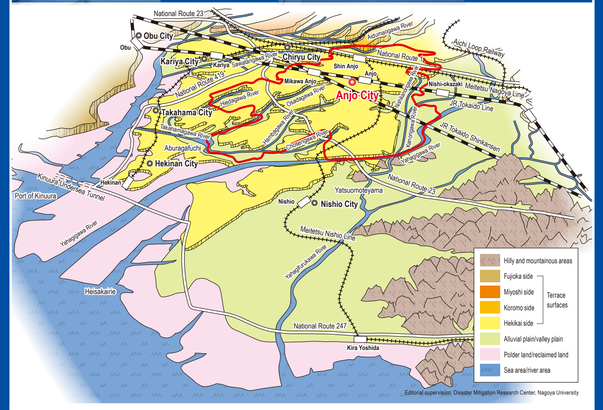
Anjo Earthquake Hazard Map

Photos provided by: Oyo Corporation



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"Safety tips" is Disaster information provision application for foreigners. It is an application that informs you of emergency earthquake warning and weather information in various countries' words.

for Android for iPhone

Information will be announced on "Anjo-info facebook" for foreigners in Anjo city.

When offer of the translation version is performed for foreign residents and there is difference inconsistency with a Japanese version and the translation version, the data of a Japanese version shall be applied. <Fourth edition compiled in February 2025/First edition in January 2016>

Learning from History

About Past Earthquakes

The Mikawa Earthquake occurred on 13 January 1945. It was a 6.8 magnitude, near-field earthquake, said to have had a seismic intensity equivalent to magnitude 7 at the hypocenter, which is now the city of Nishio. Approximately one month prior to Mikawa, on 7 December 1944, a giant subduction-zone earthquake (Showa Tonankai Earthquake), registering magnitude 7.9, occurred in the vicinity of Kumanonada, and there are still many stone monuments standing as testaments to the devastation. And, it is known that such giant earthquakes (magnitude 8 class) occur once every 100 to 150 years in the Nankai Trough sea area between Shikoku and Shizuoka prefecture, where the Philippine Sea Plate stretches to.

Earthquake	Date	Outline of Damage in Anjo Region
Mikawa Earthquake	January 13, 1945	Damage in Anjo: 2,702 fully or partially destroyed homes, 396 deaths, 618 seriously injured; among these damage was particularly extensive in Ebara (Miwamura, Hazu District), Fuji (Sakuramura), Jogairi and Izumi (Meijimura) areas in a northwest direction from Sanganesan, with many homes, temples, shrines and schools destroyed – for example, damage in Fujii-cho: 117 fully or partially destroyed homes, 77 deaths, 97 seriously injured; damage in Ogawa-cho: 72 fully destroyed residential properties, 155 partially destroyed residential properties, 168 fully destroyed non-residential properties, 219 partially destroyed non-residential properties, 40 deaths. Monuments to remember victims, spirits of the dead and those stranded by the Mikawa earthquake have been erected to keep the memory alive. There also was a light like a flash of lightning at the time of the earthquake, roads were torn asunder and extensive damage caused to the lowland plain of Yahagigawa by a deep trench, with subsidence of two meters in the vicinity of Yahagifurukawa River. Fields became marshland *1.
Showa Tonankai Earthquake	December 7, 1944	Damage in Anjo-cho: 1 death, 5 seriously injured, 4 slightly injured, 53 fully destroyed homes, partially destroyed homes totaled 47 A-class (Ko) damaged ones, 76 B-class (Otsu) damaged ones and 93 C-class (Hei) damaged ones, 270 fully destroyed and 486 partially destroyed non-residential properties. Damage was extensive in the urban areas of Asahi-cho and Sakae-cho, with a cracks appearing along 250 meters of road in the Jojo area, many spots subsiding and fields spraying out foamy bubbles *2. Ballast *3 gave way on the JR Tokaido Line in the vicinity of Kasadera and Anjo, causing a 12-car train to roll off the track. A one-meter tsunami was recorded along the shore of Mikawa Bay. The embankment of Kanorigawa was hit with ocean-sized waves. A ten-centimeter-wide crack running some 7.8 meters opened up in the station building at Sakurai.
Nobi Earthquake	October 28, 1891	Damage in Hekikai district (Aomi-no-kori): 3 deaths, 21 injured, 625 fully or partially destroyed homes. In the Kanorigawa basin, lights (torou), commemorative monuments and many buildings were destroyed, and cracks opened in the ground. A stretch of new rice fields (Shinden) along the Aburagafuchi shoreline subsided, encouraging water damage *4 along that stretch of shore from the following year.
Ansei Tokai and Nankai Earthquakes	1854	Buildings were damaged or destroyed, subsidence and muddy water gushes at farmland areas, embankments on rivers and new rice fields sank, collapsed and cracked, sluice gates were damaged, and Yahagibashi Bridge tilted in a curved line.
Hoei Earthquake	1707	The rice fields at Shinden subsided, water flow detiorated and damage was caused by tidal surges.
Tensho Earthquake	1586	Massive shaking in Mikawa, with numerous aftershocks. Deaths from famine and epidemics occurred after earthquake.

