

# Miracle Mile

## Traffic Circulation Study



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# MIRACLE MILE

## TRAFFIC CIRCULATION STUDY

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MIRACLE MILE TRAFFIC CIRCULATION STUDY



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# Miracle Mile

## TRAFFIC CIRCULATION STUDY

PREPARED FOR:

METROPOLITAN DADE COUNTY  
PUBLIC WORKS DEPARTMENT

IN COOPERATION WITH

THE CITY OF CORAL GABLES  
PUBLIC WORKS DEPARTMENT

PREPARED BY:

DAVID PLUMMER AND ASSOCIATES, INC.



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## ABSTRACT

This report describes the methods that were used to develop a traffic and parking improvements plan that would return Miracle Mile, in the City of Coral Gables, to a more pedestrian oriented, shopper friendly environment. The study is being conducted to increase the level of comfort for pedestrians crossing Miracle Mile, and to improve the awareness of and pedestrian connection between Miracle Mile and underutilized parking facilities on Andalusia Avenue and Aragon Avenue. Pedestrian comfort can be increased by reducing the distance that pedestrians have to cross Miracle Mile.

This report recommends to reduce the number of lanes on Miracle Mile from six to four lanes with a fourteen feet wide planted median. Forty-five degree angle parking can be maintained on Miracle Mile without parking losses. On Aragon Avenue, however, minimal parking losses will be required on the north side of the road at intersections between Merrick Way and LeJeune Road in order to provide left-turn lanes in the westbound direction . In addition, guide signing for diverting westbound traffic will be provided on Aragon Avenue, Merrick Way, and on Coral Way, east of Douglas Road. Guide signing is also recommended for eastbound traffic on Andalusia Avenue, and on SW 22 Terrace. A left-turn lane is recommended for eastbound traffic at SW 22 Terrace at SW 36 Avenue. Biltmore Way could be closed or made one-way westbound to increase the eastbound traffic diversions to Andalusia Avenue.

If Miracle Mile is reduced from six lanes to four lanes, congestion will increase on Miracle Mile, on Aragon Avenue, and on Andalusia Avenue, however, traffic will operate at a comfortable level most of the day. Traffic will operate in "stop and go" conditions only during limited evening peak hours.

Several parking strategies are recommended regarding signage, fee collection, and parking entrance and exit improvements. Existing parking signs should be upgraded; informational signs should be added on Miracle Mile which would direct motorists to parking facilities where Merchant Validated Parking (MVP) is available; and the parking garages should be made more visible. Shoppers are not aware that convenient parking is available directly behind the Miracle Mile shops.

A preliminary conceptual plan to revitalize the downtown alleyways behind the shops on Miracle Mile has been developed by the Division of Architecture at the City of Coral Gables. Various traffic circulation and pedestrian recommendations are made to support the alleyway improvements. The lane reductions on Miracle Mile, and the idea of "pedestrian " alleys coupled with better awareness of parking locations, will serve as an integrated approach to making Miracle Mile more accessible and pedestrian friendly. The recommendations in this report should improve pedestrian comfort on Miracle Mile while minimizing the effects of increased traffic congestion.

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## EXECUTIVE SUMMARY

### INTRODUCTION

The City of Coral Gables is embarking on a downtown improvement program which would create a more pedestrian friendly environment for shoppers on Miracle Mile. A more pedestrian oriented Mile necessitates compromising vehicular traffic flow, because pedestrian friendliness on the Mile is defined as the level of comfort which people feel when they cross from one side of the street to the other. This report will focus on finding traffic mitigation techniques and parking management strategies that would minimize traffic volumes and congestion on Miracle Mile.

### Purpose Of This Report

The purpose of this report is as follows:

- 1) Determine the effects that reducing the number of lanes on Miracle Mile would have on the traffic flow patterns in downtown;
- 2) Develop a plan with alternative routes and roadway improvements to mitigate the Miracle Mile traffic diversions caused by the proposed changes;
- 3) Determine the effects that closing or reducing the number of lanes on Biltmore Way would have on the traffic flow patterns in downtown;
- 4) Develop methods of parking management and pedestrian improvement strategies to complement the improvements on Miracle Mile and Biltmore Way.

A number of alternative traffic routes to travel on Miracle Mile were studied in this report. It is important to note that the best traffic solutions for mitigating the effects of reducing the number of lanes on Miracle Mile may not be feasible. For instance, if a large amount of westbound traffic is diverted from Miracle Mile to Aragon Avenue, a number of improvements should be implemented to support the higher volumes. These support improvements would include removal of parking or the conversion of the street to two lanes operating one-way westbound. Unfortunately, business owners along Aragon Avenue may not tolerate the removal of parking. This report studies more acceptable Aragon Avenue alternatives to minimize the impacts of the plan.

In summary, the plan will enhance the pedestrian/aesthetic environment, however, traffic flow in general on Miracle Mile, due to the reduction of the number of lanes, can be expected to be more congested. Worsening traffic conditions are the trade-off for improving the pedestrian environment. The recommendations in this report are an effort to balance the effects of the increased traffic congestion and pedestrian harmony.

### RECOMMENDED GEOMETRIC AND OPERATIONAL IMPROVEMENTS

The decrease in lanes on Miracle Mile will necessitate geometric and operational improvements on Miracle Mile, Aragon Avenue, SW 22 Terrace, and SW 36 Avenue. These improvements are listed below. For ease of review we also listed the parking management and pedestrian improvements that support our traffic plan.

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### Miracle Mile

#### Recommendations:

- Reduce the travel lanes from six to four.
- Retain on-street parking angle at forty-five degrees (See Exhibit ES 1).
- Install fourteen foot wide planted median with left-turn bays.
- Make outside lanes wider to facilitate parking maneuvers.

### Aragon Avenue

#### Recommendations:

- Add westbound left-turn lane at Galiano Street, Ponce de Leon Boulevard and Salzedo Street.
- Remove approximately four parking spaces on the north side of Aragon Avenue for lane addition at each of the above locations. (see Exhibit ES 2)
- Rearrange westbound approach of Coral Way at Douglas Road so that two lanes can feed from Coral Way via Merrick Way to Aragon Avenue.
- Provide guide signing westbound on Coral Way between SW 32 Avenue and Douglas Road , and at all appropriate decision points on Aragon Avenue between Douglas Road and LeJeune Road.
- Provide a queue clearance interval on LeJeune Road between Aragon Avenue and Miracle Mile. Prohibit east and west through movements at off-set intersection of LeJeune Road and Aragon Avenue.

### Andalusia Avenue

#### Recommendations:

- Provide guide signing at all appropriate decision points.
- Provide a queue clearance interval on Douglas Road between SW 22 Terrace and Coral way.

### Southwest 22 Terrace

#### Recommendations:

- Construct eastbound left-turn lane at SW 22 Terrace and SW 36 Avenue.
- Restripe northbound approach on SW 36 Avenue at Coral way as one through left lane and one right turn only lane.
- Provide guide signing at all appropriate decision points.

## PARKING ALTERNATIVES

### Parking Signage

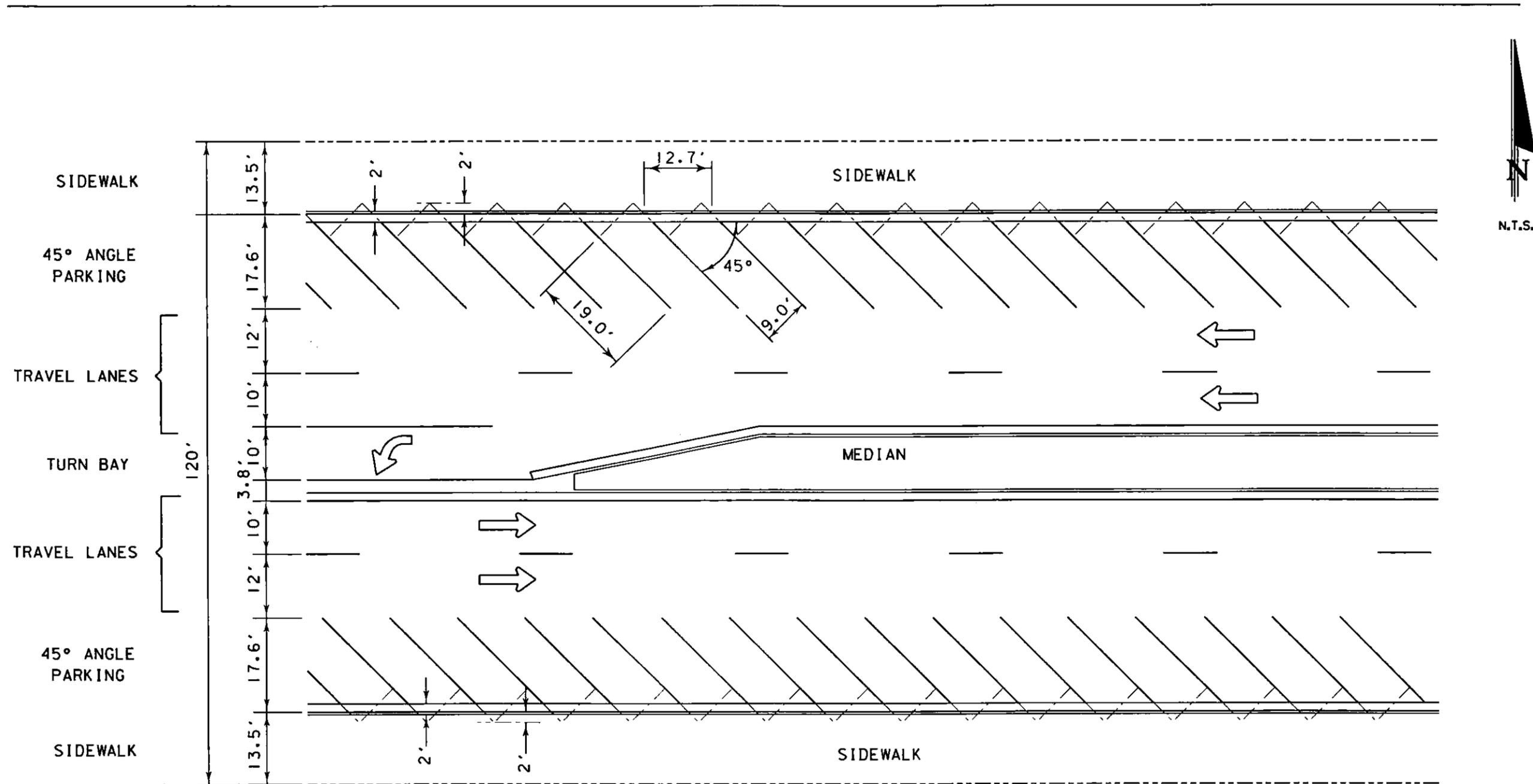
#### Recommendations:

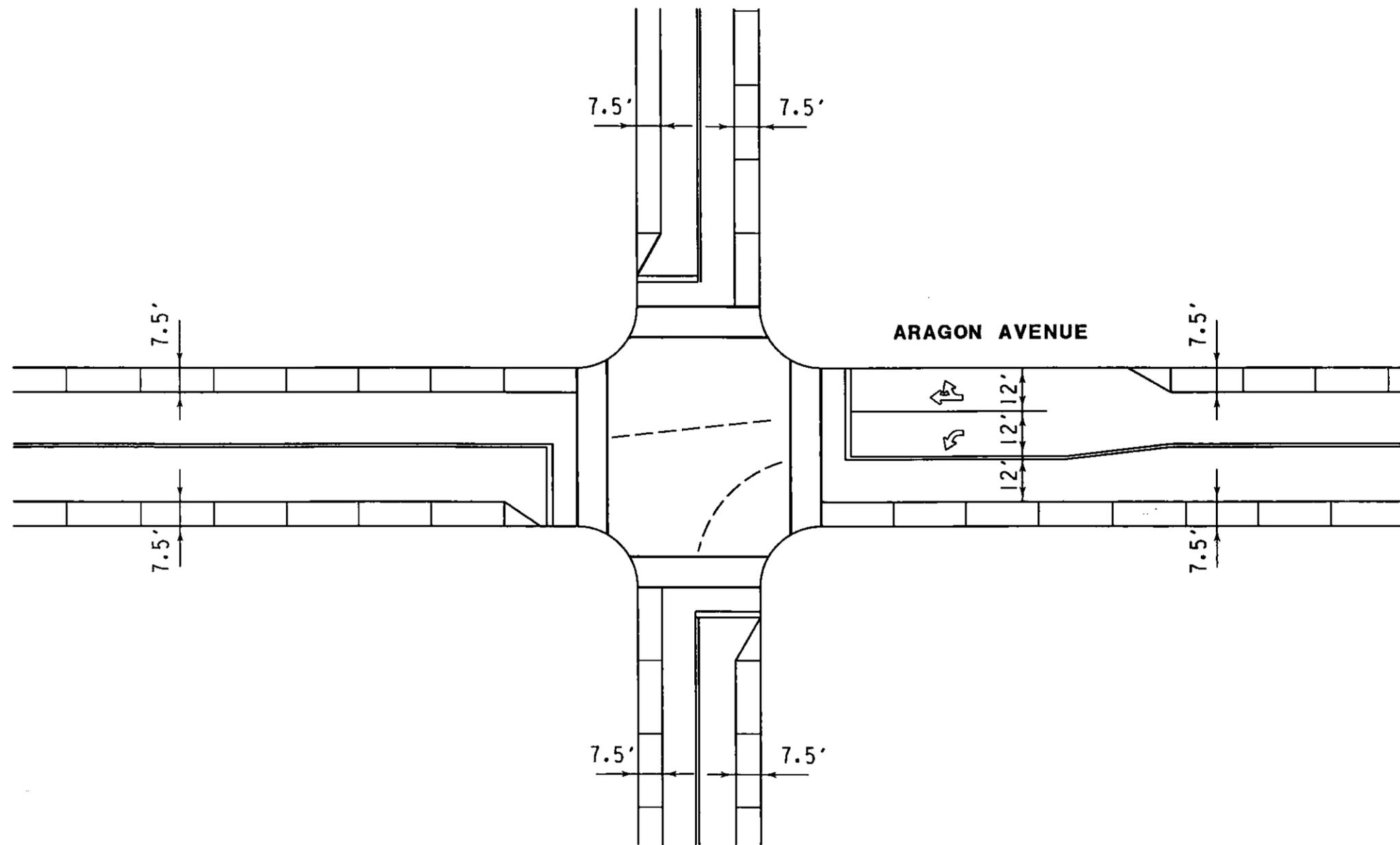
- Replace all parking area guide signs with nationally accepted standard signs.
- Install parking area guide signs at entrances to all parking facilities.

### Parking Fee Strategies

#### Recommendation:

- Consider lowering rates in Garage No. 4. (would require additional study).





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### Parking Entrance / Exit Improvements

#### Recommendation:

- Move control booth in attendant lots further inside parking facilities on Andalusia Avenue if reservoir space beyond the gate becomes insufficient for storing vehicles that are waiting for an acceptable gap in street traffic.
- Increase any of the following driveway dimensions in order to provide more rapid entrance into or out of parking facilities:
  - Right-turn radius (30 feet max.)
  - Entrance lane width (15 feet max.)
  - Entrance angle (45 degrees min. one-way streets only)

### PEDESTRIAN IMPROVEMENTS

This section reviews crosswalk conditions, walkways, and the preliminary studies by the division of Architecture at the City of Coral Gables, and proposes recommendations as follows:

### Crosswalk Improvements

#### Recommendation:

- Restripe all crosswalks or install bright decorative brick.
- Construct safe waiting area in median at all intersection and mid-block crosswalk locations.
- Restripe the crosswalks on Lejeune Road between Merrick Park (Plaza) and Garage No. 4, and on Lejeune Road at Miracle Mile.

### Walk-Way Improvements

#### Recommendation:

- Provide lighting in pedestrian walk-throughs to a minimum of 5.0 foot-candles.
- Provide improved street lighting on Salzedo Street between Miracle Mile and Andalusia Avenue.

### Miracle Mile Alley Revitalization Study

#### Recommendations:

- Install warning signs at all alley entrances such as, "Delivery and Service Trucks Only", and "Do Not Enter" (all alleys should be one-way operation).
- Install 5 mph speed limit signs.
- Promote rear customer entrance (study conducted by City of Coral Gables, Division of Architecture).

### CONSTRUCTION COST ESTIMATES

The following cost estimates are preliminary. Final cost estimates should be prepared during the final design. The four laning of Miracle Mile and closing or narrowing of Biltmore Way are not included.



Aragon Avenue

The following cost estimate is for installing left-turn lanes at three locations between Merrick Way and LeJeune Road.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$ 5,000.00	\$ 7,500.00
Maintenance of Traffic	\$ 2,500.00	\$ 3,000.00
Signal Installation (Galiano street)	\$60,000.00	\$100,000.00
Signal Retiming and Restriping	<u>\$10,500.00</u>	<u>\$15,500.00</u>
Total	\$78,000.00	\$126,000.00

SW 22 Terrace

The following cost estimate is for construction of an eastbound left-turn lane at NW 36 Avenue.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$15,000.00	\$20,000.00
Maintenance of Traffic	\$ 4,500.00	\$ 6,000.00
Turn-Lane Widening		
12" subgrade, 4½ " asphalt, friction course	<u>\$ 9,000.00</u>	<u>\$13,000.00</u>
Total	\$28,500.00	\$39,000.00

SW 36 Avenue

The following cost estimate is for restriping the northbound approach of NW 36 Avenue at Coral Way.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$ 1,000.00	\$ 2,000.00
Maintenance of Traffic	\$ 1,000.00	\$ 2,000.00
Signal Retiming and Restriping	<u>\$ 3,500.00</u>	<u>\$ 8,000.00</u>
Total	\$ 5,500.00	\$12,000.00

Miscellaneous Improvements

The following cost estimates include all other costs related to signing, parking, and pedestrians improvements.

	<u>Most Likely</u>	<u>Possible</u>
Parking Signing	\$ 5,000.00	\$ 7,500.00
Diversion Signing	\$ 5,000.00	\$ 7,500.00
Alley Improvement Signing	\$ 3,000.00	\$ 4,500.00
Pedestrian Lighting (Salzedo Street)	<u>\$15,000.00</u>	<u>\$ 22,500.00</u>
Total	\$28,000.00	\$ 42,000.00

GRAND TOTAL                    \$140,000.00    \$219,000.00



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## ACKNOWLEDGEMENTS

David Plummer and Associates, Inc. would like to extend their thanks and appreciation to all the parties who assisted in the compilation of this report. Special thanks to the following:

### Metropolitan Dade County Public Works Department

Mr. Armando Vidal, Director of Public Works Department  
Mr. Pedro Hernandez, Chief of Highway Division  
Mr. Joaquin Urrechaga, Traffic Design Section Head

### City of Coral Gables Public Works Department

Mr. Jack Eads, City Manager  
Mr. Al Linero, Director of Public Works Department  
Mr. Alberto Delgado, Division of Engineering Supervisor  
Mr. Subrata Basu, Division of Architecture Supervisor

### Florida Department of Transportation Traffic Operations Department

Mr. Rory Santana, District Traffic Operations Engineer

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## INTRODUCTION

The City of Coral Gables is embarking on a downtown improvement program for Miracle Mile that will serve two purposes. The first is to improve local access / pedestrian flow, and discourage through traffic on Miracle Mile. The second, is to create user friendly land in front of City Hall.

