Abstract
A geographical information system framework will be developed for highway maintenance and repairment. This framework, of high functionality and visualization, will be used by all administration, institution and person related to highway systems, in order to access, in 3D digital environment, to all kind of spatial, temporal and attribute information about all kind of items underneath/above around highways, as well as to generate very complex spatial offline / online temporal visual and tabular queries and to create reports and maps under different level user privileges. The study is expected to create an efficient spatial data collection / storage / management approach of wide impact in its field, by its high functionality and by its strength which can shape / be used in all kind of administrative and executive processes related to highway management.

Literature summary
GIS has found large application area in many scientific research and development studies. Most of the uses in Turkey are as a scientific tool in researches; however, a recent desire arise to use it in administrative works. Since the technology is still new and developing, since there is lack of experienced labor and since there is still some way to approach intellectual maturity, in this field, limited numbers of GIS studies begun to be constructed in the country are conducted mainly by means of private companies, resulting in basic level un-updated information systems with relatively high visualization but low functionality thus far from being usable in shaping administrative processes.

In this context, when the researchers and studies in the world and Turkey are considered, only elementary level information systems providing basic level public information such as condition of traffic, location of bus stops, routes and schedules of motorways, save unspatial data bus and software packs could be accessed. No geographical information systems that are cellular referenced and directly used in all works and procedures conducted and implemented by highways administrations could be reached.

Study Area
Study is first developed for the Muğla Akyaka highway which is the first 20 km of Muğla-Marmaris highway. At the second stage, study will be developed for all roads of 26th Regional Administration of the General Directory of Highways. According to success of the study, the system developed will be taken so as to encompass all of the roads of Turkey.

Methods
The methodology followed through the study can be given under three headings.
• Geographical Information System & Spatial/Attribute data base studies.
• Highway Observation Car (KaraGOZ) & Measuring/Computing Systems.
• Data Processing/Broadcasting station.

Geographical information system
A Geographical Information System infrastructure, through which 3D queries can be implemented (about upper/lower road layers, all structures and facilities on/under/above/around highways, traffic signs, landscape works, traffic accidents, meteorological phenomena such as freezing, melting and flooding etc. and their attributes such as material, quantity, length, height, weight, person, photo, plan sketch etc.), is constructed utilizing an elaborately designed computer architecture based mainly on ArcGIS Server/Desktop utilities supported by a wide range of software systems.

Conclusion
Preliminary results of the study have been obtained for Muğla-Akyaka Highway of 20 km length, with supports of “Muğla Sıtkı Koçman University” and “26th region of Directorate of State Highways” Capability and applicability of the system has been tested, to some extent, under limited financial abilities. The steps to be taken and ways to be followed to improve the system for whole the 26th region are determined. Provided that adequate and continuous labor, equipment, devices and vehicle can be supplied, the project would be expected to create widespread impact with its model qualification and structure to be readily applied to all highway transportation networks.

References
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