Some Australasian Insights into Improving Transport and Land Use Integration and TODs

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Director Sunshine Coast
Australian Cities - Smart Growth

• All major Australian Cities are pursuing similar growth strategies
  – c. 50:50 ratio of greenfield and urban renewal
  – Connected and mixed use centres
  – Managed growth and urban boundaries
  – TOD principles
  – Improving Transit (rail, tram, bus)

• Success will lay in the leadership, commitment and detailed delivery/planning
Private Transport Energy Use Decreases as Density Increases

\[ y = 403914x^{-0.8377} \]

\[ R^2 = 0.8483 \]

- **US Cities (diamond)**
- **Australian Cities (square)**
- **Canadian Cities (cross)**
- **New Zealand Cities (dot)**
- **European Cities (X)**
- **Asian Cities (asterisk)**

Legend:
- **A** = Auckland
- **W** = Wellington
- **C** = Christchurch
Public Transport Trips Increase with Increases in Urban Density

\[ y = 141.32 \ln(x) - 288.83 \]

\[ R^2 = 0.7058 \]

Asian Cities (asterisk)
European Cities (X)
Canadian Cities (cross)
Australian Cities (square)
US Cities (diamond)
New Zealand Cities (dot)

A = Auckland
W = Wellington
C = Christchurch
### Data Collection Results

#### Public Transport Services per Person

<table>
<thead>
<tr>
<th>Category</th>
<th>Public Transport Trips per Person</th>
<th>Public Transport Service Vehicle Kms per Capita (1991)</th>
</tr>
</thead>
<tbody>
<tr>
<td>US Cities</td>
<td>63</td>
<td>28</td>
</tr>
<tr>
<td>Australian Cities</td>
<td>92</td>
<td>60</td>
</tr>
<tr>
<td>Canadian Cities</td>
<td>161</td>
<td>58</td>
</tr>
<tr>
<td>New Zealand Cities</td>
<td>49</td>
<td>35</td>
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<tr>
<td>European Cities</td>
<td>318</td>
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<td>Wealthy Asian Cities</td>
<td>496</td>
<td>115</td>
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<tr>
<td>Developing Asian Cities</td>
<td>334</td>
<td>108</td>
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</table>
TOD Planning for Greenfield and Urban Renewal

- Similar issues distinct challenges and opportunities
Subiaco (Perth)
Brisbane
Melbourne
Sydney-Kogarah Town Centre + Sustainability
A new approach to the renewal of transport infrastructure and urban development
$4bn rail tunnel proposal

A $4 billion plan to put more than four kilometres of the Glen Waverley rail line underground and build villages where once trains ran is under consideration.

The Villages: What’s Planned

- **Reyton:** Apartments and commercial properties in the town square.
- **Kawungan:** Apartments in the town centre around shops and offices, providing easy access to the Kawungan train station.
- **Tooronga:** New apartments and larger houses, plus cheaper townhouses in the new village.
- **Gardner:** New townhouses and apartments, plus a transport interchange.

Pros:

- Increased property values due to better services and infrastructure.
- Improved living conditions for residents.
- More efficient use of land.
- Reduced traffic congestion.

Cons:

- Increased cost of living for residents.
- Potential displacement of existing residents.
- Environmental impact of construction.

The Government is to green light the project, with plans to start construction in 2023.
Melbourne Project “Double Fault”

Proposed Corridor of TODs on Waverly Rail Line

- Utilise undeveloped and other unattractive railway land
- Put four stations and 4.5km rail underground
- Significant residential, retail and open space development
- 4 level crossings removed, transit integration (rail, tram, bus)
- Create new residential communities around existing stations
- Major TOD development(s)
“Double Fault”

- 4000-5000 new residents
- Some retail 70,000-100,000 sqft
- Some office – 35,000-40,000 sqft
- Significant open space
Brisbane

• Challenging TOD development – how much density can be justified at what level of transit (bus, ferry and rail)
SUNSHINE COAST
Some similar challenges

• Sea Change community – increases pop’n, aging pop’n
• Traffic growth > pop’n growth
• Poor alternative transport
• Dispersed land use
• Economic imbalance (poor jobs balance)
• Desire by community for better outcomes
Sunshine Coast Major Development

- 275,000 people now – 450,000 by 2026
- New rail line planned
- Large green field and urban renewal
- Councils and developers embracing TOD concepts but some confusion about how to implement
- Poor alternative transport
Big Plans…Opportunities and Threats
Broad Spectrum of Transit Choices

Transit Productive Capacity

Rapid Transit
Semirapid Transit
Street Transit
Auto/Freeway
Auto/Street

Operating Speed (kilometers/hour)

