

Using Data Science for Active Transport Benefits Tracking and Investment Decisioning

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Cities & Active Transport

14th November 2022



transport.nsw.gov.au

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Agenda

- About Active Transport
- Data & Analytics Roadmap
- Questions being addressed
 - Q1: How are benefits being tracked?
 - Q2: How many people are walking and cycling?
 - Q3: How much benefit does walking and cycling generate?
 - Q4: What the customers are saying?
 - Q5: How is portfolio performing?
 - Q6: Where should we build the next cycling infrastructure?
- Summary



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About Active Transport

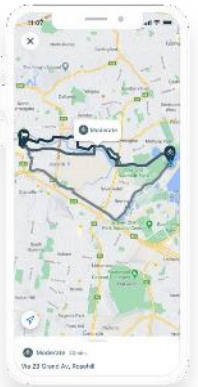
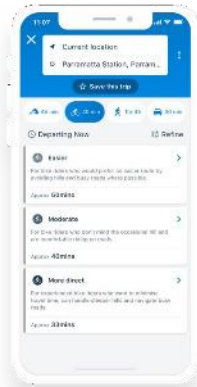
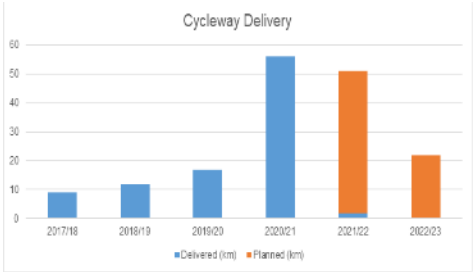


Vision

More people bike riding and walking in NSW

Purpose

The creation of viable transport modes as an integral part of the NSW transport system to encourage mode shift by giving customers greater choice.



Key Stand Alone Active Transport Projects



Sydney Harbour Bridge Ramp, North Sydney



Sutherland to Cronulla Active Transport Link (SCATL)



Pop-up to Permanent

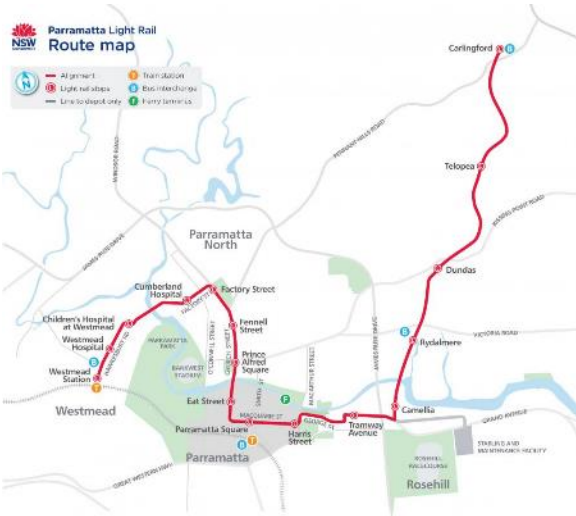
Active Transport Projects linked to Major Infrastructure

30+ projects are delivering Active Transport infrastructure across:

- Metro Projects
- Road Upgrades
- Motorways projects

Key Projects include:

Parramatta Light Rail



WestConnex (St. Peters Interchange pictured below)



M12 Motorway

Projects funded through Stimulus:

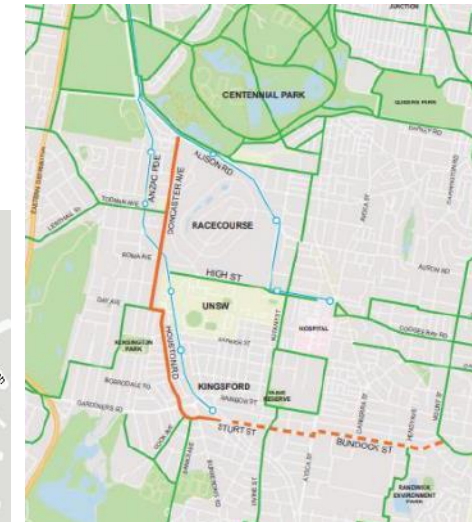
Federal Road Safety Program:

1. King St, CBD Cycleway
2. Various initiatives to improve road safety, including traffic signal upgrades, safety fencing and barrier systems as well as new cycleways



Pinch Point Stimulus Program

1. Corridor Upgrades – Oxford Street (Bondi Junction)
2. Corridor Optimisation and Cycleway – Centennial Park to Kingsford via Doncaster Avenue



