

# **KING FAHD UNIVERSITY OF PETROLEUM & MINERALS**

Department of City & Regional Planning  
**Introduction To GIS**  
**(CRP 514)**



## **Identifying & Planning Public School Facility In California Using GIS**

**Presented to**  
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# Outline



- INTRODUCTION**
- PROBLEM STATEMENT**
- OBJECTIVES**
- STUDY AREA**
- DATA SOURCE**
- PROJECT APPROACH**
- FINDINGS & RECOMMENDATIONS**



# Introduction



- Geographic *Information System (GIS)* is defined as an information system that is used to input, store, retrieve, manipulate, analyze and output geographically referenced data or geospatial data, in order to support decision making for planning and management of land use, natural resources, environment, transportation, urban facilities, and other administrative records



# Introduction contd..



- These are the following reasons why a GIS is needed.
  - ❖ geospatial data are poorly maintained
  - ❖ maps and statistics are out of date
  - ❖ data and information are inaccurate
  - ❖ there is no data retrieval service
  - ❖ there is no data sharing



# Introduction contd..



- Once a GIS is implemented, the following benefits are expected.
  - ❖ geospatial data are better maintained in a standard format
  - ❖ revision and updating are easier
  - ❖ geospatial data and information are easier to search, analyze and represent
  - ❖ more value added product
  - ❖ geospatial data can be shared and exchanged freely
  - ❖ productivity of the staff is improved and more efficient
  - ❖ time and money are saved
  - ❖ better decisions can be



# Problem Statement



- The location of public facilities in urban landscapes is a multi-faceted process in which numerous social and physical criteria must be taken into account.
- Government schools are among such facilities which can be more efficiently sited with the aid of GIS tools.
- Most of the schools are located in the urban areas in United States and Community schools are neglected in many areas of United States.



# Objectives



- ✓ To identify the existing school facility in the area.
- ✓ To recognize the areas which are rich in facilities and population and do not have school facility.
- ✓ Make recommendations for development of new facility in the identified areas.
- ✓ To assess the strengths and limitations of this study.

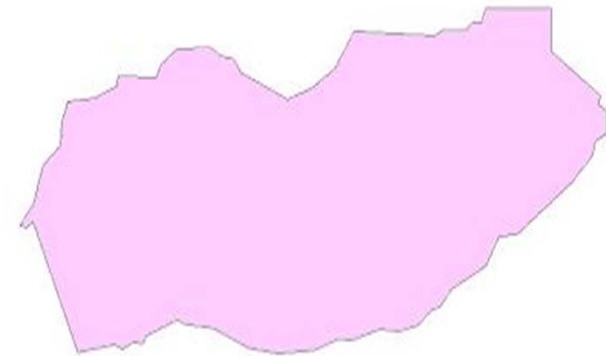




# Study Area



- The study area of this project is California in USA. In order to perform a detail study on the subject a small place called El Dorado was selected from California State.





# Data Source



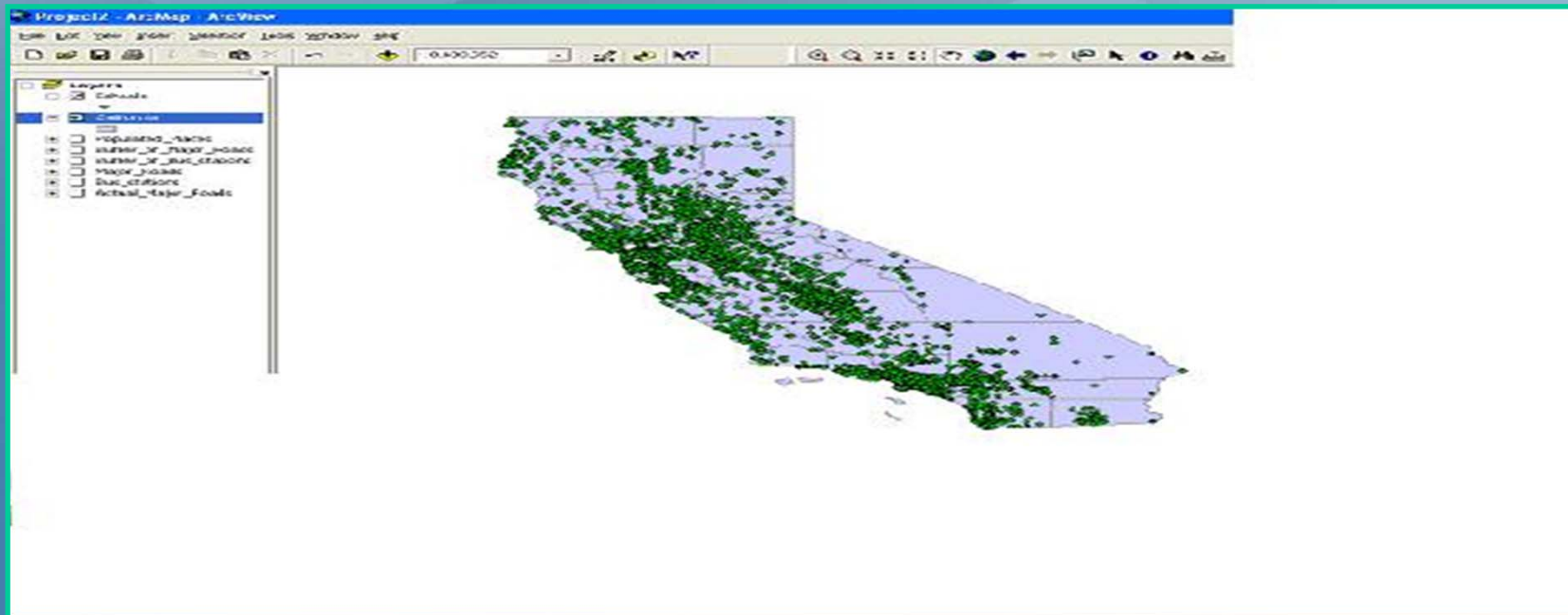
- This project has utilized the available data in GIS resources folder provided by ESRI which is present in GIS lab unit of City and Regional Planning Department of K.F.U.P.M. The software used in this project is Arc GIS.



