HPMS Date Items Used for HERS-STv4.2

INTRODUCTION

The purpose of this project is to develop joint analysis between the HERS-ST Deficiency Model and the RVMPO Travel Demand Model; the former model is developed and maintained by FHWA, while the latter model is developed and maintained by Oregon DOT. The deficiency model will be used to evaluate long-range (i.e., twenty year) needs on the roadway system, while the travel demand model addresses transportation changes on the roadway system, according to land-use and employment changes. The deficiency model evaluates a single HPMS formatted record at one time, and is ignorant of any other changes to the system. The travel demand model will dissipate traffic across the system, based on scenario changes, but it does not identify deficiencies on the system, nor does it simulate improvements and evaluate performance based on improvements. Each model works completely independent and covers completed different analysis. Joining the two models together makes good sense.

UNIVERSE & STANDARD SAMPLE DATA

Universal data - certain basic inventory information is required to be reported for all open-to-traffic, public road systems in the universe portion of the HPMS data set (**Items 1-46**). Sample data - additional detailed information is required for a statistically chosen sample of roadways on major functional systems. The additional detailed data are reported for the standard sample portion of the HPMS data set (**Items 47-98**).

SUMMARY

In order to tie RVMPO with HERS-ST, a complete HPMS dataset covering the entire RVMPO network must be developed. In essence, we need a 100% sample HPMS dataset. Past analysis has shown that the HPMS sample data is strongest for higher functional classified roadways; Interstate system is represented much better than the Collector system.

For the purpose of joining the two models, it is questionable whether or not each RVMPO roadway section needs to be included. The HPMS sample data was overlaid with the RVMPO network to determine what data was already available, and an analysis of what segments still needed data developed. A large number of the roadway mileage (79%) not covered by HPMS sample dataset was classified as "local".

HPMS DATA

Item 1 — Year of Data (Numeric; Integer)

Enter the four digits of the calendar year for which the data apply. **Since this is a tie with RVMPO, the default input should be 2006, the reference year for the RTP development.**

Default data	2006 (Model Reference Year)

Item 2 — State Code (Numeric; Codes)

The State FIPS code is used in the HPMS database to identify the reporting State. Enter the State FIPS code; **note that this will not influence the HERS-ST analysis.**

Default data	41 - Oregon

Item 3 — Reporting Units - Metric or English (Numeric; Codes)

Code for all sections to indicate the units used to report measured and other measurement related data items. There can be no mixing of units within the data set.

Default data	0 – English Units

Item 4 — County Code (Numeric; Codes)

The FIPS county code permits analysis and mapping of information at a sub-State level. Enter the three-digit FIPS county code; **note that this will not influence the HERS-ST analysis.**

Default data	29 – Jackson County

Item 5 — Section Identification (Character Field)

This item must contain a 12-character countywide unique identifier. **This is generally a concatenate of the Road Number and the Beginning Milepoint — note that this must be a unique value.**

Item 6 — Is Standard Sample? (Numeric; Codes)

This data item is used by the software to indicate if a section is a standard sample. **In order for HERS-ST to analyze the data, this MUST be coded as "1".**

Default data	1 – Sample Section

Item 7 — Is Donut Sample (Numeric; Codes)

This data item is not used for HERS-ST. Code the default to reduce HERS-ST outputs errors.

Default data	0 – Not a Donut Sample

Item 8 — State Control Field (Character Field)

This is a data item of up to 100 alphanumeric characters for State use for identification or any other purpose. **This is a pass through item for HERS-ST, so use it to help identify data location.**

Item 9 — Is Section Grouped? (Numeric; Codes)

This data item is not used for HERS-ST. Code the default to reduce HERS-ST outputs errors.

Default data	0 – Individual Section

Item 10 — LRS Identification (Character Field)

This item is used to reference HPMS information to the map location of road sections. This is a twelve character field that is essential for identifying and mapping data, use accordingly.

Code	0	1	2	3	4	5	6	7	8	9	0	1

Item 11 — LRS Beginning Point (Numeric; Decimal)

This item is used to reference HPMS information to the map location of road sections. It should represent the beginning of the section.

Code	1	2	3	.	4	5

Item 12 — LRS Ending Point (Numeric; Decimal)

This item is used to reference HPMS information to the map location of road sections. It should represent the end of the section.

