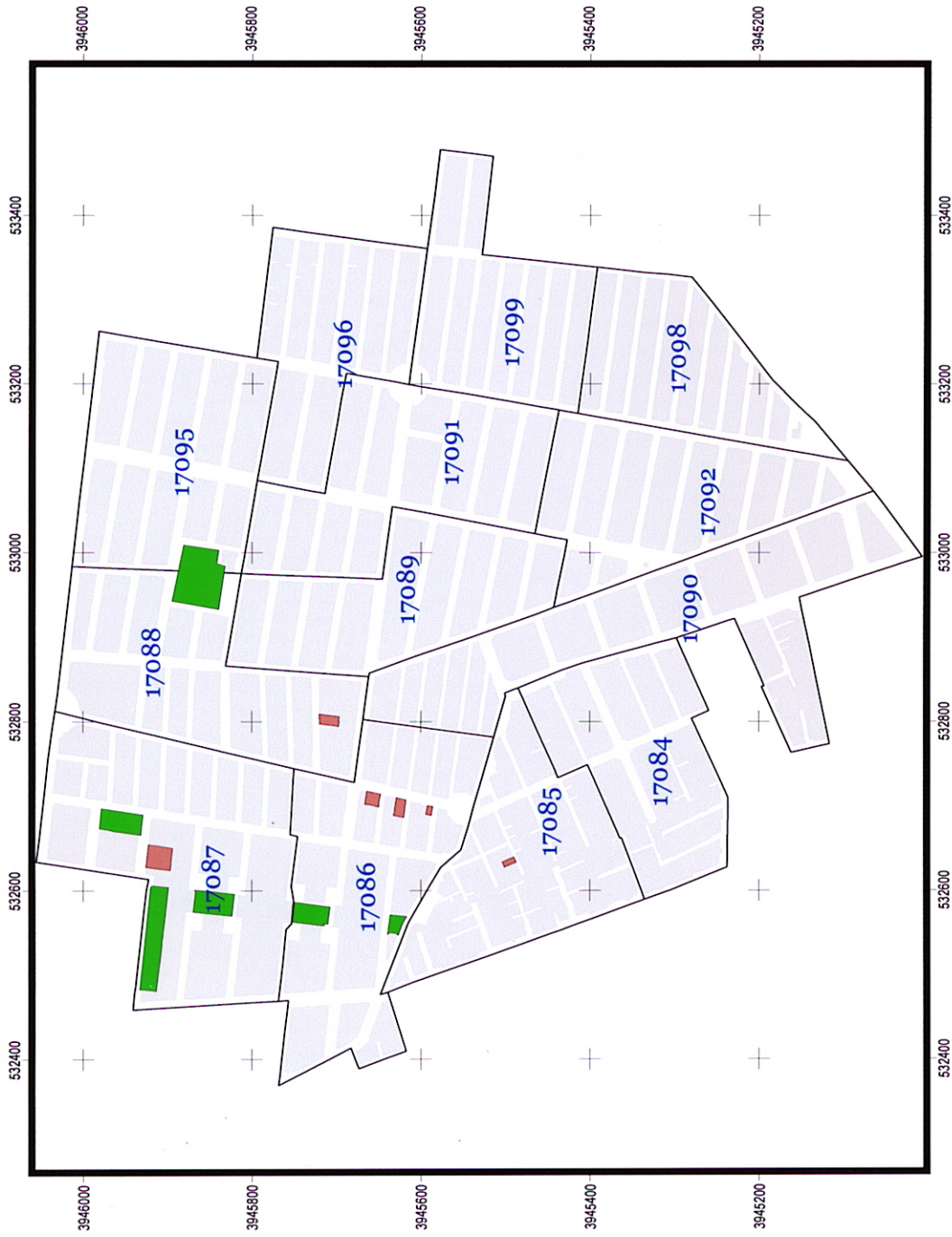


Figure 6.1.8

Park and OpenSpace



THE STUDY ON SEISMIC MICROZONING OF THE GREATER TEHRAN AREA
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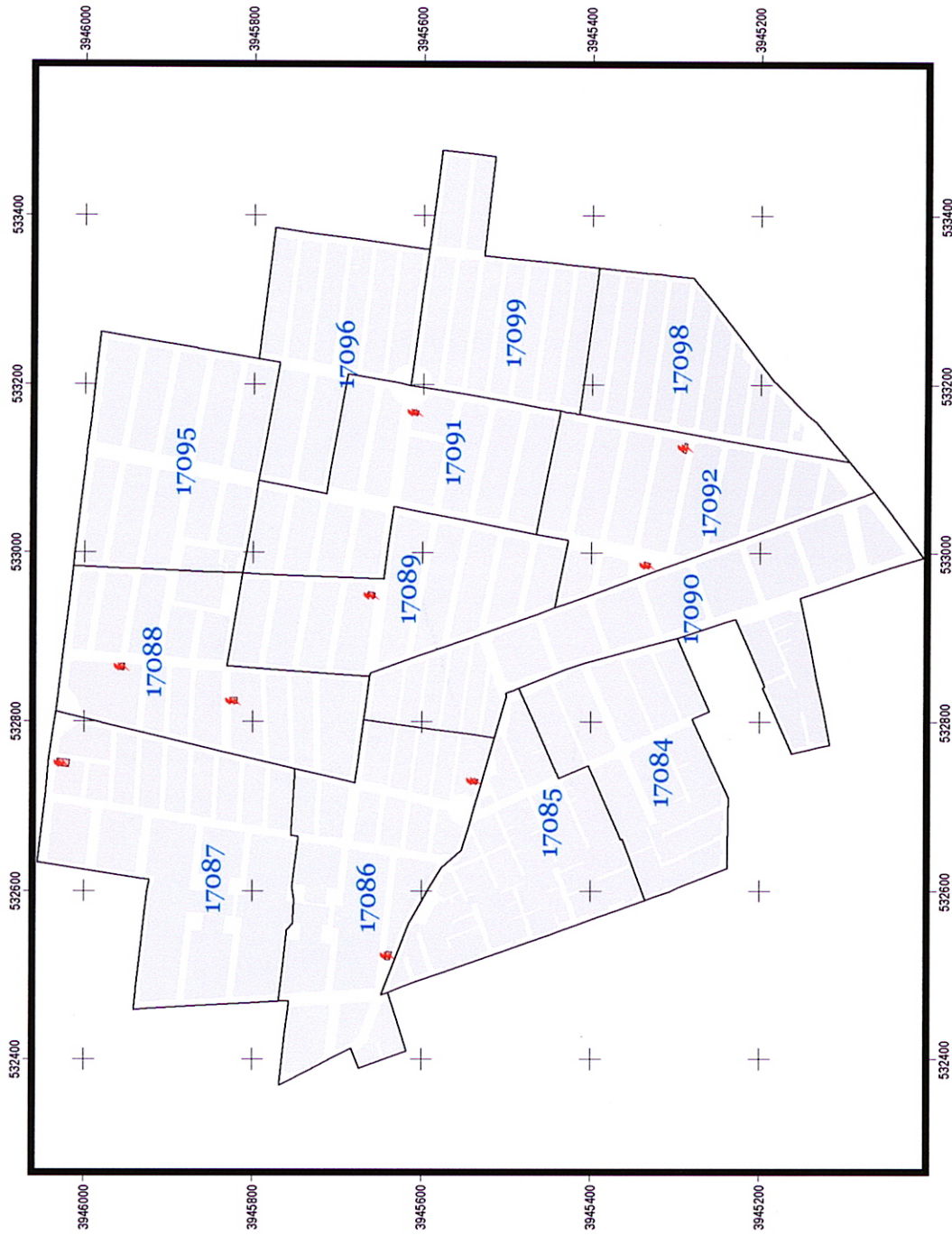
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Japan International Cooperation Agency (JICA)

(12) Evacuation Site

For the security of people in earthquake-stricken areas, there is a need to prepare an evacuation site that could be used temporarily or for a long period of time after the disaster. Open spaces such as parks, school grounds, agricultural land, etc. within the community or neighbourhood should be identified for this purpose. Unfortunately, there is no such space available in the PSA, as shown in Figure 6.1.9. There is one small park located in the boundary area between census zones 88 and 95; however, it has a total area of only 0.5 hectares. Other open spaces in the PSA are too small to use as evacuation sites. Therefore, a site will have to be identified in another area. One possible candidate site is the Ghaleh Morghi military base, which belongs to District 19. Recently, this military base was transferred to the Tehran Municipality and is planned for use as a park. Currently, there is no designation of an evacuation site for community residents living in the PSA, or in District 17 in its entirety. A comprehensive evacuation plan should be prepared as one of the measures for seismic disaster management.

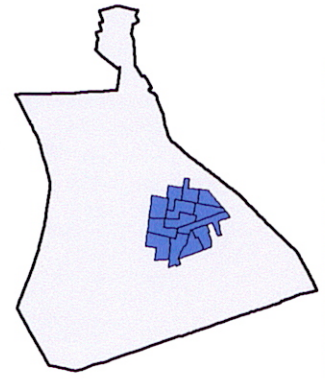
Figure 6.1.9

Electricity Transformer Location



Legend

- Electricity Transformer
- Census Zones (Code No.)



