Classes in Phase 7 will be “Pasture High”, “Pasture Low”, “Hay High”, and “Hay Low”.

Action: Tom Butler, EPA, followed up with those not present on the call and consensus was reached on inorganic fertilizer decisional items.

> **Post Meeting Decision:** We should utilize the provided fertilizer data smoothing methodology for Phase 7: State specific based on crop need, a four- year stockpiling window tied to crop need with a spline added.

Post Meeting Decision: We should adopt the provided method for projecting fertilizer for Phase 7: Projection based on state specific crop need with an average of the last three years. This is only applicable during periods where no data is reported.

Action: Tom Butler, EPA, will update the posted slides to include all the information presented on various fertilizer data sets, with sources cited, and Caroline Kleis, AMT Staffer, will link relevant presentations from early 2025 to the calendar page.

Action: Tom Butler, EPA, and Joseph Delesantro, ORISE/EPA CBPO, will look into the elevation/shift post 2012 in CAST data for application, specifically looking at whether or not there was a shift in ag Census methodology that might be driving this shift.

Action: Alisha Mulkey, MDA, and Scott Heidel, PA DEP, will follow up offline to discuss the implications of manure transported into Maryland as a result of the incorporation of Hillandale layers for Phase 7.

Action: Joseph Delesantro, ORISE/CBPO EPA, and Tom Butler, EPA, will compile a list of animals and crops that are updated annually from the NASS surveys and/or every five years as a result of the ag Census.

Decision: We should incorporate missing Hillandale Layers into the Phase 7 model based on a composite dataset utilizing Hillandale and CAFO reported populations.

November 14, 2025| Meeting Materials

Action: The AMT will approve the September meeting minutes and the October meeting minutes at a subsequent meeting.

Action: Please submit pasture high and hay high acres from 1985-2025 to Jess Rigelman (jrigelman@j7llc.com) by the end of the year with the following information:

- Year: 1985-2025
- Geography: County, HUC12, State Whole geography or CBWSOnly.
- LoadSourceGroup: Hay or Pasture or PastureHay
- Acres: Any area in the state that is not reported will get 0 acres of high since there is no default.

Action: Tom Butler, EPA, will follow-up with state chemists and copy the respective AMT member to discuss if there have been changes in data collection that might have impacted AAPFCO data integrity.

Action: Joseph Delesantro, ORISE/CBPO, will work with Tom Butler, EPA, to enhance fertilizer smoothing and include manure effects on fertilizer plots.

Action: Joseph Delesantro, ORISE/CBPO, will examine Delaware fertilizer data for additional smoothing opportunities and follow-up as needed offline.

Action: Joseph Delesantro, ORISE/CBPO, and Jess Rigelman, J7 Consulting/CBPO, will work to supply AMT members with county level data for crop need, ahead of a potential CAST scenario run through 2020.

Action: Please reach out to Tom Butler, EPA, (butler.thomas01@epa.gov) if there is any feedback or additional questions on the method for interpolating data for non-reporting states.

Action: Joseph Delesantro, ORISE/CBPO, and Robert Sabo, EPA, will work together to compare the fertilizer data with other useful data sets and trends relating to crop yield, production, and other fertilizer estimates. This information will be compiled and shared for the AMT.

Action: The group generally supported the idea of including Hillandale layer numbers into Phase 7. If there are any concerns or other operations that you believe have been omitted, please reach out to Tom Butler, EPA, (Butler.Thomas01@epa.gov) prior to the December AMT.
Action: Tom Butler, EPA, will circulate data showing the Hillandale population/inventory and the CAFO permit numbers for the Hillandale operation.

October 10, 2025| Meeting Materials

Action: The September meeting minutes will be approved at a subsequent AMT meeting, once all federal partners are back to work and able to review.

Action: At a future meeting, the AMT will discuss renaming the original hay and pasture classes to hay low and pasture low, once all federal partners are back to work.

Action: Time permitting, the group will discuss soil phosphorus and manure nutrient concentration data at a future meeting, at the request of VA DCR.

Action: Joseph Delesantro will work on projection methods of fertilizer trends for comparison at future meeting. These projections include state trends for nonreporting, crop need trends for non-reporting, and averaging the last three year trends and three to five year trends for non-reporting.

