

June 2018 – What's New with CARS?

June 11, 2018 – In this edition we describe a number of improvements to the curve report, where you can now choose the rounding method used for the recommended advisory speed calculation. Also, the report now includes a table showing the calculated side friction limit at each recommended advisory speed. In addition, we now accept speed limit data within the mile marker file which will save users time by automatically entering the appropriate speed limit when a curve is created.

Rounding Method Selection – The settings page now allows you to select which rounding method you would like to choose for the recommended advisory speed (RAS).

Rounding method:

- Round down – The min calculated advisory speed will be rounded down to the lower 5 mph increment to determine the RAS. (ie, 39.5 will round to 35 mph advisory)
- FHWA-SA-11-22 Procedures for Setting Advisory Speed - 1.0 mph is added to the unrounded min. calculated advisory speed before rounding down to the lower 5 mph increment. (ie, 39.5 will round to 40 mph advisory)

As the engineer, you can choose between two popular methods. One option will round down the Minimum Calculated Advisory Speed (CAS), which is the lowest speed that achieves the target side friction. For example, a CAS of 39.9 mph will round down to a 35 mph RAS. Another option allows you to follow the guidance described in the Procedures for Setting Advisory Speeds, published in FHWA-SA-11-22, which adds 1.0 mph to the unrounded CAS before rounding down. For example, a CAS of 39.5 would round to a 40 mph RAS.

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Side Friction Table – The HTML and PDF report now both include a table that lists the calculated side friction limit for each 5 mph recommended advisory speed increment. This allows you to analyze why the selected recommended advisory speed was chosen and assist in making educated decisions on choosing a different advisory speed if the situation warrants (different standards, conditions of the road, etc.).

Hide Side friction summary

Creek_Rd_Curve_H, pass 4 (Side friction summary)

Radius: 274 ft; Super elevation: -1.4%

Advisory Speed (mph):	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Side friction guideline (deg):	16	16	16	16	14	14	12	12	12	12	12	12	12	12
Max side friction (deg):	1.1	2.2	3.9	6.3	9.4	13.1	17.3	21.9	26.9	31.9	36.8	41.6	46.2	50.3

Theoretical side friction at point generating the maximum side friction value

[Return to top](#)

Creek_Rd_Curve_H, pass 5 (Side friction summary)

Radius: 285 ft; Super elevation: -2.6%

Advisory Speed (mph):	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Side friction guideline (deg):	16	16	16	16	14	14	12	12	12	12	12	12	12	12
Max side friction (deg):	1.8	2.8	4.4	6.8	9.7	13.3	17.3	21.8	26.5	31.4	36.2	40.9	45.4	49.5

Theoretical side friction at point generating the maximum side friction value

[Return to top](#)

This table is generated for both of the selected passes on a curve. If no passes are selected, the table(s) will not be shown. The radius and super elevation values are listed above the table. The values above the Side Friction table (above) are calculated at the point where the highest side friction was experienced. The values in the Analysis Summary table are calculated at the apex of the curve. Therefore, it is important to note that these values can vary slightly from the radius and super elevation as reported for the apex of the curve (shown in the analysis summary table).

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Speed Limit Data – When starting a new project, you are given the option to upload a Mile Marker file including all mile markers (to the 0.01), their latitude and longitude location, and the route name for the point. With this uploaded, our system can associate the mile marker location with the different assets created on the CARS portal.

Route Name	Mile Post	Longitude	Latitude	Posted Speed Limit
PA 100	4.02	-75.620831	40.333381	45
PA 100	4.03	-75.621034	40.334398	45
PA 100	4.04	-75.621163	40.335331	45
PA 100	4.05	-75.621313	40.336246	45
PA 100	4.06	-75.621463	40.337146	50
PA 100	4.07	-75.621571	40.337947	50
PA 100	4.08	-75.621678	40.338881	50

We now accept this file with a fifth column noting the posted speed limit at each mile marker. Once this data is uploaded, anytime you create a curve on a section of road our system will scan to see if a speed limit was uploaded. If it was, the curve will automatically be created with that posted speed limit, so you do not have to manually enter it and click update once a curve is created. If you would like to upload mile marker data for a future project, please prepare a .csv file in the format shown above and contact us to upload.