

A Disaster Waste Management Planning Tool for NZ

Andrew Flaws, T+T



Background

- Project Owners
 - Bay of Plenty Regional Council
 - Waikato Regional Council
 - Environment Canterbury
 - MCDEM
- Pilot Region - BOP



The Problem

- Ad hoc approach to disaster waste planning
- Every event requires a different approach
- Different waste-streams generated by different events
- No national guidelines on how to deal with disaster waste



The Template

- Adapted from a South Australian model by Rawtec
- Guides user through decision stages
- Provides methods for waste calculation
- Includes community input
- GIS tool intended to support the document

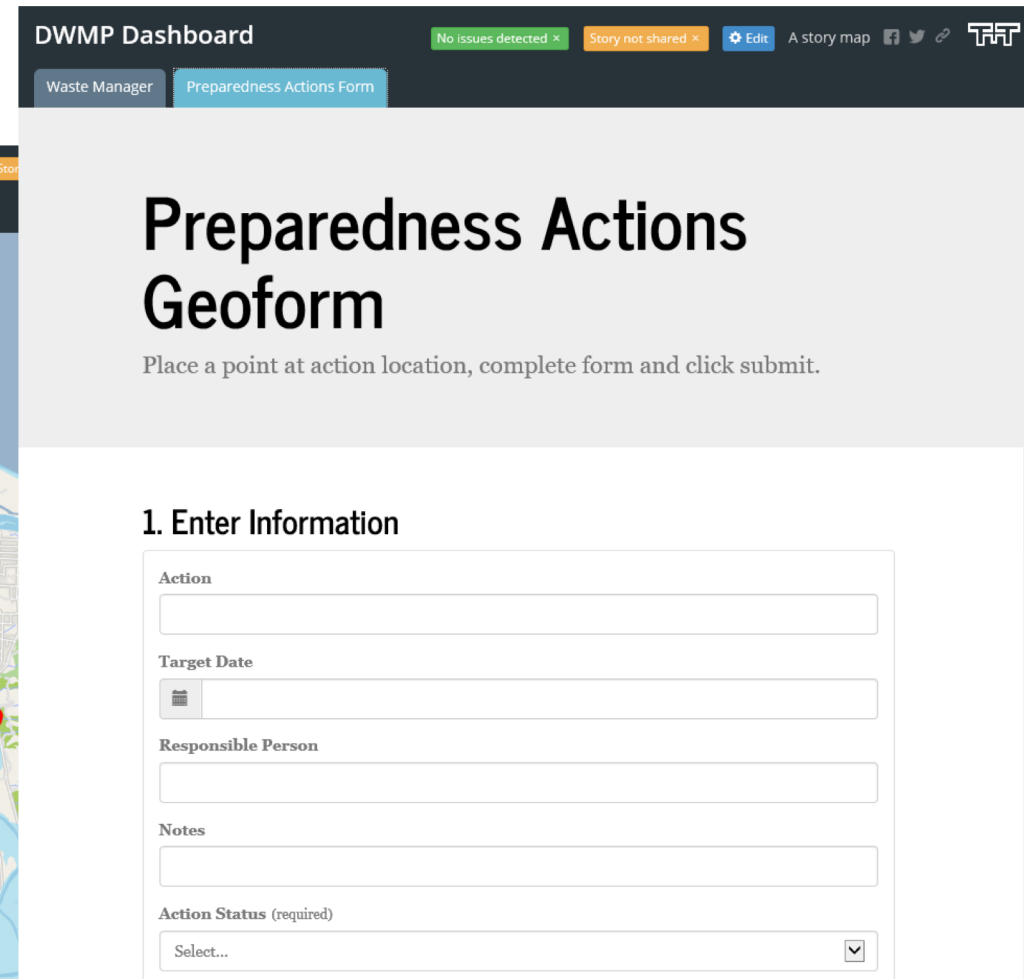
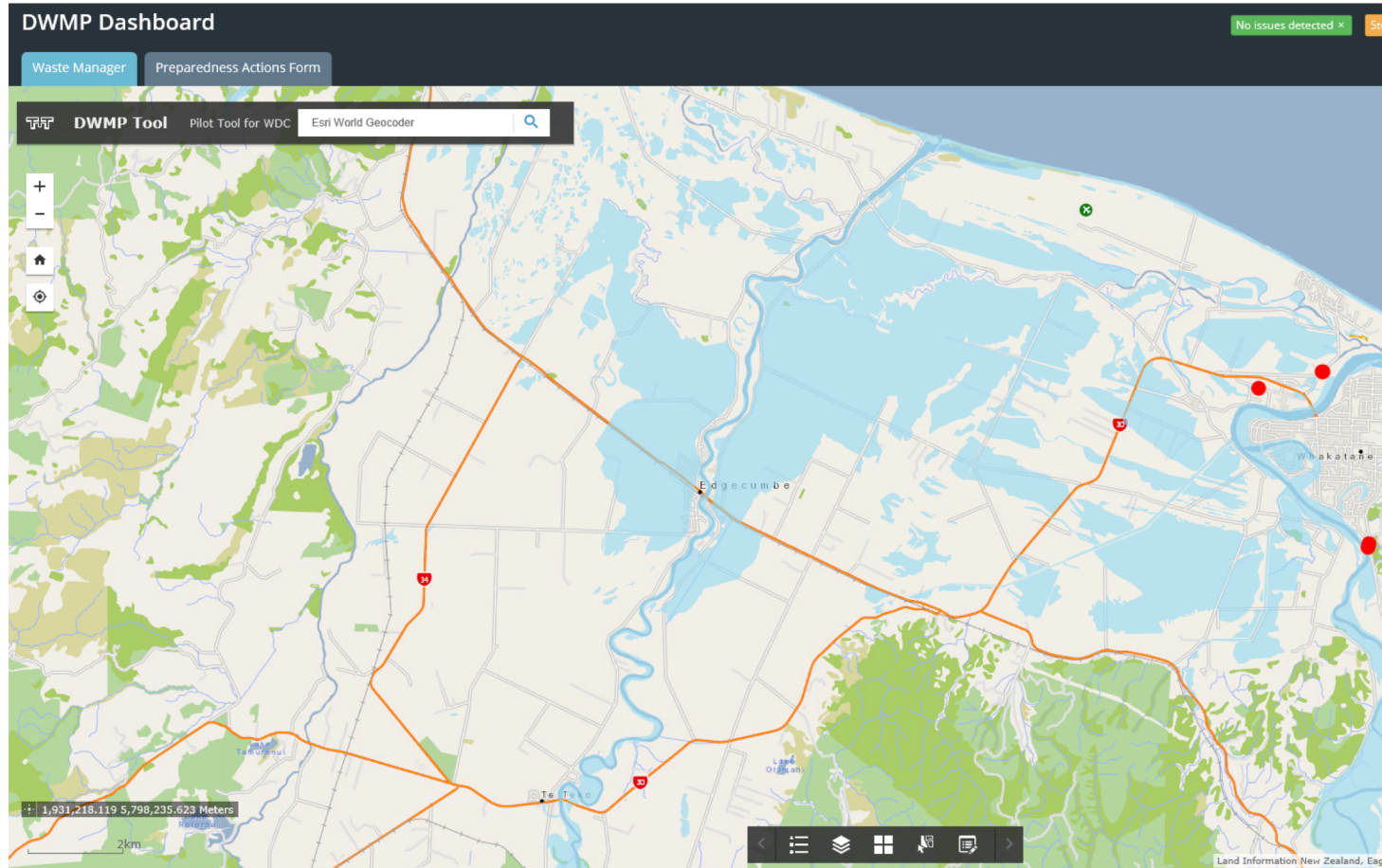
Typical sources	Waste stream	Relative waste volumes		
		Earthquake	Flood	Volcanic eruption
Damaged buildings and other structures	Asbestos containing material	H	L-M	L-M
	Construction and demolition inert waste (bricks, concrete, rubble, etc.)	H	L-M	L-H
	Mixed waste	H	L-M	L-H
	Metal	M	L	M
	Bulky waste (including furniture, carpets, etc.)	M-H	M-H	M-H
	E-waste and whitegoods	L-M	L-M	L-M
	Household hazardous waste	L-M	L-M	L-M
Damaged and/or displaced vehicles	Vehicle waste	L-M	L-M	L-M
Fallen trees and/or other damaged vegetation	Green (vegetative) waste	L	L-M	L
Displaced soil and sediment	Soil and sediment waste, including liquefaction from earthquakes	L-H	M-H	L-M
Ash from volcanic eruption	Ash and volcanic debris	-	-	M-L
Spoiled perishable food from supermarkets, restaurants and households	Food waste	L-M	L-M	L-M
Agricultural properties	Copper chrome arsenate posts	L-M	L-M	L-M
	Agriculture (including greenhouse) waste	L-M	L-M	L-M
	Animal carcass waste	L-M	L-M	H
	Fencing wire	L-M	L-M	L-M
	Chemical (hazardous) waste	L-M	L-M	L-M

