



Security Implications:

Readying for and Responding to a Megacity Disaster



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Damage in aftermath of 1923 Tokyo earthquake



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Ichigaya, Tokyo, Japan
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Observations and Initial Implications



- **Hospital receiving most patients (St. Luke's International) finds out agent is sarin from television**
- **Medical and responder communications and other capabilities overwhelmed**
- **10% of firefighters and medical personnel (St. Luke's) suffer effects**
- **Nonetheless, Ground Self-Defense Force, police, fire, private company (Sumitomo Kagaku Corporation), and citizens on the street assist**
- **Estimated 70-80% of patients are “worried well,” not actually affected by sarin.**

Disaster response system overwhelmed



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% using transport type to get to hospital



- Medical and responder communications and other capabilities overwhelmed
- No system for determining who needs what information (Hospital with most victims finds out agent is sarin from TV)
- No system for distribution of patients among hospitals
- No centralized oversight
- Ground Self-Defense Force, police, fire, private company (Sumitomo Kagaku Corporation), and citizens on the street are crucial to limiting consequences
- “First first responders” key...but uninformed





Virtual Terrain Walk Scenario



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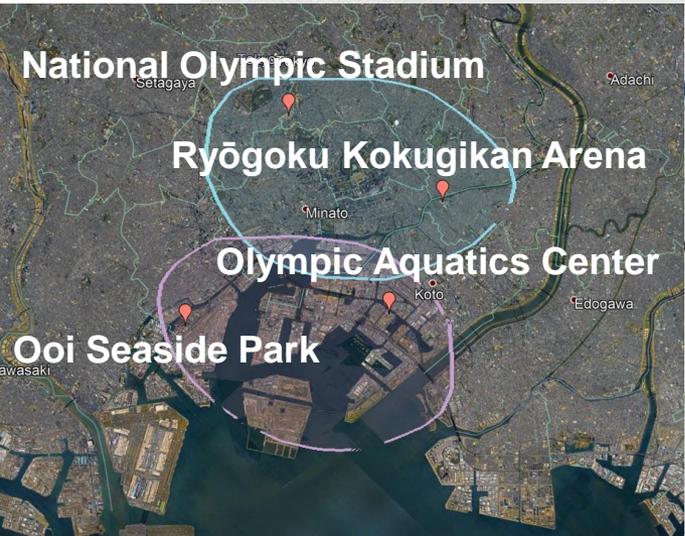
- **Notional event for this session's analysis: 7.3 Richter Scale earthquake strikes Tokyo during 2020 Summer Olympics (70% probability of such a quake occurring by 2050)**
- **Many major sports competitions in progress as earthquake occurs**
- **Expectations (from 2013 Cabinet Office, Government of Japan analysis considering a magnitude 7 earthquake):**
 - **850,000 buildings destroyed by tremors or fire**
 - **11,000 killed; 210,000 injured (37,000 seriously)**
 - **50% of central district without water or electricity for > week**
 - **3M first-day evacuees increasing to 7.2M within 2 weeks**
 - **Damage estimate: 112T yen (~ \$1.03T)**



