SIMCUR – 192

VOLUME 1

DADE COUNTY
TRANSIT DEVELOPMENT PROGRAM

REPORT IN BRIEF & SERVICE STANDARDS

SIMCUR–192

DADE COUNTY TRANSIT DEVELOPMENT PROGRAM

VOLUME I

REPORT IN BRIEF

and

MASS TRANSIT SERVICE STANDARDS

Prepared For

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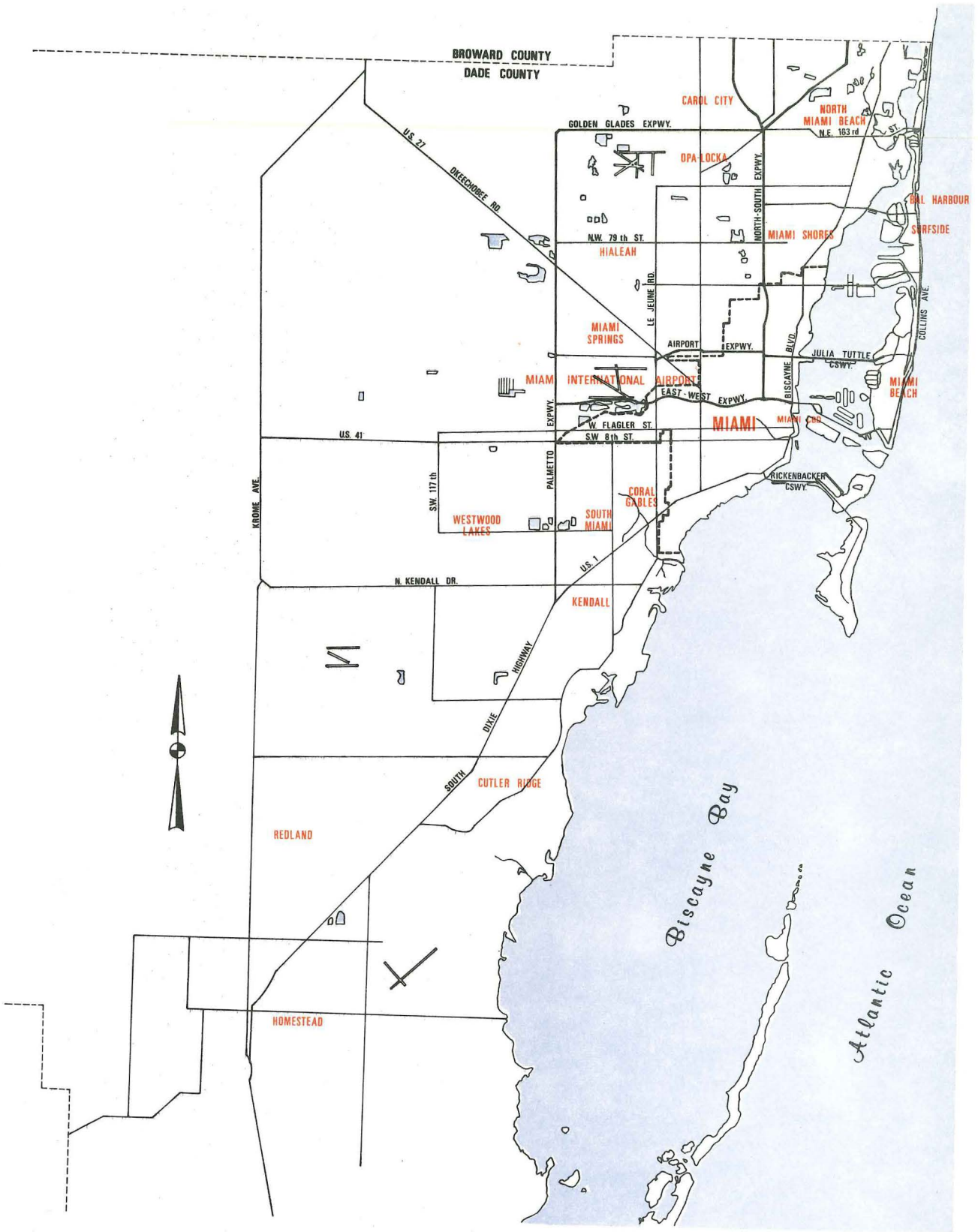

STUDY AREA

DADE COUNTY DEPARTMENT OF TRAFFIC AND TRANSPORTATION

FOREWORD

This three-volume report comprises a Transit Development Program for Dade County Florida. Volume I, Report in Brief and Transit Service Standards, specifies the evaluation criteria and summarizes the results of the Dade County transit analysis. Volume II, Metropolitan Dade County Transit Authority (MTA), and Volume III, Coral Gables Municipal Bus System (CGMBS), detail study findings for the respective bus operators.

The purpose of the Transit Development Program is to prescribe a comprehensive set of service improvements for the existing bus system over the next five years. At the end of this Program, it is expected that the bus system will undergo substantial alteration to complement Dade Area Rapid Transit.(1)

The methodology for this study is simple in concept, consisting of three steps:

- Establishment of local transit service standards
- Measurement of present system against these standards
- Correction of present and projected deficiencies through a program of service improvements

This conceptual simplicity belies a host of difficulties in actually carrying out such a rigorous study approach. Perhaps the most challenging and critical step in the process is the first: establishment of service standards.

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(1) Simpson & Curtin, Transit Routes, Interim Report 4 Prepared for the Dade County Department of Traffic and Transportation (Philadelphia: Simpson & Curtin, February 1971).

Few transit systems in the country have even begun development of a comprehensive set of performance measures to evaluate service. Performance measures which have been developed are generally insensitive to local conditions. Service standards presented in this report are designed particularly for Dade County, with the assistance of County agencies. Fourteen quantifiable or observable evaluation categories are established, and performance criteria are specified for each.

With agreement on service standards, the adequacy of bus service provided by the Metropolitan Dade County Transit Authority and the Coral Gables Municipal Bus System can be measured. Thereafter, a five-year service improvements program is developed for each operator based on the identification of present and projected service deficiencies. Quantities of capital improvements (new buses, bus shelters, etc.) are then calculated to support this service improvements program. Finally, an operating forecast is presented, showing the financial effect of each service improvement in and after its recommended year of implementation.

Certain issues receive detailed attention in the Dade County Transit Development Program. First is coordination of the MTA and CGMBS systems. The objective was to make Dade County Transit operationally optimal, requiring redesign of routes, schedules and fares of the two operating agencies as if they were one. The recommended system fully coordinates MTA and CGNBS operations to achieve maximum efficiency.

Low-capital transit improvements and traffic engineering for transit are discussed with the purpose of making buses time and cost competitive with the automobile. A critical demonstration in this regard is the I-95 bus preferential facility project for Dade County.

The program of special transit services for the disadvantaged is described, with suggested consolidation of disparate services. The feasibility of school bus/public transit coordination to achieve reduced overall student transportation cost is examined.

The Dade County Transit Development Program, while specific in its diagnoses and recommendations, should not be considered an inflexible dictum which must be followed to the

letter over the next five years. It is expected that the evaluation procedure and the directions for change outlined in this plan will remain valid during the study period, although specific improvements and implementation dates may be adjusted as conditions warrant.

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(Continued)

Report In Brief

REPORT IN BRIEF

This three-volume Transit Development Program is a detailed analysis and five-year operations plan for Dade County transit service. Much of the in-depth material will not be of interest to the nonprofessional reader. Yet, the Program's findings and recommendations are of vital interest to every current bus rider, to every potential user of transit and to every taxpayer. These findings and recommendations are summarized below.

Service Standards for Mass Transit in Dade County

Service standards described in the Transit Development Program have been developed in conjunction with Dade County transit officials. These specificiations for bus service have been approved by the Metropolitan Transit Authority Board, but have not been reviewed by the Board of County Commissioners. Commitment to service standards would obligate the County bus system to operate at high performance levels in each of fourteen evaluation categories. Highlights of Dade County bus service standards are:

- Provision of bus service Countywide, with bus route spacing determined by population density and auto ownership levels;
- Seat availability to all express service patrons, and to all local route patrons except during peak hours;
- Guaranteed bus service at least every hour on all routes, and local bus service at least every 20 minutes during the peak period;

- Assurance that a high percentage of buses operate on time - - over 90% on those routes where service runs less than every 30 minutes;

- Operation of unprofitable routes, subject to specific patronage criteria;

- Maintenance of the current 30¢ base fare;

- Comparison of Dade County transit performance against other operators nationwide on a systematic basis.

Metropolitan Dade County
Transit Authority (MTA)

A review of MTA operations conducted in the fall of 1972 indicated areas of outstanding performance as well as areas where improvements are called for.

MTA route coverage, in conjunction with CGMBS, is excellent, with no large areas without bus service. Between the two operators, over 97% of Dade County residents are within an acceptable distance of a bus route. Virtually all major trip generators are served by multiple MTA routes, with the exception of the Palmetto Industrial Corridor. MTA's buses maintain high average speeds, and a seat is available to all patrons on 90% of trips.

The Dade County fare structure, while confusing, provides for rides considerably cheaper than those offered in most other metropolitan areas. Despite these low charges, the MTA has run lesser deficits than comparable systems. Much of the credit for this excellent fiscal performance belongs to a highly skilled comptroller's office.

The area where greatest improvement can be made is in on-time performance - - a high percentage of MTA buses run either early or late. Frequency of service on many routes is also at a relatively low level when compared with bus service in other metropolitan areas.

Based on the detailed operations analysis, a five-year comprehensive bus improvements plan is recommended, including:

- Fare simplification, with one 30¢ base fare countywide and 5¢ zone increments (10¢ inter-area transfer charge between the Mainland and Beach is reduced to a 5¢ zone increment).
- Endorsement of I-95/NW 7th Avenue bus-preferential facilities as critical to Dade County near-term transit development.
- New service to Palmetto Corridor from Little Havana, Model City and North Dade.
- A countywide transportation system for the disadvantaged.
- More direct service from South Dade to Miami CBD.
- Regular service to Dodge Island.
- Direct service from South Dade to Dade Junior College.

A five-year capital facilities schedule is derived in support of these service improvements. Major capital items include: bus purchases to retire all "old-look" buses and provide for a 12-year maximum bus service life; new-design bus shelter construction; two-way radio communications; vacuum fare collection equipment; acquisition of Gray Lines Route D; and maintenance facility anti-pollution improvements. Under the 1973 Federal Aid Highway Act, the federal government will fund 80% of the $9,253,000 in needed capital improvements. The State of Florida may sponsor up to half the local share of capital costs, leaving only $925,300 as Dade County's obligation.

However, bus system operating deficits continue as a full County responsibility, assisted by the discretionary commitment of certain gasolinetax proceeds to transit. Over the past three years, operating revenues from MTA services

have shown a small but steady increase, due to increases in service and a fare increase. Expenses, however, have risen at a rate three times as fast as revenues, causing an increase of over $1.2 million in the operating deficit between 1969 and 1972.

Despite this deterioration in financial position, the economic performance and operational efficiency of the MTA are superior to those of similar transit agencies throughout the country. The Authority has been able to meet a significantly larger percentage of expenses out of the farebox than its bus operator peer group, while at the same time charging a significantly lower fare.

Spiraling costs will continue to be a dilemma of the MTA in the foreseeable future. Thus, the numerous new services programmed for implementation during this fiscal year and the next will push the yearly deficit to over $3 million by the end of fiscal 1974. Additional service innovations, most notably the I-95 express service, will increase net cost of MTA operations to over $5 million by 1977.

Coral Gables Municipal
Bus System (CGMBS)

Operating under a central terminal concept and providing a special personalized school service, the Coral Gables Municipal Bus System (CGMBS) offers dependable and, in many cases, personalized service. Presently, certain route alignments and service frequencies could be adjusted to improve operational efficiency. Furthermore, full coordination of CGMBS and Metropolitan Dade County Transit Authority (MTA) fare structures and route alignments has not yet been achieved.

Route realignments, consolidations and more appropriate levels of service for both weekdays and weekends are recommended to reduce CGMBS' operating deficit and improve the adequacy of its service. Implementation of most of these proposals during the current year will effect an immediate annualized savings of $72,000.

Additional fare structure and route adjustment proposals to coordinate CGMBS and MTA services include three

important changes in Dade County regional transit. These are: a CGMBS senior citizens fare discount funded and administered similarly to the MTA discount; CGMBS Route 7-8 (local) assimilation of MTA's Route 4 (south) service along Coral Way; and a countywide fare structure that affords the opportunity for expansion of the free transfer exchange (FTE) agreement between the two operators. Under FTE, transit users will be able to make transfers between the two systems in downtown Miami, markedly expanding potential one-fare destinations for those originating in Coral Gables.

A five-year capital improvements program to support service improvements provides for revenue equipment and physical facilities. Thirteen new transit coaches are scheduled for delivery during May, 1973, and 13 more will be needed in 1975. Physical facilities capital improvements include the phased installation of four major items. In the second and third years of the plan, six bus shelters should be constructed, a spray paint booth should be added to the consolidated motor pool, and a sidewalk canopy should be installed at the terminal. By the end of the five-year planning period, Park-N-Ride capacity of the central terminal should be doubled. The entire capital improvements program calls for an expenditure of $2,410,900 (1973 dollars), of which 90% can be financed through federal and state transit capital grant assistance.

An analysis of CGMBS fiscal performance shows that actual bus system operating deficits have increased approximately $50,000 annually over the past three years, going from $200,000 for the fiscal year ending September 30, 1970 to a budgeted $360,000 for the current fiscal year (ending September 30, 1973). As a result of route and schedule adjustments as well as full coordination with MTA, CGMBS should be able to maintain annual operating deficits at the $300,000 level over the next three years. Thereafter, CGMBS deficits are projected to resume a $50,000 annual increase, unless offsetting fare increases or service reductions are implemented.

Conclusion

Dade County rapid transit promises greatly improved transportation for the 1980's, but the bus system alone must respond to the increasing transportation demands of the 1970's. The bus system is vital in providing mobility for those too young, too old or too poor to own or operate a car. It is an increasingly attractive alternative for those harassed by the daily commute on ever-more-congested expressways and streets.

Buses help to preserve clean air and open spaces against the onslaught of more vehicles and more highways. With gasoline prices going up due to the energy crisis and with gasoline mileage decreasing due to anti-pollution devices, buses are becoming cost-competitive with the automobile based on fuel costs alone. All of these factors point to a revitalization of transit in the next decade. The Dade County Transit Development Program provides initial direction for this revitalization.

Service Standards For Mass Transit In Dade County

GOALS AND OBJECTIVES OF MASS TRANSIT

In 1968, the Metropolitan Dade County Planning Department prepared for the Miami Urban Area Transportation Study (MUATS) a report which summarized the goals, objectives, and policies for various aspects of development in Dade County. The goals and objectives that were put forth for transportation provide the framework for Dade County mass transit service standards.

The overall goal of transportation in Dade County is the provision of a well-balanced, integrated transportation system for the movement of people and goods within the County.

Objectives were also put forth to give further definition to the County's transportation goal. Although these objectives originally referred to the transportation system as a whole, only slight modification is necessary to make them applicable to mass transit. They are:

1. Develop a system of mass transit in Dade County that will offer the best possible level of service to all residents of the County.

2. Provide maximum safety and convenience with the design and operations of the transportation system.

3. Design and operate the system so as to contribute to the amenities of the metropolitan environment.

4. Within the framework of the first three objectives, recommend the most efficient plan in terms of minimum cost, considering capital investments, operation costs and user costs.

In the case of mass transit, the achievement of these stated objectives requires a policy of maintaining minimum standards of service, which are outlined in the subsequent sections of this discussion.

STANDARDS FOR PRESENT TRANSIT SERVICE

Basic guidelines for "recommended standards, warrants, and objectives for transit service and facilities" were set forth in 1958 by the National Committee on Urban Transportation. At that time transit was, in most cities, an enterprise operated by private companies with the intention of realizing a profit. Accordingly, the published manual opened with statements reflecting the Committee's recognition of the economic situation of the operators:

> "In developing the transit standards, warrants and objectives included in this manual, it was recognized that such yardsticks must be directly related to the economic feasibility of providing service . . . public transit cannot be expected to operate at a deficit in order to furnish services which a city deems essential – unless the community is willing to subsidize this service to the extent necessary."

The situation in 1973 is vastly different from 1958. In the 1960s, local governments reacted to the financial crises of transit by a massive conversion from private to public ownership. Almost 90% of the nation's transit riders now use publicly owned systems. Of the 25 largest bus operators in the United States, only six are private, and public takeover is imminent for four of these six.

Many state governments, including Florida, contribute to transit capital improvements, and some state governments (Pennsylvania, Delaware) even have special appropriations to finance operating deficits. The federal government, under the Urban Mass Transportation Act of 1964 as amended, has assumed an increasing rate in mass transit funding. The view of transit has changed with the ownership and financing to the point that transit has taken its legitimate place as a community service, competing for public funds with education, police, roads and other governmentally supported activities.

This shift from private to public operations creates a problem in the evaluation of a public transit system. Rather than ask how much money the system makes, new questions must be posed: how many people does the system serve and how well does it serve them. The following service standards quantify these questions – providing yardsticks for measurement of transit's effectiveness as a community service. Yardsticks are developed for the following 14 aspects of a public transit operation:

1. Route Spacing
2. Loading Standards
3. Frequency of Service

4. Speed of Operation
5. Directness of Service
6. Dependability
7. Bus Stop Spacing
8. Productivity of Routes
9. Passenger Amenities
10. Revenue Equipment
11. Public Information Program
12. Rate of Fare
13. Standards for New Service and Extensions
14. Peer Group Comparisons

Prior to discussion of yardsticks, one semantic difficulty must be dealt with – definitions. The first set of definitions involves time periods. The time limits for the operating periods of a route will be determined at that route's maximum load point.

- *Total Peak Period* – defined as that period between the time limits listed below:

Weekdays	6:30 A.M. to 9:30 A.M. 3:30 P.M. to 6:30 P.M.
Saturdays	3:30 P.M. to 6:30 P.M.
Sundays and Holidays	None

- *Maximum Peak Period* – the 90-minute span within the total peak period during which the greatest number of passengers are carried.

- *Base Period* (or midday non-peak) – period between 9:30 A.M. and 3:30 P.M. on weekdays, before 3:30 P.M. on Saturdays, and all day Sundays.

- *Transition Period* – time that falls within the total peak but outside the maximum peak period.

- *Evening Period* – period of time, after 6:30 P.M., during which service is provided.

The second set of definitions involves different types of bus service.

- *Express* – bus service which carries passengers non-stop over a major portion of their journey, either via limited access expressways or via major roads in closed-door operation (no pickup or discharge of passengers).

- *Arterial* – bus service which carries passengers between residential areas and major activity centers (central business district, shopping centers, institutional complexes, etc.).

- *Circulation/Distribution* – bus service which carries passengers within a large activity center.

Route Spacing

Numerous studies have indicated that the maximum distance an average person can be from a route and still be considered to "have service" is approximately one-quarter mile, which is roughly equivalent to a five-minute walk.

However, this rule of thumb must be applied in conjunction with data regarding auto ownership and population density of a particular area in order to determine the optimum spacing of transit routes in that area. For example, in low-density areas with high auto ownership, transit routes may be spaced a mile apart. Areas of moderate density and auto ownership will be adequately served by routes a half-mile apart. In high-density, low auto ownership sections, routes will be spaced one-quarter to three-eighths of a mile apart. Table I shows route spacing standards for Dade County, based on auto availability and population density.

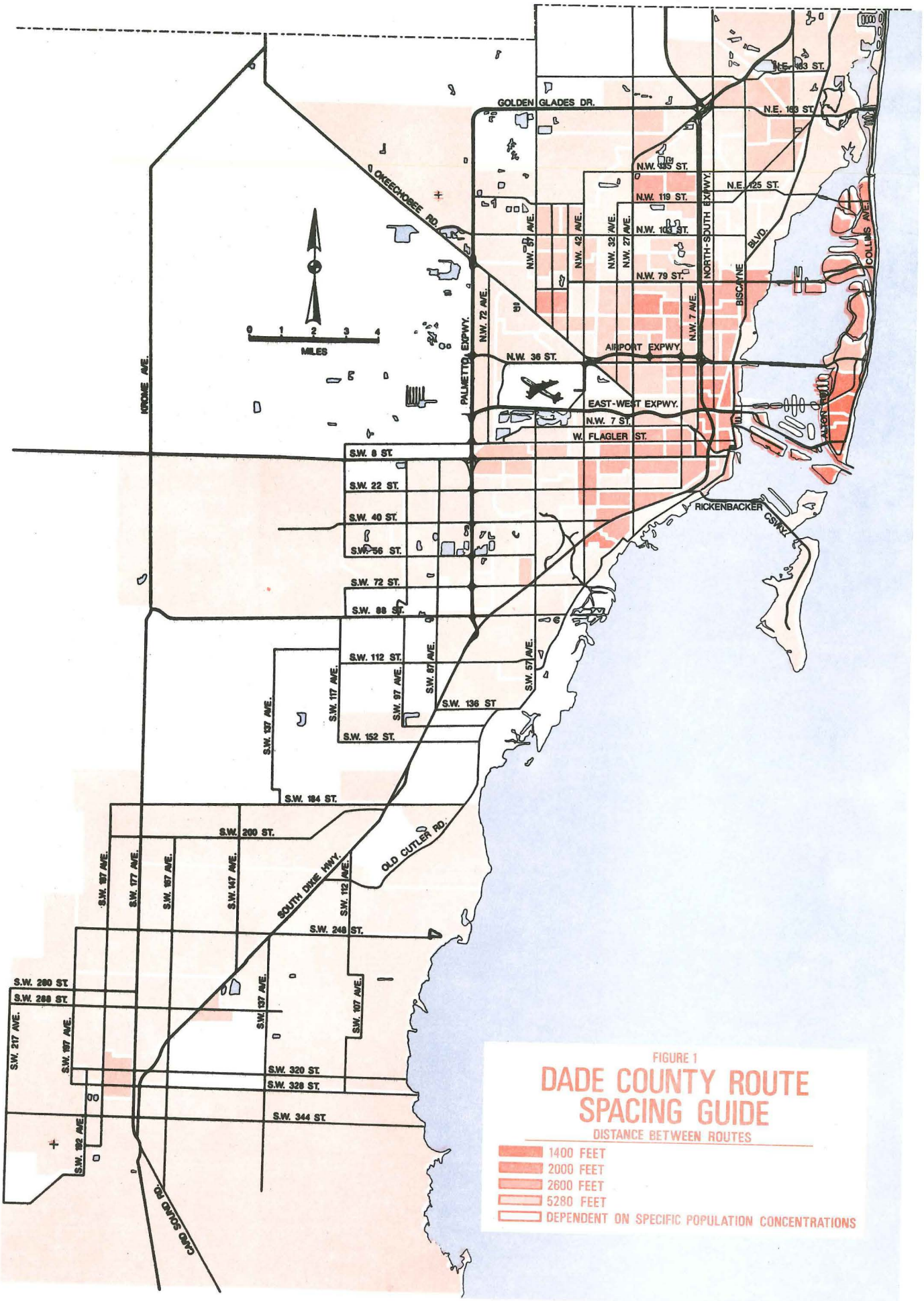
In order to access more accurately the adequacy of route spacing in a particular area, a map has been prepared showing percent without autos and dwelling units per acre by census tract per the 1970 census (Figure 1).

TABLE I

TRANSIT ROUTE SPACING GUIDE

Percent of Households Without Autos	Population Density (Dwelling Units per Acre)		
	More than 5	1.5 to 5	Under 1.5
Over 45%	1,400′	2,000′	2,600′
15 to 45%	2,000′	2,600′	5,280′
2.5 to 15%	2,600′	5,280′	5,280′
Under 2.5%	5,280′	5,280′	*

* Service should be provided to residential concentrations and major activity centers.


GOLDEN GLADES DR.
N.E. 183 ST.
N.E. 163 ST.
N.W. 135 ST.
N.E. 125 ST.
N.W. 119 ST.
N.W. 103 ST.
N.W. 79 ST.
OKEECHOBEE RD.
N.W. 57 AVE.
N.W. 42 AVE.
N.W. 32 AVE.
N.W. 27 AVE.
NORTH-SOUTH EXPWY.
BISCAYNE BLVD.
COLLINS AVE.
N.W. 72 AVE.
N.W. 7 AVE.
KROME AVE.
PALMETTO EXPWY.
AIRPORT EXPWY
N.W. 36 ST.
EAST-WEST EXPWY.
N.W. 7 ST.
W. FLAGLER ST.
S.W. 8 ST.
S.W. 22 ST.
S.W. 40 ST.
S.W. 56 ST.
S.W. 72 ST.
S.W. 88 ST.
S.W. 112 ST.
S.W. 117 AVE.
S.W. 97 AVE.
S.W. 87 AVE.
S.W. 57 AVE.
S.W. 136 ST
S.W. 152 ST.
S.W. 137 AVE.
S.W. 184 ST.
S.W. 200 ST.
OLD CUTLER RD.
SOUTH DIXIE HWY.
S.W. 187 AVE.
S.W. 177 AVE.
S.W. 167 AVE.
S.W. 147 AVE.
S.W. 112 AVE.
S.W. 248 ST.
S.W. 280 ST.
S.W. 288 ST.
S.W. 217 AVE.
S.W. 197 AVE.
S.W. 137 AVE.
S.W. 107 AVE.
S.W. 320 ST.
S.W. 328 ST.
S.W. 344 ST.
S.W. 192 AVE.
CARD SOUND RD.
0 1 2 3 4
MILES
FIGURE 1
DADE COUNTY ROUTE SPACING GUIDE
DISTANCE BETWEEN ROUTES
1400 FEET
2000 FEET
2600 FEET
5280 FEET
DEPENDENT ON SPECIFIC POPULATION CONCENTRATIONS

Loading Standards

To insure that most passengers will be able to obtain a seat on the bus for at least a major portion of their trip, loading standards must be established, and schedules so devised, that loads on buses will conform to the standards. Loading standards are expressed as a percent of bus capacity and indicate the degree of overloading which is acceptable, with the consideration given to both the type of service and the operating period.

It is important to differentiate loading standards by type of service (closely related to length of trip). Express service should be designed so that every patron has a seat for the trip even in maximum peak periods. This type of trip is generally the longest in terms of distance and is assessed a premium fare. Therefore, service levels should be commensurately higher. Arterial (trunk line) service should provide a seat for everyone in most periods except for the peak 30 minutes (some overloads are tolerable). Circulation/ distribution systems, such as those operated in many downtown business and shopping districts, are generally utilized by travelers moving very short distances and standing is not nearly so objectionable. At no time should loads be so excessive that a waiting passenger will have to be passed by. There should always be room on the vehicle, whether for seating or standing.

Dade County, as a mecca for winter vacationers, experiences great fluctuations in area population during the course of a year. Consequently, the demand for transit varies, necessitating service adjustments to keep within the prescribed loading standards. A diligent monitoring of demand will be maintained to assure that fluctuations are compensated for and standards are met year round.

Table II shows acceptable loading standards for different services at different times of day. It is expected, as the table indicates, that all patrons will get a seat most of the time. Adherence to these loading standards is especially important in Dade County, as 27% of all transit riders are 60 years of age or older. Thus, what is a convenience and comfort factor for most transit systems is a necessity in Dade County.

Frequency of Service

Headways are a major factor in operating cost of the transit system and therefore require a balance between the amount and level of service necessary to produce an acceptable system and that which produces excessive costs on low production routes.

In general, a service frequency (headway) is established to provide a sufficient number of vehicles past the maximum load point (or points) on a route to accommodate the passenger volume within the loading standards recommended in the previous section.

TABLE II

MAXIMUM LOADING STANDARDS

Operating Period	Type of Service [a]		
	Express	Arterial	Circulation/Distribution
Peak 30 Minutes	No Standees	125%	125%
Maximum Peak Period	No Standees	100	110
Transition Period	No Standees	No Standees	100
Base Period	No Standees	No Standees	100
Evening Period	No Standees	No Standees	100

(a) Numbers indicate an average load factor for the entire time period, expressed in total passengers as a percent of seats provided. Standards may be exceeded for individual trips within the time period.

In instances where passenger loads are so light as to require excessive time periods between vehicles to conform to loading standards, a policy headway will be enforced (see Table III). Policy headways during base periods for regularly scheduled service (excluding "trippers" or special purpose service) will not exceed 60 minutes except where required by unusual running time conditions, designed wherever possible to conform to regularly recurring clock intervals.

TABLE III

RECOMMENDED POLICY HEADWAYS

	Type of Service		
Operating Period	Express	Arterial	Circulation/ Distribution
		(period in minutes between buses)	
Peak 30 Minutes	*(a)*	*(a)*	*(a)*
Maximum Peak Period	*(a)*	20	15
Transition Period	*(a)*	30	20
Base Period	*(a)*	60 *(b)*	20 *(b)*
Evening Period	*(a)*	60 *(b)*	20 *(b)*

(a) No policy headway. All service determined by loading standards.
(b) These policy headways effective provided that the decision is made to offer service.

A number of scheduling devices are available for cost-saving including turnbacks, branching of routes, through-routing of lines, etc. However, these practices (if used to excess) tend to complicate the route system for the patron. Where branching is used because of significant cost savings, the route number will be suffixed with a letter for the branch to avoid confusion. Turnback operations will be scheduled where they can significantly increase the service to a large proportion of riders, but not during any period where policy headways govern.

Speed of Operation

Buses on city streets face certain unavoidable constraints on operating speeds that all vehicles must endure. These constraints may be reduced considerably by bus-preferential traffic facilities. Route alignments, bus stop spacing, fare collection methods and bus maintenance are factors under the operator's control which influence operating speed. An exact fare system can increase operating speed up to 5%.

There are various measures of a system's or route's speed including:

1) Overall speed — total miles/hours paid to drivers

2) Schedule Speed — route miles/running time (including layover)

3) Operating Speed — route miles/running time (excluding layover)

On arterial and circulation routes, overall speed will be in the 8–12 mph range. Any route lower than 8 miles per hour will be examined for cause. Operating speed will be higher, in the 10–14 mph range. Layover, or recovery time, is generally scheduled at 10–15% of running time, dependent on traffic conditions' variability.

Speed will be higher on express routes. Operating speed on services termed "express" will be above 15 miles per hour, with the actual figure largely dependent on the length of the express portion of the trip. Speeds of over 20 mph may be achieved on good express routes.

Directness of Service

The percentages of transfers made in a system provide a measure of how direct is the service provided. Through-routing of patrons is desirable; routes should be joined to correspond with trip patterns rather than to balance vehicle requirements.

While it is financially infeasible to provide everyone with a direct trip, no more than 25% of a system's patrons should require more than one bus to complete their trips unless the system, like CGMBS, employs a central terminal concept. Higher percentages will indicate that there is potential for through-routing or route alterations that would greatly enhance the directness, and hence, the attractiveness of the service. Transfer time should generally be in the 5–10 minute range within the core service area. The transit operators will attempt to adjust schedules in any case where it is brought to their attention that a passenger is scheduled to wait more than 15 minutes for a second bus.

Dependability

Schedules will be constructed so as to represent accurately the running times of buses under normal conditions. Still, buses are subject to delays due to:

1. General traffic delays
2. Mechanical failures
3. Emergencies and inclement weather
4. Unusually frequent or prolonged passenger stops

It is inevitable that delays will occur from time to time but if the transit operator establishes realistic schedules and enforces preventative maintenance, then the occasional delay due to circumstances beyond its control will not consititute a breach of service.

The times for all trips shall be such as to permit any scheduled vehicle sufficient time to travel along the route at a rate of speed not to exceed the legal limit, but commensurate with the speed of the general traffic, plus time for service stops. In addition, every in-service round trip or through-town trip shall be scheduled a sufficient time lapse between trip ends and next trip starts to insure recovery from any reasonable lateness incurred during the previous trip operated. In instances in which schedule adherence becomes difficult in peaks by reason of general traffic congestion, the options are to modify the schedules for that particular situation or to gain bus-preferential traffic facilities through high-congestion areas.

Disruptions due to mechanical failure of equipment cannot be eliminated entirely but will be minimized within the economic limits of sound maintenance practices. Maintenance standards will be high enough to provide at least 9,000 vehicle miles of service for each disruption due to mechanical failure of equipment.

Schedule adherence criteria will vary with the quantity of service provided and time of day. Table IV shows Dade County schedule adherence standards, ranging from 50% to 95% of buses "on-time" (zero to five minutes late). Buses should *never* be early. Two-way radios are a cost-effective way of improving dependability to meet standards.

TABLE IV

SCHEDULE ADHERENCE

(Minimum Percent of Service On-Time)

	HEADWAY		
Time Period	Less than 10 Minutes	10 to 30 Minutes	Over 30 Minutes
Maximum Peak Period	50%	75%	90%
Transition Period	75% [a]	85%	95%
Base and Evening Periods	80%	95%	95%

(a) 'On-Time' interval is defined as zero to five minutes late.

Bus Stop Spacing

Obviously, stops at every intersection provide the shortest walking distance to the bus. However, if this were to be a carrier's policy, vehicle speed and trip times for patrons already on the bus would be adversely affected. Thus, the placement of bus stops along local surface transit routes is a problem of balancing passenger convenience and speed of operation.

Table V shows ranges of bus stop spacings, based on the density of development of a given area. When establishing a stop spacing in a neighborhood, consideration will be given to the percentage of senior citizens. Stops will not ordinarily be closer than 700 feet in residential areas, although more frequent stops may be placed in extremely dense areas with an inordinately high percentage of senior citizens.

TABLE V

AVERAGE BUS STOP SPACING GUIDE

Population Density (Dwelling Units Per Acre)		
More than 5	1.5 to 5	Under 1.5
700–900	800–1,000	900–1,500

Bus stop spacing will also reflect the characteristics of the area being served, and in some cases Table V will be disregarded in favor of simply considering the locations of patron concentration. This is especially true in commercial and industrial areas.

When buses ordinarily experience signal delay at an intersection, a near-side stop will minimize total delay time. Similarly, far-side stops minimize total delay time at intersections at which buses usually get a green light. When these general rules are combined with the conclusion that signal delay is more frequent at near-side bus stops and that near-side stops require a loading zone nearly 25% longer than do far-side stops, it may be stated that far-side stops are preferable. Far-side stops are also safer, eliminating right-turn conflicts (Florida law allows right turn on red). However, traffic or street conditions will often prohibit this, and the exact location of any stop is a matter requiring individual analysis.

Productivity of Routes

Dade County transit service must operate within a budget constraint. There are not unlimited public resources to operate buses any more than there are unlimited resources to provide sanitation, police or any other community service.

Within this budget constraint it is the first objective to "develop a system of mass transit in Dade County that will offer the best possible level of service to all residents of the County." To accomplish this the system must be continually evaluated to determine optimum service levels on each route. In some cases it may be found that, if buses and drivers were diverted from one route to another, total ridership would increase and transit mobility would be improved.

There are two types of routes which will receive particular attention under the productivity criterion: heavy-service routes and lightly patronized (accommodation) routes.

Heavy-Service Routes – Any route which has over 150% of average system service (annual bus miles per route mile) may be considered a heavy-service route. Generally, heavy service is justified on these routes because of their higher patronage levels. This justification will be periodically verified.

Any heavy-service route should carry at least the system average of total passengers per mile (for express or other routes with high operating speed, total passengers per hour is a more appropriate evaluation criterion). Heavy-service routes which do not meet system average passenger rates will be identified, and a program will be designed for each of these routes to increase riders through promotions, reroutings and rescheduling. Use of intermediate turnback points will be considered to concentrate service in heavy ridership sections, provided that the turnbacks do not result in service under policy headways on the end of the line.

Accommodation Routes – Some routes are operated with the knowledge that ridership will remain at low levels. This is particularly true of routes serving low density areas, routes providing linkage to an isolated community, and crosstown routes. While these services are valuable to the patrons who utilize them, it should be recognized that the buses and drivers serving accommodation routes could be committed to better service on more highly patronized lines.

Any accommodation route which is patronized at less than half the system total-passengers-per-mile rate (or passengers-per-hour rate for high-speed routes) must be considered a serious drain on transit resources. For these routes, a comprehensive ridership profile will be drawn, including number of elderly, students, handicapped and low-income riders as well as work-trip riders without alternate means of transportation. Based on these data, a decision can be made on whether to continue the accommodation route under full transit

operating subsidy or to seek a contribution to the deficit from the political jurisdiction or special group served. Any community or group which is willing to pay a reasonable portion of the deficit for accommodation service will have that service continued.

Passenger Amenities

A major constraint on transit ridership, especially during inclement weather, is the amount of time spent waiting on the street and the exposure to the elements during that period. Many transit systems throughout the country have instituted bus shelter acquisition programs aimed at eliminating this negative aspect of transit riding.

The placement of shelters and the development of a priority location program will be based on two major factors: the number of boarding and/or transferring passengers at a specific stop and the frequency of service at the stop. Shelters should be provided at all stops which serve 100 or more boarding and/or transferring riders during the course of a typical weekday. Table VI provides a guide for establishing priorities in placement of bus shelters on the basis of passenger demand and service frequency.

TABLE VI

BUS SHELTER PRIORITY GUIDE

Total Number of Boarding and/or Alighting Riders[(a)]	Average Peak Period Service Frequency		
	15 Minutes or More	5 to 15 Minutes	5 Minutes or Less
300 or More	Top	Top	Top
250 – 299	2nd	2nd	4th
200 – 249	2nd	2nd	4th
150 – 199	2nd	3rd	4th
100 – 149	3rd	3rd	4th

(a) Throughout the course of the typical weekday.

Waiting shelters will include a minimum of 50 square feet of area and at least two entrances. Shelters in the top and second priority categories will be lighted while those in the lower priority categories need only be sufficient to protect waiting passengers from the elements. Shelters at all top priority locations will include schedule information and telephone services while shelters at other locations need only include the schedule data.

In addition to the major boarding and transfer points along the system, it is desirable that shelters be placed at all major park-ride locations (especially those associated with express bus operations), regardless of the existing passenger demand. Such shelters will also include telephone services and system schedule information.

Shelters will be provided at all major downtown stop locations wherever possible in accordance with existing physical conditions or planned downtown construction.

Dade County's warm climate does not warrant heated shelters. Storms, however, are common, and the shelters will be sufficient to protect waiting passengers from high winds and rain. Where possible, they will be oriented to provide shade in the afternoon. Seats will be provided in shelters or on nearby benches for 5% of the average daily patronage.

In addition to providing waiting shelters at major boarding locations, all bus stops in the systems shall be identified by a bus stop sign bearing the symbol of the appropriate transit agency. Signs identifying multi-route stops (i.e., stops serving two or more routes) shall include route designation for each line serving the stop.

Revenue Equipment

So as to maximize the pleasure and comfort of the bus rider, and thereby spur demand, a transit system should provide the most attractive and comfortable vehicles possible. During the peak periods, most systems utilize nearly all of their buses, so that the older vehicles in the fleet are pressed into service. During the base period, however, higher standards relating to revenue equipment can be met.

Base period buses will be of the new-look variety, and air conditioning, especially in the warm climate of Dade County, is a must. New buses will come equipped with hand grips and other amenities for the elderly and handicapped. Beyond this, standards are primarily a matter of maintenance: seats will not be ripped or missing, windows will be functional, floor covering will be in good repair, lighting will be operational, and the overall interior will be clean.

Buses will also be attractive for the community in general – noise, smoke, and odor will be kept to as low a level as possible through the latest environmental improvement

equipment and diligent application of sound maintenance procedures. Bus exteriors will be washed at least every other day and body damage will be scheduled for immediate repair.

Public Information Program

A transit system should develop and maintain a program of public information which not only makes sources of information available to those who seek it, but is aggressive in its efforts to educate the general public about the system and how to utilize it.

Route timetables will include all the information necessary for a non-user to make a trip on the bus, including route maps, schedules which show intermediate time points, fare information and transfer information. These timetables will be available and prominently displayed on all buses, as well as in major activity centers, such as office complexes or shopping centers. A route map of the area, showing all of a system's routes, will be available either free or at a nominal charge.

Information will be available by phone around the clock. All shelters will display detailed route information. Route numbers will be posted at bus stops, along with a prominent logo identifying the point as a bus stop.

Standard media advertising will also be used to reach the general public and induce them to utilize the system. This advertising will be especially effective when coupled with special promotions or the introduction of new services.

Buses will be clearly marked as to route. Traditionally, buses have a route designation overhead in front. Some newer buses also have a side space for route identification. This policy will be expanded to include the rear, a practice which will be especially helpful in downtown loading areas.

Rate of Fare

The cost of Dade County mass transit is derivative from the standards set forth in the first 10 sections of this policy document. This section deals with how to pay for it.

It is an accounting identity that the cost of a transit system equals revenue plus subsidy. In Dade County fare box revenue comprises 96% of total revenue, with the small residual composed of charter, special services and bus advertising. In such a system the price of a ride is a major determinant of revenue and, therefore, subsidy. Dependent on what fare is established, service could be provided according to standards at no subsidy, at full (100%) subsidy, or somewhere in between.

Unfortunately, the ascendency of the automobile has so reduced the market for mass transit that a fare set to operate Dade County transit at no subsidy would be substantially higher than the current 30¢ base fare. The break-even fare would be prohibitively high for many captive riders so that these riders would have their mobility severely constrained. The break-even fare would be uncompetitive with the automobile for most choice riders, so that traffic congestion would become even more critical.

With full consideration of the deleterious effects of a break-even fare, or of any fare increase, a reasonable transit pricing standard for Dade County is fare stabilization. The maintenance of the current base fare, as well as reduced fare plans for students and senior citizens leaves ample latitude for fare simplification and experimentation. The zone fare and transfer system should be uncomplicated and easily administered. Because of the short average trip length on downtown circulator buses, reduced fare will be offered on these services. Any express service which reduces travel time by over 10% will be eligible for a premium fare. Special fare promotions of a limited duration will be implemented to break consumer auto-oriented travel habits.

Standards for New Service and Extensions

The standards and criteria developed in the preceding section apply equally to new services with few exceptions. The only differences are that analyses of loading standards, headways, bus stop spacing, schedules and financial review are all completed on an estimated pro forma basis rather than on actual experience, and that a growth period is allowed during which financial losses are to be expected while patronage builds up.

If a new route or extension does not meet the productivity criteria detailed in a prior section within 90–180 days of its initiation, then the decision to curtail service will be made on the basis of standards laid down for existing service. The exception to this rule is when a community or group is willing to participate in cost–sharing on experimental proposals. In the case of experimental proposals for special groups, the transit operator will provide service for as long as the community, employer or other special interest group is willing to participate in cost–sharing, paying a predetermined percentage of the difference between *total* operating expense and *actual* revenue derived from the route. During the first 90–180 days of new service, charts will be kept showing the growth in actual revenue and expense so that decisions may be made on when the service may reach acceptable economic levels or achieve peak revenue.

There will be an active program to develop new transit services. In addition to monitoring the route spacing map to determine "holes" in coverage, employee concentrations will be identified. All concentrations of over 1,000 employees will be contacted annually to determine potential for employee-designed special transit service which pays at least out-of-pocket cost.

Peer Group Comparisons

To be effectively administered, all of the above goals and standards need criteria for the measurement and judgment of effectiveness. It is essential to know how well Dade County transit is doing in relation to its peer groups around the United States. Just as the Dow Jones industrial average provides a base against which to measure stock performance, so should transit agencies have a base for comparative measurement of their services.

Comparative statistics will be computed for a series of public transit systems around the country which serve metropolitan areas similar in size to Dade County. Group averages will be calculated for a number of operating measures, including:

- Operating Ratio (expenses/revenue)
- Average Cost per Bus Mile
- Average Cost per Bus Hour
- Average Cost per Revenue Passenger
- Average Bus Miles per Man-Year (total operating division)
- Average Bus Miles per Route Mile
- Average Fare per Trip
- Percentage of Urbanized Area Population in Transit Service Area
- Transit Riding Habit (annual rides per population served)
- Total Passengers Carried
- Passengers Carried per Mile
- Average Fare per Mile

To judge the performance of Dade County transit against these yardsticks, each parameter will be represented by its mean value and standard deviation. If the value of any Dade County parameter is within one standard deviation of the group distribution, it will be ruled a reasonable difference. If the value is outside of one standard deviation from the mean, this signifies an extraordinary situation (be it higher or lower than mean value). If the County–calculated value exceeds two standard deviations from the mean, corrective actions will be taken in cases where the deviation is detrimental to operations.

To minimize the effect of added service on increased riding and to develop an unbiased trend statistic, passenger growth will be calculated in terms of passengers per mile. In this fashion, any particular period (day, month, year) can be compared to the prior year by dividing the total passengers carried in the analysis period by total miles operated in that period. This statistic will be examined in light of absolute increases in passengers and

mileage to provide an accurate judgment on how well Dade County transit is doing in achieving its goals.

In addition to examination of the operating statistics previously enumerated, Dade County transit agencies will conduct an annual operating audit for the purpose of reviewing the prior year's performance in relation to the original budget for that year and also examining the subsequent year's budget in relation to planned service improvements. This operating review will include a year-end assessment of regular service, extensions, new services, unit costs, unit revenues, personnel performance and other operating considerations. The results of the review will be used in establishing the next year's operating improvement plan and budget.

D.J. REYNOLDS

SIMCUR – 192

VOLUME 2

DADE COUNTY
TRANSIT DEVELOPMENT PROGRAM

METROPOLITAN DADE COUNTY
TRANSIT AUTHORITY (MTA)

SIMCUR–192

DADE COUNTY TRANSIT DEVELOPMENT PROGRAM

V O L U M E 2

METROPOLITAN DADE COUNTY TRANSIT AUTHORITY (MTA)

Prepared For

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VOLUME II

DADE COUNTY

TRANSIT DEVELOPMENT PROGRAM

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ADEQUACY OF SERVICE

Now that it has been established just what mass transit can be expected to accomplish in Dade County, and what quality and quantity of service is necessary to achieve these goals, one might well ask, "Where are we now?" This section will attempt to answer that question by assessing the adequacy of current Metropolitan Transit Authority operations according to the following ten service criteria:

- Availability of Service
- Frequency of Service
- Service to Major Trip Generators
- Loading Standards and Comfort
- Dependability
- Speed of Operation
- Directness of Service
- Accommodation Service
- Rate of Fare
- Public Information Program

This assessment will not only describe favorable aspects of the MTA and its services, but will point out deficiencies which form the foundation for the short-range transit improvement program, detailed in a subsequent section of this report.

According to the most recent (1969) complete origin-destination survey of Dade County transit riders, over 90% of all County transit trips are made on MTA lines. A study of the socioeconomic characteristics of MTA patrons reveals the "typical" passenger to be

- a middle-aged working woman
- from a family with an annual income of below $6,000
- utilizing the bus to travel to work
- without an auto available for her trip.

Most trips are made by residents of Dade County; however, a significant portion of the ridership consists of tourists. Not surprisingly, the tourists present a different socioeconomic profile, coming from higher-income families, using the bus for pleasure trips, and being less predominately female.

Travel in Dade County has a dual focus, as about one trip in seven is made to the Miami CBD and another one-seventh of the trips are to South Miami Beach. The most heavily travelled corridor in the county, with 6,100 daily trips, is between South Miami Beach and Surfside-Bal Harbour.

In all, over 150,000 riders use the MTA system on a typical winter weekday, and a description of the services they are offered follows.

Availability of Service

The availability of transit service refers to the proximity of routes to the patrons' origins and destinations. Just how close routes should be is a variable which depends on the socioeconomic characteristics of the area being analyzed (see the Route Spacing section of "Service Standards"). To assess the adequacy of transit availability, it is necessary to determine how well the actual route alignments correspond to standard spacings.

Illustrated in Figure 1 are the transit routes operated by the Metropolitan Transit Authority. Within the cities of Miami and Miami Beach and the more heavily populated areas of north Dade County, MTA routes blanket the area and provide service to virtually all sections. In southern Dade County, development is primarily in the U. S. Route 1 corridor, and consequently this is where the transit service is concentrated. The shaded areas indicate residential or industrial areas which, as a result of a comparison of the Route Spacing Guide (Volume I, Figure 1) with route alignments, have been determined to be beyond convenient range of present service. This does not necessarily mean that these areas are without service - - just that socioeconomic characteristics of the areas indicate a potential demand for transit which warrants a degree of accessibility greater than that now offered.

