

A Planning Proposal of Fire Station in South-West Zone, Surat City

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Abstract - Infrastructure is the key tool for development of any nation. Infrastructure (Economical and Social) plays a major part in economic development of the country and improving the well-being of community. Social infrastructure plays an important role in improving the quality of life of citizens. Social infrastructure includes health, education, recreational area, open space and distributive services. In this project we are going to analyze the social infrastructures in the south-west zone of surat city and to make a proposal to improve fire safety. The purpose of proposed study is to assess the existing condition of social infrastructure in the study area to identify gaps (existing and projected) as per the norms and guidelines and to propose for improvement and suitable recommendation, which could contribute to increase in overall safety of the people.

Key Words: Town Planning, Surat, Fire Station, Fire Safety, Social Infrastructure, Urban Development

1. INTRODUCTION

The infrastructure development of any country includes both economic infrastructure development that is the development of various sectors and also the social infrastructures. Development of economic infrastructure cannot usher in overall development at the desired level if the social infrastructure is not simultaneously developed.

The capacities and technical refinement of the economic infrastructure like roads, sewers, electricity, open spaces, gardens and the evolving requirements of social infrastructures like shopping complexes, restaurants, medical facility zones, schools etc, are clearly delineated. education, health, social security, water supply, shelter and sanitation etc, has to be developed to ensure proper social infrastructure. Social infrastructure can be defined as a system that makes a society safe through the provision of health, education, public services, and recreation. Social infrastructure is also take part in the economic development of a country.

1.1 COMPONENTS OF SOCIAL INFRASTRUCTURE

The quality of life in any urban centre depends upon the availability of and accessibility to quality social infrastructure. These include the following Infrastructure

- a) Education facilities
- b) Healthcare facilities
- c) Socio Cultural facilities
- d) Recreational facilities
- e) Sports Facilities
- f) Distribution Services
- g) Police Safety

1.2 THE PURPOSE OF SOCIAL INFRASTRUCTURE

Generally, the purpose of social infrastructure is based on some key objectives. These are that social infrastructure should:

- Be targeted to local needs and reflective of community priorities to ensure they are tailored to the particular social needs of the area they serve. Understanding and responding to the unique and individual circumstances of each area increases the utilization of facilities and ensures that they address the needs and interests of the local population.
- Contribute to the health, wellbeing and quality of life of members of the community through a range of services, activities and programs that support the lifestyle needs, foster social networks and social interaction between different groups, contribute to social cohesion and social inclusion and build the skills and capacity of individuals and group.