### Purpose Of This Report

The purpose of this report is as follows:

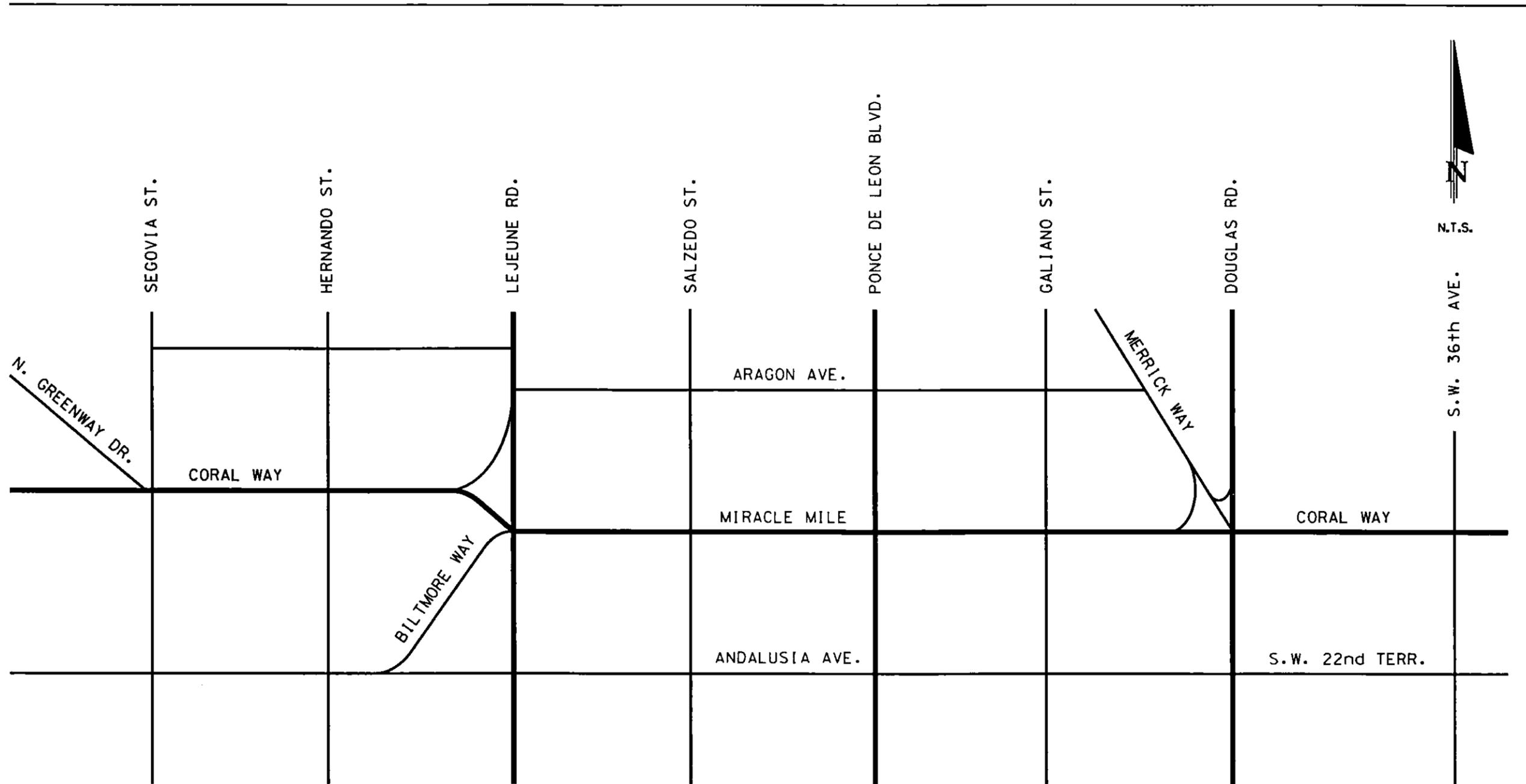
- 1) Determine the effects that reducing the number of lanes on Miracle Mile would have on the traffic flow patterns in downtown;
- 2) Develop a plan with alternative routes and roadway improvements to mitigate the Miracle Mile traffic diversions caused by the proposed changes;
- 3) Develop methods of parking management and pedestrian improvement strategies to complement the reduction of the number of lanes on Miracle Mile.

The study area was selected to have the following boundaries (see Exhibit 1):

Aragon Avenue on the North  
Andalusia Avenue on the South  
SW 36 Avenue on the east,  
and Segovia Street on the West.

The methods used to achieve the City's objective of creating a more pedestrian friendly environment on Miracle Mile are as follows:

- Reduce the crosswalk distance on Miracle Mile and create a planted median on Miracle Mile between LeJeune Road and Douglas Road. Left turn bays would be provided within the median when the number of through lanes on Miracle Mile is reduced from six lanes to four lanes.
- Improve alleys adjacent to Miracle Mile; and, improve parking awareness and visibility.
- Make Biltmore Way into a more narrow, one-way westbound roadway (or close road completely) between Andalusia Avenue and LeJeune Road and expand the existing triangular park (Merrick Park) across the street from City Hall.



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## Project Overview

Miracle Mile was originally intended to be an aesthetically pleasant pedestrian oriented street. Over the years, Coral Way has become a major state arterial (State Road 972) traversing Dade County from Brickell Avenue on the east to Krome Avenue on the west. This and the fact that the Coral Gables Business District is currently experiencing new growth and redevelopment have caused the Mile to be increasingly congested with automobiles. The purpose of the City's improvement initiative is to return Miracle Mile to a pedestrian friendly retail area. This report will investigate the effects that reducing the number of lanes on Miracle Mile and / or closing or reducing the number of lanes on Biltmore Way would have both on the Mile itself and on the streets within the study area.

The plan basically consists of closing or narrowing Biltmore Way west of LeJeune Road and / or reducing the number of lanes on Miracle Mile to four lanes in order to provide a planted median with left turn lanes. These two components do not need to be implemented concurrently . As a matter of fact, it may only be feasible to implement one and not the other. However, the implementation of parking and pedestrian improvements that result from these changes should not be evaluated separately since they complement each other.

A number of alternative traffic routes were studied in this report. It is important to note that the best traffic solutions for mitigating the effects of this plan may not be feasible. For instance, if westbound traffic is partially diverted from Miracle Mile to Aragon Avenue, a number of improvements could be implemented. These improvements may include removal of parking and the conversion of the street to two lanes operating one-way westbound. Unfortunately, business owners along Aragon Avenue may not tolerate the removal of parking and / or the traffic circulation required on one-way streets. This report studies several other alternatives to minimize the impacts of the plan.

Parking improvement alternatives are considered in Appendix A. The study develops alternative methods of attracting shoppers to the parking garages and surface lots within one or two blocks of Miracle Mile. Consideration is given to parking signage, parking fee strategies, and parking entrance and exit improvements.

In summary, the plan will enhance the pedestrian/aesthetic environment, however, traffic flow in general within the study area can be expected to be more congested. Worsening traffic conditions are the trade-off for improving the pedestrian environment. The recommendations in this report are an effort to minimize the effects of the increased traffic congestion that is inevitable if the City's improvements are implemented.

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**CHAPTER 1**  
**EXISTING CONDITIONS**

Exhibit 2 illustrates the existing typical section along Miracle Mile. The "Mile" is characterized by angle parking on both sides, narrow lanes and the absence of a median and left-turn lanes. Four pedestrian signals are located mid-block between the major cross streets. The buildings on Miracle Mile are for retail shopping. Office space dominates the land uses on the blocks adjacent and parallel to Miracle Mile.

The existing traffic control signs and signals in the study area are illustrated in Exhibit 3. Major features of the traffic control map are the traffic signal locations, turn restrictions and one-way streets. Most of the intersections are signalized except for the intersection of Aragon Avenue at Galiano Street which is controlled by four-way stop signs.

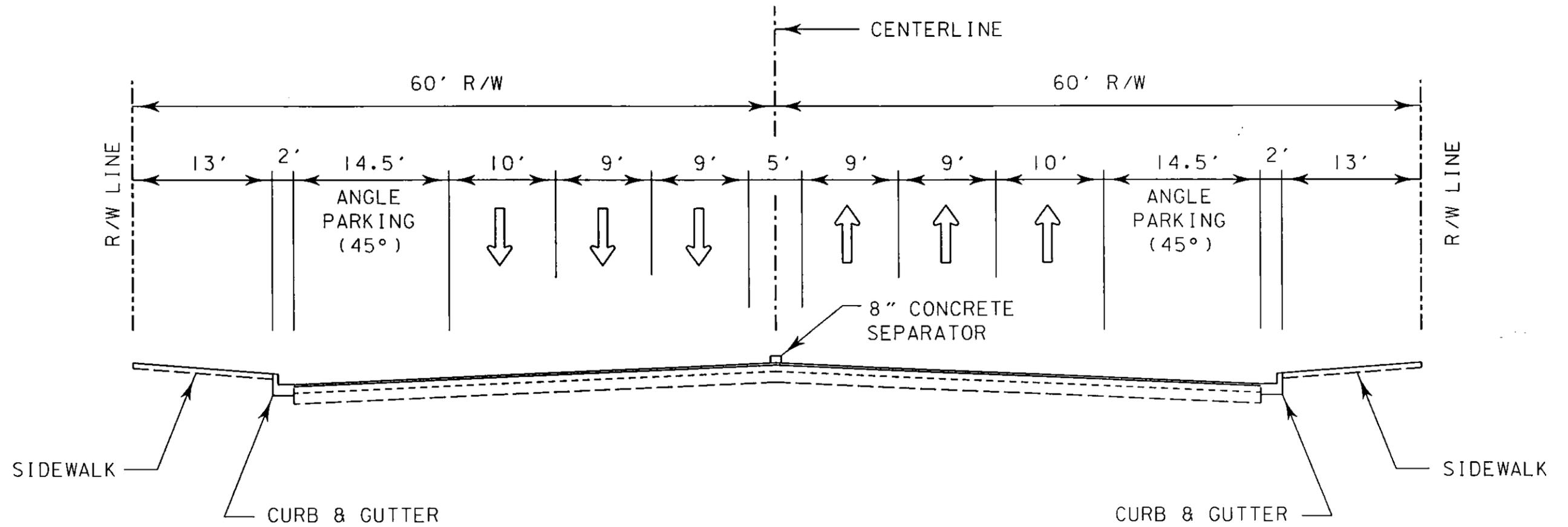
**Existing Traffic Volumes**

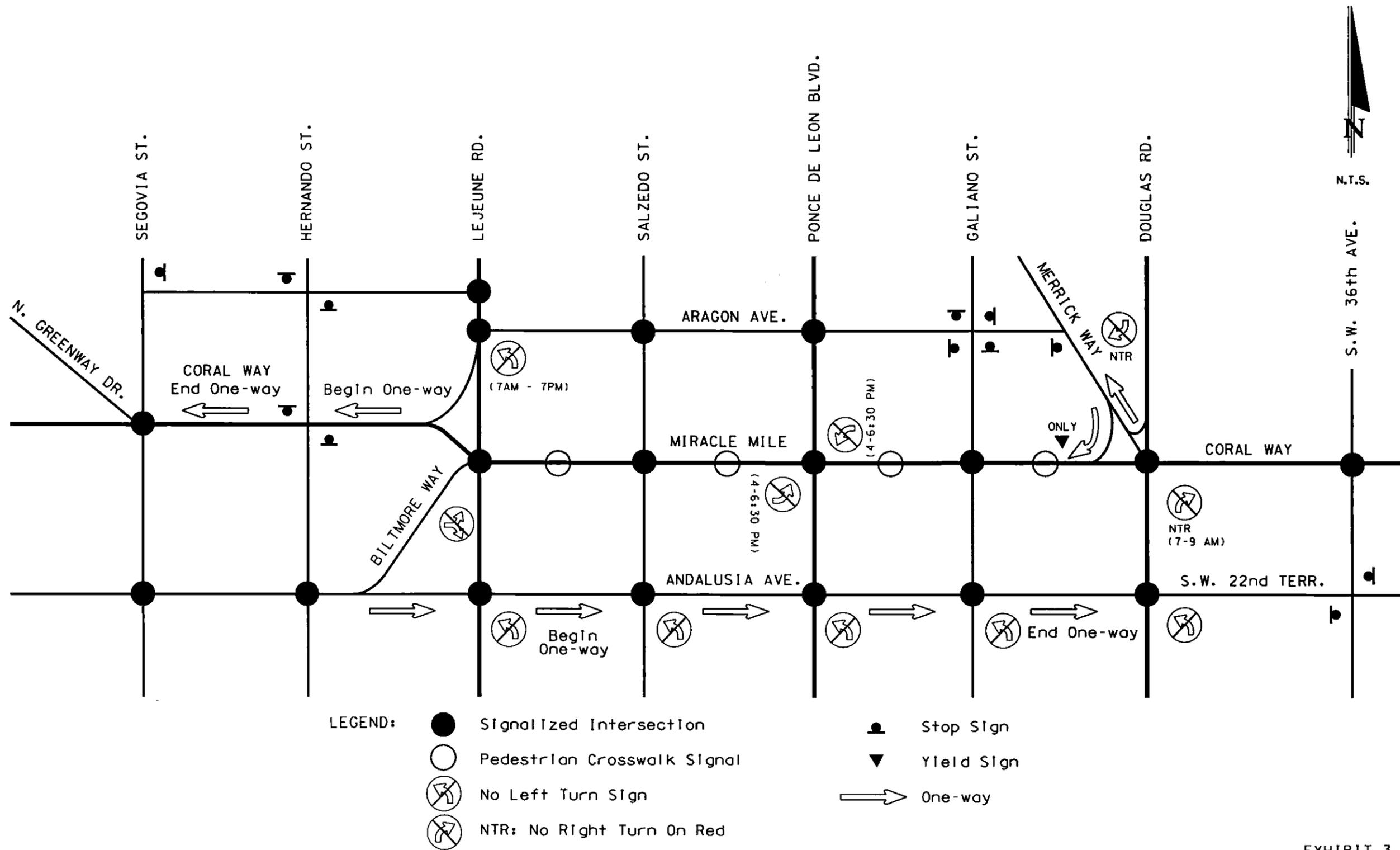
Eleven intersections and ten mid-block locations were counted in the study area. Mid-block counts were done using twenty-four hour automatic vehicle recorder machines. Daily mid-block counts are graphically portrayed in Exhibit 4. The intersection counts were conducted for two hours during the AM peak, and for two hours during the PM peak. Two additional intersections (Coral Way at SW 36 Avenue, and SW 36 Avenue at SW 22 Terrace) were counted during these same hours east of Douglas Road in order to analyze traffic circulation along SW 22 Terrace. Exhibits 5 and 6 illustrate the turning movement counts and intersection geometrics in the study area.

On the days of preparation for the Junior Orange Bowl Parade in Downtown Coral Gables, Biltmore Way was temporarily closed to traffic. DPA conducted traffic counts at the intersection of Andalusia Avenue and Lejeune Road, and at the intersection of Andalusia Avenue and Douglas Road during the morning and evening peak hours. The morning peak hour experiences the highest eastbound volumes, and is the subject of the following discussion.

The traffic counts described above were taken between Christmas Day and New Year's Eve, however, the eastbound volumes were similar to the earlier average season counts. Approximately half of the peak hour morning traffic that chose to turn left from Andalusia Avenue to Lejeune Road, then turned right onto Miracle Mile. The queue length that built up in the morning on Andalusia Avenue extended back toward Hernando Street approximately 300 feet from Lejeune Road. When the signal at Lejeune Road did turn green, the left turners from Andalusia Avenue would then queue on Lejeune Road waiting for the signal at Miracle Mile to turn green. Frequently, the queue on Lejeune Road would extend back to Andalusia Avenue, preventing anymore left turns from Andalusia Avenue. On the other end of Andalusia Avenue at Douglas Road, approximately half of the eastbound traffic that was found to continue east on Coral Way, went through the intersection to SW 22 Terrace where they turned left on SW 36 Avenue, and continued eastbound on Coral Way. The other half of the eastbound traffic on Andalusia Avenue that continued east on Coral Way, turned left at Douglas Road then right at Coral Way.



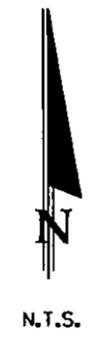
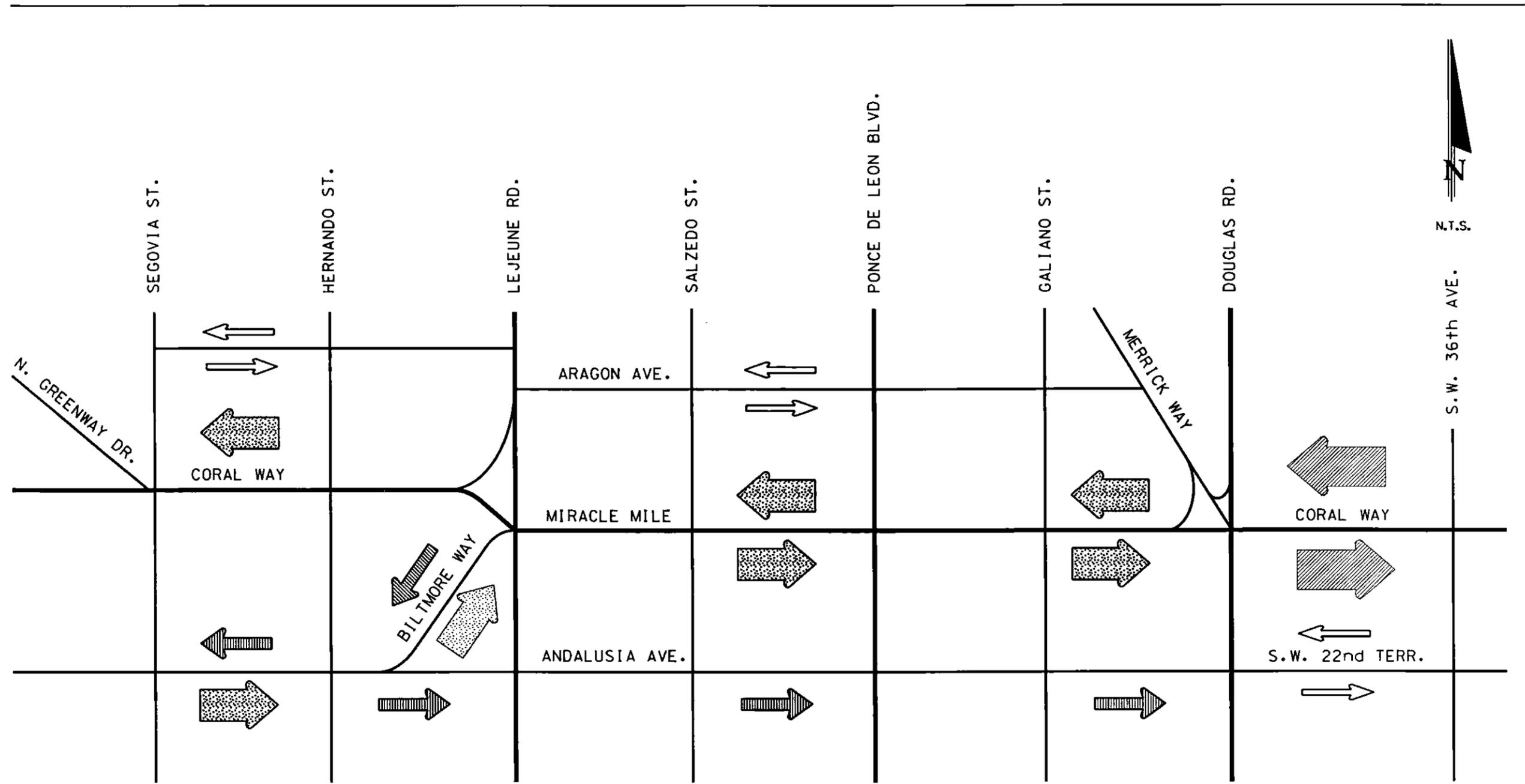




MIRACLE MILE TRAFFIC CIRCULATION STUDY

EXHIBIT 3  
EXISTING TYPICAL CONTROL MAP





WEEKDAY AVERAGE ANNUAL DAILY TRAFFIC VEHICLES/DAY (VPD)

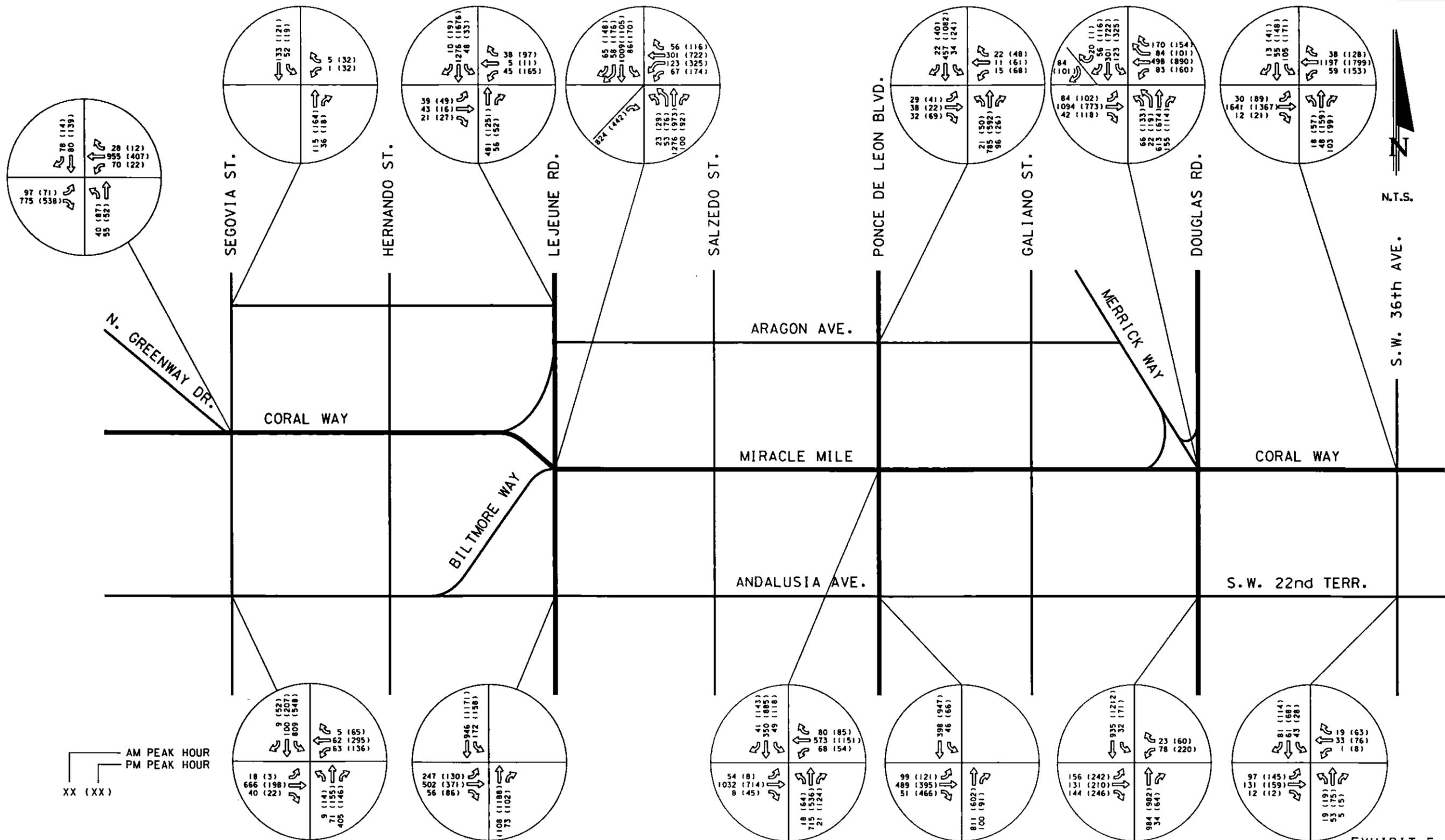


MIRACLE MILE TRAFFIC CIRCULATION STUDY

EXISTING DAILY TRAFFIC VOLUMES

EXHIBIT 4





N.T.S.