Code	1	2	3	.	4	5

Item 13 — Rural/Urban Designation (Numeric; Codes)

This item permits analysis and mapping of information at a sub-State level. Code the value best describing the area**; should be easy to identify from various mapping or other data sources.**

Code	Description
1	Rural Area
2	Small Urban Area (Population 5,000 to 49,999)
3	Small Urbanized Area (Population 50,000 to 199,999)

Item 14 — Urbanized Area Sampling Technique (Numeric; Integer)

This data item is not used for HERS-ST.

Default data	0 – Default

Item 15 — Urbanized Area Code (Numeric; Codes)

This data item is not used for HERS-ST.

Default data	0 – Default

Item 16 — NAAQS Nonattainment Area Code (Numeric; Codes)

This data item is not used for HERS-ST.

Default data	0 – Default

Item 17 — Functional System Code (Numeric; Codes)

This item permits analysis and mapping of information by highway functional system. Code the value that represents the functional system upon which the section is located; **should be easy to identify from various mapping or other data sources.**

Code	Description	Code	Description
RURAL		**URBAN**	
1	Principal Arterial - Interstate	11	Principal Arterial - Interstate
2	Principal Arterial - Other	12	Principal Arterial-Other Freeways &
6	Minor Arterial	14	Principal Arterial - Other
7	Major Collector	16	Minor Arterial
8	Minor Collector	17	Collector

Item 18 — Generated Functional System Code (**Software Calculated**)

This item is encoded by the HPMS software based on the Functional System (Item 17); **it is easy to calculate external of HERS-ST.**

Code	Description	
RURAL		**URBAN**
1	Interstate	Interstate
2	Other Principal Arterial	Other Freeways and Expressways
3	Minor Arterial	Other Principal Arterial
4	Major Collector	Minor Arterial
5	Minor Collector	Collector
6	Local	Local

Item 19 — National Highway System (NHS) (Numeric; Codes)

This data item is not used for HERS-ST.

Default data	1 – On NHS

Item 20 — Planned Unbuilt Facility (Numeric; Codes)

For simplicity sake, use default value, not sure how HERS-ST uses this data.

Default data	1 – On NHS and Open

Item 21 — Official Interstate Route Number (Character Field)

This data item is not used for HERS-ST.

Default data	0 – Default

Item 22 — Route Signing (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 23 — Route Signing Qualifier (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 24 — Signed Route Number (Character Field)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 25 — Governmental Ownership (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 26 — Special Systems (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 27 — Type of Facility (Numeric; Codes)
This item is used to determine whether a roadway or structure is a one- or two-way operation. It is used in investment requirements modeling to calculate capacity and estimate roadway deficiencies and improvement needs, in the cost allocation pavement model, and in the national highway database. **Since, the network for RVMPO is based on one-way links (EMME2 version only) the default data should be used.**

Default data	1 – One-way

Item 28 — Designated Truck Route (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Not Truck Route

Item 29 — Toll (Numeric; Codes)
This data item is not used for HERS-ST.

Default data	0 – Non-Toll Route

Item 30 — Section Length (Numeric; Decimal)

This item should be the report length (miles), as measured along the centerline of the roadway. In older versions, this item was compared for consistency against the summed values identified as Grade and Curve lengths. **This item can most easily be defined as the difference between the Ending LRS (Item 12) and Beginning LRS (Item 11).**

Code	1	2	3	.	4	5

Item 31 — Donut Area Sample AADT Volume Group Identifier (Numeric; Integer)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 32 — Standard Sample AADT Volume Group Identifier (Numeric; Integer)
This data item is not used for HERS-ST.

Default data	0 – Default

Item 33 — Annual Average Daily Traffic (AADT) (Numeric; Integer)

Enter the section AADT for the data year. For two-way facilities, provide the AADT for both directions. All counts must reflect application of day of week, seasonal, and axle correction factors, as necessary. Growth factors must be applied if the AADT is not derived from current year counts. **For the purpose of this project, the AADT will be provided as output from the RVMPO model. Since all section records are one-way, this data will be reported as one-way.**

Item 34 — Number of Through Lanes (Numeric; Integer)

This item provides basic inventory information on the amount of public road supply. Code the number of through lanes according to the striping, if present, on multilane facilities, or according to traffic use or State/local design guidelines if no striping or only centerline striping is present.

