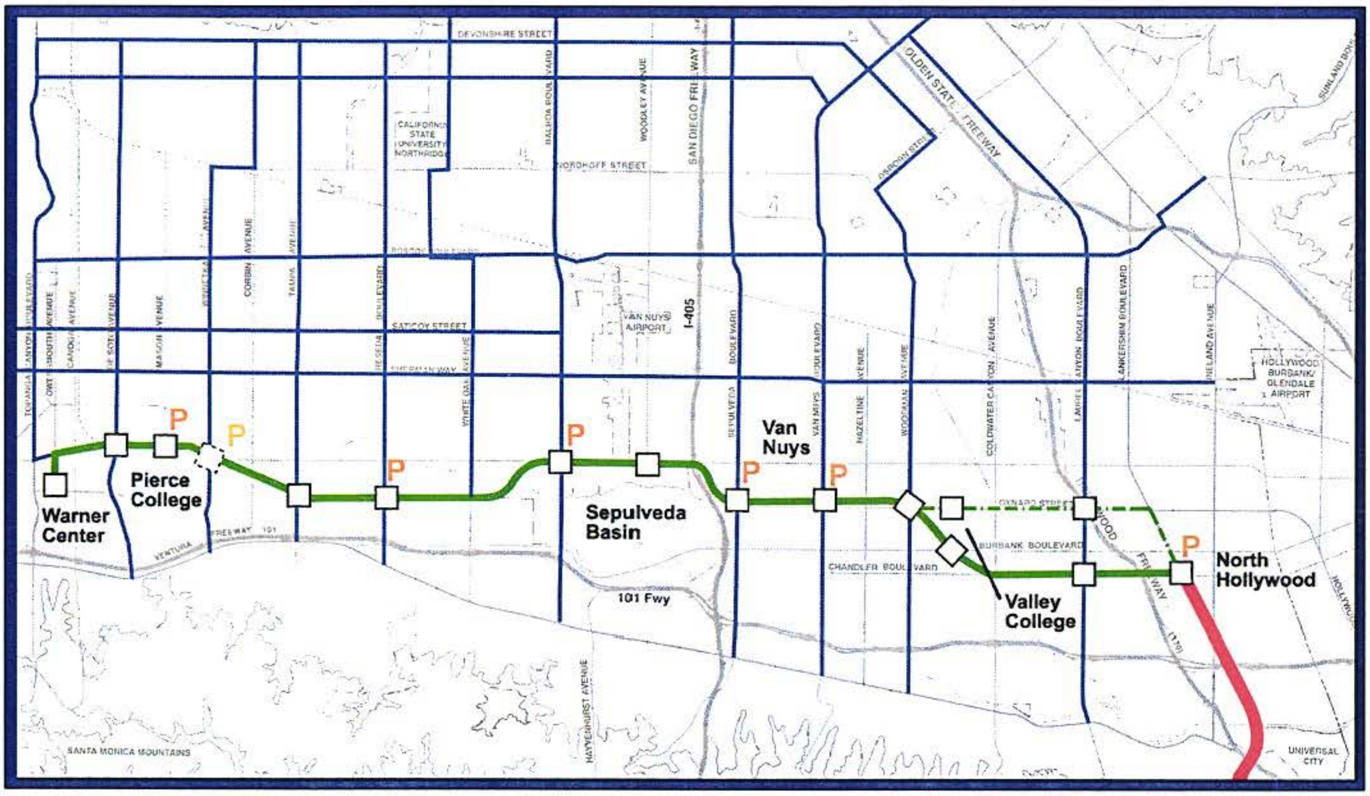
Revised Final Environmental Impact Report
**Volume 5 – Chapter 9 (Book 6 of 6)**




# SAN FERNANDO VALLEY
# EAST-WEST TRANSIT CORRIDOR

Metro
**Los Angeles County**
**Metropolitan Transportation Authority (MTA)**

*December 2004*

# EXHIBIT XXVII

# DMJM-HARRIS AND
# R. ALEMAN & ASSOCIATES, INC.,
# *SOUTH MIAMI-DADE BUSWAY SAFETY STUDY*
# FOR METRO-DADE TRANSIT, AUGUST 13, 2001

# SOUTH MIAMI-DADE BUSWAY SAFETY STUDY

## VOLUME 1 OF 2

CONTRACT NO.: TA97-T

PREPARED FOR

MIAMI-DADE TRANSIT

PREPARED BY

DMJM HARRIS

&

R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

FINAL REPO

08/13/

# SOUTH MIAMI-DADE BUSWAY SAFETY STUDY

**CONTRACT NO.: TA97-TPS-**

**PREPARED FOR**

MIAMI-DADE TRANSIT

**PREPARED BY**

DMJM HARRIS

&

R. ALEMAN
& Associates, Inc.
CONSULTING ENGINEERS

08/13/200

# EXECUTIVE SUMMARY

This report documents the findings of a safety study conducted for the South Miami-Dade Busway. The safety study included an analysis of crash records from the opening of the busway (February, 1997) through November 2000. On site field investigations were conducted at all nineteen busway intersections and reviews were conducted of several previous studies conducted along segments of the busway.

A total of forty-three potential crash countermeasures were assessed for possible implementation at the busway intersections. The potential crash countermeasures were reviewed by representatives from Miami-Dade Transit, Miami-Dade County Public Works Department, Florida Department of Transportation and consulting firms DMJM-HARRIS and F.R. Aleman and Associates Inc. Based on the comments of the reviewers, a selected group of crash countermeasures were recommended as immediate short-term improvements (comments from the reviewers are shown in Appendix F, Volume 2). The selected short-term crash countermeasures received favorable consideration from most, if not all of the reviewers.

The following findings, conclusions and recommendations were reached from the busway safety study:

## Findings

1. The existing busway has nineteen intersections - all of which are signalized. The busway intersections may be categorized as follows based on similarities in traffic control and geometric layout:

   - US 1/Busway Intersections – Locations where the busway is immediately adjacent to US 1 and both roadways are controlled as a single intersection. Intersections in this category are: SW 104 Street, SW 112 Street, SW 124 Street, SW 128 Street, SW 132 Street, SW 136 Street, SW 144 Street, SW 152 Street, SW 160 Street, Caribbean Boulevard and SW 112 Avenue.
   - Isolated Busway Intersections – Locations where the busway intersections operate independently. Intersections in this category are: SW 168 Street, Banyan Street, Hibiscus Street, SW 184 Street, SW 186 Street and Marlin Road.
   - Other Busway Intersections - Locations not classified as US 1/Busway intersections or Isolated intersections. This category includes SW 98 Street and Datran Boulevard.

2. A total of 67 crashes involving buses were recorded at the busway intersections during the period February 1997 through November 2000. Forty-nine (73%) of these crashes involved injuries and two crashes resulted in fatalities.

3. The crash rate experienced at the isolated busway intersections was approximately seven times greater than at the US1/Busway intersections. Isolated intersections experienced a crash rate of approximately 0.410 crashes per million entering vehicles (MEV) whereas US

1/Busway intersections experienced a crash rate of approximately 0.061 crashes per MEV.

4. Locations experiencing the highest crash rates (i.e. crashes per MEV averaged over the study period) were (see Table 7):

   - SW 186 Street - 0.815 Crashes per MEV
   - SW 168 Street - 0.467 Crashes per MEV
   - Marlin Road - 0.425 Crashes per MEV
   - Banyan Street - 0.338 Crashes per MEV
   - Hibiscus Street - 0.312 Crashes per MEV

5. The predominant crash pattern at isolated intersections involved eastbound vehicles on the side street approaches – 82% of the crashes were of this type (see Figure 8).

6. The busway intersections are equipped with advanced loop detectors. When the advanced loop detectors are activated, vehicles traveling on the busway are capable of receiving a green signal on arriving at the intersection while maintaining the posted speed limit of 45 m.p.h. The crash rate at the isolated busway intersections was approximately seven times higher when the advanced loop detectors were activated as compared to when the detectors were deactivated.

7. The predominant crash pattern at US 1/Busway intersections involved southbound right turning vehicles coming from US 1 – 73% of the crashes were of this type (see Figure 7).

8. Right turn on red violations are considerably high at the US 1/Busway intersections. A limited study at three intersections showed that amongst those motorists who had an opportunity to commit a right turn on red violation, approximately 12.5 percent violated the turn restrictions.

9. A relatively high percentage of the crashes experienced at Marlin Road occurred during wet road conditions. Twenty-nine percent of the crashes at Marlin Road occurred during wet conditions whereas wet weather exposure at the location is in the order of eight percent.

10. At many of the intersections, the signs located within the limits of the clear zone are not protected by curbs or any other roadside barrier.

11. Visibility to some existing signs on the approaches to the intersections is restricted by overgrown vegetation.

12. The installation of some of the existing busway crossing signs is not consistent with the Manual on Uniform Traffic Control Devices (MUTCD). Many of the existing signs are installed more than 100 feet in advance of the bus crossing whereas the MUTCD stipulates that such signs must be installed at or as close as possible to the crossing.

## Probable Causal Factors

Probable causal factors, which were identified for crashes experienced at the busway intersections, include the following:

1. The existing traffic control methods and devices may not provide optimum operational efficiency and safety commensurate with the unique conditions experienced at the busway intersections.

2. The isolated busway intersections are inconspicuous in nature and this could be a contributing cause as motorists may unintentionally disregard the traffic control devices installed at the intersections.

3. The signals at the intersections do not have a commanding visual impact and this could be a contributing cause for motorists disregarding the signal displays at the intersections.

4. Wet weather surface skid resistance may be a contributing cause at Marlin Road, as indicated by the relatively high percentage of wet weather crashes at this location. A friction test is recommended to verify the adequacy of the surface skid resistance at this location.

5. Violations of the southbound right turn on red restrictions at the US1/Busway intersections may be a contributing cause given that the predominant crash pattern at these locations involved southbound right turns.

## Recommended Short Term Crash Countermeasures

Short term countermeasures are relatively low cost crash improvements which may be implemented immediately. The recommended short term crash countermeasures are consistent with the traditional traffic signal control strategy, currently installed at the intersections. Recommended short term crash countermeasures are shown in Appendix E. They include the following:

### Short term crash countermeasures recommended for all busway intersections

1. Design advanced loop operation for bus approach speed of 15 m.p.h. This proposal would involve implementing changes to the operation of the advanced loops which would require buses to reduce their approach speeds to 15 m.p.h on the approaches to the intersection. Supplemental signs, markings and driver training are recommended for the effective implementation of this countermeasure. This measure is expected to reduce both the frequency and severity of potential crashes at the intersections. This recommendation is discussed in detail under Countermeasure # 2 on page 30 of the report.

2. Modify placement of advanced loops at locations with near side bus stops. This improvement is expected to improve the operational efficiency of the intersections by avoiding the unnecessary transfer of green time to the busway when there is no demand. This

countermeasure would also require the buses to considerably reduce their approach speeds at the intersections which would be consistent with the recommendations under bullet # 1 above. This recommendation is discussed in detail under Countermeasure # 3 on page 31 of the report.

3. Installation of additional Busway Crossing Warning signs. This countermeasure involves installing additional busway crossing ahead signs in the raised central median of the cross-street approaches - where available. It is also recommended that an educational plaque (BUSWAY) be added to the busway crossing warning signs. Furthermore, it is recommended to remove the existing busway crossing signs that are not located in close proximity to the intersections. This recommendation is discussed in detail under Countermeasure # 9 on page 36 of the report.

4. Removal of overgrown vegetation. This is an ongoing maintenance activity which will improve signal/sign visibility and sight triangles at the intersections.

Additional short term countermeasures recommended for isolated busway intersections

1. Installation of post mounted signal with STOP HERE ON RED sign. This countermeasure requires installing post mounted traffic signals at the stop lines on the cross streets of the isolated intersections. Supplemental signs, STOP HERE ON RED, would also be installed on the signal poles. This countermeasure is expected to improve the conspicuity of the isolated intersections. This recommendation is discussed in detail under Countermeasure # 19 on page 41 of the report.

2. Installation of backplates on the signal heads for eastbound and westbound approaches. This countermeasure will aid in improving the visibility of the signal displays at these locations. This recommendation is discussed in detail under Countermeasure # 6 on page 34 of the report.

3. Installation of raised curbs on the corners of the intersections. This countermeasure is expected to improve the conspicuity of the isolated intersections and provide protection for signs that are currently installed within the clear zone limits. This improvement will also enhance pedestrian safety at the intersections. This recommendation is discussed in detail under Countermeasure # 29 on page 44 of the report.

4. Install Busway Signal Ahead signs. This countermeasure involves installing SIGNAL AHEAD signs with the supplemental plate, BUSWAY, on the cross-street approaches of the isolated intersections. The proposed sign would replace the existing BUSWAY AHEAD signs. This countermeasure is expected to aid in addressing the inconspicuous nature of the isolated intersections. This recommendation is discussed in detail under Countermeasure # 7 on page 35 of the report.

Additional short term crash countermeasures recommended for US1/Busway intersections

1. Installation of post mounted signal. This countermeasure requires installing post mounted traffic signals at the stop lines for the southbound right turn movement on US 1. Supplemental signs, NO RIGHT TURN ON RED ARROW (international symbol recommended), would also be installed on the signal poles. This countermeasure is expected to aid in reducing violations of the right turn on red restrictions along US 1. This recommendation is discussed in detail under Countermeasure # 19 on page 41 of the report.

2. Installation of NO RIGHT TURN ON RED ARROW signs for the southbound right turn movement on US 1. This countermeasure involves replacing the existing NO TURN ON RED signs with NO RIGHT TURN ON RED ARROW sign (international symbol recommended). This improvement is expected to clarify any misunderstanding with regards to the red arrow signal displays and reduce right turn on red violations. This recommendation is discussed in detail under Countermeasure # 17 on page 39 of the report.

3. Installation of special size (30" x 48") NO RIGHT TURN ON RED ARROW signs in advance of the stop line for the exclusive southbound right turn lane. This will require replacing the existing standard size sign with the special size sign. This improvement is expected to aid in reducing right turn on red violations. This recommendation is discussed in detail under Countermeasure # 18 on page 41 of the report.

4. Removal of unnecessary RIGHT LANE MUST TURN RIGHT signs on US 1. This countermeasure will remove unnecessary distractions for drivers approaching the intersection. The recommended improvement is consistent with guidelines specified in the MUTCD. This recommendation is discussed in detail under Countermeasure # 21 on page 42 of the report.

**Medium Term Crash Countermeasures**

Medium term crash countermeasures are recommended for consideration after installation and evaluation for the short term measures. Crash countermeasures recommended for medium term consideration include the following:

1. Installation of raised central island on the side street approaches of isolated intersections. This countermeasure would aid in improving the conspicuity of the intersections while providing an ideal location for additional signage. This countermeasure would aid in improving the conspicuity of the intersections. This recommendation is discussed in detail under Countermeasure # 35 on page 46 of the report.

2. Installation of textured road surface at the isolated busway intersections. This recommendation is discussed in detail under Countermeasure # 32 on page 45 of the report.

3. Installation of in-roadway amber-red lights. This improvement involves installing a lighting device, embedded in the roadway at the stop line, which would display a flashing yellow light during the yellow interval and a steady red light during the red interval. This device is yet to be approved by the Federal Highway Administration (FHWA). However, results from a test site in Anaheim California have shown a 50% reduction in stop line violations. This recommendation is discussed in detail under Countermeasure # 33 on page 46 of the report.

**Long Term Crash Countermeasures**

Long term crash countermeasures are recommended for consideration after installation and evaluation of the short term and medium term measures. Crash countermeasures recommended for long term consideration include the following:

1. Installation of flashing signals, similar as used for railroad crossings.
2. Installation of automatic gates, similar as used for railroad crossings.
3. Installation of flashing signals, similar as used for moveable bridges.
4. Installation of grade separated intersections.

**Implementation and Evaluation of Countermeasures**

The South Miami-Dade Busway is a unique facility in the United States. Hence, there is uncertainty regarding the expected crash reduction that may be realized from the countermeasures implemented at the intersections. It is therefore important that the evaluation procedures for the countermeasures be included as an integral component of the overall process for implementation of the countermeasures. An adequate evaluation process would enable the effectiveness of the countermeasures to be quantified and would facilitate making rational decisions in the future. The evaluation of the short term measures would also provide a decision basis for implementation of medium or long-term crash countermeasures.

It is recommended that the evaluation of the crash countermeasures include both crash-based techniques and non-crash based techniques. The crash-based techniques would involve evaluating actual crash frequencies, rates and severity before and after implementation of the improvements. This is a relatively long-term process that would provide the ultimate effectiveness of the countermeasures. Non-crash based techniques involve evaluating changes in conflicts/violations resulting from the implementation of the countermeasures. The use of non-crash based techniques allows for evaluating the countermeasures as soon as traffic has adjusted to the changes in traffic control and this would facilitate a quick assessment of the countermeasures.

**Enforcement**

The crash analysis indicated that most of the collisions at the busway intersections involved commuter traffic – 91% of the drivers involved reported addresses in Miami-Dade County. It is therefore likely that many motorists knowingly violated the traffic regulations at the intersection. Enforcement could therefore play an important role in reducing crashes at the intersections. The results from the market research, conducted by PMG and Associates, also concluded that increased enforcement could significantly impact crashes at the busway intersection.

## TABLE OF CONTENT

SECTION PAGE

1. Introduction ..... 1

2. Existing Conditions
    2.1 Geometric Layout ..... 1
    2.2 Traffic Control ..... 3
    2.3 Traffic Volumes ..... 10

3. Crash Analysis ..... 12

4. Probable Causal Factors ..... 24

5. Crash Countermeasures ..... 26

6. Implementation and Evaluation of Crash Countermeasures ..... 50

7. Conclusions and Recommendations ..... 52

References

**APPENDICES:**
**VOLUME 2**

A Existing Conditions – Busway Intersections
B Existing Signal Operating Plan – Busway Intersections
C Mechanical Traffic Counts
D Crash Summary Tables, Graphs and Collision Diagrams
E Recommended Improvements
F Comments from Reviewers and Responses

## LIST OF FIGURES AND EXHIBITS


**FIGURE/EXHIBIT** **PAGE**

Figure 1 Project Location map ....................2

Figure 2 Dual Clearance Interval – US 1/Busway Intersections ....................6

Exhibit 1 Photos Showing Typical Traffic Control Devices Installed at the Busway Intersections ....................8

Exhibit 2 Photos Showing Typical Traffic Control Devices Installed at the Busway Intersections ....................9

Figure 3 Crash Analysis – All Intersections ....................17

Figure 4 Crash Analysis - Collision Type & Location Type for All Intersections ....................18

Figure 5 Crash Analysis – Collision Type & Advanced Loop Status for Isolated Intersections ....................19

Figure 6 Number of Crashes, Isolated Intersections vs. Time ....................20

Figure 7 Crash Patterns for Isolated Intersections ....................21

Figure 8 Crash patterns for US 1 Intersections ....................22

Figure 9 Illustrated Application of Speed Control Devices ....................32

Figure 10 Proposed Modifications to Advanced Loops ....................33

## LIST OF TABLE


| TABLE | | PAG |
|---|---|---|
| 1 | Intersection Traffic Control Signs | 7 |
| 2 | Side Street Traffic at Busway Intersections | 10 |
| 3 | Estimated Daily Bus Trips – Typical Weekday | 11 |
| 4 | Summary of Crashes at Busway Intersections, February 1997 – November 2000 | 13 |
| 5 | Intersection Safety Ratios | 14 |
| 6 | Grouping of Busway Intersections | 15 |
| 7 | Intersection Crash Statistics | 16 |
| 8 | Survey of Southbound Right Turn on Red Violations | 26 |
| 9 | Summary of Recommended Crash Countermeasures | 27 |

## 1. INTRODUCTION

The South Miami-Dade Busway is an exclusive transit facility located within the former East Coast Railroad corridor, connecting Dadeland South Metrorail Station and Florida City, a distance of approximately 20 miles. The portion of the busway that has been built and is in operation, is the northern 8.5 miles of the corridor between Dadeland South Metrorail station and SW 112 Avenue in Cutler Ridge. The busway corridor is located immediately west of US 1/South Dixie Highway, which is a heavily traveled principal arterial in Miami-Dade County. Figure 1 shows a project location map.

Since the opening of the busway in February 1997, a number of crashes have been experienced at the intersections along the busway. The frequency of crashes experienced at the busway intersections has raised considerable concern with regards to traffic safety at these intersections. In response to this concern, Miami-Dade Transit (MDT) retained the services of DMJM+HARRIS and their sub-consultants F.R. Aleman and Associates, Inc. (FRA), to conduct a safety study for the busway. The purpose of the safety study was to analyze crashes experienced along the busway, assess traffic operating conditions at the intersections, identify probable causal factors for crashes at the intersections and make recommendations for possible short, medium and long term improvements. Potential crash countermeasures arising from the study were reviewed by representatives from Miami-Dade Transit, Miami-Dade County Public Works Department and Florida Department of Transportation. Based on the comments of the reviewers, a selected group of crash countermeasures were recommended as immediate short-term improvements (comments from the reviewers are shown in Appendix F, Volume 2). This report presents the findings from the busway safety study and the recommended improvements.

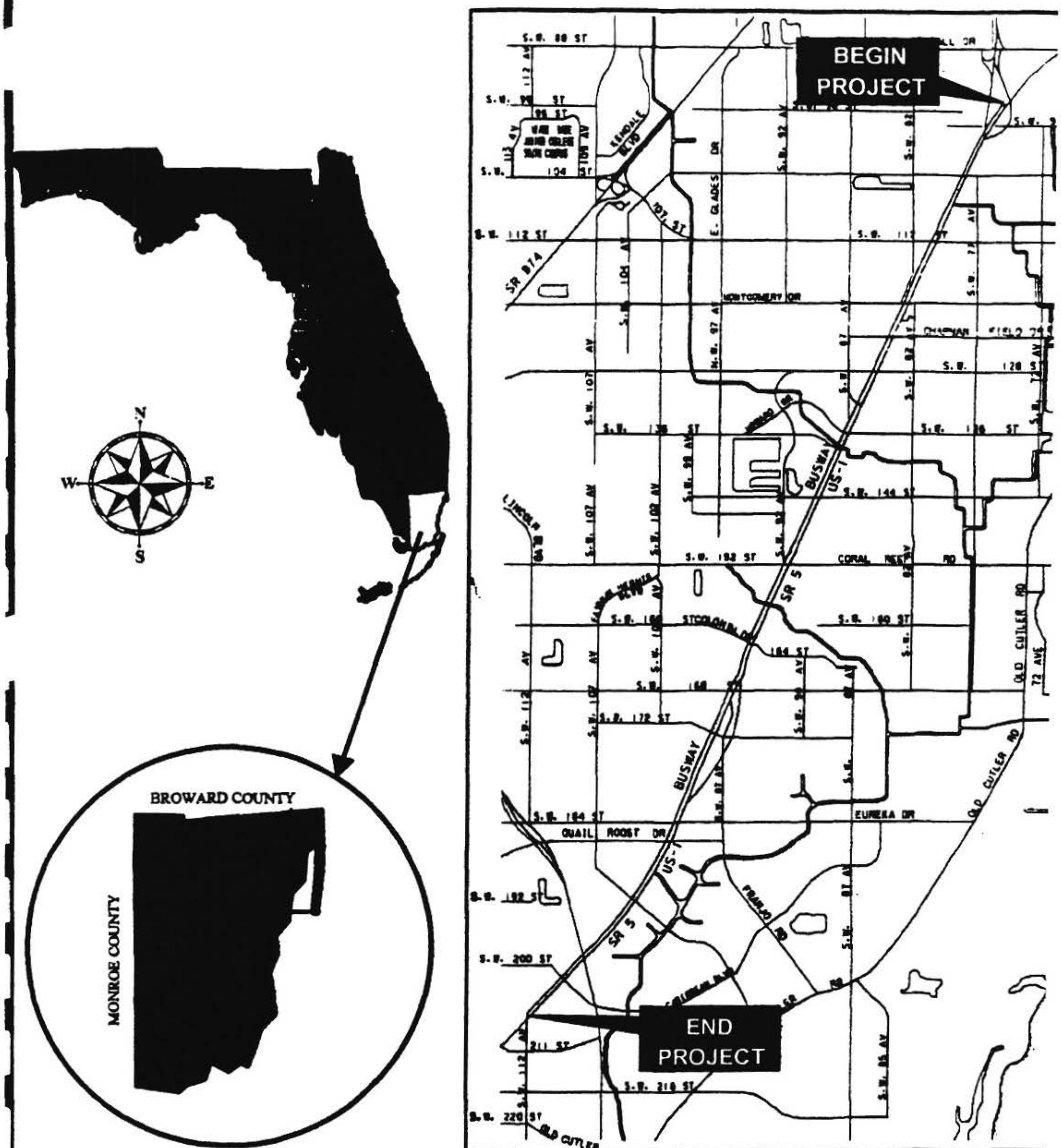
## 2 EXISTING CONDITIONS

### 2.1 Geometric Layout

The existing portion of the South Miami-Dade Busway is a two-lane, at-grade, two-direction exclusive transit facility. The typical cross-section along the busway consists of two 12-foot lanes and a 4-foot striped median. An eight-foot wide bicycle path is located on the western side of the busway and a deep swale on the eastern side.

The busway runs parallel and just west of the US 1/South Dixie Highway. This major roadway is one of the most heavily traveled corridors in Miami-Dade County. Nineteen intersections are located on the existing busway, namely:

- Datran Boulevard
- SW 98 Street
- SW 104 Street
- SW 112 Street (Killian Drive)
- SW 124 Street
- SW 128 Street
- SW 132 Street




R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

SITE LOCATION MAP
SOUTH MIAMI-DADE BUSWAY STUDY
MIAMI-DADE COUNTY

FIGURE

- SW 136 Street
- SW 144 Street
- SW 152 Street (Coral Reef Drive)
- SW 160 Street
- SW 168 Street
- SW 173 Street (Banyan Street)
- SW 176 Street (Hibiscus Street)
- SW 184 Street (Eureka Drive)
- SW 186 Street (Quail Roost Drive)
- Marlin Road
- SW 200 Street (Caribbean Boulevard)
- SW 112 Avenue

The intersections north of SW 160 Street (except for Datran Boulevard and SW 98 Street) are all located within approximately 50 feet of US 1/Souh Dixie Highway. South of SW 160 Street, the separation between the busway and US 1, increases to approximately 400 feet (except for Caribbean Boulevard and SW 112 Avenue). Appendix A shows condition diagrams of the nineteen existing busway intersections, as of February 2001.

## 2.2 Traffic Control

All the existing busway intersections are at-grade and all operate under signal control. The existing signal operating plan for the intersections is shown in Appendix B. At locations where the busway is immediately adjacent to US 1, both the busway and US 1 are signalized as a single intersection. At locations where the busway and US 1 are not immediately adjacent, the busway and US 1 are signalized as separate intersections. The intersections along the busway may be categorized as follows based on traffic control:

- US 1/Busway Intersections – Locations where the busway and adjacent US 1 intersections are controlled as a single intersection. Intersections in this category are: SW 104 Street, SW 112 Street, SW 124 Street, SW 128 Street, SW 132 Street, SW 136 Street, SW 144 Street, SW 152 Street, SW 160 Street, Caribbean Boulevard and SW 112 Avenue.
- Isolated Busway Intersections – Locations where the busway intersections operate independently. Intersections in this category are: SW 168 Street, Banyan Street, Hibiscus Street, SW 184 Street, SW 186 Street and Marlin Road.
- Other Busway Intersections - Locations not classified as US 1/Busway intersections or Isolated intersections. This category includes SW 98 Street and Datran Boulevard. The busway intersection at SW 98 Street is controlled as a single intersection along with the intersection at SW 98 Street and SW 77 Avenue. The busway intersection at Datran Boulevard is controlled as a single intersection along with the signals regulating access to the Datran Metrorail Parking Garage.

The traffic control plan at the intersections has several features designed to enhance safety and operational efficiency – these include:

Semi-Actuated Signal Operation
All the busway intersections operate in a semi-actuated mode. A green signal indication is displayed on the busway approaches, only on demand. The isolated busway intersections use a simple two-phase operation. At these isolated intersections, when there is no demand on the busway, the signals rest in green for the side-street approaches and the busway approaches display red. When a vehicle is detected on the busway, at the isolated intersections, the busway signal display changes to green, in accordance with the signal timings.

In the case of the US 1/Busway intersections, the busway green is displayed, on demand, only during the green phase for the US 1 north-south through movement (the main phase). Buses arriving during the minor phase movements are required to wait for the main phase green on US 1 before the busway green is displayed. Since the signal timings favor north-south traffic on US 1, delays to busway traffic is still minimized.

Advanced Loop Detection
Advanced loop detectors are installed on the busway approaches at approximately 600 feet and 300 feet upstream. A loop detector is also installed at the stop line on the busway approaches. When the advanced loop detectors are activated, vehicles traveling on the busway are capable of receiving a green signal on arriving at the intersection while maintaining the posted speed limit of 45 m.p.h. (subject to conditions mentioned in the preceding section). When the advanced loops are deactivated, vehicles traveling on the busway are required to stop at the intersections before receiving a green signal.

Optically Programmable Signals
Optically programmable signals are used for limiting signal visibility to the lane(s) to which they apply. At the time of FRA's field investigations in February 2001, optically programmable signals were installed on the eastbound and westbound approaches of the US 1/Busway intersections, as shown in the condition diagrams in Appendix A. In the case of the isolated busway intersections, optically programmable signals were installed on the eastbound approach of the downstream US 1 intersection. The use of optically programmable signals, at the downstream US 1 intersection, prohibits visibility of the green display, for drivers approaching the busway from the eastbound direction. This feature prevents possible driver confusion that could arise from seeing two conflicting signal indications, i.e. a red display at the busway intersection and a green display at the downstream US 1 intersection.

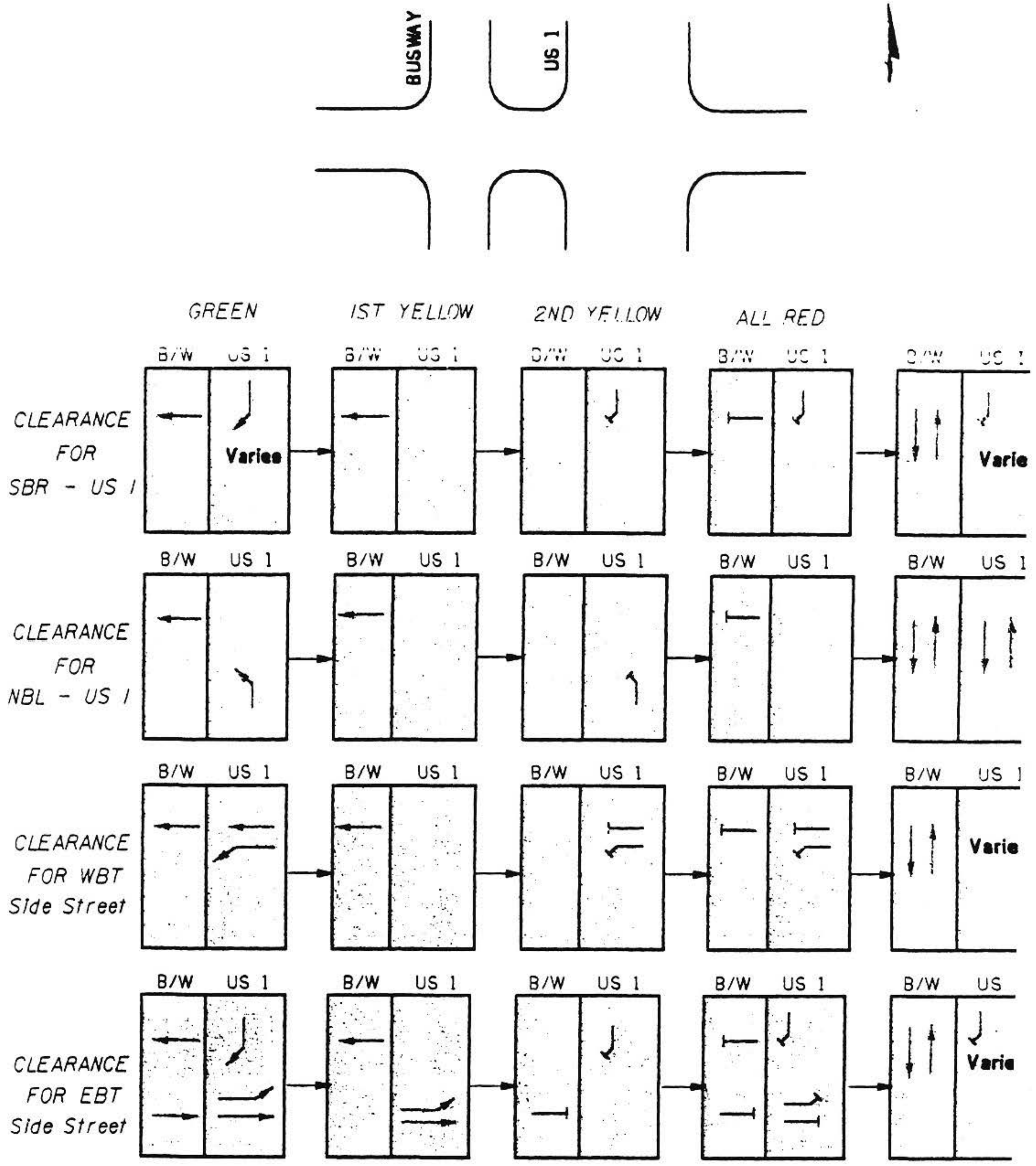
Southbound Right-Turn Prohibited During Red at US1/Busway Intersections
Southbound right turns from US 1are prohibited during red at the US 1/Busway intersections. This turn prohibition is enforced by "NO TURN ON RED" signs. The southbound right turn on red restriction is necessary in order to avoid possible collisions with traffic using the busway.

Protected Only Northbound Left Turn Movements at US 1/Busway Intersections
The northbound left turn movements, at the US 1/Busway Intersections, operate under protected conditions only. This protected only mode of operation is necessary in order to avoid possible collisions with traffic using the busway.

Split Phase for Eastbound and Westbound Movements at US 1/Busway Intersections
The eastbound and westbound movements operate in separate phases at the US 1 intersections. This split phase operation is necessary for operational efficiency since the side street have a high percentage of conflicting left turn movements.

Dual Clearance Interval at US 1/Busway Intersections
A dual clearance interval is applied at the US 1/Busway intersections. The sequencing of the dual clearance interval is shown in Figure 2. The dual clearance interval minimizes the possibility of vehicles being trapped on the side street, along the short segment between the busway and US 1.

The busway intersections have several regulatory and warning signs installed at the locations. Specific signs installed at each location are shown in the condition diagrams in Appendix A. Typical traffic control signs installed at the intersections are listed in Table 1. Exhibits 1 and 2 show photographs taken at the intersections highlighting the use of specific traffic control devices.

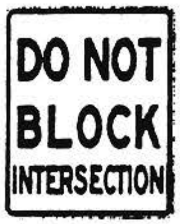
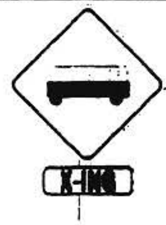



F.R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

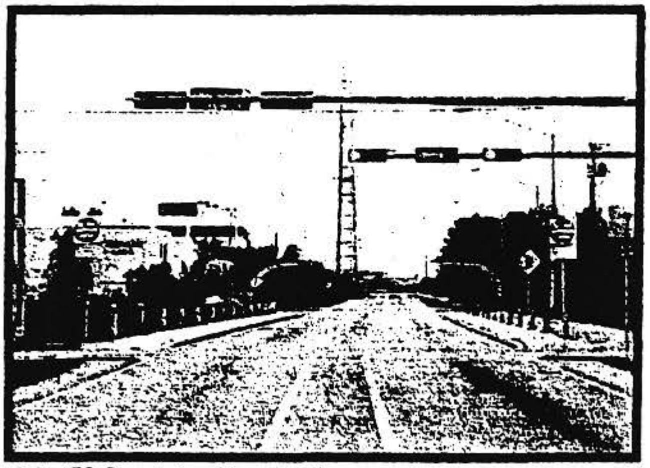
US 1/BUSWAY INTERSECTIONS
DUAL CLEARANCE INTERVAL

FIGURE 2

**TABLE 1**
**SOUTH MIAMI-DADE BUSWAY**
**INTERSECTION TRAFFIC CONTROL SIGNS – FEBRUARY 2001**

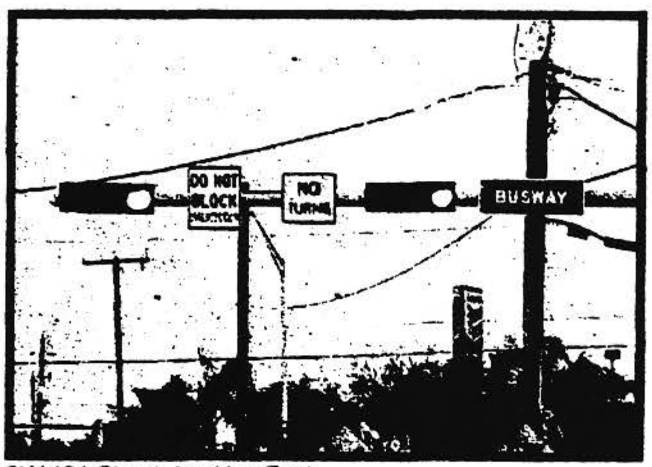
| SIGN DESCRIPTION | COMMENTS | SIGN DESCRIPTION | COMMENTS |
|---|---|---|---|
|  | Installed on all busway approaches – prohibiting entry by unauthorized vehicles. | <br>(Non-Standard Symbol) | Advanced warning sign for busway crossing. Installed in advance of the busway crossing on the side street approaches. |
|  | Installed facing side-street approaches to prohibit queues blocking through traffic on the busway. | <br>(Non-Standard Symbol) | Warning sign for busway crossing. Installed adjacent to the busway on the side street approaches. |
|  | Installed facing southbound right turns on US 1 – needed to avoid possible conflicts with busway traffic. |  | Installed adjacent to the stop line on the side street approaches – emphasizes where drivers should stop on approaching the busway signal. |
|  | Installed facing side street approaches to prohibit entry for unauthorized vehicles onto the busway. |  | Typically installed on the side street approaches at the US 1/Busway intersections. |
|  | Installed facing traffic in the exclusive southbound right turn lane on US 1. | BUS<br>ONLY<br>(Pavement Markings) | Pavement markings installed on the busway approaches to prohibit entry for unauthorized vehicles |

Bus Terminal at Datran Blvd, Looking North



SW 176 Street, Looking South
"DO NOT ENTER" signs and "BUS ONLY" markings installed on busway approaches

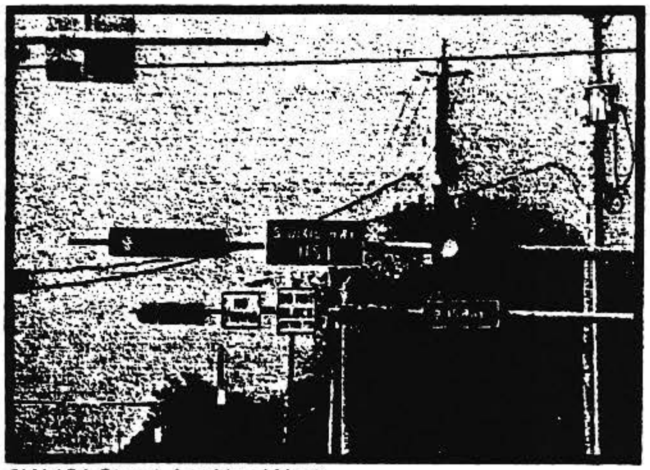
SW 176 Street, Looking West
Bus crossing sign installed at stop line



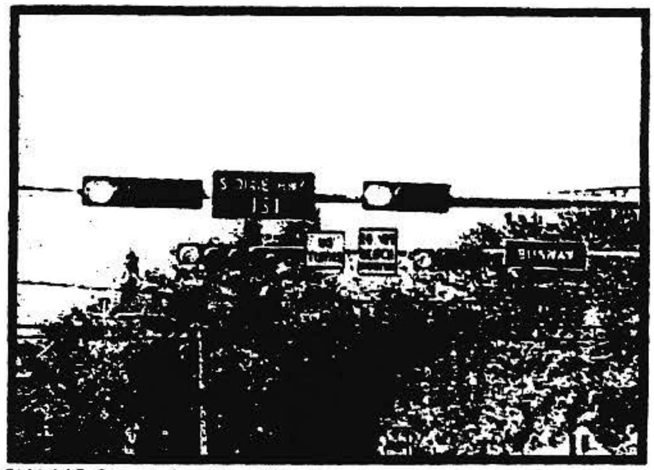

SW 184 Street, Looking East
"DO NOT BLOCK INTERSECTION" and "NO TURNS" signs installed on mast arm

| R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS | SOUTH MIAMI-DADE BUSWAY STUDY | EXHIBIT 1 |
|---|---|---|

SW 168 Street, Looking East
"STOP HERE ON RED" sign installed adjacent to stop line



SW 124 Street, Looking West
Signals in foreground showing red. Optically programmable signals in background-green indication not visible



SW 112 Street, Looking West
Signals in foreground showing red. Optically programmable signals in background-red indication also visible

SW 144 Street, Looking South along US-1
"NO TURN ON RED" sign installed adjacent to stop line and on mast arm

| | | |
|---|---|---|
| R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS | SOUTH MIAMI-DADE BUSWAY STUDY | EXHIBIT 2 |

## 2.3 Traffic Volumes

Traffic using the side streets, at the busway intersections, was estimated from counting stations maintained by the Florida Department of Transportation and Miami-Dade Public Works Department. Twenty-four hour automatic machine counts were conducted at locations where data was not available from the FDOT or PWD. Details from the automatic machine counts are shown in Appendix C and the results are summarized in Table 2. Table 3 shows the estimated daily bus trips at each intersection based on current MDT bus schedules.

**TABLE 2**
**SIDE STREET TRAFFIC AT BUSWAY INTERSECTION**

| LOCATION | AVERAGE DAILY TRAFFIC | | | Intersection Rank by ADT |
|---|---|---|---|---|
| | EASTBOUND | WESTBOUND | TOTAL | |
| DATRAN BLVD.[1] | 4,854 | 3,700 | 8,554 | 16 |
| SW 98 ST.[1] | 6,718 | 7,897 | 14,615 | 8 |
| SW 104 ST.[3] | 8,340 | 8,181 | 16,521 | 6 |
| SW 112 ST.[1] | 5,219 | 6,760 | 11,979 | 11 |
| SW 124 ST.[4] | 5,668 | 5,668 | 11,336 | 12 |
| SW 128 ST.[1] | 5,862 | 5,054 | 10,916 | 14 |
| SW 132 ST.[1] | 8,522 | 6,252 | 14,774 | 7 |
| SW 136 ST.[3] | 13,067 | 15,252 | 28,319 | 2 |
| SW 144 ST.[1] | 6,147 | 5,019 | 11,166 | 13 |
| SW 152 ST.[1] | 14,925 | 15,706 | 30,631 | 1 |
| SW 160 ST.[4] | 6,685 | 6,685 | 13,370 | 9 |
| SW 168 ST.[1] | 5,568 | 5,171 | 10,739 | 15 |
| BANYAN ST.[1] | 2,220 | 2,019 | 4,239 | 18 |
| HIBISCUS ST.[1] | 1,170 | 1,126 | 2,296 | 19 |
| SW 184 ST.[1] | 11,545 | 11,323 | 22,868 | 3 |
| SW 186 ST.[2] | 7,000 | 6,200 | 13,200 | 10 |
| MARLIN RD.[3] | 12,678 | 14,292 | 16,970 | 5 |
| CARIBBEAN BLVD.[3] | 12,600 | 7,123 | 19,723 | 4 |
| SW 112 AVE.[1] | 3,155 | 3,128 | 6,283 | 17 |

DATA SOURCES:
1. FRA's Mechanical Counts, Feb 2001
2. FDOT counting stations
3. Miami-Dade, PWD counting stations
4. At-Grade Busway Study, Lehman Center for Transportation Research, Florida International University, December 1997

TABLE 3
ESTIMATED DAILY BUS TRIPS - TYPICAL WEEKDAY

| Busway Intersection | Direction | DAILY BUS TRIPS* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Route 1 | Route 31 | Route 38 | Route 52 | Route 252 | Route 287 | NB Total | SB Total | Two-Way |
| Datran Dr | NB | 36 | 23 | 48 | 21 | 31 | | 159 | | 319 |
| | SB | 34 | 23 | 49 | 22 | 32 | | | 160 | |
| SW 98 St | NB | 36 | 23 | 48 | 21 | 31 | | 159 | | 319 |
| | SB | 34 | 23 | 49 | 22 | 32 | | | 160 | |
| SW 104 St | NB | 36 | 23 | 48 | 21 | 31 | | 159 | | 319 |
| | SB | 34 | 23 | 49 | 22 | 32 | | | 160 | |
| SW 112 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 124 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 128 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 132 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 136 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 144 St | NB | 36 | 23 | 48 | 21 | 31 | 17 | 176 | | 352 |
| | SB | 34 | 23 | 49 | 22 | 32 | 16 | | 176 | |
| SW 152 St | NB | 36 | 23 | 48 | | 31 | 17 | 155 | | 309 |
| | SB | 34 | 23 | 49 | | 32 | 16 | | 154 | |
| SW 160 St | NB | 36 | 23 | 48 | | | 17 | 124 | | 246 |
| | SB | 34 | 23 | 49 | | | 16 | | 122 | |
| SW 168 St | NB | 36 | 23 | 48 | | | 17 | 124 | | 246 |
| | SB | 34 | 23 | 49 | | | 16 | | 122 | |
| SW 173 St/ Banyan | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| Hibiscus St | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| SW 184 St | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| SW 186 St/ Quail Roost Dr | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| Marlin Rd. | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| SW 200 St/ Caribbean Blvd | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |
| SW 112 Ave/ Allapattah Rd. | NB | | 23 | 48 | | | | 71 | | 143 |
| | SB | | 23 | 49 | | | | | 72 | |

*Daily bus trips based on MDT bus schedules.

## 3. CRASH ANALYSIS

Crash records were obtained for all nineteen intersections along the busway for the period February 1997 through November 2000[1]. The data contained a total of 67 crashes involving buses and 13 crashes, which did not involve buses. The crashes experienced at each intersection are summarized in Table 4 and details are shown in Appendix D.

An important aspect in the crash analysis process is making a determination as to whether or not the number of crashes experienced at the study location is abnormally high when compared against locations with similar characteristics. The conventional method for making this determination along Florida State Roads is to compute the safety ratio. The safety ratio compares the actual crash rate at a study location with the critical crash rate for similar spot locations throughout the State. Locations with safety ratios greater than or equal to 1.0 are considered high crash locations. Given that the busway intersections have unique characteristics, the safety ratio procedure is not directly applicable for the busway intersections. Notwithstanding this, the safety ratio procedure was applied in order to give an indication as to whether or not the frequency of crashes at the busway intersections was high when compared to a typical intersection. The safety ratio was calculated from the following relationships:

$$SafetyRatio = \frac{ActualCrashRate}{CriticalCrashRate}$$

$$CriticalCrashRate = A + K\sqrt{\frac{A}{V}} - \frac{1}{2V}$$

*Where:*

*A* = *Average crash rate for the category of highway being tested (crashes per million vehicles passing through a spot)*

*V* = *Average vehicle exposure for one year at spot ( million vehicles)*

*K* = *3.291, indicating 99.95 percent probability that crash rates above the critical rate are abnormal, and are therefore designated as high crash locations.*

The estimated average daily traffic, along the side streets, was used for computing the crash rates at the study locations. The computed safety ratios for all nineteen busway intersections is shown in Table 5. As shown in the table, the average safety ratio at all the intersections is significantly below 1.0. The intersections at SW 186 Street and Marlin Road showed relatively high safety ratios in year 1999 – 0.767 and 0.992 for SW 186 Street and Marlin Road respectively. However, the safety ratios at these intersections were considerably less during the other three years – ranging from 0.000 to 0.331. All other intersections showed very low safety ratios in all the years analyzed. Given the low computed safety ratios, the results suggest that the number of crashes experienced at the busway intersections were not abnormally high when compared with typical State Road intersections.

---

1. Information obtained from MDT just prior to delivery of the Final Report, shows that no crashes were experienced at any of the busway intersections during the period December 2000 through June 2001.

TABLE 4
SUMMARY OF CRASHES AT BUSWAY INTERSECTIONS
FEBRUARY 1997 - NOVEMBER 2000

| Busway Intersection | ANNUAL CRASHES | | | | TOTAL CRASHES | TOTAL BUS CRASHES | TOTAL OTHER CRASHES |
|---|---|---|---|---|---|---|---|
| | 1997 | 1998 | 1999 | 2000 | | | |
| Datran Blvd. | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SW 98 Street | 1 | 1 | 1 | 1 | 4 | 4 | 0 |
| SW 104 Street | 1 | 2 | 1 | 0 | 4 | 0 | 4 |
| SW 112 Street | 0 | 1 | 1 | 2 | 4 | 4 | 0 |
| SW 124 Street | 1 | 0 | 0 | 0 | 1 | 0 | 1 |
| SW 128 Street | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| SW 132 Street | 0 | 1 | 1 | 0 | 2 | 2 | 0 |
| SW 136 Street | 0 | 1 | 0 | 2 | 3 | 3 | 0 |
| SW 144 Street | 1 | 0 | 0 | 2 | 3 | 2 | 1 |
| SW 152 Street | 1 | 0 | 0 | 0 | 1 | 1 | 0 |
| SW 160 Street | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| SW 168 Street | 3 | 4 | 1 | 0 | 8 | 7 | 1 |
| SW 173 Street/ Banyan St | 1 | 1 | 0 | 0 | 2 | 2 | 0 |
| SW 176 Street/ Hibiscus St | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| SW 184 Street | 4 | 1 | 4 | 0 | 9 | 7 | 2 |
| SW 186 Street | 2 | 1 | 9 | 3 | 15 | 15 | 0 |
| Marlin Rd | 4 | 1 | 11 | 0 | 16 | 16 | 0 |
| SW 200 Street/ Caribbean Blvd. | 0 | 3 | 0 | 1 | 4 | 2 | 2 |
| SW 112 Avenue | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| **TOTAL** | **19** | **19** | **31** | **11** | **80** | **67** | **13** |

## TABLE 5
## INTERSECTION SAFETY RATIOS

| Intersection Number | Intersection Name | YEAR | | | | |
|---|---|---|---|---|---|---|
| | | 1997 | 1998 | 1999 | 2000 | 4 YEAR AVERAGE |
| 1 | DATRAN BLVD. | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 2 | SW 98 STREET | 0.078 | 0.078 | 0.078 | 0.078 | 0.082 |
| 3 | SW 104 STREET | 0.071 | 0.143 | 0.071 | 0.000 | 0.242 |
| 4 | SW 112 STREET | 0.000 | 0.090 | 0.090 | 0.181 | 0.095 |
| 5 | SW 124 STREET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 6 | SW 128 STREET | 0.000 | 0.000 | 0.097 | 0.000 | 0.025 |
| 7 | SW 132 STREET | 0.000 | 0.099 | 0.102 | 0.000 | 0.053 |
| 8 | SW 136 STREET | 0.000 | 0.062 | 0.000 | 0.127 | 0.049 |
| 9 | SW 144 STREET | 0.095 | 0.000 | 0.000 | 0.190 | 0.075 |
| 10 | SW 152 STREET | 0.070 | 0.000 | 0.000 | 0.000 | 0.018 |
| 11 | SW 160 STREET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| 12 | SW 168 STREET | 0.293 | 0.391 | 0.098 | 0.000 | 0.205 |
| 13 | BANYAN STREET | 0.189 | 0.189 | 0.000 | 0.000 | 0.099 |
| 14 | HIBISCUS STREET | 0.000 | 0.000 | 0.290 | 0.000 | 0.076 |
| 15 | SW 184 STREET | 0.289 | 0.076 | 0.315 | 0.000 | 0.178 |
| 16 | SW 186 STREET | 0.216 | 0.111 | 0.992 | 0.331 | 0.432 |
| 17 | MARLIN ROAD | 0.256 | 0.068 | 0.767 | 0.000 | 0.285 |
| 18 | CARIBBEAN BLVD. | 0.000 | 0.187 | 0.000 | 0.062 | 0.065 |
| 19 | SW 112 AVENUE | 0.000 | 0.143 | 0.000 | 0.000 | 0.037 |

The crash data for the intersections also shows that the collisions in which buses were not involved were minor, both in frequency and severity, when compared against the collisions involving buses. The large majority of the crashes (67 out of 80 or 84%) involved buses and 49 (73%) of these bus crashes resulted in injuries and two fatalities were experienced. In contrast, only 13 (16%) of the crashes did not involve buses and of these 3 involved injuries and no fatalities were involved. The number of bus crashes has also generated considerable public safety concerns. Based on these findings, it if evident that the primary issue of concern, for the busway, is the bus involved crashes. The crash analysis in this report therefore focuses on collisions involving buses and developing countermeasures to prevent such crashes. Hence, all further analyses discussed hereafter are related to bus crashes only. Detailed summary report and collision diagrams for the bus crashes are shown in Appendix D.

