Rio Dell City Hall
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cityofriodell.ca.gov

December 2, 2025

TO: Rio Dell City Council

FROM: Kyle Knopp, City Manager

SUBJECT: Discussion and Possible Action on Adding Parametric Earthquake Insurance Coverage

IT IS RECOMMENDED THAT THE CITY COUNCIL:

Authorize staff to add base level parametric earthquake insurance coverage; or,

Take to action.

BACKGROUND AND DISCUSSION

On August 28, 2025 the Board of Directors for Small Cities Organized Risk Effort (SCORE) received a presentation on the topic of Parametric Earthquake Insurance. SCORE is a Joint Powers Authority that administers the City's risk management. At the Request of SCORE, K2 Parametric Insurance Services was asked to produce a quote for seven jurisdictions. The presentation is attached and the quote would be an annual cost of $13,730 for a maximum coverage of $500,000. SCORE has requested that the City accept or decline coverage by December 19, 2025.

Parametric earthquake insurance represents a new approach to catastrophe coverage that differs fundamentally from traditional policies. Parametric insurance is a type of coverage that pays out a predetermined amount based on the intensity of a specific event, rather than on actual losses incurred. For earthquake coverage, the policy triggers payment when objectively measured earthquake parameters exceed predetermined thresholds, regardless of whether physical damage occurs or the extent of actual losses.

The mechanism operates through several key components. First, the policy establishes specific trigger parameters, typically earthquake magnitude as measured on the Richter or moment magnitude scale, and often includes geographic specifications such as epicenter location and distance from insured property. Some policies incorporate additional metrics like ground acceleration or peak ground velocity. The attached document provides two historical sample events, the 1992 Petrolia earthquake and the 2022 December Earthquake as examples.

When an earthquake occurs, independent seismic monitoring agencies such as the USGS automatically record the event parameters. If these measurements exceed the policy's predetermined thresholds, the insurer pays the agreed-upon amount within days or weeks, without requiring damage assessment, claims documentation, or proof of loss.

Parametric coverage offers several benefits. Speed of payment stands out as perhaps the most significant advantage, with funds typically available within 7-30 days after a qualifying event, compared to months or years for traditional claims. This rapid liquidity can help the city maintain operations and begin recovery immediately.

The structure provides transparency and certainty, as policyholders know exactly what events trigger payment and how much they will receive. Administrative efficiency is enhanced since there is no claims adjustment process, reducing overhead costs and eliminating disputes over coverage interpretation or loss valuation.

Additionally, parametric policies can fill coverage gaps left by the Federal Emergency Management Agency (FEMA) or where the California Disaster Assistance Act (CDAA) falls short. Recent examples include FEMA's complete absence following the December 2022 earthquakes and CDAA's lack of provisions Individual Assistance following the same event.

Despite its advantages, parametric coverage has inherent limitations. The most significant is when the triggering event happens but actual losses differ from the payout amount. An organization might suffer substantial damage from an earthquake that falls just below the trigger threshold, receiving no payment, or conversely might receive a payout when actual losses are minimal.

The City does not currently retain any earthquake insurance level.

Parametric insurance does not count against federal or state disaster relief formulas.

Attachments:

- K2 Parametric Insurance Services Presentation

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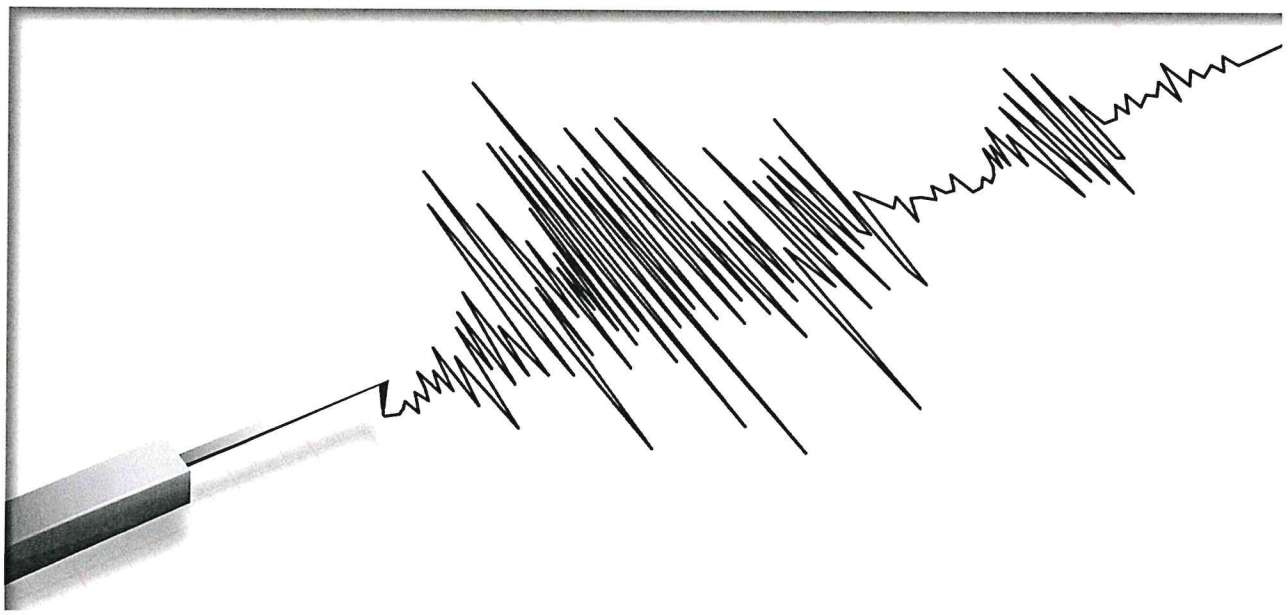
Parametric Earthquake Insurance



Presentation to SCORE Update

Nov 2025

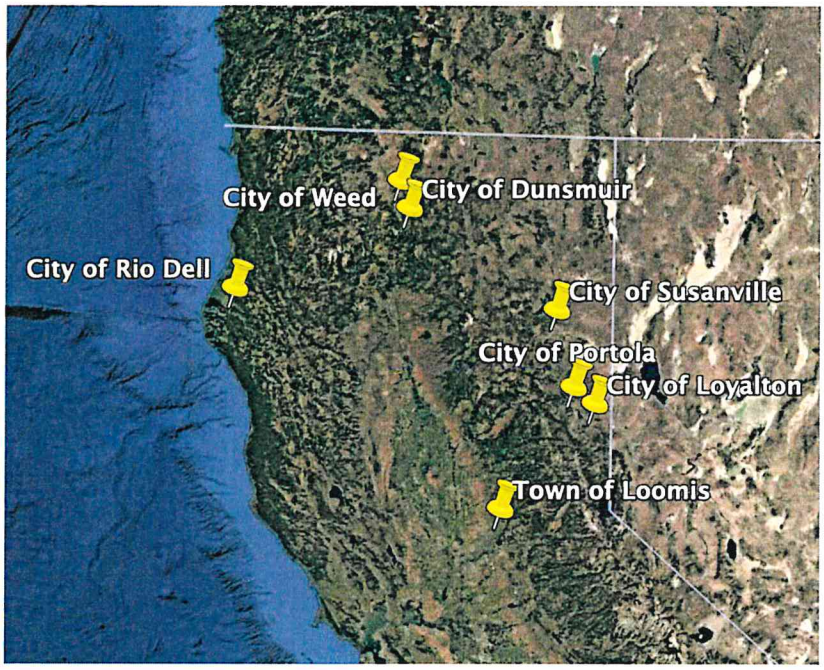
Contact
info@k2parametric.com

Follow
linkedin.com/company/k2-parametric

Member Limits

Member	Limit
City of Dunsmuir	500,000
Town of Loomis	500,000
City of Loyalton	500,000
City of Portola	500,000
City of Rio Dell	500,000
City of Susanville	500,000
City of Weed	500,000

Member Map



Individual members can customize ultimate limit selection.
Premium scales proportionally with limit selection.

