



Chesapeake Bay Program
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LUWG Office Hours July 2026: Chesapeake Bay Land Change Model (CBLCM)

July 15, 2026
3:00 pm - 4:00 pm

[Visit the meeting webpage for meeting materials and additional information.](#)

Purpose: Discuss Chesapeake Bay Land Change Model (CBLCM) updated methods and provide feedback on improvements and draft results.

Summary of Actions & Decisions

Action Items:

- Peter Claggett will follow up with entities offline who a) want to provide additional datasets to inform the CBLCM or b) are identifying issues within their counties/regions that need further investigation.

Minutes

I. Introduction and Announcement

Lead: Jackie Pickford, LUWG Coordinator

Decisions: N/A

Actions: N/A

II. CBLCM Updates and questions

Peter reviewed the draft results of the updated CBLCM run. He also gave an overview of the CBLCM web viewer. There was time for discussion and questions.

Lead: Peter Claggett, Healthy Landscapes Goal Team Coordinator

Decisions: N/A

Actions: N/A

Discussion Notes:

- **Dave Montali:** Can you go through what you just went through for Berkeley? I saw some things I couldn't really understand. I understand that the other counties have no growth projected because population is going down, but there is growth projected in Berkeley and

Jefferson for West Virginia which is fair enough. But the county results for Berkeley are where I am confused. The housing units for 2010 to 2020 was 470, but in 2020 to 2050 it was 1285, basically 2.5 times what was experienced in the first time period, maybe you could help me understand.

- o **Peter Claggett:** I can post the spreadsheet I am pulling my data from, but for every county we have historical data, the population is expected to almost double between now and 2050, but you're saying the housing change in future decades is tripling annually? I will look into that and get back to you to make sure we are not inflating that number.
 - o **Dave Montali:** Yea, I thought I understood the percent infill of .76 to mean 76% of the new population is not going to make a new housing unit, but the residential increase was so high.
 - o **Peter Claggett:** Yea, that could be because of the density of the area we are forecasting growth in, we project growth at the highest expected density. If the density is currently low, we are using more land for less housing. For example if over the last decade we were on quarter acre lots, and now we are on one acre lots, that will take up more land even if we simulated fewer households because of high infill.
 - o **Dave Montali:** Okay, we can follow up after this. The other comment I had was why aren't you projecting change through 2040 as that will probably be the future condition upon which the WIP's will be developed?
 - o **Peter Claggett:** We are, but I decided not to show it here because the patterns will be the same as 2050, and I didn't want people to get hung up on the numbers in this early draft.
- **Eugenia Hart:** Is the population data county-wide that you extrapolate across counties based on areas most likely to be developed, or is it a town specific population?
 - o **Peter Claggett:** We use county level projections, and then we look across the county at patterns of growth. We don't pay attention to the watershed boundary at all, we are just looking across the county at where growth is more or less likely and where it has occurred. That is baked in part on our high-res data that leads us to these kinds of patterns.
 - o **Eugenia Hart:** I think that yea, in reality the Eastern half of Sussex County has a very high population. The western part of the county is very rural, and is not growing at the same rate. So I guess I am saying that what we are showing on this map is probably not really happening in that area near Seaford and Laurel and those western towns. The growth is probably only occurring like that on the Eastern side. Is there a way to account for that?
 - o **Peter Claggett:** We can control urban vs. rural growth, but in terms of the probability surface, that's something that is predicted state-wide, because there are not enough observed points within a county to build a model county by county. So although we simulate county by county, the probability is for the whole state, so we will think about how we can address that.
 - o **Eugenia Hart:** Yea, we can talk about it another time. We feel that for Sussex County the dark red is kind of glaring, and it's probably in the future not even going to look like that on the eastern side.
- **Kevin Du Bois:** There seems to be a lot of development right up to the Maryland line, and then as soon as you cross into PA, there is nothing, so I don't know what the reason for that could be.
 - o **Peter Claggett:** If we click on these counties, the projection is 7 housing units and no jobs per year in the future, so that's why it is not showing growth- this is something we are still looking at, I expect the next run is going to make some revisions, but we aren't going to project growth here unless the states project growth there.