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Data & Analytics Roadmap







Active Transport Data & Analytics Roadmap







Stage 1 Establish FY22

Establish Technology Platforms & Data Management/Governance

-  **Collaboration & Alignment:** Broader stakeholder engagement, collaboration & communication plan
-  **Review & Streamline:** Deployment of Salesforce Grants, Jira Align and other data management tools & processes
-  **Audit and Review:** Review and consolidate TfNSW data, develop data requirements, schema designs and deploy data platforms
-  **Investigate & Pilot:** Assess and decide on technology, sensors and platforms to pilot

Stage 2 Operationalise FY23

Technology Rollout, Bi-Directional Information Flow & Automation

-  **Supporting Network Use:** Change management & broad communication plan execution
-  **Automation:** Automated data processing to remove manual intervention and improve data quality
-  **Bi-Directional Information:** Growth of usage and customer journey data supported by bi-directional network and sensor data sharing with councils and customers via open data platforms
-  **Technology Rollout:** Based on pilots, progressively rollout select technology across the state using cloud infrastructure


Stage 3 Enhance FY24++

Advanced Insights, Business System & Digital Twin Integration

-  **Advanced Capability Development:** Stakeholder collaboration to support knowledge sharing, innovate and support capability development
-  **Advanced Insights:** Expand capabilities and knowledge-sharing in predictive and prescriptive analytics and crowdsourced data
-  **Digital Twin:** Smart Network solutions serving as the digital counterpart of the physical assets focusing on real-world functional utilisation with human-centric capabilities
-  **Business System Integration:** Seamless integration with the core Enterprise GIS with new insights and using business data to support potential Digital Twin

