

# Assessment Type Selection

A reference vehicle must be of similar ground contact width and position on bridge. Typically, different reference vehicles for in-lane vehicles and straddling lane OSOM vehicles are needed. Some consideration needs to be made to the axle configuration and mass concentration when deciding on the appropriateness of a reference vehicle for comparison to an application vehicle. Reference vehicles may have come from:

- Previous design vehicles
- Previous Tier 2 assessment vehicles
- Previous Tier 3 assessment vehicles

Note: Design vehicles need to be verified on design drawings, otherwise engineering judgement is needed. All reference vehicles must have been developed considering associated lane vehicles.

## Tier 1 Assessment: Heavy Vehicle Access Assessment

Line Model Comparison (Reference vs Application vehicle)

A.k.a. TMR Tier 0, Tier 2 PBS Assessment

Line model (comparison) comparing load effect of application vehicle and design vehicle or previously approved commercial vehicle. Must consider condition of structures.

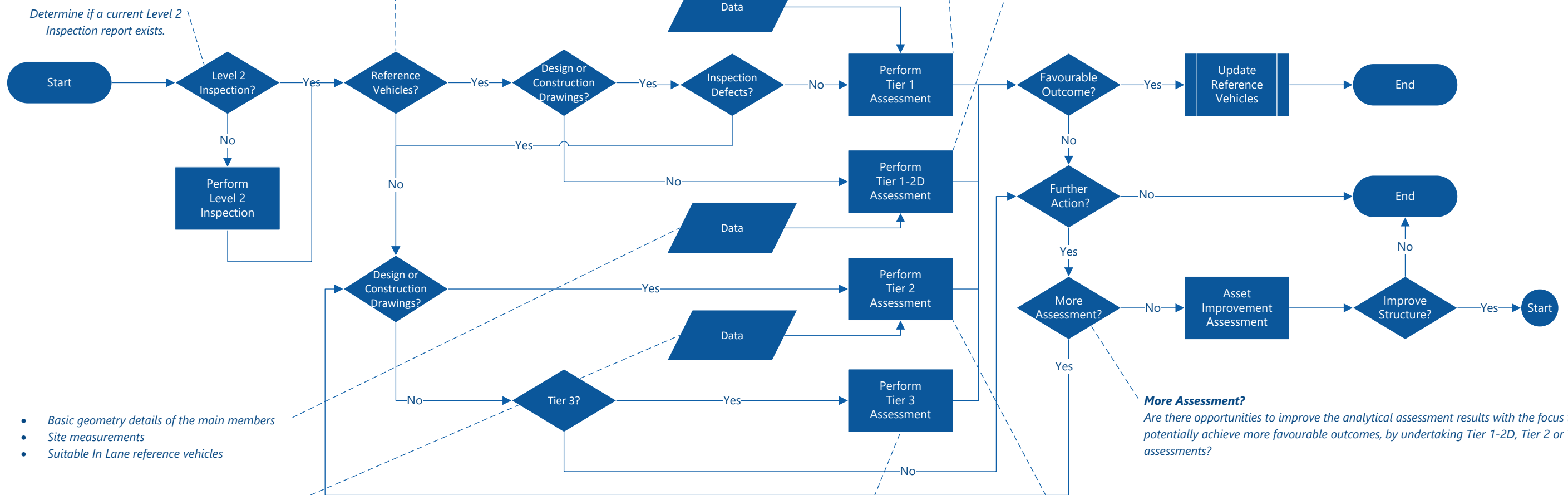
Note: A Tier 1 assessment is not a bridge assessment, it is a heavy vehicle assessment.

- Span lengths
- Articulation
- Reference Vehicle Loads and Spacings

## Tier 1-2D Assessment

2D Grillage Model Comparison (Reference vs Application vehicle)

- 2D grillage model used for the comparison of reference vehicles (in lane, including associated lane vehicles) to the application vehicles (out of lane)
- Need suitable in lane reference vehicles
- Need basic geometry of the main members to model the stiffness of individual members, may require some site measurements
- Don't need reinforcing details



- Basic geometry details of the main members
- Site measurements
- Suitable In Lane reference vehicles

- Full geometry details
- Material properties
- Reinforcing details
- Pre-stressing details, etc.

## Tier 3 Assessment: Capacity Assessment+

A.k.a. TMR Tier 2

More advanced method which involves bridge specific analysis and the use of international standards that are more sophisticated than AS5100.7. Analysis includes, but is not limited to, non-linear analysis and load testing to support either recalibration of computer models/determination of capacity estimates. It is used in special cases where we have:

- A 'plausibility' gap
- Insufficient information to conduct a Tier 2
- Reason to believe better outcomes can be obtained by understanding behaviour and/or understanding uncertainty to improve load/capacity factor estimates.

## Tier 2 Assessment: Capacity Assessment

A.k.a. TMR Tier 1, Tier 3 PBS Assessment

2D grillage model or line model with appropriate distribution factors analysis. Must include assessment of structural capacity. Must consider condition of structure and all critical elements including the substructure. Judgement may be used for some elements but cannot be excluded from consideration for convenience.

## More Assessment?

Are there opportunities to improve the analytical assessment results with the focus to potentially achieve more favourable outcomes, by undertaking Tier 1-2D, Tier 2 or Tier 3 assessments?