Action: The AMT will work with Robert Sabo to create a table highlighting fertilizer consumption trends across national data sets as an additional line of evidence for the fertilizer projection method.

September 12, 2025| Meeting Materials

Decision: The AMT approved the August minutes.

Decision: The AMT agreed to adopt the following land use loading ratios: Pasture High =1.26 and Hay High = 1.30.

Decision: The AMT approved altering the names of the managed pasture and managed hay land uses to pasture high and hay high, respectively.

Decision: At this time, the AMT does not feel comfortable changing the default conversion of animal units excluded per 1,000 linear feet of fencing. This is largely due to data and time constraints. As such, this value will remain the Phase 6 value (17.6 animal units excluded), with the idea that this value can be revisited by a relevant workgroup in the future, once additional data is available.

Action: The AMT developed a preliminary recommendation to send to the Watershed Technical Workgroup. This language will be sent to AMT members for their review and modifications, prior to being sent to the WTWG for their discussion and approval.

Post Meeting Note: The AMT workshopped the recommendation offline and agreed on the following recommendation to be sent to the Watershed Technical Workgroup for their consideration: "Exclusion fencing is credited in acres, but reportable in linear feet or acres, with buffer width or animal units (AU) excluded being optional. However, because of differences in data availability among the various jurisdictions, credit for exclusion fencing can sometimes only be obtained by reporting buffer acres. When buffer acreage is reported without a buffer width, the default width of 10 ft or 35 ft for narrow or regular, respectively, is used to calculate the associated linear feet of exclusion fencing. This is then used to further calculate the associated AU (based on the default value of 17.6 AU excluded/ 1000 LF fencing). The AMT recognizes that average buffer widths of exclusion fencing are typically larger than the current default values used for calculating linear feet. Given this **the AMT is recommending a change in the default buffer widths for calculations to 22.5 ft and 67.5 ft for narrow and regular buffers."** (**It was noted that 22.5 is the average of 10-35, not 27.5)

August 8, 2025| Meeting Materials

Main Meeting

Decision: The AMT approved the July minutes.

Action: Chris Brosch, DDA, will email details related to the poultry litter data collection effort and data request to AMT members.

Post Meeting Note: Please see the data request sent via email by Chris Brosch (Chris.Brosch@delaware.gov) on 8/11/25.

Decision (Update): Following updated votes from Delaware and Maryland from the July meeting, the AMT approved utilizing state specific farm only fertilizer stocks that are smoothed across time.

Action: The AMT will reconvene the land use loading rate ratio subgroup, with additional resources and participants, to continue investigating the literature to propose loading rate ratios for managed hay and pasture.

Post Meeting Note: The land use loading rate ratio subgroup met on 8/21. Findings will be presented at the September AMT meeting for continued discussion.

Action: An informational overview of the land use loading rate ratio effort for managed hay and pasture will be presented to the AgWG at their August meeting. Following the September AMT meeting, time will be made on the AgWG agenda as necessary, should this topic become decisional for the AgWG.

Action: An interim meeting for members to discuss BMP excess as it relates to exclusion fencing will be scheduled, per member request.

Post Meeting Note: An interim BMP excess discussion was scheduled for August 27, 2025.

Animal BMP Excess Meeting

Action: Jess Rigelman will work up a spreadsheet analysis with pasture stocking rate by county and state, to help examine whether the existing default conversion of square feet to animal units excluded should be modified spatially across the watershed.

Action: Jess Rigelman will start conversation with the land data team to see if it would be possible to conduct a similar exercise from Phase 6 where an analysis was done to show the total number of bufferable acres, as a planning resource for states.

Action: Jurisdictions are asked to reach out within their jurisdiction and provide state-based information on buffer width to Tom Butler (Butler.Thomas01@epa.gov), ideally by the week of September 1st.
Action: If you have comments on excess as it relates to animal waste management systems and mortality disposal, please provide them to Tom Butler (Butler.Thomas01@epa.gov). Otherwise, **if we hear no proposed path forward from the group, we will not proceed with investigating animal waste management system and mortality disposal excess.**

July 11, 2025| Meeting Materials

Main Meeting
Action: Given the Phase 7 timeline extension for broiler updates, layer updates, and inorganic fertilizer, the AMT will continue to meet monthly through February. Tom will extend the meeting invitation to reflect this change.