Tokyo 2020 Olympic Venue Map



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1. National Olympic Stadium

国立霞ヶ丘陸上競技場



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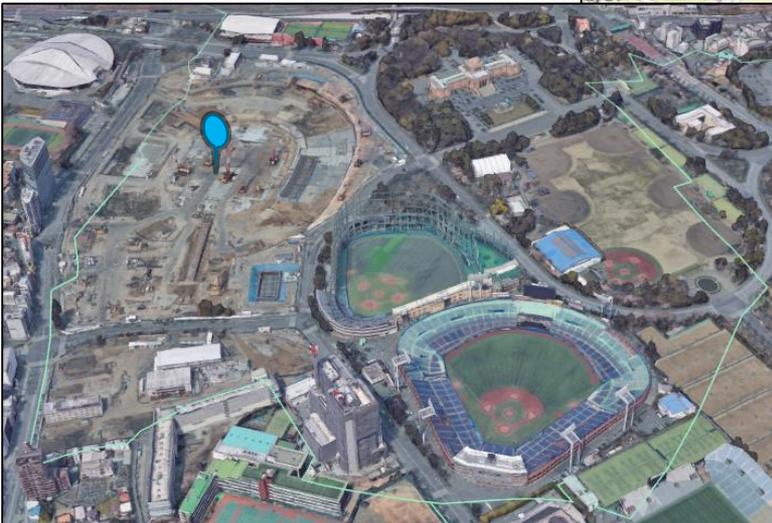
The stadium is in the Shinjuku ward. It is a major commercial and administrative center, housing the northern half of the busiest railway station in the world (Shinjuku Station) and the Tokyo Metropolitan Government Building, the administration center for the government of Tokyo. As of 2018, the ward had an estimated population of 346,958 and a total area of 18.23 km². Since the end of the Second World War, Shinjuku has been a major secondary center of Tokyo.