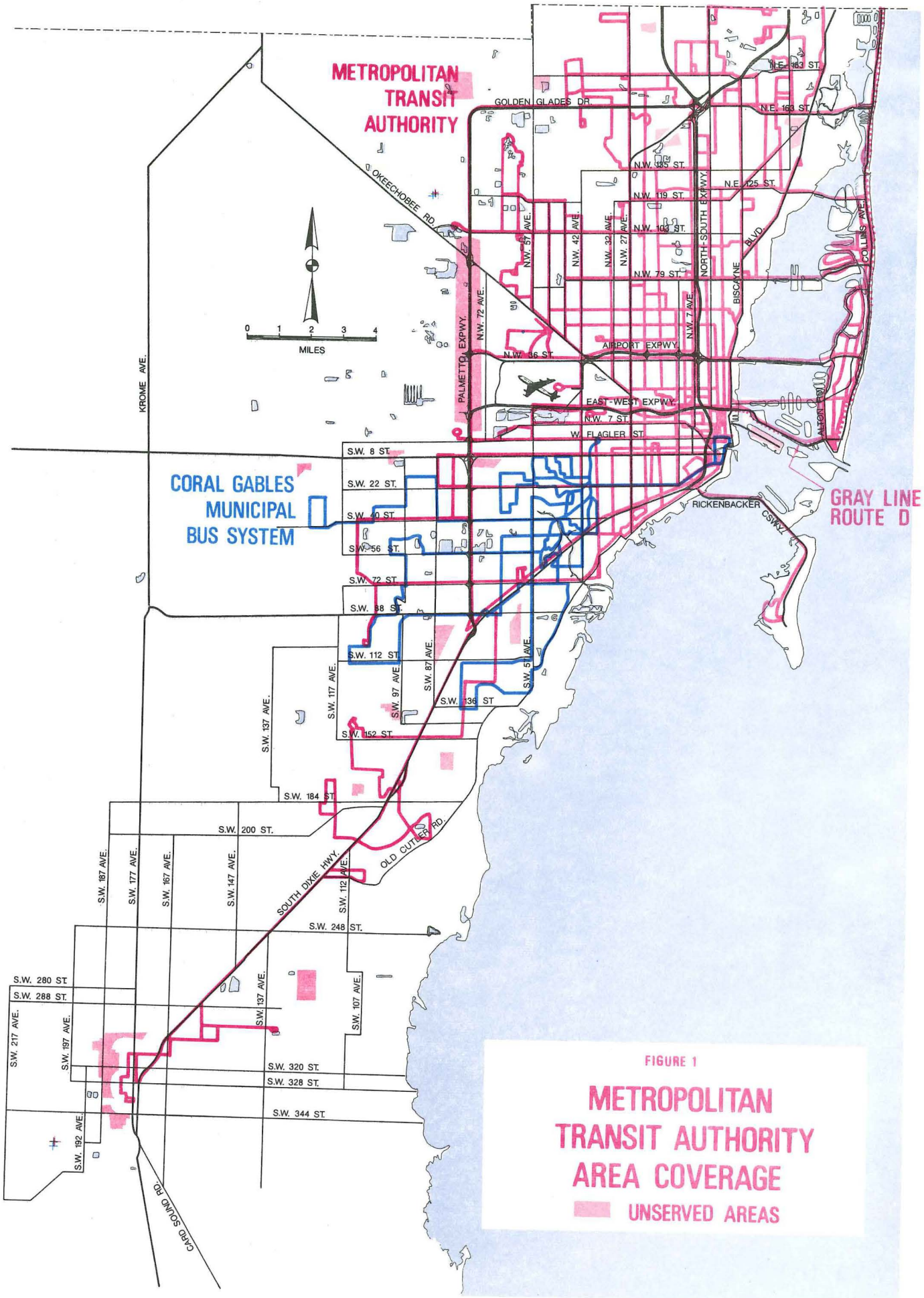

FIGURE 1

METROPOLITAN TRANSIT AUTHORITY AREA COVERAGE

UNSERVED AREAS

There are four major areas in which the availability of transit is severely deficient. The areas, all of which are easily discernible from Figure 1 are:

- A residential development northwest of NW 170th Street and 77th Avenue
- Parts of Florida City
- The Palmetto Expressway Industrial Corridor
- Dodge Island, in Biscayne Bay

There are other areas where availability is limited, but where service does not appear to be warranted. These areas include the base housing development north of Homestead Air Force Base, and the residential islands in Biscayne Bay.

With the exception of the mentioned areas, the illustrated "holes" in service are minor, and residents of these areas can, if they are willing to walk a little farther than normal, receive service. Overall, the area coverage is very good and the two operations, MTA and CGMBS, have been successful in extending service to over 97% of Dade County residents.

Express Service - In addition to the local services, MTA operates seven express routes which serve varied parts of Dade County. All of the express operations are strictly peak-hour services, and utilize the Palmetto, North-South (I-95), East-West and Airport Expressways, as well as major arterials such as U. S. Route 1. The express routes are as follows:

Route	Origin-Destination	Via
6	Hialeah-Downtown Miami	Airport Expy. and I-95
13	South Dade - Airport	U. S. 1 and Palmetto Expy.
16	South Dade - Civic Center via Downtown	South Dixie Hwy.
26	Norwood and Carol City to Downtown Miami	I-95

Route	Origin-Destination	Via
48	Westchester-Downtown Miami	East-West Expy.
49	South Broward-Airport	Golden Glades Dr. and Palmetto Expy.
50	North Dade - Downtown Miami	I-95

Only two of the express routes, 6 and 26, have local operations through the day.

In some cases, patrons may ride express for the same fare that would be paid on a local route covering the same distance, but four of the lines charge a premium fare (see Rate of Fare). This premium rate is justifiable, though, as the express operations do result in a significant savings in travel time for through passengers.

Route D - Providing additional service to Dade County residents, and serious competition for the MTA, is the Gray Line Sightseeing Co., which operates one route between downtown Miami and Ft. Lauderdale, via Miami Beach and Hollywood. This is Route D, which offers an attractive alternative for trips between the Miami CBD and Collins Avenue, due to its 25¢ base fare and frequent service. Route D buses operate at 20 minute intervals from prior to 7:00 a.m. until almost 6:00 p.m., when headways become 30 minutes. Service out of Miami terminates at 11:30, but arrivals from Hollywood continue until 2:00 a.m. The exact routing of the Dade County portion of Route D is illustrated on the Area Coverage map (Figure 1).

Bus Stops - An individual's accesibility to transit service also depends, to some extent, on the distance between bus stops. Stop intervals in Dade County are rather narrow, as low as 600 feet on some streets. In Table I, stop intervals, derived by counting the number of stops over a distance of at least two miles, are given for selected streets in the County.

It would be expected that some of the stop spacings shown in Table I might constrain operating speed. Interestingly enough, this is not the case, as the MTA schedule speeds are impressively high.

TABLE I

SAMPLE BUS STOP SPACINGS

Street	Average Stop Spacing
S. Dixie Highway (northbound)	1600'
N. W. 2nd Avenue	636'
Biscayne Boulevard (southbound)	652'
S. W. 7th Street	609'
S. W. 8th Street	800'
Flagler Street (westbound)	714'
Flagler and S. W. 1st Streets (eastbound)	733'

Frequency of Service

During the morning peak period, there are 11 routes which offer service as frequent as every 15 minutes, and another 8 lines on which the shortest headways are 20 minutes (Table II). Thus, less than half of the MTA routes satisfy the service standards relating to frequency of operation. Thirteen other routes operate at half-hour headways, and with one exception, the remainder of the arterial services are set at headways of between 40 and 60 minutes. The exception is Route 35, which operates at one hour intervals. For a peak period in a metropolitan area as large as Miami, this would appear to be at best a modicum of service. However, consideration must be given to the fact that the MTA serves a great portion of Dade County in which the development is of low density. Narrow headways in such areas are not economically feasible. Headways in areas of greater density are generally shorter as would be expected.

There are seven peak hour express routes and service on these lines, while only consisting of several trips per day, is set at 30-minute headways.

Midday headways in the system vary greatly as do the peak intervals. The Beach routes offer remarkably frequent service, as eight of those lines have midday headways of 20 minutes or less. Overall, there are four routes which operate at intervals of 15 minutes or less and 21 which feature headways of 20 to 30 minutes.

Evening peak headways are similar to the frequencies provided in the morning. One significant exception is Route 35, which operates but once every two hours through the afternoon and evening rush period.

A remarkable aspect of the frequency of service, which is reflected in the above paragraphs regarding headways, is the peak/base ratio of vehicles. For the entire system, the ratio is 1.50, while for the Beach routes, it is 1.25. These figures illustrate one of the unique features of transit demand in Dade County: the demand is spread out over the entire service day, with less pronounced peaking characteristics than are found in most urban areas. This is due in large part to the number of tourists and retired senior citizens in Dade County, persons whose travel patterns are not shaped by a work day requiring regular morning and evening trips.

TABLE II

METROPOLITAN TRANSIT AUTHORITY

SUMMARY OF SCHEDULES

Route Number	Round Trip[1] (Mileage)	Round Trip Running Time[1] (Minutes) (Including Layover)	Scheduled Speed[1] (mph)	HEADWAYS (Minutes)[2] Weekdays AM	Base	PM	Evening	Saturday	Sunday	Span of Service	Daily Mileage	Buses Required AM	Base	PM	Evening
1	49.8	240	12.4	15	30	15	30	30	30	5:20 AM– 1:15 AM	2,017.3	12	8	13	6
2	21.8	80	16.3	40	60	40	60	60	–	5:35 AM– 8:30 PM	397.6	2	1	2	1
3	14.6	80	10.9	30	40	30	60	40	70	5:20 AM–10:01 PM	365.6	3	2	3	1
4	23.2	120	11.6	20	30	20	60	40	60	5:28 AM– 1:27 AM	784.2	7	4	8	1
5	37.2	180	12.4	7½[5]	15	7½[5]	30	15	20	5:05 AM– 1:10 AM	2,318.4	20	12	16	8
6	47.2	240	11.8	30	30	30	60	30	40	5:18 AM– 1:19 PM	1,631.6	10	8	9	3
6–Express	28.1	120	14.0	30	–	30	–	30	–	6:13 AM– 7:08 PM[3]	183.2	4	–	1	–
7	30.2	75	24.1	2 trips	–	2 trips	–	–	–	6:40 AM– 5:15 PM[3]	120.4	1	–	1	–
8	14.3	75	11.4	3 trips	–	2 trips	–	–	–	6:10 AM– 5:45 PM[3]	57.7	1	–	1	–
9	38.5	180	12.8	60	60	60	60	60	60	5:10 AM– 8:52 PM	553.2	3	3	3	3
10	36.2	180	12.0	60	60	60	60	60	60	5:18 AM– 1:11 AM	674.5	3	3	3	2
11	38.4	200	11.5	10[6]	20	10[6]	60	30	30	5:33 AM– 2:15 AM	2,063.5	16	10	16	4
12	40.0	180	13.3	30[7]	60	30[7]	100	60	60	5:38 AM– 1:30 AM	657.5	7	3	6	1
13	45.6	130	21.0	1 trip	–	1 trip	–	–	–	7:25 AM– 6:10 PM[3]	45.6	1	–	1	–
14	32.7	180	10.9	20	20	20	60	30	30	5:47 AM– 1:55 AM	1,569.5	12	9	11	3
14–Beach	25.2	100	15.1	20	–	20	–	30	–	6:40 AM– 5:55 AM[3]	247.0	4	–	5	–
15	36.4	180	12.1	15[8]	30	15[8]	40	20	30	5:16 AM– 1:53 AM	1,642.0	11	6	10	5
16	55.0	180	18.3	4 trips	–	3 trips	–	–	–	6:00 AM– 7:57 AM[3]	310.0	3	–	4	–
17	11.8	80	8.8	30	40	35	60	40	60	5:34 AM–10:10 PM	283.2	2	2	2	1
19	15.7	80	11.7	30	40	30	55	40	45	5:20 AM–12:33 AM	435.8	3	2	3	1
20	26.9	120	13.4	30	40	30	70	40	45	6:00 AM– 1:23 AM	739.7	4	3	4	2
21	16.3	100	9.7	12	20	12	30	20	20	5:10 AM– 2:00 AM	956.4	8	5	8	4
23	30.3	180	10.1	30	30	30	40	30	40	5:25 AM– 1:32 AM	1,096.0	8	6	6	4
24	23.7	120	11.8	30	30	30	50	40	40	5:30 AM–12:41 AM	734.6	4	4	4	3
25	27.3	150	10.9	30	30	30	60	30	30	5:25 AM– 1:53 AM	1,049.1	7	5	7	4
26	40.8	180	13.6	15	30	15	50	30	43	4:47 AM– 2:15 AM	2,242.3	13	6	17	5
27	20.5	105	11.7	20	25	30	35	35	60	5:43 AM– 9:18 AM	561.0	5	3	4	3
28	37.6	180	12.5	60	60	60	90	60	60	5:24 AM– 1:00 AM	820.7	5	3	5	3
29	52.3	240	13.0	60	60	60	70	60	60	5:45 AM–12:42 AM	1,099.6	7	4	6	4
30	34.5	180	11.5	30	30	30	70	30	40	5:12 AM– 1:40 AM	1,224.9	6	6	9	4
31	32.9	120	16.4	60	60	60	1 trip	60	–	5:45 AM– 8:31 AM	429.9	2	2	2	1
32	55.0	240	13.7	60	60	60	100	60	60	5:08 AM–10:57 PM	941.4	6	4	5	3
34	59.8	240	14.9	60	60	60	60	60	60	5:00 AM–10:27 PM	1,056.7	5	4	5	3
35	33.5	120	16.7	60	60	60	–	–	–	5:50 AM– 7:00 PM	469.0	2	2	2	–
37	28.4	150	11.3	30	–	30	–	30	30[4]	6:00 AM– 6:20 PM	381.8	5	–	5	–
38	17.0	60	17.0	60	60	60	60	60	–	6:30 AM–10:30 PM	272.0	1	1	1	1

TABLE II

METROPOLITAN TRANSIT AUTHORITY

SUMMARY OF SCHEDULES

(Continued)

Route Number	Round Trip[1] (Mileage)	Round Trip Running Time[1] (Minutes) (Including Layover)	Scheduled Speed[1] (mph)	HEADWAYS (Minutes)[2] Weekdays AM	Base	PM	Evening	Saturday	Sunday	Span of Service	Daily Mileage	Buses Required AM	Base	PM	Evening
48	27.2	60	23.3	4 trips	—	4 trips	—	—	—	6:50 AM– 6:20 P M[3]	108.8	2	—	2	—
49	46.8	90	31.2	1 trip	—	1 trip	—	—	—	5:54 AM– 4:24 P M[3]	46.8	1	—	1	—
50	40.7	145	16.8	3 trips	—	3 trips	—	—	—	6:39 AM– 6:42 P M[3]	137.3	3	—	3	—
A	8.2	40	12.3	20	20	20	40	20	40	6:00 AM–12:20 AM	410.0	2	2	2	1
B	21.1	60	21.1	60	30	30	60	30	30	6:30 AM– 8:30 P M	422.0	2	2	2	1
Double B	5.1	36	8.5	12	12	12	—	—	—	9:00 AM– 5:27 P M	211.7	3	3	3	—
C	18.8	120	9.4	20	20	20	30	20	30	6:07 AM–12:51 AM	914.4	6	6	6	4
H	31.8	180	10.6	20	20	20	60	20	30	5:17 AM–12:12 AM	1,112.6	9	9	9	3
K	28.1	160	10.5	20	20	20	30	20	30	5:37 AM– 1:37 AM	1,565.6	10	8	11	5
L	44.0	220	12.0	10[9]	20	10[9]	30	20	30	4:33 AM– 2:11 AM	2,519.7	14	11	16	7
O	9.6	60	9.6	60	60	60	60	60	60	6:35 AM–11:20 P M	163.2	1	1	1	1
R	21.2	120	10.6	30	30	30	30	30	30	5:50 AM–12:33 AM	720.7	4	4	4	3
S-194th St.	35.8	200	10.7	40	40	40	40	40	60	5:25 AM– 3:05 AM	1,062.6	5	5	5	5
S-Bunche Park	52.4	240	13.1	40	40	40	60	40	60	5:06 AM– 2:30 AM	1,344.1	7	6	6	4
T	27.5	120	13.7	10	10	10	30	10	30	6:00 AM– 2:42 AM	2,142.1	12	8	12	5
W	3.7	30	7.4	15	15	15	30	15	30	8:20 AM– 9:00 PM	165.1	2	2	2	1
TOTALS	**1,623.5**	**7,316**	**13.3**							**4:30 AM– 3:05 AM**	**43,669.0**	**296**	**198**	**293**	**125**

(1) Round trip mileage running time and speed are based on normally operated portion of route, including branches and turnback points.

(2) Computed for all trips and rounded to nearest five minutes.

(3) These routes operate only during the peak periods. The span of service indicated is from the first AM trip to the last PM trip.

(4) Route 37 operates on holidays, but not on Sunday.

(5) From downtown Miami to S W 8th Street and 73rd Court; 15 minutes elsewhere.

(6) From downtown Miami to West Flagler Street and 71st Avenue; 20 minutes elsewhere.

(7) From downtown Miami to 125th Street; 60 minutes elsewhere.

(8) From downtown Miami to Dade Junior College; 30 minutes elsewhere.

(9) From Lincoln and Washington to N W 79th Street and 32nd Avenue; 20 minutes elsewhere.

Overall, the frequency of service is one of the system's shortcomings and, for the passengers, one of the most unattractive aspects of the service provided by the MTA. It results in especially long trip times for transfer passengers, who commonly have 15-30 minute waits between buses.

While the headways on many lines are rather wide, certain main arteries in the County are traversed by several of these routes, and consequently service along these arteries is very frequent. Flagler Street, 1st Street, Biscayne Boulevard, and Collins Avenue all have such concentrations of service during peak hours, as described below:

> Flagler Street - Between Biscayne Boulevard and 22nd Avenue (westbound), the combined headway of all routes covering the entire section is approximately three minutes. The same frequency of service is available on SW and SE 1st Street (eastbound).
>
> Biscayne Boulevard (southbound) - Between 36th Street and 14th Street, service is available every 2-3 minutes. South of 14th Street into the CBD, service is even more frequent as the combined headway is less than two minutes.
>
> Biscayne Boulevard (northbound) - From 4th Street to 14th Street, the combined headway is less than two minutes, between 14th and 36th Streets, it is approximately three minutes.
>
> Collins Avenue - The combined headway on Collins Avenue from Lincoln Road to 26th Street is five or six minutes, depending on the section.

Thus, persons making short, straight-line trips along these (and other) streets are offered a very good frequency of service.

The span of service is generally adequate throughout the system. Operations on most lines begin prior to 6:00 a.m. Although there is no all-night service, nearly half the routes

continue after midnight, and many make their final runs after 1:00 a.m. As was the case with frequency of service, the span of service is somewhat better on the Beach routes, with four lines operating until after 2:00 a.m., and one of those continuing until after three o'clock.

Most routes provide good Saturday and Sunday service, with weekend headways in many cases almost as frequent as those operated through the week. In fact, Saturday service on several routes is identical to that provided on weekdays. Sunday service in South Dade, however, is non-existent below South Miami terminal.

Service to Major Trip Generators

A major generator is a facility or area that attracts a large number of daily person trips and thereby has the potential to generate a demand for transit. How well a system serves the generators in its service area is an important criterion in assessing the adequacy of its service.

In any large metropolitan area, there is an extremely large number of these major generators, including schools, hospitals, shopping centers, and business districts. Dade County is no exception, and probably has more than many areas when its varied tourist and recreational attractions are considered. To attempt to describe in detail the service provided to each particular facility would be a procedure more tedious than valuable, so the generators will be grouped by category and an effort made to provide an overview of the service offered. Facilities with poor transit service will receive individual attention. The categories of generators to be considered are:

- Commercial and Governmental Employment Centers
- Industrial Areas
- Shopping Centers
- Recreational Facilities
- Schools
- Hospitals
- Transportation Terminals

A map (Figure 2) showing the location of many of the generators is included as a reference.

Commercial and Governmental Employment Centers - There are 11 major business districts in the Dade County Area. They are:

- Downtown Miami
- Coconut Grove
- Miami Beach - Lincoln Road Mall
- Coral Gables - Miracle Mile
- Homestead
- South Miami
- North Miami
- North Miami Beach (163rd Street)
- Hialeah - Miami Springs
- Opa-Locka
- Surfside-Bal Harbour

Authority routes serve all of these districts to varying degrees, with the amount of service reflecting the relative importance of the area. A high level of service is provided to Downtown Miami, the Lincoln Road Mall Area, north Miami, Hialeah-Miami Springs, and Surfside-Bal Harbour. Connections to all parts of Dade County are readily available at each of these commercial centers. Less abundant service is provided to and from the other areas listed, with CGMBS augmenting the service to Miracle Mile and South Miami.

The major governmental employment center in Dade County is the Civic Center, located to the northwest of downtown Miami. Employment in this area totals over ten thousand persons in nine major buildings, which include local and state governmental

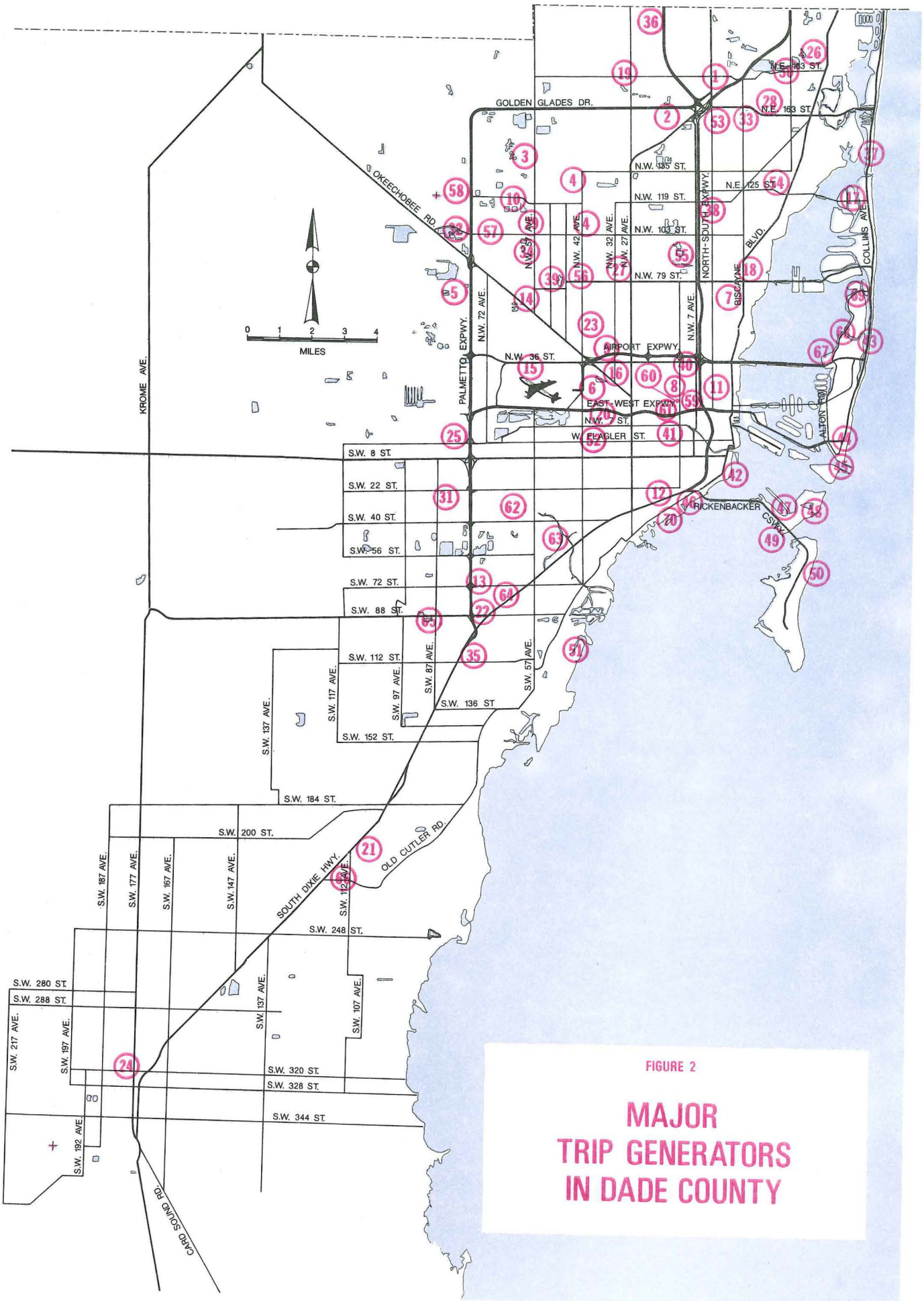

FIGURE 2

MAJOR TRIP GENERATORS IN DADE COUNTY

offices and three hospitals. No less than six MTA routes pass through or skirt the area enroute to the CBD, resulting in good service from the northern part of the County. Service from the areas south of downtown Miami is also available, but generally requires a transfer in the CBD. The only direct service from southwest Dade to the Civic Center is via Route 27 or Route 16, which is an express line.

Industrial Areas - Table III lists 16 major industrial areas, as identified by Metropolitan Dade County's Community Improvement Program publication entitled Profile of Industrial Areas. While there are deficiencies in the service offered to some areas, most of the industrial centers receive a high level of service.

In response to a CIP questionnaire, over 20% of the business managers in five of the areas indicated that there are bus service problems for their employees. The five areas are:

- Miami Lakes
- Palmetto Expressway
- Bird Road
- Southwest Hialeah
- Miami Airport

With the exception of the Airport, the deficiencies in these areas are obvious from Table III. In spite of the many routes serving it, Airport employees have long complained of bus service to their place of work and a survey is currently being taken to ascertain the specific travel desires of Airport employees.

Surprising is the fact that no complaints were registered about the service to the Miami Dade and Seaboard industrial areas, as Miami Dade is without service, and only one line serves the Seaboard area. It is likely that these areas have very few employees who use, or would care to use, the bus for the journey to work, and therefore, no complaints were registered.

TABLE III

MTA SERVICE TO MAJOR TRIP GENERATORS

INDUSTRIAL AREAS

Map Number	Industrial Area	Number of Industrial Parcels (1)	Routes Serving	Combined Headway (Minutes) AM Peak	Midday	PM Peak	Percent of Managers Indicating Bus Service Problem
1	Miami Gardens	42	12, 26, 31, 32	8	12	8	17%
2	Sunshine State	43	32	60	60	60	15
3	Miami Lakes	42	29	60	60	60	44
4	Miami Dade/Seaboard	19	28	60	60	60	0
5	Palmetto Expressway	233	13	1 trip	—	1 trip	30
6	Le Jeune Terminals	92	20, 34	20	26	20	17
7	Lemon City	325	9, 10, 11, 12	6	10	6	9
8	N. W. 20th Street	122	4, 21, 23, 24, 26	4	5	4	14
9	South Hialeah	261	6, 24, 30, 34, 23	5	5	5	16
10	North Hialeah	632	14, 21, 29	7	9	7	16
11	Garment District	427	4, 26, 27, 28, 29	5	10	5	12
12	Silver Bluff	29	7, 14, 17, 28, 29, 30, 37	5 (2)	7	5 (2)	0
13	Bird Road	30	—	—	—	—	25
14	Southwest Hialeah	434	28, 29, L	12	12	12	24
15	Airport Complex		8, 13, 20, 30, 49, 34	12 (2)	17	12 (2)	25
16	North River Drive	130	1, 15	8	12	8	0

(1) A parcel is a platted unit of land. Since more than one firm may be located on a single parcel, this is not the same as the number of firms operating in the area. It is presented only to provide a relative measure of the size of each area.

(2) Actual service levels are somewhat higher on these routes, due to express services.

Shopping Centers - Most of the major regional shopping centers (Table IV) in Dade County are adequately served by MTA routes; in fact, all of the centers have at least one route directly serving them. However, there are exceptions to this general adequacy, the most conspicuous being Dadeland, by far the largest mall of its kind in the county. Only one MTA line (Route 2) serves Dadeland, providing but 40 minute service during the peaks and 60 minute service midday from South Dade. The mall does receive service from CGMBS Route 11, however.

Aventura Mall, the County's second largest shopping center, also has but one MTA line serving it. This is Route 10, on which service generally operates hourly. Westland Shopping Center, close in size to Aventura, receives similar service - - once every hour from a single route, number 23. The remaining center with only one line serving it is the Homestead Plaza, which has nominal local service from Route 35.

The Cutler Ridge Regional Center has two lines serving it, one (Route 35) which operates only once every hour and one (Route 7) which is strictly a peak hour express.

Service to the remaining centers exhibits no severe deficiencies. Particularly well served are the 163rd Street Shopping Center, the Bal Harbour Shops, and the Biscayne Shopping Plaza which have buses arriving and leaving at least once every 8 minutes throughout the day. In addition to the service provided by MTA, many of the centers receive additional service from CGMBS lines.

Recreational Facilities - With a climate conducive to the year-round utilization of many recreational facilities, and a large tourist population anxious to take advantage of this, recreational facilities in Dade County constitute important trip generators. Shown in Table V is a list of the most important of these facilities.

Regular MTA routes serve all of the facilities listed with the exception of Homestead Bayfront Park and Matheson Hammock Beach and Park. Both of these parks are, however, served by Coral Gables lines.

TABLE IV

MTA SERVICE TO MAJOR TRIP GENERATORS

SHOPPING CENTERS

Map Number	Center	Land Area (Sq. ft.)	Routes Serving	Combined Frequency of Service		
				AM Peak	Midday	PM Peak
17	Bal Harbour Shops	1,402,770	H, K, S, T	5	5	5
18	Biscayne Shopping Plaza	1,040,520	11, 25, L	8	8	8
19	Carol City Shopping Center	1,186,881	15, 26, 31, 49	7 (1)	10	7 (1)
20	Central Shopping Plaza	1,424,000	3, 19, 20	10	15	10
21	Cutler Ridge Regional Center	1,459,000	7, 35	120 (1)		120 (1)
22	Dadeland Shopping Center	10,548,960	2	40	60	40
23	Flamingo Plaza	994,080	14, 29	15	15	15
24	Homestead Plaza	605,660	35	120 (1)	120	120 (1)
25	Midway Mall	2,442,400	11, 38	9	15	9
26	Aventura Mall	4,249,200	10	60	60	60
27	Northside	1,866,800	15, L, 21	5	8	5
28	163rd Street Shopping Center	2,787,400	9, 10, 12, 31, 32, H	8	8	8
29	Palm Springs Mile	3,101,000	6, 8, 23, 29	12 (1)	12	12 (1)
30	Skylake Mall Shopping Center	1,003,400	9, H	15	15	15
31	Westchester Mall	815,904	5, 38	12	12	12
32	Westland Shopping Center	4,049,200	23	30	30	30
33	Jefferson	885,139	12, 31, 32	15	20	15
34	Mall on the Mile	875,000	6, 23, 29	12	12	12
35	Jefferson	210,395	2	40	60	40

(1) Actual service levels are somewhat higher on these routes, due to peak hour express services.

TABLE V

MTA SERVICE TO MAJOR TRIP GENERATORS

RECREATIONAL FACILITIES

Map Number	Facility	Routes Serving	Combined Headway (Minutes) Peak	Midday	Evening
36	Calder Race Track	ss, 15	30	30	40
37	Haulover Marina and Beach	H, S, T	6	6	14
38	Biscayne Kennel Club	5, ss, 26	8	10	20
39	Hialeah Race Track	6, 23, L, ss	15	15	26
40	Miami Stadium	4, 26, ss	9	15	30
41	Orange Bowl	3, 14, 15, 19, 20, 17 27, 30, 37, ss, 25	3	4	5
42	Homestead Bayfront		–	–	–
43	Indian Beach Park	34, H, L, S, T	3	4	7
44	South Beach Park	0, R	20	20	20
45	Miami Beach Kennel Club	0, R, ss	20	20	20
46	Vizcaya Museum	1, 24	10	15	20
47	Marine Stadium	B	60	30	60
48	Virginia Key Beach	B	60	30	60
49	Miami Seaquarium	B	60	30	60
50	Cramdon Park Zoo and Beach	B	60	30	60
51	Matheson Hammock Beach & Park	(1)	–	–	–
52	Flagler Kennel Club	19, 20, ss, 6, 11	5	8	15

(1) Served exclusively by Coral Gables routes.

ss — *Special Service*

Route B is the sole transit route serving four of the facilities, which are located along the Rickenbacker Causeway and Crandon Boulevard. After the morning peak, service on this line is at 30 minute headways.

Due to their locations, two facilities receive an inordinately large amount of service. The Orange Bowl is served by the many routes operating along main routes near the Miami CBD, while Indian Beach Park receives a similar benefit due to its proximity to Collins Avenue and the many routes operating on that artery.

Some of the trip demand to Dade County recreational facilities (most notably dog tracks and Jai-Alai) is in the evening hours, when service on most MTA routes is limited, as shown in Table V. To provide a more direct, attractive service, MTA maintains special services to seven of the recreational facilities.

Schools - Due primarily to the extensiveness of the area coverage of the regularly scheduled services, the MTA maintains a minimum of special school routes. Those that are run (eight in all) operate in South Dade County, where the availability of regular service is lowest.

Of the 20 senior high schools in Dade County, regular MTA routes serve 13, CGMBS routes serve four, and three are outside the service areas of both operators. The schools without regular service, all of which are in southern Dade County are:

- Miami Killian
- Southwest
- South Dade

Most other schools have at least two routes which pass in close proximity.

There are several colleges in the Dade County area, and all have some degree of transit service. Both Miami Dade Junior College campuses are served by MTA routes, however there is a lack of needed service between South Dade and the South

Campus. Florida International University is served by a recently instituted shuttle operating hourly. Two other schools in northern Dade County, Biscayne and Barry Colleges, have two and three lines, respectively, which directly serve their campuses. While the University of Miami in Coral Gables is not directly served by any MTA lines, the CGMBS does provide some service to the primarily residential campus.

Thus, with few exceptions, most schools in Dade County are adequately served by a combination of MTA and Coral Gables routes.

Hospitals - The Metropolitan Transit Authority serves 14 of the 18 hospitals in the county. Three of the others are served exclusively by Coral Gables Routes while only one is completely without service. The unserved facility is Palmetto General, located west of the Palmetto Expressway in northwest Dade County. Route 23 service was extended to this facility at one time, but lack of patronage forced the abandonment of the service.

Most of the hospitals have one or two routes serving them, while some, such as Hialeah, South Miami, Jackson Memorial, and the Veterans' Administration, enjoy a particularly high level of service. Table VI shows a summary of the transit service to Dade County hospitals.

Transportation Terminals - Levels of service to bus, rail, and airport terminals in Dade County vary greatly, and apparently depend primarily on the terminal's proximity to other commercial concentrations or major arteries.

Miami International Airport - Service to the terminal area of the Airport is limited to two routes. One (Route 34) connects the Airport to Miami Beach and South Dade, while the other (Route 20) links the Airport to the Miami CBD and Miami Springs. Route 34 operates at one-hour headways throughout the day, while peak service of half-hour intervals is offered on Route 20. Even with good service levels, a transit bus is not a convenient mode of airport access for a traveler, due to the problems of luggage handling and slow travel times, but the MTA level of service virtually excludes the bus as a mode to be considered by the air traveler.

TABLE VI

MTA SERVICE TO MAJOR TRIP GENERATORS

HOSPITALS

Map Number	Hospital	Beds	Routes Serving	Combined Headway (Minutes) AM Peak	Midday	PM Peak
53	Parkway General	334	32,	60	60	60
54	North Miami General	356	9, S, 11	11	11	11
55	North Shore	260	25, 26	10	15	10
56	Hialeah	314	6, 23, 28, L	8	8	8
57	Palm Springs	250	23, 29	20	20	20
58	Palmetto General	180	*(3)*	—	—	—
59	Jackson Memorial	1,253	4, 23, 32, 21, 27	4	6	4
60	Cedars of Lebanon	252	24, 1, 27–16	7*(1)*	10	7*(1)*
61	Veteran's Administration	870	1, 24, 27	7	10	8
62	Variety Childrens	158	*(2)*	—	—	—
63	Doctor's (Univ. of Miami)	230	*(2)*	—	—	—
64	South Miami	355	1, 2, 7, 16	11 *(1)*	20	11 *(1)*
65	Baptist	305	*(2)*	—	—	—
66	South Dade Clinic		7, 35	120 *(1)*	120	120 *(1)*
67	Mount Sinai	663	C, R	12	12	12
68	Heart Institute	172	R, O	20	20	20
69	St. Francis	312	R, K	12	12	12
70	Mercy	359	1, 24	10	15	10

(1) Actual service levels are somewhat higher, on these routes, due to peak hour express services.

(2) Served exclusively by CGMBS routes.

(3) Service was tried and discontinued due to lack of patronage.

Coral Gables Bus Terminal - One MTA line, Route 34, serves the Coral Gables terminal, from where CGMBS, Greyhound and Trailways routes emanate. Headways on the line, which offers connections to Miami International Airport, Miami Beach and South Dade, are one hour throughout the day. No direct MTA service is available to the terminal from downtown Miami, but CGMBS Route 7-8 satisfies that market with buses every 10 minutes during the peak and every 20 minutes midday.

Greyhound Bus Stations - Greyhound maintains five stations in Dade County, including the Coral Gables terminal already mentioned. The main depot, in downtown Miami, is within walking distance of the many routes which enter the Miami CBD from all parts of Dade County. Another terminal, at 1622 Collins Avenue on the Beach, has no less than five lines passing within one block of it, with the greatest concentration of service from the South Beach and Miami CBD areas. Service from north Miami Beach is less abundant, as only Routes K and R provide links as far north as 71st Street.

The North Miami station is on Biscayne Blvd. near 163rd Street and is served by Routes 32 and H, which provide connections to Miami Beach, North Dade, and Broward County.

The Hialeah station receives very good service, with four routes (6, 8, 14 and 23) passing within a block and resulting in a bus past the terminal every seven minutes during the peak periods.

Trailways Bus Stations - The Trailways depot in downtown Miami is within walking distance of all the CBD-oriented MTA lines, resulting in very good service from all parts of Dade County. Trailways also operates out of the previously mentioned Coral Gables terminal.

Seaboard Coast Line Railroad - This railroad has two passenger terminals in Dade County. The station at N.W. 7th Avenue and 22nd Street is served by one MTA line, Route 26. This route provides service to the terminal from downtown at half-hour intervals, and from Carol City and Norwood at hour intervals each. The Hialeah station is less accessible by MTA bus, as the closest route to the terminal, Route 6, passes approximately one-quarter mile away. Headways on Route 6 are 30 minutes throughout the day.

Loading Standards and Comfort

An extensive series of on-street checks to ascertain load factors was conducted throughout the MTA system by supervisory personnel in October and November of 1972. The results of these checks are detailed by route and time period in Tables VII and VIII.

The tables indicate that loading standings are easily met by the great majority of routes. Only Route 32, with a load factor of 119% for its two trips, is in violation of the standard. Most routes generally fill between 50 and 80 percent of their provided seats. Two lines, Route 11 and Route T, carried a relatively large number of standing loads, even though their overall load factors were not excessive. In general, approximately 10 percent of all observed trips carried loads in excess of the bus' seating capacity.

The data presented herein provide a favorable image of system loads and may serve as assurance to passengers that there will usually be a seat available to them when they board an MTA coach, even during rush hours.

Patrons on MTA buses are afforded a consistently good quality of ride. They can generally expect to be served by modern coaches, as 73% of the fleet buses are of the new look variety, and all of these "new-looks" are equipped with air conditioning. Six of the 107 old-look buses in the fleet are also equipped with air conditioning. Over 85% of all miles operated by the Authority are covered in air-conditioned vehicles. The presence of an air-conditioning unit in a coach does not guarantee the rider that it will be working, but in Miami it is virtually a sure thing, as on-street checks of over 200 buses in August, 1972, failed to detect a single air-conditioned coach in which the unit was not operational. This is a remarkable performance, indicating that MTA's air conditioning maintenance is probably the best in the United States.

The average age of the buses in the fleet is 8.05 years (Table IX). This is two years younger than the U. S. average bus age, which is a factor contributing to a comfortable ride.

TABLE VII

LOAD FACTORS PAST MAXIMUM LOAD POINTS

A. M. TOTAL PEAK PERIOD

Route	Location (s)	Trips	Seats Provided	Seats Filled	Load Factor	Number of Trips with Standing Loads
1	N. W. 12th Avenue and 11th Street S. Miami Avenue and 8th Street	19	971	534	55%	2
3	S. W. 12th Avenue and 1st Street	5	255	140	55	0
4	N. Miami Avenue and 17th Street Brickell Avenue and S. E. 8th Street	16	822	351	43	0
5	S. W. 12th Avenue and 8th Street N. Miami Avenue and 17th Street	40	2,082	1,459	70	5
6	Biscayne Blvd. and 17th Terrace S. W. 12th Avenue and 1st Street	27	1,411	657	47	2
9	N. E. 2nd Avenue and 17th Street	3	155	84	54	0
10	N. E. 2nd Avenue and 17th Street	4	204	129	63	0
11	Biscayne Blvd. and 17th Terrace S. W. 12th Avenue and 1st Street	35	1,817	1,338	74	6
12	N. E. 2nd Avenue and 17th Street	8	408	269	66	0
14	Biscayne Blvd. and 17th Terrace S. W. 12th Avenue and 1st Street	25	1,376	708	51	1
15	S. W. 12th Avenue and 1st Street	12	622	307	49	0
17	S. W. 12th Avenue and 1st Street	6	306	106	35	0
19	N. W. 12th Avenue and 7th Street	11	569	271	48	0
20	N. W. 12th Avenue and 7th Street	11	569	314	55	0
21	N. W. 7th Avenue and 17th Street	25	1,301	656	50	0
23	N. W. 10th Avenue and 14th Street	8	410	225	55	0
24	N. W. 12th Avenue and 16th Street	6	306	266	87	2
25	S. W. 12th Avenue and 1st Street	7	359	248	69	0
26	N. W. 7th Avenue and 17th Street	24	1,264	661	52	1
27	N. W. 12th Avenue and 11th Street	9	459	148	32	0

TABLE VII

LOAD FACTORS PAST MAXIMUM LOAD POINTS

A. M. TOTAL PEAK PERIOD

(Continued)

Route	Location (s)	Trips	Seats Provided	Seats Filled	Load Factor	Number of Trips with Standing Loads
28	S. W. 12th Avenue and 6th Street N. Miami Avenue and 17th Street	9	465	226	49	0
29	S. W. 12th Avenue and 6th Street N. Miami Avenue and 17th Street	9	461	223	48	0
30	Biscayne Blvd. and 17th Terrace	20	1,050	553	53	1
32	N. W. 10th Avenue and 14th Street	3	153	115	75	0
34	41st Street and Alton Road S. W. 57th Avenue and 24th Street	9	463	256	55	1
B	Brickell Avenue and S. E. 8th Street	4	204	172	84	2
H	53rd Street and Collins Avenue	7	365	141	39	0
T	41st Street and Alton Road	18	1,766	1,121	63	12
	TOTALS	**380**	**20,593**	**11,678**	**57%**	**35** **(9.2% of all trips)**

TABLE VIII

LOAD FACTORS PAST MAXIMUM LOAD POINTS

P. M. TOTAL PEAK PERIOD

Route	Location (s)	Trips	Seats Provided	Seats Filled	Load Factor	Number of Trips with Standing Loads
1	N. W. 12th Avenue and 11th Street S. W. 1st Avenue and 8th Street	17	835	529	63%	2
3	W. Flagler Street and 12th Avenue	5	255	119	47	0
4	N. Miami Avenue and 17th Street	7	363	167	46	0
5	S. W. 12th Avenue and 7th Street W. Miami Avenue and 17th Street	28	1,458	1,123	77	4
6	Biscayne Blvd. and 17th Terrace W. Flagler and 12th Avenue	17	891	624	70	2
9	N. E. 2nd Avenue and 17th Street	3	155	121	78	0
10	N. E. 2nd Avenue and 17th Street	3	153	102	67	0
11	Biscayne Blvd. and 17th Terrace W. Flagler and 12th Avenue	37	1,915	1,281	67	8
12	N. E. 2nd Avenue and 17th Street	6	306	165	54	0
14	Biscayne Blvd. and 17th Terrace W. Flagler and 12th Avenue	23	1,207	839	70	3
15	W. Flagler and 12th Avenue	9	467	264	57	1
17	W. Flagler and 12th Avenue	4	204	115	56	0
19	N. W. 12th Avenue and 7th Street	10	514	211	41	0
20	N. W. 12th Avenue and 7th Street	9	459	338	74	1
21	N. W. 7th Avenue and 17th Street	20	1,028	591	57	1
23	N. W. 10th Avenue and 14th Street	5	259	160	62	0
24	N. W. 10th Avenue and 14th Street	5	255	103	40	0
25	W. Flagler and 12th Avenue	8	410	312	76	1
26	N. W. 7th Avenue and 17th Street	23	1,171	550	47	0
27	Coast Guard Base	5	255	203	80	1
28	S. W. 12th Avenue and 7th Street N. Miami Avenue and 17th Street	8	410	187	46	0

TABLE VIII

LOAD FACTORS PAST MAXIMUM LOAD POINTS

P. M. TOTAL PEAK PERIOD

(Continued)

Route	Location (s)	Trips	Seats Provided	Seats Filled	Load Factor	Number of Trips with Standing Loads
29	S. W. 12th Avenue and 7th Street N. Miami Avenue and 17th Street	7	359	243	68	0
30	Biscayne Blvd. and 17th Terrace W. Flagler and 12th Avenue	15	789	420	53	1
32	N. W. 10th Avenue and 14th Street	2	102	121	119	2
B	Brickell Avenue and S.E. 8th Street	4	204	152	75	1
C	Coast Guard Base	8	424	332	78	1
K	Coast Guard Base	7	369	293	79	0
L	Coast Guard Base	7	365	293	80	1
S	Coast Guard Base	7	371	302	81	2
	TOTALS	**309**	**17,244**	**10,260**	**59%**	**32** **(10.4% of all trips)**

TABLE IX

METROPOLITAN TRANSIT AUTHORITY

BUS FLEET DATA

Model	Year	Capacity	Units
Full-Size Coaches			
* T8H – 5306 A	1971	53	100
* TDH – 5304	1967	51	20
* TDH – 5304	1966	53	100
* TDH – 5304	1964	51	30
* TDH – 5302	1960	53	40
TDH – 5106	1957	51	59
TDH – 5106	1956	51	36
TDH – 5106	1954	43	12
TOTAL			**397**

*** New-look buses (290)**

Average Age of Buses – 8.05 years
Air-Conditoned Buses – 296 (74.6% of Fleet)

Minibuses			
Mercedes 0309D	1972	19	6

All minibuses are air-conditioned.

MTA buses are washed and vacuumed daily, and the result is a uniformly clean and attractive appearance for the fleet. Some riders may feel that the durable fiberglass seats, with which the 100 coaches purchased in 1971 are equipped, are less comfortable than the old padded variety, but they are better suited to withstand vandalism, a prime cause of unappealing interiors. MTA experience with the seats from a maintenance expense standpoint has been very favorable.

The Mercedes minibuses, which operate over the Venetian Causeway and on the Double B line, are exceptionally attractive, both inside and out. Their only drawbacks are the loud engine noise and the front door which swings outward. Not only is the door potentially hazardous, but it sometimes causes momentary confusion as the driver, having pulled to the curb to accept a passenger, must wave the passenger away so that the door can swing open without endangering him.

Waiting passengers have the benefit of privately-sponsored bus benches in most areas of the County. These are particularly valuable for the MTA system, where the low frequency of service on some routes can result in long waits. At heavy boarding points, two or three benches are often present. The benches have proved immune to vandalism, as few are damaged in any way.

A bus shelter program is underway in the Model City area, calling for a total of 81 shelters to be erected. To date, over 50 have been installed, at a cost of approximately $1,800 apiece. The best feature of the shelters is that they do not require a great deal of maintenance. This durability is gained by a sacrifice of passenger convenience, however. Patrons cannot be assured of consistent protection from wind, rain, or sunlight, and shelter seating capacity is limited to about nine persons. A number of similar shelters have been erected in Dade County locations outside Model City.

Dependability

There are two primary measures of a system's dependability - - one is the amount of scheduled service that is actually provided, while the other is how closely actual bus arrival and departure times conform to those which appear on the printed schedules.

A failure to provide scheduled service will arise primarily from a bus being disabled on the street, as a result of either a mechanical failure or an accident. During the last two months of FY '71-'72, mechanical failures resulting in lost time occurred approximately once for every 9,400 miles operated. While this figure is in accordance with the service standards, the MTA has the potential to perform even better in this area, considering the size of the maintenance labor force and the large percentage of spare buses.

The accident rate for MTA buses is noteworthy, as Authority coaches experienced but 5.44 mishaps for every 100,000 miles of operation during the first six months of 1972. This represents one of the best records in the industry, and has been brought about by a continuing and diligent safety program which, over the past 10 years, has significantly reduced the traffic accident rate. The passenger accident rate has been cut sharply also, as illustrated in Table X.