In order to identify trends at similar locations, the busway intersections with comparable operating characteristics and geometric layout were grouped and crash statistics prepared for each grouping. The busway intersections were grouped as shown in Table 6.

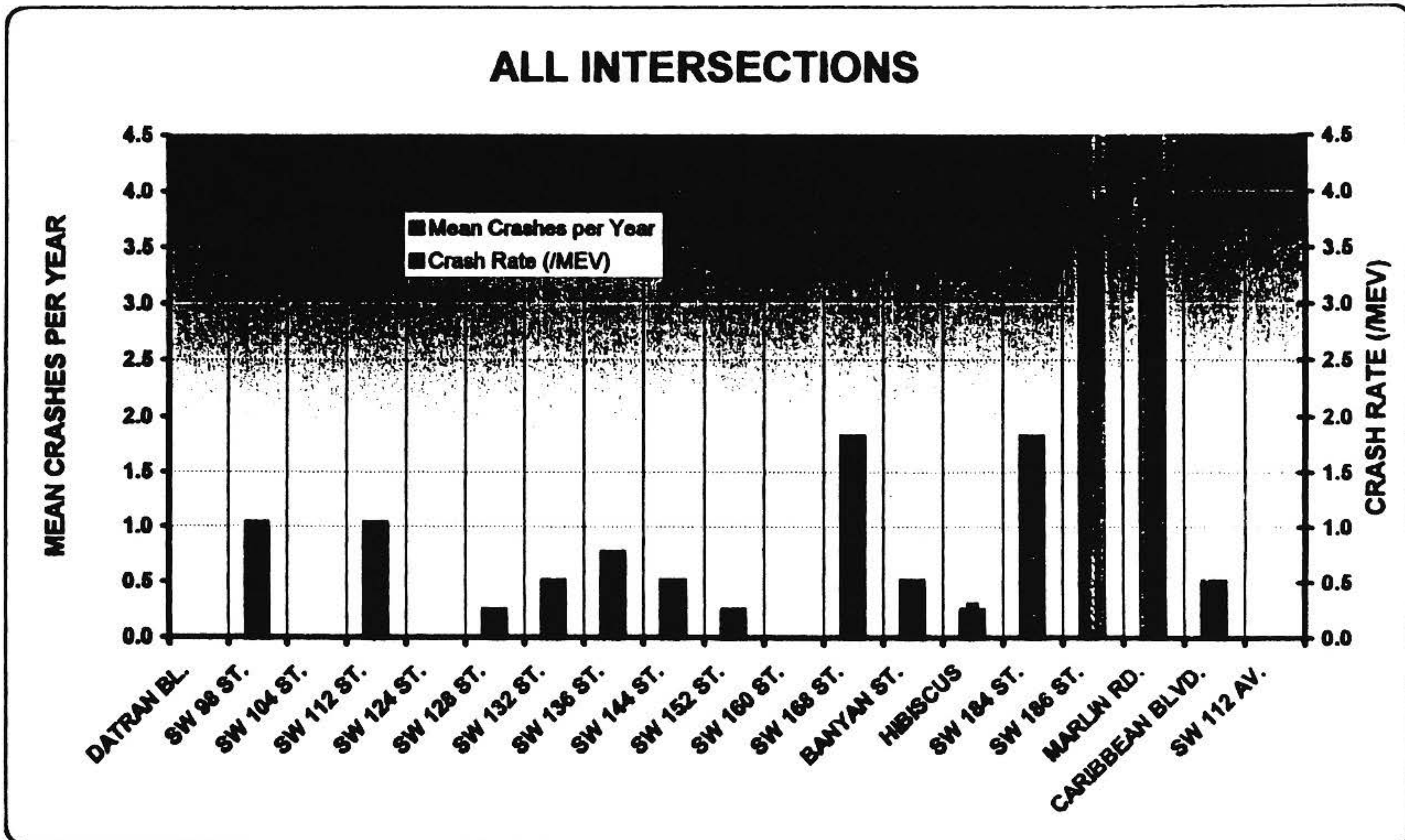
**TABLE 6**
**GROUPING OF BUSWAY INTERSECTIONS**

| US 1/BUSWAY INTERSECTIONS | ISOLATED BUSWAY INTERSECTIONS |
|---|---|
| SW 104 Street | SW 168 Street (Richmond Drive) |
| SW 112 Street (Killian Drive) | SW 173 Street (Banyan Street) |
| SW 124 Street | SW 176 Street (Hibiscus Street) |
| SW 128 Street | SW 184 Street (Eureka Drive) |
| SW 132 Street | SW 186 Street (Quail Roost Drive) |
| SW 136 Street (Howard Drive) | Marlin Road |
| SW 144 Street | |
| SW 152 Street (Coral Reef Drive) | |
| SW 160 Street (Colonial Drive) | |
| SW 200 Street (Caribbean Boulevard) | |
| SW 112 Avenue | |

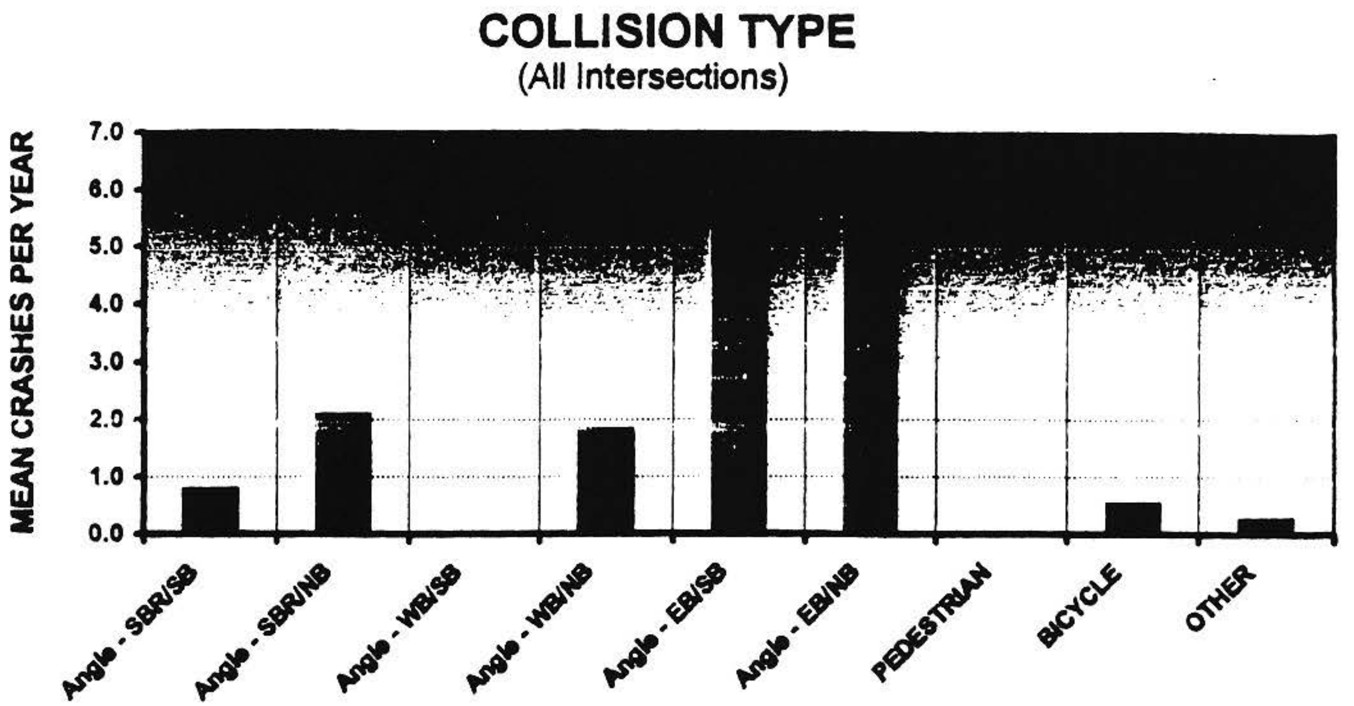
The intersections at Datran Boulevard and SW 98 Street are not similar, in either geometry or signal operations, to any of the intersections as grouped above (i.e., US 1 Intersections or Isolated Intersections). The intersections at Datran Boulevard and SW 98 Street were therefore treated as unique individual intersections. Of these two unique intersections, crashes were experienced only at SW 98 Street. Appendix D shows crash summary tables, graphs and collision diagrams for each busway intersection. Significant findings from the crash analysis are highlighted in Table 7 and Figures 3 through 8.

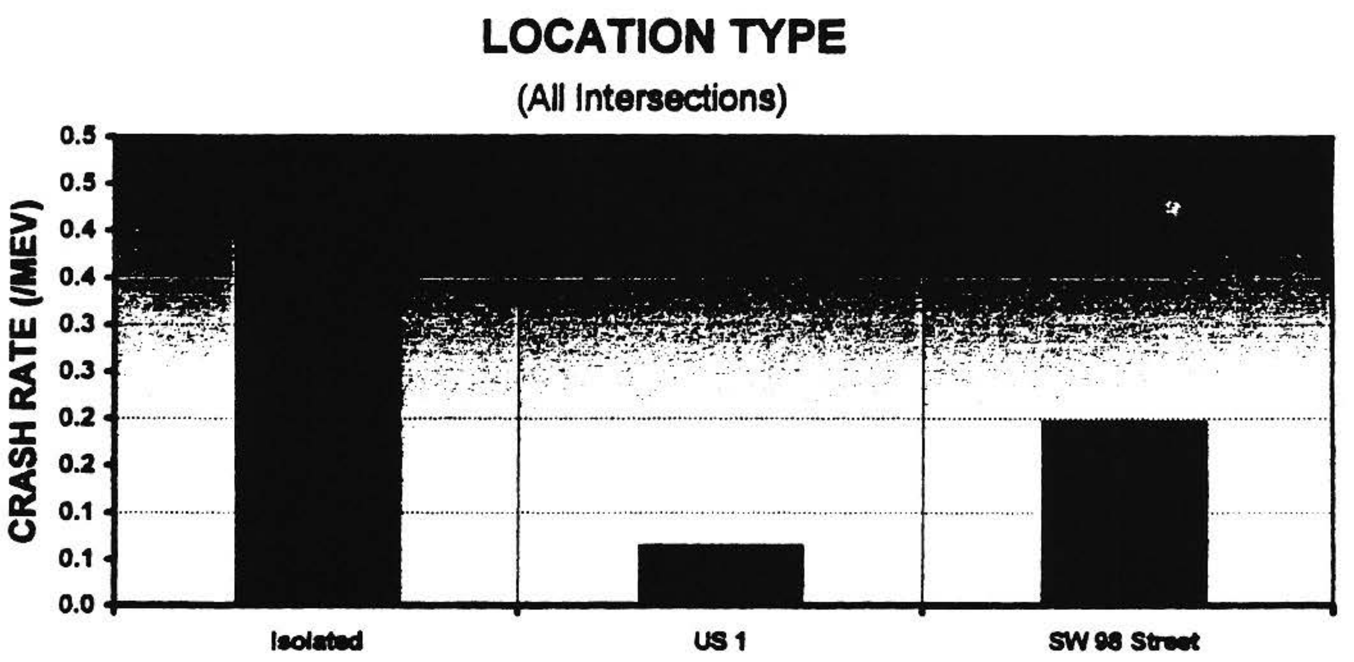
**TABLE 7**
**INTERSECTION CRASH STATISTICS**
**(BUS CRASHES ONLY)**

| Intersection Number | Intersection Name | Intersection Type | ADT | Number of Crashes | Crash Rate (/MEV) | Intersection Rank By Crash Rate |
|---|---|---|---|---|---|---|
| 1 | DATRAN BLVD. | Other | 8,554 | 0 | 0.000 | 15 |
| 2 | SW 98 STREET | Other | 14,615 | 4 | 0.196 | 8 |
| 3 | SW 104 STREET | US 1 | 16,521 | 0 | 0.000 | 15 |
| 4 | SW 112 STREET | US 1 | 11,979 | 4 | 0.239 | 6 |
| 5 | SW 124 STREET | US 1 | 11,336 | 0 | 0.000 | 15 |
| 6 | SW 128 STREET | US 1 | 10,916 | 1 | 0.066 | 13 |
| 7 | SW 132 STREET | US 1 | 14,774 | 2 | 0.097 | 10 |
| 8 | SW 136 STREET | US 1 | 28,319 | 3 | 0.076 | 11 |
| 9 | SW 144 STREET | US 1 | 11,166 | 2 | 0.128 | 9 |
| 10 | SW 152 STREET | US 1 | 30,631 | 1 | 0.023 | 14 |
| 11 | SW 160 STREET | US 1 | 13,370 | 0 | 0.000 | 15 |
| 12 | SW 168 STREET | Isolated | 10,739 | 7 | 0.467 | 2 |
| 13 | BANYAN STREET | Isolated | 4,239 | 2 | 0.338 | 4 |
| 14 | HIBISCUS STREET | Isolated | 2,296 | 1 | 0.312 | 5 |
| 15 | SW 184 STREET | Isolated | 22,868 | 7 | 0.219 | 7 |
| 16 | SW 186 STREET | Isolated | 13,200 | 15 | 0.815 | 1 |
| 17 | MARLIN ROAD | Isolated | 26,970 | 16 | 0.425 | 3 |
| 18 | CARIBBEAN BLVD. | US 1 | 19,723 | 2 | 0.073 | 12 |
| 19 | SW 112 AVENUE | US 1 | 6,283 | 0 | 0.000 | 15 |




| | | |
|---|---|---|
| R. ALEMAN & Associates, Inc. | SOUTH MIAMI-DADE BUSWAY STUDY<br>CRASH ANALYSIS | FIGURE 3 |

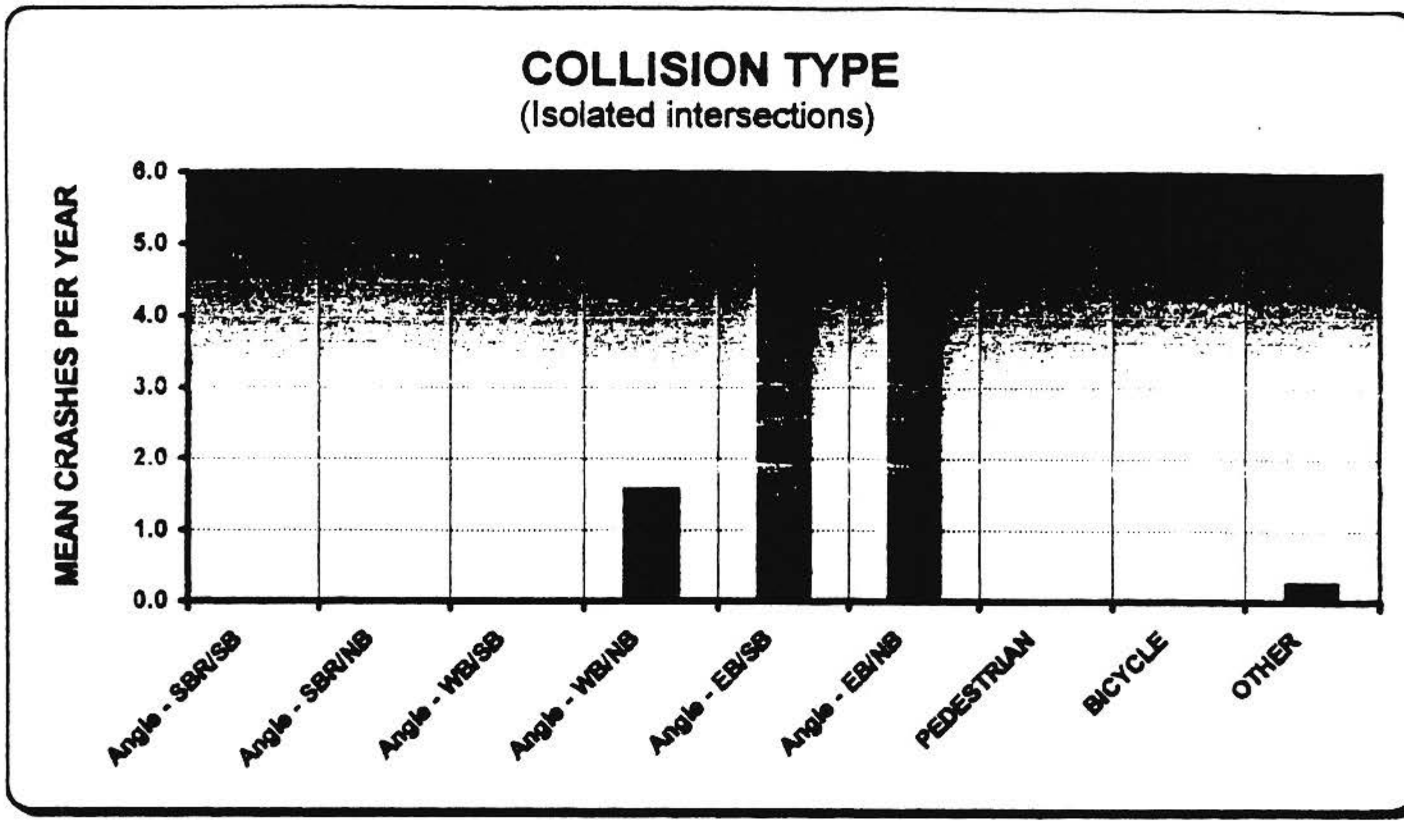


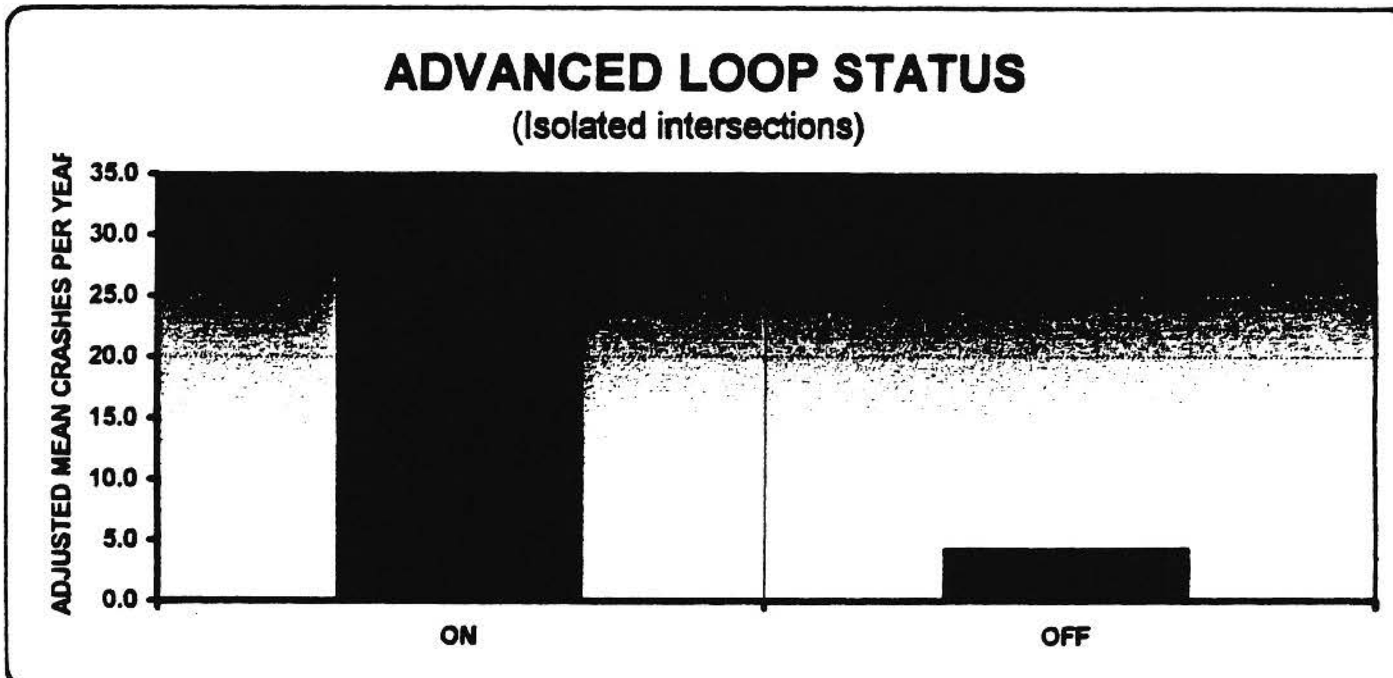




R. ALEMAN

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

FIGURE

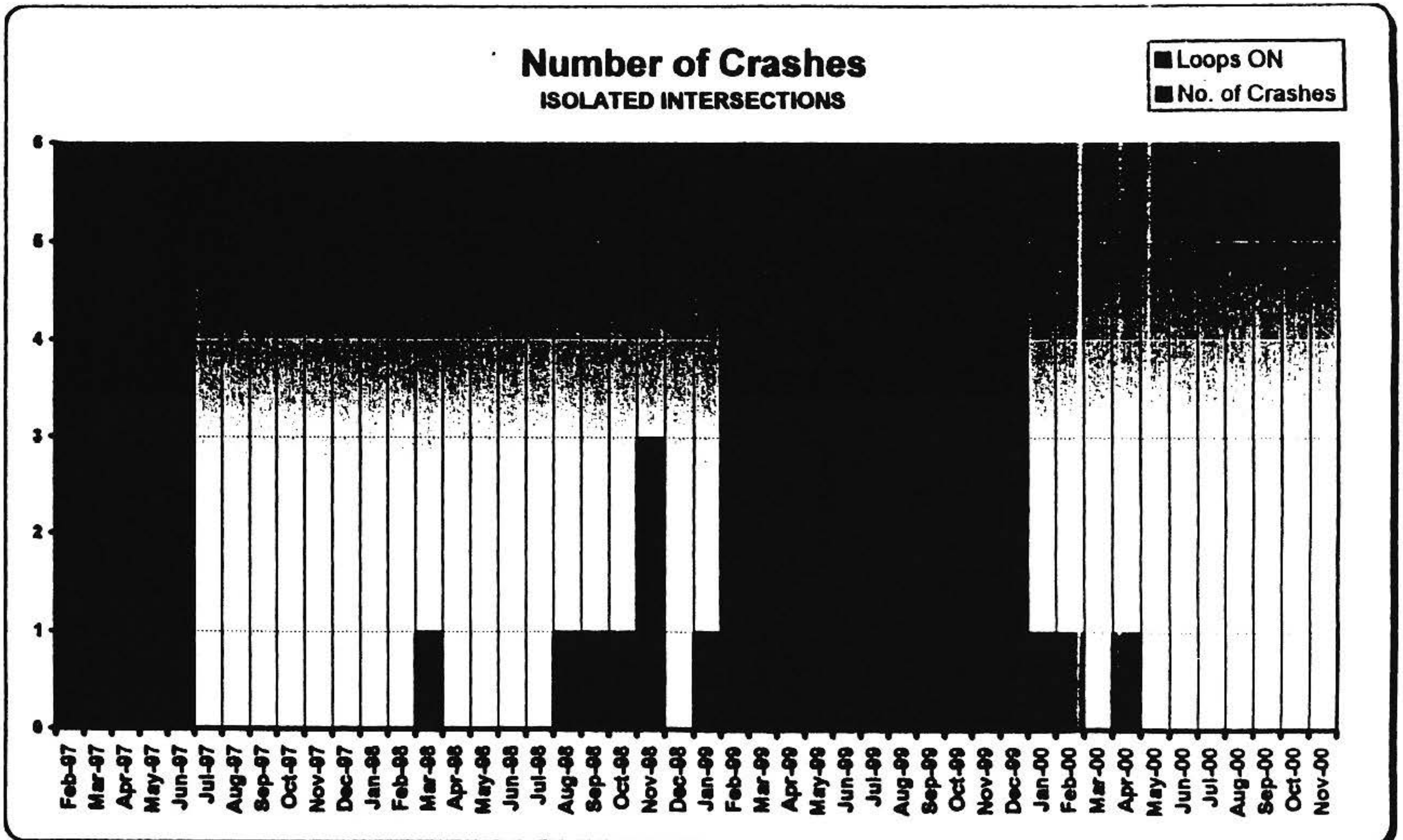



R. ALEMAN & Associates, Inc.

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

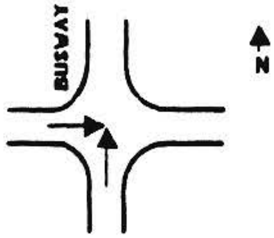
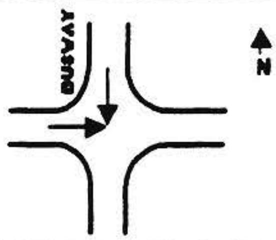
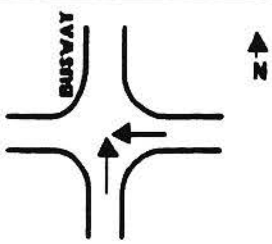
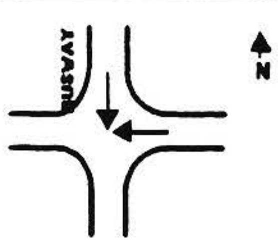
FIGURE




R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

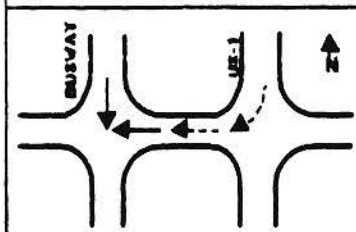
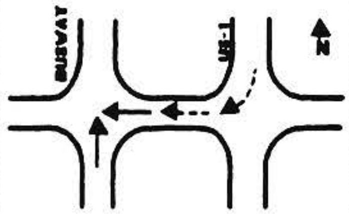
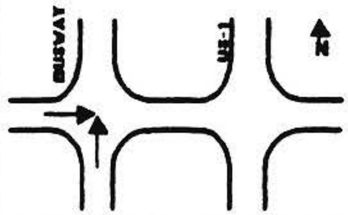
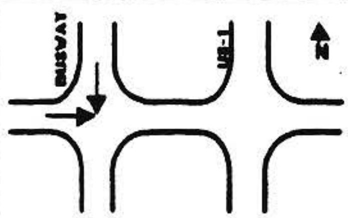
FIGURE 6

| CRASH PATTERN/NUMBER OF CRASHES | LOCATION | SW 168 ST/ RICHMOND DR | SW 173 ST/ BANYAN ST | SW 176 ST/ HIBISCUS ST | SW 184 ST/ EUREKA DR | SW 186 ST/ QUAIL ROOST DR | MARLIN RD | All Isolated Intersections |
|---|---|---|---|---|---|---|---|---|
| TOTAL CRASHES | | 7 | 2 | 1 | 7 | 15 | 16 | 48 |
|   | 1997 | 1 | | | | | 1 | |
| | 1998 | 2 | | | | | | |
| | 1999 | | | | | 6 | 7 | |
| | 2000 | | | | | 2 | | |
| | ALL | 3 | 0 | 0 | 0 | 8 | 8 | 19 (40%) |
|   | 1997 | 1 | 1 | | 3 | 2 | 1 | |
| | 1998 | | 1 | | 1 | 1 | 1 | |
| | 1999 | 1 | | | 2 | 2 | 2 | |
| | 2000 | | | | | 1 | | |
| | ALL | 2 | 2 | 0 | 6 | 6 | 4 | 20 (42%) |
|   | 1997 | 1 | | | | | | |
| | 1998 | 1 | | | | | | |
| | 1999 | | | | | 1 | 2 | |
| | 2000 | | | | | | | |
| | ALL | 2 | 0 | 0 | 0 | 1 | 2 | 5 (10%) |
|   | 1997 | | | | | | 2 | |
| | 1998 | | | | | | | |
| | 1999 | | | 1 | 1 | | | |
| | 2000 | | | | | | | |
| | ALL | 0 | 0 | 1 | 1 | | 2 | 4 (8%) |
| OTHER | 1997 | | | | | | | |
| | 1998 | | | | | | | |
| | 1999 | | | | | | | |
| | 2000 | | | | | | | |
| | ALL | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

**CRASH PATTERNS**
**ISOLATED INTERSECTIONS**

**FIGURE 7**

| LOCATION | | SW 104 ST | SW 112 ST / KILLIAN DR | SW 124 ST | SW 128 ST | SW 132 ST | SW 136 ST/ HOWARD DR | SW 144 ST | SW 152 ST/ CORAL REEF DR | SW 160 ST/ COLONIAL DR | SW 200 ST/ CARIBBEAN BLVD | All US 1 Intersections |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL CRASHES | | 0 | 4 | 0 | 1 | 2 | 3 | 2 | 1 | 0 | 2 | 15 |
| **CRASH PATTERN/NUMBER OF CRASHES** | | | | | | | | | | | | |
|  | 1997 | | | | | | | | | | | |
| | 1998 | | 1 | | | | 1 | | | | | |
| | 1999 | | | | 1 | | | | | | | |
| | 2000 | | | | | | | | | | | |
| | ALL | | 1 | | 1 | | 1 | | | | | 3 (20%) |
|  | 1997 | | | | | | | | 1 | | | |
| | 1998 | | | | | | | | | | 1 | |
| | 1999 | | 1 | | | 1 | | | | | | |
| | 2000 | | 2 | | | | 1 | 1 | | | | |
| | ALL | | 3 | | | 1 | 1 | 1 | 1 | | 1 | 8 (53%) |
|  | 1997 | | | | | | | | | | | |
| | 1998 | | | | | | | | | | | |
| | 1999 | | | | | | | | | | | |
| | 2000 | | | | | | 1 | | | | | |
| | ALL | | | | | | 1 | | | | | 1 (7%) |
|  | 1997 | | | | | | | | | | | |
| | 1998 | | | | | 1 | | | | | | |
| | 1999 | | | | | | | | | | | |
| | 2000 | | | | | | | | | | | |
| | ALL | | | | | 1 | | | | | | 1 (7%) |
| OTHER | 1997 | | | | | | | | | | | |
| | 1998 | | | | | | | | | | | |
| | 1999 | | | | | | | | | | | |
| | 2000 | | | | | | | 1 Bicycle | | | 1 Bicycle | |
| | ALL | | | | | | | 1 | | | 1 | 2 (13%) |

R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

**CRASH PATTERNS**
**US 1/BUSWAY INTERSECTIONS**

**FIGURE 8**

Significant findings from the crash analysis include the following:

- The group of isolated intersections experienced a higher crash rate than the US 1 intersections. The crash rate for the isolated intersection (based on traffic exposure) was 0.410 per million entering vehicles (MEV) whereas the crash rate for US 1 intersections was 0.061 per MEV. This result implies that the risk of a crash at the isolated intersections is approximately seven times greater than at the US 1 intersections.

- The intersections with the highest crash rates based on traffic exposure were:

  1. SW 186 Street - 0.815 Crashes per MEV
  2. SW 168 Street - 0.467 Crashes per MEV
  3. Marlin Road - 0.425 Crashes per MEV
  4. Banyan Street - 0.338 Crashes per MEV
  5. Hibiscus Street - 0.312 Crashes per MEV

- The predominant crash pattern at the isolated intersections involved eastbound vehicles on the side street approaches - 82% of the crashes were of this type. Crash countermeasures for the isolated intersections should therefore focus on the eastbound approaches.

- At the isolated intersections, crashes involving buses on the northbound and southbound approaches were evenly distributed - 50% involved northbound buses and 50 % involved southbound buses.

- The crash rate at the isolated intersections was approximately seven times higher with the advanced detectors on as compared to when the detectors were turned off. The crash rate with the advanced detectors on was 29.42 crashes per year whereas the crash rate with the detectors off was 4.29 crashes per year. A similar comparison could not be made for the US 1 intersections (or at SW 98 Street) since the advanced loops were turned off for less than one month at these intersections. The relatively high number of crashes experienced at SW 186 Street and Marlin Road, in year 1999 (mentioned earlier in this report) occurred during the period when the loops were activated.

- The predominant crash pattern at the US 1 intersections involved southbound right turn vehicles coming from US 1 - 73% of the crashes were of this type. Crash countermeasures at the US 1 intersections should therefore focus on the southbound right turn movement.

- Ninety-one percent of the drivers involved in crashes along the busway reported addresses in Miami-Dade County. This result indicates that the majority of the crashes experienced along the busway involved commuter traffic.

- A relatively large proportion (73%) of the crashes involved injuries. Two fatal crashes were experienced along the busway, both occurring in year 1999. The fatal crashes occurred at the intersections with SW 128 Street and Hibiscus Street. Given the relatively high experience of injuries with the possibility of fatalities, proposed improvements should also be directed at reducing the severity of potential crashes on the busway.

## 4. PROBABLE CAUSAL FACTORS

Probable causal factors, which are engineering related, were identified based on field investigations conducted at the intersections, results from the crash analysis and review of several reports conducted for the busway. The probable causal factors identified are as follows:

1. Traffic control. The existing traffic control devices (signs, signals and pavement markings) meet the standard requirements for regulating the movement of traffic at the busway intersections. However, the existing devices and traffic control methods may not be adequate for providing optimum operational efficiency and safety, given the prevailing roadway and traffic conditions experienced at the intersections. Therefore, changes and/or enhancements in the traffic control methods and devices used may be necessary in order to minimize the frequency and severity of potential crashes at the busway intersections.

2. Conspicuity of busway intersections. The geographic location and layout of the isolated busway intersections makes them rather inconspicuous when compared with the typical signalized intersection in Miami-Dade County. Due to the inconspicuous nature of the intersections, an unfamiliar motorist could unintentionally disregard the traffic control devices installed at the location. The inconspicuous nature of the intersections may therefore be a contributing cause for crashes experienced at these locations.

3. Visibility of traffic signals. In a recent market research conducted by PMG Associates, on behalf of the MDTA, a number of motorists expressed complaints with regards to the visibility of the busway signals. In the PMG research, 16.6 percent of the respondents indicated that the traffic signals at the busway were not clearly visible. This finding suggests that the visibility of the signals may be a contributing cause for crashes experienced at the intersections.

4. Road surface skid resistance (Marlin Road). The crash analysis revealed that a relatively large percentage of the crashes at Marlin Road occurred during wet conditions. Twenty-nine percent of the crashes at Marlin Road occurred during wet conditions whereas wet weather exposure at the location is in the order of eight percent. This finding suggest that the surface skid resistance should be checked and corrective measures applied, if necessary.

In further investigations of the probable causal factors, a field study was conducted to evaluate driver compliance with the turn restrictions for the southbound right turn movement on US 1. Data was collected at three intersections (SW 112 Street, SW 128 Street and SW 136 Street) for a one-hour period during the PM peak. The results from the study are summarized in Table 8. A total of eighty observations were made of driver behavior when the signal display showed red arrows for the southbound right turn movement. The results revealed that a total of 10 out of the 80 drivers (12.5%) ran the red lights. This percentage of red light runs is considerably high - typically upper threshold limits of 1 to 3% are used for evaluating the adequacy of clearance intervals *(source: Determining Vehicle Change Intervals, Institute of Transportation Engineers, 1985)*. The number of red light runs included vehicles arriving several seconds after the red light display. Drivers entering the intersection during the yellow change interval were not classified as red light runners. The results from this study indicate that a significant portion of the drivers using the intersections do not comply with the posted right turn restrictions. Results form the PMG market research also provide evidence of high right turn on red violations. In the PMG study more that 52 % of the respondents said they had observed illegal right turns from US 1 and more that 31% said these illegal turns were observed at least once per week. Possible reasons for the high percentage of right turn on red violations include the following:

- The right turn on red restrictions are uncommon in South Florida. It therefore conflicts with the average driver expectation.

- Driver understanding of the red arrow signal display. Research has shown that many drivers are confused by the red arrow signal display *(ref: Older Driver Design Handbook, FHWA)*. Many drivers believe right turns on red are permissible, when shown a red right turn arrow, whereas, others believe right turns on red are not permissible when the signal display is a red arrow. Florida Statutes permits right turns on red except for locations where turn prohibition signs are installed (ref: 2000 Florida Statutes, Section 316.075). In contrast, the Manual on Uniform Traffic Control Devices, 2000 Edition, does not permit right turns on red when the signal display is a red arrow, except for locations where signs are installed permitting such movements.

- The sequencing of the signals permits the right turn red arrow to be displayed simultaneously with the circular green displays for the through movements. This may be confusing to some drivers as all the signal displays are within their field of view.

- The existing NO TURN ON RED signs are of standard size using legends only. These signs may not command the visual impact desired, given the busy urban environment with other competing attractions for the driver's attention.

TABLE 8
SURVEY OF SOUTHBOUND RIGHT TURN ON RED VIOLATIONS
MARCH, 2001

| Location | No. of Observations | Southbound Right Turn on Red | |
|---|---|---|---|
| | | Compliance | Violation |
| SW 112 ST | 23 | 21 (91.3%) | 2 (8.7%) |
| SW 128 ST | 25 | 22 (88.0%) | 3 (12.0%) |
| SW 136 ST | 32 | 27 (84.4%) | 5 (15.6%) |
| **TOTAL** | **80** | **70 (87.5%)** | **10 (12.5%)** |

## 5. CRASH COUNTERMEASURES

Two different strategies have been proposed for traffic control at the busway intersections, these are:

1. Traditional Traffic Signal Control Strategy : This involves treating the busway crossing as a regular intersection and using traditional traffic signal control techniques supplemented by additional traffic control devices which are non-conflicting.

2. Railroad Crossing Signal Control Strategy: This involves treating the busway crossing similar to a railroad crossing (or moveable bridge) and adopting traffic control devices which are used at railroad crossings.

FRA supports the traditional traffic signal control strategy for creating short to medium term improvements at the intersections. Traffic signal control strategies are generally easy to implement, relatively low cost and generate minimum, if any, environmental impacts. Railroad crossing techniques are recommended for long term consideration. Crash countermeasures recommended in the subsequent sections are in keeping with our suggested approach to traffic control at the intersections.

A review was conducted of several previous studies for the busway in which possible crash countermeasures were suggested. Reports, which were reviewed for this study, are listed in the References. The following sections discuss the merits of several improvements which have been proposed in these previous studies and other possible crash countermeasures identified from FRA's investigations. For completeness, countermeasures that have been recommended in previous studies and have already been implemented, are included herein. Recommended countermeasures are summarized in Table 9.

## TABLE 9
## SUMMARY OF RECOMMENDED CRASH COUNTERMEASURES

**PREDOMINANT CRASH PATTERN: Angle Crashes at isolated busway intersections**

| PROBABLE CAUSE | RECOMMENDED COUNTERMEASURE | .ADVANTAGES / DISADVANTAGES | ESTIMATED COST | PRIORITY |
|---|---|---|---|---|
| Visibility of signals | Install backplates on signal heads for eastbound and westbound approaches | Change in County policy required. | $90 per signal head. | Short Term |
| Conspicuity of busway intersections | Install busway SIGNAL AHEAD SIGN | Improves conspicuity and provides advanced warning. | $800 for each busway SIGNAL AHEAD sign | Short Term |
| | Install additional busway warning signs in medians | Improves conspicuity of intersections | $700 | Short Term |
| | Install post mounted signal at isolated busway intersections | Improves conspicuity and visual impact of signals. | $3,500 per installation | Short Term |
| | Install raised curbs at busway intersections | Improves conspicuity and provides protection for ground mounted signs. Drainage may be impacted at some locations. | $10,000 to $15,000 per location. | Short Term |
| | Install raised central median | Improves conspicuity and allows installation of other traffic signs. Access may be impacted at some locations. | $5000 per location | Medium Term |
| | Install textured road surface | Improves conspicuity. Expensive installation and maintenance. | $70,000 per location | Medium Term |
| | Install in-roadway amber-red lights. | Improves conspicuity and visual impact of signals. Not yet approved for specified application. FHWA approval required for experimental sites. | $20,000 per location | Medium Term |
| Traffic control | Design advanced loop operation for bus approach speed of 15 m.p.h. | Reduce crash risk and severity. Travel times expected to increase. | Change in signal timings required. | Short Term |
| | Modify placement of advanced loops at locations with near side bus stops. | Improves operational efficiency. Travel times expected to increase. | $3,000 per location | Short term |
| | Install flashing –light signals similar as used for railroad crossings of moveable bridge. | High visual impact. Devices not consistent with current signal control strategy. | $3,500 per signal. | Long Term |
| | Install gates similar as used for railroad crossings | Provides physical barrier to ensure compliance. Devices not consistent with current signal control strategy. | $15,000 to $20,000 per gate | Long Term |
| | Install grade separated intersections. | Ultimate safety solution. Expensive to implement and would impact environment and user access. | $10,000,000 per intersection | Long Term |

**TABLE 9 (Continued)**
**SUMMARY OF RECOMMENDED CRASH COUNTERMEASURES**

**PREDOMINANT CRASH PATTERN: Angle crashes at US 1/Busway intersections involving southbound right turns**.

| PROBABLE CAUSE | RECOMMENDED COUNTERMEASURE | ADVANTAGES / DISADVANTAGES | ESTIMATED COST | PRIORITY |
|---|---|---|---|---|
| Violations of southbound right turn on red restrictions | Install post mounted signal with NO TURN ON RED ARROW SIGN at stop line. | Enhances right turn signal control and reinforces right turn restrictions | $3,500 per installation | Short Term |
| | Install special size (30" x 48") NO TURN ON RED ARROW sign | Improves sign visibility and reinforces right turn restrictions. | $750 per sign | Short Term |
| | Remove unnecessary signage – RIGHT LANE MUST TURN RIGHT. | Removes unnecessary information allowing driver to focus on other important traffic control information. | $40 per sign | Short Term |
| | Install gates similar as used for railroad crossings | Provides physical barrier to ensure compliance. Devices not consistent with current signal control strategy. | $15,000 to $20,000 per gate | Long Term |
| | Install grade separated intersections. | Ultimate safety solution. Expensive to implement and would impact environment and user access. | $10,000,000 per intersection | Long Term |

Gates could be similar to or same as gates at toll collection points - probably less than $15 to 20K

**Short Term Crash Countermeasures – Items 1 through 30** All the proposed short term crash countermeasures are relatively low cost improvements, which are consistent with the traditional traffic signal control strategy, described above.

1. **Deactivate advanced loops at busway intersections** ***(Evaluation of less restrictive measures recommended and assessment of travel time savings)***

   Each of the following factors has an important bearing with regards to determining what the active status of the advanced loop detectors should be:

   a) The change in risk for conditions with the advanced loops activated versus conditions when the loops are deactivated.
   b) The change in travel times for conditions with the advanced loops activated versus conditions when the loops are deactivated.
   c) The impact of less restrictive crash countermeasures.

   The influence of the above three factors is discussed below.

   Change in Risk
   Analysis of the crash records for the six isolated intersections indicate that the crash rate at these intersections is approximately seven times higher for operating conditions with the advanced loops turned on as opposed to having the loops turned off. This finding provides a clear indication that having the loops activated results in an increase in risk at the isolated intersections. This finding lends support for deactivating the loops at the isolated intersections.

   In regards to the US 1/Busway intersections, the available crash data provided limited information regarding the relative crash risk for conditions with the advanced loops turned off as opposed to having the loops turned on (loops at the US1/Busway intersections were deactivated only since November 2000). The existing crash data therefore provides no basis for deactivating the loops at these intersections. Furthermore, the crash analysis showed that the US1/Busway intersections have a considerably lower crash rate than the isolated intersections. These findings do not support the proposal for deactivating the loops at the US 1/Busway intersections. The above mention arguments are also true for the intersections at Datran Boulevard and SW 98 Street. The available crash data does not provide any support for deactivating the loops at these two locations.

   Change in Travel Times
   Travel times along the busway are expected to increase for operating conditions with the advanced loops deactivated. This increase in travel time could negatively impact the attractiveness of the busway for existing and potential future users of the bus service. The increase in travel time would also be inconsistent with the goal of providing a rapid bus transit service. Hence, if the savings in travel times are considerable, for conditions with the

advanced loops activated, then it would be desirable to maintain the advanced loops in the active state. However, if the savings in travel times are minimal, then it may be overall beneficial to the system (safety and operations considered) to maintain the advanced loops deactivated. Hence, the savings in travel times could be decisive in determining the active status of the advanced loops. It is therefore recommended that the MDT conduct a study to accurately assess the change in travel times for conditions with the loops activated versus having the loops deactivated. It is possible that this information may be obtained by researching MDT's historical scheduling records or logs from their Automatic Vehicle Location System. Alternatively, a travel time study could be designed to obtain the required information.

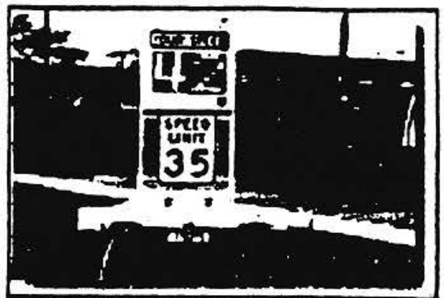
Impact of Less Restrictive Measures
In subsequent sections of this report recommendations are made for implementing several less restrictive crash countermeasures which would not require buses to stop at all intersections at all times. Implementation of these less restrictive crash countermeasures could considerably reduce the frequency and severity of crashes at all the busway intersections. The impact of the less restrictive measures could therefore negate the need for deactivating the advanced loops at the intersections. Hence, it would be prudent for these less restrictive crash countermeasures to be implemented and appropriately evaluated prior to making any decisions regarding the active status of the advanced loops.

Based on the arguments presented above it is recommended that the advanced loops be reactivated pending implementation and evaluation of less restrictive crash countermeasures described herein. It is also recommended that the MDT initiate studies to determine the savings in travel times for conditions with the advanced loops activated versus conditions when the loops are deactivated.

2. **Design advanced loop operation for bus approach speed of 15 m.p.h. (*Recommended for immediate implementation)***

Design of the existing signal operating plan, with advanced loop detectors turned on, facilitates bus approach speeds of 45 m.p.h. This crash countermeasure would require buses to reduce their approach speeds to 15 m.p.h. in order to receive a green indication on arriving at the intersection. The reduced bus approach speeds would provide drivers more time to apply appropriate evasive actions in the event of a signal violation. This could therefore result in a reduction in crashes and their severity. The disadvantage of reducing bus approach speeds is that it is not consistent with the goal of reducing travel times on the busway. This proposal is however not as restrictive as other measures which would require buses to come to a complete stop at the busway intersections. Reducing bus approach speeds may therefore provide a reasonable compromise between safety and operational efficiency along the busway.

The reduction in bus approach speeds at the intersections could be reinforced by installing visible speed control devices on the busway approaches. A radar sign could be used to display the current speed of the bus and the designed reduced speed (15 mph.) for buses approaching the intersection. The cost of a radar speed control sign, similar to that shown in caption, is approximately $5,300.00. Pavement markings and warning signs could also be used as supplemental or alternative speed control devices. The pavement markings and signs, indicating the reduced design speed on the busway approaches, would be installed at appropriate intervals in advance of the intersections. This countermeasure could be implemented by applying a delay to the advanced loop detectors and using the currently installed loop locations. An illustrated use of the speed control devices is shown in Figure 9. Training of bus drivers may also be necessary for the successful implementation of this countermeasure.




**Radar Speed Display Sign**

The proposed speed reduction at the intersections would also be more consistent with the existing roadway geometry at the intersection of SW 98 Street and the Busway. The intersection at SW 98 Street has a complex geometric configuration with several connecting roads in one spot. The complex geometric configuration at this location could be confusing for unfamiliar drivers and it is not conducive for buses to maintain normal operating speeds through this intersection. Therefore, provided there are no geometric improvements, a reduced bus operating speed should be maintained through this intersection.

3. **Modify placement of advanced loops at locations with near side (upstream) bus stops. (*Recommended for immediate implementation*)**

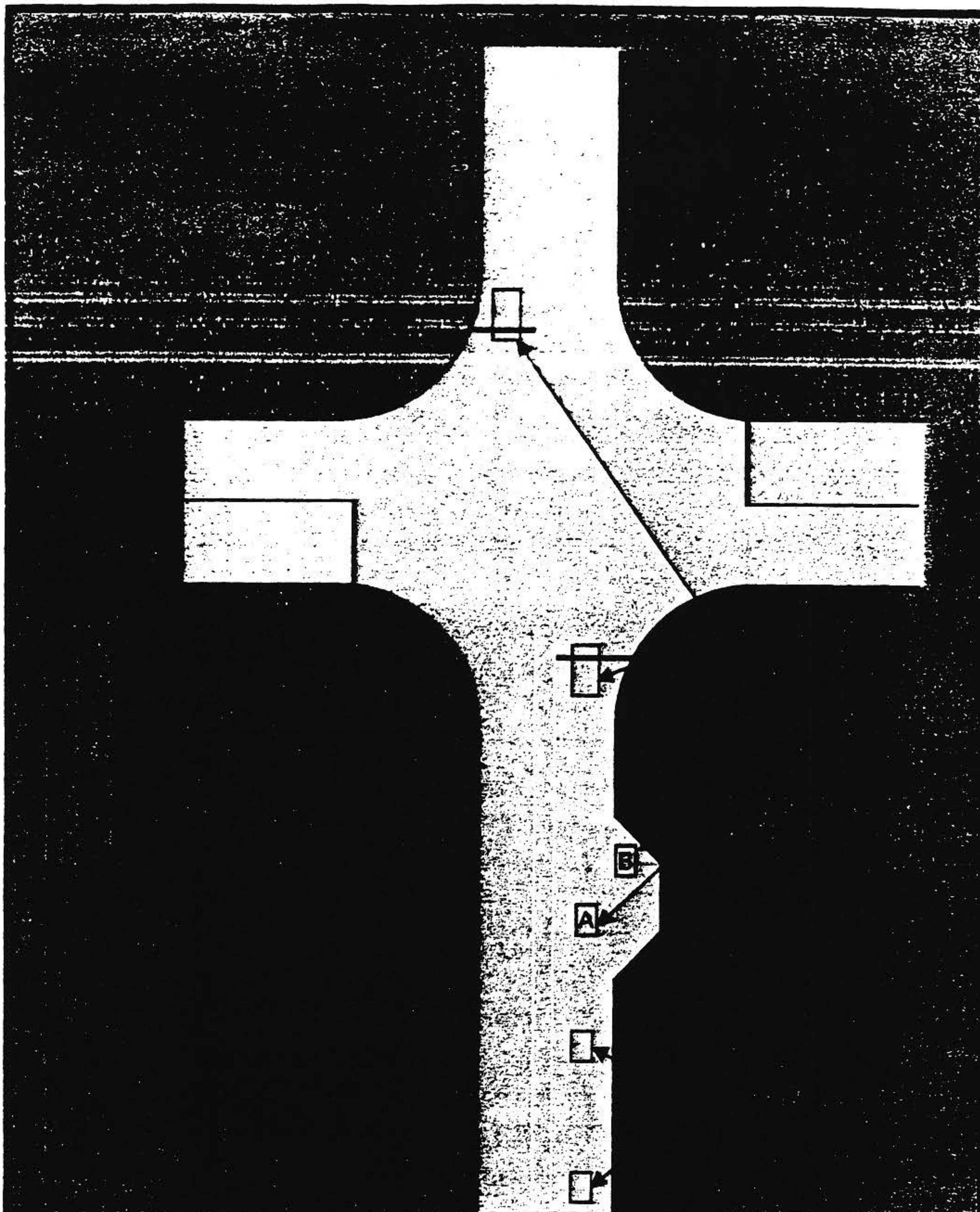
The existing busway has nine bus stops installed at upstream locations and 18 bus stops installed at downstream locations. In the case of the upstream bus stop locations, a call received at the advanced loop detectors may result in transferring a green indication to the busway when there are no vehicles to service on the busway - since the bus may have stopped for the embarking/disembarking of passengers. Furthermore, on leaving the upstream bus stop, the bus may be required to wait a full cycle, before receiving a green signal. The upstream bus stop therefore does not facilitate efficient busway operations.

