

624.171

D35

2006

GEOGRAPHIC ACCESSIBILITY ANALYSIS OF
SECONDARY EDUCATIONAL FACILITIES
IN UPLAND CAVITE

SPECIAL PROBLEM

OSCAR ERNI DE CASTRO
SONNY ORDOÑEZ SABIDO

College of Engineering and Information Technology
CAVITE STATE UNIVERSITY
Indang, Cavite

April 2006

**GEOGRAPHIC ACCESSIBILITY ANALYSIS OF
SECONDARY EDUCATIONAL FACILITIES
IN UPLAND CAVITE**

**Undergraduate Special Problem
Submitted to the Faculty of
Cavite State University
Indang, Cavite**

**In partial fulfillment of the requirements for
the degree of Bachelor of Science in
Civil Engineering**



00004302

*Geographic accessibility analysis of
secondary educational facilities in upland*
624.171 D35 2006
SP-3336

**OSCAR ERNI DE CASTRO
SONNY ORDOÑEZ SABIDO**
April 2006

ABSTRACT

DE CASTRO, Oscar E., and SABIDO, Sonny O. Geographic Accessibility Analysis of Secondary Educational Facilities in Upland Cavite. Undergraduate Thesis. Bachelor of Science in Civil Engineering. Cavite State University, Indang, Cavite. April 2006. Adviser: Engr. Allan Rowel V. Alonalon.

The study was conducted to determine the level of access of the existing secondary educational facilities in the province of Cavite. Identifying the factors affecting the level of access of these facilities will help in providing and developing high impact projects that will further enhance the access of the people in obtaining the services provided by such facilities.

Cavite is divided into two major areas: the Upland and Lowland Cavite. The Lowland Cavite is composed of the towns and cities under the first two congressional districts consisting of two cities (Trece Martires City and Cavite City) and nine municipalities. The study focuses on Upland Cavite which is composed of the towns and city covered by the third congressional districts. It comprises one city and ten municipalities namely: Tagaytay City and the towns of Alfonso, Amadeo, Gen. Emilio Aguinaldo, Indang, Magallanes, Maragondon, Mendez, Naic, Silang and Ternate.

Since land transportation is the principal mode of transporting goods and services in and out of the province; the current road network system were evaluated. The time spent by people traveling to reach the facilities and cost of transportation were obtained by actual travel surveys. It was performed on a normal day condition. Accessibility profiles will be generated through the used of the Geographic Information System (GIS).

At present, Upland Cavite has a total of sixty-seven (67) secondary educational facilities comprising 21.36 percent of the total 309 high schools operating in the province. The registered number of operating high schools is subdivided into of 36 public secondary school and 31 are privately owned serving the eleven (11) municipalities. Since most these facilities were located in the urban area, the problem of obtaining education for students in more distant barangays were given special attention.

The study proved that the facilities in Upland Cavite are accessible but its present level of access must be enhanced.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA.....	iii
ACKNOWLEDGMENT.....	iv
ABSTRACT.....	ix
LIST OF TABLES	xiii
LIST OF FIGURES.....	xv
LIST OF APPENDIX TABLES.....	xvi
LIST OF APPENDIX FIGURES.....	xvii
INTRODUCTION.....	1
Significance of the Study.....	3
Objectives of the Study.....	3
Statement of the Problem.....	4
Scope and Limitation of the Study.....	5
Time and Place of the Study.....	5
Definition of Terms.....	7
REVIEW OF RELATED LITERATURE.....	11
METHODOLOGY.....	26
Acquisition of Data.....	26
Household Survey.....	28
Situational Analysis.....	28
Accessibility Analysis.....	29

