

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For calendar year 2007, did you have:

✓    ✓  
YES NO

- Any additions to your roadway maintenance system?  
a.) New roads you built or had built for you.  
b.) Roads you acquire from developers or private owners.  
c.) Extensions to roads you already maintain.  
d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?  
     Any widening or dualization?  
     Any abandonment or elimination of existing roadway?  
     Any increase/decrease in number of lanes (including center turn lanes)?  
     Any road name changes? (Report the name change after you have posted the new name in the field)  
     Any additions, deletions, or changes to traffic control devices (e.g., stop signs, signals, roundabouts)? *Do not include speed bumps.*  
     Any road surface upgrades from dirt or gravel to asphalt or concrete?  
     Any asphalt overlays of concrete roads?  
     Any addition or elimination of shoulders or curbs?  
     Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 2007**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you by the middle of October of each calendar year.

**Read all instructions first** before filling out the forms and maps. Reporting requirements change from time to time.

SHA recommends that the person most familiar with the roadway network, development, and construction programs in your jurisdiction fill out this report to insure uniform interpretation and completion.

**Form HPS-20** ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under **your** maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on the report. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report **road transfers** and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless **both** report the transfer on their respective Form HPS-20 in the **same** calendar year.

Return to this office the **signed and dated** Form HPS-20, **whether or not any changes have been made to your roadway system**, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do **not** return the **HPMS** sample maps.

**Complete all forms and maps, and send them by December 1 to:**

Mr. Michael R. Baxter, Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

### ROAD NUMBER (Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

### ROAD NAME (Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the **new** name in this column and the **old, or former** name, in the Remarks column (12).

### LOCATION (Column 3)

Describe the **location** where the improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks or addresses, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."
- ⇒ Do **NOT** use the term, "entire road" in the location description column. The beginning and ending termini are required.

### MAP DESIGNATION (Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2006-1, 2006-2, etc. Each individual road **must** have its own unique improvement number.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

### MILES (Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for **linear** miles of road, **not** lane mileage (the distance of the road times the number of lanes). Do **not** use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>	
State	<b>St.</b>	(Public Road)
County	<b>Co.</b>	(Public Road)
Municipal	<b>Mun.</b>	(Public Road)
Other Public	<b>O.P.</b>	<b>(see note below)</b>
Private	<b>Pvt.</b>	(not open to public travel)

Report transfers made **by mutual agreement** from one system to another in Columns 8 & 9. For example, if a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (**FROM**) and "MUN." (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to a municipality.**

The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 USC 101 (a)(27)). The term "**maintenance**" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization (23 USC 101 (a)(14)).

"**Open to public travel**" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

**Please note:** Roads having posted signs indicating they are "Private" or "Not Publicly Maintained" will not be considered for highway mileage credit toward the Highway User Revenue Fund distribution.

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

***New construction***  
***Replacing or relocating an existing highway***  
***Acceptance from private owners or developers***  
***Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE DELETIONS  
(Column 11)

In this column, indicate the road mileage **deleted** from the system resulting from:

***Construction of a new facility***  
***Relocation of any existing facility***  
***Outright abandonment of any public roadway***  
***Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

***Shoulder work only***  
***Resurfacing***  
***Reconstruction***  
***Bridge relocation or reconstruction***  
***Additional lanes***  
***Turning lanes***  
***Safety improvements***  
***Roundabouts/Traffic circles, etc.***

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If a roadway is significantly relocated or realigned, and it is not reported to SHA in your jurisdiction's annual road improvement report, SHA cannot assume the public jurisdiction continues to own and maintain the road. Please let this office know as soon as possible if your jurisdiction owns and maintains a relocated roadway.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA. Roads claimed for municipal maintenance outside recognized municipal boundaries may not be credited in the SHA inventory toward distribution of the Highway User Revenue Funds.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

**If you receive no HPMS sample map with the report package, disregard pages 7 through 12 of these instructions.**

**SAMPLE NUMBER** In this column, insert the **HPMS sample number** (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal which cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is entirely on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**WIDENING FEASIBILITY** Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

HPMS SAMPLE CHANGES, continued

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

**Pavement Section Coding**

<b><i>FLEXIBLE PAVEMENT</i></b>			
<b>"SN" range</b>	<b>Surface type &amp; minimum thickness</b>	<b>Base type &amp; minimum thickness</b>	<b>Subbase type &amp; minimum thickness</b>
4.6 - 6.0	6" Asphaltic concrete	12" Aggregate	13" Aggregate
	4" Asphaltic concrete	<b><u>OR</u></b> 8" Asphaltic concrete	8" Aggregate
3.1 - 4.5	4" Asphaltic concrete	8" Aggregate	8" Aggregate
	3" Asphaltic concrete	<b><u>OR</u></b> 6" Asphaltic concrete	
1.0 - 3.0	Surface Treatment	4" Aggregate	4" Aggregate
	2" Asphaltic concrete	<b><u>OR</u></b> 6" Aggregate	

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

HPMS SAMPLE CHANGES, continued

**IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)**

TYPE OF IMPROVEMENT                      Enter the code (as defined below) for all improvements completed on **HPMS** sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

Code                      **HPMS Improvement Type Definitions**

20                      RELOCATION -- Construction on new location.  
*Replaces an existing route.  
The old route is abandoned.*

**RECONSTRUCTION**

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

**Code one of the following types of reconstruction (Codes 31 to 35).**

31                      RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:

- The addition of full control of access.
- The addition of lanes.
- Dualization of the roadway.
- Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.

32                      RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.

- Lane additions to the existing section.
- Corrects alignment, shoulder, and drainage deficiencies.

33                      RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.

- Widen lanes one foot or greater than the existing section.
- Corrects alignment, shoulder, and drainage deficiencies.

34                      PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.

- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.

- Widen or reconstruct shoulders.
- Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
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- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

**REMARKS:** This space can be used in conjunction with the sample number to clarify an improvement.

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For calendar year 2006, did you have:

✓    ✓  
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- Any additions to your roadway maintenance system?
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*Do not include speed bumps.*
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***If you answer NO to all items:***

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**DO NOT REPORT:**

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Highway Information Services Division**

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Mr. Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

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before returning them to this office.**

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(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

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(Column 2)

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- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."
- ⇒ Do **NOT** use the term, "entire road" in the location description column. The beginning and ending termini are required.

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2006-1, 2006-2, etc. One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "**C-G**" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b> ( <b>see note below</b> )
Private	<b>Pvt.</b> (not open to public travel)

Report transfers made **by mutual agreement** from one system to another in Columns 8 & 9. For example, if a road is transferred from County maintenance to Municipal maintenance, insert the letters "**CO.**" (County) in Column 8 (**FROM**) and "**MUN.**" (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 USC 101 (a)(27)). The term "**maintenance**" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization (23 USC 101 (a)(14)).

"**Open to public travel**" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

**Please note:** Roads having posted signs indicating they are "Private" or "Not Publicly Maintained" will not be considered for highway mileage credit toward the Highway User Revenue Fund distribution.

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

***New construction***  
***Replacing or relocating an existing highway***  
***Acceptance from private owners or developers***  
***Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

***Construction of a new facility***  
***Relocation of any existing facility***  
***Outright abandonment of any public roadway***  
***Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

***Shoulder work only***  
***Resurfacing***  
***Reconstruction***  
***Bridge relocation or reconstruction***  
***Additional lanes***  
***Turning lanes***  
***Safety improvements, etc.***

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA. Roads claimed for municipal maintenance outside recognized municipal boundaries may not be credited in the SHA inventory toward distribution of the Highway User Revenue Funds.

## HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is **entirely** on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated "Very Good".
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.0 - 1.0	Very Poor	Pavements in this category are in an extremely deteriorated condition. The roadway is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

HPMS SAMPLE CHANGES, continued

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

## Pavement Section Coding

<b><i>FLEXIBLE PAVEMENT</i></b>			
"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness
4.6 - 6.0	6" Asphaltic concrete  4" Asphaltic concrete	12" Aggregate  <u>OR</u> 8" Asphaltic concrete	13" Aggregate  8" Aggregate
3.1 - 4.5	4" Asphaltic concrete  3" Asphaltic concrete	8" Aggregate  <u>OR</u> 6" Asphaltic concrete	8" Aggregate
1.0 - 3.0	Surface Treatment  2" Asphaltic concrete	4" Aggregate  <u>OR</u> 6" Aggregate	4" Aggregate

HPMS SAMPLE CHANGES, continued

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

TYPE OF IMPROVEMENT                      Enter the code (as defined below) for all improvements completed on **HPMS** sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

Code                      HPMS Improvement Type Definitions

20                      RELOCATION -- Construction on new location.  
*Replaces an existing route.  
The old route is abandoned.*

### RECONSTRUCTION

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

#### Code one of the following types of reconstruction (Codes 31 to 35).

- 31                      RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32                      RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33                      RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34                      PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

**REMARKS:** This space can be used in conjunction with the sample number to clarify an improvement.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For calendar year 2005, did you have:

✓    ✓  
YES NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
- b.) Roads you acquire from developers, private owners.
- c.) Extensions to roads you already maintain.
- d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 2005**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you by the middle of October of each calendar year.

**Read all instructions first** before filling out the forms and maps. Reporting requirements change from time to time.

We recommend that the person most familiar with the roadway network, development, and construction programs in your jurisdiction fill out this report to insure uniform interpretation and completion.

**Form HPS-20** ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under your maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on the report. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report **road transfers** and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless **both** report the transfer on their respective Form HPS-20 in the **same** calendar year.

Return to this office the **signed and dated** Form HPS-20, **whether or not any changes have been made to your roadway system**, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do **not** return the **HPMS** sample maps.

**Complete all forms and maps, and send them by December 1 to:**

Mr. Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

ROAD NUMBER  
(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

ROAD NAME  
(Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the new name in this column and the old, or former name, in the Remarks column (12).

LOCATION  
(Column 3)

Describe the **location** where the improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."
- ⇒ Do **NOT** use the term, "entire road" in the location description column. The beginning and ending termini are required.

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2005-1, 2005-2, etc. One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b> (see note below)
Private	<b>Pvt.</b> (not open to public travel)

Report transfers made by **mutual agreement** from one system to another in Columns 8 & 9. For example, if a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (**FROM**) and "MUN." (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 USC 101 (a)(27)). The term "**maintenance**" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization (23 USC 101 (a)(14)).

**"Open to public travel"** means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

**Please note:** Roads having posted signs indicating they are "Private" or "Not Publicly Maintained" will not be considered for highway mileage credit toward the Highway User Revenue Fund distribution.