While a breakdown or an accident results in a major compromise in dependability, there is another aspect of dependability which is even more important on a day-to-day basis - - on-time performance. Bus service is significantly enhanced if the regular patron can count on his bus arriving at the same time every day, and if the occasional passenger can rely on the public timetable or telephone information to give an accurate pick-up time.

Dade County service standards for on-time performance range from 50% of buses for high-frequency service in the peak hour to 95% of buses for low-frequency service off-peak. Currently, the MTA does not meet these standards.

Three series of on-time checks conducted during different months of the year showed that, in every case, an average of only 50% of MTA buses were "on-time" (defined as 0-5 minutes late). The buses which were not on time split differently between early and late, depending on time of the year. In the less congested fall months, buses ran early on as many as 30% of all trips. This figure dropped during the winter season, when traffic congestion slowed transit.

TABLE X

METROPOLITAN TRANSIT AUTHORITY

TRAFFIC AND PASSENGER ACCIDENT RATES

Year	Traffic Accident Rate (1)	Passenger Accident Rate (2)
1962	10.42	11.70
1963	6.99	9.54
1964	6.84	9.47
1965	6.54	9.72
1966	6.70	8.53
1967	6.87	8.44
1968	6.35	6.80
1969	7.10	5.24
1970	5.41	6.40
1971	5.20	5.38
1972 (6 months)	5.44	5.13

(1) Per 100,000 miles.

(2) Per 1,000,000 passengers.

The conclusion reached from these on-time checks is that two actions should have highest priority in bringing MTA on-time performance up to service standards. The first is a systematic review of running times on a route-by-route basis, so that different sets of running times can be determined for different times of the day, and for different seasons of the year. Such running time refinement will not only improve dependability, but it may also save money where excess time is being allowed to the driver.

No matter how precise the running times, there is a second element essential to on-time performance - - road supervision. Spot checks by roving road supervisors should be an integral part of MTA operations. In this regard, two-way radios allow for excellent control with a minimum of supervisory personnel.

Speed of Operation

One of the most attractive aspects of the MTA service is its speed. As shown in Table II, Summary of Schedules, the average MTA schedule speed (route miles/running time including layover) for the regularly scheduled routes is 13.3 miles per hour, which is at least 10% faster than bus systems in cities of comparable size.

As shown in Table II, there is a distinct disparity between speeds of mainland routes and Beach routes. The heavier traffic and better overall revenue performance of the Beach routes keep speeds down there, to the point that three of the Beach routes are among the slowest in the system, and four others are under 11 miles per hour.

The service standards indicate that routes with speeds below 8 miles per hour are unreasonably slow. In the MTA system, lines with schedule speeds of less than 10 mph should be considered to be relatively poor and examined for cause. There are only six such lines:

Route	Schedule Speed	Revenue/Mile Percent of System Average
17	8.8	91%
21	9.7	170%
C	9.4	174%
O	9.6	63%
W	7.4	186%
BB	8.5	30%

With the exception of two routes, 17 and O, a contributing factor to the slow schedule speeds is readily apparent, that being the high revenue figure. High revenue indicates a large ridership, which necessitates a great deal of stopping, which in turn increases running times. The recently inaugurated downtown minibus, the Double B line, has a schedule speed of only 8.5 mph, due to the fact that it operates almost exclusively in the congested downtown area.

Some local routes in Dade County feature schedule speeds that in many cities are associated with express operations. For example, Routes 2, 7, 31, 35 and B all have schedule speeds of over 15 miles per hour.

Speeds of express routes vary widely, from a low of 13.6 mph (Route 26) to a high of 31.2 mph (Route 49). However, schedule speed alone should not be used to assess the advantage of express over local service, especially in a system where local schedule speeds are so high. A better measure of express attractiveness, and the one which a potential patron would first consider, is the running time of the express trip compared to a local trip. As shown in Table XI, patrons may realize a significant time savings by going express.

TABLE XI

COMPARISON OF SCHEDULE SPEEDS AND RUNNING TIMES

LOCAL VS EXPRESS SERVICES

Route Option	Schedule Speed	Origin—Destination	Running Time	Saving with Express
Route 1	14.2	S. Miami Terminal to Miami Terminal	37	30%
Express Route 16	21.2		26	
Route 5	12.4	S. W. 87th Avenue and 24th Street to	52	33%
Express Route 48	13.6	Miami Terminal	35	
Route 6	11.8	N. W. Avenue and Okeechobee Road	45	51%
Express Route 6	14.0	to Miami Terminal	22	
Route 12	12.5	N. W. 2nd Avenue and 199th Street to	76	13%
Express Route 26	13.6	Miami Terminal	66	
Route 12	12.5	N. W. 2nd Avenue and 199th Street to	76	47%
Express Route 50	16.8	Miami Terminal	46	

The patron's measure of speed, operating speed, excludes the recovery time allotted to each run. In the MTA system, average recovery time amounts to approximately 11.3% of the round trip running time. When this is extracted, the operating speed is 15.0 miles per hour, which is an excellent average for mass transit.

Directness of Service

The need for a passenger to utilize more than one bus in the course of a single transit trip decreases the attractiveness of service due to the increased travel time, inconvenience, and in some cases, the increased cost associated with transferring. Thus, a system should attempt, primarily through proper route alignments, to maximize the number of passengers who can complete their journeys on a single bus.

The best measure of an operator's success at this is the percentage of transfer passengers carried - - it is a measure, however, that must be applied with some caution, as the transfer rate taken by itself may lead to erroneous conclusions regarding the directness of service. For instance, a low transfer rate might actually be an indication that:

- Routes are so poorly laid out and so much transferring is required to complete most trips that only those few riders who are directly served or are captive riders utilize the bus; or that

- Transfers are so difficult that potential riders avoid using the bus entirely.

The MTA has a low transfer rate. During the first six months of 1972, the system's rate of total transfer was slightly over 20% (Table XII), comfortably below the 25% limit specified in the service standards, and lower than most major transit systems. This figure includes those who paid a 10¢ charge to transfer between mainland and Beach routes. Nearly half of all transit trips in Dade County have at least one terminal point in Miami Beach, and a large number of these trips have an opposite terminal point on the mainland. Such trips will quite often require a transfer, especially if the mainland destination is outside the CBD.

TABLE XII

MTA TRANSFER PASSENGERS

JANUARY – JUNE, 1972

Month	Total Passengers	Total Transfers	Percent	Free Transfers	Percent
January	4,842,703	994,543	20.53%	776,495	16.03%
February	4,775,344	945,861	19.80	760,068	15.91
March	5,054,291	1,013,274	20.04	820,360	16.23
April	4,565,786	916,664	20.07	746,766	16.35
May	4,436,093	931,459	20.99	735,225	16.57
June	4,091,529	853,831	20.86	682,394	16.67
TOTALS	**27,765,746**	**5,655,632**	**20.36%**	**4,521,308**	**16.28%**

Still, the transfer rate for the system remains low, due in large part to the inordinately low free transfer rate, which, as shown in Table XII, was 16.3% for the first six months of the year. There are two factors which indicate that the low rate might be due to potential patrons avoiding the system. One, the wide headways on many mainland routes make transferring an extremely inconvenient experience, which deters two-bus ridership. More significant, however, is the fact that like all large cities, transit service in Miami is oriented to the CBD, while Miami is a rather decentralized city. Granted, much travel is generated by the CBD, (13% of all transit trips begin or end in the Miami CBD) but this is not a large percentage considering the number of routes that pass through the downtown.

Accommodation Service

In assessing the adequacy of transit service, an element to consider is the operator's willingness to provide service, which, although unprofitable, is a benefit to certain segments of the public. This is referred to as accommodation service.

The definition of accommodation service has changed since the era when transit was provided by private operators attempting to turn a profit. Traditionally, accommodation service was service provided for a limited ridership group, in spite of the service's failure to generate sufficient revenue to cover even out-of-pocket costs. The feeling was that other, more lucrative, routes in the system would make up for the losses, with the end result that the operator profited financially while providing an important public service.

Today, with transit demand much reduced, and public systems subsidized to cover deficits, many systems are made up almost entirely of routes which lose money. The MTA is not atypical in this respect, as only nine of the Authority's regular services were profitable in fiscal year 1971-72. Yet the MTA has an obligation to provide transit, in spite of its unprofitability.

Thus, accommodation service may be looked upon as those routes which are exceptionally poor from a financial standpoint, those for which special justification is needed for continuance.

There are several such routes in the Dade County system, specifically:

Route 2 ($.45/mile-FY 71-72) - This route serves relatively thin populated areas in Richmond Heights, operating along U.S. 1 to the South Miami terminal. The line's value to the system is somewhat understated by its revenue figures, as it provides Route 1 with a significant number of transfers.

Route 7 ($.38/mile) - This line is another which operates along U. S. 1 and feeds into South Miami Terminal. Strictly a peak-hour operation, Route 7 transports a large number of domestic workers, a ridership group which is traditionally captive.

Route 8 ($.59/mile) - Peak-hour service between West Hialeah and the Airport industrial area along N.W. 36th Street. Only one bus is involved daily.

Route 13 ($.57/mile) - Express service from South Dade County to the N.W. 36th Street Airport employment centers. This, too, is strictly a peak-hour service, offering only two trips each day, northbound in the morning, and southbound in the evening.

Route 16 ($.41/mile) - A peak-hour express service this line connects the area of South Miami Heights with downtown Miami.

Route 31 ($.37/mile) - A crosstown line in North Dade County, Route 31 benefits the system by providing transfers to CBD-oriented lines. The line operates at roughly one-hour headways through the day. Route 31 terminates at Miami-Dade Junior College North.

Route 35 ($.15/mile) - This line has the widest headways and lowest revenue of any regular service in the system. It connects Florida City with Perrine by way of Homestead.

Route O ($.54/mile) - This route operates locally through residential areas on Miami Beach. As is the case with so many low-revenue routes, service is infrequent, operating at one-hour headways.

Route A ($.33/mile) - A shuttle route operating minibuses across the Venetian Causeway, Route A has fared poorly, due primarily to the fact that transfers are necessary for many patrons both to and from the shuttle. This renders the service unattractive, yet little can be done to provide through-routing, as full-size buses are banned from the causeway.

School Service - In South Miami, the MTA operates several special school routes, which transport school children only at a 15¢ fare. Revenues for the service amount to only $.75 per mile, with no provision for deficit subsidy from the School Board. This service is for elementary students living within two miles of their school.

Many of these services have features in common. Several operate in the southern part of the County, where population densities are low. Some are strictly peak-hour service, which provide access to jobs for many residents. And some are lines which contribute many transfer passengers to the system. Thus, they are important services, and MTA's continuing provision of them indicates a willingness to fulfill its role as a public agency.

Rate of Fare

The fare zone structure of the Metropolitan Transit Authority is shown in Figure 3. However, to expect that an individual could ascertain from the map how much is to be charged and how it is to be collected on a particular trip would be an insult to the patrons and drivers who, after struggling with the system for over a decade, still experience confusion.

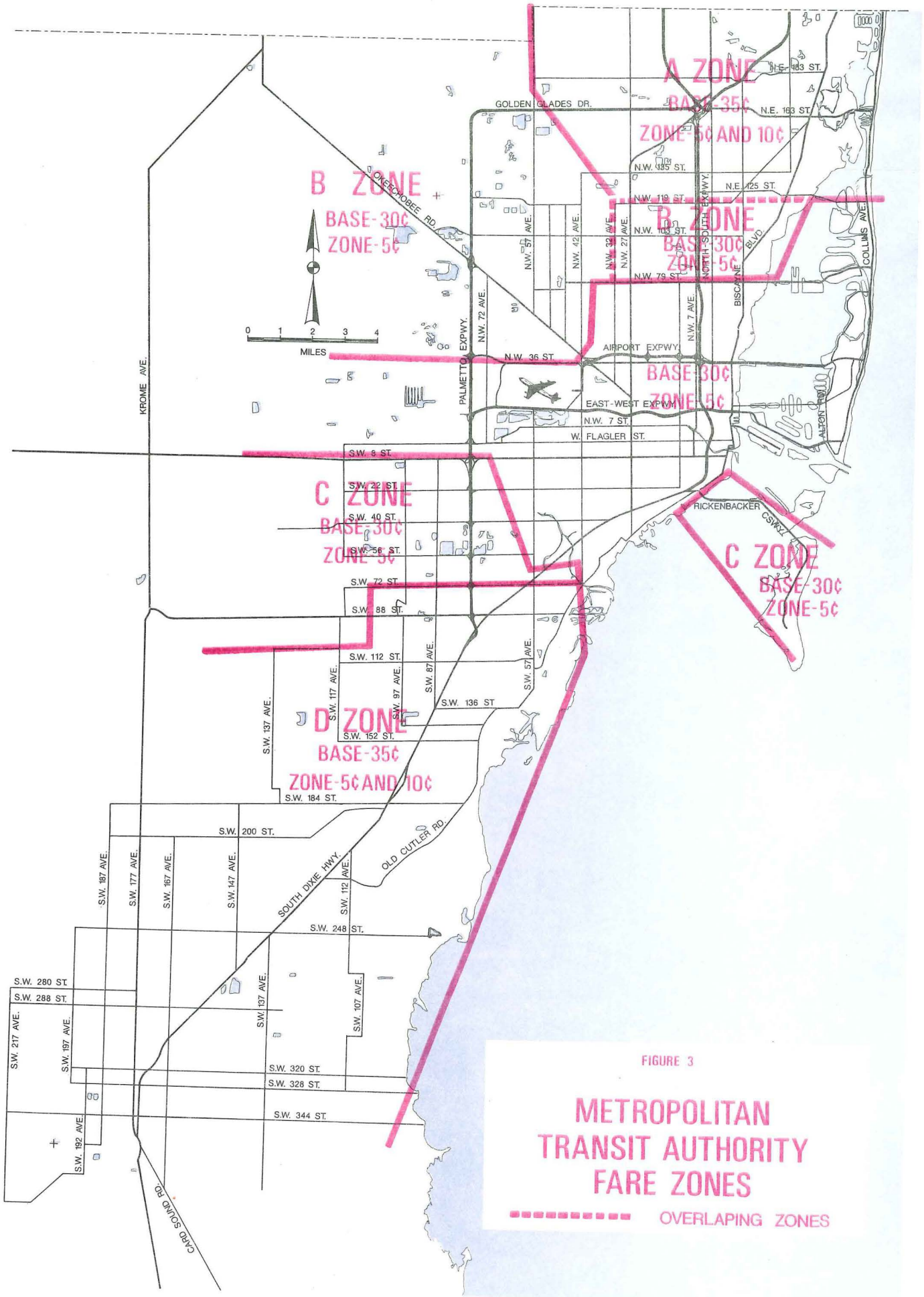

FIGURE 3

METROPOLITAN TRANSIT AUTHORITY FARE ZONES

OVERLAPING ZONES

It is understandable that passengers would not always know what their fare should be, and all systems receive many queries concerning fares. However, the situation in Dade County is much more acute, as even drivers cannot agree on the amounts to be charged and the method of collection. Many riders have complained of being charged different fares by different drivers for the same trip.

Such a situation discourages new riders, fosters inequities between passengers' fares, creates administrative headaches, detracts from the public image of the system, and generally underscores a need for an overhaul of the fare system.

The unwieldy fare structure arose out of the combination of several private operators into the Metropolitan Transit Authority in the early 1960's. The MTA endeavored to maintain for the patrons a fare equvalent to what they had been accumstomed to while being served by the private operator. Thus, the present structure represents an amalgam of several different structures which has survived virtually unchanged for a decade, much to the consternation of drivers and riders alike.

Presently, there is a central zone, which ranges in a radius from four to six miles, and several outer zones. The base fare is generally 30¢, except in the extreme northern and southern zones (A and D on the map), where 35¢ is charged. Zone fares are either 5¢ or 10¢ depending on which boundary is crossed.

On the recently-inaugurated downtown minibus line, the Double B, a 10¢ fare is charged and no transfer privileges are granted to or from the line.

The base fare is competitive with that of other systems around the nation (Table XIII) and the zone lengths are of a length such that passengers enjoy a very good distance-fare ratio, especially in South Dade, where rides of over 12 miles may be made for only 35¢.

Transfers are free, except when the transfer is made between a mainland and a Beach bus (see Inter-area Exchange, below).

TABLE XIII

ADULT FARES

TRANSIT SYSTEMS SERVING MAJOR METROPOLITAN AREAS

September, 1972

City	Cash Fare	Token or Other Rates	Transfers	Percent Change From 1/68 In Cash Fare
Kansas City	50¢	–	5¢	66%
Cincinnati	50¢	45¢	10¢	43%
Chicago	45¢	45¢	10¢	50%
Cleveland	45¢	$7.00 Weekly Pass or 5/$2.00	5¢	50%
Houston	45¢	45¢	Free	50%
St. Louis	45¢	25/$11.25 ($.45)	10¢	50%
Pittsburgh	40¢	–	10¢	33%
San Diego	40¢	40¢	Free	33%
Detroit	40¢	5/$2.00 ($.40)	5¢	60%
Milwaukee	40¢	10/$4.00 ($.40)	Free	33%
Washington	40¢	4/$1.60 ($.40)	Free	60%
Dallas	35¢	–	5¢	52%
Buffalo	35¢	10/$3.10 ($.31)	5¢	40%
Philadelphia	35¢	–	5¢	40%
New York	35¢	2/$.70 ($.35)	Free	75%
Los Angeles	30¢	$12.00 Monthly Pass	5¢	0%
MIAMI	30¢	–	Free	50%
Baltimore	30¢	–	5¢	20%
Twin Cities	30¢	–	Free	20%
Oakland	25¢	4/$1.00 ($.25)	Free	0%
Seattle	35¢	25¢	Free	0%
San Francisco	25¢	25¢	Free	73%
Boston				
Rapid Transit	25¢	–	–	25%
Surface	20¢	–	–	100%
New Orleans	15¢	15¢	Free	50%
Atlanta	15¢	15¢	Free	(40%)

The MTA operates on an exact-fare system, with patrons depositing their coins into a locked box as the driver manually inspects them for correctness. The method of payment is a combination of pay enter-verification leave and pay enter-pay leave, as both leave procedures are followed, often by different drivers on the same route. System policy specifies pay enter-pay leave, however. When verification leave is employed, and this is most common, boarding passengers are given transfers, indicating payment of the through fare, which are surrendered upon exit by the front door. Failure by the passenger to present the appropriate zone check results in his having to pay the zone fare when alighting. In some instances, zone checks are collected by drivers at zone boundaries. (This practice is followed by inbound drivers at 79th Street on the mainland and 96th Street on the Beach).

Often, confusion will occur when drivers attempt to distribute zone checks, as passengers, not having asked for a transfer, are unaware of their purpose. The drivers are not always conscientious about explaining to the patron that the transfer is actually a zone check which must be retained until the end of the trip.

There are several additional features of the MTA fare structure: reduced fares for students and the elderly, and the inter-area exchange fare.

Student Fare - Elementary and secondary school students in Dade County are offered a 15¢ base fare, provided they possess a valid school I.D. card. This card entitles the student to the reduced fare at any time of day, year around. Students are exempt from additional zone charges, but are subject to the 10¢ interarea exchange fare. The reduced fare privilege expires at the end of an individual's senior year in high school. This expiration is enforced by the issuance of a card to seniors different than that issued to others.

Senior Citizen Fare - Another reduced fare program was instituted on October 1, 1972 by MTA, one which benefits the elderly. Under the plan, riders over 65 displaying a Medicare card or special MTA card receive a 15¢ disount on their base fare, plus any applicable zone or exchange fares. This program, however, has time restrictions attached to it, permitting the reduction only from 10 A.M. to 3 P.M. and after 6:30 P.M. on weekdays, but throughout the day on weekends and holidays.

Inter-area Exchange - If a person makes a trip which necessitates a transfer from a mainland to a Beach bus, or vice-versa, an additional dime is charged at the time the transfer is made. Thus, a person riding into the Miami CBD and bound for the Beach would present his transfer to the driver of the second bus and deposit 10¢ in the farebox. This extra fare applies to buses to Key Biscayne as well as to Miami Beach.

There are five lines on which passengers may be assessed the extra fare without making a transfer. The five lines, and the points at which the inter-area fare becomes effective, are:

Route 14 - B	Biscayne Boulevard
Route 27	N.W. 3rd Avenue
Route 34	Biscayne Boulevard
Route L	N.E. 2nd Avenue
Route S	N.E. 2nd Avenue

Passengers crossing the indicated boundaries on the respective routes must pay another dime in addition to all base and zone charges. Those paying 10¢ upon entering are issued transfers punched to indicate payment of the surcharge.

The fare structure, as described above, is summarized in Table XIV.

Express Fares - Premium fares are charged on some of MTA's seven express routes, primarily those that emanate from South Dade. Following are the express services and a comparison of local and express fares:

TABLE XIV

METROPOLITAN TRANSIT AUTHORITY

FARE STRUCTURE SUMMARY

Base Fare	30¢
Suburban Base Fare (Routes 2, 7, 16, and 35 in South Dade; Routes 9, 10, 11, 12, 15, 25, 26, 31, and 32 in North Dade)	35¢
"Double B" Downtown Circulator	10¢
Student Fare	15¢
Senior Citizen Fare	15¢ discount
Zone Fare	5¢ and 10¢
Transfers	Free
Inter-Area Exchange Fare (For certain trips between the Mainland and points east of Biscayne Bay)	10¢

Route	Local Fare	Express Fare
6	35¢	35¢
13	45	60
16	40	60
26	45	45
48	40	50
49	40	50
50	45	45

The greatest disparity between express and local fares is found on Route 16, which operates between South Dade and the Civic Center via downtown Miami. The express ride costs 60¢, while the same trip may be made locally, with a transfer, for 40¢. Thus, approximately a 30% reduction in running time is offered for 20¢. Premiums on other lines are ten and fifteen cents, as shown in the table.

In an effort to show by example how the zone structure depicted in Figure 6 is supposed to work, a series of trip costs is presented in Table XV.

Public Information Program

The primary means through which Dade Countians may learn about the transit services offered by the MTA are the public timetables and route maps that are published and distributed by the Authority. The public schedules have two obvious shortcomings. The timetables give only the departure times for each run, with no other time points given, not even the arrival time at the opposite end point. Thus, an unfamiliar rider must guess at what time the bus will arrive at any particular point along the route. Also lacking is any fare or transfer information - - the timetables don't even indicate that the MTA is on the exact fare system.

TABLE XV

EXAMPLES OF FARES CHARGED (Cents)

Origin Zone	Destination Zone	Buses Used	Base	Zone	Inter-Area	One-Bus Total	Two-Bus Total
Mainland Central	Mainland A	1 or 2	30	15	–	45	45
Mainland Central	Mainland B	1 or 2	30	5	–	35	35
Mainland Central	Mainland C	1 or 2	30	5	–	35	35
Mainland Central	Mainland D	1 or 2	30	10	–	40	40
Mainland Central	Beach Central	1	30	–	–	30	
Mainland Central	Beach Central	2	30	–	10		40
Mainland Central	Beach A	1	30	15	–	45	
Mainland Central	Beach A	2	30	15	10		55
Mainland Central	Beach B	1	30	5	–	35	
Mainland Central	Beach B	2	30	5	10		45
Mainland Central	Beach C	1	30	5	–	35	
Mainland Central	Beach C	2	30	5	10		45
Mainland A	Mainland Central	1 or 2	35	10	–	45	45
Mainland A	Mainland B *(1)*	1 or 2	35	–	–	35	35
Mainland A	Mainland B *(2)*	1 or 2	35	5	–	45	45
Mainland A	Mainland D	1 or 2	35	15	–	50	50
Mainland A	Beach Central	2	35	10	10		55
Mainland A	Beach A	1	35	–	–	35	
Mainland A	Beach B	2	35	10	10		55
Mainland A	Beach C	2	35	15	10		60
Mainland B *(1)*	Mainland Central	1 or 2	30	5	–	35	35
Mainland B *(1)*	Mainland A	1 or 2	30	5	–	35	35
Mainland B *(1)*	Mainland B *(2)*	1 or 2	30	5	–	35	35
Mainland B *(1)*	Mainland D	1 or 2	30	15	–	45	45
Mainland B *(1)*	Beach Central	1	30	–	–	30 *(3)*	
Mainland B *(1)*	Beach Central	2	30	–	10		40
Mainland B *(1)*	Beach A	2	30	20	10		60
Mainland B *(1)*	Beach B	1	30	5	–	35 *(3)*	
Mainland B *(2)*	Mainland Central	1 or 2	30	5	–	35	35
Mainland B *(2)*	Mainland A	1 or 2	30	10	–	40	40
Mainland B *(2)*	Mainland B *(1)*	1 or 2	30	5	–	35	35
Mainland B *(2)*	Mainland D	1 or 2	30	15	–	45	45
Mainland B *(2)*	Beach Central	1 or 2	30	5	10	45	45
Mainland B *(2)*	Beach A	2	30	20	10		60
Mainland B *(2)*	Beach B	2	30	10	10		50
Mainland B *(2)*	Beach C	2	30	10	10		50

TABLE XV

EXAMPLES OF FARES CHARGED (Cents)

(Continued)

Origin Zone	Destination Zone	Buses Used	Base	Zone	Inter-Area	One-Bus Total	Two-Bus Total
Mainland C	Mainland Central	1 or 2	30	5	–	35	35
Mainland C	Mainland A	1 or 2	30	20	–	50	50
Mainland C	Mainland B	1 or 2	30	10	–	40	40
Mainland C	Mainland D	1 or 2	30	5	–	35	35
Mainland C	Beach Central	2	30	5	10		45
Mainland C	Beach A	2	30	20	10		60
Mainland C	Beach B	2	30	10	10		50
Mainland C	Beach C	2	30	10	10		50
Mainland D	Mainland Central	1 or 2	35	5	–	40	40
Mainland D	Mainland A	2	35	20	–		55
Mainland D	Mainland B	2	35	10	–		45
Mainland D	Mainland C	1 or 2	35	–	–	35	35
Mainland D	Beach Central	2	35	5	10		50
Mainland D	Beach A	2	35	20	10		65
Mainland D	Beach B	2	35	10	10		55
Mainland D	Beach C	2	35	10	10		55
Beach Central	Mainland Central	1	30	–	–	30	
Beach Central	Mainland Central	2	30	–	10		40
Beach Central	Mainland A	2	30	15	10		55
Beach Central	Mainland C	2	30	5	10		45
Beach Central	Mainland D	2	30	10	10		50
Beach Central	Beach A	1 or 2	30	15	–	45	45
Beach Central	Beach B	1 or 2	30	5	–	40	40
Beach Central	Beach C	2	30	5	10		45
Beach A	Mainland Central	1	35	10	–	45	
Beach A	Mainland Central	2	35	10	10		55
Beach A	Mainland A	1	35		–		
Beach A	Mainland B (2)	2	35	20	10		65
Beach A	Mainland B (3)	2	35	15	10		60
Beach A	Mainland C	2	35	15	10		60
Beach A	Mainland D	2	35	20	10		65
Beach A	Beach Central	1 or 2	35	10	–	45	45
Beach A	Beach B	1 or 2	35	–	–	35	35
Beach A	Beach C	2	35	15	10		60
Beach B	Mainland Central	1	35	–	–	35	
Beach B	Mainland Central	2	35	–	10		45
Beach B	Mainland A	2	35	–	10		45
Beach B	Mainland B (2)	2	35	5	10		50
Beach B	Mainland C	2	35	5	10		50
Beach B	Mainland D	2	35	10	10		55
Beach B	Beach Central	1 or 2	35	–	–	35	35
Beach B	Beach A	1 or 2	35	–	–	35	35
Beach B	Beach C	2	35	5	10		50

TABLE XV

EXAMPLES OF FARES CHARGED (Cents)

(Continued)

Origin Zone	Destination Zone	Buses Used	Base	Zone	Inter-Area	One-Bus Total	Two-Bus Total
Beach C	Mainland Central	1	30	5	–	35	
Beach C	Mainland Central	2	30	5	10		45
Beach C	Mainland A	2	30	20	10		60
Beach C	Mainland B	2	30	10	10		50
Beach C	Mainland C	2	30	10	10		50
Beach C	Mainland D	2	30	15	10		55
Beach C	Beach Central	2	30	5	10		45
Beach C	Beach A	2	30	20	10		60
Beach C	Beach B	2	30	10	10		50

(1) East of Seaboard Railroad.

(2) West of Seaboard Railroad.

(3) An additional dime is paid if the trip originated west of N.E. 2nd Avenue.

These shortcomings of the public timetable are not unique to Dade County, as few transit systems publish schedules which are truly educative - - most are of benefit primarily to thos who already know how to ride the system.

There is a much more severe, although less apparent, deficiency in the public timetables - - they don't reflect the presence on the street of many peak-hour trippers. Thus, the unfamiliar user is led to believe that service on the involved lines is much less frequent than it actually is, while the regular rider may question the dependability of those trips which are not recorded on the timetable. In some cases, actual headways are half those indicated on the timetables. In other cases, the understatement is less, but to present a view of service levels which is poorer than those existing does a great injustice to the system.

To the system's credit is the fact that the schedules all feature a complete route map, are of a uniform size, and are clear and easy to read, without an abundance of footnotes, explanations and notations that tend to confuse rather than clarify. Also, most MTA route buses have a supply of these schedules prominently displayed and available to the passengers.

A good system-wide route map is also published which shows the area coverage of MTA as well as Coral Gables Municipal Bus System routes. In addition to the graphic display of route alignments, routings are provided in narrative form. Some fare and transfer information is also provided. Other features of the publication are an enlargement of downtown Miami, showing bus stops and the direction of bus movements, a list of downtown terminal points, a list of street names with grid locations, points of interest, and system statistics. Absent, however, is an explanation of transfer procedures between MTA and CGMBS lines. Unlike the leaflet schedules, the route maps are not available on MTA coaches, but they may be obtained at activity centers and upon request from the Authority.

While the MTA does not presently maintain an extensive advertising program via the mass media, special service innovations, such as the "Double B" line are promoted in this manner. Distribution of printed information to target areas is also practiced prior to the institution of new services.

Route information is available from MTA by phone 19 hours a day (5 a.m. to midnight). Realizing the great numbers of Latin Americans who live in Dade County and ride Authority buses, MTA has made this a bi-lingual service, handling queries from both English and Spanish-speaking callers. Printed literature, however, is strictly in English. In another attempt by the system to accommodate Latins, instruction signs in buses are in both English and Spanish.

In most sections of the County, bus stops are prominently marked by signs and bus benches. Although no route information is provided at these points (except in downtown Miami, where signs indicate which routes stop at that location) their presence serves as a constant reminder of the existence of transit service. Some areas of Miami display only yellow painted curbs and striped telephone poles at stops while at some points there are bus shelters.

Other sources of information for residents are the buses themselves, and the MTA representatives closest to the riding public - - the drivers. The buses are identified by the overhead rollers in front which indicate the coach's route. New-look buses also have this route designation on the Bus-a-Rama advertising panels above the side windows. Unfortunately, the route indicated on this panel is not always consistent with what is displayed in front, unnecessarily confusing some passengers. Certainly no side designation at all would be preferable to an incorrect one.

Drivers are constantly asked by patrons for information pertaining to routings, fares and transfer information. Observations revealed that the men, while willing to provide such information, generally do so in a manner which is more business-like than friendly. While this fulfills the patrons' immediate desire for help, it does little to build rapport with the riding public or upgrade the image of the system.

SERVICE IMPROVEMENTS

Presented in this chapter is a program of service improvements for the Metropolitan Transit Authority, to be implemented over the five-year period 1973 to 1977. Warrants and justification for some of these recommendations are a direct result of the compilation of the Adequacy of Service chapter. Other sources from which need for service alterations were perceived include:

- Discussions conducted by MTA officials with various community groups
- Previously-adopted plans by the MTA to extend or alter services
- Previous studies conducted in Dade County
- Previously-submitted demonstration grant applications
- An on-board survey of riders on selected MTA routes

Seven categories of service improvements are presented, as well as an implementation and staging plan which ties the various recommendations together.

On-Board Survey of Riders

Many new residential and industrial concentrations have arisen on the fringe of Dade County's developed area in recent years, thereby resulting in a gradual expansion of the developed area. While the MTA has endeavored to extend service, where feasible, to these growing markets, service is certainly not as adequate as in the heart of Dade's residential business, and tourist areas. A prime objective of this service improvements section will be the enhancement of service in these fringe areas.

In order to obtain information on travel habits of residents near the county extremities, and a better understanding of transit deficiencies as perceived by these persons, an on-board survey was conducted over a period of time in the fall of 1972 by the MTA Planning and Marketing Department. The survey sheet, designed by MTA and the consultant, consisted of 13 questions concerning various aspects of the tripmaker's journey, including:

- Trip purpose
- Riding frequency
- Origin and destination
- Travel time
- Modes to and from bus
- Routes used
- Inconveniences faced in using transit

The survey was conducted on 54 runs of the following 14 routes:

Route 1	Route 26
2	31
9	32
10	34
12	35
15	H
25	S-Bunche Park

Surveys were issued to passengers who boarded these routes north of 135th Street, south of Sunset Drive, or west of the Palmetto Expressway from 5:00 A.M. to approximately 2:00 P.M.

Although Routes 5 and 11 and express Routes 13, 16, 49 and 50 cross the specified boundaries, they were not included in the survey.

Buses were surveyed on three successive Mondays: September 18 and 25, and October 2. The weather was sunny and pleasant on all three days. September 18 was a Jewish holiday; this may have had an effect on the number of people responding.

Drivers for each of the involved runs were given envelopes marked with their route and run numbers containing surveys and pencils. Directions on when, where, and to whom to give surveys, were given to the drivers by a supervisor in the morning and were also attached to the outside of each envelope. The drivers collected the surveys and returned them to the dispatcher at the end of their run.

In all, surveys were issued to approximately 3,100 persons who boarded the involved routes outside the specified boundaries. Although the rate of return on the surveys was almost 50%, many surveys contained incomplete responses, and some were entirely unusable. The usable responses were tabulated by route and analyzed to shed light on needed service improvements.

An overall summary of most responses is presented in Table XVI. Generally, there are few surprising facts arising from the survey results: most respondents are making work trips, are regular riders, and generally feel that service levels should be higher. The transfer rate is significantly higher for survey respondents than for all system users, but that is to be expected, as the fewer routes operating in fringe areas naturally limits the number of possible destinations, necessitating transfers. While most persons start and complete their trips on foot and utilize only one bus, seven percent of riders need three buses to complete their journey. For one person in six, transit travel time is over one hour each way.

The survey results pointed out the need for numerous service improvements, such as more direct service from South Dade to both downtown Miami and Dade Junior College South, and Sunday service in the Route 1 corridor south of South Miami Terminal.

TABLE XVI

MTA ON–BOARD SURVEY SUMMARY

	TRIP PURPOSE						RIDING FREQUENCY				TRAVEL TIME				
Route	Work	Shop	Per Bus	Social/ Recreation	School	Other	Daily	2–4/ Week	One/ Week	Very Infrequent	0–15	16–30	31–60	61–90	Over 90
1	38.1	0.0	10.7	0.0	34.5	16.7	67.1	2.4	2.4	9.8	13.0	35.1	36.4	9.1	6.5
2	71.4	3.0	5.3	0.0	16.5	3.8	64.6	22.8	8.7	3.9	12.1	31.9	43.1	9.5	3.4
7	66.7	0.0	0.0	0.0	25.0	8.3	75.0	25.0	0.0	0.0	0.0	33.3	33.3	11.1	22.3
9	67.2	12.5	10.9	3.1	1.6	4.7	57.8	12.0	10.9	6.3	14.0	22.0	48.0	12.0	4.0
10	48.4	10.3	12.3	0.6	23.2	5.2	58.7	27.1	4.5	9.7	38.5	25.2	24.5	9.0	2.8
12	58.3	7.8	10.4	1.7	15.7	6.1	68.4	19.3	4.4	7.9	33.0	15.0	36.0	14.0	2.0
15	55.1	3.0	15.3	3.0	18.7	4.9	58.2	23.4	4.5	13.9	13.0	26.5	37.6	14.7	8.2
25	62.9	9.7	14.5	1.6	3.2	8.1	59.3	22.0	5.1	13.6	7.7	19.2	46.2	19.2	7.7
26	67.1	4.2	14.0	2.1	7.0	5.6	52.4	28.7	8.4	10.5	18.3	15.0	42.5	19.2	5.0
31	39.3	1.1	10.4	3.4	37.1	9.0	57.8	24.4	6.7	11.1	38.3	19.8	33.3	4.9	3.7
32	60.5	13.7	8.9	3.2	8.9	4.8	49.6	33.0	5.8	11.6	11.8	34.4	44.1	6.5	3.2
34	57.0	3.2	9.7	1.0	18.3	10.8	73.6	12.1	5.5	8.8	13.0	32.9	28.2	21.2	4.7
35	50.0	13.3	16.7	13.3	3.3	3.4	35.8	50.0	7.1	7.1	8.7	56.5	17.4	8.7	8.7
H	33.3	20.5	16.7	10.3	7.7	11.5	37.3	25.3	17.4	20.0	47.5	16.4	29.5	4.9	1.7
S–BP	73.1	3.8	5.4	1.5	10.0	6.2	64.1	16.4	14.1	5.4	7.2	18.0	45.9	18.0	10.9
TOTALS	**57.1**	**6.7**	**11.2**	**2.5**	**15.7**	**6.8**	**58.8**	**24.0**	**7.2**	**10.0**	**20.2**	**24.8**	**37.3**	**12.6**	**5.1**

TABLE XVI

MTA ON–BOARD SURVEY SUMMARY

(Continued)

	MODE TO BUS				MODE FROM BUS				BUSES USED				COMPLAINTS				
Route	Walk	Drove Auto	Auto Passenger	Bus	Walk	Drive Auto	Auto Passenger	Bus	1	2	3	More Than 3	Trip Too Long	Fare Too High	Service Infrequent	Transfers Required	Other
1	72.8	1.2	11.1	9.9	79.0	2.5	2.5	16.0	82.4	9.4	8.2	0.0	30.6	14.1	44.7	9.4	18.8
2	85.5	2.3	1.5	10.7	55.8	2.3	7.8	34.1	64.9	23.2	11.9	0.0	18.7	23.1	35.1	17.9	22.4
7	91.7	8.3	0.0	0.0	45.5	0.0	0.0	54.5	41.7	25.0	33.0	0.0	41.7	8.3	33.3	16.7	0.0
9	82.3	3.2	1.6	12.9	78.3	1.7	0.0	20.0	71.9	18.8	9.3	0.0	25.0	25.0	37.5	6.3	14.1
10	85.0	2.0	1.3	11.7	78.7	0.7	0.0	20.6	78.2	11.5	9.0	1.3	17.9	19.2	39.1	7.7	16.0
12	87.8	2.6	4.3	5.3	69.0	0.0	0.9	30.1	80.9	14.8	3.5	0.9	18.3	25.2	49.6	10.4	15.7
15	78.2	2.5	3.5	15.8	56.8	2.7	1.6	38.9	65.5	26.2	7.8	0.5	27.2	25.2	51.0	11.2	7.8
25	72.6	1.6	4.8	21.0	65.6	0.0	1.6	32.8	67.7	24.2	6.5	1.6	32.3	33.9	41.9	27.4	3.2
26	83.2	2.8	3.5	10.5	63.6	2.9	1.4	32.1	65.5	28.3	6.2	0.0	28.3	20.7	37.9	13.1	4.8
31	78.2	0.0	5.7	16.1	78.3	0.0	1.2	20.5	66.7	22.2	11.1	0.0	21.1	16.7	51.1	11.1	6.7
32	81.0	1.6	2.4	15.0	73.6	0.8	4.1	21.5	78.6	16.7	4.7	0.0	19.8	31.7	45.2	14.3	9.5
34	88.2	0.0	4.3	7.5	60.2	0.0	2.3	37.5	78.4	15.0	6.6	0.0	20.4	23.7	55.9	11.8	14.0
35	72.4	0.0	10.3	17.3	72.0	0.0	8.0	20.0	60.0	36.7	3.3	0.0	10.0	10.0	36.6	23.3	23.3
H	81.3	0.0	4.0	14.7	80.3	0.0	0.0	19.7	77.5	13.8	8.7	0.0	15.0	32.5	40.0	10.0	17.5
S–BP	79.1	0.8	2.3	17.8	71.8	1.5	1.5	25.2	74.2	23.5	2.3	0.0	27.3	34.1	44.7	15.2	7.6
TOTALS	**81.6**	**1.7**	**3.7**	**13.0**	**68.8**	**1.3**	**2.2**	**27.7**	**72.9**	**19.8**	**7.0**	**0.3**	**22.9**	**24.5**	**44.1**	**12.7**	**11.2**

Routings

The most basic of the service improvements proposals are those dealing with route changes: addition and deletion of routes and alterations in alignments. These proposals are designed primarily to reduce transfers, to serve evolving or latent travel markets, and to provide better area coverage, especially to major traffic generators.

Service to Dade Junior College South - Lack of direct one-bus service to Dade Junior College South has long been one of the primary deficiencies in service in the southern part of the county. Presently, the trip requires at least two buses - - one to travel up the U. S. 1 corridor to South Miami Terminal, and another from that point to the college. The trip is time-consuming and round-about and a source of aggravation to numerous students and workers who must make such trips daily.

It is recommended that Route 35 be extended from its present terminal point at the Perrine Shopping Center to the college, via Richmond Heights and S. W. 117th Avenue. Route buses will leave U. S. 1 at Colonial Drive (S. W. 160th Street) and proceed west, north on S. W. 112th Avenue, north on Lincoln Boulevard, north on S. W. 117th Avenue and east on Kendale Drive (S. W. 104th Street) to the college (Figure 4). Return trips will be the reverse of the route outlined.

This extension of Route 35 will add 13.5 miles to each round trip on the line, and take roughly one-half hour to cover. The effect of the extension of Route 35 service is as follows:

Present		Proposed
39.0	Round Trip Mileage	52.5
120.0	Round Trip Running Time	150.0
22.2	Schedule Speed	21.0
60.0	Headway	50.0
2.0	Base Buses	3.0
2.0	Peak Buses	3.0

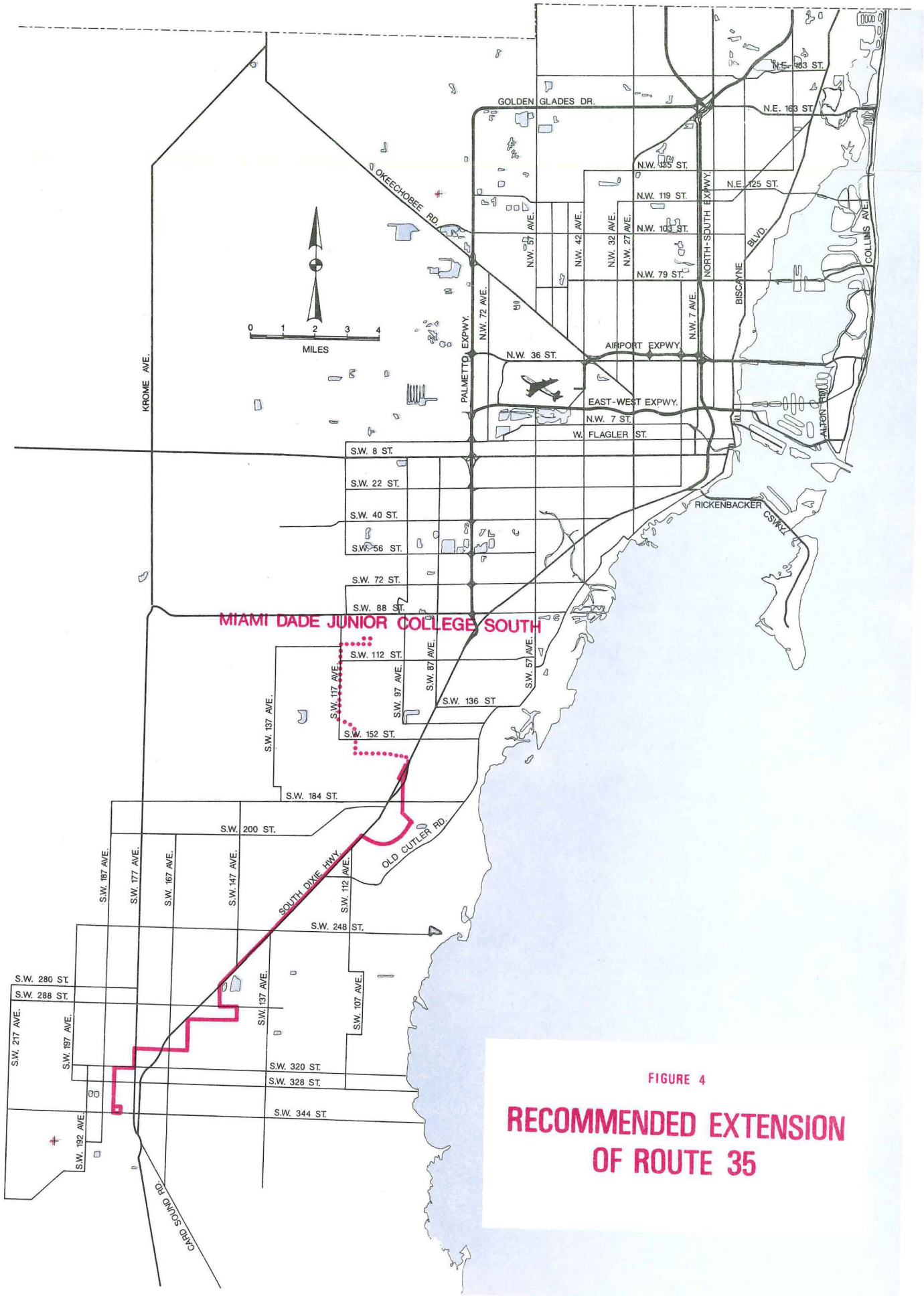

FIGURE 4

RECOMMENDED EXTENSION OF ROUTE 35

The future extension of Route 35 to Florida International University is also recommended. Presently, FIU is in its initial stages of development and does not generate the demand that Dade Junior College does. When demand for service to FIU is such that an extension of Route 35 is warranted, round trip mileage will increase to 69.4 miles, with a round trip, including layover, taking three hours.

With the completion of the West Dade Expressway, Route 35 buses should make use of the park-and-ride lot which is scheduled to be built, as part of the expressway project, at S. W. 152nd Street near 112th Avenue.

Extension of Route 2 - Persons transferring from Route 2 at the South Miami Terminal are generally bound for one of two places: either Dade Junior College South or downtown Miami. The previous recommendation would eliminate the transfer for many college-bound persons. In order to similarly accommodate those heading into Miami, it is recommended that Route 2 be extended into the CBD during peak hours. Direct service into the CBD is presently available, but only on Route 16, which is also a peak-hour service.

Under this proposal, route buses will proceed directly up U. S. Route 1 to S. W. 8th Street and go east on S. W. 8th Street, north on N. W. 2nd Avenue, east on S. W. and S. E. 1st Street, north on Biscayne Blvd., west on Flagler Street, south on S. W. 2nd Avenue, and west on S. W. 7th Street to U. S. 1.

This extension will nearly double the length of the line. Pertinent peak period operating data of the proposed line are summarized below:

Present		Proposed
21.8	Round Trip Route Miles	39.0
80.0	Peak Running Time	160.0
16.7	Schedule Speed	14.6
40.0	Peak Headway	40.0
2.0	Peak Buses	4.0

Service to Dodge Island - Dade County's major port facility, which accommodates luxury liners as well as commercial shipping and warehouse facilities, is located on Dodge Island in Biscayne Bay. Although the island is a major employment center and transportation terminal, and is easily accessible from downtown Miami, it is without regularly scheduled transit service. Persons working on or traveling through the port are forced to make their trips by private auto or taxi, except in rare instances when MTA buses are dispatched, by special request, to the Island.

It is recommended that a transit connection between downtown Miami and the Dodge Island facilities be established. This could be accomplished by an extension of one of the many arterial lines which presently terminate in the Miami CBD. The most likely candidates for extension are Routes 19, 20, and 21, all of which come equally close to the island access road which is at Biscayne Boulevard between N. W. 5th Street and N. W. 6th Street. In fact, the routings of Routes 19 and 20 are identical between downtown Miami and N. W. 7th Street at LeJeune Road. Route 19 continues out N. W. 7th Street south of the Airport, while 20 serves the Airport Terminal and Miami Springs. Route 21 extends northward to N. W. 27th Avenue and 79th Street.

Route 21 was eliminated from consideration because of its frequent service and because peak vehicle requirements on the line would increase by two if it were extended to Dodge Island. Scheduling ramifications of the increased service on the other routes would be of a less severe nature. Since Route 20 would offer a direct link between two major transportation terminals, Miami International Airport and the Port of Miami, it is recommended that this be the route to provide Dodge Island service.