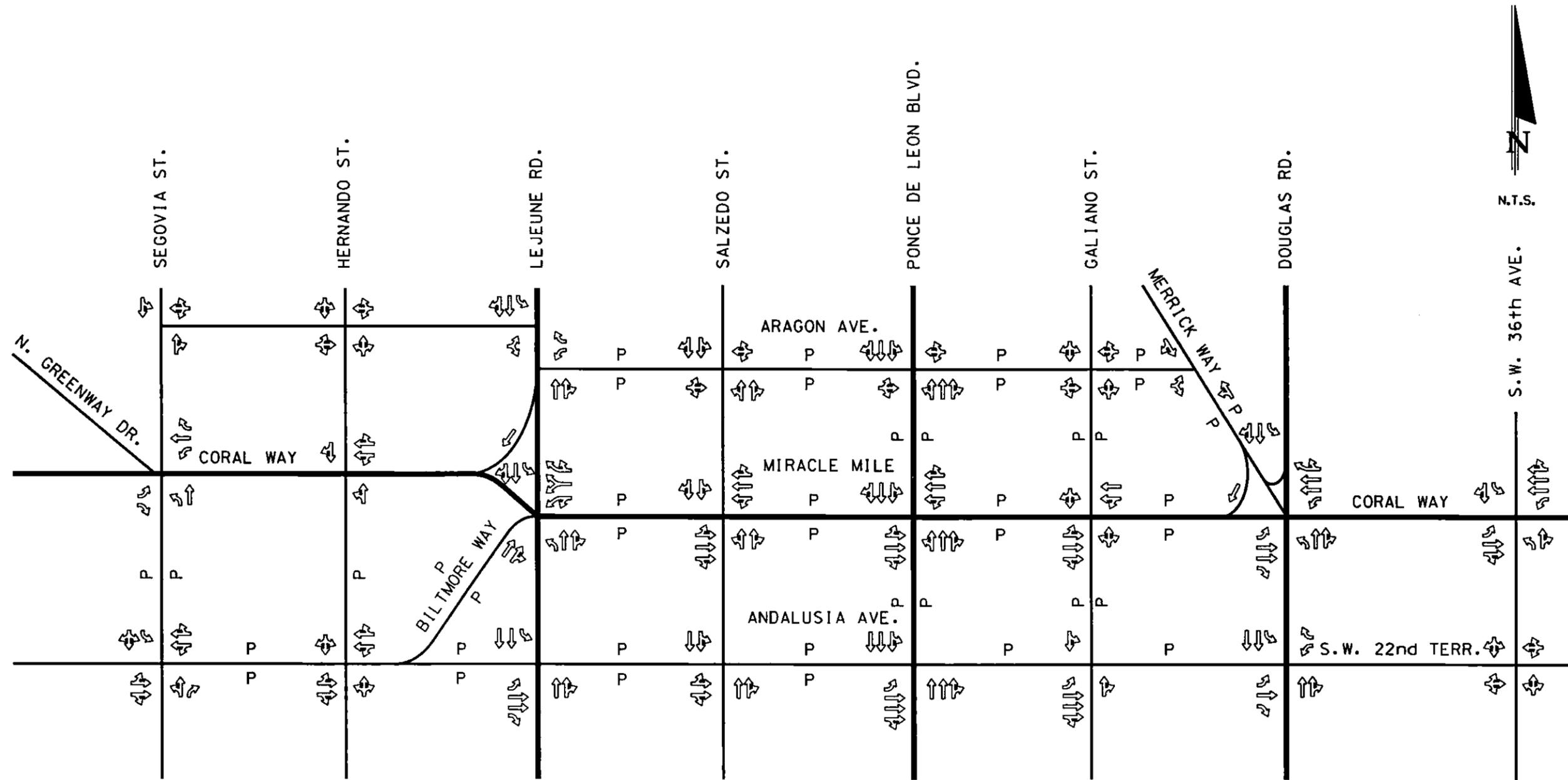
S.W. 36th Ave.

MIRACLE MILE TRAFFIC CIRCULATION STUDY

EXISTING PEAK HOUR VOLUMES

EXHIBIT 5





P • On-Street Parking



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### Existing Level of Service

Level of Service calculations were done based on intersection capacity analysis at major intersections, in the study area. The levels of service indicate that poor traffic conditions are already present on Miracle Mile. Some of the better results, however, are misleading. A phenomenon known as metering occurs on Miracle Mile due to the high number of traffic signals. The results of the level of service analysis are tabulated in Appendix B. The level of service at particular intersections is artificially better than it would be if traffic was not "metered" from a previous (upstream) traffic signal. Metering occurs as traffic is stopped and released from a nearby traffic signal. The signals on Miracle Mile are located approximately 330 feet apart.

Travel speed is a better indicator of level of service on an arterial than is intersection capacity analysis, especially with the presence of metering as on Miracle Mile. A travel speed study was recently conducted for a previous DPA job sponsored by the Florida Department of Transportation (see Appendix C). The average speed on Miracle Mile during the PM peak hour is approximately seven miles per hour in the westbound direction. According to the Highway Capacity Manual, seven miles per hour corresponds to a level of service on the border line between "E" and "F". This means that Miracle Mile, when taken for the full length, operates in the lowest measured level of service during the peak hour.

### Accident History

The Florida Department of Transportation recently completed a draft report entitled H. R. E. Conceptual Safety Study, Qualitative Assessment, Letter of Determination, SR 972/Miracle Mile, SW 42 Avenue to SW 37 Avenue, dated October, 1993. Appendix D tabulates the accident types and their severity for the years 1989, 1990, and 1991. In the FDOT report, right angle accidents are by far the most common accident type. Left-turn and rear-end accidents have the next highest number of occurrences. Accidents which result in injury are 56% of the total.

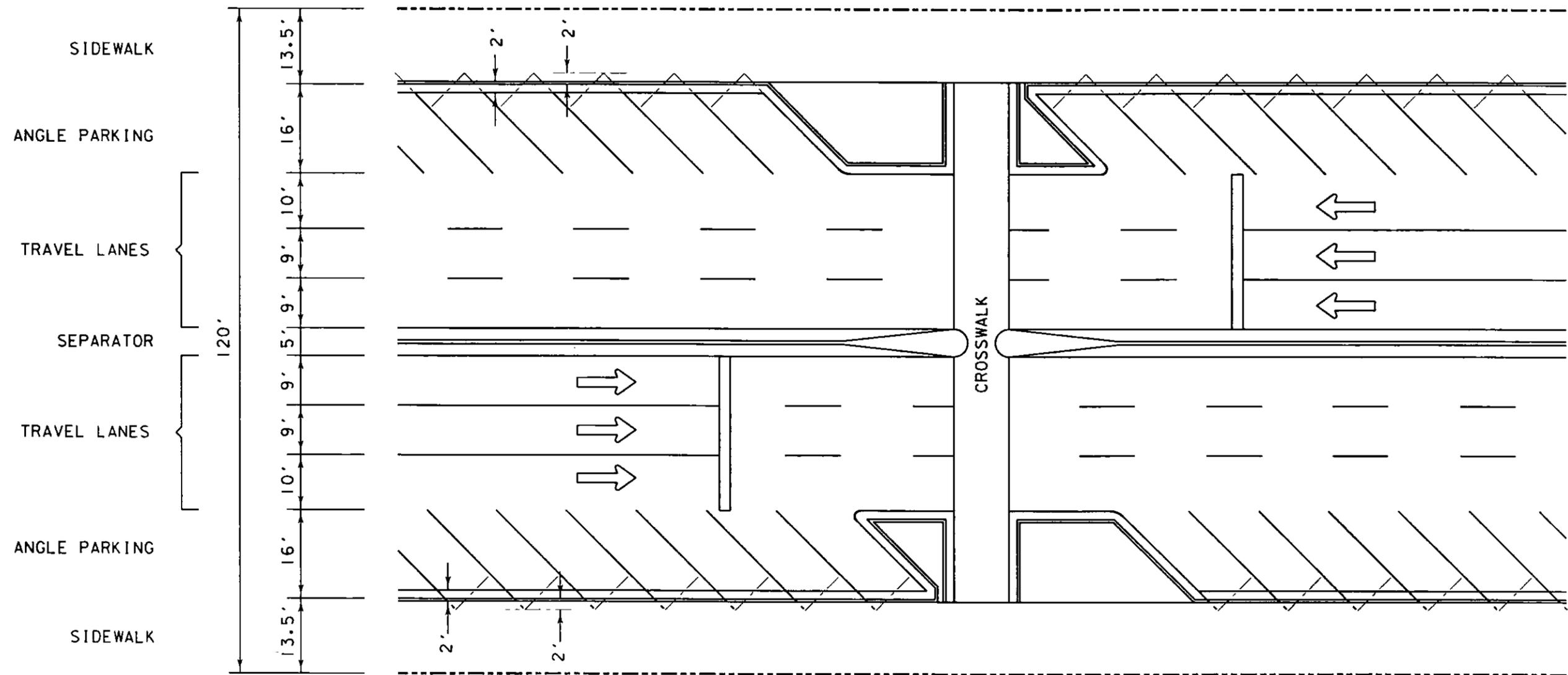
### Existing Pedestrian Facilities

Pedestrian facilities in the Miracle Mile Area include crosswalks at all signalized intersections, midblock crosswalks, and midblock pedestrian walk-throughs. In general, sidewalks are approximately 13 feet wide providing pedestrians with ample walking space. These are enhanced with planters for aesthetics purposes.

Crosswalks are provided at all signalized intersections along Miracle Mile. In addition, four signalized midblock crosswalks are provided. These crosswalks traverse six lanes of traffic (approximately 60 feet) with a five foot safety zone (island) straddling the Miracle Mile Centerline. A plan view of a typical existing crosswalk is shown in Exhibit 7.

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Walk-throughs are walkways among the stores and between intersections provided of the convenience of pedestrian. These provide direct access from Miracle Mile to parking lots on Andalusia Avenue, Aragon Avenue.



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**CHAPTER 2**  
**ALTERNATIVE TRAFFIC ROUTES**

The primary emphasis of the City's improvements would be on north / south pedestrian flow across Miracle Mile and local access to parking facilities. In order to achieve a more pedestrian oriented environment on Miracle Mile, secondary objective is to secondary objective is to divert through traffic from the Mile to Andalusia Avenue and Aragon Avenue.

The following alternative routes were evaluated to determine which concept would best serve east / west traffic in this area when the number of lanes on Miracle Mile is reduced, and Biltmore Way is closed to traffic:

1. **Miracle Mile/Andalusia Avenue One-Way Pair:** This alternative would convert Miracle Mile into a one-way westbound street. Eastbound traffic would be re-routed along Andalusia Avenue.
2. **Aragon Avenue - One-way Westbound:** A one-way pair would be created with Aragon Avenue operating one-way westbound and Andalusia Avenue operating one-way eastbound.
3. **Andalusia Avenue - Two-way operation:** Andalusia Avenue would be converted into a four lane two-way street by removing on-street parking.

4. **Andalusia Avenue - Two-way operation (reversible lanes):** This alternative is similar to the previous except that the middle two lanes would be reversible. In the morning peak hour it would operate with three lanes eastbound and one lane west bound. In the afternoon peak hour it would operate with one lane eastbound and three lanes westbound.
5. **Aragon Avenue - Two-way operation (Modified Concept 2):** Westbound intersection geometrics and signal progression would be enhanced in order to mitigate the impacts of traffic diversions from Miracle Mile. This would include selected parking reductions to make room for turn lanes at intersection approaches.

Closing or narrowing Biltmore Way can be implemented independent of the four laning of Miracle Mile narrowing, however, the analysis in this report was done considering that both improvements were implemented. Specifically, the analysis was based on narrowing Miracle Mile to four lanes, and narrowing Biltmore Way to one lane one-way westbound . A detailed explanation of each alternative traffic route concept is provided in Appendix E.

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Preferred Alternative - Modified Concept 2

The preferred alternative is modified Concept 2. Aragon Avenue would remain a major route for westbound traffic (see Exhibit 8) but two-way flow would be allowed. A traffic signal may be required at Aragon Avenue and Galiano Street when traffic diversions are implemented. Also, westbound and eastbound left turn lanes will be provided on Aragon Avenue at each of the intersections between Douglas Road and LeJeune Road. Parking should be removed on the north side of Aragon Avenue at the approaches to LeJeune Road, Salzedo Street, Ponce de Leon Boulevard, and Galiano Street. A minimum of four total spaces will be removed from the north side of the street on each block in order to allow for vehicle storage and transition (deceleration, merge) into the left-turn lane.

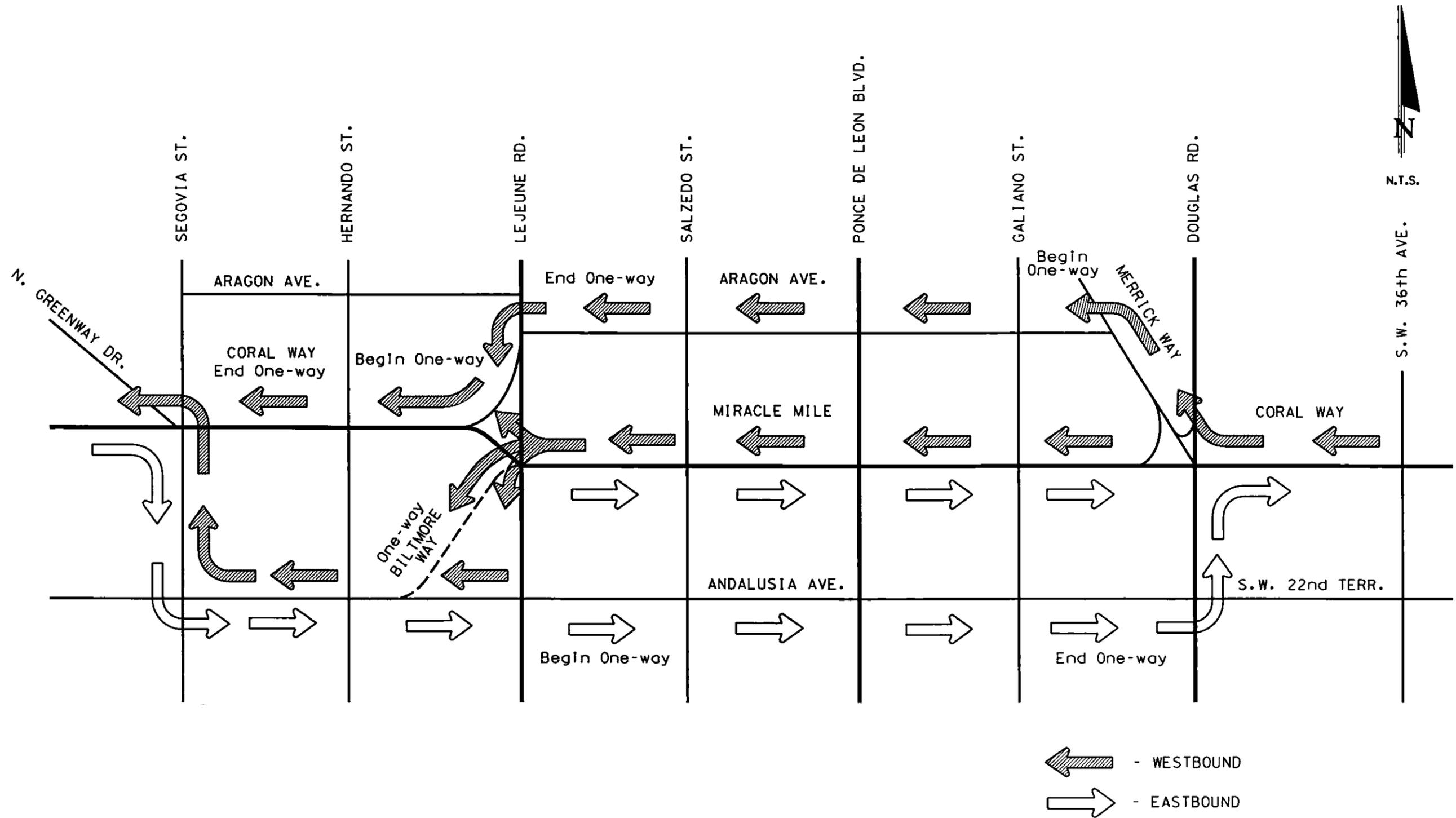
Another key issue that needs to be addressed in mitigating the traffic impact associated with narrowing Biltmore Way and four-laning Miracle Mile is how to direct eastbound traffic on Andalusia Avenue back to Coral Way. The conversion of Biltmore Way to westbound flow only will divert eastbound through traffic on Miracle Mile south to Andalusia Avenue. The current proposal is that eastbound through motorists should not shift back to Coral Way only at Douglas Road, but instead a portion should continue straight one block east on SW 22 Terrace, and turn left for one block north on SW 36 Avenue where they can turn right and continue eastbound on Coral Way.

The traffic signal at Douglas Road and Andalusia Avenue will have to be coordinated (synchronized) with the traffic signal at Douglas Road and Coral Way to avoid backups onto Andalusia Avenue. A clearance interval would be provided between the two signals so that, in theory, when eastbound traffic is released from Andalusia Avenue, Douglas Road will be cleared of traffic between Andalusia Avenue and Coral Way.

