TOOWOOMBA TECHNICAL SEMINAR

- Project Justification and Community Benefits

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

NATIONAL PLATINUM SPONSOR

SMEC Member of the Surbana Jurong Group

EST. 1983 austraffic TRAFFIC & TRANSPORT DATA SPECIALISTS

aimsun.

MAJOR BRANCH SPONSORS

Queensland Government

PSA CONSULTING AUSTRALIA

BRANCH SPONSORS

BITZIOS

PTT

CITY OF GOLDCOAST.

ACKNOWLEDGEMENT OF COUNTRY

NATIONAL INDUSTRY PARTNERS

TECHNICAL PARTNERS

NATIONAL PLATINUM SPONSOR

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX
Traffic and Transport Data

vlc
Veitch Lister Consulting

wsp

AITPM
Leadership in Traffic and Transport

TECHNICAL PARTNER

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

EST. 1983
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

QLD BRANCH SPONSORS

Queensland Government

PSA CONSULTING AUSTRALIA

BITZIOS consulting
traffic engineering + transport planning

PEKOL TRAFFIC & TRANSPORT

CITY OF GOLDCOAST.

This event is brought to you by our Technical Partner:

JOINING AITPM | INDIVIDUAL MEMBERSHIPS

AFFILIATE	$195 PER ANNUM	For those interested in the industry
STUDENT/ POSTGRAD MEMBER	FREE	For fulltime and part time students
ASSOCIATE MEMBER	$95 - 195 PER ANNUM	Tiered fees for those with less than 3 years of the industry
MEMBER	$195 PER ANNUM	For those with at least 3 years industry experience

JOINING AITPM | ORGANISATIONAL SUBSCRIPTIONS

LOCAL GOVERNMENT	$1100 PER ANNUM	For Local Government staff & Elected Members
STATE GOVERNMENT	$3050-6050 PER ANNUM	For State, Territory and Federal Departments, Agencies and Authorities
CORPORATE	$1100+ PER ANNUM	For Small to medium enterprises

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX
Traffic and Transport Data

vlc
Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST 1983
TRAFFIC & TRANSPORT DATA SPECIALISTS


AITPM
2022
NATIONAL
CONFERENCE
20 - 22 JULY
RESHAPING MOBILITY
EARLY BIRD REGISTRATIONS OPEN NOW!
L3
JUNIORS
KINGSFORD
02
L3
CIRCULAR
QUAY
52
L3 Juniors Kingsford Now
L3 Circular Quay Now

STAY CONNECTED

AITPM Interchange

YOUR PLACE FOR TALKING TRAFFIC AND TRANSPORT

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX
Traffic and Transport Data

vlc
Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST 1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

AITPM
Leadership in
Traffic and Transport

JOBS

Curating the latest jobs in the industry across Australia and beyond

AITPM
Leadership in
Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX
Traffic and Transport Data

vlc
Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST.1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

Toowoomba Technical Seminar –
Project Justification and Community Benefits

Speakers:

Anthony Burke
- Principal Engineer, SMEC

Tim Cupitt
- Team Leader - Transport Planning, SMEC

Brian McKay
- Senior Transport Planner, Toowoomba Regional Council

Thomas Boulton
- Senior Transport Planner, SMEC

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon
MATRIX Traffic and Transport Data
vlc Veitch Lister Consulting
wsp

TECHNICAL PARTNER

SMEC
Member of the Surbana Jurong Group

NATIONAL PLATINUM SPONSOR

austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

aimsun.

MAJOR BRANCH SPONSORS

Queensland Government
PSA CONSULTING AUSTRALIA

BRANCH SPONSORS

BITZIOS
PTT PEKOL TRAFFIC & TRANSPORT

CITY OF GOLDCOAST.

UPCOMING EVENTS

WA | Back to Basics 2022

26 May | In-person | Perth

VIC | YPN - Healthy Streets Walkshop

26 May | In-person | Melbourne

QLD | YPN - Coffee Roulette

8 Jun | In-person | Brisbane

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST 1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

UPCOMING EVENTS – Registrations open now!

AITPM 2022 NATIONAL CONFERENCE
20 - 22 JULY

A Conference to bring the industry together — and shape the future

https://www.aitpm.com.au

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST 1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

STAY CONNECTED

AITPM Interchange

YOUR PLACE FOR TALKING TRAFFIC AND TRANSPORT

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST 1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

AITPM
Leadership in
Traffic and Transport

JOBS

Curating the latest jobs in the industry across Australia and beyond

AITPM
Leadership in
Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX
Traffic and Transport Data

vlc
Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic
EST.1983
TRAFFIC & TRANSPORT DATA SPECIALISTS

Toowoomba Technical Seminar –
Project Justification and Community Benefits

Speakers:

Anthony Burke

- Principal Engineer, SMEC

Tim Cupitt

- Team Leader - Transport Planning, SMEC

Brian McKay

- Senior Transport Planner, Toowoomba Regional Council

Thomas Boulton

- Senior Transport Planner, SMEC

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon
MATRIX Traffic and Transport Data
vlc Veitch Lister Consulting
wsp

TECHNICAL PARTNER

SMEC
Member of the Surbana Jurong Group

NATIONAL PLATINUM SPONSOR

austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

aimsun.

MAJOR BRANCH SPONSORS

Queensland Government
PSA CONSULTING AUSTRALIA

BRANCH SPONSORS

BITZIOS
PTT PEKOL TRAFFIC & TRANSPORT

CITY OF GOLDCOAST.

SMEC

Member of the Surbana Jurong Group

Redefining exceptional

2022 Capabilities

Through our specialist expertise, we're challenging boundaries to deliver advanced infrastructure solutions.

A family of specialists

As a member of the Surbana Jurong Group, SMEC is part of a family of specialists.

Collaborating closely with our parent and sister companies, we have the flexibility to operate in global markets either individually or in partnership to add value.

With size and scale becoming increasingly important for companies to effectively compete in larger urbanisation and infrastructure projects, SMEC can draw on capabilities from a group of highly specialised consultancies to provide a full service offering to clients around the world based on years of global experience.

We continue to create synergies across the Surbana Jurong Group of companies and foster innovation to drive value for our clients. This allows us to compete in larger and more complex projects, and provide our clients with specialist expertise.

SURBANA JURONG · AETOS · B+H · KTP · PROSTRUCT CONSULTING · RobertBirdGroup · SAA · 华太设计 SINO-SUN

120+	40+	16,500+
Offices	Countries	Employees

Where we operate

Australia, New Zealand & Pacific Islands

Australia
New Zealand
Fiji
Papua New Guinea
Solomon Islands

Africa

Ethiopia
Kenya
Tanzania
South Africa
Namibia

North America

Canada
US (Seattle)

North Asia

China

South America

Chile

South & Central Asia

Afghanistan
Bangladesh
Georgia
India
Kazakhstan
Nepal
Pakistan
Sri Lanka
Tajikistan
UAE

Southeast Asia

Singapore
Brunei
Indonesia
Malaysia
Philippines
Myanmar
Vietnam

UK

London

Our core markets

We provide technical expertise and advanced engineering services to resolve complex challenges within roads, highways, rail, metro, airports, hydropower and renewable energy markets

Roads & Highways

Our specialist teams manage all aspects of engineering and advisory for roads and highways, including feasibility studies, design, construction, maintenance and asset management services. We draw on our extensive expertise in bridges, road alignment and pavement design, tunnelling and geotechnical engineering to provide advanced design and advisory solutions to complex road and highway challenges.

Rail, Metro and TOD

We are global specialists in a broad range of rail, metro and underground projects, having designed and delivered technical firsts in many countries. Our extensive experience in railway engineering consultancy services includes high capacity metro, passenger railways, light rail, freight and heavy haul railways. We collaborate with international contractors and asset operators and draw on the specialist expertise of our global group of companies to offer transit-oriented development solutions.

Hydropower & Dams

With our heritage founded in one of the most famous hydropower schemes in the world, the Snowy Mountains Hydroelectric Scheme, SMEC is a specialist in pumped hydropower. Our expertise extends from small hydropower projects to some of the most advanced schemes in the world. We draw on the knowledge and experience of our global engineers, planners and specialists to provide tailored solutions, value engineering and innovation in the design, construction and project management of hydropower and dam projects.

Renewables Energy

We bring specialist expertise to the renewable energy sector, collaborating with our clients and partners to reduce carbon emissions and deliver efficient and cost-effective systems for a broad range of renewable projects including solar and wind farms. Our expertise includes grid connection studies, substation design, policy and sector planning, carbon services, load forecasting models, and long-term generation planning using simulation and dynamic programming techniques.

Aviation

Leveraging Surbana Jurong Group's experience and partnerships, we provide integrated aviation consultancy services and solutions for both airside and landside aviation infrastructure across the entire aviation value chain. Our expertise comprises the planning, design, construction and maintenance of airports and associated facilities, as well as the development of management systems and procurement programs for the aviation sector.

Awards and rankings

Engineering News-Record (ENR), 2021

Top 225 International Design Firms: #24

Top 150 Global Design Firms: #37

Top 10 Australia/Oceania: #5

Engineering News-Record (ENR), 2020
Global Best Projects - Rail
Winner, Sydney Metro Northwest

Client Choice Awards, Australia & New Zealand 2020
Winner, Best Provider to Construction & Infrastructure
Winner, Best Professional Services Firm >$200m revenue
Winner, Best Built Environment Firm >$200m revenue

Australian Engineering Excellence Awards 2020
Winner, InQuik Bridging Systems, Canberra Division
Winner, Sydney Metro Northwest Stations, Sydney Division
Winner, Albion Park Rail Bypass – Detailed Design, Sydney Division

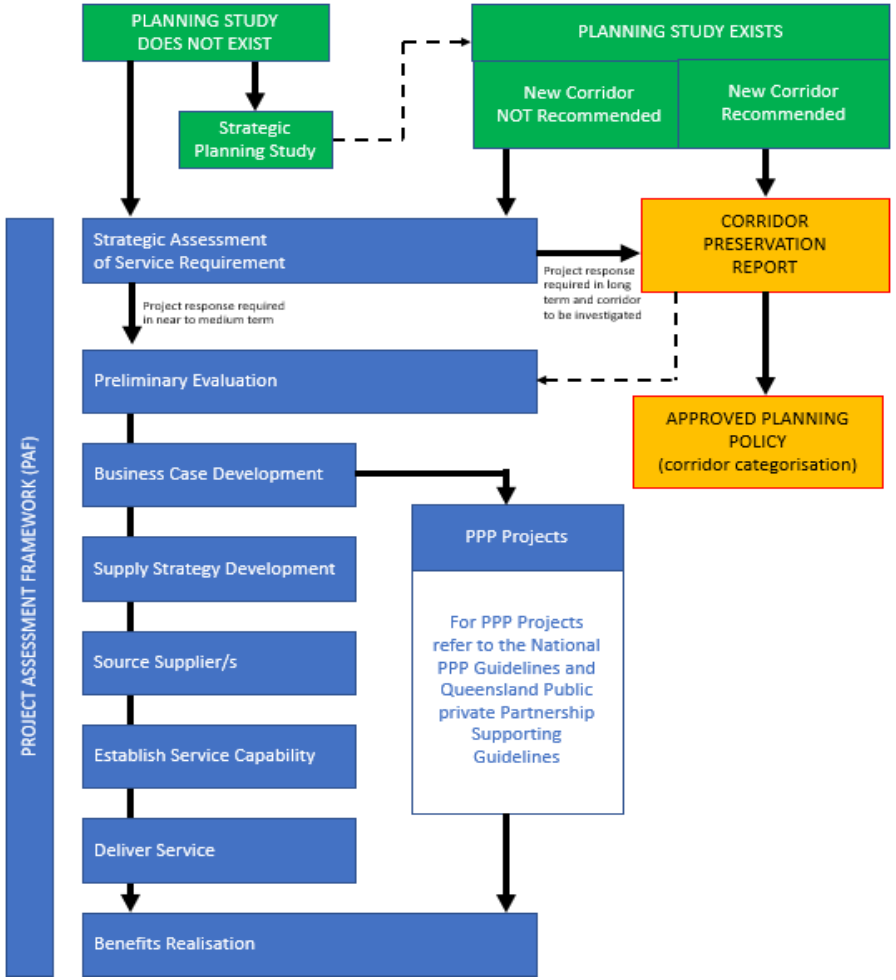
CESA Aon Engineering Excellence Awards 2019, South Africa
Commendation, Best International Project, Main Road 118
Winner, Roads & Bridges category, Upgrade of the Mt Edgecombe Interchange

