

*Miami-Dade County
Metropolitan Planning Organization (MPO)*

ALTERNATIVE STRATEGIES FOR MITIGATING TRAFFIC CONGESTION

October 2000

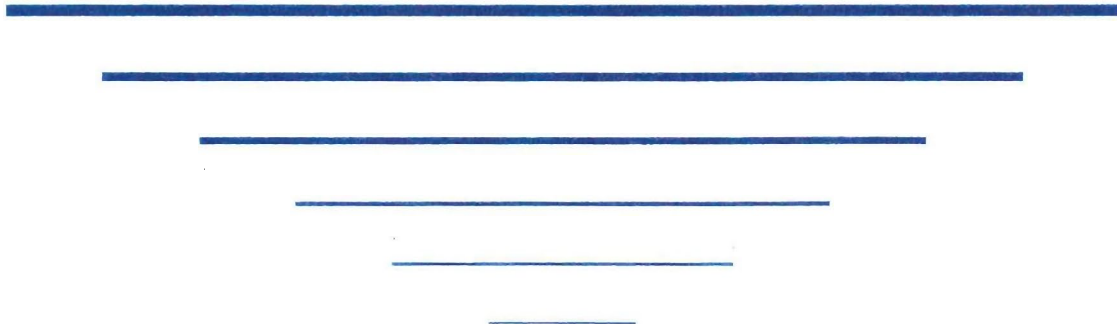


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I. INTRODUCTION

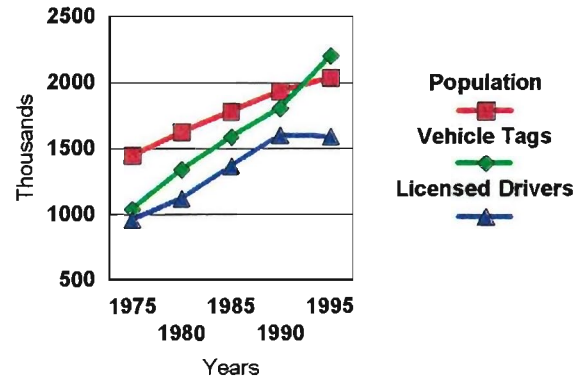
Miami-Dade County has experienced in the past 20 years, a high rate of socio-economic growth that has affected drastically the life of all residents. The growth in population has created a need for housing and employment, that has required the construction of transportation infrastructure within a very short period of time. Consequently, other problems have been created.

More vehicles are running on our roadways and people have to travel longer distance. According to the Texas Transportation Institute (TTI), Miami-Dade County is considered the third more congested area in the United States.

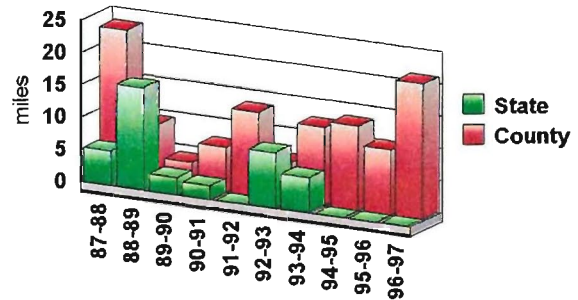
Unfortunately, the land available for the construction of new highways is limited. Since 1987, the State and the county have only built 39.9 and 118 center miles of new roadways, respectively. More has to be done, but resources are limited. Based on that, other options for alleviating traffic congestion need to be considered.

Following, there is a description of several strategies to alleviate traffic congestion that have been successfully implemented in other cities. These strategies are generally oriented to change driving behavior and to provide extra capacity to the roadways without adding new lanes.

Trends in Miami-Dade County



New Roadways Centerline Miles



Source: FDOT

A. **CONCEPT**

A vanpool demonstration program is in place in Miami-Dade County aimed at alleviating traffic and encouraging the removal of solo drivers from our congested roads. The program provides vans to commuters traveling together on a regular basis to and from work. Program management and operation is contracted with Vanpool Services, Inc. (VPSI).

B. **HOW IT WORKS**

A group of 7 to 15 persons commutes together to work in a comfortable van driven by one of the participants. One person is responsible for the van, who is called a volunteer driver. The group is organized and other participants are selected as back-up drivers. Usually, the group decides how many stops they are going to have along the route, as well as when and where to meet.