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

- New construction*
- Replacing or relocating an existing highway*
- Acceptance from private owners or developers*
- Mutual transfer agreement between political subdivisions.*

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

- Construction of a new facility*
- Relocation of any existing facility*
- Outright abandonment of any public roadway*
- Transfer to another system*

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

- Shoulder work only*
- Resurfacing*
- Reconstruction*
- Bridge relocation or reconstruction*
- Additional lanes*
- Turning lanes*
- Safety improvements, etc.*

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA. Roads claimed for municipal maintenance outside recognized municipal boundaries may not be credited in the SHA inventory toward distribution of the Highway User Revenue Funds.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT**

Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION**

Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is entirely on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS**

Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION**

Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.0 - 1.0	Very Poor	Pavements in this category are in an extremely deteriorated condition. The roadway is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

HPMS SAMPLE CHANGES, continued

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

## Pavement Section Coding

<b><i>FLEXIBLE PAVEMENT</i></b>			
"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness
4.6 - 6.0	6" Asphaltic concrete	12" Aggregate  <b><u>OR</u></b>	13" Aggregate
	4" Asphaltic concrete	8" Asphaltic concrete	8" Aggregate
3.1 - 4.5	4" Asphaltic concrete	8" Aggregate  <b><u>OR</u></b>	8" Aggregate
	3" Asphaltic concrete	6" Asphaltic concrete	
1.0 - 3.0	Surface Treatment	4" Aggregate  <b><u>OR</u></b>	4" Aggregate
	2" Asphaltic concrete	6" Aggregate	

HPMS SAMPLE CHANGES, continued

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

TYPE OF IMPROVEMENT                      On the reverse side of FORM HPS-20, enter the code (as defined below) for all improvements completed on **HPMS** sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

Code                      HPMS Improvement Type Definitions

20                      RELOCATION -- Construction on new location.  
*Replaces an existing route.  
The old route is abandoned.*

**RECONSTRUCTION**

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

**Code one of the following types of reconstruction (Codes 31 to 35).**

- 31                      RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32                      RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33                      RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34                      PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.

- Widen or reconstruct shoulders.
- Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

Page Two, Highway Mileage - Municipal

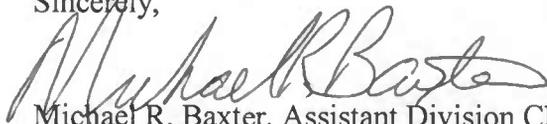
Please note any municipal boundary changes on Form HPS-20 in the "Remarks" column and indicate the changes on the improvement map enclosed in the package. Also include a plat indicating the annexed area with the resolution number of the annexation. As the maps are revised every two or three years, the changes you report may not appear for a few cycles. Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA.

*Please note the following:*

- Form HPS-20 serves as your official annual request to receive Highway User Revenue Funds.
- A checklist attached to the instructional memorandum will aid in determining what roadway improvements should be reported. We encourage you to read the instructions carefully, and then use the checklist.
- Reporting surface overlays to asphalt roads is no longer required unless the work was done on an HPMS sample section.
- The SHA mileage reports, showing individual roads, their total length and their mileage broken down by surface type, are enclosed with this package, and reflect information obtained through the 2003 improvement year.
- The "Mileage Inside the Municipalities" reports (Forms HPS-60 and 60-A), showing aggregate mileage by county and individual municipality, are available on the Internet in Adobe Acrobat PDF format at the following URL address: <http://www.marylandroads.com/AboutUs/orgChart/oppe/hpsreports.asp>. If you need a hard copy of this report, please contact Kevin Powers of this office.

Thank you for your cooperation. As we strive for continuous improvement, we welcome your comments. If you have any questions or concerns about the road improvement reporting process, please contact Mr. Kevin Powers of this office at (410) 545-5518, or by e-mail at [kpowers@sha.state.md.us](mailto:kpowers@sha.state.md.us). Please contact Mr. Powers to let him know when you receive the improvement package.

Sincerely,



Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division

Enclosures

File: Municipal Improvement Cover Letter.doc

APPENDIX TABLE 1A

MUNICIPALITIES BY COUNTY

No. 1 Allegany County

- 1. Barton (006)
- 2. Cumberland (041)
- 3. Frostburg (060)
- 4. Lonaconing (093)
- 5. Luke (094)
- 6. Midland (100)
- 7. Westernport (154)

No. 2 Anne Arundel County

- 1. Annapolis (003)
- 2. Highland (079)
- 3. Woodland Beach (160)

~~No. 3 Baltimore County~~

None

~~No. 4 Calvert County~~

- 1. Chesapeake Beach (025)
- 2. North Beach (109)

No. 5 Caroline County

- 1. Denton (044)
- 2. Federalburg (055)
- 3. Goldsboro (069)
- 4. Greensboro (072)
- 5. Henderson (078)
- 6. Hillsboro (080)
- \*\* 7. Marydel (098)
- 8. Preston (122)
- 9. Ridgely (126)
- 10. Templeville (145) (QA)

No. 6 Carroll County

- 1. Hampstead (074)
- 2. Manchester (095)
- 3. Mount Airy (103) (Fred.)
- 4. New Windsor (108)
- 5. Sykesville (142)

- 6. Taneytown (144)
- 7. Union Bridge (148)
- 8. Westminster (155)

No. 7 Cecil County

- ~~1.~~ Cecilton (002)
- ~~2.~~ Charlestown (024)
- ~~3.~~ Chesapeake City (026)
- ~~4.~~ Elkton (052)
- ~~5.~~ Northeast (112)
- ~~6.~~ Perryville (117)
- ~~7.~~ Port Deposit (121)
- ~~8.~~ Rising Sun (127)

No. 8 Charles County

- 1. Indian Head (083)
- 2. La Plata (088)
- \*\* 3. Port Tobacco (159)

No. 9 Dorchester County

- \*\* 1. Brookview (016)
- ~~2.~~ Cambridge (019)
- \*\* 3. Church Creek (034)
- \*\* 4. East New Market (048)
- \*\* ~~5.~~ Eldorado (051)
- \*\* ~~6.~~ Galestown (065)
- ~~7.~~ Hurlock (081)
- ~~8.~~ Secretary (135)
- ~~9.~~ Vienna (151)

No. 10 Frederick County

- 1. Brunswick (017)
- 2. Burkittsville (018)
- 3. Emmitsburg (053)
- 4. Frederick (057)
- 5. Middletown (099)
- 6. Mount Airy (103) See Carroll
- ~~7.~~ Myersville (106)
- 8. New Market (107)
- \*\* 9. Rosemont (131)
- 10. Thurmont (146)
- 11. Walkerville (152)
- 12. Woodsboro (158)

→ NO Samples

→ Samples

APPENDIX TABLE 1-A

MUNICIPALITIES BY COUNTY

No. 11 Garrett County ✓

1. Accident (002) N/A
2. Deer Park (042) N/A
3. Friendsville (059) N/A
4. Grantsville (070) N/A
5. Kitzmiller (086) N/A
6. Loch Lynn Heights (092) N/A
7. Mountain Lake Park (105) N/A
8. Oakland (113) N/A

No. 15 Montgomery County ✓

17. Oakmont (114) N/A
18. Poolesville (120) N/A
19. Rockville (130) ✓
20. Somerset (140) N/A
21. Takoma Park (143) ✓ (PG)
22. Washington Grove (153) N/A

No. 12 Harford County ✓

1. Aberdeen (001) ✓
2. Bel Air (007) N/A
3. Havre de Grace (076) ✓

No. 16 Prince George's County ✓

1. Berwyn Heights (009) N/A
2. Bladensburg (011) N/A
3. • Bowie (013) ✓
4. Brentwood (014) N/A
5. Capitol Heights (020) N/A
6. New Carrollton (021) N/A
7. • Cheverly (028) ✓
8. College Park (037) N/A
9. Colmar Manor (038) N/A
10. Cottage City (039) N/A
11. District Heights (045) N/A
12. Eagle Harbor (047) N/A
13. • Edmonston (050) ✓
14. Fairmount Heights (054) N/A
15. Forest Heights (056) N/A
16. Glenarden (067) N/A
17. • Greenbelt (071) ✓
18. • Hyattsville (082) ✓
19. Landover Hills (087) N/A
20. • Laurel (089) ✓
21. Morningside (102) N/A
22. • Mount Rainier (104) ✓
23. North Brentwood (110) N/A
24. Riverdale (128) N/A
25. Seat Pleasant (134) N/A
26. Takoma Park (143) N/A  
See Montgomery N/A
27. University Park (149) N/A
28. Upper Marlboro (150) N/A

No. 13 Howard County

None

No. 14 Kent County ✓

1. Betterton (010) N/A
2. Chestertown (027) N/A
3. Galena (064) N/A
4. Millington (101) (QA)
5. Rock Hall (129) N/A

No. 15 Montgomery County ✓

- \* 1. Barnesville (005) N/A
2. Brookeville (015) N/A
3. Chevy Chase Section III. (029) N/A
4. Town of Chevy Chase (030) N/A
5. Chevy Chase Section V. (031) N/A
6. Chevy Chase View (032) N/A
7. Chevy Chase Village (033) N/A
8. Drummond (046) N/A
9. Friendship Heights (058) N/A
10. Gaithersburg (063) ✓
11. Garrett Park (066) N/A
12. Glen Echo (068) N/A
13. Kensington (085) N/A
14. Laytonsville (090) N/A
15. Martins Addition (097) N/A
16. North Chevy Chase (111) N/A

No. 17 Queen Anne's County ✓ N/A

1. Barclay (004) N/A
2. Centreville (023) N/A
3. Church Hill (035) N/A
4. Millington (101) N/A  
See Kent

APPENDIX TABLE 1-A

MUNICIPALITIES BY COUNTY

No. 17 Queen Anne's County ✓ N/A  
(continue)

- \*\* ~~5.~~ Queen Anne (124) (Tal) N/A
- ~~6.~~ Queenstown (125) N/A
- ~~7.~~ Sudlerville (141) N/A
- ~~8.~~ Templeville (145) see N/A  
Caroline

No. 18 St. Mary's County ✓

- 1. Leonardtown (091) N/A

No. 19 Somerset County ✓ N/A

- ~~1.~~ Crisfield (040) N/A
- ~~2.~~ Princess Anne (123) N/A

No. 20 Talbot County ✓

- 1. Easton (049) ✓
- ~~2.~~ Oxford (116) N/A
- \*\* 3. Queen Anne (124) see Queen N/A  
Anne's
- ~~4.~~ St. Michaels (132) N/A
- ~~5.~~ Trappe (147) N/A

No. 21 Washington County

- 1. Boonsboro (012) N/A
- 2. Clear Spring (036) N/A
- 3. Funkstown (062) ✓
- 4. Hagerstown (073) •
- 5. Hancock (075) N/A
- 6. Keedysville (084) N/A
- 7. Sharpsburg (136) N/A
- 8. Smithsburg (138) ~~•~~ Mun Maint State Rd ✓
- 9. Williamsport (157) • Mun Maint State Rds ✓

No. 22 Wicomico County ✓

- \*\* ~~1.~~ Delmar (043) N/A
- ~~2.~~ Fruitland (061) ✓
- \*\* 3. Hebron (077) N/A
- \*\* 4. Mardela Springs (096) N/A
- \*\* 5. Pittsville (118) N/A
- ~~6.~~ Salisbury (133) -
- \*\* 7. Sharpstown (137) N/A
- ~~8.~~ Willards (156) N/A

No. 23 Worcester County ✓

- ~~1.~~ Berlin (008) N/A
- ~~2.~~ Ocean City (115) ✓
- ~~3.~~ Pocomoke City (119) N/A
- ~~4.~~ Snow Hill (139) N/A

\*\* Non-Participating

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓    ✓  
YES NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
- b.) Roads you acquire from developers, private owners.
- c.) Extensions to roads you already maintain.
- d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 2003**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you by the middle of October of each calendar year.