Traffic impacts on SW 22 Terrace will require evaluation, being especially sensitive to the residential properties in the area. Other more expensive solutions would involve taking of right-of-way to improve this connection. If such a solution were financially feasible, then the vacant property on the southwest corner of Miracle Mile and Douglas Road would be ideal for building a diagonal Connector Road between Andalusia Avenue and the Miracle Mile/Douglas Road intersection.

Westbound traffic on Coral Way would be shifted to Aragon Avenue via Merrick Way with the help of signage between SW 32 Avenue and Douglas Road. Westbound right turns to Merrick Way should be allowed from two lanes on Coral Way. Westbound traffic on Aragon Avenue would be shifted back to Coral Way by turning left at LeJeune Road. The traffic signal at LeJeune Road and Miracle Mile must be carefully synchronized with the traffic signal at LeJeune Road and Aragon Avenue, in order to avoid backups onto Aragon Avenue. A clearance interval, similar to the one described above, must be provided on LeJeune Road at this location. Queuing (stacking) of vehicles on LeJeune Road could severely impede traffic flow from Aragon Avenue to Coral Way.





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CHAPTER 3  
FUTURE CONDITIONS

The City's improvement initiatives along with the recommended improvements set forth in this report are analyzed in this section. The existing intersection volumes are evaluated here with the effects of traffic diversions caused by the proposed improvements. Once again, in evaluating the results of the proposed conditions analysis, the emphasis should be placed on creating a more pedestrian friendly environment on Miracle Mile.

Exhibit 9 illustrates the proposed typical section along Miracle Mile. Angle parking would be reduced to thirty degrees, and lane widths would be a minimum of ten feet. The proposed traffic control signs and signals are illustrated in Exhibit 10. Basically, the same conditions would exist as in the existing traffic control plan, with several changes. Exhibit 11 depicts the proposed lane configuration at the intersections within the study area.

Traffic Diversions

An origin-destination study was conducted in order to determine the number of vehicles using Miracle Mile as a through street during the morning and evening peak hours. By monitoring vehicles as they drove through Miracle Mile, the study determined the percentage of vehicles which pass through Miracle Mile without stopping or turning. For the eastbound direction, generally speaking, sixty-five percent of the traffic on

Miracle Mile passes through from LeJeune Road to Douglas Road and continues eastward on Coral Way. In the westbound direction, on average, fifty-five percent continue westward beyond LeJeune Road (mostly on Coral Way) from east of Douglas Road. A certain percentage of the observed through traffic on Miracle Mile will be captured on Andalusia Avenue and on Aragon Avenue as a result of the City's initiatives (narrowing Biltmore Way and four-laning Miracle Mile).

Of the fifty-five percent of westbound traffic continuing to points west beyond LeJeune Road (as our counts indicate) twenty percent or less of that traffic would be diverted to Aragon Avenue for purposes of this study. Traffic diversions to Aragon Avenue could only be increased by restricting westbound through movement on Miracle Mile to points west of LeJeune Road. In the eastbound direction, forty-five percent of the through traffic was assumed to be diverted to SW 22 Terrace.

Proposed Level of Service

Of all of the traffic route alternatives considered, the modified Concept 2 was selected by the City to be the most feasible. First, land takings are not necessary in order to implement this plan. Second, parking spaces that need to be removed are minimal as compared to the other alternatives. And last, it achieves the City's objectives of emphasizing local access and pedestrian flow.

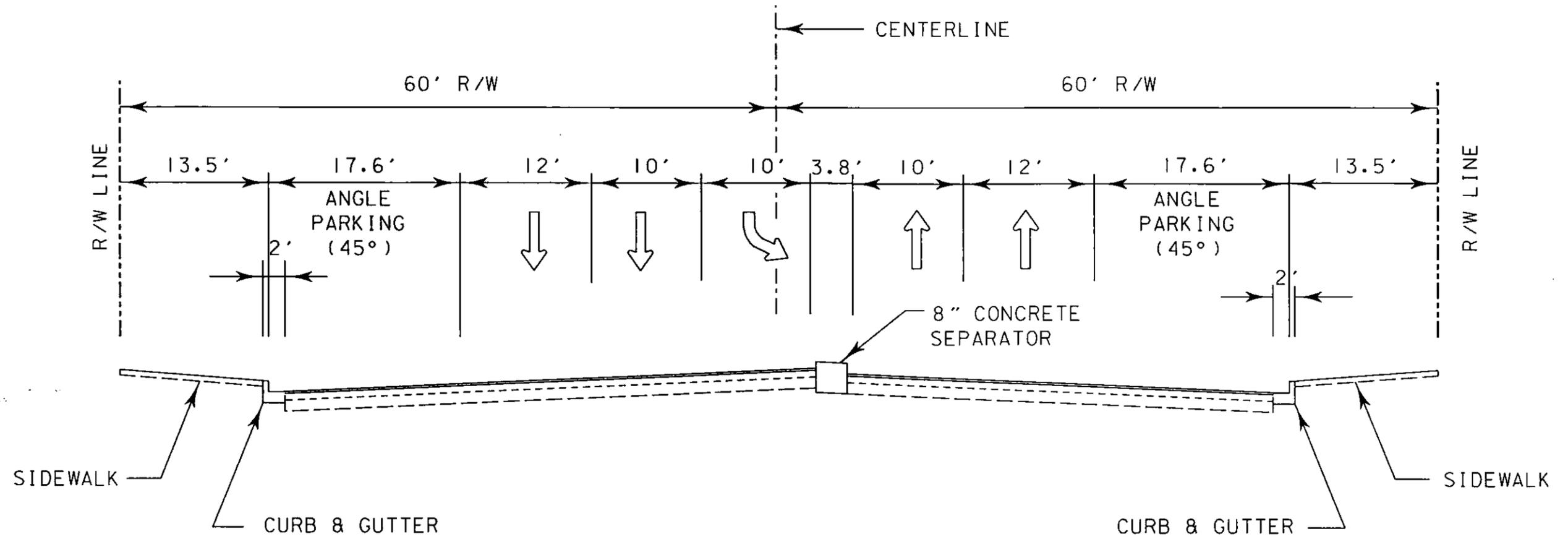


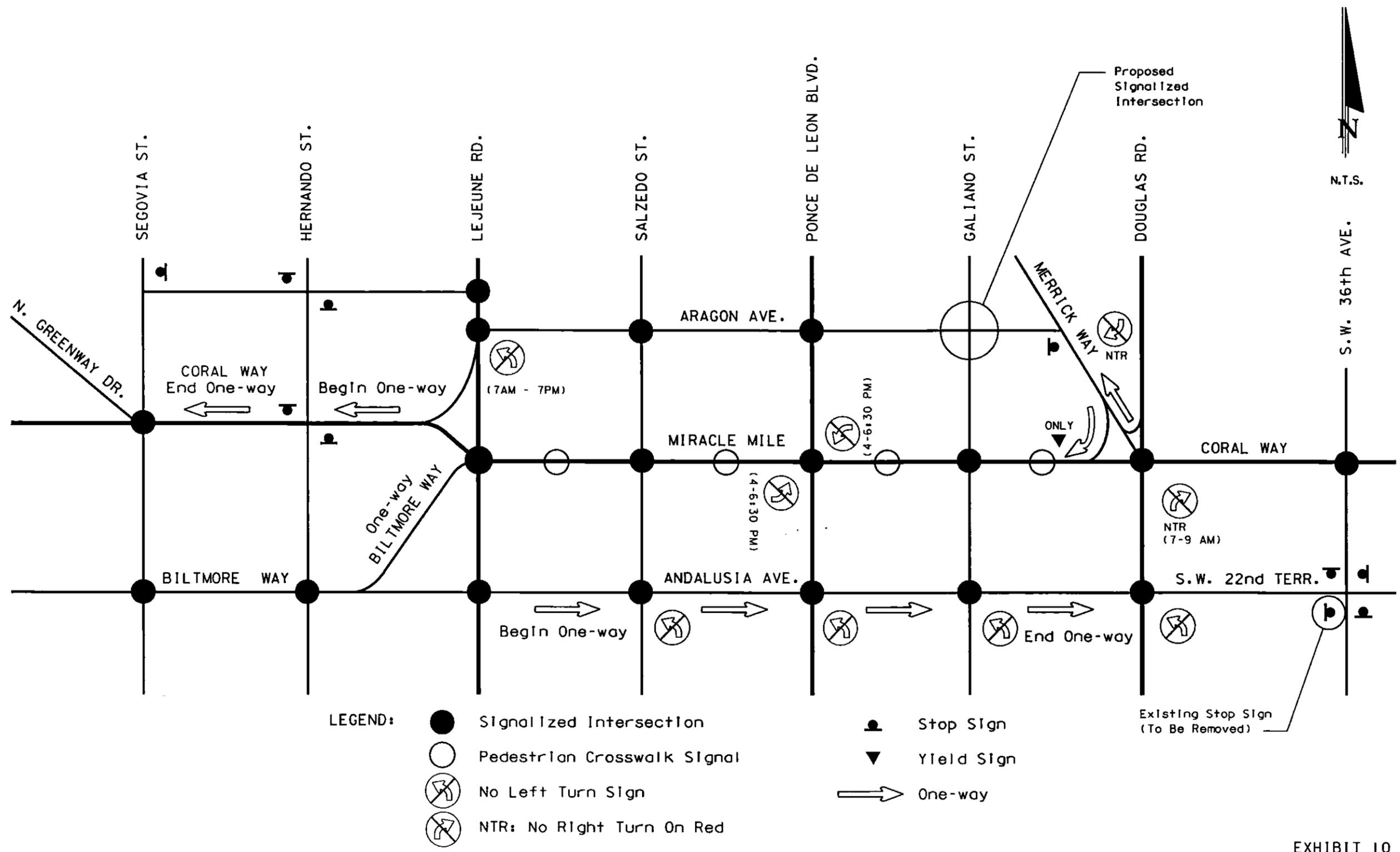
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Proposed Level of Service

Of all of the traffic route alternatives considered, the modified Concept 2 was selected by the City to be the most feasible. First, land takings are not necessary in order to implement this plan. Second, parking spaces that need to be removed are minimal as compared to the other alternatives. And last, it achieves the City's objectives of emphasizing local access and pedestrian flow.

The overall traffic conditions will worsen after the City's improvements are implemented. The levels of service tabulated in Appendix F are the result of the diverted traffic volumes from the City's proposed plan. The table indicates that levels of service are worse than the existing conditions. Lowering the traffic level of service in downtown Coral Gables is the trade-off for improving the pedestrian environment, and should not be the only consideration in evaluating the acceptability of the City's improvement initiatives.

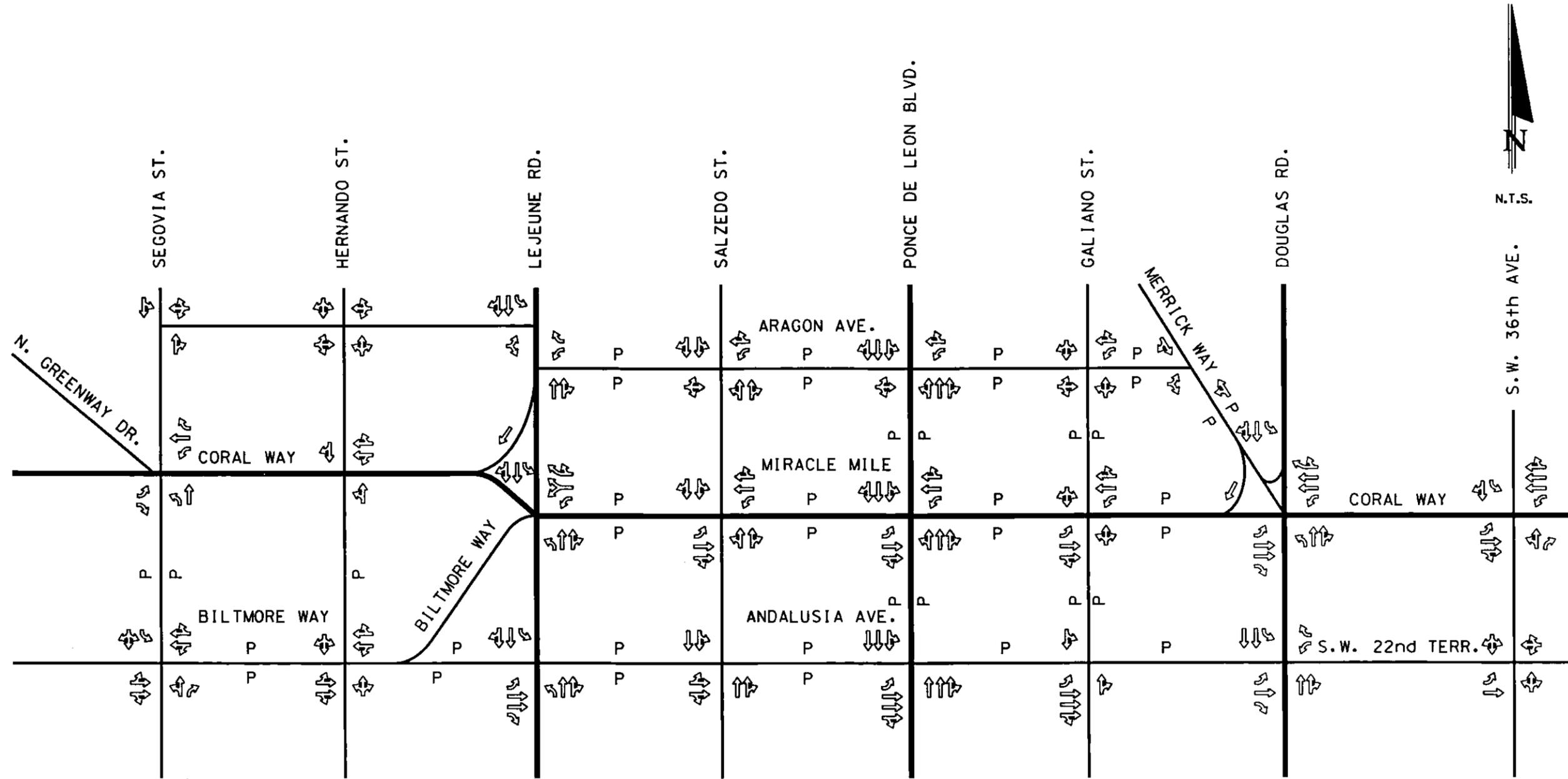




MIRACLE MILE TRAFFIC CIRCULATION STUDY

EXHIBIT 10  
**PROPOSED TRAFFIC CONTROL MAP  
 TO SUPPORT CONCEPT 5  
 (MODIFIED CONCEPT 2)**





P • On-Street Parking



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## CHAPTER 4

### RECOMMENDED GEOMETRIC AND OPERATIONAL IMPROVEMENTS

The reconstruction of Miracle Mile as a four lane roadway will necessitate geometric and operational improvements on Miracle Mile itself, Aragon Avenue, SW 22 Terrace, and SW 36 Avenue. Operational improvements would include signal progression, roadway signage, and circulation improvements (e.g. turn prohibitions). Geometric improvements would include constructing turn lanes, removing parking, and lane widening . These improvements are listed below. This report provides conceptual ideas that would be most effective given the circumstances.

Aragon Avenue will be made as attractive as possible for capturing through traffic from Miracle Mile (adding turn lanes and signage). However, capturing as much traffic on Aragon Avenue as Andalusia Avenue would be difficult for two reasons: 1) less through traffic flows in the westbound direction, and 2) closing Biltmore Way presents a physical barrier for eastbound traffic now using Miracle Mile (no such closing will occur for westbound traffic).

#### Miracle Mile

##### Recommendations:

- Reduce the travel lanes from six to four.
- Retain on-street parking angle at forty-five degrees.
- Install fourteen foot wide planted median with left-turn bays.
- Make outside lanes wider to facilitate parking maneuvers.
- Provide guide signing on Coral for westbound traffic east of Douglas Road

Miracle Mile is presently operating with numerous undesirable features. Some of the lane widths measure nine feet when they typically should be at least ten feet. The curb-type center separator is too narrow and difficult to see, which, occasionally results in head-on accidents involving vehicles which have crossed the separator. Lack of exclusive left-turn lanes and left-turn phasing results in many left-turn, rear end and angle accidents, as well as reduced roadway capacity.

Parking maneuvers often cause traffic delays and conflicts. Exhibit 12 illustrates the proposed typical plan view of Miracle Mile with four through lanes. The forty-five degree parking angle gives parkers adequate sight distance while not decreasing the amount of parking spaces. The outside lane width is twelve feet wide to accommodate parkers during their backing out maneuver. All other lanes (including the left-turn lane) are ten feet wide. A two feet wide island is provided in the crosswalk in to give pedestrians a staging area when crossing the street at intersections. The midblock median width is twelve feet.

The retention of the parking angle to forty-five degrees would mean merchants would not lose any parking spaces. Hower, the mdeian width in the order to meet the off-street parking standards for the City of Coral Gables. Those standards require, for forty-five degree parking, a perpendicular stall depth of 19.6 feet and an aisle width of 12.0 feet (the 19.6 feet will include and allowance of 2.0 feet for vehicle overhang).

Guide signing should be provided on Coral way leading up to Miracle Mile from the east in order to encourage motorists to dirert to Aragon Avenue. Exihibit 14 shows the typical signage which can be provided on Coral Way westbound between SW 32 Avenue and Douglas Road.