Optimization Phase.....	30
RESULTS AND DISCUSSION.....	31
Situational Analysis.....	31
Location and Administrative Composition.....	31
Demography.....	34
Transport Mode and Cost.....	40
Travel Time.....	44
Secondary Educational Facilities.....	46
Accessibility Analysis.....	50
Accessibility Criteria.....	50
Isochrone Map.....	51
Optimization Phase.....	57
SWOT Analysis.....	59
Transportation Issues.....	62
Secondary School Issues.....	62
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....	63
Summary.....	63
Conclusion.....	65
Recommendations.....	66
BIBLIOGRAPHY.....	69
APPENDICES.....	70

LIST OF TABLES

Table	Page
1 Comparison of methods in measuring transportation.....	17
2 Additional factors to be considered to level-of-service ratings.....	18
3 HLURB Standards.....	24
4 Land Area by Municipality.....	32
5 Projected Population by Municipalities in Upland Cavite, 2000-2025	34
6 Population Distribution by the Municipality.....	36
7 Comparison of Population Density on Year 2000-2025.....	38
8 Average Household Size, 2000.....	39
9 Projected School-Going Age Among Municipalities in Upland Cavite, 2000-2025.....	40
10 Inventory of Roads in Upland Cavite.	41
11 Road Density of Different Municipality.....	42
12 Road-Population Ratio.....	43
13 Travel Time Survey.....	45
14 List of Municipality with Most Number of Enrolments, SY-2005-2006.....	47
15 Household Survey Result.	48
16 Percentage of School Age Population Covered by Individual Travel Time.....	52
17 List of Barangays With Access Problem on Transport Mode.....	53
18 List of Barangays With Households Located in Remote Areas	55

19 List of Different Barangays With High Cost of Transportation 56

20 Number of Barangays and Population Covered per Travel Time 57

21 Municipalities Requiring Necessary Paving of Municipal Roads..... 67

22 Municipalities Requiring Necessary Paving of Barangay Roads 68

LIST OF FIGURES

Figure		Page
1	Administrative Map of Cavite.....	31
2	Projected Population of Upland Municipalities and City.....	35
3	Population Distribution Among Municipalities in the Province of Cavite, 2000	37
4	Projected School-Going Age in Upland Cavite, Year 2025.....	49

LIST OF APPENDIX TABLES

Appendix Table		Page
1	Inventory of Roads.....	72
2	Public School Teacher-Pupil Ratio.....	76
3	Private School Teacher-Pupil Ratio.....	78
4	Public School Classroom-Pupil Ratio.....	80
5	Projected Population in Upland Cavite, 2000-2025.....	82
6	Projected School-Going Age Population in Upland Cavite, 2000-2025.....	98
7	Transportation Fare Matrix.....	99
8	GIS Tables.....	108

LIST OF APPENDIX FIGURES

Appendix Figure		Page
1	Upland Cavite Road Network.....	125
2	Location Map of Existing Secondary Educational Facilities.....	126
3	Barangay Connectivity.....	127
4	Population Distribution Map.....	128
5	Accessibility Map of Existing Secondary Educational Facilities.....	129

GEOGRAPHIC ACCESSIBILITY ANALYSIS OF SECONDARY EDUCATIONAL FACILITIES IN UPLAND CAVITE^{1/}

**Oscar E. De Castro
Sonny O. Sabido**

^{1/}An undergraduate thesis presented to the faculty of the Department of Civil Engineering, College of Engineering and Information Technology, Cavite State University, Indang, Cavite, in partial fulfillment of the requirements for graduation for the degree of Bachelor of Science in Civil Engineering with Contribution Number CE-2005-06-026. Prepared under the supervision of Engr. Allan Rowel V. Alonalon.

INTRODUCTION

The basic human needs approach to development grew out of the search for the development strategy which could deal more effectively with the problem of continuing poverty in a large part of the world. It constitutes a direct attack on world poverty by meeting basic needs in foods, health, education and housing, as well as through employment and income generating activities. As a process, development is the improvement of the social, political and cultural conditions all measured in terms of more and better education, better health care and health facilities, better transportation and communication.

The development process, to assess and gather people in an easier, faster and cheaper way between places involves space-time convergence that reflects the accessibility of such facilities.