

Transition Current CAST Scenarios to CAST-2017

CAST users who want to use prior CAST scenarios in the new CAST-2017 will need to transition their scenarios. Differences in the model versions require users to modify BMPs data. Modifications can vary depending on your intention. Each user has to determine what makes sense in the context of their scenarios. Changes include:

- Load sources including land uses
- Addition of agency type, which refers to the land holder as federal or non-federal
- Best management practices (BMPs)
- Geographic names for modeling segments

Users can download their BMP data from the current version of CAST at CASTTool.org, make changes to the BMP data, and upload to CAST-2017 at CAST.ChesapeakeBay.net. CAST-2017 has new functionality that allows tables of BMPs to be uploaded, as well as entering data through a form on the website. Where there are invalid data in the uploaded BMP file, those invalid records will be shown so a user can make corrections either directly through the website or by downloading the invalid BMPs, making changes and uploading those revised BMPs to the scenario.

The accompanying tables provide suggestions on how to relate the old BMP data to valid CAST-2017 data. **The suggestions are provided only as a starting point or example for CAST users.** Ultimately, it is the user's knowledge of the BMPs and purpose for the scenario that should inform decisions to convert the data. Users may want to follow the steps outlined below when converting existing scenario data into valid CAST-2017 data.

Get BMP data from prior scenarios

1. View your scenario in CASTTool.org.
2. Select Download Results.
3. Download the Input Files using the link on the page. *(Note: this link will become available June 1, 2017).* You will have downloaded a Land, Animal, and Manure Transport file if you had BMPs of these types in your scenario. For example, if your scenario was only for developed land BMPs, no animal or manure transport file would have been downloaded.

Create a CAST-2017 scenario and import BMPs

4. Add a new scenario to CAST-2017 at CAST.ChesapeakeBay.net and upload these BMP files to your new scenario.
5. Select Edit your new scenario. View validation errors on the Invalid BMPs tab on the screen.

Update BMP file

You can fix the errors on screen, or download the invalid BMPs and change the data in that file. If you prefer to change the data in the file, download the invalid BMP file from the invalid BMP screen. Next delete the invalid BMPs on the screen. Then make changes to the file and upload to your scenario.

Whether you make changes on the screen or in the file, the steps below will help organize your approach. Use the relationship table to inform your updates. The table includes three tabs—BMP, load source group, and segmentation. Each of these tabs include suggested conversions to help you get started.

Land BMP table

1. For State Unique Identifier, enter any alphanumeric unique identifier. Examples: NY-1, NY-2, etc.
2. The prior CAST had spatially-defined federal land uses. CAST-2017 has agencies to indicate individual federal land holders and non-federal land. Agency types include nine different federal entities, non-federal, and two Maryland-specific stormwater designations. For Agency Code, many users will enter non-federal for all records. This indicates the BMP is not on land owned by federal agencies such as the Department of Defense or National Park Service. Other users will need to enter the federal agency land holder name. There are also two developed land holders specific to Maryland that may be entered. The full list of valid agencies is available in the source data on the CAST home page.
3. State abbreviation is already present in your downloaded file. The state abbreviation remains valid in CAST-2017.
4. Use the CAST version relationship table to look up invalid bmp short names and input the appropriate CAST-2017 BMP short name. The relationship table includes suggestions, but you may find more appropriate selections for your scenario. There is no need to follow the suggestions. They are provided only as a starting point. Three BMPs do not exist in the CAST-2017: poultry phytase, swine phytase, and urban fertilizer reduction. The poultry and swine manure nutrient concentrations consider the effect of phytase over time. The turfgrass application rate for each year reflects the states' laws on application rates. Since these effects are implicit in CAST-2017, there no longer are these two separate BMPs.
5. Use the CAST version relationship table to cross-walk the Phase 5.3.2 land-river segments to the CAST-2017 land-river segments. The A, B, or C prefix on the land segments are no longer used. Instead, H, N, and L are used. A, B, and C do not represent the same variable as H, N, and L. There also were some changes in the river segments. The segmentation viewer can also be used to determine the old and new segment name if you can identify a BMP location on a map. The segmentation viewer tool is available at: <http://gis.chesapeakebay.net/modeling/>.
6. Use the CAST version relationship table to cross-walk the Phase 5.3.2 land use group to the CAST-2017 load source group. Land uses are now denoted as load sources. Load sources are a more appropriate designation since there are loads that do not have land areas associated with them. Examples are shoreline and stream bed and bank. The load source categories changed with the new version. The land use or land use group that your BMP was originally submitted on may no longer be relevant in CAST-2017. One option is to input your BMP on the largest load source group available in CAST-2017. Check source data available on the CAST home page for the complete list of load sources, groups, and definitions.
7. Conflicts in the BMP implementation unit may be created during the process of cross-walking BMPs and/or load source groups. As in the past, the same BMP cannot be entered on the same load source group with different units, such as acre and percent. You will need to choose one unit. If you pick percent, then you can only have one record of that BMP on the load source group since it would be illogical to have a BMP at both 80% and 90% on the same load source. This unit conflict issue can be created where there are two different existing BMPs related to the