# Project Approach



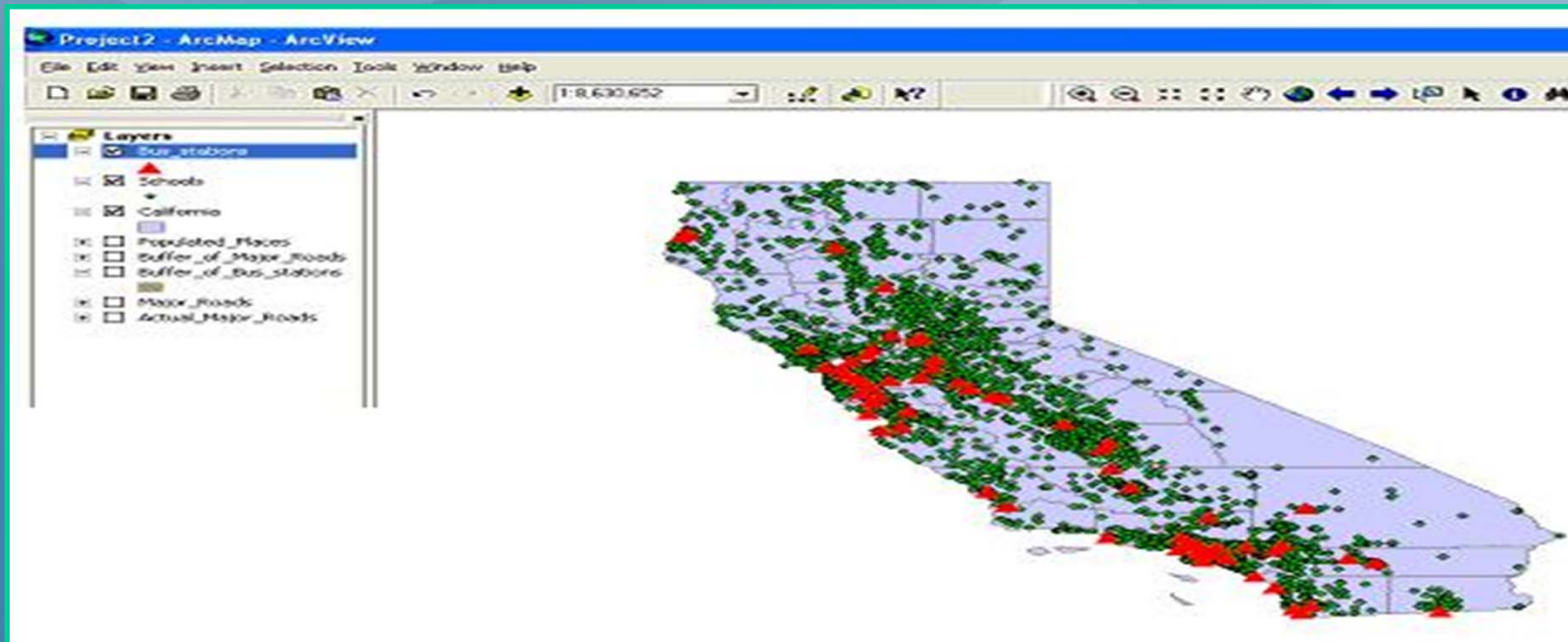
- Map of California along with existing school facility there.



# Project Approach contd..



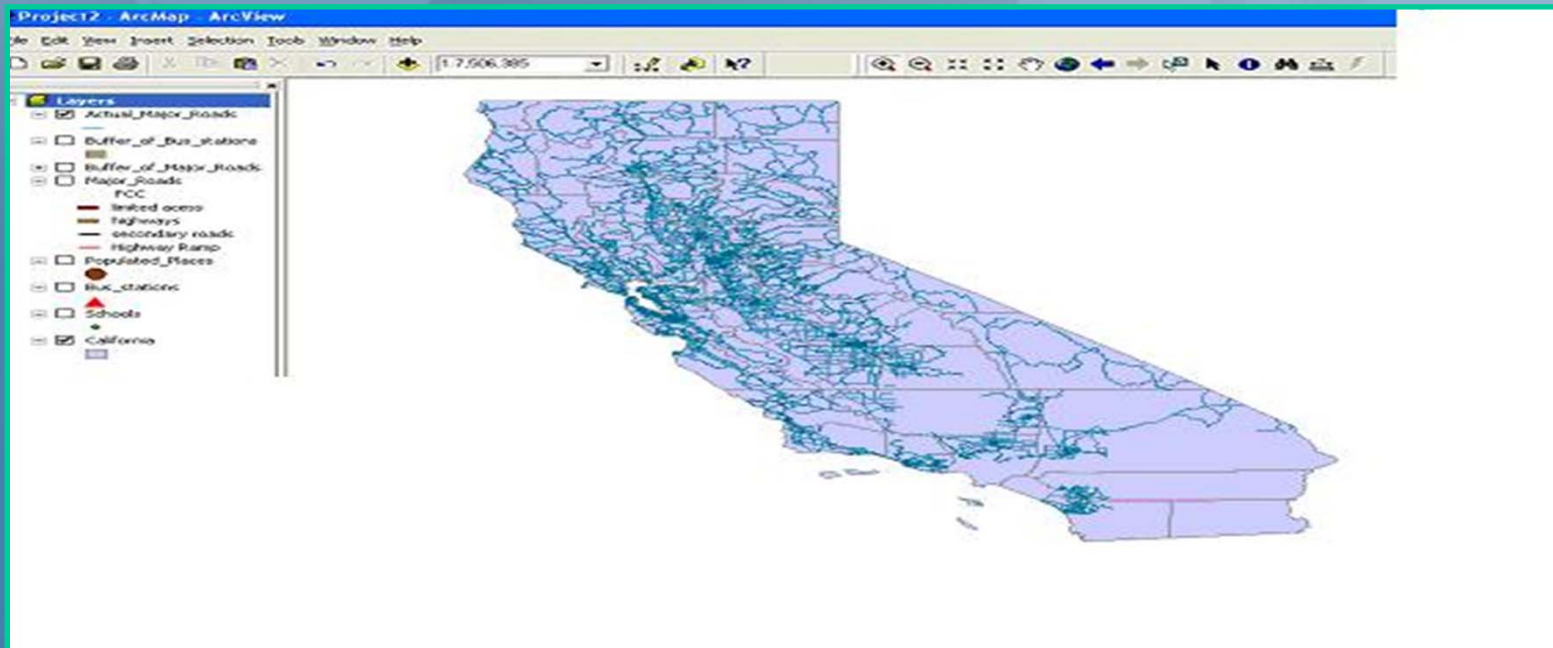
- A bus station layer is laid on the same map to see the accessibility to the schools.