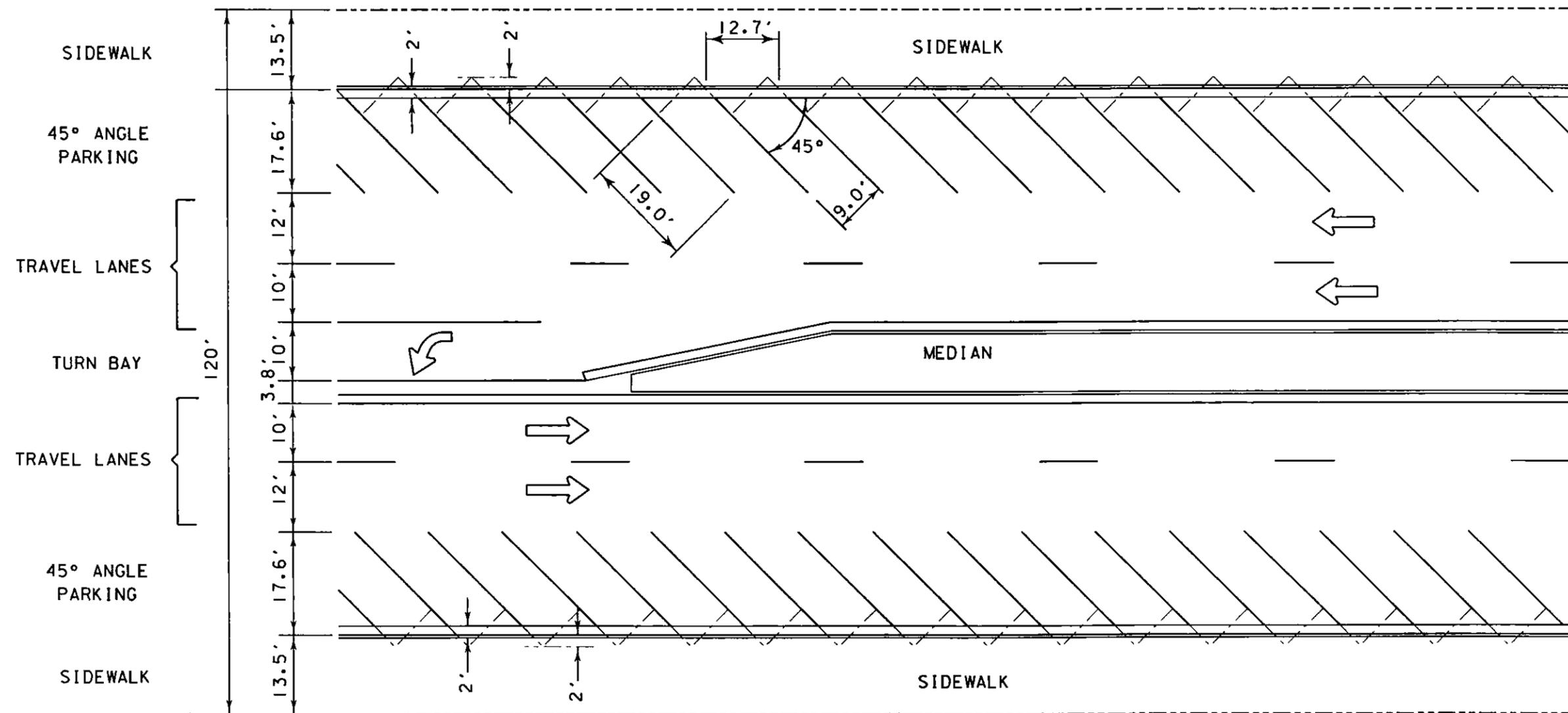


Exhibit 13

MIRACLE MILE ON-STREET PARKING COUNT

<u>ROADWAY LINK</u>	<u>EXISTING SPACES</u>	<u>CURB LENGTH</u>
LeJeune Road	Southside 31	430'
to Salzedo St.	Northside 32	440'
Salzedo Street	Southside 31	390'
to Ponce de Leon Blvd.	Northside 32	415'
Ponce de Leon Boulevard	Southside 31	415'
to Galiano St.	Northside 32	340'
Galiano St.	Southside 31	380'
to Douglas Rd	Northside 32	365'
<b>TOTAL</b>	<b>224</b>	<b>3175'</b>

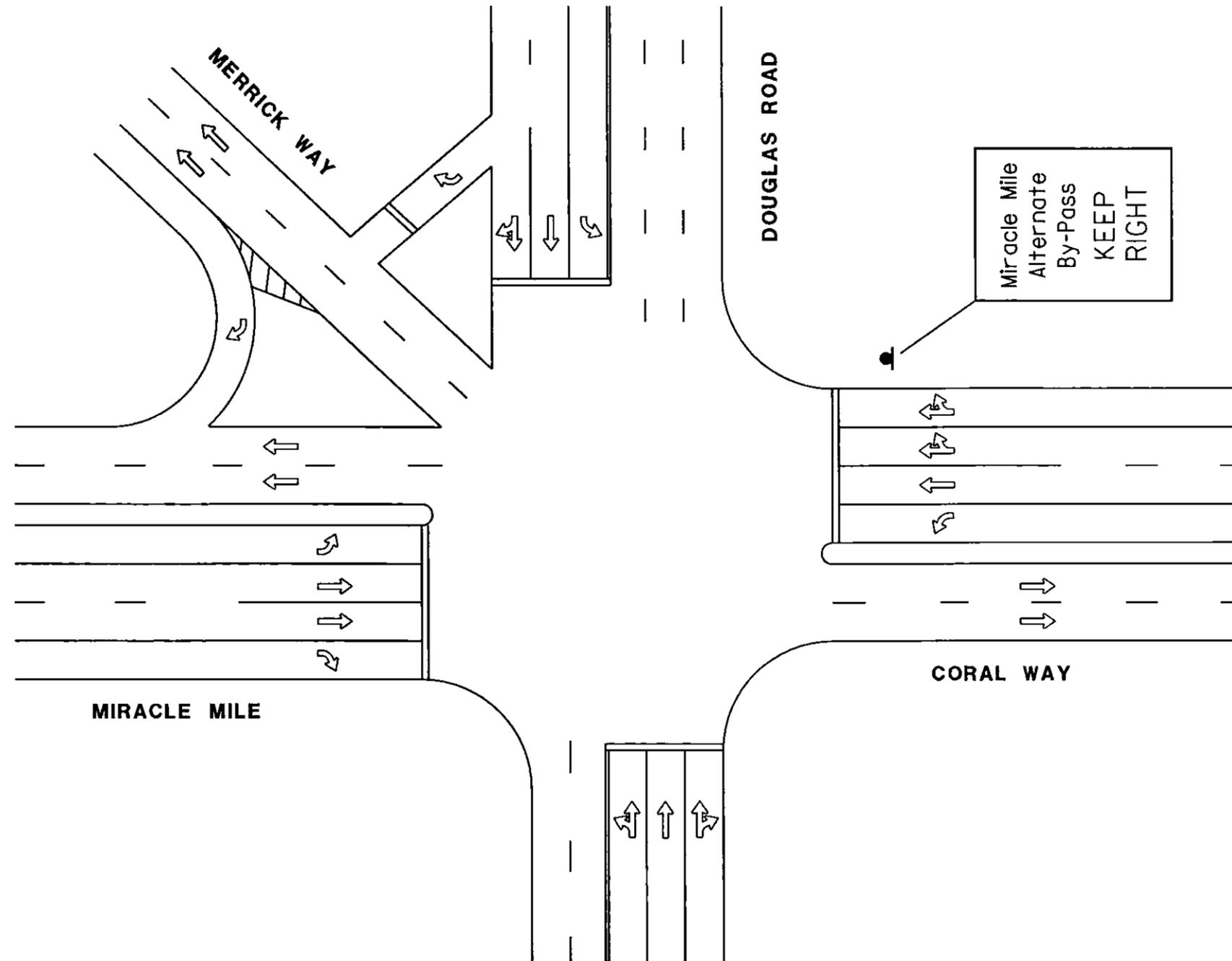
Aragon Avenue

Recommendations:

- Add westbound left-turn lane at Galiano Street, Ponce de Leon Boulevard and Salzedo Street.
- Remove approximately four parking spaces on the north side of Aragon Avenue for lane addition at each of the above locations.
- Rearrange westbound approach of Coral Way at Douglas Road so that two lanes can feed from Coral Way via Merrick Way to Aragon Avenue.
- Provide guide signing at all appropriate decision points between Douglas Road and LeJeune Road.
- Provide a queue clearance interval on LeJeune Road between Aragon Avenue and Miracle Mile. Prevent east and west through movements at LeJeune Road and Aragon Avenue.

Exhibit 14 illustrates the lane geometrics which are proposed at Douglas Road to divert westbound traffic on Coral Way to Aragon Avenue via Merrick Way. The westbound approach geometrics would be rearranged as follows: one shared right-turn lane to northbound on Merrick Way or Douglas Road, one shared lane to Merrick Way or Miracle Mile, one exclusive lane to Miracle Mile and one exclusive left-turn lane to southbound on Douglas Road. At LeJeune Road, the westbound through traffic on Aragon Avenue would be directed to Coral Way with signing and markings. The westbound approach geometrics would be restriped as one exclusive left-turn lane and one exclusive right-turn lane (no through movements allowed).





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The downtown business association has expressed concerns about reductions of parking in front of their businesses due to adding turn lanes, etc. However, they have said that some parking reductions would be tolerated. Exhibit 15 illustrates a typical intersection and shows where parking losses will occur and by how much. Aragon Avenue will be subject to minimal parking removals. Parking will be removed on west end of each block on the north side only between Merrick Way and LeJeune Road.

### Andalusia Avenue

#### Recommendations:

- Provide guide signing at all appropriate decision points.
- Provide a queue clearance interval on Douglas Road between SW 22 Terrace and Coral way.

Narrowing or closing Biltmore Way will divert most eastbound traffic to Andalusia Avenue. As mentioned earlier, the number of eastbound through lanes crossing LeJeune Road would be reduced from four lanes to two lanes. This situation almost guarantees more delays on the eastbound approach, especially during the critical morning peak hour.

In many ways Andalusia Avenue is a good road for eastbound through traffic in downtown Coral Gables. Traffic from east of Hernando Street does not have to change direction (via Biltmore Way), and Andalusia Avenue is one-way only eastbound. However, at Douglas Road some traffic on Andalusia Avenue will have to be sent straight through the intersection onto SW 22 Terrace. Otherwise, shifting all of the through traffic on Andalusia Avenue back to Coral Way via Douglas Road (even with traffic signal progression favoring that movement) would be difficult to achieve.

### Southwest 22 Terrace

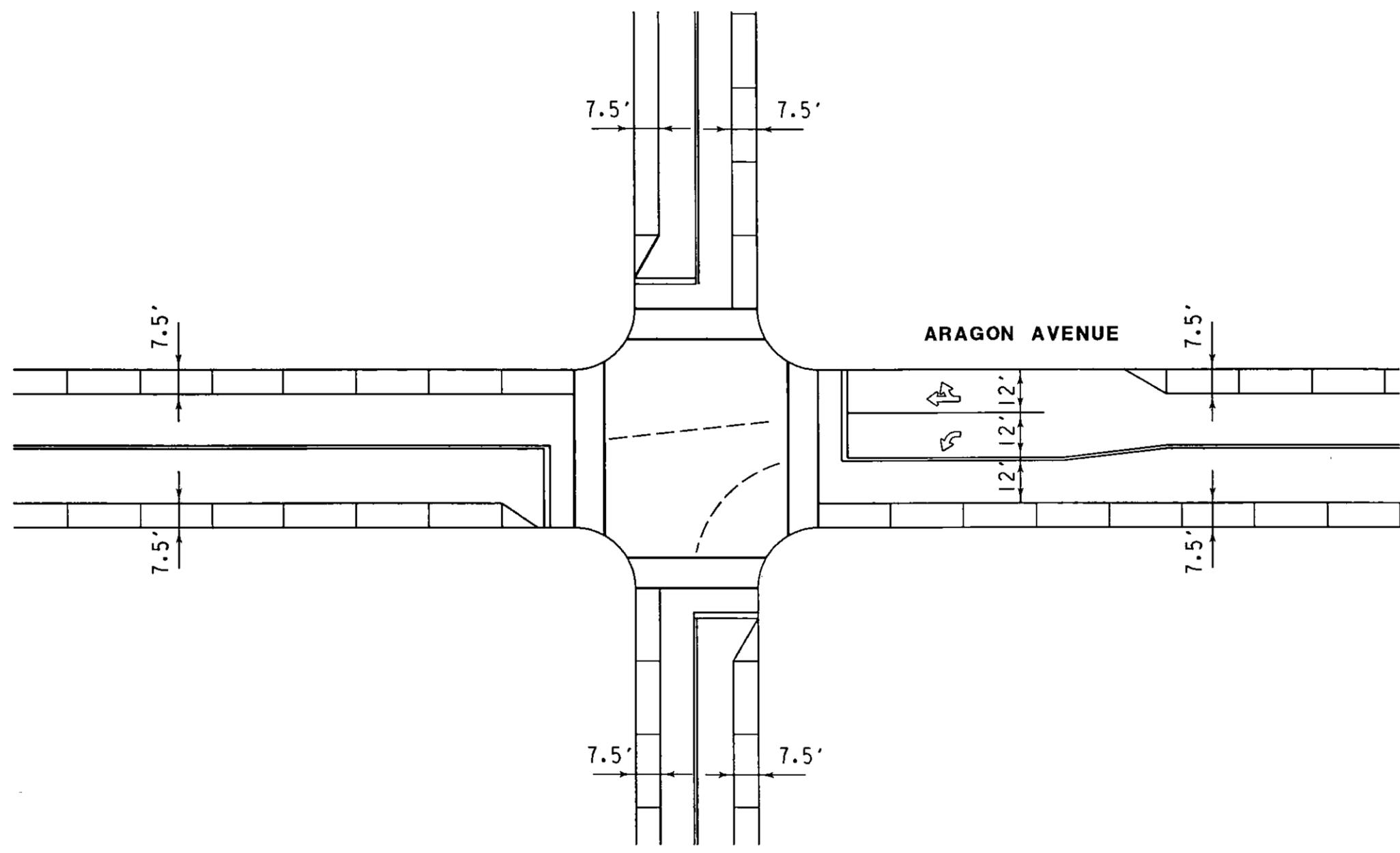
#### Recommendations:

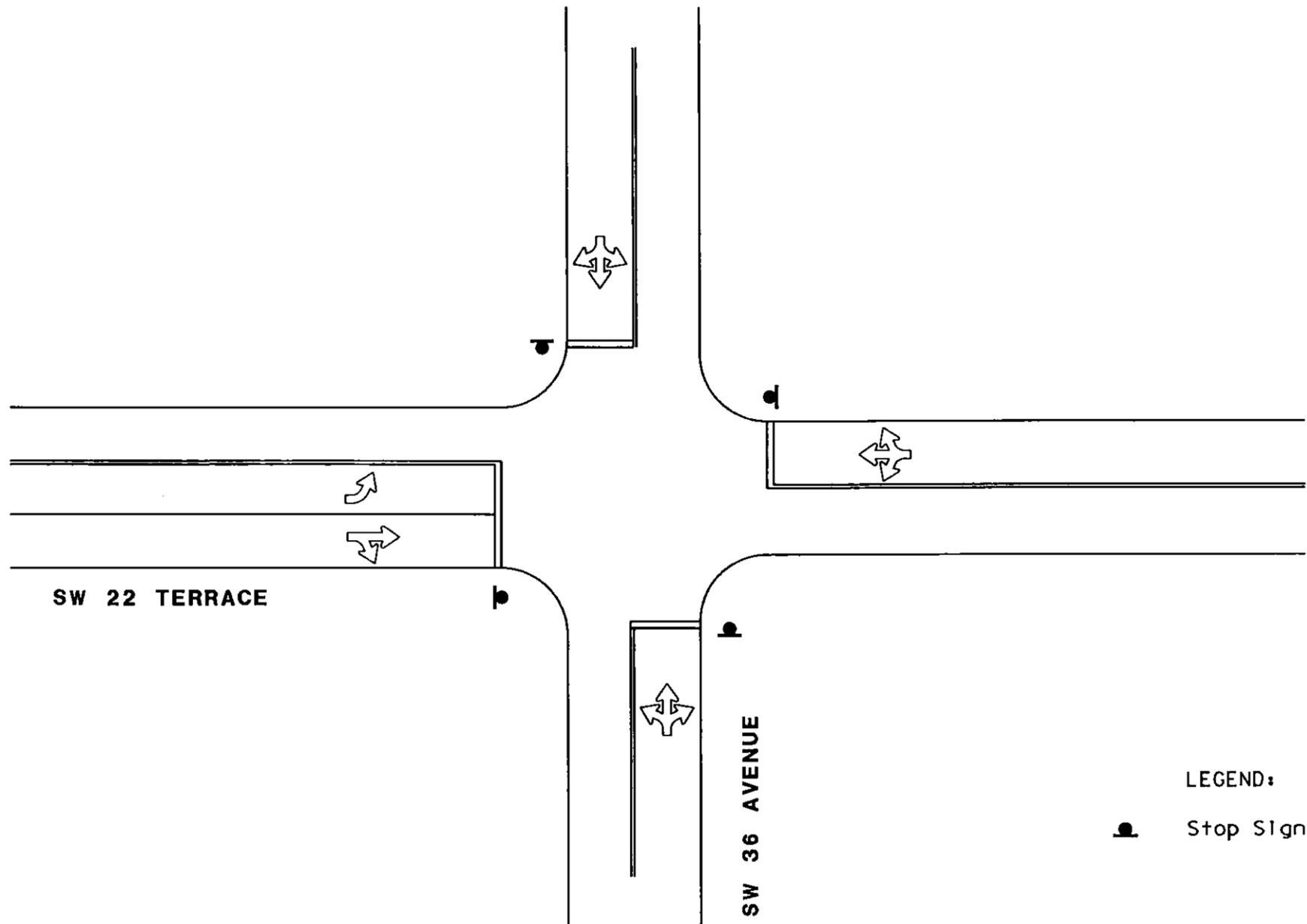
- Construct eastbound left-turn lane at SW 22 Terrace and SW 36 Avenue.
- Restripe northbound approach on SW 36 Avenue at Coral way as one through left lane and one right turn only lane.
- Provide guide signing at all appropriate decision points.

Eastbound through traffic on Andalusia Avenue at Douglas Road has the option of turning left toward Coral Way or following SW 22 Terrace for one block east of Douglas Road and then one block north back to Coral Way following SW 36 Avenue. The intersection of SW 22 Terrace at SW 36 Avenue would be four-way stop controlled. Exhibit 16 illustrates the proposed lane geometrics of this intersection. In order to further facilitate the circulation of eastbound through traffic via Andalusia Avenue, a left-turn lane should be constructed on the eastbound approach of SW 22 Terrace at SW 36 Avenue. The northbound approach geometrics of SW 36 Avenue at Coral Way should be restriped as one shared left-turn/through lane and one exclusive right-turn lane. Signing would be provided to direct eastbound through traffic at all decision points including the eastbound approach of Andalusia Avenue at Douglas Road, the eastbound approach of SW 22 Terrace at SW 36 Avenue (see Exhibit 16), and the northbound approach of SW 36 Avenue at Coral Way.



N.T.S.





LEGEND:  
● Stop Sign



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## CHAPTER 5 PEDESTRIAN IMPROVEMENTS

The character of Miracle Mile over the years has been transformed from highly pedestrian to mostly vehicular. Although pedestrian activity today is still quite high, the overall character of Miracle Mile is increasingly dominated by the automobile. This section reviews crosswalk conditions, walkways, and the preliminary studies by the division of Architecture at the City of Coral Gables. Exhibit 17 illustrates the locations where pedestrians can connect with streets and parking lots on and near Miracle Mile.

### Crosswalk Improvements

#### Recommendation:

- Restripe all crosswalks or install bright decorative brick.
  
- Construct safe waiting area in median at all intersection and mid-block crosswalk locations.
  
- Restripe the crosswalks on Lejeune Road between Merrick Park (Plaza) and Garage No. 4, and on Lejeune Road at Miracle Mile.

The flow of pedestrians at intersections on Miracle Mile is mostly in the east-west direction. We evaluated both intersection and midblock crosswalks on Miracle Mile during the peak hours. The east/west direction is where most of the pedestrian flow occurs on the four blocks between Douglas Road and LeJeune Road. Approximately sixty percent of the total pedestrians (including those from midblock crosswalks) flow in the east/west direction. If the midblock pedestrians are not included in the calculation, and only intersection crosswalk flow is considered, the east/west flow increases to seventy percent of the total flow.

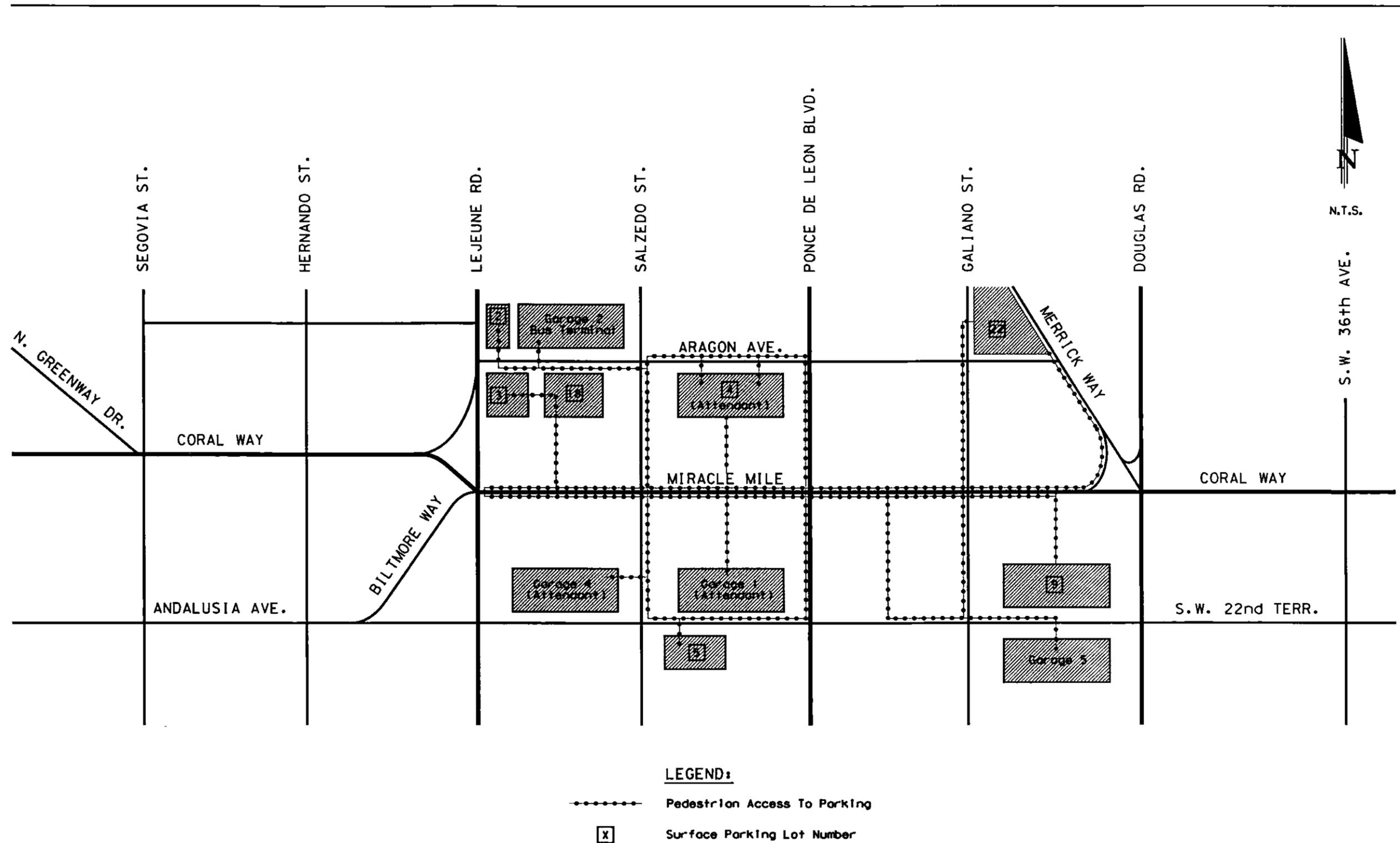
Many factors besides crosswalk length and conflicting traffic volumes are affecting pedestrian flow on Miracle Mile. Nevertheless, narrowing Miracle Mile should give pedestrians more comfort when crossing the street.