In order to minimize the impact on operational efficiency, it has been suggested to modify the placement of the advanced loop detectors as shown in Figure 10. In the proposed modified design, the advanced loops are installed in the vicinity of the busbay (the existing advanced loops would be abandoned). Buses not stopping at the bus stop would be detected by loop A (see diagram) which would cause the signals to initiate the process for transferring green to the busway. Buses stopping at the bus stop would be detected by loop B, only after leaving the bus stop, which would initiate the green transfer process. This modified placement of the loops avoids the unnecessary transfer of green to the busway.


R. ALEMAN
& Associates, Inc.
CONSULTING ENGINEERS

**SOUTH MIAMI-DADE BUSWAY STUDY**
ILLUSTRATED APPLICATION OF
SPEED CONTROL DEVICES

FIGURE 9




| | | |
|---|---|---|
| R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS | SOUTH MIAMI-DADE BUSWAY STUDY<br>PROPOSED MODIFICATIONS TO ADVANCED LOOPS | FIGURE 10 |

The disadvantage of this procedure results from the relatively short upstream distance at which the loops would be installed. This would require through buses to considerably reduce their speeds or stop, before receiving a green display. The modified loop placement would therefore be most useful at upstream locations where most buses are required to use the bus stop. Modifying the placement of the advanced loops would also be complementary to the countermeasure described in Item 2, i.e., both countermeasures would require the buses to considerably reduce their approach speeds at the intersections. The placement of loop A could also achieve the objectives of both countermeasures.

4. **Interconnect signals and coordinate permitting eastbound red at the busway only when US 1 eastbound is red (*Not Recommended*)**

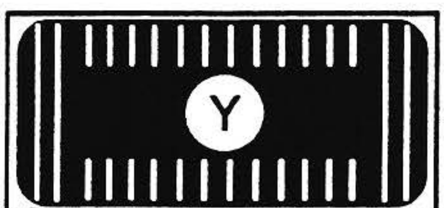
This proposed improvement is based on the premise that eastbound vehicles, at the busway intersections, are unduly influenced by the signal indications displayed at the downstream US 1 intersection. Field inspections conducted at the locations revealed that all downstream US 1 intersections are equipped with optically programmable signals for eastbound traffic. Furthermore, the optically programmable signals were observed to be effective in restricting visibility of the displays when standing at the busway intersections. The optically programmable signals therefore negate the basis for the proposed coordination of the signals. The proposed coordination of the signals is therefore not recommended for the above mentioned reasons.

5. **Review programmed signal heads and reprogram, as necessary (*Recommended, on-going maintenance activity*).**

This crash countermeasure will ensure that the optically programmable signals are operating as designed. FRA's field inspection conducted in March 2001 revealed that the programmable heads were operating effectively. This crash countermeasure is recommended as an on-going maintenance activity.

6. **Install backplates on the signal heads for eastbound and westbound traffic (*Recommended for immediate implementation*)**

This crash countermeasure is recommended on the basis that the visibility of the signal displays may be improved by installing backplates on the heads. Field observations and results from the recent market research study both indicate that the signals at the busway do not have a commanding visual impact. The Traffic Control Devices Handbook recommends the installation of backplates as an effective measure for improving the visual impact of signals. Backplates are also widely used in other jurisdictions, including Broward County. It is recognized that the installation of backplates



**Signal head with slotted backplates**

is not typically practiced in Miami-Dade County. It is also our understanding that the installation of backplates would be a policy change, which would have to be addressed by the County management, due to the disadvantages of backplates during windstorms. However, given the potential benefits and minimal cost (approximately $90 per head), the installation of backplates, on the eastbound and westbound approaches, is recommended as an improvement for immediate implementation.

7. **Install SIGNAL AHEAD sign (*Recommended for immediate implementation at the isolated busway intersections)***


The SIGNAL AHEAD sign can provide additional warning as a countermeasure for addressing the inconspicuous nature of the isolated busway intersections. The Manual on Uniform Traffic Control (MUTCD) 2000, advises that an advanced traffic control sign may be used for additional emphasis of the primary traffic control device, even when the visibility distance to the device is satisfactory. Use of the proposed sign would therefore be consistent with the MUTCD guidelines. The recommended SIGNAL AHEAD sign has a supplemental BUSWAY sign, as permitted by the MUTCD. Use of the supplemental sign also provides advanced warning for the busway crossing. It is recommended that the SIGNAL AHEAD sign be used to replace the BUSWAY AHEAD signs at the isolated intersections. The proposed SIGNAL AHEAD sign is a relatively low cost improvement, estimated at approximately $ 800.00 per installation.

8. **Install BE PREPARED TO STOP WHEN FLASHING sign at the isolated busway intersections (Not Recommended)**


This proposal would provide an additional warning device for vehicles approaching the isolated busway intersections. The flashing yellow signal would provide advanced warning for the changing from green to red display at the traffic signals. The proposed sign could therefore aid improving the conspicuity of the isolated busway intersections.

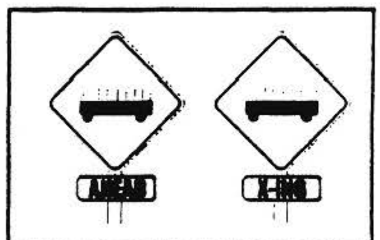
The MUTCD stipulates that when a BE PREPARED TO STOP WHEN FLASHING sign is used in advance of a traffic signal, it shall be used in addition to a SIGNAL AHEAD sign (see Countermeasure # 7). This countermeasure would therefore require installing two warning signs on each approach: (1) BE PREPARED TO STOP WHEN FLASNING and (2) SIGNAL AHEAD. Although the BE PREPARED TO STOP WHEN FLASHING sign could aid in improving the conspicuity of the intersections it is not recommended for installation due to the following concerns:

- The signalized intersections at the buway and the adjacent US 1 intersection are closely spaced – approximately 300 to 400 feet at the isolated locations. The busway intersection at SW 186 Street is also very close to the signalized intersection at Homestead Avenue and SW 186 Street – the spacing between these two intersections is approximately 280 feet. Due to the close spacing of these intersections, there is limited space available for installing roadway signs, adequately spaced, along the busway approaches. The presence of other existing roadway signs further limits the space available for installing the proposed new signs (see Condition Diagram – Appendix A). Hence, it would not be practical to install both proposed warning signs (SIGNAL AHEAD and BE PREPARED TO STOP WHEN FLASHING) within the limited distance between the intersections. The installation of closely spaced signs could cause driver confusion, which in turn could increase crash risk at the intersections.

- On approaching the busway intersections both the signals at the busway and the nearby downstream US 1 intersection are within the driver's field of view. It is therefore possible that a driver on seeing the BE PREPARED TO STOP WHEN FLASHING sign could mistakenly believe that the sign is intended to provide warning for the downstream intersection and not at the busway intersection. This possible driver misunderstanding could increase the crash risk at the busway intersections.

9. **Install additional Busway Warning Signs and adjust locations as necessary (Additional signs *recommended at locations with raised central medians – Busway Crossing signs recommended for relocation at intersections or removal)***

The typical signage on the cross-streets at the busway intersections include a Busway Crossing sign and a Busway Ahead Sign. The signs include a symbol representing the busway that is currently a non-standard design. The signs were installed with the approval of the Federal Highway Administration (FHWA) following a request submitted by the Florida Department of Transportation.

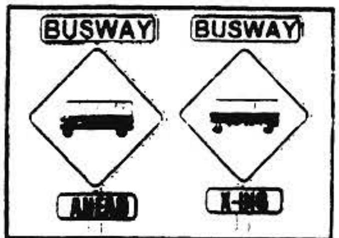


EXISTING SIGNS

Many of the existing busway crossing signs are installed several feet (more than 100 feet in some cases) in advance of the crossing location. MUTCD guidelines for similar crossing signs require these signs to be installed adjacent to the crossing. Furthermore, when the busway crossing signs were initially conceived, it was intended for these signs to be installed at the crossings. The existing busway crossing signs may therefore not be very effective or could even be confusing to some drivers. It is therefore recommended to remove the existing busway crossing signs that are not located in close proximity to the crossings. It is further recommended that the busway crossing signs be used only at locations where the signs can be adequately accommodated at or in close proximity to the crossings. In adherence to this recommendation, the busway crossing sign would typically not be used on the eastbound approach of the US 1/Busway intersections – since regulatory signs are installed at or close to the crossing (see Condition Diagrams-Appendix A).

The cross-street at some of the busway intersections have a raised central median that is sufficiently wide to permit the installation of additional signage. New raised central medians are also recommended for installation along some of the cross-streets (see Countermeasure # 35). The effectiveness of the busway warning signs could be improved by installing additional signs on these raised medians. It is recommended that additional signs be installed on these medians.

As previously mentioned, the symbols used on the Busway Crossing and Busway Ahead signs are non-standard. Road user comprehension of the signs may therefore be lacking. Further market research studies could be conducted in order to determine road user comprehension of these signs. Pending results from such studies, an educational plaque could be added to the signs as shown in caption. Use of the educational plaque would be consistent with the MUTCD procedures for introducing new symbol signs.



PROPOSED SIGNS

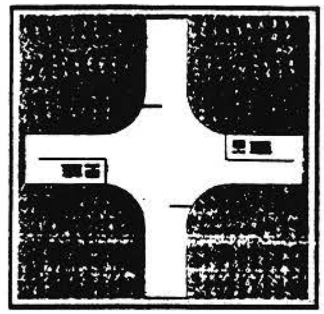
The drawings in Appendix E show the recommended locations for additional signage and locations where the removal/replacement of some existing signs is recommended. The recommended typical signage for the US 1/Busway intersections include a Busway Ahead sign on the eastbound approach and a Busway Crossing sign on the westbound approach. In the case of the isolated busway intersections, SIGNAL AHEAD signs are recommended in lieu of the BUSWAY AHEAD warning signs (see Countermeasure # 7). The proposed warning signs are relatively low cost improvements – each estimated at approximately $700.

10. **Trim foliage around Busway X-ing signs, as necessary *(Recommended, on-going maintenance activity)***

Field investigations revealed that overgrown trees have restricted the visibility to several signs on the approaches to the busway intersections. This restricted visibility diminishes the effectiveness of the signs. It is recommended that the overgrown vegetation on the approaches to the intersections be removed. This is an on-going maintenance activity.


SW 168 ST, Looking East

11. **Install BUS X-ING pavement markings (Not *Recommended)***



The installation of BUS X-ING pavement markings would provide an additional warning device for drivers approaching the intersections. The markings could also aid in making the intersections more conspicuous. The major disadvantage of this potential countermeasure is that it would require a considerable amount of effort to maintain the pavement markings in adequate condition. Hence, the potential benefits from this countermeasure may not be commensurate with the level of maintenance required. This countermeasure is therefore not recommended based on maintenance concerns.

12. **Check surface skid resistance and resurface as necessary (*Recommended, on-going maintenance activity*)**

Results from the crash analysis revealed that 31% of the crashes experienced at Marlin Road occurred under wet road conditions. This is a relatively high percentage of wet weather crashes, indicating that the surface skid resistance may be inadequate. It is recommended that surface skid tests be conducted at the intersection and new friction course installed if the tests indicate that the surface skid resistance is below design standards. This is an on-going maintenance activity for all locations.

13. **Install strobes in the red display of the side street approaches (*Not Recommended*)**

This proposed improvement is based on the premise that the strobes in the red display would command greater visual attention and thereby reduce signal violations and crashes at the intersections. In a 1994 study conducted for the Virginia Department of Transportation/Federal Highway Administration, it was concluded that there was no evidence indicating that strobe lights are consistently effective in reducing crashes. It was further concluded that there is no basis for recommending the use of strobe lights unless there are other bona fide measures of effectiveness that can be used to justify installing them. Based on the conclusions reached from this 1994 study, the installation of strobes is not recommended.

14. **Install optically programmable signals at all US 1 intersections, including the cross-streets for the isolated busway intersections (*Existing Condition*)**

Field investigations revealed that this improvement has already been implemented at all locations.

15. **Replace 8-inch signal indicators with 12-inch indicators (Existing Condition)**

The use of 12-inch heads is standard in Miami-Dade County. Twelve-inch signals are used at all existing busway intersections.

16. **Operate busway intersections using red rest mode *(Not Recommended)***

Operating the busway intersection using the red rest mode would provide a red display for traffic on all approaches, unless there is a vehicle to be served. The proposed operation would include having advanced loop detectors on the side street approaches and on the busway. Traffic on the side street approaches would initially see a red display that would change to green on arrival at the intersection while traveling at a predetermined design speed and provided there are no conflicting calls on the busway. Advanced detection on the busway would allow buses, traveling at the design speed, to receive a green display on arrival at the intersection. This operation would be suitable only for isolated locations with light side street traffic. Traffic counts conducted at the intersections indicate that Banyan Street and Hibiscus Street experience light traffic volumes throughout the day. These two intersections would therefore be possible candidates for red rest operation.

It is recognized that the proposed red rest operation could improve the operational efficiency of the candidate intersections. However, the safety benefits from this countermeasure are questionable. It may also be argued that if red rest operation can provide adequate traffic regulation at the intersections, then the use of stop signs would be the preferred traffic control device for installation at the locations. Red rest operation is therefore not recommended based on the aforementioned concerns.

17. **Replace the existing sign "NO TURN ON RED" with sign "NO RIGHT TURN ON RED ARROW" *(Recommended pending State and FHWA approval)***

In the existing condition, the southbound right turn lane at the typical US 1/Busway intersection has three posted NO TURN ON RED signs. The existing signs are located: (1) at the entry point to the exclusive southbound right turn lane; (2) at the stop line for the exclusive southbound right turn movement and (3) on the mast arm facing the southbound right turn movement (see condition diagrams, Appendix A).



This countermeasure would involve replacing the existing NO TURN ON RED signs with either of the signs shown in caption. The sign using the international symbol would be preferred since it more directly addresses the right turn movement and it is symbolic. Use of the international symbol should improve the visual impact of the sign and promote wider understanding, given the multilingual Miami-Dade community.

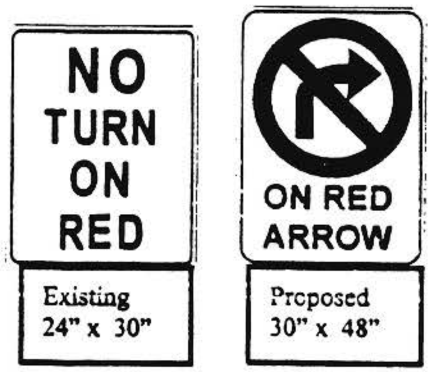
The proposed change in the wording of the turn prohibition signs is intended to clarify possible misunderstandings with regards to the signal displays which could in turn impact the risk of crashes at the intersections. Sources of possible misunderstanding include: (1) driver comprehension of the red arrow signal display; (2) the simultaneous display of the right turn red arrow along with the circular green signal for through movements and (3) the simultaneous display of the right turn green arrow along with the circular red signal for through movements. The proposed sign, NO RIGHT TURN ON RED ARROW, could aid in clarifying any possible misunderstanding resulting from these sources. Notwithstanding, it should be noted that for a driver knowledgeable of the State Statutes, as explained in the Florida Driver's Handbook, the existing signal displays along with the standard NO TURN ON RED sign, should not create any source of misunderstanding or confusion for the driver.

R10-11c

The proposed NO RIGHT TURN ON RED ARROW sign is not a standard sign included under the MUTCD. Installation of the proposed sign would require modifying the MUTCD approved sign – R10-11c (see caption). Hence, use of the proposed sign may generate legal issues. Preliminary investigations indicate that the FHWA would have no objections to the use of the proposed sign, per discussions with Mr. Norbert Munoz, Safety Engineer, FHWA, Florida Division. However, use of the proposed sign may not be consistent with State policy, as per discussions with Mr. Mark Wilson, Deputy State Traffic Operations Engineer, FDOT, Tallahassee. Given these differing standpoints as indicated by our preliminary research, it is recommended that a request for use of the proposed sign be submitted to both the FHWA and the State prior to implementation. Should the State and/or FHWA object to the modified sign, it is recommended that the standard R10-11c sign be used.

The proposed NO RIGHT TURN ON RED ARROW sign is expected to have minimum dimensions of 24" x 36". Signs with the minimum dimensions are recommended for installation on the proposed pole mounted signals for the southbound right turn movement (see Countermeasure # 19). Special size signs (30" x 48") are recommended for installation on the upright of the mast arm and at the upstream location (see Appendix E and Countermeasure # 18).

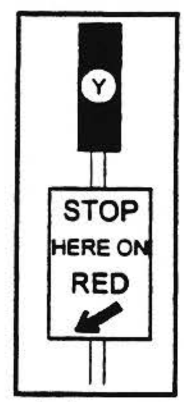
18. **Increase sign size - NO TURN ON RED** ***(Recommended for immediate implementation at upstream sign location )***




As was discussed under Countermeasure # 17, it is recommended that the NO TURN ON RED signs be replaced by NO RIGHT TURN ON RED ARROW. This countermeasure would therefore involve replacing the existing NO TURN ON RED signs by larger signs – NO RIGHT TURN ON RED ARROW.

This crash countermeasure is designed to reduce violations of the southbound right turn restrictions at the US1/Busway intersections. Increasing the size of these signs could improve their visual impact and reduce right turn on red violations. This is supported by research conducted by Zegger and Cynecki in 1986 (reference 9). Hence, it is recommended that the existing NO TURN ON RED sign, installed at the upstream location and on the mast arm, be replaced by a special size sign - NO RIGHT TURN ON RED ARROW (see typical application in Appendix E). The special size sign would be approximately 30 inches wide by 48 inches high. This is a relatively low cost improvement estimated at approximately $ 750 for replacing each sign. The special size would be installed on the upright of the mast arm and not on the arm itself. Field investigations indicate that installing the sign on the upright would provide good visibility at all the US 1/Busway intersections.

19. **Install post mounted signals at stop line** ***(Recommended for immediate implementation)***




This countermeasure is expected to address both the conspicuity of the isolated intersections and violations of the southbound right turn on red restrictions, at the US 1 intersections. The use of a near-side post mounted signal would aid in making the isolated busway intersections more conspicuous and reinforce the location of the stop lines. It is recommended that the post mounted signals be installed close to the stop lines and the existing signs "STOP HERE ON RED" be mounted on the poles. The post mounted signals are also recommended for installation in the medians.


In the case of the US 1/Busway intersections, the post mounted signals would aid in reinforcing the southbound right turn on red restrictions. The recommended post mounted signals at these locations would also have a NO TURN ON RED ARROW sign (international symbol recommended) installed on the poles (see caption at left). The proposed intersection treatments are shown in Appendix E. The estimated cost for installation of a post mounted signal is $3,500.

20. **Install activated blank-out sign - NO RIGHT TURN** ***(Recommended for consideration after evaluation of immediate short term measures)***

An activated blank-out sign displays its message only when activated. When not activated, the sign face is blank. The use of these signs could reinforce the turn prohibition signs installed for the southbound right turn movement on US 1. Research by Zegger and Cynecki (reference 9) has also shown that the use of activated blank-out signs can reduce right turn on red violations and improve operational efficiency. The activated blank-out NO RIGHT TURN sign would be displayed only during the red arrow display for the southbound right turn movement. During other phases, when the right turn is permissible, the sign face would be blank. The use of the international no right turn symbol would be preferred for this sign. The cost of the activated blank-out sign is approximately $1600.00 per sign.

Activated blank-out signs have been certified for use by the Florida Department of Transportation. However, the signs certified by the State do not meet MUTCD standards for regulatory signs. The proposed signs could therefore not be used as regulatory traffic control devices. Notwithstanding, the proposed signs could be used along with standard regulatory devices to provide a supplemental message. It is recommended that the proposed activated blank-out signs be considered for use after evaluation of the recommended immediate short-term measures.

21. **Eliminate or reduce the number of signs - RIGHT LANE MUST TURN RIGHT** ***(Recommended for immediate implementation)***


At many of the US 1/Busway intersections, RIGHT LANE MUST TURN RIGHT signs are installed in locations where there are exclusive southbound right turn bays (see condition diagrams in Appendix A). In these conditions the RIGHT LANE MUST TURN RIGHT sign is unnecessary per MUTCD. These unnecessary signs can distract the driver's attention away from more important information on the roadway (i.e. NO TURN ON RED signs). Removing these unnecessary signs will allow drivers to focus on more critical information. This proposal is recommended for immediate implementation.

22. **Install louvers in signal heads for southbound through on US 1** ***(Not Recommended)***

This proposal is intended to reduce the visibility of the southbound through displays for drivers using the southbound through lanes. The basis for this proposal is that drivers in the southbound right turn lane may be unduly influenced by the southbound through signal indications. A disadvantage of the louvered indications is that they reduce the amount of light emitted for the signal face for the primary through movement. This condition could negatively impact safety at the intersection. The installation of louvers is therefore not recommended.

**23. Install special size sign - DO NOT STOP ON BUSWAY (*Not Recommended*)**

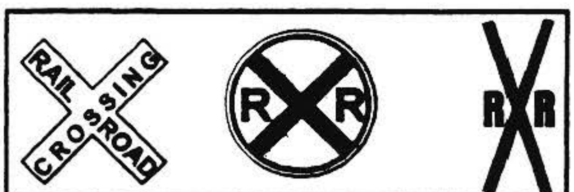
The basis for this proposal is to avoid crashes resulting from vehicles stopped in the busway crossing. The crash analysis does not provide any evidence indicating that this is a safety concern - the existing signs, DO NOT BLOCK INTERSECTION, appear to be adequate. The proposal is therefore not recommended.

**24. Install overhead lane use signs (*Not Recommended*)**

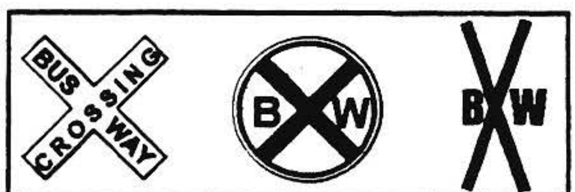
This proposal is intended to facilitate operational efficiency at the intersections. The recommendation is based on the premise that operational inefficiencies may be a contributing cause for crashes experienced at the intersections. The crash analysis does not support this assumption. The installation of overhead lane use signs is therefore not recommended.

***25.* Install busway signs and pavement markings similar as used for railroad crossings (*Not Recommended)***

This proposal involves installing busway signs and pavement markings similar to those used for at railroad crossings (see caption). The use of these proposed traffic control devices would not be consistent with the principle of uniformity of traffic control devices, as expressed in the MUTCD. Hence, the installation of these traffic control devices is not recommended.




Standard Railroad signs and markings




Suggested Busway Signs - Not Recommended for Installation.

**26. Relocate fire stations which are close to the busway intersections (*Not Recommended*)**

The crash analysis provide no evidence indicating that the signals for the fire station create any undue safety concern at the intersections. This proposal is therefore not recommended for implementation.

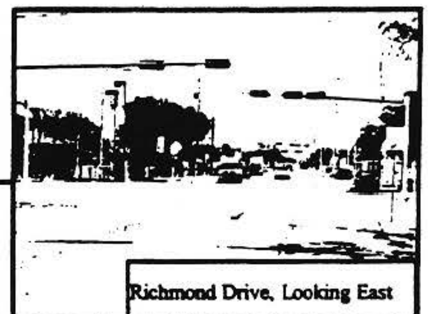
27. **Provide retro-reflective fluorescent yellow-green signs** ***(Not Recommended )***

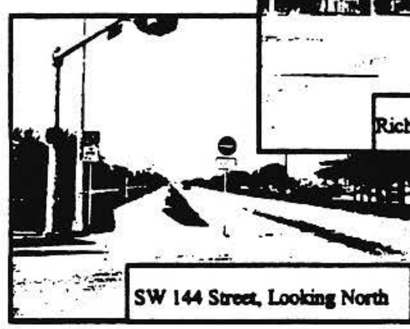
The basis for this proposal is that the use of fluorescent yellow-green material creates a more conspicuous sign as compared with the traditional retro-reflective materials. Fluorescent yellow-green signs have been approved in the MUTCD for use on pedestrian warning, bicycle warning, school bus and school warning signs. The fluorescent yellow-green material has not been approved for general use on warning signs. The use of yellow-green warning signs at the busway intersections would not be consistent with the principle of uniformity of traffic control devices, as expressed in the MUTCD. Installation of fluorescent yellow-green signs is therefore not recommended.

28. **Increase signal clearance intervals** ***(Not Recommended)***

Inspection of the existing signal timing sheets indicates that the existing clearance intervals are adequate based on County, ITE and FDOT standards. Further increases in the signal clearance intervals are not recommended.

29. **Install raised curbs at the busway intersections (Recommended for immediate implementation)**


Richmond Drive, Looking East

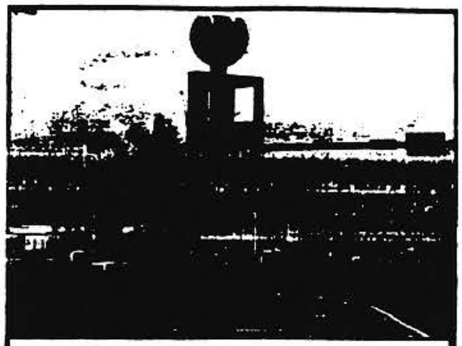

SW 144 Street, Looking North

Field investigations revealed that raised curbs are not installed along the corners at many of the busway intersections. Curbs help in defining the intersections and make them more conspicuous to road users. The curbs also provide protection for many of the signs currently installed at the corners of the intersection. Installation of raised curbs may have minor drainage impacts at the intersections. This improvement is recommended for immediate implementation. Installation of curbs is estimated to cost $10,000 to $15,000 per location.

30. **Increase intersection sight triangles** ***(Recommended where cost feasible)***

The geometric design standards published by the American Association of State and Highway Transportation Officials (AASHTO) recommends that the sight triangles at signalized intersections should be comparable to those specified for stop sign control. This would allow a driver adequate time to respond appropriately to any conflicting traffic. Many of the busway intersections have limited sight triangles due to various fixed objects, buildings and landscaping. This condition is not uncommon for the typical urban environment. Some improvements in sight triangle can be easily achieved by removing excess vegetation as recommended in Item 8. However, clearing the sight triangles to meet AASHTO's guidelines would require removing significant structures in many cases and would likely not be economically feasible.

One notable structure at each intersection is the MDT kiosk (see caption). The kiosks have a solid lower base section that is used as a billboard for posting advertisements. The kiosks are typically installed very close to the intersecting roadways as illustrated in the caption. The kiosks impact driver visibility at many of the intersections along the busway. The impact on driver visibility could be reduced by relocating the kiosks further north or south of the cross streets – outside the driver's sight triangle. The kiosks could also be redesigned to minimize visibility restrictions at the intersections, i.e. place the billboard section above driver eye height. It is recommended that the MDT consider reloacting and/or redesigning the kiosks in order to minimize visibility restrictions at the intersections.


MDT kiosk at US 1 & SW 200 Street.

**Medium Term Crash Countermeasures - Items 31 through 39.** These proposals generally conform to the traditional traffic signal control strategy, as described above. However these countermeasures would require further studies and/or development of detailed designs, prior to installation.

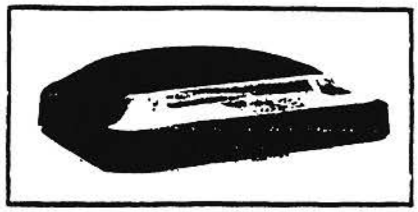
**31. Relocate bus stops to far side (downstream) of intersection (Not *Recommended*)**

As was mentioned in Item 3, the upstream bus stops do not facilitate efficient busway operations. It would therefore be desirable, from an operational standpoint, to relocate the bus stops to downstream locations. However, the crash analysis has shown that the downstream locations have a significantly higher crash risk than the upstream locations. Furthermore, it is our understanding that the existing bus stop locations were selected based on user needs and environmental impact considerations, amongst other issues. The impact of relocating the bus stops could best be assessed on a case-by-case study. Nonetheless, given the cost of relocation and the extent of potential negative impacts, it is unlikely that the relocation will prove beneficial to the overall busway operations. Relocating the bus stops is therefore not recommended.

**32. Install textured surface at the busway intersections (*Recommended for consideration as a medium term crash countermeasure*)**

The conspicuity of the busway intersections can be improved by providing a contrast in pavement texture and color at the intersections. This contrast in color and texture can be achieved by installing pavers at the intersection. This installation of textured surface is recommended for consideration as a medium term crash countermeasure. A disadvantage of installing pavers is a possible increase in maintenance costs. The surface skid resistance that is attainable from pavers would also need further investigations. Installation of road pavers is estimated at $70,000 per location.

33. **Install in-roadway amber-red lights** ***(Recommended for consideration as a medium term crash countermeasure)***



The MUTCD, year 2000 edition, has approved the use of in-road flashing yellow signals at pedestrian crossings. In-roadway lights have not been approved, to date, by the FHWA for general use at signalized intersections. In-roadway lights have been used, on an experimental basis, at selected signalized test site locations in the USA. Preliminary results from a test site in Anaheim, California have shown positive safety results. Red light violations were reduced by 50%, stop line violations cut in half and the number of stopped vehicles creeping over the stop line during the red phase was decreased. The results from the Anaheim test site indicate that the application of an in-roadway lighting system may significantly enhance safety conditions at the busway intersections. The in-roadway lights used at the Anaheim test site displayed a flashing yellow light during the yellow interval and steady red light during the red interval. Given that these in-roadway lights are not an FHWA approved device, the use of these devices at the busway would have to be implemented on an experimental basis, with the FHWA's approval. The use of in-roadway lights is recommended for consideration as a medium term crash countermeasure. The cost of installing an in-roadway lighting system is approximately $20,000 per location.

34. **Improve channelization for southbound right turn lane on US 1.** ***(Not Recommended)***

The basis for this proposed improvement is to create a physical separation between southbound right turns, such that their behavior is not influenced by the through movements. Given the small separation between US 1 and the busway, it is our opinion, that the proposed physical separation could not be effectively implemented. Channelization may also have significant drainage impacts and be costly to implement. Channelization of the southbound right turn movement is therefore not recommended.

35. **Install raised median on side street approaches** ***(Recommended where cost feasible)***

Raised medians aid in improving the conspicuity of the intersections and they provide ideal locations for installing supplemental traffic signs and signals. The small horizontal curves on short center medians would also help in making the intersections more conspicuous. In order to meet clear zone standards the medians, installed with curbs, should be a minimum of eight feet wide in order to accommodate supplemental traffic signs and/or signals. Preliminary investigations indicate that this minimum median width could be obtained at many of the side street approaches within the existing right of way. This crash countermeasure is recommended for consideration particularly at the isolated intersections and where no additional right-of-way would be required. Installation of the proposed medians would involve resolving access issues. This countermeasure is therefore recommend for medium term consideration. The intersections at SW 184 Street and 186 Street currently have unrestricted painted medians. These unrestricted medians could be replaced by raised medians and implemented on a short-term basis. Appendix E shows raised medians at these two locations which are recommended for immediate short term installation. The estimated cost for installing the raised medians is approximately is $5,000 per location.

**36. Increase road capacity by widening and/or increasing storage lengths (*Not Recommended for addressing safety concerns*)**

This proposal is intended to facilitate operational efficiency at the intersections. The recommendation is based on the premise that capacity constraints may be a contributing cause for crashes experienced at the busway intersections. The crash analysis does not show any supporting evidence indicating that the crashes at the busway are related to capacity constraints. Widening or increasing storage lengths is therefore not recommended as a measure for improving safety at the busway intersections.

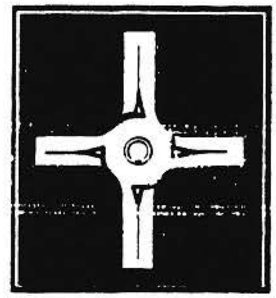
**37. Install Stop Sign Control at the Busway Intersections (*Signal Warrant Study recommend for consideration at isolated locations*)**

This recommendation is based on the premise that the overall operational safety of the busway intersections would be better served using stop sign control as opposed to signal control. Ideally, a signal warrant study should be conducted to assess the suitability of each location for signal control. It the signal warrant study showed that a signal is not justified, then stop sign control would be more appropriate. Conducting the signal warrant study would be in keeping with the requirements of the MUTCD, 2000. Notwithstanding, the possibility of stop sign control can eliminated at some locations based on the physical and operational characteristics of the intersections.

In the case of the US 1/Busway intersections, the busway is located in very close proximity to the US 1 corridor, the intersections have complex geometry, complex traffic turning movements and high conflicting volumes. Signal control is justified at these intersections since safety would certainly be compromised using stop sign control under these conditions.

In the case of the isolated locations, stop sigh control could prove to be adequate at locations where the cross street traffic is light and would provide adequate gaps for busses to safety cross the roadway without lengthy delays. At locations with heavy cross street traffic (e.g. Marlin Road) finding adequate gaps for buses to cross the street may be difficult, particularly during peak periods. Stop sign control could therefore create excessive delays and increase the potential for angle crashes at these locations. It is recommended that a signal warrant study be conducted at each isolated intersection in order to properly assess these issues. The use of signal control at all intersections also provides the following advantages: (1) it enables uniform control to be employed at the busway intersections – this could impact overall safety on the busway and (2) it facilitates optimum operational efficiency along the busway. These advantages would also need to be considered in the signal warrant study.

**38. Install roundabout at Busway Intersections (Further studies recommended)**



Roundabouts provide an alternative traffic control strategy for the busway intersections. Potential safety benefits from roundabouts include the following:

- The speed at which a vehicle is able to negotiate the circulating roadway is controlled by design. Therefore, by reducing the speeds of vehicles using the intersection, the severity of potential crashes may be sharply reduced.

- Vehicles approaching the roundabout are deflected by a splitter island, before entering the circulating roadway. The risk of right-angle type collisions (which tend to be more severe) is therefore minimized by the roundabout design.

Due to their design and operational characteristics, roundabouts would not be a feasible option for the US 1/Busway intersections. Roundabouts are also not likely to be feasible at any of the isolated intersections that experience moderate to heavy traffic volumes along the cross-streets. The low volume intersections at Hibiscus Street and Banyan Street provide the best opportunities for installation of roundabouts. Possible drawbacks to the installation of roundabouts include the following:

- Right-of-way. Design requirements for a roundabout generally require significantly more right-of-way than a corresponding four-way signal control intersection. It is therefore expected that additional right-of-way would be required to install roundabouts at the intersections.

- Driver familiarity. Roundabouts are rarely used for traffic control in Mimai-Dade County. Many drivers are therefore be unfamiliar with its operating characteristics, i.e. vehicles entering the roundabout on all approaches are required to yield to vehicles within the circulating roadway. This unfamiliarity with the use of roundabouts may raise safety concerns at the intersection.

- Pedestrians. The geometric requirements of the roundabout would result in increased walking distances for pedestrians at the intersection.

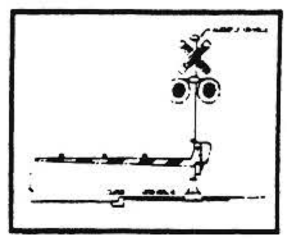
Detailed geometric designs are required in order to adequately assess right-of-way requirements and the feasibility of installing a roundabout at the intersections. It is recommended that further studies be conducted to address the feasibility of installing a roundabout at the intersections.

39. **Redesign intersection geometry (Further studies recommended)**

The aim of this potential countermeasure is to redesign the geometric layout of the busway intersections using design features that would aid in controlling vehicular speeds and movements – thereby improving safety conditions at the intersection. This could possibly be done by incorporating some conventional traffic calming features in the design of the intersections, i.e., realignment of intersection approaches, using islands to create deflections, intersection narrowing, etc. The feasibility of implementing measures such as these would be dependent on right-of way availability. Access considerations, including emergency vehicles, would also play an important role. Detailed intersection designs would be needed to adequately assess these potential improvements. Further studies are therefore recommended for evaluating these measures. Nonetheless, these types of improvements are most likely to be applicable only at the low volume isolated busway intersections.

**Long Term Crash Countermeasures, Items 39 through 43.** These proposals are recommended for consideration after evaluation of sort term and medium term crash countermeasures.

40. **Install flashing-light signals, similar as used for railroad crossings (*Recommended for consideration as a long term crash countermeasure*)**



This proposal involves installing flashing-light signals, similar as used for railroad crossings. When vehicle a is detected on the busway approach, the two horizontally mounted red signals would flash alternately – warning side street traffic to yield right-of-way to the approaching vehicle on the busway. This type of device has a strong visual impact and would aid in making the isolated busway intersections more conspicuous. However, the operation of this traffic control device, conflicts with the existing traffic signal controls installed at the busway intersections. This device should therefore not be installed while using the current traffic signal control strategy. Installation of flashing-light signals is recommended for long term consideration when a railroad type signal control strategy may be adopted for the busway intersections. Estimated cost for this countermeasure is $3,500.00 (lights only, gates not included)

41. **Install gates at the busway crossings (*Recommended for consideration as a long term crash countermeasure*)**

Automatic gates are typically used to supplement flashing-light signals for traffic control at railroad crossings (see caption under Item #35). The installation of automatic gates would provide a physical barrier for enforcing right-of-way at the busway intersections. Operational efficiency, would be a principal concern when using gates at the busway intersections. The installation of gates would also be a relatively high cost improvement (approximately

$15,000 to $20,000 per gate). The use of gates would also not be consistent with a traffic signal control strategy. The use of gates is recommended for long term consideration when a railroad type signal control strategy may be adopted at the intersections.

42. **Install signals similar as used for moveable bridge (*Recommended for consideration as a long term crash countermeasure*)**


This proposal involves installing vertically mounted flashing red signals with sign STOP HERE ON RED – similar as used for traffic control at a moveable bridge. The red signals would flash alternately when a vehicle is detected on the busway. This type of device also has a strong visual impact and would aid in making the isolated busway intersections more conspicuous. However, the operation of this device conflicts with the existing traffic signal controls installed at the busway intersections. This device should therefore not be installed while using the current traffic signal control strategy. This device may be considered in the future, for a railroad type signal control strategy. Estimated cost for this countermeasure is $3500.00.

43. **Install grade separated intersections (*Recommended for consideration as a long term improvement strategy*)**

Grade separation would provide the ultimate solution for the busway intersections, from a safety stand point. Grade separation is however expensive to implement and would have significant social and environmental impacts. It is estimated that grade separation would cost approximately $10 Million dollars per location. Grade separation is recommended for consideration as a long term crash countermeasure.

## 6. IMPLEMENTATION AND EVALUATION OF CRASH COUNTERMEASURES

The South Miami-Dade Busway is a unique facility in the United States. Information is therefore lacking with regards to the safety characteristics of at-grade busway intersections, traffic controls at these intersections and potential benefits of crash countermeasures. Hence, there is uncertainty regarding the expected crash reduction that may be realized from the countermeasures recommended in Section 5 of the report. It is therefore important that evaluation procedures for the countermeasures be included as an integral component of the overall process for implementation of the countermeasures. The evaluation process would enable the effectiveness of the countermeasures to be quantified and would facilitate making rational decisions in the future. The evaluation of the short term measures would also provide a decision basis for implementation of medium or long-term crash countermeasures.

A detailed safety evaluation plan should be developed for evaluating the crash countermeasures. The safety evaluation plan should include both crash-based evaluation procedures and non-crash-based evaluation procedures. These procedures are described below.

Crash-Based Safety Evaluation

Crash-based safety evaluation involves procedures for evaluating changes in the number, rate and severity of crashes resulting from the implementation of the countermeasures. This process requires the evaluation of annual crash statistics before and after the implementation of the countermeasures. This is a relatively long-term process since the period of evaluation should be a minimum of three years before implementation and three years after implementation. However, the crash-base evaluation process provides the ultimate effectiveness of the countermeasures. Measures of effectiveness that would be evaluated during this process include: (1) the frequency of crashes before and after implementation, (2) crash rates at the intersections – crashes per million entering vehicles and (3) the severity of crashes – fatal, injury or property damage. An economic benefit/cost analysis would also be performed as part of this process.

Non-Crash-Based Safety Evaluation

Non-crash-based safety evaluation involves procedures for evaluating changes in traffic operational or behavior characteristics that can be indicators of the effectiveness of the countermeasures. This includes evaluating conflicts/violations at the intersections before and after implementation of the countermeasure. In the case of the US 1/Busway intersections, a study of the southbound right turn on red violations, before and after implementation, would provide a useful indication of the effectiveness of the crash countermeasures. Similarly, at the isolated busway intersections, a study of red light violations along the side streets would provide a reasonable measure of effectiveness for the crash countermeasures implemented at those locations. An advantage of the non-crash based safety evaluation process is that the evaluation can be performed as soon as traffic adjusts, following the implementation of the countermeasures. This process facilitates speedy evaluation of countermeasures at the intersections. The procedure also allows for gathering a large volume of data from which statistically reliable results can be derived. In contrast, for the crash-based safety evaluation, the number of crashes experienced at the busway intersections is relatively low, thereby making it more difficult to obtain statistically significant results.

Given the uniqueness of the Miami-Dade busway, the crash reduction for the proposed improvements should best be assessed by following the procedures discussed above. Nonetheless, studies have shown that the implementation of countermeasures designed to enhance the conspicuity of intersections, have yielded crash reductions of approximately 43% for angle type crashes. *(source: Accident Reduction Factors, NYS DOT, 1995)*. Crash reductions of this order may therefore be realized at the busway intersections.

## 7. CONCLUSIONS AND RECOMMENDATIONS

The following findings, conclusions and recommendations were reached from the study:

### Findings

1. The existing busway has nineteen intersections - all of which are signalized. The busway intersections may be categorized as follows based on similarities in traffic control and geometric layout:

   - US 1/Busway Intersections – Locations where the busway is immediately adjacent to US 1 and both roadways are controlled as a single intersection. Intersections in this category are: SW 104 Street, SW 112 Street, SW 124 Street, SW 128 Street, SW 132 Street, SW 136 Street, SW 144 Street, SW 152 Street, SW 160 Street, Caribbean Boulevard and SW 112 Avenue.

   - Isolated Busway Intersections – Locations where the busway intersections operate independently. Intersections in this category are: SW 168 Street, Banyan Street, Hibiscus Street, SW 184 Street, SW 186 Street and Marlin Road.
   - Other Busway Intersections - Locations not classified as US 1/Busway intersections or Isolated intersections. This category includes SW 98 Street and Datran Boulevard.

2. A total of 67 crashes involving buses were recorded at the busway intersections during the period February 1997 through November 2000. Forty-nine (73%) of these crashes involved injuries and two crashes resulted in fatalities.

3. The crash rate experienced at the isolated busway intersections was approximately seven times greater than at the US1/Busway intersections. Isolated intersections experienced a crash rate of approximately 0.410 crashes per million entering vehicles (MEV) whereas US 1/Busway intersections experienced a crash rate of approximately 0.061 crashes per MEV.

4. Locations experiencing the highest crash rates (i.e. crashes per MEV averaged over the study period) were (see Table 7):

   - SW 186 Street - 0.815 Crashes per MEV
   - SW 168 Street - 0.467 Crashes per MEV
   - Marlin Road - 0.425 Crashes per MEV
   - Banyan Street - 0.338 Crashes per MEV
   - Hibiscus Street - 0.312 Crashes per MEV

5. The predominant crash pattern at isolated intersections involved eastbound vehicles on the side street approaches – 82% of the crashes were of this type (see Figure 8).

6. The busway intersections are equipped with advanced loop detectors. When the advanced loop detectors are activated, vehicles traveling on the busway are capable of receiving a green signal on arriving at the intersection while maintaining the posted speed limit of 45 m.p.h. The crash rate at the isolated busway intersections was approximately seven times higher when the advanced loop detectors were activated as compared to when the detectors were deactivated.

7. The predominant crash pattern at US 1/Busway intersections involved southbound right turning vehicles coming from US 1 – 73% of the crashes were of this type (see Figure 7).

8. Right turn on red violations are considerably high at the US 1/Busway intersections. A limited study at three intersections showed that amongst those motorists who had an opportunity to commit a right turn on red violation, approximately 12.5 percent violated the turn restrictions.

9. A relatively high percentage of the crashes experienced at Marlin Road occurred during wet road conditions. Twenty-nine percent of the crashes at Marlin Road occurred during wet conditions whereas wet weather exposure at the location is in the order of eight percent.

10. At many of the intersections, the signs located within the limits of the clear zone are not protected by curbs or any other roadside barrier.

11. Visibility to some existing signs on the approaches to the intersections is restricted by overgrown vegetation.

12. The installation of some of the existing busway crossing signs is not consistent with the Manual on Uniform Traffic Control Devices (MUTCD). Many of the existing signs are installed more than 100 feet in advance of the bus crossing whereas the MUTCD stipulates that such signs must be installed at or as close as possible to the crossing.

**Probable Causal Factors**

Probable causal factors, which were identified for crashes experienced at the busway intersections, include the following:

1. The existing traffic control methods and devices may not provide optimum operational efficiency and safety commensurate with the unique conditions experienced at the busway intersections.

2. The isolated busway intersections are inconspicuous in nature and this could be a contributing cause as motorists may unintentionally disregard the traffic control devices installed at the intersections.

3. The signals at the intersections do not have a commanding visual impact and this could be a contributing cause for motorists disregarding the signal displays at the intersections.

4. Wet weather surface skid resistance may be a contributing cause at Marlin Road, as indicated by the relatively high percentage of wet weather crashes at this location. A friction test is recommended to verify the adequacy of the surface skid resistance at this location.

5. Violations of the southbound right turn on red restrictions at the US1/Busway intersections may be a contributing cause given that the predominant crash pattern at these locations involved southbound right turns.

**Recommended Short Term Crash Countermeasures**

Short term countermeasures are relatively low cost crash improvements which may be implemented immediately. The recommended short term crash countermeasures are consistent with the traditional traffic signal control strategy, currently installed at the intersections. Recommended short term crash countermeasures are shown in Appendix E. They include the following:

Short term crash countermeasures recommended for all busway intersections

1. Design advanced loop operation for bus approach speed of 15 m.p.h. This proposal would involve implementing changes to the operation of the advanced loops which would require buses to reduce their approach speeds to 15 m.p.h on the approaches to the intersection. Supplemental signs, markings and driver training are recommended for the effective implementation of this countermeasure. This measure is expected to reduce both the frequency and severity of potential crashes at the intersections.

2. Modify placement of advanced loops at locations with near side bus stops. This improvement is expected to improve the operational efficiency of the intersections by avoiding the unnecessary transfer of green time to the busway when there is no demand. This countermeasure would also require the buses to considerably reduce their approach speeds at the intersections which would be consistent with the recommendations under bullet # 1 above.

3. Installation of additional Busway Crossing Warning signs. This countermeasure involves installing additional busway crossing ahead signs in the raised central median of the cross-street approaches - where available. It is also recommended that an educational plaque (BUSWAY) be added to the busway crossing warning signs. Furthermore, it is recommended to remove the existing busway crossing signs that are not located in close proximity to the intersections.

4. Removal of overgrown vegetation. This is an ongoing maintenance activity which will

improve signal/sign visibility and sight triangles at the intersections.

Additional short term countermeasures recommended for isolated busway intersections

1. Installation of post mounted signal with STOP HERE ON RED sign. This countermeasure requires installing post mounted traffic signals at the stop lines on the cross streets of the isolated intersections. Supplemental signs, STOP HERE ON RED, would also be installed on the signal poles. This countermeasure is expected to improve the conspicuity of the isolated intersections.

2. Installation of backplates on the signal heads for eastbound and westbound approaches. This countermeasure will aid in improving the visibility of the signal displays at these locations.

3. Installation of raised curbs on the corners of the intersections. This countermeasure is expected to improve the conspicuity of the isolated intersections and provide protection for signs that are currently installed within the clear zone limits. This improvement will also enhance pedestrian safety at the intersections.

4. Install Busway Signal Ahead signs. This countermeasure involves installing SIGNAL AHEAD signs with the supplemental plate, BUSWAY, on the cross-street approaches of the isolated intersections. The proposed sign would replace the existing BUSWAY AHEAD signs. This countermeasure is expected to aid in addressing the inconspicuous nature of the isolated intersections.

Additional short term crash countermeasures recommended for US1/Busway intersections

1. Installation of post mounted signal. This countermeasure requires installing post mounted traffic signals at the stop lines for the southbound right turn movement on US 1. Supplemental signs, NO RIGH TURN ON RED ARROW (of international symbol recommended), would also be installed on the signal poles. This countermeasure is expected to aid in reducing violations of the right turn on red restrictions on US 1.

2. Installation of NO RIGHT TURN ON RED ARROW signs for the southbound right turn movement on US 1. This countermeasure involves replacing the existing NO TURN ON RED signs with NO RIGHT TURN ON RED ARROW sign (international symbol recommended). This improvement is expected to clarify any misunderstanding with regards to the red arrow signal displays and reduce right turn on red violations.

3. Installation of special size (30" x 48") NO RIGHT TURN ON RED ARROW signs in advance of the stop line for the exclusive southbound right turn lane. This will require replacing the existing standard size sign with the special size sign. This improvement is expected to aid in reducing right turn on red violations. This recommendation is discussed in detail under Countermeasure # 17 on page 39 of the report.

4. Removal of unnecessary RIGHT LANE MUST TURN RIGHT signs on US 1. This countermeasure will remove unnecessary distractions for drivers approaching the intersection. The recommended improvement is consistent with guidelines specified in the MUTCD.

**Medium Term Crash Countermeasures**

Medium term crash countermeasures are recommended for consideration after installation and evaluation for the short term measures. Crash countermeasures recommended for medium term consideration include the following:

1. Installation of raised central island on the side street approaches of isolated intersections. This countermeasure would aid in improving the conspicuity of the intersections while providing an ideal location for additional signage. This countermeasure would aid in improving the conspicuity of the intersections.

2. Installation of textured road surface at the isolated busway intersections.

3. Installation of in-roadway amber-red lights. This improvement involves installing a lighting device, embedded in the roadway at the stop line, which would display a flashing yellow light during the yellow interval and a steady red light during the red interval. This device is yet to be approved by the Federal Highway Administration (FHWA). However, results from a test site in Anaheim California have shown a 50% reduction in stop line violations.

**Long Term Crash Countermeasures**

Long term crash countermeasures are recommended for consideration after installation and evaluation of the short term and medium term measures. Crash countermeasures recommended for long term consideration include the following:

1. Installation of flashing signals, similar as used for railroad crossings.
2. Installation of automatic gates, similar as used for railroad crossings.
3. Installation of flashing signals, similar as used for moveable bridges.
4. Installation of grade separated intersections.

**Implementation and Evaluation of Countermeasures**

The South Miami-Dade Busway is a unique facility in the United States. Hence, there is uncertainty regarding the expected crash reduction that may be realized from the countermeasures implemented at the intersections. It is therefore important that the evaluation procedures for the countermeasures be included as an integral component of the overall process for implementation of the countermeasures. An adequate evaluation process would enable the effectiveness of the countermeasures to be quantified and would facilitate making rational decisions in the future. The evaluation of the short term measures would also provide a decision basis for implementation of medium or long-term crash countermeasures.

It is recommended that the evaluation of the crash countermeasures include both crash-based techniques and non-crash based techniques. The crash-based techniques would involve evaluating actual crash frequencies, rates and severity before and after implementation of the improvements. This is a relatively long-term process that would provide the ultimate effectiveness of the countermeasures. Non-crash based techniques involve evaluating changes in conflicts/violations resulting from the implementation of the countermeasures. The use of non-crash based techniques allows for evaluating the countermeasures as soon as traffic has adjusted to the changes in traffic control and this would facilitate a quick assessment of the countermeasures.

