

Developing a Joint Resilience Framework

National Lifelines
Forum

5 November 2014

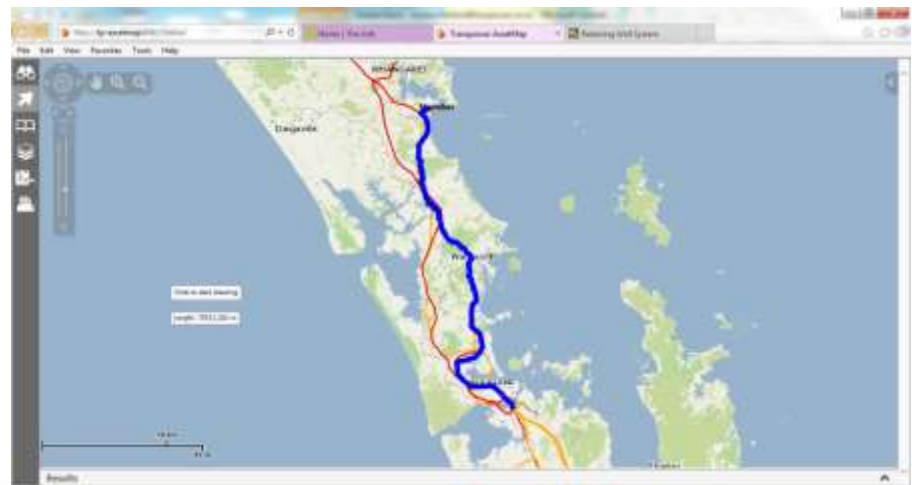
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Engineer



Outline

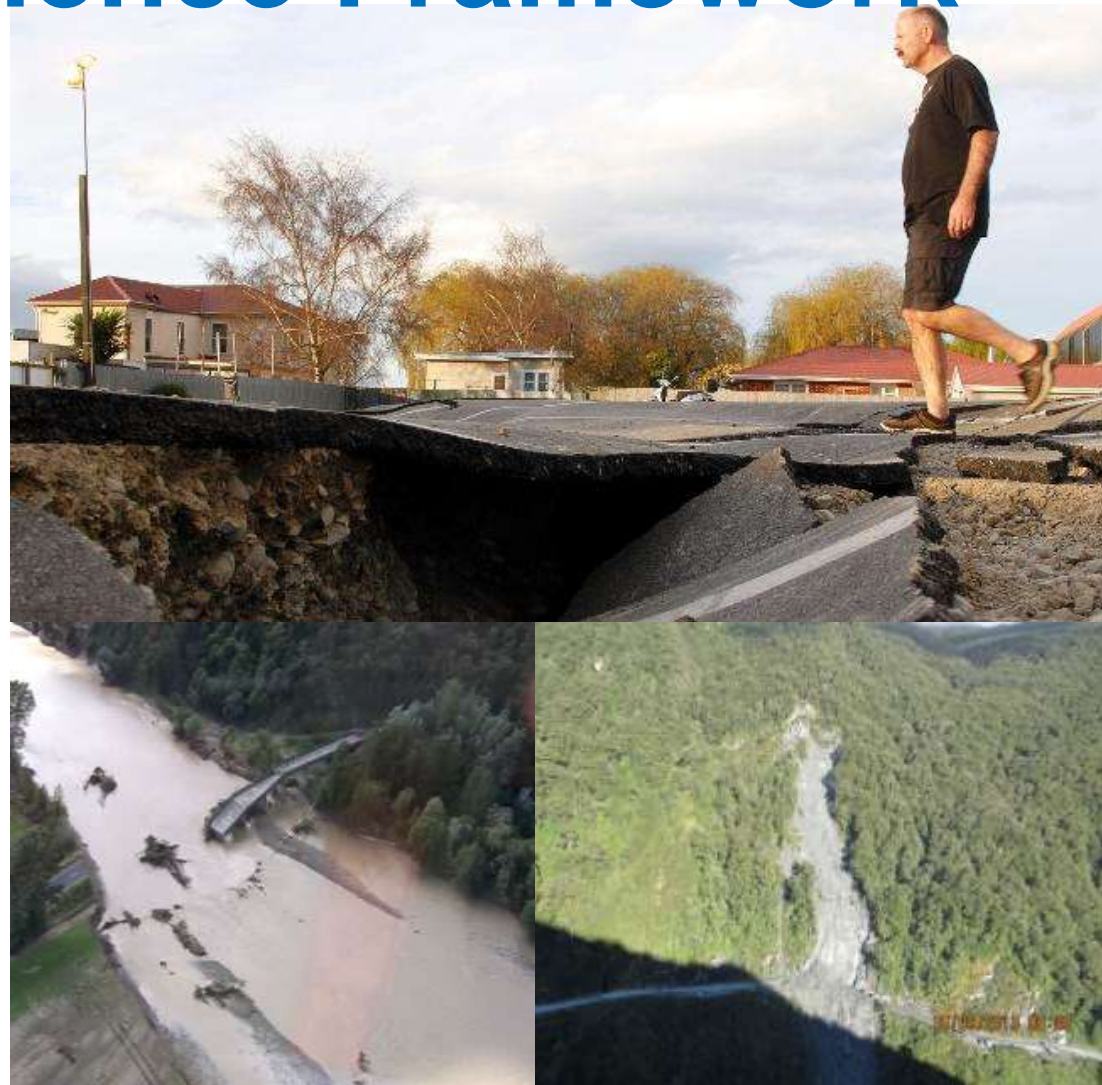
- **Why have a resilience framework**
- **Why work together**
- **What did we do**
- **What did we find**
- **What are we doing now**

