

A TRANSPORTATION PROGRAM FOR FILLING
IDLE CLASSROOMS IN LOS ANGELES

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INTRODUCTORY NOTE

On March 21, 1966, Transport-A-Child (TAC), a private non-profit educational foundation, presented to the Los Angeles Board of Education a proposal to alleviate overcrowding and de facto segregation in Los Angeles elementary schools by means of free and strictly voluntary bus transportation of children from overcrowded schools to schools in other parts of the city with available unused classroom space. This Paper is the text of that proposal, which was prepared by the authors at the request of TAC.

The format and brevity of the document are the consequence of administrative necessity since the proposal had to be presented orally in accordance with standing rules of the Board of Education which limit the amount of time that may be taken by any one speaker and by any group of speakers representing a single organization.

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Six weeks after this presentation was made, and following a feasibility study by the staff of the Board, a motion embodying the major elements of the proposal was placed before the Board by one of its members, but was defeated by a 4-3 vote. Nevertheless the proposal has been praised by many who have examined it, including Board staff members and other professionals, as an example of how operations research techniques can be creatively combined with practical organizational experience (TAC's in this case) in approaching complex social-educational problems of urban American society. The proposal is currently being studied in a number of governmental agencies and private foundations concerned with problems of de facto segregation in public schools.

I. THE PROBLEMS

This proposal addresses two interrelated problems:

1. Severe overcrowding in many Los Angeles schools while classrooms in some other schools remain vacant.
2. De facto segregation in our public schools.

The present proposal is limited to elementary schools, where the need for action is most urgent.

We are aware of the Board's concern with the problem of overcrowding, a concern reflected in the current school bond proposal. We look forward to the time when there will be ample classroom space for all children in our city. Today, however, there are more than 25,000 elementary school children on disrupted (short or double) sessions. It will require tens of millions of dollars and three to four years to alleviate this problem by constructing new schools and classrooms. In the meantime, many existing classrooms remain vacant year after year. According to the Board of Education's figures, there were 327 unused elementary school classrooms in Los Angeles at the end of last year, or space for more than 10,000 children.

Under the Board's open school policy, students may transfer during certain limited periods to those schools having two or more vacant classrooms. In February 1966, 55 such schools, with 2370 vacant places, were identified-- or the equivalent of 79 classrooms of 30 pupils each.

We believe--as did the Governor's Commission on the Los Angeles Riots--that the Board should consider ways of using these vacant classrooms now, in order to provide

some channel for relieving the pressures of school overcrowding, which is most serious in the disadvantaged minority areas of Los Angeles. A mechanism for doing this has been provided by the Board in the open school program. The task now is to activate this mechanism so as to place open schools at the disposal of those who need them most.

II. THE TRANSPORT-A-CHILD PROGRAM

Toward the end of 1963 a number of West Los Angeles parents, concerned by the waste of surplus classroom space in a city where thousands of children are on double session, formed the Transport-A-Child Foundation, a non-profit corporation mainly devoted to subsidizing the transportation of children from overcrowded areas to schools having excess classroom capacity.

Transport-A-Child (TAC) began a unique bus service in February 1964, by transporting 27 children from South-Central Los Angeles to the Bellagio Road Elementary School in Bel Air. The program was enlarged in the fall semester of 1964 to provide transportation for Bellagio graduates and new students from overcrowded areas to empty spaces in Emerson Junior High School. In February 1965, Overland Avenue Elementary School was added to the program, followed in September by a third elementary school, Mar Vista. Bus service was also provided for some children who wished to attend University High School. Today, some 208 children are bused to school with the help of TAC, on an operating budget of approximately \$27,000 per year. The present TAC program is illustrated on Map "A", page 12.*

Parents of the children who ride the buses, organized as Parents for Better Educational Exchange, control the actual operation of the busing program, with assistance from parents who live in the neighborhoods of the "receiving"

*The program will be further extended in September 1966 to accommodate children from the Pacoima area who will be bused to an open school in the Western part of the city.

schools. The cost of the program is borne jointly by "sending" parents--to the extent of their ability--and the Transport-A-Child Foundation, which contributes between 40 and 60 percent of the required funds.