C. **HOW MUCH IS THE COST**

Based on the size of the group and the monthly mileage, an individual monthly contribution is determined as appropriate. Currently, the MPO provides a \$300.00 subsidy per vehicle per month. The balance of the cost is shared by all members of the group except the volunteer driver. Direct costs such as gasoline, parking and tolls are shared by all participants as needed.

The monthly fee includes the lease of the vans, insurance (no-deductible), as well as all scheduled and nonscheduled maintenance.

D. **BENEFITS**

1. **Employees**

- Lower the stress and anxiety of commuting.
- Save time by using HOV facilities.
- Additional time to spend working or relaxing while commuting.
- Save costs comparing to using their own vehicle.
- Extend the life span of individual private vehicles.
- Commuters participate in the Emergency Ride Home Program (ERHP). In the event of a personal or family emergency or if required to work unscheduled overtime, participants in the vanpool can use an ERH trip payment voucher to cover the cost (minus driver tip) of a taxi trip home up to six times per year.

- Tax free benefit up to \$780 per year. Under IRS Code 132(f), an employer is permitted to pay employee commute cost (up to \$65.00 tax free per month) if they ride transit or vanpool to work. Or an employer may permit employees to allocate up to \$65.00 per month of their salary as pre-tax income for vanpool fees.

2. **Employers**

- Reduce parking needs.
- Improve accessibility and parking availability for customers and visitors.
- Enhance public image.
- Improve employee morale.
- Contribute to alleviate traffic congestion and improve the overall community quality of life.

3. **County**

- Provide a regional alternative for regional commuters in Miami-Dade, Broward and Palm Beach counties.
- Improve air quality and help ease traffic congestion.
- Enhance public image.
- Support federal and state policies in promoting alternative modes of transportation, other than driving alone.

E. **CURRENT EXPERIENCE**

In Miami-Dade County the program started last year. There are five vans in operation that have eliminated over 150,000 person-trips and 550,000 passenger-miles from our roads. There are many cities that have successfully implemented this program like Seattle and Chicago. These cities have over 400 vans on the street.

F. **WHAT CAN BE DONE TO ENCOURAGE MORE PUBLIC USE OF THE PROGRAM**

1. **At County Level**

- Continue to promote the establishment of the vanpool program.
- For county employees that may want to form a vanpool, parking should be provided free of charge at county facilities and gas could be accessible to participants at the motor pool at county cost.

2. Private Sector

- Commissioners may send letters to encourage employers within their districts for establishing this alternative.
- Technical support for implementing this program could come from the county, VPSI and the South Florida Commuter Services.
- VPSI is contacting employers and promoting the establishment of the program at county level.

III. SUBSCRIPTION BUS SERVICES

A. CONCEPT

A special service is provided for a group of individuals based on specific needs of transportation. According to the size of the group a bus, minibus or a van is used to move people from point to point. This concept allows limited intermediate stops.

B. HOW IT WORKS

A demand for this service is determined and a route is designed according to the needs of the group based on a fixed schedule. The service could be established during peak periods only or during a continuous service for a longer period. The size of the vehicle is determined based on demand and the individuals subscribe to the service and pay a monthly fee.

This service is similar in concept to the vanpool program but with the difference that in this case, the service is established and people call for subscription. There is no need for forming a group or having a volunteer driver. Usually, subscription services are provided by public and private transit operators and by employers.

C. BENEFITS

Similar to those listed in Section I for the Vanpool Program.

D. CURRENT EXPERIENCE

MDTA initiated this strategy in the Hammocks area. The Homeowners Association supported the concept, materials were distributed but demand for service was not as expected. Additionally, no funding was available to provide the service at reasonable cost.

A. CONCEPT

One lane in an existing facility is dedicated for special use during peak periods. This lane is used in the direction of the heaviest traffic in the morning and it reverses in the afternoon to the opposite direction.

B. HOW IT WORKS

Usually, this alternative is implemented on arterial roads, not on expressways. Analyses must be conducted to evaluate traffic volumes on both directions in order to determine the direction of the lane to be taken and the difficulties that may arise as a result of this action. There are two ways for implementing this alternative:

1. In 3-lane or 5-lane roadways the implementation is easy because usually the center lane is normally used as a turning lane. In this situation, this lane is converted to a reversible lane and turning movements are not allowed.
2. In a 4-lane facility, one lane is taken from the direction with less traffic volume in the morning peak and vice versa in the afternoon peak.