The proposed routing of the extended Route 20 is shown in Figure 5. Route buses will depart from the regular alignment at S. E. 1st Avenue and S. E. 1st Street, proceeding east on S. E. 1st Street, north on Biscayne Boulevard, east on the Island access road, and southeast on the main road serving the warehousing and shipping facilities. A turnaround loop will be established at the end of the Island. Heading northwest, Route 20 buses will loop past the tourist-ship terminals on the northwest corner of the Island. Convenient bus and taxi bays are already located in front of the terminals. From the terminals, buses will proceed back onto the access road, across the bridge, south on Biscayne Blvd. west on Flagler Street, and north on N. E. 1st Avenue, resuming the current routing.

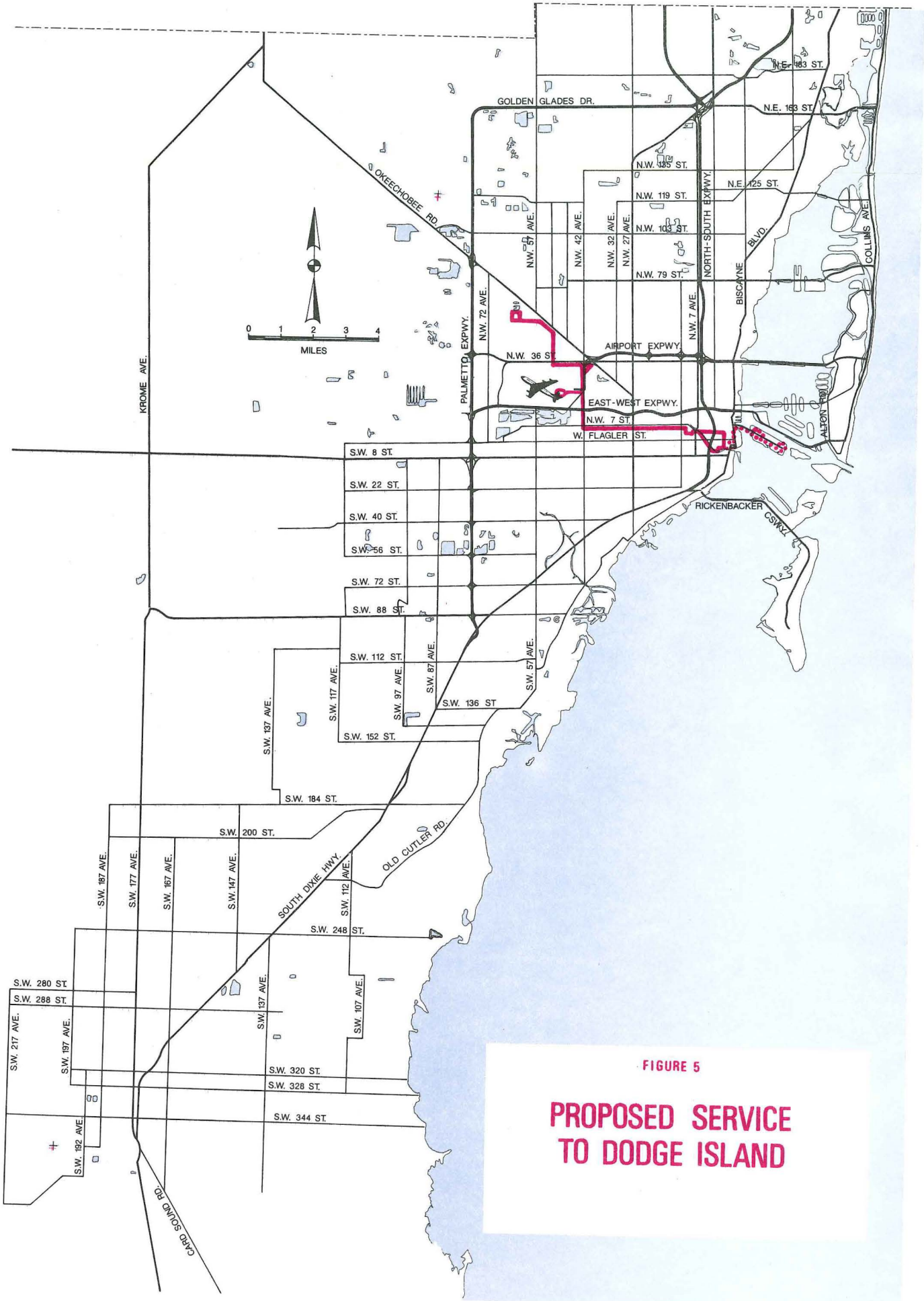

FIGURE 5

PROPOSED SERVICE TO DODGE ISLAND

Headways on the line will generally remain the same, so an additional bus will be needed, during peak and base periods alike. Pertinent operating data of the present and proposed Route 20 are summarized below:

Present		Proposed
26.9	Round Trip Mileage	32.3
120.0	Round Trip Running Time	
	Peak	150.0
	Base	140.0
13.4	Schedule Speed	13.8
30.0	Peak Headway	30.0
40.0	Base Headway	35.0
4.0	Peak Buses Required	5.0
3.0	Base Buses Required	4.0

Palmetto-Model City-Baker's Haulover - A new route should be instituted which would link the Model City area with the Palmetto and Airport employment areas to the west, and with northern Miami Beach to the east.

The route, as illustrated in Figure 6, would run from the existing Haulover Marina turnback of Route T south along Collins Avenue to 79th Street, then turn west to 22nd Avenue where it would begin to traverse the Model Cities community following 22nd Avenue, 62nd Street and 27th Avenue to 36th Street. From 27th Avenue and 36th Street, the route would travel west to 72nd Avenue where it would loop past Jordan Marsh, Sears, Grand Union and other stores via 72nd Avenue, 31st Street, 77th Avenue and 38th Street, then continue west on 36th to 79th Avenue and the Pepsi plant and Doral condominium apartments.

It is recommended that the route provide daily peak service at 20-minute headways between approximately 6:00 and 8:00 A.M. and between 3:00 and 5:00 P.M., although these peaks may be adjusted somewhat to coincide with specific

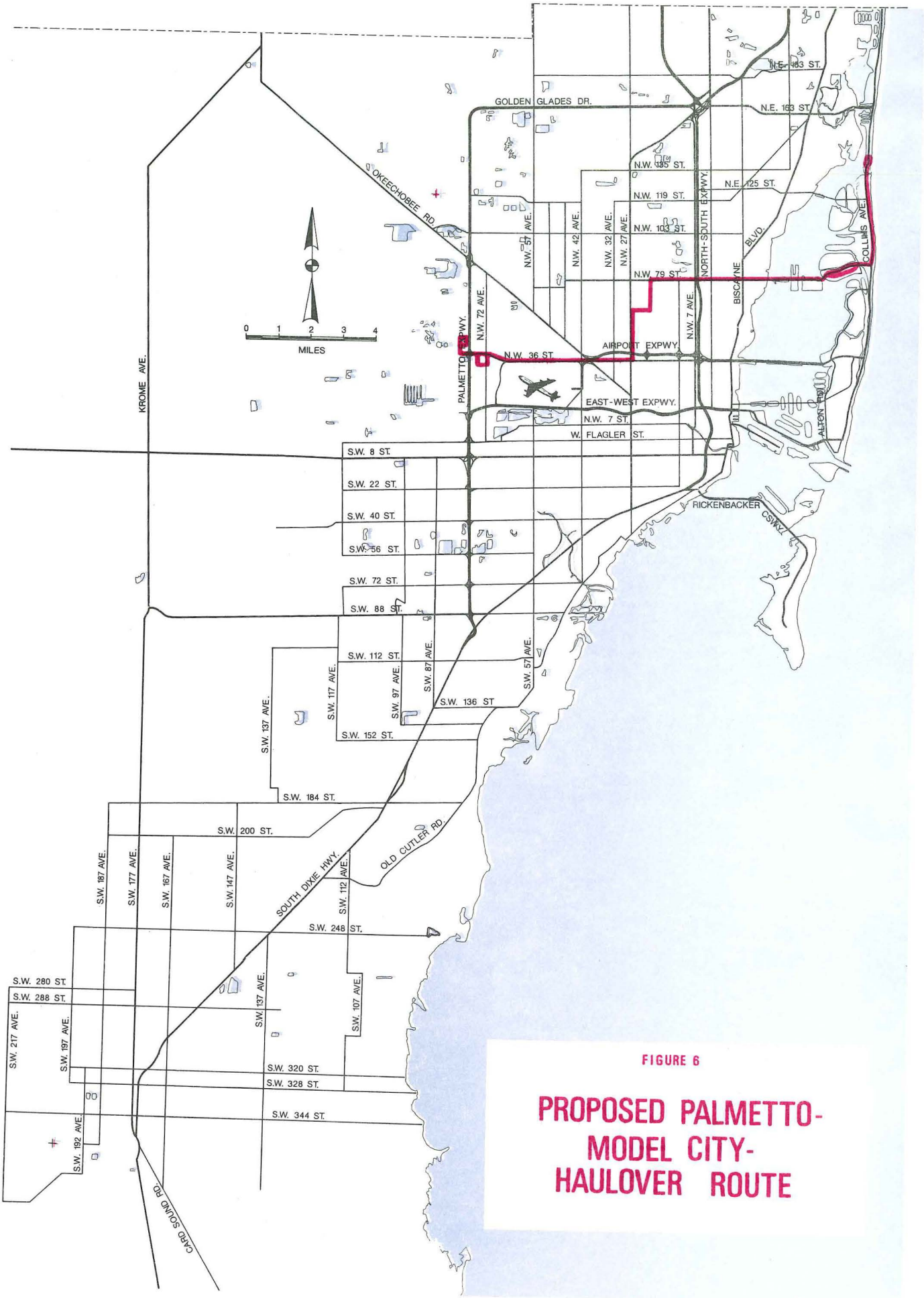

FIGURE 6

PROPOSED PALMETTO-MODEL CITY-HAULOVER ROUTE

shift time changes at various plant locations. It is anticipated that much of the passenger volume using this route to travel to the Beach would consist of domestic workers and be subject to the same uncertain work hour characteristics as those passengers using the Route 14-B. It is, therefore, recommended that service be maintained during off-peak periods at half hour headways.

On the other hand, however, the specific shift times of the Airport and Palmetto employment centers would permit the curtailment of service during off-peak periods. The route would, therefore, be terminated at 27th Avenue and N.W. 36th Street except during periods of peak demand.

The proposed route would require 200 minutes for a round trip including layover, for a schedule speed of 13.5 miles per hour.

Service to Palmetto Industrial Corridor - One of the fastest growing growing areas in the County is the Palmetto Industrial Corridor which flanks the Palmetto Expressway from the East-West Expressway to N.W. 83rd Street. Presently, transit service to the area is virtually non-existent, but the need is there and gradually increasing, due to the constant construction of industrial and office buildings. The previously outlined new route between Model City and the area around N.W. 36th Street and the Palmetto Expressway constitutes only an initial step towards satisfying the need for transit in the area. That route does not sufficiently cover the Corridor area, and it only serves (directly) the Model City residents. The Little Havana, Hialeah, and North Dade markets should also be provided, eventually, with a link to the growing employment opportunities.

It is recommended that a route be established between Little Havana and the Corridor employment areas. This service should be implemented in late 1973, although the exact routing of the line should not be decided upon until implementation time, due to the constant construction in the Palmetto area. Generally, however, the proposed line would circulate in Little Havana, proceed out Flagler Street and up Milam Dairy

Road, and circulate in the Palmetto Corridor, as well as provide service to Airport employment centers. The line would cover roughly 30 miles round trip and take 150 minutes to operate, including layover.

The previously discussed new route from Haulover, through the Model City area, to the Palmetto Corridor should also be extended at its western terminus in the future. The extension will provide service to the still-developing areas which will require service in a few years.

With just one additional route, service to the Palmetto area as well as to the Seaboard and Miami Dade industrial areas could be provided for residents of Hialeah, Opa-Locka, Bunche Park and Carol City. At the present time, geographic factors inhibit direct access to the Palmetto Corridor, but this situation will be improved markedly by June, 1974, when a bridge over the Main Canal (Miami River) on N.W. 74th Street will be completed.

Area coverage in North Dade is generally very good, so the new route will function as a shuttle for residents of these areas, taking advantage of the collection done by existing routes. The terminal point of the line will be in the vicinity of N.W. 7th Avenue and 135th Street, south on Le Jeune Road, west on Gratigny Road, south on Red Road, west across the new bridge, and then complete their runs by circulating in the Palmetto Corridor. (See Figure 7). This routing will take the buses between the two industrial parks, and minor loops into each of them could be worked into the schedules.

Transfers may be made to this line from Routes 26, G, 25, and 15 between N.W. 7th Avenue and N.W. 27th Avenue, so the area coverage in Opa-Locka, Carol City and Bunche Park with just one transfer is excellent, as shown in Figure 7. Transfers may also be made to the proposed line on other segments, from Routes 22,23, and 33. It should also be noted that this route will be the first to serve the Seaboard and Miami Dade Parks, thereby opening an entirely new market.

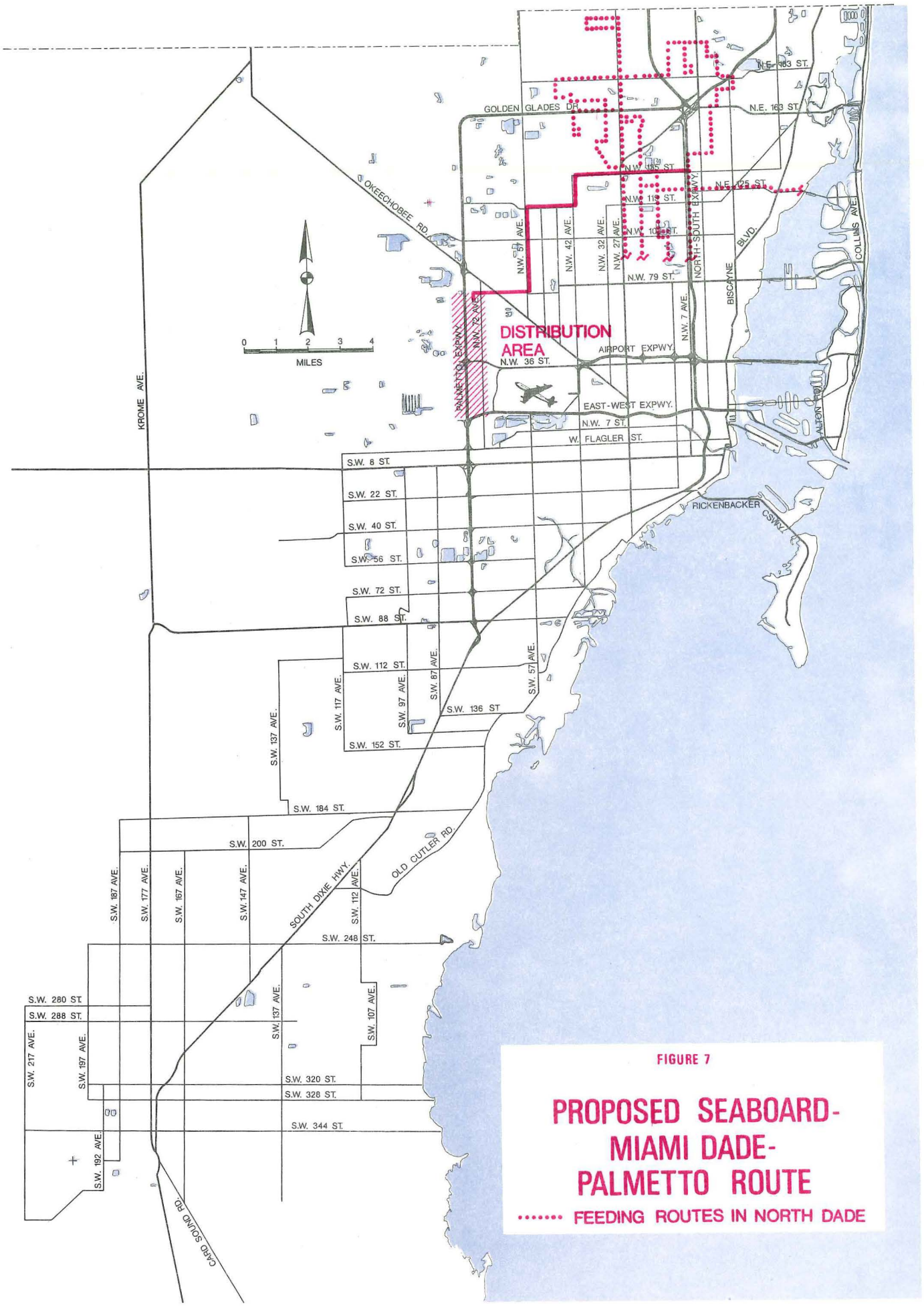

FIGURE 7

PROPOSED SEABOARD-MIAMI DADE-PALMETTO ROUTE

····· FEEDING ROUTES IN NORTH DADE

The route will cover 35 miles and have a round trip running time of 180 minutes. Peak headways on the line will be 30 minutes.

Curtailment of Route 4 - As part of the effort at coordination of the MTA and CGMBS systems, it is recommended that the MTA eliminate the southern half of Route 4, which traverses the same streets as Coral Gables Route 7-8, a line operating between the Coral Gables terminal and downtown Miami via Coral Way. Presently, Route 7-8 must run closed-door between the Miami-Coral Gables boundary (Douglas Road) and the intersection of S.W. 3rd Avenue and 13th Street. In order to accommodate present patrons of Route 4, certain trips on Route 7-8 will run open door.

This curtailment will reduce round trip mileage to 12.4 and running time to 60 minutes. Peak vehicle requirements will be cut to 4. Over the course of a year, the Authority will save 115,400 miles and 13,400 hours of operation.

Realignment of Route 34 - A minor realignment of Route 34 in Coral Gables is proposed. Presently, route buses proceed east on Coral Way into the terminal. It is recommended that buses deviate from Coral Way, going south on Cordova, northeast on DeSoto Boulevard, and east on Biltmore to the terminal.

With this alteration, the alignments of Route 34 and CGMBS revised Route 10 will coincide between S.W. 59th Avenue and the terminal. Thus, patrons along Coral Way will experience an effective reduction in headway and be able to take any bus regardless of destination between their boarding point and the terminal. The benefit of this is that passengers bound for the terminal or points between will not have to guess on which street the next bus will arrive and risk missing their bus. They will know that all buses bound for the terminal will take the same route, regardless of whether it is an MTA or CGMBS bus. Another benefit for Route 34 riders is that two additional generators will be served: Salvador Park and Venetial Pool.

The realignments will add less than one-half mile to Route 34, and running time will remain the same.

MTA Use of the CGMBS Terminal - Another method which could be used to better coordinate the services of the two operators would be to have additional MTA buses serve the Coral Gables terminal. Presently the only Authority line entering the terminal is Route 34. If use of the terminal were to be expanded, Route 6 would be the most likely choice to make use of the facility.

Route 6 buses could easily be diverted off Douglas Road into the terminal and then return to Douglas and resume the current routing. The primary effect on Route 6 riders would be an increase in travel time for those boarding south of the terminal on northbound trips or north of the terminal on southbound trips. The most obvious advantage, of course, is the fact that many new destinations would be opened to both MTA and CGMBS riders by a single transfer, which will be made conveniently at the terminal.

However, the use of the terminal is not recommended due to two major problems. One is in the scheduling of Route 6. Presently the schedules of Routes 6 and 32 are coordinated along LeJeune Road. An increase of 15 minutes in the Route 6 travel time would put the two lines out of phase. To have the buses lay over at the terminal long enough to keep the routes in phase would be a gross inefficiency.

Another drawback is the adverse effect that it would have on Coral Gables ridership from Coconut Grove. Numerous domestics currently ride CGMBS Route 15 from Coconut Grove to the terminal, and the extension of Route 6 into the terminal would institute direct competition between the two routes. Alterations recommended in the section of the Transit Development Program dealing with the Coral Gables system will have the competition shifted from Route 15 to Routes 12 and 17, but the adverse effect will still exist.

Frequencies and Spans of Service

In the Adequacy of Service chapter, the frequencies of service were pointed out as being one of the more unattractive aspects of MTA service, and respondents to the on-board survey.

were strong in their display of dissatisfaction with service levels. However, service more frequent than policy headways is determined directly by a comparison of load factors with service standards, and unfortunately for those who feel the need for more frequent service, reductions in headways cannot be justified on this basis. Currently, the most severe violation of policy headways is the two-hour frequency on Route 35 in the afternoon; however more frequent service has been tried on the line and failed. Demand in the southern part of the Route 1 corridor is low, and there is presently competing service offered by Greyhound. There are other routes on which service does not meet standards relating to frequency, also, but recommendations for blanket reductions in headways to meet standards cannot be made because of economic limitations and the absence of adequate demand.

It should be recognized that there probably is no point, on many routes, where economically feasible service levels and service levels desired by patrons coincide. In the present-day situation, with only a modicum of dependence on mass transit, patron dissatisfaction with headways is a fact of life. Resultant requests for increased service cannot be met indiscriminately due to the budget constraint. The next level objective is to make other aspects of the service, particularly dependability and directness, sufficiently attractive so as to compensate for the perceived deficiency in headways.

A headway summary for the new and revised routes outlined previously is shown in Table XVII. Routes which are indicated to be peak-hour services only should be assumed to have a morning span of service from 6:00 A.M. to 9:30 A.M. and an afternoon span of service from 3:30 P. M. to 6:30 P.M. It should also be pointed out that the headways indicated are approximate and that scheduling constraints may necessitate some adjustments at time of implementation.

Other recommendations on service frequency are detailed subsequently.

Determination of Running Times - One of the system's needs is a more precise determination of running times. In an area of the size and density of Dade County, running times would

TABLE XVII

PROPOSED AND REVISED MTA ROUTES

FREQUENCY OF SERVICE

Route	Headway (Minutes)				
	Peak	Base	Evening	Saturday	Sunday
2	40	50	50	60	60
4	20	30	60	40	60
14—Beach	20	60	—	30	—
20	30	35	70	35	35
32	50	50	50	50	50
34	60	60	60	60	60
35	50	50	—	—	—
Beach—Palmetto	20	30	—	—	—
Little Havana-Palmetto	30	60	—	—	—
North Dade—Palmetto	30	—	—	—	—

be expected to vary with time of day, and yet there is not a great reflection of this in the route schedules. To some extent, especially during the peak season, this is a reflection of constant, all-day traffic flow but the present practice of using a single peak-hour running time throughout the day may contribute to inefficiency of operation. An on-going study should be undertaken by the Schedule Department which would include actual measurement of travel times on a route-by-route basis during all time periods. This information should then be incorporated into the schedules with any necessary alterations made, and updated from time to time.

Base Period Service on Route 14-B - Other than the Miami downtown and its adjacent areas, Miami Beach is the largest attractor of Model City transit trips, with the largest concentration of destinations focusing on the area between the Julia Tuttle and 79th Street Causeways. It is this area that is currently served by the 14-B route.

Presently, Route 14 operates between the Model City community and the Beach during peak hours only. As a peak hour service, Route 14-B was almost break-even for the fiscal year ending September 30, 1972. It is recommended that the service be expanded to provide daily service from 6:30 A.M. until after 6:00 P.M. The existing daily 20 minute peak hour frequency would be retained, while during the remainder of the service day, 60 minute service would be offered.

The existing 30 minute morning and afternoon service on Saturdays should be retained and supplemented with hourly service over the remainder of the day. The span of service on Saturdays should be the same as on weekdays.

Peak vehicle requirements on the line will remain the same. Two additional buses will be needed midday, however, and two will also be needed to provide the evening service.

It is in recognition of riders' desire to avoid the need to transfer - - two thirds of Model City resident survey respondents dislike this characteristic of bus service - - and in order to adequately maintain a direct link for the major Model Cities to Beach travel desire that this improvement is recommended.

The route primarily serves Model Cities residents working as domestics on the Beach, so that peak hour service inadequately meets the needs of these workers who often do not normally begin and end work at the standard workday times. Therefore, it is likely that a person living within walking distance of the 14-B can now utilize it to reach the Beach in as little as 30 minutes via a one-bus ride, but unless that person ends work between 3:30 and 5:30 P.M., they must use two buses and travel for over an hour to return home.

Sunday Service from South Dade - At the present time, all of the routes which operate in South Dade are strictly weekday and/or Saturday lines. No service is provided south of the South Miami terminal on Sundays. It is recommended that service on the extended Route 2 operate on Sundays at one hour headways throughout the day, from 7:00 A.M. to 7:00 P.M., providing 13 trips into Miami from South Dade. While this does not constitute abundant service, these trips will provide an opportunity for the MTA to gauge the level of latent demand for Sunday buses.

Fare Structure

Alternatives to the present fare structure in Dade County were developed with paramount consideration given to satisfaction of the following objectives:

- To make the system easier to comprehend and remember
- To keep revenue as close as possible to that presently being realized

- To provide a higher degree of uniformity and equitability than the present system now offers.

The many aspects of the present fare structure -base fares, zone fares, zone boundaries, inter-area fares, transfer arrangements, and special fare reductions - provide for a seemingly endless conbination of various alterations in the system. However, the objectives stated above were controlling elements which provided an initial screening process after which workable alternatives could be produced.

The future of the inter-area fare was a major matter that had to be dealt with in the development of fare alternatives. It is not a matter to be taken lightly, as dimes collected under current inter-area fare regulations amount to $300,000 annually. While the concept of the inter-area fare as an additional zone fare is valid, it is not consistenly applied (transfer passengers are generally, but not always, the ones who pay the charge) or easily understood (on routes which the fare is charged without a transfer, the boundary varies). As in the case of the overall structure, the administration of the inter-area charge should be simplified and made more consistent. This was done for each alternative which is described subsequently.

To give an idea of the importance of the inter-area fare, it should be pointed out that elimination of the inter-area fare from the present structure would increase ridership by 253,000 per year. Revenues, however, would drop by $232,000 annually.

The other key issue in Dade County fare simplification, as in fare revisions throughout the country, is equitability.

Achieving true equitability of fares; that is, having fares charged commensurate with trip lengths, is hardly practical at this time in Dade County. For many years, those in Miami and North Dade have been charged a significantly higher per-mile fare than those in South Dade. This is primarily due to the fact that there are several zone boundaries in North Dade, but in South Dade, a single zone extends from Sunset Drive all the way to Homestead, a distance of over 20 miles along U. S. 1. To attempt to rectify this situation would require one of two things:

1. A sharp reduction in fares for those in North Dade, which would be inadvisable due to the loss in system revenue which would occur.

2. A sharp increase in fares for residents of South Dade. This would be unsatisfactory due to the adverse effect on public attitudes, a result which would be especially damaging in South Dade - - an expanding area in which the demand for transit can be expected to grow, if not stifled by such an unfavorable increase.

Since neither situation is desirable, it is recommended that some disparity in per-mile fare rates be continued. There is justification for it, on the basis of comparative service levels. In most areas of North Dade, residents are offered many routes and frequent service, whereas South Dade residents are not so fortunate. Thus, since North Dade residents receive more service, they can be expected to be assessed more for it.

Presented in this section are three alternative fare structures which have been examined in detail.[1] While the implementation of any one of them would constitute an improvement over the current situation, the decision on which is the best can only be made by local authorities, due to the fact that they are the ones who have the capability to gauge public opinion and who must take direct responsibility for any changes instituted.

Alternative 1 - This alternative is illustrated in Figure 8, and as is readily obvious from the figure, it has features similar to the present structure. However, the major differences are that:

- There is one base fare applicable to all areas
- There are no overlapping zones
- Application of the inter-area fare is standardized
- Zone fares are standardized, regardless of which boundary is crossed or in which direction it is crossed
- The inordinately large zone in South Dade has been broken up.

The major elements of this alternative may be summarized as follows:

Base Fare	- 30¢ everywhere
Zone Fares	- 5¢ for crossing any boundary
Inter-area Fare	- 5¢, to be charged on all trips crossing a causeway
Transfers	- Free

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(1) A fourth alternative, including a base fare reduction from 30¢ to 25¢ and maintenance of only one zone boundary, is being developed by MTA staff.

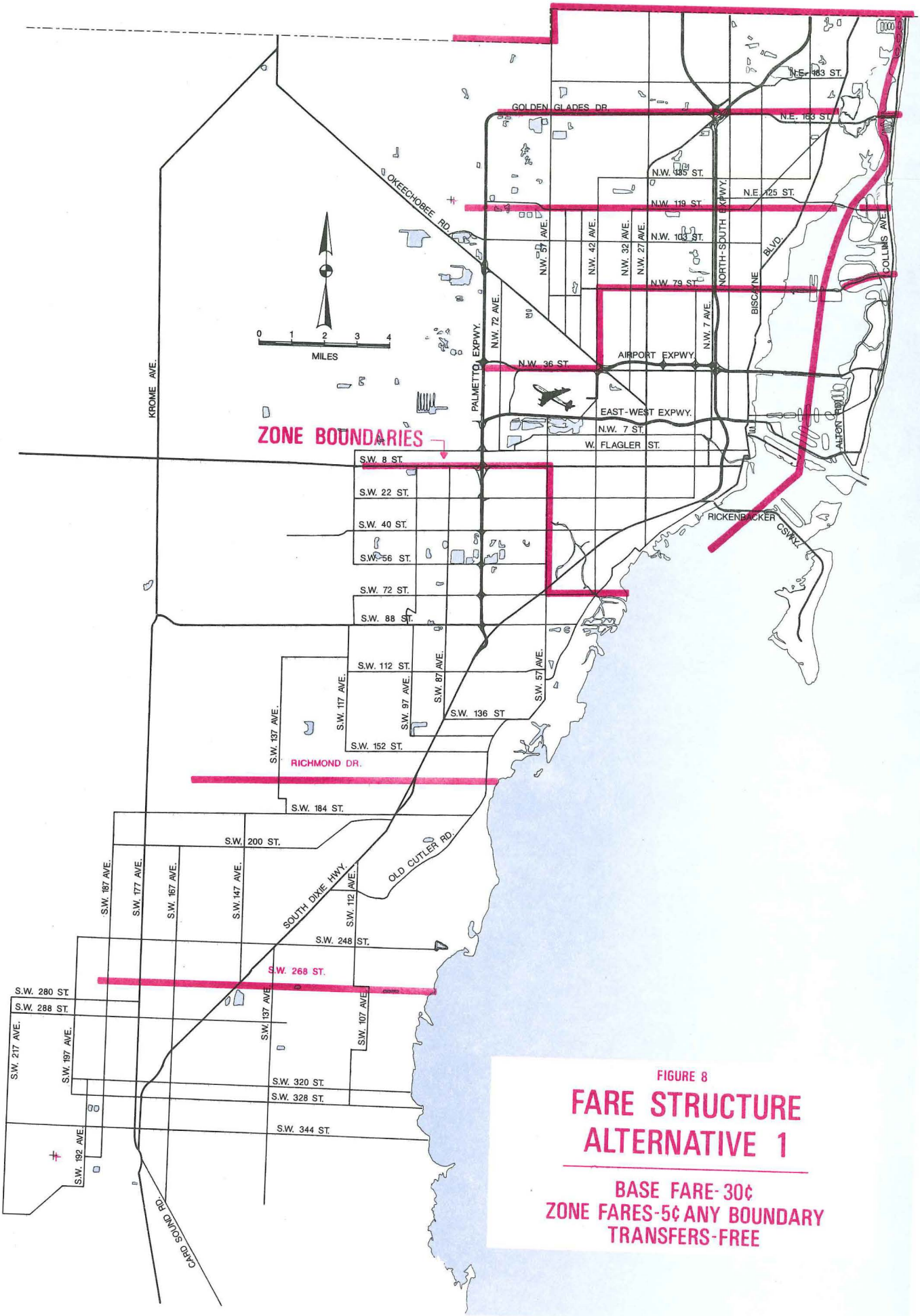

FIGURE 8

FARE STRUCTURE ALTERNATIVE 1

BASE FARE-30¢
ZONE FARES-5¢ ANY BOUNDARY
TRANSFERS-FREE

Zone boundaries, the crossing of which results in a 5¢ charge, have been established to coincide with major arteries or, where possible, with presently existing boundaries. Thus, while they are more numerous under Alternative 1, the zone boundaries should be easily remembered, and the establishment of a simple 5¢ charge for crossing them is a further simplification over the present structure. The following arteries (or segments of them) will serve as boundaries:

Mainland:	N.W. and N.E. 215th Street
	Golden Glades Expressway and N.E. and
	N.W. 167th Street
	N.W. and N.E. 119th Street
	N.W. and N.E. 79th Street
	N.W. 36th Street
	LeJeune Road
	S.W. 8th Street
	S.W. 57th Avenue
	Richmond Drive
	S.W. 268th Street
Beach:	215th Street
	Ocean Beach Boulevard
	96th Street
	71st Street

Implementation of this alternative would affect different markets in different ways, as illustrated in the following examples:

- Downtown Miami - Miami Beach trips which require one bus will increase from 30¢ to 35¢. Two-bus trips to the Beach will become cheaper, 35¢ instead of 40¢.

- Trips on Collins Avenue which cross 71st Street will cost 5¢ more. Most other Beach trips will cost the same, however, short trips in the northern Beach areas which don't cross a boundary will cost 5¢ less.

- Trips from downtown to the area between 119th and 167th Streets will cost 5¢ less, or 40¢. Those from south of 119th Street and north of 167th Street will cost the same.

- Many east-west trips crossing Biscayne Bay will cost an additional 5¢.

- Some trips made entirely south of Sunset Drive will continue to cost 35¢; however, some may be made for 30¢, a 5¢ saving. The same is true of the areas north of 119th Street.

- Hialeah residents north of 119th Street will pay 5¢ more to get to downtown Hialeah, Miami Springs, or downtown Miami.

- One-bus Key Biscayne trips will still cost 35¢; two-bus trips to Key Biscayne will also cost 35¢, which is 5¢ cheaper than presently.

- Most trips within the central zone will continue to cost 30¢ as in the present situation.

There are certain problems which will be associated with Alternative 1. The main problem is that operators will be able to maintain a two-door operation only while in the first zone of their trips. Thereafter, passengers alighting will have to leave by the front door and pay either additional zone fares or display a zone check issued at the time of boarding. However, many other systems operate such a zone structure successfully and it is the most equitable in terms of the cost/distance ratio.

Revenues under Alternative 1 will remain relatively stable, as a result of a trade-off between different ridership groups. Many nickels will be lost due to the reduction in base fare in North Dade, but many will be gained as a result of the flat 5¢ charge for crossing the intra-coastal waterway. Most long trips will cost the same, and the overall drop in revenue under Alternative 1 will be less than one percent.

Alternative 2 - This alternative (Figure 9) is similar to the first in many respects but enough elements have been altered so as to satisfy an additional condition that no passenger should pay more then he presently pays. In order to satisfy this condition and yet keep revenue as close as possible to current levels, it was necessary to inject certain complications, which are apparent in the following summary:

Base Fare	- 25¢ north of Sunset Drive
	- 30¢ south of Sunset Drive
Zone Fares	- 5¢ at all boundaries except Sunset Drive
	5¢ northbound at Sunset Drive
	10¢ southbound at Sunset Drive
Inter-area Fare	- 5¢, to be charged on all trips crossing a causeway
Transfers	- Free

Zone boundaries have been established, as in Alternative 1, with considerations of major arteries, existing boundaries, and a desire for equitability in terms of trip length. The following boundaries are recommended for this alternative:

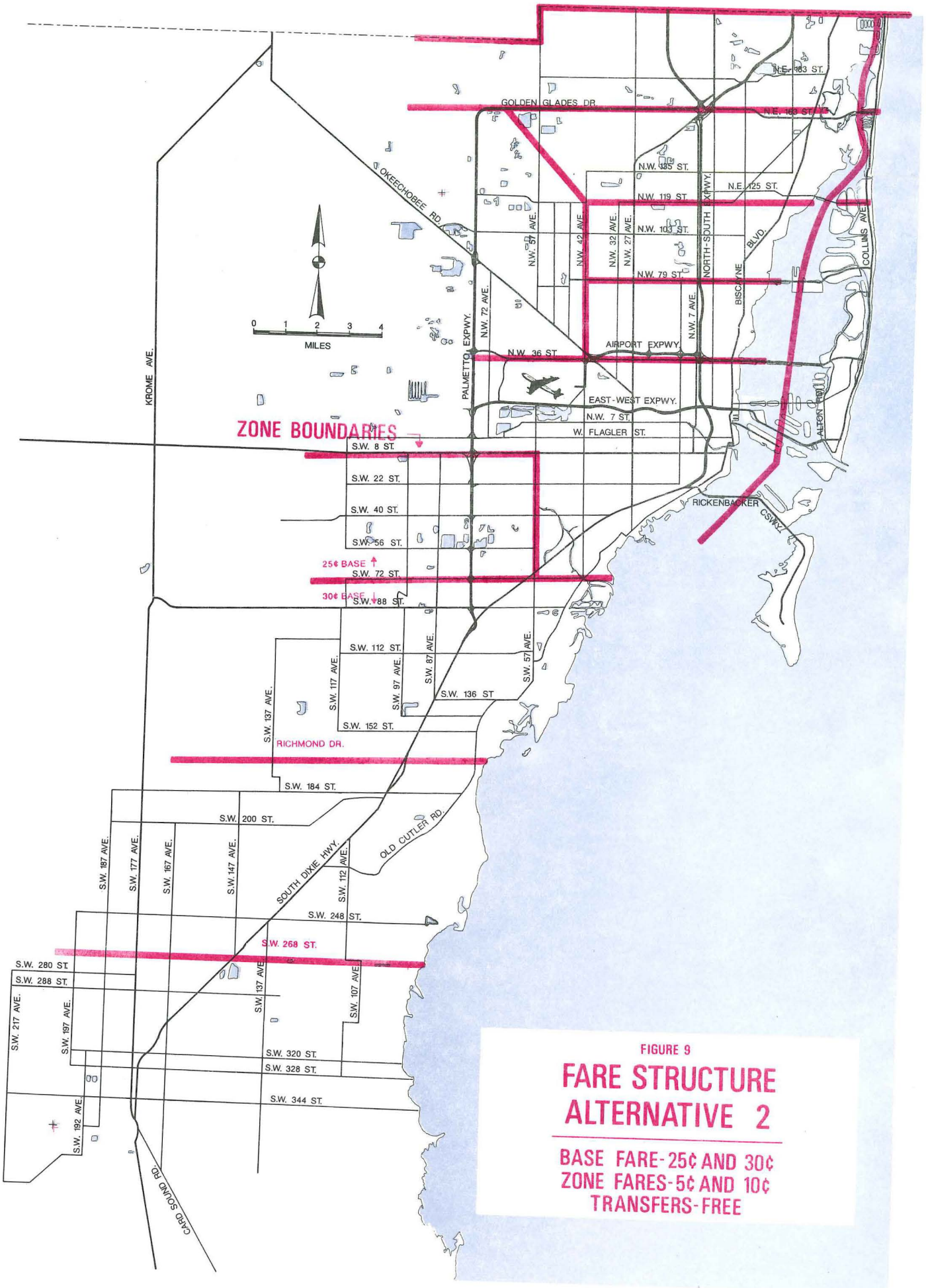

FIGURE 9

FARE STRUCTURE ALTERNATIVE 2

BASE FARE-25¢ AND 30¢
ZONE FARES-5¢ AND 10¢
TRANSFERS-FREE

Mainland: N.W. and N.E. 215th Street

Golden Glades Expressway and N.W. and N.E. 167th Street

N.W. and N.E. 119th Street

N.W. and N.E. 79th Street

S.W. 8th Street

Sunset Drive

Richmond Drive

S.W. 268th Drive

S.W. 57th Avenue

Beach: 215th Street

Ocean Beach Boulevard

96th Street

The stipulation that no passenger will pay more means that many individuals will be paying less for their trips. The following examples illustrate how the implementation of Alternative 2 would affect various markets in Dade County:

- Hialeah-Downtown Miami trips will be 5¢ cheaper, or 30¢.
- Trips on the Beach will, in most cases, be 5¢ less.
- Trips to downtown from between 119th Street and 167th Street will cost 40¢, 5¢ less than presently. Those from north of 167th Street or south of 119th Street will not change in price.
- Trips within the central zone will be 5¢ cheaper than presently.

- Some trips made entirely south of Sunset Drive will continue to cost 35¢; however, some may be made for 30¢, a 5¢ savings.

- Some short trips in North Dade which presently cost 35¢ may be made for 25¢. Yet other trips, from 168th Street to 118th Street for example, will cost the same.

- One-bus trips between downtown Miami and Miami Beach will continue to cost 30¢; two-bus trips will become 10¢ cheaper, from 40¢ to 30¢.

- One-bus trip to Key Biscayne will be 5¢ cheaper; two-bus trips will be 15¢ cheaper.

This alternative was explored primarily because of the potential appeal of a 25¢ base fare, at least in part of the County. However, just as the reduction in the base fare in North Dade in Alternative 1 had an adverse effect on revenue, so does this reduction severly limit farebox receipts. In fact, the move to a 25¢ base would cost the Authority over $1.2 million dollars yearly, or almost 10% of system revenue. This loss will occur despite the fact that nearly 1 million new riders would be generated by the reduced rates for many trips, especially short journeys.

The amount of revenue lost under this Alternative should be sufficient justification for eliminating from consideration the idea of a reversion to a fare as low as 25¢. Now that the Authority has gone to 30¢ and 35¢ fares, the quarter transit ride should be considered a thing of the past, under present subsidy arrangements.

Alternative 3 - Another possibility was explored wherein no rider would pay more for his trip; however, in this alternative (Figure 10) a 30¢ base is employed throughout the county. A 30¢ fare and the stipulation that no one pays more, necessitated the elimination of the inter-area fare completely. This is the most marked deviation of Alternative 3 from the two other alternatives.

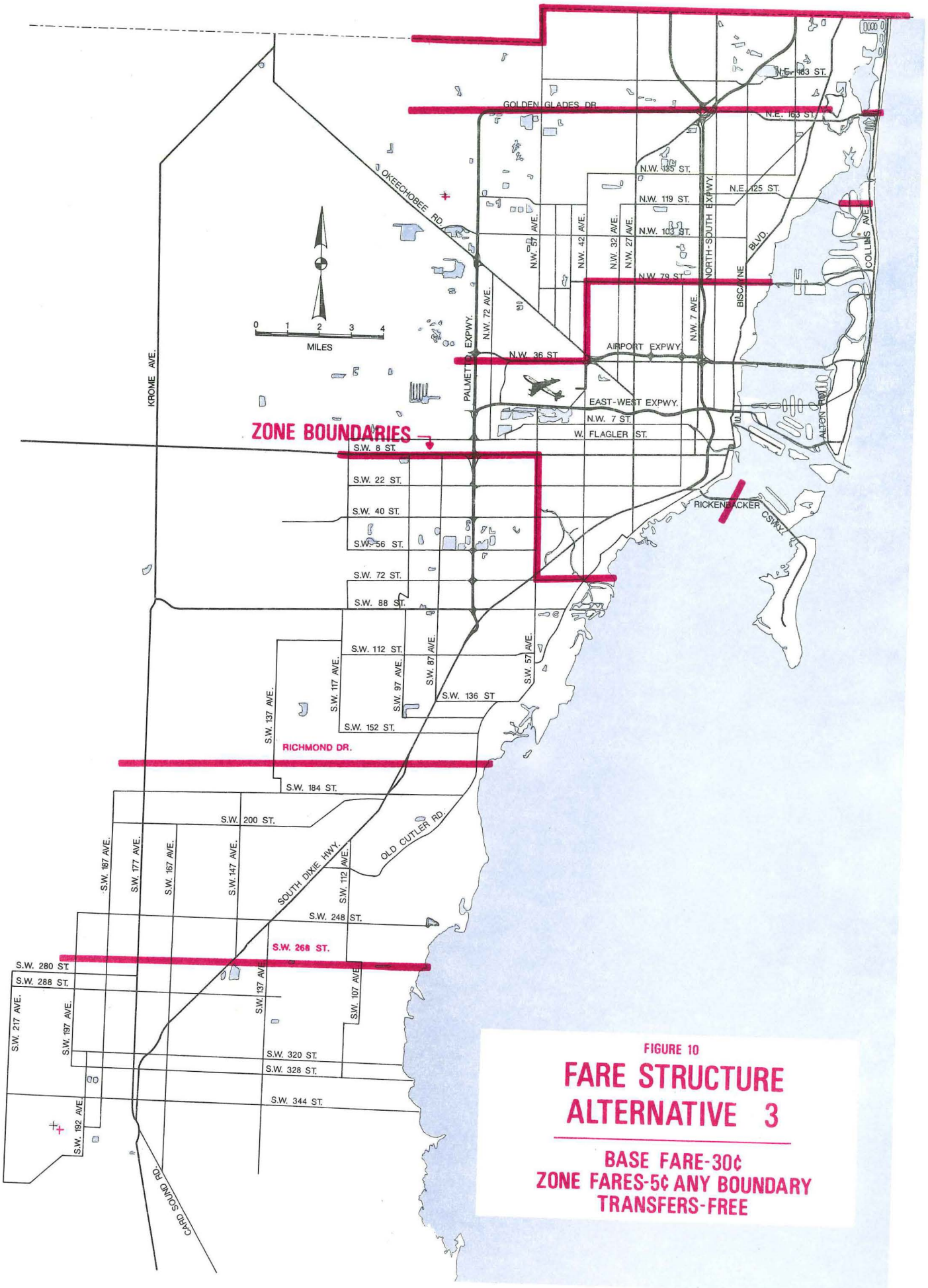

FIGURE 10

FARE STRUCTURE ALTERNATIVE 3

BASE FARE-30¢
ZONE FARES-5¢ ANY BOUNDARY
TRANSFERS-FREE

The primary elements of Alternative 3 may be summarized as follows:

Base Fare	- 30¢ everywhere
Zone Fares	- 5¢ for crossing any boundary
Inter-area Fare	- None
Transfers	- Free

As illustrated in Figure 10, the zone boundaries in this alternative are similar to those which applied in the previous two alternatives; with the following arteries (or segments of them) serving as zone boundaries:

Mainland:	N.W. and N.E. 215th Street
	Golden Glades Expressway and N.E. and
	N.W. 167th Street
	N.W. and N.E. 79th Street
	N.W. 36th Street
	LeJeune Road
	S.W. 8th Street
	S.W. 57th Avenue
	Richmond Drive
	S.W. 268th Street
Beach:	215th Street
	Ocean Beach Boulevard
	96th Street

While this alternative would not result in fare increases for anyone, more passengers would pay the same fare than in the previous alternative. For example:

- Downtown Miami - Miami Beach trips which require one bus will cost the same, 30¢, as presently. Two bus trips will drop in price from 40¢ to 30¢.

- Trips from downtown Miami to the area between 79th Street and 119th Street will cost the same. All other trips to North Dade will be at least 5¢ cheaper.

- Many mainland-Beach trips will become cheaper by at least 10¢, some by 15¢, depending on the base fare paid presently.

- Some trips made entirely south of Sunset Drive will continue to cost 35¢; however, some may be made for 30¢, a 5¢ savings.

- One bus Key Biscayne trips will still cost 35¢; two bus trips to Key Biscayne will also cost 35¢, which is 5¢ cheaper than presently.

- The central zone will remain virtually the same, so most trips in that zone will cost the same as presently.

- Short trips on Miami Beach north of 96th Street which do not cross a zone boundary will cost 30¢, 5¢ less than presently. Trips on Miami Beach south of 96th Street will cost 30¢, as under the current fare structure.

Even though no riders will suffer a fare increase under this alternative, the revenue lost will be less than half that of the previous alternative, which also satisfied that condition. Alternative 3 would cause the Authority to lose just over $600,000 in regular route revenues each year. Ridership, at the same time, would increase by about 300,000 annually, a relatively small increase when compared with present ridership levels.

Express Fares - Premium fares should certainly be considered to be an accepted aspect of good express service. However, even when paying premium rates, a patron has every right to expect that the fare paid be commensurate, to the degree possible, with the trip length. Not all MTA express routes charge premium fares, and the maximum per mile cost of express services differs from route to route.

The cost of local service on MTA routes also varies greatly from less than 2¢ per mile to over 3¢ per mile. Thus, it is difficult to use the per-mile figure as the criterion in determining which fares are premium. However, a cost of between two and three cents per mile should be regarded as acceptable for an express route. To make the system express fares somewhat more equitable, the following changes are recommended:

- Route 48 fare should be reduced to 45¢
- Route 49 fare should be raised to 60¢
- Route 50 fare should be raised to 55¢

These increases will generate some additional revenue (around $2,800) yearly but the primary benefit will not be in the form of a significant reduction in the system deficit. The main contribution to the system will be an increase in the equitability of express fares.

