

Self driving vehicles in a regional context



GHD Transportation

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Overview

- Vehicle trends
- Technology trends
- Population & Demographics
- Land Use, Employment & Transport
- Challenges & Opportunities

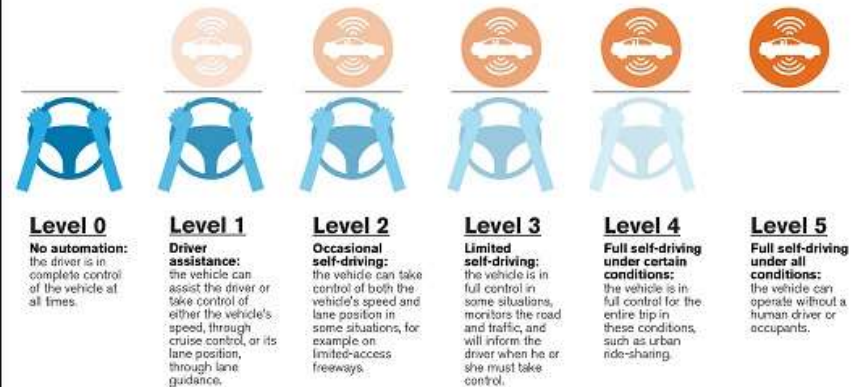


Vehicle trends

- Electric vehicle range 450 km as standard
- Electric vehicle tipping point – 2020/21
- All electric fleet 2040
- Full self-driving on market Sept 2017
- Electric bicycles



Five Levels of Vehicle Autonomy



Source: SAE & NHTSA

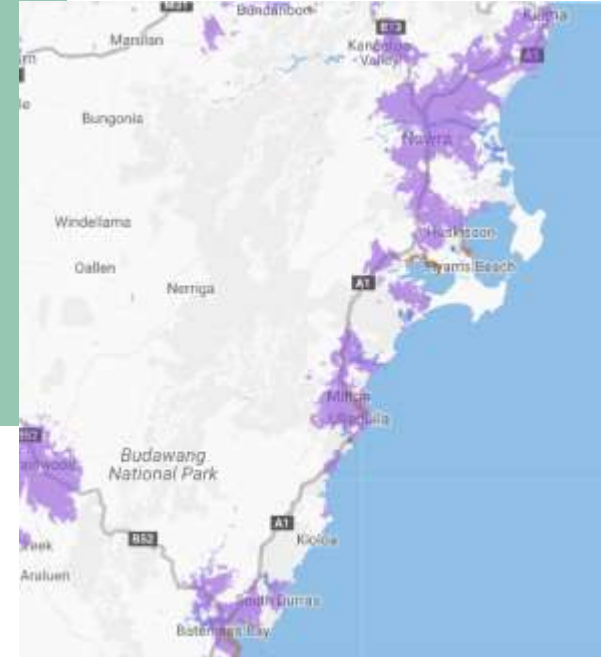
Self driving Vision

- No parking required in CBDs?
- Safety Assurance systems
- End of private ownership
- Private usage (lease)
- Shared usage (Ride hailing)



Technology trends

- NBN enabling remote business
- Increased 4GX coverage
- Work at home / while driving
- Solar homes



