Pavement Historical Database (PHD)
Frequently Asked Questions

1 Introduction

In this document, users can find answers to commonly asked questions by PHD Data Entry and Data Owner users. If users have specific questions for PHD interface; data collection, preparation, or entry; or exporting PHD data, they are encouraged to search within this document. If users cannot find the answer, please contact PHD Administrators or the Region's designated PHD liaison.

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Region designated PHD liaisons:

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The following seven sections list the commonly asked questions (and answers) related to the PHD data entry process.

2 Data Collection Resources

What resources can be used to find information needed for data entry?

The following resources, databases, or programs may be used to aid in finding data for entry:

- **ProjectWise:** an MDOT's electronic document tool used by both internal MDOT staff and external partners (like consultants) to manage documentation for construction projects. Most construction records required for PHD entry can be gathered from ProjectWise.
- **MDOT PR Finder:** an online mapping application that helps to identify the PR number and milepoints for all roads in the state of Michigan. This website is open to the public.
- **MDOT Construction Contract Inquiry (CCI):** an online database with project-specific information, such as contract-level information, contract modifications, and contractor payments that reflect "As Built" information. CCI database is open to the public.

- **Google Maps/Google Earth:** tools for aerial imagery. In many cases, the Google aerial imagery is captured recently (and after the project's completion date). In this case, certain pavement features can be verified, such as the number of lanes, lane type, lane width, should width, median type and width, and others.

The following construction-related documents and forms may be used to aid in finding data for entry:

- Project plans and proposal which include project location (PR numbers and milepoints), typical sections, work items, etc. "As Built" plans are preferable, but if project information is being entered soon after construction, these might not be available.
- Contract modifications to check for material changes made during construction.
- HMA Job Mix Formulas (JMF) (MDOT Form 1911) and concrete JMF (MDOT Form 1976).
- Report Of Quality Assurance Testing (MDOT Form 1903B) and Weekly Summary Of Certified Concrete (MDOT Form 1155).
- Material Source List (MSL) (MDOT Form 0501), and the Material Certifications, Certificate of Compliance, and/or Certificate of Analysis.
- Testing orders for surface seals and crack treatments.
- Delivery tickets (HMA, concrete, aggregate, etc.).
- Inspector's Daily Reports (IDRs) (MDOT Form 1122B), Inspector's Report of Concrete Placed (MDOT Form 1174R), and/or Aggregate Inspection Daily Report (MDOT Form 1900).
- Record of Soils Recommendations (MDOT Form 0583)

NOTE: In case the construction documents for **Non JobNet Jobs** are unavailable or incomplete, contact personnel who have direct knowledge of the work done and gather project related documentation. Enter as much accurate information as is available.

What methods are being used around the state for capturing data? Is there a template for station to mile-point conversions?

There is not an official form to fill in to capture PHD data. Some use spreadsheets for various input items such as materials data and station to mile point conversions. Some use project plans to visually lay out sub-segments with color coding.

The PHD Data Spreadsheet, which is available on the PHD informational website, can be used for PHD data collection and can help format and organize PHD data. This spreadsheet can also be used to convert stationing to mile-points. The beginning mile-point in reference to the beginning station is needed for proper conversion. Also, station equations would need to be manually applied within the spreadsheet.

3 General Data Entry

Do very short projects have to be entered into PHD?

Projects shorter than 0.1 mile are optional. Some short projects are required to be entered, such as when lanes are added or reconstructed (turn lanes, for example).

Why don't I see the measurement/layer/attribute I need to enter in the drop-down choices?

Contact the PHD Administrator to see if the desired measurement/layer/attribute can be added.

Can I add additional information that cannot be entered in any PHD screen?

Yes. To detail additional information that cannot be entered within a segment, Lane, or Shoulder details screens, users can use the **Segment Comments** box or **Project Comments** box.

Should I always have to save data before exiting any screen within PHD?

Yes. Users must save the data (save as a "Draft" or "Complete" status) before exiting any screen (segment, lane, shoulder, layer, etc.). Without saving, data will be lost when using **Back**, **Cancel**, or even **navigating to a different submenu**. Similarly, data will be lost if a project is exited for any reason, including network or connection issues.

Can I enter additional data after I click on finalize? How do I correct a project that has been finalized?

After a project has been finalized by a Data Entry person, it goes to a Data Owner for review. If the Data Owner has **not** finalized it, they can reassign it to the Data Entry person so that data may be added or corrected. If the Data Owner ***has*** finalized the project, it has to be unlocked by the PHD Administrator. Please contact the PHD Administrator (with the Job ID identified) to unlock it.

Should I finalize a multi-year project after the first year?

No. Save the job in "Draft" status. When the project construction is complete (the following year(s)), complete the data entry in PHD, and then finalize the job.

Should I enter pavement projects outside of the paved shoulder (i.e., sidewalks, non-motorized path, or Portable Intermittent Truck Weigh Stations (PITWS))?

Work outside of the shoulder or curb and gutter is not included in PHD, (except for median information). However, items such as non-motorized paths within the shoulder or lanes must be included but are not separated. The width should be included in other adjacent lanes or shoulders. A comment can then be added to the Project Comment and/or Segment Comment boxes.

Pavement projects outside of the shoulder/curb and gutter (like the PITWS) cannot be entered, but can be noted by adding a note in the Project and/or Segment Comment boxes.

4 Job Details

How do I enter projects that have more than one job number?

Enter the work associated with each job number separately. This will be especially important if PHD reports are created/exported based on a job number or when information related to specific job numbers is needed. An example of this is mainline work is done under one job number and shoulder work is done under another job number. Another example is an intersection improvement done under one job number and work outside the intersection done under another job number. **DO NOT** enter projects or job numbers with non-pavement work such as landscaping, freeway lighting, signage, etc.

How do I assign Job ID at job creation? If I used an incorrect job ID at job creation, can I change it later?

For JobNet Jobs, the PHD Job ID is simply the numeric value of the Job Number from the JobNet database (5 or 6 digit job number). For Non JobNet Jobs, **Error! Reference source not found.** defines the types of Non J obNet projects and Job ID naming convention guidelines.

For Non JobNet jobs, if an incorrect job ID was used when creating the job, users can edit/change the Non JobNet job ID later, without losing entered data. For JobNet jobs, users cannot change the job ID once created. Users must contact the PHD Administrator to correct the job ID.

CPM projects (such as crack seal) can cover a very large number of miles. This can take a lot of time to enter due to the large number of segments. Can this be simplified?