● People ● Process ● Data ● Technology

 Planning, design & portfolio management

 Investment decision support

 Open-source sharing of information

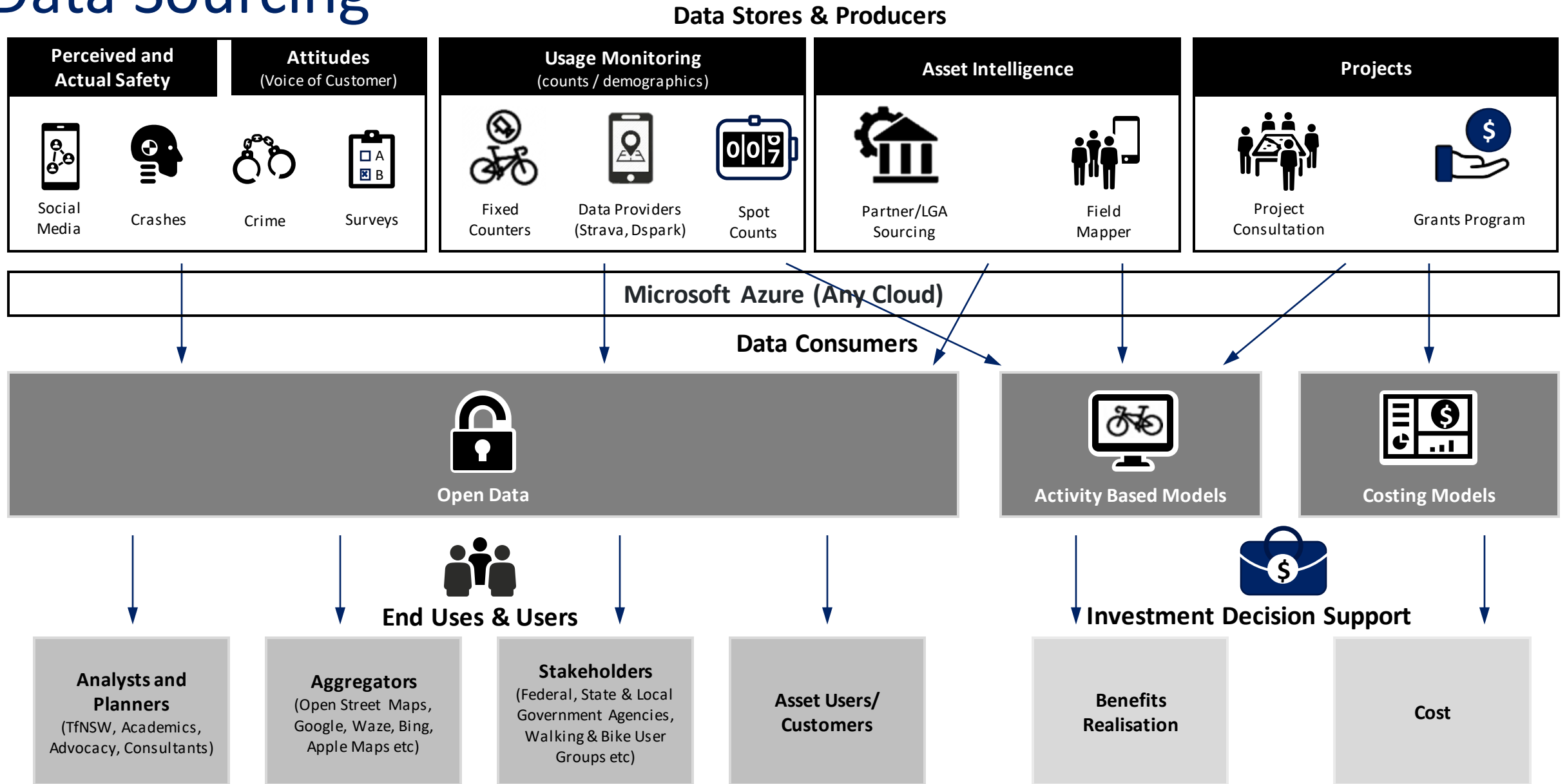
 Customer experience

The Roadmap will be delivered in three stages

The action plan focuses on people, process, data & technology

Outcomes are progressively delivered over time

Data Sourcing



Active Transport Value Streams

*Walking, Cycling and End-of-Trip Facilities deliver infrastructure.
The other six points are enablers.*