**Enforcement**

The crash analysis indicated that most of the collisions at the busway intersections involved commuter traffic – 91% of the drivers involved reported addresses in Miami-Dade County. It is therefore likely that many motorists knowingly violated the traffic regulations at the intersection. Enforcement could therefore play an important role in reducing crashes at the intersections. The results from the market research, conducted by PMG and Associates, also concluded that increased enforcement could significantly impact crashes at the busway intersection.

## REFERENCES


1. Safety Qualitative Assessment, SR5/US-1 South Dade Busway at SW 168, 184, 186 Streets and Marlin Road, Miami-Dade County, Florida, FDOT, March 3, 2000.

2. At Grade Busway Study, Lehman Center for Transportation Research, Florida International University, December 1997

3. An Evaluation of the Lightguard Pedestrian Crosswalk Warning System, FDOT Safety Office, June 1999

4. Improvement of Busway Intersections, Miami Dade Transit Agency, July 5, 2000

5. Evaluation of the Use of Strobe Lights in Red Lens of Traffic Signals, Virginia Transportation Research Council, FHWA, November 1994

6. Miami-Dade Busway, Preliminary Analysis of Improvement recommendations, Carlos M. Cejas

7. Second Progress Report "Before and After" Data results, Stop Line LED Lights Experimental Traffic Control Devices, California Traffic Control Devices Committee, August 2000

8. US 1 Busway Phase 1 (SW 104th Street to SW 112th Ave.), Traffic Signal Mitigation Analysis, FDOT, July 2000

9. Evaluation of Crash Countermeasures related to RTOR accidents that involve pedestrians, Zegger CV; Cynecki MJ, 1986.

10. Methods of Increasing Pedestrian Safety at Right Turn-on Red Intersections, User Manual, Zegger CV; Cynecki MJ; Mcgee HW, 1986

11. Highway Safety Evaluation, Procedural Guide, Federal Highway Administration, 1981.

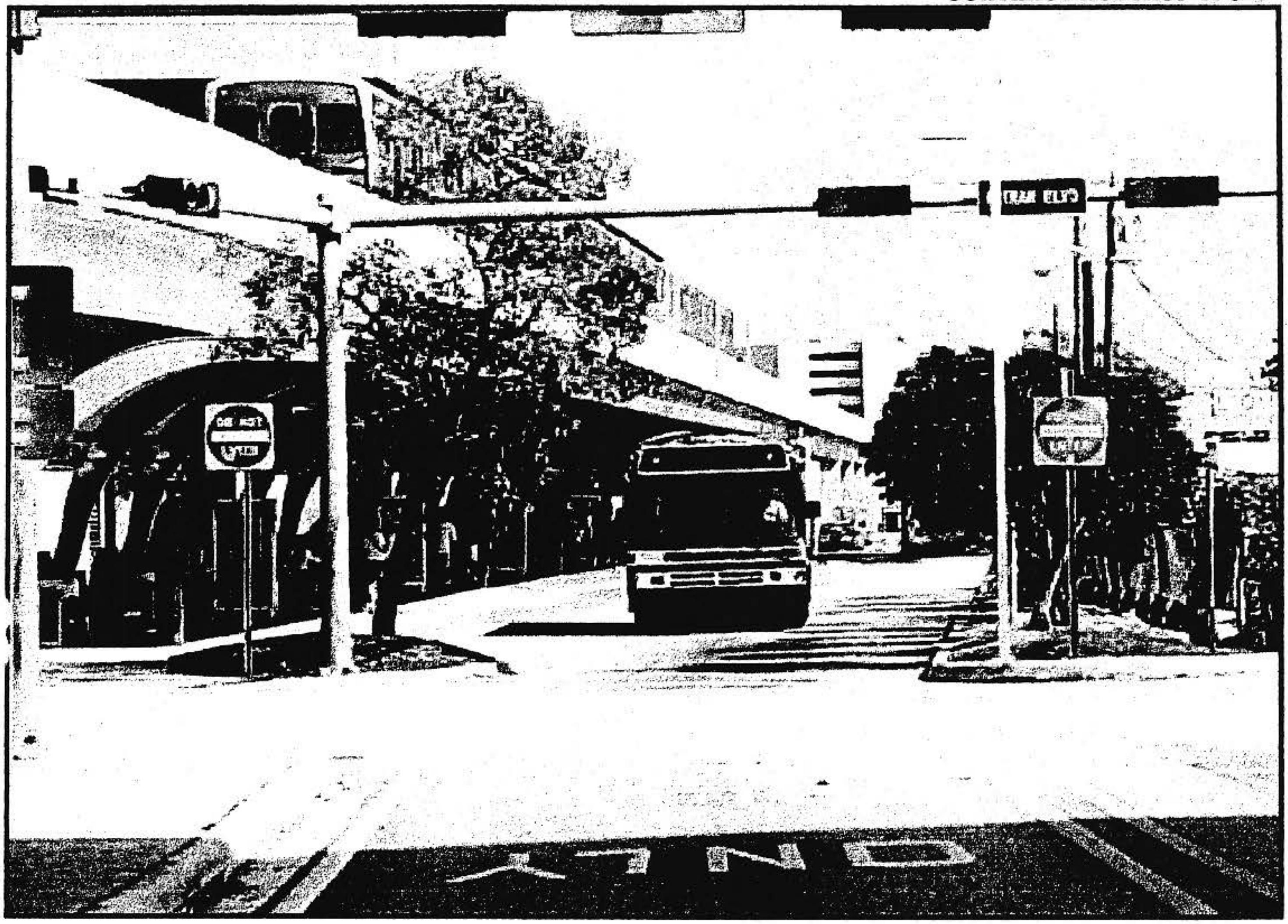
12. Older Driver Highway Design Handbook, FHWA, 1998.

# SOUTH MIAMI-DADE BUSWAY SAFETY STUDY

## VOLUME 2 OF 2

## APPENDICES

CONTRACT NO.: TA97-TPS-4



PREPARED FOR

MIAMI-DADE TRANSIT

PREPARED BY

DMJM HARRIS

&

R. ALEMAN & Associates, Inc. CONSULTING ENGINEERS

**FINAL REPORT**

08/13/2001

# APPENDIX A

# Existing Conditions Busway Intersections

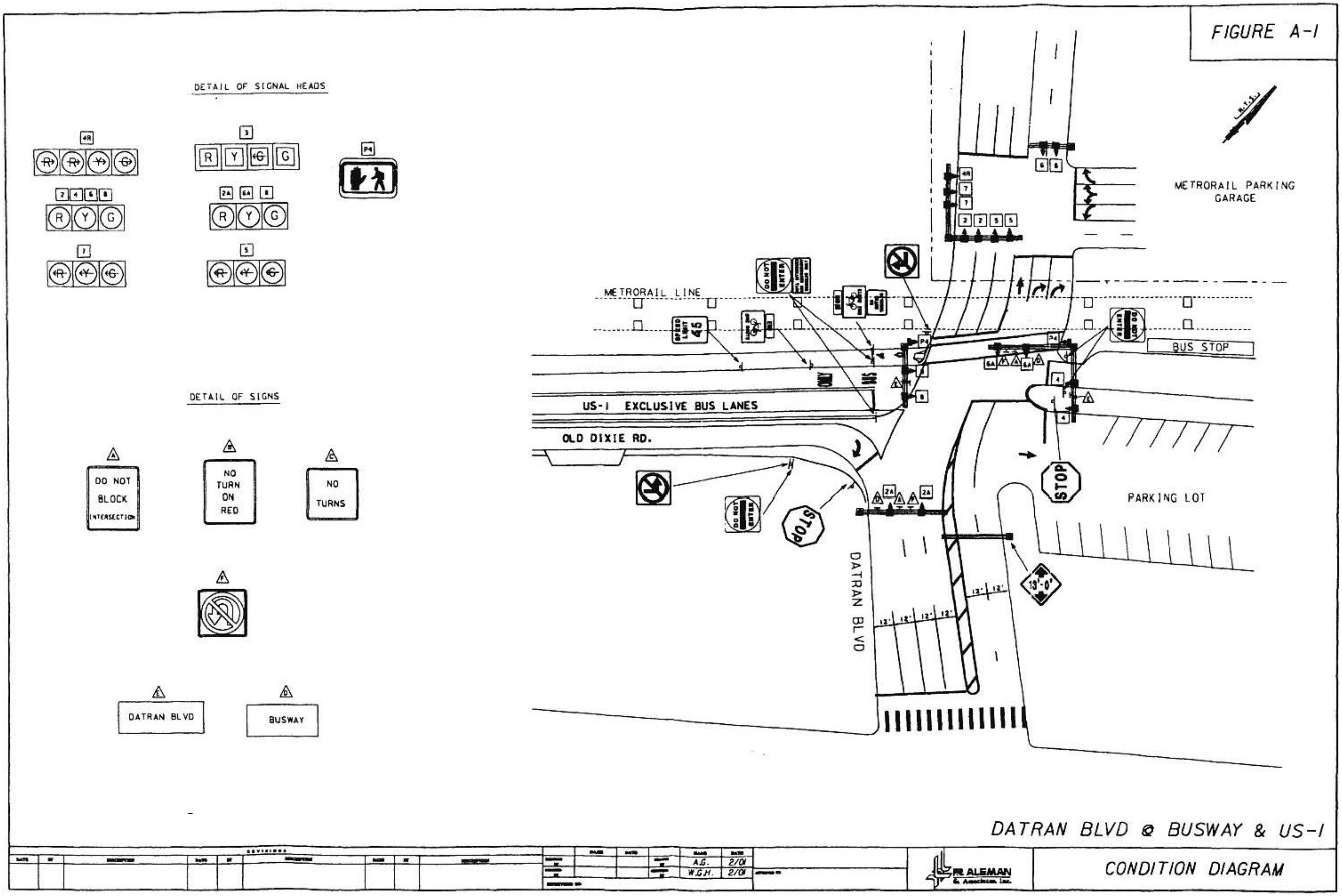
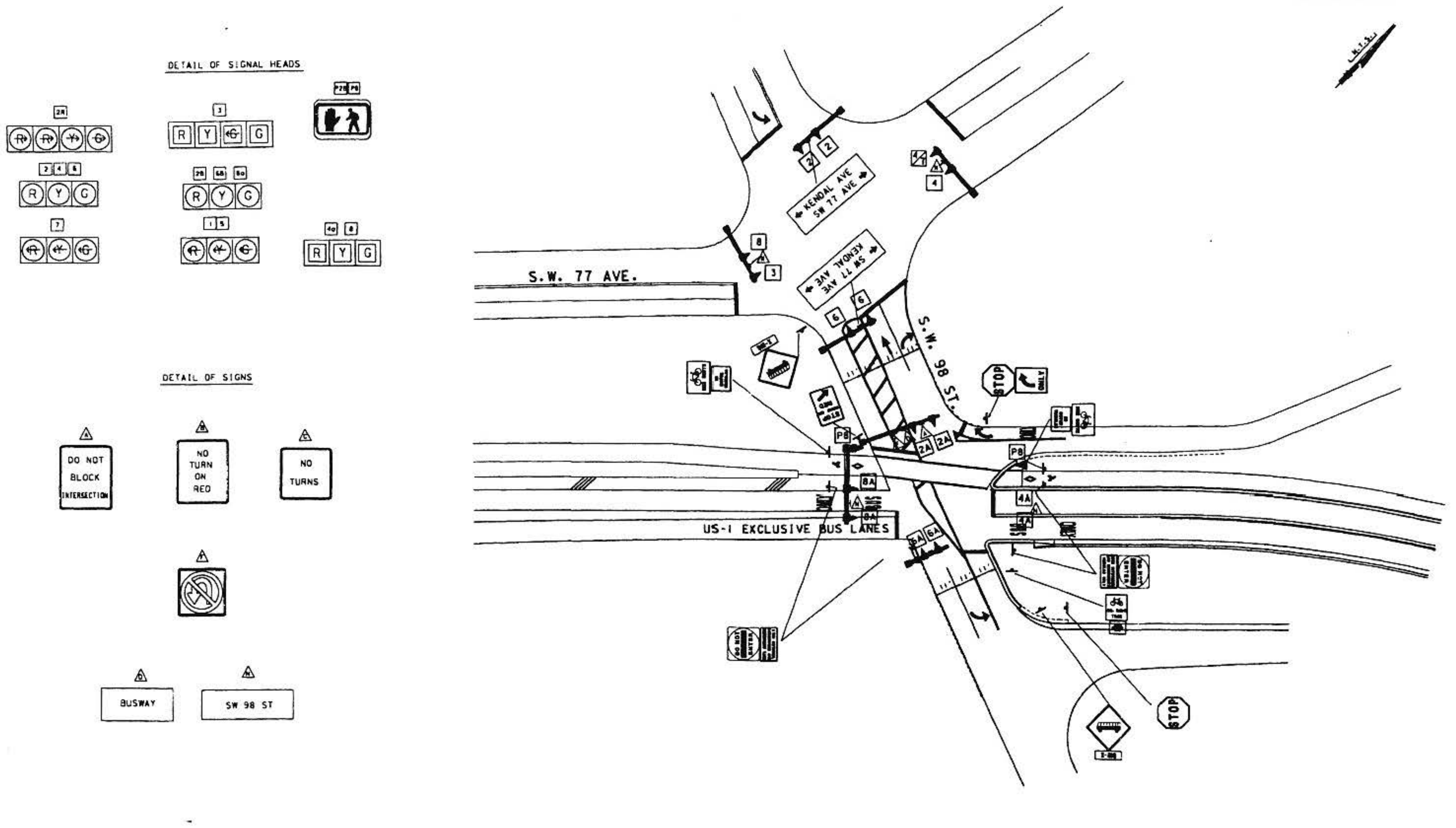


FIGURE A-1
DETAIL OF SIGNAL HEADS
DETAIL OF SIGNS
DO NOT BLOCK INTERSECTION
NO TURN ON RED
NO TURNS
DATRAN BLVD
BUSWAY
METRORAIL PARKING GARAGE
METRORAIL LINE
BUS STOP
US-1 EXCLUSIVE BUS LANES
OLD DIXIE RD.
PARKING LOT
DATRAN BLVD
STOP
DATRAN BLVD @ BUSWAY & US-1
A.G. 2/01
W.G.H. 2/01
PR ALEMAN & Associates, Inc.
CONDITION DIAGRAM

FIGURE A-2



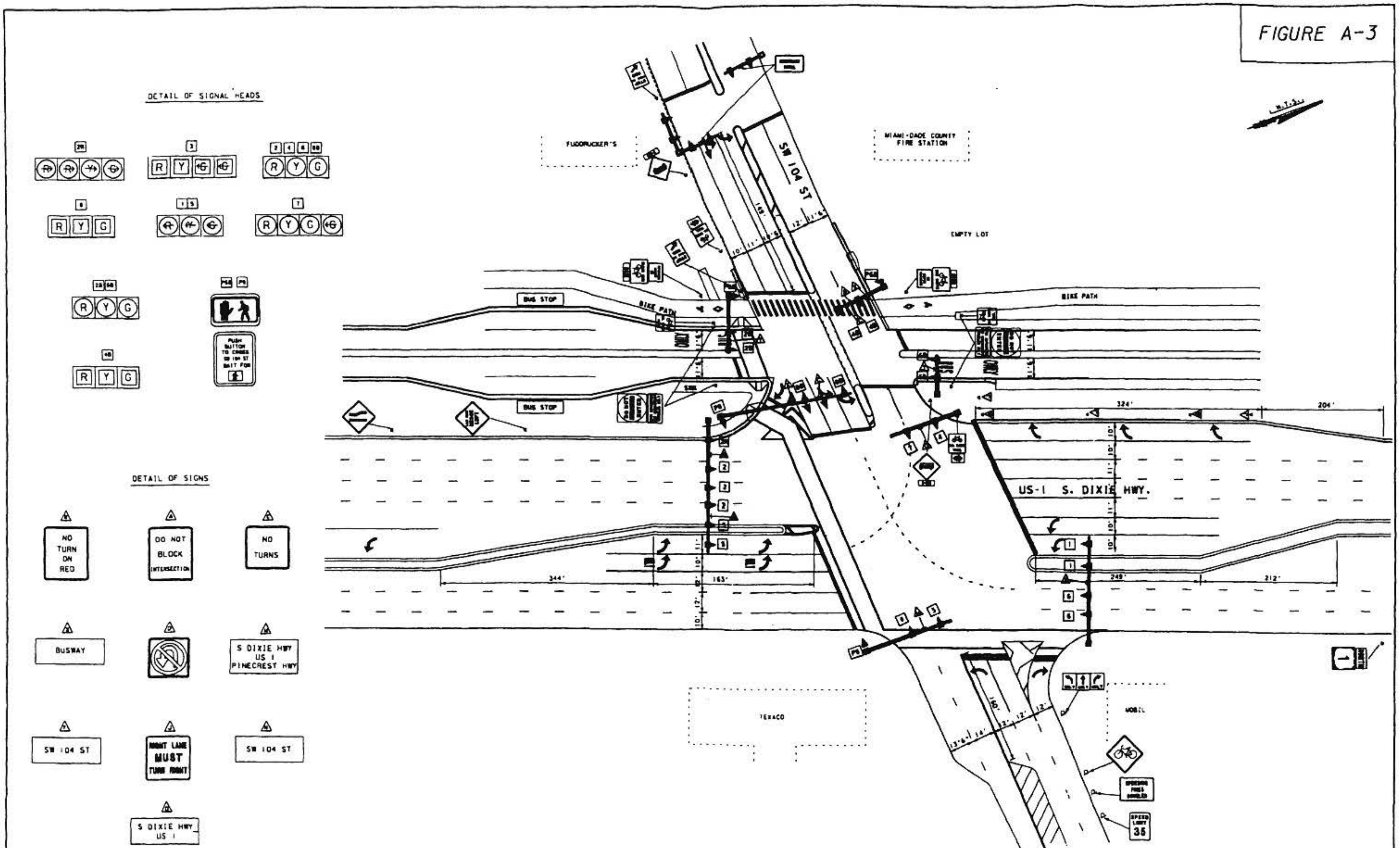

SW 98 STREET @ BUSWAY

| | | | |
|---|---|---|---|
| A.G. | 2/01 | | |
| W.G.H. | 2/01 | | |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

# FIGURE A-3

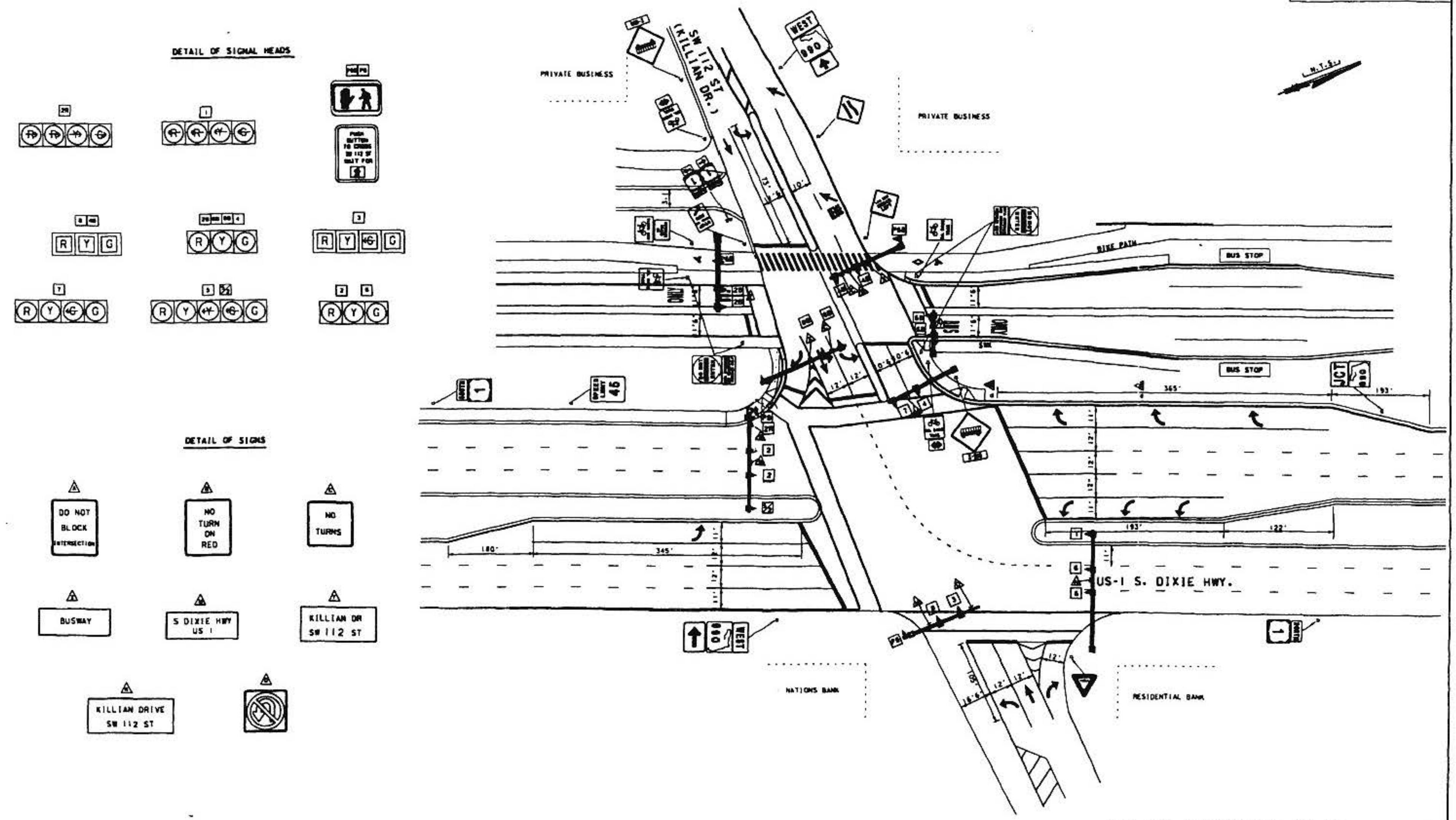



SW 104 STREET @ BUSWAY & US-1

CONDITION DIAGRAM

R. ALEMAN & Associates, Inc.

| | | |
|---|---|---|
| DRAWN | A.G. | 2/01 |
| CHECKED | W.G.H. | 2/01 |




SW 112 STREET/ KILLIAN DRIVE @ BUSWAY & US-1

| | |
|---|---|
| A.G. | 2/01 |
| W.G.H. | 2/01 |

PR ALEMAN & Associates, Inc.

CONDITION DIAGRAM

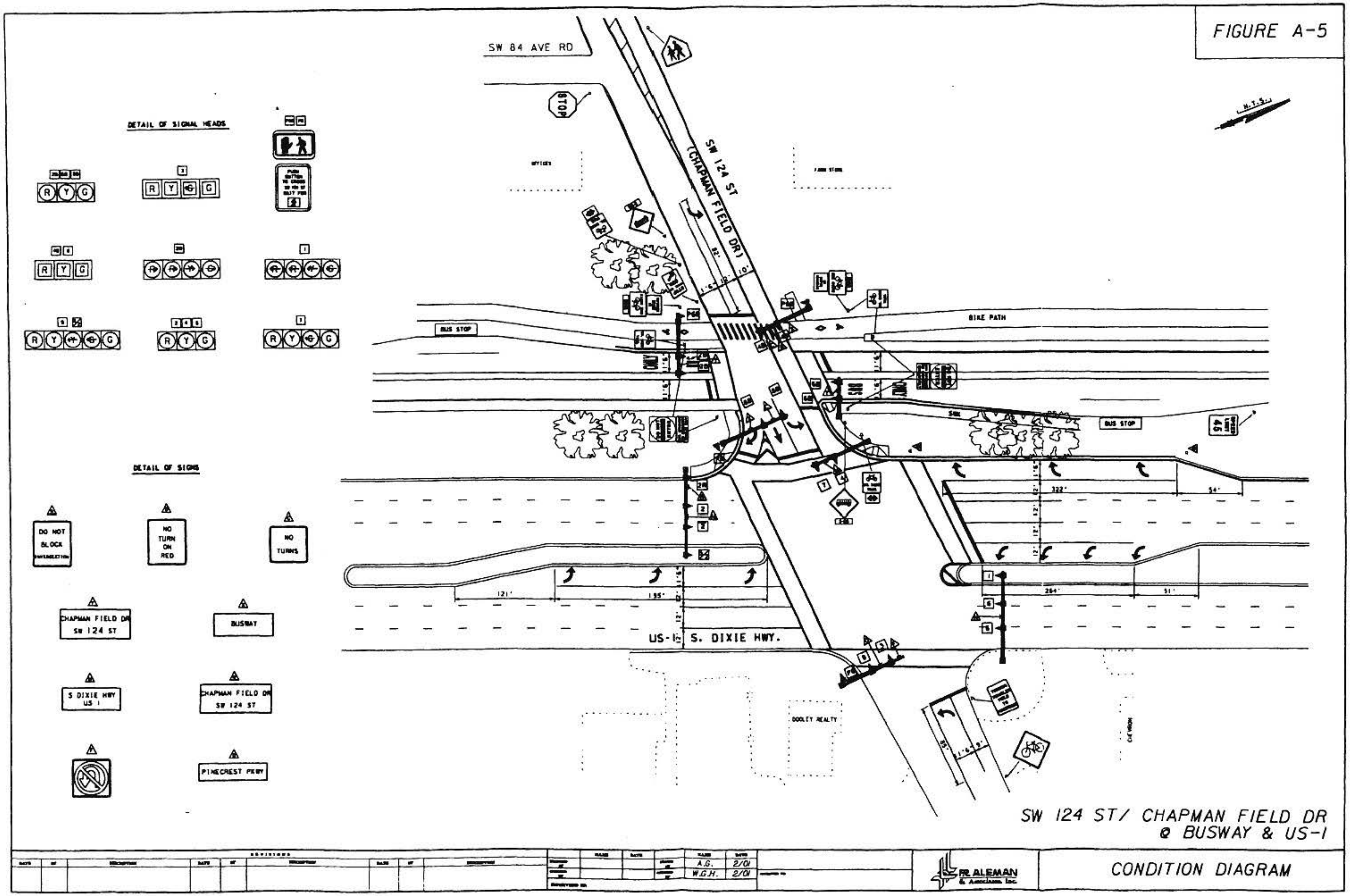
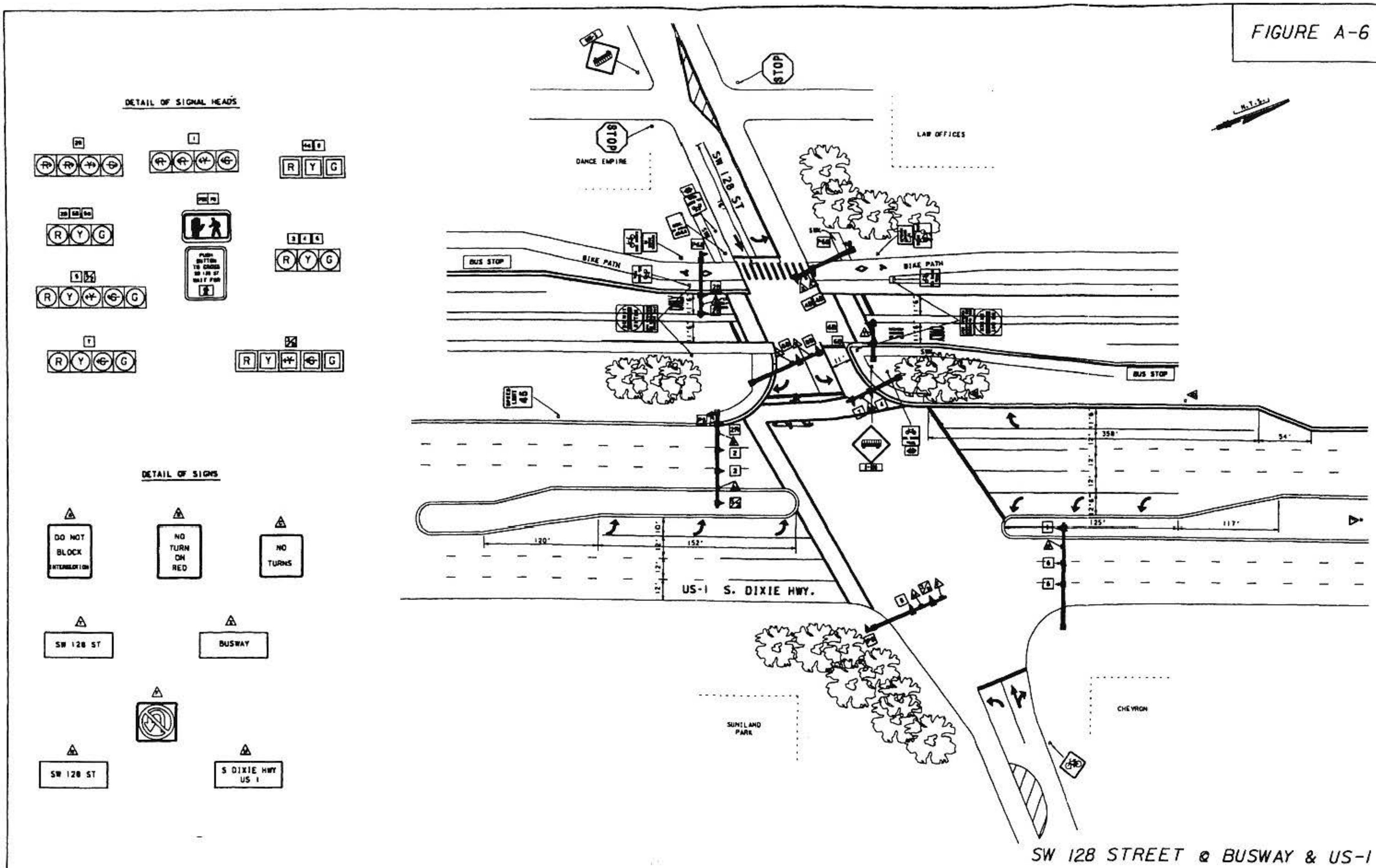


FIGURE A-5
SW 84 AVE RD
SW 124 ST
(CHAPMAN FIELD DR)
N.T.S.
DETAIL OF SIGNAL HEADS
DETAIL OF SIGNS
DO NOT BLOCK INTERSECTION
NO TURN ON RED
NO TURNS
CHAPMAN FIELD DR SW 124 ST
BUSWAY
S DIXIE HWY US 1
PINECREST PKWY
BUS STOP
BIKE PATH
US-1 S. DIXIE HWY.
DOOLEY REALTY
121'
195'
264'
51'
322'
54'
SW 124 ST/ CHAPMAN FIELD DR
@ BUSWAY & US-1
A.G. 2/01
W.G.H. 2/01
PR ALEMAN & Associates Inc.
CONDITION DIAGRAM

FIGURE A-6



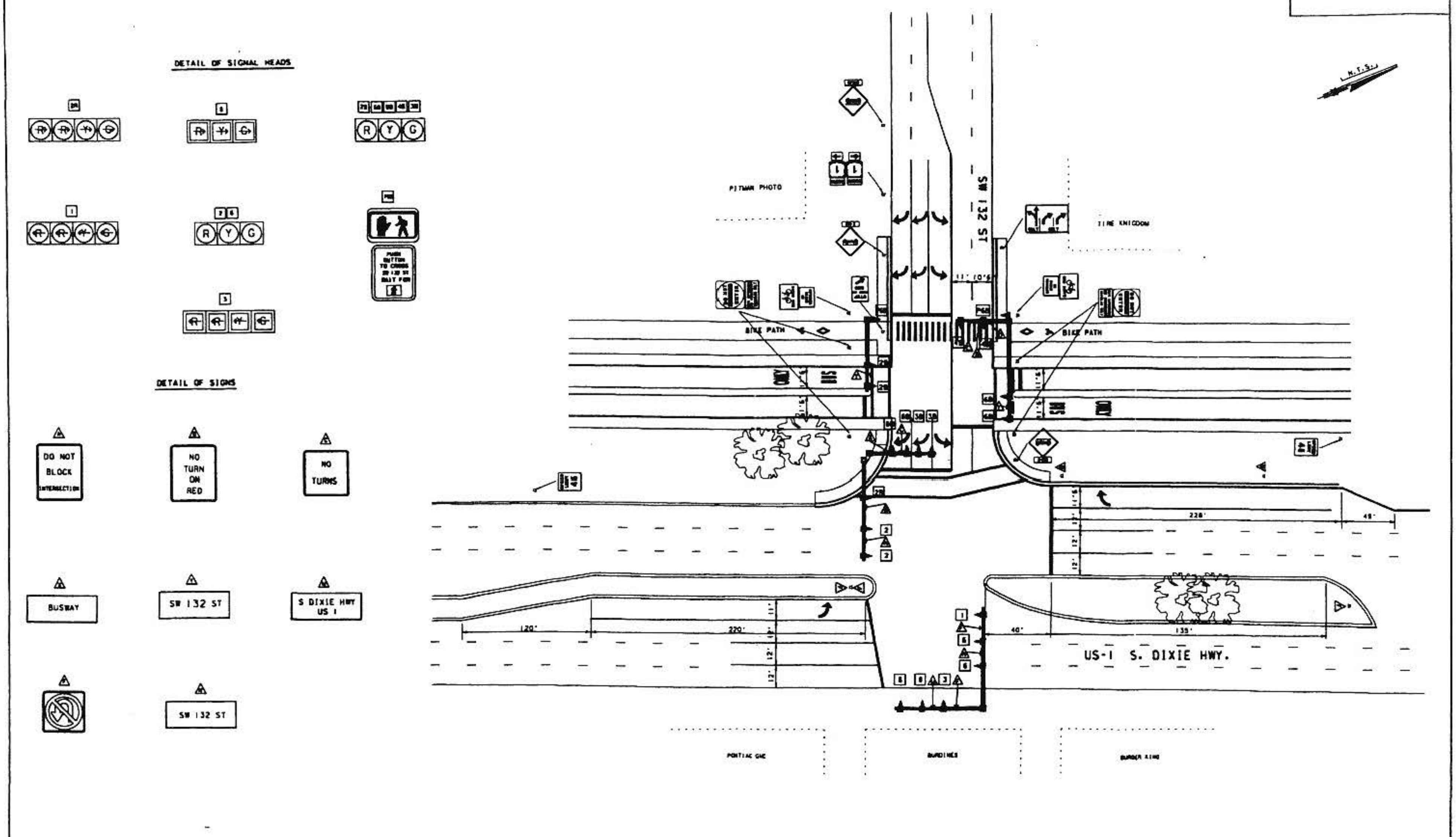

SW 128 STREET @ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE A-7



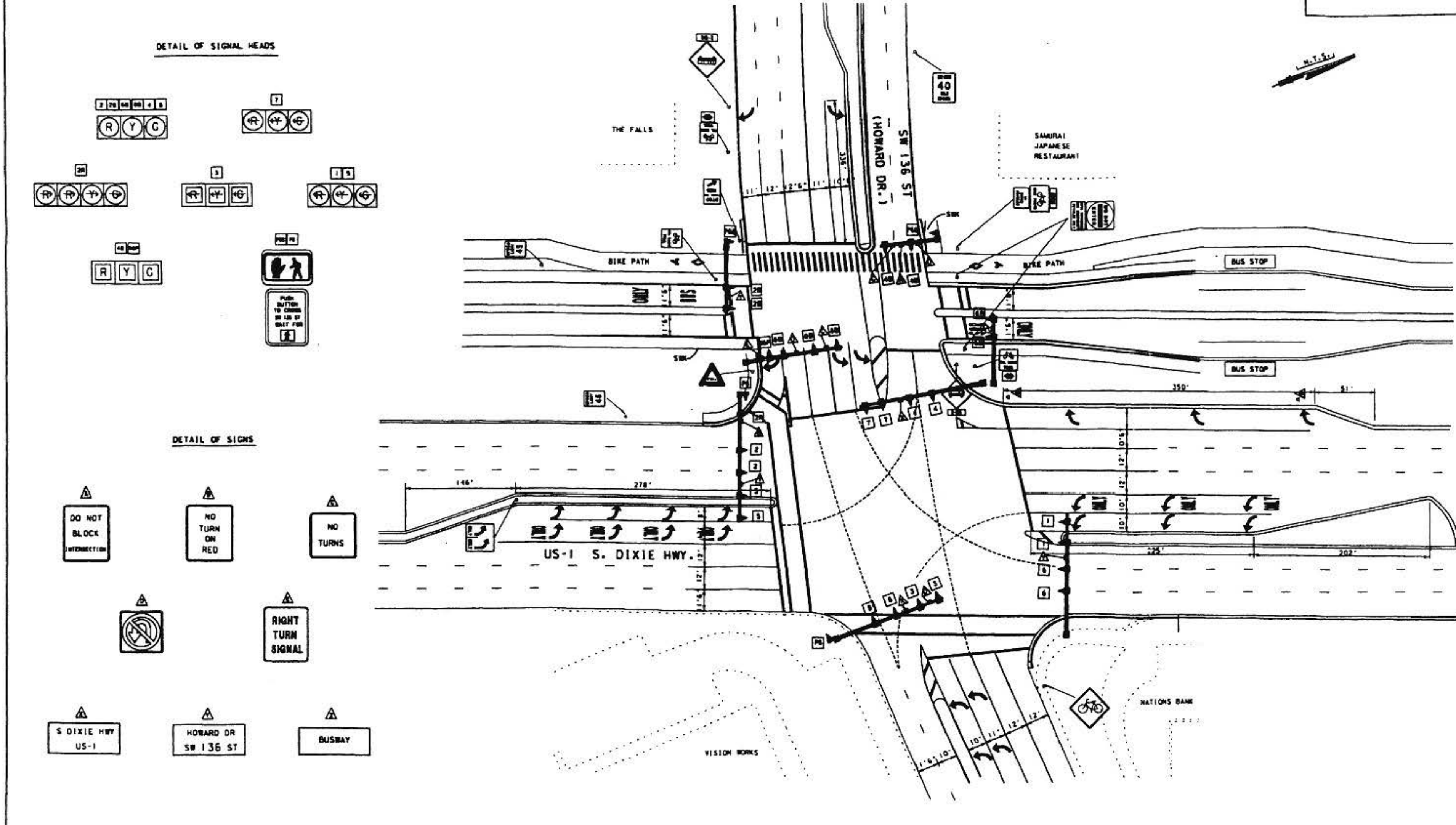

SW 132 STREET @ BUSWAY & US-1

CONDITION DIAGRAM

R. ALEMAN & Associates, Inc.

| | | |
|---|---|---|
| A.G. | 2/01 |
| W.G.H. | 2/01 |

FIGURE A-8



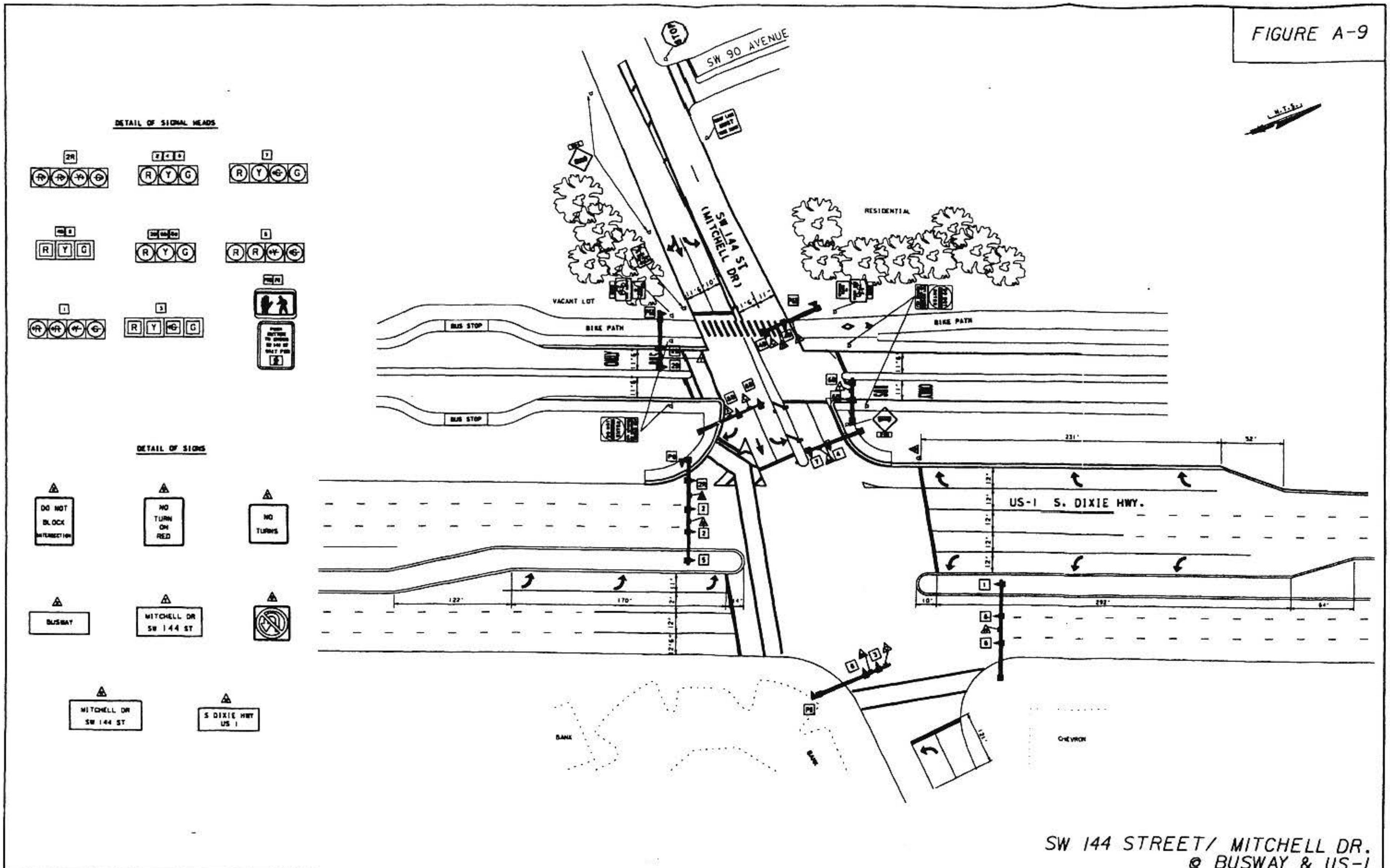

SW 136 STREET/ HOWARD DRIVE
@ BUSWAY & US-1

CONDITION DIAGRAM

| REVISIONS | | | |
|---|---|---|---|
| A.G. | 2/01 | | |
| W.G.H. | 2/01 | | |

R. ALEMAN & Associates, Inc.

FIGURE A-9




SW 144 STREET/ MITCHELL DR.
@ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

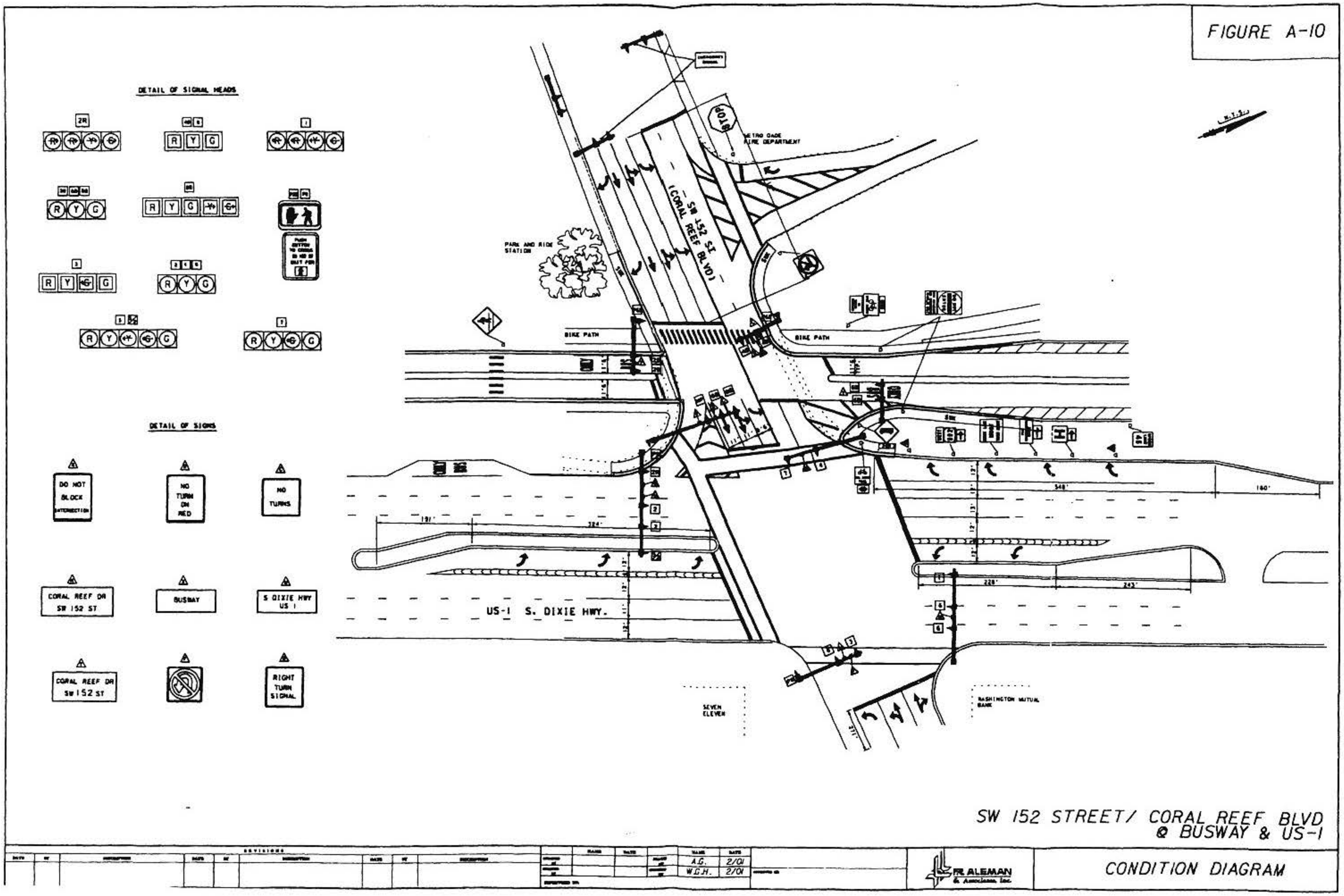
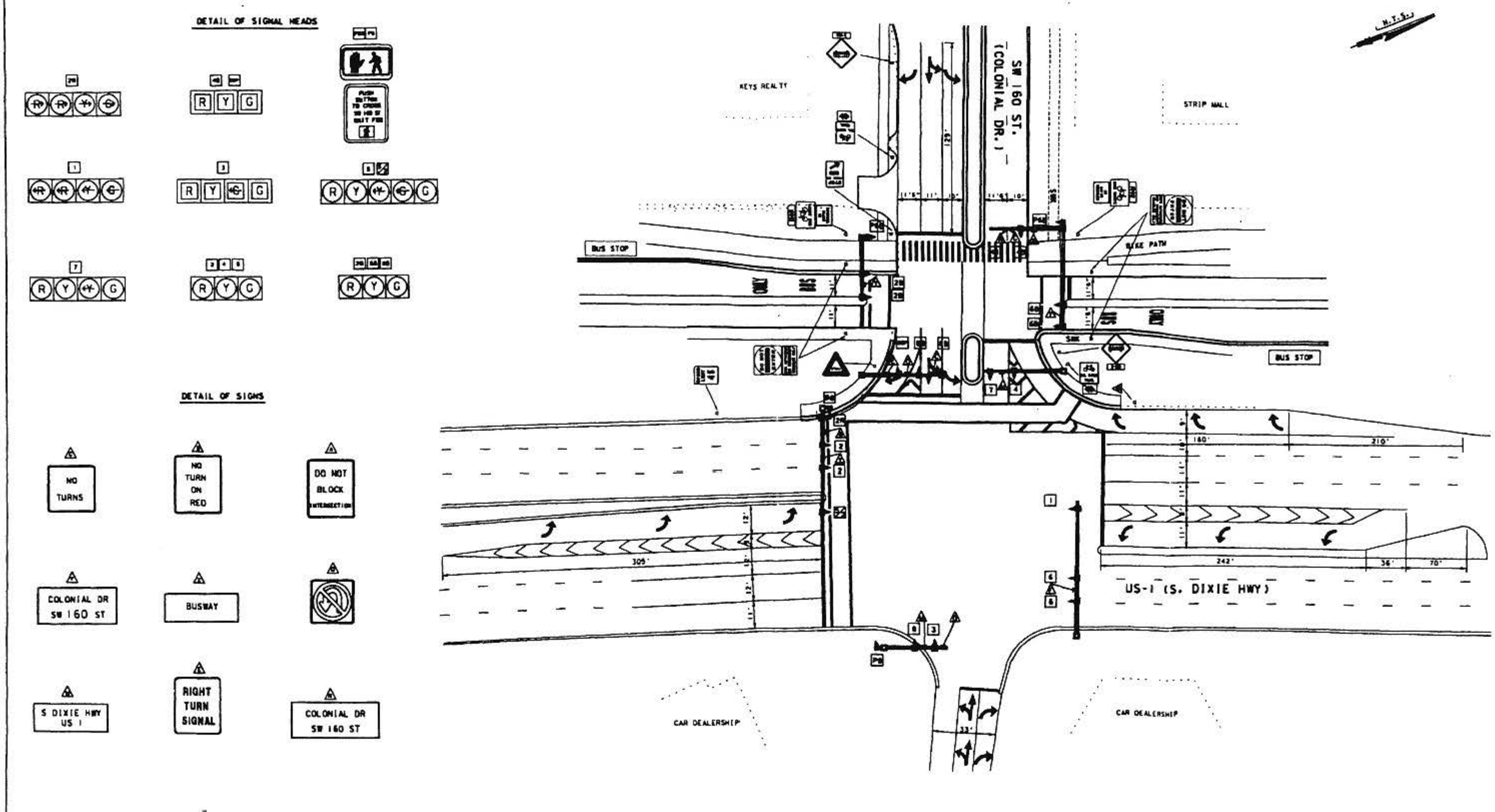


FIGURE A-10
DETAIL OF SIGNAL HEADS
DETAIL OF SIGNS
DO NOT BLOCK INTERSECTION
NO TURN ON RED
NO TURNS
CORAL REEF DR SW 152 ST
BUSWAY
S DIXIE HWY US 1
CORAL REEF DR SW 152 ST
RIGHT TURN SIGNAL
SW 152 ST (CORAL REEF BLVD)
METRO DADE FIRE DEPARTMENT
PARK AND RIDE STATION
BIKE PATH
BIKE PATH
US-1 S. DIXIE HWY.
SEVEN ELEVEN
WASHINGTON MUTUAL BANK
SW 152 STREET/ CORAL REEF BLVD @ BUSWAY & US-1
A.G. 2/01
W.G.H. 2/01
R. ALEMAN & Associates, Inc.
CONDITION DIAGRAM

FIGURE A-11



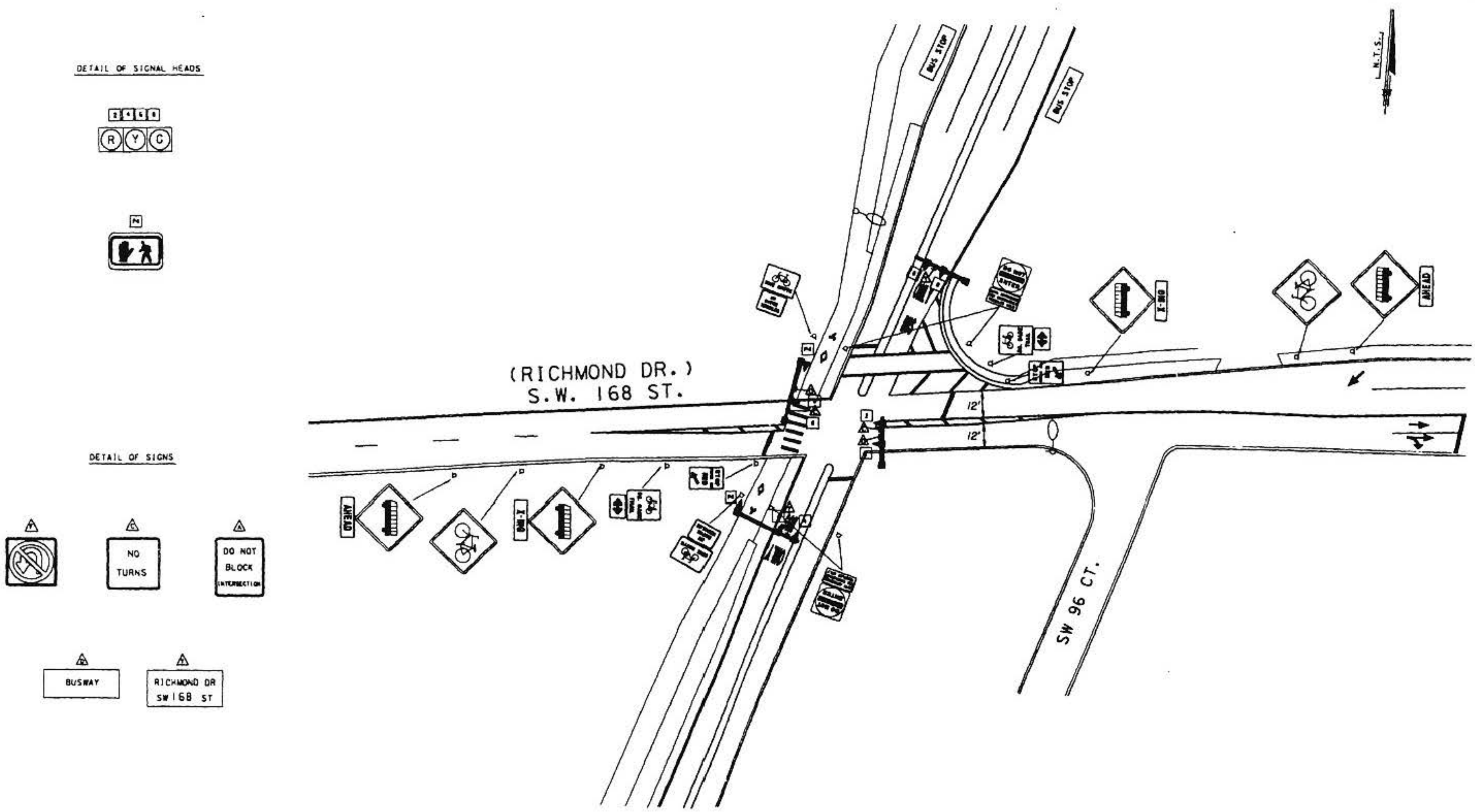

SW 160 STREET/ COLONIAL DR @ BUSWAY & US-1

CONDITION DIAGRAM

| NAME | DATE |
|---|---|
| A.G. | 2/01 |
| W.G.H. | 2/01 |

R.ALEMAN & Associates, Inc.