Enter the prevailing number of through lanes in both directions carrying through traffic in the off-peak period. **Since the HERS-ST sections will be matched to RVMPO, the number of through lanes should be consistent with that is coded in RVMPO.**

Item 35 — Measured Pavement Roughness (IRI) (Numeric; Decimal)

This item provides information on pavement surface roughness on selected roadway sections. Code the International Roughness Index (IRI) for paved sections in accordance with minimum reporting specifications contained in Table IV-3 of the HMS Field Manual. **This information should be obtained from Pavement Management System, maintained by the local jurisdictions.**

Item 36 — Present Serviceability Rating (PSR) (Numeric; Decimal)

This item provides information on pavement condition on selected roadway sections. It is used in investment requirements modeling to estimate pavement deterioration, section deficiencies, and needed improvements. Code a PSR or equivalent value, to the nearest tenth (x.x). **This information should be obtained from Pavement Management System, maintained by the local jurisdictions.**

Note: A sample section must have either PSR (Item 36) or IRI (Item 35) reported.

Item 37 — High Occupancy Vehicle (HOV) Operations (Numeric; Codes)

This item is used to identify those roadway sections with HOV operations. Code this data item for all sections to best reflect the nature of existing HOV operations.

Default data	0 – No HOV Lanes

Items 38-46 — Highway Surveillance Systems (Numeric; Codes)

The data for these items is not used for HERS-ST.

Default data	0 – Default

Item 47 — Sample Identifier (Character Field)

The sample identifier is a statewide or countywide unique 12-character alphanumeric code that cannot change once it has been assigned. **For simplicity, reuse the same value as used for Section Identification (Item 5).**

Item 48 — Donut Area Sample Expansion Factor (**Software Calculated**)

The data for these items is not used for HERS-ST.

Default data	0 – Default

Item 49 — Standard Sample Expansion Factor (**Software Calculated**)

Expansion factors are used to expand sampled data to represent the universe from which the sample is drawn. **Since the goal for this project is to have a one-to-one relationship with**

RVMPO, the expectation is to have a 100% sample dataset. If, as discussed on the opening, the alternative decision is to develop coverage of the system at some level below 100%, this assessment will need to be reevaluated.

Default data	1 – 100% Sample

Item 50 — Surface/Pavement Type (Numeric; Codes)

Enter the code which best represents the type of surface on the section. Unless more information is known about the type of surface and the base, the two default values are defined for bituminous and Concrete (which is probably on found on the interstate)

Code	Description
1	**Gravel (un-paved)**
4	**High type flexible**—mixed bituminous or bituminous penetration pavement.
5	**High type rigid**—Portland cement concrete (PCC) pavement.

Item 51 — SN or D (Numeric; Decimal)

This item provides specific information about the pavement section in terms of structural number [SN] for flexible pavement or thickness (depth) [D] for rigid pavement on sample roadway sections. Code this numeric item for all standard sample sections. Enter SN to the nearest tenth (xx.x) and D to the nearest inch (xx.0). When known, enter the actual value; otherwise code a typical value for the functional system and pavement type based upon historic data or State practice. The SN or D value should reflect the last improvement on the section. **This information should be obtained from Pavement Management System, maintained by the local jurisdictions.**

Item 52 — General Climate Zone (Software Set)

It is not clear how this data is used by HERS-ST, however, for RVMPO, use Default.

Default data	3 – Default

Item 53 — Year of Surface Improvement (Numeric; Integer)

It is not clear how this data is used by HERS-ST, however, for RVMPO, use Default.

Default data	0 – Default

Item 54 — Lane Width (Numeric; Decimal)

This item is a measure of existing lane width on sample roadway sections. Enter the prevailing through lane width to the whole foot (x.0). **Depending on the ultimate purpose for this analysis, this item can be coded with a default width. The analyst defines the allowable level of deficiency, and as such must decide how close is "close enough". The choice is to go out a**

measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the width.

Item 55 — Access Control (Numeric; Codes)

This item is a measure of the degree of access control on sample roadway sections. Code the type of access control for all standard sample sections.

Code	Description
1	**Full Access Control**: Preference given to through traffic movements by providing interchanges with selected public roads and by prohibiting crossing at grade and direct driveway connections.
2	**Partial Access Control**: Preference given to through traffic movement. In addition to interchanges, there may be some crossings at-grade with public roads, but direct private driveway connections have been minimized through the use of frontage roads or other local access restrictions. Control of curb cuts is not access control.
3	**No Access Control**: Include all sections that do not meet the criteria above.

Item 56 — Median Type (Numeric; Codes)

This item is a characterization of the type of median on sample roadway sections. Code the type of median for all standard sample sections.