Overall Pool Limit	2,000,000 (based on participation shown above)

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Payout Options

Payout Tables

Shaking Intensity*	Base Option Payouts (% of limit)	Light Option Payouts (% of limit)
<40	-	-
40	5%	-
45	10%	-
50	15%	5%
55	20%	10%
60	25%	15%
65	30%	20%
70	35%	25%
75	40%	30%
80	45%	35%
85	50%	40%
90	60%	45%
95	70%	50%
100	80%	60%
105	90%	70%
110	100%	80%
115	"	90%
120+	"	100%

** Shaking Intensity expressed as a percentage of gravity (%G) as reported by the USGS.*

Shaking intensity

Local shaking intensity is measured in G-Forces (percent of gravity). The higher the G-Forces, the more likely the infrastructure damage, lost revenue, etc.

The Payout Tables show percentage of location limit paid for each location's shaking intensity.

Each member will be allowed to elect the Payout Table that is appropriate for their need and budget.

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Pricing

Member	Limit	*Stand Alone Purchases* Base Option	*Stand Alone Purchases* Light Option	*Group Purchases* ***with 6-7 participants*** Base Option	*Group Purchases* ***with 6-7 participants*** Light Option
City of Dunsmuir	500,000	7,025	5,848	6,323	5,263
Town of Loomis	500,000	7,025	5,848	6,323	5,263
City of Loyalton	500,000	7,025	5,848	6,323	5,263
City of Portola	500,000	7,025	5,848	6,323	5,263
City of Rio Dell	500,000	13,730	11,429	12,357	10,286
City of Susanville	500,000	7,025	5,848	6,323	5,263
City of Weed	500,000	7,025	5,848	6,323	5,263

Annual Premium^ per member shown above.
Each member can choose Base Option or Light Option payout pattern.
Each member can choose different limit than shown above.
Member premium scales proportionally with limit.

Group Purchases:
A shared aggregate limit will apply across the group
Per member pricing is lowest when least 12 members participate

^ Annual Premium is net of any surplus lines taxes and fees.

Indicative pricing and capacity indicative and not guaranteed until firm order and confirmation

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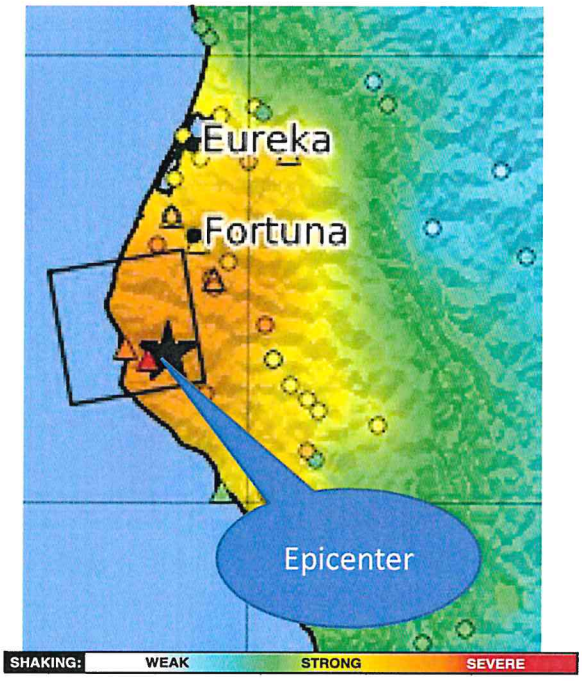
Sample Event and Payout

Petrolia, CA Earthquake (M7.2) 1992

Member	Limit	Shaking Intensity	Payout Base Option	Payout Light Option
City of Dunsmuir	500,000		-	-
Town of Loomis	500,000		-	-
City of Loyalton	500,000		-	-
City of Portola	500,000		-	-
City of Rio Dell	500,000	89.6	250,000	200,000
City of Susanville	500,000		-	-
City of Weed	500,000		-	-