- o **Kevin Du Bois:** So you are saying it's an anomaly in the state data?
- o **Peter Claggett:** Well, their demographers are saying that the deaths and migration loss are countering any migration bursts. I agree with you that it seems weird, we can do a run where we have regions and aggregate demand for all the counties, and simulate the region as a whole, which would result in change in the growth patterns, but that would be a big departure from what we have done in the past. Whatever you guys collectively want to do we will end up doing, but it will take some maneuvering.
- **Norm Goulet:** For Northern Virginia, did you utilize the Weldon Cooper data? I would encourage for Northern VA you switch to the Washington Council of Governments (Wash COG) data, the numbers in Alexandria with housing don't make sense to me.
 - o **Peter Claggett:** We are using Wash COG for the counties in VA that call for that, I will go back and check on the data.
 - o **Norm Goulet:** Also in Fairfax County, there is a big section of the county that was down zoned around the reservoir, and that hasn't changed in 30 plus years. The map you show here shows a high growth potential there, which isn't going to happen.
 - o **Peter Claggett:** We did not have a chance to go out and collect zoning data from jurisdictions that had it and incorporate it into the zoning data here. That would be for an alternative forecast. What could be happening is that this is so low density that is showing it as areas that are developable, and I can look into that and turn it off through suitability. Parcels with no roads in them through the data aggregation process became suitable for growth so that is what you are seeing here. Since we are now correcting it in our second run we shouldn't see this.
 - o **Norm Goulet:** I would say the same about Loudoun County, and Prince William. I know the COG data is broken down into transportation analysis zones, so it's pretty finite. If you overlay the transportation analysis zones with our segmentation, you can probably get more accurate results.
 - o **Peter Claggett:** Yea, we did that in the last run, but not this one. That is something we can look at again for this run.
- **Norm Goulet:** Exactly what is going to utilize this information in terms of phase 7? The model, allocations, where does this fit into that picture?
 - o **Peter Claggett:** It fits in for sure with WIP development, we are taking into account the 2040 land condition, so as with Phase 6 it will be a baseline for the WIPs. The states have not made a decision to do this yet for Phase 7, but in the past they have developed custom scenarios that utilize utility and zoning information, and then states could base their WIPs off of that future projection. We need a baseline for Phase 7, because some want to compare 2040 in Phase 6 with 2040 in Phase 7.
- **KC Filippino:** For the viewer itself, adding in units would be helpful in the tables. Also, with the points about data being county wide for Delaware, hopefully the fix is not just for Delaware because I think I am going to see the same thing for my counties on the southern end, with growth outside of the watershed.
 - o **Peter Claggett:** A hexagon is one aggregation unit, but the Phase 7 modeling segments are another; we aggregate the data directly to the Phase 7 units, and that's when we parse what happened in and out of the watershed. What we are aggregating is not hexagons, it is 30 meter cells of simulated growth over 101 iterations, which aggregate directly into Phase 7 units, so that we don't have any problems of mismatched sizes and all that. But you are saying in Chesapeake VA there is too much stimulated growth?
 - o **KC Filippino:** It is possible. I haven't been able to ground-truth a lot of this data.
 - o **Peter Claggett:** We only use data to generalize that we have for everywhere else, so for example we don't have traffic analysis zones everywhere, and there is no way to go out to the localities and say please submit your zoning data, that is too much to

ask. If there is other information you can give us or if you have an idea of what we could use that can show us where growth is being simulated should not be, we can incorporate that.

- **KC Filippino:** Like Northern Virginia, we also have projections for long-range transportation planning, are you accepting data? We have our own MPO.
 - **Peter Claggett:** You have a TAZ layer for your region? If you have it please share it with us.
- **KC Filippino:** How are you treating the loss of federal employees?
 - **Peter Claggett:** That decrease doesn't affect us, our projections show that there will be a gain of like 143 jobs a year, and I can almost guarantee that there's projections developed several years ago that did not account for the things we are seeing in federal employment currently. Any factors impacting housing that happened after the date of development we are ignorant about.
- **KC Filippino:** I have a question about the suitability layer. It says here that parcel data was incorporated, and there is growth being predicted in areas where there are already neighborhoods with no places to build out.
 - **Peter Claggett:** This is something we have spent the last three weeks correcting, so this should not happen in the next simulation. Our parcel level data is really good, it's from the localities that then have been aggregated by a company and provided to us. But they end at the edges of roads, and so the roads are showing up as blank spaces where development could occur, or small areas like parks that could be developed but are undevelopable. These small holes are the issue, so we went back and re-aggregated the data in different ways.
- **KC Filippino:** When will the next round be released?
 - **Peter Claggett:** We are hoping to get it simulated before the Land Use meeting next week, but whether we can digest it by then is another question. Next week we will update the viewer, take down the old data, and put up new data, and we will have to do some internal QA/QC so it might be the first week of August.
- **Deborah Sward:** For the housing units, there is a footnote about how it is calculated using total population minus group housing with household size and vacant units. How does that apply to future projection since the vacant units and things come from the current census?
 - **Peter Claggett:** We are assuming that all future housing units are occupied, so when we aggregate the future population, we adjust it to make sure it all adds up to what the projections are so there is an exact match and we are not over projecting population. The assumption is that the current vacancy rate stays constant.
- **Deborah Sward:** My other question is, there is a discussion of logistic regressions and some r-squared values in the FAQ document. I was wondering what those regressions were measuring?
 - **Peter Claggett:** On page 8 of the document under question 10, this is the relationship between our explanatory variables. We take observed growth at high-resolution, sample that, sample where growth did not occur, and then the logistic regression compares 5 explanatory variables like distance to residential growth hotspots in the last decade, distance to urban areas, distance to sewer service for example. The regression measures to what extent the variables explain the variance in what we observed in where growth occurred vs. where it didn't.
- **Deborah Sward:** It looks like there has been some interest in projecting solar, is that still a possibility and would it mean changing the probability surface to consider solar probability in places where there are permitted solar fields? Is this still under consideration?
 - **Peter Claggett:** It is planned to do as of now, so we will have a separate column for solar probability. Right now the Chesapeake Conservancy has developed a

probability surface using machine learning for where solar has occurred, so we are going to use that in the third run in mid-August.