FIGURE A-12



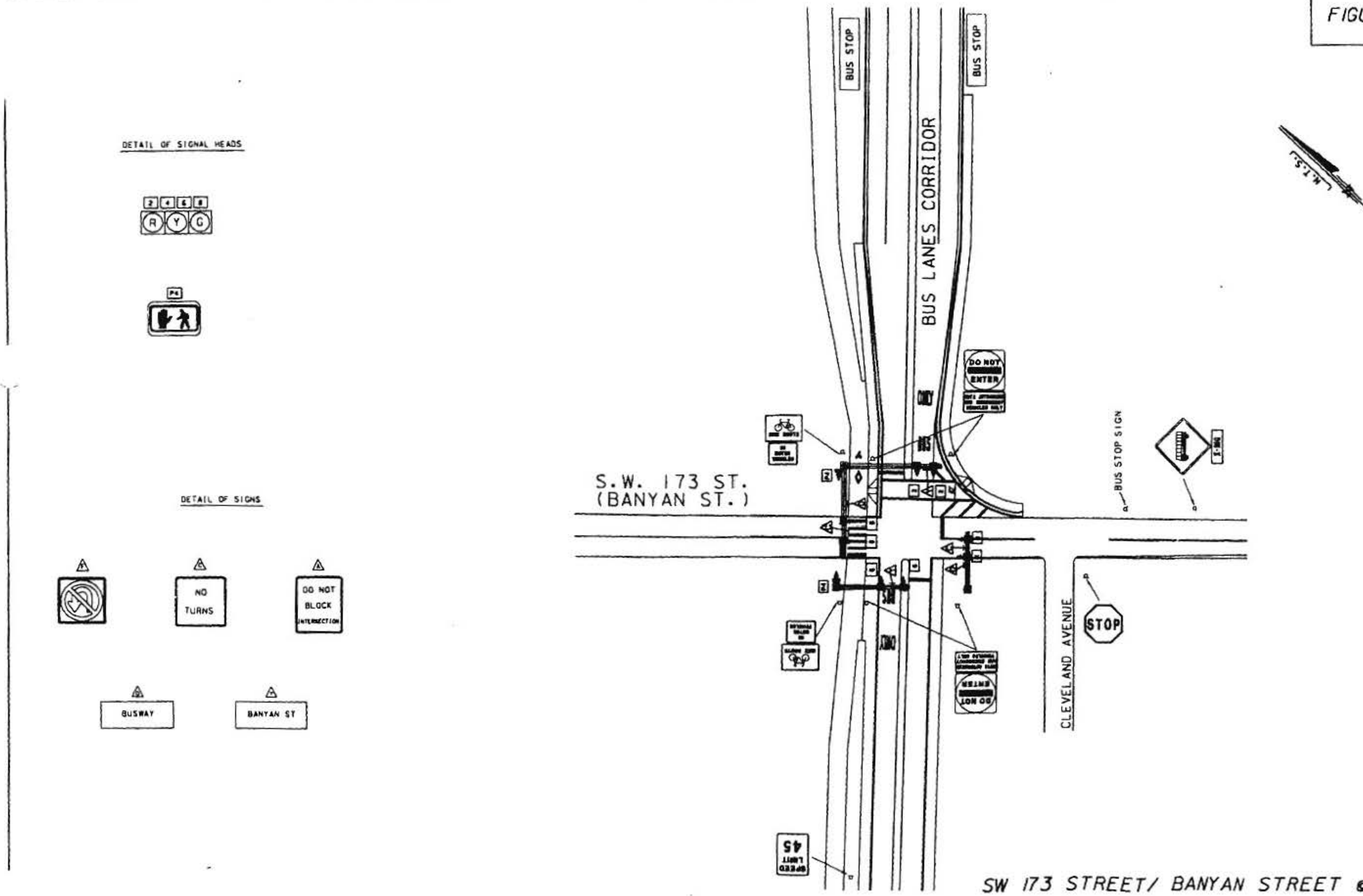

SW 168 STREET/ RICHMOND DRIVE @ BUSWAY & US-1

A.G. 2/01
W.G.H. 2/01

R. ALEMAN & Associates, Inc.

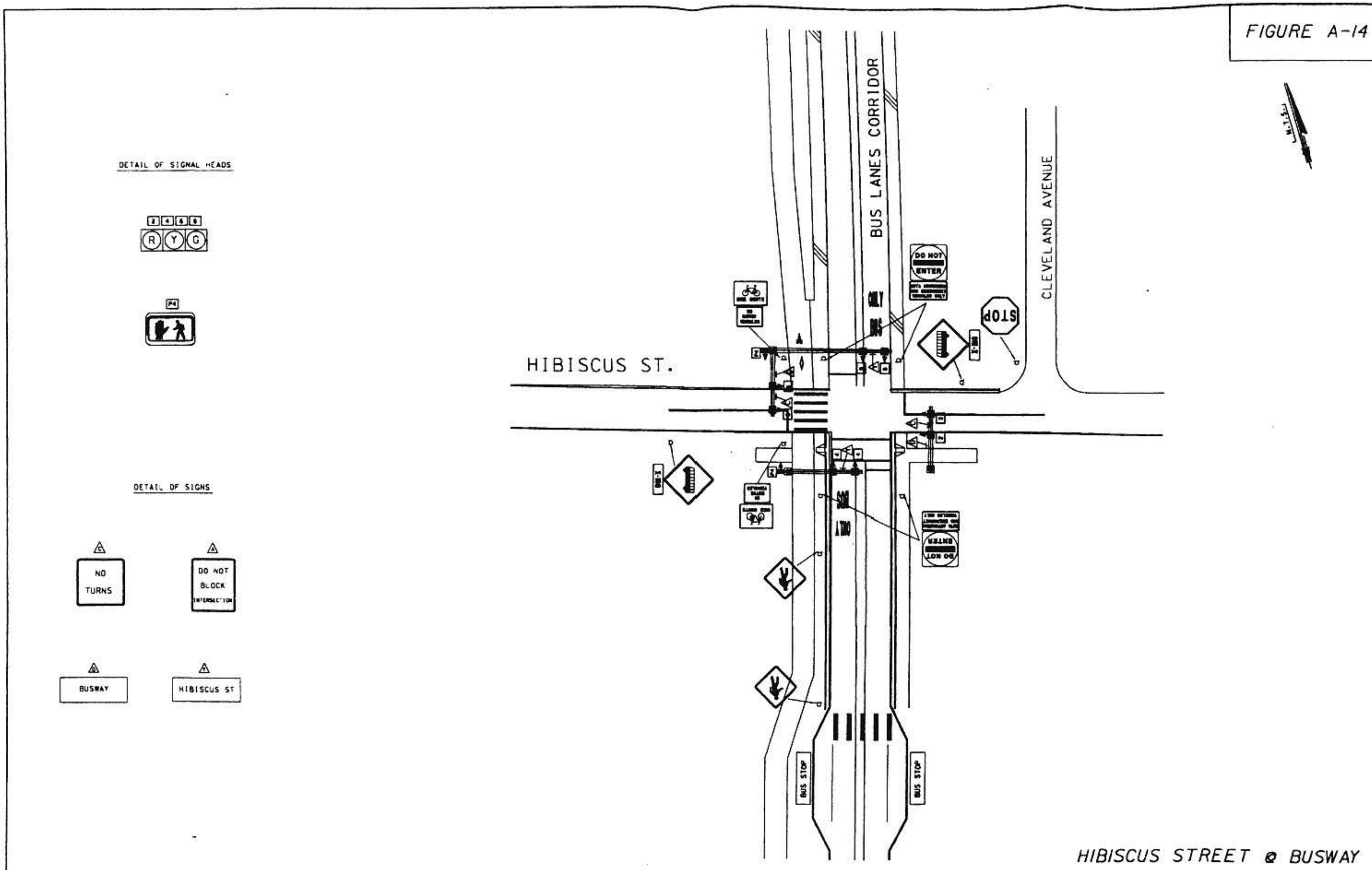
CONDITION DIAGRAM

FIGURE A-13




SW 173 STREET/ BANYAN STREET @ BUSWAY

CONDITION DIAGRAM



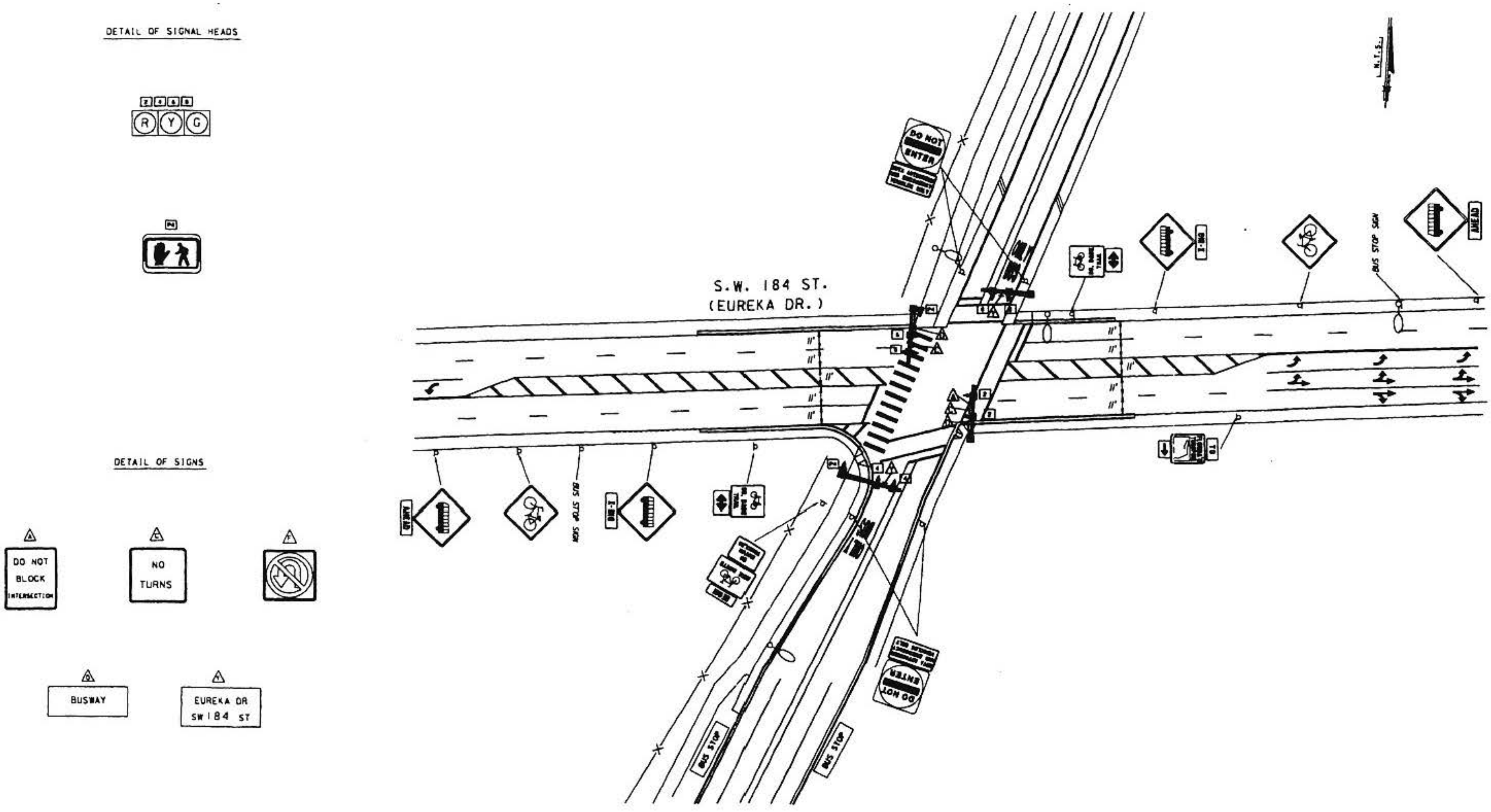

HIBISCUS STREET @ BUSWAY

CONDITION DIAGRAM

A.G. 5/01
W.G.H. 5/01

PR ALEMAN & Associates, Inc.

FIGURE A-15



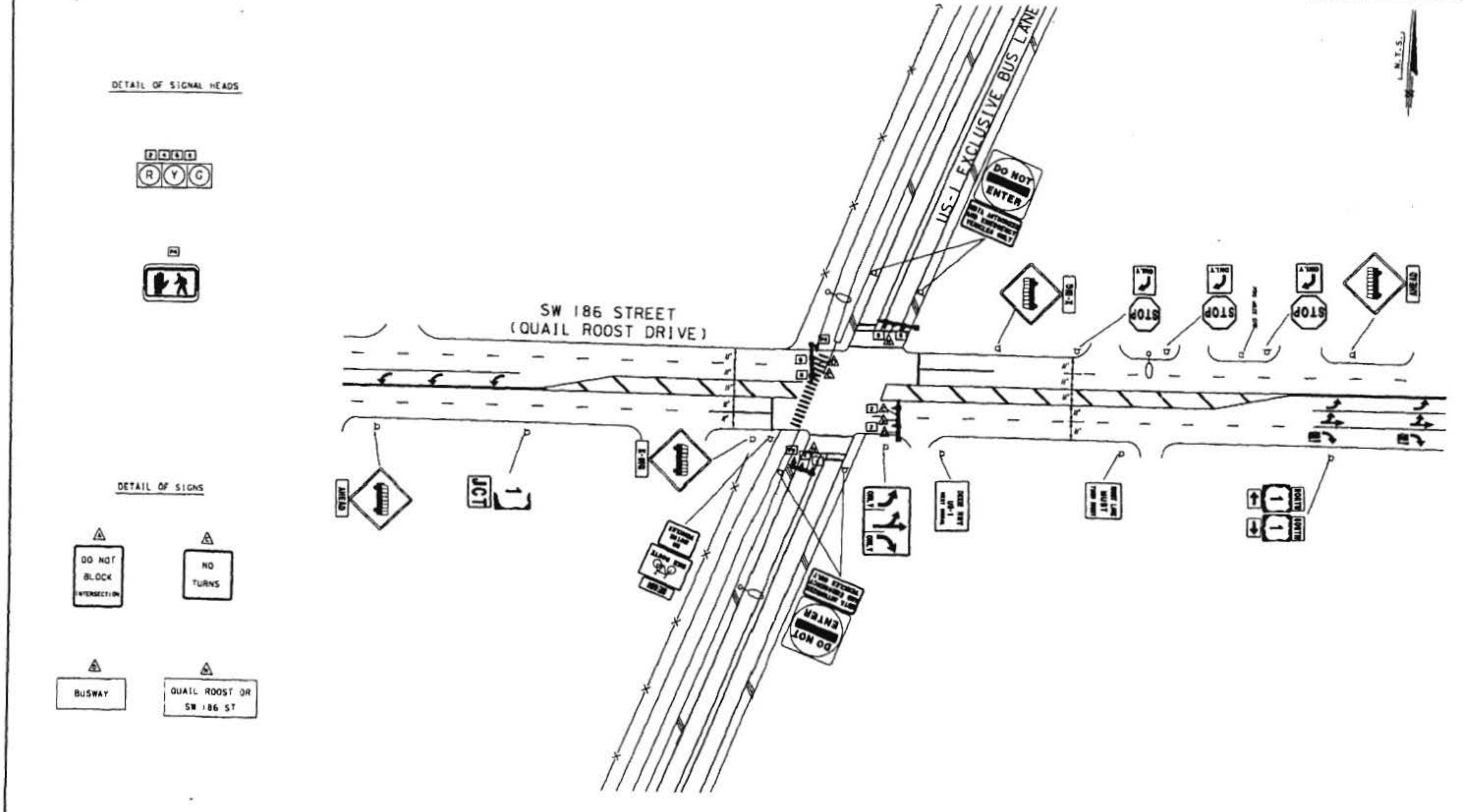

SW 184 STREET/ EUREKA DRIVE
@ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

F.R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE A-16

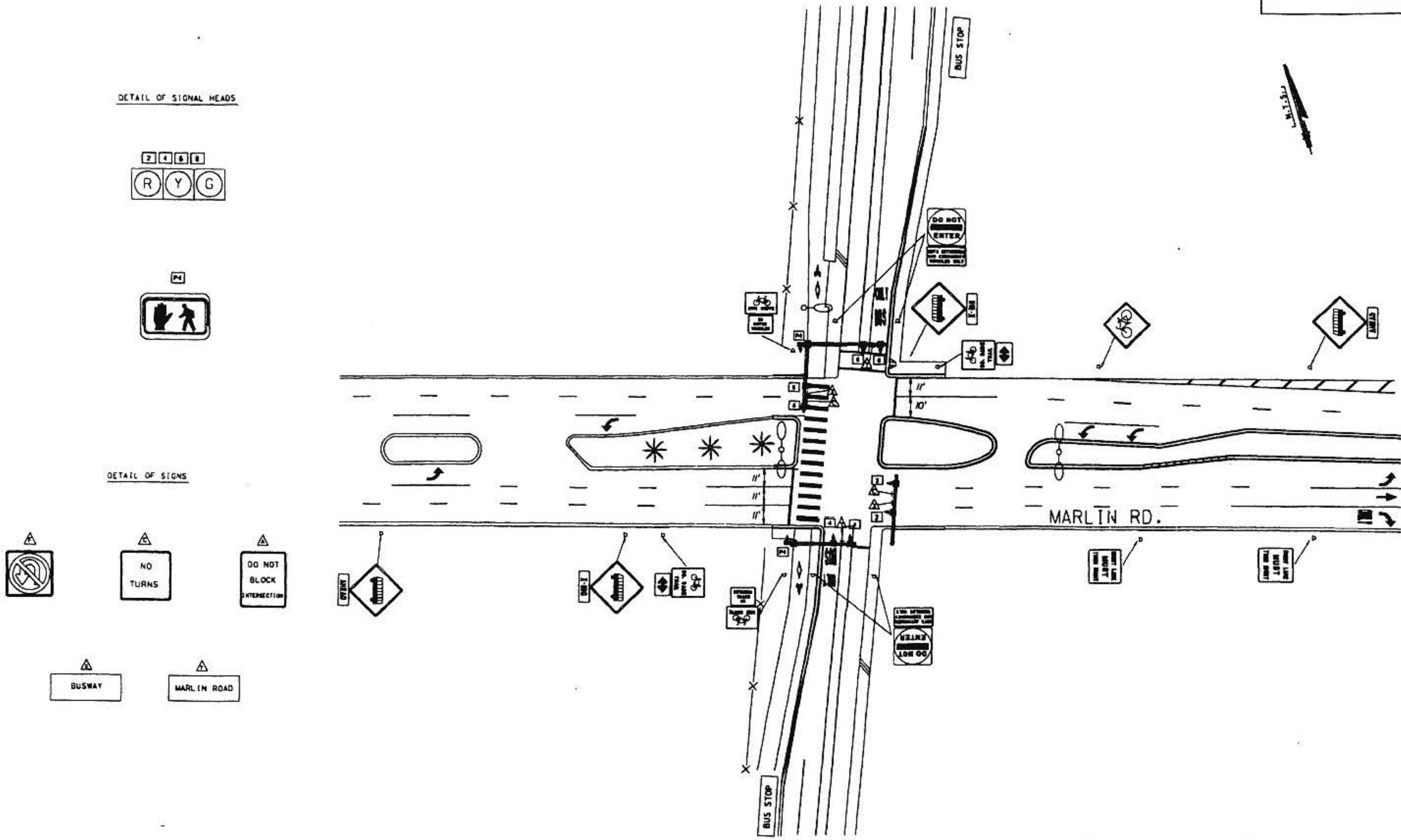



SW 186 STREET/ QUAIL ROOST DRIVE
@ BUSWAY & US-1

CONDITION DIAGRAM

A.G. 2/01
W.G.H. 2/01
R ALEMAN

FIGURE A-17



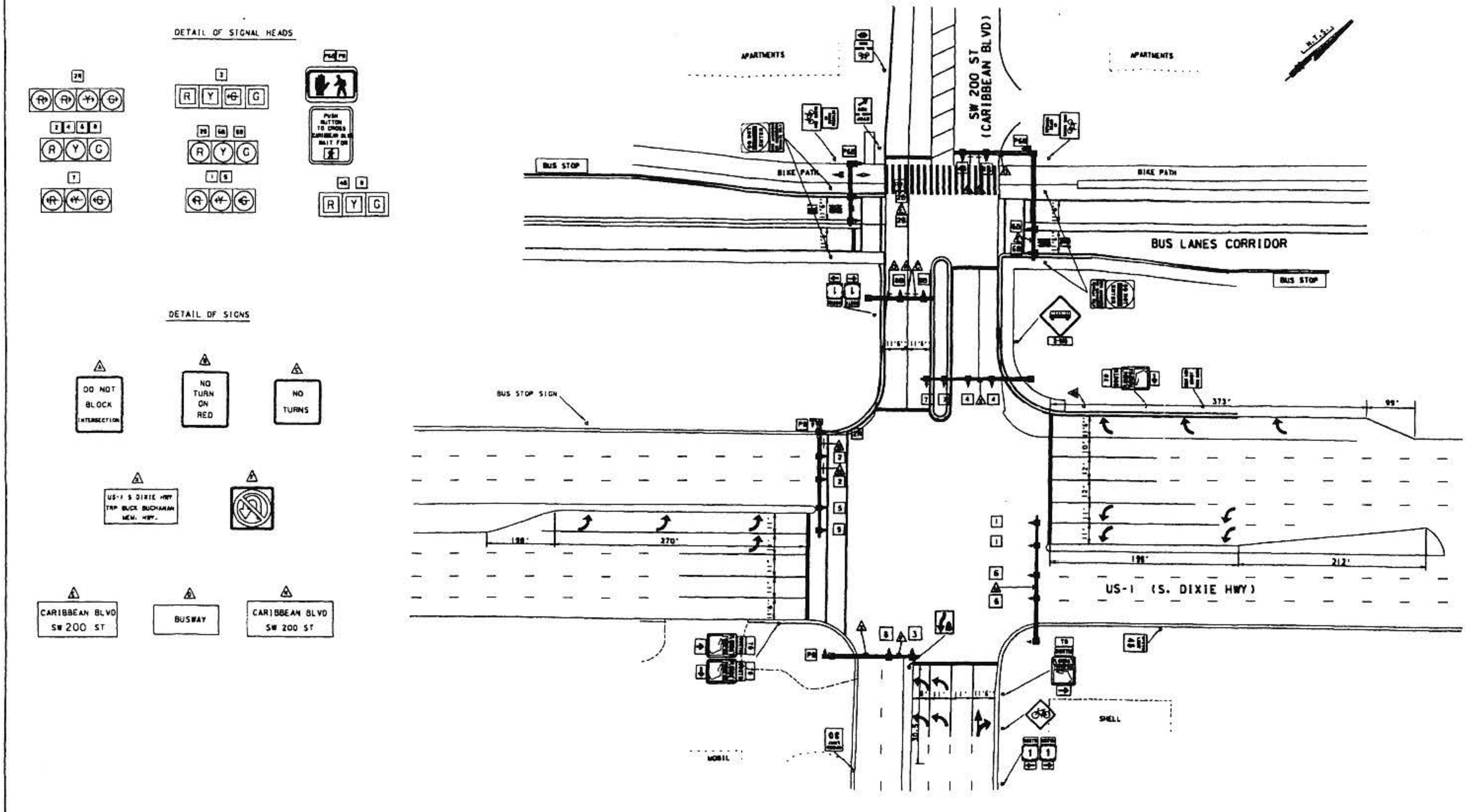

MARLIN ROAD @ BUSWAY & US-1

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A.G. | 2/01 | |
| | | | | | | | | W.G.H. | 2/01 | |

R ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE A-18



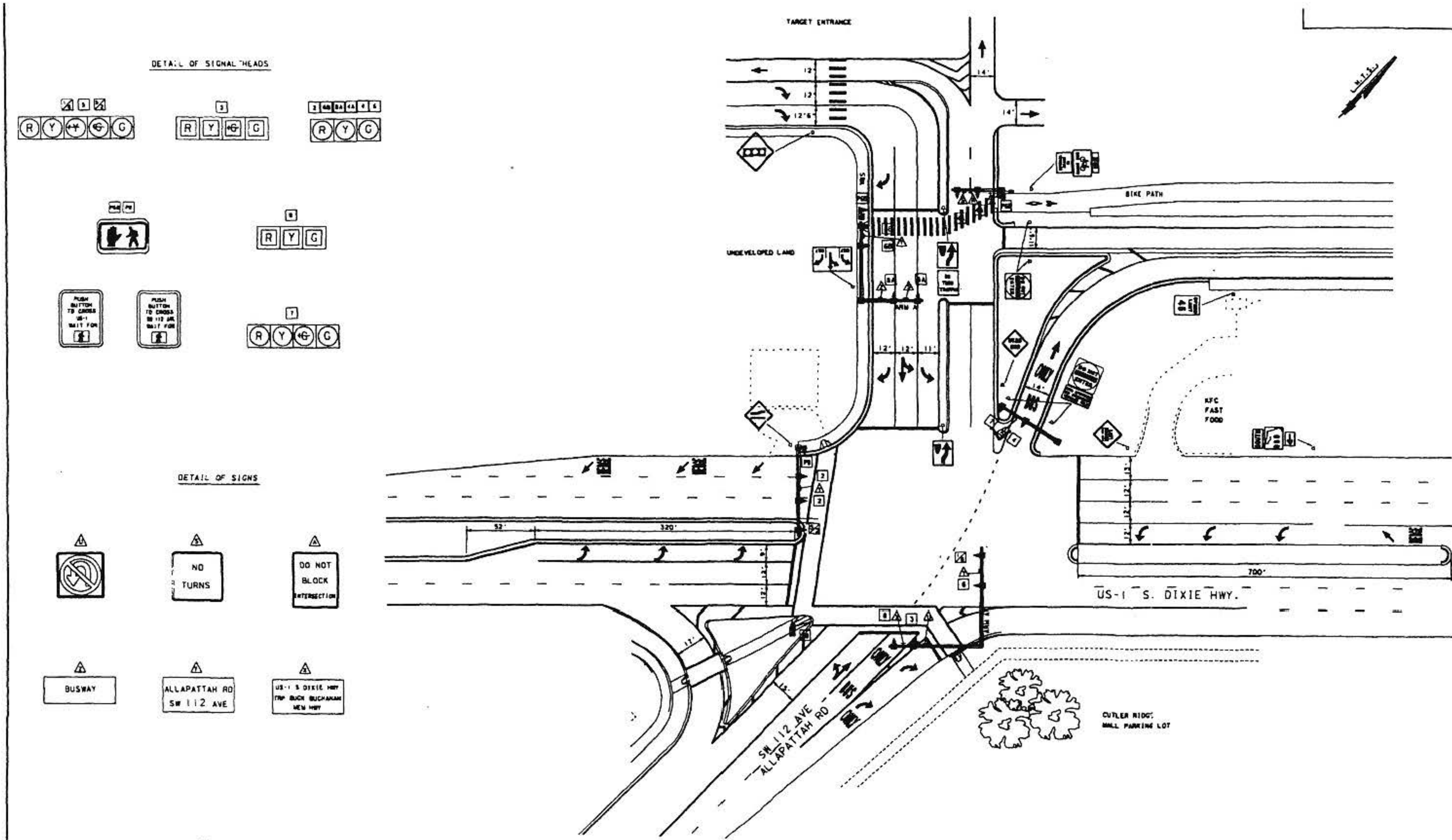

SW 200 STREET/ CARIBBEAN BLVD
@ BUSWAY & US-1

REVISIONS

| | | |
|---|---|---|
| DESIGNED | A.G. | 2/01 |
| CHECKED | W.G.H. | 2/01 |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM




SW 112 AVENUE/ ALLAPATTAH RD
@ BUSWAY & US-1

REVISIONS

| | |
|---|---|
| A.G. | 2/01 |
| W.G.H. | 2/01 |

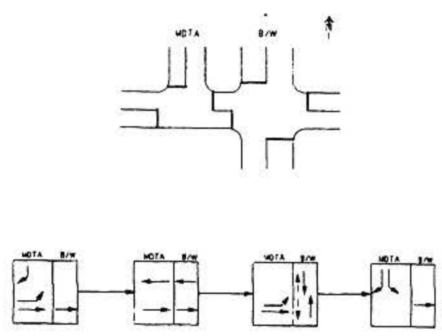
R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

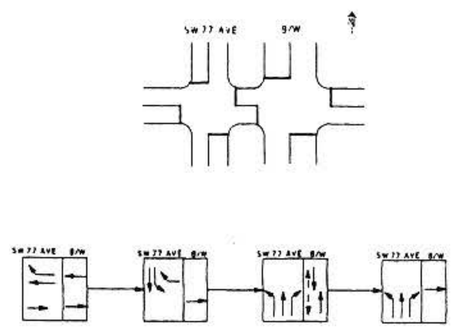
# APPENDIX B

# Existing Signal Operating Plan

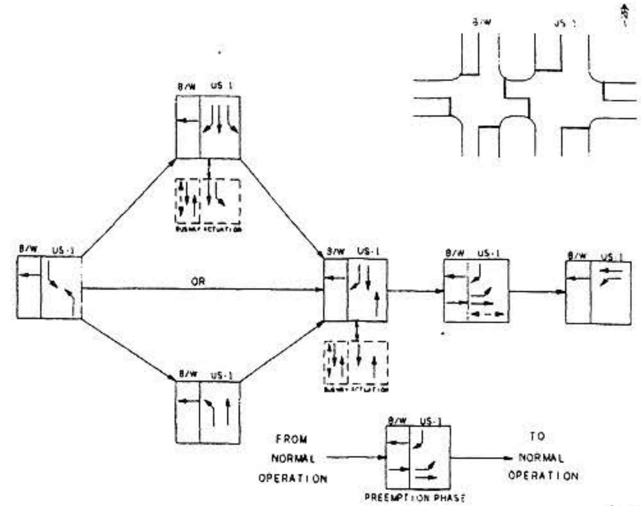
# Busway Intersections



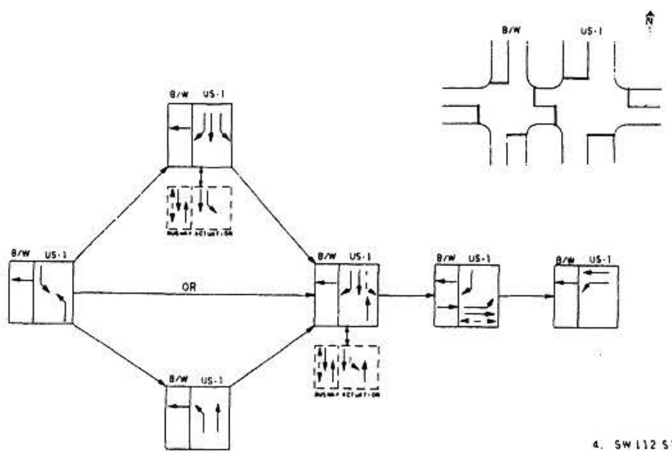

1. DATRAN BLVD.



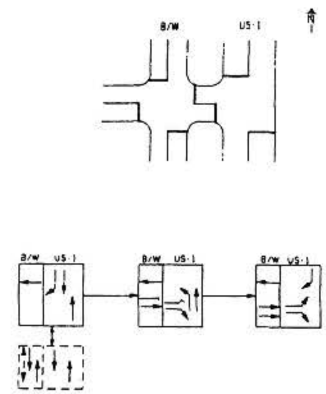

2. SW 98 ST




3. SW 104 ST




4. SW 112 ST/KILLIAN DR.
5. SW 124 ST
6. SW 128 ST



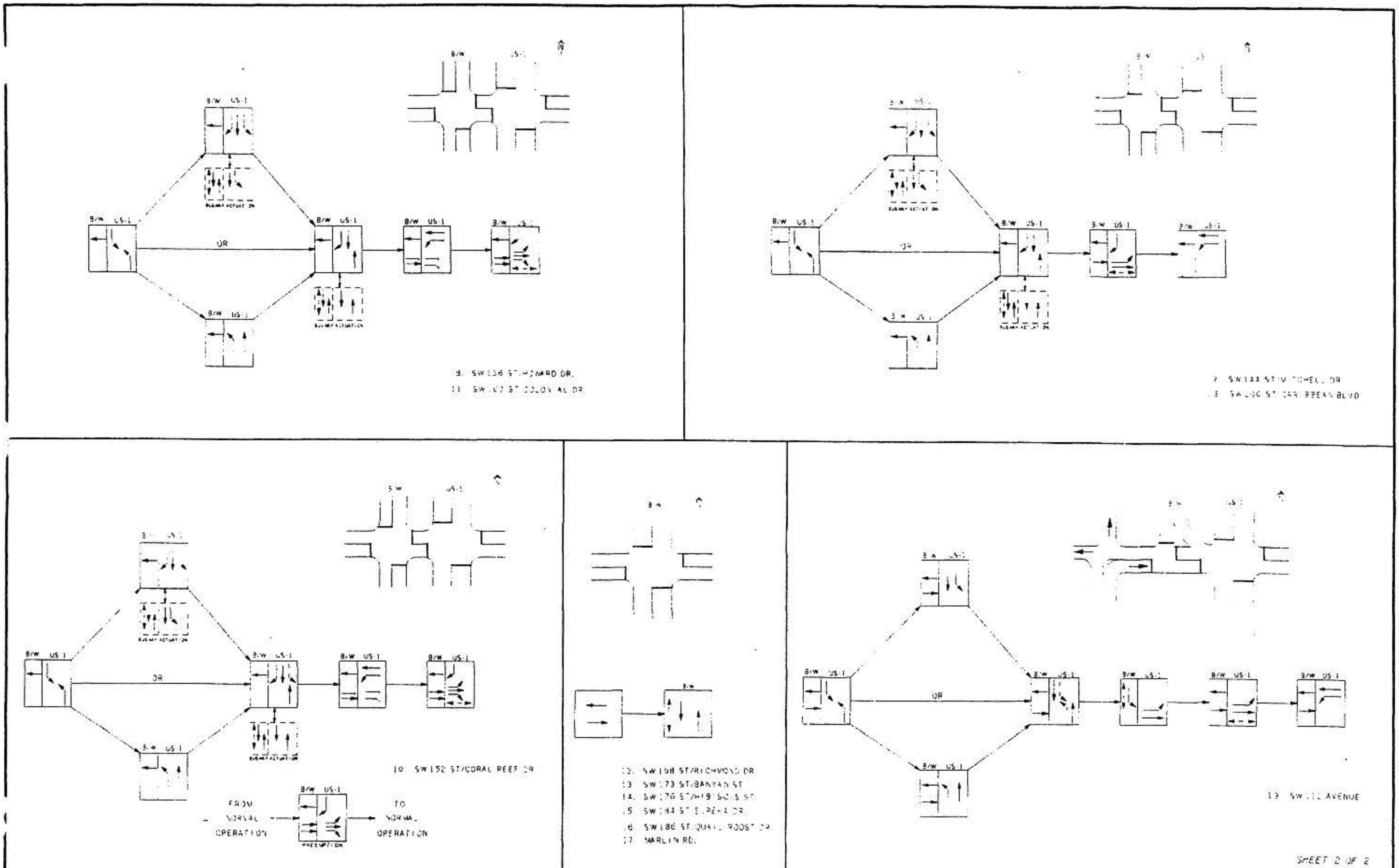

7. SW 132 ST

SHEET 1OF 2

| | | | | | |
|---|---|---|---|---|---|
| | NAME | DATE | | NAME | DATE |
| | | | | A.S. | 3/01 |
| | | | | W.G.H. | 3/01 |

R. ALEMAN & Associates, Inc.

SIGNAL PHASING




SHEET 2 OF 2

R. ALEMAN & Associates, Inc.

# SIGNAL PHASING

# APPENDIX C

# Mechanical Traffic Counts

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: Datran Blvd. w/o busway

tice to Proceed : COUNT DATE: 04/25/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 4 | 2 | 3 | 8 | 17 | 12:00 AM | 9 | 2 | 5 | 0 | 16 | 33 |
| 01:00 AM | 7 | 0 | 2 | 1 | 10 | 01:00 AM | 4 | 2 | 2 | 2 | 10 | 20 |
| 02:00 AM | 2 | 2 | 1 | 7 | 12 | 02:00 AM | 0 | 0 | 0 | 1 | 1 | 13 |
| 03:00 AM | 0 | 0 | 1 | 2 | 3 | 03:00 AM | 1 | 0 | 0 | 1 | 2 | 5 |
| 04:00 AM | 6 | 0 | 5 | 6 | 17 | 04:00 AM | 0 | 4 | 0 | 1 | 5 | 22 |
| 05:00 AM | 12 | 9 | 34 | 37 | 92 | 05:00 AM | 3 | 1 | 0 | 11 | 15 | 107 |
| 06:00 AM | 32 | 34 | 55 | 80 | 201 | 06:00 AM | 8 | 7 | 8 | 11 | 34 | 235 |
| 07:00 AM | 115 | 136 | 174 | 147 | 572 | 07:00 AM | 13 | 21 | 19 | 20 | 73 | 645 |
| 08:00 AM | 170 | 156 | 164 | 149 | 639 | 08:00 AM | 23 | 26 | 36 | 34 | 119 | 758 |
| 09:00 AM | 106 | 96 | 72 | 79 | 353 | 09:00 AM | 40 | 38 | 35 | 33 | 146 | 499 |
| 10:00 AM | 79 | 62 | 54 | 54 | 249 | 10:00 AM | 51 | 34 | 30 | 31 | 146 | 395 |
| 11:00 AM | 65 | 45 | 70 | 58 | 238 | 11:00 AM | 29 | 40 | 38 | 56 | 163 | 401 |
| 12:00 PM | 70 | 80 | 84 | 58 | 292 | 12:00 PM | 56 | 60 | 64 | 50 | 230 | 522 |
| 01:00 PM | 58 | 92 | 84 | 86 | 320 | 01:00 PM | 42 | 50 | 55 | 53 | 200 | 520 |
| 02:00 PM | 72 | 77 | 61 | 84 | 294 | 02:00 PM | 46 | 46 | 56 | 50 | 198 | 492 |
| 3:00 PM | 50 | 71 | 65 | 70 | 256 | 03:00 PM | 56 | 52 | 63 | 52 | 223 | 479 |
| 4:00 PM | 71 | 60 | 62 | 67 | 260 | 04:00 PM | 76 | 79 | 120 | 104 | 379 | 639 |
| 05:00 PM | 77 | 70 | 55 | 68 | 270 | 05:00 PM | 167 | 196 | 184 | 165 | 712 | 982 |
| 06:00 PM | 85 | 50 | 39 | 45 | 219 | 06:00 PM | 143 | 131 | 84 | 97 | 455 | 674 |
| 07:00 PM | 69 | 47 | 56 | 41 | 213 | 07:00 PM | 62 | 60 | 46 | 46 | 214 | 427 |
| 08:00 PM | 18 | 45 | 23 | 36 | 122 | 08:00 PM | 49 | 40 | 38 | 29 | 156 | 278 |
| 09:00 PM | 31 | 35 | 26 | 14 | 106 | 09:00 PM | 27 | 29 | 34 | 15 | 105 | 211 |
| 10:00 PM | 15 | 15 | 14 | 14 | 58 | 10:00 PM | 20 | 18 | 18 | 10 | 66 | 124 |
| 11:00 PM | 11 | 12 | 12 | 6 | 41 | 11:00 PM | 5 | 6 | 11 | 10 | 32 | 73 |
| | | | 24 Hour Total | | 4,854 | | | | 24 Hour Total | | 3,700 | 8,554 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:30 AM | Volume: | 647 |
| A.M. "K" Factor: | 13.3% | P.H.F. : | 0.93 |
| A.M. "D" Factor: | 88.0% | | |
| P.M. Peak Hour, Time: | 01:15 PM | Volume: | 334 |
| P.M. "K" Factor: | 6.9% | P.H.F. : | 0.91 |
| P.M. "D" Factor: | 62.1% | | |

WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 11:45 AM | Volume: | 236 |
| A.M. "K" Factor: | 6.4% | P.H.F. : | 0.92 |
| A.M. "D" Factor: | 44.7% | | |
| P.M. Peak Hour, Time: | 05:00 PM | Volume: | 712 |
| P.M. "K" Factor: | 19.2% | P.H.F. : | 0.91 |
| P.M. "D" Factor: | 72.5% | | |

BOTHWAY:

EASTBOUND and WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 08:00 AM | Volume: | 758 |
| A.M. "K" Factor: | 8.9% | P.H.F. : | 0.95 |
| A.M. Hour "D" Factor: | 84.3% | | |
| P.M. Peak Hour, Time: | 05:00 PM | Volume: | 982 |
| P.M. "K" Factor: | 11.5% | P.H.F. : | 0.92 |
| P.M. Hour "D" Factor: | 72.5% | | |

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 98 ST W/O Busway

Notice to Proceed : COUNT DATE: 03/15/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 12 | 7 | 6 | 6 | 31 | 12:00 AM | 24 | 19 | 17 | 7 | 67 | 98 |
| 01:00 AM | 7 | 5 | 1 | 7 | 20 | 01:00 AM | 16 | 11 | 5 | 8 | 40 | 60 |
| 02:00 AM | 1 | 1 | 2 | 0 | 4 | 02:00 AM | 6 | 9 | 7 | 12 | 34 | 38 |
| 03:00 AM | 0 | 4 | 3 | 2 | 9 | 03:00 AM | 5 | 2 | 8 | 3 | 18 | 27 |
| 04:00 AM | 1 | 4 | 1 | 6 | 12 | 04:00 AM | 8 | 0 | 6 | 6 | 20 | 32 |
| 05:00 AM | 4 | 1 | 5 | 16 | 26 | 05:00 AM | 5 | 11 | 7 | 14 | 37 | 63 |
| 06:00 AM | 13 | 13 | 51 | 84 | 161 | 06:00 AM | 13 | 22 | 38 | 47 | 120 | 281 |
| 07:00 AM | 135 | 192 | 202 | 285 | 814 | 07:00 AM | 47 | 89 | 85 | 124 | 345 | 1,159 |
| 08:00 AM | 295 | 295 | 297 | 273 | 1,160 | 08:00 AM | 125 | 145 | 166 | 154 | 590 | 1,750 |
| 09:00 AM | 168 | 105 | 92 | 75 | 440 | 09:00 AM | 98 | 96 | 79 | 77 | 350 | 790 |
| 10:00 AM | 95 | 58 | 68 | 74 | 295 | 10:00 AM | 78 | 73 | 83 | 110 | 344 | 639 |
| 11:00 AM | 56 | 95 | 99 | 95 | 345 | 11:00 AM | 82 | 93 | 121 | 124 | 420 | 765 |
| 12:00 PM | 87 | 117 | 90 | 121 | 415 | 12:00 PM | 128 | 130 | 125 | 127 | 510 | 925 |
| 01:00 PM | 103 | 123 | 107 | 91 | 424 | 01:00 PM | 157 | 124 | 121 | 126 | 528 | 952 |
| 02:00 PM | 104 | 85 | 84 | 97 | 370 | 02:00 PM | 142 | 104 | 113 | 128 | 487 | 857 |
| 03:00 PM | 107 | 84 | 99 | 90 | 380 | 03:00 PM | 111 | 152 | 120 | 139 | 522 | 902 |
| 04:00 PM | 107 | 66 | 86 | 102 | 361 | 04:00 PM | 131 | 135 | 182 | 160 | 608 | 969 |
| 05:00 PM | 113 | 113 | 120 | 96 | 442 | 05:00 PM | 225 | 216 | 229 | 181 | 851 | 1,293 |
| 06:00 PM | 84 | 79 | 55 | 88 | 306 | 06:00 PM | 204 | 177 | 146 | 168 | 695 | 1,001 |
| 07:00 PM | 72 | 65 | 50 | 52 | 239 | 07:00 PM | 125 | 101 | 110 | 108 | 444 | 683 |
| 08:00 PM | 52 | 51 | 43 | 46 | 192 | 08:00 PM | 95 | 87 | 62 | 74 | 318 | 510 |
| 09:00 PM | 37 | 33 | 36 | 32 | 138 | 09:00 PM | 82 | 74 | 50 | 62 | 268 | 406 |
| 10:00 PM | 30 | 15 | 27 | 10 | 82 | 10:00 PM | 70 | 37 | 40 | 38 | 185 | 267 |
| 11:00 PM | 23 | 9 | 15 | 5 | 52 | 11:00 PM | 29 | 21 | 22 | 24 | 96 | 148 |
| | | 24 Hour Total | | | 6,718 | | | | 24 Hour Total | | 7,897 | 14,615 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 07:45 AM Volume: 1,172
A.M. "K" Factor: 17.4% P.H.F. : 0.99
A.M. "D" Factor: 67.7%

P.M. Peak Hour, Time: 12:45 PM Volume: 454
P.M. "K" Factor: 6.8% P.H.F. : 0.92
P.M. "D" Factor: 46.2%

WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 590
A.M. "K" Factor: 7.5% P.H.F. : 0.89
A.M. "D" Factor: 33.7%

P.M. Peak Hour, Time: 05:00 PM Volume: 851
P.M. "K" Factor: 10.8% P.H.F. : 0.93
P.M. "D" Factor: 65.8%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 1,750
A.M. "K" Factor: 12.0% P.H.F. : 0.94
A.M. Hour "D" Factor: 66.3%

P.M. Peak Hour, Time: 05:00 PM Volume: 1,293
P.M. "K" Factor: 8.8% P.H.F. : 0.93
P.M. Hour "D" Factor: 65.8%

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 112 ST W/O Busway

otice to Proceed : COUNT DATE: 03/15/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 5 | 5 | 8 | 2 | 20 | 12:00 AM | 12 | 9 | 18 | 3 | 42 | 62 |
| 01:00 AM | 2 | 5 | 1 | 0 | 8 | 01:00 AM | 5 | 3 | 6 | 6 | 20 | 28 |
| 02:00 AM | 2 | 3 | 7 | 3 | 15 | 02:00 AM | 6 | 5 | 5 | 2 | 18 | 33 |
| 03:00 AM | 4 | 2 | 1 | 3 | 10 | 03:00 AM | 4 | 3 | 5 | 2 | 14 | 24 |
| 04:00 AM | 2 | 0 | 7 | 4 | 13 | 04:00 AM | 6 | 1 | 4 | 2 | 13 | 26 |
| 05:00 AM | 3 | 2 | 8 | 14 | 27 | 05:00 AM | 5 | 3 | 5 | 10 | 23 | 50 |
| 06:00 AM | 22 | 42 | 56 | 77 | 197 | 06:00 AM | 20 | 13 | 26 | 40 | 99 | 296 |
| 07:00 AM | 71 | 91 | 83 | 86 | 331 | 07:00 AM | 68 | 94 | 90 | 115 | 367 | 698 |
| 08:00 AM | 98 | 93 | 93 | 106 | 390 | 08:00 AM | 128 | 102 | 111 | 110 | 451 | 841 |
| 09:00 AM | 89 | 105 | 90 | 79 | 363 | 09:00 AM | 102 | 116 | 71 | 85 | 374 | 737 |
| 10:00 AM | 83 | 77 | 84 | 81 | 325 | 10:00 AM | 64 | 70 | 84 | 88 | 306 | 631 |
| 11:00 AM | 100 | 94 | 103 | 102 | 399 | 11:00 AM | 80 | 76 | 94 | 113 | 363 | 762 |
| 12:00 PM | 90 | 97 | 93 | 76 | 356 | 12:00 PM | 109 | 115 | 96 | 99 | 419 | 775 |
| 01:00 PM | 90 | 90 | 70 | 68 | 318 | 01:00 PM | 110 | 96 | 89 | 108 | 403 | 721 |
| 02:00 PM | 98 | 97 | 83 | 103 | 381 | 02:00 PM | 121 | 120 | 126 | 145 | 512 | 893 |
| 03:00 PM | 82 | 92 | 99 | 83 | 356 | 03:00 PM | 128 | 116 | 137 | 129 | 510 | 866 |
| 04:00 PM | 76 | 82 | 74 | 75 | 307 | 04:00 PM | 130 | 132 | 132 | 142 | 536 | 843 |
| 05:00 PM | 75 | 95 | 74 | 73 | 317 | 05:00 PM | 125 | 176 | 142 | 133 | 576 | 893 |
| 06:00 PM | 84 | 69 | 81 | 82 | 316 | 06:00 PM | 154 | 147 | 137 | 131 | 569 | 885 |
| 07:00 PM | 80 | 77 | 71 | 57 | 285 | 07:00 PM | 128 | 96 | 92 | 82 | 398 | 683 |
| 08:00 PM | 53 | 54 | 37 | 33 | 177 | 08:00 PM | 74 | 71 | 59 | 62 | 266 | 443 |
| 09:00 PM | 34 | 37 | 37 | 38 | 146 | 09:00 PM | 78 | 70 | 62 | 55 | 265 | 411 |
| 10:00 PM | 35 | 27 | 25 | 20 | 107 | 10:00 PM | 53 | 44 | 28 | 27 | 152 | 259 |
| 11:00 PM | 21 | 17 | 7 | 10 | 55 | 11:00 PM | 16 | 20 | 21 | 7 | 64 | 119 |
| | | 24 Hour Total | | | 5,219 | | | | 24 Hour Total | | 6,760 | 11,979 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 11:00 AM | Volume: | 399 |
| A.M. "K" Factor: | 7.6% | P.H.F. : | 0.97 |
| A.M. "D" Factor: | 52.4% | | |
| P.M. Peak Hour, Time: | 02:00 PM | Volume: | 381 |
| P.M. "K" Factor: | 7.3% | P.H.F. : | 0.92 |
| P.M. "D" Factor: | 42.7% | | |

WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:45 AM | Volume: | 456 |
| A.M. "K" Factor: | 6.7% | P.H.F. : | 0.89 |
| A.M. "D" Factor: | 55.2% | | |
| P.M. Peak Hour, Time: | 05:15 PM | Volume: | 605 |
| P.M. "K" Factor: | 8.9% | P.H.F. : | 0.86 |
| P.M. "D" Factor: | 65.0% | | |

BOTHWAY:

EASTBOUND and WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 08:00 AM | Volume: | 841 |
| A.M. "K" Factor: | 7.0% | P.H.F. : | 0.93 |
| A.M. Hour "D" Factor: | 53.6% | | |
| P.M. Peak Hour, Time: | 05:15 PM | Volume: | 931 |
| P.M. "K" Factor: | 7.8% | P.H.F. : | 0.86 |
| P.M. Hour "D" Factor: | 65.0% | | |

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 128 ST W/O Busway

Notice to Proceed : COUNT DATE: 03/15/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 16 | 8 | 7 | 10 | 41 | 12:00 AM | 5 | 8 | 4 | 7 | 24 | 65 |
| 01:00 AM | 3 | 3 | 6 | 4 | 16 | 01:00 AM | 4 | 4 | 5 | 3 | 16 | 32 |
| 02:00 AM | 4 | 3 | 4 | 5 | 16 | 02:00 AM | 3 | 1 | 4 | 1 | 9 | 25 |
| 03:00 AM | 3 | 3 | 3 | 15 | 24 | 03:00 AM | 7 | 1 | 3 | 2 | 13 | 37 |
| 04:00 AM | 3 | 8 | 1 | 8 | 20 | 04:00 AM | 0 | 2 | 4 | 2 | 8 | 28 |
| 05:00 AM | 2 | 6 | 11 | 14 | 33 | 05:00 AM | 4 | 8 | 6 | 7 | 25 | 58 |
| 06:00 AM | 20 | 42 | 58 | 57 | 177 | 06:00 AM | 8 | 20 | 34 | 34 | 96 | 273 |
| 07:00 AM | 101 | 77 | 101 | 82 | 361 | 07:00 AM | 54 | 53 | 71 | 89 | 267 | 628 |
| 08:00 AM | 95 | 131 | 131 | 98 | 455 | 08:00 AM | 69 | 75 | 89 | 102 | 335 | 790 |
| 09:00 AM | 101 | 74 | 120 | 86 | 381 | 09:00 AM | 95 | 53 | 74 | 84 | 306 | 687 |
| 10:00 AM | 89 | 67 | 76 | 100 | 332 | 10:00 AM | 81 | 71 | 86 | 55 | 293 | 625 |
| 11:00 AM | 96 | 107 | 110 | 118 | 431 | 11:00 AM | 92 | 57 | 98 | 69 | 316 | 747 |
| 12:00 PM | 119 | 103 | 100 | 97 | 419 | 12:00 PM | 65 | 78 | 77 | 87 | 307 | 726 |
| 01:00 PM | 107 | 90 | 87 | 98 | 382 | 01:00 PM | 62 | 85 | 110 | 101 | 358 | 740 |
| 02:00 PM | 98 | 113 | 88 | 79 | 378 | 02:00 PM | 103 | 80 | 112 | 96 | 391 | 769 |
| 03:00 PM | 89 | 131 | 113 | 120 | 453 | 03:00 PM | 76 | 86 | 121 | 123 | 406 | 859 |
| 04:00 PM | 80 | 115 | 109 | 125 | 429 | 04:00 PM | 115 | 114 | 109 | 90 | 428 | 857 |
| 05:00 PM | 119 | 87 | 106 | 109 | 421 | 05:00 PM | 115 | 96 | 88 | 74 | 373 | 794 |
| 06:00 PM | 95 | 75 | 83 | 80 | 333 | 06:00 PM | 101 | 94 | 84 | 80 | 359 | 692 |
| 07:00 PM | 72 | 65 | 94 | 55 | 286 | 07:00 PM | 74 | 61 | 64 | 68 | 267 | 553 |
| 08:00 PM | 46 | 42 | 57 | 53 | 198 | 08:00 PM | 59 | 38 | 55 | 37 | 189 | 387 |
| 09:00 PM | 40 | 29 | 30 | 21 | 120 | 09:00 PM | 46 | 29 | 37 | 29 | 141 | 261 |
| 10:00 PM | 29 | 30 | 33 | 12 | 104 | 10:00 PM | 26 | 25 | 22 | 21 | 94 | 198 |
| 11:00 PM | 16 | 17 | 10 | 9 | 52 | 11:00 PM | 13 | 9 | 5 | 6 | 33 | 85 |
| | | | 24 Hour Total | | 5,862 | | | | 24 Hour Total | | 5,054 | 10,916 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 08:15 AM Volume: 461
A.M. "K" Factor: 7.9% P.H.F. : 0.88
A.M. "D" Factor: 56.1%

P.M. Peak Hour, Time: 04:15 PM Volume: 468
P.M. "K" Factor: 8.0% P.H.F. : 0.94
P.M. "D" Factor: 52.2%

WESTBOUND

A.M. Peak Hour, Time: 08:15 AM Volume: 361
A.M. "K" Factor: 7.1% P.H.F. : 0.88
A.M. "D" Factor: 43.9%

P.M. Peak Hour, Time: 03:30 PM Volume: 473
P.M. "K" Factor: 9.4% P.H.F. : 0.96
P.M. "D" Factor: 52.5%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 08:15 AM Volume: 822
A.M. "K" Factor: 7.5% P.H.F. : 0.93
A.M. Hour "D" Factor: 56.1%

P.M. Peak Hour, Time: 03:30 PM Volume: 901
P.M. "K" Factor: 8.3% P.H.F. : 0.93
P.M. Hour "D" Factor: 52.5%

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 132 ST W/O Busway

Notice to Proceed : COUNT DATE: 03/20/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 13 | 12 | 10 | 5 | 40 | 12:00 AM | 3 | 7 | 3 | 5 | 18 | 58 |
| 01:00 AM | 5 | 9 | 5 | 8 | 27 | 01:00 AM | 4 | 3 | 1 | 2 | 10 | 37 |
| 02:00 AM | 6 | 0 | 4 | 5 | 15 | 02:00 AM | 7 | 1 | 3 | 0 | 11 | 26 |
| 03:00 AM | 0 | 4 | 4 | 8 | 16 | 03:00 AM | 0 | 3 | 2 | 2 | 7 | 23 |
| 04:00 AM | 8 | 3 | 2 | 6 | 19 | 04:00 AM | 3 | 0 | 2 | 7 | 12 | 31 |
| 05:00 AM | 3 | 10 | 10 | 7 | 30 | 05:00 AM | 12 | 4 | 20 | 32 | 68 | 98 |
| 06:00 AM | 13 | 20 | 34 | 44 | 111 | 06:00 AM | 41 | 60 | 80 | 92 | 273 | 384 |
| 07:00 AM | 50 | 87 | 72 | 78 | 287 | 07:00 AM | 67 | 104 | 110 | 120 | 401 | 688 |
| 08:00 AM | 96 | 94 | 115 | 131 | 436 | 08:00 AM | 144 | 99 | 143 | 129 | 515 | 951 |
| 09:00 AM | 114 | 128 | 115 | 144 | 501 | 09:00 AM | 111 | 99 | 104 | 121 | 435 | 936 |
| 10:00 AM | 159 | 126 | 127 | 137 | 549 | 10:00 AM | 96 | 101 | 109 | 124 | 430 | 979 |
| 11:00 AM | 142 | 146 | 154 | 192 | 634 | 11:00 AM | 116 | 117 | 123 | 114 | 470 | 1,104 |
| 12:00 PM | 169 | 157 | 173 | 172 | 671 | 12:00 PM | 109 | 114 | 117 | 113 | 453 | 1,124 |
| 01:00 PM | 162 | 154 | 162 | 158 | 636 | 01:00 PM | 139 | 129 | 129 | 122 | 519 | 1,155 |
| 02:00 PM | 170 | 158 | 155 | 201 | 684 | 02:00 PM | 102 | 129 | 117 | 144 | 492 | 1,176 |
| 03:00 PM | 188 | 177 | 189 | 198 | 752 | 03:00 PM | 99 | 143 | 117 | 116 | 475 | 1,227 |
| 04:00 PM | 140 | 160 | 196 | 187 | 683 | 04:00 PM | 96 | 111 | 92 | 104 | 403 | 1,086 |
| 05:00 PM | 250 | 197 | 194 | 153 | 794 | 05:00 PM | 117 | 77 | 78 | 86 | 358 | 1,152 |
| 06:00 PM | 142 | 149 | 155 | 107 | 553 | 06:00 PM | 97 | 91 | 64 | 59 | 311 | 864 |
| 07:00 PM | 122 | 93 | 84 | 74 | 373 | 07:00 PM | 65 | 56 | 56 | 60 | 237 | 610 |
| 08:00 PM | 74 | 64 | 74 | 60 | 272 | 08:00 PM | 39 | 33 | 26 | 59 | 157 | 429 |
| 09:00 PM | 55 | 38 | 39 | 53 | 185 | 09:00 PM | 35 | 25 | 14 | 13 | 87 | 272 |
| 10:00 PM | 33 | 36 | 27 | 27 | 123 | 10:00 PM | 20 | 19 | 11 | 24 | 74 | 197 |
| 11:00 PM | 33 | 33 | 39 | 26 | 131 | 11:00 PM | 7 | 5 | 8 | 16 | 36 | 167 |
| | | | 24 Hour Total | | 8,522 | | | | 24 Hour Total | | 6,252 | 14,774 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 11:45 AM Volume: 691
A.M. "K" Factor: 8.1% P.H.F. : 0.90
A.M. "D" Factor: 60.3%

P.M. Peak Hour, Time: 04:30 PM Volume: 830
P.M. "K" Factor: 9.7% P.H.F. : 0.83
P.M. "D" Factor: 68.0%

WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 515
A.M. "K" Factor: 8.2% P.H.F. : 0.89
A.M. "D" Factor: 54.2%

P.M. Peak Hour, Time: 01:00 PM Volume: 519
P.M. "K" Factor: 8.3% P.H.F. : 0.93
P.M. "D" Factor: 44.9%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 11:45 AM Volume: 1,145
A.M. "K" Factor: 7.8% P.H.F. : 0.94
A.M. Hour "D" Factor: 60.3%

P.M. Peak Hour, Time: 02:45 PM Volume: 1,258
P.M. "K" Factor: 8.5% P.H.F. : 0.91
P.M. Hour "D" Factor: 60.0%

MECHANICAL COUNTS

..OJECT NAME: Traffic Data Collection LOCATION: SW 144 ST W/O Busway

..otice to Proceed : COUNT DATE: 03/20/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 7 | 6 | 6 | 7 | 26 | 12:00 AM | 18 | 8 | 8 | 5 | 39 | 65 |
| 01:00 AM | 5 | 0 | 2 | 6 | 13 | 01:00 AM | 5 | 2 | 1 | 2 | 10 | 23 |
| 02:00 AM | 1 | 4 | 4 | 4 | 13 | 02:00 AM | 5 | 4 | 0 | 0 | 9 | 22 |
| 03:00 AM | 1 | 0 | 1 | 5 | 7 | 03:00 AM | 2 | 1 | 0 | 1 | 4 | 11 |
| 04:00 AM | 5 | 2 | 3 | 5 | 15 | 04:00 AM | 1 | 0 | 4 | 2 | 7 | 22 |
| 05:00 AM | 11 | 11 | 18 | 23 | 63 | 05:00 AM | 5 | 2 | 4 | 5 | 16 | 79 |
| 06:00 AM | 29 | 53 | 69 | 99 | 250 | 06:00 AM | 2 | 20 | 23 | 38 | 83 | 333 |
| 07:00 AM | 99 | 91 | 101 | 115 | 406 | 07:00 AM | 44 | 48 | 64 | 68 | 224 | 630 |
| 08:00 AM | 112 | 119 | 139 | 118 | 488 | 08:00 AM | 89 | 87 | 81 | 80 | 337 | 825 |
| 09:00 AM | 97 | 99 | 85 | 104 | 385 | 09:00 AM | 64 | 62 | 69 | 60 | 255 | 640 |
| 10:00 AM | 65 | 54 | 66 | 67 | 252 | 10:00 AM | 51 | 65 | 65 | 50 | 231 | 483 |
| 11:00 AM | 83 | 88 | 65 | 95 | 331 | 11:00 AM | 48 | 57 | 49 | 56 | 210 | 541 |
| 12:00 PM | 63 | 67 | 67 | 68 | 265 | 12:00 PM | 49 | 76 | 57 | 62 | 244 | 509 |
| 01:00 PM | 75 | 72 | 70 | 87 | 304 | 01:00 PM | 67 | 59 | 49 | 53 | 228 | 532 |
| ..2:00 PM | 88 | 97 | 90 | 133 | 408 | 02:00 PM | 64 | 82 | 87 | 101 | 334 | 742 |
| ..:00 PM | 118 | 117 | 250 | 245 | 730 | 03:00 PM | 114 | 101 | 101 | 84 | 400 | 1,130 |
| ..4:00 PM | 105 | 86 | 114 | 108 | 413 | 04:00 PM | 106 | 111 | 113 | 118 | 448 | 861 |
| 05:00 PM | 81 | 82 | 106 | 104 | 373 | 05:00 PM | 93 | 118 | 133 | 112 | 456 | 829 |
| 06:00 PM | 112 | 98 | 110 | 106 | 426 | 06:00 PM | 128 | 118 | 115 | 105 | 466 | 892 |
| 07:00 PM | 82 | 93 | 105 | 80 | 360 | 07:00 PM | 97 | 81 | 83 | 69 | 330 | 690 |
| 08:00 PM | 61 | 45 | 56 | 51 | 213 | 08:00 PM | 89 | 56 | 73 | 41 | 259 | 472 |
| 09:00 PM | 57 | 39 | 38 | 42 | 176 | 09:00 PM | 60 | 59 | 59 | 59 | 237 | 413 |
| 10:00 PM | 46 | 31 | 33 | 23 | 133 | 10:00 PM | 33 | 40 | 23 | 35 | 131 | 264 |
| 11:00 PM | 28 | 26 | 15 | 28 | 97 | 11:00 PM | 20 | 14 | 11 | 16 | 61 | 158 |
| | | | 24 Hour Total | | 6,147 | | | | 24 Hour Total | | 5,019 | 11,166 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 488
A.M. "K" Factor: 7.9% P.H.F. : 0.88
A.M. "D" Factor: 59.2%

P.M. Peak Hour, Time: 03:00 PM Volume: 730
P.M. "K" Factor: 11.9% P.H.F. : 0.73
P.M. "D" Factor: 64.6%

WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 337
A.M. "K" Factor: 6.7% P.H.F. : 0.95
A.M. "D" Factor: 40.8%

P.M. Peak Hour, Time: 05:15 PM Volume: 491
P.M. "K" Factor: 9.8% P.H.F. : 0.92
P.M. "D" Factor: 54.9%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 825
A.M. "K" Factor: 7.4% P.H.F. : 0.94
A.M. Hour "D" Factor: 59.2%

P.M. Peak Hour, Time: 03:00 PM Volume: 1,130
P.M. "K" Factor: 10.1% P.H.F. : 0.80
P.M. Hour "D" Factor: 64.6%

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 152 ST W/O Busway

Notice to Proceed : COUNT DATE: 03/20/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 25 | 16 | 22 | 13 | 76 | 12:00 AM | 36 | 24 | 26 | 28 | 114 | 190 |
| 01:00 AM | 12 | 14 | 15 | 9 | 50 | 01:00 AM | 17 | 25 | 15 | 18 | 75 | 125 |
| 02:00 AM | 7 | 10 | 9 | 6 | 32 | 02:00 AM | 12 | 10 | 10 | 14 | 46 | 78 |
| 03:00 AM | 2 | 4 | 7 | 17 | 30 | 03:00 AM | 7 | 10 | 9 | 6 | 32 | 62 |
| 04:00 AM | 19 | 18 | 23 | 52 | 112 | 04:00 AM | 1 | 10 | 12 | 23 | 46 | 158 |
| 05:00 AM | 27 | 53 | 74 | 124 | 278 | 05:00 AM | 15 | 23 | 28 | 51 | 117 | 395 |
| 06:00 AM | 165 | 207 | 219 | 251 | 842 | 06:00 AM | 81 | 105 | 156 | 243 | 585 | 1,427 |
| 07:00 AM | 250 | 272 | 273 | 254 | 1,049 | 07:00 AM | 346 | 307 | 222 | 256 | 1,131 | 2,180 |
| 08:00 AM | 250 | 265 | 295 | 269 | 1,079 | 08:00 AM | 229 | 244 | 259 | 206 | 938 | 2,017 |
| 09:00 AM | 290 | 244 | 255 | 228 | 1,017 | 09:00 AM | 200 | 184 | 224 | 199 | 807 | 1,824 |
| 10:00 AM | 218 | 218 | 211 | 227 | 874 | 10:00 AM | 210 | 206 | 174 | 206 | 796 | 1,670 |
| 11:00 AM | 219 | 215 | 224 | 228 | 886 | 11:00 AM | 235 | 229 | 226 | 227 | 917 | 1,803 |
| 12:00 PM | 197 | 206 | 230 | 221 | 854 | 12:00 PM | 265 | 250 | 279 | 259 | 1,053 | 1,907 |
| 01:00 PM | 191 | 206 | 197 | 235 | 829 | 01:00 PM | 260 | 262 | 278 | 267 | 1,067 | 1,896 |
| :00 PM | 240 | 231 | 249 | 285 | 1,005 | 02:00 PM | 294 | 230 | 222 | 274 | 1,020 | 2,025 |
| :00 PM | 245 | 235 | 250 | 245 | 975 | 03:00 PM | 249 | 299 | 270 | 296 | 1,114 | 2,089 |
| 04:00 PM | 353 | 269 | 281 | 259 | 1,162 | 04:00 PM | 321 | 333 | 286 | 322 | 1,262 | 2,424 |
| 05:00 PM | 298 | 253 | 322 | 280 | 1,153 | 05:00 PM | 330 | 364 | 366 | 359 | 1,419 | 2,572 |
| 06:00 PM | 245 | 239 | 197 | 183 | 864 | 06:00 PM | 369 | 266 | 274 | 231 | 1,140 | 2,004 |
| 07:00 PM | 148 | 181 | 157 | 130 | 616 | 07:00 PM | 181 | 189 | 174 | 135 | 679 | 1,295 |
| 08:00 PM | 138 | 112 | 102 | 92 | 444 | 08:00 PM | 147 | 161 | 127 | 104 | 539 | 983 |
| 09:00 PM | 86 | 79 | 85 | 60 | 310 | 09:00 PM | 111 | 121 | 108 | 74 | 414 | 724 |
| 10:00 PM | 72 | 60 | 62 | 35 | 229 | 10:00 PM | 55 | 51 | 75 | 49 | 230 | 459 |
| 11:00 PM | 38 | 47 | 44 | 30 | 159 | 11:00 PM | 35 | 45 | 50 | 35 | 165 | 324 |
| | | | 24 Hour Total | | 14,925 | | | | 24 Hour Total | | 15,706 | 30,631 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 08:15 AM Volume: 1,119
A.M. "K" Factor: 7.5% P.H.F. : 0.95
A.M. "D" Factor: 55.2%

P.M. Peak Hour, Time: 04:00 PM Volume: 1,162
P.M. "K" Factor: 7.8% P.H.F. : 0.82
P.M. "D" Factor: 47.9%

WESTBOUND

A.M. Peak Hour, Time: 07:00 AM Volume: 1,131
A.M. "K" Factor: 7.2% P.H.F. : 0.82
A.M. "D" Factor: 51.9%

P.M. Peak Hour, Time: 05:15 PM Volume: 1,458
P.M. "K" Factor: 9.3% P.H.F. : 0.99
P.M. "D" Factor: 57.0%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 07:00 AM Volume: 2,180
A.M. "K" Factor: 7.1% P.H.F. : 0.91
A.M. Hour "D" Factor: 51.9%

P.M. Peak Hour, Time: 05:00 PM Volume: 2,572
P.M. "K" Factor: 8.4% P.H.F. : 0.93
P.M. Hour "D" Factor: 55.2%

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 168 ST W/O Busway

Notice to Proceed : COUNT DATE: 03/13/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 10 | 10 | 8 | 8 | 36 | 12:00 AM | 13 | 8 | 6 | 9 | 36 | 72 |
| 01:00 AM | 4 | 5 | 2 | 3 | 14 | 01:00 AM | 8 | 5 | 4 | 5 | 22 | 36 |
| 02:00 AM | 3 | 2 | 2 | 4 | 11 | 02:00 AM | 2 | 3 | 2 | 1 | 8 | 19 |
| 03:00 AM | 5 | 3 | 4 | 3 | 15 | 03:00 AM | 0 | 2 | 1 | 1 | 4 | 19 |
| 04:00 AM | 4 | 4 | 3 | 10 | 21 | 04:00 AM | 1 | 5 | 3 | 3 | 12 | 33 |
| 05:00 AM | 11 | 10 | 25 | 27 | 73 | 05:00 AM | 2 | 8 | 18 | 11 | 39 | 112 |
| 06:00 AM | 41 | 51 | 104 | 122 | 318 | 06:00 AM | 19 | 24 | 30 | 38 | 111 | 429 |
| 07:00 AM | 96 | 120 | 141 | 136 | 493 | 07:00 AM | 49 | 60 | 65 | 47 | 221 | 714 |
| 08:00 AM | 152 | 92 | 106 | 96 | 446 | 08:00 AM | 73 | 75 | 83 | 80 | 311 | 757 |
| 09:00 AM | 89 | 76 | 84 | 87 | 336 | 09:00 AM | 65 | 69 | 67 | 51 | 252 | 588 |
| 10:00 AM | 85 | 85 | 77 | 77 | 324 | 10:00 AM | 63 | 48 | 52 | 55 | 218 | 542 |
| 11:00 AM | 67 | 93 | 81 | 79 | 320 | 11:00 AM | 52 | 75 | 83 | 71 | 281 | 601 |
| 12:00 PM | 99 | 79 | 87 | 61 | 326 | 12:00 PM | 76 | 82 | 66 | 84 | 308 | 634 |
| 01:00 PM | 89 | 74 | 70 | 77 | 310 | 01:00 PM | 74 | 87 | 67 | 82 | 310 | 620 |
| 02:00 PM | 88 | 88 | 86 | 98 | 360 | 02:00 PM | 92 | 65 | 73 | 98 | 328 | 688 |
| 03:00 PM | 114 | 106 | 90 | 92 | 402 | 03:00 PM | 96 | 101 | 105 | 138 | 440 | 842 |
| 04:00 PM | 95 | 92 | 107 | 90 | 384 | 04:00 PM | 126 | 117 | 108 | 117 | 468 | 852 |
| 05:00 PM | 89 | 100 | 88 | 92 | 369 | 05:00 PM | 139 | 124 | 148 | 110 | 521 | 890 |
| 06:00 PM | 82 | 76 | 75 | 65 | 298 | 06:00 PM | 106 | 94 | 113 | 79 | 392 | 690 |
| 07:00 PM | 68 | 70 | 44 | 41 | 223 | 07:00 PM | 80 | 60 | 81 | 52 | 273 | 496 |
| 08:00 PM | 50 | 50 | 50 | 41 | 191 | 08:00 PM | 53 | 52 | 57 | 52 | 214 | 405 |
| 09:00 PM | 38 | 49 | 45 | 23 | 155 | 09:00 PM | 44 | 55 | 42 | 40 | 181 | 336 |
| 10:00 PM | 35 | 24 | 20 | 11 | 90 | 10:00 PM | 47 | 31 | 32 | 29 | 139 | 229 |
| 11:00 PM | 20 | 10 | 10 | 13 | 53 | 11:00 PM | 23 | 22 | 17 | 20 | 82 | 135 |
| | | | 24 Hour Total | | 5,568 | | | | 24 Hour Total | | 5,171 | 10,739 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:15 AM | Volume: | 549 |
| A.M. "K" Factor: | 9.9% | P.H.F. : | 0.90 |
| A.M. "D" Factor: | 69.1% | | |
| P.M. Peak Hour, Time: | 02:45 PM | Volume: | 408 |
| P.M. "K" Factor: | 7.3% | P.H.F. : | 0.89 |
| P.M. "D" Factor: | 50.5% | | |

WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 11:30 AM | Volume: | 312 |
| A.M. "K" Factor: | 6.0% | P.H.F. : | 0.94 |
| A.M. "D" Factor: | 48.0% | | |
| P.M. Peak Hour, Time: | 04:45 PM | Volume: | 528 |
| P.M. "K" Factor: | 10.2% | P.H.F. : | 0.89 |
| P.M. "D" Factor: | 59.0% | | |

BOTHWAY:

EASTBOUND and WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:15 AM | Volume: | 794 |
| A.M. "K" Factor: | 7.4% | P.H.F. : | 0.88 |
| A.M. Hour "D" Factor: | 69.1% | | |
| P.M. Peak Hour, Time: | 04:45 PM | Volume: | 895 |
| P.M. "K" Factor: | 8.3% | P.H.F. : | 0.95 |
| P.M. Hour "D" Factor: | 59.0% | | |

MECHANICAL COUNTS

OJECT NAME: Traffic Data Collection LOCATION: SW 173 ST/Banyan St. w/o busway

ice to Proceed : COUNT DATE: 03/13/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 8 | 8 | 5 | 6 | 27 | 12:00 AM | 6 | 12 | 5 | 5 | 28 | 55 |
| 01:00 AM | 2 | 2 | 5 | 1 | 10 | 01:00 AM | 4 | 6 | 2 | 2 | 14 | 24 |
| 02:00 AM | 3 | 2 | 8 | 2 | 15 | 02:00 AM | 3 | 13 | 1 | 3 | 20 | 35 |
| 03:00 AM | 2 | 1 | 1 | 5 | 9 | 03:00 AM | 4 | 1 | 1 | 1 | 7 | 16 |
| 04:00 AM | 3 | 2 | 6 | 2 | 13 | 04:00 AM | 0 | 0 | 4 | 1 | 5 | 18 |
| 05:00 AM | 3 | 4 | 2 | 8 | 17 | 05:00 AM | 2 | 4 | 5 | 2 | 13 | 30 |
| 06:00 AM | 6 | 12 | 15 | 16 | 49 | 06:00 AM | 7 | 10 | 10 | 22 | 49 | 98 |
| 07:00 AM | 18 | 33 | 34 | 49 | 134 | 07:00 AM | 17 | 19 | 30 | 31 | 97 | 231 |
| 08:00 AM | 46 | 38 | 44 | 54 | 182 | 08:00 AM | 26 | 35 | 27 | 44 | 132 | 314 |
| 09:00 AM | 37 | 42 | 24 | 44 | 147 | 09:00 AM | 33 | 14 | 22 | 30 | 99 | 246 |
| 10:00 AM | 31 | 26 | 31 | 19 | 107 | 10:00 AM | 33 | 23 | 42 | 32 | 130 | 237 |
| 11:00 AM | 36 | 36 | 34 | 32 | 138 | 11:00 AM | 36 | 21 | 35 | 32 | 124 | 262 |
| 12:00 PM | 43 | 43 | 33 | 31 | 150 | 12:00 PM | 38 | 32 | 36 | 30 | 136 | 286 |
| 01:00 PM | 37 | 37 | 27 | 25 | 126 | 01:00 PM | 37 | 32 | 31 | 33 | 133 | 259 |
| 02:00 PM | 31 | 46 | 32 | 39 | 148 | 02:00 PM | 30 | 43 | 32 | 32 | 137 | 285 |
| 03:00 PM | 44 | 41 | 45 | 50 | 180 | 03:00 PM | 45 | 35 | 47 | 36 | 163 | 343 |
| 04:00 PM | 50 | 38 | 31 | 39 | 158 | 04:00 PM | 48 | 36 | 31 | 51 | 166 | 324 |
| 05:00 PM | 48 | 42 | 58 | 44 | 192 | 05:00 PM | 32 | 33 | 47 | 42 | 154 | 346 |
| 06:00 PM | 49 | 30 | 27 | 30 | 136 | 06:00 PM | 39 | 36 | 21 | 37 | 133 | 269 |
| 07:00 PM | 28 | 24 | 23 | 15 | 90 | 07:00 PM | 19 | 24 | 23 | 14 | 80 | 170 |
| 08:00 PM | 19 | 20 | 14 | 14 | 67 | 08:00 PM | 12 | 24 | 15 | 7 | 58 | 125 |
| 09:00 PM | 15 | 9 | 13 | 15 | 52 | 09:00 PM | 15 | 12 | 12 | 14 | 53 | 105 |
| 10:00 PM | 12 | 6 | 11 | 12 | 41 | 10:00 PM | 16 | 12 | 11 | 10 | 49 | 90 |
| 11:00 PM | 3 | 12 | 9 | 8 | 32 | 11:00 PM | 10 | 9 | 7 | 13 | 39 | 71 |
| | | | 24 Hour Total | | 2,220 | | | | 24 Hour Total | | 2,019 | 4,239 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 182
A.M. "K" Factor: 8.2% P.H.F. : 0.84
A.M. "D" Factor: 58.0%

P.M. Peak Hour, Time: 05:15 PM Volume: 193
P.M. "K" Factor: 8.7% P.H.F. : 0.83
P.M. "D" Factor: 54.5%

WESTBOUND

A.M. Peak Hour, Time: 08:15 AM Volume: 139
A.M. "K" Factor: 6.9% P.H.F. : 0.79
A.M. "D" Factor: 44.6%

P.M. Peak Hour, Time: 03:30 PM Volume: 167
P.M. "K" Factor: 8.3% P.H.F. : 0.87
P.M. "D" Factor: 47.7%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 08:00 AM Volume: 314
A.M. "K" Factor: 7.4% P.H.F. : 0.80
A.M. Hour "D" Factor: 58.0%

P.M. Peak Hour, Time: 05:15 PM Volume: 354
P.M. "K" Factor: 8.4% P.H.F. : 0.84
P.M. Hour "D" Factor: 54.5%

MECHANICAL COUNTS

PROJECT NAME: Traffic Data Collection

LOCATION: SW 176 St/Hibiscus St. w/o busway

Notice to Proceed :

COUNT DATE: 03/13/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 1 | 0 | 3 | 4 | 8 | 12:00 AM | 2 | 3 | 1 | 1 | 7 | 15 |
| 01:00 AM | 1 | 2 | 1 | 0 | 4 | 01:00 AM | 0 | 0 | 2 | 1 | 3 | 7 |
| 02:00 AM | 1 | 1 | 1 | 1 | 4 | 02:00 AM | 0 | 0 | 1 | 2 | 3 | 7 |
| 03:00 AM | 2 | 0 | 0 | 0 | 2 | 03:00 AM | 0 | 0 | 2 | 0 | 2 | 4 |
| 04:00 AM | 0 | 0 | 3 | 3 | 6 | 04:00 AM | 1 | 1 | 0 | 0 | 2 | 8 |
| 05:00 AM | 1 | 3 | 2 | 5 | 11 | 05:00 AM | 0 | 0 | 1 | 2 | 3 | 14 |
| 06:00 AM | 3 | 3 | 8 | 15 | 29 | 06:00 AM | 1 | 2 | 4 | 3 | 10 | 39 |
| 07:00 AM | 8 | 9 | 17 | 25 | 59 | 07:00 AM | 4 | 8 | 13 | 10 | 35 | 94 |
| 08:00 AM | 21 | 26 | 28 | 15 | 90 | 08:00 AM | 18 | 25 | 22 | 21 | 86 | 176 |
| 09:00 AM | 22 | 17 | 18 | 11 | 68 | 09:00 AM | 9 | 17 | 16 | 19 | 61 | 129 |
| 10:00 AM | 31 | 15 | 12 | 18 | 76 | 10:00 AM | 17 | 23 | 13 | 21 | 74 | 150 |
| 11:00 AM | 19 | 22 | 16 | 25 | 82 | 11:00 AM | 13 | 15 | 18 | 17 | 63 | 145 |
| 12:00 PM | 25 | 21 | 19 | 18 | 83 | 12:00 PM | 14 | 25 | 30 | 15 | 84 | 167 |
| 01:00 PM | 13 | 17 | 18 | 29 | 77 | 01:00 PM | 20 | 26 | 21 | 18 | 85 | 162 |
| 02:00 PM | 18 | 18 | 20 | 31 | 87 | 02:00 PM | 14 | 24 | 19 | 26 | 83 | 170 |
| 03:00 PM | 23 | 30 | 25 | 27 | 105 | 03:00 PM | 34 | 20 | 25 | 28 | 107 | 212 |
| 04:00 PM | 29 | 23 | 25 | 24 | 101 | 04:00 PM | 30 | 25 | 25 | 31 | 111 | 212 |
| 05:00 PM | 14 | 23 | 25 | 18 | 80 | 05:00 PM | 33 | 26 | 53 | 24 | 136 | 216 |
| 06:00 PM | 20 | 13 | 17 | 16 | 66 | 06:00 PM | 27 | 12 | 20 | 12 | 71 | 137 |
| 07:00 PM | 17 | 10 | 7 | 7 | 41 | 07:00 PM | 14 | 14 | 9 | 5 | 42 | 83 |
| 08:00 PM | 5 | 5 | 6 | 6 | 22 | 08:00 PM | 5 | 7 | 4 | 4 | 20 | 42 |
| 09:00 PM | 12 | 6 | 8 | 4 | 30 | 09:00 PM | 3 | 4 | 7 | 5 | 19 | 49 |
| 10:00 PM | 7 | 7 | 3 | 7 | 24 | 10:00 PM | 1 | 2 | 4 | 2 | 9 | 33 |
| 11:00 PM | 6 | 2 | 2 | 5 | 15 | 11:00 PM | 4 | 4 | 1 | 1 | 10 | 25 |
| | | | 24 Hour Total | | 1,170 | | | | 24 Hour Total | | 1,126 | 2,296 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:45 AM | Volume: | 100 |
| A.M. "K" Factor: | 8.5% | P.H.F. : | 0.89 |
| A.M. "D" Factor: | 57.1% | | |
| P.M. Peak Hour, Time: | 03:15 PM | Volume: | 111 |
| P.M. "K" Factor: | 9.5% | P.H.F. : | 0.93 |
| P.M. "D" Factor: | 51.9% | | |

WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 08:00 AM | Volume: | 86 |
| A.M. "K" Factor: | 7.6% | P.H.F. : | 0.86 |
| A.M. "D" Factor: | 48.9% | | |
| P.M. Peak Hour, Time: | 04:45 PM | Volume: | 143 |
| P.M. "K" Factor: | 12.7% | P.H.F. : | 0.67 |
| P.M. "D" Factor: | 62.4% | | |

BOTHWAY:

EASTBOUND and WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 08:00 AM | Volume: | 176 |
| A.M. "K" Factor: | 7.7% | P.H.F. : | 0.86 |
| A.M. Hour "D" Factor: | 51.1% | | |
| P.M. Peak Hour, Time: | 04:45 PM | Volume: | 229 |
| P.M. "K" Factor: | 10.0% | P.H.F. : | 0.73 |
| P.M. Hour "D" Factor: | 62.4% | | |

MECHANICAL COUNTS

ROJECT NAME: Traffic Data Collection LOCATION: SW 184 St/Eureka Dr.
w/o busway

Notice to Proceed : COUNT DATE: 03/13/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 23 | 21 | 13 | 16 | 73 | 12:00 AM | 29 | 35 | 22 | 23 | 109 | 182 |
| 01:00 AM | 14 | 11 | 16 | 12 | 53 | 01:00 AM | 19 | 13 | 10 | 10 | 52 | 105 |
| 02:00 AM | 8 | 8 | 6 | 13 | 35 | 02:00 AM | 7 | 8 | 14 | 10 | 39 | 74 |
| 03:00 AM | 7 | 6 | 7 | 6 | 26 | 03:00 AM | 11 | 8 | 1 | 15 | 35 | 61 |
| 04:00 AM | 13 | 9 | 16 | 20 | 58 | 04:00 AM | 14 | 10 | 14 | 14 | 52 | 110 |
| 05:00 AM | 18 | 21 | 50 | 71 | 160 | 05:00 AM | 13 | 29 | 44 | 45 | 131 | 291 |
| 06:00 AM | 80 | 100 | 132 | 163 | 475 | 06:00 AM | 51 | 86 | 126 | 141 | 404 | 879 |
| 07:00 AM | 160 | 179 | 315 | 254 | 908 | 07:00 AM | 139 | 127 | 139 | 163 | 568 | 1,476 |
| 08:00 AM | 262 | 268 | 290 | 218 | 1,038 | 08:00 AM | 196 | 209 | 174 | 170 | 749 | 1,787 |
| 09:00 AM | 199 | 172 | 151 | 161 | 683 | 09:00 AM | 167 | 166 | 145 | 131 | 609 | 1,292 |
| 10:00 AM | 184 | 144 | 125 | 163 | 616 | 10:00 AM | 123 | 118 | 142 | 153 | 536 | 1,152 |
| 11:00 AM | 151 | 152 | 134 | 154 | 591 | 11:00 AM | 130 | 140 | 138 | 159 | 567 | 1,158 |
| 12:00 PM | 175 | 156 | 176 | 178 | 685 | 12:00 PM | 149 | 183 | 169 | 156 | 657 | 1,342 |
| 01:00 PM | 175 | 144 | 158 | 170 | 647 | 01:00 PM | 183 | 165 | 175 | 169 | 692 | 1,339 |
| 02:00 PM | 158 | 177 | 191 | 221 | 747 | 02:00 PM | 170 | 149 | 180 | 184 | 683 | 1,430 |
| 03:00 PM | 211 | 194 | 190 | 196 | 791 | 03:00 PM | 238 | 212 | 170 | 195 | 815 | 1,606 |
| 04:00 PM | 181 | 209 | 201 | 197 | 788 | 04:00 PM | 188 | 204 | 199 | 184 | 775 | 1,563 |
| 05:00 PM | 190 | 188 | 164 | 191 | 733 | 05:00 PM | 241 | 206 | 204 | 225 | 876 | 1,609 |
| 06:00 PM | 207 | 167 | 180 | 173 | 727 | 06:00 PM | 247 | 198 | 204 | 192 | 841 | 1,568 |
| 07:00 PM | 156 | 146 | 120 | 141 | 563 | 07:00 PM | 182 | 167 | 167 | 156 | 672 | 1,235 |
| 08:00 PM | 113 | 106 | 111 | 121 | 451 | 08:00 PM | 132 | 139 | 119 | 125 | 515 | 966 |
| 09:00 PM | 83 | 81 | 70 | 92 | 326 | 09:00 PM | 114 | 116 | 99 | 108 | 437 | 763 |
| 10:00 PM | 69 | 59 | 59 | 50 | 237 | 10:00 PM | 76 | 85 | 77 | 59 | 297 | 534 |
| 11:00 PM | 45 | 28 | 43 | 18 | 134 | 11:00 PM | 65 | 55 | 55 | 37 | 212 | 346 |
| | | 24 Hour Total | | | 11,545 | | | | 24 Hour Total | | 11,323 | 22,868 |

## DAILY TRAFFIC COUNT SUMMARY

**EASTBOUND**

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:30 AM | Volume: | 1,099 |
| A.M. "K" Factor: | 9.5% | P.H.F. : | 0.87 |
| A.M. "D" Factor: | 60.9% | | |
| P.M. Peak Hour, Time: | 02:30 PM | Volume: | 817 |
| P.M. "K" Factor: | 7.1% | P.H.F. : | 0.92 |
| P.M. "D" Factor: | 50.1% | | |

**WESTBOUND**

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 08:00 AM | Volume: | 749 |
| A.M. "K" Factor: | 6.6% | P.H.F. : | 0.90 |
| A.M. "D" Factor: | 41.9% | | |
| P.M. Peak Hour, Time: | 05:15 PM | Volume: | 882 |
| P.M. "K" Factor: | 7.8% | P.H.F. : | 0.89 |
| P.M. "D" Factor: | 54.0% | | |

**BOTHWAY:**

EASTBOUND and WESTBOUND

| | | | |
|---|---|---|---|
| A.M. Peak Hour, Time: | 07:45 AM | Volume: | 1,816 |
| A.M. "K" Factor: | 7.9% | P.H.F. : | 0.95 |
| A.M. Hour "D" Factor: | 59.1% | | |
| P.M. Peak Hour, Time: | 05:15 PM | Volume: | 1,632 |
| P.M. "K" Factor: | 7.1% | P.H.F. : | 0.90 |
| P.M. Hour "D" Factor: | 54.0% | | |

MECHANICAL COUNTS

JECT NAME: Traffic Data Collection LOCATION: SW 112 AVE W/O Busway

otice to Proceed : COUNT DATE: 03/15/01

| EASTBOUND | | | | | | WESTBOUND | | | | | | BOTHWAY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TIME | 1st ¼ | 2nd ¼ | 3rd ¼ | 4th ¼ | TOTAL | TOTAL |
| 12:00 AM | 2 | 0 | 3 | 0 | 5 | 12:00 AM | 0 | 10 | 0 | 0 | 10 | 15 |
| 01:00 AM | 0 | 0 | 0 | 0 | 0 | 01:00 AM | 16 | 0 | 0 | 1 | 17 | 17 |
| 02:00 AM | 2 | 0 | 0 | 0 | 2 | 02:00 AM | 0 | 0 | 0 | 0 | 0 | 2 |
| 03:00 AM | 0 | 0 | 3 | 2 | 5 | 03:00 AM | 0 | 0 | 2 | 0 | 2 | 7 |
| 04:00 AM | 5 | 0 | 0 | 0 | 5 | 04:00 AM | 11 | 1 | 0 | 0 | 12 | 17 |
| 05:00 AM | 0 | 0 | 0 | 2 | 2 | 05:00 AM | 4 | 2 | 0 | 2 | 8 | 10 |
| 06:00 AM | 19 | 0 | 0 | 7 | 26 | 06:00 AM | 2 | 6 | 7 | 6 | 21 | 47 |
| 07:00 AM | 0 | 7 | 22 | 24 | 53 | 07:00 AM | 8 | 17 | 10 | 22 | 57 | 110 |
| 08:00 AM | 32 | 39 | 33 | 43 | 147 | 08:00 AM | 3 | 23 | 20 | 39 | 85 | 232 |
| 09:00 AM | 41 | 41 | 16 | 50 | 148 | 09:00 AM | 37 | 20 | 28 | 18 | 103 | 251 |
| 10:00 AM | 61 | 45 | 31 | 55 | 192 | 10:00 AM | 46 | 57 | 35 | 56 | 194 | 386 |
| 11:00 AM | 51 | 53 | 58 | 36 | 198 | 11:00 AM | 44 | 50 | 46 | 67 | 207 | 405 |
| 12:00 PM | 47 | 52 | 71 | 54 | 224 | 12:00 PM | 69 | 69 | 60 | 66 | 264 | 488 |
| 01:00 PM | 40 | 67 | 47 | 65 | 219 | 01:00 PM | 66 | 53 | 61 | 75 | 255 | 474 |
| 02:00 PM | 43 | 46 | 38 | 68 | 195 | 02:00 PM | 61 | 41 | 45 | 67 | 214 | 409 |
| 03:00 PM | 57 | 53 | 61 | 48 | 219 | 03:00 PM | 46 | 49 | 54 | 71 | 220 | 439 |
| 04:00 PM | 75 | 55 | 46 | 66 | 242 | 04:00 PM | 49 | 50 | 68 | 50 | 217 | 459 |
| 05:00 PM | 44 | 89 | 78 | 85 | 296 | 05:00 PM | 80 | 37 | 67 | 66 | 250 | 546 |
| 06:00 PM | 60 | 63 | 47 | 90 | 260 | 06:00 PM | 63 | 65 | 57 | 51 | 236 | 496 |
| 07:00 PM | 54 | 49 | 88 | 72 | 263 | 07:00 PM | 52 | 51 | 69 | 69 | 241 | 504 |
| 08:00 PM | 102 | 60 | 52 | 53 | 267 | 08:00 PM | 87 | 64 | 58 | 41 | 250 | 517 |
| 09:00 PM | 37 | 33 | 34 | 34 | 138 | 09:00 PM | 69 | 47 | 27 | 50 | 193 | 331 |
| 10:00 PM | 7 | 6 | 9 | 2 | 24 | 10:00 PM | 41 | 8 | 4 | 11 | 64 | 88 |
| 11:00 PM | 15 | 3 | 0 | 7 | 25 | 11:00 PM | 4 | 2 | 2 | 0 | 8 | 33 |
| | | | 24 Hour Total | | 3,155 | | | | 24 Hour Total | | 3,128 | 6,283 |

DAILY TRAFFIC COUNT SUMMARY

EASTBOUND

A.M. Peak Hour, Time: 10:45 AM Volume: 217
A.M. "K" Factor: 6.9% P.H.F. : 0.94
A.M. "D" Factor: 52.5%

P.M. Peak Hour, Time: 07:30 PM Volume: 322
P.M. "K" Factor: 10.2% P.H.F. : 0.79
P.M. "D" Factor: 52.7%

WESTBOUND

A.M. Peak Hour, Time: 11:45 AM Volume: 265
A.M. "K" Factor: 8.5% P.H.F. : 0.96
A.M. "D" Factor: 56.3%

P.M. Peak Hour, Time: 07:30 PM Volume: 289
P.M. "K" Factor: 9.2% P.H.F. : 0.83
P.M. "D" Factor: 47.3%

BOTHWAY:

EASTBOUND and WESTBOUND

A.M. Peak Hour, Time: 11:45 AM Volume: 471
A.M. "K" Factor: 7.5% P.H.F. : 0.90
A.M. Hour "D" Factor: 56.3%

P.M. Peak Hour, Time: 07:30 PM Volume: 611
P.M. "K" Factor: 9.7% P.H.F. : 0.81
P.M. Hour "D" Factor: 52.7%

# APPENDIX D

# Crash Summary Tables, Graphs and Collision Diagrams

# Crash Summaries for all Intersections Combined

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** ALL INTERSECTIONS

| | TYPE OF CRASH | NUMBER OF CRASHES | | | | 4 Year | Percent | Mean |
|---|---|---|---|---|---|---|---|---|
| | | YEAR | | | | TOTAL | OF | Crashes |
| | | 1997 | 1998 | 1999 | 2000 | ACC. | TOTAL | PER YEAR |
| COLLISION TYPE | Angle - SBR/SB | 0 | 2 | 1 | 0 | 3 | 4% | 0.78 |
| | Angle - SBR/NB | 1 | 1 | 2 | 4 | 8 | 12% | 2.09 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 1 | 1 | 5 | 0 | 7 | 10% | 1.83 |
| | Angle - EB/SB | 9 | 6 | 8 | 1 | 24 | 36% | 6.28 |
| | Angle - EB/NB | 4 | 2 | 12 | 4 | 22 | 33% | 5.76 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 2 | 2 | 3% | 0.52 |
| | OTHER | 0 | 0 | 1 | 0 | 1 | 1% | 0.26 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TOTAL CRASHES | 15 | 12 | 29 | 11 | 67 | 100% | 17.53 |
| LOCATION TYPE | US 1 | 1 | 4 | 3 | 7 | 15 | 22% | 0.36 |
| | ISOLATED | 13 | 7 | 25 | 3 | 48 | 72% | 2.09 |
| | OTHER | 1 | 1 | 1 | 1 | 4 | 6% | 0.52 |
| BUS STOP LOCATION | DOWNSTREAM | 12 | 9 | 27 | 10 | 58 | 87% | 0.40 |
| | UPSTREAM | 3 | 3 | 1 | 1 | 8 | 12% | 0.23 |
| SEVERITY | PROPERTY DAMAGE ONLY | 2 | 1 | 10 | 3 | 16 | 24% | 4.19 |
| | INJURY | 13 | 11 | 17 | 8 | 49 | 73% | 12.82 |
| | FATAL | 0 | 0 | 2 | 0 | 2 | 3% | 0.52 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 2 | 0 | 2 | 3% | 0.52 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 4 | 0 | 5 | 0 | 9 | 13% | 2.35 |
| | DAYLIGHT | 11 | 11 | 23 | 10 | 55 | 82% | 14.39 |
| | DAWN/DUSK | 0 | 1 | 1 | 1 | 3 | 4% | 0.78 |
| SURFACE CONDITION | DRY | 13 | 10 | 23 | 11 | 57 | 85% | 14.91 |
| | WET | 1 | 2 | 5 | 0 | 8 | 12% | 2.09 |
| | UNKNOWN | 1 | 0 | 1 | 0 | 2 | 3% | 0.52 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 1 | 2 | 3 | 4% | 0.78 |
| | FEBRUARY | 4 | 1 | 1 | 1 | 7 | 10% | 1.83 |
| | MARCH | 2 | 2 | 1 | 0 | 5 | 7% | 1.31 |
| | APRIL | 4 | 0 | 2 | 1 | 7 | 10% | 1.83 |
| | MAY | 0 | 0 | 1 | 0 | 1 | 1% | 0.26 |
| | JUNE | 3 | 0 | 4 | 0 | 7 | 10% | 1.83 |
| | JULY | 0 | 0 | 4 | 1 | 5 | 7% | 1.31 |
| | AUGUST | 0 | 2 | 3 | 1 | 6 | 9% | 1.57 |
| | SEPTEMBER | 1 | 2 | 5 | 1 | 9 | 13% | 2.35 |
| | OCTOBER | 0 | 2 | 4 | 3 | 9 | 13% | 2.35 |
| | NOVEMBER | 1 | 3 | 1 | 1 | 6 | 9% | 1.57 |
| | DECEMBER | 0 | 0 | 2 | 0 | 2 | 3% | 0.52 |
| DAY OF WEEK | SUNDAY | 1 | 1 | 6 | 2 | 10 | 15% | 2.62 |
| | MONDAY | 3 | 2 | 5 | 3 | 13 | 19% | 3.40 |
| | TUESDAY | 3 | 1 | 6 | 3 | 13 | 19% | 3.40 |
| | WEDNESDAY | 2 | 5 | 5 | 0 | 12 | 18% | 3.14 |
| | THURSDAY | 2 | 0 | 2 | 0 | 4 | 6% | 1.05 |
| | FRIDAY | 1 | 1 | 2 | 0 | 4 | 6% | 1.05 |
| | SATURDAY | 3 | 2 | 3 | 3 | 11 | 16% | 2.88 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 1 | 0 | 1 | 1% | 0.26 |
| | 07:00 - 09:00 | 1 | 1 | 2 | 2 | 6 | 9% | 1.57 |
| | 09:00 - 11:00 | 5 | 2 | 4 | 2 | 13 | 19% | 3.40 |
| | 11:00 - 14:00 | 2 | 2 | 3 | 2 | 9 | 13% | 2.35 |
| | 14:00 - 16:00 | 0 | 4 | 4 | 0 | 8 | 12% | 2.09 |
| | 16:00 - 19:00 | 4 | 2 | 9 | 4 | 19 | 28% | 4.97 |
| | 19:00 - 22:00 | 3 | 0 | 3 | 1 | 7 | 10% | 1.83 |
| | 22:00 - 01:00 | 0 | 1 | 3 | 0 | 4 | 6% | 1.05 |