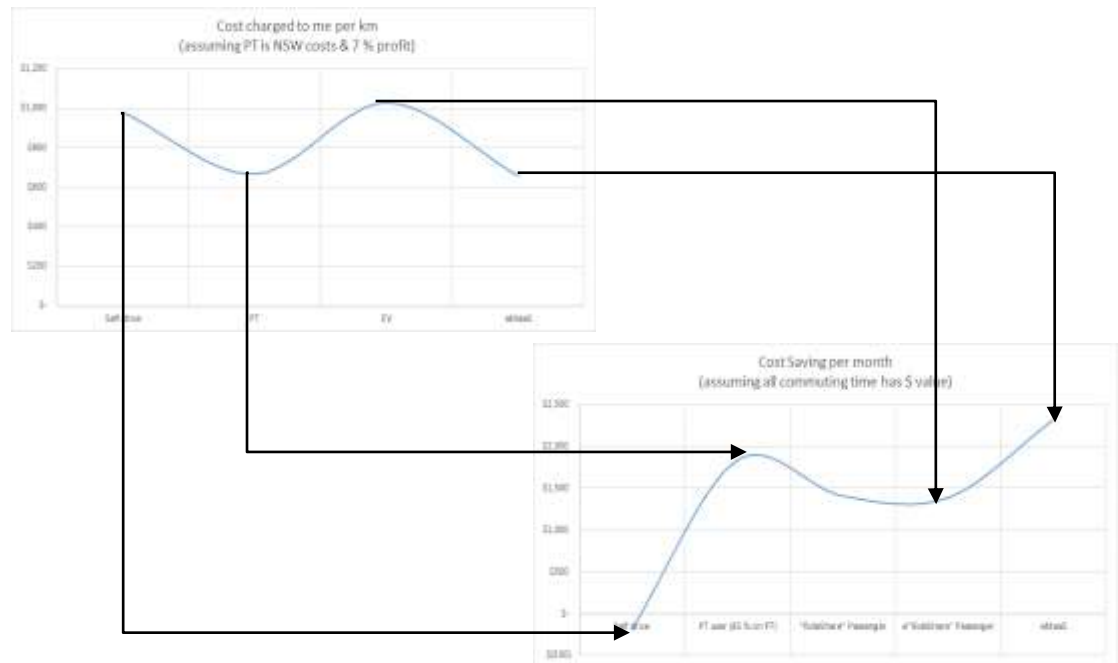
Self driving costs

- Self driving car
 - \$65,000
- Self driving bus
 - (8 -12 seat)
 - \$250,000
- Human driver
 - \$100,000 pa (incl. on costs)



Financial trends

- Solar power
 - \$1 / w installed
- Solar storage
 - \$500 / kwh
- Electric car operations
 - \$ 1.2 (grid)
- Solar homes
 - \$ 1.2 (grid)

