Broadway – Simple design for safer streets and revitalizing your retail precinct
• Reservoir 12 km from Melbourne CBD

• Home to 46,725 residents

• 46.1% speak a language other than English at home

• 11.6% of the population are between 70-84 years old. Much higher than the rest of Melbourne at 7.4%

• 3.5% of the population are 85 years and over. Much higher when compared with the rest of Melbourne at 1.8%
The issues

• Road Safety issues- Broadway carries 18,000 vehicle movements a day and is classified as and approved route for heavy vehicles

• VicRoads Crash Data indicated 16 crashes between 2008-2014, 4 have involved collisions between cars and pedestrians, with 1 resulting in the fatality of a senior citizen in August 2012.

• Reservoir`s aging population- decreasing mobility coupled with greater reliance on public transport

• Very 'tired and uninspiring' public realm. Limited public seating that is not conducive to social gathering. Public spaces not inviting or comfortable

• Poor walking conditions- aging infrastructure- footpaths are in poor condition
Project Aims

"Broadway Traffic Calming – Supporting an Active and Aging Reservoir project seeks to improve the safety conditions and pedestrian environment along Broadway, through a number of traffic calming treatments in line with safe systems and public amenity activities"(Jennifer Loulie, 2014)

- Create safe and accessible walking environments
- Support speed reduction
- Improve road safety and perceptions of safety
How could we improve the walking conditions for the senior community

- New meeting and social spaces in Broadway
- Introduce new 40km speed reduction
- Footpath replacement across the center
- Create raised pedestrian crossing thresholds at Marchant Avenue, Clarke, Bernard and Whitelaw Streets
- Create two new disabled parking bays in Broadway
- Implementing traffic calming measures to the local road network- remove slip lane (pop up park)
- Upgrade shared path on High Street
- Create new formal crossing points along the centers
- Relocate bus stops near pedestrian crossing points
How we did it = collaboration models and shared outcomes
Collective Aims and Outcomes

- Interest in aging community and how they use public spaces
- Changing the road layout through small tactical designs, that not only slows traffic but also send a message about shifts towards pedestrian priority
- Improving aging infrastructure so that it can enable ‘safer passage’ and instill a sense of ‘civic pride’
- Improving walk-ability and amenity for older people and provide safer streets.
- Creating outdoor social spaces, new seating areas and places to rest and have chat (allowing spaces for informal connection)
- Slow the traffic down and give priority to pedestrians
- Create new and safer crossing points along Broadway
- Improve perceptions of safety
- Creating safer and amenable streets and public places for the community
- Revitalized our retail centers
Adding Value through Collaboration - City of Darebin

Streets that are safe and where pedestrians and passive transport are prioritised

Transport

Public spaces that are vibrant and where people want to be, spend time and be proud of.

Public Realm

Streets/Roads that are well maintained, safe and respond to changing community need

Civil Infrastructure

Retail precincts that are active and attractive to businesses. Retail centres that are busy and vibrant

Economic Development
Process

- Reservoir Structure Plan 2012
- Reservoir Streetscape Master Plan 2014
- TAC Grant
  - TAC + Council (senior discount +)
- Broadway
  - Poor, existing conditions
  - Ageing population
  - Accident stats, support, slowing changing traffic conditions
- VicRoads
  - Reduce 60km to 50km in Broadway
- ATMS
  - Outcome
  - Proven/Package
  - Post thresholds, new crossing's, Rob expenses
- 2014 traffic data collection
- Grant # + Council budget
  - Develop project scope with community
  - Design tender etc
  - Built outcomes
- 2016 traffic data collection
- Data collection + Project Review (still in progress)
what we built
Raised pedestrian thresholds
new extended cross overs
new extended cross overs
Raised pedestrian crossing points
Raised thresholds, kerb outstands and seating nodes
new footpaths
Reduction to 40 kms (thanks VicRoads)
Improvements to existing cross over, change to timing of lights and relocation of disabled carparks
The Data

- Data was collected in 2014 prior to the construction works and then again in 2016 after the works and changes had been implemented.

- Blue dotted lines indicate the location of the traffic data collection points (traffic markers) and the green dotted lines indicate the location of the interventions.
Increases in overall traffic counts were not driven by the peak travel periods, increases in traffic were outside these peak periods.

Traffic counts for the AM peak were in opposite direction to the total counts and showed reductions at all sites over pre v post and at all sites in both directions. The exception was High and Bernard where there was small increase in eastbound traffic (1.94%), offset by a larger decrease in westbound traffic (-8.89%).

PM peak traffic counts indicated reductions in traffic counts pre v post, with exception of at High and Bernard where there was a marginal increase. There were some variations when looking comparing east versus westbound traffic in the pm peak:

- Small increase at Bernard and Clark westbound (1.29%), but a decrease in eastbound volume (-3.61%).
- Marginal increase at High and Bernard in eastbound (.75%), but larger decrease in westbound (-4.40%).
Analysis of vehicle travelling speeds revealed reductions in both 85% percentile and average speeds at all locations where there was a speed limit change. The results were mixed for the location between Dennis and Lindsay (where there was no speed limit change).