The existing crosswalks are not marked with standard white striping, but rather they are made of poured concrete with red pigmentation (Coral Gables Beige). The red crosswalks are meant to contrast with the asphalt pavement for better visibility. However, the pigmentation is faded and difficult to distinguish from the asphalt.

The four-laning of Miracle Mile would be a good opportunity to replace the existing crosswalks (at both mid-block and intersection locations) with other materials with more contrast, such as traditional white striping or decorative brick. These options should stand out more than the existing crosswalks. Also, the median on Miracle Mile should be reconstructed to allow for a safe waiting area, partially surrounded by a raised curb. These measures should contribute to a higher degree of comfort for pedestrians.

If Merrick Park is expanded by the closing of Biltmore Way, workers, shoppers, families and area residents will go there to eat lunch, relax, and participate in outdoor activities such as mid-day and evening concerts and various other scheduled events. This would create the need for strong pedestrian connections between the park and points east of Lejeune Road. Garage No. 4 would be a convenient place to park for patrons of the proposed Merrick Park (Plaza). The Lejeune Road crosswalks at Miracle Mile and Andalusia Avenue (adjacent to Garage No. 4) should be restriped with a bright zebra pattern (alternating black and white bars) or some other treatment that would contrast well with the existing pavement. In addition, a pre-emptive pedestrian button should be installed at the crosswalks.

Closing Biltmore Way is desirable because it creates pedestrian comfort in front of City Hall similar to the comfort being encouraged by the narrowing of Miracle Mile. However, converting Biltmore Way to one-way westbound, with a narrowed roadway and parking on both sides, is a reasonable alternative.



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## Walk-Way Improvements

### Recommendation:

- Provide lighting in pedestrian walk-throughs to a minimum of 5.0 foot-candles.
- Provide improved street lighting on Salzedo Street between Miracle Mile and Andalusia Avenue.

Several pedestrian walk-through locations exist on Miracle Mile. Walk-throughs are pedestrian walkways between buildings, usually located near the midblock crosswalks. They help to ease pedestrian circulation by providing additional access between Miracle Mile and parking lots on the adjacent streets. Three pedestrian walk-throughs are located on the south side of Miracle Mile, and one on the north side.

Several of the pedestrian walk-throughs are similar to pedestrian tunnels. They should be illuminated with a minimum of 5.0 foot-candles throughout. While nighttime observations were conducted, detailed lighting data is not presently available on the extent and complexity of the existing lighting conditions. Nevertheless, better lighting would contribute to a more comfortable pedestrian environment, and would strengthen the nighttime connection between Miracle Mile and parking facilities on Andalusia Avenue and Aragon Avenue.

The street lighting levels on Salzedo Street between Miracle Mile and Andalusia Avenue seem dimmer than on Miracle Mile. If lighting is improved people may be more encouraged to use the Garage No. 4 which is presently underutilized.

## Miracle Mile Alley Revitalization Study

### Recommendations:

- Install warning signs at all alley entrances such as, "Delivery and Service Trucks Only", and "Do Not Enter" (all alleys should be one-way operation).
- Close alleys with chain or gate during work hours.
- Install 5 mph speed limit signs.

The City of Coral Gables has developed a preliminary conceptual plan to revitalize the downtown alleys adjacent to Miracle Mile. This section will review the study concepts, and make additional recommendations as necessary.

The idea of creating "pedestrian" alleys is part of an integrated approach to revitalizing Miracle Mile. Closing Biltmore Way and reducing the number of lanes on Miracle Mile are only two parts of the multifaceted effort to bring back pedestrians and shoppers to the downtown retail core. The alley treatment would create an attractive, well lit, strong connection between the parking lots and garages on Andalusia Avenue and the Miracle Mile shops. Shopkeepers would be encouraged to create more attractive alley entrances so that shoppers could gain access to the stores without ever leaving the alley environment.

The alley treatment would include a separate brick paved pedestrian area running parallel to a concrete driveway. The driveway would be for one-way circulation of loading/unloading trucks, and for garbage trucks. Trees, landscaping, and light poles would be placed on the edge of the pedestrian area as a buffer to minimize the interaction between pedestrians and vehicles. Utility lines would be relocated underground. Trash bins would be grouped together and relocated in inconspicuous enclosures. Delivery service and garbage pickup for the retail shops should be scheduled so they do not interfere with peak pedestrian activity in the alleys.

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**The pedestrian connection with the parking garage in the City's study is made stronger where the brick paved pedestrian area crosses the concrete driveway and continues into the parking garage. Examples in the City's study of where such crossings would be located are at stairwells, and where proposed specialty vendors would be located just inside the garage.**

**The integration of the retail shops and the parking garages and lots should decrease the demand for on-street parking on Miracle Mile.**

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CHAPTER 6  
COST ESTIMATES (1993)

Preliminary cost estimates prepared by the City of Coral Gables indicate that the four laning of Miracle Mile and related planted median would cost approximately \$900,000 with a construction time of five months. The preliminary costs for the Biltmore Way improvements are estimated to be around \$650,000 with a construction time of about three months. Each block of the proposed alley treatment is estimated to cost about \$920,000. The total estimated cost (including one block of alley treatment) is \$2,470,000.

The City's improvement initiatives are designed to alter the character of Miracle Mile both aesthetically and from a traffic standpoint. The improvements alone, however, do not answer all of the questions regarding traffic circulation. This report has set forth several additional improvements which will mitigate the impacts created by the diverted traffic.

The Florida Department of Transportation's Historical Unit Price List of recently completed construction jobs, was used in order to obtain typical construction costs for the additional recommended improvements in this report. Preliminary construction cost estimates are included in Appendix G. Final cost estimates can only be prepared based on plans to be prepared during final design.

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## APPENDIX A PARKING ALTERNATIVES

This section of the report develops alternative methods of attracting shoppers to the parking garages and surface lots within one or two blocks of Miracle Mile. Consideration is given to parking signage, parking fee strategies, and parking entrance and exit improvements.

### Existing Conditions

The City of Coral Gables provides municipal parking on-street and off-street within the Central Business District. On-street parking is generally controlled by parking meters at the curb-side. The number of spaces and time limit of all on-street parking is illustrated in Exhibit A-1. Most of the public parking in the study area is provided by on-street parking, and is of short-term duration (typically 90 minutes). Off-street public parking garages and surface lots are provided by the City at various locations throughout the study area. Exhibit A-2 illustrates the location of each parking facility, and the number of spaces and type of parking provided. Garage No. 1 and No. 4 provide a large share of the parking for retail shoppers, especially since patrons can get up to four hours of free parking from participating merchants. Fees for parking garages (off-street parking) are controlled in various manners including meters, attendant parking and monthly permits. The Parking rates in the study area are tabulated in Exhibit A-3. All of the parking meters are either 40 or 50 cents per hour. Monthly permit fees vary between 30 and 55 dollars depending on the location. Where the demand is highest (Garage No. 1), the permit fee is highest (55 dollars per month).

### Parking Signage

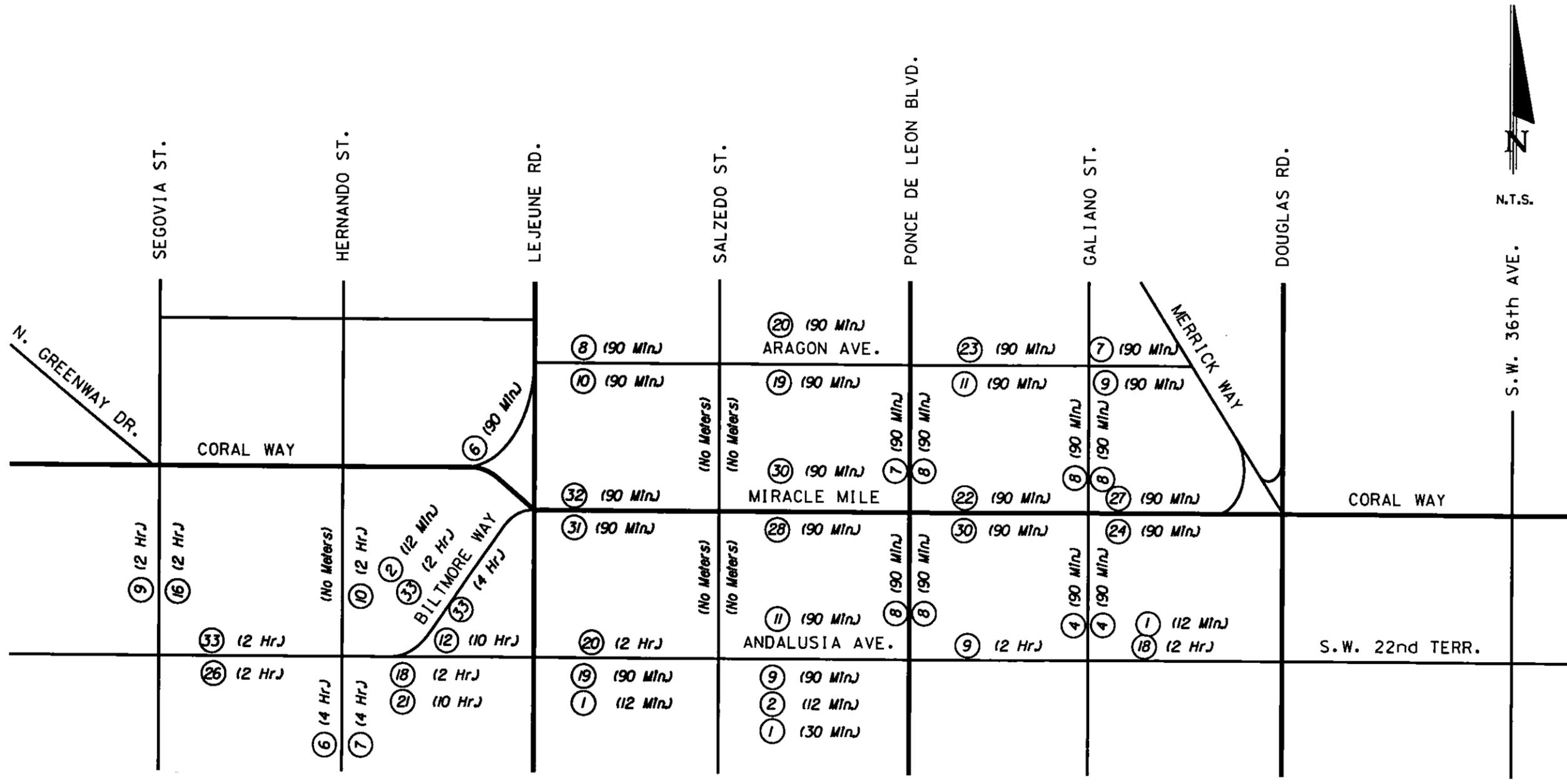
#### Recommendations:

- Replace all parking area guide signs with nationally accepted standard signs.
- Install parking area guide signs at entrances to all parking facilities.
- Install garage parking guide signs on Miracle Mile which advertise Merchant Validated Free Parking in garages on Andalusia Avenue and Aragon Avenue.

The parking area signs on Miracle Mile are used to show the direction to nearby parking areas for use by the general public. The existing parking signage program in downtown Coral Gables consists of rectangular signs strategically placed at intersections approaching or near parking facilities. The signs themselves are rectangular, with the horizontal dimension being slightly longer than the vertical dimension (typical size is 20"x 24"). Exhibit A-4 shows where the Parking Guide signs are located on Miracle Mile and elsewhere in the study area. The word "Parking" is written across the bottom of the sign, with the letter "P" twice the height of the remaining letters, and a directional arrow(s). Some of the signs are placed on a sign post with a lateral clearance of one or two feet from the right most travel lane, while others are mounted on signal poles within the intersection.

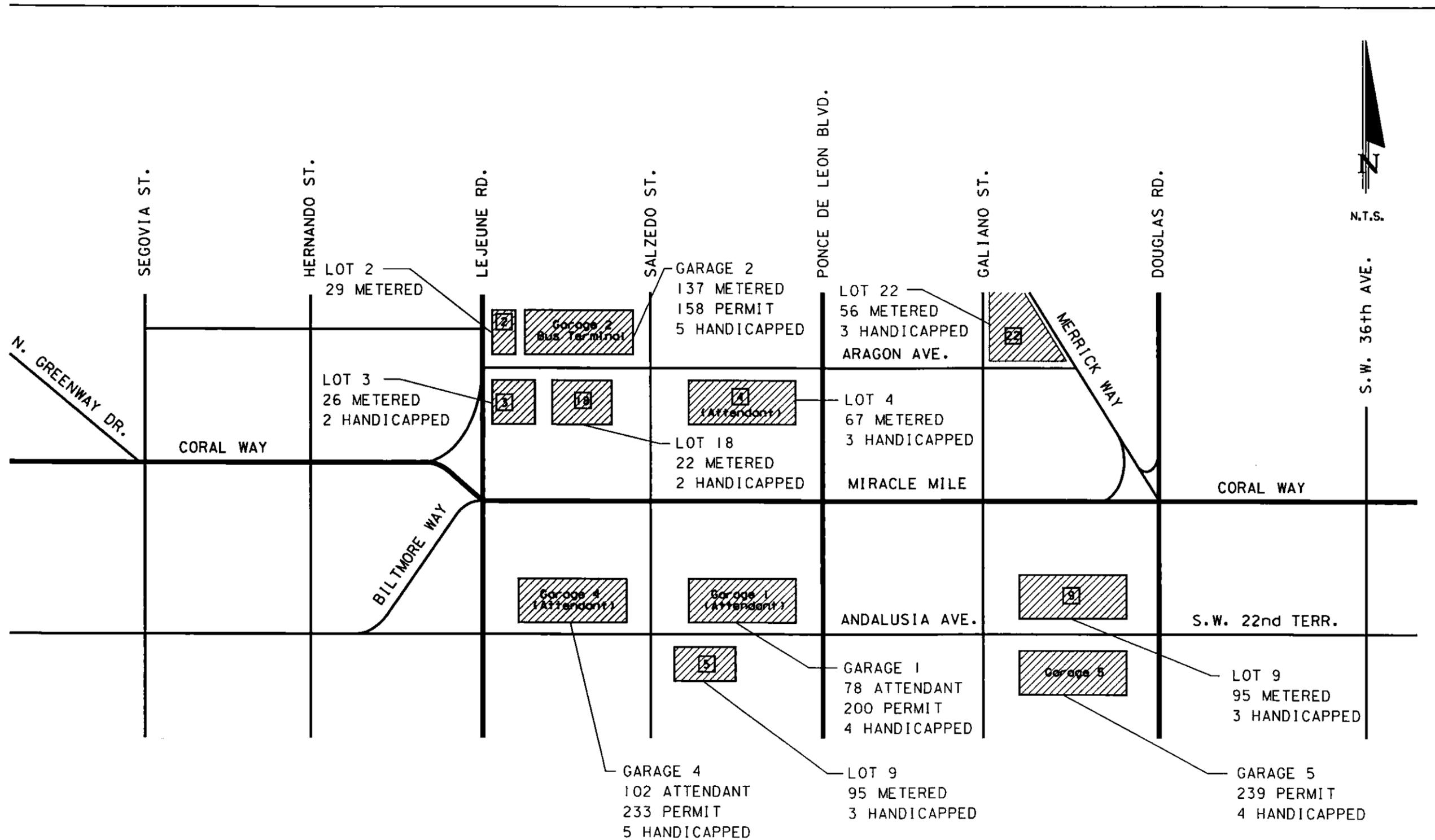
The parking signage program which is currently in place seems sufficient in terms of quantity and placement of signs. Parking area signs serve to direct motorists to convenient parking facilities near Miracle Mile. The signs themselves, however, should be redone to reflect the latest standards in the Manual of Uniform Traffic Control Devices (MUTCD). All parking area signs should be made 30 inches horizontally by 24 inches vertically (see Exhibit A-5). The MUTCD standard reads as follows: "(The parking area sign) shall carry the word PARKING, with the letter P five times the height of the remaining letters, and a directional arrow. The legend and border shall be green on a reflectorized white background." All existing parking signs should be remade according the dimensions shown in Exhibit A-5 and described above.

Parking signs should also be placed at all parking lot and garage entrances. Installing the type of sign that is found in the MUTCD makes recognition quicker and more understandable. The MUTCD factors in colors, shapes, size, placement and reading time in establishing standards. The parking area sign shown in the MUTCD is the same one that is used nationwide.