C. PROS AND CONS

1. Benefits

- ☺ Increase the capacity of the roadway without need for new construction.
- ☺ Alleviate traffic congestion.
- ☺ Implementation costs are low.
- ☺ Effectiveness can be measured in a short term.

2. Inconveniences

- ☹ High risk of driver confusion during the initial phase of implementation.

D. HOW IT COULD BE IMPLEMENTED

Traffic analyses are conducted to determine those arterial roads suitable for implementing this alternative, as well as the actions needed for implementation, such as: traffic signalization, pavement markings, signage, enforcement measures and most important, a public campaign to educate the public.

E. **CURRENT EXPERIENCE**

In Miami-Dade County there are no current applications, but in other cities this alternative has been successfully implemented. One good example is San Juan, Puerto Rico, where driving conditions are similar to Miami-Dade County. Reversible lanes has been successfully in place for more than 15 years in various locations.

V. INTERSECTION IMPROVEMENTS (RUSH)

A. CONCEPT

The Resourceful Use of Streets and Highways (RUSH) program was designed to provide the county with a tool for expediting and implementing effective low cost improvement projects on a timely basis. This concept is intended to correct obvious deficiencies that in the past had to be over-engineered or studied with expensive documentation to achieve an obvious results. There are small, low cost improvements that can be built quickly, provide effect relief, and contribute to immediate traffic benefits.

B. HOW IT WORKS

A steering committee composed of two representatives of the Florida Department of Transportation (FDOT), two representatives of the Miami-Dade County Public Works Department and one representative of the Metropolitan Planning Organization is in place for evaluating improvements at congested intersections and small roadway segments.

Candidate locations are evaluated on the criteria established by the steering committee. Different weights are assigned to each factor considered in the criteria, according to their importance in meeting the program's goals. The following factors are included in the criteria:

- Need for Right-of-way acquisition
- Magnitude of environmental impacts
- Ability to complete design and construction within 1-2 years
- Availability of data
- Project cost
- Multi-modal, operational and safety benefits

This criteria screens out expensive or lengthy design and construction projects. Once the locations are selected, the projects are placed into the county's Transportation Improvement Program (TIP) where funds are programmed for construction.

C. BENEFITS

These actions will:

- Relief traffic congestion.
- Improve the public image of transportation agencies.

- Project priority can be established jointly by all agencies.
- Reduce the number of conflict points.
- Consider the needs of pedestrians and bicyclists.

D. HOW IT COULD BE IMPLEMENTED

The program is already in place. The current Report includes schematic designs for 20 locations, as well as pictures to help visualize the problem. Additionally, other recommendations are included in the report to improve the process for the next cycle of RUSH projects.

Due to the fact that this is a pilot project, only FDOT, Public Works and the MPO are currently working on this program.

A. CONCEPT

Telecommuting is one the alternatives considered to alleviate traffic congestion by allowing employees to work at home. This practice is being implemented by many private companies.

B. HOW IT WORKS

The employee is allowed to work from home on certain days. In order for establishing a telecommuting project, employees have to have the facilities for working at home. This may include at least: the hardware (computer, printer, etc...), software (the same available at the work site for compatibility) and communication links (fax, modem, telephone, etc...). Telecommuting is not suitable for every job, employer, person or situation.

C. PROS AND CONS**1. Benefits to the Employers**

- ☺ Increase employees' productivity
- ☺ Reduce parking needs
- ☺ Save energy (gas, light, ...) and reduce energy related costs
- ☺ Reduce office space and expenses
- ☺ Reduce the number of work trips, alleviating traffic congestion
- ☺ Reduce absenteeism and sick leave

2. Benefits to the Employees

- ☺ Improve morale of the employees
- ☺ Save car related cost for employees (gas, parking, depreciation, etc...)
- ☺ Provide flexibility to employees in terms of the working hours.
- ☺ Provide comfort to employees in terms of dressing codes
- ☺ Reduce expenses related to clothing, parking, meals,...
- ☺ Autonomy and control of working schedule and conditions Improve morale of the employees.