Yes. CPM projects can be "simplified" by selecting 'Yes' for Simplified CPM Format, on the job creation screen. The project must be a CPM project with Work Type Code 400 to 499. Simplified CPM jobs require segment layer information only, and do not require segmentation based on lane or shoulder changes, do not allow entry of lanes and their details, and do not allow entry of median information. This process will streamline PHD CPM entry and make CPM projects much easier to enter. Note that the Simplified CPM prompt can only be selected once, and will remain in the Simplified format for the duration of data entry. If the CPM project includes HMA layers and/or different work/layers in each lane, the Simplified CPM Format should not be used.

Why won't PHD allow me to create a project with a segment outside of my TSC/region jurisdiction (a multi-region project)?

In general, Data Entry users can only create projects and segments within the limits of their Region. If a project crosses multiple regions, contact the PHD Administrator. The PHD Administrator can assign the Data Entry User a 'Statewide' access in PHD, so the user can create and work on multi-region projects.

How should I flag a demonstration or experimental project? For example, I have one using crumb rubber, or a different special material type.

If applicable, check the appropriate Special Project Type(s), in the Job Details box (at job creation). Add notes to the **Segment Comments** box or **Project Comments** box to indicate crumb rubber use or any different special material type.

What is the Open to Traffic date?

It is the date when **all** the lanes have been opened to traffic. At PHD job creation, if the project is not yet complete, enter an approximate placeholder and update the date when the project is complete.

Can I change the Fix Life when creating a job in PHD?

For JobNet jobs, users ***cannot*** change the Fix Life, because it is automatically generated from the JobNet database.

For Non JobNet Jobs, and once a WTC is selected, the Fix Life will be auto-filled. However, users ***can*** change the Fix Life. Click on the **Fix Life Guide link** within PHD to review the appropriate Fix Life per work type. Consult the appropriate Pavement Management Engineer for further guidance or confirmation.

When creating a project in PHD, if the information pulled from the JobNet database is wrong, is there a way to correct the data in JobNet and then have PHD pull the correct data?

PHD pulls information from the JobNet database (the Planning Database) only at PHD job creation. Changes to JobNet database will not be reflected in PHD after job creation; therefore, corrections need to be made in JobNet prior to job creation in PHD.

In PHD, only PR and milepoint information from the JobNet database ***can*** be corrected in PHD after job creation. Other information like WTC and Fix Life ***cannot*** be corrected in PHD.

5 Segment Details

If PHD automatically generated the segments (PR numbers and milepoints), should I always keep those segments in the PHD job?

At PHD job creation for JobNet jobs, preliminary segment information (PR numbers and milepoints) is generated and is based on the originally planned or designed records (from JobNet database). However, modifications to those segments or additional segments may still be needed since PHD entry should always be based on "As Built" information. For example, an asphalt mill and fill project could be programmed to be from 0 to 2.3 milepoints, but the "As Built" information could indicate a shorter mill and fill length (0 to 1.9 milepoints, for example).

Is there a minimum length of a segment?

No, there's ***no*** minimum length, but segments less than 0.1 mile may be entered with the adjacent segment at the user's discretion (and Segmentation Rules can be waived). **The exception** is segments involving additional lanes less than 0.1 mile (turn lanes, for example). These ***should*** be entered as new or subsegments and not included in adjacent segments to capture that additional lane mileage.

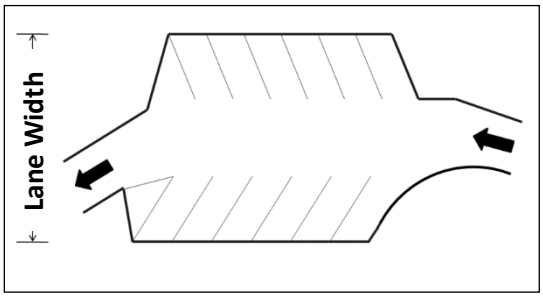
Do Maintenance Crossovers and Temporary roads/routes have to be entered?

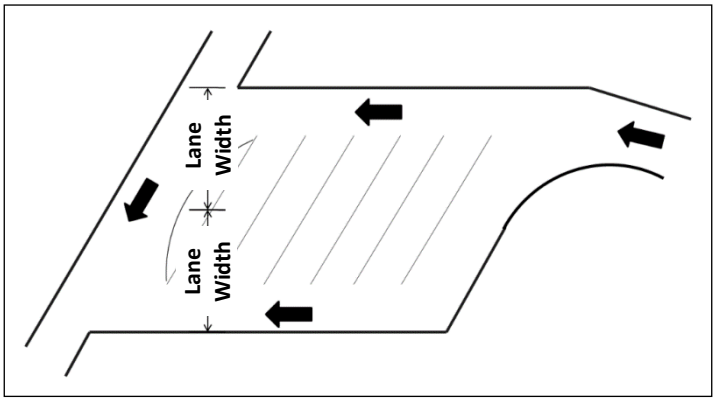
Crossovers, short roadways that connect both sides of a divided highway, should **not** be entered in PHD. Temporary roads, constructed along a temporary alignment solely for use during construction, should **not** be entered in PHD, since these are not part of the MDOT trunkline.

Since the PR numbers for the rest areas include the parking area, does the parking area need to be entered?

Yes. Enter the parking area as a lane and select the Lane Type "**Rest Area Parking Lane"**. Consider each driving path as a separate lane and include parking spaces in the lane width. **Note that** ramps usually have their own PR number and should **not** be included in this area.

Please note that this is different from how standard segments (mainline lanes) consider parking, which includes parking on the shoulder. Please review What is included within the Shoulder width? for standard segment parking entry.





Entering ramps takes a lot of time. Do they have to be entered? If yes, how?

Yes, ramps are important assets and must be entered and tracked in PHD. The ramp is entered under its own PR number, and the ramps PR number begins or ends at the 2' gore point, so portions of the ramp that are next to the mainline should be entered with the mainline. Please see the ramps **Segmentation Example** in the PHD User Guide.

During construction, the length of a ramp was increased. In PHD, when I enter the new milepoints, I get an error that they are outside the limits of the PR (exceeds the segment length). What should I do?

PHD looks at the latest official PR Framework to make sure entered PR numbers and milepoints exist [PR framework refers to the linear referencing system (LRS)]. When the milepoints for a PR change (this can be checked using **MDOT's PR Finder**), that needs to be reflected in the next version of the Framework. This typically happens around **October** each year. Since PHD data is typically entered before that (by **January** of the same year), the error message occurs.

In this case, create the segment using the current PR milepoints limits, and save the segment (and the job) in "Draft" status, until the new Framework version is released. However, if the milepoints for the PR did not change between the current and next version of the Framework, and when the difference is small and within the 0.1 mile, then limits of the PR in PHD can be used (not the actual PR limits), and a note/comment should be added to the **Segment Comments** box. When the difference is greater than 0.1 mile, please notify the PHD Administrator.