Top 500 List, South Africa
Winner, Top 5 Best Managed Consulting Engineering Firms

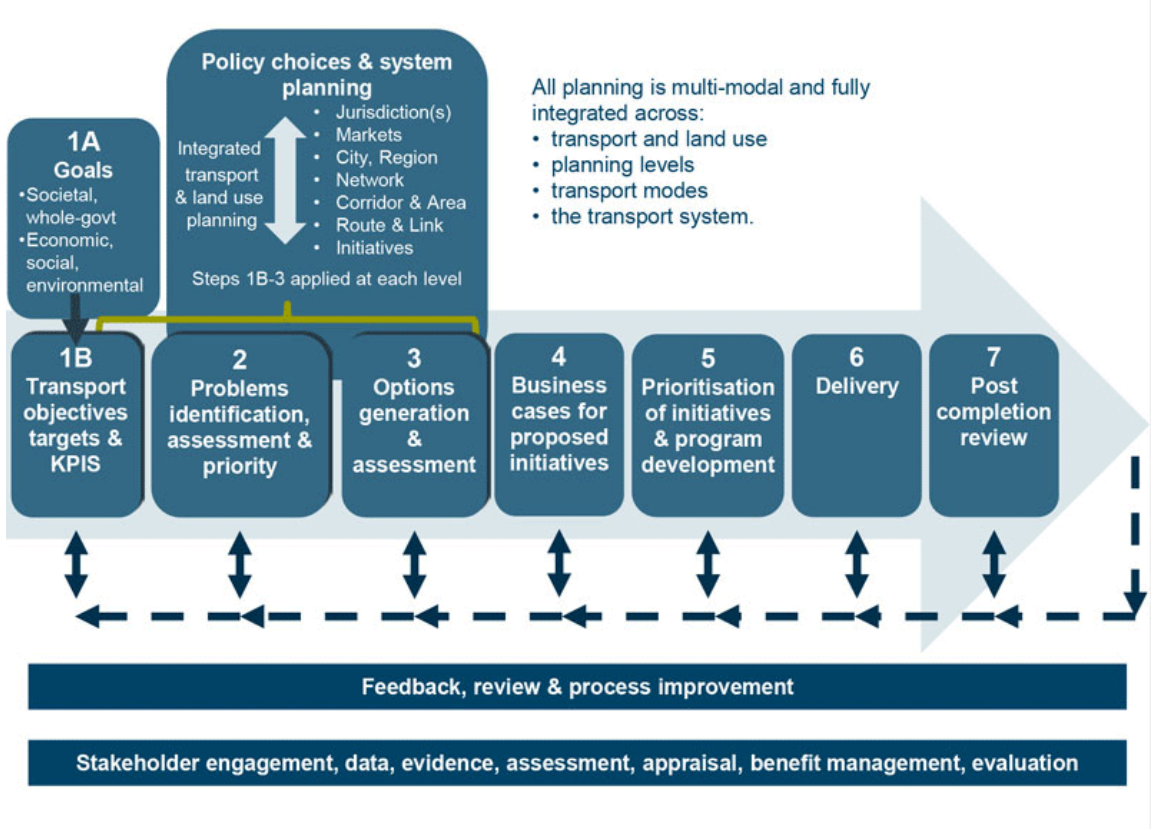
Frameworks for project identification and benefits

Anthony Burke – Principal Engineer, SMEC

Example Frameworks



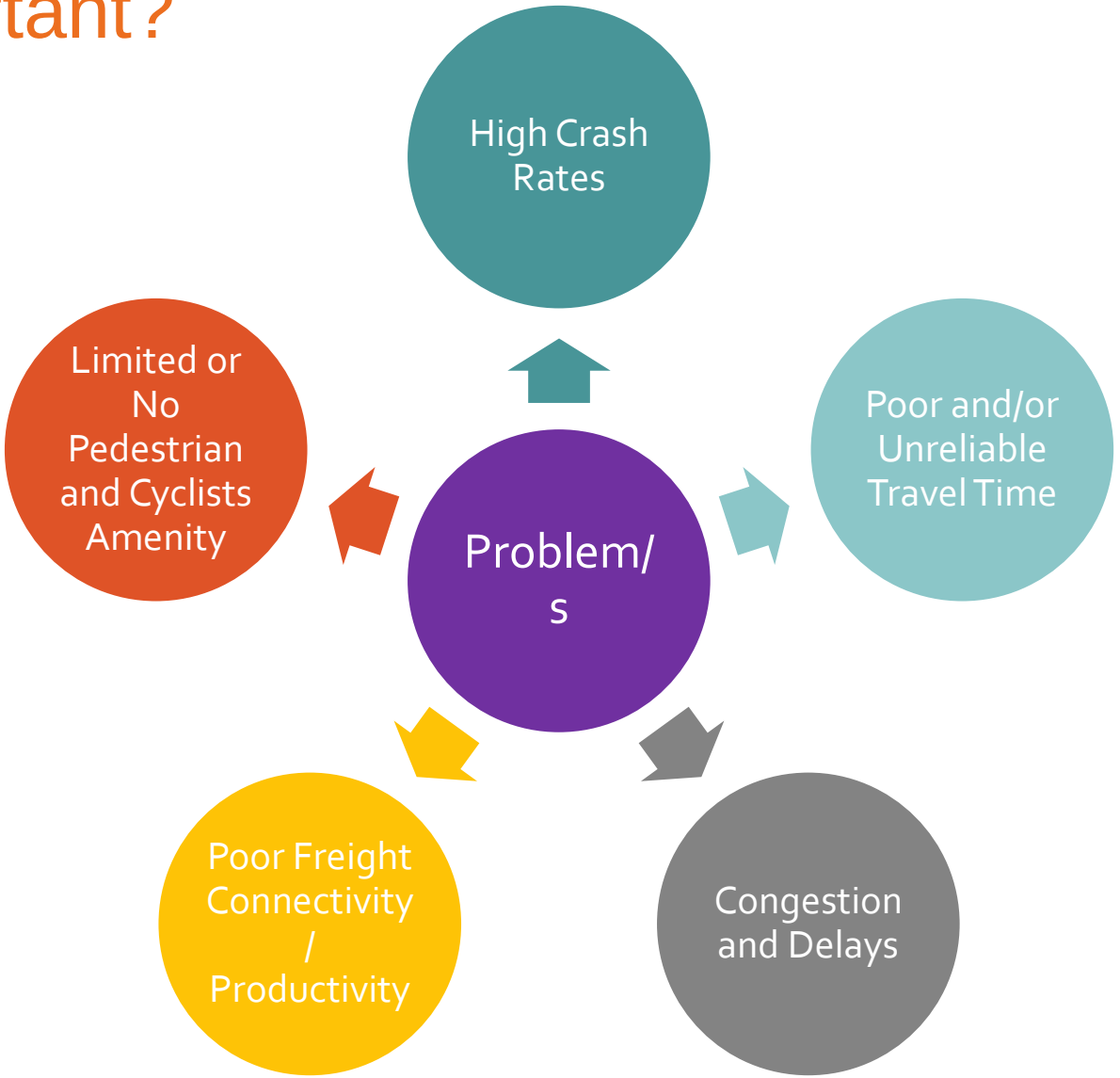
Queensland's Project Assessment Framework (PAF)



Australian Transport Assessment and Planning (ATAP)

Base Case Scenario

- Why so important?