Line Capacity (thousands of passengers/hour)
## Transport Choices and Outcomes

<table>
<thead>
<tr>
<th>Goals:</th>
<th>BRT</th>
<th>LRT</th>
<th>DMU</th>
<th>Streetcars</th>
<th>Commuter</th>
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<td>Ridership</td>
<td>Moderate to high</td>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Good at peak</td>
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<td>Cost</td>
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<td>Moderate to high</td>
<td>Low to Moderate</td>
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<tr>
<td>Development</td>
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<td>Low to moderate</td>
<td>Low</td>
<td>Moderate to high</td>
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<tr>
<td>Urban Form</td>
<td>Low to moderate</td>
<td>High</td>
<td>Low to moderate</td>
<td>Strong image</td>
<td>Moderate</td>
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<tr>
<td>Time to Implement</td>
<td>1-5 years</td>
<td>7-10 years</td>
<td>2-6 years</td>
<td>1-5 years</td>
<td>2-5 years</td>
</tr>
</tbody>
</table>
Sunshine Coast/
Maroochy Transport Concept

LEGEND
- Quality Bus Corridor
- Regional Coastal Rail
- NAMCOS Corridor
- Bus Priority Corridor
- Key Interchange / Station

Maroochydore

MCC Transport Workshop 29 Sept '06
outputs summary
Regional connections

to Noosa

to Nambour

Mooooloolaba

Kawana Shoppingworld

Kawana Town Centre

Sippy Downs

Budgerra

Maroochydore

Moonee Ponds

Maleny

Maleny

Airport

Caloundra

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Maroochy Transport Concept

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Maroochydore

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Regional connections
Maroochydore Challenges – Heavy Rail Integration
Improving Maroochydore transport options

- Rail
- Shuttle
- Improved street-network
- Explore LRT corridor
Workshop – Maroochydore/Mooloolaba Transport Concept
PT Network - 2026 Concept
Sunshine Coast

Key
- CAMCOS extensions (if LRT)
- CAMCOS Rail Service
- Priority express bus corridor
- Stopping service with priority treatments
- Mooloolaba-Maroochydore coastal shuttle bus
- NNAMCOS service (indicative)
- Possible NNAMCOS extension
- Indicative local bus route connections
- Strategic bus linkages
- Coastal bus service Maroochydore – Coolum - Noosa
- Possible Ferry route

Principles

Bus
- Network of connected centres
- Traffic priority along corridors
- Service improvements (frequencies, route coverage)
- Improved passenger information
- Integrate with developments/TODs
- Interchanges well designed

Rail
- Ensure Government commitment
- Preserve CAMCOS corridor
- Explore LRT opportunities
- Ensure rail integration with key centres, and with bus services
- Integrate with developments/TODs

Overall
- Modes are complementary
- Councils work together
- Whole of government strategy
  - State and councils
Pedestrian Zones - 2026 Concept - Maroochydore

Principles

- Slow car zones in main centres
- Parking stations at edge of centres
- Walkable catchments and permeable street networks
- Shuttle works in tandem with improved pedestrian amenity
- New pedestrian crossings
- Key intersections are made more pedestrian friendly
PT Changes to deliver!

A quality bus corridor for the Sunshine Coast.

Upgraded local services are enhanced with increased frequency of services along with signature stations and highly visible stops.
Section 3 - Nicklin Way

- Full length 3rd lane bus lane
- Intersection engineering treatments
- ‘B’ Phase at 4 of 17 intersections
- Kawana Shoppingworld
- Stop & Shelter upgrades
Section 4 – Kawana Shoppingworld

• Major hub interchange
• Route visibility, including
  • Stops & Shelters
• Higher frequency services
• Future bus/rail connections
• Need to negotiate with developers
Population: 350,000

Lifestyle: Coastal, outdoors, family life

Economy: Agriculture, Tourism, Hi-tech

Environment: generally clean, winter time air pollution, limited congestion

Land Use: Medium-Low Density, some sprawl

Transport (1997): Increasing car use and congestion, declining public transport use, lack of integrated approach
**Christchurch UDS Options**

**Business as Usual Option**
Continues current trend of spreading development around Greater ChCh.

New Housing:
- 80% new subdivisions
- 20% urban renewal

Councils continue independent growth strategies.

**Option B**
Balances future urban development between urban centres and existing towns, and some expansion into adjacent areas.

New Housing:
- 60% new subdivisions
- 40% urban renewal

**Option A**
Concentrates development within Christchurch and the larger towns of Rangiora, Kaiapoi and Rolleston.

Greater focus on redevelopment.

New Housing:
- 40% new subdivisions
- 60% urban renewal

**Option C**
Disperses development around Greater Christchurch away from established urban areas.

New Housing:
- 90% new subdivisions
- 10% urban renewal
Revitalising the Heart of Our City

Development of a Central City Strategy
Successful Public/Private Partnerships

Victoria St and ParkRoyal Hotel

Arts Centre

Oxford Terrace “Strip”
Two Futures
One Choice

Discussion Document on a Public Transport Strategy for Christchurch

Electric Bus Trial, Christchurch, 26/11/97
Bus Clearway
Proposed 1997

• Major campaign against proposed clearway on suburban main street
• “Blood Letting” public meeting
• Agency Response – urgently sort out community interest/support for PT across entire city!

SAY NO!