Code	Description
1	Curbed
2	Positive Barrier
3	Unprotected
4	None

A positive barrier normally consists of a guardrail or concrete barrier, but could consist of thick, impenetrable vegetation. Turning lanes or bays are not considered medians unless the turning lanes/bays are cut into an existing median at intersections, entrance drives, etc; a continuous turning lane is not a median. Use code "3" if an unprotected median is at least 4 feet wide; otherwise, use code "4," None. **Depending on the ultimate purpose for this analysis, this item can be coded with a default median type. The analyst must decide how close is "close enough". The choice is to go out a measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the type.**

Item 57 — Median Width (Numeric; Decimal)

This item is a measure of existing median width on sample roadway sections. Enter the predominant median width including left shoulders, if any, measured between the inside edges of the through lanes, to the nearest foot (x.0). Enter "0.0" where Item 56 is coded "4." Enter "999.9" where the median width is 30 meters or 100 feet or greater. Ignore turning bays cut into the median. **Depending on the ultimate purpose for the analysis, this item can be coded with**

a default width. The analyst must decide how close is "close enough". The choice is to go out a measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the width.

Item 58 — Shoulder Type (Numeric; Codes)

This item provides information on the type of existing shoulders on sample roadway sections. If left and right shoulder types differ on a divided facility, code the right shoulder type as the predominant type. If there is a shoulder in front of a barrier curb, code the shoulder type and width, but do not code as a shoulder the area behind a barrier curb. Ignore mountable curbs for reporting purposes; if there is a shoulder either in front of or behind a mountable curb, code the shoulder type and width. If the section has parking abutting the through lane, there cannot be a shoulder; if a bike lane abuts the through lane, there cannot be a shoulder unless it is a combined shoulder/bike lane. If there is parking on one side of a divided roadway and a shoulder or a curb on the other side, code both parking and shoulder type and width accordingly. A shoulder cannot exist between a traffic lane and a parking lane. If a bike lane or parking is completely separated from the roadway, it should not be considered.

Code	Description
1	None: No shoulders or curbs exist.
2	Surfaced shoulder exists (bituminous concrete or Portland cement concrete surface).
3	Stabilized shoulder exists (stabilized gravel or other granular material with or without admixture).
4	Combination shoulder exists (shoulder width has two or more surface types; for instance, part of the shoulder width is surfaced and a part of the width is earth, etc.).
5	Earth shoulder exists.
6	Barrier curb exists; no shoulders in front of curb.

Depending on the ultimate purpose for this analysis, this item can be coded with a default type. The analyst defines the allowable level of deficiency, and as such must decide how close is "close enough". The choice is to go out a measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the type.

Item 59 — Right Shoulder Width (Numeric; Decimal)

This item measures the existing shoulder width on sample roadway sections. It is used in investment requirements modeling to calculate capacity and estimate needed improvements. Enter the width of the right shoulder to the nearest whole foot (x.0). Code "0.0" if no right shoulder exists. Include rumble strips and gutter pans in shoulder width. **Depending on the ultimate purpose for this analysis, this item can be coded with a default median type. The analyst must decide how close is "close enough". The choice is to go out a measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the type.**

Item 60 — Left Shoulder Width (Numeric; Decimal)

This item measures the existing shoulder width on sample roadway sections. It is used in investment requirements modeling to calculate capacity and estimate needed improvements. On divided highways, enter the width of the left (median) shoulder to the nearest whole foot (x.0). Code "0.0" where no left shoulder exists or if the section is undivided. Include rumble strips and gutter pans in shoulder width. **Depending on the ultimate purpose for this analysis, this item can be coded with a default median type. The analyst must decide how close is "close enough". The choice is to go out a measure every section, or one can use various data sources (such as a video log or Goggle Earth) to guesstimate the type.**

Item 61 — Peak Parking (**Urban Data Item**) (Numeric; Codes)

This item provides specific information about the presence of peak parking on urban sample roadway sections. Enter the code that best reflects the type of peak parking that exists on the section. Code to reflect permitted use; code permitted parking even if the section is not formally signed or striped for parking. If parking is actually beyond the shoulder or the pavement edge where there is no shoulder, use code "3" for no parking. If parking lanes are legally used for through traffic or turning lanes during the peak-hour, code the appropriate in-use condition.