During construction, a new ramp or new roundabout was constructed. In PHD, when I enter the PR number for the new ramp/roundabout, I get an error. What should I do?

PHD looks at the latest official PR Framework to make sure entered PR numbers and milepoints exist [PR framework refers to the linear referencing system (LRS)]. When a new PR is created (this can be checked using **MDOT's PR Finder**), that needs to be reflected in the next version of the Framework. This typically happens around **October** each year. Since PHD data is typically entered before that (by **January** of the same year), the error message occurs.

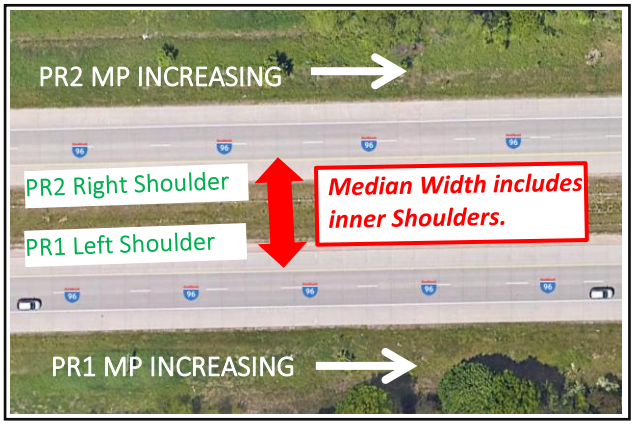
In this case, and in the **Create Segment** screen, select **Future** under the **Latest PR Version**. Users can create a placeholder segment with any PR number and milepoint (without any restrictions). However, the Framework Status of such segment in the **PR Segment List** will show as "Inactive" status. Users can complete the data entry for any "Inactive" segment (such as lanes, shoulders, layers, etc.), but need to save the job in a "Draft" status [since users cannot finalize the job until the Framework Status shows an "Active" status]. In the next year's PHD data entry cycle, and when the new alignment (a new ramp, a new roundabout, etc.) is reflected in the PR framework, create the same segment again. The Framework Status of such segment in the PR Segment List will show as "Active". Then, Copy segment details of the "Complete" and/or "Inactive" segment to the newly created "Active" segment. Delete the "Inactive" segment. Please refer to the **Create and Modify Segments** section in the PHD User Guide for more information.

How do I enter Median information? For segments with varying median width, what should I enter?

In the **Segment Overview** screen, select the Median Type (and Median Width, if applicable). Examples of Median Types (selectable options in PHD) include Undivided, Concrete Barrier, Guardrail, Graded with ditch, N/A (i.e., Ramp), etc. The Median Type "**N/A (i.e., Ramp)"** should only be used for one-way segments that do not have a median (such as ramps). Two-way segments without medians should use the selection **"Undivided"**.

For segments with varying median width, the median width in PHD is the ***predominant*** median width including ***inner shoulders*** (if any). For example, see the figure below. Please note that Segmentation is **not required** based on small changes in Median Width. However, segmentation is **required** based on significant changes in Median Width and/or changes in Median type (i.e., going from a divided to undivided median).

Median information is **only** required for standard jobs and is **not** needed/shown for Simplified CPM Format Jobs.



6 Lane Details

Why do I have to enter data for each lane separately?

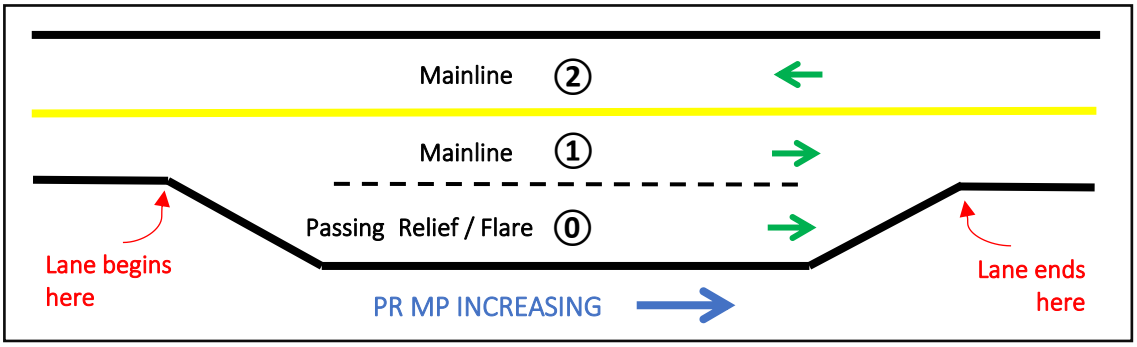
PHD is designed to capture occasional differences between lanes, including differences in Lane Type (Mainline, Left/Right Turns, Passing Flare, etc.) and Paving Year. Some PHD reports require individual lane details to provide the correct information, such as the quantities of HMA and concrete placed which is provided by the Material Quantity Report. Another example is for tracking the actual paving date (for each lane) for multi-year projects, which is important to determine Fix Lives and Service Lives as part of the MDOT's Life-Cycle Cost Analysis (LCCA) process.

In PHD, and when different lanes share similar details and layers, users can use the **Copy Lane** function to copy lane details and/or layers of a "Complete" Lane to another lane. This can reduce data entry and save users time if lanes are identical or have similar details.

Unlike the standard format, the Simplified CPM Format Jobs do not show different lanes, since jobs with WTC 400 to 499 (Capital Preventive Maintenance jobs) usually have the same fixes/repairs across all lanes.

When should a tapered lane be considered a "lane" in PHD and have its own data entered?

A lane begins at the start of the taper and ends at the end of the taper. The full length between the begin/end taper points should be considered as the total lane length. The varying width from 0' to 12' within the tapered length is not separately accounted for. Please follow the **Lane & Shoulder Numbering guidelines** in the PHD User Guide.



How should I number each lane in PHD? Should I specify the Lane Type?

Lanes are always numbered right to left, facing toward increasing milepoints in the PR segment (regardless of traffic direction). Lane 1 is the **right-most through lane** of the PR segment, and increasing lane numbers 2, 3, etc., are lanes **left of Lane 1** (such as a passing lane, center turn lane, or an opposing traffic lane (if it is the same PR number, i.e., undivided roadway)). Decreasing lane numbers 0, -1, etc., are lanes **right of Lane 1** (such as ramp lane, passing flare, right turn lane). Typically, divided roadways have a different PR number for each bound, so they are numbered separately. Please review the **Lane & Shoulder Numbering guidelines** in the PHD User Guide for more information and examples. One exception for the rules above is for a ramp when it is a separate entity (i.e., the entire PR number represents only the ramp). In this case, the ramp is numbered as Lane 1.

