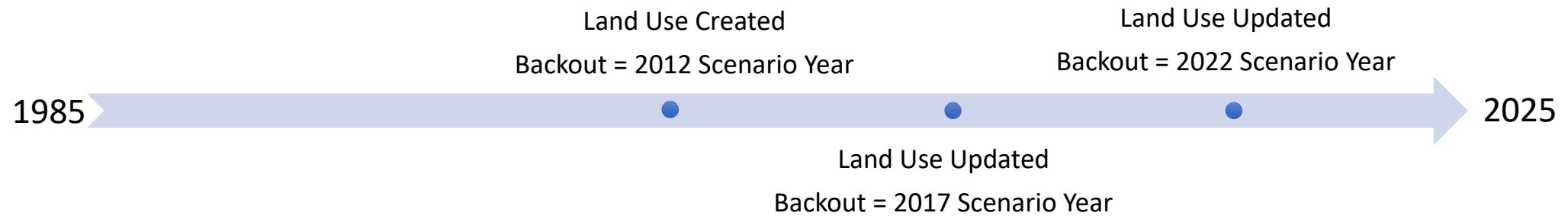


Decision Requested: WTWG consensus to set the backout year of tree planting, forest planting and riparian forest buffers to 15 years prior to the date of the imagery. *For example, if the date of the imagery is 2017, backout will be calculated using tree practices implemented in 2002.*

BMP	From Land Cover	To Land Cover	Current Backout Method	Proposed Backout Method
Forest Buffer	Low Vegetation	Tree Canopy*	BMPs are backed out prior to the date of land cover imagery. The backout for land use change BMPs from 2017-2025 is 2017 progress.	Set the backout year of practices to 15 years prior to the date of imagery. Example: Trees planted in 2005 would be backed out of the model when the land use is next updated after 2020.
Forest Planting				
Tree Planting				

*The land cover product from Chesapeake Conservancy does not include a True Forest Category. Tree Canopy is defined as deciduous and evergreen woody vegetation of either natural succession or human planting that is over approximately 3-5 meters in height. Land cover was used for this table instead of land use because it does not incorporate the agricultural census.

