Backout of Septic Connections, WWTWG November 2021

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Backout Refresher

Backout **only** applies to **land use change/load source change/land conversion** BMPs that alter a previously-projected load source to a new load source.

- Backout was designed **to prevent double counting.**
- For efficiency BMPs, **backout only affects the land use/load source change credit.**

➢ **Land Use/Load Source Change BMP Example: Grass Buffer**

Available Land Use

10 acres of Small Grains and Grains

BMPs Reported

Verified BMP Assigned to Available Land Use

10 acres of Grass Buffer Assigned to Small Grains and Grains

Land Use Change

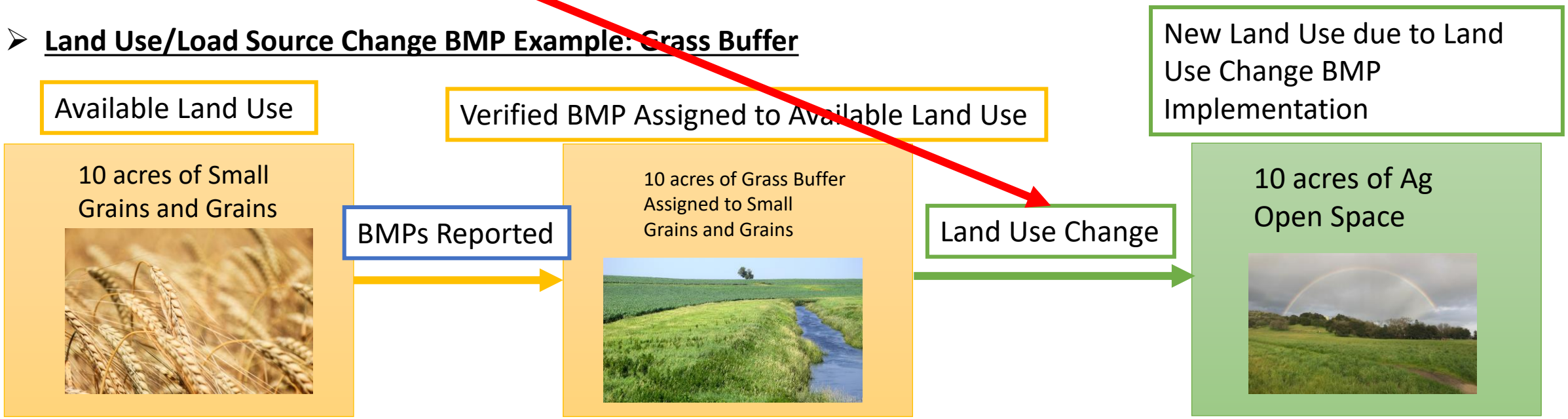
New Land Use due to Land Use Change BMP Implementation

10 acres of Ag Open Space

Backout Refresher

- The purpose of the land use change BMP is to **convert the land use from a higher loading source to a lower loading source.**
- These land use changes **should be accounted** for in the base conditions/land use **projection data.**

➢ **Land Use/Load Source Change BMP Example: Grass Buffer**



Important Takeaways on Backout

- Backout aims to capture the land use change to a land use with a lower loading rate that occurs from implementing land use change BMPs.

- Backout **does not** capture specific BMPs with point locations.

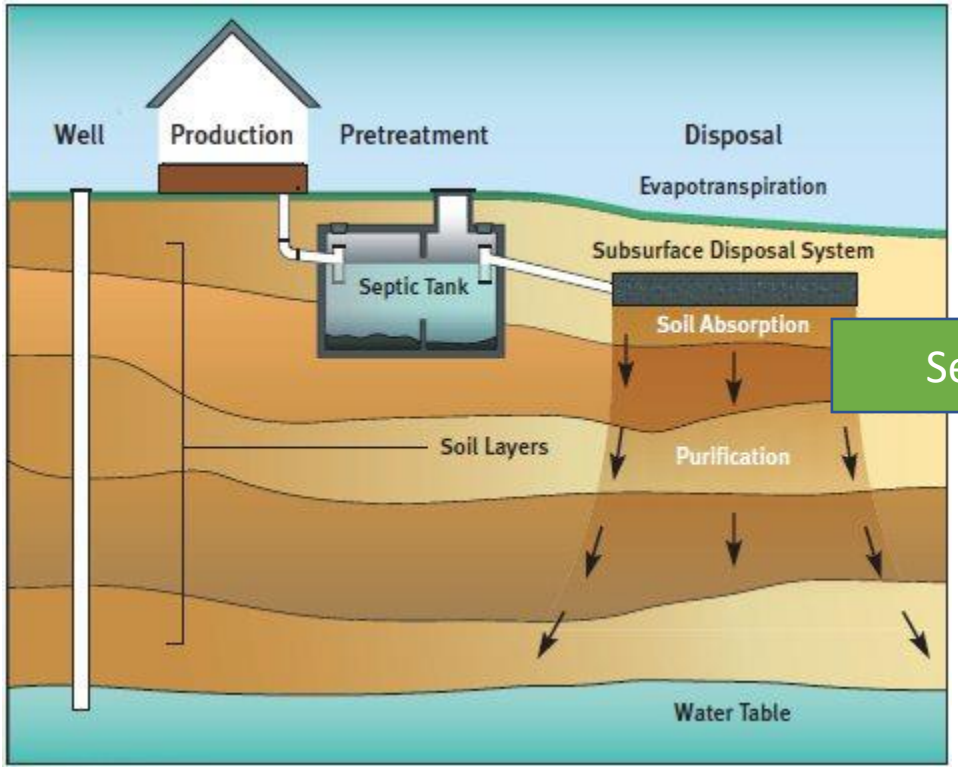
- **For Example**: A forest buffer BMP will **convert a cropland land use to a forested land use**.
  - This change is assumed to be **captured as an increase in forested land/tree canopy** in the high-resolution land cover imagery.
  - With the land use change captured in the base conditions of the model, **the land use change BMP should no longer be credited in addition to the base condition land use data** as this may lead to double counting the land use change.