Decision: The AMT approved the June minutes.

Tentative Decision: We should utilize state specific farm only fertilizer stocks that are smoothed across time. ***Pending final votes from Delaware and Maryland**

Action: Tom Butler will follow-up offline with Clint Gill and Alisha Mulkey to get final votes for Delaware and Maryland, respectively, on the decision to use state specific farm only fertilizer stocks that are smoothed across time.

Action: If there are changes to the methods for determining acreage for managed hay and pasture in your jurisdiction and the method for allocating nutrient management (see slide 3 on the LULR presentation), please provide that feedback within the next two weeks.

Decision: The AMT was asked to provide their votes on the question to what extent do you agree with the following: We should adopt the following Land Use Loading Rate Ratios:

i. Managed Pasture (High Application) =1.52
ii. Managed Hay (High Application) =1.56

During the meeting, USDA-ARS, USDA-NRCS, and New York voted 2-hold, and Pennsylvania voted 1-stop, citing a request for additional time to discuss with others, Maryland has not voted on this item.

Action: Tom will follow-up with Maryland, New York, Pennsylvania, USDA-ARS, and USDA-NRCS to get final votes on the land use loading rate ratio decision.

> **Post Meeting Note:** Following the meeting, Pennsylvania remained a 1-stop, and we are awaiting final votes from ARS, NRCS, Maryland, and New York.

Action: Since the group was unable to discuss BMP excess during the July main meeting, Jess Rigelman and Tom Butler will follow-up with AMT members with the presentation and questions to consider, prior to the August meeting.

Action: Tom and Dave will meet offline to determine next steps and see if an interim meeting should be scheduled to discuss BMP excess prior to the August AMT meeting.

Post Meeting Note: An interim meeting for members to discuss BMP excess was scheduled for July 24th, 2025.

Animal BMP Excess Meeting

Action: Please provide comments and feedback on the animal bmp excess questions (slide 13 of the animal BMP excess slides) via email to Tom Butler (Butler.Thomas01@epa.gov) within the next week.

Action: The AMT will continue to discuss animal BMP excess at the August meeting.

June 13, 2025| Meeting Materials

Decision: The AMT approved the May minutes.

Action: Tom will reach out to the state chemist points of contact, copying the respective AMT representative, to collect updated state data including fertilizer tonnage. Examples of data fields requested include: Year, State, FinalFIPsRepPeriod, FarmReal, RealTonsRealLbs, Nconc, Pconc, FarmNLbs, NonFarmNLbs, UnknownNLbs, FarmP205Lbs, NonFarmP205Lbs, and UnknownP205Lbs. Members are asked to provide any information they have on updated state fertilizer data to Tom (Butler.Thomas01@epa.gov) and Joseph (jdelesantro@chesapeakebay.net) by July 11th.

Action: AMT members are asked to provide feedback on potential methodologies for the processing and scale of inorganic fertilizer. Members with specific data requests or clarifications should reach out to Tom (Butler.Thomas01@epa.gov) and Joseph (jdelesantro@chesapeakebay.net) within the next two weeks.

Action: Tom and Jess will coordinate offline to confirm that fixation in CAST does not include non-leguminous fixation.

Offline: This was confirmed to be only fixation from leguminous crops.

Action: Members with additional information on the systems to animal units conversion as it relates to mortality composting should contact Jess (jrigelman@j7llc.com) or provide that information at the July meeting.

May 9, 2025| Meeting Materials

Decision: The AMT approved the April minutes.

Action: By 5/23, please provide feedback on the remaining topics you'd like to see added or prioritized ahead of the September model input deadline, as well as any input on increasing AMT meeting frequency. Please email this feedback to Zach Easton (zeaston@vt.edu), Tom Butler (butler.thomas01@epa.gov), and Caroline Kleis (Kleis.Caroline@epa.gov).

Decision: The AMT approved adopting the new statistical methods for determining crop yield trends for all crops that have nutrient application goals per production per acre (true yield units).

Action: AMT members are asked to provide feedback to Joseph Delesantro (jdelesantro@chesapeakebay.net), indicating their thoughts on pursuing the modeling of crop yield trends for the eight additional crops that are currently without true yield units.