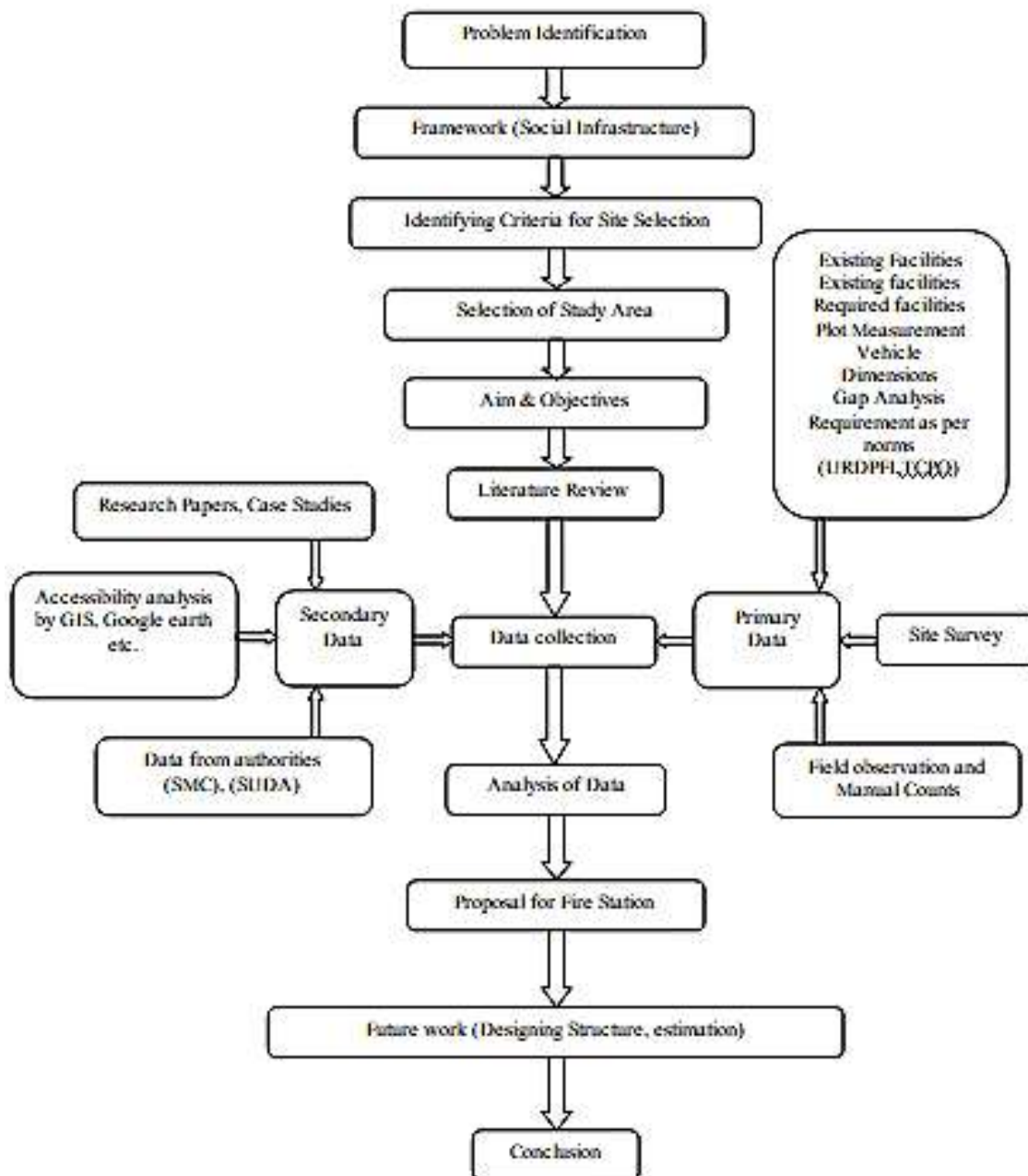
2. AIM

To Analyze the Social Infrastructures in the South-West Zone of Surat City and to make a Proposal to Improve Fire Safety.

3. OBJECTIVES

- To Assess the Current Scenario of Social Infrastructure (Safety management) in Study Area.
- To identify need of Fire Station in the South – west Zone.
- To Prepare Planning Proposal of Fire Station in the Study Area

4. METHODOLOGY



5. STUDY AREA PROFILE

- General terrain of the Surat city is 13 Mt above the MSL. It is situated in a well-developed region of the Southern Gujarat. It is located 306 km south to the state capital, Gandhinagar.
- Surat Municipal Corporation (SMC) has practiced Zonal systems for public administration, following a functional decentralization approach of services management.
- The whole Surat city has been divided into 7 administrative zones. Here, the Assessment of social infrastructure in South-west zone of the city is discussed.

Table 1 Surat population data (Urban area)

YEAR	POPULATION	GROWTH RATE (%)	GROWTH
2035	10813442	2.17%	1102068
2030	9711374	2.50%	1129641
2025	8581733	3.62%	1397143
2020	7184590	4.52%	310834
2019	6873756	4.93%	1202832
2015	5670924	4.99%	1226233
2010	4444691	4.99%	961080
2005	3483611	5.18%	777368
2000	2706243	6.42%	723267
1995	1982976	6.22%	516789