ⓧ - NUMBER OF ON-STREET PARKING SPACES  
 (XX Min) - METER MAXIMUM TIME LIMIT



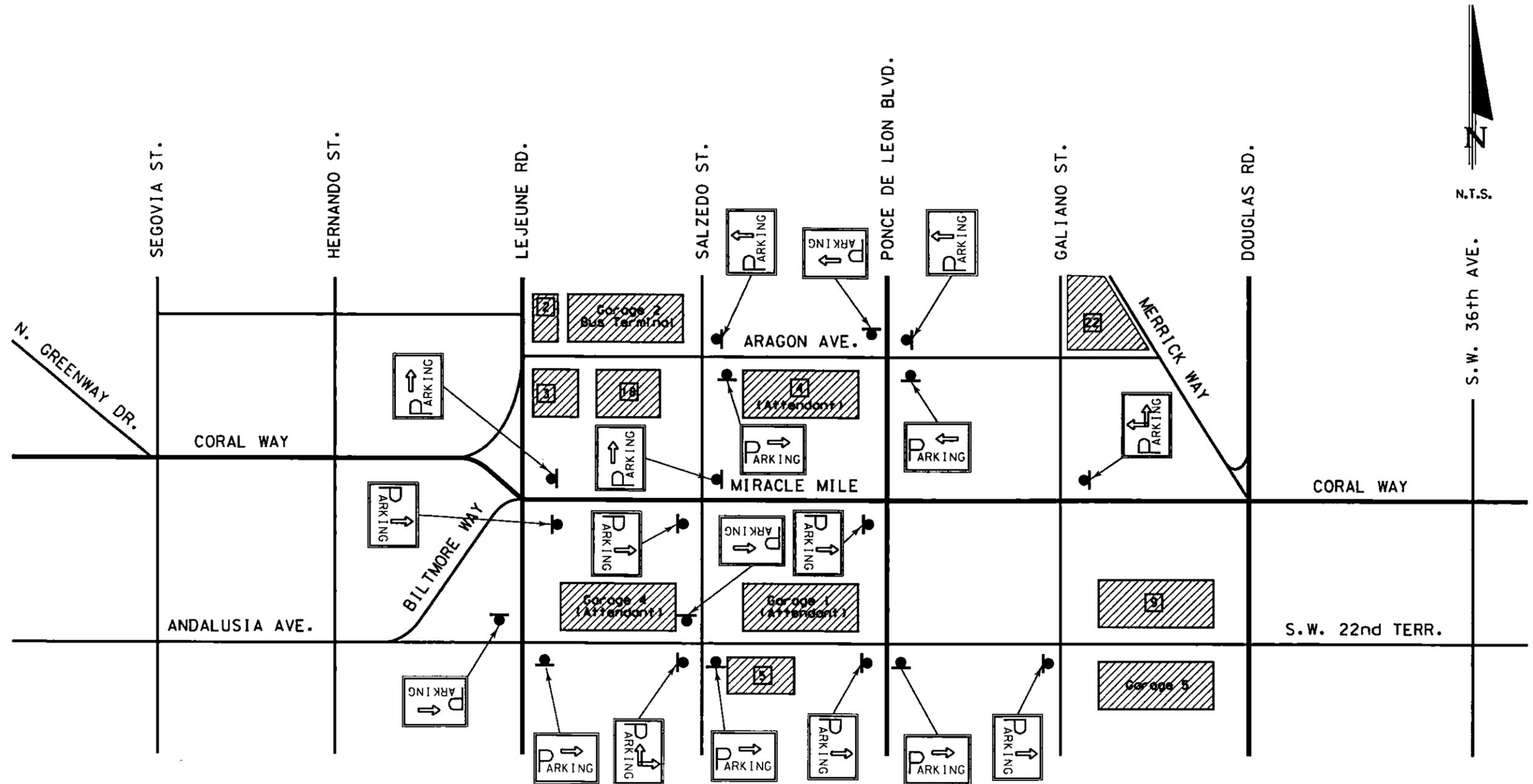


PARKING FACILITIES		
FACILITY	METER TYPE TYPE / PERMITS	COST
LOT 1	10 HOURS	40c / HOUR
LOT 3,4	3 HOURS	40c / HOUR
LOT5	3 HOURS	40c / HOUR
	90 MINUTES	50c / HOUR
LOT 7	10 HOURS	40c / HOUR
	3 HOURS	40c / HOUR
LOT 8	10 HOURS	40c / HOUR
	90 MINUTES	50c / HOUR
LOT 9	10 HOURS	40c / HOUR
	3 HOURS	40c / HOUR
LOT 18	3 HOURS	40c / HOUR
LOT 22	10 HOURS	40c / HOUR
	3 HOURS	40c / HOUR
LOT 25	10 HOURS	40c / HOUR
GARAGE NO. 1	3 HOURS	40c / HOUR
GARAGE NO. 2	10 HOURS	40c / HOUR
GARAGE NO. 3	3 HOURS	40c / HOUR
GARAGE NO. 4 (ATTENDANT)	10 HOURS	40c / HOUR
	3 HOURS	40c / HOUR

OFF-STREET PERMITS (PER MONTH)		
FACILITY	METER TYPE TYPE / PERMITS	COST (TAX NOT INCL.)
GARAGE NO. 1	ROOF	\$45.00
	COVERED	\$55.00
GARAGE NO. 2	ROOF ONLY	\$40.00
GARAGE NO. 3	ROOF	\$40.00
	COVERED	\$50.00
GARAGE NO. 4	ROOF	\$40.00
	COVERED	\$55.00
GARAGE NO. 5	ROOF	\$40.00
	COVERED	\$40.00
OFF-STREET PERMITS (SURFACE LOTS)		\$40.00

METER RATE SCHEDULE	
FACILITY	COST
12 MIN. METERS	40c / HOUR
30 MIN. METERS	50c / HOUR
90 MIN. METERS	50c / HOUR
2 HOUR METERS	50c / HOUR
3 HOUR METERS	50c / HOUR (ON-STREET)
3 HOUR METERS	40c / HOUR (OFF-STREET)
4 HOUR METERS	40c / HOUR
10 HOUR METERS	40c / HOUR





**LEGEND:**

-  Access Sign To Parking
-  Surface Parking Lot Number



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Many of the merchants on Miracle Mile are already participating in Merchant Validated Parking (MVP), where patrons get free parking stickers for the time that they shop, if they park in garages or lots with booth attendants. A signage program should be initiated on Miracle Mile which advertises MVP and directs motorists to those garages and lots (Garage No. 1 and No. 4, and Lot No. 4). The signs should be especially targeted for Garage No. 4 which is currently underutilized. The Salzedo Street entrance to Garage No. 4 should be made more prominent and visible.

### Parking Fee Strategies

#### Recommendation:

- Reduce parking rate in Garage No. 4, and increase parking rate in Garage No.1.

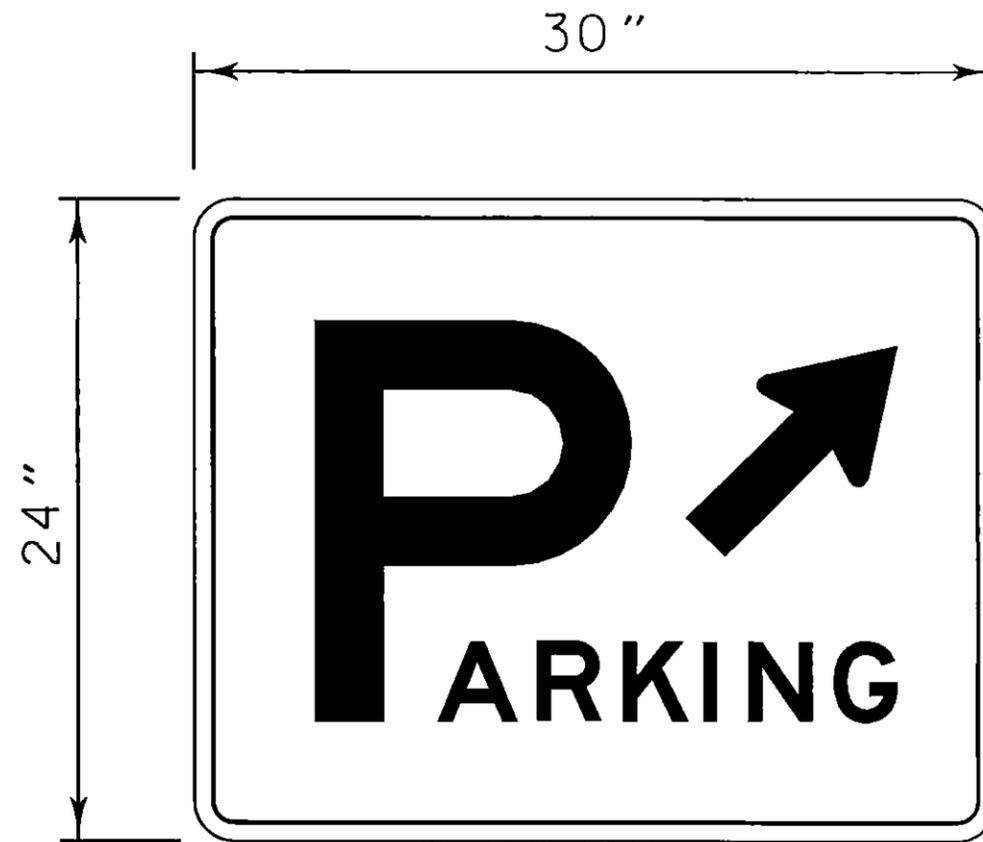
Several methods are available to increase the parking demand in locations where surplus parking is available. Lowering parking fees is one method. Garage No. 4 is regularly underutilized. Permit parking is also less used than in other parking facilities. In fact, the City is using the vacant spaces in Garage No. 4 to park a large part of their fleet of vehicles.

The existing parking fee of fifty cents per hour can be reduced in order to induce more parkers to use the garage. Simultaneous fee increases could be introduced in other nearby locations (e.g. Garage No. 1, which is usually full). This technique coupled with improved signing should enable Garage No. 4 to capture a larger share of the shopping related trips.

### Parking Entrance/Exit Improvements

#### Recommendation:

- Move control booth in attendant lots further inside parking facilities on Andalusia Avenue if reservoir space beyond the gate becomes insufficient for storing vehicles that are waiting for an acceptable gap in street traffic.
- Increase any of the following driveway dimensions in order to provide more rapid entrance into or out of parking facilities:
  - Right-turn radius (30 feet max.)
  - Entrance lane width (15 feet max.)
  - Entrance angle (45 degrees min. one-way streets only)



NOTE: DIRECTION OF ARROW VARIES AS NEEDED.

SOURCE: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 1988

EXHIBIT A-5

MIRACLE MILE TRAFFIC CIRCULATION STUDY

RECOMMENDED PARKING SIGN

INTERSECTION	AM PEAK HOUR LEVEL OF SERVICE	PM PEAK HOUR LEVEL OF SERVICE
1. Aragon Avenue / Segovia Street	A	A
2. Aragon Avenue / LeJeune Road	C	E
3. Aragon Avenue / Ponce de Leon Boulevard	C	C
4. Coral Way / Segovia Street	B	B
5. Miracle Mile / LeJeune Road	E	F
6. Miracle Mile / Ponce de Leon Boulevard	B*	D*
7. Miracle Mile / Douglas Road	E	F
8. Biltmore Way / Segovia Street	F	D
9. Andalusia Avenue / LeJeune Road	F	B*
10. Andalusia Avenue / Ponce de Leon Boulevard	B	B
11. Andalusia Avenue / Douglas Road	B	F
12. Coral Way / SW 36 Avenue	F	F
13. SW 36 Avenue / SW 22 Terrace	B	C

\* Metering from previous signal gives misleading results  
Traffic conditions are really worse.



ROUTE NAME: CORAL WAY PM (WESTBOUND) STARTING AT DOUGLAS ROAD 6 RUN (S) 8 LINKS							
END POINT	LINK LENGTH (FT.)	TRAVEL TIME (SEC.)	DELAY (SEC.)	STOPS	ACCELERATION NOISE	SPEED (M.P.H.)	
						AVG.	RUN.
PCW.4	439	18.6	2.0	0.3	1.93	16.0	17.9
GALIANO ST.	275	21.6	11.1	0.5	1.94	8.6	17.8
PCW.3	316	19.6	8.5	0.3	1.75	10.9	19.3
PONCE DE LEON	320	33.3	19.5	0.8	2.29	6.5	15.8
PCW.2	348	17.6	3.8	0.3	2.14	13.4	17.1
SALZEDO ST	332	48.8	32.3	0.5	2.19	4.6	13.7
PCW.1	322	23.1	8.8	0.8	3.09	9.4	15.3
LeJEUNE RD.	339	65.6	49.3	0.8	1.84	3.5	14.1
TOTAL	2693	248.6	135.5	4.5	2.25	7.3	16.2

ROUTE TRAVEL TIME DTD. DEV. WAS 61.41 SECONDS  
 AVERAGE FUEL CONSUMPTION WAS 0.07 GALLONS PER VEHICLE-TRIP  
 FUEL CONSUMPTION RATE WAS 7.50 MPG

ROUTE NAME: CORAL WAY PM (EASTBOUND) STARTING AT LeJEUNE RD. 6 RUN (S) 8 LINKS							
END POINT	LINK LENGTH (FT.)	TRAVEL TIME (SEC.)	DELAY (SEC.)	STOPS	ACCELERATION NOISE	SPEED (M.P.H.)	
						AVG.	RUN.
PCW.1	358	9.1	0.0	0.0	1.58	26.6	26.6
SALZEDO ST.	312	34.8	24.1	0.6	2.04	6.1	19.9
PCW.2	340	9.8	0.0	0.0	2.24	23.6	23.6
PONCE DE LEON	333	17.8	8.0	0.3	1.86	12.7	23.1
PCW.3	334	9.0	0.0	0.0	1.39	25.3	25.3
GALIANO ST	312	20.6	11.5	0.3	1.74	10.3	23.2
PCW.4	272	11.0	1.8	0.1	1.45	16.8	20.2
DOUGLAS RD.	429	50.8	35.0	0.8	2.32	5.7	18.5
TOTAL	2694	163.1	80.5	2.3	2.31	11.2	22.2

ROUTE TRAVEL TIME DTD. DEV. WAS 40.23 SECONDS  
 AVERAGE FUEL CONSUMPTION WAS 0.05 GALLONS PER VEHICLE-TRIP  
 FUEL CONSUMPTION RATE WAS 10.17 MPG

SOURCE: FDOT DISTRICT 6, TRAVEL TIME & DELAY STUDY  
 CONDUCTED BY DPA, FEBRUARY, 1992.

APPENDIX C

MIRACLE MILE TRAFFIC CIRCULATION STUDY

SPEED AND DELAY STUDY  
 MIRACLE MILE



**CRASH SUMMARY  
YEARS 1989, 1990, 1991**

<i>TYPE OF CRASH</i>	<i>PROPERTY DAMAGE ONLY</i>	<i>INJURY</i>	<i>FATAL</i>	<i>TOTAL</i>
ANGLE	22	38	1	61
FIXED OBJECT	0	0	0	0
RIGHT TURN	0	1	0	1
LEFT TURN	16	16	0	32
REAR END	13	19	0	32
SIDE SWIPE	6	1	0	7
PEDESTRIAN	0	0	0	0
OTHERS	9	12	1	22
<b>TOTAL</b>	<b>66</b>	<b>87</b>	<b>2</b>	<b>155</b>

SOURCE: H.R.E. CONCEPTUAL SAFETY STUDY QUALITATIVE ASSESSMENT  
LETTER OF DETERMINATION, SR 972/MIRACLE MILE, SW 42 AVENUE  
TO SW 37 AVENUE, DATED OCTOBER, 1993, PREPARED BY FDOT.

APPENDIX D

MIRACLE MILE TRAFFIC CIRCULATION STUDY

MIRACLE MILE  
ACCIDENT SUMMARY



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APPENDIX E  
ALTERNATIVE TRAFFIC ROUTES ANALYSIS

The following alternative traffic routes were developed in order to evaluate how to best mitigate the traffic impacts associated with the proposed improvements; those improvements being: partially or completely closing Biltmore Way to traffic, and reducing Miracle Mile to four through lanes.

**Concept 1 - Miracle Mile/Andalusia Avenue One-Way Pair**

Miracle Mile would serve only one-way westbound traffic, while Andalusia Avenue would continue to serve one-way eastbound traffic (see Exhibit E-1). Biltmore Way would be closed west of LeJeune Road in order to extend Merrick Park across from City Hall. The advantages of such a configuration would be unopposed left and right turns off of Miracle Mile, and more narrowing of the street pavement resulting in shorter pedestrian crosswalks. Roadway capacity and level of service would improve for westbound traffic, and pedestrian safety would be enhanced. The disadvantages of this alternative are the reduction of business exposure to eastbound traffic, and on-street parking friction.

**Concept 2 - Aragon Avenue - One-Way Westbound**

Create a split one-way pair with Aragon Avenue operating one-way westbound and Andalusia Avenue continuing eastbound (see Exhibit E-2). Miracle Mile would remain a two-way street in the center of the one-way pair. This scenario is similar to Concept 1 in that Biltmore Way would be closed at City Hall. In order to increase capacity for the westbound traffic flow, exclusive turn lanes may need to be provided on Aragon Avenue at selected locations. Parking on Aragon Avenue would only be removed near intersection approaches for the turn lanes. Aragon Avenue westbound traffic would be returned to Coral Way by turning left at LeJeune Road.

This concept requires diversion of westbound traffic from Miracle Mile to Aragon Avenue, and eastbound volumes to Andalusia Avenue. Miracle Mile would be converted from a six lane roadway to four lanes with a planted median and left turn bays eastbound and westbound.

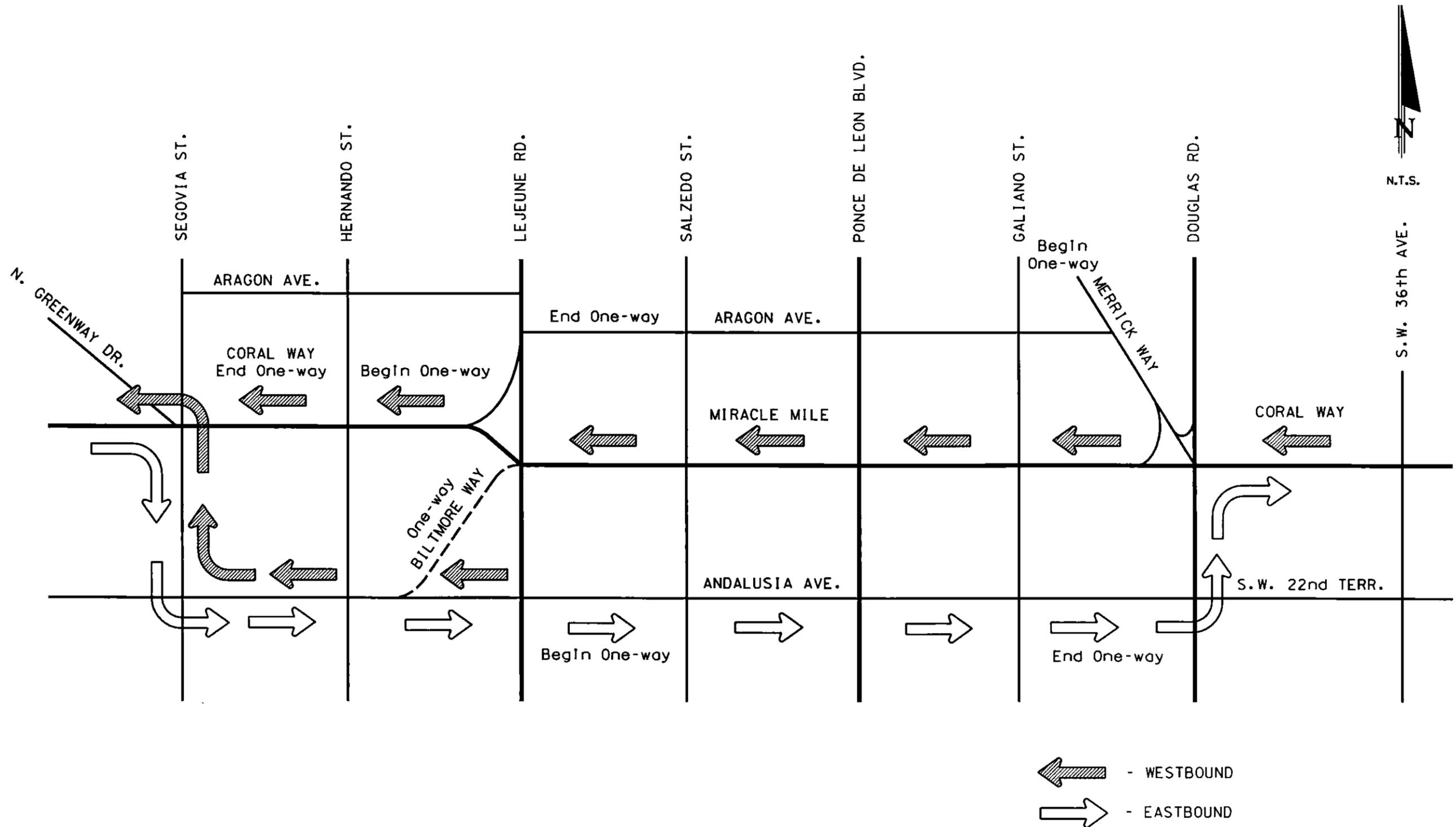
The disadvantages would be on-street parking losses and higher traffic volumes on Aragon Avenue and higher traffic volumes on SW 22 Terrace and SW 36 Avenue in the City of Miami. Eastbound traffic on Andalusia Avenue would be routed straight through the intersection at Douglas Road to SW 22 Terrace, and then back to Coral Way via SW 36 Avenue. (This area has a mix of both commercial and residential uses). In this way traffic from Andalusia Avenue can avoid the traffic congestion on Douglas Road.

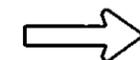
**Concept 3 - Andalusia Avenue - Two-way Operation**

Andalusia Avenue currently operates as a two (or three) lane one-way street parallel to and one block south of Miracle Mile. Parallel on-street parking is provided on both sides of the street between LeJeune Road and Salzedo Street, and on the north side only between Salzedo Street and Douglas Road.