*1 Land turned to marshland → liquefaction *2 Ground bubbling → liquefaction *3 Ballast → layer between rail track foundation and sleepers
*4 Water disaster → damage due to flooding, etc. Note: Explanations for the numbers that show extent of damage of each earthquake.

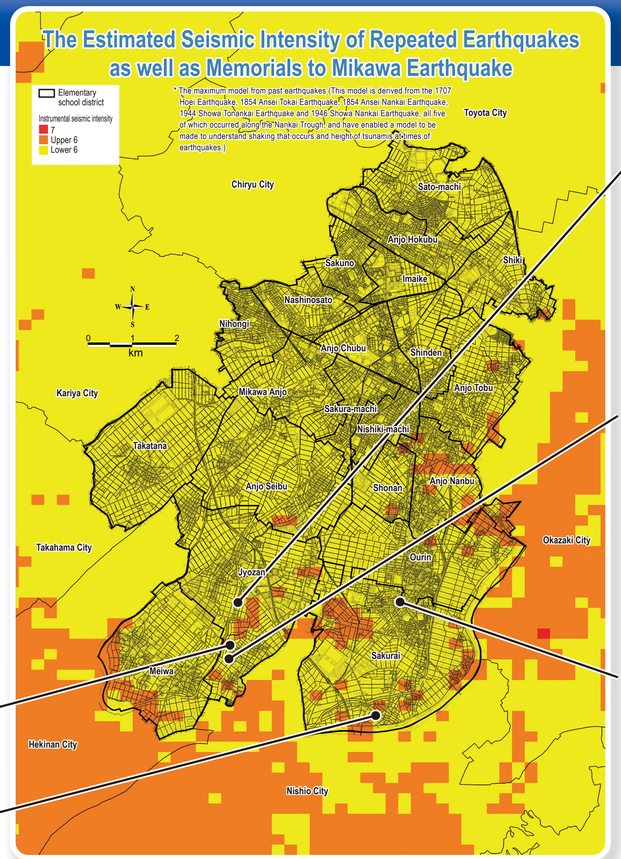
Monument to people stranded in earthquake disaster (in the Inaba public cemetery in Jogairi-cho)

A memorial stone in memory of the people stranded in 1945 Mikawa Earthquake stands in the cemetery. The stone notes the local damage as well as the gratitude owed to the victims and the fact that it stands in the cemetery as a memory to those victims.

Mikawa Earthquake memorial stone (Fujii-cho, Anjo)

Of the total population of 611 (117 homes) in the district of Fujii some 77 people lost their lives in the 1945 Mikawa Earthquake. This stone notes that the earthquake was a living hell.

The Estimated Seismic Intensity of Repeated Earthquakes as well as Memorials to Mikawa Earthquake



Memorial stone to earthquake dead (in the public cemetery for Izumi-cho)

This is a commemorative stone marking the 1945 Mikawa Earthquake. Reportedly, the victims of that earthquake were buried here directly after the disaster.

Earthquake victim memorial stone (Hongo Jogairi, Anjo: in the Jogairi-cho public cemetery)

There is an earthquake victim memorial stone in the cemetery. The rear of the stone is carved with the names of the 15 people who died in the 1945 Mikawa Earthquake.

Earthquake disaster memorial (Oyakuda Sakurai-cho, Anjo: in Sakurai branch office of Anjo City Hall)

This is a memorial stone marking the 1945 Mikawa Earthquake. It describes the earthquake damage, saying that the horrific destruction to all but a few of the houses in the Oaza Fujii village area was so extensive as to be beyond words.