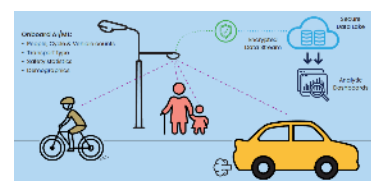
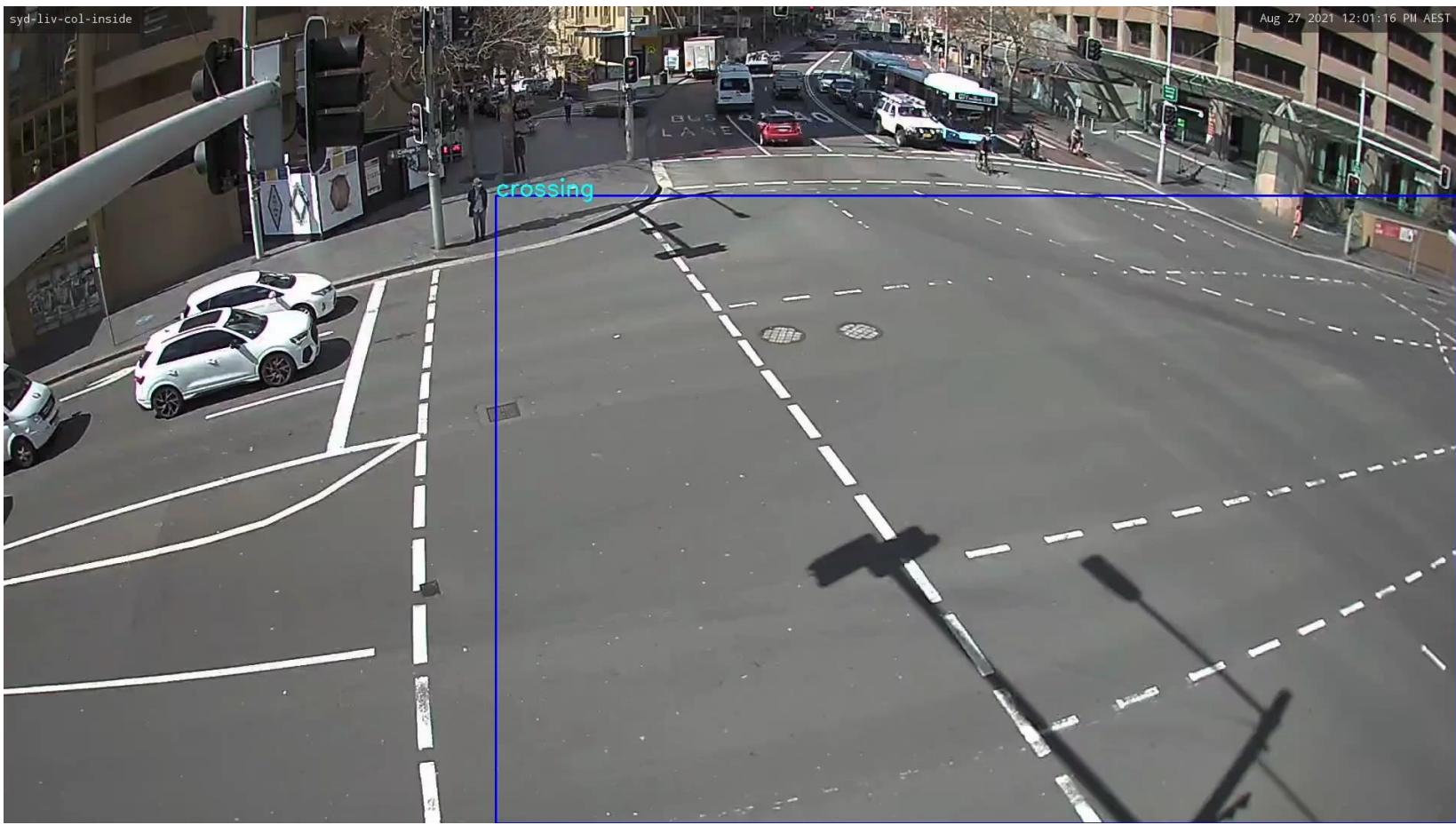
	Metrics
1 Walking: <i>Deliver Footpaths and Pedestrian Walkways</i>	Footpath Kms
2 Cycling: <i>Deliver Cycleways and Recreational Paths/Trails</i>	Cycleways Kms Recreational Kms
3 End-of-Trip Facilities: <i>Deliver primarily secure and convenient Bike Parking on safe cycling routes</i>	Capacity vs Availability
4 Micromobility: <i>Enable growing use of e-bikes, e-scooters and microfreight</i>	e-bike, e-scooter and microfreight Counts
5 Schools: <i>Promote Active Transport to Schools</i>	Walking & Cycling Counts Footpath & Cycleways Kms
6 Change and Communications: <i>Deliver Behaviour Change Programs and communications to all stakeholders</i>	Walking & Cycling Counts Customer Sentiment Index
7 Maintenance: <i>Support all Active Transport Infrastructure</i>	Complaints Maintenance Spend & Counts
8 Portfolio Management: <i>Support Portfolio Definition and Portfolio Delivery</i>	Portfolio Visibility Jobs, Health & Sustainability
9 Data & Analytics: <i>Support Technology Deployment, Benefits Tracking and Investment Decisioning</i>	Sensors Installed # of Metrics Delivered

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Questions being answered

Q1: How are benefits being tracked?

Solution Camera with IoT Device

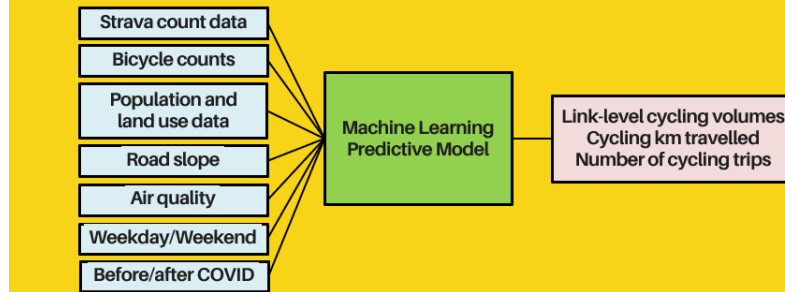


Q2: How many people are walking and cycling?