TO REMOVAL OF TREES
TO REMOVAL OF PLANTERS
TO CLEARWAY FOR BUSES
TO NARROWER FOOTPATHS
TO FOUR LANE HIGHWAY

SUPPORT THE RICCARTON BUSINESS COMMUNITY IN PRESERVING THE MAIN ST

Estimated time saving on bus trip between 0 and 1 minute 30 seconds
Christchurch Public Transport Strategy 1998

• Joint effort between CCC and ECAN/CRC
• Advisory Group convened
  – 13 organisations represented (agencies, transport, developers, chamber of commerce, users, non-users)
• 12 months of analysis and public process
• Goals established to overhaul system frequency, performance, characteristics
• Significant improvements achieved
Adopted 1998 PT Strategy Set New Direction

Package of Improvements

**Short Term**
(2 yrs)
- Express buses
- Ring Route(s)
- Faster Ticketing
- Frequency Increases
- 20 New Buses/Year
- 30 New Shelters/Year
- Improved Stop Info
- Friendly Driver Prog.
- Improved Image and Legible Product

**Medium Term**
(5 yrs)
- Bus priority
- Parking policies
- Land Use Planning
- Park/Cycle n ride
- SmartCard Tickets
- Real Time Stop Info

**Investigations**
- Rail opportunities
- New routes
- Funding options
- Electric/Hybrid Buses
Introduced in July 1999 w/ 15 minute frequency, green 28 seater SLF buses…

Within 18 months Orbiter was #1 route in the system!

System Patronage Growth more than 70% in last 5 years!
Contactless Card

- Introduced to save loading time
- Cash tickets were 70% of loading
- Now contactless card is 70% trips
- Significant increases in service speed and improvements in revenue
Real Time Information System

- 2 stages: Bus Xchange ($0.95M) & city wide ($1.7M)
- Bus Xchange – multi line signs, audio-enquiry kiosks, door single line signs, control room interfaces
- City Wide rollout: Battery powered, passive operation
The Shuttle

- Began December ‘98, as free inner-city transport
- Hybrid electric batteries with LPG turbine
- 20 seats 20 standees
- c. 1.4M pax/yr
- 6 Shuttles operating 7.5 min frequencies, 7 days/wk, 14.5-16 hours/day (initially 4 shuttles)
- 4.5 km route, 20-30 minutes circuit, 21 stops
Christchurch
TOD “Bus Xchange”
Opened November 2000

• “6 Week” Hot house planning
• Integrated with retail
• Quality Facility with conditions of use
• Unique traffic management solution
• Joint effort – CCC and ECAN/CRC
• Catalyst for further redevelopment
Christchurch CBD and
the “Old” Bus Stops in
Cathedral Square
Route Changes for Bus Xchange

Route Terminus

Interchange Area

Route Terminus

Northern Routes

Southern Routes

Eastern Routes

Western Routes
Bus Xchange: Innovative engr solutions – sloping floor avoids Ped tunnel, heritage retention, contra flow lane for exiting buses
Bus Xchange Package

- Partnership: City, Region and Developer
- Route changes: all routes, additional costs, better coverage
- Innovation: off-street and on-street mix
- Fast: Traffic management, real-time info, new ticketing
- “Airport Lounge” facility - air cond, safe, secure, clean, RTI
- Integrated with major retail development
- Heritage façade retention
- New primary school on top two levels
- Catalyst for further redevelopment
Bus Exchange – Airport Lounge Quality…
real time info, passenger lounge, electronic doors, smartcard ticketing…
Integrated with retail

On street bus stops
Catalyst for Additional Integrated Retail
(opened March 2003)

- Council builds connection to existing carpark
- Rooftop parking, 2 floors retail
- Retail redevelopment c $30 Million
- Integrated with **Bus Xchange** and parking bldg
Bus Xchange

TOD Success Factors

- PT Strategy led to commitment and opportunity
- Captured public private partnership – “win-win-win”
- Visionary package and Innovation
- Integrated package – retail, school, bus xchange
- Great Product and Package
  - Great passenger convenience
  - Integrated with core retail
  - Part of PT Strategy and overall goals (staged improvements)
  - Led to continued improvements – “strength to strength”
  - Catalysed further re-development
Introduced in July 1999 w/ 15 minute frequency, green 28 seater SLF buses…

Within 18 months Orbiter was #1 route in the system!

System Patronage Growth more than 70% in last 5 years!
PT Strategy 1998 - System Changes and Patronage Growth

(44% increase in patronage - July 99-July 02)

- Bus Xchange
- Orbiter Ring Route
- Electric CBD Shuttle
- Frequency Increases and Low Floor Buses
- Real Time Info
- SmartCard Ticketing

Monthly Patronage

- Patronage
- Annual Average % Change

Annual Average % Change

Greater Christchurch Patronage

Frequency Increases and Low Floor Buses

Electric CBD Shuttle

Orbiter Ring Route

Bus Xchange

Real Time Info

SmartCard Ticketing

Annual Average % Change