Damage estimate

In a worst-scenario situation, approximately 40% of buildings in city will be fully or partially destroyed and/or burnt.

Upper figures: Maximum model from past earthquakes (Note 1)
Lower figures: Maximum theoretical estimate model (Note 2)

Human casualties

[Winter/middle of night (5:00 am)] (People)

	Buildings destroyed	Innundation (flooding)	Landslides on steep inclines, etc.	Fires	Collapse of objects such as walls, outdoor falling debris	Total
Death toll	63 (644)	0 (0)	0 (0)	1 (96)	0 (0)	64 (740)
Number of serious injuries	133 (1,056)	0 (0)	0 (0)	0 (27)	0 (0)	133 (1,083)
Number of slight injuries	900 (2,816)	0 (0)	0 (0)	0 (69)	0 (2)	900 (2,887)

Building damage

[Winter/evening (6:00 pm)] (buildings)

	Shaking	Liquefaction	Innundation (flooding)	Landslides on steep inclines, etc.	Fires	Total
Number of building fully destroyed or burnt	1,264 (11,487)	1 (1)	2 (1)	0 (0)	622 (3,990)	1,889 (15,479)
Number of partially destroyed buildings	5,720 (12,412)	4 (3)	51 (31)	0 (0)	– (–)	5,775 (12,446)

Lifeline damage (Note 3)

	Damage estimate	In order to restore 95% of services
Drinking water	Approximately 90% of water service will be cut directly after earthquake	Approximately 6 weeks
Sewage	Approximately 80% of sewage service will be difficult to use 1 day after earthquake	Approximately 3 weeks
Electricity	Approximately 90% of electricity service will be cut directly after earthquake	Approximately 1 week
Communications (landline telephones)	Approximately 90% of phone service will be impeded directly after earthquake	Approximately 1 week
Communications (mobile telephones)	Probability of base station signals being cut 1 day after earthquake is approximately 80% at maximum	Approximately 1 week (restoration of base stations)
City gas	Supply will be stopped for approximately 600 homes directly after earthquake	Approximately 2 weeks
LP gas	Approximately 10% of service will be functionally impeded directly after earthquake	Approximately 1 week

Note 1: The maximum model from past earthquakes is derived from the 1707 Hoei Earthquake, 1854 Ansei Tokai Earthquake, 1854 Ansei Nankai Earthquake, 1944 Showa Tonankai Earthquake and 1946 Showa Nankai Earthquake, all five of which occurred along the Nankai Trough, thus enabling a model to be made to understand shaking that occurs and height of tsunamis at times of earthquakes.)
Note 2: The maximum theoretical estimate model is derived as a maximum model that takes into consideration all possibilities for an earthquake/tsunami occurring along the Nankai Trough.
Note 3: This lifeline damage estimate shows the estimated damage based on an earthquake damage estimate survey conducted in FY2014 by Anjo City, superimposing the obviously large scale earthquakes (maximum model from past earthquakes) that have repeatedly occurred along the Nankai Trough.

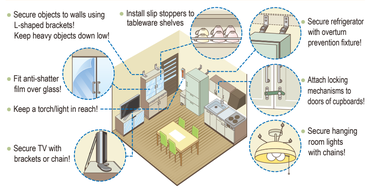
Preliminary measures — Be prepared for earthquakes

Preparations for human casualties

Collapsing houses and falling furnishings, etc., led to death by crushing for 80% of fatalities in the Hanshin Awaji Earthquake Disaster.

Reinforce your home to prevent it from collapsing

Ensuring safety throughout the home



Protecting yourself from furnishings

- □ Furnishings are secured to prevent them from toppling over or falling.
- □ Furnishings are arranged so that even if they topple they will not hit people.
- □ Furnishings are arranged so that even if they topple they will not block doors.
- □ As much as possible there are no belongings placed at entrances/exits and passageways.
- □ Pianos, bookcases and other such heavy objects are kept on ground floor (1F).

Anjo City Assistance Schemes

Let's prepare for earthquakes with the following subsidized programs.