3. Inconveniences for the Employers

- ☹ Lack of supervision
- ☹ No standard attendance reporting procedures

- ☹ Liability and insurance considerations
- ☹ Occupational health and safety issues

4. **Inconveniences for the Employees**

- ☹ Isolation
- ☹ Increase cost of employees regarding:
 - ✓ Purchasing of hardware and software
 - ✓ Increase energy related costs at home (light, A/C, etc...)
 - ✓ Increase number of non-work related trips
- ☹ Lack of office support
- ☹ Tendency to overwork
- ☹ Pressure to work harder to justify telecommuting

D. **CURRENT EXPERIENCE**

- No formal implementation has been done at county level.
- Private companies have some programs in place.

E. **WHAT CAN BE DONE**

1. **At County Level**

- Promote the establishment of telecommuting programs through public statement of support by elected officials.
- Contact other counties and cities that have implemented this program to obtain more information about the results at government level.
- Some county departments may initiate a demonstration program to determine the feasibility and results derived from this alternative.

2. **Private Sector**

- Commissioners may encourage employers within their districts for establishing this alternative.
- Technical support for implementing this program is available from the county and the South Florida Commuter Services.

VII. ALTERNATIVE WORK HOURS

A. CONCEPT

This strategy is aimed at reducing traffic congestion during peak periods by either shifting commute travel times or by eliminating commutes on a certain day of the week.

B. HOW IT WORKS

There are several options in this alternative:

1. Flextime

This option provides flexibility to employees for coming to work during a specific span of time. Usually, this period may range from 6:00 am to 9:00 am in the morning, and from 3:00 PM to 6:00 PM in the afternoon.

2. Compressed Work Schedule

This option allows employees to work 10 hours a day for four days a week. A fifth day is off anytime during the same week.

3. Staggered Work Hours

This option is defined as an eight-hour day, five-day work week, with starting and ending times staggered by time intervals. These intervals are usually within a range of 15 and 30 minutes.

C. BENEFITS

- Alleviate traffic congestion during peak period.
- Eliminate trips from the roadways, improving air quality.
- Reduce driving time.

D. HOW IT COULD BE IMPLEMENTED

Employers with over 100 employees are the best candidates for implementing this alternative. The South Florida Commuter Services assists employers in implementing this type of alternative.

E. **WHAT CAN BE DONE**

1. **Private Sector**

- South Florida Commuter Services is contacting employers with over 100 employees to promote ridesharing alternatives.
- A letter could be prepared for the signature of Commissioners for encouraging employers within their districts for establishing this alternative.
- Technical support for implementing this program could come from the county and the South Florida Commuter Services.

A. **CONCEPT**

The Superarterials concept is an area-wide system of arterial streets that are developed or improved to increase the capacity of the various corridors.

B. **HOW IT WORKS**

In order to convert a regular arterial street to a superarterial, an evaluation has to be made to determine which traffic improvements are needed to increase the capacity in that particular corridor. Some of the possible improvements include:

- traffic channelization
- traffic signal improvements
- street and/or intersection widening
- left/right turn lanes
- turn and/or parking prohibitions
- one-way streets
- eliminate parking
- grade separations
- reversible lanes
- lighting improvements
- bus turnout bays
- signal preemption
- railroad grade separations

C. **BENEFITS**

- increase capacity
- improve traffic flow
- reduce pollution and delays
- when this concept is developed on arterials along the highway system, it provides additional capacity, as well as an alternate route to traffic congestion on the highways

D. **HOW IT COULD BE IMPLEMENTED**

County and State officials can work together in preparing a project of this type along one of the existing highways. Cost is a determining factor.

E. CURRENT EXPERIENCE

A study was conducted by the MPO which identify corridors and improvements that can be implemented.

F. WHAT CAN BE DONE

The MPO will move forward with the implementation of the improvements identified in the study as appropriate.

IX. INTERMODAL IMPROVEMENTS

A. CONCEPT

An intermodal facility is any facility connecting two or more transportation modes. The concept behind this alternative is to provide better physical facilities, at low cost, that can create an attractive transferring point for diverting people from private cars to public transit or other modes such as bicycle, pedestrian, etc...