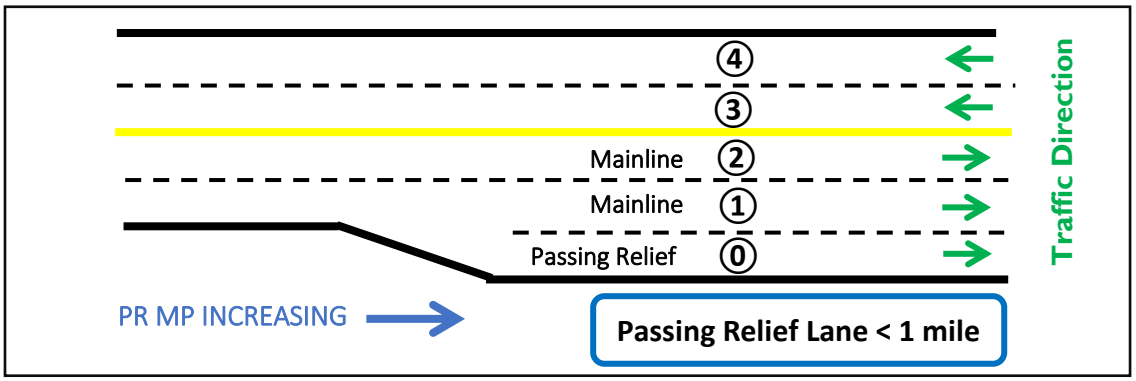
Lane Type is a required input in PHD. Select the lane type from the drop-down list under the **Lane Details** screen. Examples of lanes type include Mainline, Left/Right Turns, Off/On Ramps, Passing Flare, Weave, etc.

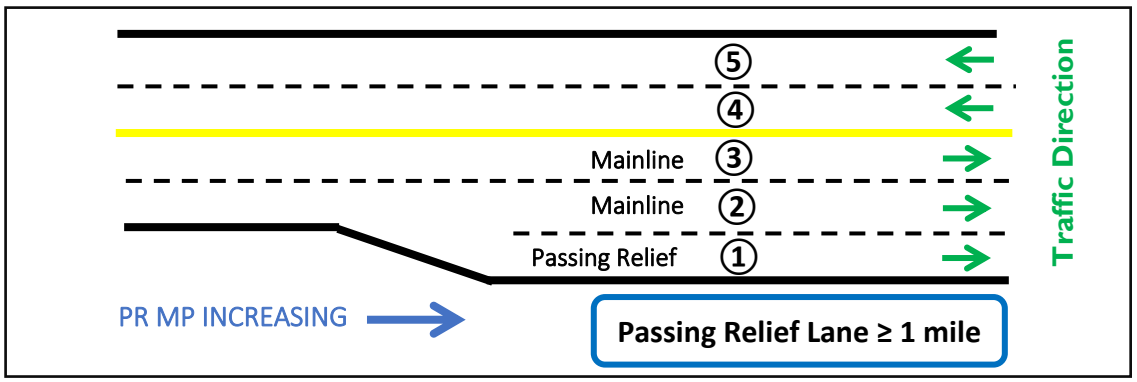
For Lane Type, what is the difference between "Passing Relief" and "Passing Flare"? How should be numbered?

Passing Flares can be constructed to facilitate traffic flow, particularly in rural areas, where there is no need for added through lanes. They allow traffic to flow around left-turning vehicles without significantly reducing speed on the main roadway.

Passing Relief lanes (usually on two-lane rural roads) provide passing opportunities that would otherwise be scarce where there are extensive no-passing zones, high opposing traffic volumes, or both. According to MDOT's Road Design Manual, Passing Relief lanes must be 12' wide and are longer than passing flares. Passing Flares can be less than 12' wide.

Please follow the **Lane & Shoulder Numbering guidelines** in the PHD User Guide when numbering Passing Flares and Passing Relief lanes. For a Passing Relief Lane of one mile and longer, the Lane can be numbered similarly to a mainline (as Lane 1 - the right-most through lane of the PR segment). If a Passing Relief Lane is less than one mile, the Lane can be numbered with decreasing lane numbers 0, -1, etc. (right of Lane 1), similar to ramp lane, right turn lane, etc. Passing Relief Lanes on the left side should just be numbered in the standard increasing number protocol.





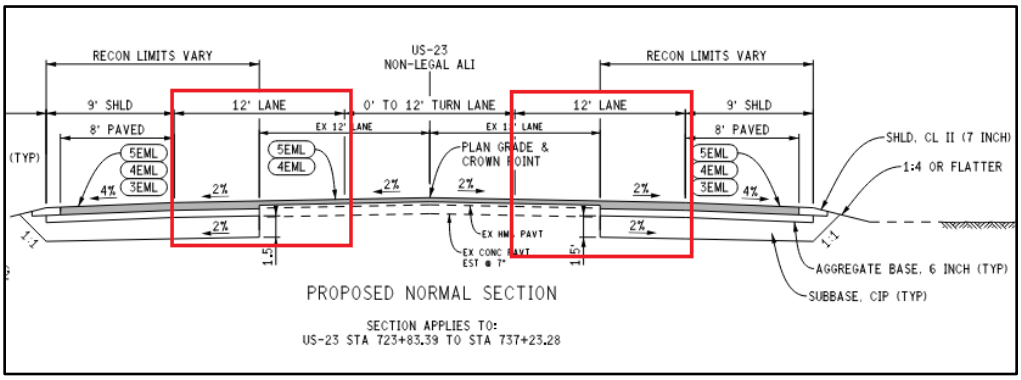
How do I enter lane width if the project paves only part of the lane width (partial paving)? For example, I have a project to widen an existing road, and part of the width is paved and part is existing pavement.

If the **Lane Details** screen, select **"Yes"** for "Partial Width Paving?", and select the partial paving width from the list.

How do I enter a lane or layer that is split but with different layers?

If both layers were placed as part of the same job, then the layer (to be entered in PHD) should be whichever layer makes up a majority of the width of the lane.

If the widths are identical, a 50/50split, and part of the width is paved and part is existing pavement, then the layer should be entered as the material placed on the job. If the widths are identical, a 50/50 split, and both were placed as part of the job, then you may enter the option with the greatest number of layers. For example, for the project shown in the figure below, the inside turn lane layers (in PHD) will be (milling and two course HMA). The outside lanes' layers (in PHD) will be HMA full depth (Subbase + Base + three HMA layers) (i.e., do not consider the milling and two HMA layers).



What does the Lane Type 'Buffer Space' mean?

