

Design, Innovation & Technology

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IPENZ - 7 March 2016



Design, Technology & Innovation

- Where do these concepts fit in Professional Engineering work?
- How does Infrastructure best apply these concepts?
- What differences will these concepts make to a liveable city?

Nothing works in isolation



Operating Principles

- **Need to keep moving**
 - Analysis / Approval / Consulting / Consenting / Delivering
- **Need to integrate components**
 - Balance / Judgement / Wisdom / Perspective
- **Need to define outcomes**
 - Benefit / Appropriate / Affordable / Timely
- **Need to ensure Sustainability**
 - Environmental / Financial / Social
- **Need to maintain Safety**
 - Risk / Health / Security



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1. Integrated Transport Plan (ITP)

PS = Project Score
 SS = Strategic Fit Score
 ES = Effectiveness Score
 BCS = Benefit Cost Ratio Score

- $PS = f_1(SS) + f_2(ES) + f_3(BCS)$

- $SS = g_1(\text{TransportChoices}) + g_2(\text{MovingPeople\&Goods}) + g_3(\text{OptimiseNetwork}) + g_4(\text{Communities\&Growth}) + g_5(\text{Safety}) + g_6(\text{Environment})$

- $ES = h_1(\text{HighEffectiveness}) + h_2(\text{MediumEffectiveness}) + h_3(\text{LowEffectiveness})$

- BCS = based on the project's benefit cost ratio calculated under NZTA's Economic Evaluation Manual

Table 1: Auckland Plan Transport Programme (Fully Funded) grouped by region, priority type and linked projects

\$\$\$\$ = >1 billion \$\$\$ = 100 to 999 million \$\$ = 10 to 99 million \$ = less than 10 million

■ = indicates projects included in the Committed Funding Investment scenario

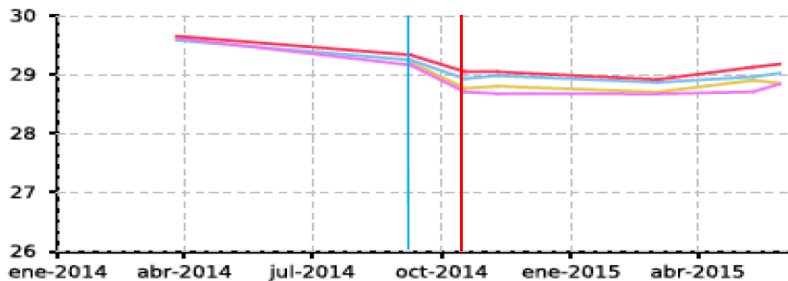
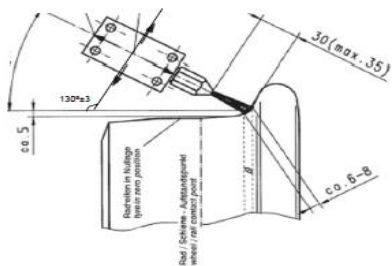
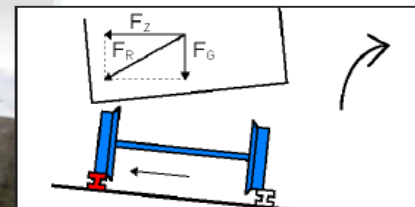
Project name	Activity Class	Priority type	Linked Projects	Region	2012-2021	2022-2031	2032-2041
Transport planning	Transport Planning	Make better use of networks	Business as usual	All	\$\$	\$\$	\$\$
Road Safety promotion	Road Safety	Manage demand efficiently and safety	Business as usual	All	\$\$\$\$	\$\$\$\$	\$\$\$\$
PT services	PT services	Operate maintain and renew infrastructure optimally	Business as usual	All	\$\$\$\$	\$\$\$\$	\$\$\$\$
Roads Maintenance and operations		Operate maintain and renew infrastructure optimally	Business as usual	All	\$\$\$\$	\$\$\$\$	\$\$\$\$
Walking and Cycling	Walking and Cycling	Operate maintain and renew infrastructure optimally	Business as usual	All	\$\$\$	\$\$\$	\$\$\$
Safety around schools	Local Roads	Manage demand efficiently and safety	Safety	All	\$\$	\$\$	\$
Safety and minor improvement	Local Roads	Manage demand efficiently and safety	Safety	All	\$\$	\$\$	\$\$
Strategic Lighting Group	Local Roads	Manage demand efficiently and safety	Street lighting	All	\$\$	\$\$	\$\$
Safety around schools	Local Roads	Manage demand efficiently and safety	Safety	All	\$\$	\$\$	\$\$
Strategic Lighting Group	Local Roads	Manage demand efficiently and safety	Safety	All	\$\$	\$\$	\$\$
Regional safety programme	Local Roads	Manage demand efficiently and safety	Safety	All	\$	\$	\$
Crash reduction implementation	Local Roads	Manage demand efficiently and safety	Safety	All	\$	\$	\$
Safety speed management	Local Roads	Manage demand efficiently and safety	Safety	All	\$	\$	\$
PT Real Time Passenger Information System (RTPIs)	Infrastructure	Make better use of networks	Optimisation	All	\$\$	\$\$	\$\$