Code	Description
0	Not Applicable; Section is Rural
1	Parking Allowed One Side
2	Parking Allowed Both Sides
3	No Parking Allowed or None Available

Since the data for this item is limited, we calculate parking based on the Speed (Item 80). It is assumed that parking is allowed for roadways with Speed < 30mph (thought to be CBD area).

Item 62 — Widening Feasibility (Numeric; Codes)

This item provides a measure of whether it is feasible to widen an existing sample section. Enter the code which best represents the extent to which it is feasible to widen the existing road. Consider mainly the physical features along the roadway section, such as large single family residences or office buildings, shopping centers and other large enterprises, severe terrain, cemeteries, wet lands, and park land, as well as where widening would be otherwise cost or environmentally prohibitive. Do not consider restrictions because of current right-of-way width, State practices concerning widening, politics, or projected traffic.

The code is to represent the lanes that could be added in both directions; e.g., if a lane could be added for each direction of the roadway, then use code "4"; if one full lane only can be added, use code "3"; if only minor widening or widening narrow lanes can occur, use code "2". Restriping to narrower lanes, resulting in an additional lane on a multilane facility, does not constitute widening feasibility. When coding this item, also consider medians and other areas already within the right-of-way to be available for widening.

Depending on the ultimate purpose for this analysis, this item can be coded with a default value. The analyst must decide how close is "close enough". The easiest way to collect this data is by using one of several data sources (such as a video log or Goggle Earth) to guesstimate the feasibility.

Code	Description
1	No Widening is Feasible
2	Yes, Partial Lane
3	Yes, One Lane
4	Yes, Two Lanes
5	Yes, Three Lanes or More

Items 63-68 — Curves by Class (Numeric; Decimal)

These items provide specific information regarding the length of horizontal curves by degree of curvature for sample sections. Code for paved rural arterials and urban principal arterials. Curves by class may be coded for other functional systems if the data are available; code "0.0" when curve data are not reported. When this item is not reported for the required rural systems, code Horizontal Alignment Adequacy (Item 69).

Each curve and tangent segment is coded as a separate curve; segments are summed by curve class to obtain the total length in each class. Report the sum of the class lengths for each of the six curve classes in miles; **the sum of all curve lengths must equal the section length**.

Item	Curve Classes			Length of Curves in Class (to 3 decimals) xx.xxx
	Curve Class	Radius Length (Metric)	Degree of Curvature (English)	
63	A	506+	0.0- 3.4	——
64	B	321- 505	3.5-5.4	——
65	C	206- 320	5.5- 8.4	——
66	D	126- 205	8.5-13.9	——
67	E	61- 125	14.0-27.9	——
68	F	<61	28+	——

Basically, we can assume that urban roadways are fairly level, for this analysis.

Item 69 — Horizontal Alignment Adequacy (**Rural Data Item**) (**Software Calculated**)

This item provides information about the adequacy of horizontal alignment when curve data are not reported. Code for all paved sample sections unless Curves by Class (Items 63 - 68) are coded for the section. If curves by class are coded, horizontal alignment adequacy will be calculated for paved sections from the curve data. Use the following codes:

Code	Description
0	Curve data are reported or this item is not required for the section.
1	All curves meet appropriate design standards for the type of roadway. Reduction of curvature would be unnecessary even if reconstruction were required to meet other deficiencies (i.e., capacity, vertical alignment, etc.).

Code	Description
2	Although some curves are below appropriate design standards for new construction, all curves can be safely and comfortably negotiated at the prevailing speed limit on the section. The speed limit was not established by the design speed of curves.
3	Infrequent curves with design speeds less than the prevailing speed limit on the section. Infrequent curves may have reduced speed limits for safety purposes.
4	Several curves uncomfortable or unsafe when traveled at the prevailing speed limit on the section, or the speed limit on the section is severely restricted due to the design speed of curves.

Basically, we can assume that urban roadways are fairly level, for this analysis, code "0" for urban roadways.

Item 70 — Type of Terrain (**Rural Data Item**) (Numeric; Codes)

This item provides information on the type of terrain through which the sampled roadway passes. For all rural sample sections, enter the code that best characterizes the terrain classification for the sampled roadway. In coding this item, consider the terrain of an extended length of the roadway upon which the sample is located rather than the grade on the specific sample section by itself. The extended roadway section may be several miles long and contain a number of upgrades, downgrades, and level sections; for long sample sections, such as rural freeway samples extending between interchanges, the extended roadway section and the sample section may be the same. Code according to the following table:

Code	Terrain Type
0	Not Applicable; this is an Urban Section.
1	**Level**: Any combination of grades and horizontal or vertical alignment that permits heavy vehicles to maintain the same speed as passenger cars; this generally includes short grades of no more than 2 percent.
2	**Rolling**: Any combination of grades and horizontal or vertical alignment that causes heavy vehicles to reduce their speeds substantially below those of passenger cars but that does not cause heavy vehicles to operate at crawl speeds for any significant length of time.
3	**Mountainous**: Any combination of grades and horizontal or vertical alignment that causes heavy vehicles to operate at crawl speeds for significant distances or at frequent intervals.