It will identify the lane type as a 'paved area where crossing or travel is prohibited by a pattern of pavement markings.' Select this Lane Type in these situations, but make sure to evaluate the other Lane Types to verify that this is the proper selection.

For Surface Type (pavement cross-section), do I only consider the top layer?

No. ***All*** existing layers underneath the top surface placed with the project should be considered. This applies to each Lane and Shoulders since it is possible for Lanes and Shoulders (within the same segment) to have different existing layers. Consider the examples below:

- If the entire asphalt pavement was replaced in this job, then the surface type is (HMA Full Depth).
- If an HMA overlay occurred in a lane with existing HMA (but without any existing concrete pavement), then the surface type is (HMA over existing HMA).
- If an HMA overlay occurred in a lane with existing concrete pavement (regardless of directly or indirectly below the new overlay), then the surface type is (HMA over existing Jointed Conc).
- For Micro-Surface, Chip Seal, etc., if the thickness ≥0.5", then this is considered as a structural layer, and the surface type is HMA over existing HMA/Conc.
- For Micro-Surface, Chip Seal, etc., if the thickness <0.5", then this is **NOT** considered as a structural layer, and the surface type is determined considering the existing layers only. Please note that even if the layer is **not** considered a structural layer, it must still be entered into PHD a s a layer.

An exception for the examples above is a cross-section that has existing concrete, but is buried by a very thick aggregate overlay, and surfaced with a new HMA pavement. This can be considered (HMA Full Depth) since the existing concrete is deep enough that it does not significantly affect the surface HMA pavement. A note can be added to the **Segment Comments** box to indicate this deep existing concrete.

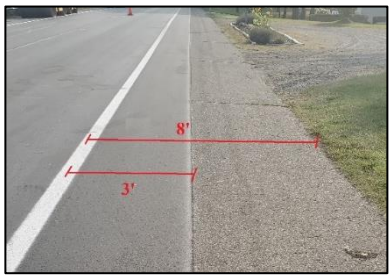
7 Shoulder/Curb & Gutter Details

What is included within the Shoulder width? What are the shoulder's Total Width, Paved Width, and Partial Width Paving?

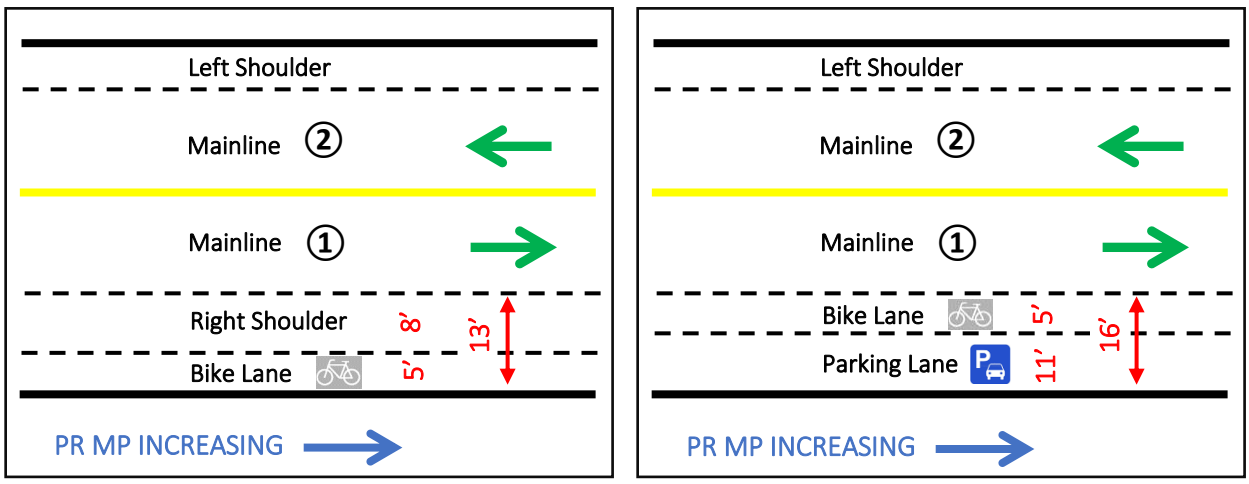
Shoulder in PHD is measured from the **edge of the vehicle travel lane** to the **break point** of the shoulder (end of placed aggregate material). There are three possible different **Width** inputs for shoulders:

1) The "**Total Width"** is the width of both the paved shoulder and the aggregate-based shoulder.
2) The "**Paved Width"** is the width of the paved shoulder (paved shoulder width in the current job).
3) The **"Partial Paving Width"** is the width of the paved shoulder that was paved in this job (i.e., the remaining paved width is the existing shoulder).

The example picture shows a shoulder with **8' paved width** and **3' Partial Paving Width** (paved in the current PHD job). **The total Width is also 8'** because there is no aggregate-based shoulder.



The shoulder does not include curb & gutter, with the exception of valley curb & gutter (include valley curb & gutter width with the 'Paved Width'). The shoulder also includes any bike lanes and/or parking (if adjacent to the travel lanes). For example, if a 5' bike lane is adjacent to the 8' shoulder, then the shoulder's width 13' (left image below). If a 5' bike lane is adjacent to the 11' parking lane, then the shoulder's width is 16' (right image below). Please review the **Lane & Shoulder Numbering guidelines** in the PHD User Guide for more information and examples.



How do I enter information when there is shoulder work, but no work in the existing parking area?

Enter the shoulder's **Partial Paving Width** and **information** of the work completed. Enter also the current **"Total Width"** and **"Paved Width"** for the shoulder and parking area.

How do I enter a shoulder-widening project? What if work was done to the existing shoulder before it was widened – do we collect this information?

Enter the new "**Total Width"** and "**Paved Width"** for the shoulder and enter the **"Partial Paving Width"** (the width of the paved shoulder in the widening project). Add the shoulder Layers for the work done to widen the shoulder. In the Segment or Project Comments box, indicate the original width of the shoulder before it was widened.

If work was done to the **existing shoulder** before it was widened (ex. cold milling), add a comment to the Segment or Project Comments box to indicate what work was done to the **existing shoulder** before it was widened. Also, add a comment to indicate the original width of the shoulder before it was widened.

How do I enter shoulder-only projects without deleting lanes and leaving them undefined?

For projects with shoulder-only work, the user can enter the shoulder information without creating lanes. If the lanes were automatically created for JobNet jobs, users need to indicate no work on any lane within the segment by selecting **"No"** for **Work Done**.

How do I enter information about intermittent curb and gutter?

If more than 5% of the total length of the curb and gutter is replaced (within a segment), then identify the segment(s) containing this work and select **"Yes"** for **Work Done** in the Curb and Gutter area for each segment affected. Be sure to select the left or right side as appropriate. In the **Segment Comments** box, indicate that curb and gutter replacement is intermittent.