① Free earthquake resistance check for woodframe houses built under the old building code used prior to 1981
② Subsidies for cost of earthquake resistance rennovations on woodframe houses
③ Scheme for subsidizing cost of quake-resistant shelter in woodframe houses for the elderly and disabled
④ Scheme for subsidizing cost of earthquake resistance check and cost of earthquake resistance rennovations of non-woodframe houses built under the old building code used prior to 1981
⑤ Subsidy system for removing block fences.
⑥ Reduction of property tax (rates) in tandem with earthquake resistance rennovations to house
⑦ Work to install overturn prevention fixtures to furnishings in homes of the elderly and disabled living alone
⑧ Sale of emergency radios.
⑨ Subsidy program for installation of earthquake-sensitive circuit breakers.

Prepare for damage to lifelines

Make checks!

Have these things ready!

You must have these ready!

- □ Drink water (3 liters/person/day, enough for 7 days if possible)
- □ Emergency foods(pregelatinized rice, tinned food, hardtack biscuits etc.)
- □ Emergency medical supplies, constantly maintained stock of medicines
- □ Thermometer, masks, alcohol disinfectant
- □ Copies of driving license, my number card and health insurance card
- □ Cash(also set by some small change)
- □ Battery charger for mobile phone
- □ Radio, spare batteries
- □ Towel, wet tissues
- □ Portable toilet, toilet paper
- □ Baby food, powdered milk, liquid milk, baby bottles (for households with infants)

Things to have ready if circumstances allow

- □ Clothing, underwear
- □ Lighter, matches
- □ Spectacles and contact lenses
- □ Sanitary goods and disposable diapers
- □ Blue tarp(for rug and rain protection)
- □ Gloves and helmets
- □ Cling film
- □ Plates,paper cups and dispensable chopsticks
- □ Polythene bags
- □ Wi-Fi
- □ Mouthwash,dry shampoos
- □ Disposable warmer, body cooling sheet
- □ Rainwear, aluminum thermal sheet
- □ Tissue paper

Things to store in a closet

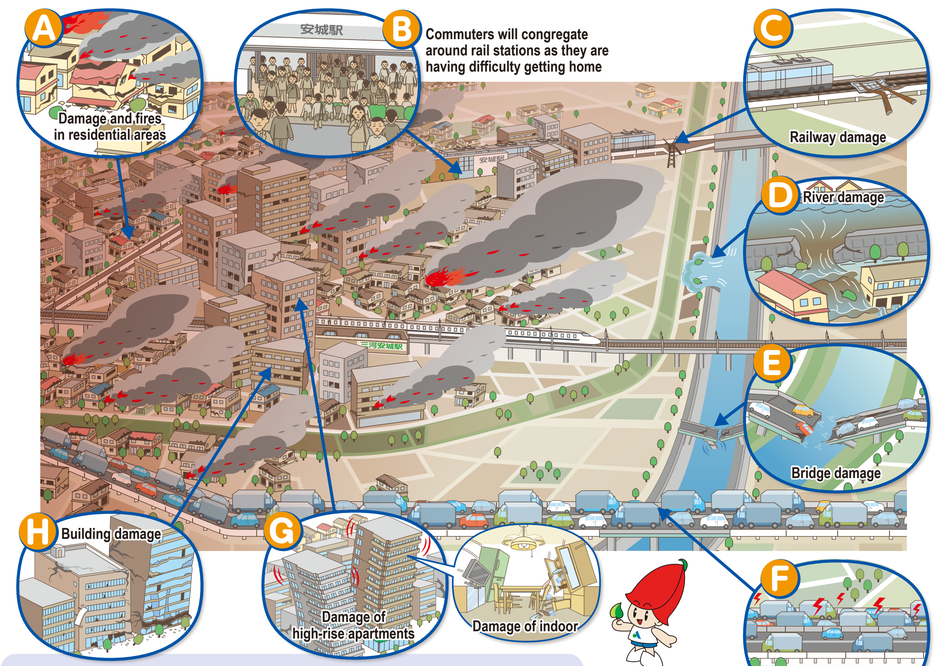
- □ Blankets
- □ Sleeping bags
- □ Car jack
- □ Shovel
- □ Portable gas cooker and spare gas cartridges
- □ Cooking utensils
- □ Dishes
- □ Poly-tank to store drinking water in
- □ Garbage bag

Do the following!