Route 6 express riders are not assessed a premium fare. It is recommended that the current fare level be maintained, since Route 6 is a relatively short line with an acceptable cost/mile ratio and with a relatively low express speed.

Special Fare Programs - The Metropolitan Transit Authority maintains reduced fare rates for two major ridership groups which typically display financial need - school students and the elderly. This practice is consistent with generally accepted policy throughout the industry. To question the validity of providing such needy groups with increased mobility at reduced rates would be difficult, as both are often captive riders with limited resources.

The MTA is outside the mainstream of industry thinking in that it permits students to utilize their reduced fare privileges at all hours of the day throughout the year. While this arrangement may cost the Authority some revenue during non-school hours, there are justifications for continuing the present plan. The principal justification is that administration is easier, since drivers do not have to concern themselves with whether or not school is in session on any particular day or whether or not the individual is making a school trip.

Another significant reason is that among students of school age, demand for non-school oriented trips is very elastic with respect to price. Thus, while the Authority may lose 15¢ or more on many off-peak trips by charging only a 15¢ fare, it also gains many 15¢ rides by persons who would likely not make their trips by transit if a full fare was assessed. Restriction of the student fare to specified hours should therefore not be considered.

Traffic Engineering for Transit

The preoccupation with the automobile as a mode of travel in recent history has been reflected in the extensive construction of highways and other auto-related facilities. Now, with increasing attention to the need for transit, it is recognized that the development of auto-dominated transportation facilities should take into consideration the fact that they will also be utilized by mass transit equipment. The desire to further the attractiveness of transit and the fact that one full bus carries the ridership of 40 cars leads naturally to the idea of providing mass transit vehicles with certain advantages over private automobiles. These advantages can be obtained through the application of traffic engineering concepts, to proposed projects as well as to existing facilities. This section sets forth a series of improvements designed to expedite bus movements through manipulation of traffic patterns.

I-95/N.W. 7th Avenue Express Service - The main highway facility serving Miami from the north is Interstate 95, which currently operates far beyond capacity between the Golden Glades Interchange and downtown Miami during peak periods.

Additional expressways to diffuse this intense demand have been recognized as infeasible, due to the intensity of development in the I-95 and parallel corridors. Consequently, it was determined that the best way to increase capacity on the facility is to utilize the median for additional traffic lanes, a project that was approved by the Federal Highway Administration early in 1972.

Recognition of the fact that an increase in person capacity was far more important than an increase in vehicle capacity led to consideration of measures to give mass transit priority on the new lanes. Interagency communication and cooperation, from FHWA and UMTA on down to the MTA, was instituted to explore the possibility. With the completion of the lanes not scheduled for many months, the Florida Department of Transportation, one of the involved agencies, undertook a preliminary study to determine the feasibility of using N.W. 7th Avenue, immediately to the west of I-95, as an interim express bus route. The proximity of the two routes affords the opportunity to develop patronage on the express lines, serving the same markets and utilizing the same proposed park-and-ride facilities, while construction on the expressway is on-going. Then, upon completion of the median lanes, the service would be moved to that facility with a minimum of inconvenience to riders or operator. It was decided that this two-phase approach to the implementation of service would be the best course to follow. Federal funds have been requested and approved for the project.

In the first phase, express bus service will operate, beginning in fall, 1973, over N.W. 7th Avenue between the Golden Glades interchange and downtown Miami. The distribution end of the trips will have three legs, each serving a major employment center. The areas served will be:

- Downtown Miami
- The Civic Center
- The Airport employment areas along N.W. 36th Street, as well as to the Airport terminal.

Buses will operate express between the interchange and the above mentioned areas. N.W. 7th Avenue will be a closed-door section of the route.

The major innovation in Phase I will be the institution of a priority signalling system which will facilitate the movement of buses on N.W. 7th Avenue.

Every effort will be made to provide as comfortable and attractive a service as possible - - the loading standard goal is to provide everyone a seat, and the possibility of "club" buses will be explored to further enhance the quality of rides.

Once the median lanes on I-95 are complete, the express service will be shifted to that route, marking the beginning of Phase II. Car pools (auto occupancy of three or more) will also qualify for utilization of the reserved lanes, which will be between the Golden Glades interchange and the Airport Expressway Interchange, north of N.W. 36th Street.

No physical separation will exist between the priority lanes and the mixed-mode lanes; entry and exit to and from the priority lanes will be accomplished simply by changing lanes. A rigorous public information program will be the major tool used in enforcing the restricted use of these lanes. Signalization on the freeway will also be used to guide users of all lanes. Although these measures should be sufficient to facilitate smooth operation for both priority lane users and mixed-mode lane uses. Cameras mounted in police vehicles will be employed to monitor the activity on the freeway.

Both phases of the project will make use of the same park-n-ride facilities. Presently, the locations of two such facilities have been pinpointed. One, at the Golden Glades Interchange, has space for over 1,000 cars plus transit terminal facilities. Another will be at the Golden Glades Twin Drive-In on the Golden Glades Expressway. The use of the drive-in lot is further described in the following section which deals with low-capital transportation improvements.

Once the express buses are operating on the completed median lanes, the primary beneficiaries of the service will be the residents of the North Dade areas of Carol City, Opa-Locka and North Miami Beach, for these are the areas surrounding the park-ride lots in the upper part of the County.

West Dade Expressway - A north-south expressway is already under construction which will parallel the Palmetto Expressway about four miles to the west. Along with the Opa-Locka Expressway and the Interama Expressway, these freeways will provide the best route circumventing the heart of Dade County, and will be noteworthy additions to the road network for many automobile drivers.

However, the completion of the West Dade Expressway will also be a milestone for transit users in South Dade, as the expressway will feature facilities designed to make the road especially conducive to transit operations. Being constructed along with the roadway are two park-and-ride sites, which will be utilized by the MTA to provide better express service from South Dade. At each site, there will be bus pull-out bays where buses may conveniently receive and discharge passengers without being forced to exit from the expressway.

The two locations of the sites are:

- Quail Roost Drive
- Coral Reef Drive

The Metropolitan Transit Authority is not directly participating in the construction of these sites. The Authority's only commitment is to provide express service, where warranted, which will make use of the facilities.

That the park-and-ride lots have been planned along with the expressway is fortunate for a number of reasons. One is that the cost of the same facilities would be much greater without such foresight. Also, the inclusion of transit-oriented facilities in a primarily auto-oriented project is a welcome indication that greater consideration is being given to transit as a legitimate alternative to the automobile.

It should be noted that plans for South Dade Expressway, which will link the West Dade and Palmetto Expressways, also call for construction of two park-ride sites on that freeway - - one at N. Kendall Drive and one at Sunset Drive.

The success of the park-ride sites depends, to a large extent, on the convenience afforded those who desire to make use of the facilities. Access from the parking lot to the boarding point should be easy, preferably assisted by an escalator or moving sidewalk if the distance is great. Ample shelter should also be provided to protect waiting passengers.

Express service via the West Dade Expressway will primarily serve the downtown-oriented transit trip. The major collection areas for the proposed express service will be neighborhoods south of Coral Reef Drive, specifically Richmond Heights, Cutler Ridge and Perrine. Even those as far south as Homestead and Florida City would benefit by driving part of the way to downtown and utilizing one of the park-and-ride sites.

Such service would constitute a vast improvement over the presently-available buses to downtown Miami which must operate over U. S. Route 1. The West Dade express buses will play a very important role in the continuing development of South Dade. Presently, service is limited to the Route 1 corridor, but development west of the corridor is expanding. Regular local service cannot be instituted in the early stages of development, but the residents will be afforded a premium transit service. And as development continues, the park-ride lots will not become obsolete, in the sense that local transit would, but will continue to serve a large market in South Dade.

Low-Capital Transportation Improvements

Most of the recommendations put forth so far will generate significant costs to the Metropolitan Transit Authority, either in operating expenses or outlays of capital. Consideration has also been given to improvements of transit services which will not involve such expenditures. At the same time, however, it should be recognized that many of the benefits realized will be similarly unquantifiable - - the improvements may best be described as "intangible."

Recommendations for improvements to the public information program are also included in this section, although one aspect of that recommended program does not qualify as a low-capital measure.

Encouragement of Car Pooling - Already the proposed I-95/N.W. 7th Avenue project has made provision provision for preferential treatment of cars with three or more occupants. This is certainly a step which would encourage car pooling. Other considerations might include reduced parking rates downtown, and a reduction in toll rates (on causeways and expressways, e.g., for car pools). Major trip generators should be provided with car pool information centers. Local service organizations should be approached and encouraged to promote the car pool idea. Also, public service announcements to promote pooling of vehicles should be requested from local news media.

Although no organization in Dade County is presently staffed or equipped to deal with car pooling, the Department of Traffic and Transportation would be the logical coordinating agency. A pilot program to get individuals in the county in contact with each other would consist of the following steps:

(1) Full page newspaper ads every day for a week at three month intervals explaining the purpose of the program and soliciting participation. The ad would include a county map divided into subareas.

(2) Interested persons would mail back a form indicating name, address, subarea of residence, subarea of work, work schedules, ability to drive, and phone number.

(3) Using a computer, responses would be sorted and matched, obtaining a printout on postcard type format which listed the names and phone numbers of similar persons.

(4) Postcards would be mailed to matched persons, with the responsibility of actually setting up the car pool left up to them.

(5) A follow-up survey would be conducted to determine the results of the previous efforts.

Advertising, computer time, postage and one administrator to oversee the project dexcribed above would cost approximately $80,000.

Automobile Restrictions - A differentiation should be made between policies that actually restrict the use of automobiles and those that simply make it less attractive to drive. Pricing policies are really not restrictive - - restriction must be legislated. The fact that Dade County is so decentralized makes a central city approach less feasible, as the elimination of vehicles from sections of downtown Miami probably would not have a great effect on the overall situation. However, it might provide the impetus needed to sway emphasis from the auto to mass transit. The Off-Street Parking Authority may be approached concerning the possibility of eliminating many downtown parking spaces.

Recommendations - The first step in a low-capital program should be the formation of a committee with representation by all concerned agencies who have either the desire or power to effect changes. These agencies should include, but not necessarily be limited to, the following:

- Police Department
- Off-Street Parking Authority
- City of Miami
- Metropolitan Transit Authority
- Dade County Department of Traffic and Transportation
- Florida DOT

This committee should then embark upon a program which combines encouragement of utilization of transit and car pools and actual restriction of autos. Initially, the most expedient steps to be taken would be to:

- Reduce parking rates for car pools and/or raise rates for single-occupant autos
- Institute a car-pool information program

Exploration of other measures cited in this section should then be undertaken. Additionally, there are other course of action which can be considered to be low-capital recommendations, including the following.

Use of Movie Lots for Park-Ride - Capital additions which could be obtained with an outlay of capital equal to far less than the benefits would be park-ride lots for use with express services. These lots could be "borrowed" during the day from drive-in movie theaters. The ability of express services to attract patrons when parking lots for cars are provided has been demonstrated in other cities. It is recommended that contact be established with the management of the following theaters and the possibility of establishing stops at them be explored:

Name	Location	Applicable Route
Tropicaire Drive-In	7751 Bird Road	13
Turnpike Drive-In	12850 N.W. 27th Ave.	26

The establishment of park-ride sites at either of these locations will naturally necessitate slight reroutings to bring the buses into the lots.

Already there are plans to make use of one drive-in lot in conjunction with the I-95/N.W. 7th Avenue express buses. That is the Golden Glades Twin Drive-In on Golden Glades Drive. Management of the lot has been receptive to the idea, and current plans call for the charging of a fee for each car entering the lot. These fees will be used to compensate the drive-in for its use, with any remaining money accruing to the MTA.

In the event of the implementation of any new express service, the possibility of passing the line through one of the drive-ins in the County should be considered when determining the route alignments.

Public Information Improvements - The major deficiency in the public information program, as pointed out in the Adequacy of Service, is in the public timetables. In order to make the schedules more valuable aids, especially to the unfamiliar riders, it is recommended that the following features be

incorporated into the schedules in the immediate future.

- All runs, daily trippers included, should appear on the schedules, so that readers are given a more accurate picture of service levels on routes which have base service augmented by a large number of regular trippers.

- Intermediate time points for all routes should appear on the schedule, an innovation which would eliminate the need for many riders to outguess the bus drivers. Enforcement of adherence to intermediate time points will improve dependability, and their advertisement will simplify comprehension of the system for unfamiliar riders.

- Fare information should appear on each timetable. In spite of the complexity of the fare structure in Dade County, this improvement could be easily implemented, since a separate schedule is provided for each route. An explanation of base fare, zone fares, inter-area fares, etc., applicable to each line could certainly be provided on the appropriate schedule.

- Transfer points should either be listed or indicated on the route map which is included on the schedule pamphlet. Also, routes which may be transferred to should be indicated.

Bus stops in Dade County are usually marked, either by a sign, bench, striped telephone pole, or some combination of these. However, except in some cases, most notably in downtown Miami, the stops have no route designation. Such a designation should be made at every stop in the MTA service area.

Buses should have a route designation in the rear. Rear route designation is a rarity, but the route numbers which appear on the Bus-a-Rama advertising side panels with which many MTA buses are equipped are evidence that a need is sensed for more bus identification, in addition to that provided by overhead rollers in the front. However, the rear would be

a more practical place for added designation, as a front-rear system would provide a patron with a greater probability of seeing the route number than would a front-side system. Nonetheless, the side panels are a useful aid, and care should be taken to insure that they are correct at all times.

A larger-scale advertising program should be undertaken. Regular operations should be regularly promoted -- advertising should not be a special tool invoked only for special or new services. Elsewhere in the country, the value of a vigorous advertising campaign has been shown in the form of increased ridership and revenues. Cleveland, for example, has claimed an increase in revenue of around $2.70 for each advertising dollar spent between April and September of 1972. While the systems are not truly comparable (CTS has rapid transit), it is not unreasonable to assume that certain gains can be made with proper promotion of MTA service.

To insure continued growth of the system, a certain percentage of system revenue should be allocated to promotion of the Metropolitan Transit Authority and its services. At the present time, a reasonable figure would be 2%. Thus, the amount spent in 1973 should be approximately $250,000. A provision has been made in each year's budget for money to finance a continuing advertising program at the two percent level. This is considerably more than has been expended in the past, for in 1972 and 1971, the amount was about $60,000 a year.

Accommodation of Spanish-Speaking Citizens - While the MTA is taking strides to provide bi-lingual public information, continuing effort should be made to accommodate Spanish-speaking citizens, a segment of the Dade County population which accounts for a significant portion of the ridership on MTA buses. The previously mentioned additions to the public timetables of fare and transfer information should appear in both languages. So should pertinent information on the systemwide route map. Any information which is located on streets in Little Havana should also be presented in English and Spanish.

School Bus/Public Transit Coordination

In a "Report to Metropolitan Transit Authority on Dade County School Bus Operations", prepared by National City Management Company in April, 1966, major steps were taken toward effective coordination of school bus and public transit. Three key findings of this report were that:

- The Dade County School Board could legally contract with the MTA for pupil transportation.
- In order for MTA to use transit buses rather than school buses in transporting pupils under School Board contract, Section 234.08 of Florida Statutes would either have to be amplified by an administrative guideline or amended.
- The Miami Beach area was the logical place to begin with school bus/public transit coordination due to considerable route overlap.

Despite this auspicious start, school bus/public transit coordination has moved slowly over the past six years. Although meetings have been held intermittantly between officials of the School Board and the MTA, no plans have been implemented to date.

What is the cause of this six-year old inertia? After interviews with both School Board and MTA officials, it seems clear that the principal problem is one of motivation. While both groups understand that considerable effort will be required to achieve school bus/public transit coordination, neither group has a clear conception of the benefits to be gained from this effort.

This is unfortunate, because under the proper framework there is potential to effect a significant cost savings for the School Board, concurrent with a significant revenue increase for the MTA. Such a dual goal was recently achieved in Toledo, Ohio where the Toledo Area Regional Transit Authority (TARTA) implemented a multi-million dollar contract with the School Board to carry students to school on regular transit routes, thereby doubling transit's annual ridership.

In Dade County the ideal pilot project area for school bus/public transit coordination is Miami Beach. There, 15 school buses run 40 routes daily for junior and senior high school pupils (elementary school and special education school buses would be excluded from the scope of the project). The object of the pilot project would be to replace as many of the 15 school buses as possible with currently scheduled MTA buses which have excess capacity.

While the MTA buses would continue to run regular routes, there might have to be small extensions to the route structure to accommodate students on school runs. These extensions would be designed so that the point of departure from the regular route would also be the point of reentry, insuring complete service for regular passengers.

That amount of school bus replacement which can be accomplished without augmentation to current MTA schedules would generate little additional MTA expense. In some cases, however, even though MTA buses can carry 75-passenger standing loads, the number of school children would be so large as to require an extra "school tripper". Preferably, this school tripper could evolve into scheduled service running 3-5 minutes behind the first bus, thus improving service frequency. In the pocket timetable, such buses could be footnoted as not running on school holidays.

The School Board, of course, saves money on every school bus replaced by transit. While the exact cost reduction depends on the number of driver-hours and bus-miles curtailed, as a rough approximation, the replacement of each school bus would save the School Board $7,000 per year. Thus, replacement of 10 of the 15 Miami Beach buses would save the Board $70,000 annually.

How much of this savings is shared with the MTA depends on the unit price set for the student-trip rebate. While the student living over two miles from school would ride the MTA free with a School Board pass, the School Board would pay the MTA a rebate based on transportable students to be carried by transit. No actual count of students would be needed since payments made by the State to the School Board are made on the basis of <u>transportable</u>, not <u>transported</u> students.

If the MTA were rebated nothing for each student trip, the entire savings from school bus replacement would accrue to the School Board. If the MTA were rebated the School Board's full transportation cost for each student, approximately 15¢ per one-way student trip, then the full savings from school bus replacement would be transferred to the MTA in the form of a revenue supplement. As an example, if 10 of 15 school buses were replaced by transit in Miami Beach and the rebate were set at 12¢ per one-way student trip, the School Board would realize a $14,000 annual savings and the MTA would add $56,000 to revenue. The added cost borne by MTA in replacing school bus service is dependent on the number of extra trips required to accommodate school loads.

The above discussion focused on efficiency and the resultant benefits to both the School Board and MTA. However, these savings cannot be gained at the sacrifice of quality transportation to the child. In this regard, two rules must be followed in formulation of transit substitution for school bus trips:

- No child should have to transfer to make his home-school bus trip.
- The transit route should be within 1/4 mile of the child's home and within one block of the school.

Under the above framework for school bus/public transit coordination, there is a great deal of detailed route analysis which must be done to determine the feasible magnitude of the pilot project: that is, whether one or five or 10 or 15 Miami Beach school buses could be replaced with MTA service. Critical data which must be examined include:

- School bus stops - - locations and number of students.
- School locations and hours.
- MTA schedules.
- Load factors on selected MTA runs.

If school bus/public transit coordination is to be achieved in Miami Beach for the 1973-74 school year, a draft plan should be prepared by May, 1973. This would allow sufficient time for community review, followed by rescheduling of both school buses and transit in time for school reopening in the fall.

Special Transit Services

While the highest priority should be given to improvement of conventional public transit services, the development of a truly diversified and comprehensive system of transit services requires that efforts be directed towards the development of services which fall outside the realm of "conventional". Such services would include those which test innovative concepts in transportation, or which extend service to previously untapped or neglected markets. Presented here are several such services which constitute innovations in Dade County transportation.

Hydroski Demonstration Project - The search for innovative modes of mass transit has led to an investigation of the potential for waterborne transit on Biscayne Bay in Dade County. Preliminary evaluations have indicated that there is a promising future for such a mode, so the Florida Department of Transportation prepared a demonstration grant application to obtain the needed money to operate a test service.

- Routes and Service Areas - The northern terminus for the service is Haulover Beach Park in northern Dade County. One ship will operate on a route connecting this terminus to the Miami CBD at the Jordan Marsh Park. The other vessel will operate between the Miami CBD at the Miamarina and Matheson Hammock Park in southern Dade County.

- Proposed Schedules - The service will operate on a regular commuter schedule Monday through Friday. Vessels will depart from each terminal at 40-minute intervals during peak periods. In order to test weekend and midday shopper potential and to avoid conflict with weekend pleasure vessels, a restricted Saturday

shopper schedule has been devised for operation between the Haulover Beach Park terminal and the two CBD terminals at Jordan Marsh and Miamarina.

- Project Vehicle - The vessel to be used in the service is a 72-passenger commuter vessel, 57 feet long, powered by four gas turbine engines, and is capable of operating at up to 39 knots. Three such vessels will be available for use in the project - two will be in service and one will be kept as a spare. The ships will be leased from the manufacturer, who will also maintain them, under the terms of a contract with Florida DOT.

- Project Cost - The total cost of the project is estimated to be $986,751. Operating costs will be $899,467, with capital costs estimated at $87,284. The major elements of the capital improvements program necessary for the project are the construction of piers and shelters and the adaptation of an existing boat slip at one of the terminals. Major operating costs will be the cost of leasing and providing fuel for the boats, and staff salaries.

  Part of the cost will be defrayed by revenues from the passenger service to be operated. These revenues will amount to an estimated $495,417, as described in the next paragraph, reducing the net project cost to $491,334.

- Fare Structure and Revenue Projections - A one-way fare of $1.50 is proposed between either Haulover Beach or Matheson Hammock terminals and the CBD. Shopper and off-peak fares would be $1.00 for the same trip.

  Based on $0.12 per mile personal auto cost plus a $2.00 per day parking fee in the CBD, this fare saves the Haulover Beach area commuter $1.30 and an estimated 52 minutes per day on a round trip. The Matheson Hammock commuter will save $0.87 and 38 minutes per day.

The fare structure will be subject to adjustment based on experience during the course of the experiment. The $1.50 commuter fare is considered the maximum which can be charged on a competitive basis with the private automobile.

For the purposes of making revenue estimations, load factors were projected at 40% for peak-hour commuter trips and at 30% for other trips. Thus, yearly revenues on the system (after subtracting $19,008 to allow for holidays) would total $495,417.

- Staging - The entire project, from project authorization to completion of final reports will cover a period of 21 months. The two major phases of the project are the construction of the vehicles and other capital requirements and the actual operation of the service. The intial phase will cover roughly nine months, with the revenue service covering 12 months. It is assumed that the vessels will remain in operation after the 21 months have elapsed.

Transit for the Disadvantaged/Handicapped - Many Dade Countians who live within the service areas of regularly scheduled bus routes are prevented from utilizing the service due to physical or financial disabilities. The Metropolitan Transit Authority has demonstrated a desire to better serve these disadvantaged residents by undertaking a program to develop a socio-transportation system for their benefit, as a supplement to its regular services.

The need for such a system is hardly questionable: at least 13 agencies in the County are now operating their own "systems" in an effort to provide special service to various segments of the disadvantaged population. These agencies operate a total of 56 vehicles, of varying size and description, and spend over a half-million dollars a year in their transportation efforts. Many other agencies which provide meaningful programs are prevented from providing service due to financial limitations. Thus, they are able to reach fewer of those who will benefit from their programs of medical aid, rehabilitation,

recreation and social contact. Those who suffer, of course, are the old, the poor, the blind, the crippled and chronically ill.

The existence of so many disjointed operations is grossly inefficient. For the same cost that is currently being expended, a unified, coordinated effort could result in a much higher level of service, available to a greater number of people. It is imperative that such a system be developed and implemented in Dade County.

The Metropolitan Transit Authority has, through its research and planning work on the problem, laid the foundation for such a service. A detailed survey was conducted of the agencies in the County to determine the target groups that needed service, the nature of transit services currently provided, and the deficiencies in those services. The deficiencies may be summarized as follows:

- Lack of door-to-door service for the multiple handicapped.
- Long, uncomfortable waits for routed, medically oriented services.
- Lack of special equipment and facilities such as hand grips and lifts on existing vehicles for the handicapped and the elderly.
- Insufficient number of vehicles to handle medical and social/welfare trips, especially in South Dade.
- Lack of coordination among agencies and groups providing transportation services.
- Dependence upon expensive charter service for some services and recreational trips.

In order to remedy these deficiencies in service, the proposed system should accomplish the following:

1. Unify, to the extent possible, existing fragmented services into an efficient unified system.

2. Develop new, specialized service to fill existing voids in Dade County's transportation system.

3. Complement existing public transportation services and develop modifications to existing service to serve better the needs of disadvantaged Dade Countians.

Two approaches may be taken towards the implementation of the system for the disadvantaged and handicapped. The system could be disigned only to supplement the services that are now offered, or it could be designed to completely replace all existing services with a countywide operation. A completely new system would be preferable, for to attempt to add another operator to the number presently providing service would likely compound the inefficiency that is to be eliminated. However, many of the agencies are extremely proud of their efforts at providing service and can be expected to guard their independence jealously. This independence should be respected, in the hopes that the superiority of a unified effort can be demonstrated to those who are reluctant to participate.

An Ad Hoc Committee on Transportation for the Disadvantaged, composed of representatives of the MTA as well as many County and State agencies, has formulated a general plan of the service to be offered. The Citizens Information Service, which is presently a primary provider of transit to the needy, will be the operator of the new system, under the auspices of the County Manager's office. The role of the MTA will be that of a technical advisor to the system.

Consolidation of all amenable services will be accomplished by the following steps:

1. Policy decision by the County Manager

2. Negotiations with the funding sources to maximize cross-use of vehicles

3. Establishment of an administrative capability to coordinate the merger and subsequent operation of the system

4. Establishment of a records system to insure strict accountability as to ridership and destinations involved so as to show that each funding source is fulfilling its goals in accordance with its percentage of the total budget. That is, the consolidated system should provide more riders per dollar than could be obtained under separate systems.

5. Procurement of such equipment as is necessary to standardize the operating procedures within the system.

6. Development of longer range plans and policies relative to utilizing available transportation funding sources for the improvement of transportation services for the disadvantaged.

On-Going Planning and Marketing Activities

It should be recognized that transit planning and development is a continual process, and that no report produced at a particular point in time can adequately deal with on-going matters. Presently the MTA Planning and Marketing Department is engaged in a highly effective program to monitor and improve Dade County's mass transit. That such an active critical review function has been developed internally is an unusual and commendable aspect of the Metropolitan Transit Authority. These activities should be cited, for although they are not important parts of this report and are outside the scope of the study, they are nonetheless important elements in the County's Transit Development Program.

Express Bus Program - The MTA is in the process of assessing the effectiveness of its express routes as well as planning new express routes and park-and-ride locations and promotional programs.

Surveys have been conducted on all existing express routes to develop rider profiles and to seek out ways of improving these services. This information,which will be useful in improving existing routes and will be utilized in planning and marketing activities for new express routes is now being assembled.

One way of easing traffic congestion and at the same time building transit ridership is to provide express bus service to the major traffic generating centers in Dade County. To this end, the MTA Planning and Marketing staff has been busy designing and distributing surveys and questionnaires to various concentrated employment centers to assess the potential of express bus service to these areas.

Throughout April, 1972, over 8,000 surveys were distributed to Civic Center area employees. Over 3,300 (42%) were returned with various responses to questions pertaining to travel needs, travel costs, express buses, car pools, staggered hours and 4-day weeks. The results of this self-coding survey are now being processed by the County Data Processing Division.

Surveys have also been conducted among employees in the 36th Street Palmetto Interchange industrial warehouse area. Over 1,600 questionnaires were distributed and of the approximately 475 that were returned, 400 responded positively to questions concerning the use of express bus services for transportation to and from work. Their addresses have been plotted on maps and preliminary route planning has begun.

Closely related to the 36th Street/Palmetto project is the Eastern Airlines/Pan American World Airways request for additional express bus service to their 36th Street facilities. After meetings with airlines representatives, questionnaires were developed, the data from which is to be used for both transit planning as well as personnel relations and information for the airlines. Over 18,000 surveys were distributed and

approximately 6,000 were completed and returned. These are undergoing computer processing and mapping at this time. Once the results of these surveys are tabulated, the data will be combined with the 36th Street employee data and routes will be developed to accommodate the transit needs of both areas.

Surveys of employment, residential and other high activity centers are continuing projects for the MTA Planning and Marketing Department. This continual flow of information will enable the department to stay abreast of the developing needs for transit services.

Community Relations Board Hearings - The MTA, in conjunction with the CRB, has been conducting a series of hearings in various communities within Dade County to assess the mass transportation needs of these areas. The information, suggestions, and comments received in testimony will assist in developing new and improving existing transit routes, as the situation warrants.

Hearings with mutually satisfying results have already been held in Homestead-Florida City, Opa Locka, Carol City-Bunche Park and Little Havana. Future hearings are planned for Coconut Grove, Model Cities, Miami Beach, and several other communities in Dade County. The MTA welcomes these opportunities for mutual understanding of transit needs and operations.

Implementation Plan

The responsibility for the success of this transit development program is a shared commodity. Cooperation and communication must be established between numerous agencies if the success of the transit development program is to be insured.

Prime responsibility for the institution of transit improvements will rest with the operating agency, the Metropolitan Transit Authority. The MTA has an excellent knowledge of the transit needs of County residents, and the facilities and equipment to put service on the street. In addition to these factors, the MTA is the logical source to which residents who feel the need for new or better service look.

However, a number of other agencies have been mentioned in this report. Key agencies, which must work with the MTA in the implementation of transit improvements, include the Florida Department of Transportation, Dade County Department of Traffic and Transportation, CGMBS, the municipalities and the Dade County Public Works Department.

For the improvements detailed herein, the contributions of these agencies will be primarily in the areas of funding and public information. Most have funds available and although the competition among various needs for public money is unquestionably stiff, it is not overly optimistic to assume that some will be channeled towards the improvement of public transportation, providing the importance of such improvements is demonstrated.

Also, each agency mentioned has contact with the public or the ability to establish such contact. The advantages of such a situation are numerous. One, it enables the agencies to perform an informative function necessary to the success of any public project. Secondly, it enables the agencies to assume a major role, should they be willing, in the shaping of public attitudes. In addition, it enables the needs and desires of the public to be gauged, a vital need if the improvement of transportation is to be the on-going process, responsive to the public, that it should be.

Each of the improvements outlined in the report has been programmed for implementation during the upcoming five-year period which, for the purposes of the implementation plan, has been divided into three phases. Phase I might be referred to as the immediate action program, and will be the initial year of the program (FY '72-'73). The second and third years will constitute Phase II, and the final two years will be Phase III.

Phase I - Primary emphasis during the initial phase of the program will be on improvements to regularly scheduled services which will remedy the most severe deficiencies in service. Most will be relatively easy to implement due to the fact that they will require only route and schedule alterations by the Metropolitan Transit Authority. The Phase I improvements may be summarized as follows:

- Service to Dade Junior College South from South Dade
- Extension of Route 2 into downtown Miami
- Regularly scheduled service to Dodge Island
- Service to the Palmetto Corridor from Model City and the Beach
- Service to the Palmetto Corridor from Little Havana
- Base period service on Route 14-B

A summary of the service proposed for Phase I is shown in Table XVIII. Included in this table are adjustments in service already planned by the MTA.

Phase I should also involve the preparation of the public for the most all-encompassing of the proposals - - a new fare structure. In order to minimize confusion at the time of implementation, a vigorous public information program should be instituted when an alternative is approved.

Phase II - As proposed, Phase II will see the further extension of scheduled service to keep pace with county growth and development, in addition to the implementation of more innovative transit programs to service special markets. An alternative fare structure should also have been readied by this time.

Phase II recommendations include the following:

- Extension of service from South Dade to FIU
- Curtailment of Route 4
- Extension of Model City and Beach service in the Palmetto Corridor
- Service from North Dade and Hialeah to Palmetto/ Seaboard/Miami Dade industrial areas

TABLE XVIII

SUMMARY OF PROPOSED SERVICE

PHASE I

Route	Round Trip Mileage	Headways		Buses Required	
		Peak	Base	Peak	Base
1	49.8	15	30	12	8
2	39.0	40	50	4	3
3	19.6	30	40	3	2
4	12.4	20	30	4	2
5	37.2	7½	15	20	12
6	47.2	30	30	10	8
6–Express	28.1	30	–	4	–
7	30.2	2 trips	–	1	–
8	14.3	3 trips	–	1	–
9	38.5	60	60	3	3
10	36.2	60	60	3	3
11	38.4	10	10	16	10
12	40.0	30	60	7	3
13	45.6	1 trip	–	1	–
14	32.7	20	20	12	9
14–Beach	25.2	20	60	4	2
15	36.4	15	30	11	6
16	55.0	4 trips	–	3	–
17	11.8	30	40	2	2
19	15.7	30	40	3	2
20	31.5	30	35	5	4
21	16.3	12	20	8	5
22	31.8	60	–	3	–
23	30.3	30	30	9	7
24	23.7	30	30	4	4
25	27.3	30	30	7	5
26	40.8	15	30	13	6
27	20.5	20	25	5	3
28	37.6	60	60	5	3
29	52.3	60	60	7	4
30	34.5	30	30	6	6

TABLE XVIII

SUMMARY OF PROPOSED SERVICE

PHASE I

(Continued)

Route	Round Trip Mileage	Headways		Buses Required	
		Peak	Base	Peak	Base
31	32.9	60	60	2	2
32	55.0	60	60	6	4
33	24.7	60	60	2	2
34	60.2	60	60	5	4
35	55.6	50	50	3	3
37	28.4	30	–	5	–
38	17.0	60	60	1	1
48	27.2	4 trips	–	2	–
49	46.8	1 trip	–	1	–
50	40.7	3 trips	–	3	–
Beach-Model City Palmetto	39.4	20	–	10	–
Little Havana-Palmetto	30.0	30	60	5	3
A	8.2	20	20	2	2
B	21.1	30	30	2	2
Double B	5.1	12	12	3	3
C	18.8	20	20	6	6
G	39.6	30	60	6	3
H	31.8	20	20	9	9
K	28.1	20	20	10	8
L	44.0	10	20	14	11
O	9.6	60	60	1	1
R	21.2	30	30	4	4
S	35.8	40	40	5	5
T	27.5	10	10	12	8
W	3.7	15	15	2	2
TOTALS	**1,747.3**			**317**	**203**

- Acquisition of Gray Lines Route D
- Start-up of bus preferential operations on N.W. 7th Avenue
- Service for handicapped/disadvantaged under special county-wide program
- Implementation of new fare structure

Phase III - Emphasis in Phase III will be on innovative concepts in transportation which will enhance the attractiveness of transit for certain segments of the county population, as follows:

- Full operation of bus preferential lanes on I-95
- Utilization of special transit facilities on Florida Turnpike
- Operation of Hydroski routes in Biscayne Bay
- Further expansion of regular service routes, as necessary

CAPITAL IMPROVEMENTS PROGRAM

To complement the previously detailed service improvement proposals, and to enhance the Metropolitan Transit Authority's ability to provide good service, this five-year capital improvements program is presented. Revenue equipment, maintenance facilities, and administrative needs are all considered as part of the plan.

The recommended improvements are summarized in Table XIX, which shows the cost, as well as the phase of acquisition, of each element in the program.

Maintenance Facilities Inventory and Needs

The operation of the Metropolitan Dade County Transit Authority is centralized on a 17-acre site at 3300 N.W. 32nd Avenue. Located on the site are the administration building and assembly hall, the maintenance and repair building, cleaning and fueling facilities, open air storage for 417 buses and parking facilities for 360 private automobiles.

Administration Building - The main administration building is at the northeast corner of the plot. A three-story reinforced concrete structure, the building is 110 feet by 110 feet by 39 feet with a single-story extension of the first floor, 47 feet by 96 feet. While it is only three stories high, design of the structure is such that it can accommodate two additional floors.

The main building, with 36,600 square feet of floor space, houses the general offices, and the executive offices. The first floor extension provides 4,512 square feet of floor to house the information department and the facilities for operators, including the report room, cashiers' office, operators' locker room, lounge and washroom. The entire administration building is heated and air-conditioned throughout from a central source. There is no sprinkler system but fire protection is

TABLE XIX

FIVE-YEAR CAPITAL IMPROVEMENTS PROGRAM

1973 DOLLARS

Item	PHASE I	PHASE II	PHASE III	TOTAL
Sewerage Improvements to Maintenance Facility	$ 300,000	–	–	$ 300,000
New Buses	3,330,000	3,150,000	1,350,000	7,830,000
Bus Shelters	200,000	210,000	210,000	620,000
Two-Way Radios	–	422,000	36,000	458,000
Bus Stop Signs	15,000	15,000	15,000	45,000
Acquisition of Gray Lines Route D	–	*(1)*	–	–
TOTALS	**$3,845,000**	**$3,797,000**	**$1,611,000**	**$9,253,000**

(1) No estimate available at this time.

provided by a 4-inch-diameter standpipe with 100 feet of hose on each floor.

Assembly Hall - Adjacent to the administration building extension and directly connected with it is the assembly hall, a 46-foot by 53-foot irregularly shaped, single-story reinforced concrete structure. Available in the hall are a lecture platform, projection facilities, and seating for 116 persons.

Maintenance and Repair Building - The maintenance and repair building is a 241-foot by 386-foot by 16-foot reinforced concrete structure, with eight-foot canopies on the north and south ends. The building is located at the southeast corner of the plot.

In this building are performed the general overhaul, maintenance and servicing functions, except fueling and cleaning. It can handle in excess of 35 vehicles at one time in various stages of repair. Twenty doorways with roll-up overhead doors on the north side and 22 doorways without doors on the south side provide access to the building from eighty-foot-wide paved strips on the north and south sides of the building. The building is equipped with hydraulic bus lifts, 11 jib cranes, 19 pits, two spray paint booths, machine shop, repair shops, carpentry shop, warehouse area, and office space. Complete overhaul and maintenance functions are conducted in this building.

Cleaning and Fueling Facilities - These facilities are located at the west end of the plot along the N.W. 32nd Street side. Buses are fueled at one of the three fueling islands, the interiors are cleaned by the cyclone cleaner at the west end of the same fueling island; the exteriors are washed at the automatic washer immediately adjacent to the cyclone cleaner.

Bus Storage Area - An eight-foot stone wall separates the administration area from the bus storage and maintenance area. This wall continues along N.W. 32nd Avenue to and along N.W. 31st Street to N.W. 33rd Avenue. An eight-foot chain link fence along N.W. 32nd Street, N.W. 34th Avenue and N.W. 33rd Street encloses the balance of the area. The area between the Maintenance and Repair Building and the masonry wall south of

the administration buildings and the contiguous area west of N.W. 33rd Avenue between the chain link fences provide open air storage for 400 buses, which will be sufficient to accommodate the fleet for at least the next five years. This bus storage area is paved with asphalt and is lighted by mercury vapor luminaries mounted on 32-floot high poles around the perimeter.

Automobile Parking Areas - A total of 360 parking spaces are available for use by Authority employees. Adjacent to and west of the administration building is a landscaped parking area with capacity of 296 automobiles. This lot is utilized by office personnel and bus operators. The remaining 64 spaces, which are utilized by maintenance employees, are located to the west of the Maintenance and Repair Building along the 33rd Avenue side of the plot.

At the present time, the available parking areas are more than sufficient to accommodate the demand.

Needs - The unified, modern physical plant maintained by the MTA is sufficient for the housing and maintenance of the present fleet as well as the increases in the fleet size projected for the next five years. Thus, there are no needs for capital improvements which are directly related to revenue equipment. However, the MTA is required to make some $300,000 worth of improvements to the sewerage system of the maintenance facility in order to comply with Environmental Protection Agency guidelines and County regulations. This $300,000 has been included in the capital improvements program as an immediate capital requirement.

Current Inventory of Fleet

The MTA bus fleet was briefly described in the Adequacy of Service chapter of this report and statistically summarized in Table IX. As indicated there, the fleet consists of 397 40-foot coaches and six 19-passenger minibuses. The full-size coaches were acquired between 1954 and 1971 and average 8.05 years of age, which is two years younger than the national average, but two years older than the six-year average age being used as the standard for UMTA planning. The minibuses were purchased in 1972.

Most of the 40-foot coaches have seating capacities of either 51 or 53 passengers - - only 12 are of the 43-passenger variety.

The condition and appearance of the MTA fleet is good, particularly the exterior. Buses on the street are generally clean, in good repair, and attractive. Interior problems of graffiti and ripped seats, which are acute in many cities, are not a particularly severe deficiency. Noticeable noise, smoke and odor, overall, are at reasonable levels.

The condition and appearance of buses on the street is generally a reflection of the maintenance effort put forth by the system, and the MTA is fortunate to have a large maintenance staff and a more than adequate supply of reserve coaches. Regular bus inspections help to maintain high standards: minor inspections are conducted every 2,000 miles, more detailed inspections are made every 4,000 miles, and major items are inspected and/or serviced at least once every 8,000 miles.

Bus Replacements and Net Additions

For a number of years, the almost constant styling of the standard motor coach in transit service resulted in the use of 15 years as the optimum useful life of a motor coach in heavy duty service. Within recent years, however, engineering and technical improvements in coach equipment and radical changes in coach styling have indicated a 12-year rather than a 15-year useful life to be more practical if, without unduly high amortization or depreciation charges, the fleet is to reflect modern improvements in coach styling and engineering.

A twelve-year service life implies that the optimum situation would be to replace one-twelfth of the fleet each year, maintaining a fleet in which there are an equal number of buses of each age, one through 12. The average age of such a fleet would be 6.0 years. Thus, the replacement rate for the MTA should be roughly 33 coaches per year. This, of course, reflects only those coaches needed to upgrade the current size fleet. Service improvements which will increase vehicle needs will naturally increase vehicle acquisition requirements.

Considering 12 years, then as the optimum service life of a transit coach, 107 of the 1972 fleet of 397 vehicles are "over-age." The MTA maintains a fleet which is too large in relation to peak vehicle requirements, so that with the delivery in 1973 of 74 new coaches, all of the old-look buses (107) should be retired from service, cutting the fleet size to 364, as shown in Table XX. The oldest buses in the fleet will then be 13 years old, and the average age will have dipped to under five years.

Although peak vehicle requirements under the proposed Phase I service will increase to 317, a fleet of 364 buses should still be sufficient to provide this service and have adequate reserves.

During Phase II, net additions to the fleet will be required, to accommodate N.W. 7th Avenue express service, as well as extensions of regular routes and a new Palmetto line. The acquisition of 40 new coaches in 1974 will enable the Authority to effect this increase as well as eliminate 10 of the 14-year old coaches.

In 1975, a purchase of 30 buses will eliminate from the fleet all buses over 11 years of age, while maintaining the fleet size at 394.

No net additions to the fleet will be required during Phase III, as the fleet of 394 buses will still be sufficient for the Authority's operations. In fact, no purchases at all should be made during 1976. The following year, 30 buses should be acquired as replacements.

From this point on, the regular pattern may be adopted. Of course, the purchase of 100 buses in 1966 and in 1971 will result in a situation where decisions must be made, either to replace some vehicles before their useful life has expired or keep some in service longer than 12 years. If it is decided not to prematurely replace the vehicles, then some buses will be operating in their fourteenth year, but with the continued steady replacement of 32 or 33 per year, the fleet will gradually approach optimum composition.

The acquisition of over 140 buses during the first three years of the program, coupled with the retirment of all

TABLE XX

MTA BUS PURCHASE PROGRAM

YEAR OF MANUFACTURE	1972	1973	1974	1975	1976	1977
1954	12					
1955						
1956	36					
1957	59					
1958						
1959						
1960	40	40	30			
1961						
1962						
1963						
1964	30	30	30	30	30	
1965						
1966	100	100	100	100	100	100
1967	20	20	20	20	20	20
1968						
1969						
1970						
1971	100	100	100	100	100	100
1972						
1973		74	74	74	74	74
1974			40	40	40	40
1975				30	30	30
1976						
1977						30
Fleet Size	397	364	394	394	394	394
Average Age	8.05	4.97	5.16	5.02	6.02	6.03

15 Year Old Buses

10 Year Old Buses

5 Year Old Buses

New Buses

the old-look coaches, will keep the average age of the fleet around five years during Phases I and II. As the purchase rate of buses slows, as proposed for Phase III, the age will rise towards the six-year level (Table XX).

On-Street Improvements

While the level and dependability of service provided are the most important factors which attract passengers to transit, the value of patron amenities in increasing transit demand should not be underestimated. Bus shelters and route signs are two of the most commonly employed on-street aids to riders. These items afford the waiting patron some degree of comfort and protection while waiting for the bus and help to educate him about the system.

A Model City bus shelter program is underway which calls for the construction of 81 shelters in the Model City area. Ten of the shelter locations are also listed as "plaza sites." To date, over 50 of the shelters have been erected. Also, 12 of the same style shelters have been placed at locations throughout Dade County, including Miami Beach. While this bus shelter program is a commendable early action project, considerable improvements can be made in future shelter design and location.

First, a more practical shelter should be selected - - with an actual enclosed area which will afford real protection against wind, rain, and sunlight. As mentioned in the Adequacy of Service chapter, the shelters already placed cannot guarantee any such protection.

Also, greater consideration should be given to the immediate surroundings in the placement of the shelters. The shelters that have been placed, especially those in Model City, in many cases block sidewalks, and are eyesores for residents. This is caused, to a great extent, by the density of residential developments in the area and the consequent necessity to locate shelters near other structures. In some cases this may be unavoidable, but every effort should be made to verify that the placement of shelter will not disrupt the neighborhood, either physically or aesthetically.

Provision has been made in the capital improvements program for a more rigorous program of shelter construction, calling for 25 during the first year. This acquisition rate should be accelerated during Phases II and III to provide at least 300 shelters. Shelters are a vital need in Dade County due to the wide headways and the unpredictable nature of the weather. A list of potential shelter sites has been developed which will provide sites for most of the shelters to be placed during Phases I and II. A list of these sites is presented in Table XXI.

While most bus stops are marked by bus benches and bus stop signs, most do not include route designations. New signs should be obtained which incorporate more meaningful information such as route numbers and diagrams. Five hundred of these should be erected during each phase of the development program.

Administrative Improvements

The efficiency of administrative and monitoring functions may be greatly enhanced through the acquisition of modern equipment, as described below.

Two-Way Radio System - Numerous electronic aids to bus control are currently available, permitting operators to closely monitor bus locations at all times, determine accurately the degree of schedule adherence, and maintain voice communications with the individual drivers. The benefits of such elaborate systems have not been adequately demonstrated, and the capital improvements program for the MTA proposes only the installation of two-way radios in vehicles. These units, which will permit the drivers contact with the dispatchers at all times, are a more cost-effective method of bus control than a completely computerized monitoring system. The initial capital outlay will include the base station and mobile units for all buses seven years old or younger. All new buses acquired in the future should also be outfitted with the two-way radios.

The initial outlay will amount to $422,000 and is included in the summary of capital improvements Table XIX.