# Project Approach contd..



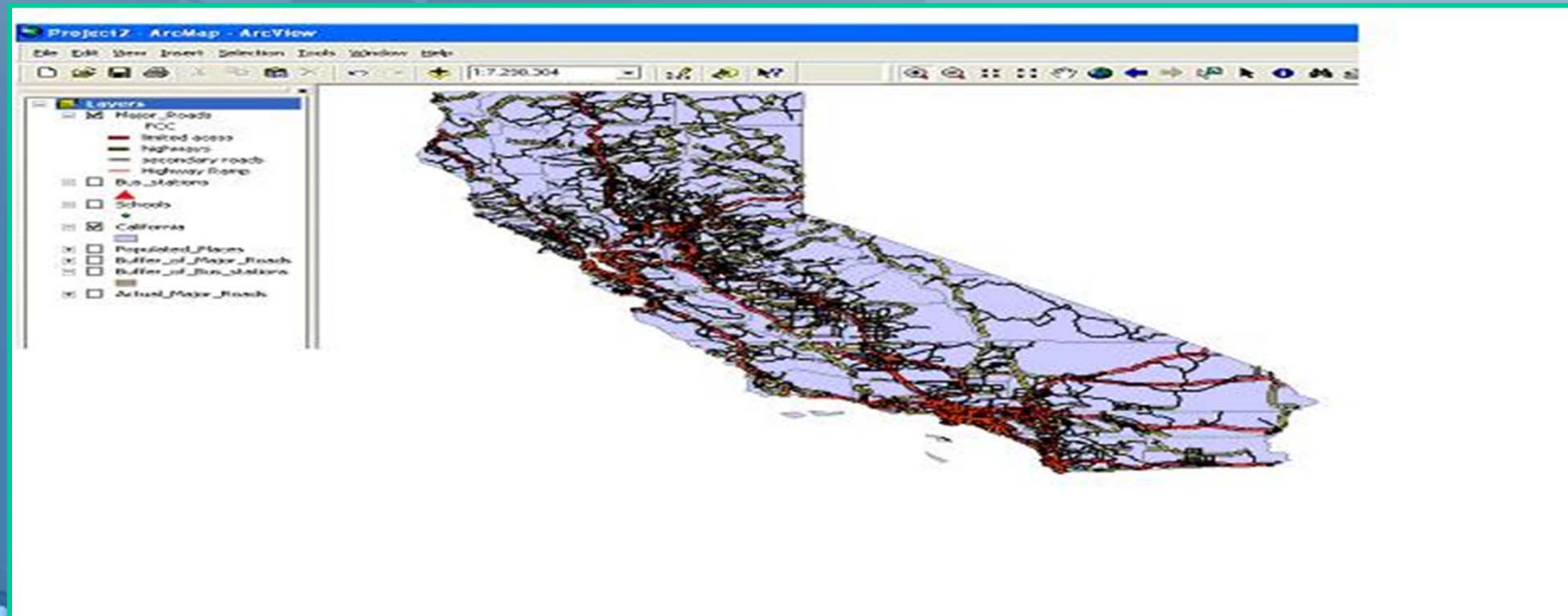
- A separate layer of major roads is laid on the map of California to see access.



# Project Approach contd..



- Since the road network was not clear it was categorized in to sub divisions like Highways, internal access, secondary roads and highway ramps.