- **Sarah McDonald:** Is there a distance to shoreline metric, or something like that? Does that heavily weigh on the patterns of where development will happen? It seems that is definitely the case for Sussex.
 - **Peter Claggett:** There is more than just logistic regression to come up with a probability, so you can change the technique, or keep the technique, or change the explanatory variables, etc. As you were saying, KC, for a locally specific thing like 'growth should not occur in this part of my county', that is not a probability issue, that is a suitability issue and required excluding lands that are currently not excluded. Those changes would draw growth closer to the interstates, the shoreline, think of them like magnets. To what degree they are significant, if they are, will serve as magnets and attract growth in the direction of whatever it is.
- **Cassandra Davis:** There are a couple of instances in NY where simulated 2050 growth is on power lines right of ways, I'm not sure if there is a way to exclude those areas.
 - **Peter Claggett:** We will have to look at those to see how they roll up, they probably roll up as developable, we do not have a separate class for power lines.
 - **Sarah McDonald:** We do have homeland security data for that because it was used for land use.
- **Arianna Johns:** Can you make us a suitability layer we could edit to correct things?
 - **Peter Claggett:** Personally I am very hesitant to allow people to just edit data. It's hard to track that and replicate it; who made the edits, where did they get their information from? I would push against making the layers editable, and ask instead that you guys send us information and tell us why.
- **Tyler Trostle:** For PA, what data was used. Looking into the "[Center for Rural Pennsylvania](#)" they produced a PA Population Projections 2050. I could see that a majority of counties do in fact lose population but counties like Cumberland, Lebanon, Dauphin, Juniata, Centre and Union show large increases in population in comparison to most other PA counties. Just curious to why our PA data shows such low projected growth.
 - **Peter Claggett:** In our FAQ document it shows where we got our data from, and it looks like it is from Center for Rural PA.

Unanswered Questions from the meeting:

Deb Sward: In Maryland how much of the issue with the generalized zoning data have to do with state generated infill and redevelopment rates vs. the generalized zoning data by itself?

It's very likely just due to the state-generated infill/redevelopment rates. Excluding land from development avoids simulating growth in those areas but doesn't reduce the overall amount of growth unless developable land is extremely scarce- like in Bethesda or Silver Spring.

Kevin Du Bois: Peter, it seems like this map tool could be used to characterize development/growth threats to military installations and training ranges. If that's true, would you be willing to come and speak about it as a use case during one of our DoW Chesapeake Bay Action Team meetings?

Yes.

Deborah Sward: Agree that there are many use cases for this data outside CAST. I don't want to detract from the conversation around that use case, but MDP would also be interested in learning what the final public release would look like: 1) Hex scale vs. other scales 2) Decade-by-decade outputs (e.g. 2030, 2040, etc.) 3) any distinction between residential and commercial growth in the outputs

We do plan to do a formal USGS data release for these data, but it probably won't occur until early 2027. We are flexible in what the data release entails. At the very least, we plan to release the data by 1-km hexes, and possibly LRsegs, for each decade.

Kevin McLean: Can a minimum size be applied to the suitability layer? Might do away with at least some of these "developable" issues

We've implemented something like that for run #2 which should show no patches with fewer than four 30-m cells.

III. Adjourn

Attendees:

- Julia Fucci, CRC
- Joseph Schell, DNREC
- John Lancaster, PA DEP
- Darian Copiz, Montgomery County, MD, DE
- Kevin Mclean, EQ
- Tyler Trostle, PA DEP
- Jacqueline Pickford, USGS
- Lori Brown, DNREC
- Normand Goulet, NVRC
- Eugenia Hart, Tetra Tech, DE
- Deborah Herr Cornwell, MDP
- Thomas Butler, EPA
- Kristin Saunders, DNR
- Arianna Johns, DEQ
- Supriya Khadke, NOAA OCM
- Deborah Sward, MDP
- KC Filippino, HRPDC
- Dave Montali, Tetra Tech, WV
- Sydney Hall, DNREC
- Peter Claggett, USGS
- Kelly Gable
- Andrea Krug, DOEE
- Julianne Bautista, DOEE
- Cass Klingaman, DEC
- Kenny Mack,
- Kevin Du Bois, DoW CBP
- David Wood, CSN
- Scott Settle, WVDEP
- Bo Williams
- Michaela Kuykendall, MDA
- Alisha S Mulkey, MDA
- Sarah McDonald, USGS
- Kristen Saacke Blunk
- Matthew Meyers
- Marel King
- Jeremy Hanson, CRC
- Cassandra Davis
- Caroline Kleis, CRC