Capacity:

- 68,000-80,016

Events:

- Opening and closing ceremonies, athletics, soccer final, rugby



Legend	
National Olympic Stadium	
Building Collapse Danger is High	
Fire Danger is High	



2. Ryōgoku Kokugikan Arena

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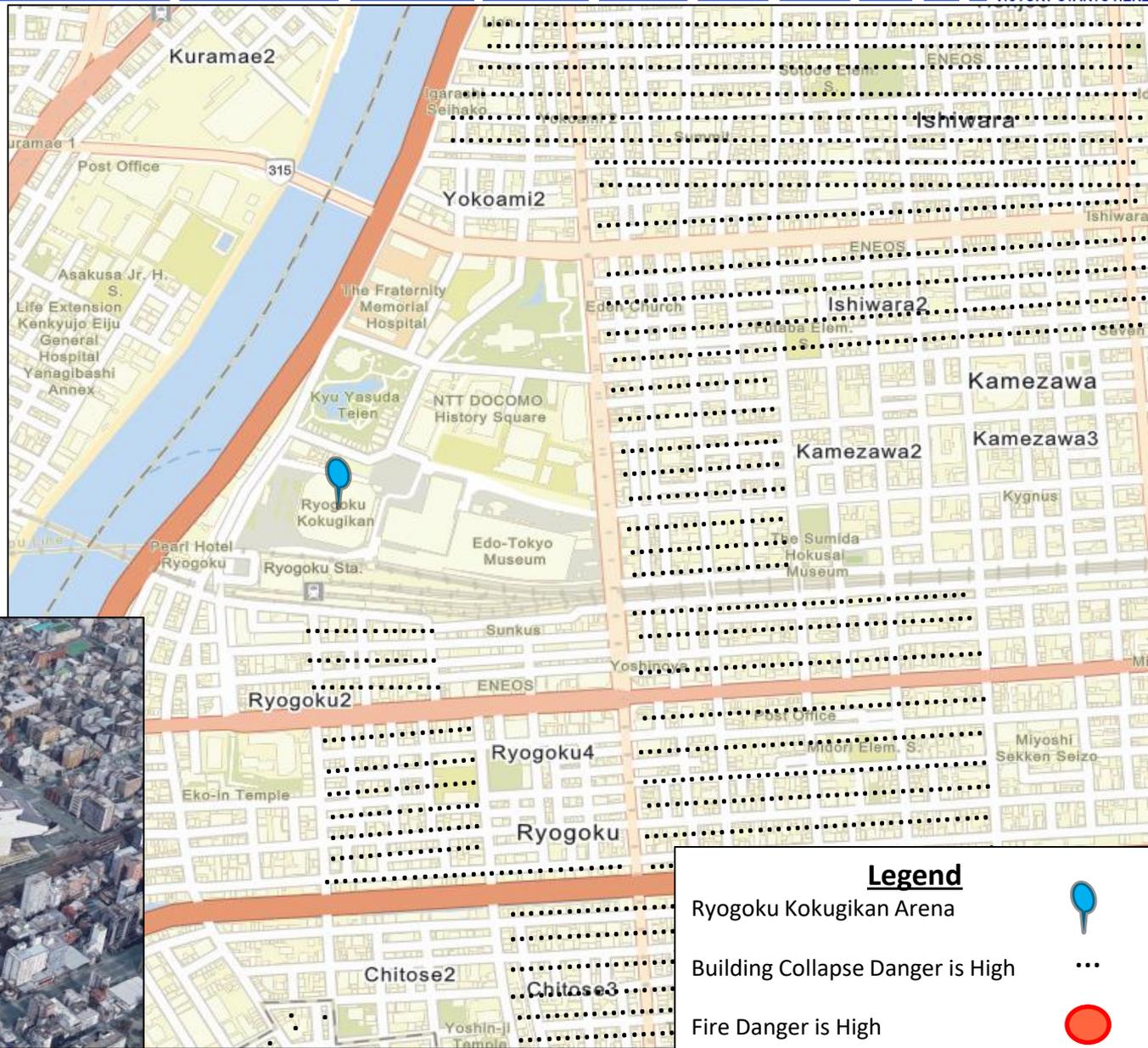
The arena is within Ryogoku, a district in the east end of Tokyo across the Sumida River from Asakusabashi and located in the Sumida Ward. Ryogoku is best known as the spiritual heartland of sumo in Japan. As of 2018, the ward had an estimated population of 266,605 and a total area of 13.77 km².