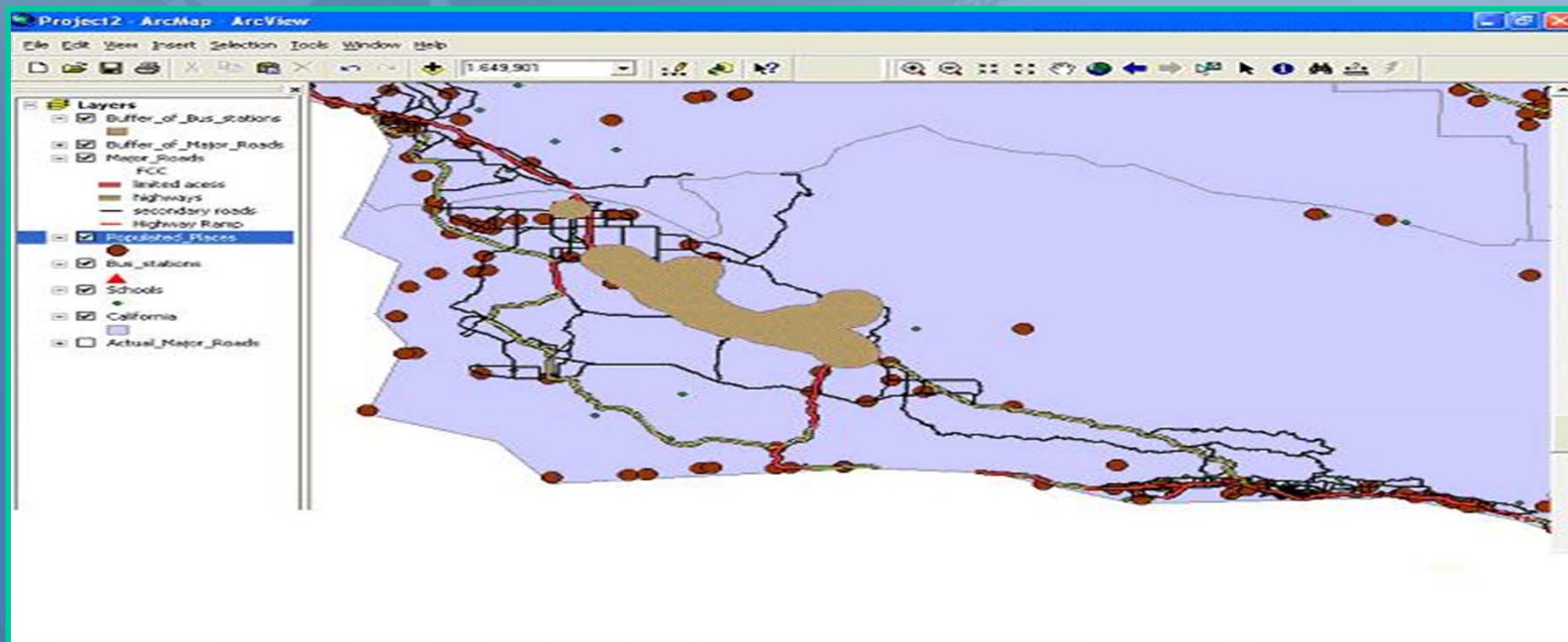




# Project Approach contd..



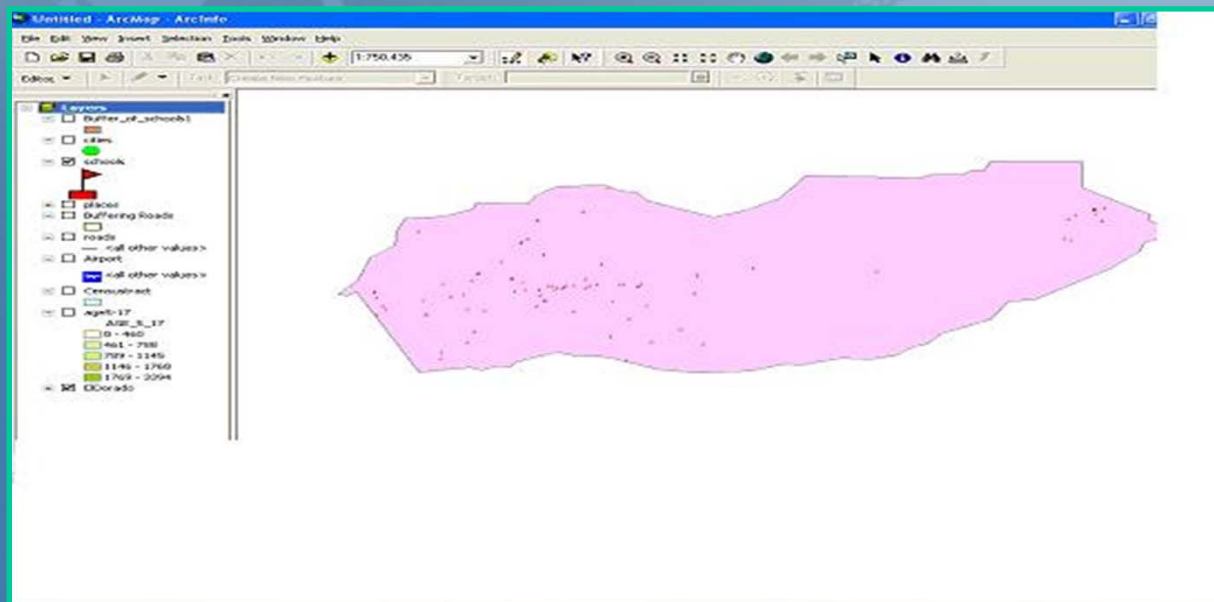
- A buffer of 1 km is laid around the bus station.
- A buffer of 2 km is laid along the high



# Project Approach contd..



- For further analysis a small county of California El Dorado was selected. The existing schools facility was determined.