Table 2 Demography of Surat City

ZONES	AREA IN SQ. KM	POPULATION (IN LAKHS)	DENSITY PER SQ. KM	DECADE GROWTH (2001-2011) (%)
Central	8.18	4.08	49971	-1.18
South-West	111.91	3.47	3105	43.30
South	61.76	6.95	11253	70.36
South-East	19.49	7.48	38390	88.37
East	37.52	11.37	30303	59.82
North	36.36	7.05	19392	69.36
West	51.28	4.24	8288	48

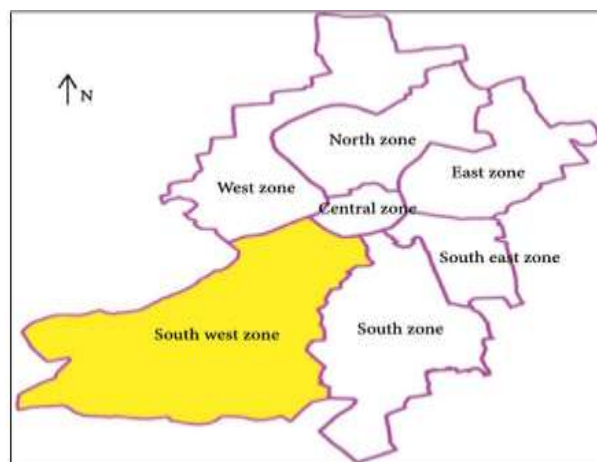


Figure 1 Study Area

6. RESULT AND ANALYSIS

6.1 ZONE WISE FIRE STATION DETAILS

Table 3 Zone wise fire stations

SR NO.	ZONE	FIRE STATION
1	Central Zone	i. Muglisara ii. Ghanchi Sheri iii. Navsari Bazar
2	East Zone (Varachha)	i. Kapodara ii. Mota Varacha
3	West Zone (Rander)	i. Adajan ii. Mora Bhagal iii. Palanpor
4	North Zone (Katargam)	i. Katargam ii. Kosad
5	South Zone (Udhna)	i. Bhestan ii. Pandesara
6	South East Zone (Limbayat)	i. Man Darwaja ii. Dumbhal iii. Dindoli
7	South West Zone	i. Majura ii. Vesu

6.2 GUIDELINES FOR LOCATING FIRE STATIONS AND OTHER FIRE FIGHTING FACILITIES (AS PER MPD)

- Fire stations should be located so that the fire tenders are able to reach any disaster site within 3-5 minutes.
- Fire stations should be located on corner plots as far as possible and on main roads with minimum two entries.
- In the new layouts, concept of underground pipelines for fire hydrants on the periphery exclusively for fire-fighting services should be considered.
- Necessary provisions for laying underground/over ground fire fighting measures, water lines, hydrants etc. may be kept wherever provision of fire station is not possible.
- The concerned agencies shall take approval from Fire Department for fire-fighting measures while laying the services for an area.

6.3 GAP IDENTIFICATION FOR FIRE STATION IN SOUTH-WEST ZONE

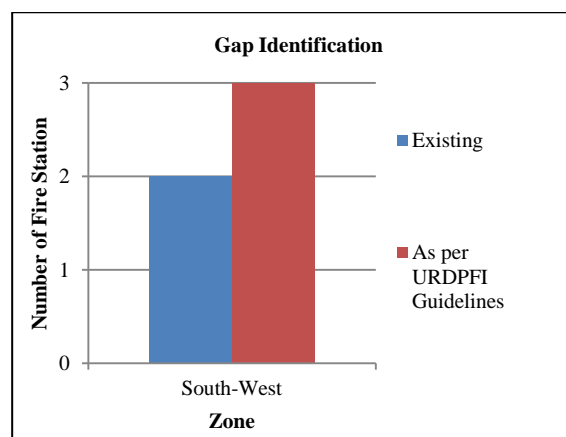


Figure 2 Gap identification

6.4 COVERAGE AREA OF FIRE STATIONS

- Data collection was done to assess the existing number of Social infrastructure (Safety Management) in the study area.
- According to the URDPFI guidelines, social infrastructure includes educational facilities, healthcare facilities, socio-cultural facilities, open spaces, sports facilities, distribution services, police safety and safety management. Information was collected with the help of Surat Municipal Corporation (SMC).
- The location of each Facility was obtained in terms of latitude and longitude with the help of Google earth and site visits.

