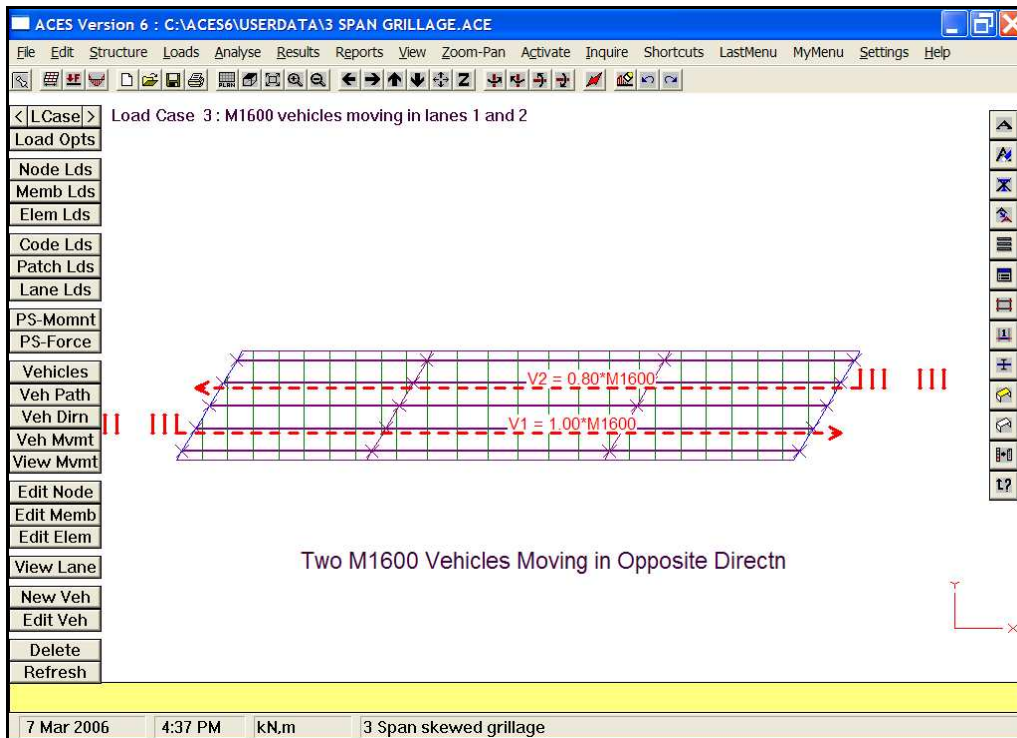


ACES allows bridge models to be quickly and easily created using a range of standard 2D/3D frame, grillage and slab templates. A full range of static loads, primary prestress moments and forces, vehicle loads and lane loads can be applied, including AS5100 and BS5400 loadings. New vehicles consisting of vertical, braking or centrifugal force components can be easily created and saved to the database. Multiple vehicles can be added to a load case and vehicles can be moved horizontally, transversely or on a circular curve. A general multiplier factor can be applied to account for multiple concurrent vehicles or Dynamic Load Allowance.

All load cases (including every vehicle position) can be interrogated for moment, shear, reaction and deflection and full envelopes of all force vectors created in seconds. Maximum and minimum values can be viewed graphically or in tabular form (together with their corresponding forces). All graphical diagrams and results tables are printable and saveable and reports can be ported into EXCEL.