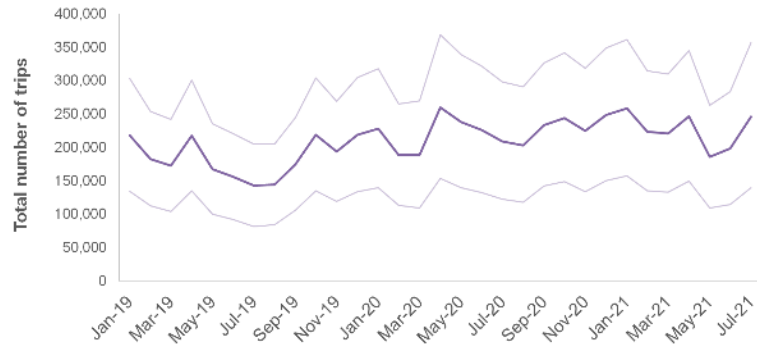
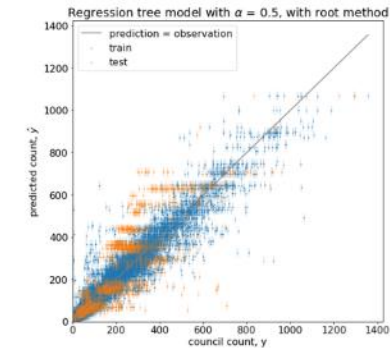
Solution

Walking & cycling volume prediction model using Strava & DSpark

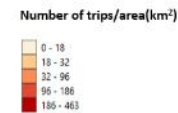
Cycling volume prediction model



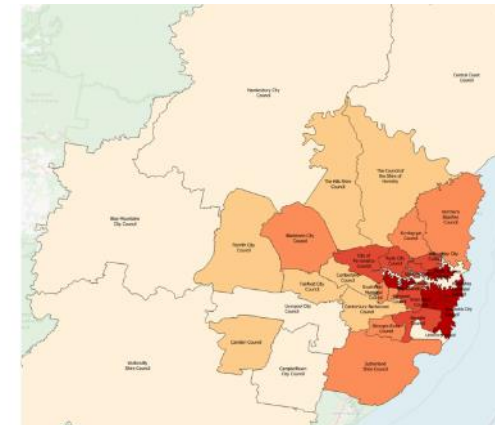
Predicted vs. observed cycling counts



Total number of trips per area

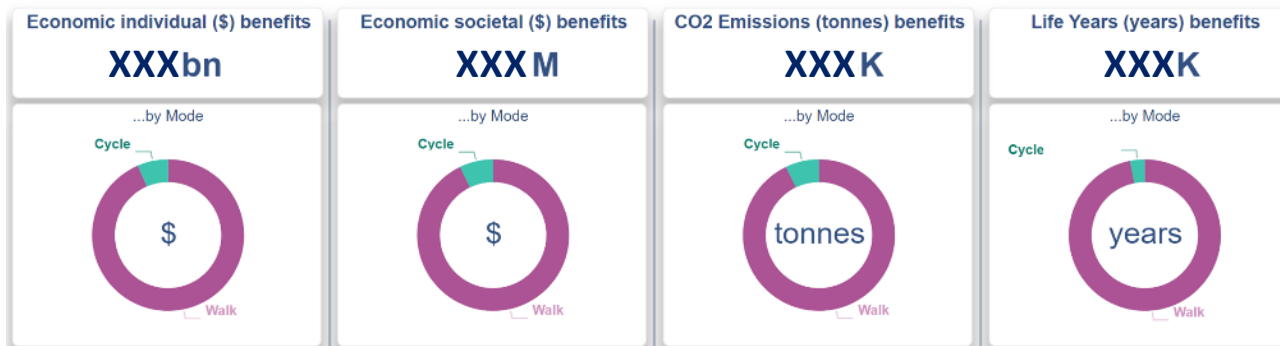
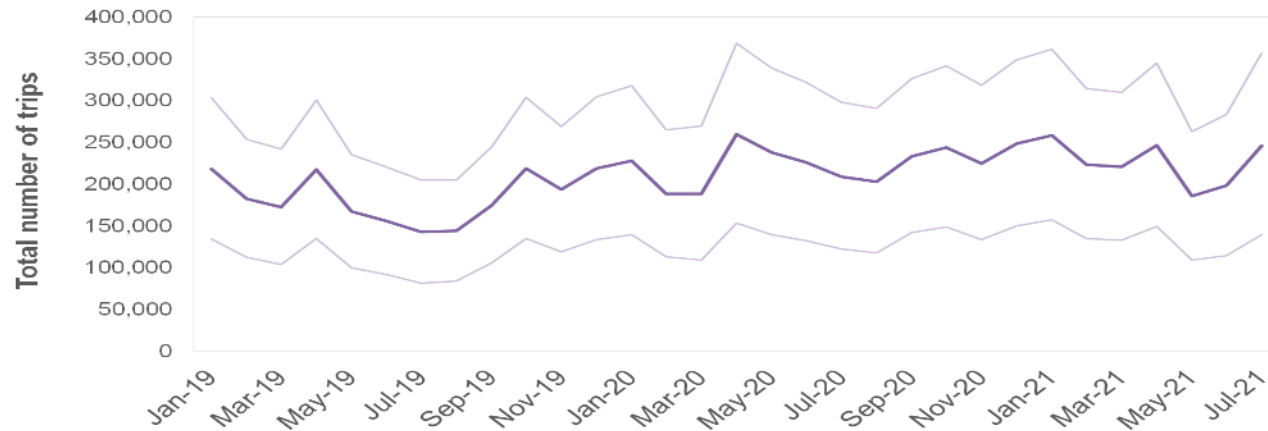