TABLE XXI

MTA BUS SHELTER PROGRAM

POTENTIAL SITES

Location	Corner/Direction
Opalocka – Carol City	
Florida Memorial College	
NW. 103rd Street and 32nd Avenue	SW.
NW. 103rd Street and 22nd Avenue	NW.
NW. 47th Avenue and 206 Terrace	SW.
NW. 103rd Street between 27th and 28th Avenue	NW.
NW. 181st Terrace and 47th Avenue	East Side
NW. 27th Avenue and 183rd Street	SW.
NW. 27th Avenue and 160th Street	West Side
NW. 27th Avenue and Service Road	NW.
NW. 22nd Avenue and Bunche Park Drive	SW.
NW. 27th Avenue and NW 175th Street	NB.
NW. 32nd Avenue and Palmetto Expressway	SB.
NW. 37th Avenue and 175th Street	EB.
NW. 42nd Avenue and 183rd Street	SE.
NW. 47th Avenue and 203rd Terrace	SB.
NW. 47th Avenue and 183rd Street	SE.
NW. 37th Avenue and 183rd Street	WB.
Middle East Side	
NW. 2nd Avenue and 36th Street	SW.
NW. 36th Street and Biscayne Boulevard	
Belle Isle – Venetian Causeway	WB.
Venetian Causeway East of Booth	WB.
N. Miami – N. Miami Beach	
NE. 123rd Street and Biscayne	SE.
NE. 15th Avenue and Miami Gardens	SW.
Dixie Highway and NE. 203rd Street	SB.
Hialeah	
W. 12th Avenue and 83rd Street	SW.
W. 49th Street near Treasury Drive	EB.
E. 8th Avenue and 9th Street	NE.
E. 8th Avenue and 9th Street	SW.
NW. 36th Street and Okeechobee Road	NE.
E. 49th Street and E. 8th Avenue	NW.
E. 8th Avenue and E. 49th Street	SW.
E. 8th Avenue and E. 29th Street	SW.
Palm Avenue and 55th Street	SW. (EOL)

TABLE XXI

MTA BUS SHELTER PROGRAM

POTENTIAL SITES

(Continued)

Location	Corner/Direction
Miami Beach	
69th Street and Collins Avenue	NB.
71st Street and Byron Avenue	WB.
71st Street and Biarritz Drive	
94th Street and Harding Avenue	SW.
72nd Street and Harding Avenue	NW.
44th Street and Indian Creek Road	SB.
42nd Street and Indian Creed Road	SB.
Washington Avenue and 12th Street	SW. (City Hall)
Washington Avenue and 6th Street	NW.
Ocean Drive and Biscayne Street	NE.
17th Street and Jackie Drive	NW. (Convention Center)
Washington Avenue and 18th Street	NW. (Convention Center)
17th Street and Meridian Avenue	NW.
17th Street and Lennox Drive	NW.
17th Street and Lennox Drive	SW.
6th Street and Alton Road	NW.
Coconut Grove	
Grand Avenue and Virginia Street	NB. (Food Fair)
U. S. I and Le Jeune Road	SW.
Model Cities Area	
NW. 79th Street and 7th Avenue	SE.
NW. 79th Street and 17th Avenue	SE.
NW. 17th Avenue and 36th Street	NW.
NW. 62nd Street and 22nd Avenue	SE.
NW. 27th Avenue and 79th Street	SW.
NW. 27th Avenue and 62nd Street	NE.
NW. 17th Avenue and 46th Street	NE.
NW. 17th Avenue and 54th Street	NE.
NW. 17th Avenue and 54th Street	SW.
NW. 22nd Avenue and 62nd Street	NE.
NW. 22nd Avenue and NW 62nd Street	NW.
NW. 27th Avenue and 36th Street	NE./NB.
NW. 32nd Avenue and 36th Street	NE./NB.
Little Havanna/NW	
Coral Way and SW. 37th Avenue	SE.
SW 27th Avenue and 8th Street	NE.
SW 1st Street and Beacon Boulevard	SW.
SW 7th Street and 14th Avenue	EB.
W. Flagler Drive and SW. 29th Avenue	EB. (Dade Aud.)
NW. 17th Avenue and 29th Street	SB.

TABLE XXI

MTA BUS SHELTER PROGRAM

POTENTIAL SITES

(Continued)

Location	Corner/Direction
Civic Center/Orange Bowl	
NW. 14th Street and 13th Avenue	WB. (Cedars Lebanon)
NW. 14th Street and 12th Avenue	EB. (State Office Bldg.)
NW. 10th Avenue and NW. 18th Street	NE.
NW. 7th Street and 15th Avenue	SW.
NW. 7th Street and 14th Avenue	NW.
Downtown	
NE. 1st Avenue and 1st Street	Gesu Church
SW. 1st Street and 1st Court	EB.
SE. 1st STreet and 3rd Avenue	EB (Bank)
Courthouse	WB.
South Dade	
N. Kendall Drive and U. S. I	SW.
Kendall Drive and U. S. I	SW.
Tyler Street and Graves Drive	SE.
Pinkston Drive and Carver Drive	
Tyler Street and Graham Drive	NW.
SW. 152nd Street and Lincoln Boulevard	NW.
SW. 171st Street and 102nd Avenue	NW.
SW. 172nd Street and 103rd Avenue	NW.
SW 176th Street and 103rd Avenue	NW.
SW 180th Street and 103rd Avenue	NW.
Homestead Avenue and SW 182nd Street	SW.
Hibscus Street and Homestead Avenue	SW.
SW. 216st Street and 115th Avenue	NW.
SW. 216th Street and 112th Avenue	SW.
SW. 216th Street and 109th Avenue	NW.
SW. 218th Terrace and 109th Avenue	SE.
Old Cutler Road and 109th Avenue	NW.
Old Cutler Road and 114th Court.	SW.
Old Cutler Road and U. S. I	NE.
U.S. I and SW. 216th Street	SW.
Coral Reef Drive and U. S. I	SE.
Perrine Shopping Center	NW.
Perrine Shopping Center	NE.

TABLE XXI

MTA BUS SHELTER PROGRAM

POTENTIAL SITES

(Continued)

Location	Corner/Direction
Miscellaneous	
Westchester Shopping Center	NE. (Access Rd./EOL)
NE. 2nd Avenue and 6th Street	NE.
NE. 79th Street and 5th Avenue	NW.
NE. 79th Street and Biscayne Boulevard	SE.
NW. 79th Street and 37th Avenue	SE.
Biscayne Boulevard and NE. 10th Street	NB.
NE. 79th Street and 2nd Avenue	SE.
W. Flagler Drive and 47th Avenue	SE.
SW. 42nd Avenue and 8th Street	NE.
W. Flagler Drive and 67th Avenue	SE.
W. Flagler Drive and 71st Avenue	SE.
W. Flagler Drive and 42nd Avenue	SW.
SW. 8th Street and 73rd Court	EB.

NOTE: Shelters are to be located on the first street listed at the intersecting street given second.

Acquisition of Gray Lines Route D

The ability of Route D to attract potential MTA passengers has been enhanced by its 25¢ base fare. While this advantage had been somewhat undermined with the institution by the MTA of a reduced fare program for senior citizens, the Authority would benefit from the acquisition of this competitor. Not only would the system gain a profitable operation, but the position of the MTA as the primary operator in Dade County would be strengthened. Passengers served by both operators would benefit from an improvement in the degree of coordination of schedules.

With the exception of the area north of Hallandale Beach Boulevard in Broward County, the MTA duplicates the entire service area of Route D, and certain economies of operation could be realized by the integration of Route D into the MTA route network. The major overlaps are with MTA Routes 32 and S. While Route 32 should continue to serve the area between Ocean Beach Boulevard and Diplomat Mall as under the present schedules, Route S, which operates along Collins Avenue to 194th Street, could easily be integrated into the Route D schedule. Also, Route S could be shortened with a turnback at 96th Street if the MTA acquires Route D.

So as to not disrupt the riding habits of those who have made Route D such a profitable operation, the alignment and frequency of operation should remain the same after MTA takes over its operation, either by negotiated acquisition or condemnation.

FINANCIAL ANALYSIS

An overriding consideration in the development of the recommendations contained in this report is that transit is an expensive service to provide. Beginning with the service standards document, wherein the generally strict guidelines are tempered by economic considerations, recognition is continually made of the operator's budget constraint.

This final chapter analyzes the financial situation - - past and present - - of the Metropolitan Transit Authority. Cost and revenue trends of recent years are surveyed, with emphasis on determining why costs have spiraled upward so rapidly. While the sharply increasing deficit may paint a rather bleak economic picture of the MTA, these data must be viewed in the proper context, that is, relative to similar transit systems around the country. Detailed peer group comparisons in this chapter show MTA operations to be comparatively economic and efficient.

A financial pro forma is developed, based on anticipated revenue and cost trends and the recommended service alterations. While these projections indicate no abatements in the rate of increase of the operating deficit, it is felt that such an expenditure for transit may be justified by the benefits it will bring to Dade County. Such benefits are detailed in the final section of this chapter.

Cost and Revenue Trends

Over the past three years, the operating margin of the Metropolitan Transit Authority has dropped by over 1.2 million dollars, an average of $600,000 per year (Table XXII). An operating surplus realized in 1969-70 of over $900,000 quickly shrunk to a $240,000 deficit by 1971-72. These operating deficits do not include provisions for taxes or debt service and depreciation.

TABLE XXII

METROPOLITAN TRANSIT AUTHORITY

FINANCIAL STATEMENTS 1970–1972

	ACTUAL		
	1969–70	1970–71	1971–72
Operating Revenue			
Passenger Revenue	$11,839,488	$12,004,425	$12,414,223
Charter Revenue	107,209	162,051	259,400
Bus Card Advertising	402,211	288,242	296,890
Seaquarium Commission	6,554	9,520	9,316
TOTAL – OPERATING REVENUE	**$12,355,462**	**$12,464,238**	**$12,979,829**
Operating Expenses			
Transit Authority Expense	$ 28,885	$ 32,609	$ 36,230
Engineering Expense	16,735	19,234	14,635
Garage Expense	907,354	1,022,620	1,153,216
Transportation	6,523,537	7,084,985	7,983,144
Bus Card Advertising	143,391	25,172	7,852
Advertising	549	805	783
Injuries and Damages	698,919	894,369	488,589
General and Miscellaneous	1,444,666	1,341,740	1,490,901
Maintenance	1,551,846	1,680,684	2,047,801
TOTAL – OPERATING EXPENSE	**$11,445,882**	**$12,101,660**	**$13,223,151**
NET (LOSS) BEFORE DEBT SERVICE AND DEPRECIATION	**$ 909,580**	**$ 362,578**	**($ 243,322)**
Revenue Passengers	46,688,081	44,550,727	46,022,024
Transfer Passengers	13,213,080	8,699,900	8,652,787
TOTAL PASSENGERS	**59,901,161**	**53,250,627**	**54,674,811**
Revenue Miles	**14,810,441**	**14,381,600**	**14,684,101**
TOTAL PASSENGERS/MILE	**4.04**	**3.70**	**3.72**

The primary cause of this reversal lies in the rapid acceleration of costs, for revenues over the period in question have risen, aided by a fare increase. Unfortunately, a 5.1% increase in revenue was overshadwoed by a 15.5% cost increase from FY 1969-70 to FY 1971-72. This has been the typical case for transit agencies in the past few years.

Trends have not been constant over the past three fiscal years. Fiscal 1970-1971, for example, was something of an "off" year, as Table XXII clearly shows. Miles of operation were reduced by about three percent, and revenue passengers, total passengers, and passengers per mile figures all dropped slightly. Although revenues and costs did rise, the rates of increase were relatively low. In 1971-72, miles were increased and the reduced statistics recovered. Unfortunately it was expense that made the strongest comeback, increasing by over $1,100,000.

The recent revenue history of most routes in the Dade County system is favorable. An examination of revenue per mile statistics for each route for the past four fiscal years reveals that for over three-fourths of the routes in the system, the average percent change per year is positive. The Beach routes, not surprisingly, looked especially impressive in this analysis, as only one line (Route B) experienced a decrease in revenue per mile over the last four years. Indications are that the system's most profitable lines will continue to be concentrated on Miami Beach. System-wide revenue per mile increased 8.6% between 1969 and 1972, an average of nearly three percent annually.

A significant increase in the amount of charter work done also has contributed to revenue increases. In 1969-70, less than 90,000 miles of charter service were operated, bringing a little over $100,000 in revenue. In 1971-72, over 200,000 miles were operated, which provided almost $260,000 in revenue. Although the per-mile margin of charter services had decreased somewhat over the past few years, charter work is still a profitable operation, and the more for-hire business the MTA can garner, the more it can contribute to off-setting its regular route deficit.

Three major expense categories have been the most important contributors to the spiraling cost rate: garage, transportation and maintenance. These three categories, taken together, account for over 80% of the operating costs, and each rose over 20% between 1969 and 1972.

The main component of garage expense is fuel for the coaches. Fuel mileage has dropped from 4.21 miles per gallon in 1970 to 3.70 miles per gallon in 1972. At the same time, the average cost per gallon has increased over one cent per gallon, so the net result has been a sharp increase in fuel expenses. Air conditioned buses and eight-cylinder engines are the prime contributors to the increased consumption of fuel.

Transportation and maintenance expenses rose 22 and 32 percent respectively, over the past three years, with the bulk of that increase occurring between fiscal 1970-71 and 1971-72. These increases are due to two major factors: higher salaries for hourly paid employees and resultant increases in the cost of coach maintenance.

The rising wage rates will continue to drive up operating costs. For example, at the start of fiscal 1972-73, all hourly-paid employees received approximately a 6% increase. October, 1973 will see all workers getting another 6% wage hike. Thus, the Authority can expect no relief from rising costs, and in the absence of some sharp increase in revenue, which is not anticipated, the Metropolitan Transit Authority operating deficit can be expected to continue its increase.

Peer Group Comparisons

The service standards document cites the importance of measuring a system's performance against that of its peer group. Such a comparison of Metropolitan Transit Authority operating statistics against nine other comparable systems, both public and private, is summarized in Table XXIII. These figures, for calendar year 1971, show MTA operations in a favorable light. A key statistic, the ratio of revenue to expenses, shows that in calendar year 1971, MTA generated 94.2% of operating expenses through fare box and other revenue,

TABLE XXIII

PEER GROUP COMPARISONS WITH MTA

Calendar Year 1971

Measure	Mean Value[1]	Standard Deviation	MTA Value	Number of Standard Deviations Between MTA and Mean
Revenue/Expenses	.929	.104	.942	+ 0.1
Cost/Mile	98.6¢	16.1	90.0¢	– 0.5
Cost/Hour	$10.98	1.13	$9.61	– 1.2
Cost/Total Passenger	33.7¢	9.9	24.2	– 1.0
Bus Miles/Route Mile	11,996	8,396	9,367	– 0.3
Average Fare	29.9¢	5.7	22.8¢	– 1.2
Total Passengers/Mile	3.17	1.10	3.72	+ 0.5
Revenue/Mile	90.8¢	14.9	84.8¢	– 0.4

(1) *Of nine systems comparable to the MTA serving the following urbanized areas: Atlanta, Baltimore, Buffalo, Dallas, Houston, Kansas City, Pittsburgh, San Diego, St. Louis.*

SOURCE: *1971 American Transit Association Transit Operating Reports supplemented by Simpson & Curtin data.*

compared with a peer group average of 92.9%. Despite MTA's increasing operating deficits, it would probably compare even more favorably against the peer group today than in calendar year 1971.

On a per-mile, per-hour and per-passenger basis, MTA costs are well below the mean value calculated for the entire group. The cost per hour of $9.61 is especially impressive, being $1.37 less than the mean. In a measure of service frequency, bus miles per route mile, MTA is slightly below peer group average.

MTA's revenue figures are somewhat biased by the inter-area fare system between the Mainland and the Beach. When a patron pays the inter-area fare, he is statistically counted as another trip at a 10¢ fare. Were he counted as a zone-fare passenger paying 40¢, the number of passengers would decrease, but the average fare would increase. Even discounting this factor, MTA's ridership is significantly higher than the peer group average, and the average fare paid by the patron is significantly lower. The fact that MTA has been able to pay for a larger percentage of cost out of the fare box than its peers while charging a significantly lower fare is noteworthy.

Operational efficiency of the Dade County system is a result, in large part, of the meticulous and thorough monitoring of revenues and expenses that is conducted by the Authority's comptrollers office. While no objective measures are avilable which would rank the performance of similar departments of the MTA's peers, an outstanding performance by the MTA may be inferred from Table XXIII. This demonstrated superiority should mark Dade County as an excellent location for the testing and demonstration of increasingly sophisticated and advanced fare collection and data processing systems.

Overall, the MTA may be regarded as performing at a level higher than that of the peer group. For none of the operating measures is there excessive disparity between MTA statistics and the group average, and the greatest deviations are, to the Authority's credit, in a favorable direction.

Financial Pro Forma

A five-year operating forecast for Metropolitan Transit Authority transit services is presented in Table XXIV. This pro forma indicates that transit will become an increasingly expensive commodity, so much so that each additional service will increase the system's operating deficit. These costly new services, when coupled with the constantly increasing operating expenses which the MTA will have to endure, will push the operating loss to near the five million dollar mark by 1976-77.

The greatest increase in deficit will occur between 1972-73 and 1973-74, due primarily to a full year's operation of the many service improvements which have been programmed for implementation during the current fiscal year.

From the passengers' standpoint, one of the most significant changes will be the institution of a revised fare structure and a more liberalized free transfer exchange with the Coral Gables system. However, these alterations will not be particularly costly when compared with the total expenses to be incurred as a result of the implementation of some of the new services. Revenue lost due to the new fare structure and transfer policy will be less than one percent of the system total.

Miles of operation per year are anticipated to increase by over 2,310,000 during the five years of the transit development program - - an average of almost 600,000 per year. The majority of these miles will be providing new services, and many will serve the developing fringe areas of the County. Thus, they will be relatively expensive operations, needing a period of development prior to becoming profitable, if indeed they ever do. Based on past trends, most established mainland routes will not realize a profit, so it is unrealistic to assume that new lines will operate in the black, even though there may be enough demand to warrant the provision of such service.

Overall, costs will continue to rise at a rate better than twice that at which fare box revenues will escalate, thus creating the financial situation depicted in Table XXIV. While this may appear to be an exorbitant deficit, it should be noted, once again, that other transit systems will experience similar and, in many cases, worse financial problems.

TABLE XXIV

FINANCIAL PRO FORMA

METROPOLITAN TRANSIT AUTHORITY

Service Change	CHANGE IN Miles	Revenue	Cost	Margin
FY 1972–73				
Previous Year System	14,684,000	$13,013,000	$14,836,000	($1,823,000)
Service Improvements				
– Route 35 service to Dade Junior College				
– Extension of Route 2 to Downtown Miami				
– Service to Dodge Island				
– Palmetto Corridor Service from Model City				
– Palmetto Corridor Service from Little Havana				
– Base period service on Route 14–B				
– New Crosstown Route 22				
– New Crosstown Route 33				
– Alignment changes to Routes 9, 15, 23, 25, 28, 29, 31 and 37				
(Total effects of above changes, some implemented in January, 1973, some implemented in June, 1973.)	411,000	251,000	438,000	(187,000)
TOTAL	**15,095,000**	**$13,264,000**	**$15,274,000**	**($2,010,000)**
FY 1973–74				
Previous Year System	15,095,000	$13,662,000	$16,190,000	($2,528,000)
Service Improvements				
– Route 35 service to F.I.U.	60,000	$ 7,200	$ 37,000	($ 29,800)
– Extension of Model City–Beach Service in Palmetto Corridor	17,000	8,700	16,700	(8,000)

TABLE XXIV

FINANCIAL PRO FORMA

METROPOLITAN TRANSIT AUTHORITY

(Continued)

Service Change	CHANGE IN Miles	Revenue	Cost	Margin
– Service from North Dade to Palmetto Corridor	122,500	$ 61,300	$ 117,500	($ 56,200)
– Bus preferential operations on NW 7th Avenue	90,000	71,200	77,400	(6,200)
– Year–long operation of changes implemented in 1972–73	612,000	392,300	731,200	(338,900)
– Transportation system for disadvantaged		*(a)*		
TOTAL	**15,996,500**	**$14,202,700**	**$17,169,800**	**($2,967,100)**
FY 1974–75				
Previous Year System	15,996,500	$14,629,000	$18,200,000	($3,571,000)
Service Improvements				
– Simplified fare structure		*(b)*		
– Expansion of express bus service	90,000	74,000	82,000	(8,000)
– Elimination of southern leg of Route 4	(115,000)	(86,000)	(126,000)	40,000
– Extension of transfer privileges	–	(12,000)	–	(12,000)
– Realignment of Route 34	2,200	–	600	(600)
– Operation of Gray Lines Route D	939,000	1,175,000	1,137,000	38,000
TOTAL	**16,912,700**	**$15,780,000**	**$19,293,600**	**($3,513,600)**
FY 1975–76				
Previous Year System	16,912,700	$16,253,000	$20,451,000	($4,198,000)
Service Improvements				
– Full operation of I–95 Express Service	90,000	73,000	87,000	($ 14,000)
TOTAL	**17,002,700**	**$16,326,000**	**$20,538,000**	**($4,212,000)**
FY 1976–77				
Previous Year System	17,002,700	$16,815,000	$21,770,000	($4,955,000)

(a) Actual operation of the transportation system for the disadvantaged is not expected to be an MTA function.

(b) Dependent on the fare structure adopted.

Community Benefits

Presently, the transit network in Dade County reaches all but a small percentage of Dade County residents. The level of this service naturally varies directly with the density of residential development, employment opportunities and other trip generators. Those living in more densely populated areas generally enjoy a greater frequency of service and direct links to a greater variety of locations.

Most major corridors of travel in Dade County are presently being satisfied and it is unrealistic to think that there are many potentially profitable transit markets waiting to be tapped. Thus, the transit developments in Dade County will be a more subtle process, extending service to relatively minor markets, and assuring that the growth of transit will keep pace with the growth of the County.

The most significant feature of Dade County's growth is its westward expansion into previously undeveloped areas. Naturally, the residential and employment areas on the fringes of the developed county are less dense than those to be found in established areas of Dade, and transit, by its very nature, requires density of development to be profitable. Thus, service to the emerging areas will be a costly proposition, but residents and employers, by virtue of their role as county taxpayers, are entitled to receive service. This willingness to extend service into areas which would not ordinarily warrant transit from a purely economic viewpoint is the key difference between transit as a public service and transit as a private enterprise.

All Dade County residents will realize certain benefits, both tangible and intangible, from good transit service. The most obvious benefit is mobility for those who have no alternate mode of travel. However, even those who do not depend on transit exclusively will benefit from the knowledge that a "back-up" mode of travel is always available.

Many individuals are dedicated to the use of their personal autos for all trips, and understandably so. This group will benefit from lessened auto congestion on highways and also from a lessened need for a second or third car in their families, which will provide a direct economic advantage to the involved persons.

One of the most oft-cited reasons for the development of transit is that it contributes to decreased air pollution. This is a benefit of particular importance to Dade County, due to the County's position as one of the leading vacation areas in the country.

The cost and revenue trends of the past, and those projected for the future, clearly indicate that transit is an expensive commodity and will become even more so. Virtually every additional mile of transit service will increase the taxpayer's burden, and this underscores the importance of assuring that each mile should serve a meaningful purpose. Nothing, no matter how cheap, is a bargain if it's not needed. On the other hand, a vital good or service of high quality - - and transit has the potential to be that - - is always worth paying for.

SIMCUR – 192

VOLUME 3

DADE COUNTY
TRANSIT DEVELOPMENT PROGRAM

CORAL GABLES
MUNICIPAL BUS SYSTEM (CGMBS)

SIMCUR-192

DADE COUNTY TRANSIT DEVELOPMENT PROGRAM

VOLUME 3

CORAL GABLES MUNICIPAL BUS SYSTEM (CGMBS)

Prepared For

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VOLUME III

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ADEQUACY OF SERVICE

CORAL GABLES MUNICIPAL BUS SYSTEM

The Coral Gables Municipal Bus System (CGMBS) has 11 feeder routes connecting to a Miami express service at its central terminal. Six of the 11 local routes operate one-half million route miles annually in the unincorporated area of Dade County west of Coral Gables. The remaining five local routes, the Miami line, the personalized school service routings, and nominal special services chalk up another million annual miles.

Currently, CGMBS personnel include a director, four supervisory personnel, approximately 50 drivers, and two account clerks in the City of Coral Gables Transportation Department. The fleet consists of 59 buses: 30 new-look diesel, 10 old-style diesel, and 19 old-style gasoline-powered coaches. The buses are maintained for a fixed cost by the Automotive Department. Other essential activities are handled by various departments and are budgeted into the City's undistributed funding account.

The 1969 Origin-Destination Survey[1], supplemented by recent CGMBS operating and survey data, indicates the following ridership attributes:

- Three out of four patrons are women.
- The majority of CGMBS patrons have relatively low annual family incomes; half the riders have family incomes of less than $6,000 per year, while three-quarters are below the $10,000 level.
- Four out of five riders are captive, with no auto available.

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(1) Simpson & Curtin, 1969 Transit Use, Interim Report No. 1 (Philadelphia: Simpson & Curtin, December, 1969).

- Four out of ten CGMBS patrons transfer to complete their journeys.

- Fifty-six percent of the regular route users are on work trips while more than one-third of the CGMBS riders are students.

- Senior citizens (60 years or older) account for more than 19% of the CGMBS patronage.

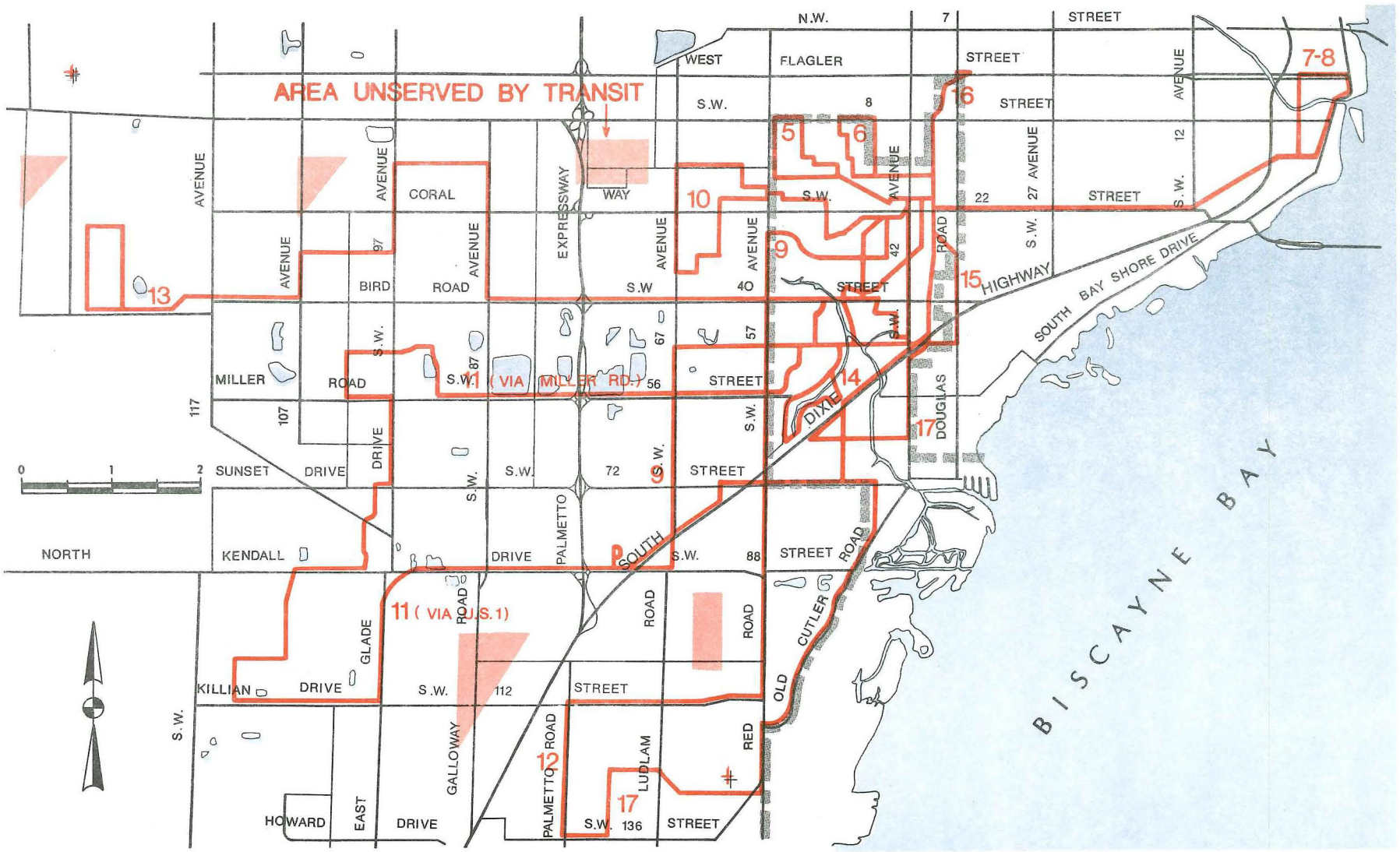
In order to evaluate the quantity and quality of CGMBS service, regional service standards developed for Dade County have been applied in the following ten sections of this report. Extensive field observations were made between August and December 1972 to augment information provided by regional and local agencies.

Availability of Service

Availability of service is a measure of the community's access to public transportation. The degree of access is usually demonstrated by using the transit industry standard of a five-minute walking distance or one-quarter mile. This is an overall standard assuming typically high urban residential density and low urban auto ownership so that as residential density decreases and auto ownership increases, wider route spacings may be adequate.

CGMBS area coverage, developed from the route spacing guide, is seen in Figure 1. Within the city limits, the route network leaves no coverage gaps. There are, however, five availability "holes" west of Coral Gables between the Tamiami Trail and S.W. 120th Street, shown in orange. The northernmost three of these five service gaps are proximate to Routes 10 (Salvadore Park) or 13 (Westchester) in addition to Dade County Metropolitan Transit Authority (MTA) routes. Minor adjustment of Routes 10 and 13 (not more than one additional mile each) would provide optimum availability for these three areas. As it is now, availability in these gaps is acceptable but a better degree of access could be provided. The southernmost two of the five service holes are within reach of Routes 9 (Biltmore), 11 (Baptist Hospital) and 12 (Riviera) in addition to MTA routes. Here again, route realignments would satisfy the service standards requirements, but the potential ridership increase would be meager.

figure 1 • AREA COVERAGE IN THE CGMBS SERVICE AREA



Provision of optimum route spacings for every area is not possible in light of budget constraints. The guide is not so definitive as to justify routings through every small residential area. The CGMBS network affords an optimum degree of access in the larger residential communities, commercial developments, and schools west of the city. Within the city, coverage is maximum.

Finally, availability of service along CGMBS routes is better than route spacings might indicate. Due to the particular convenience of boarding at any (reasonable) point along a route, CGMBS patrons are obviously not required to walk as far as patrons of a fixed-stop system. In less intensely developed areas, this allowance is of considerable advantage to the rider.

Frequency of Service

The time interval between buses along a given route in a particular direction, or the headway, is a measure of the intensity of service provided by a route. Headways are system variables which transit management can manipulate to achieve optimum service within a budget constraint.

The CGMBS is not as demand intensive as most larger networks serving metropolitan core areas. An overview of the system indicates that the routings function as feeder lines to the Miami express line through the terminal from 6:00 A.M. until 10:00 P.M. As a result, most CGMBS routings maintain 30- or 60-minute policy headways even during the peak periods. Route 6 (Granada), 10 (Salvadore Park), 15 (Grand Avenue), and 16 (Flagler) provide more frequent service during the morning peak period while Route 7-8 (Miami) has 10-minute headways during both peak periods and 20-minute headways during the base period. In addition, two Miami trippers are scheduled during both peak periods and one Baptist Hospital tripper (from Ponce deLeon Boulevard and Miller Road) is provided during the morning peak period.

Policy headways reflect several characteristics of the CGMBS in addition to loading patterns. Table I shows that 30 buses are required for morning peak period service while 24 buses are required for base period service. Thus,

TABLE I

CORAL GABLES MUNICIPAL BUS SYSTEM

SUMMARY OF SCHEDULES

Route No.	Route Name	Round Trip[1] (Mileage)	Running Time (Minutes)[1] (Including Layover)	Scheduled Speed[1] (mph)	HEADWAYS (Minutes)[2] Weekdays AM	Weekdays Base	Weekdays PM	Weekdays Evening	Saturday	Sunday & Holidays	Span Of Service (Leaving Terminal)	Daily Mileage	Buses Required[4] AM	Base	PM	Evening (Maximum)
5	Country Club	4.8	20	14.4	30	30	30	30[3]	30	60	6:20 AM– 9:20 PM	144	2	2	2	2
14	University	8.0	40	12.0	30	30	30	30	30	60	6:40 AM– 9:50 PM	240				
6	Granada	4.0	20	12.0	20	30	30	30[3]	60	60	6:50 AM– 9:50 PM	124	3	2	2	2
10	Salvadore Park	9.0	40	13.5	20	30	30	30[3]	30	60	6:10 AM– 9:50 PM	297				
9	Biltmore	15.6	70	13.4	30	30	30	60	30	60	6:10 AM– 8:50 PM	437	4	3	3	2
16	Flagler	3.6	20	10.8	15	30	30	30[3]	30	60	6:20 AM– 9:50 PM	137				
12	Riviera	25.0	90	16.7	60	60	60	–	60	–	6:20 AM– 6:20 PM	325	3	3	3	3
17	Industrial	25.2	90	16.8	60	60	60	60	60	60	6:50 AM– 9:20 PM	378				
11	Baptist Hospital (via Miller Road)	28.0	120	14.0	60	60	60	60[3]	60	120	6:40 AM– 7:50 PM	812	5	4	4	4
11	Baptist Hospital (via U. S. 1)	28.0	120	14.0	60	60	60	60[3]	60	120	6:10 AM– 9:20 PM					
7–8	Miami	18.0	60	18.0	10	20	10	30	20	30	6:00 AM– 9:40 PM	1,170	8	3	9	2
13	Westchester	25.6	90	17.1	30	30	30	30[3]	30	60	6:20 AM–10:00 PM	743	3	3	4	3
15	Grand Avenue	5.0	30	10.0	15	30	30	30[3]	60	3 AM Trips	6:40 AM– 7:30 PM	135	2	1	1	1
	Total Regular Routes										**6:00 AM–10:00 PM**	**4,942**	**30**	**21**	**29**	**19**
	School Trippers												7		7	
	TOTAL												**37**	**24**[5]	**36**	**19**

(1) *Round trip mileage, running time, and speed are based on normally operated route, excluding turnback points.*

(2) *Combination of all trips including turnback point.*

(3) *Between 7:20 and 7:50 PM headways are increased or service is terminated.*

(4) *Routes usually combined on the same run are grouped together.*

(5) *Three extra buses are required for lunch relief.*

CGMBS has a low peak-to-base of 1.2. Most bus systems fall within a peak-to-base ratio range of 1.5 to 3. This is consistent with the 1969 O-D survey finding that more than 40% of CGMBS transit trips are not work-oriented. More often than not, non-work trips only account for between 25-30% of total transit trips. Furthermore, the many student riders served have different travel habits (peaking and location characteristics) than the resident labor force, and domestic workers exhibit a tendency to stagger return trips throughout the base period.

Table I summarizes CGMBS' schedules and pairs the predominant route hookings. Of note is the fact that Route 11 (Baptist Hospital) is a loop route with a two directional flow -- 11 via Miller Road and 11 via U. S. 1. Other routes are also combined on schedule "fill-in" runs such as lunch relief.

On Saturdays, all but four routes operate as on weekdays. The Granada, Salvadore Park, and Grand Avenue routes assume 30-minute policy headways, and the Miami trunk line has 20-minute headways throughout the day with 30-minute headways during the evening. Saturday patronage averages 45% lower than weekday patronage.

Service on Sundays and Holidays is logically less than any other day. Route 12 (Riviera) does not operate. Route 15 (Grand Avenue) provides only three A.M. trips from the terminal. Route 17 (Industrial) turns back at Hardee Drive and Maynada Street. Route 11 provides four 2-hour round trips to Dadeland via Miller Road. Route 7-8 (Miami) provides 30-minute policy headways from 6:10 A.M. to 10:00 P.M. The remaining seven routes each provide service at 60 minute intervals along the regular routings from roughly 6:00 A.M. until 10:00 P.M. Sunday ridership is minimal, averaging only 14% of weekly patronage.

Service to Major Trip Generators

A major generator is a specific land use that generates a substantial number of person-trips. Considerations in planning and analyzing transit service to major generators are: the type of land usage, its density, its location relative to other uses, and, of course, the recurring travel patterns. In fact, mass transportation is keyed to major generators with the bus transit element as the most viable

in terms of systemwide service to decentralized land uses and lower densities. CGMBS' major generators are seen in Figure 2 and Table II.

Many Coral Gables residents are employed in the Miami CBD; numerous domestics employed in residential areas of Coral Gables reside near downtown Miami. Consequently, the Miami CBD is CGMBS' principal trip generator with almost half of the system's regular route trip ends. Route 7-8, the Miami express, provides ample service between the terminal and the Miami CBD. CGMBS' most frequent and fastest service is provided along this link. Inbound trips on the Miami line don't collect and outbound trips don't distribute passengers between the intersections of Coral Way and Douglas Road and S.W. 3rd Avenue and S.W. 13th Street. MTA Route 4 provides local service along this link and under the present arrangement there is little market competition.

Schools are next in importance as trip generators since during school sessions one-third of the riders are students. The yellow bus is provided by law for students who live further than two miles from their schools. Within the two-mile radius, CGMBS provides door-to-door service for Coral Gables residents attending elementary and junior high schools and Coconut Grove residents attending Coral Gables public schools. Nine buses are assigned twice daily to routings that are adjusted by a parent's call to the supervisor at the information booth. Coral Gables High School students use both the personalized runs and regular routes to reach the terminal where trippers connect to Coral Gables High School. Special trippers are also provided between the terminal and three parochial schools listed in Table II. This arrangement is an attractive community service. It provides a safer transportation vehicle and reduces adolescent vandalism as well since the buses are monitored.

Other schools outside of Coral Gables are not offered specialized service. There are five elementary, four junior high, and five high schools along CGMBS Routes 9 (Biltmore), 10 (Salvadore Park), 11 (Baptist Hospital), 12 (Riviera), 13 (Westchester), and 17 (Industrial). Students use these regular routes which are run at 30- or 60-minute headways.

figure 2 • MAJOR TRIP GENERATORS SERVED BY CGMBS

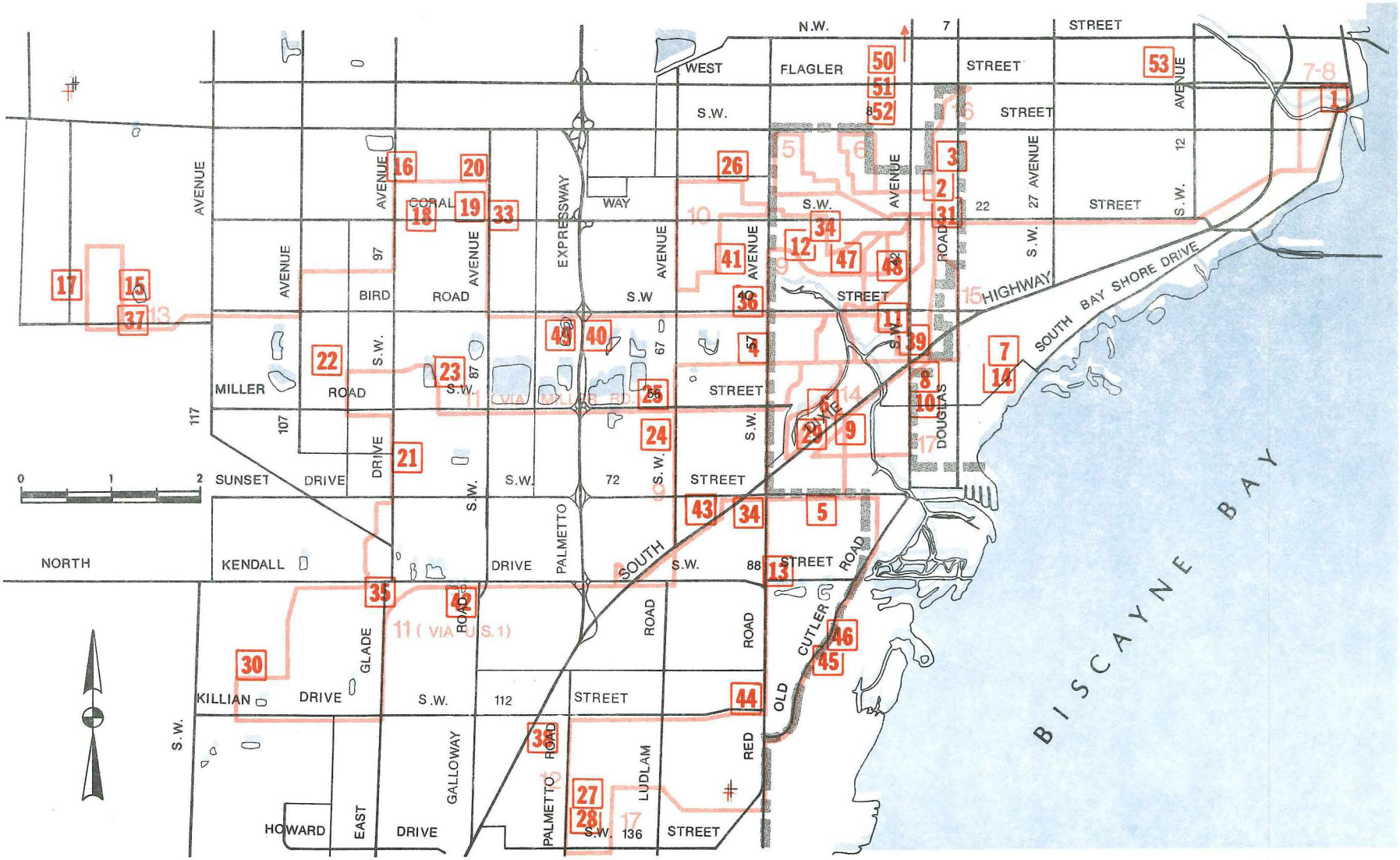


TABLE II

MAJOR GENERATORS IN THE CGMBS SERVICE AREA

Map Number	Name	Routes Serving	Combined Headways (Minutes) AM Peak	Base	PM Peak
	Intercity				
1	Miami CBD	(7–8)	10 [1]	20	10 [1]
	Schools				
2	Coral Gables Elementary	S [2] –16			
3	Merrick Demonstration	S – 16			
4	David Fairchild Elementary	S – 9			
5	Sunset Elementary	S – 11 – 17			
6	West Laboratory	S – 14			
7	Coconut Grove Elementary	S			
8	George Washington Carver Elementary	S			
9	Ponce de Leon Junior High	S – 11 – 14 – 17			
10	George Washington Carver Junior High	S			
11	Coral Gables High	T [3] 11 – 12 – 15			
12	St. Teresa School	T – 9			
13	Our Lady of Lourdes Academy	T – 12 – 17			
14	Immaculata–La Salle	T			
15	Village Green Elementary	13	30	30	30
16	Coral Park Elementary	13	30	30	30
17	Greenglade Elementary	13	30	30	30
18	Rockway Junior High	13	30	30	30
19	Columbus High	13	30	30	30
20	Coral Park High	13	30	30	30
21	Glades Junior High	11	60	60	60
22	Riviera Junior High	11	60	60	60
23	Southwest High	11	60	60	60
24	South Miami Junior High	9 – 11	20	20	20
25	South Miami Senior High	9 – 11	20	20	20
26	Sylvania Heights Elementary	10	30	30	30
27	Palmetto High	12 – 17	60	60	60
28	Palmetto Elementary	12 – 17	60	60	60
29	University of Miami	11 – 14 – 17	15	15	15
30	Dade Junior College South	11	60	60	60
	Commercial				
31	Miracle Mile	All but 5–6–16 [4]	5	5	5
32	Dadeland	9 – 11	20	20	20
33	Westchester	13	30	30	30
34	South Miami	11 – 12	30	30	30
35	Village Mall	11	60	60	60
36	Redbird	9 – 13	15	15	15
37	Concord	13	30	30	30
38	Suniland	12	60	60	60

TABLE II

MAJOR GENERATORS IN THE CGMBS SERVICE AREA

(Continued)

Map Number	Name	Routes Serving	Combined Headways (Minutes) AM Peak	Base	PM Peak
		Industrial			
39	Industrial Area Triangulated by	11	60	60	60
	Bird Road, Ponce de Leon	12	60	60	60
	Boulevard, and LeJeune	15	15	30	30
	Road	17	60	60	60
40	Bird Road Industrial Park	13	30	30	30
		Hospitals			
41	Variety Children's Hospital	10	20	30	30
29	Doctor's Hospital	14	30	30	30
42	Baptist Hospital	11	60	60	60
43	South Miami Hospital	11	60	60	60
		Recreational			
44	Parrot Jungle	12	60	60	60
45	Fairchild Gardens	17	60	60	60
46	Matheson Hammock Park	17	60	60	60
47	Venetian Pool	10	20	30	30
48	Youth Center	11–12–14–15	7.5	10	10
49	Tropical Park Track	13	30	30	30
50	Calder Track	Special Service[5]	One Round Trip		
51	Hialeah Track	Special Service	Two Round Trips		
52	Gulf Stream Track	Special Service	One Round Trip		
53	Orange Bowl	Special Service/Charter	5 to 25 Round Trips[6]		

(1) *In addition, there are two Miami trippers each peak period.*

(2) *Personalized school service for Coral Gables residents.*

(3) *Trippers are provided to and from the terminal.*

(4) *Miracle Mile is but a short distance from CGMBS terminal.*

(5) *Special Service trips leave from the terminal.*

(6) *Depending on the event.*

Route 14 (University) provides half-hourly service on weekdays and Saturdays and hourly service on Sundays and Holidays to the University of Miami. Routes 11 and 17 also serve the campus with hourly headways. A very small proportion of the student body uses CGMBS since it is primarily a resident campus; however, some University employees and visitors depend on transit.

Dade Junior College, unlike the University of Miami, is a non-resident campus with student housing still under construction. Like the U of M, however, Dade Junior College does not generate large numbers of student trips. Route 11 (Baptist Hospital) provides hourly headways in both directions weekdays and Saturdays. Four trips are provided in each direction on Sundays and Holidays.

CGMBS service is vital to the commercial generators listed in Table II. By increasing access to these commercial centers, CGMBS expands their employment and consumer markets. Table II also ranks the commercial generators in terms of their transit needs and service provided from within the service area.

Bus transit plays a continuing role in the growth of the Coral Gables business district. The central terminal's nearness to Miracle Mile enables continuous service throughout CGMBS' span of operation. Moreover, the level of service is intense since direct service links radiate throughout the service area.

Next in importance as a commercial activity center, the Dadeland Regional Shopping Center is served by two routes. Route 9 (Biltmore) provides a half-hourly connection with the terminal and a transfer tie with Route 13 (Westchester) serving the Northwestern portion of CGMBS' service area. Route 11's large loop structure compounds hourly terminal links through the city proper and one-bus connections in the Southwestern part of CGMBS' service area. The other Community Shopping Centers and Neighborhood Strip Centers listed in Table II are adequately served by the routes indicated.

There is one industrial area in Coral Gables. It is triangulated by Ponce de Leon Boulevard, LeJeune, and Bird Roads. It is of a light or smokeless type and draws

employees primarily from the high density, lower income area to the immediate east. It is well served by CGMBS Routes 11 (Baptist Hospital), 12 (Riviera), 15 (Grand Avenue), and 17 (Industrial). The only industrial park within the CGMBD service area is located southeast of the Bird Road and Palmetto Expressway intersection. General services, light manufacturing, construction and warehousing activities occupy this relatively large plot. Route 13 (Westchester), operating along Bird Road provides adequate service with 30-minute headways throughout the day.

Four hospitals are also served by CGMBS. Variety Children's Hospital along Route 10 (Salvadore Park) generates a steady stream of transit riders daily as its patients are predominately welfare recipients. Doctor's Hospital at the University of Miami generates small numbers of workers, patients and visitors on Route 14 (University). Baptist Hospital, of course, is served by its namesake Route 11 which also serves South Miami Hospital directly. These latter two hospitals generate a meager ridership.

Tourist and cultural centers generally attract a minimal number of resident transit trips. Since these facilities focus on the tourist trade, tour services capture the recreational transit market. Nonetheless, CGMBS routes continue to serve Parrot Jungle, Fairchild Gardens, Matheson Hammock County Park, Tropical Park, the Miami Art Center, and the Venetian Pool. In addition, the Youth Center generates small numbers of transit trips. Routes 11 (Baptist Hospital), 12 (Riviera), 14 (University), and 15 (Grand Avenue) provide frequent service to the center.

Recreational events, however, do generate transit trips. Special service trips are scheduled from the terminal to Calder, Hialeah, and Gulfstream Race Tracks when they are in operation. Also, there are special buses to collegiate and professional football attractions at the Orange Bowl. These services are scaled to meet demand.

Loading Standards and Comfort

The load - - the proportion of occupied seats on a bus - - is the first consideration in determining the frequency of service. With this basic input the transit management can manipulate schedules within an overall policy framework.

The central terminal is the principal loading point for all CGMBS routes as well as the maximum load point for two-thirds of the system's routes. The central terminal concept facilitates this common load point since all routes converge here for convenient transfer connections throughout the CGMBS service area. Thirty-six percent of the CGMBS patronage utilizes this arrangement.

Three routes serve the bulk of transit traffic that is not terminal bound for transfer connections. Routes 9 (Biltmore), 11 (Baptist Hospital), and 13 (Westchester) each carry a large proportion of one-bus riders to and from various schools and commercial generators enroute. Along these routes, loading is intense proximate to the generators.

In addition, the Miami trunk line outbound collects virtually its entire load at the terminal. During peak periods, a few passengers may board along Miracle Mile before the Douglas Avenue closed-door zone. Inbound, the Miami line collects the great majority of its evening peak patrons before leaving S.W. 2nd Avenue while the remainder board along Coral Way. Standing loads are not a problem, however, since 10-minute headways and two trippers are scheduled during both peak periods. In fact, Miami-bound buses which are not air conditioned are sometimes passed up by patrons who will wait at the terminal for air conditioned buses.

Regular load checks are not maintained by the CGMBS management. The system's organization does not warrant them. Only five out of 13 routes provide better than 30-minute headways during the peak periods. The supervisor, stationed at the information booth, is attuned to terminal loading conditions, and drivers report unusual loads along the routes. By this monitoring, trippers can be added or headways adjusted without additional data collection expenses.