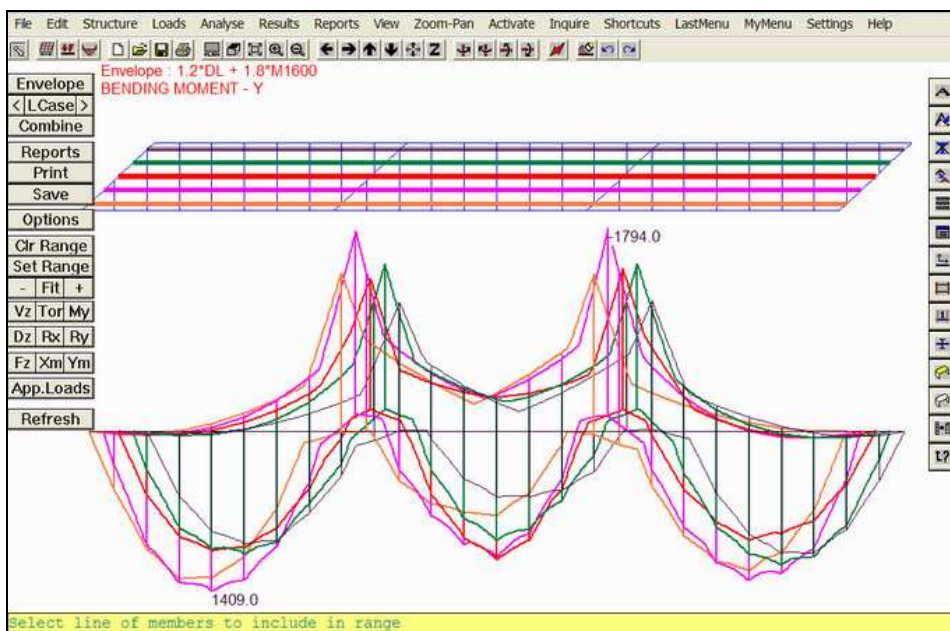


Loading Types

- Moving vehicle loads
- Lane loadings
- Concentrated loads
- Uniform & trapezoidal
- Primary moments
- Primary forces
- Moments
- Settlements
- Patch loads
- Hydrostatic loads
- Earth pressure
- Finite elements

Vehicle Types

- AS5100
- AUSTRROADS
- BS5400
- User defined
- Railway



Results

- Multiple envelopes
- Envelope of envelopes
- Sum of envelopes
- Cumulative envelopes
- Individual vehicle positions
- Maximum & minimum values
- Max + corresponding values
- Save graphical images
- Reports in EXCEL format
- Fundamental frequencies

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FEATURES

GEOMETRY

- ❑ Templates provided for a large range of 2D/3D structure types including grillages, frames, slabs, culverts, tanks, silos, wingwalls, footings and box girders. Bridge decks can be straight or curved and modeled as grillages, slabs or slab + grillages.
- ❑ Grillage models of 2D/3D Super-T beam grillages can be automatically generated.
- ❑ Fundamental frequencies and modes of vibration can be determined using the integrated dynamics module.
- ❑ Beam, grillage and finite elements can be mixed in either 2D or 3D models.
- ❑ A large range of standard sections are available and user-generated shapes can be saved to the section properties database.
- ❑ An incremental girder launching module (ILB) is available for either straight or curved steel or concrete bridges.
- ❑ A continuous beam analysis module (ACES-BEAM) is available for line-beam modeling of bridges subjected to a large range of moving vehicle loadings.

LOADINGS

- ❑ Standard loadings are available for AS5100 (Australian), AUSTRROADS and BS5400 (British) bridge design codes.
- ❑ AS5100 vehicle and lane loadings can be auto-generated.
- ❑ Up to five vehicles can be run along individual or identical paths in any one load case.
- ❑ Vehicle and lane paths can be horizontal, diagonal or circular (in plan view).
- ❑ Vehicle loads can be moved horizontally and transversely across the structure.
- ❑ Horizontal (e.g. braking) & transverse (e.g. centrifugal) loads can be moved simultaneously with vertical wheel and axle loads.
- ❑ Vehicle load factors can be applied to allow for multiple lane structures and DLA.
- ❑ Lane loads can act in the vertical, horizontal and transverse directions and an auto-patterning facility is available.
- ❑ Complex user-defined vehicles can be easily created and saved to the database.
- ❑ A large range of static loads, including primary moments for secondary effects.

RESULTS

- ❑ Envelopes are easily created for full vehicle and lane load patterning.
- ❑ All load cases (including the loading for every vehicle position) can be interrogated for moment, shear, torsion, reaction and deflection.
- ❑ Maximum and minimum values can be viewed graphically or in tabular form.
- ❑ Reports can be quickly generated of maximum and minimum values of one vector with corresponding values of all others, including all load cases contributing to the maxima.
- ❑ Multiple normal or cumulative envelopes can be created and summed.
- ❑ Distribution factors for a specified range of grillage members can be easily obtained.
- ❑ All graphical diagrams and results tables are printable and save-able.
- ❑ Vehicle positions can be superimposed onto moment, shear and torsion diagrams
- ❑ A module is available for the design of pre-tensioned girders to AS5100.5