Note: Average cycling trip travel distance is assumed 4.7 km.



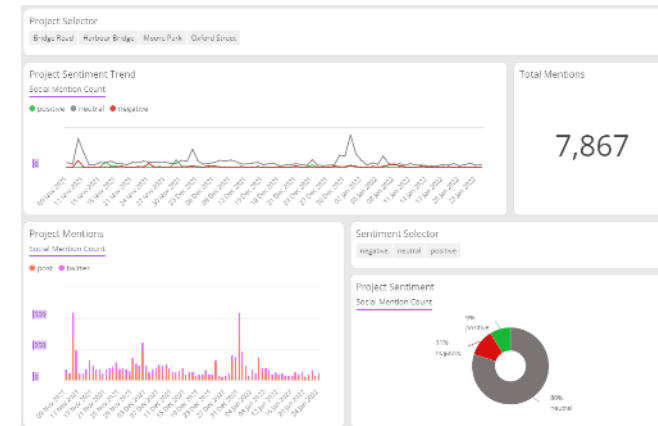
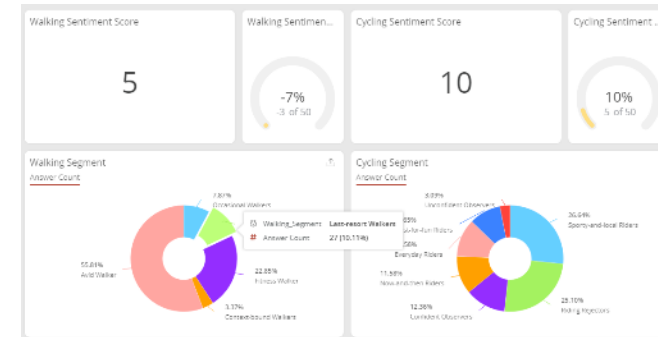
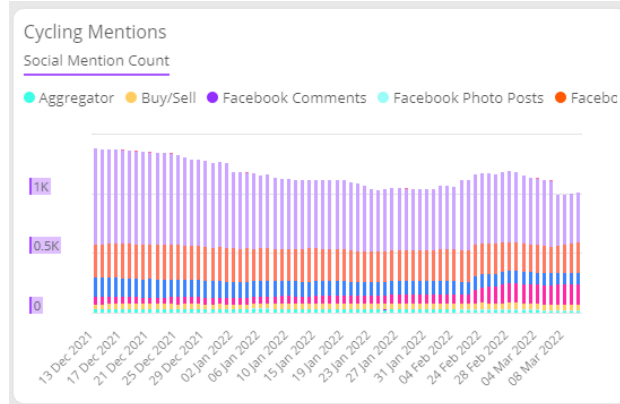
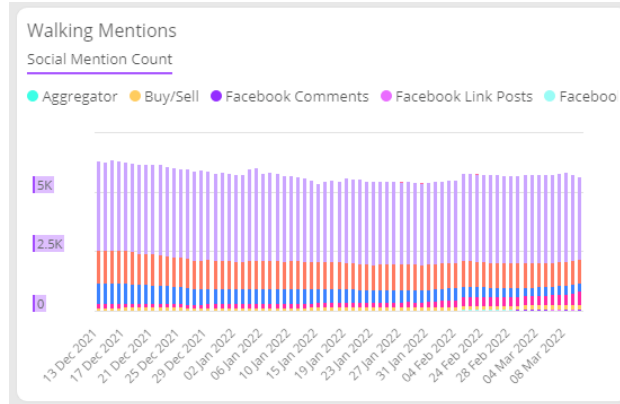
Q3: How much benefit does walking and cycling generate?

Solution
Convert distance travelled to \$ benefits, CO2 savings & lives saved



Q4: What are customers saying?

