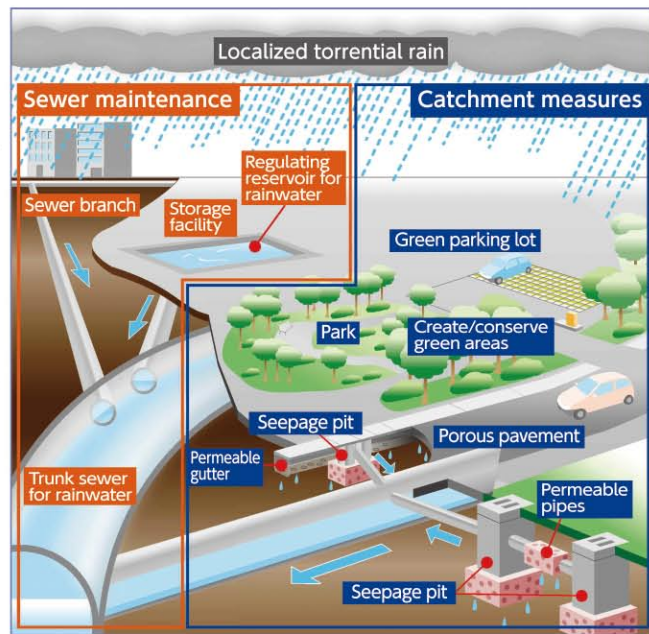


## Koto City Flood Countermeasures

Koto City has a low ground level and its landform is approximately 3 m below sea level from the equivalent average sea surface height of Tokyo Bay. Therefore, the external inflow of water is prevented by concrete revetments on the Arakawa River to the east and the Sumida River to the west, and storm surge levees on the Tokyo Bay side, basically forming a ring levee. Thus, water from inland rainfall quickly flows through sewerage pipes and is discharged to rivers, a measure used to minimize floods. However, large rainfalls that exceed the discharge capabilities, due to localized torrential rain over a short period caused by the urban heat island phenomenon, have increased in recent years and flood damage is predicted to occur periodically. This flood hazard map shows areas where flooding and flood damage may occur, so please take advantage of it to prevent damage from flooding.

## Maintenance of an Urban Foundation Resilient to Disasters

- ★ In recent years, localized torrential rainfall believed to be caused by the urban heat island phenomenon in cities has been occurring frequently and urban flood damage is becoming a serious problem.
- ★ Hence, the Tokyo Metropolitan Government has been building trunk sewers and pumping stations to quickly discharge rainwater into rivers and Tokyo Bay, regulating reservoirs that temporarily collect rainwater, and other sewerage facilities.
- ★ To reduce the load on the sewerage facilities, Koto City has been ordering the installation of rainwater collection and absorption facilities in public facilities and private buildings. Moreover, it is also tackling catchment measures, such as rehabilitating branch sewers, in collaboration with the Metropolitan Government to reduce flood damage at an early stage.



## A.P. (Arakawa Peil)

This is the name for the Reiganjima Waterlevel Gauging Observation Station built in 1873 in current-day 2-chome, Arakawa, Chuo-ku to measure the level of the entrance of the Sumida River. As the Reiganjima Waterlevel Gauging Observation Station zero level is almost the same as the spring tide low water level, it is used as the Arakawa River construction base level, and the elevation and water depth is displayed on the A.P.

## Precautions for Urban Flooding

Sewer systems were first built with the plan that rainwater would be absorbed by the ground. However, most rainwater now flows into the sewerage system, which exceeds the processing capabilities of sewers, and urban flooding that inundates roads and damages houses is increasingly common. Even in Koto City, rain from localized torrential rain and typhoons that exceeds sewer drainage capabilities falls, and damage to semi-subterranean carparks and warehouses, and buildings at ground-level occurs. As the amount of rainfall from this localized torrential rain that causes damage is concentrated over a comparatively short period of time, it is too late to prepare for flooding once an emergency situation occurs. Regularly check around your house and consider water drainage and cut-off measures. Be Careful of Manholes Covers on old manholes may come off due to heavy rainfall. Do not go near them as it is dangerous. If you see a manhole cover that has come off, please contact the Bureau of Sewerage. Do Not Open Manhole Covers Do not open manhole or pipe covers to discharge water built-up on roads as this may lead to an accident and is extremely dangerous.