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2. EMU – Automated Wheel Management

In Depot Laser Wheel Measurement and Wheel Flange Lubrication on Curves under 600 metre radius triggered by EMU location



Graph of flange vs time

Blue Line : Operations begin on curved track (note accelerated wear)

Red Line : flange lubrication applied, wear reduced



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3. Digital Solutions for Traffic Information

CCTV and analytics allow AT to monitor CBD network performance, make decisions and take action on the transport network in real time.

Using real time sensors and predictive analytics can produce dramatic improvements.



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Digital Solutions for Travel Information

AT has trialed new smart bus stops with digital information screens




Currently rolling out digital screens to double decker buses and EMUs



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4. Partnering Solutions

- Data  Information
- Partners to Deliver
- Innovate Cross Sector – Gaming Co.
- Smart Solutions
- Track my Bus app / Parking app
- Overall, a key application in helping us to enable a Smart Transport City



Microsoft



STOP 7042 09:45

ROUTE	DESTINATION	ETA	HERE
260	NEWMARKET	09:50	5 mins
180	REMUERA	10:00	15 mins
830	ORAKEI	10:10	25 mins

! DELAY ANNOUNCEMENT

Please note that there will be a delay for all buses on route **290** due to an accident on Great South Rd. We apologise for any inconveniences caused.

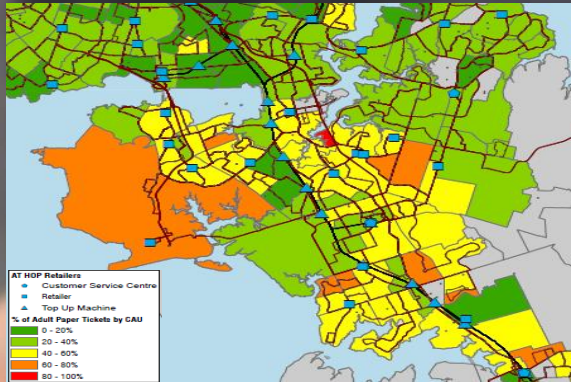
We would love to hear your opinion of the new s 17:12:50

Route	Destination	Passengers	Mins
221	Rosebank Rd via New North Rd, St Lukes	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	1
224	Henderson via New North Rd, St Lukes	<div style="width: 75%; height: 10px; background-color: green;"></div>	3
249X	Blockhouse Bay via Sandringham Rd	<div style="width: 50%; height: 10px; background-color: green;"></div>	5
243	New Lynn via Sandringham Rd	<div style="width: 33%; height: 10px; background-color: green;"></div>	6
222	Patiki Rd via New North Rd, St Lukes	<div style="width: 25%; height: 10px; background-color: green;"></div>	7
249	Blockhouse Bay via Sandringham Rd	<div style="width: 20%; height: 10px; background-color: green;"></div>	8
243X	New Lynn via Sandringham Rd	<div style="width: 15%; height: 10px; background-color: green;"></div>	9
243	New Lynn via Sandringham Rd	<div style="width: 10%; height: 10px; background-color: green;"></div>	9
220	St Lukes via New North Rd	<div style="width: 5%; height: 10px; background-color: green;"></div>	15