Capacity:

- 11,098

Events:

- Boxing



Legend

- Ryogoku Kokugikan Arena
- Building Collapse Danger is High
- Fire Danger is High



3. Ooi Seaside Park 大井埠頭海浜公園



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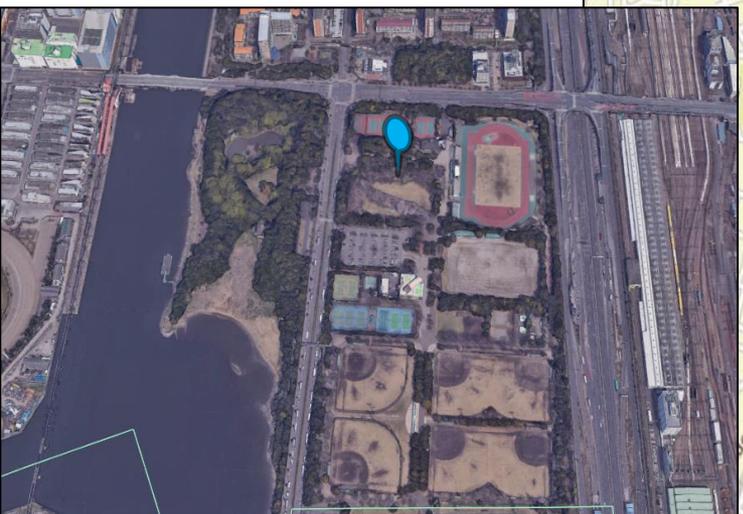
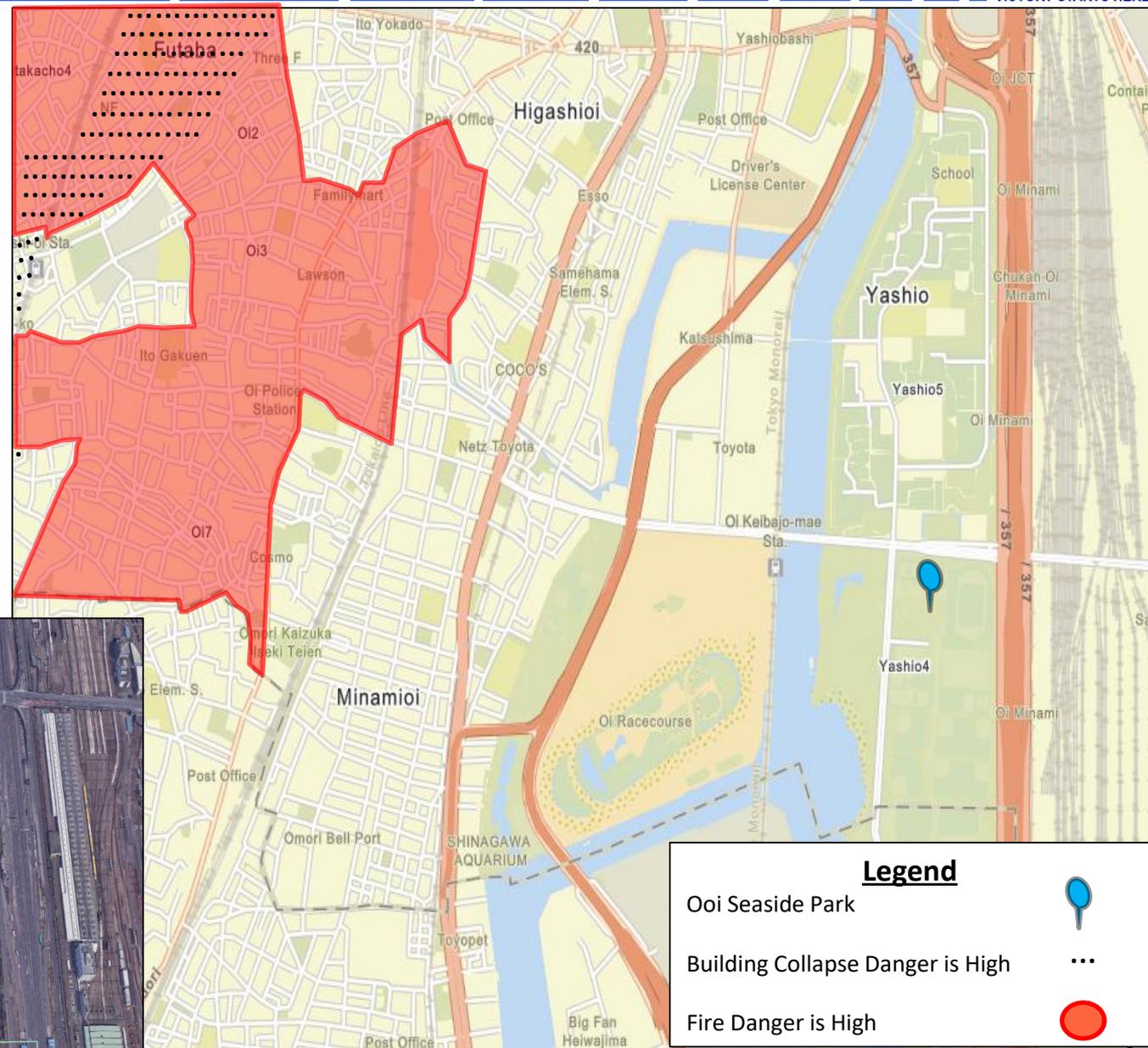
The park is within Shinagawa; a ward south of the central city and adjacent to Tokyo Bay. Shinagawa was the first post station on the Edo Period Tokaido highway connecting Nihonbashi in Edo to Kyoto, 500km to the west, and retains status as an important transit point today. As of 2018, the ward had an estimated population of 403,338 and a total area of 22.84 km².