## Preparing for Floods

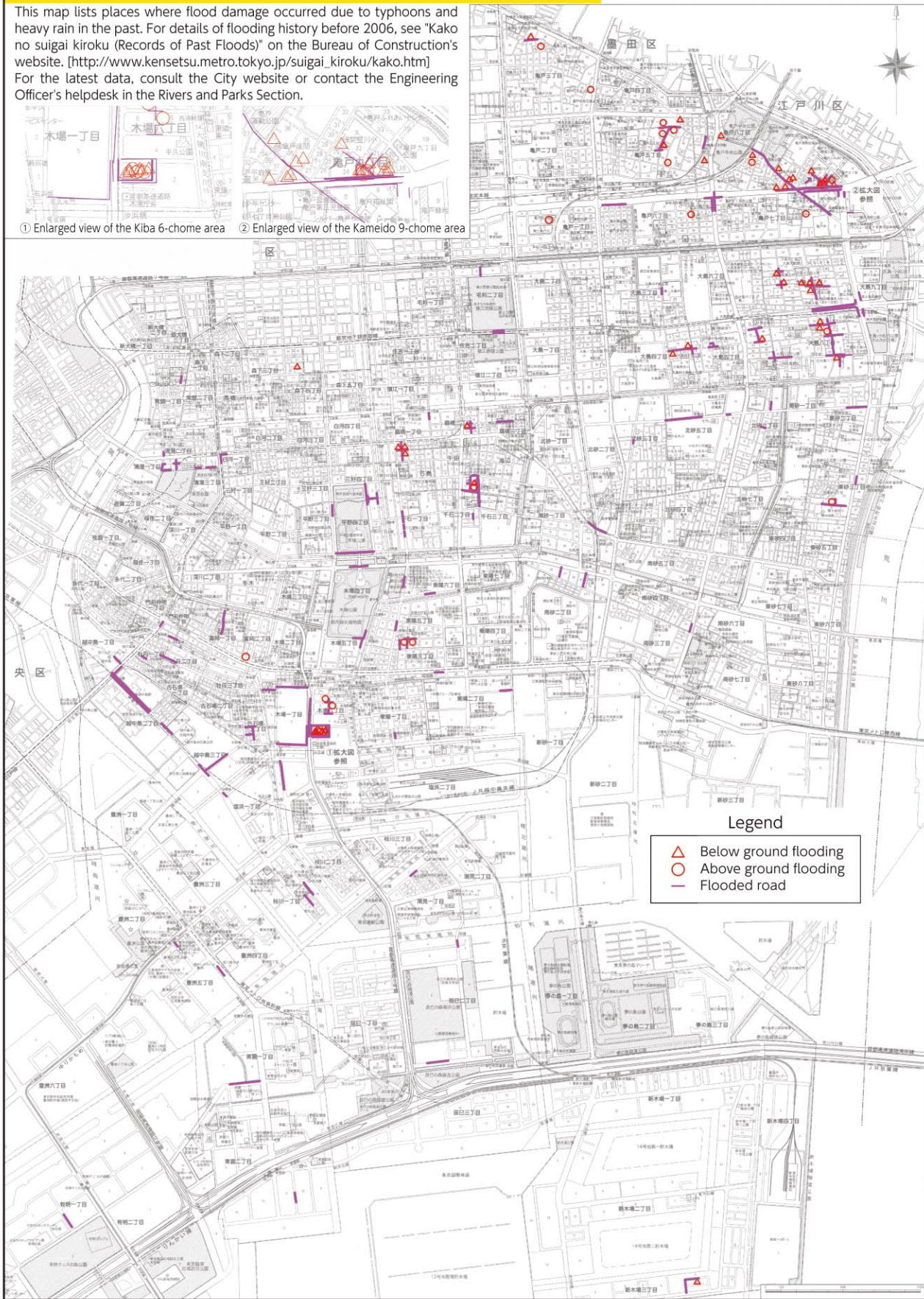
- Check where your house and sturdy 3-storey or higher buildings in your neighborhood to where you can evacuate are on the map.
- Actually walk on the evacuation route to the place you can evacuate to in order to check the route.
- Talk with your family about what to do in an evacuation.
- Prepare items that you will take with you in an evacuation well in advance and ensure those items are stored in a place so that they can be easily taken with you.
- Also inspect batteries for your radio and stocks of food and water.