Pilot Group

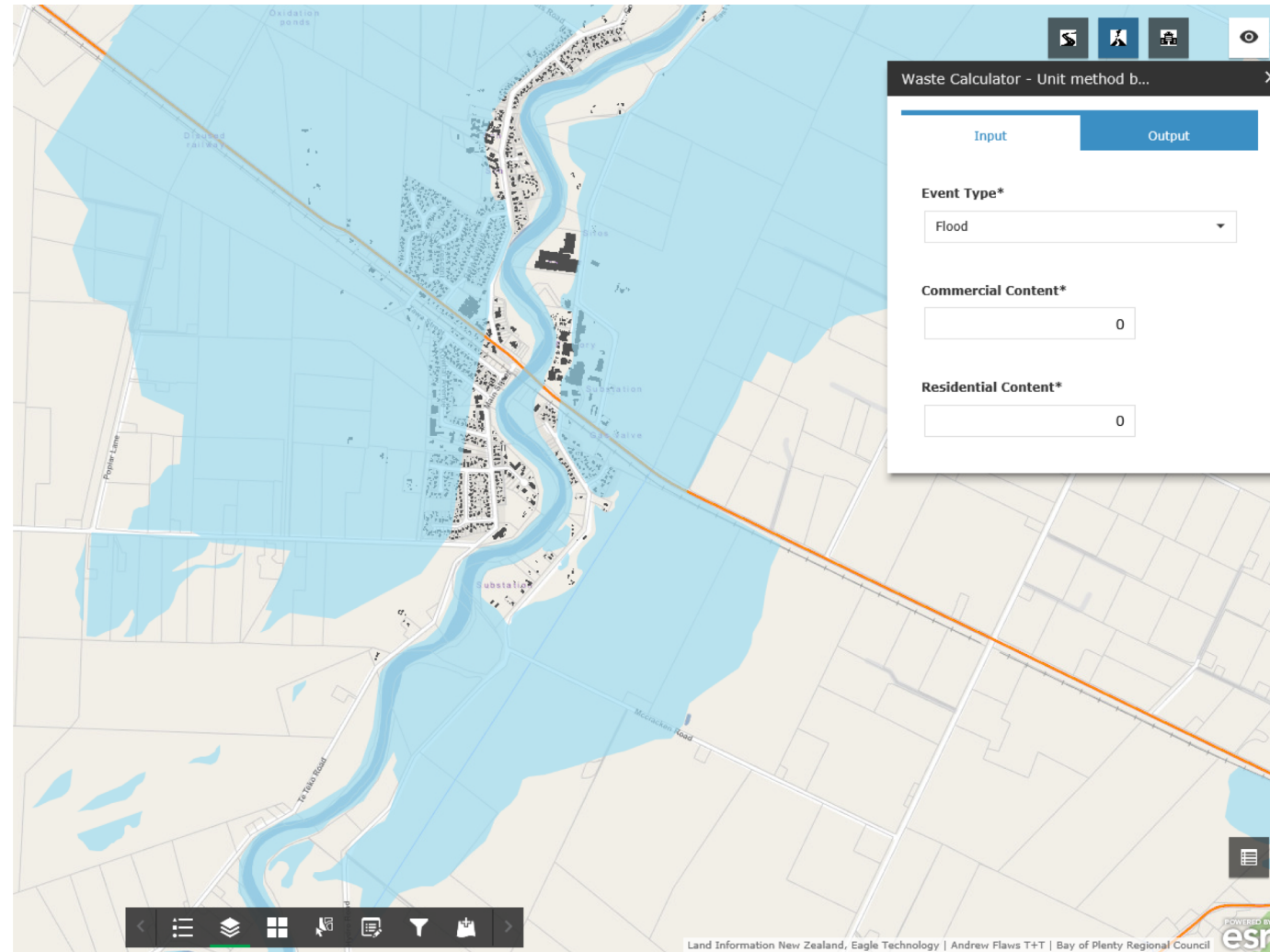
- Pilot group comprising regional/district councils, MCDEM, Rawtec, T+T
- Aim:
 - Identify scenarios to model
 - Identify likely waste-streams
 - Provide expertise from historic events
 - Identify community concerns
 - Work through the template and provide feedback