Why a Resilience Framework



Why a Resilience Framework

- Interdependencies
- Customers/Community expectations
- Political
- Governance



Strategic drivers

- **Interdependencies**
 - Improved lifeline utilities coordination required – facilitates ‘whole of infrastructure’ approach
 - joint action opportunities, surfacing assumptions, understanding upstream and downstream failure impacts
- **Customers expectations**
 - Sufficient system flexibility to maintain services when things go wrong
 - Network/infrastructure providers prepared and coordinated
- **Political**
 - Galvanised political will to address national infrastructure resilience post national and international disasters (Christchurch; Japan) Japan’s ‘lessons learned’ challenge the parameters of traditional approaches
- **Governance**
 - Mechanism to define risk and financial appetite and implications of residual risks for customers and assets are visible and accepted within a consistent framework
 - Consistency in resilience approach at governance level

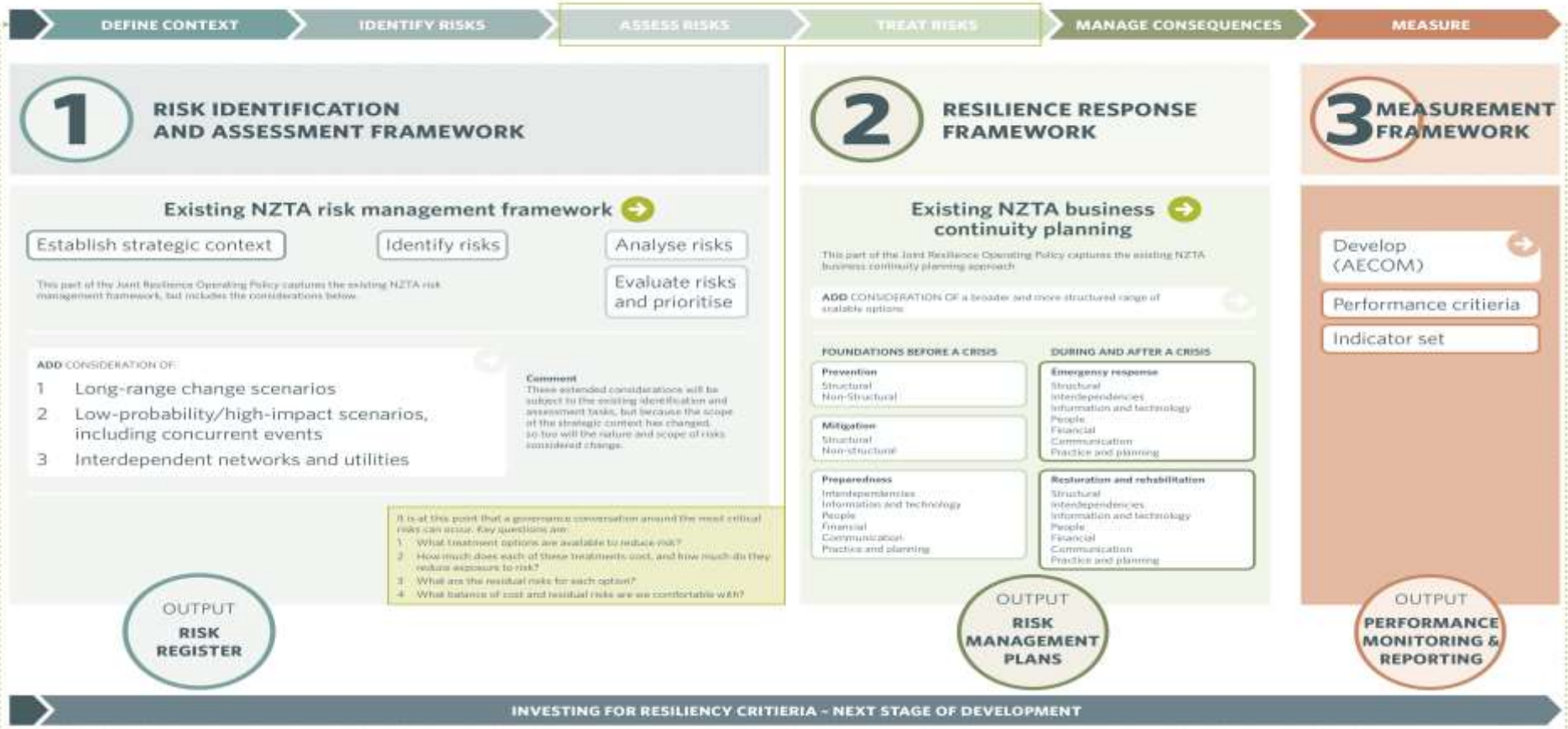
Four components

- **Resilience Risk identification and assessment framework**
 - Incorporating existing best practice ISO Risk Management Framework
 - Extending the range and type of risks considered
- **Resilience Response Framework**
 - Incorporating existing best practice ISO Business Continuity Planning Framework
 - Extending the range of structural and non-structural options to be considered
- **Resilience Measurement Framework**