### Table 3. 85th percentile travelling speeds by site

<table>
<thead>
<tr>
<th>Location on Broadway</th>
<th>85 percentile speed Pre (km/h)</th>
<th>85 percentile speed Post (km/h)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernard_Clark</td>
<td>52.6</td>
<td>46.9</td>
<td>-10.98%</td>
</tr>
<tr>
<td>Clark_Dennis</td>
<td>56.6</td>
<td>48.8</td>
<td>-13.82%</td>
</tr>
<tr>
<td>Dennis_Lindsay</td>
<td>57.9</td>
<td>58.8</td>
<td>1.63%</td>
</tr>
<tr>
<td>High_Bernard</td>
<td>47.9</td>
<td>43.7</td>
<td>-8.63%</td>
</tr>
</tbody>
</table>

### Table 4. Average travelling speeds by site

<table>
<thead>
<tr>
<th>Location on Broadway</th>
<th>Average speed Pre (km/h)</th>
<th>Average speed Post (km/h)</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernard_Clark</td>
<td>45.2</td>
<td>39.5</td>
<td>-12.68%</td>
</tr>
<tr>
<td>Clark_Dennis</td>
<td>49.3</td>
<td>41.3</td>
<td>-16.30%</td>
</tr>
<tr>
<td>Dennis_Lindsay</td>
<td>52.0</td>
<td>50.6</td>
<td>-2.59%</td>
</tr>
<tr>
<td>High_Bernard</td>
<td>39.9</td>
<td>35.9</td>
<td>-10.04%</td>
</tr>
</tbody>
</table>
Pedestrian Counts

Table 5. Pedestrian Count data from 254 Broadway (Pedestrian Crossing)

<table>
<thead>
<tr>
<th>Location</th>
<th>2014</th>
<th>2016</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southside</td>
<td>1566</td>
<td>1380</td>
<td>-12%</td>
</tr>
<tr>
<td>Northside</td>
<td>506</td>
<td>328</td>
<td>-35%</td>
</tr>
<tr>
<td>Crossing</td>
<td>1153</td>
<td>760</td>
<td>-34%</td>
</tr>
</tbody>
</table>

Table 6. Pedestrian Count data from Broadway at Marchant Avenue and Bernard Street

<table>
<thead>
<tr>
<th>Location</th>
<th>2014</th>
<th>2016</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marchant Ave Nth Approach</td>
<td>733</td>
<td>526</td>
<td>-28%</td>
</tr>
<tr>
<td>B'way East Approach</td>
<td>193</td>
<td>983</td>
<td>409%</td>
</tr>
<tr>
<td>Bernard St South Approach</td>
<td>474</td>
<td>452</td>
<td>-5%</td>
</tr>
<tr>
<td>B'way West Approach</td>
<td>204</td>
<td>1749</td>
<td>757%</td>
</tr>
</tbody>
</table>

Table 7. Pedestrian Count data from Broadway at Whitelaw Street and Dennis Street

<table>
<thead>
<tr>
<th>Location</th>
<th>2014</th>
<th>2016</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whitelaw St Nth Approach</td>
<td>146</td>
<td>65</td>
<td>-55%</td>
</tr>
<tr>
<td>B'way East Approach</td>
<td>43</td>
<td>413</td>
<td>860%</td>
</tr>
<tr>
<td>Dennis St South Approach</td>
<td>170</td>
<td>74</td>
<td>-56%</td>
</tr>
<tr>
<td>B'way West Approach</td>
<td>29</td>
<td>494</td>
<td>1603%</td>
</tr>
</tbody>
</table>

- Pedestrians counts and crossing were lower in 2016 than 2014 at 254 Broadway (Pedestrian Crossing). - possibly due to new crossing points being created along Broadway.

- Pedestrians counts were much higher in 2016 than 2014 on two locations on Broadway; at Marchant/Bernard and at Whitlaw/Dennis Broadway (for both east and west approaches at both locations).
Older Pedestrian Counts

Table 8. Older pedestrian data along Broadway

<table>
<thead>
<tr>
<th>Location</th>
<th>2014</th>
<th>2016</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broadway at crossing</td>
<td>186</td>
<td>484</td>
<td>+60%</td>
</tr>
<tr>
<td>Broadway at Marchant avenue and Bernard St</td>
<td>244</td>
<td>543</td>
<td>+60%</td>
</tr>
<tr>
<td>Total</td>
<td>430</td>
<td>1028</td>
<td>+60%</td>
</tr>
</tbody>
</table>

- Older pedestrians were counted as a subset of the previous data set. Substantial increases on 2014 were observed in the 2016 survey.

- This data should be noted with caution as it only reflects one day of data collection, so could be influenced by a range of factors other than the road and pedestrian infrastructure.
Thanks to the collaborators

• Project Partners: Tahlee Norton (TAC), Bonnie Swan (DHHS), Duane Burtt (Victoria Walks), Jan Bruce (MAV), Sharon Wishart (VicRoads), Anne Harris (Harris Consulting), Elizabeth Waller, Adam Pepi

• Darebin Team: Jennifer Loulie, Che Sutherland, Allan Middlemast, Wendy Dinning, Penny Jamieson, Daniel Neave, Kevin de Leeuw, Alison Breach, Antonia Mouzakis, Michael Rathbone, Paul Marino.