SEPTIC CONNECTION BMP

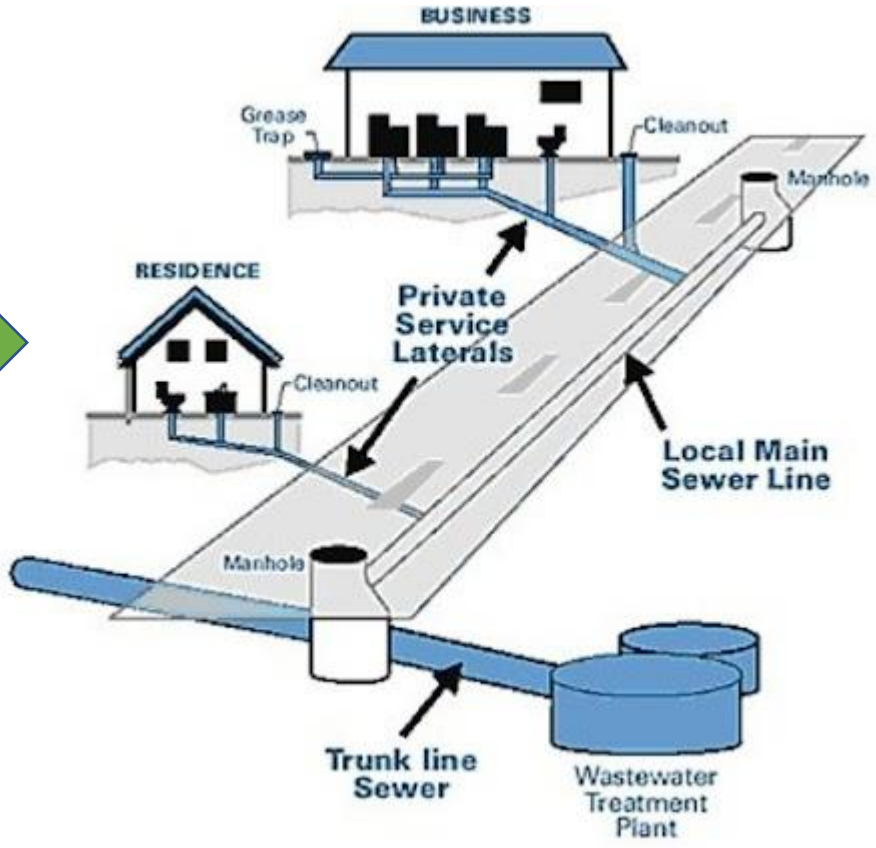
What are Septic Connections?

- **Septic connections convert from private septic tanks to a municipal sewer system.**
- *How does this work in CAST?*
- The septic connection BMP eliminates the septic load for the number of systems selected. The load is assumed to be captured in the wastewater data. Wastewater loads are measured, and the measured load is reported. This measured load will include the loads from the newly-connected septic areas.
- *What is the load source change that occurs?*
  - The septic connection BMP **removes the septic load source** once implemented.
  - Septic load goes to 0 lbs and the load is captured in the wastewater data.

The Load Source Conversion that Occurs through Implementing Septic Connections



Septic Connection BMP



What informs the Septic Load Source in the Base Conditions?

Base Conditions of Sewer Service Areas in the Model

Sewer Service Area (SSA) Boundaries from Counties/Localities

How?

SSAs originally collected by Tetra Tech in 2009.