School ridership determines CGMBS loading conditions more than anything else. Recent monthly operating statistics

indicate that total student ridership varies from approximately 18% of the patronage in August to almost 34% in May. During the school sessions, special trippers are scheduled twice daily. However, the percentage of student regular route riders increases from roughly 18% of the total regular route riders in August to almost 25% in May. In absolute terms, there were roughly 21,000 more student regular route riders during May, 1972 than in August, 1971. The additional student ridership "loads up" the regular route buses, especially during the morning peak period. During the first week of classes, service adjustments are made to accommodate the school rush.

Only half of the CGMBS fleet is air conditioned (Table III). These 30 GMC "new look" buses are in constant use. Older, non-air conditioned GMC diesel, Southern gasoline, and Twin Coach gasoline-powered buses are used for trippers and as second choice on regular routes. Even the older buses are comfortable and well maintained. Exterior paint is good and the interiors are swept and inspected for damage nightly after use. The buses are washed daily with the newly installed bus washer.

CGMBS has not instituted a bus shelter program. Low profile benches without markings are provided within the city limits. Commercial shelter is utilized at Dadeland and one of the downtown Miami stops. Existing shelter is also utilized at Dade Junior College South, and there is a small, dilapidated shelter at the University of Miami. In addition, MTA benches are located at stops along Coral Way and S.W. 3rd Avenue.

During inclement weather, ridership is estimated to decrease by more than one-third. Seemingly, only captives on essential business use the bus during adverse weather, and they are forced to seek out natural shelter along the route.

Dependability

Public attitude toward transit is certainly colored by dependability of service. Transit management must insure that scheduled buses actually operate and adhere to public timetables. This is imperative if the system is to maintain present ridership and attract new patronage.

CGMBS always provides scheduled trips since extra equipment is available, and the management is attentive. Road calls for disabled vehicles on the line are infrequent - -

TABLE III

CURRENT FLEET DATA

Manufacture – Model	Year	Capacity	Units
Twin Coach FL–33	1952	41	6
Southern Coach S–41–HF	1954	41	4
Southern Coach S–41–HF	1955	41	2
Southern Coach S–41–HF	1956	41	3
Southern Coach S–41–HF	1957	41	3
Southern Coach S–41–HF	1960	41	1
GMC TDH–5106	1954	43	10
* GMC TDH–4517 A/C	1962	45	10
* GMC TDH–4519 A/C	1965	45	20
		TOTAL	59

Average Age–13.2 Years

Air-Conditioned Buses-30 (51% of the fleet)

* *New Look Coaches*

approximately one every 25,000 miles or 5 per month. When a road breakdown occurs two buses are sent from the equipment yard - - one to pick up the stranded passengers and continue the run, and another to begin the disabled bus' next scheduled trip from the terminal. Minor service calls to the terminal are much more frequent. These average one every 1,900 miles or 3 per weekday for oil, overheating, farebox changes, etc. Either out-of-service or equipment yard vehicles are used for substitutions. The central terminal concept facilitates minor repairs, so that most of these are accomplished with no delay in scheduled service.

CGMBS buses undergo a thorough nightly service routine that includes preventive maintenance inspection of tires, brakes, etc. In addition, municipal maintenance has recently adopted the computerized "Mainstem" analysis system to pinpoint problem areas. Also, maintenance personnel are periodically sent to training schools, such as GMC Coach School, to refresh and upgrade their skills.

The second component of dependability is on-time performance. The public schedule lists departure times from route terminal points only. Spot checks at these locations revealed exceptional conformance to the printed timetables. Better than nine out of every ten of the observed trips were within the "on-time" range of zero to five minutes late. Again, a major element in achieving this control is the supervised central bus terminal. Complaints of missed or late buses are rare.

Speed of Operation

Speed of operation is crucial to the transit operator in that the cost of providing service in this labor-intensive industry is inversely proportional to the driver's productivity, which depends in part on operating speed. Also, bus transit's ability to compete with the automobile and attract ridership depends to a large extent on the speed of the service that it provides.

Bus transit operating speeds in metropolitan areas generally range from 10 to 14 mph. Six CGMBS local routes fall within this range, and five operate in excess of 14 mph. The Miami line, as an express route, has the system's best operating speed (19.6 mph).

Routes serving residential areas in and about Coral Gables must traverse narrow two-way streets, many with overhanging trees. However, good speeds are realized on these streets because there is rarely any vehicular or pedestrian traffic congestion, and residential curb parking is prohibited. Through traffic is nil since high capacity roadways are but a short distance from any residential area. The Miami line and routes extending further into the County utilize the open network of higher capacity roadways.

CGMBS' relatively low patronage level coupled with the central terminal concept, contribute to high operating speed by minimizing stopping. Furthermore, the recently adopted exact fare policy will probably effect a slight increase in operating speeds.

Scheduling policy affects the difference between operating and schedule speeds since schedule speed includes layover time. CGMBS does not allow for layovers at points other than the central terminal. Here four regular routes and some unusual run hookings lay over 5 or 10 minutes for schedule coordination. In addition, Route 11 (Baptist Hospital) layovers are 20 minutes long to balance vehicle requirements. Since layover time is minimal and operating speeds are good, it follows that schedule speeds are good.

Finally, overall speed, indicative of systemwide labor efficiency, is 9.9 mph. This value is considerably lower than the operating speed because of the extra hours paid to operators. Standbys, lunch reliefs, minimum-hours policies and liberal sick and vacation leave allowances contribute to reduced overall speeds. Many of these allowances are given in lieu of higher wage rates. As a result of these policies, good operating speeds (benefitting the patronage) do not translate to lower costs benefitting the system operator.

Directness of Service

There are two considerations in the measurement of direct service - - the percentage of transfers and the circuity of the routings. A transit operator strives to minimize both measures so that one-bus, straight line service from origin to destination is provided for the vast majority of passengers.

The systemwide measure of direct service, percentage of transfers, is in most urbanized areas one-fifth to one-fourth of the patronage. Results from the 1969 O-D survey indicate that 40% of CBMBS' riders transfer to complete their journeys.

This high transfer rate can be attributed to CGMBS' central terminal concept since 9 out of 10 transfers occur at the terminal. Feeder routes extending into lower density and higher income areas of the county connect with the Miami trunk line at the terminal where transfer delay and inconvenience are minimized. Although this arrangement necessarily increases the transfer rate, it provides for second-order direct service along principal routes of travel that would otherwise be impractical in light of budget constraints. Transfer inconvenience is minimized through the indoor centralized terminal with an information center and coordinated bus schedules.

In the second measure of direct service, route circuity, the CGMBS route structure lends to meandering operations in three instances. In two instances, directness is compromised to cost effectively achieve extensive area coverage and satisfy various travel desires. Route 11 (Baptist Hospital), a large two-way loop, provides a circuitous 16.4 mile link between Dadeland and the vicinity of Miller and Galloway Roads. In terms of the shortest distance roadway path of 4.4 miles across the loop, this portion of Route 11 (via Miller Road) operates at less than five mph.

Furthermore, between the areas served by Routes 11 and 13 (Westchester), there is an expanded direct service deficiency west of the Palmetto Expressway. Presently, transit trips from this area to major generators in the south (Dadeland, Dade Junior College) can only be accomplished by a circuitous transfer on CGMBS lines or by paying a double fare for CGMBS/MTA two-bus trip.

Another instance of route circuity also provides for increased mobility. Routes 12 (Riviera) and 17 (Industrial) function as a 25-mile, two-way, loop route with a substantial through travel demand between the two sides of the loop. Domestics and school children using the loop below Sunset Drive exhibit a steady travel desire throughout the daylight hours.

The third instance of meandering operations, Routes 5 (Country Club) and 6 (Granada) is circuitous without benefit. Neither of the small, adjacent, one-way loop routes is overly circuitous in itself, but their similar profiles facilitate combination. Together they inefficiently serve the small northwestern corner of the Gables and exhibit unnecessary service overlap.

CGMBS and MTA cooperate in a free transfer exchange (FTE) at six locations, but these stations are not heavily used. Approximately 100 riders utilize the FTE privilege at the two stations on Ponce de Leon Boulevard on weekdays; other FTE points have less activity. Table IV describes the location and routings at the various FTE points. Presently, there is no FTE at the CGMBS terminal, nor in the Miami CBD with Route 7-8 (Miami). Most transfers at FTE points occur during work trips, indicating that the transfer agreement contributes to expanded employment opportunities for Dade Countians.

Accommodation Service

Service that returns in revenue a relatively low proportion of its cost is deemed accommodation service. It can be analyzed in terms of routes, time periods, or as a special provision, but it must be examined in light of the service policy and systemwide coordination. If, for instance, an accommodation route serves a transit-dependent area or provides a valuable transfer link, then it should be preserved. On the other hand, as demographic characteristics change with time, some routes cease to be justifiable and service should be discontinued or altered to realize a better return.

Table V presents CGMBS revenue and patronage per mile by route for fiscal year 1972. Nine of the 12 regular routes had revenue per mile ratios of less than the 50 cents system average. Routes 7-8 (Miami), 15 (Grand Avenue), and 16 (Flagler) showed better than average returns.

Patronage per mile ratios present essentially the same picture except that Route 5 (Country Club) is above the system average. This discrepancy is attributable to the method of apportioning receipts and patronage as footnoted in Table V. Other discrepancies in magnitude between patronage and revenues are a result of user fare differences on individual lines and, of course, round trip mileage differences.

TABLE IV

CGMBS–MTA FREE TRANSFER EXCHANGE

Location	Transfers Accepted Between CGMBS Routes	MTA Routes
Ponce de Leon Boulevard at S. W. 8th Street	9, 16	5
West Flagler Street at 37th Avenue	9, 16	11, 6 *(2)*
West Flagler Street at Ponce de Leon Blvd.	9, 16	11, 6 *(2)*
Le Jeune Road at U. S. 1	11	1
Sunset Drive at Almansa	12, 17	1
Sunset Drive at Red Road *(1)*	11	2, 7

(1) CGMBS patrons transferring to an MTA bus are assessed a 5¢ zone fare at this exchange point, so that the fare in both directions will be the same. No charge is made for a MTA–to–CGMBS transfer.

(2) Transfers from CGMBS Routes 9 and 16 are accepted on MTA Route 6 only in an eastbound direction.

TABLE V

CGMBS ROUTE REVENUE AND PATRONAGE[1]

FISCAL YEAR 1971–1972

	Route	Revenue/Mile	Passengers/Mile
5	Country Club	$ .49	2.65
6	Granada	.39	2.09
7–8	Miami	.77	3.13
9	Biltmore	.36	2.03
10	Salvadore Park	.40	2.16
11	Baptist Hospital	.48	1.99
12	Riviera	.43	2.36
13	West Chester	.39	1.84
14	University	.36	1.96
15	Grand Avenue	.68	3.64
16	Flagler	1.07	6.08
17	Industrial	.21	1.16
	Average	.50	2.37
	School	.81	5.65

(1) Receipts and Patronage for routes normally hooked together were apportioned between the routes according to the following ratios: No. 14/No. 5 = 2/1; No. 10/No. 6 = 3/1; No. 9/No. 16 = 1/1; No. 12/No. 17 = 2/1. (These ratios, developed from occasional observation, were supplied by the CGMBS management).

Only one route, 17 (Industrial), is seen as accommodation service using either measure of route efficiency. During the 1972 fiscal year it was below half the system average in revenue and passenger per mile. Route 17 also had the system's lowest transfer rate for the year. This route is a serious drain on CGMBS resources.

Transfer rates are mentioned because in the case of a poor revenue route, its value to the overall system might be judged by a patronage distribution criteria. Resultantly, Route 6 (Granada) should also be noted. Its transfer ranking is second lowest, and it has the lowest patronage per mile ratio of the shorter CGMBS routes.

Weekend service is also over-accommodating. Saturday revenues average only half that of weekday regular route operations. Ridership is approximately 55%, since usage by school children is proportionately higher. Yet, 90% of weekday regular route mileage is operated on Saturday. Sunday ridership is a diminutive 14% of the average weekday regular route patronage. It is almost exclusively captive. Nevertheless, current Sunday service is exorbitant roughly providing more than one driver hour for every 12 person trips.

A final note concerns schools. Usage of the special school routings is intense since the passenger per mile rate was one and one-third times greater than the system average. However, the revenue per mile rate was only six-tenths greater due to the lower school fare. This service is also much more expensive than regular route operations. It requires a minimum of seven extra buses and drivers in addition to the comparatively greater time devoted to planning and administering the service.

Rate of Fare

On November 1, 1972, CGMBS adopted an exact fare policy and eliminated change-making at the terminal. The base fare is 30¢ a level which is equal to the Metropolitan Transit Authority's base and which compares favorably with other operators across the country. Only one zone charge is made, that being an additional nickel which is assessed passengers who ride Route 7-8 to Miami. This could also be considered a premium service charge since it is essentially an express operation.

A 15¢ flat fare for primary and secondary school students is the only present discount offering. It is restricted only in that it is not honored on the Miami line on non-school days. The high usage of CGMBS by school children was documented in the Major Generators section. A further illustration of this fact is that the average system fare is 21.1¢, not including the special school routings.

On Routes 9 (Biltmore), 11 (Baptist Hospital), and 13 (Westchester), west of S.W. 67th Avenue, there is a 10¢ charge for transfers. Four-fifths of these transfers are used on the Miami line. They are issued free to Dade Junior College students. Routes 12 (Riviera) and 17 (Industrial) also cross 67th Avenue, but because of the short distance to 77th Avenue, the zone transfer is not administered. It should be noted that Route 9 does not extend as far west as 77th Avenue.

CGMBS' interweaving route structure makes directional transfer designation impractical. It is, therefore, possible in some cases to make a round trip to and from the terminal on one fare. Incidence of this abuse is very low because transfers cannot be used on the same route on which they are obtained, and they are only valid for one hour on local routes.

Public Information Program

The core of the CGMBS public information program is its information/control booth located at the center of the terminal. During the span of operation, someone is always stationed at the booth to answer questions in person or by phone. Numerous checks and passenger interviews indicate that booth attendants are consistently polite and willing to assist - - a definite promotional asset. In addition to the CGMBS information, assistance is also given to those whose queries deal with the MTA, Greyhound or Trailways, as these other operators also utilize the terminal.

The CGMBS public schedule is distributed at the booth. One side of the schedule is a timetable listing terminal and endpoint departure times for all trips on all routes. The reverse side is a hand-drawn system route map with many major generators indicated. This public schedule has been a great success. Prior to its adoption, individual

route timetables littered the terminal. The present handout has been successfully designed to be more educational, and it is retained by the patrons. Other features of the schedule are fare and transfer information. New riders have no difficulties with the public schedule. Notably missing, however, are: intermediate time points, CGMBS-MTA free transfer locations, the routing of the recent Route 13 (Westchester) extension, and the weekday morning peak period Flagler "tripper" (that reduces the headway from 30 to 15 minutes).

Furthermore, route identification and departure times are displayed at only the Dadeland and Dade Junior College stops. Along the routes where stops are not defined, approximate timepoints are gotten from Route Information. This arrangement is casual but effective since the information booth is abreast of current conditions.

The CGMBS drivers are a credit to the system. Generally, they have out-going personalities, talk with the regulars, and exchange greetings with all. This friendly attitude is immeasurably important in the fostering of a favorable public attitude toward the system. It has not come about completely by accident, for during a new driver's introduction to CGMBS, he is made aware that he'll probably make the same run daily, and therefore realizes from the start the value of cultivating a good relationship with patrons.

CGMBS community relations is heightened by several special services. Buses are provided for the Youth Fare at the FIU Campus Grounds once a year for approximately one week.

Also, service is sometimes donated to Youth Center outings; and free Christmas tours are provided.

Finally, the marketing aspect of the public information program is ill-defined. The Department of Community Development releases news of operating changes to local newspapers but is not engaged in actively advertising CGMBS' services. No city department has the specific responsibility of promoting the bus system. Consequently, the only public advertisement of the system is the fleet itself. This deficiency coupled with the absence of bus stop signs in Coral Gables makes the attraction of new riders, especially choice riders, extremely difficult.

SERVICE IMPROVEMENTS

CORAL GABLES MUNICIPAL BUS SYSTEM

Transit in Coral Gables has been recognized as a community service since its institution in 1926, but it competes for limited resources with other municipal services. During fiscal year 1971-72, CGMBS was budgeted almost one-half million dollars from municipal taxpayers to subsidize operating losses. While this figure may be substantially higher than the actual loss due to an inappropriate allocation of maintenance expense (see Financial Analysis), deficits of the magnitude of CGMBS are burdensome for its supporting community of 48,000 people.

Thus, this Service Improvements chapter emphasizes efficiency - - how to provide more cost-effective service to all segments of the communities served. A complementary emphasis is placed on regional transit coordination with the MTA. This study objective is that even though there are two operators, regional transit should be operationally integrated. Therefore, components of the MTA Service Improvements will complement the CGMBS plan, and vice-versa. This interaction is refocused in the Coordination of MTA/CGMBS Systems section of this chapter.

The systems engineering formulation employed in this study approached Dade County's short range (1973-77) transit needs in the following manner:

- Adjust service density to the transit demand and remedy deficiencies noted in the Adequacy of Service examination
- Generate new ridership from the transit market by providing more attractive service

- Provide more effective service with operating and administrative efficiencies.

The resultant CGMBS service improvements plan is presented in the following eight sections.

Routings

In this section, six route adjustments are recommended for the CGMBS over the next five years. Specifically, these are: combination of Routes 5 (Country Club) and 6 (Granada); realignment of Route 10 (Salvadore Park); extension of Route 11 (Baptist Hospital); coinciding realignments of Route 12 (Riviera) with 17 (Industrial) and Route 11 (U.S. 1) with Route 11 (Miller Road); discontinuation of Route 15 (Grand Avenue); and, Route 7-8 (Miami) local service along Coral Way. Considering the CGMBS service area and level of service, the current passenger-per-mile rate is a respectable 2.47. The following proposals are designed to improve efficiency by increasing the ridership rate.

Combination of Route 5 (Country Club) and 6 (Granada) - As noted in Accommodation Service, Route 6 has the second lowest combined transfer ranking and a revenue per mile ratio 22% below the system average. Together, Routes 5 (Country Club) and 6 (Granada) inefficiently serve the small northwestern corner of Coral Gables. These two adjacent, one-way loops are circuitous and overlap service areas. The proposed consolidation will not displace the established patronage (12.5% senior citizens). Recent peak period load counts indicate that the loading pattern on the combined routing, Route 5-6 (Country Club) will not exceed the service standards when operated at the recommended frequencies.

It is suggested that Route 5-6 (Country Club) trips traverse the present Route 5 (Country Club) loop until the intersection of Genoa Street and Milan Avenue. From here, Route 5-6 trips should proceed east on Milan Avenue, north on Granada Boulevard and then operate along Route 6 (Granada) to LeJeune Road, and then proceed to the terminal (see Figure 3). Adequate service will be provided by 30-minute headways from 6:30 A.M. to 6:30 P.M. and hourly headways from 6:30 P.M. to 9:30 P.M. This includes the deletion of the 7:10 A.M. Route 5 school day tripper.

figure 3 • ROUTE 5-6 CONSOLIDATION

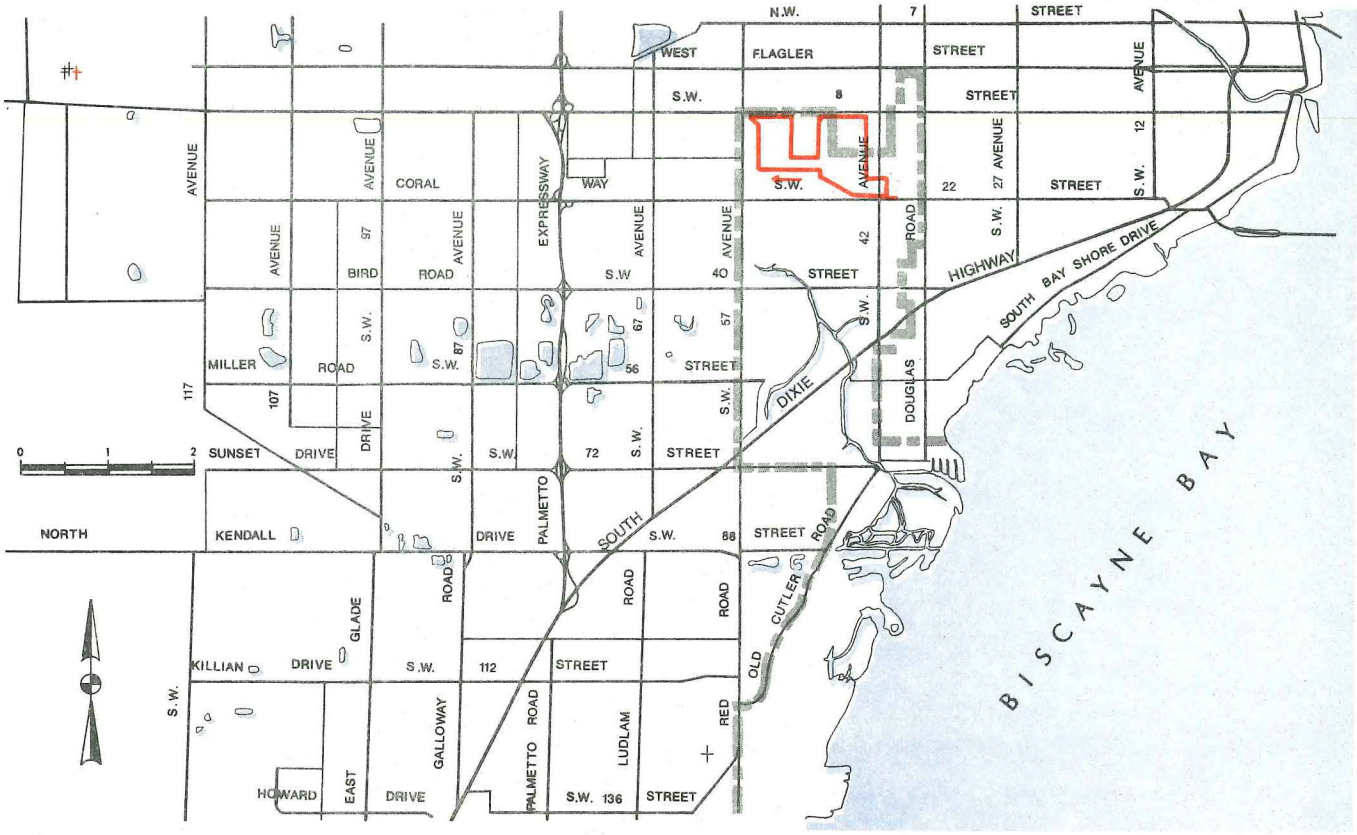
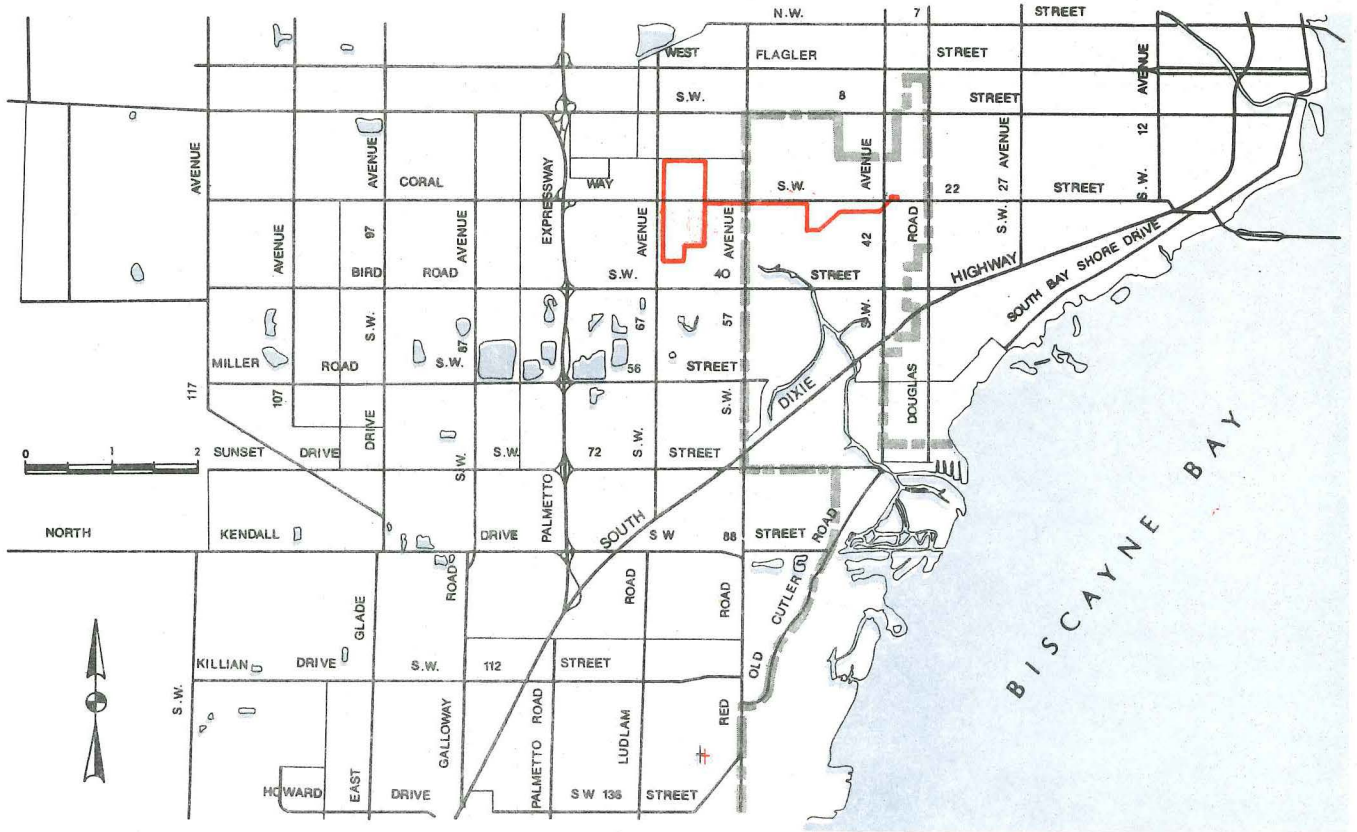


figure 4 • ROUTE 10 REALIGNMENT



Increased circuity is a disadvantage in the recommended consolidation. Average travel time will increase five minutes. This problem of directness is neither severe nor soluble. Most of the area's access roads will not accommodate transit coaches, and alternative directional operation would involve impractical left-turn conditions. Also, the combined routing will not serve Coral Gables Elementary School directly. However, this is not a problem since Special School Service runs operate in this area.

The combined routing is 5.7 miles and one bus would be required to operate 30-minute headways. The proposed change would effect a weekday annualized savings of 27,300 miles and 1,700 hours in addition to requiring one less vehicle. The weekday annualized cost savings realized from this route consolidation will be $17,100 to be partially offset by a revenue decrease of $7,700 due to a decrease in directness and frequency of service.

Realignment of Route 10 (SalvadorePark) - Buses traversing the present Route 10 (Salvadore Park) alignment encounter delays crossing Red Road on South Greenway Drive during all operating periods. The bus, facing a two-way stop sign, must make a left turn into a heavily trafficked through street. The suggested minor realignment would eliminate the Red Road intersection delay, although resulting in increased congestion delays during peak hours. Virtually no displacement of the established patronage would result as the service area is not significantly modified under this proposal.

It is recommended that Route 10 be realigned between Cordova Street and S.W. 62nd Avenue to traverse Coral Way (see Figure 4). Furthermore, the present 20 minute morning period headways should be reduced to 30 minutes. In conjunction with these changes, it is suggested that MTA Route 34 traverse an identical path between S.W. 62nd Avenue and the CGMBS terminal (see Coordination of MTA/CGMBS Systems section). Hence, a combined headway averaging 20 minutes will be maintained east of S.W. 62nd Avenue, for patrons to Salvadore Park, Venetian Pool and the CGMBS terminal.

The recommended realignment would reduce round trip mileage from 9.0 miles to 8.6 miles while round trip running

time will remain 40 minutes. Thirty minute morning period headways will result in 3 less trips every weekday. The proposed changes will effect an annualized weekday savings of 9,800 miles and 500 schedule hours, for an annual savings of $5,500 to be partially offset by a revenue decrease of $1,300 due to less convenient schedules.

Extension of Route 11 (Baptist Hospital) - Route 11's (Baptist Hospital) circuitous loop structure serves a dual purpose. The route functions as two radial links to the terminal from the county and as a north-south crosstown service in the county. As noted in Directness of Service, the west county crosstown function should be expanded to provide increased service to Dadeland and Dade Junior College South Campus and a transfer connection to the FIU Campus. The proposed extension will also improve service to Olympia Heights Elementary, Rockway Elementary, and Rockway Junior High Schools. Increased Route 11 (Baptist Hospital) productivity will be realized.

The recommended extension (see Figure 5) would have outbound Miller Road buses traversing the current routing until S.W. 48th Street and S.W. 92nd Avenue. From here, route trips would proceed: north on S.W. 92nd Avenue, west on Coral Way, and south on S.W. 97th Avenue, returning to the regular route at S.W. 48th Street. Inbound trips, of course, would reverse the above extension.

This extension increases Route 11 circuity, but it is the only cost-effective way of providing north-south service in the western county. It can be easily absorbed into the presently scheduled layover time.

The extension will add 1.2 miles to a Route 11 trip, but no additional operator hours will be needed since the extra running time will be taken from layover. This will result in an additional 11,200 miles annually, costing approximately $2,200 in extra fuel and maintenance. The extra revenue generated by the extension will be $5,400 annually.

figure 5 • ROUTE 11 EXTENSION

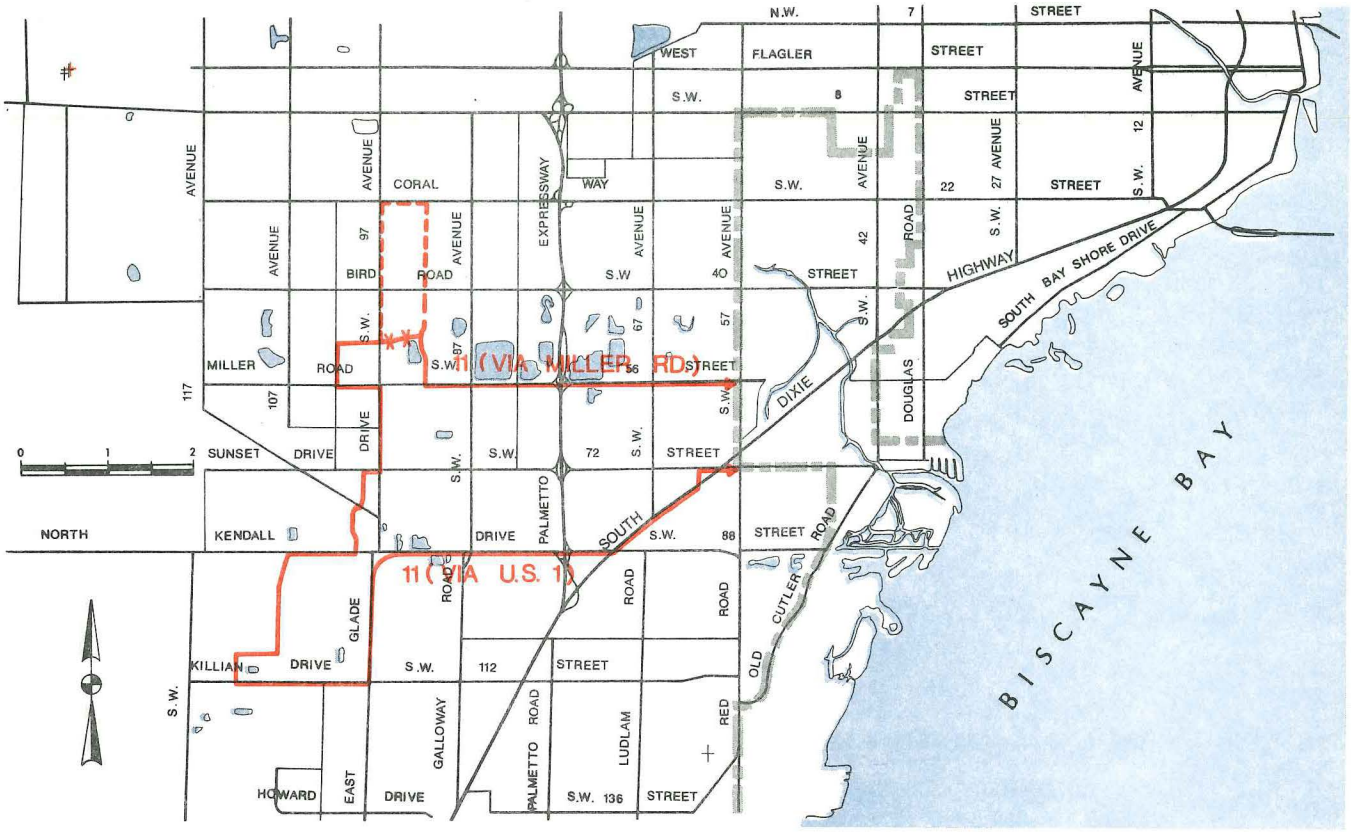
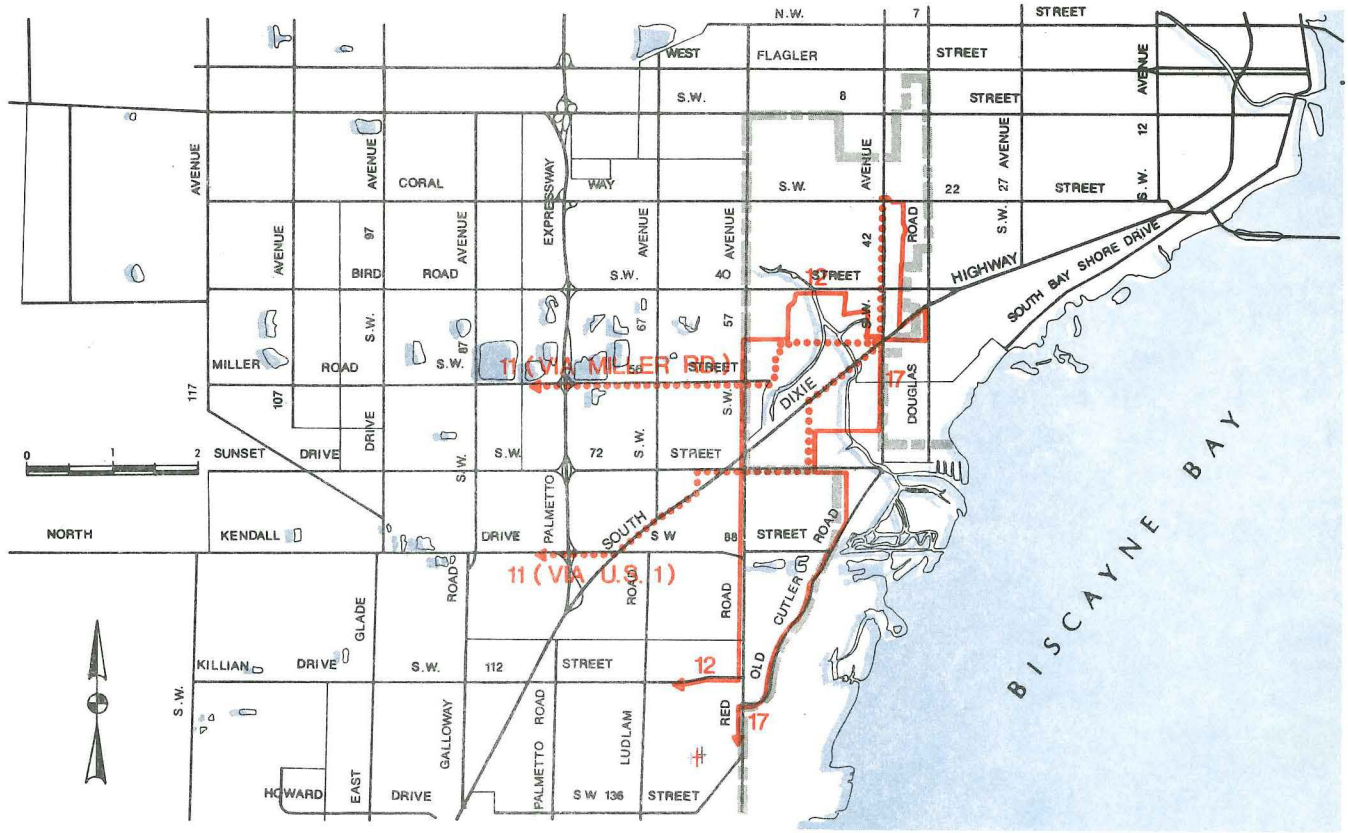


figure 6 • ROUTES 11,12, & 17 REALIGNMENTS



Coinciding Realignments of Route 12 (Riviera) with Route 17 (Industrial) and Route 11 (via U.S. 1) with Route 11 (via Miller Road) - Route 17 (Industrial), with a revenue-per-mile ratio less than half the system average, is a serious drain on CGMBS resources. Route 12 (Riviera) productivity is 14% below the system average. The proposed realignments of Routes 12 and 11 (via U.S. 1) north of Blue Road will bolster both Routes 12 and 17 productivity. It will allow them to assume Route 15's (Grand Avenue's) current patronage. In doing so, Route 15's current riders will receive more frequent base period service and more direct access to the areas served by Routes 12 and 17, where many of them work as domestics. This route adjustment (see Figure 6) will effect no displacement of CGMBS patrons.

The LeJeune Road segment of Route 12 should be shifted to Ponce de Leon Boulevard. Both Routes 12 and 17 should then be realigned as follows: outbound from the terminal they should proceed south on Ponce de Leon Boulevard to U. S. Route 1, proceed east to Douglas Avenue, proceed south to Grand Avenue, and proceed west across Blue Road to resume their current alignments. Route 12 (Riviera) would turn north on Riveria Drive at Blue Road. In addition, the small, unproductive Hardee Drive-Madruga Avenue-Maynada Road triangle should be deleted from Route 12-17 operation. Furthermore, Route 11 (Baptist Hospital via U.S. 1) should be shifted from Ponce de Leon Boulevard above Blue Road to LeJeune Road to replace Route 12.

The recommended route adjustment will necessitate no change in schedules. The minor realignment of Routes 12 and 17 (Industrial) to Grand Avenue will be absorbed by scheduled layover, and the deletion of the Madruga Avenue triangle serves to add peak period slack to insure terminal connections. Running time on the LeJeune Road and Ponce de Leon segments is equal. The proposed adjustment also provides half-hourly service along these segments, as opposed to the current 20 and 40 minute alternating service intervals.

The suggested realignment of Routes 12 and 17 will add 1.4 miles to each round trip. Hence, an additional 11,100 miles will be run annually, at a cost of $2,200. Routes 12 and 17 will collect an additional $27,700 annually from old Route 15 patrons. Also, Route 11 will operate an additional 0.2 miles each round trip at an extra annual cost of less than $175.

Discontinuation of Route 15 (Grand Avenue) - The route alterations described in the previous recommendation enable the discontinuation of Route 15 (Grand Avenue). This effects a considerable savings with little inconvenience to the current patronage. Along LeJeune Road the resultant service will be more efficient as excessive morning peak period service (15 minute headways) will be reduced to an efficient level (30 minute headways). Also, more convenient half-hourly base period service will be provided - - as opposed to current hourly service intervals.

The Route 15 service removed from a three-quarter mile segment of Douglas Avenue between San Sebastian Street and U. S. Route 1 will not be replaced. However, service along this segment will remain well within the Dade County Service Standards as Routes 12 and 17 (Industrial) are within one-quarter mile and MTA Route 6 traverses Douglas Road.

Elimination of Route 15 (Grand Avenue) affords a yearly savings of 39,100 miles, 3,300 schedule hours, and two peak period vehicles. This amounts to $30,600 annually.

Route 7-8 (Miami) Local Service along Coral Way - It is recommended in coordination of MTA/CGMBS systems section that Route 7-8 (Miami) assume MTA Route 4 local service operations along Coral Way. CGMBS local service will be twice as frequent and will benefit both operators financially. Furthermore, it will eliminate the presently inefficient service overlap along the corridor and enable a systemwide free transfer exchange.

In providing weekday local service, Route 7-8 should maintain its present 10-minute peak period, 20-minute base period, and 30-minute evening period headways. Its span of service should be lengthened to include a 5:30 A.M. trip and hourly late evening service between 9:40 P.M. and 12:40 A.M. It is also suggested that the four Route 7-8 peak period trippers be converted to express trips from the terminal.

In providing Saturday local service, Route 7-8 (Miami) should add a 5:40 A.M. trip and continue to provide 20-minute headways between 6:00 A.M. and 6:40 P.M. Also, the current 30-minute headways should be maintained between 6:40 P.M. and 9:40 P.M., and hourly service between 9:40 P.M. and 12:40 A.M. should be added.

Four trips should also be added to the Sunday and Holiday schedule to lengthen the span and compensate for deleted MTA Route 4 service. In addition to the current 30-minute headways between 6:10 A.M. and 9:40 P.M., additional trips should leave the terminal at 5:40 A.M., and hourly between 10:40 P.M. and 12:40 A.M.

Assumption of local service along Coral Way will add four trips a day to CGMBS Route 7-8. An additional 26,300 miles and 1,500 operating hours will be spent in providing this service annually at a cost of $15,500. No extra peak vehicles will be required with the recommended schedule. The additional revenue collected will be $91,000 annually.

As noted in the CGMBS Fare Structure section, the present 30 cents local service charge should be maintained when CGMBS initiates service. CGMBS presently charges 35 cents on Route 7-8 as it provides premium service with closed-door operation. This change in fare will reduce present CGMBS revenue by $35,400 annually. Hence, this proposal will increase CGMBS Route 7-8's operating margin by $40,100 annually.

Frequencies and Spans of Service

Analysis of recent load counts, taken by the CGMBS management, indicate that there are efficiencies to be gained in weekday, Saturday and Sunday operations. These data further indicate that in some cases current service can be reduced without undue inconvenience to the current ridership. The recommendations included in this section are: discontinuation of the Route 16 (Flagler) weekday tripper; Saturday service reductions on Route 5-6 (Country Club), 9 (Biltmore), 10 (Salvadore Park), and 14 (University); Saturday service modification on Routes 12 (Riviera) and 17 (Industrial); discontinuation of Sunday service on Route 17; and coordinated rehooking suggestions. These proposals adjust current service to a cost-effective level. A summary of recommended CGMBS operating changes, incorporating proposals from both the Routings and Frequencies and Spans sections, is seen in Table VI.

Weekday - The only additional weekday operating recommendation is that the Route 16 (Flagler) morning peak period tripper be deleted. This service is not reported on the public

TABLE VI

SUMMARY OF RECOMMENDED CGMBS OPERATING CHANGES

Route	Period	Headway (minutes) Present	Proposed
	Weekday		
6	AM	20	30
7–8	Late Evening	–	60
10	AM; PM	20	30
15	AM; Base; PM	15 and 30; 60; 30	Discontinued
16	AM	15	30
	Saturday		
5	AM–Base–PM	30	60
6	AM–Base–PM	30	
7–8	Late Evening	–	60
9	AM–Base–PM	30	60
10	AM–Base–PM	30	60
12	Early AM	60	60 *(1)*
14	AM–Base–PM–Evening	30	60
15	AM–Base–PM; Evening	30; 60	Discontinued
17	Early AM	60	60 *(1)*
	Sunday		
7–8	Late Evening	–	60
15	AM	3 Trips	Discontinued
17	AM–Base–PM–Evening	60	Discontinued

(1) Service to the Grand Avenue and Douglas Road turnback between 6:20 AM and 7:50 AM.

timetable. Analysis of loading patterns reveals that the 30-minute A.M. period headways shown on the schedule will accommodate the transit demand within the service standards. Elimination of this extra service will effect an annual savings of one vehicle, 3,600 miles and 500 hours, for an annual cost savings of $4,300. Elimination of the Route 16 tripper will diminish CGMBS revenues by only $900 annually.

Saturday - Present Saturday patronage is only 55% of the weekday regular route ridership, yet 90% of the mileage and 80% of the time are operated. Present service is over-accommodating, as frequencies are reduced slightly on only four routes. The following recommendations align travel demand to budget constraints.

Route 5-6 (Country Club) - The proposed Route 5-6 (Country Club) combination should operate hourly headways on Saturdays. Present Saturday service on Routes 5 (Country Club) and 6 (Granada) is half-hourly. An annualized weekend saving of 9,900 miles and 1,400 hours will result from the proposed combination and service reduction. The associated cost savings will be $11,600, to be partially diminished by a $500 loss in revenue due to less convenient schedules.

Route 9 (Biltmore) - Route 9 (Biltmore) currently provides the same level of service on both weekdays and Saturdays. It is recommended that Saturday headways be reduced from half-hourly to hourly. This will result in 13 less trips each Saturday, for an annual savings of 11,600 miles and 800 schedule hours. The annual cost savings of $7,600 will be diminished by less than $300 in lost revenue due to the reduction.

Route 10 (Salvadore Park) - Currently, Saturday Route 10 (Salvadore Park) trips are also scheduled at weekday frequencies. Service should be reduced from 30 to 60 minutes on the previously suggested Route 10 realignment since few patrons will be inconvenienced and a substantial saving realized by CGMBS. Hourly Saturday service would involve 14 less trips than presently scheduled. This savings of 6,900 miles and 500 schedule hours amounts to $4,800 annually. Only $200 in annual revenues would be lost as a result of this cutback.

Route 14 (University) - Another instance of equal Saturday and weekday service is seen on Route 14 (University). Saturday usage on this route is much less intense than weekdays

due to reduced demand by University of Miami students and employees. Here also, it is recommended that Saturday service be reduced from half-hourly to hourly. The resultant annual savings will be 5,800 miles and 500 schedule hours - - amounting to $4,800. The revenues decrease stemming from this service reduction will be less than $175 annually.

Routes 12 (Riviera) and 17 (Industrial) - Modification of Routes 12 (Riviera) and 17 (Industrial) early morning Saturday service is recommended to compensate for discontinued Route 15 service. The first three Route 12 Saturday trips and the first two Route 17 trips should operate to the Grand Avenue and Douglas Road turnback only. South of Grand Avenue early morning Saturday service is not warranted by demand. These changes will afford an annual savings of 4,900 miles and 100 hours from present Routes 12 and 17 operations. The cost savings amounts to $1,700 annually, to be partially offset by a revenue decrease of $50.

Sunday/Holiday - The only additional Sunday/Holiday operating recommendation is the discontinuation of Route 17 (Industrial) service. Current service frequencies are hourly or less on all routes but the Miami line. Although demand is only 14% of the weekday regular route ridership, these patrons are almost exclusively captive. Any further reductions in frequency or route abridgements will displace transit-dependent people. The savings realized in combining Routes 5 (Country Club) and 6 (Granada) and discontinuing Route 15 (Grand Avenue) have been discussed in previous sections.

Route 17 (Industrial) - Current Sunday/Holiday ridership on Route 17 is negligible. Many trips collect no fares. The areas served by this route are either not transit productive or produce primarily work-oriented travel. Discontinuation of Route 17 service will afford an annual savings of 6,400 miles and 500 schedule hours. An annual cost saving of $4,500 will result along with a $30 decrease in annual revenue.

Scheduling - The scheduling combination of different route trips, run hooking, is based on two factors - - the round trip running time (including conditional allowances) and the route service frequencies. The current CGMBS run hooking scheme is optimally efficient. However, with implementation of the previously recommended route operational changes, three sets of routes will need rehooking.

Currently, Route pairs 5 (Country Club) and 14 (University), 6 (Granada) and 10 (Salvadore Park), 9 (Biltmore) and 16 (Flagler) are run by one bus during weekdays and Saturdays. Combining Routes 5 and 6 changes the running times to 30 minutes and necessitates alternate weekday rehookings. In addition, the suggested Saturday service reductions foster another run interlining scheme.

On Sundays and Holidays, the operating routes are interlined more freely and the arrangements differ during the course of the day. This practice is most efficient as spans of service differ between routes. No change in this scheduling policy is recommended.

The proposed weekday and Saturday rehookings are as follows:

Present		Proposed
	WEEKDAY	
Routes: 5-14		Routes: (5-6)
6-10		14-16
9-16		9-10
	SATURDAY	
Routes: 5-14		
6-10		Routes: (5-6)-14-16
9-16		

Coupled with the previously recommended operating changes, these rehookings substantially increase CGMBS operating efficiency. The system non-productive layover time will decrease by 53% as layovers on Routes 12 (Riviera), 15 (Grand Avenue), and 17 (Industrial) are eliminated and Route 11's (Baptist Hospital) layover time is reduced from 20 to 10 minutes. The only other layover time after the Transit Development Plan is implemented, will be five minutes on the Miami line.