Item 71 — Vertical Alignment Adequacy (**Rural Data Item**) (**Software Calculated**)

This item provides information about the adequacy of vertical alignment when grade data are not reported. Code for all paved sample sections unless Grades by Class (Items 72 - 77). If grades by class are coded, vertical alignment adequacy will be calculated for all paved sections from the grade data. Use the following codes:

Code	Description
0	Grade data are reported or this item is not required for the section.

Code	Description
1	All grades (rate and length) and vertical curves meet minimum design standards appropriate for the terrain. Reduction in rate or length of grade would be unnecessary even if reconstruction were required to meet other deficiencies (i.e., capacity, horizontal alignment, etc.).
2	Although some grades (rate and/or length) and vertical curves are below appropriate design standards for new construction, all grades and vertical curves provide sufficient sight distance for safe travel and do not substantially affect the speed of trucks.
3	Infrequent grades and vertical curves that impair sight distance or affect the speed of trucks (when truck climbing lanes are not provided).
4	Frequent grades and vertical curves that impair sight distance or severely affect the speed of trucks; truck climbing lanes are not provided.

Basically, we can assume that urban roadways are fairly straight, for this analysis, code "0" for urban roadways.

Items 72-77 — Grades by Class (Numeric; Decimal)

These items provide specific information regarding the length of vertical grades by percent gradient for sample sections. Code for paved rural arterials and urban principal arterials. Grades by class may be coded for other functional systems if the data are available; code "0.0" when grade data are not reported. When this item is not reported for the required rural systems, code Vertical Alignment Adequacy (Item 71).

Each grade and flat segment is coded as a separate segment; segments are typically measured between vertical points of intersection (VPI) and summed by grade class to obtain the total length in each class. Report the sum of the class lengths for each of the six grade classes in miles; **the sum of all grade lengths must equal the section length**. Report the following data:

Item	Grade Class	Grade Classes by Gradient (Percent)	Length of Grades in Class (to 3 decimals) xx.xxx
72	A	0.0-0.4	——
73	B	0.5-2.4	——
74	C	2.5-4.4	——
75	D	4.5-6.4	——
76	E	6.5-8.4	——
77	F	8.5+	——

Basically, we can assume that urban roadways are fairly straight, for this analysis (we've generally accounted for curves in the RVMPO Node/Link Network.

Item 78 — Percent Passing Sight Distance (**Rural Data Item**) (Numeric; Integer)

This item provides specific information on the percent of the sample section meeting the sight distance requirement for passing. Code this numeric item for all rural, paved two-lane sample sections. Enter the percent of the section length that is striped for passing. Where there is a discernable directional difference, code for the more restrictive direction. Code “0” for nonapplicable sections as well as for very curved or very hilly sections without passing zones. **Use the roadway stripping to calculate the percent of passing. This only is applied on two-lane roads, where passing required traveling in the lane for opposite traffic. For 3+lanes, passing can be done without moving into opposing lanes, so it should be coded as non-passing. Also, most urban roadways will most likely be non-passing. For urban, code “0”.**

Item 79 — Weighted Design Speed (**Software Calculated**)

This item is a calculated value that provides a design speed weighted by the length of individual horizontal curves and tangents in a sample section. This item is calculated by the HPMS software from curve data; when curve data are not provided, a default value based upon functional system and facility type is used as shown in the following table. **This data should be easy to calculate.**

Facility Type	Functional Class								
	1	2	6	7	11	12	14	16	17
Multilane Divided	70	70	70	65	70	70	70	60	55
Multilane Undivided	70	70	70	60	70	70	70	55	45
2/3 Lane	70	70	65	60	70	65	65	55	45

Item 80 — Speed Limit (Numeric; Integer)

This item provides information on the posted speed limit on sample sections. Enter the daytime speed limit for automobiles posted or legally mandated on the greater part of the section. **This data should be easy to identify from various mapping or other data sources.**