Action: If you have additional questions or feedback regarding the ag land use mapping data, please contact Jackie Pickford (jpickford@chesapeakebay.net), Sarah McDonald (smcdonald@chesapeakebay.net), and Peter Claggett (Pclagget@chesapeakebay.net).

Action: If you have any questions regarding the inorganic fertilizer data, please reach out to Tom Butler (Butler.Thomas01@epa.gov).

Action: The group will continue to discuss inorganic fertilizer data at the June meeting.

Action: If you have additional feedback on the handling of animal systems excess or if you have specific counties of concern, please contact Tom Butler (Butler.Thomas01@epa.gov), Jess Rigelman (jrigelman@j7llc.com), and Joseph Delesantro (jdelesantro@chesapeakebay.net).

Action: The AMT will continue discussions on animal systems excess at a subsequent meeting.

April 11, 2025| Meeting Materials

Decision: The AMT approved the March minutes.

Decision: Both crops; Other haylage; grass silage and greenchop AND Other Dry Hay should have no nitrogen fixation associated with them.*

> *Note: The mixture of species composing these crops may contain leguminous species, but expert opinion determined that there is no accurate way to parse out the percentage of crops from the mixture as reported by NASS which fix Nitrogen. Furthermore, the percentage of leguminous crops is likely a small proportion. Therefore, the group suggested the Nitrogen fixation rate should be zero since it does not affect N losses from this land use or the application of any other N sources to this land use. Note: not including N fixation makes cropland mass balance calculations inappropriate for these land uses.

Action: Tom and Joseph will compile data on CAST runs for the 11 major crops using the new method to determine crop yield trends and distribute this data to the group. Data requested to visualize state and county data with these new yields can be found at the following link. Members are asked to review the requested data ahead of the May 9th meeting.

Action: Joseph will return at the May 9th meeting for decision on adopting the new statistical method for determining crop yield trends for the 11 major crops in Phase 7.

Action: Tom will follow up offline to continue discussions on the backfilling of fertilizer.

March 14, 2025| Meeting Materials

Decision: The AMT approved the February minutes

Decision: Following a discussion on the 2022 Census of Agriculture form and the 2022 Census of Agriculture instructions, the group decided to not make a decision at this meeting on changing the land use for other haylage; grass silage and greenchop to the leguminous hay land use. ***Further investigation is necessary***.

Action: Tom will work with James to compile information and return to a subsequent meeting to discuss the land use category and nitrogen fixation rates for other managed hay and other haylage; grass silage, and greenchop. An additional discussion will occur on nitrogen fixation rates overall and how it relates to our application.

Action: If you have any state contacts that might have concentration or volume information for poultry litter, please contact Chris Brosch (Chris.Brosch@delaware.gov), Tom Butler (Butler.Thomas01@epa.gov), Zach Easton (zeaston@vt.edu), and Caroline Kleis (Kleis.Caroline@epa.gov) with their contact information.

February 14, 2025| Meeting Materials

Decision: The AMT approved the January 2025 meeting minutes.

Decision: We will alter the Land Uses in CAST to represent Managed and Unmanaged Hay as well as Managed and Unmanaged Pasture.

Decision: We will modify the manure spread algorithm to create a fourth group and fill these groups as follows;

a. Group 1: Grain with manure, Silage with manure, managed Other hay, managed pasture,
b. Group 2: Small grains, double cropped, other crops, specialty high, specialty low,
c. Group 3: Other Hay, Pasture,
d. Group 4: Soybeans, Legume Hay.

Decision: The AMT approved the provided definitions for managed and unmanged hay and pasture for Phase 7.

Decision: The AMT approved the language that acres of managed hay and pasture will be reported by states by November 1st.

Decision: The AMT accepts the NM effects with a non nm multiplier of 1.2 for N and 1.5 for P for Phase 7.

Action: Please email Tom and Caroline if you would like to help with literature and science review for loading rate ratios.

Action: AMT members are encouraged to look at the reporting methodology for urban data and consider this methodology for our use.

January 10, 2025| Meeting Materials

Decision: The AMT approved the December 2024 minutes.