Read all instructions first before filling out the forms and maps. Reporting requirements change from time to time.

We recommend that the person most familiar with the roadway network, development, and construction programs in your jurisdiction fill out this report to insure uniform interpretation and completion.

**Form HPS-20** ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under your maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on the report. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report road transfers and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless both report the transfer on their respective Form HPS-20 in the same calendar year.

Return to this office the signed and dated Form HPS-20, whether or not any changes have been made to your roadway system, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do not return the **HPMS** sample maps.

**Complete all forms and maps, and send them by December 1 to:**

Mr. Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

### ROAD NUMBER (Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

### ROAD NAME (Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the **new** name in this column and the **old, or former** name, in the Remarks column (12).

### LOCATION (Column 3)

Describe the **location** where the improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."

### MAP DESIGNATION (Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2000-1, 2000-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

### MILES (Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers made **by mutual agreement** from one system to another in Columns 8 & 9. For example, if a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (**FROM**) and "MUN." (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 USC 101 (a)(27)). The term "**maintenance**" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization (23 USC 101 (a)(14)).

"**Open to public travel**" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

**Please note:** Roads having posted signs indicating they are "Private" or "Not Publicly Maintained" will not be considered for highway mileage credit toward the Highway User Revenue Fund distribution.

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

***New construction***  
***Replacing or relocating an existing highway***  
***Acceptance from private owners or developers***  
***Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

***Construction of a new facility***  
***Relocation of any existing facility***  
***Outright abandonment of any public roadway***  
***Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

***Shoulder work only***  
***Resurfacing***  
***Reconstruction***  
***Bridge relocation or reconstruction***  
***Additional lanes***  
***Turning lanes***  
***Safety improvements, etc.***

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA. Roads claimed for municipal maintenance outside recognized municipal boundaries may not be credited in the SHA inventory toward distribution of the Highway User Revenue Funds.

## HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is entirely on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.0 - 1.0	Very Poor	Pavements in this category are in an extremely deteriorated condition. The roadway is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

HPMS SAMPLE CHANGES, continued

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

## Pavement Section Coding

<b><i>FLEXIBLE PAVEMENT</i></b>			
"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness
4.6 - 6.0	6" Asphaltic concrete	12" Aggregate  <b><u>OR</u></b> 8" Asphaltic concrete	13" Aggregate  8" Aggregate
3.1 - 4.5	4" Asphaltic concrete	8" Aggregate  <b><u>OR</u></b> 6" Asphaltic concrete	8" Aggregate
1.0 - 3.0	Surface Treatment	4" Aggregate  <b><u>OR</u></b> 6" Aggregate	4" Aggregate

HPMS SAMPLE CHANGES, continued

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

**IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)**

TYPE OF IMPROVEMENT                      On the reverse side of FORM HPS-20, enter the code (as defined below) for all improvements completed on **HPMS** sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

**Code                      HPMS Improvement Type Definitions**

20                      **RELOCATION -- Construction on new location.**  
*Replaces an existing route.*  
*The old route is abandoned.*

**RECONSTRUCTION**

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

**Code one of the following types of reconstruction (Codes 31 to 35).**

- 31                      **RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:**
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32                      **RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.**
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33                      **RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.**
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34                      **PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.**
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

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**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓    ✓  
YES NO

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***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 2002**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

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Highway Information Services Division**

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**Complete all forms and maps, and send them by December 1 to:**

Mr. Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

ROAD NUMBER  
(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

ROAD NAME  
(Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the **new** name in this column and the **old, or former** name, in the Remarks column (12).

LOCATION  
(Column 3)

Describe the **location** where the improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2000-1, 2000-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "**C-G**" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers made **by mutual agreement** from one system to another in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters "**CO.**" (County) in Column 8 (**FROM**) and "**MUN.**" (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

→ The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel. The term "maintenance" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization. (23 USC 101). "**Open to public travel**" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

- New construction***
- Replacing or relocating an existing highway***
- Acceptance from private owners or developers***
- Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

- Construction of a new facility***
- Relocation of any existing facility***
- Outright abandonment of any public roadway***
- Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

- Shoulder work only***
- Resurfacing***
- Reconstruction***
- Bridge relocation or reconstruction***
- Additional lanes***
- Turning lanes***
- Safety improvements, etc.***

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

Annexations **must** be registered with the Department of Legislative Services to be recognized by SHA. Roads claimed for municipal maintenance outside recognized municipal boundaries may not be credited in the SHA inventory toward distribution of the Highway User Revenue Funds.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

**SAMPLE NUMBER** In this column, insert the **HPMS sample number** (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is entirely on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.0 - 1.0	Very Poor	Pavements in this category are in an extremely deteriorated condition. The roadway is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

HPMS SAMPLE CHANGES, continued

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

## Pavement Section Coding

<b><i>FLEXIBLE PAVEMENT</i></b>			
"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness
4.6 - 6.0	6" Asphaltic concrete  4" Asphaltic concrete	12" Aggregate  <u>OR</u> 8" Asphaltic concrete	13" Aggregate  8" Aggregate
3.1 - 4.5	4" Asphaltic concrete  3" Asphaltic concrete	8" Aggregate  <u>OR</u> 6" Asphaltic concrete	8" Aggregate
1.0 - 3.0	Surface Treatment  2" Asphaltic concrete	4" Aggregate  <u>OR</u> 6" Aggregate	4" Aggregate

HPMS SAMPLE CHANGES, continued

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

TYPE OF IMPROVEMENT                      On the reverse side of FORM HPS-20, enter the code (as defined below) for all improvements completed on **HPMS** sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

Code                      HPMS Improvement Type Definitions

20                      RELOCATION -- Construction on new location.  
*Replaces an existing route.  
The old route is abandoned.*

### RECONSTRUCTION

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

### Code one of the following types of reconstruction (Codes 31 to 35).

- 31                      RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32                      RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33                      RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34                      PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

REMARKS: This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓ YES    ✓ NO

- Any additions to your roadway maintenance system?
  - a.) New roads you built or had built for you.
  - b.) Roads you acquire from developers, private owners.
  - c.) Extensions to roads you already maintain.
  - d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**
- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 20\_\_**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you in October of each calendar year.

Read all instructions first before filling out the forms and maps. Reporting requirements change from time to time.

We recommend this task be done by someone familiar with the roadway network, development, and construction programs in your jurisdiction to insure uniform interpretation and completion of the reports.

Form HPS-20 ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under your maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on Form HPS-20. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading '**SYSTEM**' on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report road transfers and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless both report the transfer on their respective Form HPS-20 in the same calendar year.

Return to this office the signed and dated Form HPS-20, whether or not any changes have been made to your roadway system, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do not return the **HPMS** sample maps.

**Complete all forms and maps, and send them by December 1 to:**

**Mr. Michael R. Baxter, Assistant Division Chief  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717**

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

ROAD NUMBER  
(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word **'NEW'** in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

ROAD NAME  
(Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the new name in this column and the old, or former, name, in the Remarks column (12).

LOCATION  
(Column 3)

Describe the **location** where improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.
- ⇒ Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.
- ⇒ Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 2000-1, 2000-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

Please use the code for the road surface types as given below.  
If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads with Surface Types of 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers made by **mutual agreement** from one system to another in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (**FROM**) and "MUN." (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

→ The term "**public road**" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel. The term "maintenance" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization. (23 USC 101). "**Open to public travel**" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration (23 CFR 460.2 (c)).

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

- New construction***
- Replacing or relocating an existing highway***
- Acceptance from private owners or developers***
- Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

- Construction of a new facility***
- Relocation of any existing facility***
- Outright abandonment of any public roadway***
- Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**, such as:

- Shoulder work only***
- Resurfacing***
- Reconstruction***
- Bridge relocation or reconstruction***
- Additional lanes***
- Turning lanes***
- Safety improvements, etc.***

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the Highway Performance Monitoring System's (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Administration's HPMS Field Manual.

To determine if your jurisdiction made an improvement on an HPMS sampled road section, refer to your HPMS sample map. Look for roads highlighted with colored dashed lines overlaying the road to which a twelve-digit number (the HPMS SAMPLE NUMBER) is attached.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the HPMS sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive (coordinated signals through several intersections).
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT**

Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION**

Enter the appropriate code that best describes the type of operation of a sample section. Use codes 1 or 2 unless the sample is entirely on a structure

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.
3	One-way structure (bridge, tunnel, causeway, etc.)
4	Two way structure (bridge, tunnel, causeway, etc.)

**PARKING RESTRICTIONS**

Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION**

Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing. Flexible pavement may have large potholes and deep cracks. Distress includes raveling, cracking, rutting and occurs over 50 percent of the surface. Rigid pavement distress includes joint spalling, patching, cracking, scaling, and may include pumping and faulting.
0.0 - 1.0	Very Poor	Pavements in this category are in an extremely deteriorated condition. The roadway is passable only at reduced speeds, and with considerable ride discomfort. Large potholes and deep cracks exist. Distress occurs over 75 percent or more of the surface.

HPMS SAMPLE CHANGES, continued

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Consider medians and other areas already within the right of way as available for widening. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION -  
(SN or D)**

Indicate the structural number (**SN**) to the nearest tenth for flexible (asphalt) pavements, or the slab thickness, or depth (**D**) to the nearest inch for rigid (concrete) pavements. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Use the table on the next page to help determine the SN. This guide includes typical thicknesses of surface, base and subbase.

## Pavement Section Coding

<b>FLEXIBLE PAVEMENT</b>			
"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness
4.6 - 6.0	6" Asphaltic concrete  4" Asphaltic concrete	12" Aggregate  <u>OR</u> 8" Asphaltic concrete	13" Aggregate  8" Aggregate
3.1 - 4.5	4" Asphaltic concrete  3" Asphaltic concrete	8" Aggregate  <u>OR</u> 6" Asphaltic concrete	8" Aggregate
1.0 - 3.0	Surface Treatment  2" Asphaltic concrete	4" Aggregate  <u>OR</u> 6" Aggregate	4" Aggregate

HPMS SAMPLE CHANGES, continued

**OVERLAY -**

Place a check mark (✓) in this box if one inch or more of compacted pavement material has been placed on this sampled section in this calendar year.