Keep a flashlight, slippers, and whistle by your bedside.
Save a photo of your family in your mobile phone.
Always have a family photo in your day-to-day possessions, like your wallet or scheduler.

You never know when a disaster will happen.
Family members should regularly talk about preparations for coping with earthquakes and the disasters that accompany earthquakes. When a disaster happens, first, check the household preparations to save your own life and the lives of your family. Start with the feasible tasks.

What will happen when there is an earthquake?



A Damage and fires in residential areas

Buildings with low earthquake resistance will collapse. In densely housed areas there is a fear that multiple fires will occur simultaneously. Also, many deaths and injuries will occur due to collapsing of homes and overturning of furnishings.

B Commuters will congregate around rail stations as they are having difficulty getting home

Public transport like trains and buses will stop operating, leaving many travellers/commuters stranded at stations, and some may not be able to get home.

C Railway damage

Earthquake may mishape rail tracks, requiring lengthy repairs before services can restart. Also, trains may be derailed while in service.

D River damage

Embankments could collapse causing floods. Care must be taken about tsunami wave runup.

E Bridge damage

Bridges that have not been reinforced to withstand earthquakes may collapse and cut off roads.

F Traffic jams

Expressways will close. Local roads will jam up due to transport restrictions and closures. And, jams caused by private cars will hinder rescue work being undertaken by emergency vehicles, such as fire engines and ambulances. Furthermore, some roads will be blocked by collapsed buildings.

G Indoor damage in high-rise apartments

When the swaying of a building resonates with the shake of an earthquake, the upper floors (of apartments, etc.) will sway immensely, leading to the risk of furnishings overturning.

H Building damage

Buildings may collapse or exterior sections, such as glass or cladding, fall away.

When a big quake occurs, power and water supply will be cut, and elevators also may stop.

Emergency earthquake warning messages

Emergency earthquake warnings will be announced via TV and radio when a lower-5 quake or higher is estimated.

What is an emergency earthquake warning?

Directly after an earthquake has occurred, this warning system catches the quake (P-wave, or primary wave) close to the hypocenter of the earthquake, and automatically calculates the position and scale and estimated shock strength. This information is then passed on as an emergency warning in a few seconds to tens of seconds before the strong shock (S-wave, or secondary wave, which is the principal shock).
* Note that this warning system may not pass on information quickly enough for locations close to the hypocenter of the earthquake.

Subsequent measures — Things to do if a quake hits

① First, find a safe place to protect yourself

Move to a safe place, such as under a strong desk or table.

② Prepare an escape route

Completely open your front door or a room window to provide yourself with an escape route.

③ Calmly extinguish flames

Once the shock waves fade, extinguish flames on cookers, stove and fan heaters, and turn OFF the breaker switch before escaping.

④ Gathering correct information

Let's gather information from smartphone apps such as "Anjo Disaster Prevention Navi" and "Yahoo! Disaster Prevention News", Anjo City's SNS such as LINE and X (formerly Twitter), "Disaster Prevention Radio" sold in Anjo City, cable TV's "KATCH", and FM broadcasters such as "PitchFM".

(Inquiries for bosai radios can be made to Department of Disaster Prevention & Management)

⑤ Medical relief setup for disasters

In cases where a big earthquake (lower-6 or higher in seismic scale) occurs, Anjo city has a system in place to enable the set up of five medical relief centers (Higashiyama Junior High School, Anjo-kita Junior High School, Anjo-Minami Junior High School, Meisho Plaza and Sakurai Junior High School) to cope with disaster. Thus, when a large-scale quake occurs, casualties will initially be treated at one of these five medical relief centers. *Some medical aid stations have changed since November 2016

Family memo

Name	Date of birth	Blood type	School/workplace
		Rhesus (Rh) Plus (+) Minus (-)	name phone number
		Rhesus (Rh) Plus (+) Minus (-)	name phone number
		Rhesus (Rh) Plus (+) Minus (-)	name phone number
		Rhesus (Rh) Plus (+) Minus (-)	name phone number
		Rhesus (Rh) Plus (+) Minus (-)	name phone number

Disaster Emergency Message Dial

How to record a message	171 + 1 + area code 0566 - ○○ - ××××
How to replay a message	171 + 2 + area code 0566 - ○○ - ××××

Name of evacuation facility	A place where your family can gather if they become separated
Identity phone number	