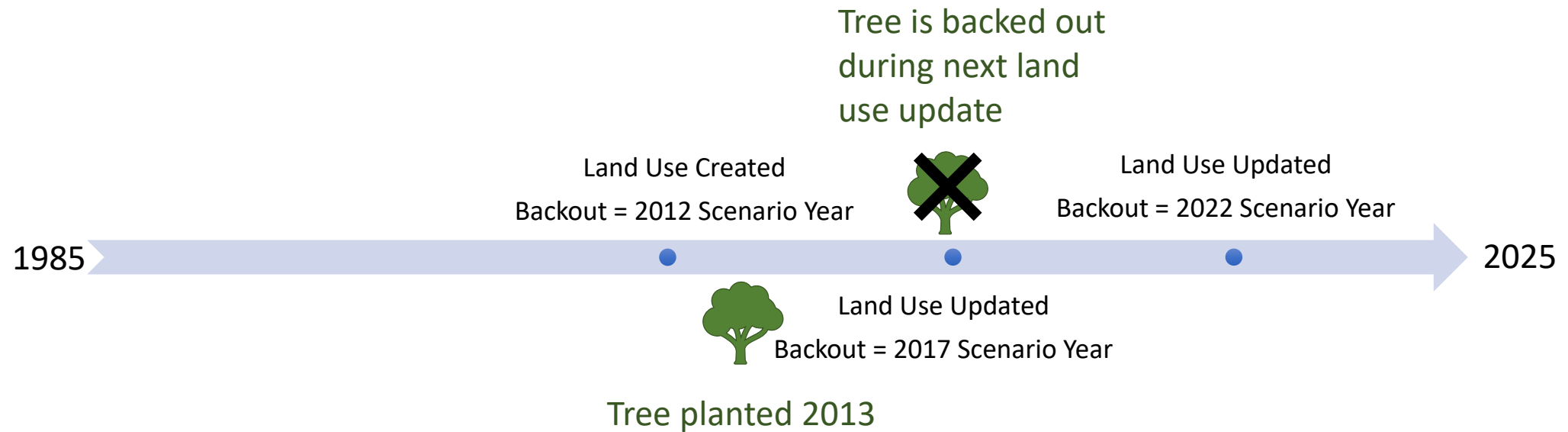
Example of current method of backout



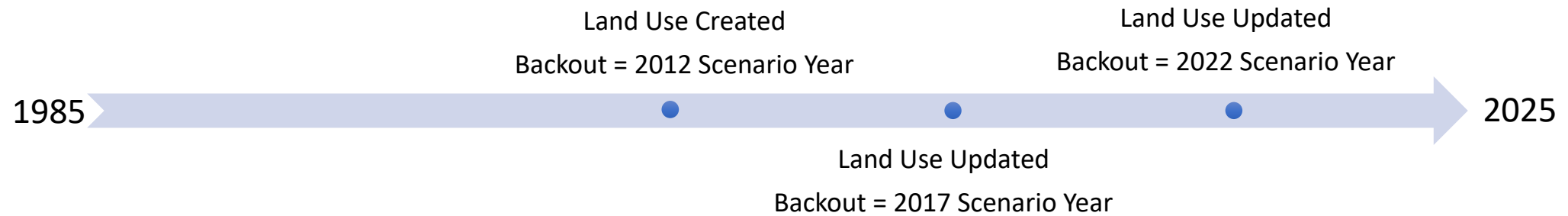
Example of current method of backout



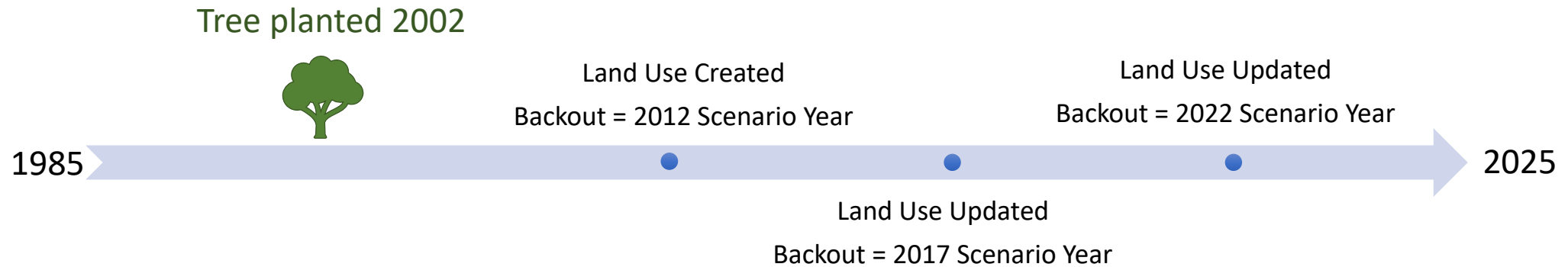
Example of current method of backout



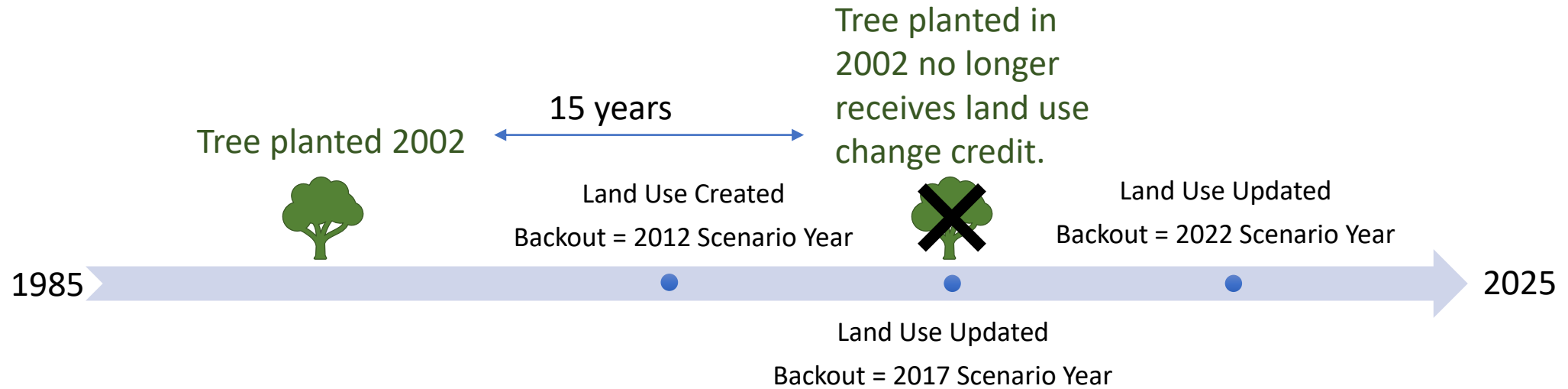
Example of proposed 15-year backout



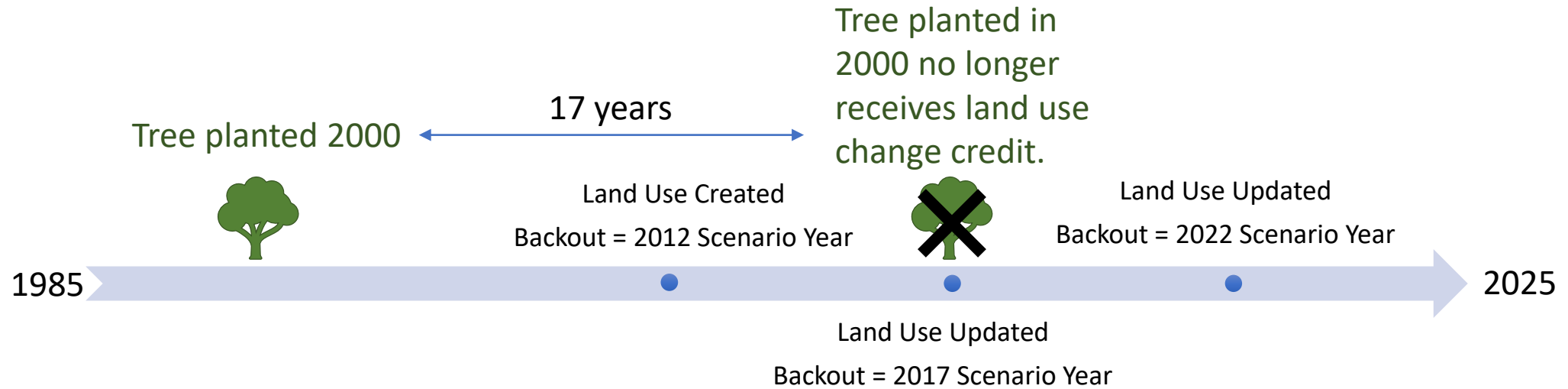
Example of proposed 15-year backout



Example of proposed 15-year backout



Example of proposed 15-year backout



Continued Backout Discussion

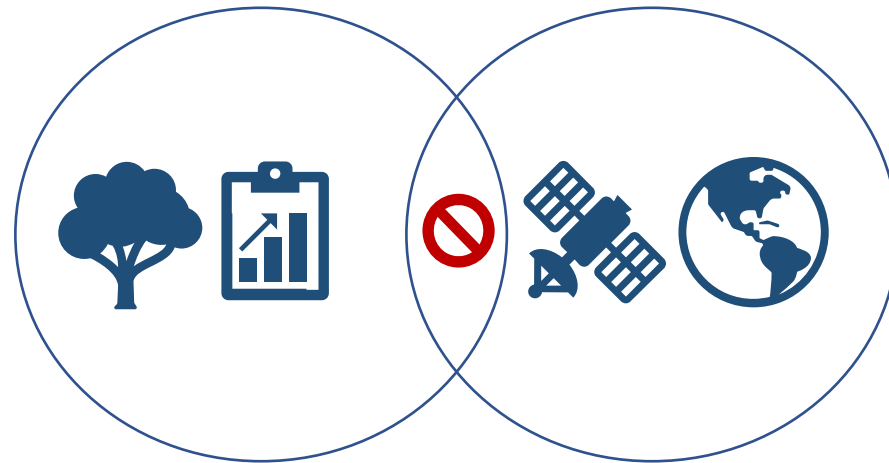
5/4/2020

What is Backout?

- Total units of a **land use change BMP** in a specific geography that are part of the cumulative record, but no longer receive land use change credit for the reported amount as the **model now captures the benefit** from the on-the-ground change in land use detected by additional years of imagery data.
- Backout is the **subtraction of historic land use change practices from the practices reported on an annual basis.**

Purpose of Backout

To minimize double counting in the model for both BMP land use change credit and aerial imagery land cover/land use updates



How is Backout Developed?