Transport-A-Child now has a waiting list for next semester that is beyond its capacity to accommodate as a small, volunteer organization. The TAC program has demonstrated for more than two years that voluntary busing is a practical way to fill classrooms that would otherwise remain empty. We believe the time has come to place implementation of the open school program on a broad, city-wide basis, funded by the Board of Education.

III. A PROGRAM FOR FILLING IDLE CLASSROOMS

Only a small fraction of students now going to schools outside their immediate neighborhoods under the open school program are of elementary school age.

One reason for this low participation of elementary school children is the present requirement of the open school policy that parents provide necessary transportation. For many parents--especially disadvantaged minority group parents whose children attend overcrowded schools--this requirement makes it impossible to take advantage of the open school program.

An additional reason for low participation is that potentially interested parents are not fully informed of opportunities available to them, or provided with assistance to help them take advantage of those opportunities. A public information program that truly meets the needs of the community will require a great deal more than the publication of open school lists, or letters sent home with school children a few days before the registration period begins.

Accordingly, the Transport-A-Child Foundation urges the Board of Education to adopt the following policies:

1. Beginning in September 1966, provision of free transportation for elementary school children in the city's most overcrowded schools, if parents wish to transfer them to open schools outside their immediate neighborhoods.

2. Establishment of procedures whereby application forms for such transfers are made available to interested parents on a year-round basis, with no restrictions on application periods.
3. Creation of a greatly expanded public information program which works closely--as TAC has done--with local school, civic, church, and neighborhood organizations, as well as with appropriate departments of local government.

Since the working details of this program will require careful planning, we invite the Board to avail itself of the experience of Transport-A-Child and its expert transportation consultants, as well as the experience of interested community leaders, in order to work out a transportation and public information program of maximum efficiency.

IV. AN ILLUSTRATIVE CITY-WIDE SCHOOL BUSING PROGRAM

This proposal is based on the conviction that an economical, efficient, city-wide transportation program can be designed that will meet the need to ease overcrowding, fill empty classrooms, and at the same time help reduce de facto segregation. This conviction is based on careful analysis as well as actual experience.

Persuaded that busing to fill vacant classrooms was a sound idea, we decided some months ago to undertake detailed feasibility studies of a city-wide program. In conducting these studies, we have had the assistance of a group of professional analysts associated with The RAND Corporation. A team of mathematicians, logistics specialists, and computer scientists, working as volunteers in their free time, have examined a variety of city-wide transportation models, with the objective of minimizing costs and travel times. This study team was led by Drs. D. R. Fulkerson and L. S. Shapley. On the basis of their analysis, conducted with the aid of computer facilities, plus the TAC experience, we can recommend adoption of our proposed program with high confidence that it will be workable, efficient, and economical.

An example of how such a program might be designed is shown on Map B, page 13. Some elaboration of this illustration may be in order:

1. A highly efficient way to run such a program is to use overcrowded schools themselves as pickup points. This does not restrict participation in the program solely to those children who attend schools designated as bus

pickup points. Children in overcrowded areas would simply be using conveniently located schools as safe meeting places at which to gather in the mornings, so that large numbers of them could be picked up at one time. School pickup points used in this illustration are marked with circles on Map B, page 13, and are listed in Table 1, pages 14-16. The open schools are identified with squares on the map, and also listed in the table.

2. In this example, 2160 children are transported from overcrowded schools to available empty classrooms. Maximum estimated travel time is 50 minutes, well within the limits stipulated by the Board, and average estimated travel time is only 25 minutes.

Additional details pertaining to the illustrative program may be found in the attached Appendix.