**PEAK LANES -**

Place the number of through lanes used in the peak period in the peak direction. Include reversible lanes, parking lanes, or shoulders that legally are used for through traffic whether for Single Occupancy Vehicle (SOV) or High Occupancy Vehicle (HOV) operation.

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

### TYPE OF IMPROVEMENT

On the reverse side of FORM HPS-20, enter the code (as defined below) for all improvements completed on HPMS sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes:*

### Code            HPMS Improvement Type Definitions

- 20            RELOCATION -- Construction on new location.  
*Replaces an existing route.  
The old route is abandoned.*

### **RECONSTRUCTION**

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

### **Code one of the following types of reconstruction (Codes 31 to 35).**

- 31            RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32            RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33            RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34            PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.

- Widen or reconstruct shoulders.
- Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓ YES    ✓ NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
  - b.) Roads you acquire from developers, private owners.
  - c.) Extensions to roads you already maintain.
  - d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 19\_\_**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓ YES    ✓ NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
- b.) Roads you acquire from developers, private owners.
- c.) Extensions to roads you already maintain.
- d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).
- All parties involved must report the transfer in the same calendar year.**
- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 19\_\_**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you in October of each calendar year.

Read all instructions first before filling out the forms and maps. Reporting requirements change from time to time.

We recommend this task be done by someone familiar with the roadway network, development, and construction programs in your jurisdiction to insure uniform interpretation and completion of the reports.

Form HPS-20 ("Road Improvement Report") is the annual report form for improvements, additions and/or deletions to roads and bridges under your maintenance jurisdiction.

Show all road name changes, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on Form HPS-20. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report road transfers and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless both report the transfer on their respective Form HPS-20 in the same calendar year.

Return to this office the signed and dated Form HPS-20, whether or not any changes have been made to your roadway system, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do not return the **HPMS** sample maps.

**Complete all forms and maps, and send them by December 1 to:**

Mr. Michael R. Baxter  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

ROAD NUMBER  
(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word **'NEW'** in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

ROAD NAME  
(Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the **new** name in this column and the **old** name, if known, in the Remarks column (12).

LOCATION  
(Column 3)

Describe the **location** where improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

- ⇒ *Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.*
- ⇒ *Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.*
- ⇒ *Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."*

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 96-1, 96-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities that produce their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

The road surface types and definitions on these two pages are adapted from the *Federal Highway Performance Monitoring System (HPMS) Field Manual*. If a surface type on an improvement cannot be accurately determined, report the best estimate.

### ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. This does **not** refer to right-of-way width. For roads of Surface Types 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "**C-G**" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b> (Public Road)
County	<b>Co.</b> (Public Road)
Municipal	<b>Mun.</b> (Public Road)
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers made by **mutual agreement** from one system to another in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters '**CO.**' (County) in Column 8 (**FROM**) and "**MUN.**" (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

The term "public road" means any road or street under the jurisdiction of and maintained by a public authority and open to public travel. The term "maintenance" means the preservation of the entire highway, including surface, shoulders, roadsides, structures and such traffic-control devices as are necessary for its safe and efficient utilization. (23 USC 101) "Open to public travel" means that the road section is available, except during scheduled periods, extreme weather or emergency conditions, passable by four-wheel standard passenger cars, and open to the general public for use without restrictive gates, prohibitive signs, or regulation other than restrictions based on size, weight, or class of registration. (23 CFR 460.2 (c) )

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column, indicate the road mileage **added** to the system by the following:

- New construction*
- Replacing or relocating an existing highway*
- Mutual transfer agreement between political subdivisions.*

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

- Construction of a new facility*
- Relocation of any existing facility*
- Outright abandonment of any public highway*
- Transfer to another system*

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**, such as:

- Shoulder work only*
- Resurfacing*
- Reconstruction*
- Bridge relocation or reconstruction*
- Additional lanes*
- Turning lanes*
- Safety improvements, etc.*

In the case of improvements to bridges with centerline lengths of 20 feet or more, note the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the **HPMS** sampled sections **ONLY**. The definitions are adapted from the Federal HPMS Field Manual.

**If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.**

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for an orange highlighted area to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section.

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing.
0.0 - 1.0	Very Poor	Pavements that are in an extremely deteriorated condition and may even need complete reconstruction.

HPMS SAMPLE CHANGES, continued

**EXISTING RIGHT-OF-WAY WIDTHS**

Enter the prevailing right-of-way width in whole feet for the sample section. You may estimate where data is unavailable. Enter the curb to curb width where the only space between the curbs and building is the sidewalk area.

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION - SN or D**

Indicate, where known, the structural number(SN) for flexible (asphalt) pavements, the slab thickness (D) for rigid (concrete) pavements, or enter the code for the type of pavement section (heavy, medium, light) where SN or D are not known. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

<u>Code</u>	<u>Description</u>
0	Unpaved
3	Heavy
4	Medium
5	Light

**Table IV-3** (on the next page) from the **HPMS Field Manual** shows typical pavement sections to help determine the type of pavement section where SN or D information are not available. This guide includes typical thicknesses of surface, base and subbase. Unpaved facilities are those designated as unimproved, graded and drained earth, gravel or stone.

**Table IV-3**  
**From the HPMS Field Manual**

**Pavement Section Coding**

Code	Type of Pavement Section	FLEXIBLE PAVEMENT			RIGID PAVEMENT	
		"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness	Range in Pavement Thickness
3	Heavy	4.6 - 6.0	6" Asphaltic concrete  4" Asphaltic concrete	12" Aggregate  <u>OR</u> 8" Asphaltic concrete	13" Aggregate  8" Aggregate	> 9.0" (8" if continually reinforced)
4	Medium	3.1 - 4.5	4" Asphaltic concrete  3" Asphaltic concrete	8" Aggregate  <u>OR</u> 6" Asphaltic concrete	8" Aggregate	7.1 - 9.0" (6" if continually reinforced)
5	Light	1.0 - 3.0	Surface Treatment  2" Asphaltic concrete	4" Aggregate  <u>OR</u> 6" Aggregate	4" Aggregate	6.0 - 7.0"

HPMS SAMPLE CHANGES, continued

**OVERLAY OR PAVEMENT -  
THICKNESS**

Enter the overlay pavement thickness or the pavement thickness (for new pavements) to the nearest tenth (in inches) when an improvement occurs on the section. Enter this information when resurfacing is part of any improvement or when the pavement is completely reconstructed.

**ANNUAL AVERAGE DAILY  
TRAFFIC (AADT)  
(Required for all sample sections)**

Enter the section's AADT (total for both directions on two-way facilities and directional if part of a one-way couplet or just one-way) for the year. Since many applications, including vehicle miles traveled (VMT) estimates, will be based on sample section AADT, SHA encourages you to concentrate on counts for sample sections of the highway system, and to provide "actual counts" adjusted to represent AADT rather than "estimates".

***Update the reported AADT values every year. Current traffic data taken from sites near or adjacent to continuous automatic traffic recorders (ATR) is preferable to coverage counts. AADT values should include the application of seasonal, weekday/weekend, and growth factors (if not current year counts). Values derived from pneumatic tube counts must include corrections for vehicles with more than 2-axles.***

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

### TYPE OF IMPROVEMENT

On the reverse side of FORM HPS-20, enter this item (as defined below) for all improvements completed on HPMS sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes, adapted from the Federal HPMS Field Manual:*

<u>Code</u>	<u>HPMS Improvement Type Definitions</u>
20	RELOCATION -- Construction on new location. <i>Replaces an existing route. The old route is abandoned.</i>

### **RECONSTRUCTION**

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

### **Code one of the following types of reconstruction (Codes 31 to 35).**

- |    |  |
|----|--|
| 31 | RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes: <ul style="list-style-type: none"><li>• The addition of full control of access.</li><li>• The addition of lanes.</li><li>• Dualization of the roadway.</li><li>• Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.</li></ul> |
| 32 | RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment. <ul style="list-style-type: none"><li>• Lane additions to the existing section.</li><li>• Corrects alignment, shoulder, and drainage deficiencies.</li></ul>  |
| 33 | RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment. <ul style="list-style-type: none"><li>• Widen lanes one foot or greater than the existing section.</li><li>• Corrects alignment, shoulder, and drainage deficiencies.</li></ul>  |
| 34 | PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency. <ul style="list-style-type: none"><li>• Corrects specific horizontal or vertical alignment deficiencies.</li></ul>  |

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

Did you have this calendar year:

✓     ✓  
YES NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
- b.) Roads you acquire from developers, private owners.
- c.) Extensions to roads you already maintain.
- d.) Roads you acquire through road transfer agreements.

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?
- Any widening or dualization?
- Any abandonment, elimination of existing roadway ,or transfer to any other jurisdiction (including State Highway Administration)?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

After reading the instructions, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 19\_\_**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you in October of each calendar year.

**Read all instructions first** before filling out the forms and maps. Reporting requirements change from time to time.

We recommend this task be done by someone familiar with the roadway network, development, and construction programs in your jurisdiction to insure uniform interpretation and completion of the reports.

**Form HPS-20** ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under your maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on Form HPS-20. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report **road transfers** and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless **both** report the transfer on their respective Form HPS-20 in the **same** calendar year.

Return to this office the **signed and dated** Form HPS-20, **whether or not any changes have been made to your roadway system**, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do **not** return the **HPMS** sample maps.

**Complete all forms and maps, and send them no later than  
December 31, to:**

**Data Support Team  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717**

**Please review all forms and maps for completeness and accuracy  
before returning to this office.**

## Explanation of How to Complete Form HPS-20

ROAD NUMBER  
(Column 1)

In this column, insert the existing **SHA inventory route number** of the road where work was done. On new roads, insert the word "**NEW**" in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

ROAD NAME  
(Column 2)

In this column, place the **road name** on which work was done. If a road name has changed, show the new name in this column and the old name, if known, in the Remarks column (12).

LOCATION  
(Column 3)

Describe the **location** where improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

*Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.*

*Do **NOT** use landmarks, like the Town Hall, telephone poles, 1200 block, fire hydrants, fork in the road, etc.*

*Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."*

MAP DESIGNATION  
(Column 4)

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the map, which should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the ~~year~~, a hyphen, and a numeral; for example, 96-1, 96-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities which make their own maps to use them for this purpose.

MILES  
(Column 5)

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

The road surface types and definitions on these two pages are adapted from the Federal Highway Performance Monitoring System (HPMS) Field Manual. If a surface type on an improvement cannot be accurately determined, report the best estimate.

### ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <u>No credit given for Highway User Revenue Fund</u> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
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NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the width of the pavement, or **actual paved surface**. For roads of Surface Types 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b>
County	<b>Co.</b>
Municipal	<b>Mun.</b>
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers from one system to another, **by mutual agreement**, in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (FROM) and "MUN." (Municipal) in Column 9 (TO).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal annexation still must be reported in this manner. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

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"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column indicate the road mileage added to the system by the following:

- New construction*
- Replacing an existing highway*
- Mutual transfer agreement between political subdivisions.*

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage abandoned resulting from:

- Construction of a new facility*
- Relocation of any existing facility*
- Outright abandonment of any public highway*
- Transfer to another system*

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the old name of a road (if known) and/or clarify an improvement; such as:

- Shoulder work only*
- Resurfacing*
- Reconstruction*
- Bridge relocation or reconstruction*
- Additional lanes*
- Turning lanes*
- Safety improvements, etc.*

In the case of improvements to bridges with center line lengths of 20 feet or more, cite the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the HPMS sampled sections ONLY. The definitions are adapted from the Federal HPMS Field Manual.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

To determine if your jurisdiction made an improvement on an HPMS sampled road section, refer to your HPMS sample map. Look for an orange highlighted area to which a twelve-digit number (the HPMS SAMPLE NUMBER) is attached.

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the HPMS sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section.

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing.
0.0 - 1.0	Very Poor	Pavements that are in an extremely deteriorated condition and may even need complete reconstruction.

HPMS SAMPLE CHANGES, continued

**EXISTING RIGHT-OF-WAY WIDTHS**

Enter the prevailing right-of-way width in whole feet for the sample section. You may estimate where data is unavailable. Enter the curb to curb width where the only space between the curbs and building is the sidewalk area.

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION - SN or D**

Indicate, where known, the structural number(SN) for flexible (asphalt) pavements, the slab thickness (D) for rigid (concrete) pavements, or enter the code for the type of pavement section (heavy, medium, light) where SN or D are not known. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

<u>Code</u>	<u>Description</u>
0	Unpaved
3	Heavy
4	Medium
5	Light

Table IV-3 (on the next page) from the HPMS Field Manual shows typical pavement sections to help determine the type of pavement section where SN or D information are not available. This guide includes typical thicknesses of surface, base and subbase. Unpaved facilities are those designated as unimproved, graded and drained earth, gravel or stone.

**Table IV-3**  
**From the HPMS Field Manual**

**Pavement Section Coding**

Code	Type of Pavement Section	FLEXIBLE PAVEMENT			RIGID PAVEMENT	
		"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness	Range in Pavement Thickness
3	Heavy	4.6 - 6.0	6" Asphaltic concrete	12" Aggregate	13" Aggregate	> 9.0" (8" if continually reinforced)
			<u>OR</u>			
			4" Asphaltic concrete	8" Asphaltic concrete	8" Aggregate	
4	Medium	3.1 - 4.5	4" Asphaltic concrete	8" Aggregate	8" Aggregate	7.1 - 9.0" (6" if continually reinforced)
			<u>OR</u>			
			3" Asphaltic concrete	6" Asphaltic concrete		
5	Light	1.0 - 3.0	Surface Treatment	4" Aggregate	4" Aggregate	6.0 - 7.0"
			<u>OR</u>			
			2" Asphaltic concrete	6" Aggregate		

HPMS SAMPLE CHANGES, continued

**OVERLAY OR PAVEMENT -  
THICKNESS**

Enter the overlay pavement thickness or the pavement thickness (for new pavements) to the nearest tenth (in inches) when an improvement occurs on the section. Enter this information when resurfacing is part of any improvement or when the pavement is completely reconstructed.

**ANNUAL AVERAGE DAILY  
TRAFFIC (AADT)**  
**(Required for all sample sections)**

Enter the section's AADT (total for both directions on two-way facilities and directional if part of a one-way couplet or just one-way) for the year. Since many applications, including vehicle miles traveled (VMT) estimates, will be based on sample section AADT, SHA encourages you to concentrate on counts for sample sections of the highway system, and to provide "actual counts" adjusted to represent AADT rather than "estimates".

***Update the reported AADT values every year. Current traffic data taken from sites near or adjacent to continuous automatic traffic recorders (ATR) is preferable to coverage counts. AADT values should include the application of seasonal, weekday/weekend, and growth factors (if not current year counts). Values derived from pneumatic tube counts must include corrections for vehicles with more than 2-axes.***

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

### TYPE OF IMPROVEMENT

On the reverse side of FORM HPS-20, enter this item (as defined below) for all improvements completed on HPMS sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes, adapted from the Federal HPMS Field Manual:*

#### Code                      HPMS Improvement Type Definitions

- 20                      RELOCATION -- Construction on new location.  
                              *Replaces an existing route.  
                              The old route is abandoned.*

#### RECONSTRUCTION

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

#### Code one of the following types of reconstruction (Codes 31 to 35).

- 31                      RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes:
- The addition of full control of access.
  - The addition of lanes.
  - Dualization of the roadway.
  - Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.
- 32                      RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment.
- Lane additions to the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 33                      RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment.
- Widen lanes one foot or greater than the existing section.
  - Corrects alignment, shoulder, and drainage deficiencies.
- 34                      PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.
- Corrects specific horizontal or vertical alignment deficiencies.

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

*If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.*

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.

- Widen or reconstruct shoulders.
- Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

*Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION – Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.*

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.

**THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST**  
**PLEASE READ ALL INSTRUCTIONS FIRST!!**

✓  
Did you have this calendar year:

YES NO

- Any additions to your roadway maintenance system?
  - a.) New roads you built.
  - b.) Roads you acquire from developers, private owners.
  - c.) Extensions to roads you already maintain.
  - d.) Roads you acquire through road transfer agreements.
    - All affected parties must report the transfer in the same calendar year.
- Any relocations?
- Any widening or dualization?
- Any abandonment, elimination of existing roadway ,or transfer to any other jurisdiction (including State Highway Administration)?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

If you answer YES to any item, place this information in the Road Improvement Report and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

If you answer NO to all items, just fill in your jurisdiction's name, write "NO IMPROVEMENTS FOR CALENDAR YEAR 19\_\_", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope.

Municipalities, whether they have improvements or not, must also return two copies of the request for their portion of the Gasoline Tax and Motor Vehicle Revenue Funds.

**DO NOT REPORT:**

- Drainage improvements.
- Crack sealing.
- Pothole patching.
- Overlay resurfacing to asphalt roads EXCEPT those with HPMS sample sections on them.

State Highway Administration of Maryland  
Highway Information Services Division

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for your roadway system changes. Road inventory data are kept current by your submission of this report, mailed to you by October 15th of each calendar year.

**Read all instructions first** before filling out the forms and maps. Reporting requirements change from time to time.

To insure uniform interpretation and completion of submitted reports, we recommend this task be done by someone familiar with the roadway network, development, and construction programs in your jurisdiction.

Form HPS-20 ("Road Improvement Report") is the annual report form for **improvements, additions** and/or **deletions** to roads and bridges under **your** jurisdiction. Show all **road name changes**, including changes you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on Form HPS-20. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report **road transfers** and accurately describe the road or roads transferred.

Return to this office the **signed and dated** Form HPS-20, **whether or not any changes have been made to your roadway system**, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. Do not return the HPMS sample maps.

All participating municipalities receive two copies of a form letter with which they may request payment from the Gasoline Tax and Motor Vehicle Revenue Funds. Fill out and return **both** copies of this letter with the municipal Road Improvement Report.

Complete all forms and maps, and send them no later than **December 31st** to:

Highway Information Services Division  
Room 207  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

Please review all forms and maps for completeness and accuracy before returning to this office.

Explanation of How to Complete Form HPS-20

ROAD NUMBER (Column 1)	In this column, insert the existing <b>SHA inventory route number</b> of the road where work was done. On new roads, insert the word " <b>NEW</b> " in the column; this office will assign an inventory route number.
ROAD NAME (Column 2)	In this column, place the <b>road name</b> on which work was done. If a road name has changed, show the <b>new</b> name in this column and the <b>old</b> name, if known, in the Remarks column (12).
LOCATION (Column 3)	<p>Describe the <b>location</b> where improvement, change, construction or reconstruction applies. Use a known <b>intersecting road</b> shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."</p> <p>♦ - Do <b>NOT</b> use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.</p> <p>♦ - Do <b>NOT</b> use landmarks, like the Town Hall, telephone poles, 1200 block, fire hydrants, etc.</p> <p>♦ - Do <b>NOT</b> use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."</p>
MAP DESIGNATION Column 4	<p>Place in this column an <b>identifying symbol or designation</b> corresponding with the improvements you indicate on the map, which should show the <b>location and identification of every</b> road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, <u>92-1</u>, <u>92-2</u>, etc.</p> <p>One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities which make their own maps to use them for this purpose.</p>
MILES (Column 5)	Insert in this column the <b>actual length</b> of reported changes, improvements, constructions or reconstructions in miles, tenths, and hundredths. Do <u>not</u> use square feet.

TYPE  
(Column 6)

The road surface types and definitions on these two pages are adapted from the Federal Highway Performance Monitoring System (HPMS) Field Manual. If a surface type on an improvement cannot be accurately determined, report the best estimate.

ROAD TYPES AND DEFINITIONS

<u>Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <ul style="list-style-type: none"><li>◆ Uses the natural surface.</li><li>◆ Barely passable for motor vehicles.</li><li>◆ Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <ul style="list-style-type: none"><li>◆ Natural earth road.</li><li>◆ Permits convenient use by motor vehicles.</li><li>◆ Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>◆ With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>◆ A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>◆ An earth, soil-surfaced, or gravel or stone road.</li><li>◆ Bituminous surface course added.</li><li>◆ With or without a seal coat.<ul style="list-style-type: none"><li>- Chip, drag, plant-mix, and rock-asphalt seals.</li></ul></li><li>◆ The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>◆ Surface course of 1 inch or greater.</li><li>◆ Less than 7 inches in compacted thickness.</li><li>◆ Composed of gravel, stone, sand or similar material.</li><li>◆ Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>◆ Surface course of 1 inch or greater.</li><li>◆ Less than 7 inches in compacted thickness.</li><li>◆ Composed of gravel, stone, sand or similar material.</li><li>◆ Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>◆ Mixed bituminous or bituminous penetration road.</li><li>◆ On a flexible base.</li><li>◆ Combined (surface and base) thickness of 7 inches or more.</li><li>◆ Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

- 62      **Composite; Flexible over Rigid (High Type Flexible)**  
♦ Mixed bituminous or bituminous penetration road.  
♦ Over rigid pavement.  
♦ Combined (surface and base) thickness of 7 inches or more.  
♦ Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.
- 71      **High Rigid; Plain Jointed (High Type Rigid)**  
♦ Portland cement concrete pavement.  
♦ Jointed but without reinforcing.
- 73      **High Rigid; Continuously Reinforced (High Type Rigid)---**  
♦ Continuously reinforced portland cement concrete pavement.
- 80      **Brick, Block or Other Combination (High Type Flexible)**  
♦ Paving brick.  
♦ Stone, asphalt, wood and other block.  
♦ Steel or wood.  
    - With or without a bituminous wearing surface less than 1 inch in compacted thickness.  
    - Includes any combination of wearing surfaces.