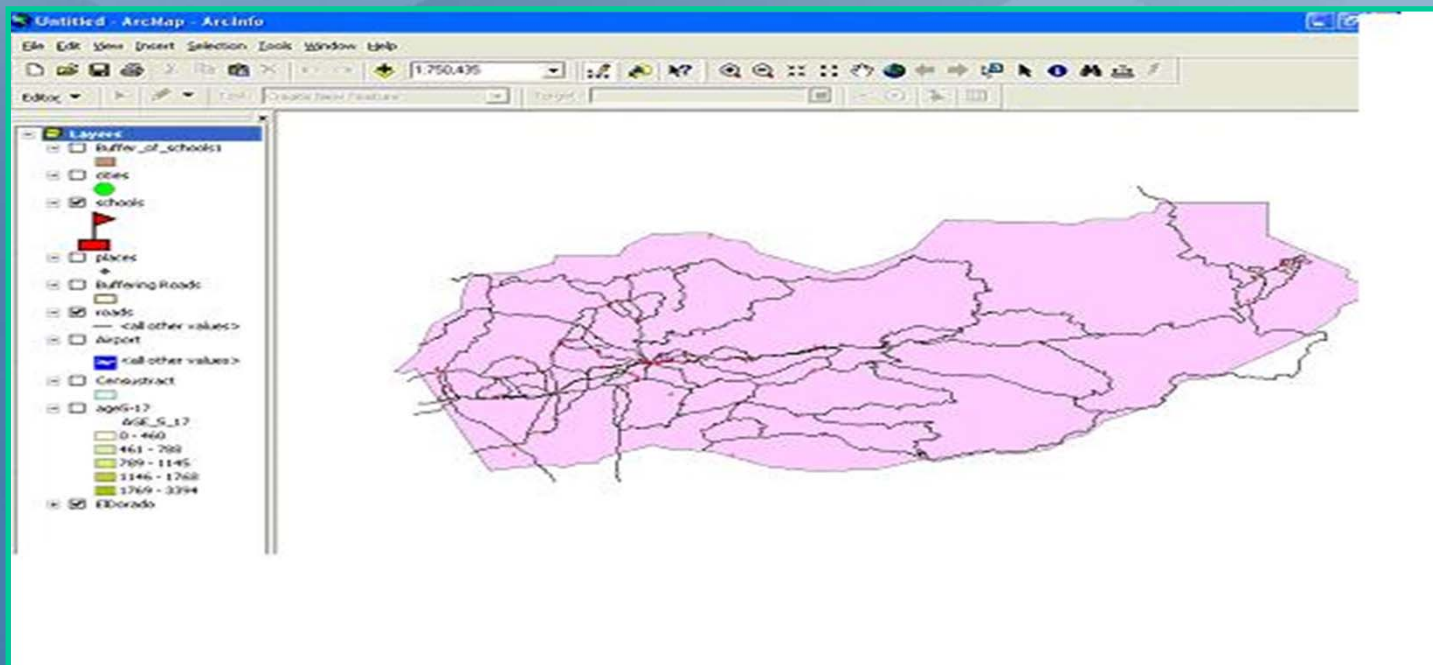




# Project Approach contd..



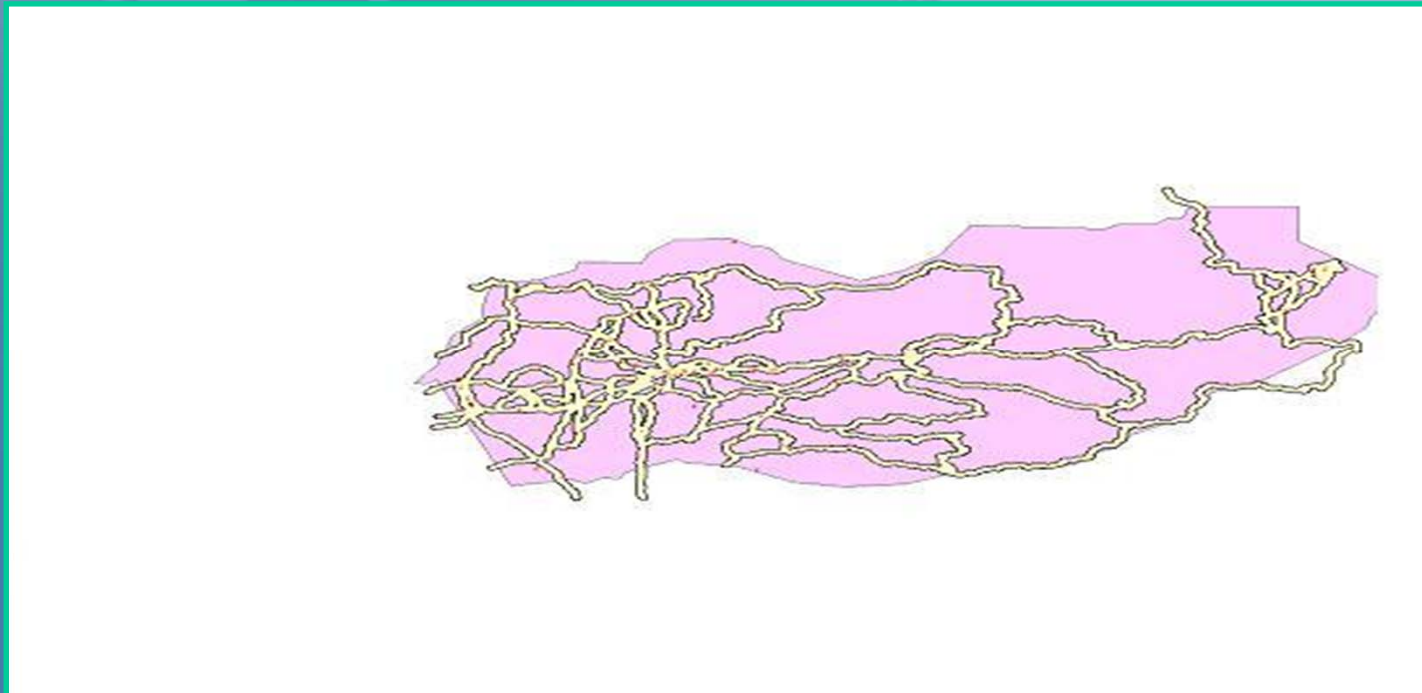
- A road network layer is laid to see the accessibility of the schools.



# Project Approach contd..



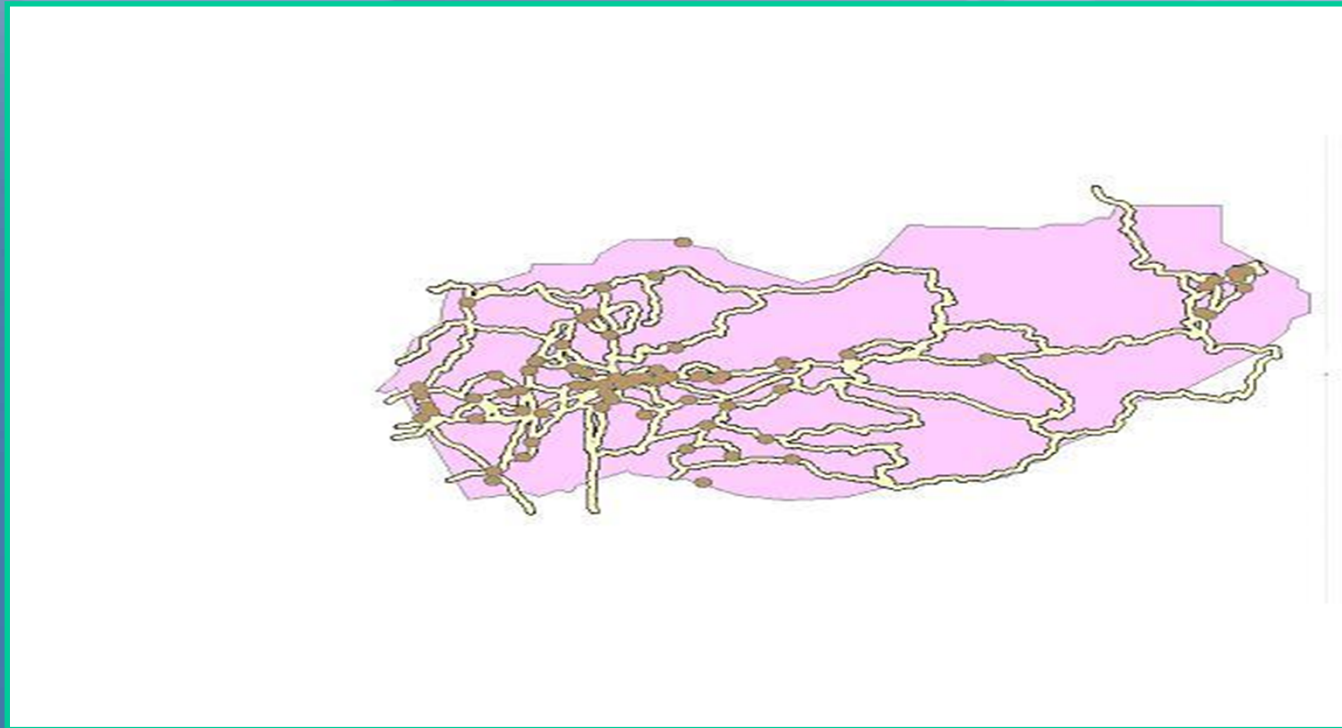
- A buffer of 0.5 km is laid along the road this shows that majority of schools fall on the major roads.