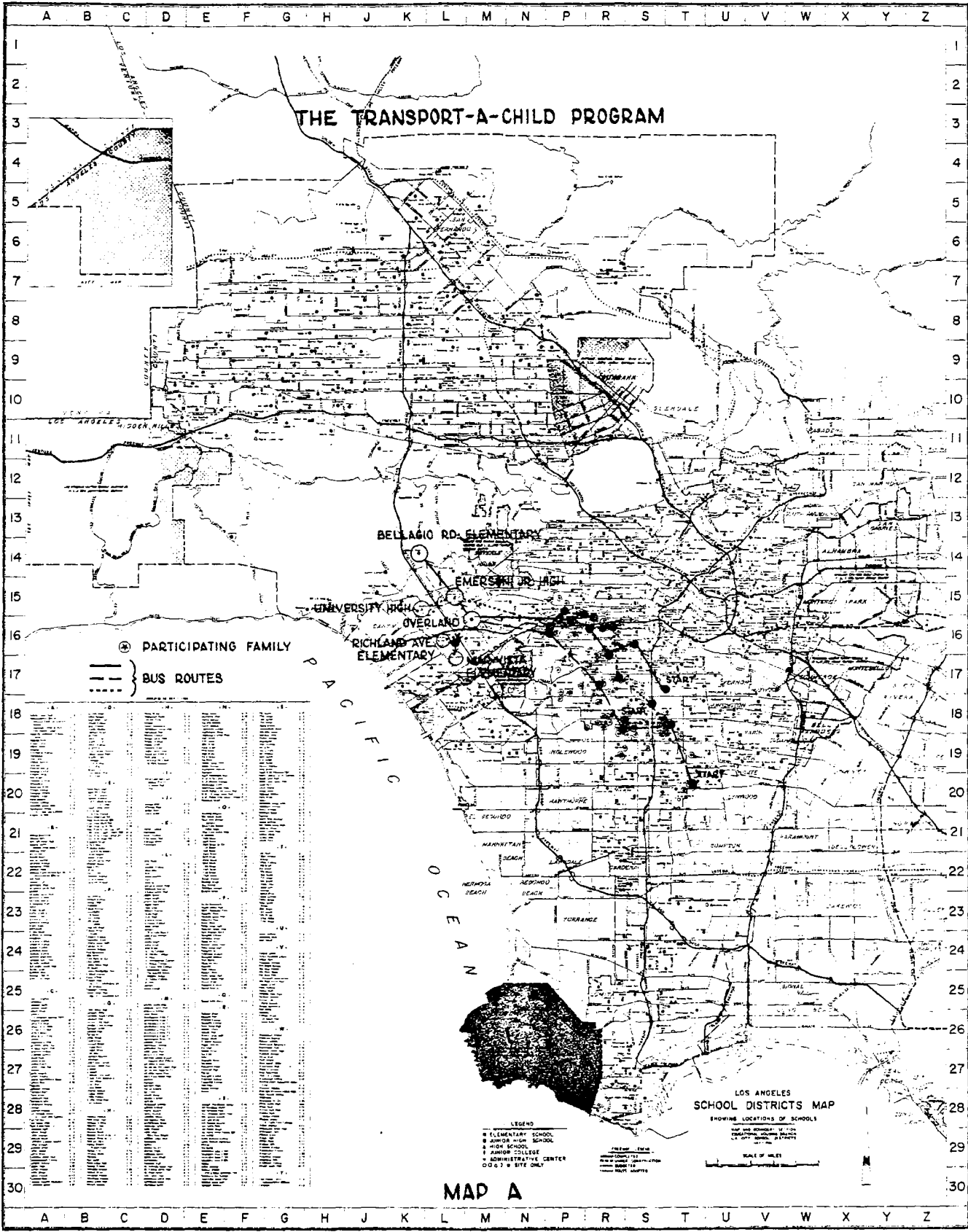
3. A typical bus in this program will make pickups at two points and deliveries at two receiving schools. Greater flexibility of choice is thereby introduced for families making application to use the service. Substantial economies are also achieved in this way, through the use of larger buses. The present example schedules 30 loads of 60 passengers each; 4 loads of 75 passengers each; and 2 30-passenger buses. At current bus contract prices, this program would cost approximately sixty-seven cents a day, per child. Our illustrative program would, therefore, cost approximately \$259,880 per year--or about 6 to 7 percent of the District's current annual transportation expense of over \$4 million. It would add the equivalent of 72 classrooms*--now unused--to the elementary school system.