SOUTH MIAMI-DADE BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: ALL INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/04/97 | TUE | 09:20 | A-EB/NB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 2 | 02/19/97 | WED | 13:45 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 3 | 02/22/97 | SAT | 16:15 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 4 | 02/25/97 | TUE | 19:22 | A-EB/NB | | 2 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | 03/17/97 | MON | 18:10 | A-EB/SB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 6 | 03/20/97 | THU | 09:46 | A-EB/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 7 | 04/04/97 | FRI | 18:26 | A-EB/SB | | | YES | NT | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | ON |
| 8 | 04/20/97 | SUN | 08:20 | A-EB/SB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 9 | 04/24/97 | THU | 10:10 | A-EB/SB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Up | ON |
| 10 | 04/30/97 | WED | 21:20 | A-EB/NB | | 2 | | NT | Unk | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 11 | 06/03/97 | TUE | 09:45 | A-WB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 12 | 06/09/97 | MON | 10:00 | A-EB/SB | | 12 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 13 | 06/16/97 | MON | 13:10 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 14 | 09/20/97 | SAT | 17:30 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 15 | 11/15/97 | SAT | 21:00 | A-SBR/NB | | 1 | | NT | DRY | Veh. 1 -DTS-Cited | SW 152 ST. | US 1 | Up | ON |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 15 | 0 | 13 | 2 | 0 | 1 | 0 | 1 | 9 | 4 | 1 | 13 | 1 | |
| 100% | 0% | 87% | 13% | 0% | 7% | 0% | 7% | 60% | 27% | 7% | 87% | 7% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 11 | 4 | 1 | 13 | 0 | 15 | 0 | 12 | 3 | 15 | 0 |
| 0% | 0% | 0% | 73% | 27% | 7% | 87% | 0% | 100% | 0% | 80% | 20% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: ACCIDENT RATE: /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY

CRASH SUMMARY

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: ALL INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/17/98 | TUE | 18:02 | A-SBR/SB | | 1 | | DUSK | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Up | ON |
| 2 | 03/21/98 | SAT | 14:43 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 3 | 03/23/98 | MON | 17:28 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 4 | 08/10/98 | MON | 11:50 | A-EB/NB | | 7 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 168 ST. | ISOL | Down | OFF |
| 5 | 08/22/98 | SAT | 14:15 | A-SBR/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Up | ON |
| 6 | 09/30/98 | WED | 10:45 | A-EB/SB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 7 | 09/30/98 | WED | 15:20 | A-WB/NB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 8 | 10/04/98 | SUN | 12:30 | A-SBR/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | CARIBBEAN BLVD. | US 1 | Down | ON |
| 9 | 10/21/98 | WED | 08:00 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | OFF |
| 10 | 11/04/98 | WED | 09:26 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 11 | 11/13/98 | FRI | 14:00 | A-EB/SB | | 15 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 12 | 11/25/98 | WED | 23:30 | A-EB/SB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | OFF |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 12 | 0 | 11 | 1 | 2 | 1 | 0 | 1 | 6 | 2 | 4 | 7 | 1 | |
| 100% | 0% | 92% | 8% | 17% | 8% | 0% | 8% | 50% | 17% | 33% | 58% | 8% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 11 | 0 | 2 | 10 | 0 | 12 | 0 | 9 | 3 | 5 | 7 |
| 0% | 0% | 0% | 92% | 0% | 17% | 83% | 0% | 100% | 0% | 75% | 25% | 42% | 58% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

**SECTION:** 87020700 **STATE ROUTE:** SOUTH MIAMI-DADE BUSWAY

**INTERSECTION ROUTE:** ALL INTERSECTIONS **M.P.:** ________ **ENGINEER:** W.G.H

**STUDY PERIOD: FROM** 01/01/99 **TO** 12/31/99 **COUNTY:** MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/24/99 | SUN | 16:35 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 2 | 02/09/99 | TUE | 07:10 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 3 | 03/02/99 | TUE | 14:10 | A-EB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 4 | 04/05/99 | MON | 10:04 | A-EB/NB | | 6 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | 04/28/99 | WED | 12:45 | A-EB/SB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 6 | 05/24/99 | MON | 14:50 | A-WB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 7 | 06/04/99 | FRI | 14:05 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 8 | 06/20/99 | SUN | 20:37 | A-EB/NB | | 6 | | NT | WET | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 9 | 06/21/99 | MON | 13:30 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 10 | 06/22/99 | TUE | 14:57 | A-WB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 11 | 07/03/99 | SAT | 17:00 | A-SBR/SB | 1 | | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 128 ST. | US 1 | Down | ON |
| 12 | 07/08/99 | THU | 17:13 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 13 | 07/10/99 | SAT | 13:38 | A-WB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 14 | 07/23/99 | FRI | 16:55 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 15 | 08/04/99 | WED | 09:20 | A-EB/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 16 | 08/05/99 | THU | 16:15 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 17 | 08/15/99 | SUN | 06:15 | A-EB/SB | | | YES | DAWN | Unk | Veh. 2 -DTS-Not Cited | SW 184 ST. | ISOL | Down | ON |
| 18 | 09/01/99 | WED | 16:50 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 19 | 09/05/99 | SUN | 22:05 | A-EB/NB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 20 | 09/06/99 | MON | 22:05 | A-EB/SB | | 2 | | DAY | WET | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Up | ON |
| 21 | 09/06/99 | MON | 18:50 | A-EB/SB | | 7 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 22 | 09/26/99 | SUN | 20:10 | A-EB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 23 | 10/13/99 | WED | 08:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 24 | 10/16/99 | SAT | 10:00 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 25 | 10/17/99 | SUN | 20:45 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 26 | 10/26/99 | TUE | 10:15 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 27 | 11/09/99 | TUE | 16:10 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Down | ON |
| 28 | 12/07/99 | TUE | 23:10 | A-OTH | 1 | | | NT | DRY | Veh. 2 -DTS-Cit. Pend. | HIBISCUS | ISOL | N/A | ON |
| 29 | 12/08/99 | WED | 18:56 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | LOCATION TYPE: ISOLATED | LOCATION TYPE: OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | 2 | 17 | 10 | 1 | 2 | 0 | 5 | 8 | 12 | 3 | 25 | 1 | |
| 100% | 7% | 59% | 34% | 3% | 7% | 0% | 17% | 28% | 41% | 10% | 86% | 3% | |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | BUS STOP LOCATION: UPSTREAM | LOOP STATUS: ON | LOOP STATUS: OFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 23 | 5 | 5 | 23 | 0 | 29 | 0 | 27 | 1 | 28 | 1 |
| 0% | 0% | 3% | 79% | 17% | 17% | 79% | 0% | 100% | 0% | 93% | 3% | 97% | 3% |

**TOTAL VEHICLES ENTERING/ADT:** **ACCIDENT RATE:** /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY
INTERSECTION ROUTE: ALL INTERSECTIONS M.P.: ______ ENGINEER: W.G.H
STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/22/00 | SAT | 09:48 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Down | ON |
| 2 | 01/31/00 | MON | 17:20 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 3 | 02/28/00 | MON | 12:30 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 4 | 04/15/00 | SAT | 16:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 5 | 07/11/00 | TUE | 09:20 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 6 | 08/07/00 | MON | 18:11 | A-EB/NB | | 10 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 7 | 09/17/00 | SUN | 19:30 | BIKE | | 3 | | DUSK | DRY | Other | CARIBBEAN BLVD. | US 1 | Down | ON |
| 8 | 10/28/00 | SAT | 16:30 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 144 ST. | US 1 | Up | ON |
| 9 | 10/29/00 | SUN | 07:55 | BIKE | | 1 | | DAY | DRY | Other | SW 144 ST. | US 1 | Down | ON |
| 10 | 10/31/00 | TUE | 08:42 | A-SBR/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 11 | 11/28/00 | TUE | 12:55 | A-SBR/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 138 ST. | US 1 | Down | OFF |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

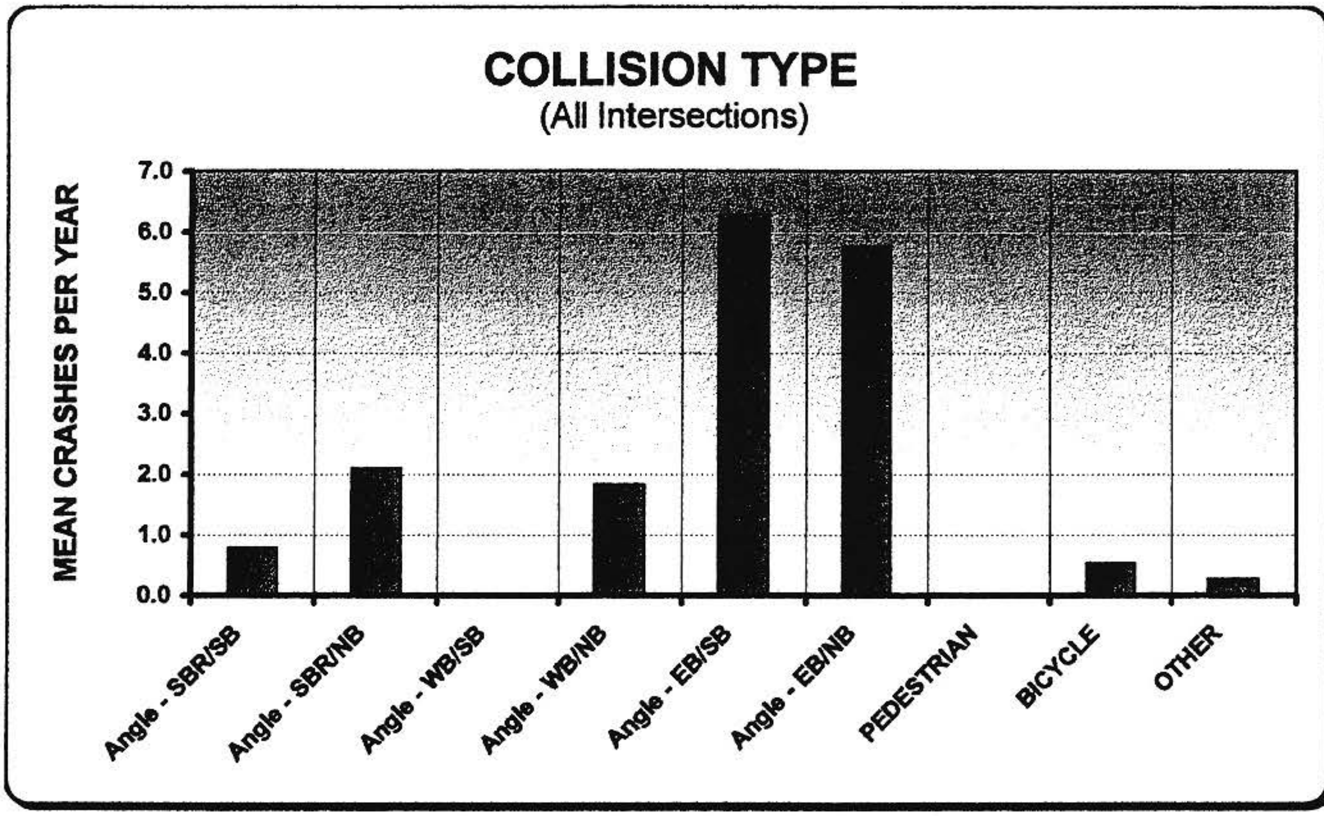
| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 11 | 0 | 8 | 3 | 0 | 4 | 0 | 0 | 1 | 4 | 7 | 3 | 1 | |
| 100% | 0% | 73% | 27% | 0% | 36% | 0% | 0% | 9% | 36% | 64% | 27% | 9% | |

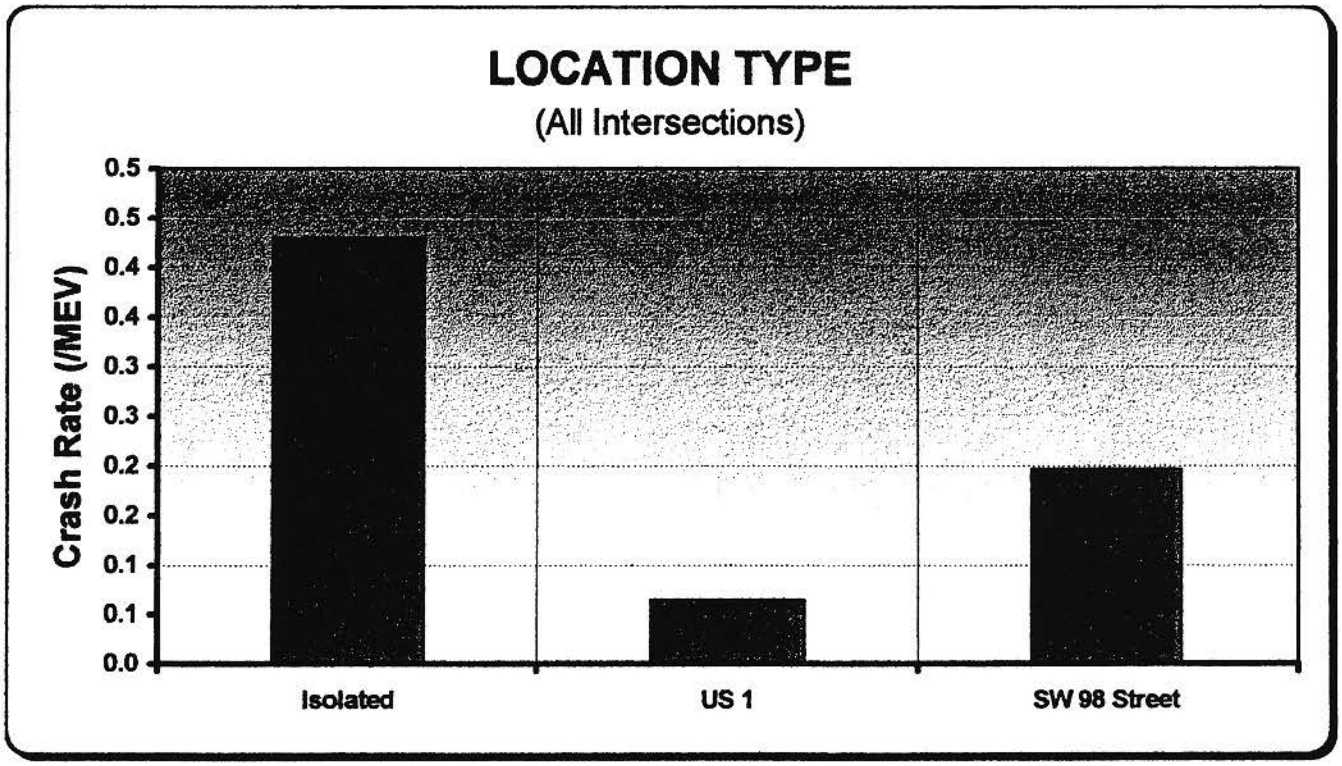
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 2 | 0 | 10 | 0 | 0 | 11 | 0 | 9 | 0 | 10 | 1 | 7 | 4 |
| 0% | 18% | 0% | 91% | 0% | 0% | 100% | 0% | 82% | 0% | 91% | 9% | 64% | 36% |

TOTAL VEHICLES ENTERING/ADT: ACCIDENT RATE: /MEV

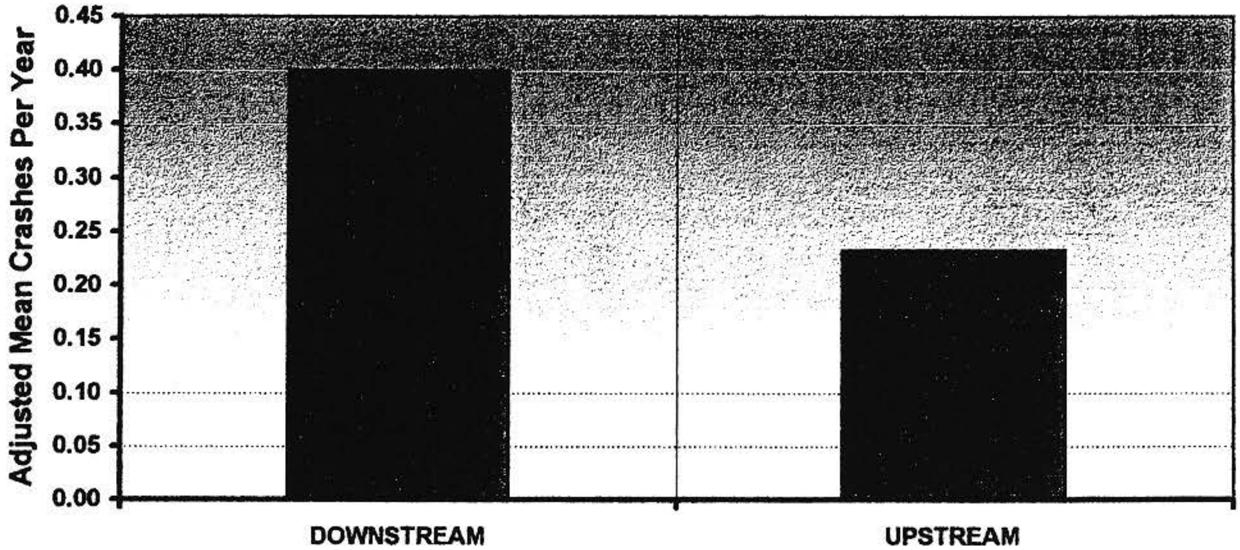
COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

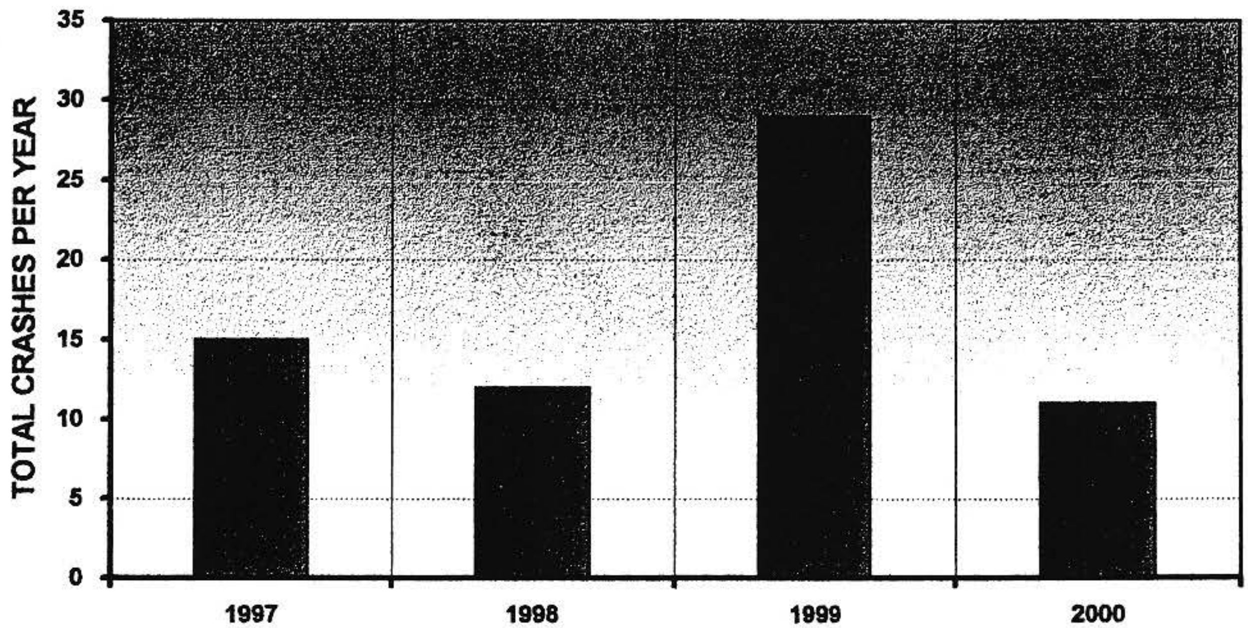

COLLISION TYPE
(All Intersections)
MEAN CRASHES PER YEAR
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
Angle - SBR/SB
Angle - SBR/NB
Angle - WB/SB
Angle - WB/NB
Angle - EB/SB
Angle - EB/NB
PEDESTRIAN
BICYCLE
OTHER


LOCATION TYPE
(All Intersections)
Crash Rate (/MEV)
0.5
0.5
0.4
0.4
0.3
0.3
0.2
0.2
0.1
0.1
0.0
Isolated
US 1
SW 98 Street

## BUS STOP LOCATION
(All Intersections)



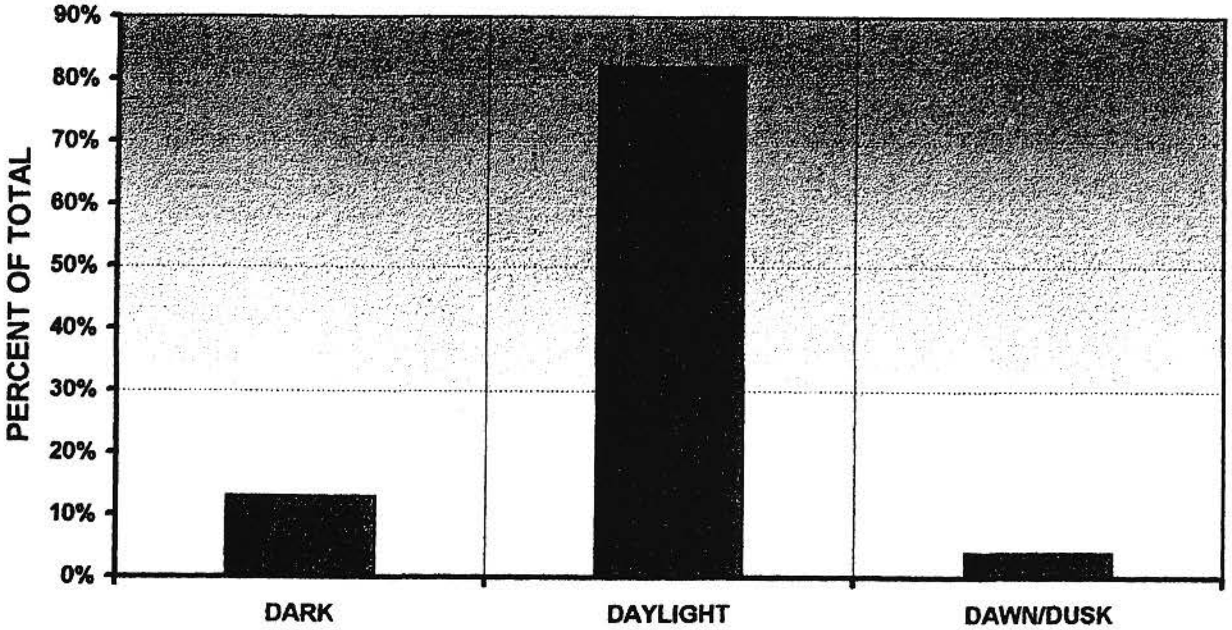

## NUMBER OF CRASHES
(All Intersections)



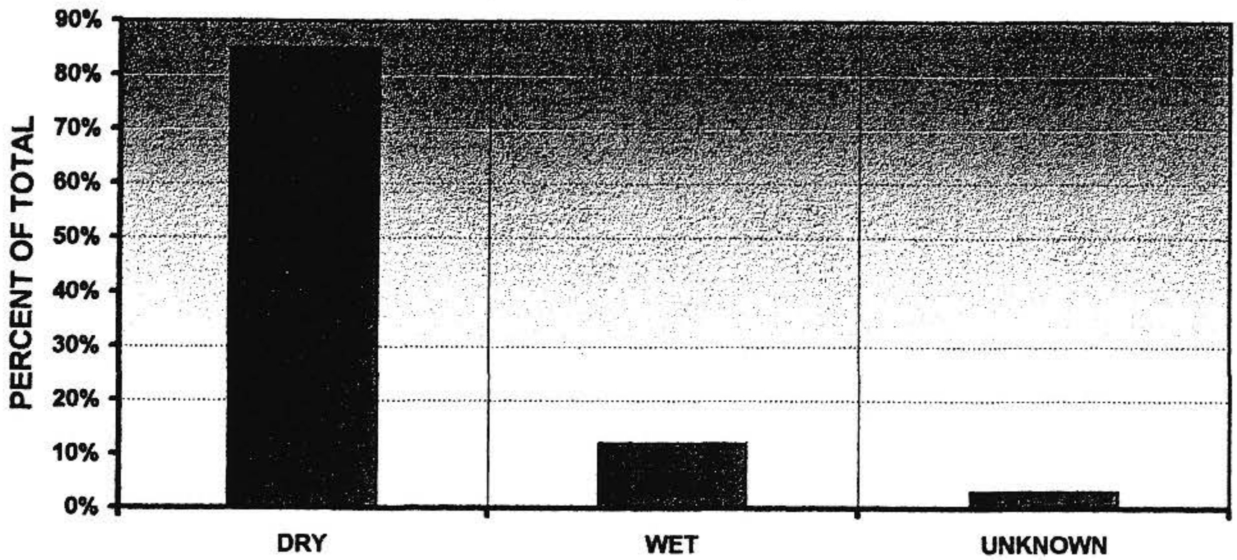

R. ALEMAN & Associates, Inc.

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

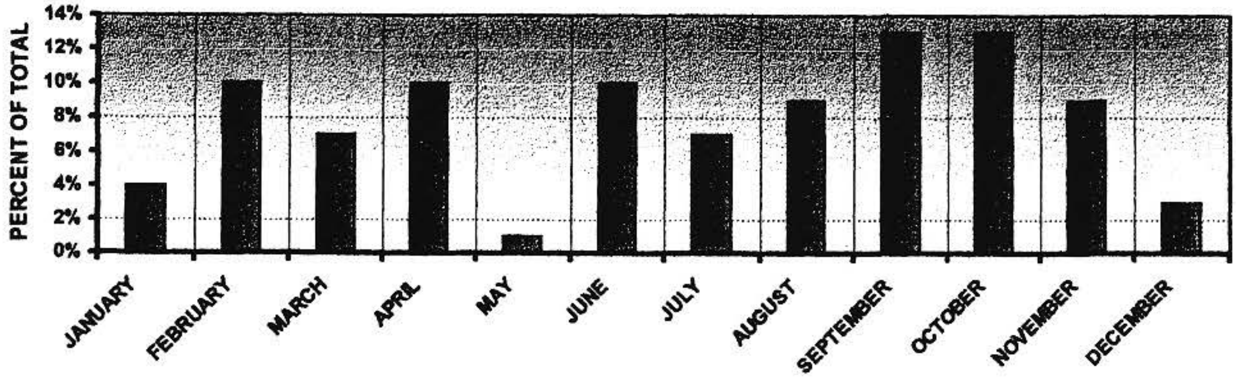
# LIGHT CONDITIONS
(All Intersections)



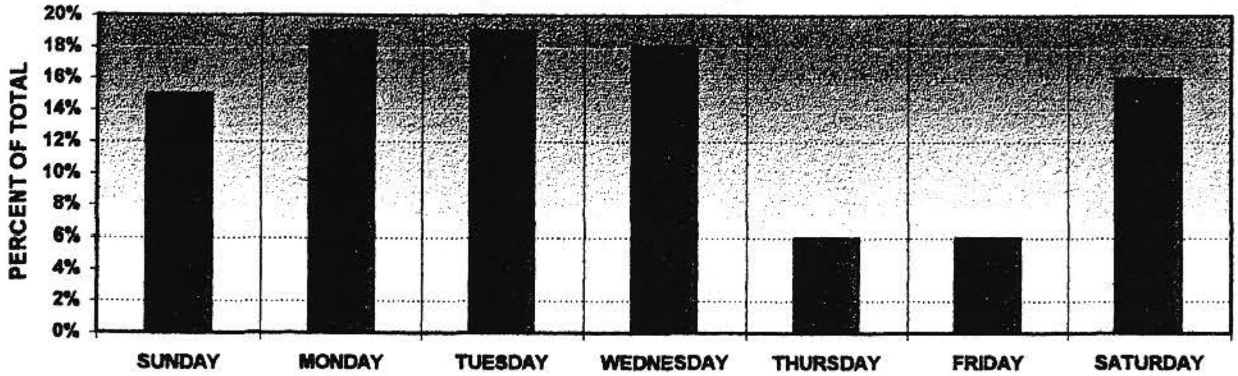

# SURFACE CONDITION
(All Intersections)



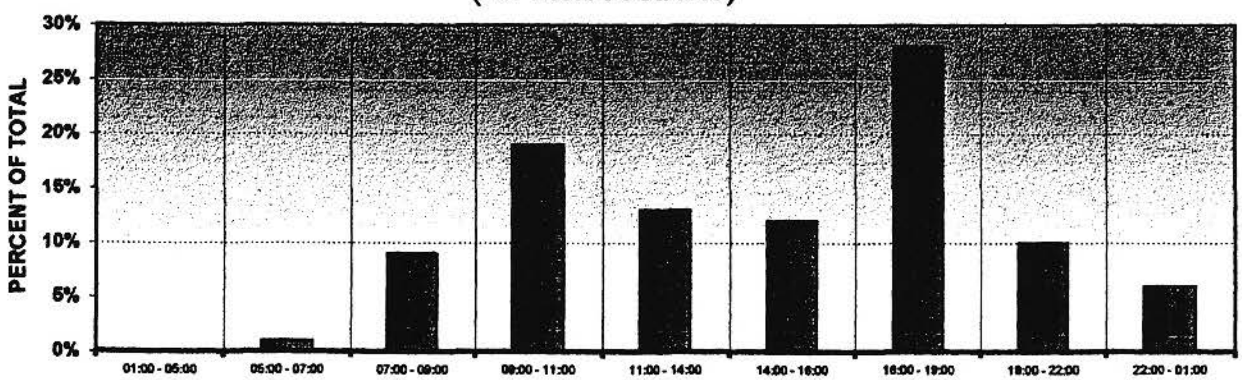
## MONTH OF YEAR
(All Intersections)




## DAY OF WEEK
(All Intersections)




## HOUR OF DAY
(All Intersections)



SOUTH MIAMI-DADE BUSWAY
CRASH ANALYSIS - COMMUTER VS. NON-COMMUTER TRAFFIC
FEBRUARY 1997 - NOVEMBER 2000

| CRASH No. | LOCATION OF CRASH | DWELLING OF DRIVER VEH NO. 2 | COMMUTER TRAFFIC* | NON-COMMUTER TRAFFIC | UNKNOWN |
|---|---|---|---|---|---|
| 86920 | SW 98ST | MIAMI | 1 | | |
| 88294 | SW 98ST | MIAMI | 1 | | |
| 91777 | SW 98ST | MIAMI | 1 | | |
| 95386 | SW 98ST | MIAMI | 1 | | |
| 88029 | SW 112 ST | MIAMI | 1 | | |
| 93062 | SW 112 ST | MIAMI | 1 | | |
| 95137 | SW 112 ST | MIAMI | 1 | | |
| 96087 | SW 112 ST | OPALOCKA | 1 | | |
| 92086 | SW 128 ST | MIAMI | 1 | | |
| 89818 | SW 132 ST | LAKE PLACID | | 1 | |
| 922354 | SW 132 ST | UNKNOWN | | | 1 |
| 89475 | SW 136 ST | MIAMI | 1 | | |
| 93638 | SW 136 ST | TAVERNIER | | 1 | |
| 96343 | SW 136 ST | MIAMI | 1 | | |
| 96067 | SW 144 ST | MIAMI | 1 | | |
| 960700 | SW 144 ST | MIAMI | 1 | | |
| 87344 | SW 152 ST | MIAMI | 1 | | |
| 85071 | SW 168 ST | MIAMI | 1 | | |
| 85762 | SW 168 ST | HOMESTEAD | 1 | | |
| 86062 | SW 168 ST | MIAMI | 1 | | |
| 89369 | SW 168 ST | MIAMI | 1 | | |
| 89813 | SW 168 ST | MIAMI | 1 | | |
| 90109 | SW 168 ST | MIAMI | 1 | | |
| 92575 | SW 168 ST | MIAMI | 1 | | |
| 85607 | BANYAN ST | MIAMI | 1 | | |
| 89995 | BANYAN ST | MIAMI | 1 | | |
| 93270 | HIBISCUS ST | MIAMI | 1 | | |
| 85213 | SW 184 ST | MIAMI | 1 | | |
| 85251 | SW 184 ST | PRINCETON | 1 | | |
| 85742 | SW 184 ST | MIAMI | 1 | | |
| 90270 | SW 184 ST | MIAMI | 1 | | |
| 92412 | SW 184 ST | MIAMI | 1 | | |
| 92578 | SW 184 ST | MIAMI | 1 | | |
| 92882 | SW 184 ST | MIAMI | 1 | | |
| 85450 | SW 186 ST | MIAMI | 1 | | |
| 86170 | SW 186 ST | HOLLYWOOD | | 1 | |
| 90174 | SW 186 ST | MIAMI | 1 | | |
| 90899 | SW 186 ST | MIAMI | 1 | | |
| 91074 | SW 186 ST | PT ST LUCIE | | 1 | |
| 91565 | SW 186 ST | MIAMI | 1 | | |
| 91857 | SW 186 ST | LEISURE CITY | 1 | | |
| 91998 | SW 186 ST | HOMESTEAD | 1 | | |
| 92335 | SW 186 ST | DAVIE | | 1 | |
| 92535 | SW 186 ST | MIAMI | 1 | | |
| 92567 | SW 186 ST | MIAMI | 1 | | |
| 92955 | SW 186 ST | MIAMI | 1 | | |
| 93706 | SW 186 ST | MIAMI | 1 | | |
| 94013 | SW 186 ST | HIALEAH | 1 | | |
| 94422 | SW 186 ST | MIAMI | 1 | | |
| 85278 | MARLIN ROAD | MIAMI | 1 | | |
| 85475 | MARLIN ROAD | MIAMI | 1 | | |
| 85801 | MARLIN ROAD | ZIP 33034 | 1 | | |
| 86113 | MARLIN ROAD | GOULDS | 1 | | |
| 88283 | MARLIN ROAD | MIAMI | 1 | | |
| 90760 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 91363 | MARLIN ROAD | MIAMI | 1 | | |
| 91986 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 92012 | MARLIN ROAD | MIAMI | 1 | | |
| 92126 | MARLIN ROAD | MIAMI | 1 | | |
| 92136 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 92236 | MARLIN ROAD | MIAMI | 1 | | |
| 92716 | MARLIN ROAD | MIAMI | 1 | | |
| 92849 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 92877 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 93286 | MARLIN ROAD | HOMESTEAD | 1 | | |
| 89841 | CARIBBEAN BLVD | MIAMI | 1 | | |
| 95718 | CARIBBEAN BLVD | MIAMI | 1 | | |
| | TOTAL | | 61 | 5 | 1 |
| | PERCENTAGES | | 91.0% | 7.5% | 1.5% |

NOTES: * Dwellings within Mimai-Dade County assumed to be commuter traffic.

# Crash Summaries for all Isolated Intersections Combined

## CRASH SUMMARY

YEAR(S): 1997 - 2000
LOCATION: Main Street: SOUTH MIAMI-DADE BUSWAY
Side Street: ISOLATED INTERSECTIONS

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR | | | | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| | | 1997 | 1998 | 1999 | 2000 | | | |
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 1 | 1 | 4 | 0 | 6 | 13% | 1.57 |
| | Angle - EB/SB | 8 | 4 | 8 | 1 | 21 | 44% | 5.49 |
| | Angle - EB/NB | 4 | 2 | 12 | 2 | 20 | 42% | 5.23 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 1 | 0 | 1 | 2% | 0.26 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **13** | **7** | **25** | **3** | **48** | **100%** | **12.56** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 13 | 7 | 25 | 3 | 48 | 100% | 12.56 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 13 | 0 | 24 | 0 | 37 | 77% | 29.42 |
| | OFF | 0 | 7 | 1 | 3 | 11 | 23% | 4.29 |
| BUS STOP LOCATION | DOWNSTREAM | 11 | 6 | 23 | 3 | 43 | 90% | 1.41 |
| | UPSTREAM | 2 | 1 | 1 | 0 | 4 | 8% | 0.26 |
| SEVERITY | PROPERTY DAMAGE ONLY | 2 | 0 | 8 | 1 | 11 | 23% | 2.88 |
| | INJURY | 11 | 7 | 16 | 2 | 36 | 75% | 9.42 |
| | FATAL | 0 | 0 | 1 | 0 | 1 | 2% | 0.26 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 1 | 0 | 1 | 2% | 0.26 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 3 | 0 | 5 | 0 | 8 | 17% | 2.09 |
| | DAYLIGHT | 10 | 7 | 19 | 3 | 39 | 81% | 10.20 |
| | DAWN/DUSK | 0 | 0 | 1 | 0 | 1 | 2% | 0.26 |
| SURFACE CONDITION | DRY | 11 | 6 | 19 | 3 | 39 | 81% | 10.20 |
| | WET | 1 | 1 | 5 | 0 | 7 | 15% | 1.83 |
| | UNKNOWN | 1 | 0 | 1 | 0 | 2 | 4% | 0.52 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 1 | 1 | 2 | 4% | 0.52 |
| | FEBRUARY | 4 | 0 | 1 | 1 | 6 | 13% | 1.57 |
| | MARCH | 2 | 1 | 1 | 0 | 4 | 8% | 1.05 |
| | APRIL | 4 | 0 | 2 | 1 | 7 | 15% | 1.83 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 3 | 0 | 4 | 0 | 7 | 15% | 1.83 |
| | JULY | 0 | 0 | 3 | 0 | 3 | 6% | 0.78 |
| | AUGUST | 0 | 1 | 2 | 0 | 3 | 6% | 0.78 |
| | SEPTEMBER | 0 | 1 | 5 | 0 | 6 | 13% | 1.57 |
| | OCTOBER | 0 | 1 | 4 | 0 | 5 | 10% | 1.31 |
| | NOVEMBER | 0 | 3 | 0 | 0 | 3 | 6% | 0.78 |
| | DECEMBER | 0 | 0 | 2 | 0 | 2 | 4% | 0.52 |
| DAY OF WEEK | SUNDAY | 1 | 0 | 6 | 0 | 7 | 15% | 1.83 |
| | MONDAY | 3 | 1 | 4 | 2 | 10 | 21% | 2.62 |
| | TUESDAY | 3 | 0 | 5 | 0 | 8 | 17% | 2.09 |
| | WEDNESDAY | 2 | 4 | 5 | 0 | 11 | 23% | 2.88 |
| | THURSDAY | 2 | 0 | 1 | 0 | 3 | 6% | 0.78 |
| | FRIDAY | 1 | 1 | 2 | 0 | 4 | 8% | 1.05 |
| | SATURDAY | 1 | 1 | 2 | 1 | 5 | 10% | 1.31 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 1 | 0 | 1 | 2% | 0.26 |
| | 07:00 - 09:00 | 1 | 1 | 2 | 0 | 4 | 8% | 1.05 |
| | 09:00 - 11:00 | 5 | 1 | 4 | 0 | 10 | 21% | 2.62 |
| | 11:00 - 14:00 | 2 | 1 | 3 | 1 | 7 | 15% | 1.83 |
| | 14:00 - 16:00 | 0 | 3 | 3 | 0 | 6 | 13% | 1.57 |
| | 16:00 - 19:00 | 3 | 0 | 6 | 2 | 11 | 23% | 2.88 |
| | 19:00 - 22:00 | 2 | 0 | 3 | 0 | 5 | 10% | 1.31 |
| | 22:00 - 01:00 | 0 | 1 | 3 | 0 | 4 | 8% | 1.05 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

.NTERSECTION ROUTE: ISOLATED INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/04/97 | TUE | 09:20 | A-EB/NB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 2 | 02/19/97 | WED | 13:45 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 3 | 02/22/97 | SAT | 16:16 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 4 | 02/25/97 | TUE | 19:22 | A-EB/NB | | 2 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | 03/17/97 | MON | 18:10 | A-EB/SB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 6 | 03/20/97 | THU | 09:48 | A-EB/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 7 | 04/04/97 | FRI | 18:28 | A-EB/SB | | | YES | NT | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | ON |
| 8 | 04/20/97 | SUN | 08:20 | A-EB/SB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 9 | 04/24/97 | THU | 10:10 | A-EB/SB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Up | ON |
| 10 | 04/30/97 | WED | 21:20 | A-EB/NB | | 2 | | NT | Unk | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 11 | 06/03/97 | TUE | 09:45 | A-WB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 12 | 06/09/97 | MON | 10:00 | A-EB/SB | | 12 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 13 | 06/16/97 | MON | 13:10 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0 | 11 | 2 | 0 | 0 | 0 | 1 | 8 | 4 | 0 | 13 | 0 | |
| 100% | 0% | 85% | 15% | 0% | 0% | 0% | 8% | 62% | 31% | 0% | 100% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | UPSTREAM | LOOP STATUS: ON | OFF |
| 0 | 0 | 0 | 10 | 3 | 1 | 11 | 0 | 13 | 0 | 11 | 2 | 13 | 0 |
| 0% | 0% | 0% | 77% | 23% | 8% | 85% | 0% | 100% | 0% | 85% | 15% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: ACCIDENT RATE: /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

TERSECTION ROUTE: ISOLATED INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 03/21/98 | SAT | 14:43 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 2 | 08/10/98 | MON | 11:50 | A-EB/NB | | 7 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 168 ST. | ISOL | Down | OFF |
| 3 | 09/30/98 | WED | 15:20 | A-WB/NB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 4 | 10/21/98 | WED | 08:00 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | OFF |
| 5 | 11/04/98 | WED | 09:26 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 6 | 11/13/98 | FRI | 14:00 | A-EB/SB | | 15 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 7 | 11/25/98 | WED | 23:30 | A-EB/SB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | OFF |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 7 | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 4 | 2 | 0 | 7 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 14% | 57% | 29% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 7 | 0 | 1 | 6 | 0 | 7 | 0 | 6 | 1 | 0 | 7 |
| 0% | 0% | 0% | 100% | 0% | 14% | 86% | 0% | 100% | 0% | 86% | 14% | 0% | 100% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | | /MEV | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

-TION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: ISOLATED INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/24/99 | SUN | 16:35 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 2 | 02/09/99 | TUE | 07:10 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 3 | 03/02/99 | TUE | 14:10 | A-EB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 4 | 04/05/99 | MON | 10:04 | A-EB/NB | | 6 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | 04/28/99 | WED | 12:45 | A-EB/SB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 6 | 06/04/99 | FRI | 14:05 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 7 | 06/20/99 | SUN | 20:37 | A-EB/NB | | 6 | | NT | WET | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 8 | 06/21/99 | MON | 13:30 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 9 | 06/22/99 | TUE | 14:57 | A-WB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 10 | 07/08/99 | THU | 17:13 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 11 | 07/10/99 | SAT | 13:38 | A-WB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 12 | 07/23/99 | FRI | 16:55 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 13 | 08/04/99 | WED | 09:20 | A-EB/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 14 | 08/15/99 | SUN | 06:15 | A-EB/SB | | | YES | DAWN | Unk | Veh. 2 -DTS-Not Cited | SW 184 ST. | ISOL | Down | ON |
| 15 | 09/01/99 | WED | 16:50 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 16 | 09/05/99 | SUN | 22:05 | A-EB/NB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 17 | 09/06/99 | MON | 22:05 | A-EB/SB | | 2 | | DAY | WET | Veh. 2 -DTS-Cited | SW 188 ST. | ISOL | Up | ON |
| 18 | 09/06/99 | MON | 18:50 | A-EB/SB | | 7 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 19 | 09/26/99 | SUN | 20:10 | A-EB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 20 | 10/13/99 | WED | 08:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 21 | 10/16/99 | SAT | 10:00 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 22 | 10/17/99 | SUN | 20:45 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 23 | 10/26/99 | TUE | 10:15 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 24 | 12/07/99 | TUE | 23:10 | A-OTH | 1 | | | NT | DRY | Veh. 2 -DTS-Cit. Pend. | HIBISCUS | ISOL | N/A | ON |
| 25 | 12/08/99 | WED | 18:56 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | LOCATION TYPE: ISOLATED | LOCATION TYPE: OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 1 | 16 | 8 | 0 | 0 | 0 | 4 | 8 | 12 | 0 | 25 | 0 | |
| 100% | 4% | 64% | 32% | 0% | 0% | 0% | 16% | 32% | 48% | 0% | 100% | 0% | |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | BUS STOP LOCATION: UPSTREAM | LOOP STATUS: ON | LOOP STATUS: OFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 19 | 5 | 5 | 19 | 0 | 25 | 0 | 23 | 1 | 24 | 1 |
| 0% | 0% | 4% | 76% | 20% | 20% | 76% | 0% | 100% | 0% | 92% | 4% | 96% | 4% |

TOTAL VEHICLES ENTERING/ADT: ACCIDENT RATE: /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

TION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: ISOLATED INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

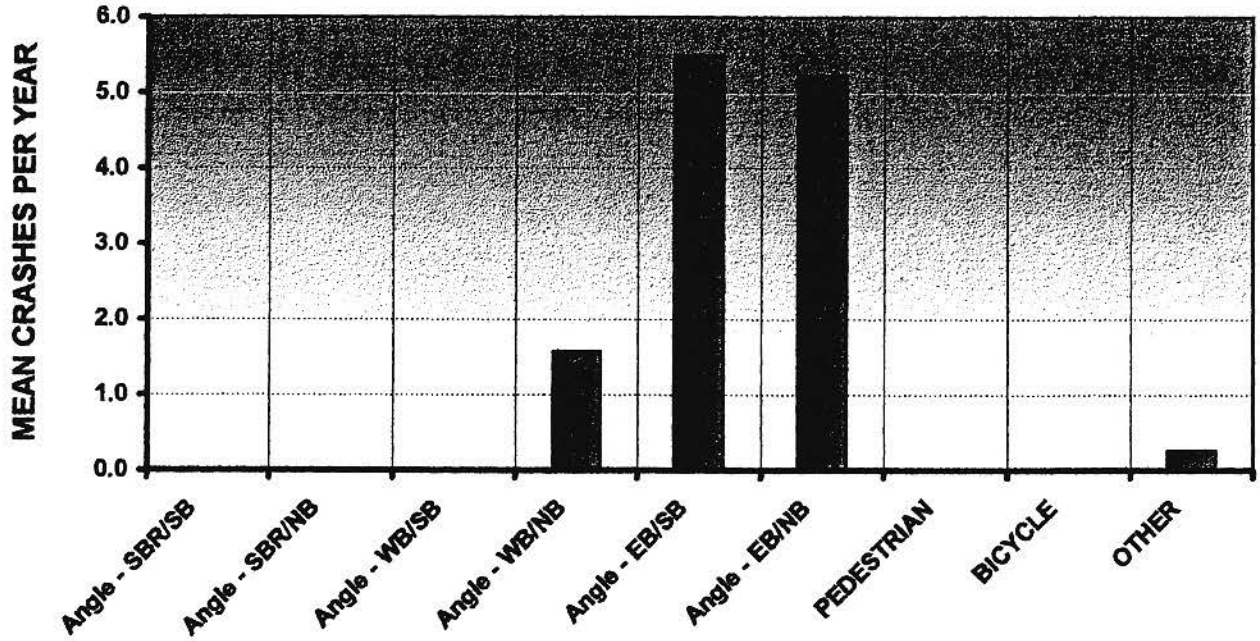
| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/31/00 | MON | 17:20 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 2 | 02/28/00 | MON | 12:30 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 3 | 04/15/00 | SAT | 16:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | US 1 | ISOLATED | OTHER | |
| 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | |
| 100% | 0% | 67% | 33% | 0% | 0% | 0% | 0% | 33% | 67% | 0% | 100% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION | | LOOP STATUS | |
| | | | | | | | | | | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 3 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | /MEV | | | | | |

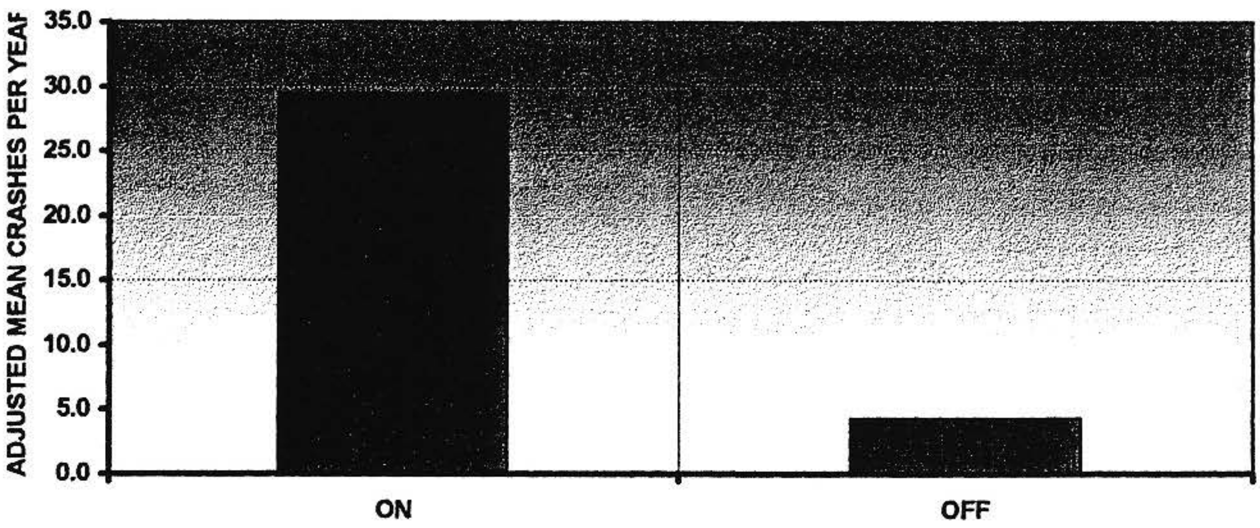
COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

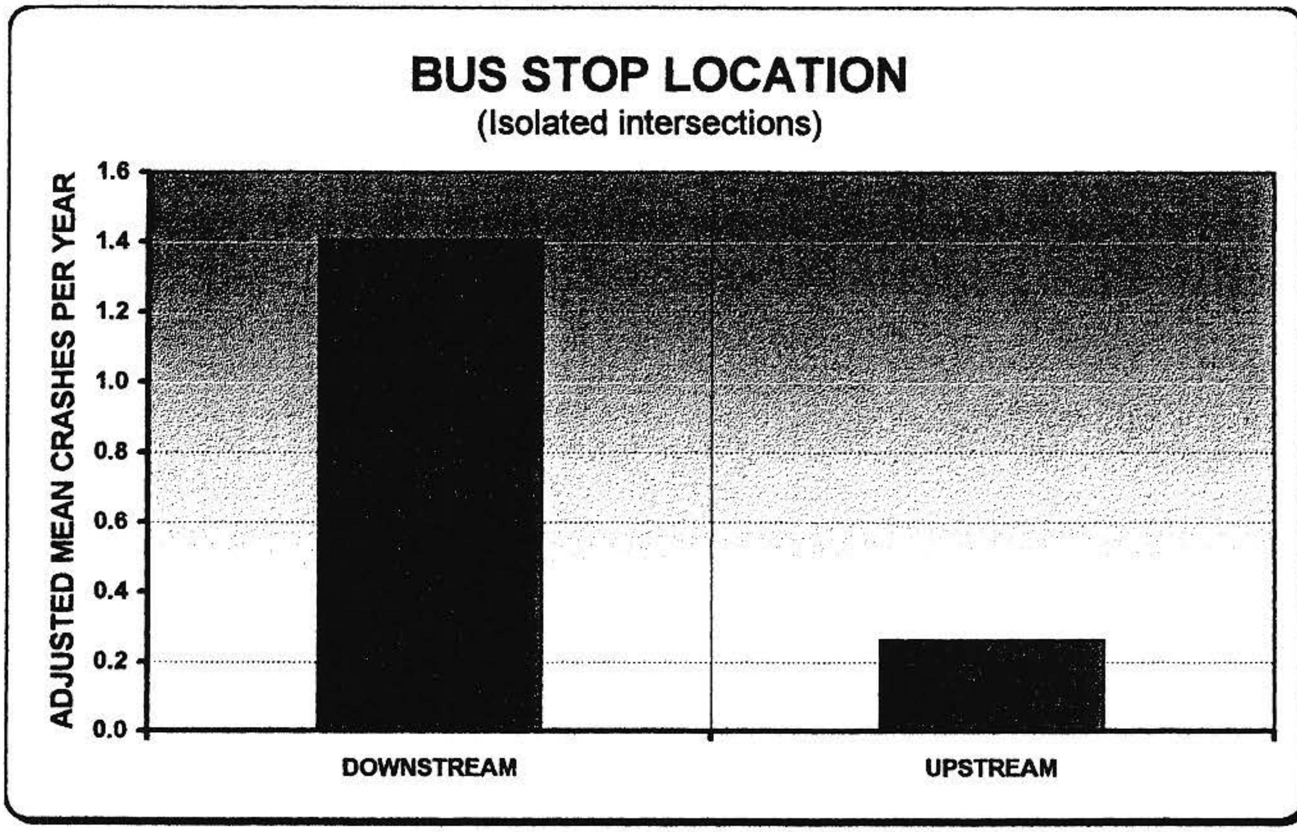
CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