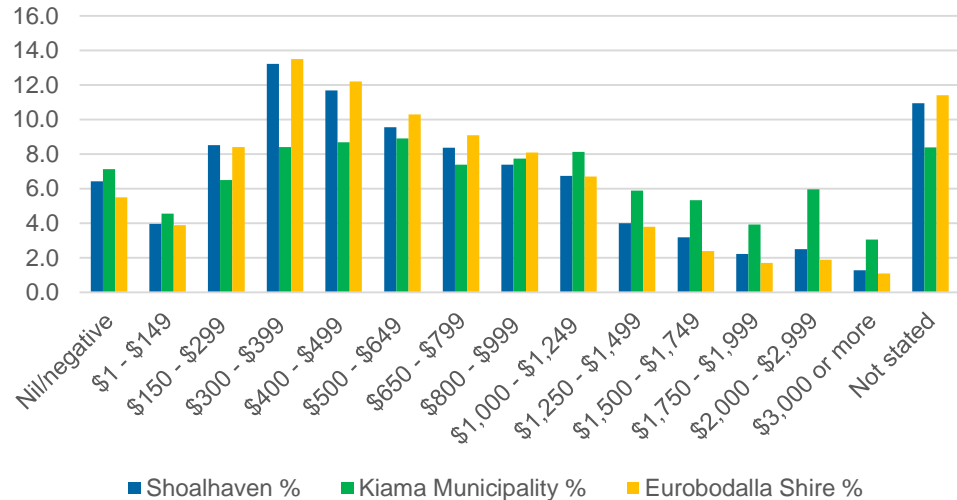


Population and demographics

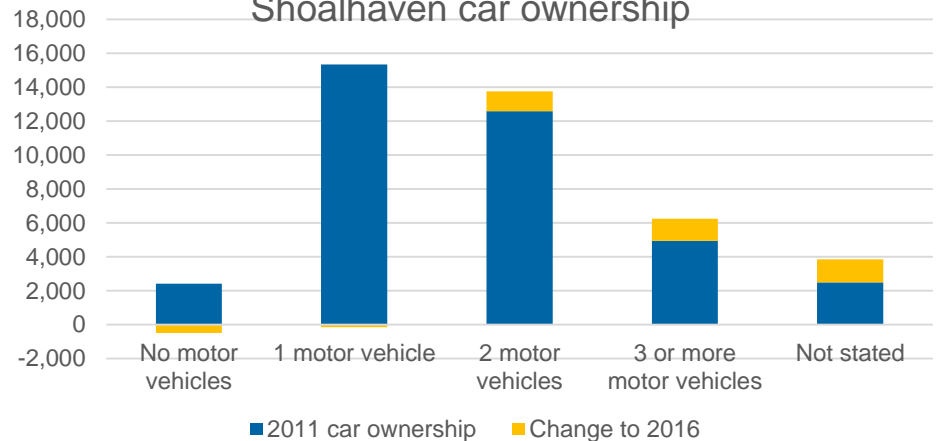
- Incomes falling behind

- Increasing car ownership

2016 weekly income comparison

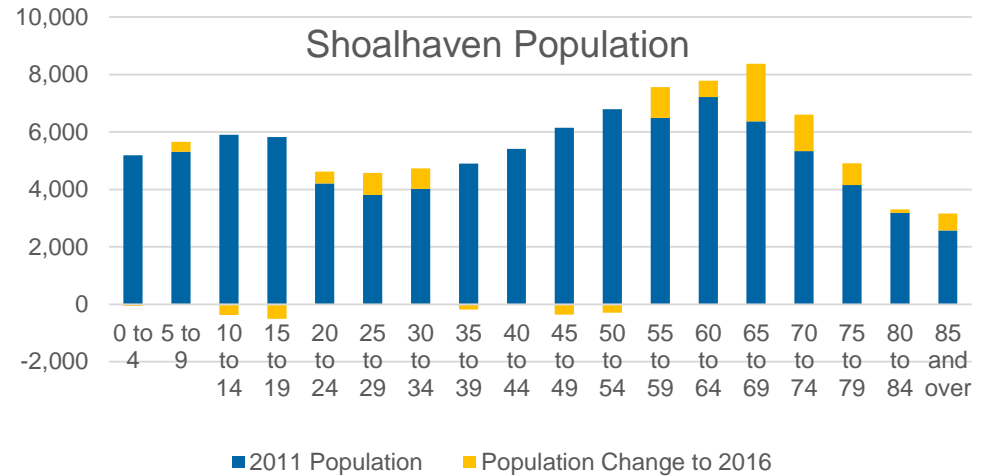


Shoalhaven car ownership



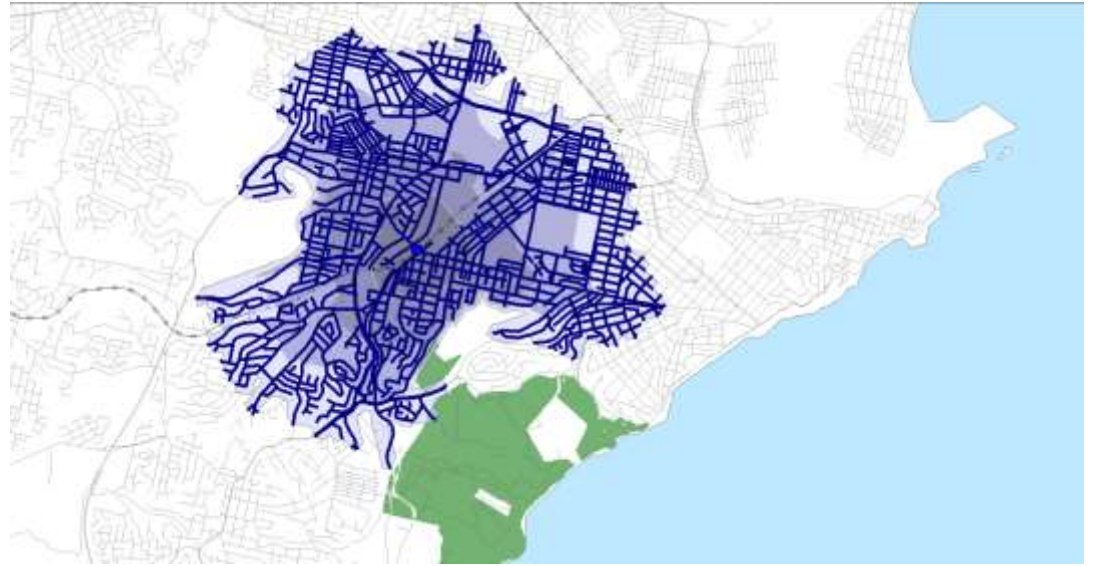
Population and demographics

- Ageing population
- What happens when older residents can't drive themselves?