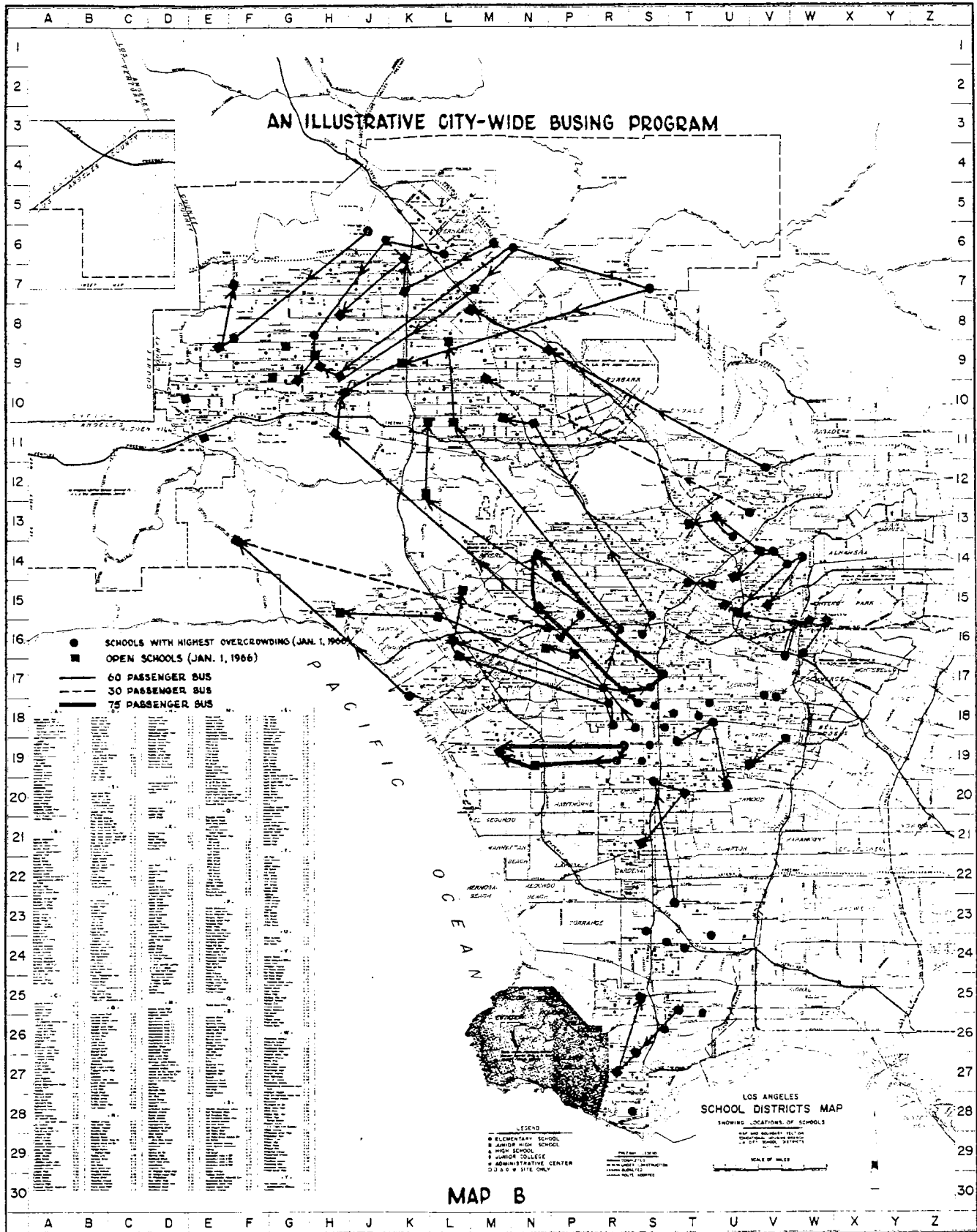
*Assumes 30 children per classroom.

4. The primary purpose of this analysis was that of testing the feasibility and cost of a city-wide busing program of this nature. The central requirement was the comparison of all pickup points with all open schools in a manner that would minimize the cost and bus travel time for the program as a whole. With the aid of a high speed digital computer we were able to examine several transportation models in order to find the most efficient design. We feel that the same computer and operations research techniques could be effectively applied to the planning and operation of any similar bus transportation program that might be desired.

Should the Los Angeles Board of Education adopt these policies, it would be taking a constructive step toward achieving the economical use of presently empty classrooms. At the same time it would be taking a small but meaningful step toward alleviation of de facto segregation, a problem which unfortunately is not addressed in the present bond proposal. Providing free transportation would remove the single most important obstacle for those parents who wish to take advantage of existing unused classroom space. Providing parents with complete information, and assistance in registering for the program well in advance, would in turn go far to insure its success.