# Project Approach contd..



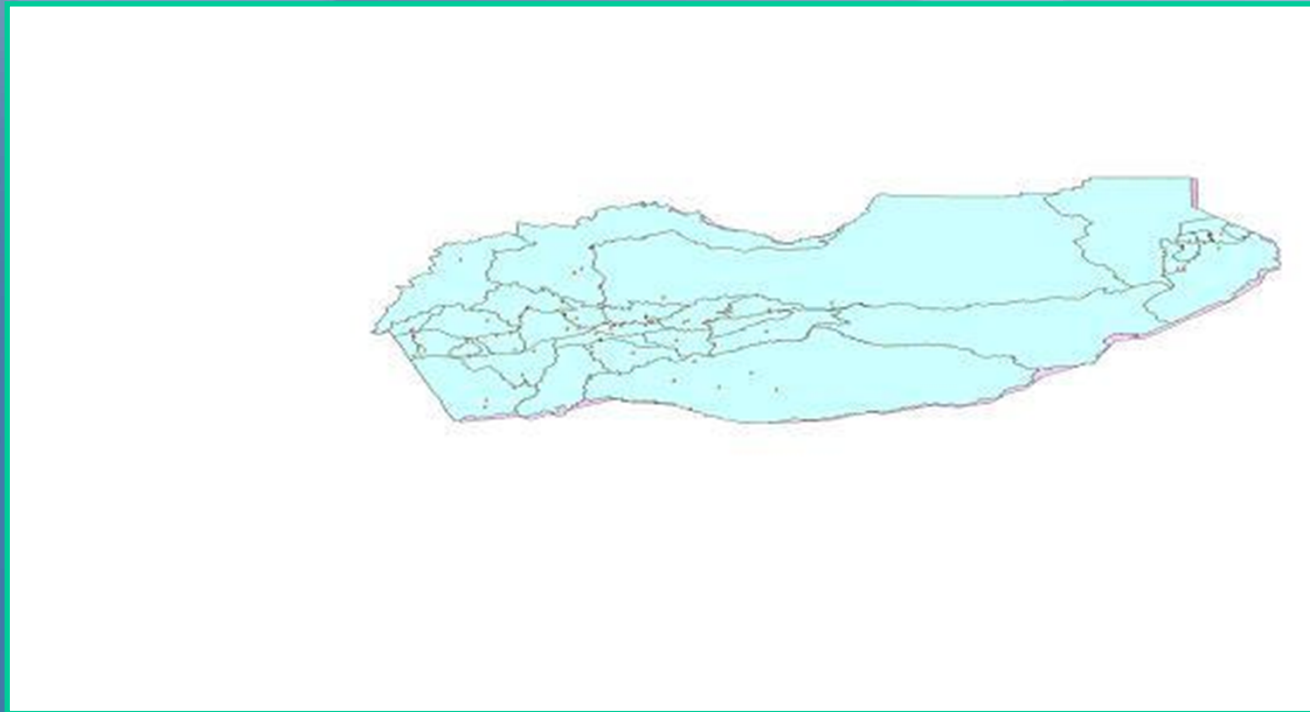
- The existing schools are buffered for 1 km.



# Project Approach contd..



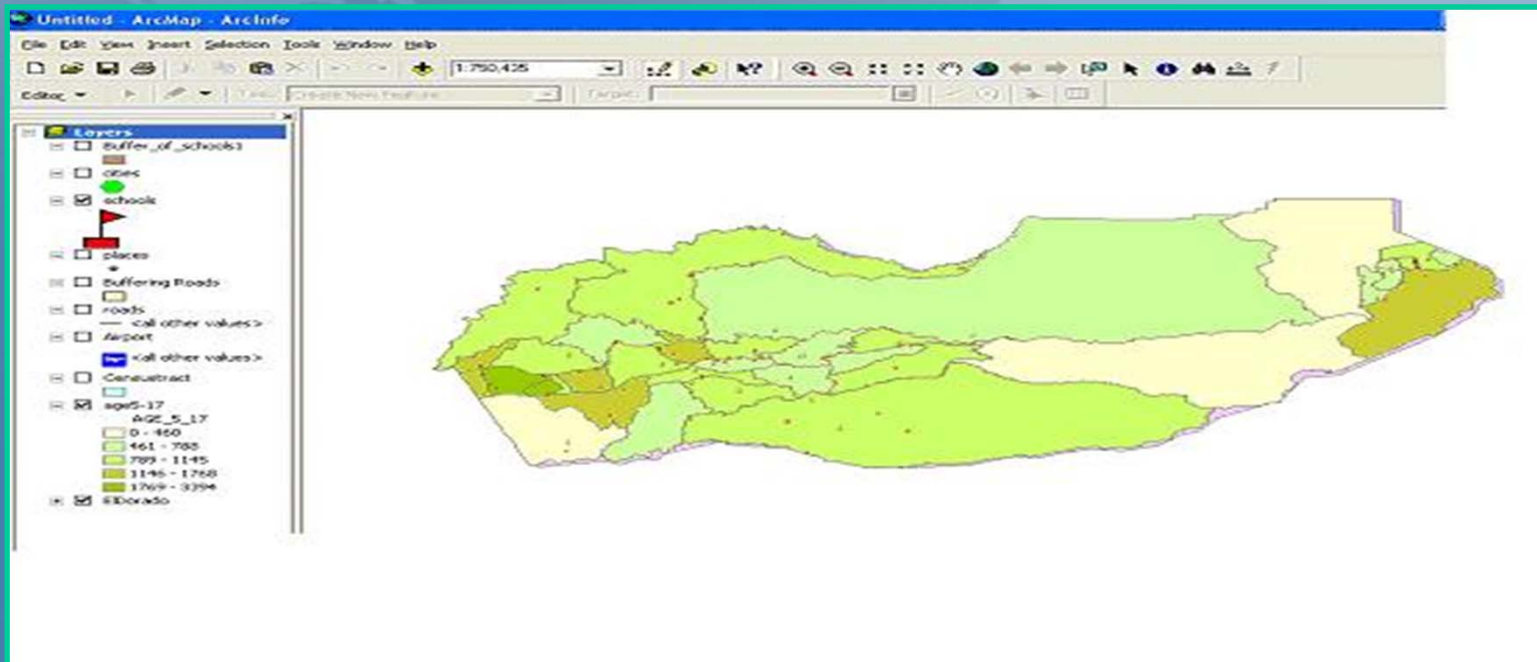
- The Census tracts of the area are laid as a layer as a layer to show.