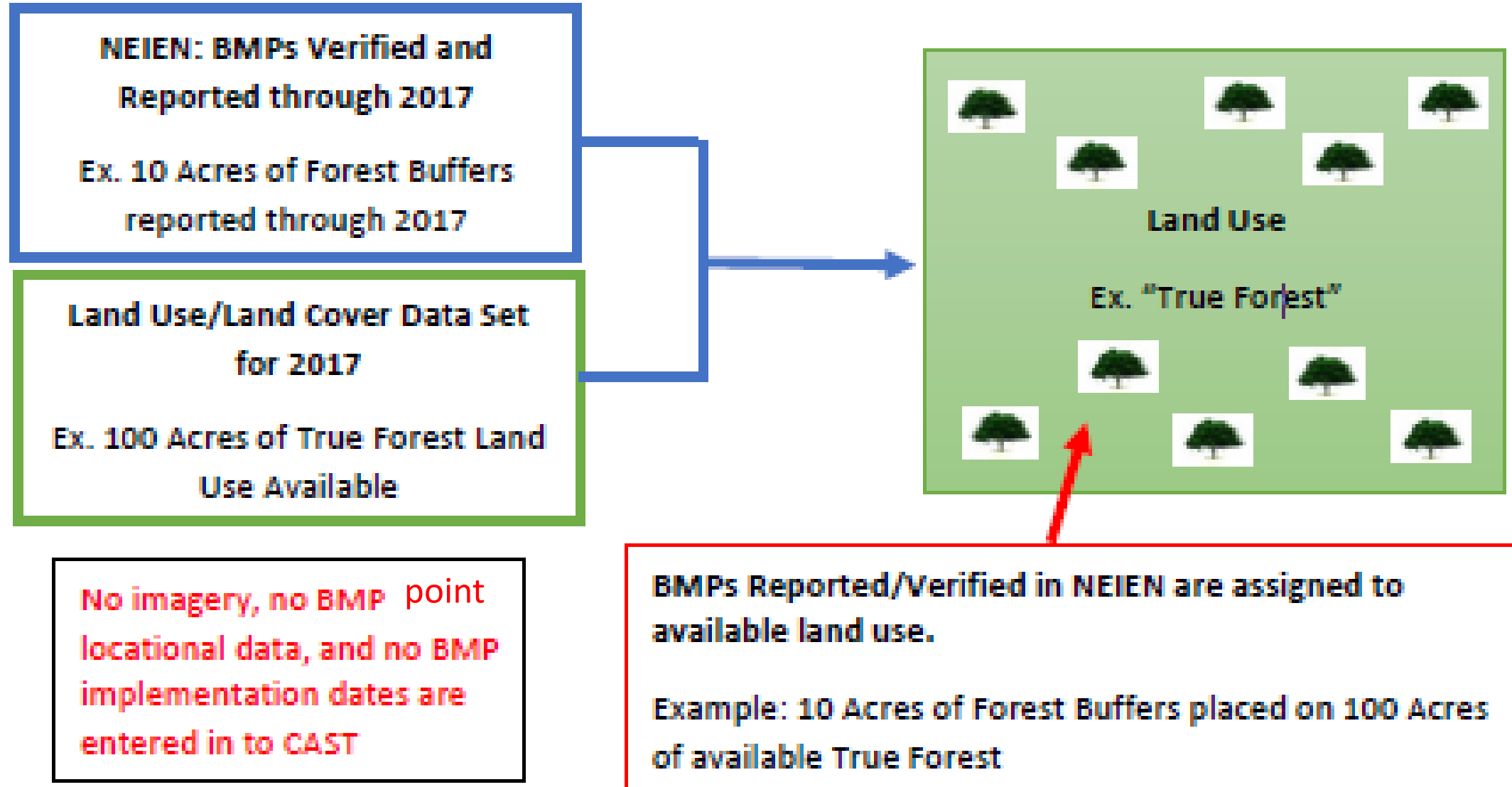
- The Backout Calculation is developed by assigning the practices submitted to the Bay Program by the States up to the date of the imagery to available land uses.

In Addition to the reported Practices:

The Ag Census data informs the agricultural land uses while the high-resolution land cover/land use data informs the developed and natural sectors. A proposed change is to use the mapped agricultural land and fit the Ag Census crops, pasture, and hay into those agricultural acres. Combining all the data sources from the land data team including the land cover, zoning, sewersheds, and other updates from the land data team used to produce the mapped land use with the NASS, Ag Census, feeding space, and state-submitted data yields the land use data (1985-2025) that is incorporated into CAST with milestone year updates.

