

LGOIMA - People, vehicle counts and monitoring software at CCC

	Purpose	How	Software, Hardware & Vendor Partners
Libraries foot count	Christchurch City Libraries use an RFID system to manage the circulation and security of items within a library building, also useful for reporting on usage and most popular days and times.	The system counts foot traffic at the entrance to a library. As people pass through the security gate an infrared beam is broken and counts one person passing through. If the gate is bi-directional then the overall count is divided by two to get the average count of foot traffic into the library. Not all libraries have security gates installed – at some of the smaller libraries the entrance would be constrained by their presence so they have not been installed. The foot count data forms part of the annual statistics for the library service and is used for planning purposes.	RFID system - The vendor is Fe Technologies and the software is Smart Library.
Art Gallery Foot Count	The counts are used to track engagement with exhibitions and visitor counts to the art gallery.	The Christchurch Art Gallery uses a system to count foot traffic into the art gallery and exhibition halls that counts the number of people using a camera system that registers people via thermal imaging.	The product is Bellworthy.
Street Foot Count	Experimental/trial to show pedestrian traffic patterns useful for designing of our streets, WiFi, urban design.	We have pedestrian counting at 10 spots around the CBD, the method we use can identify if a pedestrian is in frame, how long they are in frame and entry/exit points but we don't identify who that person is (e.g. name, gender, demographic etc.). The automated counting is done by using existing camera feeds and analysed through the preferred software of the project delivery partner. VIP Security have an existing contract to install, service & maintain integrated solutions revolving around swipe cards, IP cameras and intruder alarms – all linked into the whole of council network. VIP security purchased the software Briefcam video analytic software in order to obtain information from traffic cameras. The software has been configured with a number of parameters that allows it to identify and count shapes. The "Gehl study" time parameters (10 minutes	VIP Security is the preferred project delivery partner because they are the supplier for electronic security, surveillance and intrusion for Council since 2005.

		<p>monitored and then extrapolated out to give a per hour figure) is used to get an estimated hourly rate of pedestrian count in the areas being monitored.</p> <p>We are about to move on to the second phase of the pedestrian counting trial, where we will get real-time data from the cameras. We are currently working with Jade software for the video analytics software that will provide us data in real-time from the same cameras.</p> <p>All of the counting is done anonymously and the data from the software contain no identifiable details. Sample data is available here: <a href="https://smartchristchurch.org.nz/project/pedestrian-counting-trial/">https://smartchristchurch.org.nz/project/pedestrian-counting-trial/</a> and the graphically representation is available here: <a href="#">pedestrian count</a></p>	
Parking bay sensors	Trial	We are trialling parking sensors which can detect when a vehicle is in a parking bay but there is no way to determine the license plate, colour, make/model etc.	The vendor is Parkable
CTOC & Transport Traffic Counts	Monitor busy intersections for traffic control and help to inform intersection changes	Pneumatic tube traffic counters: includes one or more pneumatic tubes installed on roads. The detectors attached to the tube detect and record the number, type and speed of vehicles crossing over the tube. These tubes are usually installed on a road for a whole week. This type of detectors are also used by NZTA on several permanent locations along the state highway network.	The current contractor for this type of counts is Agfirst.
		Camera traffic counters: includes usually one traffic camera installed at selected intersections for a day. The camera records a video of traffic movements then an automatic digital image processing technology detects the number and type of turning traffic at the intersection.	The current contractor for this type of counts is Agfirst.

		Induction loop traffic detectors: These detectors are part of the traffic signal operations system. These loop counters permanently and continuously detect and communicate the number and density of vehicles on different approaches to all of the signalised intersections and cycle and pedestrian crossings.	These loops are installed and operated by CTOC and their contractors.
		Induction loop/Infra-red detectors for pedestrian/cycle counts: These automated counters either as induction loop only or as a combination of both are used to count and differentiate between pedestrian and cyclists.	These detectors are operated and maintained by CCC staff.
		Bluetooth detectors: These automated detectors detect identifiable Bluetooth devices at certain locations on the network and calculate vehicle travel times using the distance and time difference between the consecutive detections of the same device. The outputs are anonymised travel time data.	These detectors are operated by CTOC.
		Rental e-Scooter data: These data are recorded on the rental e-scooters and reported to the CCC by the operators. The data feed is anonymised and includes, time, location, duration and path of every trip made by the devices. The operators, however, have access to a higher level of details re users.	e-scooter operators
		Google GPS travel time data: This technology uses GPS data related to individual smart phones. The data are stored on the Google servers, anonymised, processed and made available to NZTA and subsequently CCC. NZTA has a contract with Google and gets the data. NZTA has provided access to the data for us through platforms that they've set up in their servers. We don't get non-processed data.	NZTA
		Cellular mobile phone data: This technology uses the approximate location of individual mobile phones on the network and used for identification of distribution of trip-origin destinations over the network. This type of data are provided by mobile phone operators as anonymised records to some data analytic third parties where the data is processed. CCC is <i>not</i> currently using this type of data. There is potential for	Spark

		transport modelling but there are no use-cases known at this stage for CCC.	
Parks Visitor Centres, Mountain Bike Tracks, Walking Tracks, Parks, Wharves & Jetties	The Parks Unit uses targeted visitor and vehicle counters to determine usage patterns and to help inform planning, and where to direct operational and capital expenditure.	<p>TRAFx (People) - This counter detects and counts people. It continually monitors the amount of infrared energy within its field of view and when there is a significant change from the ambient amount, it records a count.</p> <p>TRAFx (Vehicles and Mountain Bikes) - Featuring an aerospace-quality magnetometer, this counter detects moving objects that have ferrous metal content (e.g., vehicles). In essence, it's a sophisticated metal detector.</p>	The Parks Unit uses three different systems: QTech, TRAFx and Bellwether. These detectors are operated and maintained by CCC staff.
Botanic Gardens – Gates, conservatory & Fernery Building Mona Vale Gardens	Report on visitor numbers	Counts foot traffic by people walking past.	QTech: Battery powered counters
Botanic Gardens Visitor Centre	Report on visitor numbers	Electric powered camera. Gives very accurate numbers - if someone keeps going in and out of the doors, it recognises that and doesn't count more people. Data collected is only the count depicted on a graph.	Bellwether
Urban Parks and Regional Parks	Report on visitor numbers	Counts foot traffic by people walking past . Prepares hourly, daily, weekly, monthly and yearly graphs	TRAFx: Battery Powered counters