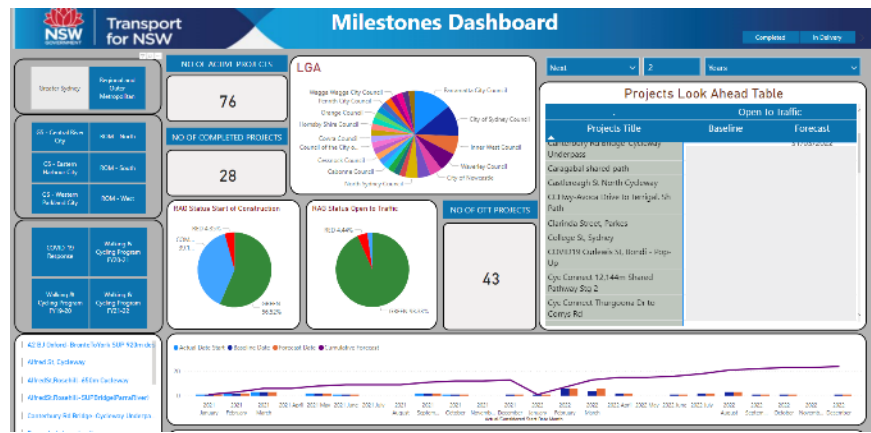
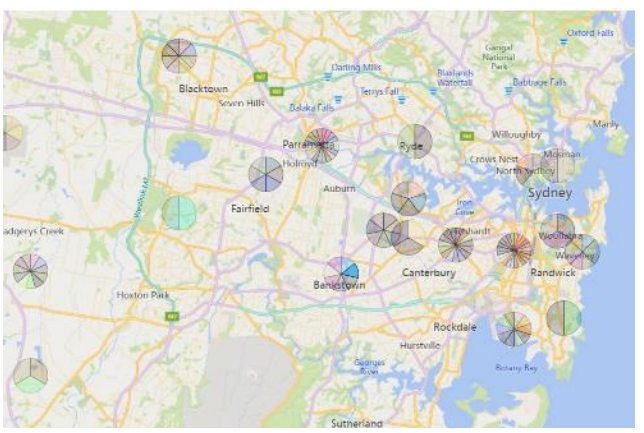
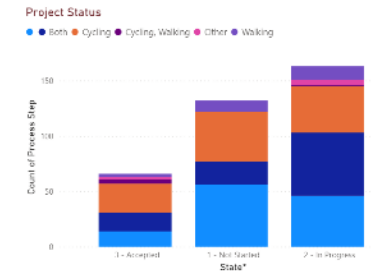
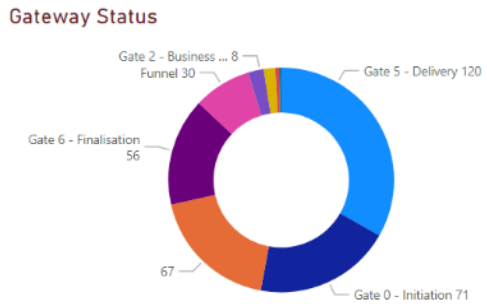
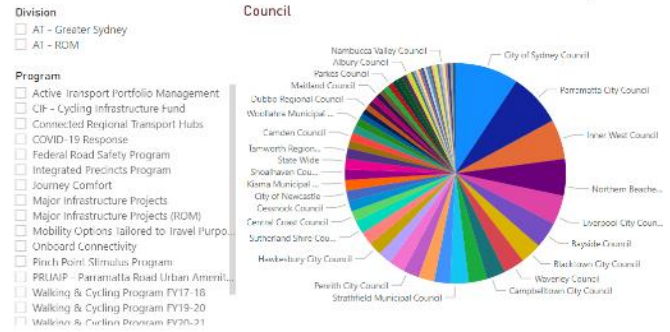
Solution Salesforce Voice of Customer



Q5: How is the portfolio performing?