Base Case Scenario

- Qualitative or Quantitative

Qualitative Tools

Investment Logic Mapping

Surveys

Stakeholder Engagement

Customer Feedback

Quantitative Tools

Site Observations

Crash statistics

Journey to Work data

PT ticketing

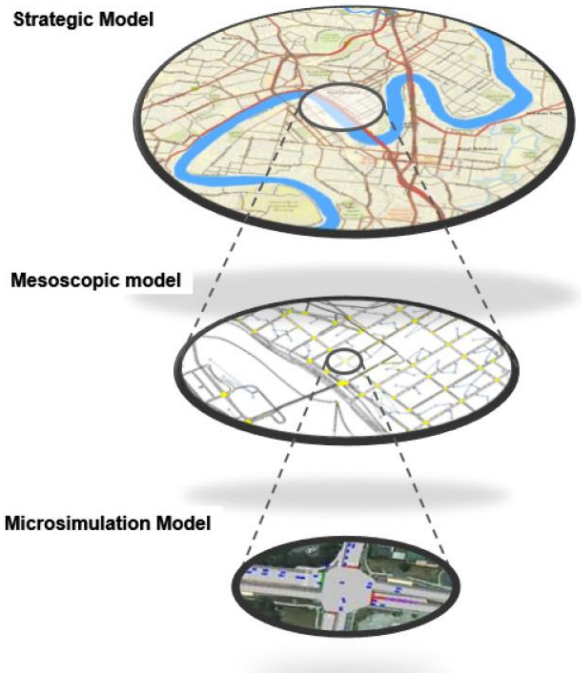
Traffic surveys – all modes

Multi-model Transport Modelling

Spreadsheet / Elastic Models

Deficiency analysis

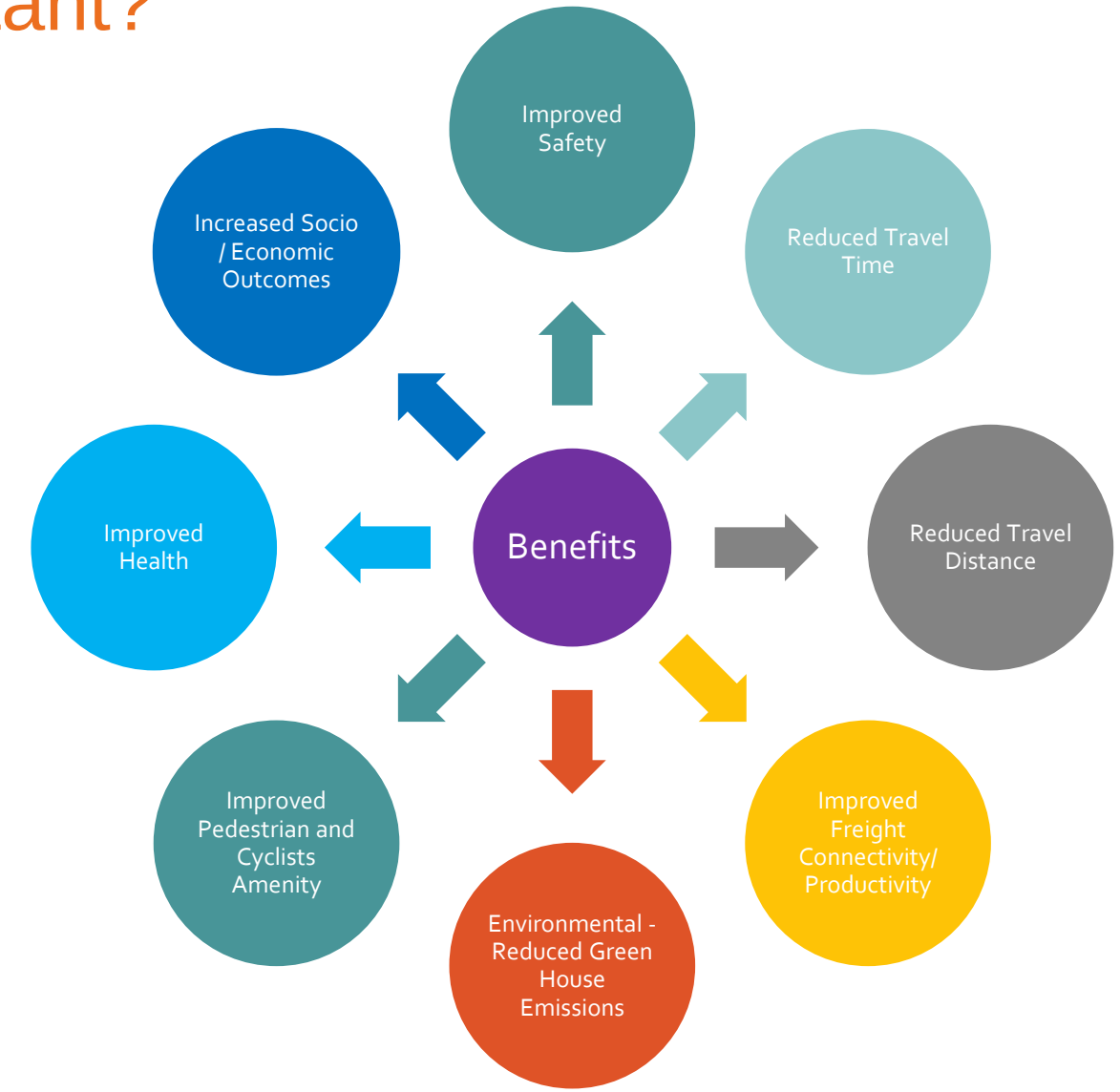
Gap Analysis



Transport Modelling Hierarchy

Base Case Scenario

- Why so important?



Base Future Case Scenario

- Realistic Future Base Network Required?

Recent Experience

Public Transport Studies
- Illegal use of transit and bus lanes
- Out of service to start service – data not collected

Active Transport Studies
- Limited intercept surveys
- App's (e.g. Strava) are limited to users of the app

Highway (Interchange) Planning
– future year without project scenario with network congested

Barriers to Benefits

Tim Cupitt – Team Leader – Transport Planning, SMEC

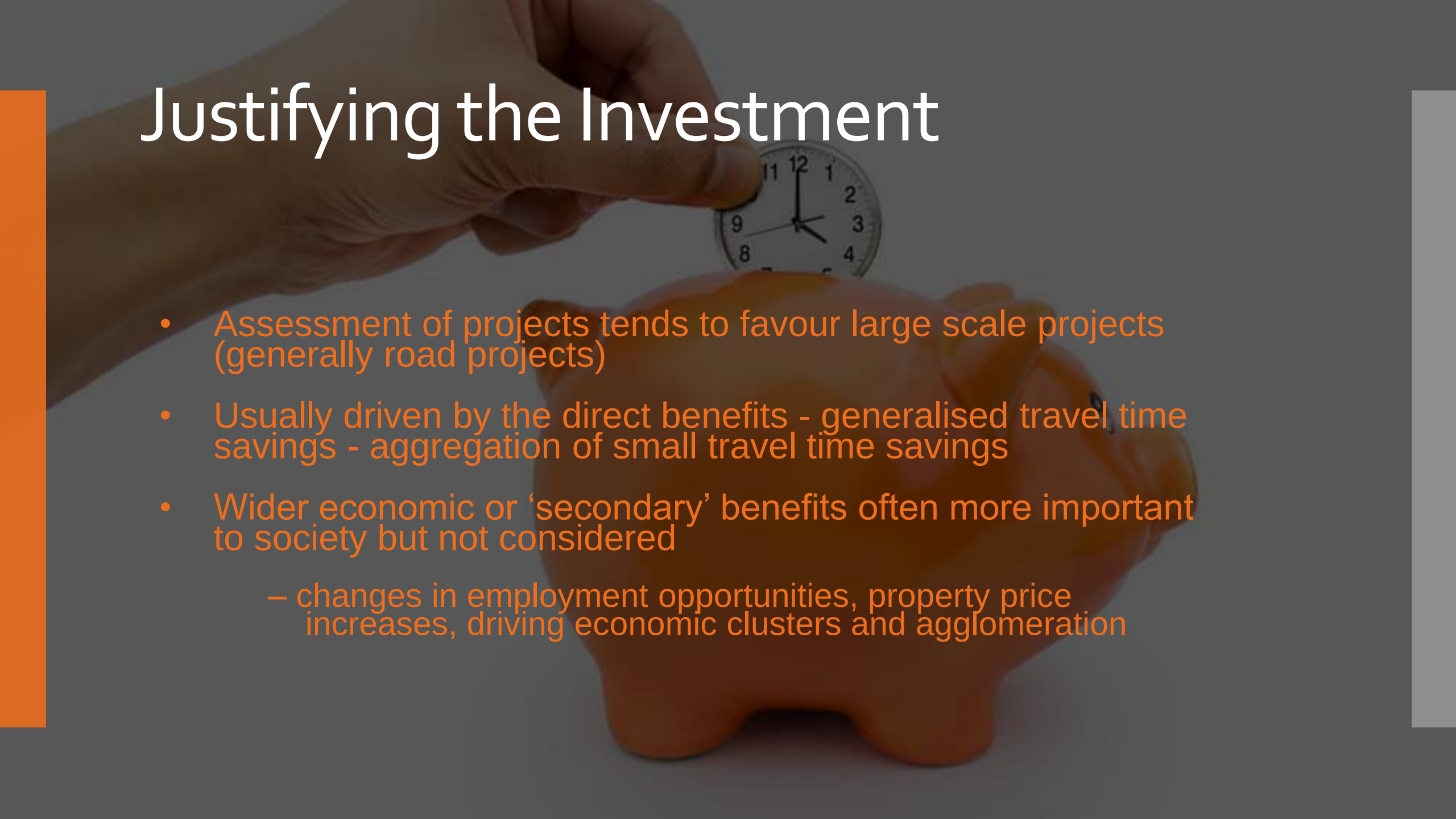
Transport is often cited as the most important issue for cities and critical for achieving competitive advantage and attracting investment and residents

- Successful cities are constantly increasing due to their economic advantage provided by labour markets
- Growth is a key indicator success – success in the competition to attract investment and new residents
- Generally, when a city/region doubles in size there is a ~7% increase in productivity
- An efficient transport system creates the economic opportunities for growth
    - maximise access to exchange space while optimising movement space

Justifying the Investment

- Tendency to take a “bottom-up approach” as opposed to a “top down”

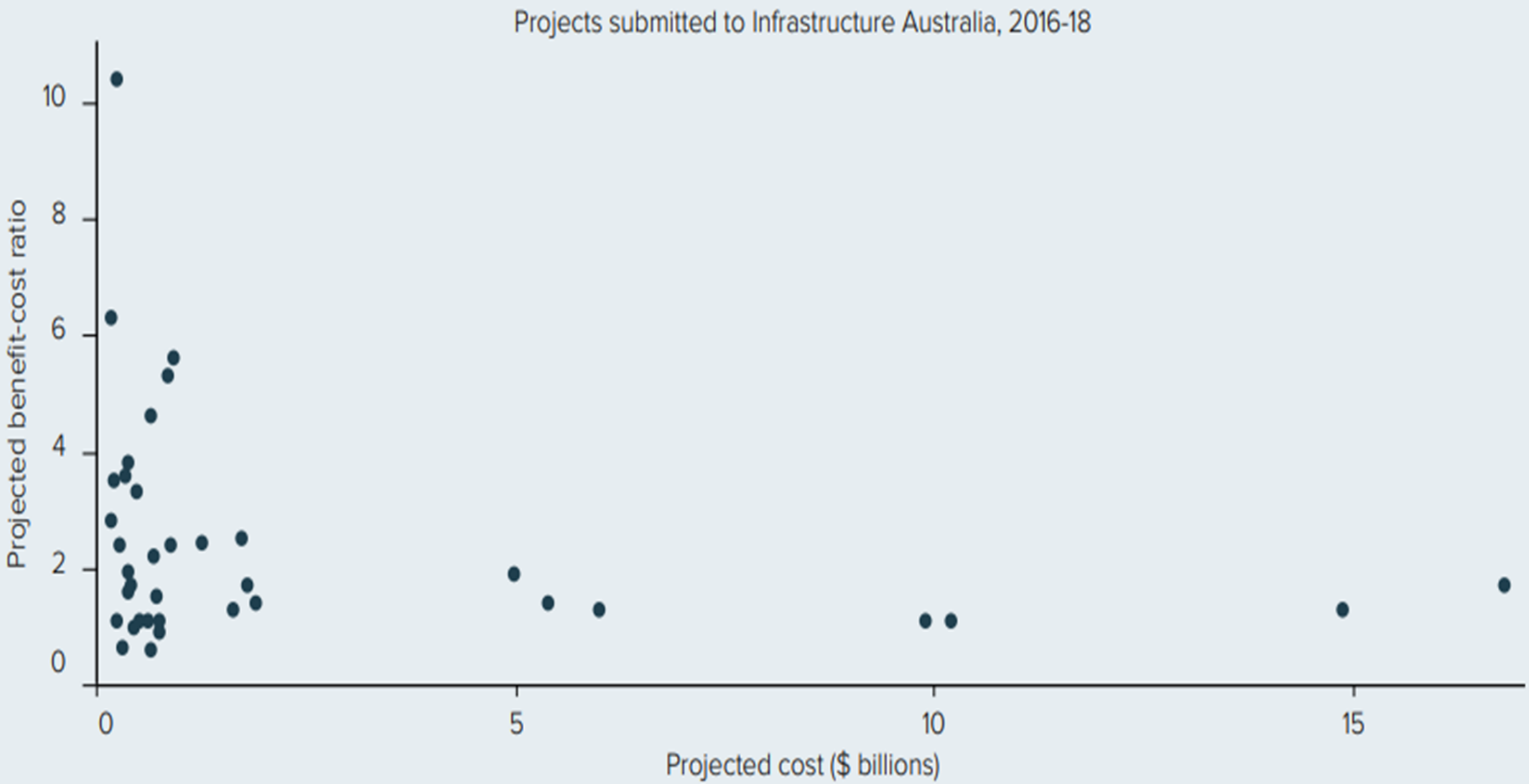
Justifying the Investment



- Assessment of projects tends to favour large scale projects (generally road projects)
- Usually driven by the direct benefits - generalised travel time savings - aggregation of small travel time savings
- Wider economic or ‘secondary’ benefits often more important to society but not considered
  - changes in employment opportunities, property price increases, driving economic clusters and agglomeration