8 Layers & Layer Attributes

Do I have to enter layers in the existing cross-section?

No. Only layers paved/placed in the current job should be entered. **Existing layers** or **layers paved/placed in other jobs** should not be entered with the current job. However, **repairs** and/or **pre-overlay work** on the existing layers must be entered (diamond grinding, milling, etc.). The existing layers do, however, need to be taken into consideration when entering the **Surface Type (pavement cross-section)** for the lanes and shoulders.

Do I have to enter layers in a certain order?

Yes. In PHD, layers should be entered in order of construction/operation. Consider the following examples:

- A ***Crush & Shape and Asphalt Resurfacing job (with milling)*** should be entered in the following order from the bottom (layer 1) to the top (layer 4): **Layer 1** is "Cold Milling", **Layer 2** is "Crushed and Shaped HMA", **Layer 3** is "HMA Leveling Course", and **Layer 4** is "HMA Top Course".
- A ***Concrete Pavement Repair and Asphalt Resurfacing job (with milling after the concrete repair)*** should be entered in the following order from the bottom (layer 1) to the top (layer 4): **Layer 1** is "Conc. Pav. Repair", **Layer 2** is "milling", and **Layer 3** is "HMA Top Course".

How do I enter Polymer Slab Stabilization projects?

This would be entered by using the **'Pavement Jacking'** layer. Individual PHD segmentation is unnecessary if there are several small gaps in pavement jacking. Instead, just use the limits of the stabilization/jacking and add a note in the **Segment Comments** box to indicate that work is intermittent.

How do I enter Void Reducing Asphalt Membrane (VRAM) material (such as JBand) in PHD?

Within the lane in which VRAM was applied, add the (Void Reducing Asphalt Membrane) layer, and select if this VRAM was applied on both edges of the lane (left & right) or only on one edge. No need to select any brand (like JBand).

How do I enter high stress HMA?

The inclusion of the correct asphalt binder (PG70-22P, PG70-28P, etc.) identifies it as a high stress HMA.

In HMA layers, what is a Warm Mix? What are Shingles? How to report the use of Reclaimed asphalt?

Warm Mix Asphalt (WMA) is a general term for technologies that reduce the temperature needed to produce and compact asphalt mixtures to construct pavements. The use of WMA in HMA pavement layer should be identified when the mixture uses a water-injection foaming device, water-foaming additive, or chemical additive to reduce the pavement temperature. The use of Warm Mix Asphalt can be indicated in the HMA Job Mix Formula (JMF) (under the "**REMARKS"** section), or can be indicated in the "Pre-Production Meeting Agenda" form. If used, select **'Yes'** for **"Warm Mix?"** in the **Pavement Attribute**, then select the Water Foaming and/or Additive used.

Recycled Asphalt Shingles (RAS) is a general term for recycling roofing shingles in new asphalt pavements. If the HMA Job Mix Formula (JMF) indicates the use of recycled shingles, select **'Yes'** for **"Shingles used in the mix?"** in the **Pavement Attribute**.

Reclaimed Asphalt Pavement (RAP) is the term given to removed and/or reprocessed pavement materials containing asphalt and aggregates. Most new asphalt pavements in Michigan contain recycled RAP material, and it is detailed in the HMA Job Mix Formula (JMF) under **"RECLAIMED"** section. Since users are required to enter **"Asphalt%"** and **"% Added"** from the JMF (in the **Pavement Attribute** screen), no further input is required regarding RAP use.

Gmm	Gmb	Gb	Gse	Gsb	FINES/ASPHALT RATIO	COMPACTION TEMP.	MIXING TEMP.
2.455	2.381	1.034	2.712	2.644	0.94	296	316

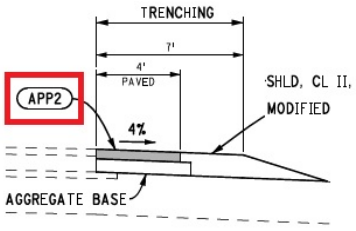
MIX/AGG. GRADATION, %		MIX/AGG. PROPORTION, %		
ITEM	PERCENT	MATERIAL/PRODUCER	PIT NO.	PERCENT
ASPHALT,%	6.46	2NS	39-69	28.0
P 1-1/2" (37.5 mm)	100.00	Slag Sand	92-0031	19.0
P 1" (25.0 mm)	100.00	Man Sand	39-69	25.0
P 3/4" (19.0 mm)	100.00	#11	92-46	11.0
P 1/2" (12.5 mm)	100.00			
P 3/8" (9.5 mm)	99.10			
P No. 4 (4.75 mm)	78.00			
P No. 8 (2.36 mm)	57.00			
P No. 16 (1.18 mm)	44.20			
P No. 30 (600 µm)	32.20			
P No. 50 (300 µm)	18.00	RECLAIMED	032-76	17.0
P No. 100 (150 µm)	8.20	FILLER		
P No. 200 (75 µm)	5.20	ASPHALT BINDER	GRADE: 64-28 / CERTIFIED SUPPLIER/LOCATION/CERT #: Marathon/Detroit/ABS3505	% ADDED: 5.56

Do I have to enter scratch (wedging) courses? How do I enter those with variable thickness?

Yes. Enter/add an **"HMA Wedge Course"** layer. Use the average or the predominant thicknesses and insert a **Segment Comment** to indicate that the thickness is variable (or within a specific range).

If a project has an HMA layer with more than one lift, how do I enter the thickness (application rate)?

Enter the application rate per Lift. Consider the example in the Figure below. The "HMA Application Estimate" Table indicates two lifts (2" and 1.5") for the shoulder mix (APP2). The user should enter each lift as a separate layer in the shoulder: a 2" layer (5EML HMA Level Course with a 220 Application Rate) followed by a 1.5" layer (5EML HMA Top Course with a 165 Application Rate).



HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
5EML	HMA, 5EML	165	64-28	AWI=260
APP1	HMA, APPROACH	165	64-28	5EML, MAINTENANCE CROSSOVER
APP2	HMA, APPROACH	385	64-28	5EML, SHOULDER, 2" LIFT AND 1.5" LIFT

How do I specify that a project used intermittent asphalt resurfacing repair (HMA skip patching)? Should I split the segment at each patch (segmentation)?

Enter/add an **"HMA Skip Patching"** layer to indicate any intermittent asphalt resurfacing repair (HMA patches). Do not split the segment at each patch. When the **"HMA Skip Patching"** layer is used, PHD will not consider this a continuous HMA layer in the specified segment (PR# and milepoints), so no segmentation is required.

How do I specify that a project used crumb rubber in the binder?