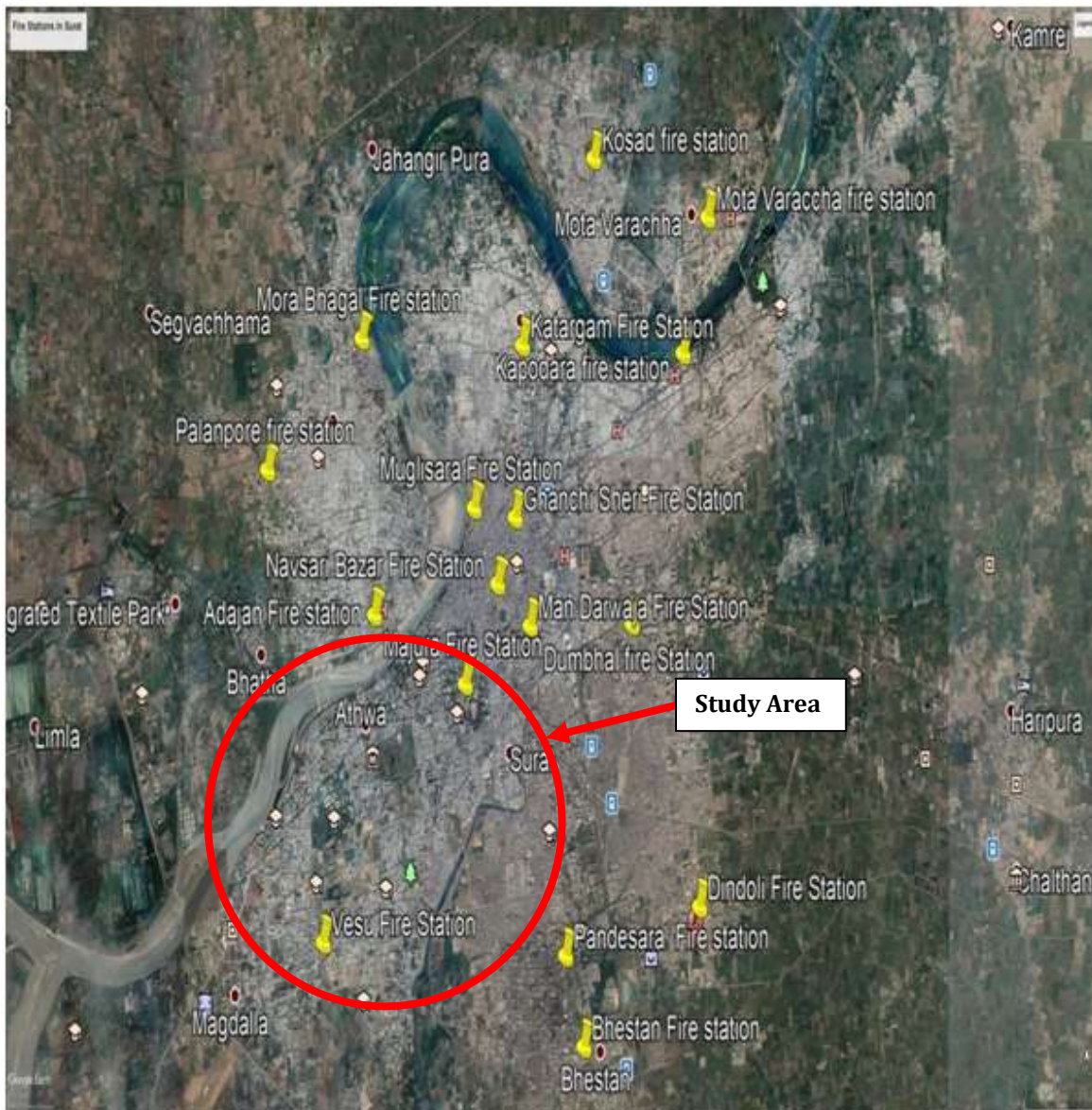


Figure 3 Total fire stations in Surat



Figure 4 Location and coverage area of fire station in east zone

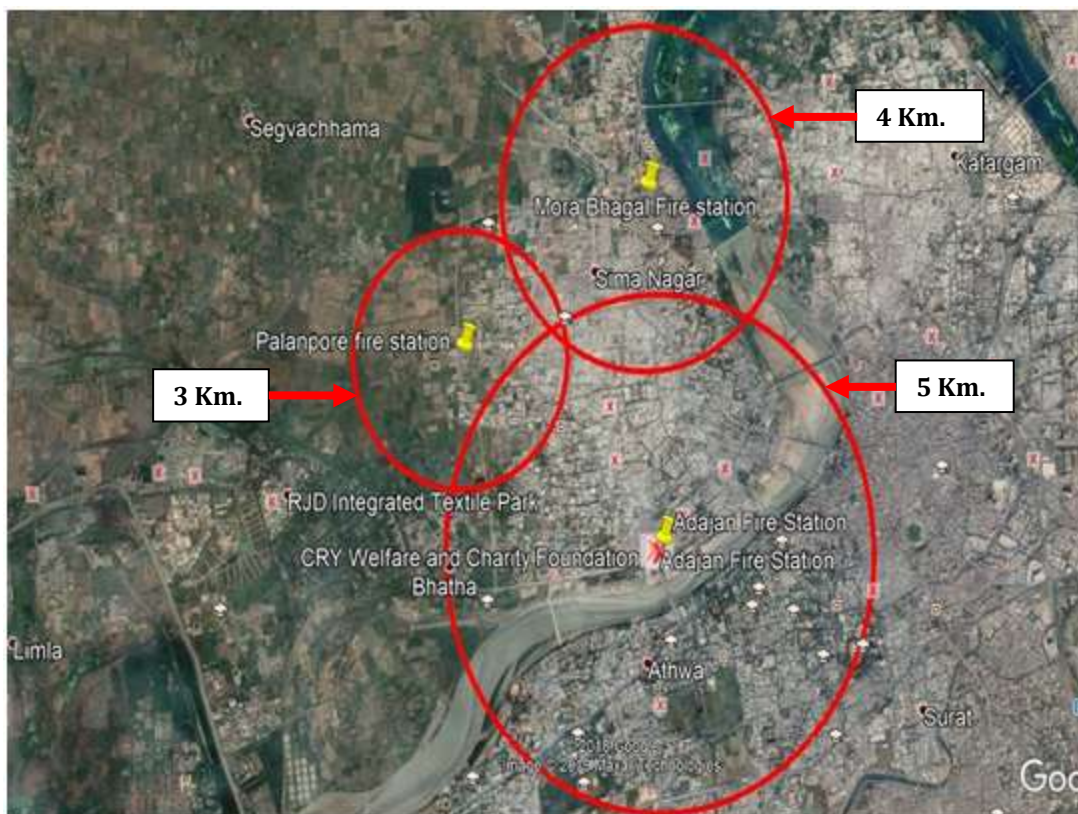


Figure 5 Location and coverage area of fire station in west zone