The Result

- Strategic priorities or targets not always achieved
- Investment in larger projects with lower returns



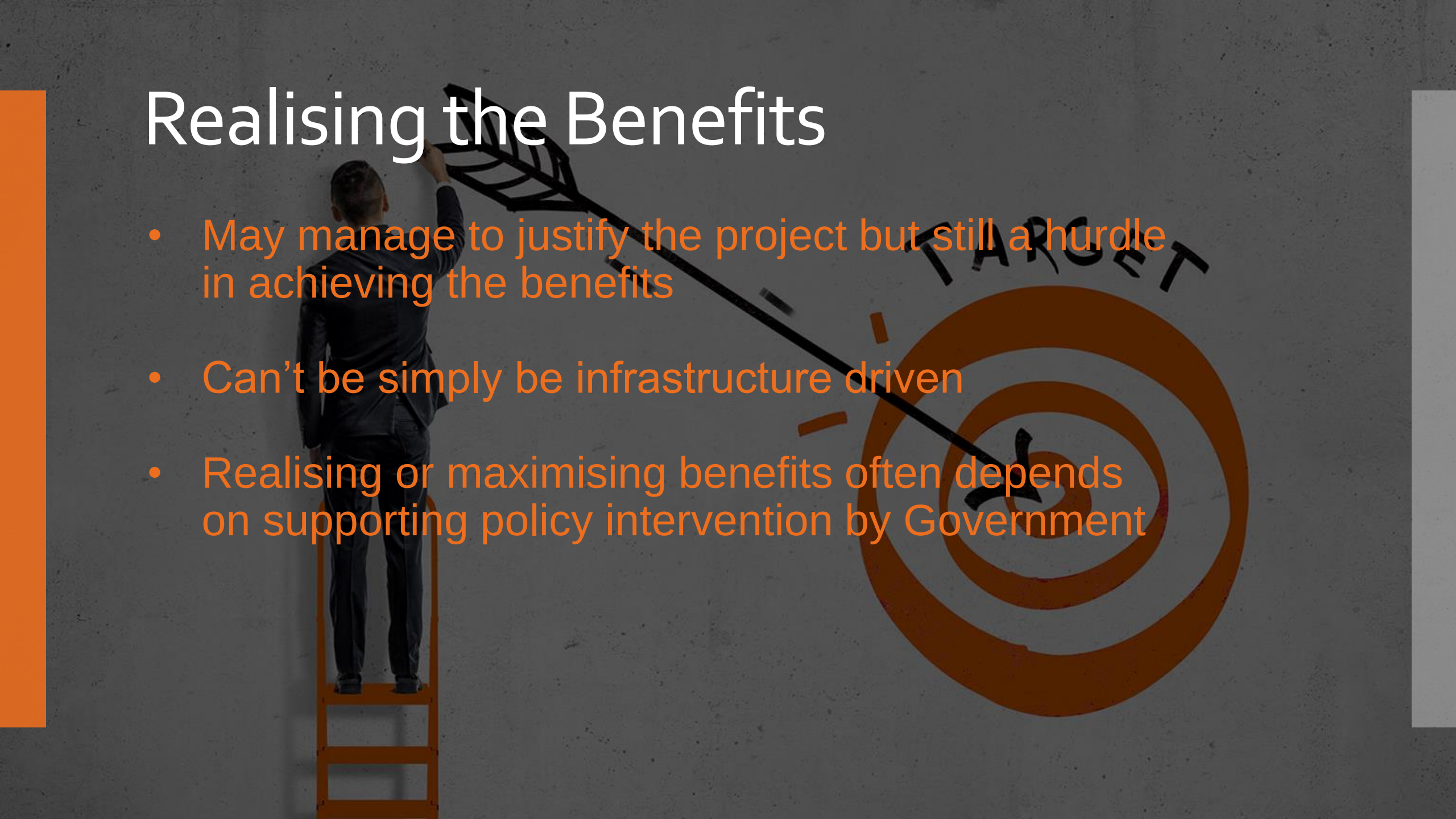
Source: Infrastructure Australia analysis

Bridging the Gap

- Partial move towards “top-down” or objective-led planning
- Use of SMTs, OIT etc – helps bridge the gap policy and the problem-based transport solutions
- Ties projects back to policy agenda
- Increasing consideration of the wider economic benefits

Realising the Benefits

- May manage to justify the project but still a hurdle in achieving the benefits
- Can’t be simply be infrastructure driven
- Realising or maximising benefits often depends on supporting policy intervention by Government



However, distortions still exist

- Distortions exist in the land use transport system (as a result of our policies) they limit the realisation of benefits
- Homogenous land use zoning, capped development charges, fuel taxes, flat rate vehicle registrations, focus on supply rather than demand management, parking policy and pricing
- Despite infrastructure investment the market distortions lead to inefficient travel choices

The Solution

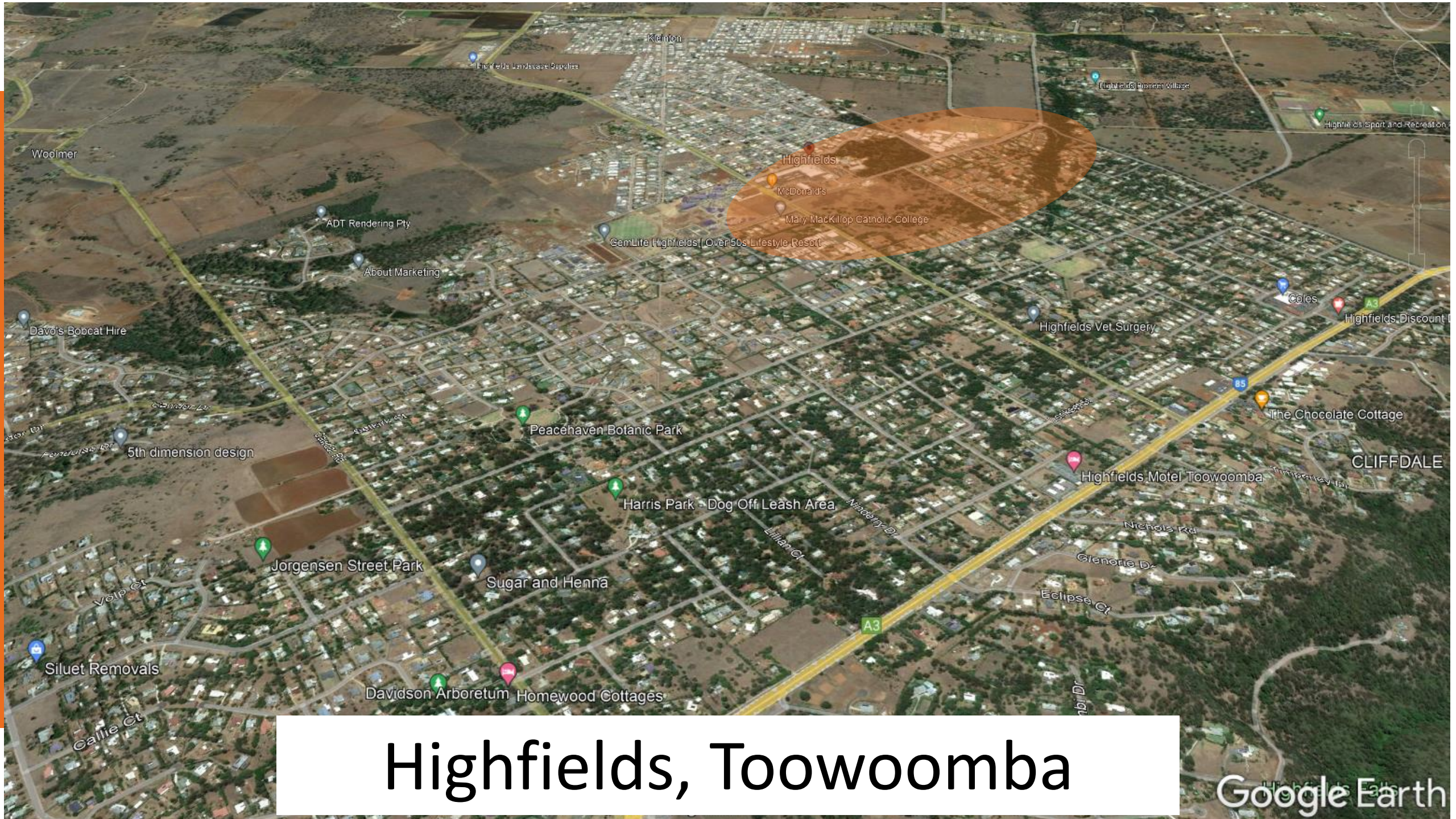
- Accurate pricing to encourage more efficient travel choices and encourage viability of alternative transport options
- Easier said than done – although exists in water and electricity markets (with no alternatives)
- Examples exist in the transport industry – congestion charging, parking reform, workplace parking levies etc
- Political appetite / community acceptance limited
- Requires working across political and modal silos

Rebalancing the Investment

- Transition away from ICE vehicles may be the step towards more accurate transport pricing and change in transport preferences
- Improved consideration of travel time savings and the value of time