This can be indicated in the **Segment Comments** or **Project Comments** boxes.

How do I enter paving that extends over the gutter pan of the curb?

Record this information by adding a note to the **Segment Comments** or **Project Comments** boxes.

Why don't I see a certified supplier, an emulsion type, a silane material type, etc., in the drop-down choices? Can I request deleting a supplier/product that no longer exists?

Contact the PHD Administrator to see if the desired measurement/layer/attribute can be added.

Old suppliers/products that no longer exist will not be deleted from the drop-down choices in PHD. These suppliers/products may still be in use for old projects that still need to be added, or edited.

For the concrete layer (PCC pavement layer), why don't I see the specific Cement Content (#/cyd) in the drop-down choices? For example, 325 #/cyd.

Certain values are determined (or pre-calculated) based on MDOT specifications, past projects, or experience. For example, cement content is based on the unit bag weight which is 94 lbs. One common Cement Content value is 329 #/cyd (3.5 bags × 94 lbs), so 325 is not available. The users can use 329 #/cyd (in lieu of the actual 325 #/cyd used in the concrete JMF) because it is close enough to the actual value. However, if the user needs to enter a value in which no close option is available in the drop-down choices, please contact the PHD Administrator to see if the desired value can be added to the drop-down choices.

How do I enter Crack Sealing and/or Crack Filling, and how are these different? How do I enter work done on longitudinal and/or transverse joints/cracks?

The **"HMA Crack Treatment"** layer in PHD represents crack sealing work (with or without crack filling) for asphalt pavements (used for "working" cracks). Crack sealing is attained by the saw/rout and seal method. The required inputs in PHD are the **Cut and Seal Method**, **Crack Seal Product Name**, and **Crack Seal Manufacturer**. If Overband is also used (crack filling), then the **Overband Crack Fill Product** is also required.

The **"Overband CrackFill"** layer in PHD indicates work that consists of cleaning the crack in the HMA pavement surface and placing the specified materials into and above the crack to substantially reduce infiltration of water and to reinforce the adjacent pavement (used for "non-working" cracks). This could also be a pre-treatment for Chip Seals, Micro Surfacing, and Hot-Mix overlays. The required input in PHD is the **Overband Crack Fill Product**.

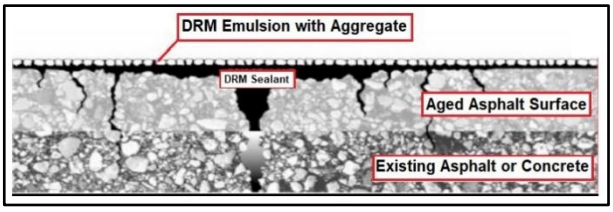
In projects with crack sealing and/or crack filling, if all lanes and/or longitudinal joints are being worked on, then the job can be created as a **Simplified CPM project**. Simply add the appropriate layer and add Project or Segment Comment(s) to describe the work in more detail (to identify transverse and/or longitudinal work).

However, if work isn't on/between all lanes, then create the job as a standard PHD job and use the following methods to add **"HMA Crack Treatment"** or **"Overband CrackFill"** layers:

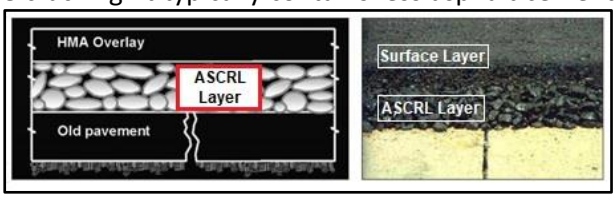
- For the **longitudinal joint**, the user should add the lowest lane number adjacent to the longitudinal joint and add information to that lane.
- For **transverse joints**, add the lanes that the transverse joints go through and add information to all associated lanes.

What is "Crack Relief Interlayer/DRM"? is it the same as "Asphalt Stabilized Crack Relief Layer (ASCRL)"?

The **"Crack Relief Interlayer"**, sometimes called DRM (Distress Resistant Membrane), is a layer consisting of sealant, emulsion, and aggregate used to prevent reflective cracks in asphalt pavements. It is a one pass system in which the sealant, emulsion, and aggregate are applied in succession. The sealant is spread into a thin film using a spreader box to fill the crack area. Next, the emulsion is sprayed on top of the sealant using several spray nozzles, and finally the aggregate is fed into a spreader and spread evenly on top of the emulsion. In PHD, select and add the **"Crack Relief Interlayer/DRM"**, and enter the thickness of the layer.



Asphalt Stabilized Crack Relief Layer (ASCRL) is an HMA mixture primarily used as a base course in a multi-course overlay of concrete pavement to delay reflective cracking. It typically contains less asphalt cement and aggregate fines than a standard HMA base course. In PHD, there is no ASCRL layer. Instead, users can enter an HMA Base or Level course, and select ASCRL as the mix type.



How do I enter Cape Seal Treatment?

A Cape Seal is a combination of a chip seal followed by a micro-surface, which can be used to effectively treat pavements with a higher level of distress, including higher levels of cracking and raveling. To enter this into PHD, add a **Chip Seal** layer and then add a **Micro-Surface layer** (showing the Micro-Surface layer on top).

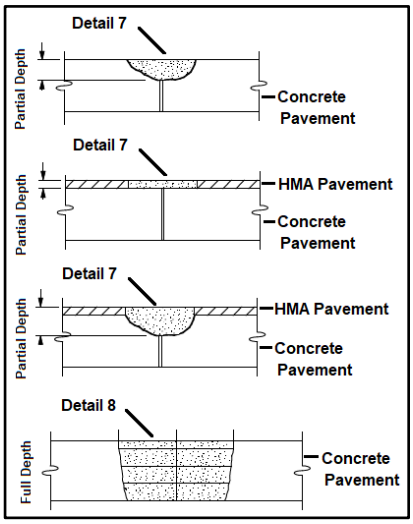
Can there be a drop-down for bond coat type?

The inclusion of bond coat type was determined to be a nonessential entry item.

How do I enter Detail 7s and 8s? How do these treatments differ between HMA and Concrete layers?

Detail 7 (surface repair for joints or cracks) and Detail 8 (full-depth repair for joints or cracks) are common treatments for joints and cracks of concrete pavements. In PHD, add the layer **"Conc Pavt Repairs (Det 7 & 8)"**, and answer **"Yes"** for each type used on the project and enter the mix type used.

PHD doesn't have a selection for detail 7's & 8's in HMA layers. If Detail 7 is used for an existing full-depth HMA pavement (with no underlying concrete), the Data Entry user can add Detail 7s using the **"Conc Pavt Repairs (Det 7 & 8)"** layer, and add a segment comment to note the following: *Detail 7 repairs conducted on full-depth HMA (no concrete within cross-section)*.