Location of Pilot Study Area in District 17

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(13) Community Organisation

Community organisation plays a significant role not only in first aid activities during a seismic disaster, but also for collection and dissemination of disaster information to the entire community. Community leaders should work together with district officials to draw up proper and necessary instructions for evacuation, first aid operations and the security of the community. However, community groups have not yet been organised in the PSA. Therefore, their establishment on a housing block basis should be, at least, discussed for the mitigation of a possible disaster. General community participation in disaster mitigation should also be discussed and planned.

(14) Disaster Prevention Awareness

It is necessary to raise the people's awareness on seismic disaster prevention based on proper dissemination of disaster prevention information through administrative organisations, school education and mass media. The main purpose of raising public awareness on seismic disaster prevention is to minimise human casualties as much as possible. The effective promotion of disaster prevention measures hinges not only on the improvements of arrangements by the city of Tehran, the district office and concerned institutions, but also on the active involvement of citizens. Presently, the activities of Tehran, including those of the district office, for the raising of public awareness on disaster prevention is not clear. However, the people should, at least, be given the necessary information that would be helpful in case of a seismic disaster.

6.1.5. Issues for Seismic Disaster Prevention in the PSA

A detailed site survey of the PSA was conducted to identify existing problems and issues for seismic disaster prevention. Building and population data were checked to update the data of the 1996 census, which was based on parcels. Building use was also verified to determine the general urban land use. Intensive discussions concerning seismic disaster prevention were held with responsible persons for disaster management of District 17. All data, discussions and results of the site survey were combined and analysed from the point view of seismic disaster prevention.

Based on the above, the Study Team reached a clear conclusion that the PSA, including its surrounding area, has no defence system against a potential strong earthquake. In the worst-case scenario, huge damage is estimated in these areas; therefore, necessary measures for seismic disaster mitigation, at least to save human lives, must be prepared as soon as possible. The following items should be implemented for seismic disaster mitigation in a planned manner:

- 1) Urban seismic disaster prevention and a risk management plan must be prepared by Tehran immediately. Under the direction of the plan, each district must take and prepare necessary measures for seismic disaster mitigation. It is also necessary to clarify the role of community in disaster prevention efforts such as first aid, evacuation and information collection and dissemination. The city of Tehran and each district office should work together to formulate an earthquake disaster prevention and risk management plan.
- 2) The most urgent project is retrofitting structurally weak school and public facility buildings in the PSA. There are 13 schools and 4,000 students in this area; however, the resistance of school buildings against a strong earthquake is not sufficient. The earthquake resistance of each school building should be checked immediately, and necessary retrofitting, reconstruction and even school relocation should be implemented. Public facilities such as the district office building, hospitals or clinics, and related public buildings should also be checked and necessary reinforcement of these buildings should be conducted.

- 3) Identification and designation of evacuation sites for the people living in the PSA is quite important. At the present time, there is no suitable open space to serve as an evacuation site in the PSA except a small green area. Evacuation sites to be used in case of a seismic disaster occurrence should be discussed and prepared in the neighbourhood of the PSA under the coordination of the city of Tehran and the related district office. Evacuation routes should also be confirmed and designated by the district office. All this information must be relayed to the community through the proper channels.
- 4) Emergency response measures must be taken soon by the district office. Seismic disaster prevention bases, or headquarters, should be prepared in the district office building, and basic supplies for emergency response, such as food, water, medicine, tools for preliminary rescue operations and generators should be kept in stock. Emergency medical services should also be planned.
- 5) People's participation and public awareness on seismic disaster prevention should be promoted. First-aid rescue operations are the most important in saving human lives. If these rescue operations are conducted in a timely manner, there will be a 25% drop of casualties. In order to facilitate this, it is quite essential to promote community participation in seismic disaster management by raising people's awareness on disaster prevention.
- 6) Basic materials explaining earthquake disaster and measures for disaster mitigation should be prepared and disseminated properly. School education for younger generations should also be promoted.
- 7) Reinforcement of residential buildings must be discussed in depth. If buildings were to be built strong enough to withstand an earthquake, then building damage could easily be minimised. However, economic conditions dictate use of the most economical and higher cost performance structures and materials for building construction. The building code for construction regulated by the government will always be kept at the minimum level of its technical instructions. Thus, due to the long-term practice of this kind of system, some parts of the urbanised area accumulate urban structures that are very vulnerable to earthquakes. It is necessary to redevelop these vulnerable areas for the security of people living there. However, the issue of urban redevelopment in large cities always requires a long time to reach a consensus on among the people concerned. Therefore, the restructuring of urban land-use for disaster mitigation should be pursued under a well-coordinated and planned manner by the city of Tehran from mid- to long-term points of view.
- 8) In relation to urban redevelopment, relevant institutional frameworks, such as tax incentives, low interest housing loans, and bonuses for floor to area ratio etc., should be formulated to create stronger urban structures against seismic disaster. Formulation of these policies should also be discussed from a long-term point of view as one measure for disaster prevention.