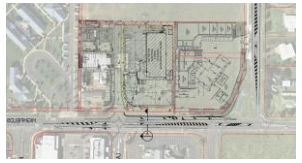
Movement and Place

Brian McKay – Senior Transport Planner, Toowoomba Regional Council



Highfields, Toowoomba

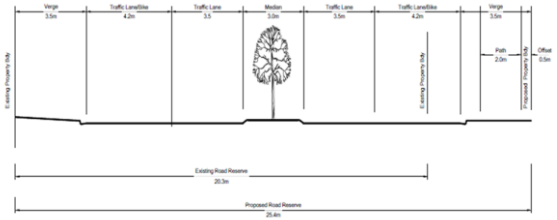

ALDI
KRIJGSMANHOF
De Harendonkweg



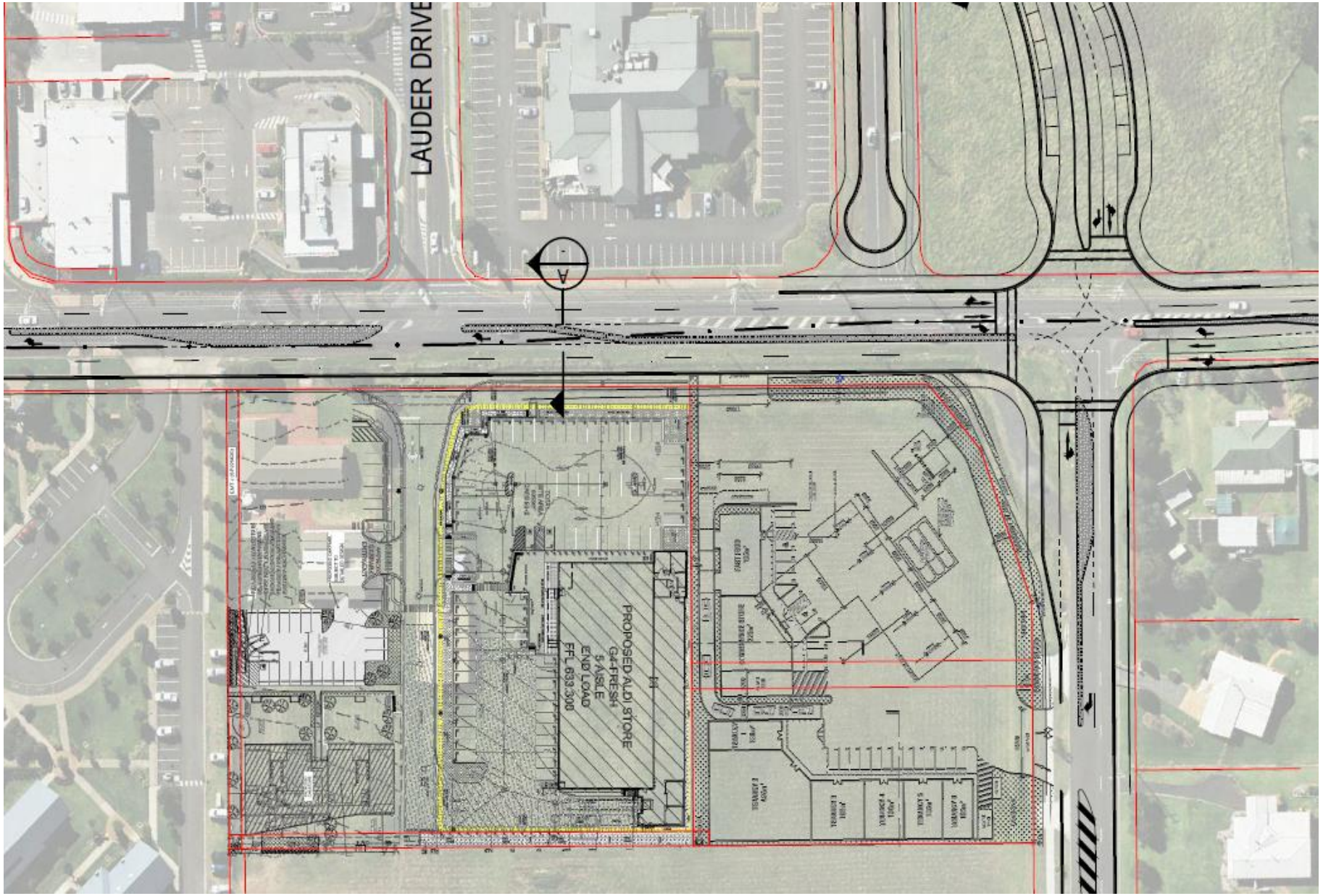
2002 03 08 09 12 14 15 16 17 18 19 2020

TOOWOOMBA REGION

CENTRAL HIGHFIELDS MASTER PLAN



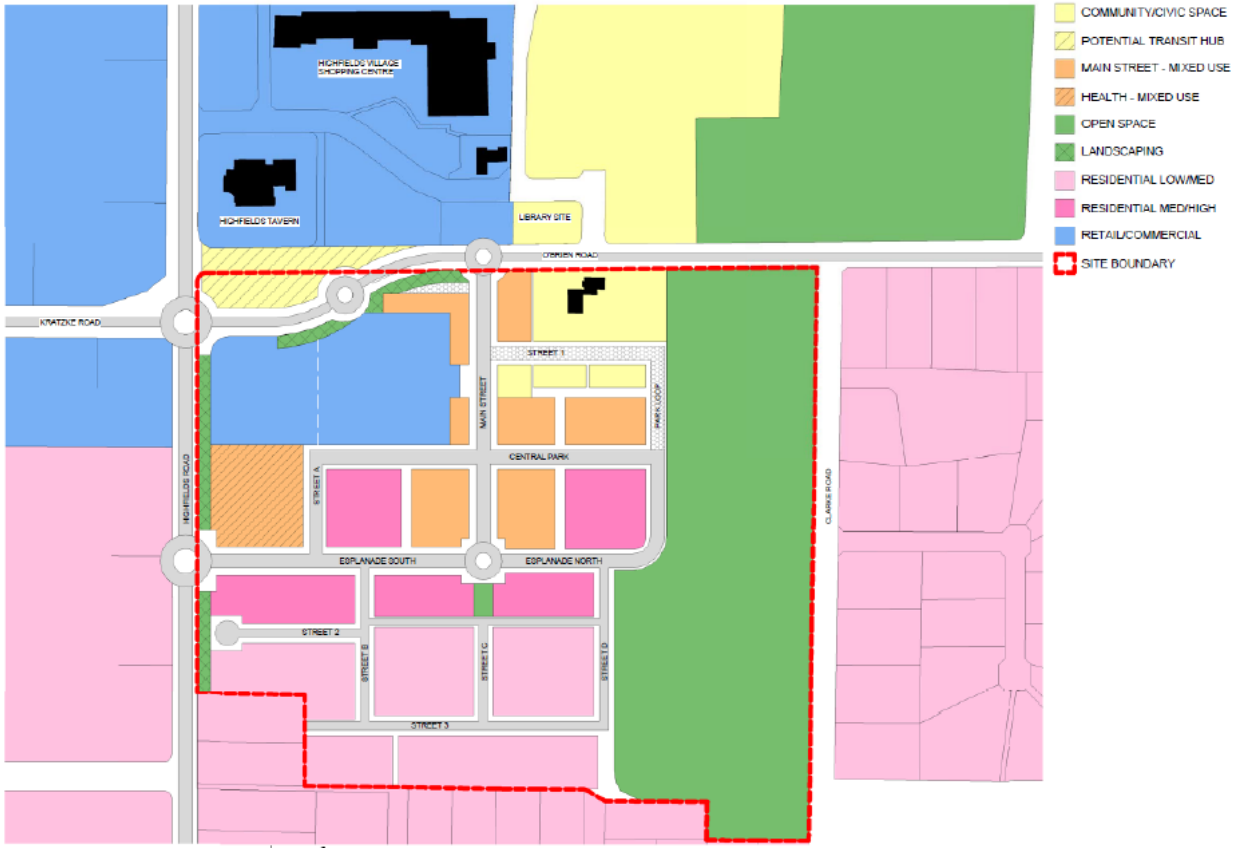
Historical/Traditional design approach – “predict and provide”



Traffic signals and dual carriageway

Vision and Plan

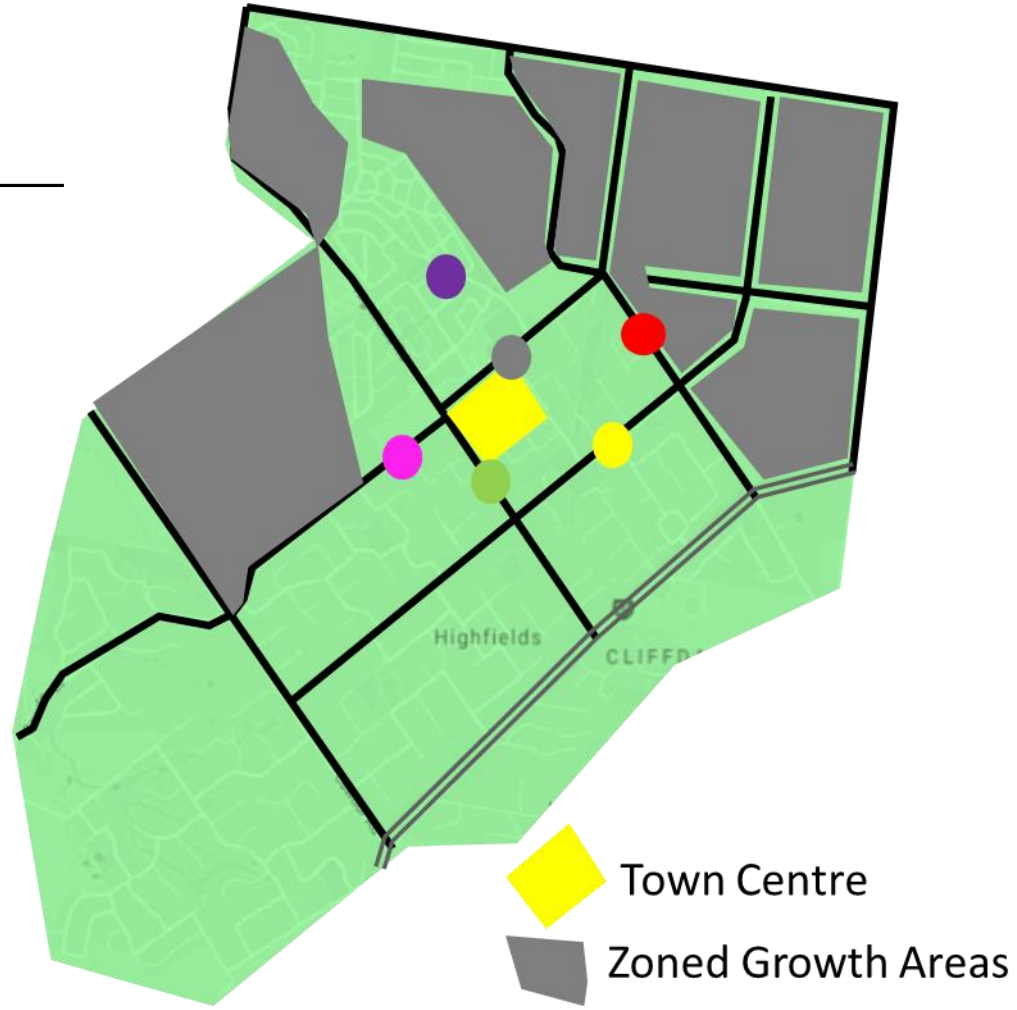
Vision



Plan

Traffic Analysis

2031	Census Based Devpt	Estimated Max Devpt
O'Brien Road	6700	7600
Highfields Road	7500	8100
Polzin Road	6900	6000
Reis Road	2500	4100
Kuhls Road	3500	4500
Kratzke Road	3000	4000