Tentative Decisions *(Both items are pending review by Delaware)*:

- The group voiced support for altering the Land Uses in CAST to include Managed and Unmanaged Hay and Managed and Unmanaged Pasture.
- Members also supported the idea to modify the manure spread algorithm to create a fourth group.

Action: Tom will follow up with Delaware offline to gauge their level of support for going through with Virginia's proposal and the subsequent creation of two new land uses. *(Due to Avian Influenza outbreaks we have not been able to get the required responses as of 2/6/2025).*

Action: Tom will work to firm up a list of other decisions and information needed before proceeding with this proposal. Please send Tom any feedback on reporting acres, ratios, non-nutrient management factors, a definition for managed and unmanaged, and additional insights on fertilizer.

Action: Data requested to summarize the shifts in nutrient application can be found at the following link.

December 13, 2024| Meeting Materials

Decision: The AMT approved the November 2024 minutes.

Action: Candiss will work to get relevant aggregated NRI/CEAP data for the Chesapeake Bay watershed and distribute it to AMT group members.

Action: Tom will coordinate with Virginia representatives offline to gather the specifics of the proposed test of creating managed and unmanaged hay and pasture Land Uses in CAST.

November 8, 2024| Meeting Materials

Decision: The AMT approved the October 2024 minutes.

Action: Follow-up offline to determine a time for the AMT to revisit the discussion on crop yields at a subsequent meeting

Action: The AMT will revisit agricultural inorganic fertilizer data in CAST at the December meeting. Please come prepared with any feedback on preferred methodology.

October 11, 2024| Meeting Materials

Decision: The AMT approved the September 2024 meeting minutes

Action: Tom will reach out, offline, to members not present and get their votes on using Plant Available Nitrogen to determine the acres of grains with manure.

Action: Tom will reach out to non-present voting members and to those who requested additional information, to get their votes on modifying the manure spread algorithm to create a fourth group by Friday, 10/18.

Action: Tom will reach out to members not present to get their votes on using the proposed statistical framework to determine long term crop yield trends.

Action: Tom will follow up with members over email and work to reach a consensus on the incorporation of poultry industry data sources into CAST nutrient calculations by Wednesday, 10/16.

Post Meeting Follow up:

Decision 1: Should the acres of Grains with Manure should be determined using Plant Available Nitrogen?

Passed by consensus- The new method will be employed for Phase 7.

Decision 2: Should the manure spread algorithm be modified to create a fourth group as shown in this presentation?

No consensus was reached - No change will occur from Phase 6 regarding the application curves for manure.

Decision 3: Should this new statistical framework be used to determine long term crop yield trends?

No decision was made – Data reviews are under way meaning the topic will be revisited in November.

Decision 4: Should new data sources from the poultry industry be incorporated into nutrients calculations in CAST?

No consensus was reached – There will not be an implementation of the proposed item. Data from Phase 6 will still be used.

September 13, 2024| Meeting Materials

Decision: The AMT approved the August 2024 meeting minutes.

Action: Tom will reach out to states not present on the call as well as those who requested county-specific data. He will provide requested information necessary to facilitate decision-making on this topic at the next meeting.

Action: Please reach out to Joseph Delesantro (jdelesantro@chesapeakebay.net) and Tom Butler (Butler.thomas01@epa.gov), if you have additional feedback on or data requests for manure applications.

August 9, 2024| Meeting Materials

Decision: The AMT approved the July 2024 meeting minutes.

Action: Submit remaining comments and feedback to Tom (Butler.Thomas01@epa.gov) regarding additional changes you want to test in CAST related to the PAN and manure application calculations and processes.

Action: Jurisdictions will evaluate whether they can provide on the ground application rates for counties from sources including but not limited to nutrient management plans.

July 12, 2024| Meeting Materials

Decision: The AMT approved the June 2024 meeting minutes.

Action: Tom will work to clarify mineralization rates for the group.

Action: Tom will incorporate AMT feedback to further test modifications to the manure application curves used in CAST.

June 14, 2024| Meeting Materials

Decision: The AMT approved the May 2024 meeting minutes

Action: Provide comments and feedback to Tom (butler.thomas01@epa.gov) on the method of calculating the acres of grain, with and without manure, in CAST.