Item 81 — Percent Peak Single Unit Trucks (Numeric; Integer)

This item provides information on truck use on a sample section. Code this item with the percent from **Item 82** unless the State has determined that the percent of trucks in the peak period is different from the average daily percent trucks. **For simplicity, use the same value as coded in Item 82, until more specific data is available.**

Item 82 — Percent Average Daily Single Unit Trucks (Numeric; Integer)

This item provides information on truck use on a sample section. Code single unit truck traffic as a percentage of section AADT to the nearest whole percent. This value should be representative of all single unit truck activity over all days of the week and seasons of the year as a percent of total annual traffic. Single unit trucks include **vehicle classes 4 through 7** (buses through four-or-more axle, single-unit trucks). **This information should be collected from existing count data, or other data sources. This item will be close to zero for urban roadway of low classification, such as local and/or collector – it is assumed that there will be little truck traffic on low classification routes.**

Item 83 — Percent Peak Combination Trucks (Numeric; Integer)

This item provides information on truck use on a sample section. Code this item with the percent from **Item 84** unless the State has determined that the percent of trucks in the peak period is different from the average daily percent trucks. **For simplicity, use the same value as coded in Item 84, until more specific data is available.**

Item 84 — Percent Average Daily Combination Trucks (Numeric; Integer)

This item provides information on truck use on a sample section. Code combination truck traffic as a percentage of section AADT to the nearest whole percent. Combination trucks include **vehicle classes 8 through 13** (four-or-less axle, single-trailer trucks through seven-or-more axle, multi-trailer trucks). **This information should be collected from existing count data, or other data sources. This item will be close to zero for urban roadway of low classification, such as local and/or collector – it is assumed that there will be little truck traffic on low classification routes.**

Item 85 — K-Factor (Numeric; Integer)

This item provides the design hour volume as a percent of AADT for a sample section. Code the K-factor for the section to the nearest percent. The K-factor is the design hour volume (30th highest hour) as a percentage of the annual average daily traffic. Section specific values are requested. If not available, use values derived from continuous count station data on the same route or on a similar route with similar traffic in the same area. The K-Factor normally ranges from 6 to 18 percent. **This information should be collected from existing count data, or other data sources.**

Item 86 — Directional Factor (Numeric; Integer)

This item provides the percent of design hour volume flowing in the peak direction on a sample section. Enter the percentage of the design hour volume (30th highest hour) flowing in the peak direction. Code "100" for one-way facilities. Section specific values are requested. The directional factor normally ranges from 50 to 70 percent. **This information should be collected from existing count data, or other data sources.**

Item 87 — Number of Peak Lanes (Numeric; Integer)

This data item is used to provide information on the number of lanes used in the peak hour direction of flow on a sample section. Code the number of through lanes used in the peak period in the peak direction. For rural 2- or 3-lane sections, code the number of through lanes in both directions in the peak period. The number of peak lanes is used in the HCM-based capacity calculation procedure. **This information should be easy to collect from various mapping or other data sources.**

Items 88-89 — Left/Right Turning Lanes (**Urban Data Items**) (Numeric; Codes)

These items provide information on the presence of turning lanes at a typical intersection on a sample section. Enter the code from the following tables that best describes the peak-period turning lane operation on the inventory section. Where peak capacity for a section is governed by a particular intersection that is on the section, code the turning lane operation at that location; otherwise code for a typical intersection. Code turning lanes and the percent green time for the same intersection. Include turning lanes that are located at entrances to shopping centers, industrial parks, and other large traffic generating enterprises as well as public cross streets. Code a continuous turning lane with painted turn bays as a continuous turning lane. **This**

information should be easy to collect from various mapping or other data sources.

Item 88 — Left Turn Lane Codes (Numeric; Codes)

Code	Description
0	Not applicable; this is a rural section or **no intersections exist on the section.**
1	Turns permitted; multiple exclusive left turning lanes exist. Through movements are prohibited in these lanes. Multiple turning lanes allow for simultaneous turns from all turning lanes.
2	Turns permitted; a continuous exclusive left turning lane exists from intersection to intersection. Through movements are prohibited in this lane.
3	Turns permitted; a single exclusive left turning lane exists.
4	Turns permitted; no exclusive left turning lanes exist.
5	No left turns are permitted during the peak period.