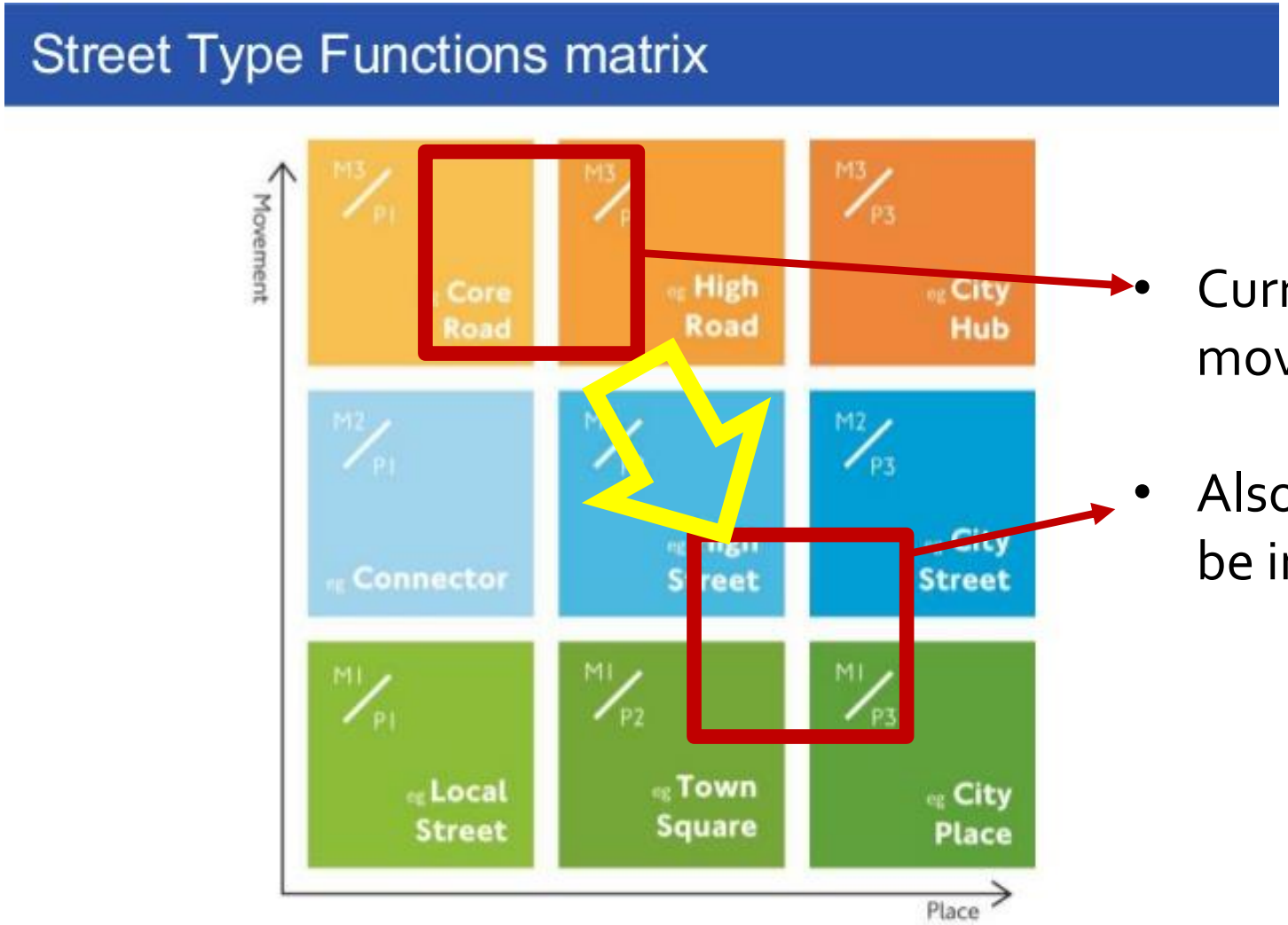
Average Weekday Traffic

Traffic Analysis

- Distribute residential traffic to and from New England Highway / Toowoomba.
- Predominantly worker / school peak traffic.
- Traffic is spread on a number of routes.

▪▪▪ potential future route: north south bypass (as proposed STS2014)

Movement and Place Approach

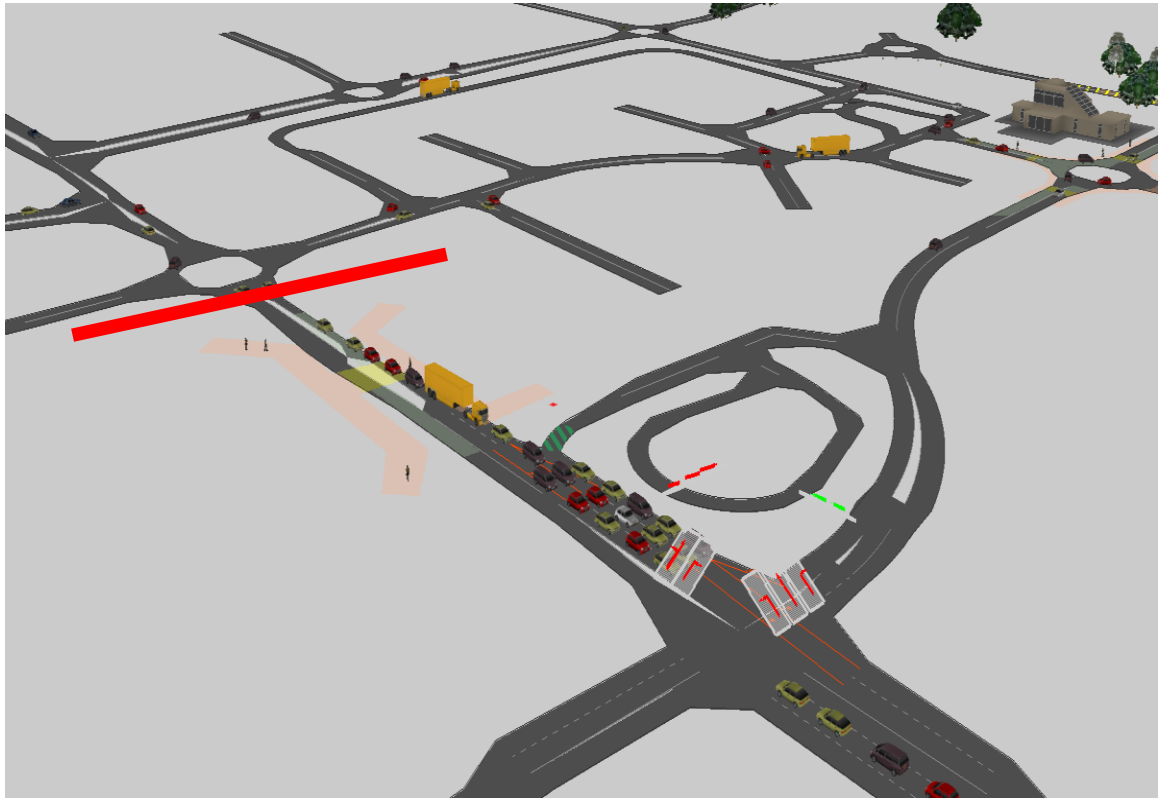


- Currently an arterial through route and movement corridor.
- Also becoming a place to travel to and be in – "Central Highfields".

Decide and Analyse

URBAN OUTCOME

Similar to Herries Street (15,000 VPD).

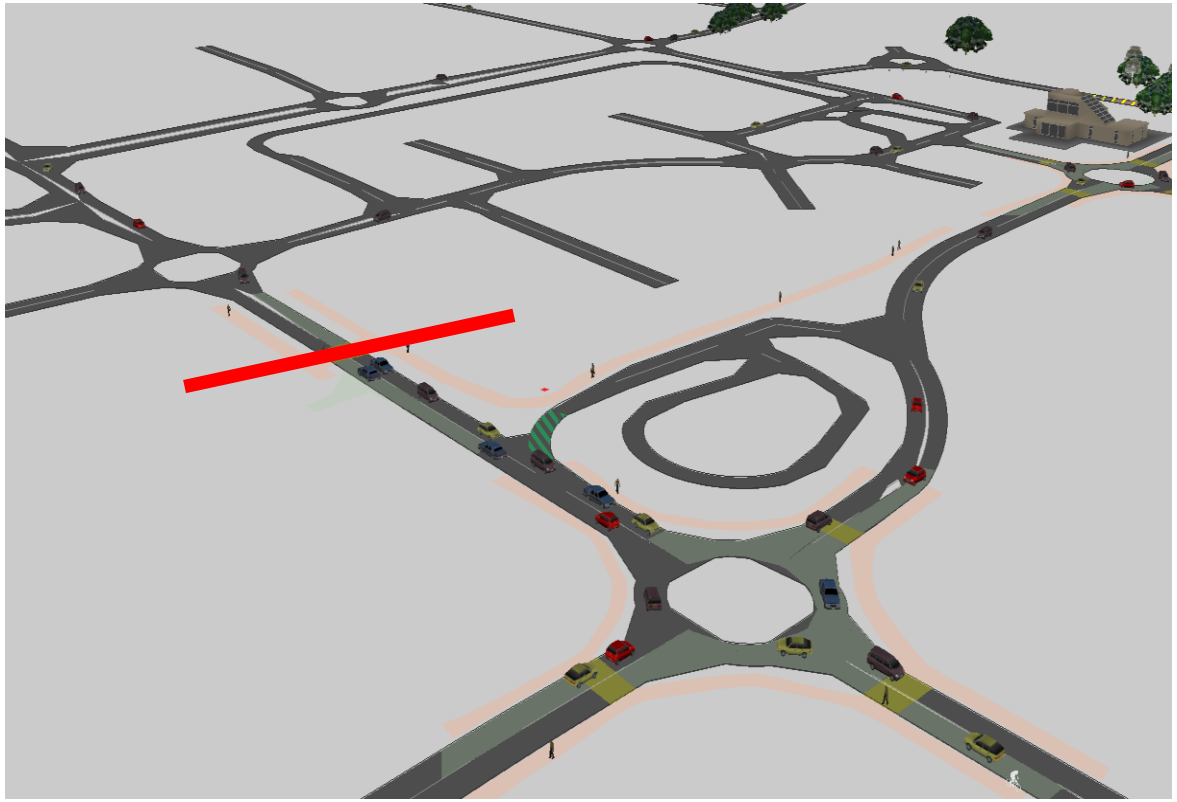


MICROSIMULATION

Potential static queue back into roundabout during morning peak period

Decide and Analyse

URBAN OUTCOME
New generation roundabout, Melbourne
(volumes 15,000 to 20,000 VPD)

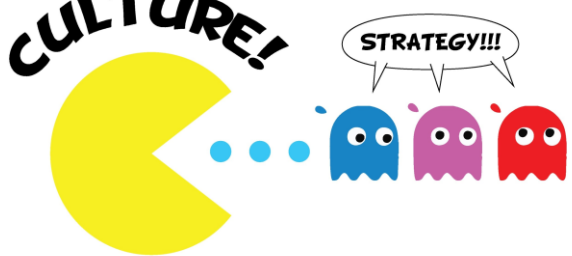


MICROSIMULATION
Extent of moving queue – morning peak period

Final Thoughts:

- We are still in a learning process of how to best use some of the more recent(ish) thinking's
- Need to move from a "predict and provide" to "decide and provide"
- Lower speeds are coming
- Need to ensure we have 'buy in' otherwise