## The City Requests that Residents Prepare for Floods

Check around Your House Check that there is nothing to prevent water from draining around your home and in the neighborhood. In particular, do not place anything near gutters or pipe covers and keep them clean. Blocked gutters and pipe covers can cause inundation or flooding. Prepare Sandbags and Flood Boards At the entrance of low-lying, semibasement, and basement rooms, prepare sandbags and flood boards to prevent these rooms from being flooded. The City offers a free service for those wanting to store sandbags (see the City website for details). Drainage during Heavy Rains In order to maintain the drainage capacity of the sewerage pipes, do not drain your washing machine or bath when heavy rain is falling outside. Precautions for Basements Outside conditions can be difficult to determine when you are below ground or in a basement. Do not neglect to check or get information about conditions outside during heavy rain from the TV and/or radio. Moreover, there is a danger that water from heavy or localized torrential rain could get into basements. Be extremely careful when using basements during torrential rain.

## Koto City Flood History Map (2006 - 2017)

Note: This is a map that overlays all flooding events from 2006 to 2017 on one map.



## Force of Water Flowing to a Basement

● The door will not open due to the water pressure.



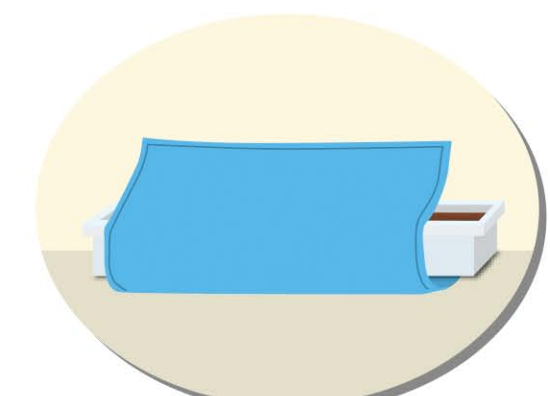
● It will be difficult to climb the stairs when the depth of the water running down the stairs increases.



■ Here are initial flood-fighting techniques (from fire department materials)



Fill thick plastic bags with water and place them at entrances as substitutes for sandbags. You can also put waterbags in cardboard boxes in a row to increase their strength and you can also stack the boxes.



Use planters filled with soil and covered with a tarpaulin.

## Rainfall Types and Intensity

- ① 10 to 20 mm/hour  
Heavy rainfall.  
The rain bounces off the ground and your ankles get wet.  
Hard to hear someone talking over the sound of the rain.
- ② 20 to 30 mm/hour  
Downpour.  
You get wet even with an umbrella.  
The sound of rain wakes up most people.
- ③ 30 to 50 mm/hour  
Rainfall like someone has tipped over a bucket of water.
- ④ 50 to 80 mm/hour  
Rainfall is like a waterfall.  
An umbrella is totally useless.
- ⑤ More than 80 mm/hour  
Hard to breathe.  
You feel frightened.

## Tips for Evacuating (to a 3-storey or higher building)

### <Evacuation Orders>

The City, fire department, and/or others will issue evacuation orders using the radio, government cars, and other means when the situation has become dangerous. If evacuation orders are issued, evacuate immediately to the third or higher floor in your house or a sturdy building nearby. You can also use the public facilities indicated on the map.

### <Precautions during an Evacuation>

Communicate with your family and neighbors, follow instructions from disaster cooperation volunteers, and move in groups as much as possible when evacuating. Moreover, please help the elderly, those with disabilities, others that you think may have difficulty evacuating on their own and foreigners to evacuate.