Item 89 — Right Turn Lane Codes (Numeric; Codes)

Code	Description
0	Not applicable; this is a rural section or **no intersections exist on the section**.
1	Turns permitted; multiple exclusive right turning lanes exist. Through movements are prohibited in these lanes. Multiple turning lanes allow for simultaneous turns from all turning lanes.
2	Turns permitted; a continuous exclusive right turning lane exists from intersection to intersection. Through movements are prohibited in this lane.
3	Turns permitted; a single exclusive right turning lane exists.
4	Turns permitted; no exclusive right turning lanes exist.
5	No right turns are permitted during the peak period.

Item 90 — Prevailing Type of Signalization (**Urban Data Item**) (Numeric; Codes)
The data for these items is not used for HERS-ST.

Default data	0 – Default

Item 91 — Typical Peak Percent Green Time (**Urban Data Item**) (Numeric; Integer)

This item provides information on the typical through lane percent green time in effect at intersections on a sample section. Enter the percent green time in effect during the peak period for through traffic at signalized intersections for the direction of travel on the inventory section; percent green time may be coded for rural sections on an optional basis. Where peak capacity for a section is governed by a particular intersection that is on the section, code the percent green time at that location; otherwise code for a typical intersection. Code the percent green time for the same intersection where Items 88 and 89 are coded. Code "0" if no signalized intersections exist or if the section is rural. Use results of a field check of several peak period light cycles to determine a "typical" green time for traffic actuated/demand responsive traffic signals. Ignore separate green-arrow time for turning movements.

Oregon DOT does not currently have a signal database, so this item is generically populated for massive database development. In essence, when Item 92 contains any value greater than zero, it is assumed that the Green Time is split 50-50. Sensitivity testing should be conducted to see how different values will influence the analysis.

Items 92-94 — Number of At-Grade Intersections (Numeric; Integer)

These items provide a count of the number of intersections and traffic controls on the sample section. Code the number of intersections on the inventory route according to the following table. Include at-grade intersections at entrances to shopping centers, industrial parks, and other large traffic generating enterprises. **This information should be easy to collect from various mapping or other data sources.**

Item	Description
92	**Signals**: Enter the number of at-grade intersections with a signal controlling traffic on the inventory route. A signal that cycles through red, yellow, and green for all or a portion of the day should be counted as a signalized intersection. If none, enter "0."
93	**Stop Signs**: Enter the number of at-grade intersections with a stop sign controlling traffic on the inventory route. A continuously operating, flashing red signal should be counted as a stop sign control. If none, enter "0".
94	**Other or No Controls**: Enter the number of at-grade intersections where traffic on the inventory route is not controlled by either a signal or a stop sign; or is controlled by other types of signing; or has no controls. A continuously operating, flashing yellow signal should be considered as "other or no control." If none, enter "0."

Item 95 — Peak Capacity (**Software Calculated**)

This item provides existing peak hour capacity for a sample section. The rural and urban peak capacity values are calculated by procedures in the HPMS software provided to the States. The procedures used in the software for determining highway capacity conform to the Highway Capacity Manual (HCM). The capacity calculations are based on service flow rates for level of service E.

All urban capacity is for the peak direction as is rural capacity for freeways and other multi-lane facilities. If a rural facility has 2 or 3 lanes with one-way operation, it is considered to be a multi-lane facility for determining capacity. The capacity for rural facilities with 2 or 3 lanes and two-way operation is for both directions.

Item 96 — Volume/Service Flow Ratio (V/SF) (**Software Calculated**)

This item is a computed value reflecting peak hour congestion for a sample section. **This value is generated by the HPMS software from HPMS data.**

Item 97 — Future AADT (Numeric; Integer)

This item provides forecast AADT information for a sample section. Code the forecasted two-way AADT for the year coded in Item 98, Year of Future AADT. The intent is to include a 20-year forecast in the HPMS but the estimate may be for some other period of time within an 18 to 25 year time span. This item may be updated at any time but must be updated when the forecast falls below 18 years. **For the purpose of this project, the FADT will be provided as output from the RVMPO model. Since all section records are one-way, this data will be reported as one-way.**

Item 98 — Year of Future AADT (Numeric; Integer)

This item provides the year for which the AADT has been forecast. It is used to normalize the forecast AADT to a consistent 20-year horizon. Enter the four-digit year for which Future AADT (Item 97) has been forecasted. This cannot be for less than 18 years nor more than 25 years from the data year (Item 1). **For the purpose of this project, the FADT year will be based on the RVMPO future year scenario.**