The Web-based GIS Tool



Waste Calculator Widget



Waste Station Locator Widget



The screenshot displays the DWMP Tool interface, which includes a map of the Bay of Plenty region in New Zealand. The map shows various geographical features, including Lake Taupo, Lake Taikāpōroa, and Lake Taupō. A 'Find Nearest Waste Station' widget is open on the right side of the map, allowing users to input a waste source and find the nearest waste station. The widget has two tabs: 'Input' and 'Output'. The 'Input' tab is active, and it contains the following fields:

- Waste Source*:** A dropdown menu with a red trash can icon.
- Waste Station*:** A dropdown menu with the text 'Waste Station' and a red trash can icon.
- Measurement Units*:** A dropdown menu with the text 'Minutes'.

The map also features a 'Layer List' on the left side, which includes the following layers:

- Waste Station
- Address Point
- HAIL Sites
- Bridge
- Mill Waste
- Preparedness Actions
- Disaster Extent - User Edit
- Historic Floods
- Ash Extent - 3-5mm
- Building Footprints
- Liquefaction - WBOP DC

The map also shows a search bar at the top with the text 'Esri World Geocoder' and a search icon. The bottom of the map displays the coordinates '1,934,971.964 5,780,609.512 Meters' and a scale bar for 4km. The bottom right corner of the map includes the text 'Land Information New Zealand, Eagle Technology | Andrew Flaws T+T | Bay of Plenty Regional Council' and the Esri logo.

Forms and Mobile Data Capture

esri NZDWMP Planning Tool

Purpose:

The purpose of this task is to:

- Create a database of key partnerships and stakeholders
- Identify gaps in information (such as missing contact details)
- Consider the purpose of the relationship and identify what information and resources may be provided by/to the stakeholder to facilitate effective disaster waste management
- Consider how to best engage with the stakeholders (such as what method/forum)

Instructions

Use Worksheet 6 to create the database.
List each stakeholder on a separate line.
For each stakeholder, populate information into columns.

2. Select Location

Specify the location for this entry by clicking/tapping the map or by using one of the following options.

Search Lat/Lon

Find address or place



3. Complete Form

Add this information to the map.

Sharing and Deployment

- Determine host organisation
- AGOL?
- Portal to AGOL collaboration?
- Download and share app code with other organisations
- Or, build from scratch within new organisation?
- Access and authentication, Project Orbit?

Summary

- GIS tool invaluable for calculating waste and,
- Assessing environmental and cultural limitations
- A web platform makes for better sharing and flexibility
- Great potential for continued improvement