NOTE:      Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

WIDTH  
(Column 7)

Refers to the pavement, or **actual paved surface**. For roads of Types 20 to 40 surface, the width refers to the roadway, travelled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or travelled way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

SYSTEM  
(Columns 8 & 9)

The roadway systems are:

State (St.)  
County (Co.)  
Municipal (Mun.)  
Other Public (O.P.)  
Private (Pvt.)

Report transfers from one system to another, by mutual agreement, in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (FROM) and "MUN." (Municipal) in Column 9 (TO).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal annexation still must be reported in this manner. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads; for example, roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

MILEAGE ADDITIONS  
(Column 10)

In this column indicate the road mileage **added** to the system by the following:

- ◆ New construction
- ◆ Replacing an existing highway
- ◆ Mutual transfer agreement between political subdivisions.

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

MILEAGE ABANDONED  
(Column 11)

In this column, show the road mileage **abandoned** resulting from:

- ◆ Construction of a new facility
- ◆ Relocation of any existing facility
- ◆ Outright abandonment of any public highway
- ◆ Transfer to another system

Note the system from which the abandoned mileage came in Column 8.

REMARKS  
(Column 12)

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**; such as:

- ◆ Shoulder work only
- ◆ Resurfacing
- ◆ Reconstruction
- ◆ Bridge relocation or reconstruction
- ◆ Additional lanes
- ◆ Turning lanes
- ◆ Safety improvements, etc.

In the case of improvements to bridges with center line lengths of 20 feet or more, cite the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the resolution number of the annexation (if known) in this column. If possible, please include a written description and a copy of the annexation plat with the Road Improvement Report.

HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)

This section deals with improvements to the Federal Highway Performance Monitoring System (HPMS) sampled sections **ONLY**. The definitions are adapted from the Federal Highway Performance Monitoring System (HPMS) Field Manual.

If you receive no HPMS sample map with the report package, disregard this section.

Refer to your HPMS sample map to determine if your jurisdiction made an improvement on an HPMS sample. You can identify an HPMS sampled road section by the heavily darkened rectangular area on a road followed by a twelve-digit number (the HPMS SAMPLE NUMBER).

**SAMPLE NUMBER** In this column, insert the HPMS sample number of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the HPMS sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

Signal - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

Stop Sign - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

Other or No Controls - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the intersecting road name where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

POSTED SPEED LIMIT Enter the daytime speed limit for automobiles posted or legally mandated on the greater part of the sample section.

TYPE OF OPERATION Enter the appropriate code that best describes the type of operation of a sample section.

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.

PARKING RESTRICTIONS Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

<u>Peak Parking</u>	<u>Code</u>	<u>Description</u>
	1	One side
	2	Both sides
	3	None allowed or available

PAVEMENT CONDITION Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.

Pavement Condition Rating  
(Use full range of values)

PSR	Verbal Rating	Description
5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing.
1.0	Very Poor	Pavements that are in an extremely deteriorated condition and may even need complete reconstruction.
0.0		

HPMS SAMPLE CHANGES, continued

EXISTING RIGHT-OF-WAY WIDTHS Enter the prevailing right-of-way width in whole feet for the sample section. You may estimate where data is unavailable. Enter the curb to curb width where the only space between the curbs and building is the sidewalk area.

WIDENING FEASIBILITY Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

PAVEMENT SECTION - SN or D Indicate, where known, the structural number (SN) for flexible (asphalt) pavements, the slab thickness (D) for rigid (concrete) pavements, or enter the code for the type of pavement section (heavy, medium, light) where SN or D are not known. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

Table IV-3 (on the next page) has been prepared showing typical pavement sections to help determine the type of pavement section where SN or D are not available. This guide includes typical thicknesses of surface, base and subbase. Unpaved facilities are those designated as unimproved, graded and drained earth, gravel or stone.

<u>Code</u>	<u>Description</u>
0	Unpaved
3	Heavy
4	Medium
5	Light

Table IV-3

Pavement Section Coding

Code	Type of Pavement Section	Flexible Pavement			Rigid Pavement	
		"SN" Range	Surface Type & Min. Thick.	Base Type & Min. Thick.	Subbase Type & Min. Thick.	Range in Pavement Thickness "D"
3	Heavy	4.6-6.0	6" Asphaltic Concrete	12" Aggregate	13"	>9.0" (8" if continuously reinforced)
			-----or-----			
4	Medium	3.1-4.5	4" Asphaltic Concrete	8" Aggregate	8" Aggregate	7.1 - 9.0" (6" if continuously reinforced)
			-----or-----			
5	Light	1.0-3.0	3" Asphaltic Concrete	6" Asphaltic Concrete		6.0 - 7.0"
			-----or-----			
			2" Asphaltic Concrete	4" Aggregate	6" Aggregate	

HPMS SAMPLE CHANGES, continued

OVERLAY OR PAVEMENT - THICKNESS      Enter the overlay pavement thickness or the pavement thickness (for new pavements) to the nearest tenth (in inches) when an improvement occurs on the section. Enter this information when resurfacing is part of any improvement or when the pavement is completely reconstructed.

ANNUAL AVERAGE DAILY TRAFFIC (AADT)  
(required for all sample sections)      Enter the section's AADT (total for both directions on two-way facilities and directional if part of a one-way couplet or just one-way) for the year. Since many applications, including vehicle miles travelled (VMT) estimates, will be based on sample section AADT, SHA encourages you to concentrate on counts for sample sections of the highway system, and to provide "actual counts" adjusted to represent AADT rather than "estimates".

Update the reported AADT values every year. Current traffic data taken from sites near or adjacent to continuous automatic traffic recorders (ATR) is preferable to than coverage counts. AADT values should include the application of seasonal, weekday/weekend, and growth factors (if not current year counts). Values derived from pneumatic tube counts must include corrections for vehicles with more than 2-axles.



- 34 PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency.  
 ♦ Corrects specific horizontal or vertical alignment deficiencies.
- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.  
 ♦ Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.  
 ♦ Salvages the existing pavement.  
 ♦ Resurfacing the existing pavement where necessary.  
 ♦ Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.  
 ♦ Salvages the existing pavement.  
 ♦ Resurfacing the existing pavement where necessary.  
 ♦ Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.  
 ♦ Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

Typical improvements include:

- ♦ Replacing spalled or malfunctioning joints.
- ♦ Substantial pavement stabilization prior to resurfacing.
- ♦ Grinding / grooving of rigid pavements.
- ♦ Replacing deteriorated materials.
- ♦ Reworking / strengthening bases or subbases, and adding underdrains.

If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.

71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.

- ◆ Widen or reconstruct shoulders.
- ◆ Some upgrading of unsafe features and other incidental work.

Use this code when concrete restoration includes techniques such as:

- ◆ sub-sealing
- ◆ joint repair
- ◆ diamond grinding.

Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.

72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.

- ◆ Widen or reconstruct shoulders.
- ◆ Some upgrading of unsafe features and other incidental work.

Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.

77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.

- ◆ Some upgrading of unsafe features and other incidental work.
- ◆ If shoulders are improved also, use code 71.

Use this code when concrete restoration includes techniques such as:

- ◆ sub-sealing
- ◆ joint repair
- ◆ diamond grinding.

Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.

78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.

♦ Some upgrading of unsafe features and other incidental work.

♦ **If shoulders are improved also, use code 72.**

Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.

REMARKS: This space can be used in conjunction with the sample number to clarify an improvement.

THE ANNUAL ROAD IMPROVEMENT REPORT CHECKLIST

**PLEASE READ ALL INSTRUCTIONS FIRST!!**

For this calendar year, did you have:

✓ YES    ✓ NO

- Any additions to your roadway maintenance system?
- a.) New roads you built or had built for you.
- b.) Roads you acquire from developers, private owners.
- c.) Extensions to roads you already maintain.
- d.) Roads you acquire through road transfer agreements with other public jurisdictions (including State Highway Administration).

**All parties involved must report the transfer in the same calendar year.**

- Any relocations?
- Any widening or dualization?
- Any abandonment or elimination of existing roadway?
- Any increase/decrease in number of lanes (including center turn lanes)?
- Any road name changes? (Report the name change after you have posted the new name in the field)
- Any additions, deletions, or changes to traffic control devices (stop signs, signals)?  
*Do not include speed bumps.*
- Any road surface upgrading from dirt or gravel to asphalt or concrete?
- Any asphalt overlays of concrete roads?
- Any addition/elimination of shoulders/curbs?
- Any changes to the Highway Performance Monitoring System (HPMS) sample sections (except minor repairs - pothole patching, crack sealing)?

***If you answer YES to any item:***

**After reading the instructions**, place this information in the Road Improvement Report (Form HPS-20) and return it, along with one copy of the improvement maps, to this office in the enclosed, pre-addressed envelope.

***If you answer NO to all items:***

On Form HPS-20, fill in your jurisdiction's name, write "**NO IMPROVEMENTS FOR CALENDAR YEAR 19\_\_**", sign your name, the date, your office hours and phone number on the bottom, and return the Road Improvement Report to this office in the enclosed, pre-addressed envelope

**DO NOT REPORT:**

Drainage improvements, crack sealing, pothole patching, sidewalk repair. Report overlay resurfacing to asphalt roads **ONLY** when it occurs on roads which are assigned HPMS sample sections.

**State Highway Administration of Maryland  
Highway Information Services Division**

**INSTRUCTIONS FOR COMPLETING  
FORM HPS-20, THE ANNUAL ROAD IMPROVEMENT REPORT**

Your annual Road Improvement Report is the State Highway Administration's (SHA) primary information source for changes to your roadway system. Road inventory data are kept current by your submission of this report, mailed to you in October of each calendar year.

**Read all instructions first** before filling out the forms and maps. Reporting requirements change from time to time.

We recommend this task be done by someone familiar with the roadway network, development, and construction programs in your jurisdiction to insure uniform interpretation and completion of the reports.

**Form HPS-20** ("Road Improvement Report") is the annual report form for **improvements, additions and/or deletions** to roads and bridges under your maintenance jurisdiction.

Show all **road name changes**, including those you make to State-maintained roads.

Note any additions, deletions, or changes to your bridges on Form HPS-20. When reporting bridge improvements, cite the structure identification number, the location and type of bridge.

Note the information under the heading "**SYSTEM**" on page five of the instructions. All involved parties (State, County, and/or Municipal) must properly report **road transfers** and accurately describe the road or roads transferred. Transfers between county and municipal jurisdictions will not be processed unless **both** report the transfer on their respective Form HPS-20 in the **same** calendar year.