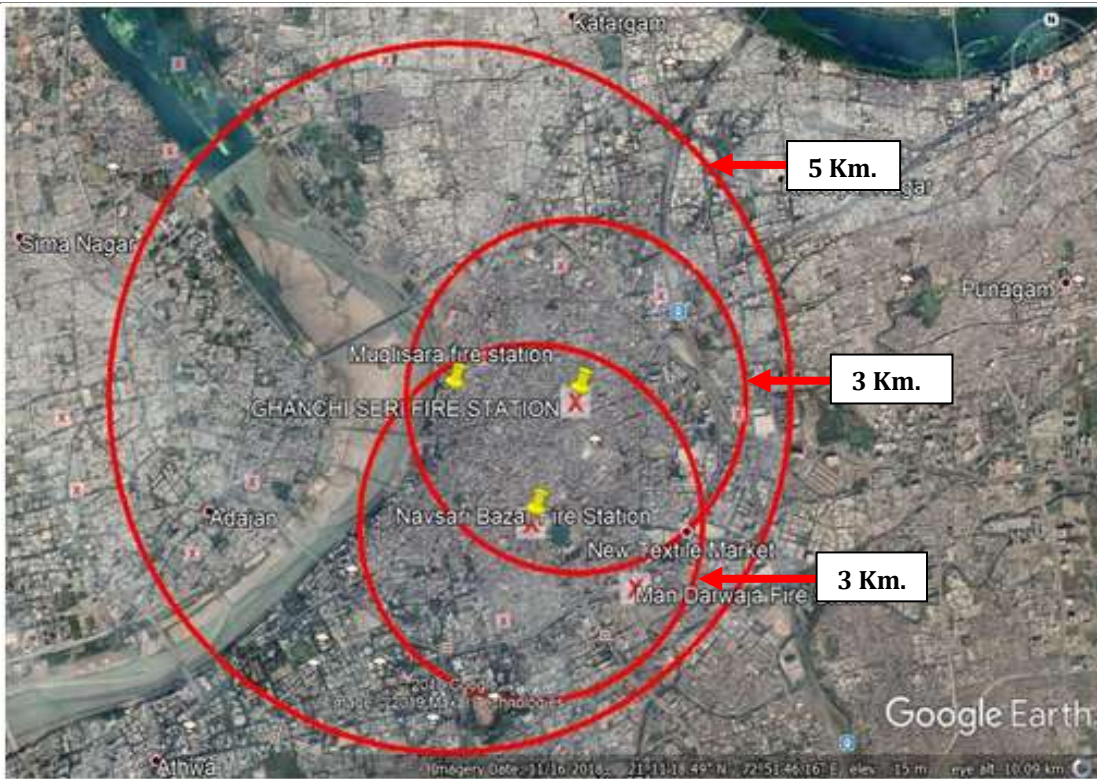


Figure 6 Location and coverage area of fire station in central zone

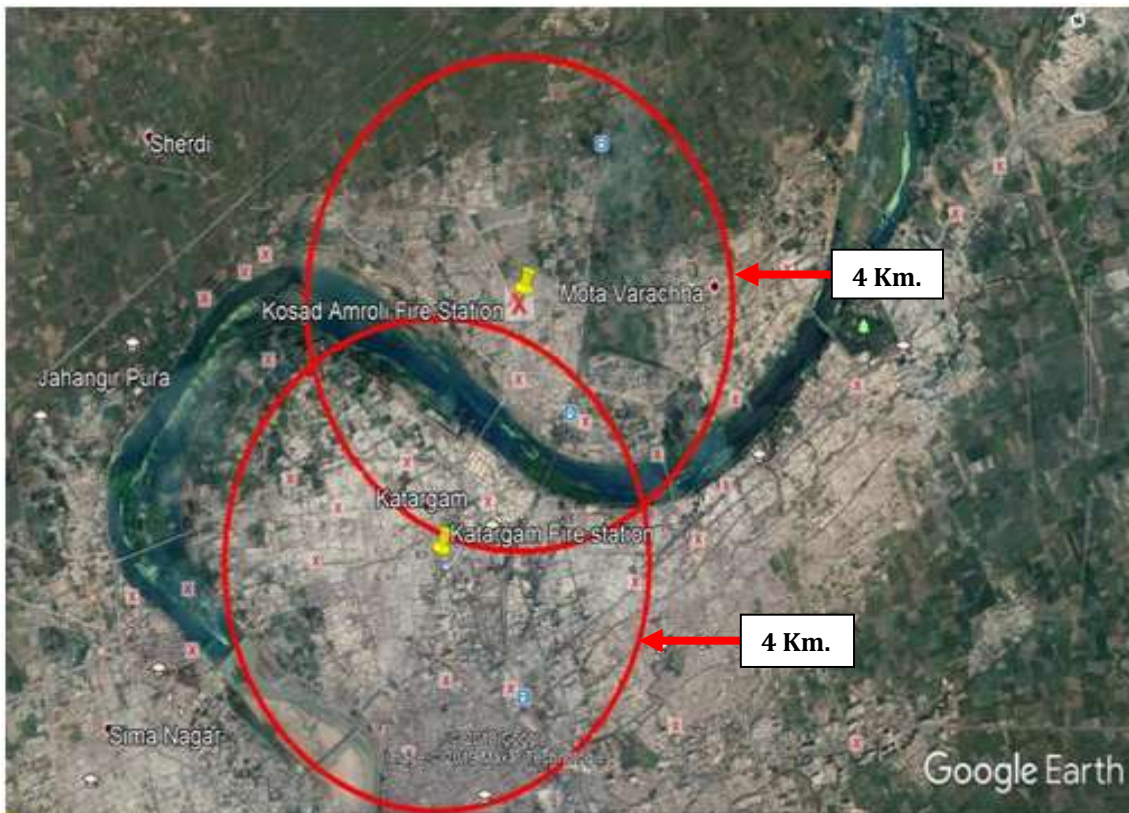


Figure 7 Location and coverage area of fire station in north zone



Figure 8 Location and coverage area of fire station in south zone