****Note: The land use dataset/high resolution imagery does not detect BMPs like CRP acres. BMPs reported and verified by states through NEIEN are assigned to available land uses.**

To Visualize Backout



With an imagery date of 2017, CAST-19 calculated Backout as follows (Ex. Sewer Connections):

- The number of connections **backed out in 2020** is the number of **connections credited in the official 2017 progress scenario** we created when setting up CAST 19. 2017 was determined to be the backout year for CAST19.
 - *(This goes for 2018-2020).*
- The number of connections **backed out in 2017** is the number of connections credited in the **official 2017 progress scenario** we created when setting up CAST 19.
- The number of connections **backed out in 2016** is the number of connections credited in the **official 2016 progress scenario** we created when setting up CAST 19.
- The number of connections **backed out in 2015** is the number of connections credited in the **official 2015 progress scenario** we created when setting up CAST 19.
 - *(The process is repeated for all previous years for which there is an official progress scenario.)*
- **New data** (milestone updates, new inspection dates, etc.) for official progress is **pulled when a new version of CAST is released.**

Which Practices are affected by Backout?



- **Land Use Change Practices**
 - [Both practices that are **only land use change** practices along with practices that are **land use change practices that receive a nutrient efficiency or upland credit.**]
- If the BMP is **only** a land use change BMP, once it is included in the backout, **the land use change** from a higher to lower loading source *is assumed to be represented in the 2017 base conditions data*, therefore, the land use change credit will no longer be given to assure there's no double-counting of the credit.
- If a BMP included in the backout is a **land use change practice that receives a nutrient efficiency (upland efficiency)**, like a Forest Buffer, the BMP will *continue to be given the efficiency* as the backout does not remove the efficiency (upland credit).



Which Practices are affected by Backout?

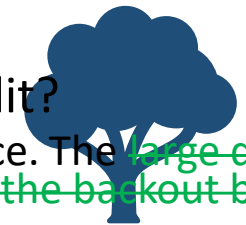
- Abandoned Mine Reclamation
- Impervious Surface Reduction
- Septic Connection
- Land Retirement
- Alternative Crops
- Tree Planting
- Forest Planting
- Forest Buffer
- Grass Buffer
- Wetland creation and restoration for floodplain and headwater