## List of Major Public Facilities

No.	Elementary School	No.	Elementary School	No.	Jr. High School	No.	Public Facilities etc.
1	Meiji E.Sch.	23	Daiichi-kameido E.Sch.	45	Kametaka E.Sch.	67	Minami-suna J.H.Sch.
2	Fukagawa E.Sch.	24	Daini-kameido E.Sch.	46	Fukagawa Daiichi J.H.Sch.	68	Daini Minami-suna J.H.Sch.
3	Yanagawa E.Sch.	25	Katori E.Sch.	47	Fukagawa Daini J.H.Sch.	69	Koto City Cultural Center
4	Rinkai E.Sch.	26	Sengen-tatekawa E.Sch.	48	Fukagawa Daisan J.H.Sch.	70	Kameido Culture Center
5	Etchujima E.Sch.	27	Suijin E.Sch.	49	Fukagawa Daiyon J.H.Sch.	71	General Culture Center
6	Kazuya E.Sch.	28	Daiichi-ojima E.Sch.	50	Fukagawa Daigo J.H.Sch.	72	Center for Promotion of Gender Equality(Pal City Koto)
7	Heikyū E.Sch.	29	Daini-ojima E.Sch.	51	Fukagawa Dairoku J.H.Sch.	73	Education Center
8	Toyo E.Sch.	30	Daisan-ojima E.Sch.	52	Fukagawa Dainana J.H.Sch.	74	Koto Civic Auditorium(Tiara Koto)
9	Nan-yo E.Sch.	31	Daiyon-ojima E.Sch.	53	Fukagawa Daihachi J.H.Sch.	75	Sports Center
10	Sennan E.Sch.	32	Daigo-ojima E.Sch.	54	Ariake J.H.Sch.	76	Kameido Sports Center
11	Ougibashi E.Sch.	33	Ojima-nan-o E.Sch.	55	Tatsumi J.H.Sch.	77	Higashi-suna Sports Center
12	Motokaga E.Sch.	34	Sunamachi E.Sch.	56	Toyo J.H.Sch.	78	Fukagawa-kita Sports Center
13	Mori E.Sch.	35	Daini-sunamachi E.Sch.	57	Kameico J.H.Sch.	79	Fukagawa Sports Center
14	Tosen E.Sch.	36	Daisan-sunamachi E.Sch.	58	Daini-kameido J.H.Sch.	80	Ariake Sports Center
15	Toyosu E.Sch.	37	Daiyon-sunamachi E.Sch.	59	Daisan-kameido J.H.Sch.	81	Higashi-ojima Culture Center
16	Toyosu-nishi E.Sch.	38	Daigo-sunamachi E.Sch.	60	Ojima J.H.Sch.	82	Sunamachi Culture Center
17	Toyosu-kita E.Sch.	39	Dairoku-sunamachi E.Sch.	61	Daini-ojima J.H.Sch.	83	Morishita Culture Center
18	Shinonome E.Sch.	40	Dainana-sunamachi E.Sch.	62	Ojima-nishi J.H.Sch.	84	Furuishiba Culture Center
19	Ariake E.Sch.	41	Onagigawa E.Sch.	63	Sunamachi J.H.Sch.	85	Toyosu Culture Center
20	Edagawa E.Sch.	42	Higashi-suna E.Sch.	64	Daini-sunamachi J.H.Sch.		
21	Tatsumi E.Sch.	43	Kita-suna E.Sch.	65	Daisan-sunamachi J.H.Sch.		
22	Daini-tatsumi E.Sch.	44	Minami-suna E.Sch.	66	Daiyon-sunamachi J.H.Sch.		

## History of Major Floods in Koto City

Date	Category	No. of Households Affected	Total Rainfall	Max. Hourly Rainfall
September 14, 1952	Typhoon Kathleen	1,771	167mm	-
August 31, 1954	Typhoon Kitty	31,938	70mm	-
July 23, 1964	Typhoon 11	10,853	64.7mm	-
September 26, 1975	Typhoon Kanogawa	44,528	392.5mm	76.0mm
October 22, 1982	Typhoon 24	1,425	221mm	42.0mm
August 26, 1993	Typhoon 11	95	224mm	36.5mm
August 29, 1999	Localized torrential rain	15	82.5mm	56.0mm
July 4, 2000	Localized torrential rain	41	82.0mm	78.5mm
October 9, 2004	Typhoon 22	107	257.5mm	75.0mm
October 20, 2004	Typhoon 23	9	202.5mm	39.0mm
August 24 to 25, 2007	Localized torrential rain	50	117.0mm	99.0mm
September 8, 2010	Localized torrential rain	6	90.0mm	50.5mm
August 19, 2011	Localized torrential rain	2	119.5mm	80.0mm
October 15 to 16, 2013	Typhoon 26	21	241.5mm	49.5mm
September 10, 2014	Localized torrential rain	22	114.0mm	88.0mm

## Notes to Protect My Family in a Flood

Regularly talk with your family about emergency contacts and what to do in an evacuation.

Place my family can evacuate to

### Family Notes

Name	Date of Birth	Contact Address	Phone Number	Blood Type	Medical History etc.

◆For enquiries, contact◆

Rivers and Parks Section, Public Works Department, Koto City 4-11-28 Toyocho, Koto Tel: 03-3647-2538  
Disaster Prevention Section, Crisis Management Office, General Affairs Department, Koto City 4-11-28 Toyocho, Koto Tel: 03-3647-9584

Koto City Office Website <http://www.city.koto.lg.jp/>

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