We urge the Board to act now in order to implement these policies by September 1966.





AN ILLUSTRATIVE CITY-WIDE BUSING PROGRAM

- SCHOOLS WITH HIGHEST OVERCROWDING (JAN. 1, 1966)
- OPEN SCHOOLS (JAN. 1, 1966)
- 60 PASSENGER BUS
- 30 PASSENGER BUS
- 75 PASSENGER BUS

- LEGEND**
- ELEMENTARY SCHOOL
 - JUNIOR HIGH SCHOOL
 - ▲ HIGH SCHOOL
 - ◆ JUNIOR COLLEGE
 - ADMINISTRATIVE CENTER
 - J.C. & W. SITE ONLY

LOS ANGELES SCHOOL DISTRICTS MAP
SHOWING LOCATIONS OF SCHOOLS

SCALE OF MILES

MAP B

TABLE I
AN ILLUSTRATIVE CITY-WIDE BUSING PROGRAM

| <u>PICKUP POINTS</u> | <u>DELIVERY POINTS</u> | <u>NO. OF STUDENTS</u> | <u>SIZE OF BUS</u> |
|----------------------|------------------------|------------------------|--------------------|
| Fries Avenue | Normont | 30 | |
| Taper Avenue | Crestwood Street | 30 | 60 |
| Towne Avenue | Amestoy | 30 | |
| Figueroa Street | 116th Street | 30 | 60 |
| 87th Street | Emerson Manor | 75 | 75 |
| 87th Street | 98th Street | 30 | |
| Manhattan Place | 98th Street | 30 | |
| 87th Street | Emerson Manor | 14 | 75 |
| South Park | Ritter | 30 | |
| Florence Avenue | Ritter | 30 | 60 |
| Elizabeth Street | Victoria Avenue | 60 | 60 |
| Westminister Avenue | Topanga | 60 | 60 |
| Angeles Mesa | Sterry | 30 | |
| Raymond Avenue | Pacific Palisades | 30 | 60 |
| Marvin Avenue | Topanga | 30 | 30 |
| 74th Street | Mar Vista | 30 | |
| 59th Street | Richland Avenue | 30 | 60 |
| Angeles Mesa | Fairburn Avenue | 30 | |
| 74th Street | Mar Vista | 30 | 60 |
| Magnolia Avenue | Burbank Boulevard | 30 | |
| Vermont Avenue | Lankershim | 30 | 60 |
| 24th Street | Burton Street | 30 | |
| 24th Street | Chandler | 30 | 60 |
| 24th Street | Kester Avenue | 30 | |
| Angeles Mesa | Roscomare Road | 30 | 60 |
| Cienega | Nestle Avenue | 30 | |
| Alta Loma | Newcastle Avenue | 30 | 60 |
| West Vernon Avenue | Rosewood Avenue | 30 | |
| 52nd Street | Hancock Park | 30 | |
| Western Avenue | Rosewood Avenue | 15 | 75 |

| <u>PICKUP POINTS</u> | <u>DELIVERY POINTS</u> | <u>NO. OF STUDENTS</u> | <u>SIZE OF BUS</u> |
|----------------------|------------------------|------------------------|--------------------|
| Western Avenue | Rosewood Avenue | 15 | |
| Budlong Avenue | Rosewood Avenue | 30 | |
| Budlong Avenue | Crescent Heights | 30 | 75 |
| Western Avenue | Coliseum Street | 30 | |
| Angeles Mesa | Baldwin Hills | 30 | 60 |
| Ford Boulevard | Lane | 60 | 60 |
| Eastman Avenue | Marianna Avenue | 30 | |
| Eastman Avenue | Brooklyn Avenue | 30 | 60 |
| Eastman Avenue | Marianna Avenue | 30 | |
| Eastman Avenue | 2nd Street | 30 | 60 |
| Sierra Park | Evergreen Avenue | 60 | 60 |
| Sierra Park | Utah Street | 30 | |
| Farmdale | 2nd Street | 30 | 60 |
| Cortez Street | Castelar | 60 | 60 |
| Farmdale | Albion Street | 30 | |
| Huntington Drive | Glen Alta | 30 | 60 |
| Huntington Drive | Glen Alta | 30 | |
| Huntington Drive | Glassell Park | 30 | 60 |
| Aragon Avenue | Glassell Park | 30 | |
| Aragon Avenue | Allesandro | 30 | 60 |
| Aldama | Coldwater Canyon | 30 | 30 |
| Dahlia Heights | Roscoe | 30 | |
| Dahlia Heights | Vena Avenue | 30 | 60 |
| Pinewood Avenue | Newcastle Avenue | 30 | |
| Pinewood Avenue | Cohasset Street | 30 | 60 |
| Pinewood Avenue | Bertrand Avenue | 30 | |
| Fenton Avenue | Bertrand Avenue | 30 | 60 |
| Haddon Avenue | Bertrand Avenue | 30 | |
| Fenton Avenue | Reseda | 30 | 60 |
| Filmore Street | Vintage Street | 30 | |
| Filmore Street | Danube Avenue | 30 | 60 |
| O'Melveny | Danube Avenue | 30 | |
| Knollwood | Prairie Street | 30 | 60 |