May 10, 2024| Meeting Materials

Decision: The AMT approved the April minutes

Sandbox Decision: The AMT will continue to use the Phase 6 agricultural land uses for the purposes of testing additional changes during the development of Phase 7.

April 12, 2024| Meeting Materials

Decision: The AMT approved the March minutes

Action: Ken Staver will write down and share with the group his proposed method for estimating split on grain with and without manure using what is known about plant available nitrogen per animal unit as opposed to animal units.

Action: Tom Butler will reach out to group members to inquire about and potential new data sources for informing the relationship between grain acres and manure applications.

Updated
10/09/2026

March 08, 2024| Meeting Materials

Decision: The AMT approved the February 2024 minutes.

Action: If you have additional feedback on annual yield estimates, please email Joseph Delesantro (jdelesantro@chesapeakebay.net).

Action: Email Tom Butler (butler.thomas01@epa.gov) with feedback on land use loading ratios by COB Friday, March 15th, focusing specifically on the discussion questions for a path forward.

February 09, 2024| Meeting Materials

Decision: The AMT approved the January 2024 meeting minuteshttps://d18lev1ok5leia.cloudfront.net/chesapeakebay/documents/AMT-Minutes-Dec-2023.pdf.

Decision: The AMT agreed to evaluate changing the land uses for Phase 7 CAST. The specific land uses and associated loading rates have not yet been determined and will be further investigated at future AMT meetings.

Action: Email Tom Butler and Jess Rigelman (butler.thomas01@epa.gov; jrigelman@j7llc.com) by Friday, Feb 16th if you are interested in reviewing the CAST results data from the loading ratio tests.

January 12, 2024| Meeting Materials

Decision: The AMT approved the December 2023 meeting minutes.

Action: Provide feedback to Tom (butler.thomas01@epa.gov) on the time for Ag Modeling Team office hours (8 – 9 AM prior to our monthly meeting time).

Action: Tom Butler, EPA, will work with the CBPO & CAST team to address the following requests made from the group:

1. Continue providing updates on crop yields.
2. Distribute the data file specifying CAST inputs for livestock duration in different environments, as well as current manure generation and nutrient concentration values.
3. Discuss the possibility of in-person meetings with state representatives to streamline various data requests for CAST.
4. Provide updates on the impact of changing land use loading rates in CAST.

Action: Group members are asked to provide feedback on the following topics via email (butler.thomas01@epa.gov) or during the Feb 9 AMT meeting:

1. Which parameters we can use with existing data to improve the calculation of manure acres. Some questions include:
    a. Has the relationship between animal units and manure acres changed?
    b. Should we attempt to determine individual curves for different animal types?
    c. Should we attempt to set these numbers with a relationship between the CAST animal units and manure acres?
    d. Should we use plant available nitrogen (PAN) rather than total N to change this relationship?

2. Whether changes should be made to the existing livestock duration in different environments, manure generation, and nutrient concentration values.

December 8, 2023| Meeting Materials

Decision: The AMT approved the November 2023 minutes.

Action: Tom Butler will work with the CBPO & CAST team to address the following requests made from the group:

- Presentation on how manure acres are calculated in CAST.
- A "primer" on land use loading rates/ratios, including topics such as:
  - Why loading rates exist
  - How loading rates and ratios interact within CAST
  - How we determine values for loading rates
  - Additional examination and discussion of the existing loading rate/ratio report
- Provide relevant resources to the topic of BMP "excess" (formerly known as "cutoff") for interested parties.
- Continue providing updates on Crop Yields, including the results of the poll sent to AMT members.

November 9, 2023| Meeting Materials

Decision: The AMT approved the October 2023 minutes.

Action: Please email Joseph Delesantro (jdelesantro@chesapeakebay.net) and Tom Butler (butler.thomas01@epa.gov) if you have any relevant crop yield data that can be used for crops with partial or no data. (*See slide 8 of linked presentation for details.*)

Action: VOTING MEMBERS ONLY: Please complete **this poll** by **COB Wed, Nov 22,** to provide feedback on which crops might share yield trends.

October 17, 2023| Meeting Materials

Decision: The AMT approved the September minutes.

Action: As per group feedback, data analysts from the Bay Program Office will continue assessing relationships between annually reported crop yields and five-year crop yields from the census of agriculture. Updates will be given at a future meeting.