Solution

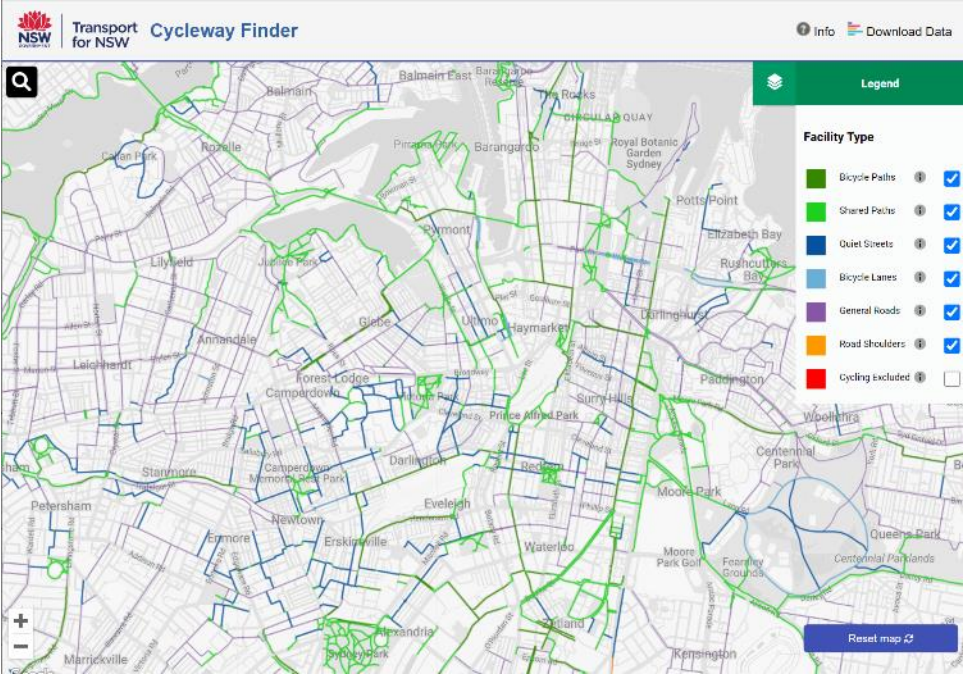
Single view of Active Transport portfolio



Q6: Where should we build the next cycling infrastructure?

Solution Mapping cycleways to identify gaps

Online Maps for Citizens

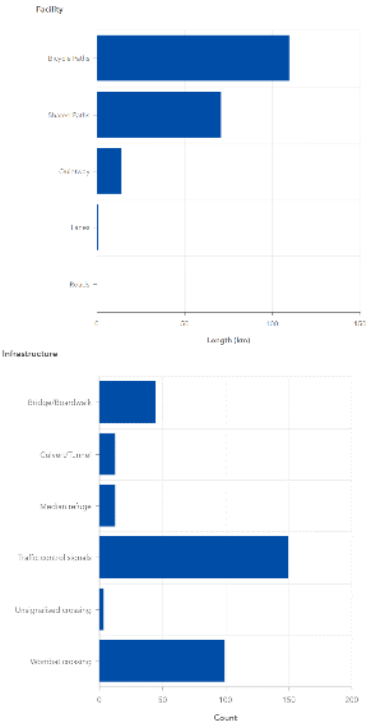
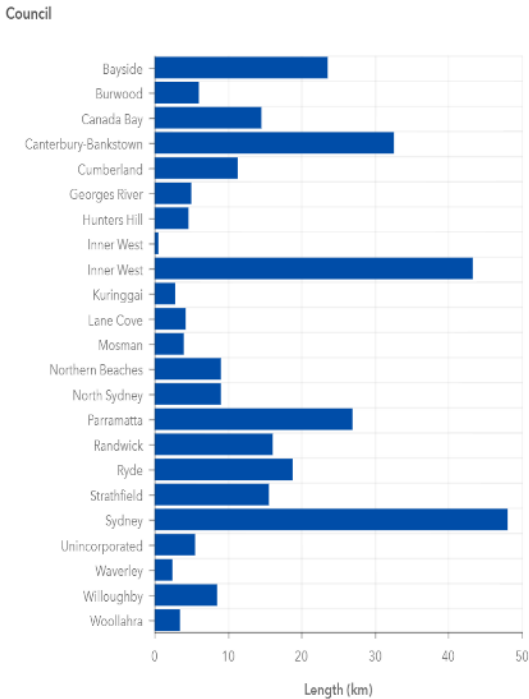


<https://www.transport.nsw.gov.au/cycleway-finder>

Open Data for Trip Apps & Researchers



Metrics for Transport to Track Facility Types/Locations/Etc



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Summary



- Collaborate with internal teams, universities and other organizations - share our learnings and learn from them
- Explore the art of possibility
- Innovate