Capacity:

- 10,000

Events:

- Field Hockey



Legend

- Ooi Seaside Park
- Building Collapse Danger is High
- Fire Danger is High



4. Olympic Aquatics Center オリンピック アクアティック センター



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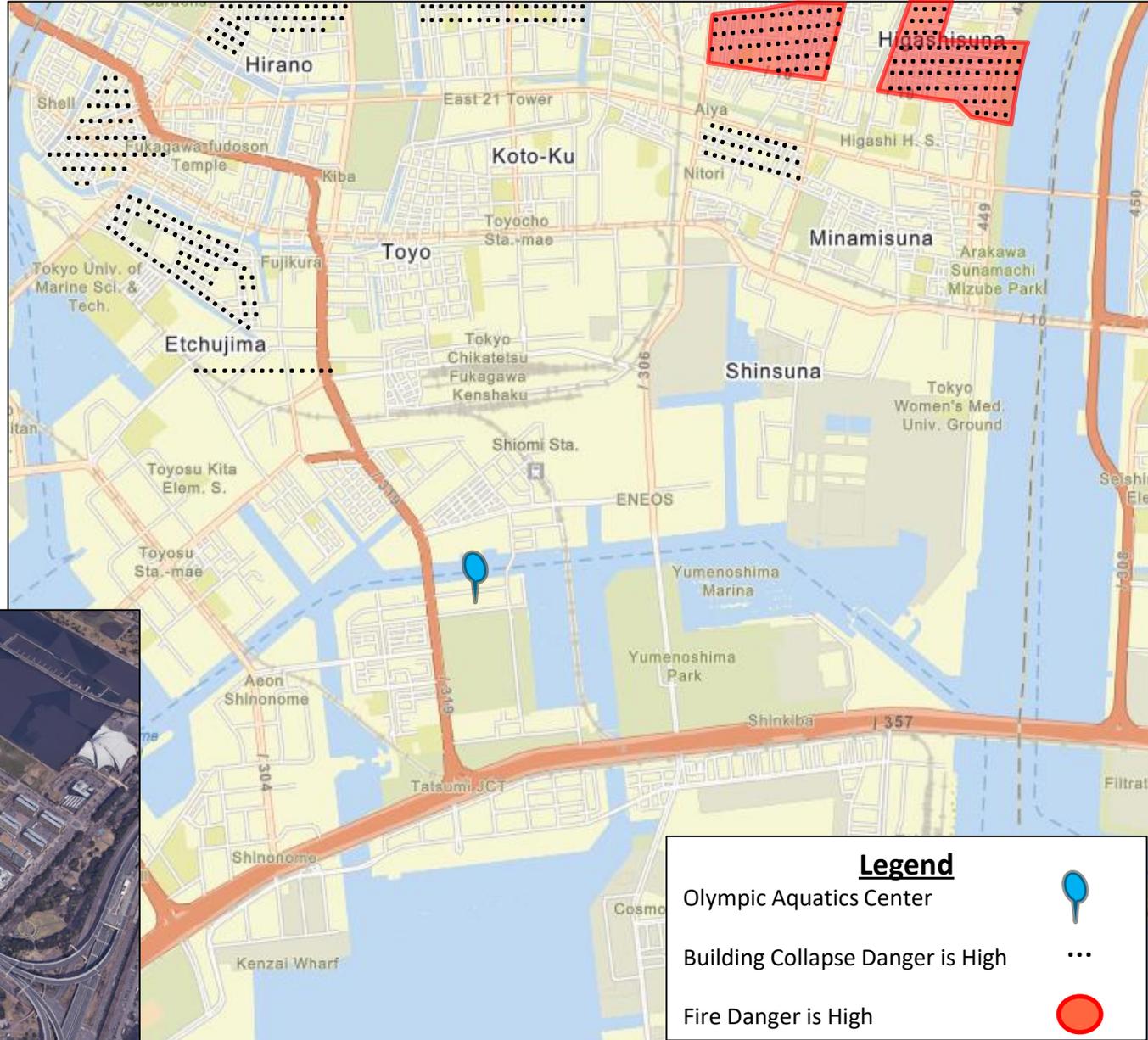
The center is part of the Koto ward located in Tokyo Metropolis and refers to itself as Kōtō City in English. As 2018, the ward had an estimated population of 515,029 and a total area of 40.16 km².

Capacity:

- 20,000

Events:

- Swimming, Diving, and Synchronized Swimming



Legend	
Olympic Aquatics Center	
Building Collapse Danger is High	
Fire Danger is High	