# Project Approach contd..



- Age group of 5 to 17 are taken in to consideration and laid as a separate layer for further analysis.





# Findings & Recommendations

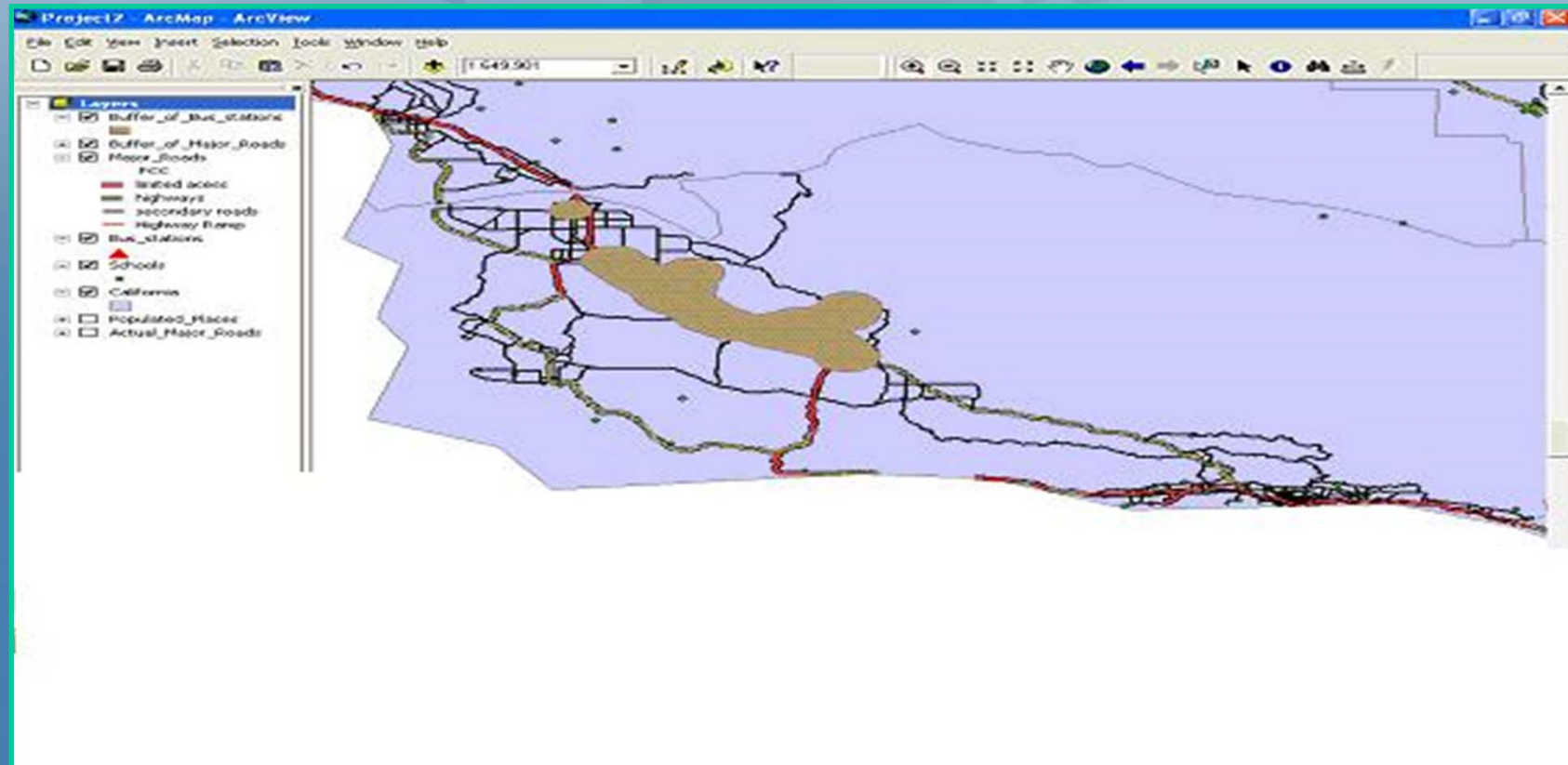


- The assumptions considered here are
  - The new facility that is to be established should be near to the road
  - The school should be near to bus station
  - It should be in a populated place.