How do I enter crushed & shaped HMA? What thickness should I enter?

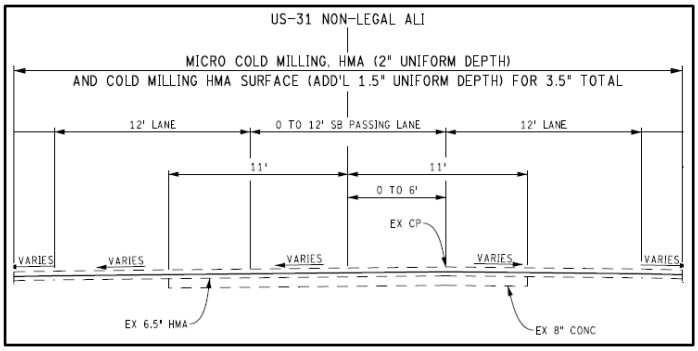
Add the layer **"Crushed and Shaped HMA"**. For thickness, use the thickness of crushed HMA plus the thickness of existing aggregate below to be mixed with this layer (typically around 1 inch). If the existing HMA is cold milled before crushing, then subtract this milled thickness from the existing HMA thickness to be used for the **"Crushed and Shaped HMA"** thickness.

If the thickness of the existing HMA is variable, use the predominant or average thickness. However, if the HMA thickness is variable in the job, but consistent within certain segments, then the segment should be split so that each of the distinct thicknesses is entered for the **"Crushed and Shaped HMA"** layer.

Do I have to enter HMA milling? How do I enter two milling layers?

Yes. HMA milling work is required in PHD. Add the **"Cold Milling"** layer, and select the milling depth, milling texture, and milling type.

Some projects may include two milling activities (see example). In this case, add each milling as a separate layer in PHD, or combine both in one layer (use total milling depth) if both milling works have the same texture and type.



What qualifies as an aggregate and should be added to the layer(s)?

Why don't I see the aggregate names from the HMA Job Mix Formula (JMF) in the list of aggregate types?

Add all aggregates included in the layer, except those labeled as "Plant" (ex. Lime Dust, Fibers, etc.) or RAP. RAP does not need to be identified in PHD, even if added in the HMA JMF.

For HMA layers, non-standard aggregate names can be added by selecting **"Other Aggregate"** from the list of aggregates. A new text box will appear titled **"Other"**. Enter the non-standard aggregate name in the text box, and then add the Source (Pit No.).

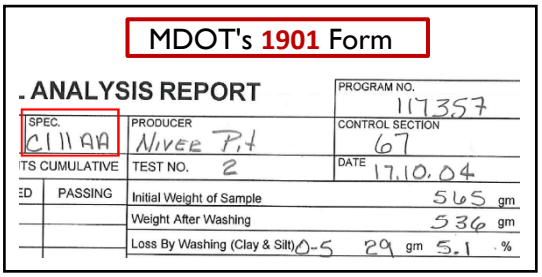
Gmm	Gmb	Gb	Gse	Gsb	FINES/ASPHALT RATIO	COMPACTION TEMP.	MIXING TEMP.
2.455	2.381	1.034	2.712	2.644	0.94	296	316

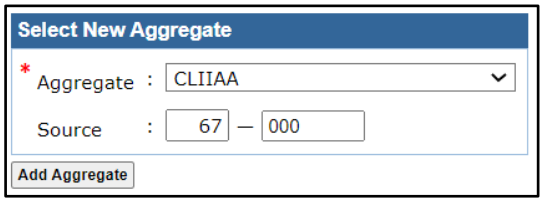
MIX/AGG. GRADATION, %		MIX/AGG. PROPORTION, %		
ITEM	PERCENT	MATERIAL/PRODUCER	PIT NO.	PERCENT
ASPHALT,%	6.46	2NS	39-69	28.0
P 1-1/2" (37.5 mm)	100.00	Slag Sand	92-0031	19.0
P 1" (25.0 mm)	100.00	Man Sand	39-69	25.0
P 3/4" (19.0 mm)	100.00	#11	92-46	11.0
P 1/2" (12.5 mm)	100.00			
P 3/8" (9.5 mm)	99.10			
P No. 4 (4.75 mm)	78.00			
P No. 8 (2.36 mm)	57.00			
P No. 16 (1.18 mm)	44.20			
P No. 30 (600 µm)	32.20			
P No. 50 (300 µm)	18.00	RECLAIMED	032-76	17.0
P No. 100 (150 µm)	8.20	FILLER		
P No. 200 (75 µm)	5.20	ASPHALT BINDER	GRADE: 64-28 / CERTIFIED SUPPLIER/LOCATION/CERT #: Marathon/Detroit/ABS3505	% ADDED: 5.56

How do I enter borrow materials as an aggregate?

A "borrow pit" is a hole, pit, or excavation that has been dug for the purpose of removing gravel, clay, soil or sand to be used in a construction project.

In PHD, users can select the aggregate class from the drop-down list (or select **"Other"** and enter a non-standard aggregate name). Borrow materials **do not** have a Pit No. Therefore, to enter the borrow materials source, enter the county number for the county where the material originated in the first box. In the second box, enter 000. For the example on the right (CLIIAA material from Osceola County), use 67-000.





How do I enter recycled materials as an aggregate?

To enter recycled materials (including crushed concrete), locate the associated county and pit number. This information can be located per acceptance testing of the recycled material.

Note that this material, unlike a borrow material, is tested and identified with a pit number because the recycled material needs to be approved for use.

How do I enter Dock aggregate? What is the DOCK aggregate source/pit number?

Aggregates identified as "Dock" are those that were shipped into and stored at a dock. Dock aggregate comes from the prequalified aggregate list, so it does have an actual name and source/pit number. The aggregate tickets should provide the actual name and number information.

Why can't aggregate information be optional rather than required? What if aggregate information is unknown?

PHD Sponsors and MDOT personnel who use PHD data have previously supported requiring aggregate information. This information has been used to compare pavement condition data for segments with different aggregates/sources. If aggregate information is unknown or not attainable, **"Unknown"** is an option for the aggregate class. Users still need to enter the Pit No. (entering in the first box the county number for the county where the material originated and entering 000 in the second box). For example, use 67-000 (material from Osceola County – county code is 67).

Why don't I see some layers that used to be available in PHD, such as Cobblestone, Corduroy, and Slurry Seal?

Since some layers were not constructed (and thus, not being used in PHD) in the last 10 years, those layers have been archived. If one or more of these layers are needed (in PHD), please contact PHD Administrators to add the layer(s) to the list of available layers in PHD.