B. HOW IT WORKS

Locations are evaluated and selected based on a set of factors that can justify the investment in building these intermodal facilities. Some of these factors include number of modes that connect at each location, ridership or potential use for single drivers, convenience for transferring to other mode, safety, security, parking, and other amenities needed for attracting people to these facilities. Usually these locations are located in the suburbs to attract single drivers to transit or in the urban areas to provide better facilities and faster service for transferring to other modes of transportation.

These intermodal facilities may integrate buses, rail, jitneys, taxis, bicycles, pedestrians, private cars (Park&Ride and Kiss&Ride facilities) in one location with all amenities convenient for easy transfers.

C. BENEFITS

- Improve the quality of transit services.
- Improve the image of transit in the region.
- Relief congestion.
- Promote accessibility of the intermodal facility and the modes it serves.
- Encourage drivers to use public transit.
- Promote public/private ventures.
- Promote economic development for the region.
- Provide connectivity to other locations and activity centers.
- Facilitate access to different modes of transportation.

D. HOW IT COULD BE IMPLEMENTED

Similar to the RUSH concept, funding (federal, state and local) could be allocated in the Transportation Improvement Program (TIP) for design and construction of these facilities.

E. **CURRENT EXPERIENCE**

A study was conducted by the MPO and 25 locations were selected. This study also included a schematic design for each site.

F. **WHAT CAN BE DONE**

Funding is being allocated on an annual basis to advance the identified projects. Progress is low due to limited funds.

A. CONCEPT

This service is normally established as a feeder for rail or bus routes. However, it also works as a circulator to provide accessibility to employer's site, activity centers and/or other locations. The service provides frequent stops and is oriented to cover small areas.

B. HOW IT WORKS

Shuttle services is the most flexible alternative for moving people. This can be based on fixed schedule or not. Different to jitneys, shuttle services (van or minibus) usually are provided by employers. This service could also be contracted with a private operator. A route is established according to the needs of the area. The alignment of the route may vary from point "A" to point "B" or as a circulator. Shuttles stop at any point along the route for picking and dropping passengers, but there are some specific destinations as main stops. Fare is optional.

C. BENEFITS

- Coverage area is limited.
- Provide continuous service.
- Service is faster and frequent.
- Provide accessibility and connectivity to main activity centers.
- Eliminate additional trips during non-peak periods (lunch, shopping...)

D. HOW IT COULD BE IMPLEMENTED

There has to be a need in the area for this type of services. Employers have to take the first steps for the provision of this service.

E. WHAT CAN BE DONE

Actually, the MPO is conducting a study in the Airport West Area and in downtown Miami to evaluate the feasibility of implementing shuttle services in these areas. Results are expected by December 1999.

F. **CURRENT EXPERIENCE**

The Miami Beach Transportation Management Association (MBTMA) has successfully developed and implemented the ELECTROWAVE in the Miami Beach area. This shuttle service uses electric vehicles to provide service in the mid and south beach areas. This service has particular characteristics that contribute to its success. Additionally, operational funding is being provided by the city and by other entities.

XI. RED LIGHT CAMERA ENFORCEMENT PROGRAM

A. CONCEPT

The idea behind this program is to take a photo of the plate of a car running a red light. In order to do that, electromagnetic induction loops are embedded in the pavement, monitoring all lanes approaching the intersection. These loops transmit traffic information to the signal control box that triggers the red light camera, that is also connected to the signal control box. Then, the camera is activated after a predetermined grace period at the start of each red phase in the traffic signal.

When a violation occurs, the video camera captures the images of the vehicle license plate and records the date, time, seconds into the red phase, as well as the location of the violation. Automatically, a ticket is issued and mailed to the owner of the vehicle.

B. HOW IT WORKS

1. Non-Moving Violation Ticket:

In New York, the program was developed and implemented using an approach that considerably simplifies the process.

- The ticket issued is considered a non-moving violation, therefore, the fine is equivalent to a parking ticket.
- The record of the driver is not affected.

2. Moving Violation Ticket:

San Francisco calls for a moving violation that:

- Require, in addition to the photo of the plate, a photo of the person driving the vehicle at the moment of the violation for proper identification.
- The record of the driver is negatively affected by 1 point in his/her driver license.
- Notices to appear in court must be mailed within 15 days of the date of the violation.
- Failure to appear will result in cancellation of the driver's license or vehicle registration.
- Additional equipment is required to take a frontal picture of the driver.

