

# ACES V7.5

## MAJOR NEW FEATURES

### 1. Auto Generation of Austroads Load Envelopes

- **Auto-Generation of Austroads Load Cases:** After a load case is created and the “Code Lds” button is clicked a dialog box is displayed that will allow you to either auto-generate the full design envelopes for the MS1600 Austroads loadings or to create envelopes of individual MS1600 vehicle and lane loadings.

If you select the first option ACES will automatically generate all MS vehicle and lane loads then create the combinations (envelopes) that will allow you to extract the maximum and minimum design values for a selected range of members. Note that if you select this option you will not be able to add any other vehicle load cases to the model. The second option will only allow you to select individual M/S1600 vehicles and/or lane loads and generate design envelopes for them (as per the current version of the program).

- **Example of Auto-generated Load Cases:** For a two lane bridge the following is a sample of some of the load cases that will be created:

- [1] M1600 moving in lane 1
- [2] M1600 moving in lane 2
- [3] M1600 Lane Ld: -6kN/m in Divn 1 Lane 1 Span 1
- [4] M1600 Lane Ld: -6kN/m in Divn 2 Lane 1 Span 1
- [5] M1600 Lane Ld: -6kN/m in Divn 3 Lane 1 Span 1
- [6] M1600 Lane Ld: -6kN/m in Divn 1 Lane 1 Span 2
- [7] ....etc.....

Lane Load is applied as a series of discreet UDLs based on a division equal to one-third the span length. In generating a given Lane Load envelope ACES patterns the appropriate load cases to obtain the maximum and minimum forces.

- **Example of Auto-generated Envelopes:** For a two lane bridge the following is a sample of some of the envelopes that will be created:

- [1] M16 vehicle in lane 1
- [2] M16 vehicle in lane 2
- [3] M16 Lane Load in lane 1
- [4] M16 Lane Load in lane 2
- [5] 1.4M16L1 + 1.12M16L2 + 1.0LL1 + 0.8LL2
- [6] 1.12M16L1 + 1.4M16L2 + 0.8LL1 + 1.0LL2
- [7] S16 vehicle in lane 1
- [8] ..... etc .....
- [..] Envelope of all of the above M1600 envelopes
- [..] Envelope of all of the above S1600 envelopes
- [..] Envelope of all of the above MS1600 envelopes

- **“DesgnVals” button:** This has been included in the Left Hand Results menu. It enables maximum and minimum values, or the maximum design values of one force vector with the corresponding values of the others, to be displayed, printed or exported directly into EXCEL.

When clicked a dialog box will open. This will allow you to select the type of report required (maximum/ minimum or maximum plus corresponding values) and whether you wish to view and print the report only, view print and export to EXCEL, or export the report directly to EXCEL. The report will be generated for the currently set member range and envelope. An example report is shown below.

## EXAMPLE REPORT

	A	B	C	D	E	F	G	H	I	J	K
1	ACES7.500										
2	19-Jun-17										
3	-----										
4											
5	A suitable project title										
6	A suitable job description										
7	Your name or initials										
8	Units : kN m										
9	-----										
10	Envelope of all of the above SM1600 envelopes										
11	Max & min My and corresponding vectors at start and end of member										
12	Memb	Start	Env	Vcor	Tcor	Momnt	End	Env	Vcor	Tcor	Momnt
13	No.	Node	No.	kN	kNm	kNm	Node	No.	kN	kNm	kNm
14	19	2	23	23.9	-4.8	1.9	20	17	2.4	0.9	2.1
15	19	2	23	94.5	14.3	-18.4	20	17	-130.8	-10.4	-135.5
16	20	20	17	106.7	29.9	118.3	21	23	3.2	2.1	5.6
17	20	20	23	-3.2	-2.1	-1.9	21	17	-127	-29.8	-264.6
18	21	21	17	105.9	46.9	257	22	23	3.5	3.3	9.4
19	21	21	23	-3.5	-3.3	-5.4	22	17	-105.9	-46.9	-379.2
20	22	22	17	71.1	60.8	377.9	23	23	3.9	4.5	13.9
21	22	22	23	-3.9	-4.5	-9.4	23	17	-110.2	-62.7	-498.7

### □ Auto-loading reports into EXCEL:

To read the report directly into EXCEL an additional path specification needs to be inserted into the *Aces.sys* file (to identify the location of EXCEL). This file is located in the same folder as the main program executable (*Aces.exe* or *Aces6.exe*).

Below is an example of an *Aces.sys* file with the path specification highlighted:

#### ACES SYSTEM CONFIGURATION FILES

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*This configuration table enables logical drives and DOS paths to be allocated to all files used by the ACES system. Modify only the values appearing to the RIGHT of the COMMA (no blanks are allowed)*  
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*Path for SYSTEM & PROGRAM files, .\*

*Path for VEHICLE files, .\vehicles*

*Path for TEMPORARY files, .\tempdata*

*Path for RESULTS & OUTPUT files, .\outpdata*

*Path for USER MODEL files, .\userdata*

*Path and name of HTML browser, C:\Progra~1\Intern~1\iexplore.exe*

*Path and name of CBM module, .\aces-beam.exe*

*Path for licence file ACES.VSN, .\*

*Path and name of EXCEL file, C:\Program Files (x86)\Microsoft Office\Office12\EXCEL.EXE*