USGS SHAKEMAP



** Shaking Intensity expressed as a percentage of gravity (%G) as reported by the USGS.*

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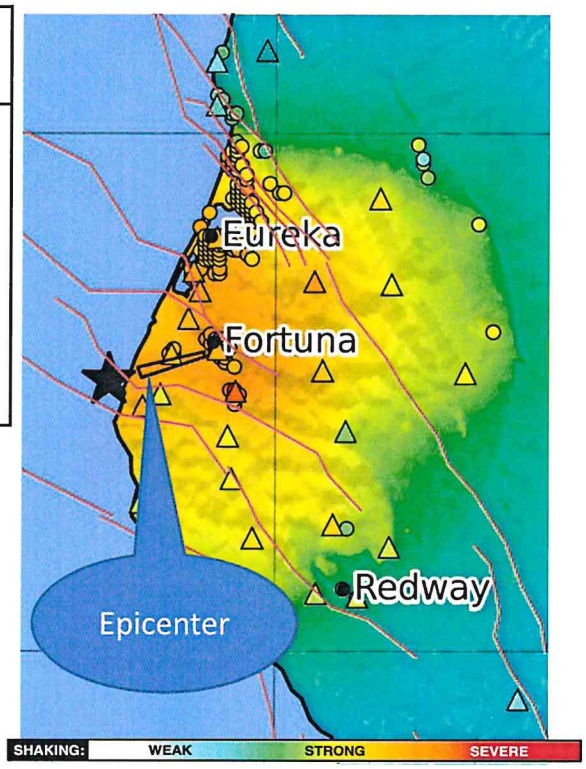
Sample Event and Payout

15km WSW of Ferndale, CA (M6.4) 2022

USGS SHAKEMAP

Member	Limit	Shaking Intensity	Payout Base Option	Payout Light Option
City of Dunsmuir	500,000		-	-
Town of Loomis	500,000		-	-
City of Loyalton	500,000		-	-
City of Portola	500,000		-	-
City of Rio Dell	500,000	107.7	450,000	350,000
City of Susanville	500,000		-	-
City of Weed	500,000		-	-



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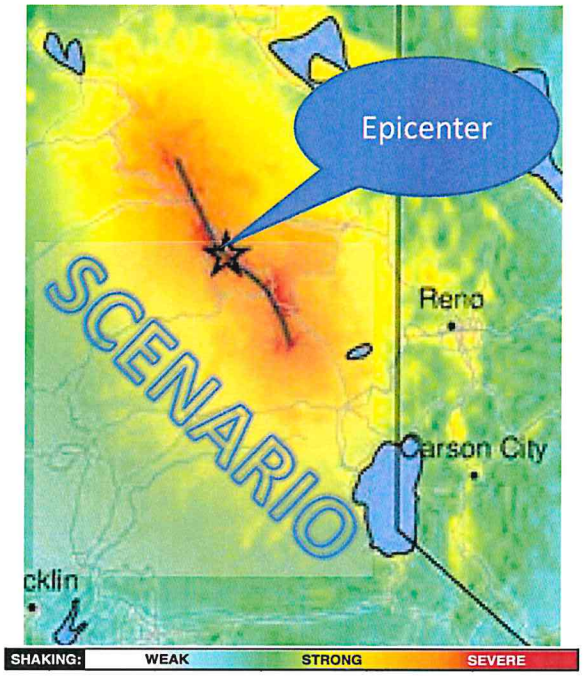
K2 PARAMETRIC INSURANCE SERVICES

Sample Event and Payout

Member	Limit	Shaking Intensity	Payout Base Option	Payout Light Option
City of Dunsmuir	500,000		-	-
Town of Loomis	500,000		-	-
City of Loyalton	500,000	65.0	150,000	100,000
City of Portola	500,000	74.9	175,000	125,000
City of Rio Dell	500,000		-	-
City of Susanville	500,000	21.3	-	-
City of Weed	500,000		-	-

SCENARIO
Mohawk Valley Earthquake (M7.1)

USGS SHAKEMAP



** Shaking Intensity expressed as a percentage of gravity (%G) as reported by the USGS.*

Scenario Earthquake

The above earthquake is a SCENERIO earthquake produced by the USGS.

A scenario shows what could happen if a future earthquake of a certain size hit a specific place, following a particular fault line. It's basically a "what-if" version of an earthquake, created by estimating the shaking that might occur.