September 8, 2023| Meeting Materials

Decision: The Ag Modeling Team approved the August meeting minutes.

Action: Group members will compile a comprehensive list of crops with available yield data. These data will be used to further examine methods to calculate expected yields.

August 14, 2023| Meeting Materials

Decision: The AMT approved the July meeting minutes.

Action: Look into replacing the current method of expected crop yield (best 3 of 5 for census + annual survey data) with the annual survey data to see if there is a major change.

July 14, 2023| Meeting Materials

Decision: The AMT approved the June minutes.

Action: Identify information gaps for crop yields and acreage for counties across the watershed. Explore spatial interpolation options for filling those data gaps.

June 9, 2023| Meeting Materials

Decision: The AMT approved the May meeting minutes.

Action: Tom Butler will consult CBPO technical staff on ways to spatially distribute crop yield trends. More discussion will occur at the July AMT meeting.
https://www.chesapeakebay.net/what/event/agricultural-modeling-team-amt-meeting-june-2023

May 12, 2023| Meeting Materials

Decision: The AMT approved the April meeting minutes.

Action: Tom Butler will work to:

- Calculate the linear trend from historic yields data from both Ag Census and NASS survey for crops used in CAST.
- Examine which crops have irrigation data that can be used to calculate trends.
- Brainstorm ways:
    - To potentially incorporate soil productivity maps.
    - Potentially update N removal rates.

April 14, 2023 | Meeting Materials

Decision: The AMT approved the March meeting minutes.
Decision: The AMT informally agreed to remove timing and eligibility requirements for subsequent CAST testing runs.

Action: Tom Butler will work to provide:

1. Documentation for the yield goal calculation used by the CBPO.
2. A graphical depiction of the different data sets before and after data processing for the yield goal calculation.
3. For specialty crop low and high percentage of
    a. Load contributed relative to the overall watershed loads.
    b. Land covered over the watershed.
4. A visualization across the entire watershed of where fertilizer shifts.
5. Any analyses or perspectives on which topics may have more weight in terms of importance to CAST.
6. A background presentation discussing the groups next focus topic, Re-evaluating Land Uses.

March 13, 2023 | Meeting Materials

Decision: The AMT approved the February meeting minutes.

Action: Tom Butler will work with Jess Rigelman to develop scenarios for the AMT April meeting, including aspects such as moving around land uses, aggregating nutrient management multipliers, and revisiting the eligibility and/or timing components of nutrient management.

> **Post meeting update**, after discussing several possible scenarios with group members two scenarios were agreed upon:

1. Make all manure eligible crops on manure eligible land uses 100% eligible for manure applications and remove the timing component to create a single annual average application.
2. Make all grains and silage land uses eligible to receive manure applications

February 10, 2023 | Meeting Materials

Decision: The AMT approved the January 2023 meeting minutes.

Action: VOTING MEMBERS - please fill out this survey to prioritize discussion topics and decisional items that the Ag Modeling Team will address. The AMT leadership will compile the results of this survey to develop a workplan for the group. (Note: this workplan will be a living document and is subject to change as the group progresses).

January 13, 2023 | Meeting Materials

Decision: The AMT approved the December 2023 meeting minutes.

Action: If members are interested in viewing the county raw data used in the CAST presentation, please contact Tom Butler (butler.thomas@epa.gov).

December 9, 2022 | Meeting Materials

Decision: The AMT approved the November 2022 meeting minutes.

Action: If members are interested in viewing the county raw data used in the CAST presentation, please contact Tom Butler (butler.thomas@epa.gov).

November 1-2, 2022 | Meeting Materials Day 1 & Day 2

Updated
10/09/2026

Action: VOTING MEMBERS ONLY: Please complete the following poll by COB Wednesday, November 23rd to determine the prioritization of topics for the AMT: https://www.surveymonkey.com/r/6NMTRYV. *Please note: This will be used as an initial "temperature check" to determine the AMT's general timeline and schedule, however, this is not a comprehensive list of topics that the group will be discussing.*

Action: Please complete the following poll by COB Tuesday, November 15th to determine a monthly meeting time for the AMT (two-hour meetings/month): **https://forms.gle/rtu3xHHHnKiexYne9.**