An example based on the above assumptions is



# Findings & Recommendations





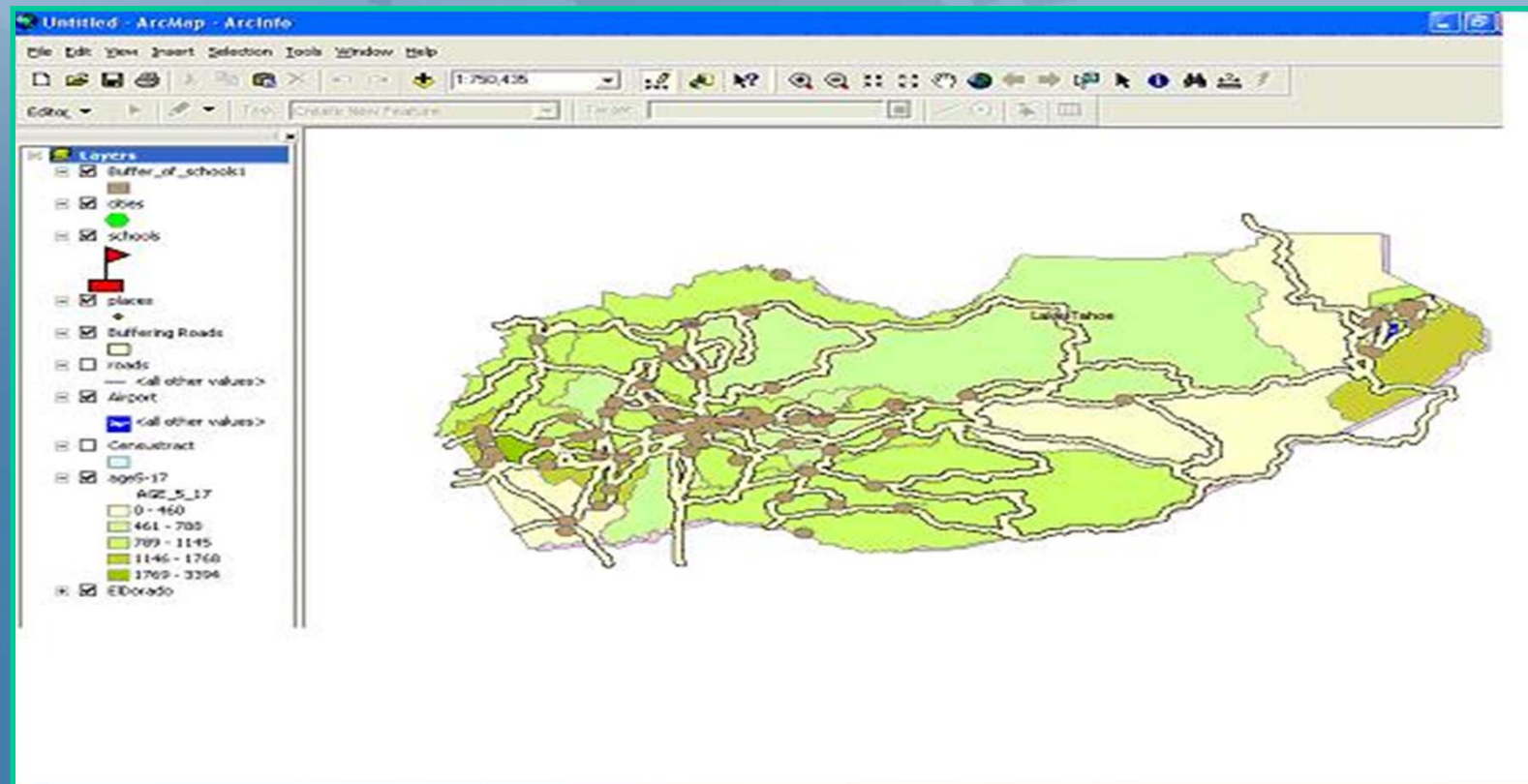
# Findings & Recommendations



- The assumptions considered in the second case are
  - The new facility to be established should be near to the road
  - There should be at least one school for the population of 500 of age group 5 to 17.
  - It should be away from the existing school at least one kilometer.



# Findings & Recommendations



# Findings & Recommendations



<i>FID</i>	<i>AREA</i>	<i>POPULATION</i> <i>2001</i>	<i>POPULATION</i> <i>OF AGE 5-17</i>	<i># OF</i> <i>SCHOOLS</i>	<i># OF Schools</i> <i>REQUIRED</i>	<i>REMARKS</i>
35	82.00544	3249	807	3	0	
36	0.20199	260	23	0	0	
37	2.86271	4125	778	0	2	
38	9.87283	5175	1000	6	0	More schools exist
39	1.66565	5883	1074	0	3	No school exist
40	2.0741	4327	740	1	1	
41	4.17693	4220	764	0	2	No school exist
42	71.01022	6394	1219	2	1	
43	6.66783	3135	596	2	0	
44	124.2828	1192	161	0	1	No school exist
45	69.21711	4709	990	1	1	
46	137.9521	5908	1089	5	0	More schools exist
47	481.1022	2806	525	4	0	More schools exist
48	7.42032	5694	1463	2	1	
49	4.72123	5928	1416	1	2	Less than required
50	11.72123	7499	1851	4	0	
51	55.23106	1951	371	3	0	More schools exist
52	23.90635	3808	840	1	1	
53	9.45101	5915	1182	3	0	
54	26.85896	5886	1237	4	0	
55	3.99058	9418	2091	0	5	No school exist
56	1.86483	5257	1020	0	3	No school exist
57	25.09614	2735	550	3	0	More schools exist
58	19.55589	4398	905	5	0	More schools exist
59	10.2276	5807	1167	5	0	More schools exist
60	14.23107	5137	937	4	0	More schools exist
61	8.07277	4861	760	5	0	More schools exist
62	18.12978	3442	634	5	0	More schools exist
63	12.68918	4698	890	2	0	
64	305.9643	4952	918	6	0	More schools exist
65	188.4935	92	13	1	0	
66	15.84807	2231	474	2	0	More schools exist
67	11.01108	2514	510	0	2	No school exist
68	30.79284	5360	1074	1	2	Less than required
69	10.2922	5703	1051	2	1	
70	38.53467	2656	506	0	1	No school exist
71	22.80388	5296	1027	3	0	





THANK YOU