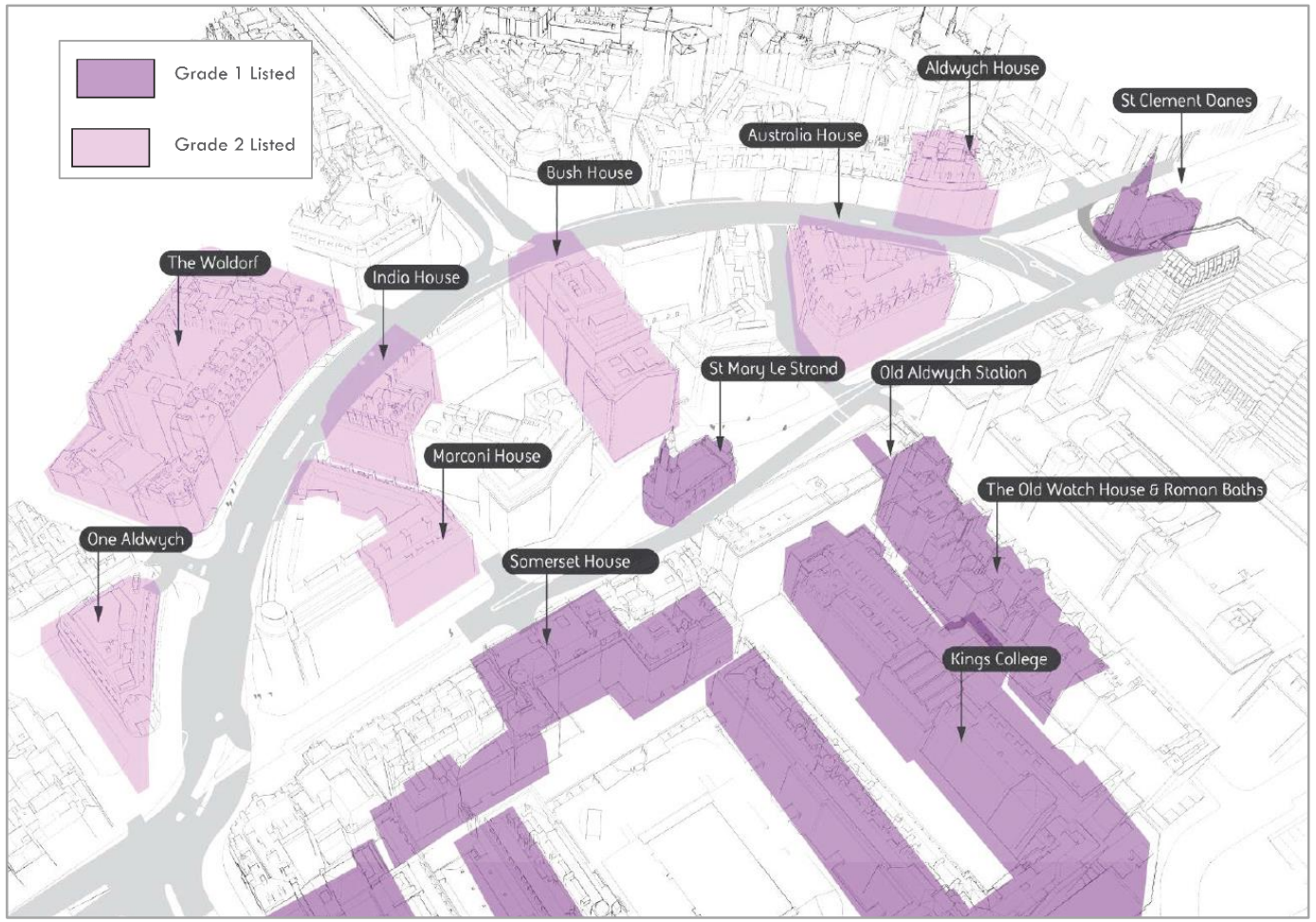
"culture eats strategies/plans etc for breakfast" *(Peter Drucker 1909 - 2005)*



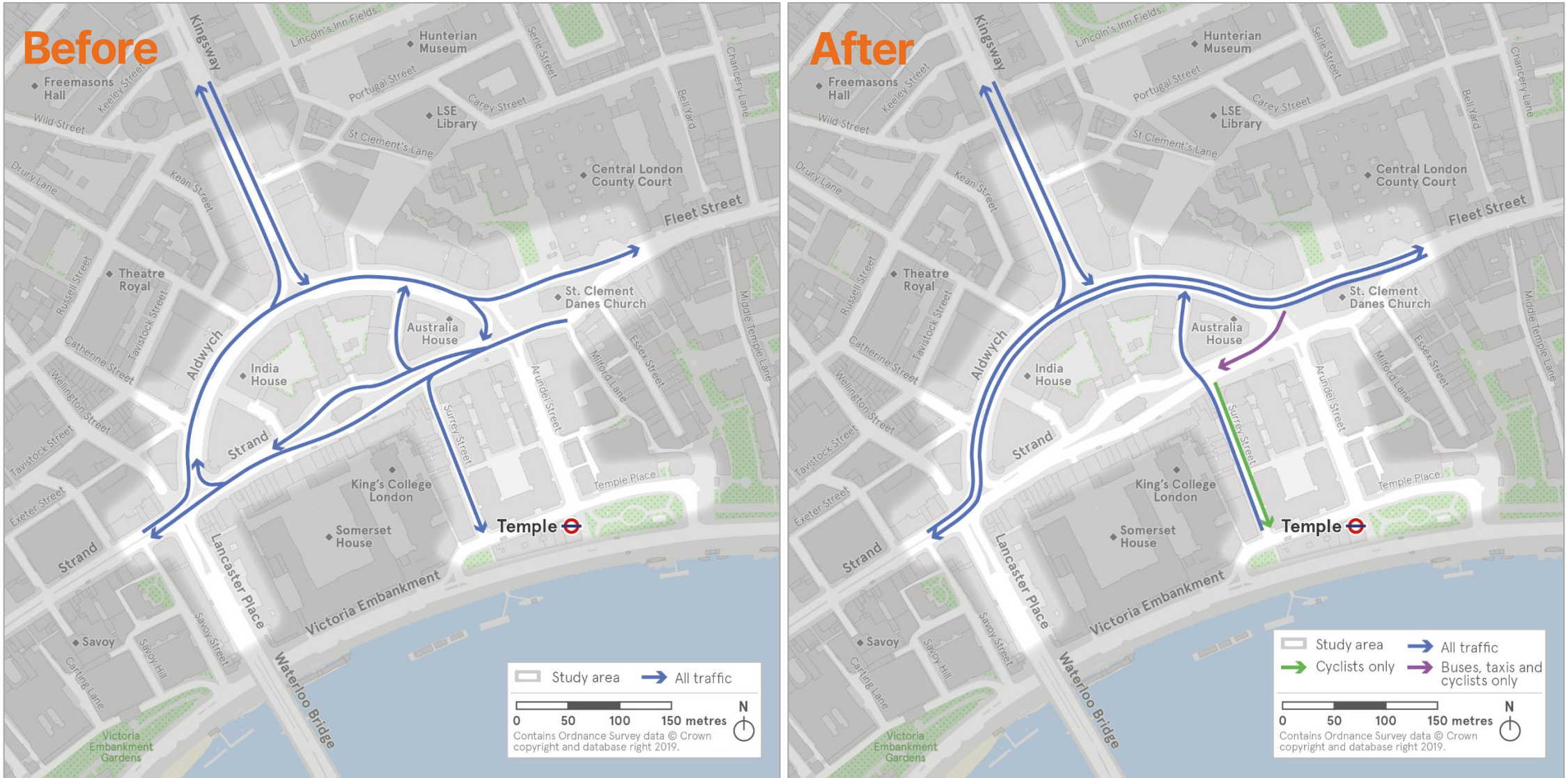
Community benefits from investing in the urban realm

Thomas Boulton – Senior Transport Planner, SMEC

Strand Aldwych Project



The scheme


Before
Kingsway
Lincoln's Inn Fields
Hunterian Museum
Freemasons Hall
Keeley Street
Wild Street
Portugal Street
Serle Street
Carey Street
LSE Library
St Clement's Lane
Bell Yard
Chancery Lane
Drury Lane
Kean Street
Central London County Court
Fleet Street
Russell Street
Theatre Royal
Tavistock Street
Catherine Street
Aldwych
Australia House
St. Clement Danes Church
Middle Temple Lane
India House
Essex Street
Milford Lane
Arundel Street
Wellington Street
Strand
Surrey Street
Temple Place
King's College London
Exeter Street
Somerset House
Temple
Lancaster Place
Victoria Embankment
Savoy
Savoy Street
Savoy Hill
Carting Lane
Waterloo Bridge
Victoria Embankment Gardens
Study area
All traffic
0 50 100 150 metres
N
Contains Ordnance Survey data © Crown copyright and database right 2019.
After
Cyclists only
Buses, taxis and cyclists only

Key benefits

Quantified impacts:

- Public realm
- Road safety
- Journey time (general traffic, bus passengers, cyclists and pedestrians)

Non-quantified impacts:

- Air quality
- Land value uplift
- Security and Hostile Vehicle Mitigation
- Heritage

Other key factors

- Private sector support
- COVID-19 opportunity / phased approach
- Support from the public
- Alignment on national, London-wide and local policy

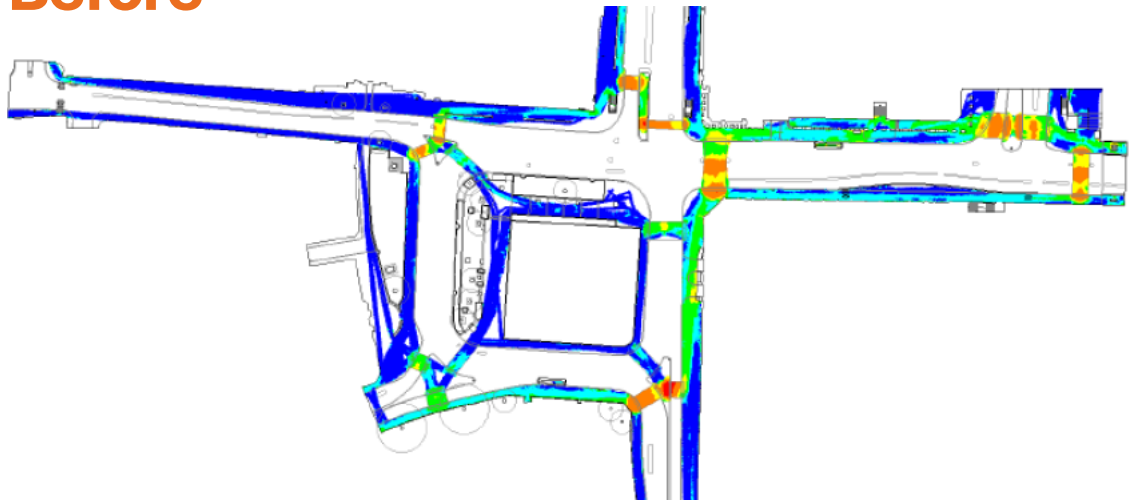
Parliament Square Project

Key benefits

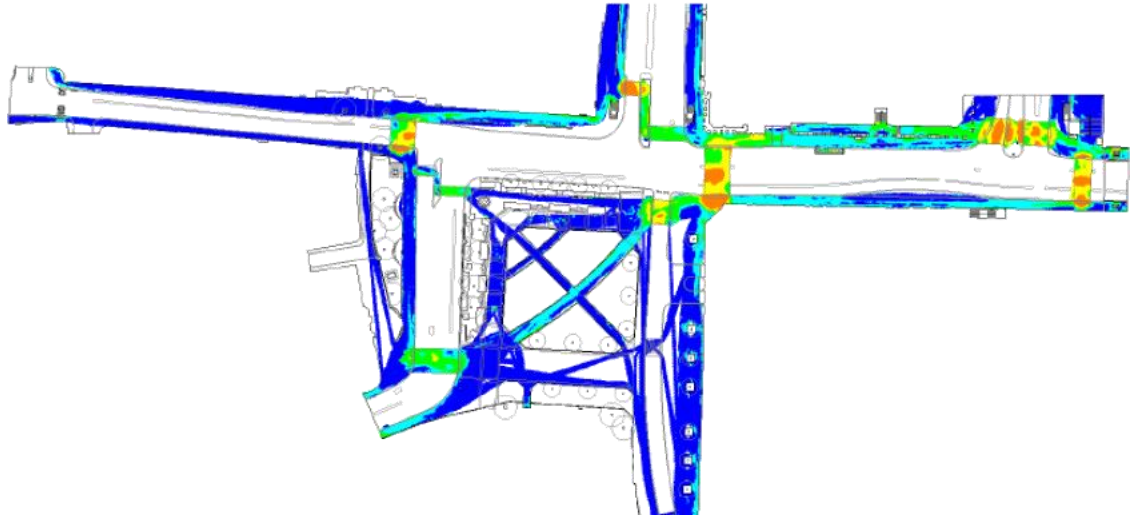
Quantified impacts:

- Public realm
- Travel time (pedestrians)
- Road safety
- Travel time (wider network)
- Health (cyclists)
- Bus financial impacts

Before



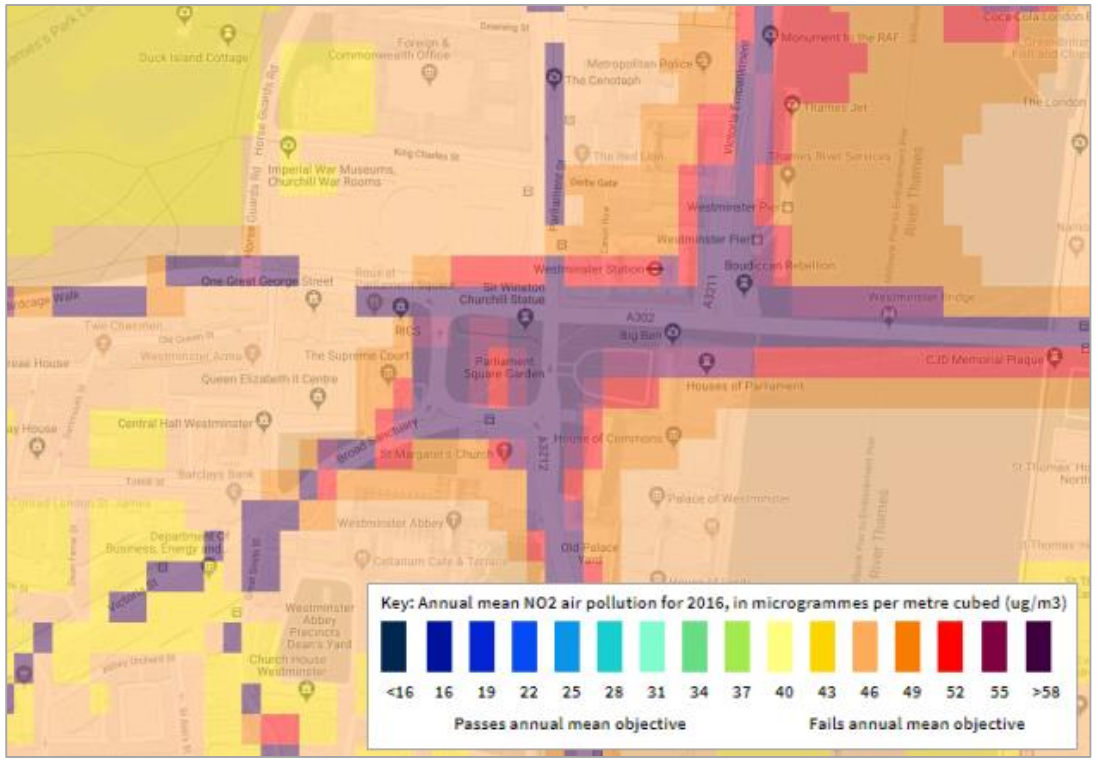
After

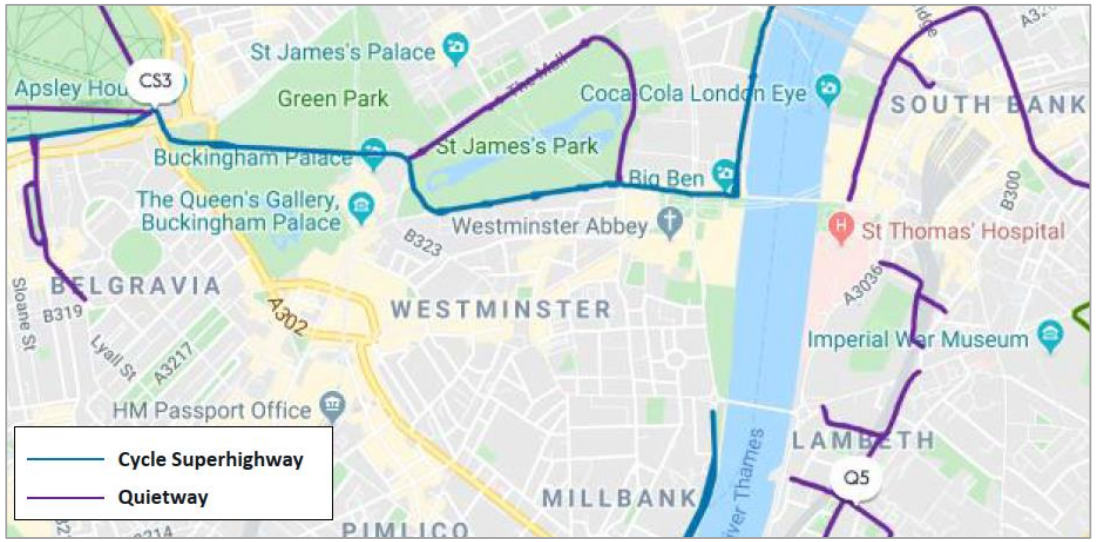


Key benefits

Non-quantified impacts:

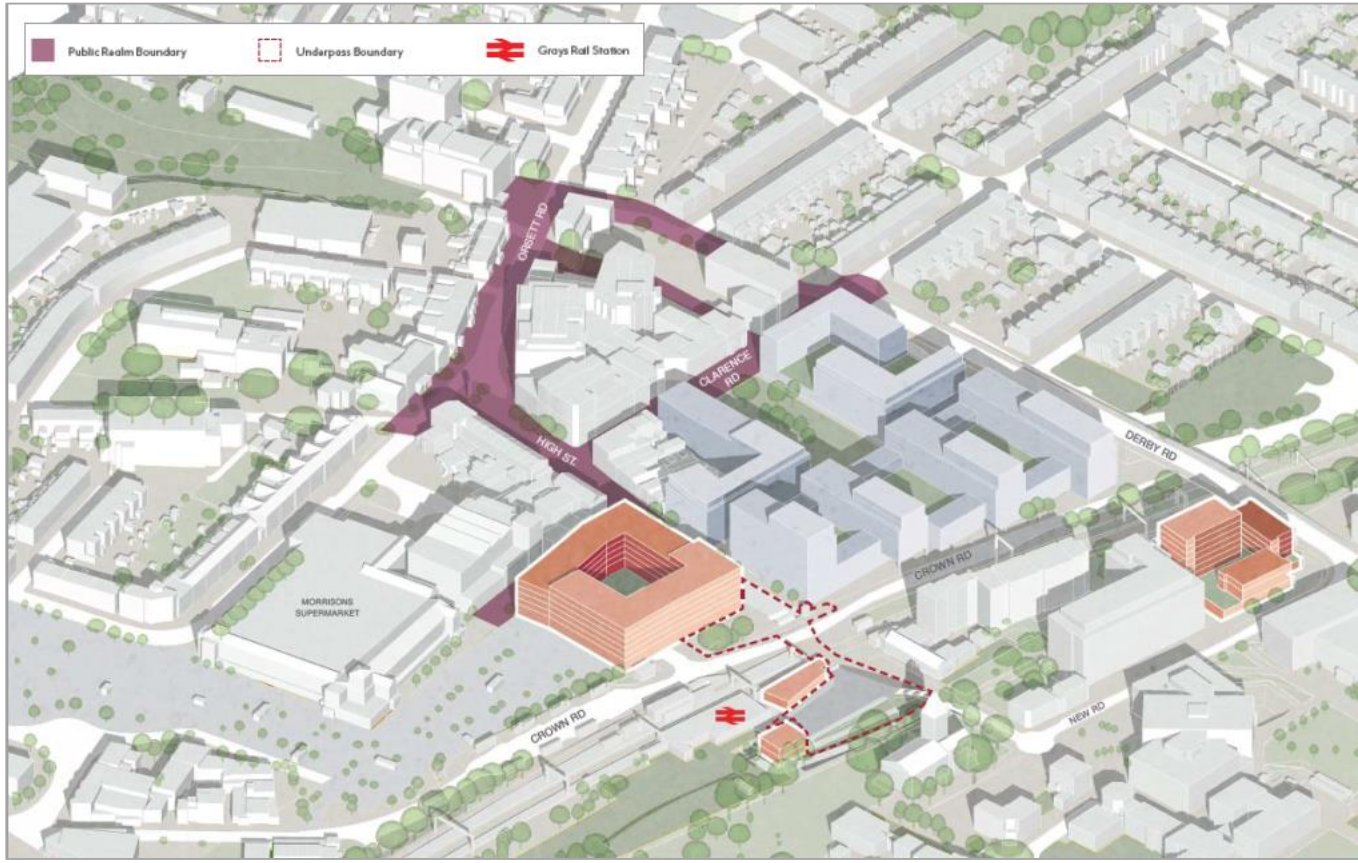
- Noise
- Local air quality
- Greenhouse gases
- Public safety
- Heritage
- Tourism





Grays Future High Street Fund

- Develop three sites for mixed commercial and housing opportunities
- Support digital economy and information systems along high street
- Maximize benefits of underpass scheme



Key benefits

Quantified impacts:

- Land value uplift
- Affordable housing benefits

Non-quantified impacts:

- Digital economy (IoT)
- Amenity value (placemaking)
- Community cohesion

Summary

- Many different appraisal tools for transport and non-transport schemes
- Support needed from the public and private sector
- Co-funding arrangements can be difficult but often achieves best outcomes for the community

Q&A

UPCOMING EVENTS

WA | Back to Basics 2022

26 May | In-person | Perth

VIC | YPN - Healthy Streets Walkshop

26 May | In-person | Melbourne

QLD | YPN - Coffee Roulette

8 Jun | In-person | Brisbane

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC
Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic EST.1983 TRAFFIC & TRANSPORT DATA SPECIALISTS

UPCOMING EVENTS – Registrations open now!

AITPM 2022 NATIONAL CONFERENCE
20 - 22 JULY

A Conference to bring the industry together — and shape the future

https://www.aitpm.com.au

AITPM
Leadership in Traffic and Transport

NATIONAL INDUSTRY PARTNERS

aurecon

MATRIX Traffic and Transport Data

vlc Veitch Lister Consulting

wsp

TECHNICAL PARTNERS

SMEC Member of the Surbana Jurong Group

aimsun.

NATIONAL PLATINUM SPONSOR

austraffic EST.1983 TRAFFIC & TRANSPORT DATA SPECIALISTS