

# Mandurah Estuary Bridge Duplication



Throughout the project, residents located near our work area may feel intermittent vibrations from construction activities. This doesn't mean structural damage to a property will occur.

## Vibration Fact Sheet

### What are vibrations?

The scientific explanation of a vibration is 'a repeated back and forth motion of a particle when displaced from its equilibrium position'. This motion can result in a 'shaking' sensation felt by people nearby to the source, which can be uncomfortable. Feeling this vibration sensation is not uncommon when living or working close-by to construction activities.

### What causes vibration?

Heavy machinery may generate low levels of vibration at various stages of construction. Experiencing vibration does not mean structural damage to a property will occur. Vibrations will be felt intermittently throughout the duration of this project. Vibratory works are unavoidable and required to build the bridge and there will be ongoing vibrations throughout the Project.

The main sources of vibrations on the project are likely to be:

- Truck movements
- Earthmoving, piling and soil compaction activities
- Use of heavy machinery

## Monitoring vibrations

Before construction works began on the Mandurah Estuary Bridge Duplication project, baseline vibration readings were taken from the front yards of residential properties on two corners of the bridge, adjacent the construction site. The sites were selected as they were some of the closest residential properties to the project footprint.

The project has at least two vibration monitors on the project at all times, which are set up in areas on the project where the team are undertaking works causing vibrations. The monitors can move to different locations as required depending on works are being undertaken and community concerns raised.



The monitors are set up to send automatic real-time alerts if activities exceed the acceptable limits, which is 5mm/s.

If the project's vibration monitors indicate a reading of 5mm/s, our Environment Team is immediately alerted by an automatic alarm. In addition, the team also check throughout the day to monitor the readings. If an exceedance occurs, then the Environment Team works with the Construction Team to manage vibrations and implement strategies to reduce the vibration levels.

*Above: Vibration monitor set up on site.*

## Managing vibration

To minimise the impact of construction vibration, we implement a range of measures on the project including:

- Operating equipment on the lowest effective vibration setting.
- Maintaining low speed limits for construction trucks and machinery.
- Maintaining equipment to minimise vibration.
- While the roller is stationary, vibration mode is switched off.
- Adjusting construction methods to reduce impacts, if possible.
- Operating vibrating rollers parallel to properties as the vibration levels are higher at the front of the roller, compared to the sides, where possible.
- Using oscillating rollers which cause significantly less vibration to surrounding sensitive receivers, where possible.
- We will try to inform the community in advance of planned work causing vibrations.



*Above: A roller operating on site may cause vibrations when in use.*

## How can I get more information?

If you have any questions or concerns, or would like to subscribe to updates, please do not hesitate to contact us.

**W:** [mainroads.wa.gov.au/MEBD](http://mainroads.wa.gov.au/MEBD)

**T:** 138 138

**E:** [enquiries@mainroads.wa.gov.au](mailto:enquiries@mainroads.wa.gov.au)