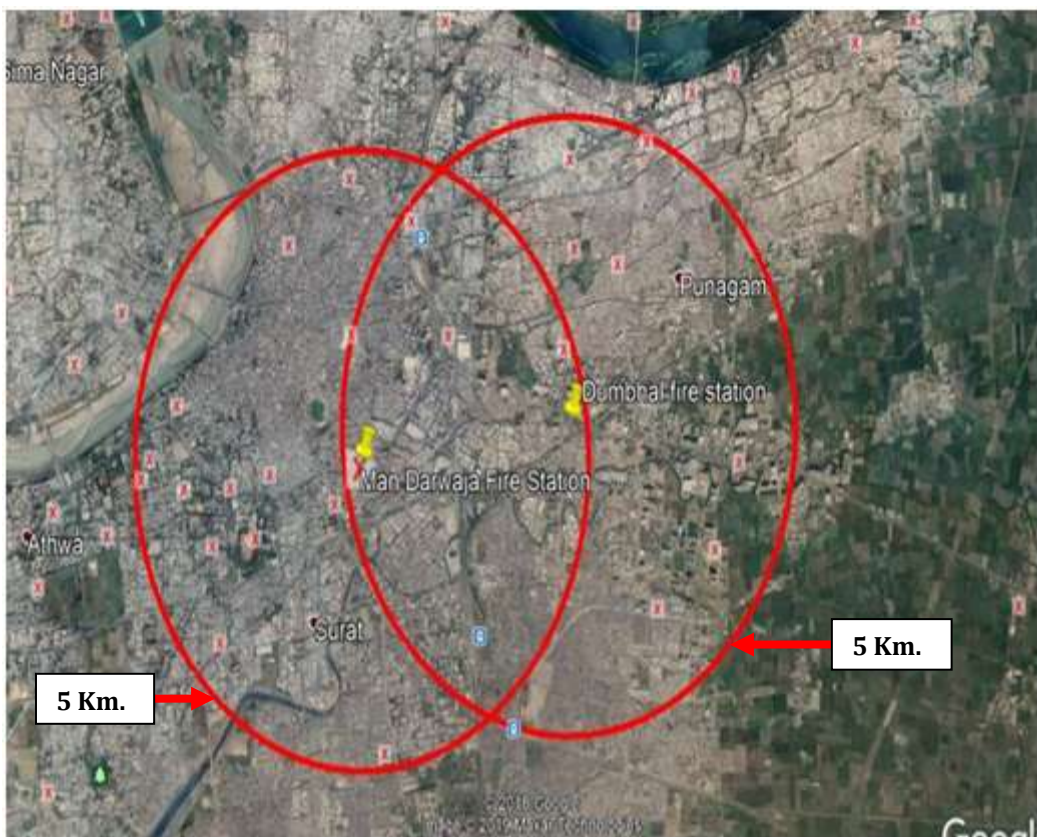


Figure 9 Location and coverage area of fire station in south-east zone

The south-west zone is the largest zone having area of 111.91 sq. km. but the zone has only 2 fire stations which are:

- Vesu Fire Station
- Majura Fire Station

As per URDPFI guidelines there must be atleast 3 fire stations to gain control over the entire zone and with the rapid growth of population in different zones it is very crucial and important to improve safety of the people.