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5. AT HOP – Customer Data Analytics

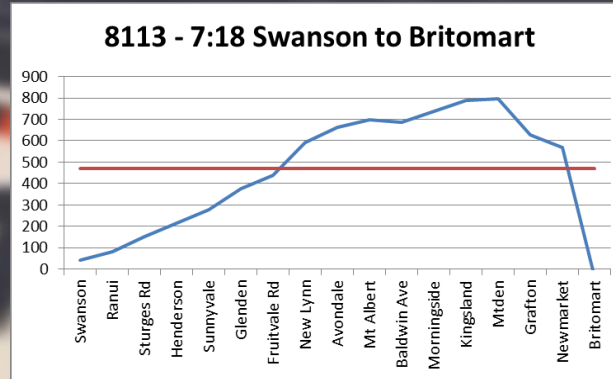
HOP Usage



Customer Benefits

- Reduced travel costs
- Travel concessions
- Faster boarding
- Improved service punctuality

Capacity Management



Operator Benefits

- Resource optimisation
- Reduced complaint volumes
- Lower operating costs
- Improved performance KPI's

Service Information

David, new trips are being added to your Western line morning service from 8 May 2016.

Further information available:
<https://at.govt.nz/bus-train-ferry/service-announcements/westernline-timetable-changes/>

☎ 09 366 6400

✉ PTServiceInformation@at.govt.nz

🐦 <https://twitter.com/AkiTransport>

Customer Benefits

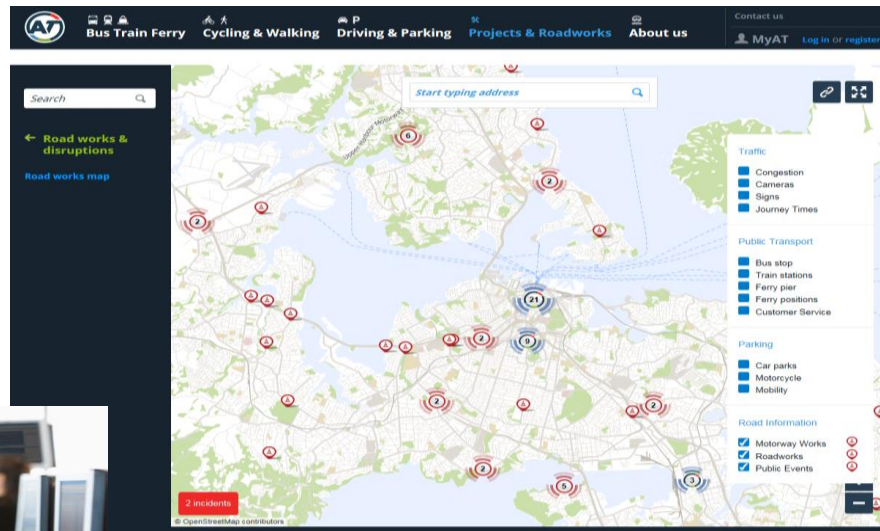
- Increased engagement
- Relevant, timely, accurate customer information
- Multi-channel communications



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6. Customer Relationship Management (CRM)

- A **single view** of the customer
- Average of 23,000 customer interactions per month
- Over 800 users across AT business units and external Operators
- Standardised business processes
- Enhancements / Standardisation / Simplification Supportability
- Register for specific relevant information



Future Investment ?



Thank you

Delivering you transport choices to get you
where you want, when you want.

**Auckland
Transport**



An Auckland Council Organisation