 - Network based customer levels of service
 - Broad range of operational and organisational attributes measuring overall strength of resilience approach
- **Resilience Investment Criteria**
 - Ensuring investing for resilience in the short and longer term is given appropriate priority and visibility in the investment conversation with our Board and with partners

The Framework

Getting a common language & common approach

JOINT RESILIENCE OPERATING POLICY



Getting started

- **Transpower most developed**
 - Focus on post disaster lifeline responsibility
 - Link to Civil Defence Act and AS/NZS1170
- **Business Continuity Planning Exists**
 - Focus on redundancy, diversification, failing gracefully, response capability
- **Business Preparedness**
 - Spares, response practice (black start), advance agreements
- **Financial Ability**
 - Has regulatory investment approach, consideration of alternatives
 - VOLL @ NZ\$20k/MW/hr
- **Organisational Performance & System Design**
 - Transmission as a service,
 - Site criticality measures
 - Response and logistical support



Implementing the framework

- Customers expectations
- Defining customer levels of service
- Categorise asset criticality
- Develop clear national overview of critical infrastructure
- Fine tuning our investment tools
- Developing monitoring tools
- GIS mapping known risks on the State Highway network

→ <http://www.nzta.govt.nz/projects/road-efficiency-group/docs/customer-levels-of-service.pdf>