Figure 10 Location and coverage area of fire station in south-west zone

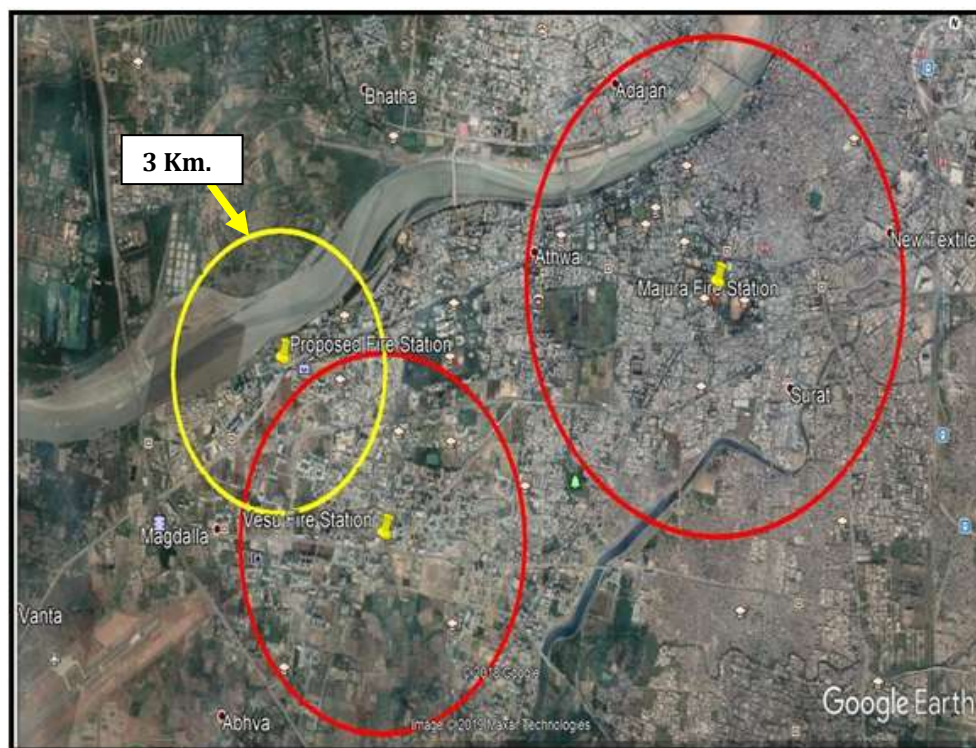


Figure 11 Location and coverage area of proposed fire station in south-west zone

For the improvement of the existing situation of various fire stations, the T.P. schemes of the study area were studied. The T.P. schemes studied can be listed as following:

- T.P.S.NO.1 (VESU)
- T.P.S.NO.3. (RUNDH)
- T.P.S.NO.4 (RUNDH-MAGDALLA)
- T.P.S.NO.6 (VESU)
- T.P.S.NO.5 (ATHWA-UMRA)
- T.P.S.NO.6 (PIPLOD)
- T.P.S.NO.9 (MAJURA)
- T.P.S.NO.43 (BHIMRAD)
- T.P.S.NO.36 (ALTHAN)
- T.P.S.NO.13 (VESU-BHARTHANA)



7. CONCLUSION

By analysis of the data collected and as per the URDPFI guidelines, we have proposed construction of fire station in rundh area on the final plot no. 72, having area of 807 sq. Mt. which is under town planning scheme no.3 (rundh) in the study area (south-west zone).



Figure 13 F.P.72 T.P.S.NO.3 (RUNDH)

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