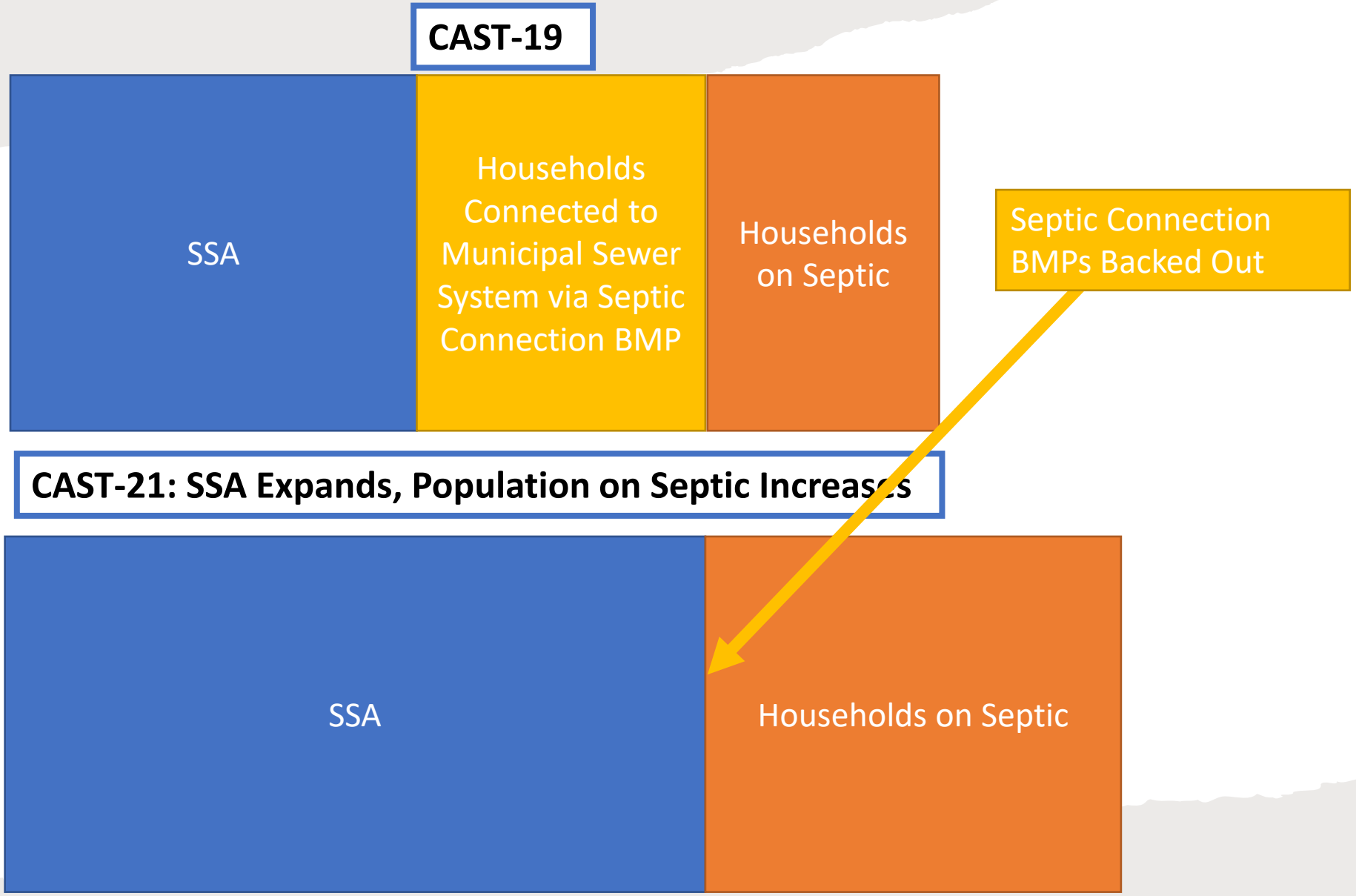
- Data received for 60% of WWTPs.
- Outside of the SSAs provided, **SSAs were modeled using population density, populated place, and the 1990 Census (last year census collected WW info).**

Septic System Growth by County and/or Model LRS

How?

When the sewer model is updated for each milestone, Census County-level population is used to control total estimated population on sewer and septic. The future population for 2025 is forecasted.

Backout of Septic Connections (SSAs updated biannually)



How is backout applied to Septic Connections?

- Only **estimate septic connections within the mapped sewer service areas provided to us by states or localities** for the Milestone updates.
  - Therefore, there is **no duplication of data** for connections outside the mapped sewer service areas provided to us.
- Count **all households within mapped sewer service areas as being on sewer** and all single-family detached households outside sewer service areas as on septic.

Without Backout, How would double counting of Septic Connections occur?

- **Example 1:** If our mapped sewer service areas for CAST-21 show an expansion of sewer service areas but the additional households on sewer are also reported as a septic connection BMP, they will be double counted.
- **Example 2:** Sometimes septic systems are included within mapped SSAs. If these septic systems are later connected to sewer and reported as a septic connection BMP, we will be double counting those connections.

What informs the Septic Load Source in the Base Conditions?

- **For CAST-21,** the Chesapeake Conservancy requested SSA data from localities throughout the watershed in 2019 and 2020.
  - *This data is being assembled and compared to the current data to determine which dataset is more detailed/covers a larger area.*

Questions for the WWTWG

When was the last time the mapped SSAs were updated across the watershed in CAST?

How often are these SSAs updated and incorporated into CAST?

Is it appropriate to remove the Septic Connection BMP from CAST (through a process called backout) under the assumption that the mapped SSAs have captured the load source change (the connection of the septic system to municipal wastewater)?

Bottom Line: Are Septic Connection BMPs captured in the base conditions?