C. BENEFITS

- The number of motorist and pedestrian accidents have been reduced in those intersections where the program has been implemented.

- The number of red light violations has been dramatically reduced by more than 50% at these locations.
- Driver's aggressive habits have changed or modified.
- Pedestrians, bikers and responsible drivers have been benefited by the reduction of red light running violations.
- This program allows policemen to focus on other enforcement needs and reduces the stress produced by chasing cars or stopping violators while traffic is moving.
- Nationwide, citations issued by the program generate additional funding for other related projects.

D. CONCERNS IN MIAMI-DADE COUNTY

1. Legal Issues

- Amendment of state statutes needed to allow automated enforcement for red light violations.
- Privacy issues have been raised regarding the identification of the drivers using a frontal photograph. In some locations, photographic records are considered confidential to reduce the impact on this issue. In Miami-Dade County a recommendation is made based on a non-moving violation ticket that not requires a frontal picture.
- Drivers are presumed guilty rather than presumed innocent. In order to provide a due process, some locations have established a procedure to allow drivers to prove he or she was not driving.

2. Financial Issues

- Need to identify funding sources for implementing the program.

3. Administrative Issues

- If the driver is not the owner of the vehicle, the process to identify the driver is time consuming.
- Coordination among the different agencies and the vendor in establishing the program.
- Development of a vigorous public involvement program, in order to obtain public acceptance and support.

4. Public Issues

- Some people are opposed to the implementation of the program, due to the impression of "Big Brother is watching us".
- Locations where cameras are installed should be identified, to warn drivers about the program.

5. Technical Issues

- Technical problems in taking frontal photograph of the drivers.
- Frontal photography adds complexity to ticket issuance, drivers' identification, engineering aspects and drivers' privacy.
- External conditions such as windshield glare and obstructed facial views, significantly complicate the process making impossible to convert many valid infractions into tickets.
- Frontal photography requires more extensive installation work to place the cameras at the proper locations.

E. HOW IT COULD BE IMPLEMENTED

Unfortunately, a bid regarding the authorization for automated ticketing of motorists who run traffic signal red display did not pass during the 1999 State Legislative Session. Additional efforts should be done to demonstrate the effectiveness of this alternative.

F. CURRENT EXPERIENCE

1. New York

- This project was the first one using this technology and was implemented in 1994.
- Implementation costs \$15.5M/3-year.
- Total project includes 18 intersections.
- More than 450,000 tickets issued and over \$18.5M collected through 1996.
- \$50 fine (parking ticket).
- Over 65% of the tickets are paid to the first notice.
- Conviction rate is 85% of those who appear in court.
- Number of accidents have been reduced.
- Driver's habits have been dramatically changed.
- 60% decrease in the average number of violations per location.
- Program is been expanded to add 12 new intersections.

2. San Francisco

- The city started this program, as a pilot project, in four locations.
- A total of \$250,000 was authorized from sale tax to install the equipment.
- Two vendors received \$30,000 per intersection to cover expenses.
- Vendors receive \$17.50 of the \$104 fine per paid ticket.
- State Legislature amended the California Vehicle Code to allow "automated enforcement".
- The program started in October 1996.
- During the first six months of operation, over 3,000 citations had been mailed out.

- 20 more locations are being added by early 1998.
- Red light running violations were reduced by 40%.
- To cover expenses, a bill was introduced to raise the fine from \$104 to \$271 per ticket.
- General public, advocacy groups and politicians support the expansion of the program.

3. Other countries with this strategy in place

- Australia
- Austria
- Belgium
- England
- Germany
- Israel
- Netherlands
- Singapore
- Switzerland and
- South Africa

A. CONCEPT

1. Car sharing is a program where participants have access to a vehicle on an as needed basis. This is a short-term rent a car, but instead of rent by day is based on rent by hour.
2. Station Cars are electric vehicles (EVs) driven to and from mass transit stations by transit riders.

B. HOW IT WORKS

Based on the experience in other places, basically both programs work as follows:

- Several locations are identified for initiating the program. These can be selected based on residential developments or working activity centers.
- Usually, the public and private sectors work together to provide funding for the program.
- These programs are based on membership, therefore, intensive marketing and outreach plans are developed to attract as many members as possible.