Population and demographics

- Self driving shuttles – access to social and health
- Pedalac (electric) bicycles



Benefits of Self driving

- Road Safety
- Access to transport for young / unlicensed
- Lower cost public transport



Development Controls

- Car parking based on surveys in the 1990s
- Tendency towards oversupply
- Car parking is expensive to build
- What happens with self driving and autonomous cars?



Redevelopment viability

- Redevelopment / Adaptation
- Infrastructure requirements
- Lower cost of development and reuse



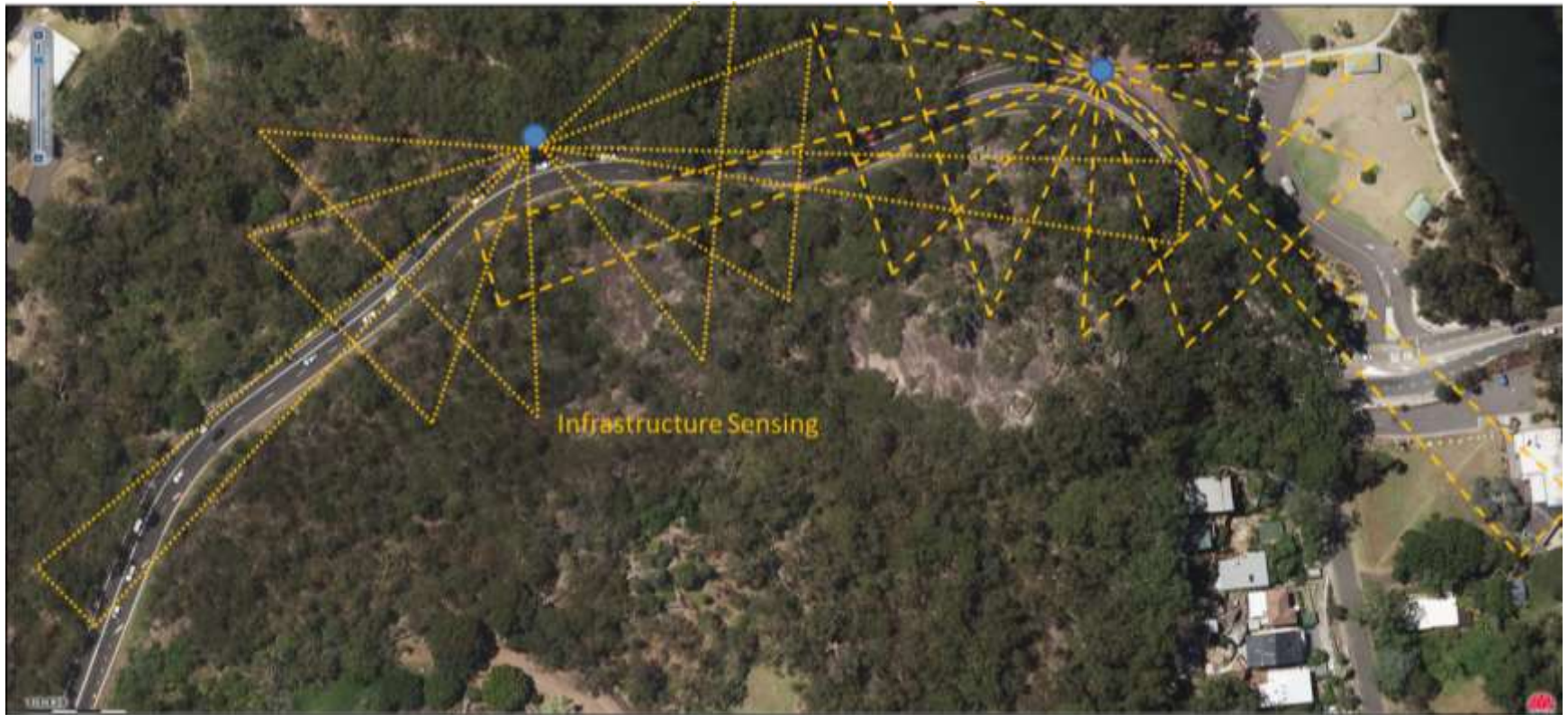
Traffic safety



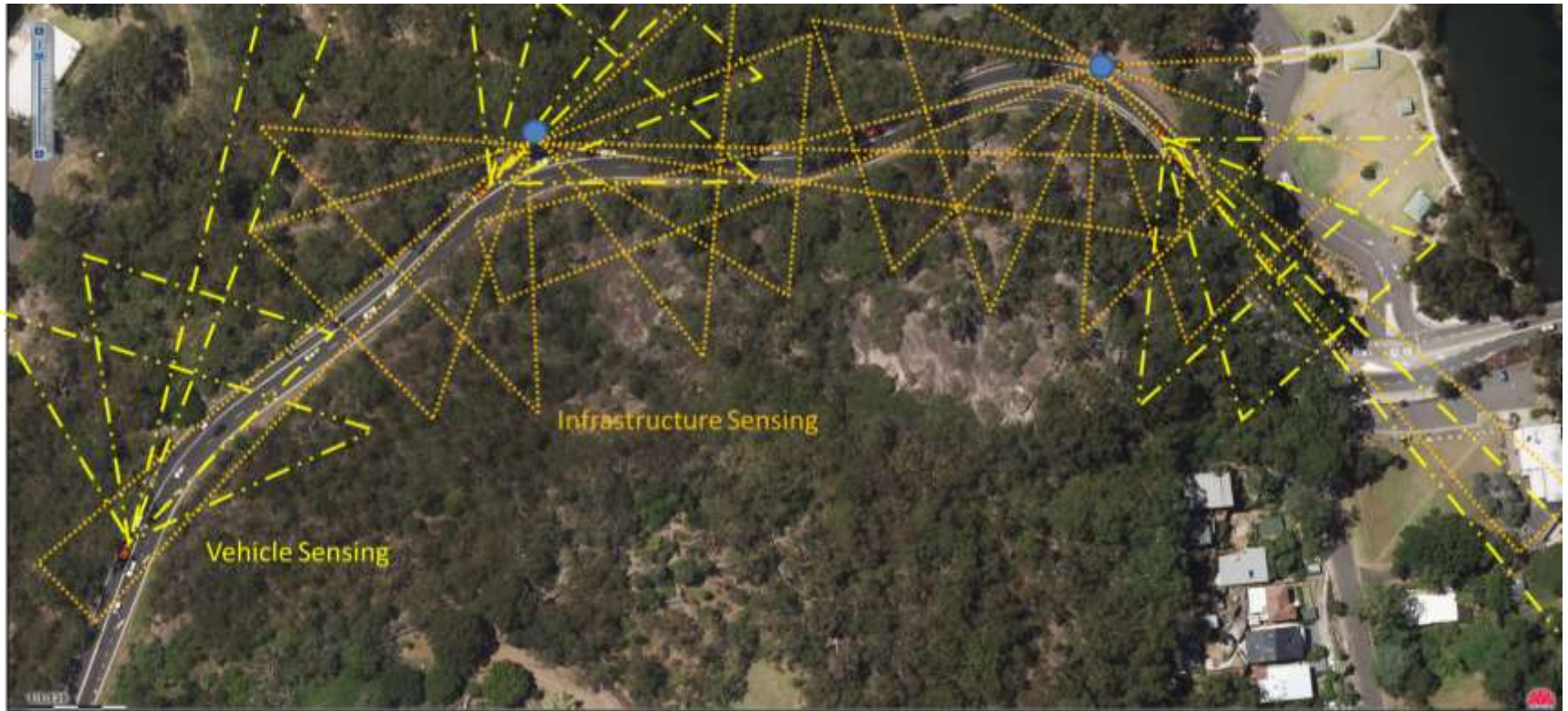
Traffic safety – unconnected individual vehicles



Traffic safety – unconnected infrastructure



Traffic safety – connected vehicles and infrastructure



Traffic safety – system



Opportunities

- Competition to be a regional test bed
- Advocate for Safety systems
- Attract sea/tree change communities who can work remotely & while travelling
- Think beyond petrol cars





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