Land Use Change Only



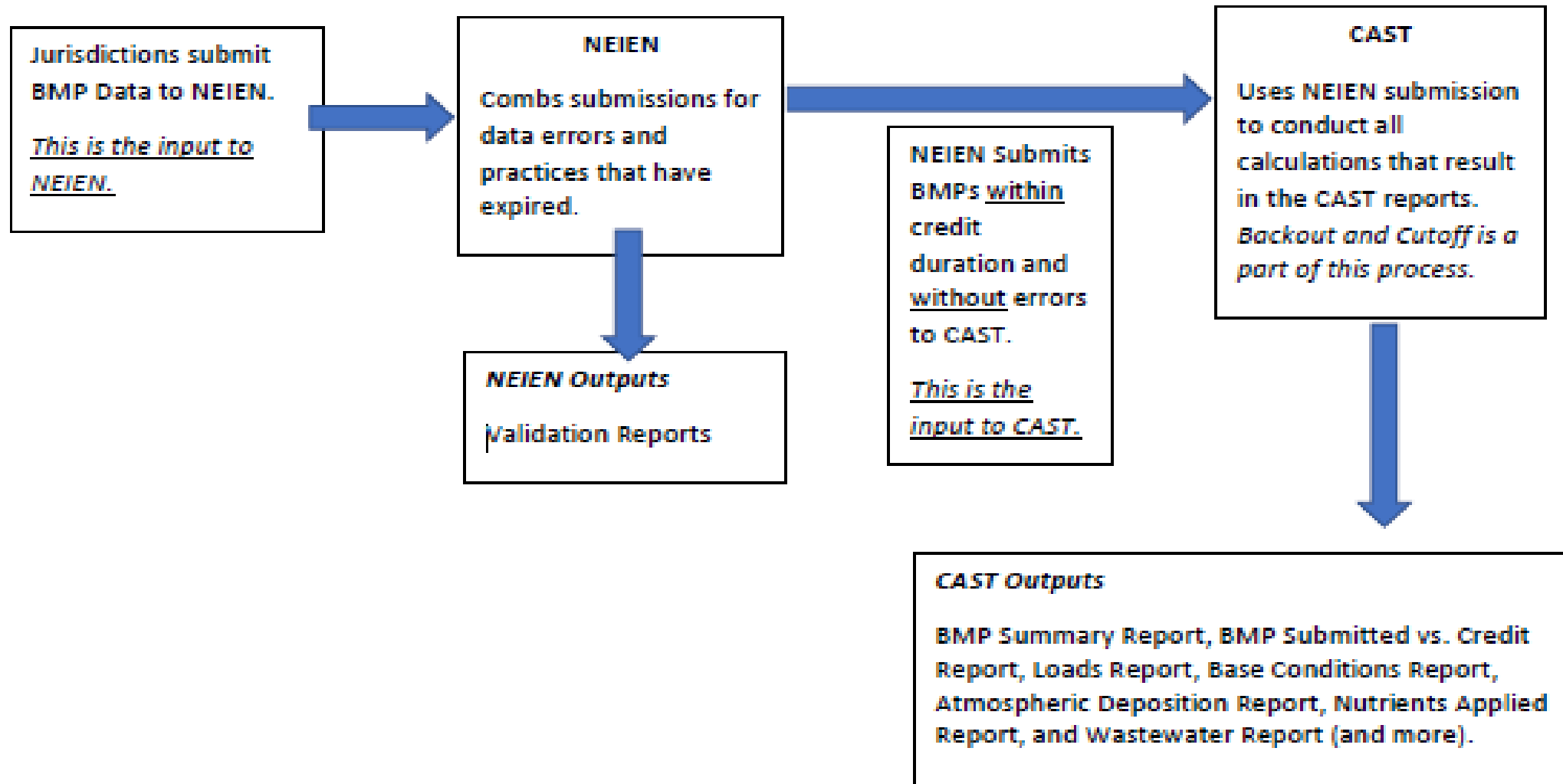
Land Use Change with Efficiency

- If an efficiency practice is included in the backout, does it still receive its upland credit?
 - Yes. Backout effects the land use change from a higher loading source to a lower loading source. The ~~large drop reduction in loads~~ due to this change ~~is no longer observed when the practice is included into the backout because the conversion has already occurred~~ is now captured in the updated land dataset.



How are Backout and Credit Duration Different?

- **Credit Durations** were developed to establish a frequency of inspections to verify that practices are on the ground and functioning. They were developed along with the accountability framework of the verification protocols.
- **Backout** was developed to minimize double counting in the model.
- Credit Duration refers to **the maximum amount of time a practice can be on the ground (and exist in the model) until an inspection/oversight is needed** to verify that the practice is on the ground and functioning as intended.
- Credit Durations are inspection/verification cycles that are applied in NEIEN. Backout is a calculation that is applied in CAST.
- The outputs of NEIEN, observed in the validation reports, are submitted to CAST. CAST then uses the data outputs to produce the reports used to evaluate annual progress. Backout is one of the many calculations that CAST is running through to produce its results.
- The backout number **will remain the same and be recalculated the same way** regardless of any changes that are made to credit durations.



- If practices are not verified on the ground and, in turn, the credit duration is not renewed, the removal of these practices from the model will affect cumulative implementation.
- The removal of these practices due to not being verified will not affect the backout number. It will remain constant until its next recalculation.

BMP	From Land Cover	To Land Cover	Current Backout Method	VA Suggestions to the Workgroup for Backout
Abandoned Mine Reclamation	Barren	Low Vegetation	The backout for land use change BMPs from 2017-2025 is 2017 progress.	n/a
Impervious Surface Reduction	Impervious	Low Vegetation	The backout for land use change BMPs from 2017-2025 is 2017 progress.	n/a
Septic Connections	n/a	n/a	Backout is determined using census data	VA proposes backout of septic connections be constrained to only the BMPs encompassed by the service areas for which mapped changes are incorporated.
Alternative Crops Grass Buffers Land Retirement Wetland Creation Wetland Restoration	Low Vegetation	Low Vegetation	The backout for land use change BMPs from 2017-2025 is 2017 progress.	VA proposes discontinuing all backout currently based on land use forecasts or Ag Census. VA proposes discontinuing all backout of herbaceous BMPs as they are highly unlikely to be properly classified as a land use change when the change is low vegetation to low vegetation.

*The land cover product from Chesapeake Conservancy does not include a True Forest Category. Tree Canopy is defined as deciduous and evergreen woody vegetation of either natural succession or human planting that is over approximately 3-5 meters in height. Land cover was used for this table instead of land use because it does not incorporate the agricultural census.