| <u>PICKUP POINTS</u> | <u>DELIVERY POINTS</u> | <u>NO. OF STUDENTS</u> | <u>SIZE OF BUS</u> |
|----------------------|------------------------|------------------------|--------------------|
| Knollwood | Blythe Street | 30 | |
| Napa Street | Shirley | 30 | 60 |
| Nevada Avenue | Capistrano Avenue | 30 | |
| El Oro Way | Chatsworth Park | 30 | 60 |

APPENDIX

DATA ON THE ILLUSTRATIVE PROGRAM

This model was developed to test the feasibility of programs of this type, and to provide a basis for cost estimation. It also illustrates the general appearance of the expected traffic flow when available classroom space is assigned in proportion to the degree of school overcrowding. Considerable latitude in bus routing is permissible, however, without substantially affecting either feasibility or costs.

I. SOME WORKING ASSUMPTIONS

1. Delivery Points: Schools listed as open for the spring semester, February 1966.
2. Pickup Points: Schools with 150 or more students on disrupted sessions as of January 1, 1966.
3. Pickup Units: 150-299 students on disrupted sessions equal one unit; 300-449 students on disrupted sessions equal two units, etc.
4. Demand Assumption: At least 30 applicants per pickup unit. (Applicants need not be enrolled in the school serving as a pickup point.)
5. Limit on distance from pickup to delivery: 15 miles (bee-line).
6. Optimization Criteria:
 - a. Fill vacancies in as many open schools as possible.
 - b. Minimize average distance traveled.
 - c. Schedule buses to minimize cost.

7. Assign two delivery points per vehicle, where practicable, to increase flexibility of choice. Delivery points for each bus to be no more than five miles apart (bee-line).
8. Assign at least two pickup points per vehicle, where practicable, to increase flexibility of choice and to reduce possibility of inefficiency due to clustering of actual demand.

II. SOME RELEVANT STATISTICS (January 1, 1966)

| | |
|---|---------------------------|
| 1. Number of students on disrupted sessions | 25,243 |
| 2. Number of schools with 150 or more students on disrupted sessions (i.e., number of pickup points). | 58 |
| 3. Total enrollment of these 58 schools | 52,777 |
| 4. Total demand units | 100 |
| 5. Number of assumed applicants | 3,000 (5.7% of 52,777) |
| 6. Number of open schools | 55 |
| 7. Number of vacancies in open schools | 2,370 |

III. SUMMARY OF SOLUTION

| | |
|---|-------|
| 1. Number of children transported in illustrative program | 2,160 |
| 2. Number of unfilled vacancies | 210 |
| 3. Number of pickup points used | 42 |
| 4. Number of receiving schools | 51 |
| 5. Number of buses used | 36 |
| a. 2 30-passenger | |
| b. 30 60-passenger | |
| c. 4 75-passenger | |

6. Cost per school year: \$259,880

7. Cost per child per day: \$.67

9. Route Data

| | <u>Miles (bee-line)</u> | <u>Road Time (Estimated)</u> |
|----------------------------|-------------------------|----------------------------------|
| Pickup to Delivery | Maximum - 14.8 | 50 min. |
| | Average - 6.03 | 20 min. |
| Between Delivery Points | Maximum - 4.5 | 15 min. |
| | Average - 2.24 | 8 min. |