GSP Criticality			RMP Study				TNVA			Recommended priority groupings					
Site	GSP Ref	Category	Site	Rank	MP level (continued)	Stability risk	Station	TNVA Rank	TNVA Category	Station	MP level (continued)	TNVA Category	GSP Category	Final Category	
Addington	AD00111	Essential	Addington	185	0		Addington	232	4B	3	Severely 1 ⁺	3	3	Essential	1
Addington	AD00061	Essential	Albany	38	22B		Albany	609	1B	1	Severely 2	7A	4	Essential	1
Addington Roadhouse	AH40111	Standard	Albany	139	10		Albany	28	19B	5	Highways 1	16B	1	Standard	1
Albany	AL30031	Essential	Albany	127	12		Albany	108	9B	3	Highways 1	50A	4	Standard	1
Albany	AL31101	Essential	Albany	92	30		Albany	34	12C	4	Highways 1	50B	5	Important	1
Albany	AL31101	Standard	Albany	180	0		Albany	25	14C	5	Highways 1	11	5	Essential	1
Albany	AL30031	Standard	Albany	162	0		Albany	7	16B	5	Highways 1	120B	3	Important	1
Arthurs Pass	AP20111	Standard	Arthurs Pass	154	0.5		Arthurs Pass	790	11	1	Highways 1	64B	1	Essential	1
Arthurs Pass	AP20031	Standard	Arthurs Pass	34	10B		Arthurs Pass	27	14B	5	Highways 1	50C	3	Standard	1
Arthurs Pass	AP20061	Standard	Arthurs Pass	119	12		Arthurs Pass	14	17C	5	Highways 1	5.5	3	Essential	2
Arthurs Pass	AP20111	Important	Arthurs Pass	126	11		Arthurs Pass	303	8B	2	Highways 1	22B	5	Essential	2
Arthurs Pass	AP20101	Important	Arthurs Pass	167	0		Arthurs Pass	279	9A	3	Highways 1	39B	1	Important	2
Arthurs Pass	AT30111	Standard	Avermore	176	0		St Albans	90	12C	4	Highways 1	13B	2	Essential	2
Arthurs Pass	AL30031	Standard	St Albans	88	3		St Albans	9	17B	5	Central Park	21C	5	Important	2
St Albans	SA30101	Standard	St Albans	140	8		St Albans	517	2B	1	Highways 1	24B	4	Standard	2
Blackpoint	BP11101	Standard	Blackpoint	181	0		Blackpoint	33	14C	5	Highways 1	35B	5	Important	2
Blackpoint	BL30031	Standard	Blackpoint	171	0		Blackpoint	6	16B	5	Highways 1	26B	3	Essential	2
Blackpoint	BP30031	Standard	Blackpoint	198	20		Blackpoint	180	7B	3	Highways 1	100	2	Essential	2
Blackpoint	BP30111	Standard	Blackpoint	40	8B		Blackpoint	117	9B	3	Highways 1	22B	1	Essential	2

REG | THE ROAD EFFICIENCY GROUP

ONE NETWORK ROAD CLASSIFICATION

Road categories	Mobility	
	Level of availability	Resilience
National (High resilience)	The majority of road users experience consistent travel times with some exceptions in major urban centres.	Route is viable alternative if always available. Very rapid restoration of route affecting normal operating conditions. Road users are advised well in advance of issues affecting network performance and availability.
National	The majority of road users experience consistent travel times with some exceptions in urban heavy peak, holiday or during major events.	Route is always available during major weather or emergency events and viable alternatives exist. Rapid clearance of incidents affecting road users. Road users are generally advised in advance of issues and incidents.
Regional	The majority of road users experience consistent travel times with some exceptions in urban heavy peak, holiday, during major events or during severe weather events.	Route is always available except during major-weather or emergency events and viable alternatives nearly always exist. Rapid clearance of incidents affecting road users. Road users may be advised in advance of issues and incidents.

Resilience attributes

- **Service Delivery**
 - Focus on customer levels of service
- **Adaptation**
 - Focus on redundancy, diversification, failing gracefully, adaptive capacity
- **Community Preparedness**
 - Focus on broad preparedness base (communities and other infrastructure providers), practice and planning, advance agreements
- **Responsibility**
 - Focus on who is affected and who is responsible – cross-sector
- **Interdependencies**
 - Included in scenario planning, upstream and downstream impacts, surfacing of service assumptions, opportunities for shared action, co-funding, shared resources
- **Financial Strength**
 - Focus on appropriate investment signals for the short and longer term, exploiting opportunities for shared (novel) financial agreements
- **Continuous**
 - Focus on continuous monitoring, practice and planning
- **Organisational Performance**
 - Focus on broad measures for strength of resilience culture and focus (based on these attributes)



Thank you for your attention, Questions?

- **Contact Details**

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