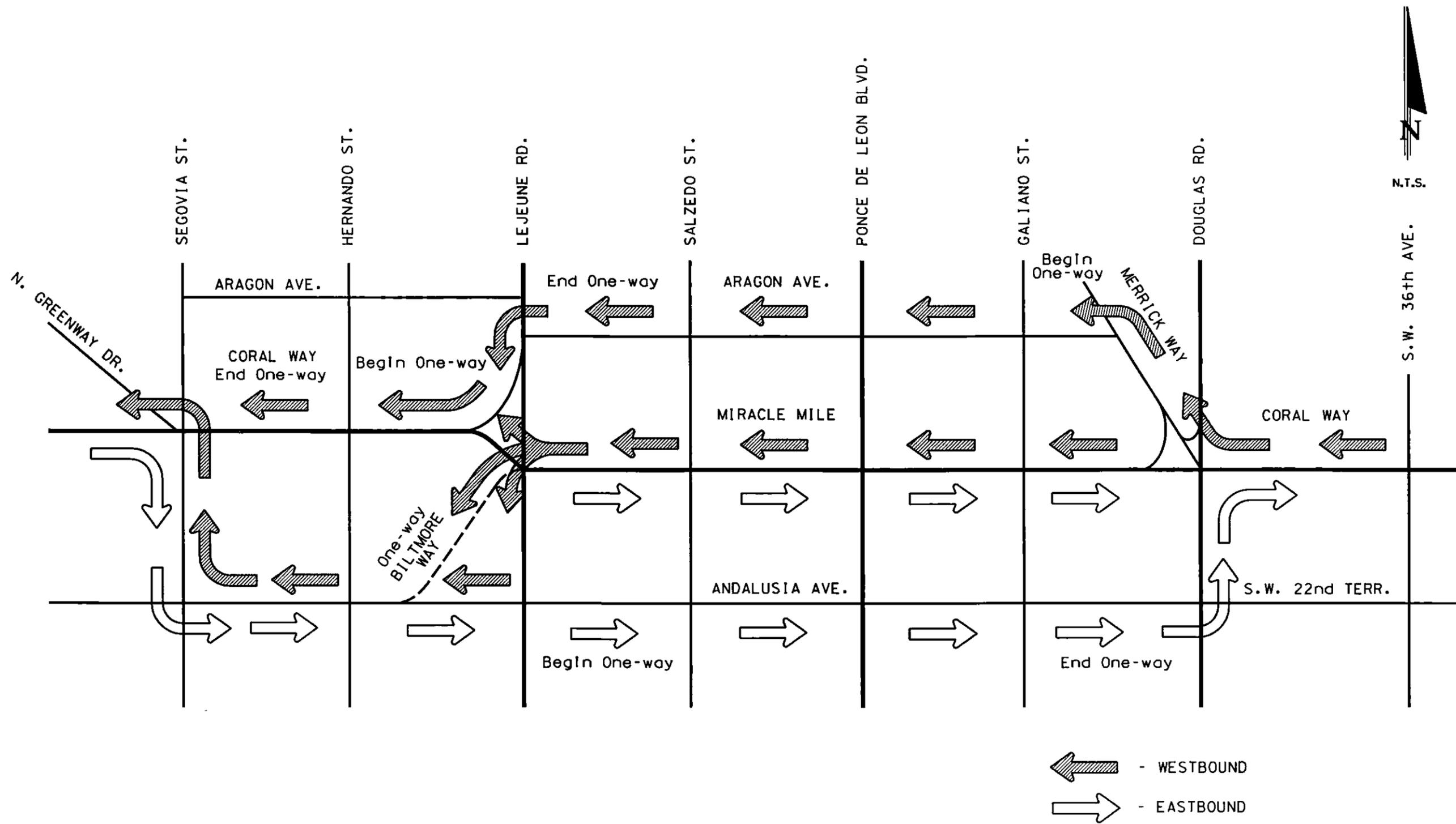
This concept proposes to make Andalusia Avenue into a four lane two-way street by removing on-street parking (as shown in Exhibit E-3). The advantage would be to avoid traffic impacts on Miracle Mile and Aragon Avenue. However, the degree to which traffic would decrease on Miracle Mile would be small, especially in the westbound direction during the PM peak hour.





 - WESTBOUND  
 - EASTBOUND





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#### **Concept 4 - Andalusia Avenue - Two-way Operation (Reversible)**

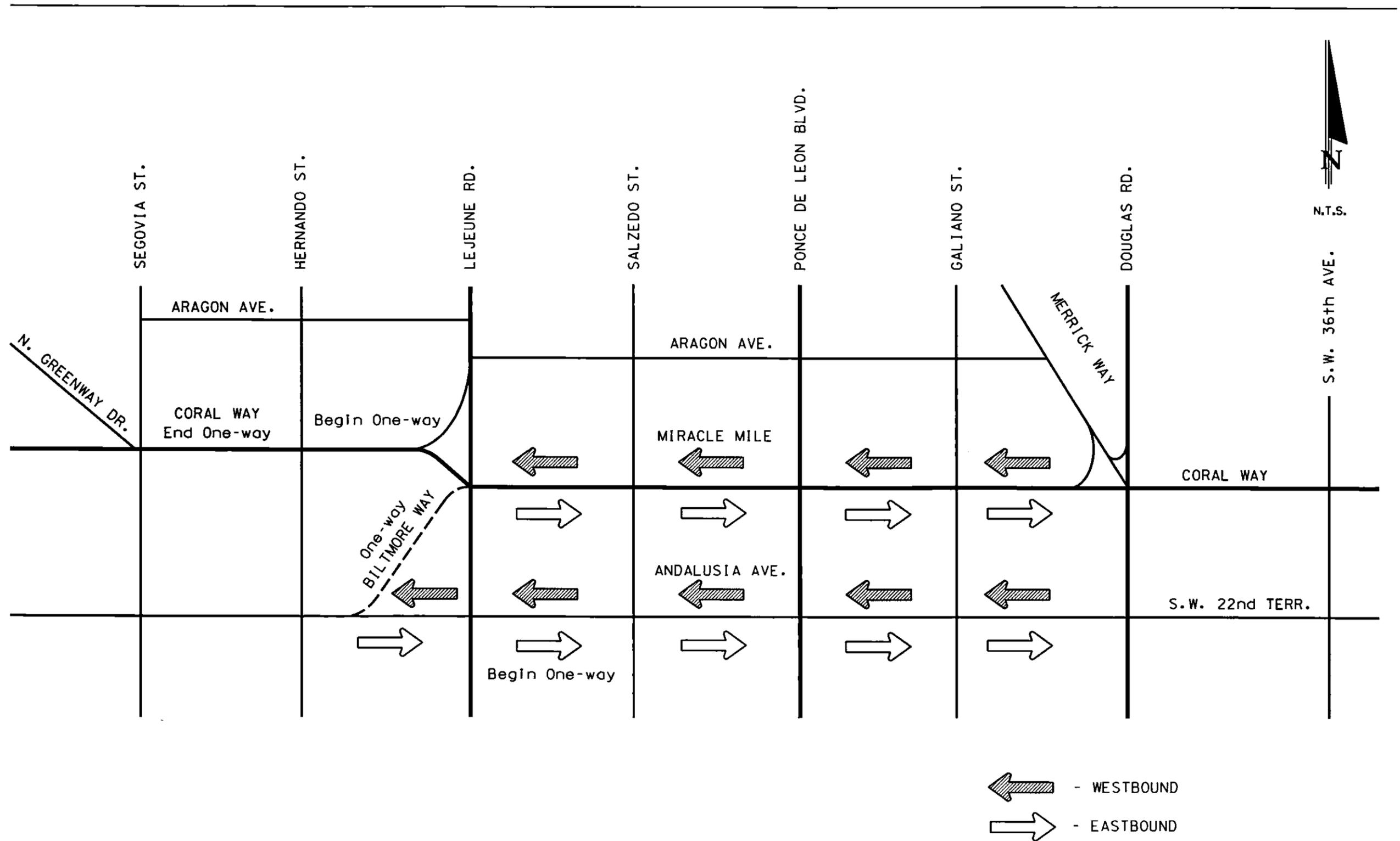
This concept is similar to Concept 3 except that the middle two lanes would be reversible so that in the morning peak hour it would operate with three lanes eastbound and one lane westbound, and in the evening peak hour it would operate with one lane eastbound and three lanes westbound (see Exhibit E-4).

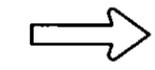
The advantage of this concept would be to divert traffic from Miracle Mile and Aragon Avenue. However, attracting Coral Way through traffic to a more circuitous route along Andalusia Avenue would be difficult. Also, the curb parking along Andalusia Avenue would have to be removed, and a very "urban looking" overhead reversible signal system would have to be installed. Reversible streets can also cause confusion to the unfamiliar motorist.

#### **Concept 5 - Aragon Avenue - Two-way Operation (Modified Concept 2)**

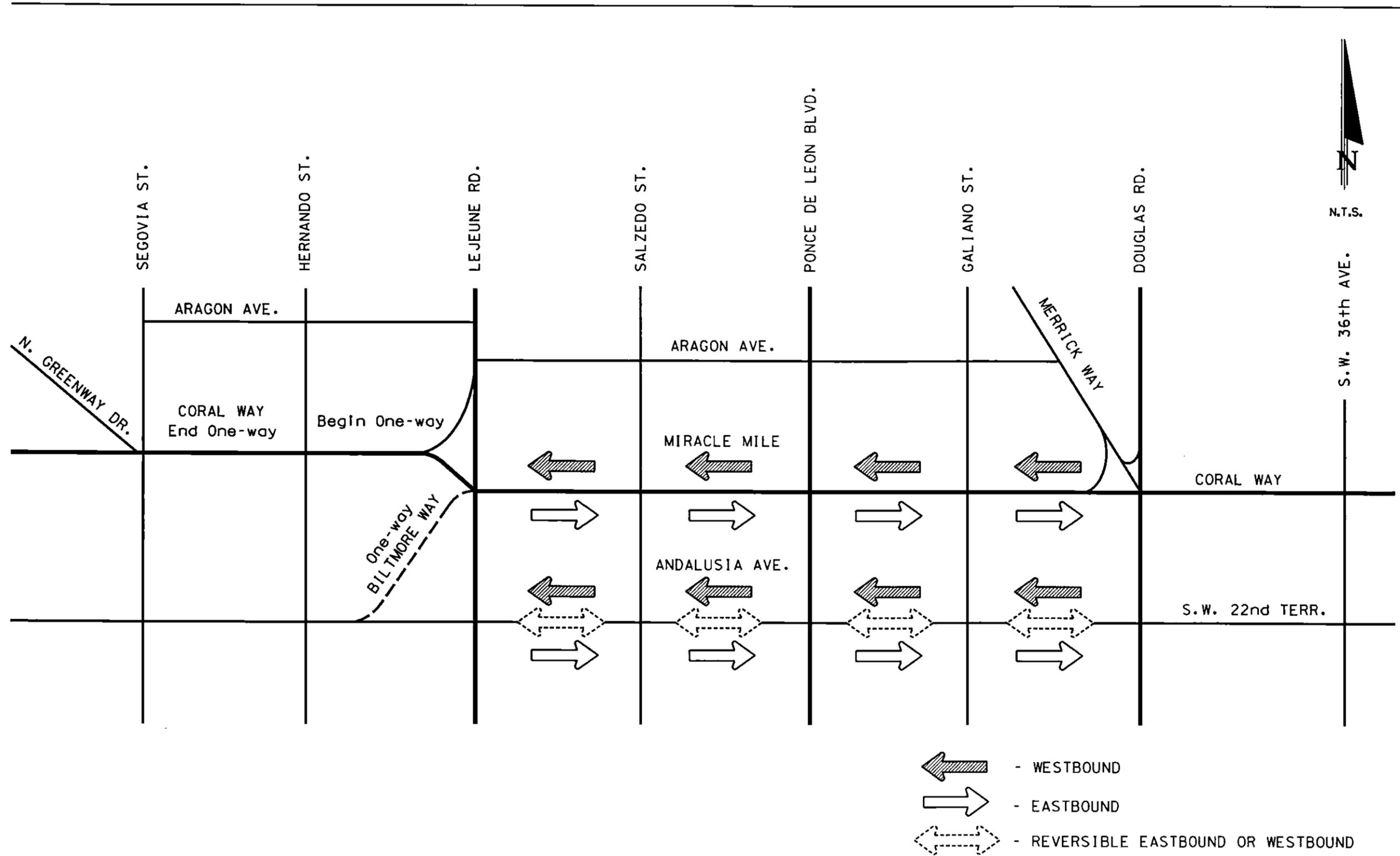
In this concept Aragon Avenue would remain as a major route for westbound traffic, but two-way flow would be allowed (see Exhibit E-5). A traffic signal may be required at Aragon Avenue and Galiano Street when traffic diversions are implemented. Also, westbound and eastbound left turn lanes will be provided on Aragon Avenue at each of the intersections between Douglas Road and LeJeune Road. Parking should be removed on the north side of Aragon Avenue at the approaches to LeJeune Road, Salzedo Street, Ponce de Leon Boulevard, and Galiano Street. A minimum of four total spaces will be removed from the north side of the street on each block in order to allow for vehicle storage and transition (deceleration, merge) into the left-turn lane.

Traffic congestion throughout the study area would increase despite the recommended improvements made on Aragon Avenue and elsewhere. The recommendations in this concept would nonetheless reduce the effects of the increased traffic congestion as much as possible.



 - WESTBOUND  
 - EASTBOUND



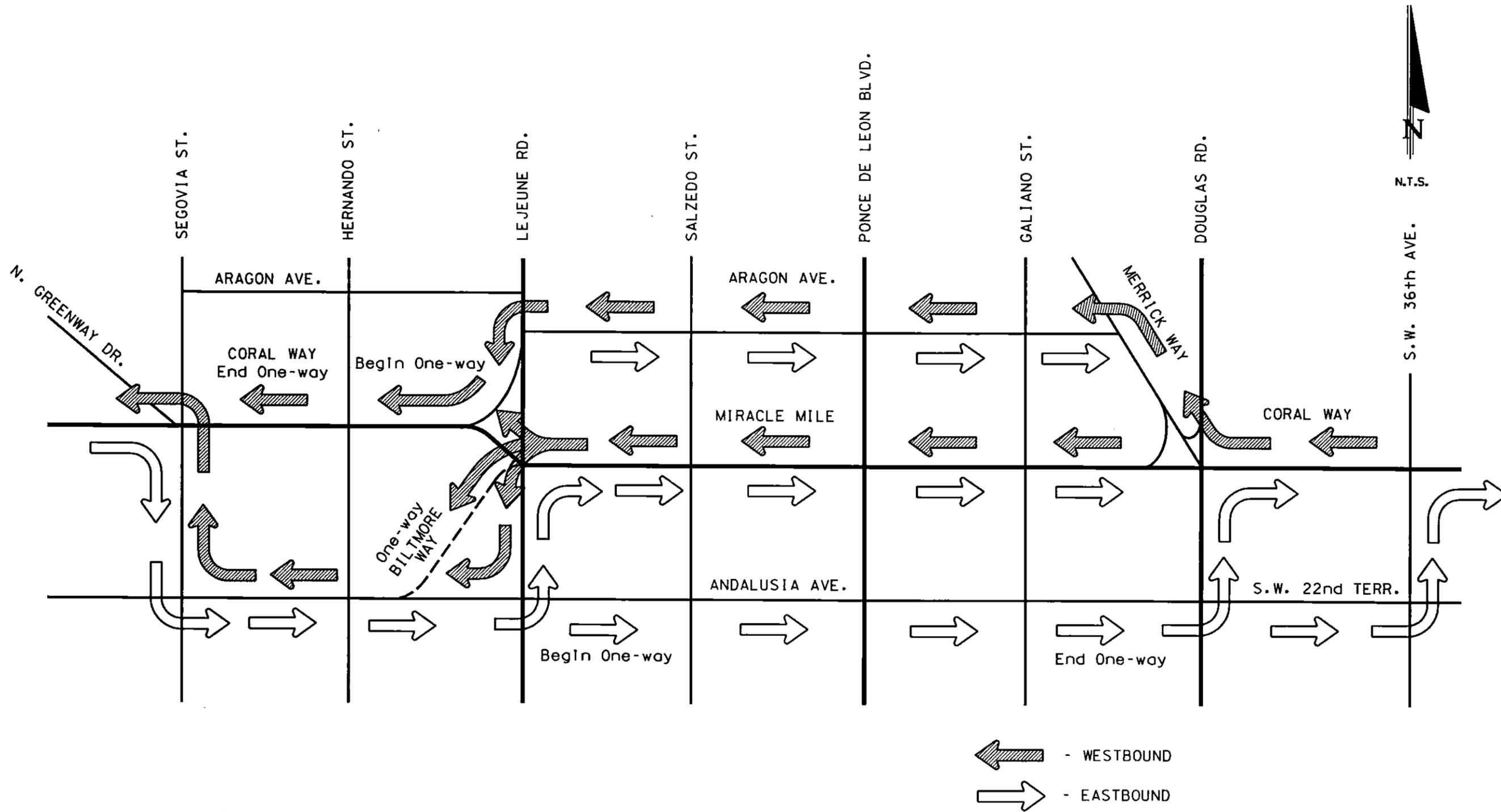


MIRACLE MILE TRAFFIC CIRCULATION STUDY

CONCEPT 4  
 ANDALUSIA AVENUE TWO-WAY OPERATION  
 ( REVERSIBLE ) WITH FOUR-LANE  
 MIRACLE MILE

EXHIBIT E-4





INTERSECTION	AM PEAK HOUR LEVEL OF SERVICE	PM PEAK HOUR LEVEL OF SERVICE
1. Aragon Avenue / Segovia Street	A	A
2. Aragon Avenue / LeJeune Road	C	E
3. Aragon Avenue / Ponce de Leon Boulevard	C	C
4. Coral Way / Segovia Street	B	B
5. Miracle Mile / LeJeune Road	F	F
6. Miracle Mile / Ponce de Leon Boulevard	B*	E*
7. Miracle Mile / Douglas Road	C	F
8. Biltmore Way / Segovia Street	F	D
9. Andalusia Avenue / LeJeune Road	F	C*
10. Andalusia Avenue / Ponce de Leon Boulevard	B	C
11. Andalusia Avenue / Douglas Road	F	F
12. Coral Way / SW 36 Avenue	F	F
13. SW 36 Avenue / SW 22 Terrace	E	D

\* Metering from previous signal gives misleading results  
Traffic conditions are really worse.



APPENDIX G  
CONSTRUCTION COST ESTIMATE

The following cost estimates are preliminary. Final cost estimates should be prepared during the final design. Improvements on Miracle Mile and Biltmore Way are not included.

Aragon Avenue

The following cost estimate is for installing left-turn lanes at three locations between Merrick Way and LeJeune Road.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$ 5,000.00	\$ 7,500.00
Maintenance of Traffic	\$ 2,500.00	\$ 3,000.00
Signal Installation (Galiano Street)	\$60,000.00	\$100,000.00
Signal Retiming and Restriping	\$10,500.00	\$15,500.00
Total	<u>\$78,000.00</u>	<u>\$126,000.00</u>

SW 22 Terrace

The following cost estimate is for construction of an eastbound left-turn lane at NW 36 Avenue.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$15,000.00	\$20,000.00
Maintenance of Traffic	\$ 4,500.00	\$ 6,000.00
Turn-Lane (Widening) (12" subgrade, 4½ " asphalt, friction course)	\$ 9,000.00	\$13,000.00
Total	<u>\$26,500.00</u>	<u>\$36,000.00</u>

SW 36 Avenue

The following cost estimate is for restriping the northbound approach of NW 36 Avenue at Coral Way.

	<u>Most Likely</u>	<u>Possible</u>
Mobilization	\$ 1,000.00	\$ 2,000.00
Maintenance of Traffic	\$ 1,000.00	\$ 2,000.00
Signal Retiming and Restriping	\$ 3,500.00	\$ 8,000.00
Total	<u>\$ 5,500.00</u>	<u>\$12,000.00</u>

Miscellaneous Improvements

The following cost estimates include all other costs related to signing, parking, and pedestrians improvements.

	<u>Most Likely</u>	<u>Possible</u>
Parking Signing	\$ 5,000.00	\$ 7,500.00
Diversion Signing	\$ 5,000.00	\$ 7,500.00
Alley Improvement Signing	\$ 3,000.00	\$ 4,500.00
Pedestrian Lighting (Salzedo Street)	\$15,000.00	\$ 22,500.00
Total	<u>\$28,000.00</u>	<u>\$ 42,000.00</u>

GRAND TOTAL	\$140,000.00	\$219,000.00
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