The 53% reduction in layover time represents 3,400 hours less than fiscal year 1971-72's 6,500 system layover hours. This is not a reduction in operating time; and, therefore does not represent a cost savings. Moreover, 53% of the current downtime will be used in revenue service upon implementation of the Transit Development Program.

Fare Structure

In this section, recommendations are made to effect a more equitable fare structure, ease intersystem travel, and provide a passenger convenience. Specifically, proposals are made to: eliminate the current zone transfer charge, effect a base fare on the suggested Route 7-8 (Miami) local service, establish a zone fare boundary, provide a senior citizens' discount fare plan, and reinstate change making at the terminal. These proposals provide the framework for a manageable system-wide free transfer exchange between CGMBS and MTA.

Elimination of the Zone Transfer Charge - CGMBS' current ten cent transfer charge on Routes 9 (Biltmore), 11 (Baptist Hospital) and 13 (Westchester) west of S.W. 67th Avenue is inequitable for two reasons. CGMBS collects fares as passengers enter the bus. Hence, patrons outbound into the transfer zone boarding with a transfer may elect not to pay the 10¢ charge. Secondly, the charge is not administered on the Route 12 (Riviera)-17 (Industrial) loop which extends further west than Route 9. In addition, the CGMBS management has indicated that it is an administrative headache causing confusion and loss of good will. It is therefore recommended that this transfer charge be discontinued.

Furthermore, the forthcoming zone fare proposal overrides the idea of a distance assessment underlying the current transfer zone charge. Annually, curtailment of this charge will effect a revenue loss of $2,600. However, this will be partially offset by a patronage increase and the net loss will amount to $1,900 annually.

Thirty Cent Fare on the Proposed Route 7-8 (Miami) Local Service - Route 7-8 (Miami) currently provides premium service with closed door operations along Coral Way, and charges a 35¢ fare. When local service is inaugurated on Route 7-8 it is suggested that the tariff be lowered to 30¢. This is the fare currently paid by the MTA Route 4 patrons who will be absorbed by the local operation of Route 7-8. Thirty cents is equitable both in terms of distance and the market served.

This thirty cents local service fare is also necessary to effect a fair and manageable systemwide free transfer exchange between the two operators. Express trips from the CGMBS terminal, of course, should maintain the five cents premium service charge.

The apparent disadvantage of this proposal is the revenue loss it represents. The net effect of this recommendation, adjusted for an expected patronage increase, is to reduce revenue by $35,400 annually. However, the takeover of MTA Route 4 local service along Coral Way will compensate for this loss and effect a $40,100 annual increase in CGMBS' operating margin.

Zone Fare Boundary at Red Road - As noted in the MTA Fare Structure (Volume II), MTA's current diagonal zone fare boundary between S.W. 75th Avenue and S.W. 57th Avenue (Red Road) should be aligned vertically on Red Road. This proposal is part of a recommendation intended to affect equitable travel distance costs within a simplified fare structure for Dade County. In conjunction, it is also suggested that CGMBS establish a similar zone boundary at Red Road.

The proposed five cent zone charge is more equitable than the previously mentioned 10¢ zone transfer charge currently in effect. All patrons crossing Red Road would be assessed 5¢. Routes 9 (Biltmore), 10 (Salvadore Park), 11 (Baptist Hospital), 12 (Riviera), 13 (Westchester) and 17 (Industrial) extend into the proposed zone.

With this fare structure, all CGMBS transfers would be issued free. The zone charge would effect a reduced rate of fare for patrons boarding west of S.W. 67th Avenue and transferring either locally or to Miami. Currently, these people pay 40¢ and 45¢, respectively. The new fare will be 35¢ for either ride (with the Route 7-8 local fare). The fare would increase by 5¢ for all interzonal travelers with origins or destinations west of S.W. 67th Avenue who do not transfer. It would also increase by 5¢ for all interzonal travelers with origins or destinations between S.W. 67th and 57th Avenues.

The zone fare will be easy to administer with the present CGMBS "pay enter" policy. Inbound passengers boarding west of Red Road would deposit 35¢. Outbound passengers would pay 30¢ as they entered and deposit the extra nickel as they alight in the fare zone.

One extra procedure would be necessary to insure collectability of the zone charge. Innerzonal travelers are not assessed the zone fare. Hence, on trips inbound from the fare zone, drivers would distribute transfer paper as a zone check

when 35¢ is deposited. If the driver then questioned a patron about payment after crossing the zone boundary, a zone check could be shown.

School children who are currently charged a 15¢ flat rate should not be required to pay the 5¢ zone charge. Senior citizens, however, should be required to pay the zone charge, even after the forthcoming 15¢ discount proposal is implemented. The prevailing industry practice is to discount only the base fare for senior citizens.

The revenue-generating effect of this fare zone proposal is considerable. The net additional revenue generated annually will be $25,800. This sum includes the revenue loss incurred from an estimated 5½% decrease in patronage west of Red Road due to the slightly higher cost of transit service.

Senior Citizens' Fare Discount - On October 1, 1972, the MTA initiated a senior citizens' base fare discount of 15¢ during off-peak periods. In doing so, the MTA followed the example of numerous operators across the country who have recently discounted senior citizens' fares.

CGMBS is enthusiastic about implementing a coordinated off-peak period 15¢ discount for the elderly. However, in light of its current operating deficit, CGMBS desires county subsidation for such a reduced fare plan. The permissive seventh cent State gasoline tax may legally be used to subsidize CGMBS elderly patronage. All MTA's subsidies are derived from this source.

A 15¢ fare reduction for the elderly, within the context of this Transit Development Plan, would cost CGMBS $64,400 annually. This includes almost $5,000 annually to maintain the current discount on MTA Route 4 as CGMBS Route 7-8 assumes its local service operation along Coral Way.

Change Making at the Terminal - Resolution No. 18050, passed by the Coral Gables City Commissioners on October 10, 1972, converted the previous CGMBS change making policy to exact fare and eliminated change making at the central terminal facility. CGMBS drivers petitioned for these changes to relieve the danger of robbery.

Exact fare is becoming popular nationally, not only for safety reasons but also for increasing operating speed and reducing change handling costs. However, the consultant believes that the elimination of change making at the central terminal control booth overstates the danger of robbery and imposes an unnecessary passenger inconvenience.

The location and operation of the control/information booth makes changing currency a very low risk situation. Also, seeking change from local merchants can be tedious and time-consuming enough to detract from goodwill. Change making at the terminal booth costs little in extra effort compared to the convenience it affords the patrons.

Systemwide Free Transfer Exchange (FTE) - As noted in the Directness of Service section, CGMBS and MTA cooperate in an FTE program at the six locations listed in Table IV. The previous fare structure recommendations enable expansion of this agreement so as to include almost all route locations. With a unified county fare structure, and a systemwide free transfer exchange between CGMBS and MTA, Dade County intersystem transit travelers will no longer be penalized with the inequitable double tariff.

The focus of an expanded FTE agreement is the Miami CBD where CGMBS Route 7-8 (Miami) connects with all MTA's radial and through routes. Both operators have been contemplating a downtown Miami FTE, and in September of 1971, a jointly administered FTE feasibility experiment was conducted to determine the intersystem transfer market. The survey results indicate that an FTE in the Miami CBD would accommodate 89,000 intersystem transfer passenger-trips annually. Furthermore, it would be utilized for 120,000 transfers by current MTA Route 4 through riders annually as CGMBS Route 7-8 (Miami) assumes operation of its southern leg. The systemwide FTE privilege would accommodate an estimated 60,000 additional intersystem transfer passenger-trips annually at locations other than the Miami CBD and the current FTE stations.

Approximately 210 people currently riding MTA Route 4 will have to transfer to CGMBS Route 7-8 in the Miami CBD daily. The transfer time will be minimal considering Route 7-8's close headways. This situation is a trade-off that will reduce the fare of over 260 current intersystem transit users by one-half.

The systemwide FTE would apply to all routes and locations except where "double-backing" might occur. This is an abuse of the privilege where, because of the parallel route structure, a patron could make a round trip by paying a fare to the first operator and giving a transfer to the second operator.

Certain intersystem transfer movements have to be restricted to prevent "double-backing." However, due to extensive route interweaving and the fact that CGMBS transfer paper is not directional, "double-backing" possibilities cannot be entirely eliminated. FTE interchanges in overt instances of route paralleling, such as CGMBS' Route 5 (Country Club), 10 (Salvadore Park) and 16 (Flagler) to and from MTA Route 34, should be prohibited altogether. Upon implementation, other, more serious abuses of the FTE privilege should also be rectified. As the systemwide FTE should be boldly noted on the public timetables, "restricted areas" might be indicated by color splotches.

The administrative problems and passenger confusion generated by a "fail-safe" plan outweigh the revenues generated from stringent accounting of FTE heads. Rotation of drivers in both systems would, in practice, hinder enforcement of very detailed restrictions - - causing inconsistency and confusing the patrons. CGMBS operates with non-directional transfer paper for precisely these reasons, and as its scope is relatively small, incidence of internal "double-backing" is low.

In summary, the principal new FTE locations and routes serving them are followed by the principal systemwide FTE prohibitions.

PRINCIPAL NEW FTE STATIONS

Location	CGMBS Route (s)	MTA Route (s)
Downtown Miami	7-8	Radials and Throughs
CGMBS terminal	all but 5, 10, 16	34
Westchester Shopping Center	13	5, 38
South Miami Business District	11	1
Tamiami Trail	5	5

PRINCIPAL FTE PROHIBITIONS

Location	CGMBS Route (s)	MTA Route (s)
Douglas Road	12, 17	6
Coral Way east of S.W. 112th Ave.	10, 13	34
LeJeune Road	5, 16	34

The recommended systemwide free transfer exchange will diminish CGMBS revenues by $13,000 annually, principally as a result of the free intersystem transfer in downtown Miami.

Special Services

CGMBS provides three types of special service - - school, charter, and extra recreational services. Of these, school service is the only one actively promoted to the community. Charter and extra recreational services were developed to meet expressed demands. Their scale is marginal to CGMBS' operating interests. The following three sections review CGMBS' special services. Specific recommendations developed are: the elimination of the Lourdes evening school run, a ten percent profit level on other special service offerings excepting the Youth Center, and elimination of free Christmas charter service.

School Service - CGMBS currently operates eight morning and thirteen evening special school runs. Some of these are tied into regular route operations for efficiency. These trippers are adjusted by the operators' experience, visits to the schools, and calls from parents. A month after school begins and patronage stabilizes, the routings are reviewed for possible efficiencies in realignment.

Examination of the process revealed no additional system efficiency possibilities. However, the realignment of Route 12 (Riviera) enables the elimination of the Lourdes Academy evening run. This will afford an annual savings of $2,500 in operating time and mileage when compared to the current school year routings.

Prior to the pairing of CGMBS area schools by grade in 1968, twenty buses were needed to provide school service. Nine buses are now used as daily school revenue has decreased from

the 1967 level of $500 to the current $200 level. This trend has resulted from an increase in the average distance traveled by the school children and the soaring private school enrollments.

From a transportation viewpoint, pairing decentralizes schools. The travel desires of students residing in a particular area are dispersed to many schools. Other school policy changes will further reduce CGMBS school service intensity - - especially split and summer sessions.

Charter Service - CGMBS charter offerings are primarily limited to off-peak periods due to the lack of extra manpower and vehicles. Most charter inquiries are referred to the MTA or various tour groups. CGMBS should continue to provide charter service when possible, and should charge a rate of no less than 110% of the cost involved.

Recreational Services - CGMBS provides special buses to Gulfstream, Caulder, and Hialeah race tracks and the Orange Bowl. These services should be reviewed frequently to insure that at least 10% profit is realized through the tariff rates. Also, the possibilities of cost sharing and charter support of these operations by the attractor should be investigated.

Service to the Youth Center should be the only exception to the 10% profit level as it is a municipal sister to CGMBS. Special service charges to the Youth Center should be maintained at a flat cost level.

Finally, the free Christmas light tour offerings should be eliminated along with other free charity service. Although these services increase CGMBS' goodwill, it is doubtful that they generate $3,600 in intangible benefits annually to offset their cost.

Traffic Engineering for Transit

CGMBS on-street operations are hindered by traffic conditions in six instances. These include: movement through the Miami CBD, three existing bottlenecks, and two situations resulting from realignment proposals. While detailed traffic engineering is beyond the scope of this study, the problem areas were examined and remedial possibilities are presented in this section.

Route 7-8 (Miami) Movement in the Miami CBD - Currently, the Florida State DOT is sponsoring a Miami CBD circulation study that focuses on both long- and short-range transportation alternatives. In addition, the City of Miami is now sponsoring a zoning study that includes relevant traffic circulation considerations. These studies, intended to shape the business district's future, are inconclusive at this writing. Hence, the following discussion is cursory in terms of study effort coordination.

Prior to construction accommodating traffic changes on S.E. 3rd Avenue between Flagler Street and S.E. 1st Street, CGMBS Route 7-8's round trip running time was 45 to 50 minutes. The running time has since increased 5 to 10 minutes, and an additional peak period bus is required to operate the route's close headways. Relief of construction and parking related congestion in the Southeastern quadrant of the Miami CBD will substantially contribute to Route 7-8's service efficiency.

On the suggestion of the CGMBS management, one CBD transit improvement possibility was investigated with good results. A reverse bus lane on S. 1st Street between S.W. 2nd and S.E. 3rd Avenues is an item deserving further planning attention. Both its cartwidth and the relation to major trip generators are favorable.

Existing Bottlenecks - CGMBS daily operations are presently plagued by three peak period bottlenecks. First of all, severe congestion develops near the Dadeland Regional Shopping Center along U. S. Route 1, Ponce de Leon Boulevard, and Kendall Drive. There is no apparent solution to peak hour congestion affecting CGMBS operations here except realignment of Routes 9 (Biltmore) and 11 (Baptist Hospital). More access and egress capacity for Dadeland would ease matters somewhat, but it is not an unlivable situation considering the facilities demand converging at the Dadeland interchange.

The second current bottleneck develops at the large five point intersection where Coral Way joins S.W. 3rd Avenue. Route 7-8 (Miami) negotiates this open turn. Intersection capacity analysis would probably demonstrate the need for more green time on the S.W. 3rd Avenue approach. Further study is also recommended to constrict the intersection.

The third bottleneck is encountered by Route 13 (Westchester) at Bird Road and S.W. 87th Avenue during peak periods. Capacity analysis here would probably indicate the need for a left turn advance on the north approach of S.W. 87th Avenue. Presently, the left turn lane is not allotted non-conflicting time.

Traffic Difficulties Resulting from Route Realignment - Buses traversing the proposed realignments will encounter traffic difficulties in two instances. First, the Route 10 (Salvadore Park) realignment to Coral Way presents peak period bottlenecks at Red Road. Congestion here results from Coral Way's differing vehicular capacities on either side of Red Road. West of the intersection Coral Way is four lanes while to the east it is two lanes. The apparent solution, adding an approach and an exit lane to the eastern leg of Coral Way, would be very costly.

Buses traversing the present Route 10 alignment experience delays during all operating periods at the unsignalized intersection of South Greenway Drive and Red Road. Warrents for signalization of this intersection are doubtful. Besides, a consideration in the Route 10 (Salvadore Park) realignment proposal was coordination with nearby MTA Route 34 service. Hence, the realignment provides for better service and alleviates off-peak period delays crossing Red Road. During the peak periods the congestion delay crossing Red Road will be only two minutes longer on the proposed realignment.

The second traffic problem, involved in the realignment of Routes 12 (Riviera) and 17 (Industrial) is readily soluble. Two changes are necessary on the Southern approach of Douglas Road at the intersection with U. S. Route 1 to accommodate bus turning movements. The left turn lane stop bar should be restracted ten feet, and a left turn advance signal should be installed.

Park-n-Ride

Park-n-Ride facilities are primarily used in conjunction with express bus service. This is because the travel time for a dual mode journey must generally be competitive enough to offset the inconvenience of transferring at the modal interface. CGMBS' only express service is the Miami line (Route 7-8).

Patrons desiring parking for Route 7-8 are readily accommodated at the central terminal facility. There are 350 spaces currently, and the building's foundation will support two additional floors or 350 more spaces. Construction of this additional space has been recommended by the city's traffic engineering consultants. Parking at the terminal is either metered or by permit. The City Parking Authority issues monthly 24 hour permit privileges for $12, and their office is conveniently located in the terminal.

Park-n-Ride for local service routes is available at three specific locations. Terminal parking is public, of course, as is parking at Westchester and Dadeland shopping centers. Park-n-Ride is not formally designated at either of these commercial generators, but it is readily apparent to potential commuters. Future zoning provision for transit parking at commercial centers is recommended. Transit service accrues benefits to business and such a provision would be a reasonable trade-off to the community.

Coordination of CGMBS/MTA

One of the principal objectives of this Transit Development Program is the operational coordination of the two public transit agencies in Dade County. Presently, CGMBS/MTA complimentarity is high. The goal of Service Improvements is the optimization of routes, schedules and fares so that the two agencies would be no less inconvenient for the patron were they merged into one. In many cities buses are run out of multiple garages. The optimal service structure in Dade County is more analogous to a two-garage unified bus system than to two uncoordinated agencies.

Several service improvements in the CGMBS/MTA system are directed to achieve full system optimization. These are:

- Replacement of MTA Route 4 (south) with CGMBS Route 7-8 (local)

- Realignment of MTA Route 34 and CGMBS Route 10 to achieve a combined headway

- Systemwide free transfer exchange (FTE), including CGMBS Route 7-8 in downtown Miami and MTA Route 34 at CGMBS terminal

- Systemwide fare structure

- CGMBS senior citizen fare reduction

Having provided for full operations' coordination, there are two issues which remain to be discussed. The first is delineation of transit responsibility; who must assume the burden of adjusting and adding service to meet standards in south Dade growth areas. The second is the efficiency and viability of having two separate transit agencies in Dade County, no matter how well coordinated.

Transit Responsibility - The CGMBS presently provides transit in the service area extending from S.W. 8th Street (Tamiami Trail) in the north to S.W. 136th Street in the south and from S.W. 37th Avenue (Douglas Road) in the east to S.W. 127th Avenue in the west. In addition, CGMBS operates an express route to the Miami CBD along the Coral Way corridor. Figure 1, showing CGMBS and MTA routes, generally defines service areas.

The MTA provides service in the CGMBS area, but in terms of coverage and level, it is much less intense. Generally, MTA service here is either directed towards large major generators or areas beyond the boundaries. Full coordination of these two operators in the south County has been planned in Service Improvements, to provide efficient regional transit.

In the past, CGMBS has been responsive to developing transit needs in south Dade, as most recently evidenced by the extension of Route 13 to S.W. 127th Avenue. Due to the increasing CGMBS operating deficits supported on a narrow municipal tax base, this responsiveness cannot be expected to continue.

The MTA, as the Countywide transit organization, has the responsibility for service to all developing areas, including south Dade. While CGMBS can continue to operate its

present lines outside Coral Gables, it cannot assume the additional deficits that will result from an expanding service area.

Amalgamation of CGMBS under the MTA - There are no major efficiencies to be achieved by amalgamation of CGMBS under the MTA. On the other hand, an MTA takeover of CGMBS would shift the incidence of transit operation deficits from the City of Coral Gables to Dade County, a much broader funding base. This latter factor is of primary concern to neither federal nor state nor even county government, but to the City of Coral Gables. The question the City must answer every year is whether the automony of a city-operated transit system, with its attendant special services designed to enhance Coral Gables quality of life, is worth municipal involvement. For the past 46 years the City has answered this question in the affirmative.

If CGMBS were an unaffiliated transit system, with a separate overhead structure for its operation, considerable economies could be achieved by amalgamation with MTA. But this is not the case. CGMBS is already affiliated - - with the City of Coral Gables.

Maintenance of CGMBS buses is performed at the City maintenance facility, along with City sanitation trucks, police cars and other vehicles. Administration of CGMBS payroll and accounts is also done on a consolidated City basis. Neither City maintenance nor administrative overhead could be appreciably reduced by amalgamation of CGMBS into MTA.

Moreover, CGMBS has evolved into a transit system which is different from MTA in many respects, so that merger would be complex. The MTA's operating concept focuses on two districts, Miami CBD and Miami Beach. CGMBS, on the other hand, utilizes a pulse scheduling concept to connect local collector routes with a Miami-bound express at its central terminal. CGMBS has a stop-on-demand policy, while MTA establishes fixed stops. Another unique feature of CGMBS is its school service. Special school routes are designed in response to individual requests. CGMBS' labor practices are considerably different from those of MTA, and the

differences are such that the switch to a unified wage structure and seniority list would probably leave some CGMBS as well as some MTA drivers disgruntled.

As a transit operating entity since 1927, CGMBS has developed a reservoir of goodwill among its patrons. This goodwill, a type of intangible asset acknowledged throughout the transit industry, would be lost in merger with MTA. In all probability, even if MTA operated service identical to CGMBS, some loss in patronage would result from merely the name change.

While the above considerations mitigate against CGMBS amalgamation under MTA from an efficiency standpoint, the cost of CGMBS support could necessitate amalgamation from a municipal budget standpoint. Under current arrangements, the City of Coral Gables pays for the privilege of having an autonomous local transit system. Attempts have been made to get County assistance for CGMBS support, but these have had no success to date. Should transit expense begin to exceed perceived community benefits, the City of Coral Gables has the option of calling upon MTA to provide transit in accordance with service standards, which is the MTA's responsibility Countywide. This is clearly a City decision, although such a decision can only be made in light of an accurate valuation of the CGMBS operating deficit (see Financial Plan).

Implementation Plan

CGMBS' most pressing concern has been its burdensome operating deficit. Thus, the focus of service improvements plan has been immediate-action relief of system inefficiency. Most of the proposed improvements have been programmed for the initial phase of a three-phased, five year plan.

The recommended Phase I changes, with the exception of necessary minor traffic engineering, are subject only to the implementation capability of the CGMBS organization. These include:

- Combination of Routes 5 (Country Club) and 6 (Granada)
- Extension of Route 11 (Baptist Hospital)
- Coinciding realignments of Route 12 (Riviera) with Route 17 (Industrial) and Route 11 (via U.S. 1) with Route 11 (via Miller Road)
- Discontinuation of Route 15 (Grand Avenue)
- Discontinuation of the Route 16 (Flagler) morning peak period weekday tripper
- Saturday frequency reductions on Routes 5-6 (Country Club), 9 (Biltmore), 10 (Salvadore) and 14 (University)
- Saturday service modification on Routes 12 (Riviera) and 17 (Industrial)
- Discontinuation of Route 17 (Industrial) Sunday service
- Route rehookings
- Traffic engineering for Routes 7-8 (Miami), 13 (Westchester), 12 (Riviera) and 17 (Industrial)
- Change making at the terminal
- Discontinuation of the evening Lourdes Academy school run
- Establishment of a 10% profit margin on Charter and Recreation services excepting the Youth Center
- Discontinuation of free charter service

The anxious cooperation of CGMBS' management is illustrated by Table VII - - an example of the necessary public

TABLE VII

TIMETABLE REVISION EXHIBIT

COUNTRY CLUB

Number 5

WEEKDAYS

Leave Terminal
6:20 AM thru 7:20 PM every 30 minutes.
7:20 PM thru 9:20 PM once an hour.
Leave Southwest 57th Avenue and 8th Street
6:30 AM thru 7:30 PM every 30 minutes.
7:30 PM thru 9:30 PM once an hour.
Leave Southwest 44th Avenue and 8th Street
6:35 AM thru 7:35 PM every 30 minutes.
7:35 PM thru 9:35 PM once an hour.

SATURDAY, SUNDAY AND HOLIDAYS

Leave Terminal
6:20 AM thru 9:20 PM once an hour.
Leave Southwest 57th Avenue and 8th Street
6:30 AM thru 9:30 PM once an hour.
Leave Southwest 44th Avenue and 8th Street
6:35 AM thru 9:35 PM once an hour.

GRANADA

Route combined with Country Club Number 5.

SALVADORE PARK

Number 10

WEEKDAYS

Leave Terminal
6:10 AM
6:30 AM thru 6:00 PM every 30 minutes.
6:20 PM
6:50 PM thru 9:50 PM once an hour.
Leave Coral Way and 67th Avenue
6:25 AM
6:50 AM thru 6:20 PM every 30 minutes.
6:40 PM, 7:05 PM, 7:35 PM.
8:05 PM thru 10:05 PM once an hour.

SATURDAYS

Leave Terminal
6:10 AM
6:50 AM thru 9:50 PM once an hour.
Leave Coral Way and 67th Avenue
6:25 AM
7:10 AM thru 6:10 PM once an hour.
7:05 PM thru 10:05 PM once an hour.

SUNDAYS AND HOLIDAYS

Leave Terminal
6:10 AM
6:50 AM thru 9:50 PM once an hour.
Leave Coral Way and 67th Avenue
6:25 AM
7:05 AM thru 10:05 PM once an hour.

RIVIERA

Number 12 (Grand Avenue)

WEEKDAYS

Leave Terminal
6:20 AM thru 6:20 PM once an hour.
Leave Southwest 77th Avenue and 136th Street
7:30 AM thru 7:30 PM once an hour.
Leave Sunset and Red Road to Terminal
6:45 AM thru 7:45 PM once an hour.
Leave Grand Avenue and Douglas Road to Terminal
6:30 AM thru 8:00 PM once an hour.
*7:20 AM to Grand Avenue and Douglas only.

SATURDAY

Leave Terminal
8:20 AM thru 5:20 PM once an hour.
6:20 PM outbound from terminal only.
Leave Southwest 77th Avenue and 137th Street
9:30 AM thru 6:30 PM once an hour.
Leave Sunset and Red Road to Terminal
9:45 AM thru 6:45 PM once an hour.
Leave Grand and Douglas Road for Terminal
6:30 AM thru 7:00 PM every 30 minutes.

NO SERVICE ON SUNDAY AND HOLIDAYS

RIVIERA ROUTE
Leave 20 after hour for Grand Avenue.

INDUSTRIAL ROUTE
Leave 10 before hour for Grand Avenue.

INDUSTRIAL

Number 17 (Grand Avenue)

WEEKDAYS

Leave Terminal
6:50 AM thru 6:50 PM once an hour.
8:20 PM thru 9:20 PM once an hour.
(to Hardee Road and Maynada only)
Leave Southwest 77th Avenue and 136th Street
7:00 AM thru 7:00 PM once an hour.
Leave Hardee and Maynada
8:30 PM thru 9:30 PM once an hour.

SATURDAY

Leave Terminal
6:50 AM to Grand and Douglas only.
7:50 AM to Grand and Douglas only.
8:50 AM thru 5:50 PM once an hour.
6:50 PM outbound only.
8:20 PM thru 9:20 PM once an hour.
(to Hardee and Maynada only)
Leave Southwest 77th Avenue and 136th Street
9:00 AM thru 6:00 PM once an hour.
Leave Hardee and Maynada
8:30 PM thru 9:30 PM once an hour.

NO SERVICE ON SUNDAY AND HOLIDAYS

schedule revisions. Along with other revisions, they were sent to the printer prior to the completion of the final draft of this report. The responsive CGMBS staff deserves credit for many of the recommendations developed in this report. The conclusion of their invaluable interaction with the consultant was agreement on implementation of ten of the fourteen Phase I recommendations on June 16, 1973.

Phase II, or intermediate implementation changes, require extensive coordination with other area agencies. In particular, the success of this phase depends on interaction between the Dade County Commissioners, the MTA, the City of Coral Gables, and CGMBS. The following recommendations should then be implemented during the 1974-75 fiscal years.

- Senior citizens fare discount
- Realignment of Route 10
- Route 7-8 assimilation of local service along Coral Way
- Route 7-8 thirty cents local service charge
- Elimination of the zone transfer charge
- Zone fare boundary
- Systemwide free transfer exchange (FTE)

Only one recommendation is programmed for Phase III, or long-range implementation, during the 1976-77 fiscal years. This capital intensive proposal is the provision of additional parking at the central terminal facility. Phase III might also include extension of service to developing county areas if financial support for resultant operating losses is arranged.

CAPITAL IMPROVEMENTS PROGRAM

CORAL GABLES MUNICIPAL BUS SYSTEM

In this section a five-year capital improvements program is presented to augment the recommended CGMBS service improvements program. Revenue equipment and physical facilities needs are identified while the suggested improvements are summarized in Table VIII. The costs involved in this three phase program are illustrated in 1973 dollars.

Revenue Equipment Inventory

The current CGMBS fleet was described in the Loading Standards and Comfort section of this report with a statistical summary seen in Table III. Moreover, 19 of the 59 vehicles are older, gasoline-powered Twin and Southern Coaches that are twice as expensive to operate as the remaining GMC diesel coaches. Only half the fleet is air conditioned and the average age is 32% greater than the national average of 10.0 years. The individual seating capacity of the fleet ranges from 41 to 45.

The fleet is comfortable and well maintained with no overall deficiencies in noise, smoke, or vandalism. CGMBS preventative maintenance includes a thorough, nightly service routine that is partially responsible for the generally good fleet condition. The computerized "Mainstem" analysis system, recently adopted, has the goal of increasing maintenance effectiveness.

Revenue Equipment Needs

Examination of the revenue equipment indicated three needs. First, bus replacements are needed to upgrade the fleet. No net additions are programmed since the service improvements program enables a fleet size reduction. Also, internal communications equipment has been ordered prior to this writing. The third need, fiberglass seating, will afford an immediate savings.

TABLE VIII

FIVE–YEAR CAPITAL IMPROVEMENTS PROGRAM

1973 DOLLARS

Item	PHASE I 1973		PHASE II 1974 – 1975		PHASE III 1976 – 1977		TOTAL	
	Units	Cost	Units	Cost	Units	Cost	Units	Cost
Terminal Addition					1	$1,200,000	1	$1,200,000
Bus Replacements	13	$563,300	13	$563,300			26	1,126,600
Fiberglas Seats	405	18,000	135	5,400			540	23,400
Bus Paint Spray Booth			1	20,000			1	20,000
Terminal Canopy			1	15,000			1	15,000
Bus Shelters			6	12,600			6	12,600
Intercoms	13	3,600	30	8,300			43	11,900
High Pressure Pump	1	1,400					1	1,400
TOTAL – CAPITAL IMPROVEMENTS PROGRAM		**$586,300**		**$624,600**		**$1,200,000**		**$2,410,900**

Bus Replacements - The U. S. Department of Transportation considers 12 to 15 years as the economically useful life of a heavy-duty service transit coach. CGMBS is currently awaiting the delivery of 13 GMC 45-passenger diesel coaches scheduled for late May 1973. This order will enable the retirement of all the old gasoline coaches, and only 10 vehicles older than 12 years will remain in the fleet. As phase II of the service/capital improvements programs are underway, half of these 10 older coaches can be retired in 1974. This is seen in Table IX - - the CGMBS Bus Purchase Program. In 1974 the vehicle requirements will drop to 48 from the 1973 level of 53, while the fleet's average age decreases to 8.7 years from the 8.9 years.

Late in Phase II, during 1975, the five 1954 coaches should be replaced along with eight of the 1962 coaches. The other two 1962 coaches should not be replaced until 1978 since they will be used in a reserve rather than heavy-service capacity. This will further reduce the fleet's average age to a program minimum of 5.3 years. This fleet should then be maintained through Phase III.

Intercoms - CGMBS has ordered 13 "Mobil Page" public address systems for installation on the new transit coaches. This system was chosen over two-way radios in light of the control afforded by the central terminal concept. Besides, the units cost only one-fifth as much.

With the intercom units, drivers can maintain closer contact with the patronage and better control over school children. Thirty more units are programmed for purchase during Phase II to install on the remaining coaches. This improvement is actually of a public information nature in operation.

Fiberglass Seating - Nine of CGMBS new-look coaches should be reseated for cost reasons. Currently, vandalism and bug infestation adds almost $5,200 annually to the maintenance of the upholstered seats. Fiberglass seating will cost approximately $18,000 for these nine coaches including installation. Also, since CGMBS lacks extra upholstered seats, it has been necessary to hold the vehicle out of service during repair of the seats. This improvement has been programmed for Phase I action.

TABLE IX

CGMBS BUS PURCHASE PROGRAM

	1972	1973	1974	1975	1976	1977	
1952	6						
1953							
1954	14	10	5				
1955	2						
1956	3						
1957	3						
1958							
1959							
1960	1						
1961							
1962	10	10	10	2	2	2	15-Year Old Buses
1963							
1964							
1965	20	20	20	20	20	20	
1966							
1967							10-Year Old Buses
1968							
1969							
1970							
1971							
1972							5-Year Old Buses
1973		13	13	13	13	13	
1974							
1975				13	13	13	
1976							
1977							New Buses
Fleet Size	59	53	48	48	48	48	
Average Age (Years)	13.2	8.9	8.7	5.3	6.3	7.3	

Physical Facilities Inventory

The CGMBS central terminal is located in LeJeune Road between Giraldor and Aragon Avenues. On the ground floor there are two offices used for system management, a control booth, and a passenger platform with ten saw-tooth berths on either side. On both sides of the platform, beyond the ends of the berths, is a 59-foot maneuvering area for buses entering and leaving the terminal.

Access to and from the second and third floor parking areas is at the west end of the building. Cars enter the parking areas on the up-ramp from Aragon Avenue and leave by the down-ramp to Giraldor Avenue. In addition to public and commercial intercity bus service, local service to and from the terminal is provided by CGMBS and MTA.

CGMBS maintenance is conducted at 340 San Lorenzo Avenue. The facilities at this site are used jointly with the City Department of Public Service. Maintenance management offices are located on the second floor above the jointly used storeroom.

Bus servicing operations are concentrated in a 160-foot by 80-foot by 20-foot steel and concrete block building, with a 38-foot by 50-foot extension on the southwest end, housing the tire room, toilet, and washroom facilities. Access to the building is from San Lorenzo Avenue through a 65-foot wide paved yard.

The building contains five 32-foot wide bays with a concrete floor. The four easterly bays have hydraulic bus hoists; the fifth, the westerly bay, is divided into two sections by the fueling island. Across the southerly end of the building is a 60-foot wide concrete ramp, leading to the bus storage yard eight feet below the level of the building. The storage yard, 150 feet deep, is paved, has storage capacity for 75 buses, and contains the recently installed bus washer.

Physical Facilities Needs

Six needs were found during the course of physical plant and adequacy of service examinations. These include: a terminal addition, a spray paint booth, six bus shelters, additional terminal seating, a high pressure pump and a terminal canopy. The cost and staging of these improvements are seen in Table VIII.

Terminal Addition - The design of the terminal is such that it will support two additional floors of parking as noted in the Park-n-Ride section of this report. This project has been recommended by the city's traffic engineering consultants. It is the only capital improvement programmed for Phase III (1976-77). This item alone makes Phase III roughly twice as expensive as either Phase I or II.

Spray Paint Booth - Without a booth, the current CGMBS painting process is both hazardous and polluting. The current fire danger and spray drift are unacceptable. In addition, much finer results are obtained while painting in the controlled atmosphere of a booth. A spray paint booth is therefore programmed for Phase II.

Bus Shelters - Investigations of major loading and transfer locations indicate the need for four new bus shelters and two replacements. Table X summarizes these locations and the routes serving them. The new shelter locations are all of third priority according to the Service Standards warrants. Both replacement locations are under-capacity and dilapidated. The installation of these shelters is programmed for Phase II.

Terminal Seating - Interviews and observations at the central terminal during the adequacy of service compilations demonstrate a need for additional seating there. One hundred thirty-five seats will provide maximum capacity. This passenger amenity is scheduled during Phase II of the Capital Improvements Program.

High Pressure Pump - Inspection of the recently installed bus washer and discussions with maintenance personnel indicate the need for a high pressure pump attachment. This pump cleans four specific areas: engine compartment, wheel wells, entire interior, and the bus washer brushes. The pump will lend to more efficient coach cleaning. It will reduce man hours per bus from 16 to 3, and also preserve the expensive washer brushes. The $1,400 cost, including installation, is programmed for Phase I.

Terminal Canopy - Installation of a sidewalk canopy at the central terminal is recommended to provide shelter during inclement weather. Attached to the existing structure, the canopy

TABLE X

BUS SHELTER PURCHASE PROGRAM

Location	Routes	
	CGMBS	MTA
New Shelters		
Ponce de Leon Boulevard and S. W. 8th Street	16	5
Ponce de Leon Boulevard and Flagler Street	16	6, 11
Ponce de Leon Boulevard and LeJeune Road	11	
Douglas Road and Grand Avenue	12, 17	
Replacements		
Variety Hospital Stop	10	
University of Miami Hospital Stop	14	

should extend from the passenger concourse along the west side of the building to Aragon and Giralda Avenues. This passenger amenity is programmed for Phase II.

FINANCIAL ANALYSIS

CORAL GABLES MUNICIPAL BUS SYSTEM

In the previous sections of this report, Coral Gables Municipal Bus System (CGMBS) service was measured against Dade County transit standards, and service adjustments were detailed to achieve greater efficiency. A capital improvements program was developed to support CGMBS operations over the next 5-year period. The question remains: how much will the system cost to operate? This is a critical question for the City of Coral Gables, which in the past few years has seen the municipal transit account go from a break-even status to over a half-million dollar projected accounting deficit.

In this financial analysis, the first order of business is a review of past CGMBS financial performance, with the objective of determining the real, rather than the accounting, cost of the bus system. This data base will be used to generate a financial pro forma for the next five fiscal years, FY 1972-73 through FY 1976-77.(1) Finally, CGMBS operating deficits will be compared against CGMBS community benefits in a qualitative fashion, so that the city can have an appreciation of the types of benefits it is purchasing through transit support.

Review of Previous Years' Accounts

As a municipal department, CGMBS falls under the City of Coral Gables accounting system. While such an arrangement is not uncommon in the United States (Detroit, San Francisco and Seattle are among the over fifty transit agencies which are city departments), it does create a dilemma. There are considerable efficiencies to be gained by consolidation of transit functions, such as maintenance, administrative and purchasing, with similar functions of other city departments. Yet this consolidation, while saving money, makes it difficult to equitably allocate shared costs among each department.

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(1) The City of Coral Gables fiscal year is October 1 through September 30.

Fortunately, the City of Coral Gables has one of the best municipal accounting systems in the country.(2) As a result of this skill, the fiscal performance of the transit system is much more easily discernible than in the typical transit-operating city. However, even in Coral Gables there are some conversions which must be made to go from the accounting cost of transit to the actual cost of transit: that is, how much does the bus operation really cost Coral Gables tax payers.

Table XI shows CGMBS financial statements for the past three years, as well as the FY1972-73 budget. At first glance, the numbers in this table are discouraging - - operating losses are shown to increase from $163,000 in FY 1969-1970 to $356,000 in FY1970-1971 to $482,000 in FY1971-1972 to $530,000 in the FY1972-1973 budget. While deficit spirals of this magnitude have actually occurred in many transit systems due to increasing labor costs in the face of declining patronage, the deficit increases shown for CGMBS are not actual, but are due to changing and improved accounting practices.

There are two major accounting improvements implemented within the past three years which have had significant effects on the CGMBS fiscal picture. The first of these is the allocation of employee benefits' expense to each department beginning with the 1970-1971 fiscal year. As a result of this proper cost assignment, CGMBS showed an additional $112,000 deficit in 1970-1971, when in fact, this expense had been incurred, although not charged to transit, in previous years.

The second major accounting improvement is the institution of MAINSTEM, a procedure to accurately allocate motor pool expense among the several user departments (transit, sanitation, police, etc.). Prior to October, 1972, motor pool total cost was split among the departments based on the best guess of responsible officials. Under this system, it appears that CGMBS was overcharged. In 1969-1970 this overcharge amounted to approximately $70,000; in 1970-1971, the overcharge increased to $120,000;

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(2) The annual financial reports of the City of Coral Gables were judged best by the Florida Magazine Association in 1970 and again in 1971.

TABLE XI

CGMBS FINANCIAL STATEMENTS

PAST THREE YEARS AND CURRENT BUDGET

	ACTUAL[1]			BUDGET[1]
	1969 – 70	1970 – 71	1971 – 72	1972 – 73
Operating Revenue				
Cash Fares	$786,680	$779,739	$762,158	$760,421
Bus Advertising	10,416	8,925	10,188	9,694
Charters	20,786	25,516	37,420	26,918
TOTAL – OPERATING REVENUE	**$817,882**	**$814,180**	**$809,766**	**$797,033**
Operating Expenses				
Salaries and Wages	$582,495	$626,769	$651,959	$678,822
Employee Benefits	0[2]	111,788	110,567	116,906
Employee Awards	1,406	1,463	1,575	1,875
Subtotal – Personnel	**$583,901**	**$740,020**	**$764,101**	**$797,603**
Office Supplies	$ 2,234	$ 944	$ 926	$ 945
Printing	–	1,442	1,481	1,680
Employee Uniform Purchase	4,343	4,324	5,222	5,440
Subtotal – Supplies	**$ 6,577**	**$ 6,710**	**$ 7,629**	**$ 8,065**
Maintenance (Motor Pool)	$336,550	$390,068	$489,211	$489,527
Advertising	41	197	220	300
Insurance [3]	50,751	30,169	28,351	29,207
Administration [4]	927	153	2,340	2,312
Subtotal – Other Charges	**$388,269**	**$420,587**	**$520,122**	**$521,346**
TOTAL – OPERATING EXPENSE	**$978,747**	**$1,167,317**	**$1,291,852**	**$1,327,014**
NET (LOSS) BEFORE DEBT SERVICE AND DEPRECIATION	**($163,411)**	**($ 355,674)**	**($ 482,086)**	**($ 529,981)**
REVENUE MILES	**1,596,000**	**1,566,674**	**1,478,247**	**1,500,000**

(1) City of Coral Gables fiscal year runs from October 1st through September 30th.

(2) Employee benefits' expense was not allocated to municipal departments prior to FY 1970–71.

(3) Charged on a direct cover basis in 1969–70, but on a pro rata basis thereafter.

(4) Includes telephone, subscriptions, office equipment maintenance and computer service. The last two of these categories were not allocated prior to FY 1971–72.

SOURCE: *1972 – 73 Budget Estimate*, City of Coral Gables, Florida, June 23, 1972 as supplemented.

in 1971-1972, CGMBS overpaid by $220,000 for maintenance. In the first quarter of FY1972-1973, under MAINSTEM, actual CGMBS maintenance expense aggregated to $70,850, compared with an accounting cost of $121,382 assigned to transit by the motor pool. On an annual basis, these figures indicate that approximately $200,000 of the $530,000 CGMBS current budgeted deficit is actually a motor pool subsidy, with transit paying more than its fair share, and other departments paying less.(3)

There are two other municipal accounting effects of lesser magnitude which should be discussed. The first is insurance. In 1970-1971, the City in the interest of efficiency brought transit under citywide liability coverage and assigned a pro rata share of insurance expense to CGMBS. The 1972-1973 assignment of $29,207 probably understates by $30,000 the incremental cost of including transit in the citywide policy.

CGMBS is not charged for City of Coral Gables accounting and administrative personnel. Since no departments are assigned these charges and since almost all City administrative employees would remain even if there were no CGMBS, the recording of this expense under City overhead does not significantly bias CGMBS accounts.

Incorporating all these considerations, it is possible to reconstruct in general terms the past three years' actual CGMBS deficits and the actual deficit projected for 1972-1973 under current service.

CGMBS Estimated Actual Operating Deficits

Fiscal Year	Amount
1969-70	$200,000
1970-71	260,000
1971-72	290,000
1972-73 (budget)	360,000

(3) Notwithstanding the accuracy of MAINSTEM, CGMBS allocated maintenance expenses were much higher than the industry average of 15¢ to 20¢ per mile. In 1971-72 the CGMBS maintenance charge amounted to 33¢ per mile.

In the next section of this chapter, the effects of Transit Development Program service improvements on CGMBS future fiscal performance will be analyzed.

Financial Pro Forma

A five-year financial forecast for CGMBS is shown on Table XII. The 1972-73 budgeted deficit of $360,000 will be reduced by $18,000 with implementation of specified service changes in the last quarter of the fiscal year (a $72,000 savings on an annual basis).

In FY1973-74 the revenues from the previous year's system are projected to increase by 3%, but costs are projected at a 6% annual increase. This imbalance in revenue and cost trends is responsible for almost $50,000 of "built-in" extra deficits during each year of the planning period. For FY1973-74 this built-in escalator can be more than offset by economies of the entire Phase I service changes package.

The $313,000 FY1973-74 deficit increases to $355,000 in FY1974-75 due to the revenue/cost trends imbalance. However, system changes, particularly replacement of MTA Route 4 (south) with CGMBS Route 7-8 (local) and the new zone fare boundary, reduce this deficit to $300,000.

With no CGMBS service changes scheduled for FY1975-76 or FY1976-77, operating deficits increase to $346,000 in the former year and $395,000 in the latter year.

Community Benefits

As a result of service changes to be instituted by CGMBS, the bus system operating deficit will stabilize at approximately $300,000 annually in the first three years of the planning period, thereafter increasing by approximately $50,000 annually, without offsetting service reductions or fare increases. The question which the City of Coral Gables must answer each year is: Is the municipal bus system worth this price?

This question is complicated by the organization for transit in Dade County. For Coral Gables, the choice is not between bus service or no bus service, since the Metropolitan Dade County Transit Authority is responsible for providing bus service

TABLE XII

FINANCIAL PRO FORMA

CORAL GABLES MUNICIPAL BUS SYSTEM

Service Change	Change In Miles	Change In Revenue	Change In Cost	Change In Margin
FY 1972–73 [1]				
Previous Year System	1,500,000	$797,000	$1,157,000	($360,000)
Service Improvements				
– Coordinated realignment of Routes 11, 12 and 17 to allow for discontinuance of Route 15				
– Discontinuance of Route 16 weekday tripper				
– Weekend service reduction				
– Route rehockings				
– Discontinuance of evening Lourdes Academy run				
– Establishment of 10% standard operating margin on charters				
(Effect of above changes on FY 1972–73 budget with June 16, 1973 implementation)	(40,000)	(7,000)	(25,000)	18,000
TOTAL	1,460,000	$790,000	$1,132,000	($342,000)
FY 1973–74				
Previous Year System	1,340,000	$792,000	$1,120,000	($328,000)
Service Improvements				
– Combination of Routes 5 and 6	(27,000)	(8,000)	(17,000)	$ 9,000

TABLE XII

FINANCIAL PRO FORMA

CORAL GABLES MUNICIPAL BUS SYSTEM

(Continued)

Service Change	Change In Miles	Change In Revenue	Change In Cost	Change In Margin
– Extension of Route 11	11,000	$ 5,000	$ 2,000	$ 3,000
– Discontinuation of free Charters	(5,000)	–	(3,000)	3,000
TOTAL	1,319,000	$789,000	$1,102,000	($313,000)
FY 1974–75				
Previous Year System	1,319,000	$813,000	$1,168,000	($355,000)
Service Improvements				
– Realignment of Route 10	(10,000)	(1,000)	(5,000)	4,000
– Route 7–8 local	26,000	91,000	51,000	40,000
Service replacing MTA Route 4 (south)				
– Senior citizens reduced fare	–	*(2)*	–	–
– Elimination of zone transfer		(2,000)		(2,000)
– New zone fare	–	26,000	–	26,000
Boundary at Red Road				
– Free transfer exchange		(13,000)		(13,000)
TOTAL	1,335,000	$914,000	$1,214,000	($300,000)
FY 1975–76				
Previous Year System	1,335,000	$941,000	$1,287,000	($346,000)
FY 1976–77				
Previous Year System	1,335,000	$969,000	$1,364,000	($395,000)

(1) City of Coral Gables' fiscal year runs from October 1st through September 30th.

(2) Revenue losses to be reimbursed by Dade County.

countywide, and has acknowledged this responsibility with respect to Coral Gables in the event of CGMBS discontinuance. The choice for Coral Gables is rather between an autonomous, personalized municipal transit system versus service from the countywide carrier.

Faced with apparent bus system deficits of $356,000 in FY1970-71 and $482,000 in FY1971-72, the City chose to maintain the bus system. In the immediate future, with operating deficits in the $300,000 range (approximately 3% of municipal budget), the City must again decide on the value of an autonomous bus system.

The Transit Development Program, by fully coordinating CGMBS and MTA service, presents a system design which should be unaffected by any transfer of operating responsibility. However, certain features of CGMBS service, such as stops on demand, service frequencies above standard, and personalized school service might not be continued under MTA-run operations. No matter what decision the City of Coral Gables takes regarding future bus service, it can be proud of the record of community service and fiscal responsibility compiled by CGMBS over the past 46 years.