When preparing for emergencies, utilities, local governments, and other organizations get the best results by running training drills based on realistic earthquake situations—ones that match what could actually happen in their area.

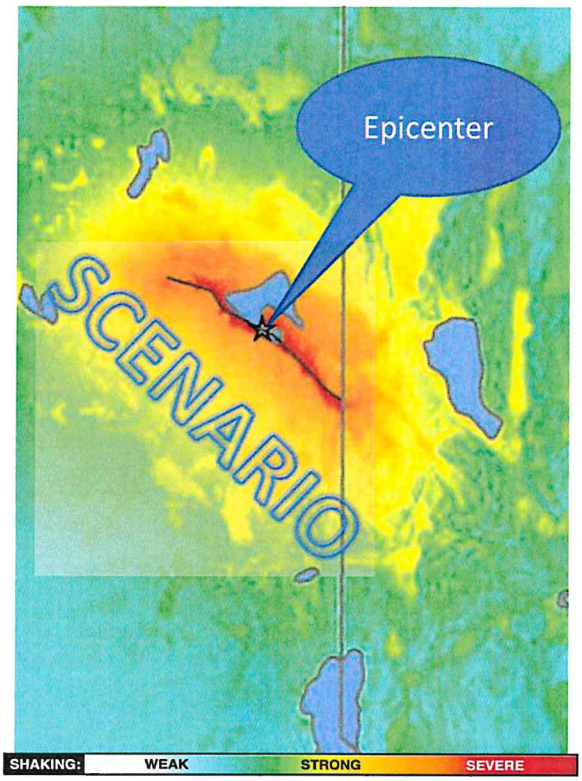
K2 PARAMETRIC INSURANCE SERVICES

Sample Event and Payout

Member	Limit	Shaking Intensity	Payout Base Option	Payout Light Option
City of Dunsmuir	500,000		-	-
Town of Loomis	500,000		-	-
City of Loyalton	500,000	33.2	-	-
City of Portola	500,000	29.9	-	-
City of Rio Dell	500,000		-	-
City of Susanville	500,000	74.5	175,000	125,000
City of Weed	500,000		-	-

SCENARIO
Honey Lake Earthquake (M7.0)

USGS SHAKEMAP



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Appendix

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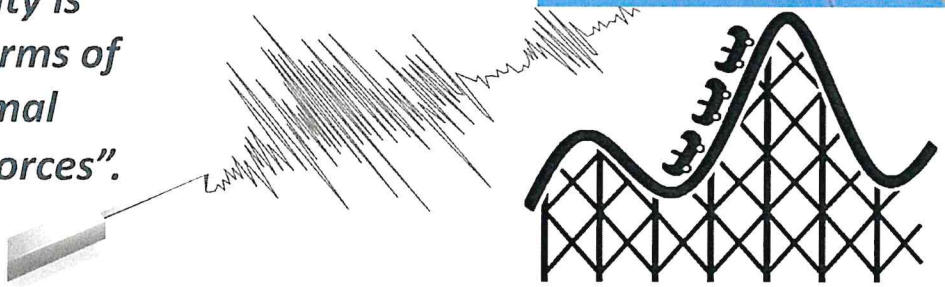
How is shaking intensity measured?

The United States Geological Survey (USGS) will capture data from dozens of seismic stations and calculate shaking intensity for 100's of Lat / Long points in the affected area. This is called a Shakemap

Shaking intensity is expressed in terms of percent of normal gravity or "G-Forces".



Shaking Intensity (PSA0.3)	Description/Damage
	Felt only by a few persons at rest, especially on upper floors of buildings.
	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
30	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
50	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
90	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
115	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
150	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
150+	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

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Trigger Locations

City	Trigger Location Latitude	Trigger Location Longitude
City of Dunsmuir	41.2097	-122.273
Town of Loomis	38.8208	-121.1936
City of Loyalton	39.6746	-120.2409
City of Portola	39.8049	-120.4655
City of Rio Dell	40.4988	-124.1067
City of Susanville	40.4194	-120.6619
City of Weed	41.4273	-122.3846

Member Map