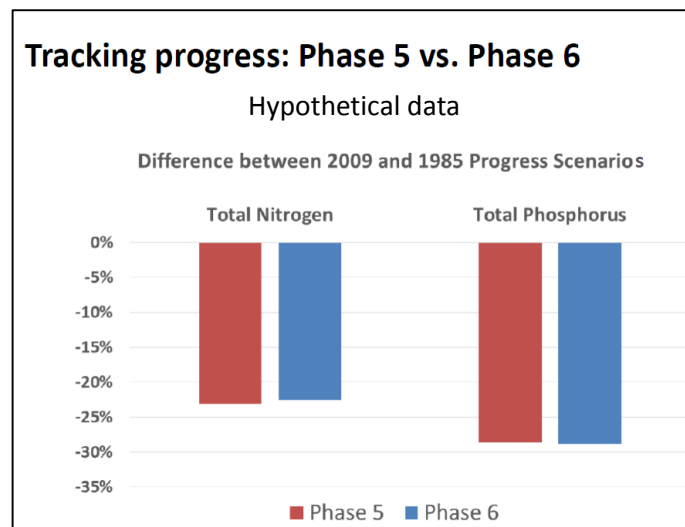
same CAST-2017 BMP measured in different units. Another way this conflict is created is if the existing land use group is mapped to a CAST-2017 load source group that includes other load sources with the same BMP and unit. Choosing units of percent and the highest amount will maximize the implementation.

Animal and Manure BMP table

In addition to changes required to the Land BMP table, the Animal and Manure BMP tables also include animal group. The animal groups are the same in the prior version of CAST as in CAST-2017. The manure transport BMP designates a FIPS from and FIPS to. The FIPS is the county indicator code and a relationship table of the FIPS to the county and state name is available from the CAST-2017 home page under source data.

Compare loads between scenarios. Relative reductions.

Users may want to compare nitrogen, phosphorus, and sediment loads among scenarios that were run in the prior version of CAST and CAST-2017. A valid comparison is only possible among scenarios in the same version. To compare load reductions among versions, determine the *percent* reduction, not the pounds, between two or more scenarios in the prior CAST. Then determine the percent reduction between those same scenarios in CAST-2017. An example of such a comparison is below using hypothetical data. Phase 6 refers to CAST-2017.



Still have questions about transitioning to CAST-2017? See the frequently asked questions on the home page at CAST.ChesapeakeBay.net.

Phase 2 WIP

The transition of the Phase 2 WIP to CAST-2017 requires additional updates than those in the steps above. There were cases where changing load source groups for all BMPs from the prior version to CAST-2017 did not resolve errors. This occurred because there were conflicts with other BMPs on the same load source group. Load source groups were established for certain BMPs in addition to the changes made in the CAST version relationship table. These additional updates are listed below.

BMP	Prior CAST Land Use Group	CAST-2017 Load Source Group
NonUrbStrmRest or UrbStrmRest	any	streambedandbank
AbanMineRec	any	MixedOpen
CarSeqAltCrop	any	Row
ConserveTill	any	Row
DirtGravelDSA	any	Roads
DirtGravelDSAOut	any	Roads
DirtGravelnoDSA	any	Roads
EandS1	any	construction
ForestCon	any	Turfgrass
ForestBufUrban	any	Turfgrass
IncorpHighLate	any	RowWithManure
SCP11	Impervious	Roads
SCP11	NonRegulatedImpervious	NonRegulatedRoadsAndTreeCanopyImpervious
SCP11	MS4Impervious	MS4RoadsAndTreeCanopyImpervious
UrbanTreePlant	any	Turfgrass
UrbGrassBuffers	any	Turfgrass
SCP11	CSSImpervious	CSSRoadsAndTreeCanopyImpervious
NMCoreN or NMCoreP	Ag	CropHay