C. HOW DO YOU GET THE CAR?

- When membership is paid, the person received a personal key (passkey).
- This passkey provides access to the car and to open a lockbox that contains the ignition key.
- Customers call to reserve any day and time that they need the car.
- Customers are free to select any available location.
- The customer logs the time and mileage, and keeps a copy of the receipt.
- Invoices are billed monthly.

D. COSTS

Members cost vary according to the city or country where the program is implemented. However, there are basic costs related to the program, such as:

1. Membership fee
2. Security deposit
3. Hourly rate
4. Mileage rate

E. BENEFITS

- Reduce the number of cars on streets and highways
- Reduce pollution
- Reduce demand for parking spaces
- Cost includes insurance, maintenance, repair and gas.
- Due to the short length of the trip, electric vehicles are an excellent choice for this program.
- The targeted market for these programs are for those persons that own only one car and travel less than 7,000 miles per year. Based on these factors, these programs, in term of cost, are less expensive that drive a private car.

F. DIFFERENCES BETWEEN BOTH CONCEPTS

- Although both programs are similar in concept, they were developed simultaneously, but independently. Car Sharing was originally developed in Europe while the Station Car concept was developed in the United States.
- Car Sharing usually starts, based on the initiative of the private sector. Station Cars are being developed through a series of field tests sponsored by governmental organizations and corporations.
- Car Sharing provides several locations throughout neighborhoods with a few vehicles. Station Car locations are more centralized at high density residential areas, convention centers, airports and transit stations.
- Car Sharing vehicles are mostly gasoline fueled, while Station Cars vehicles are mostly electric vehicles.

G. CURRENT EXPERIENCE

1. Portland, Oregon

- Car Sharing Portland is a private company that provide short-term car rentals.
- The company started in 1998 and has 106 customers as of February 1999.
- 50% of these customers don't own a car.
- The cost related to the program are:
 - ✓ \$25.00 subscription fee.
 - ✓ \$500.00 refundable deposit.
 - ✓ \$1.50 per hour.
 - ✓ \$0.40 for the first 40 miles, additional miles cost \$0.15 per mile.
 - ✓ There is \$20.00 fine for leaving the car dirty or returning it late.
- Insurance policy includes: liability, collision and comprehensive.

2. **Oakland, California**

- Car Sharing in Oakland is provided by a public/private partnership.
- CarLink provide 12 ultra low-emission Honda Civic powered by compressed natural gas (CNG) at BART rail stations.
- The vehicles were donated by American Honda, California DOT provided \$150,000 in grants, UC Transportation Center another \$45,000 and more than \$100,000 in donations.

3. **San Francisco, California**

- Station Cars are electric vehicles (EVs) driven to and from mass transit stations by transit riders.
- For this specific markets, EVs have only two seats and less amenities than regular EVs.
- 39 charging ports have been installed at several transit stations.
- Some locations have been integrated to Kiosk stations that verifies driver's identification, check that cars were correctly connected and begin the charging cycle.

4. **Other Locations**

a. **Within USA**

- ✓ Car Sharing - Seattle
Boulder, Colorado
- ✓ Station Car - Boston
New Jersey
New York
Sacramento
Los Angeles

b. **Other Countries**

This program has been in place for more than 10 years in Europe, with more than 100,000 subscribers in 11 countries. The most successful operation of Car Sharing is in Switzerland (where the concept was originated) with more than 1,000 vehicles in 700 locations. Additionally, Car Sharing Programs have been developed in:

- ✓ Denmark
- ✓ Germany
- ✓ Netherlands
- ✓ Norway
- ✓ Sweden

XIII. OTHER OPTIONS

- A. LAND USE PLANNING AND POLICIES**
- B. PARKING MANAGEMENT**
- C. DESIGN CRITERIA FOR TRANSIT FACILITIES**
- D. FORMATION OF TRANSPORTATION MANAGEMENT ASSOCIATIONS (TMAS)**
- E. DEVELOPMENT OF PUBLIC/PRIVATE PARTNERSHIPS**
- F. PROVISION OF PUBLIC TRANSPORTATION BY PRIVATE OPERATORS**