Return to this office the **signed and dated** Form HPS-20, whether or not any changes have been made to **your roadway system**, and one copy of the enclosed maps showing any improvements. Keep one set of maps for your records. **Do not** return the **HPMS** sample maps.

**Complete all forms and maps, and send them no later than  
December 31, to:**

Data Support Team  
Highway Information Services Division  
Mail Stop C-607  
State Highway Administration  
Post Office Box 717  
Baltimore, MD 21203-0717

**Please review all forms and maps for completeness and accuracy  
before returning them to this office.**

## Explanation of How to Complete Form HPS-20

**ROAD NUMBER  
(Column 1)**

In this column, insert the existing **SHA inventory route number** of the road where work was done. This number is found on the "Mileage by Surface Type" report mailed with the improvement packet. On new roads, insert the word **'NEW'** in the column. The Highway Information Services Division (HISD) will assign a SHA inventory route number.

**ROAD NAME  
(Column 2)**

In this column, place the **road name** on which work was done. If a road name has changed, show the new name in this column and the old name, if known, in the Remarks column (12).

**LOCATION  
(Column 3)**

Describe the **location** where improvement, change, construction or reconstruction applies. Use an existing **intersecting road** shown on the improvement map as a reference, or the exact distance to or from such a feature. Example: "From Roberts Road to 1050 feet north of Roberts Road."

*Do **NOT** use intangible reference points such as survey stations, municipal corporate limits, county lines, property lines, right-of-way lines, proposed (paper) roads, etc.*

*Do **NOT** use landmarks, like the Town Hall, telephone poles, "1200 block", fire hydrants, fork in the road, etc.*

*Do **NOT** use the road itself as a location reference feature, as in "Jones Ave.; from existing Jones Ave. to road end."*

**MAP DESIGNATION  
(Column 4)**

Place in this column an **identifying symbol or designation** corresponding with the improvements you indicate on the improvement map sent with the improvement packet. These designations should show the **location and identification of every** road and/or bridge change, improvement, construction or reconstruction in its exact location. An easy system to use is the year, a hyphen, and a numeral; for example, 96-1, 96-2, etc.

One copy of the enclosed maps should accompany any Road Improvement Reports returned to this office. We request municipalities which produce their own maps to use them for this purpose.

**MILES  
(Column 5)**

Insert in this column the **actual length** of reported changes, improvements, construction or reconstruction in miles, tenths, and hundredths. Mileage credit toward distribution of the Highway User Revenue Funds is given for linear miles of road, not lane mileage (the distance of the road times the number of lanes). Do not use square feet in your distance calculation.

TYPE  
(Column 6)

The road surface types and definitions on these two pages are adapted from the *Federal Highway Performance Monitoring System (HPMS) Field Manual*. If a surface type on an improvement cannot be accurately determined, report the best estimate.

### ROAD TYPES AND DEFINITIONS

<u>Surface Type</u>	<u>Description</u>
20	<b>Unimproved Road (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Uses the natural surface.</li><li>• Barely passable for passenger motor vehicles.</li><li>• Not a graded and drained road.</li></ul>
30	<b>Graded and Drained (Unpaved)</b> <i>No credit given for Highway User Revenue Fund</i> <ul style="list-style-type: none"><li>• Natural earth road.</li><li>• Permits convenient use by motor vehicles.</li><li>• Uses drainage systems (natural and artificial) sufficient to prevent damage by normal surface water.</li><li>• With or without dust palliative treatment or a continuous course of special borrow material to protect the new roadbed temporarily.</li></ul>
40	<b>Soil, Gravel or Stone (Unpaved)</b> <ul style="list-style-type: none"><li>• A surface of mixed or stabilized soil, gravel or stone.</li></ul>
51	<b>Bituminous Surface-Treated (Low Type)</b> <ul style="list-style-type: none"><li>• Bituminous surface course added to an earth, soil-surfaced, or gravel or stone road.</li><li>• With or without a seal coat (Chip, drag, plant-mix, and rock-asphalt seals).</li><li>• The total compacted thickness is less than 1 inch.</li></ul>
52	<b>Mixed Bituminous (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Mixed with bituminous material under partial control as to grading and proportions.</li></ul>
53	<b>Bituminous Penetration (Intermediate Type)</b> <ul style="list-style-type: none"><li>• Surface course of 1 inch or greater.</li><li>• Less than 7 inches in compacted thickness.</li><li>• Composed of gravel, stone, sand or similar material.</li><li>• Bound with bituminous penetration material.</li></ul>
61	<b>High Flexible (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• On a flexible base.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt with a high load-bearing capacity.</li></ul>

ROAD TYPES AND DEFINITIONS, continued.

<u>Surface Type</u>	<u>Description</u>
62	<b>Composite; Flexible over Rigid (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Mixed bituminous or bituminous penetration road.</li><li>• Placed over rigid pavement.</li><li>• Combined (surface and base) thickness of 7 inches or more.</li><li>• Includes any bituminous concrete, sheet or rock asphalt overlay greater than 1 inch of compacted bituminous material. Otherwise, use rigid pavement codes.</li></ul>
71	<b>High Rigid; Plain Jointed (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Portland cement concrete pavement.</li><li>• Jointed but without reinforcing.</li></ul>
73	<b>High Rigid; Continuously Reinforced (High Type Rigid)</b> <ul style="list-style-type: none"><li>• Continuously reinforced Portland cement concrete pavement.</li></ul>
80	<b>Brick, Block or Other Combination (High Type Flexible)</b> <ul style="list-style-type: none"><li>• Paving brick.</li><li>• Stone, asphalt, wood and other block.</li><li>• Steel or wood.</li><li>• With or without a bituminous wearing surface less than 1 inch in compacted thickness.</li><li>• Includes any combination of wearing surfaces.</li></ul>

NOTE: Do not report surfaced or stabilized shoulders as surface widening unless designed and built as part of the traffic bearing surface and equal to it in load bearing capacity.

HPS-20 EXPLANATION, continued.

**WIDTH**  
**(Column 7)**

Refers to the width of the pavement, or **actual paved surface**. This does not refer to right-of-way width. For roads of Surface Types 20 to 40, the width refers to the roadway, traveled way or graded width between shoulders and/or ditches actually usable to vehicles. **Report all lane restripings affecting lane and shoulder width.**

In Column 7, insert the surface or traveled-way width after improvement. If curb and/or gutter exist, place "C-G" after width in column 7.

**SYSTEM**  
**(Columns 8 & 9)**

The roadway systems are:

<u>Jurisdiction</u>	<u>Abbreviation</u>
State	<b>St.</b>
County	<b>Co.</b>
Municipal	<b>Mun.</b>
Other Public	<b>O.P.</b>
Private	<b>Pvt.</b>

Report transfers made by **mutual agreement** from one system to another in Columns 8 & 9.

Example: If a road is transferred from County maintenance to Municipal maintenance, insert the letters "CO." (County) in Column 8 (**FROM**) and "MUN." (Municipal) in Column 9 (**TO**).

**All** involved parties must report road transfers on their respective improvement reports in the same improvement year the transfer took effect. Roads enclosed by municipal **annexation** still must be reported in this manner if the maintenance is being transferred. **SHA will not automatically credit a road newly enclosed by an annexation to the municipality.**

"Other Public" roads are open to unrestricted public use, yet not officially acknowledged as part of the State, County, Municipal or any other publicly owned system of roads. An example of this type would be roads built by developers. **Unreported roads inventoried by SHA automatically receive the "Other Public" classification.**

"Private" roads may serve one or more properties, but are recognized as privately serving these properties and can, by action of the property owners, be closed to or excluded from public use.

**MILEAGE ADDITIONS  
(Column 10)**

In this column, indicate the road mileage **added** to the system by the following:

- New construction***
- Replacing an existing highway***
- Mutual transfer agreement between political subdivisions.***

Note the system from which it was taken, as well as that to which it was added, in Columns 8 and 9 respectively.

**MILEAGE ABANDONED  
(Column 11)**

In this column, show the road mileage **abandoned** resulting from:

- Construction of a new facility***
- Relocation of any existing facility***
- Outright abandonment of any public highway***
- Transfer to another system***

Note the system from which the abandoned mileage came in Column 8.

**REMARKS  
(Column 12)**

Use this column with Column 2 to report the **old name** of a road (if known) and/or **clarify an improvement**, such as:

- Shoulder work only***
- Resurfacing***
- Reconstruction***
- Bridge relocation or reconstruction***
- Additional lanes***
- Turning lanes***
- Safety improvements, etc.***

In the case of improvements to bridges with center line lengths of 20 feet or more, cite the structure identification number, the location and type of bridge.

If you note a **municipal annexation** in your report, put the **resolution number** of the annexation (if known) in this column. If possible, please include a written description (metes and bounds) and a copy of the annexation plat with the Road Improvement Report.

**HPMS SAMPLE CHANGES (Reverse Side of Form HPS-20)**

This section deals with improvements to the **HPMS** sampled sections **ONLY**. The definitions are adapted from the Federal HPMS Field Manual.

***If you receive no HPMS sample map with the report package, disregard pages 7 through 15 of these instructions.***

To determine if your jurisdiction made an improvement on an **HPMS** sampled road section, refer to your **HPMS** sample map. Look for an orange highlighted area to which a twelve-digit number (the **HPMS SAMPLE NUMBER**) is attached.

**SAMPLE NUMBER** In this column, insert the HPMS sample number (from the map) of the road on which work was done.

**TYPE OF TRAFFIC CONTROL** This item pertains to the type of traffic controls on the **HPMS** sample and not those of an intersecting route. Indicate only those controls facing (controlling) the sampled roadway. The traffic controls are:

**Signal** - A signal that cycles through red, yellow and green for all or a portion of the day shall be counted as a signalized intersection.

**Stop Sign** - Enter for intersections with posted stop signs. Also count a continuously operating flashing red ball as a stop sign.

**Other or No Controls** - Enter for intersections controlled by other types of signing or having no controls. Consider a continuously operating flashing yellow signal ball as "other or no control".

**INTERSECTING ROAD NAME** Enter the name of the **intersecting** road where the traffic control is located.

**TYPE OF SIGNAL** Enter the appropriate code.

<u>Code</u>	<u>Description</u>
1	Uncoordinated fixed time
2	Traffic actuated
3	Progressive
4	No signal system

**PERCENT OF GREEN TIME** Enter the typical percent of green time during peak hours at the signalized intersections. Enter "00" if no signalized intersections exist.

HPMS SAMPLE CHANGES, continued

**POSTED SPEED LIMIT** Enter the daytime posted or legally mandated speed limit for automobiles on the greater part of the sample section.

**TYPE OF OPERATION** Enter the appropriate code that best describes the type of operation of a sample section.

<u>Code</u>	<u>Description</u>
1	One-way - a roadway with traffic moving in one direction only.
2	Two-way - a road moving in both directions during non-rush hours.

**PARKING RESTRICTIONS** Enter the appropriate code reflecting the type of peak-hour parking, if any, existing on this section. If parking regulations are routinely ignored, use the code reflecting the actual situation rather than the regulations.

***Peak Parking***

<u>Code</u>	<u>Description</u>
1	One side
2	Both sides
3	None allowed or available

**PAVEMENT CONDITION** Enter the pavement condition, actual Present Serviceability Rating (PSR) or equivalent, to the nearest tenth, for all paved sections. For unpaved sections, code "00".

If there are no recent PSR, PSI, or sufficiency ratings, rate the section from the following table on the next page. Estimates to the nearest tenth within the applicable range should be made; e.g., 2.3. This is most important for comparisons to prior years.

***In view of the growing national concern regarding pavement deterioration, careful attention to realistic pavement condition ratings is strongly suggested.***

## Pavement Condition Rating (Use full range of values)

<u>PSR</u>	<u>Verbal Rating</u>	<u>Description</u>
4.1 - 5.0	Very Good	Only new (or nearly new) pavements are likely to be smooth enough and sufficiently free of cracks and patches to qualify for this category. All pavements constructed or resurfaced during the data year would normally be rated very good.
3.1 - 4.0	Good	Pavements in this category, although not quite as smooth as those described above, give a first class ride and exhibit few, if any visible signs of surface deterioration. Flexible pavements may be beginning to show evidence of rutting and fine random cracks. Rigid pavements may be beginning to show evidence of slight surface deterioration, such as minor cracks and spalling.
2.1 - 3.0	Fair	The riding qualities of pavements in this category are noticeably inferior to those of new pavements, and may be barely tolerable for high speed traffic. Surface defects of flexible pavements may include rutting, map cracking, and more or less extensive patching. Rigid pavements in this group may have a few joint failures, faulting and cracking, and some pumping.
1.1 - 2.0	Poor	Pavements that have deteriorated to such an extent that they are in need of resurfacing.
0.0 - 1.0	Very Poor	Pavements that are in an extremely deteriorated condition and may even need complete reconstruction.

HPMS SAMPLE CHANGES, continued

**EXISTING RIGHT-OF-WAY WIDTHS**

Enter the prevailing right-of-way width in whole feet for the sample section. You may estimate where data is unavailable. Enter the curb to curb width where the only space between the curbs and building is the sidewalk area.

**WIDENING FEASIBILITY**

Enter the appropriate code indicating the possible extent of widening the existing road. Consider the physical features along the roadway section, such as buildings, severe terrain, cemeteries and park land. Do not consider restrictions because of current right-of-way width, State practices concerning widening, or projected traffic. Restriping to narrower lanes does not constitute widening feasibility.

<u>Code</u>	<u>Description</u>
1	Widening not possible
2	Yes, less than one lane
3	Yes, one lane
4	Yes, two lanes
5	Yes, more than two lanes

**PAVEMENT SECTION - SN or D**

Indicate, where known, the structural number(SN) for flexible (asphalt) pavements, the slab thickness (D) for rigid (concrete) pavements, or enter the code for the type of pavement section (heavy, medium, light) where SN or D are not known. A roadway with (at least) 1 inch of compacted flexible overlay (disregarding short patches) is considered a flexible pavement for purposes of this entry.

<u>Code</u>	<u>Description</u>
0	Unpaved
3	Heavy
4	Medium
5	Light

Table IV-3 (on the next page) from the HPMS Field Manual shows typical pavement sections to help determine the type of pavement section where SN or D information are not available. This guide includes typical thicknesses of surface, base and subbase. Unpaved facilities are those designated as unimproved, graded and drained earth, gravel or stone.

**Table IV-3**  
**From the HPMS Field Manual**

**Pavement Section Coding**

Code	Type of Pavement Section	FLEXIBLE PAVEMENT			RIGID PAVEMENT	
		"SN" range	Surface type & minimum thickness	Base type & minimum thickness	Subbase type & minimum thickness	Range in Pavement Thickness
3	Heavy	4.6 - 6.0	6" Asphaltic concrete	12" Aggregate	13" Aggregate	> 9.0" (8" if continually reinforced)
			OR			
			4" Asphaltic concrete	8" Asphaltic concrete	8" Aggregate	
4	Medium	3.1 - 4.5	4" Asphaltic concrete	8" Aggregate	8" Aggregate	7.1 - 9.0" (6" if continually reinforced)
			OR			
			3" Asphaltic concrete	6" Asphaltic concrete		
5	Light	1.0 - 3.0	Surface Treatment	4" Aggregate	4" Aggregate	6.0 - 7.0"
			OR			
			2" Asphaltic concrete	6" Aggregate		

HPMS SAMPLE CHANGES, continued

**OVERLAY OR PAVEMENT -  
THICKNESS**

Enter the overlay pavement thickness or the pavement thickness (for new pavements) to the nearest tenth (in inches) when an improvement occurs on the section. Enter this information when resurfacing is part of any improvement or when the pavement is completely reconstructed.

**ANNUAL AVERAGE DAILY  
TRAFFIC (AADT)  
(Required for all sample sections)**

Enter the section's AADT (total for both directions on two-way facilities and directional if part of a one-way couplet or just one-way) for the year. Since many applications, including vehicle miles traveled (VMT) estimates, will be based on sample section AADT, SHA encourages you to concentrate on counts for sample sections of the highway system, and to provide "actual counts" adjusted to represent AADT rather than "estimates".

***Update the reported AADT values every year. Current traffic data taken from sites near or adjacent to continuous automatic traffic recorders (ATR) is preferable to coverage counts. AADT values should include the application of seasonal, weekday/weekend, and growth factors (if not current year counts). Values derived from pneumatic tube counts must include corrections for vehicles with more than 2-axles.***

## IMPROVEMENT TYPE ANALYSIS (FOR HPMS SAMPLE SECTION ONLY)

### TYPE OF IMPROVEMENT

On the reverse side of FORM HPS-20, enter this item (as defined below) for all improvements completed on HPMS sampled road sections during the reporting year. If completed improvements overlap, use the one with the highest priority (lowest code). If no improvements were completed on sampled sections during the reporting year, disregard this item.

*Use one of the following codes, adapted from the Federal HPMS Field Manual:*

<u>Code</u>	<u>HPMS Improvement Type Definitions</u>
20	RELOCATION -- Construction on new location. <i>Replaces an existing route. The old route is abandoned.</i>

### RECONSTRUCTION

Construction on the approximate alignment of an existing route where the pavement structure is substantially removed and replaced. Such reconstruction may include:

1. Widening to provide additional through lanes,
2. Adding grade separations,
3. Replacing other highway elements. Adjustment to existing horizontal and vertical alignment can be made.

### Code one of the following types of reconstruction (Codes 31 to 35).

31	RECONSTRUCTION TO FREEWAY -- Complete reconstruction to freeway design standards on substantially existing alignment. Includes: <ul style="list-style-type: none"><li>• The addition of full control of access.</li><li>• The addition of lanes.</li><li>• Dualization of the roadway.</li><li>• Addition of interchanges, grade separations, or widening of lanes, depending on what was required to bring the facility to freeway standards.</li></ul>
32	RECONSTRUCTION WITH MORE LANES -- Complete reconstruction on substantially the same alignment. <ul style="list-style-type: none"><li>• Lane additions to the existing section.</li><li>• Corrects alignment, shoulder, and drainage deficiencies.</li></ul>
33	RECONSTRUCTION TO WIDER LANES -- Complete reconstruction on substantially the same alignment. <ul style="list-style-type: none"><li>• Widen lanes one foot or greater than the existing section.</li><li>• Corrects alignment, shoulder, and drainage deficiencies.</li></ul>
34	PAVEMENT RECONSTRUCTION WITH ALIGNMENT IMPROVEMENTS -- Reconstruction of the highway section to correct a pavement deficiency. <ul style="list-style-type: none"><li>• Corrects specific horizontal or vertical alignment deficiencies.</li></ul>

Code

HPMS Improvement Type Definitions, continued

- 35 PAVEMENT RECONSTRUCTION -- Complete reconstruction on substantially the same alignment without widening the pavement structure.
- Corrects drainage and minor alignment deficiencies.
- 40 MAJOR WIDENING -- Lane addition or dualization of an existing facility.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 50 MINOR WIDENING -- Adding more width per lane to an existing facility without adding more through lanes.
- Salvages the existing pavement.
  - Resurfacing the existing pavement where necessary.
  - Other incidental improvements; e.g. shoulder and drainage improvements.
- 60 RESTORATION AND REHABILITATION -- Work required to return an existing pavement (including shoulders) to a condition of adequate structural support or to a condition adequate for placement of an additional stage of construction.
- Upgrade unsafe features or other incidental work in conjunction with restoration and rehabilitation.

**Typical improvements include:**

- Replacing spalled or malfunctioning joints.
- Substantial pavement stabilization prior to resurfacing.
- Grinding / grooving of rigid pavements.
- Replacing deteriorated materials.
- Reworking/strengthening bases or subbases, and adding underdrains.

***If this type of improvement is done in preparation for resurfacing, report it separately only if the resurfacing is not completed in the year for which the data is reported.***

- 71 RESURFACING WITH SHOULDER IMPROVEMENTS AND PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION -- Placement of additional **Portland cement concrete** material over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.

**Use this code when concrete restoration includes techniques such as:**

- Sub-sealing
- Joint repair
- Diamond grinding.

***Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

- 72 RESURFACING WITH SHOULDER IMPROVEMENTS AND BITUMINOUS PAVEMENT RESTORATION -- Placement of at least 1 inch of compacted **bituminous material** over the existing roadway to improve serviceability or to provide additional strength.
- Widen or reconstruct shoulders.
  - Some upgrading of unsafe features and other incidental work.
  - Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.
- 77 RESURFACING WITH PORTLAND CEMENT CONCRETE PAVEMENT RESTORATION
- Placement of additional Portland cement concrete material over the existing roadway to improve serviceability or to provide additional strength.
- Use this code when concrete restoration includes techniques such as:**
- Sub-sealing
  - Joint repair
  - Diamond grinding.
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***
- 78 RESURFACING WITH BITUMINOUS PAVEMENT RESTORATION - Placement of at least 1 inch of compacted bituminous material over the existing roadway to improve serviceability or to provide additional strength.
- Some upgrading of unsafe features and other incidental work.
  - **If shoulders are improved also, use code 72.**
- Where surfacing is constructed by separate project as a final stage of construction, the type of improvement should be the same as that of the preceding stage -- relocation, reconstruction, minor widening, etc.***

**REMARKS:** This space on the reverse side of Form HPS-20 can be used in conjunction with the sample number to clarify an improvement.