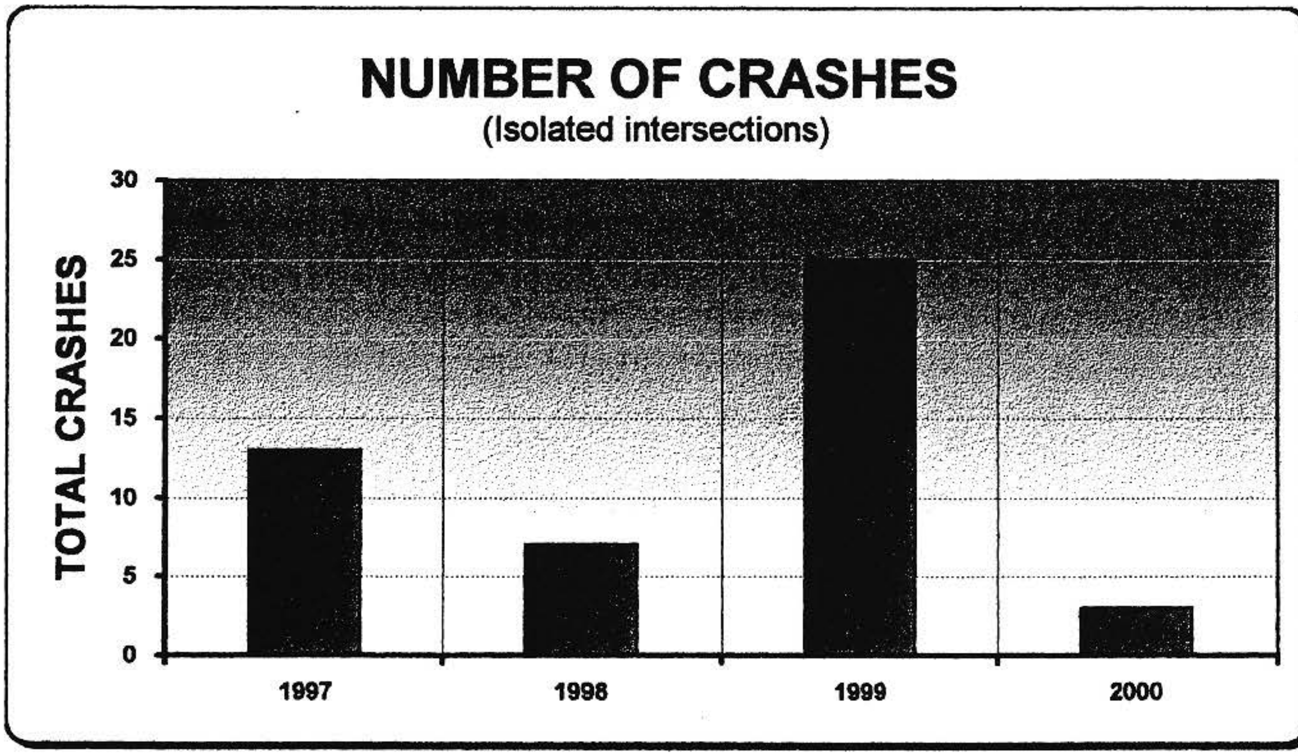
# COLLISION TYPE
(Isolated intersections)




# ADVANCED LOOP STATUS
(Isolated intersections)



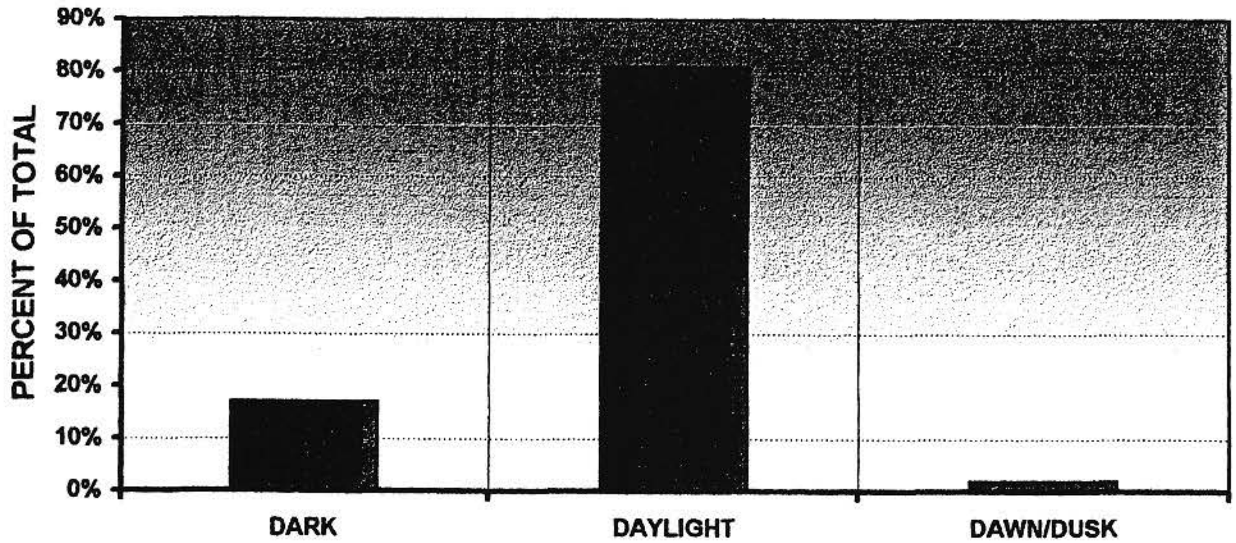


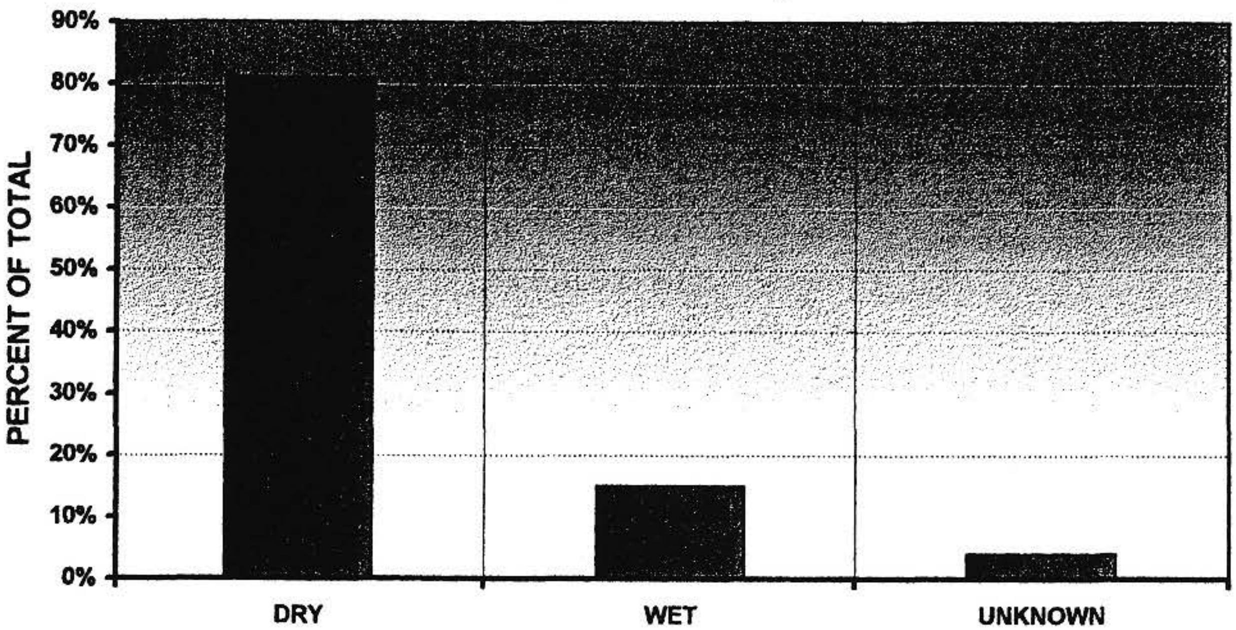

F.R. ALEMAN & Associates, Inc.

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

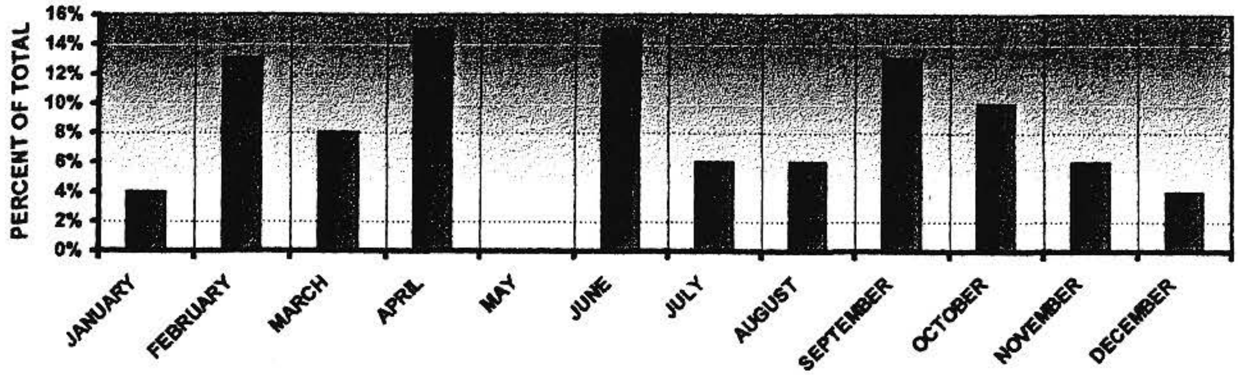
## LIGHT CONDITIONS
(Isolated intersections)



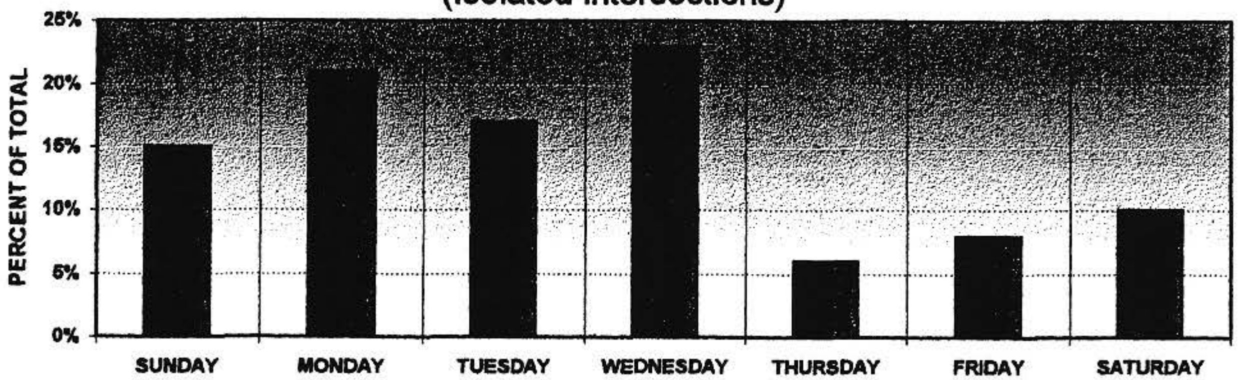

## SURFACE CONDITION
(Isolated intersections)



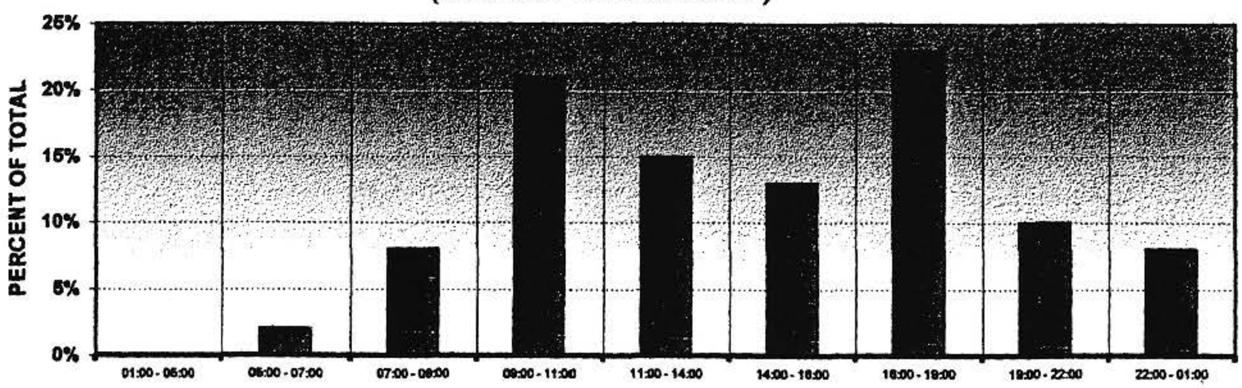
## MONTH OF YEAR
(Isolated intersections)




## DAY OF WEEK
(Isolated intersections)




## HOUR OF DAY
(Isolated intersections)



# Crash Summaries for all US-1 Intersections Combined

## CRASH SUMMARY

YEAR(S): 1997 - 2000
LOCATION: Main Street: SOUTH MIAMI-DADE BUSWAY
Side Street: US 1 INTERSECTIONS

| | TYPE OF CRASH | NUMBER OF CRASHES | | | | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| | | YEAR | | | | | | |
| | | 1997 | 1998 | 1999 | 2000 | | | |
| COLLISION TYPE | Angle - SBR/SB | 0 | 2 | 1 | 0 | 3 | 20% | 0.78 |
| | Angle - SBR/NB | 1 | 1 | 2 | 4 | 8 | 53% | 2.09 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | Angle - EB/NB | 0 | 0 | 0 | 1 | 1 | 7% | 0.26 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 2 | 2 | 13% | 0.52 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **1** | **4** | **3** | **7** | **15** | **100%** | **3.92** |
| LOCATION TYPE | US 1 | 1 | 4 | 3 | 7 | 15 | 100% | 3.92 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 2 | 3 | 6 | 11 | 73% | 0.17 |
| | UPSTREAM | 1 | 2 | 0 | 1 | 4 | 27% | 0.21 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 1 | 2 | 2 | 5 | 33% | 1.31 |
| | INJURY | 1 | 3 | 0 | 5 | 9 | 60% | 2.35 |
| | FATAL | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 1 | 0 | 0 | 0 | 1 | 7% | 0.26 |
| | DAYLIGHT | 0 | 3 | 3 | 6 | 12 | 80% | 3.14 |
| | DAWN/DUSK | 0 | 1 | 0 | 1 | 2 | 13% | 0.52 |
| SURFACE CONDITION | DRY | 1 | 3 | 3 | 7 | 14 | 93% | 3.66 |
| | WET | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 1 | 1 | 7% | 0.26 |
| | FEBRUARY | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 1 | 1 | 2 | 13% | 0.52 |
| | AUGUST | 0 | 1 | 1 | 0 | 2 | 13% | 0.52 |
| | SEPTEMBER | 0 | 1 | 0 | 1 | 2 | 13% | 0.52 |
| | OCTOBER | 0 | 1 | 0 | 3 | 4 | 27% | 1.05 |
| | NOVEMBER | 1 | 0 | 1 | 1 | 3 | 20% | 0.78 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 1 | 0 | 2 | 3 | 20% | 0.78 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 1 | 1 | 3 | 5 | 33% | 1.31 |
| | WEDNESDAY | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | THURSDAY | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 1 | 1 | 1 | 2 | 5 | 33% | 1.31 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 2 | 2 | 13% | 0.52 |
| | 09:00 - 11:00 | 0 | 1 | 0 | 2 | 3 | 20% | 0.78 |
| | 11:00 - 14:00 | 0 | 1 | 0 | 1 | 2 | 13% | 0.52 |
| | 14:00 - 16:00 | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | 16:00 - 19:00 | 0 | 1 | 3 | 1 | 5 | 33% | 1.31 |
| | 19:00 - 22:00 | 1 | 0 | 0 | 1 | 2 | 13% | 0.52 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

SOUTH MIAMI-DADE BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: US 1 INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15/97 | SAT | 21:00 | A-SBR/NB | | 1 | | NT | DRY | Veh. 1 -DTS-Cited | SW 152 ST. | US 1 | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION | | LOOP STATUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: ACCIDENT RATE: /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: US 1 INTERSECTIONS M.P.: ______ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/17/98 | TUE | 18:02 | A-SBR/SB | | 1 | | DUSK | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Up | ON |
| 2 | 08/22/98 | SAT | 14:15 | A-SBR/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Up | ON |
| 3 | 09/30/98 | WED | 10:45 | A-EB/SB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 4 | 10/04/98 | SUN | 12:30 | A-SBR/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | CARIBBEAN BLVD. | US 1 | Down | ON |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 4 | 0 | 3 | 1 | 2 | 1 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | |
| 100% | 0% | 75% | 25% | 50% | 25% | 0% | 0% | 25% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 3 | 0 | 1 | 3 | 0 | 4 | 0 | 2 | 2 | 4 | 0 |
| 0% | 0% | 0% | 75% | 0% | 25% | 75% | 0% | 100% | 0% | 50% | 50% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: US 1 INTERSECTIONS M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07/03/99 | SAT | 17:00 | A-SBR/SB | 1 | | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 128 ST. | US 1 | Down | ON |
| 2 | 08/05/99 | THU | 16:15 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 3 | 11/09/99 | TUE | 16:10 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Down | ON |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | 0 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | |
| 100% | 33% | 0% | 67% | 33% | 67% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION: DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS: ON** | **OFF** |
| 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY

A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: US 1 INTERSECTIONS M.P.: ______ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/22/00 | SAT | 09:48 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Down | ON |
| 2 | 07/11/00 | TUE | 09:20 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 3 | 09/17/00 | SUN | 19:30 | BIKE | | 3 | | DUSK | DRY | Other | CARIBBEAN BLVD. | US 1 | Down | ON |
| 4 | 10/28/00 | SAT | 16:30 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 144 ST. | US 1 | Up | ON |
| 5 | 10/29/00 | SUN | 07:55 | BIKE | | 1 | | DAY | DRY | Other | SW 144 ST. | US 1 | Down | ON |
| 6 | 10/31/00 | TUE | 08:42 | A-SBR/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 7 | 11/28/00 | TUE | 12:55 | A-SBR/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Down | OFF |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

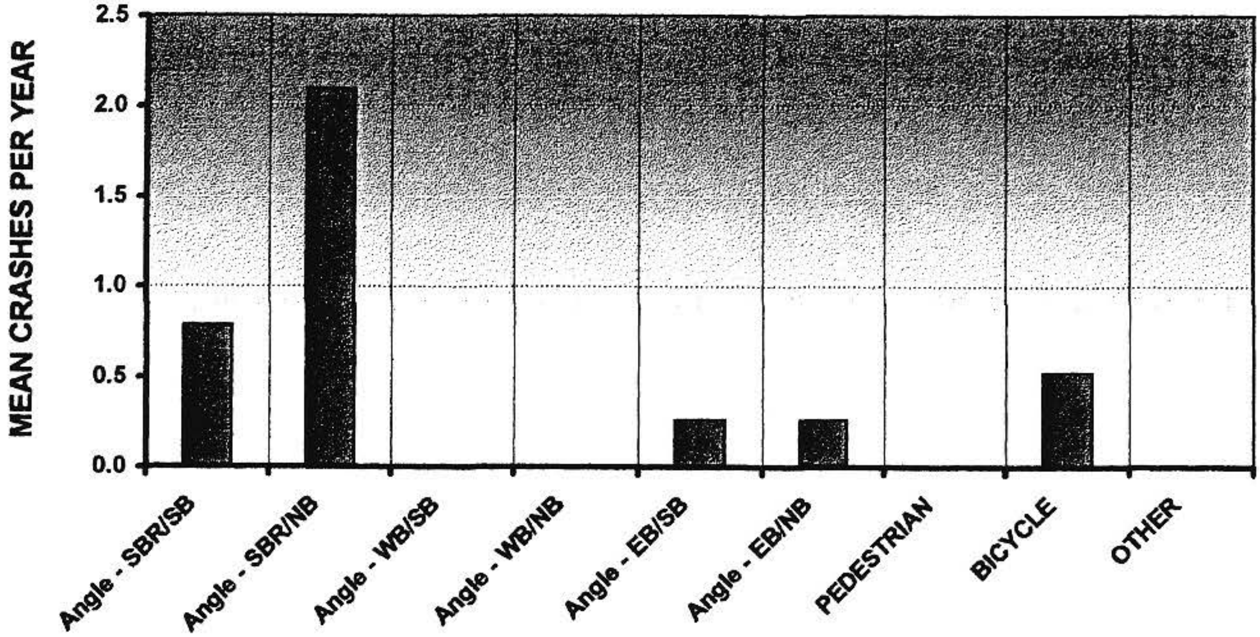
| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 7 | 0 | 5 | 2 | 0 | 4 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | |
| 100% | 0% | 71% | 29% | 0% | 57% | 0% | 0% | 0% | 14% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 2 | 0 | 6 | 0 | 0 | 7 | 0 | 5 | 0 | 6 | 1 | 6 | 1 |
| 0% | 29% | 0% | 86% | 0% | 0% | 100% | 0% | 71% | 0% | 86% | 14% | 86% | 14% |
| TOTAL VEHICLES ENTERING/ADT: | | | | | | ACCIDENT RATE: | | /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

# COLLISION TYPE

(US 1 Intersections)

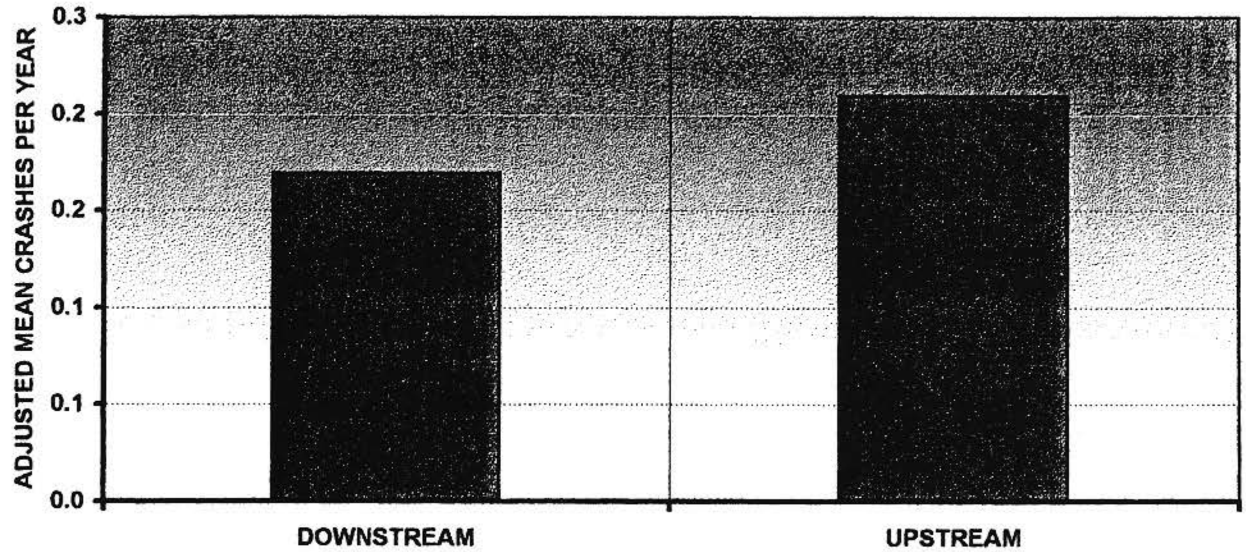



(US 1 Intersections)

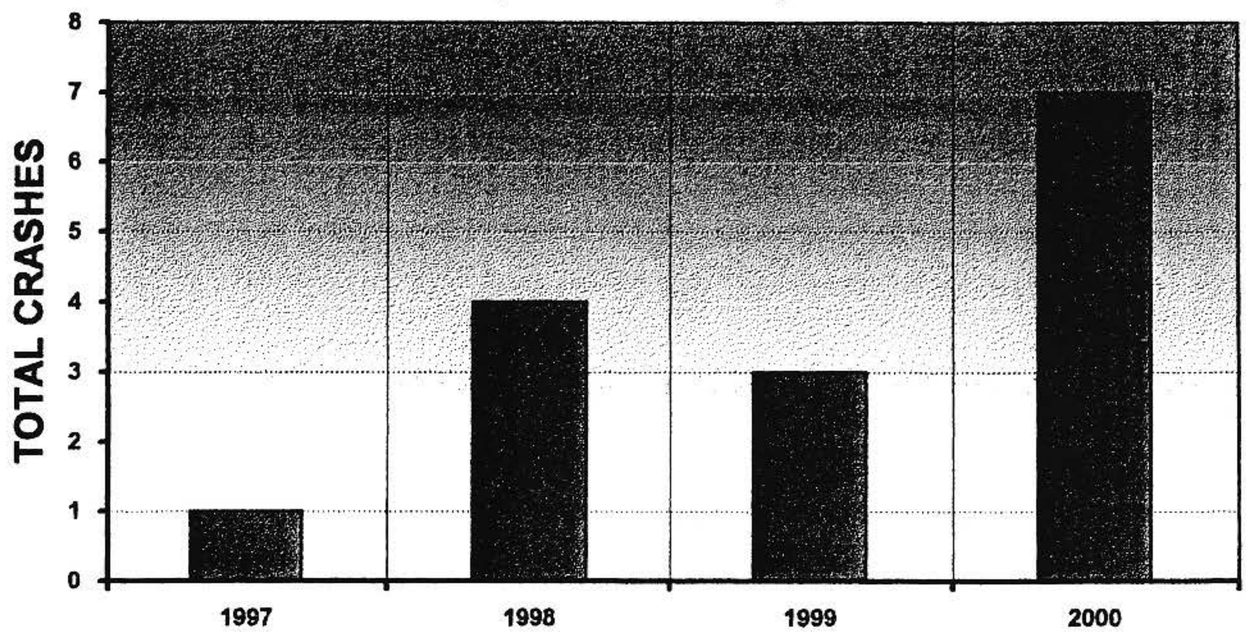
F.R. ALEMAN & Associates, Inc.

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

# BUS STOP LOCATION
(US 1 Intersections)

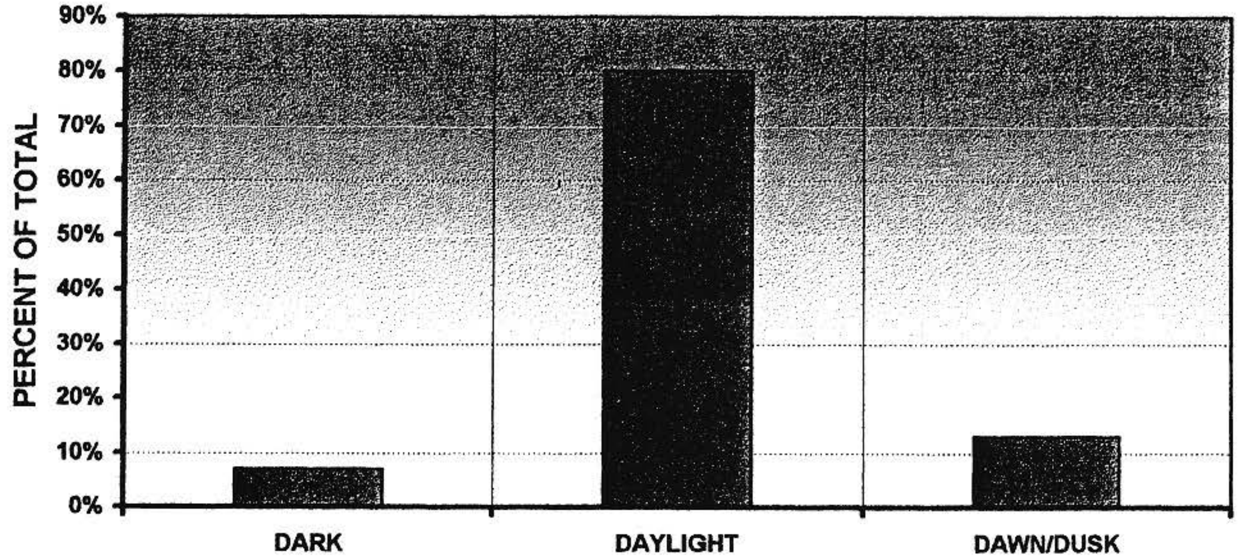



# NUMBER OF CRASHES
(US 1 Intersections)

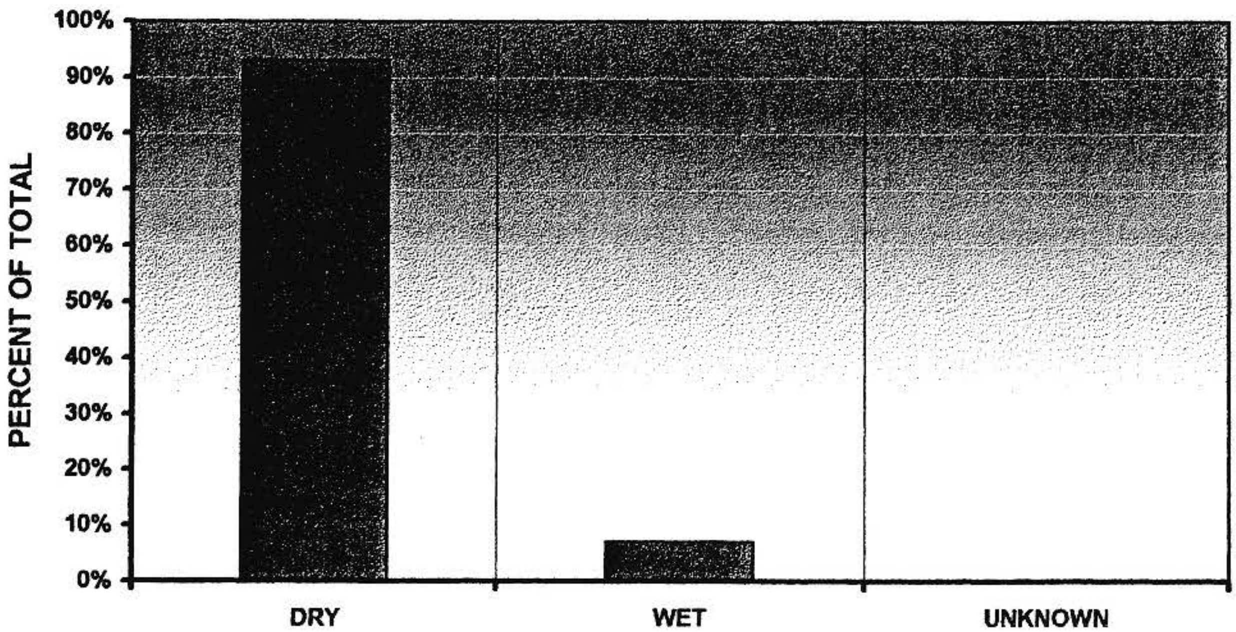


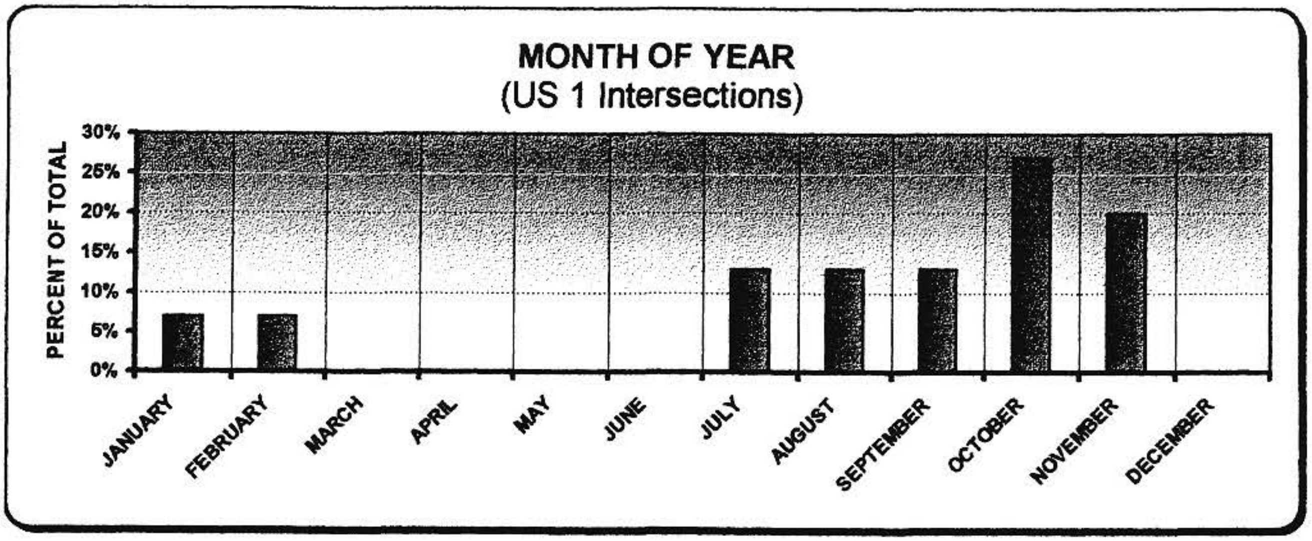

| | | |
|---|---|---|
| R. ALEMAN & Associates, Inc. | SOUTH MIAMI-DADE BUSWAY STUDY<br>CRASH ANALYSIS | |

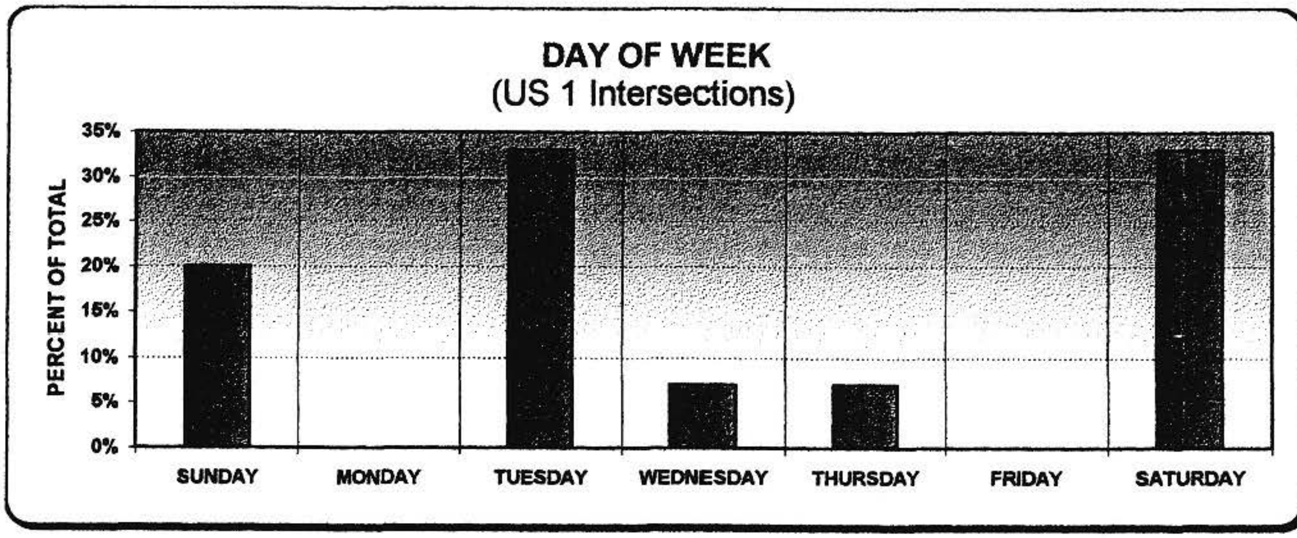
## LIGHT CONDITIONS
(US 1 Intersections)

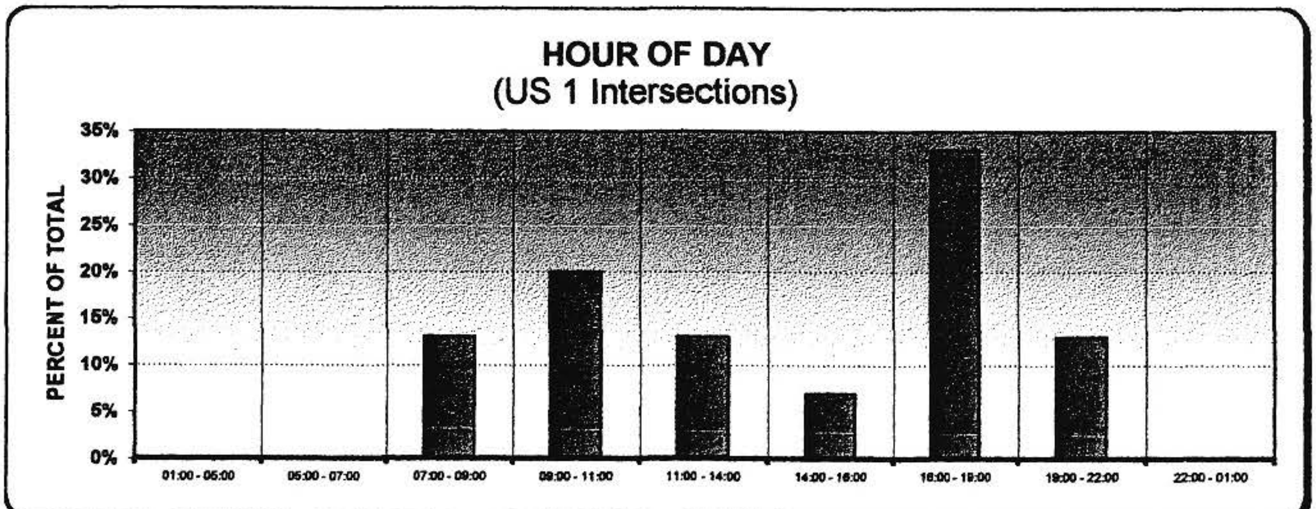



## SURFACE CONDITION
(US 1 Intersections)






R. ALEMAN & Associates, Inc.

SOUTH MIAMI-DADE BUSWAY STUDY
CRASH ANALYSIS

# Crash Summaries for Individual Intersections

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 98 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 1 | 0 | 1 | 25% | 0.26 |
| | Angle - EB/SB | 1 | 1 | 0 | 0 | 2 | 50% | 0.52 |
| | Angle - EB/NB | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **1** | **1** | **1** | **1** | **4** | **100%** | **1.05** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| LOOP STATUS | ON | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 1 | 1 | 1 | 1 | 4 | 100% | 1.05 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 1 | 0 | 0 | 1 | 25% | 0.26 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 1 | 0 | 1 | 25% | 0.26 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | SEPTEMBER | 1 | 0 | 0 | 0 | 1 | 25% | 0.26 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 1 | 1 | 1 | 3 | 75% | 0.78 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 1 | 0 | 0 | 0 | 1 | 25% | 0.26 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 1 | 0 | 1 | 25% | 0.26 |
| | 16:00 - 19:00 | 1 | 1 | 0 | 1 | 3 | 75% | 0.78 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

**SECTION:** 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

**INTERSECTION ROUTE:** SW 98 STREET M.P.: ______ ENGINEER: W.G.H

**STUDY PERIOD: FROM** 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 09/20/97 | SAT | 17:30 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 0% | 100% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS ON** | **OFF** |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

**TOTAL VEHICLES ENTERING/ADT:** 14,615 **ACCIDENT RATE:** 0.187 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

**SECTION:** 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

**INTERSECTION ROUTE:** SW 98 STREET M.P.: ______ ENGINEER: W.G.H

**STUDY PERIOD: FROM** 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 03/23/98 | MON | 17:28 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 0% | 100% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 14,615 | | ACCIDENT RATE: | | 0.187 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 98 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 05/24/99 | MON | 14:50 | A-WB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 14,615 ACCIDENT RATE: 0.187 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 98 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/07/00 | MON | 18:11 | A-EB/NB | | 10 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 98 ST. | OTH | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION: DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS: ON** | **OFF** |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 14,615 ACCIDENT RATE: 0.187 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 112 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR | | | | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| | | 1997 | 1998 | 1999 | 2000 | | | |
| COLLISION TYPE | Angle - SBR/SB | 0 | 1 | 0 | 0 | 1 | 25% | 0.26 |
| | Angle - SBR/NB | 0 | 0 | 1 | 2 | 3 | 75% | 0.78 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **1** | **1** | **2** | **4** | **100%** | **1.05** |
| LOCATION TYPE | US 1 | 0 | 1 | 1 | 2 | 4 | 100% | 1.05 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 1 | 1 | 2 | 4 | 100% | 1.05 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 1 | 2 | 3 | 75% | 0.78 |
| | UPSTREAM | 0 | 1 | 0 | 0 | 1 | 25% | 0.26 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 1 | 1 | 2 | 50% | 0.52 |
| | INJURY | 0 | 1 | 0 | 1 | 2 | 50% | 0.52 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 0 | 1 | 2 | 3 | 75% | 0.78 |
| | DAWN/DUSK | 0 | 1 | 0 | 0 | 1 | 25% | 0.26 |
| SURFACE CONDITION | DRY | 0 | 1 | 1 | 2 | 4 | 100% | 1.05 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 1 | 0 | 0 | 1 | 25% | 0.26 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | NOVEMBER | 0 | 0 | 1 | 0 | 1 | 25% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 1 | 1 | 2 | 4 | 100% | 1.05 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 1 | 1 | 25% | 0.26 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 1 | 1 | 0 | 2 | 50% | 0.52 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY
INTERSECTION ROUTE: SW 112 STREET M.P.: ________ ENGINEER: W.G.H
STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/17/98 | TUE | 18:02 | A-SBR/SB | | 1 | | DUSK | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 11,979 | | ACCIDENT RATE: | | 0.229 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 112 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/09/99 | TUE | 16:10 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 112 ST. | US 1 | Down | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | LOCATION TYPE: ISOLATED | LOCATION TYPE: OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 100% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | BUS STOP LOCATION: UPSTREAM | LOOP STATUS: ON | LOOP STATUS: OFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 11,979 ACCIDENT RATE: 0.229 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 112 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07/11/00 | TUE | 09:20 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 2 | 10/31/00 | TUE | 08:42 | A-SBR/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 112 ST. | US 1 | Down | ON |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 |
| 100% | 0% | 50% | 50% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | UPSTREAM | LOOP STATUS: ON | OFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 11,979 ACCIDENT RATE: 0.457 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 128 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **0** | **1** | **0** | **1** | **100%** | **0.26** |
| LOCATION TYPE | US 1 | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FATAL | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| FATAL CRASHES | DRIVER/PASS | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

ЄCTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY
INTERSECTION ROUTE: SW 128 STREET M.P.: ________ ENGINEER: W.G.H
STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07/03/99 | SAT | 17:00 | A-SBR/SB | 1 | | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 128 ST. | US 1 | Down | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 100% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 10,916 ACCIDENT RATE: 0.251 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

# CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 132 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **1** | **1** | **0** | **2** | **100%** | **0.52** |
| LOCATION TYPE | US 1 | 0 | 1 | 1 | 0 | 2 | 100% | 0.52 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 1 | 1 | 0 | 2 | 100% | 0.52 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 1 | 1 | 0 | 2 | 100% | 0.52 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | INJURY | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 1 | 1 | 0 | 2 | 100% | 0.52 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | WET | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | SEPTEMBER | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | THURSDAY | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 1 | 0 | 1 | 50% | 0.26 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 132 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 09/30/98 | WED | 10:45 | A-EB/SB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 14,774 ACCIDENT RATE: 0.185 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 132 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/05/99 | THU | 16:15 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 132 ST. | US 1 | None | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |

| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION DOWNSTREAM | UPSTREAM | LOOP STATUS ON | OFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 14,774 ACCIDENT RATE: 0.185 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 136 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 1 | 0 | 0 | 1 | 33% | 0.26 |
| | Angle - SBR/NB | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **1** | **0** | **2** | **3** | **100%** | **0.78** |
| LOCATION TYPE | US 1 | 0 | 1 | 0 | 2 | 3 | 100% | 0.78 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 1 | 0 | 1 | 2 | 67% | 0.52 |
| | OFF | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 0 | 2 | 2 | 67% | 0.52 |
| | UPSTREAM | 0 | 1 | 0 | 0 | 1 | 33% | 0.26 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 1 | 0 | 0 | 1 | 33% | 0.26 |
| | INJURY | 0 | 0 | 0 | 2 | 2 | 67% | 0.52 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 1 | 0 | 2 | 3 | 100% | 0.78 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 0 | 1 | 0 | 2 | 3 | 100% | 0.78 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 1 | 0 | 0 | 1 | 33% | 0.26 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 1 | 0 | 1 | 2 | 67% | 0.52 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 1 | 1 | 33% | 0.26 |
| | 14:00 - 16:00 | 0 | 1 | 0 | 0 | 1 | 33% | 0.26 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 136 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/22/98 | SAT | 14:15 | A-SBR/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 0% | 100% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 28,319 ACCIDENT RATE: 0.097 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 136 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/22/00 | SAT | 09:48 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Down | ON |
| 2 | 11/28/00 | TUE | 12:55 | A-SBR/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 136 ST. | US 1 | Down | OFF |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 2 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 50% | 0% | 0% | 0% | 50% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 1 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 50% | 50% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 28,319 | | ACCIDENT RATE: | | 0.193 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 144 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **0** | **0** | **2** | **2** | **100%** | **0.52** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 2 | 2 | 100% | 0.52 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 0 | 0 | 2 | 2 | 100% | 0.52 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | UPSTREAM | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | INJURY | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 0 | 0 | 2 | 2 | 100% | 0.52 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 0 | 0 | 0 | 2 | 2 | 100% | 0.52 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 2 | 2 | 100% | 0.52 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY
INTERSECTION ROUTE: SW 144 STREET M.P.: ________ ENGINEER: W.G.H
STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/28/00 | SAT | 16:30 | A-SBR/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 144 ST. | US 1 | Up | ON |
| 2 | 10/29/00 | SUN | 07:55 | BIKE | | 1 | | DAY | DRY | Other | SW 144 ST. | US 1 | Down | ON |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | |
| 100% | 0% | 50% | 50% | 0% | 50% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION: DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS: ON** | **OFF** |
| 0 | 1 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 1 | 2 | 0 |
| 0% | 50% | 0% | 100% | 0% | 0% | 100% | 0% | 50% | 0% | 50% | 50% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 11,166 ACCIDENT RATE: 0.491 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 152 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **1** | **0** | **0** | **0** | **1** | **100%** | **0.26** |
| LOCATION TYPE | US 1 | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UPSTREAM | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | DAYLIGHT | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 19:00 - 22:00 | 1 | 0 | 0 | 0 | 1 | 100% | 0.26 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

.ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 152 STREET M.P.: ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15/97 | SAT | 21:00 | A-SBR/NB | | 1 | | NT | DRY | Veh. 1 -DTS-Cited | SW 152 ST. | US 1 | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 30,631 | | ACCIDENT RATE: | | 0.089 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 168 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR | | | | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| | | 1997 | 1998 | 1999 | 2000 | | | |
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 1 | 1 | 0 | 0 | 2 | 29% | 0.52 |
| | Angle - EB/SB | 1 | 0 | 1 | 0 | 2 | 29% | 0.52 |
| | Angle - EB/NB | 1 | 2 | 0 | 0 | 3 | 43% | 0.78 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **3** | **3** | **1** | **0** | **7** | **100%** | **1.83** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 3 | 3 | 1 | 0 | 7 | 100% | 1.83 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 3 | 0 | 1 | 0 | 4 | 57% | 1.05 |
| | OFF | 0 | 3 | 0 | 0 | 3 | 43% | 0.78 |
| BUS STOP LOCATION | DOWNSTREAM | 2 | 3 | 0 | 0 | 5 | 71% | 1.31 |
| | UPSTREAM | 1 | 0 | 1 | 0 | 2 | 29% | 0.52 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 3 | 3 | 1 | 0 | 7 | 100% | 1.83 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 3 | 3 | 1 | 0 | 7 | 100% | 1.83 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 3 | 2 | 0 | 0 | 5 | 71% | 1.31 |
| | WET | 0 | 1 | 1 | 0 | 2 | 29% | 0.52 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| | SEPTEMBER | 0 | 1 | 1 | 0 | 2 | 29% | 0.52 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 1 | 1 | 0 | 2 | 29% | 0.52 |
| | TUESDAY | 2 | 0 | 0 | 0 | 2 | 29% | 0.52 |
| | WEDNESDAY | 0 | 2 | 0 | 0 | 2 | 29% | 0.52 |
| | THURSDAY | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 3 | 1 | 0 | 0 | 4 | 57% | 1.05 |
| | 11:00 - 14:00 | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| | 14:00 - 16:00 | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700    STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 168 STREET    M.P.: ________    ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97    COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/04/97 | TUE | 09:20 | A-EB/NB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 2 | 04/24/97 | THU | 10:10 | A-EB/SB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Up | ON |
| 3 | 06/03/97 | TUE | 09:45 | A-WB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | ON |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 3 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 33% | 33% | 33% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 2 | 1 | 3 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 67% | 33% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 10,739    ACCIDENT RATE: 0.765 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

CTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 168 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/10/98 | MON | 11:50 | A-EB/NB | | 7 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 168 ST. | ISOL | Down | OFF |
| 2 | 09/30/98 | WED | 15:20 | A-WB/NB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 3 | 11/04/98 | WED | 09:26 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Down | OFF |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 3 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 3 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 33% | 0% | 67% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 3 | 0 | 3 | 0 | 0 | 3 |
| 0% | 0% | 0% | 100% | 0% | 33% | 67% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 10,739 ACCIDENT RATE: 0.765 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 168 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 09/06/99 | MON | 22:05 | A-EB/SB | | 2 | | DAY | WET | Veh. 2 -DTS-Cited | SW 168 ST. | ISOL | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 10,739 ACCIDENT RATE: 0.255 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** BANYAN STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 1 | 1 | 0 | 0 | 2 | 100% | 0.52 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **1** | **1** | **0** | **0** | **2** | **100%** | **0.52** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 1 | 1 | 0 | 0 | 2 | 100% | 0.52 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | OFF | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UPSTREAM | 1 | 1 | 0 | 0 | 2 | 100% | 0.52 |
| SEVERITY | PROPERTY DAMAGE ONLY | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | INJURY | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | DAYLIGHT | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 1 | 1 | 0 | 0 | 2 | 100% | 0.52 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 1 | 0 | 0 | 0 | 1 | 50% | 0.26 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: BANYAN STREET M.P.: ________ ENGINEER: W.G H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 04/04/97 | FRI | 18:26 | A-EB/SB | | | YES | NT | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0% | 0% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 4,239 | | ACCIDENT RATE: | | 0.646 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: BANYAN STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/21/98 | WED | 08:00 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | BANYAN ST. | ISOL | Up | OFF |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION DOWNSTREAM | UPSTREAM | LOOP STATUS ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 0% | 100% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 4,239 ACCIDENT RATE: 0.848 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** HIBISCUS STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 1 | 0 | 1 | 0% | 0.26 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **0** | **1** | **0** | **1** | **100%** | **0.26** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FATAL | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | DAYLIGHT | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OCTOBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 1 | 0 | 1 | 100% | 0.26 |

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY
INTERSECTION ROUTE: HIBISCUS STREET M.P.: ________ ENGINEER: W.G.H
STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 12/07/99 | TUE | 23:10 | A-OTH | 1 | | | NT | DRY | Veh. 2 -DTS-Cit. Pend. | HIBISCUS | ISOL | N/A | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 100% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION: DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS: ON** | **OFF** |
| 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 2,296 ACCIDENT RATE: 1.193 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 184 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| **COLLISION TYPE** | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 3 | 1 | 3 | 0 | 7 | 100% | 1.83 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **3** | **1** | **3** | **0** | **7** | **100%** | **1.83** |
| **LOCATION TYPE** | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 3 | 1 | 3 | 0 | 7 | 100% | 1.83 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| **LOOP STATUS** | ON | 3 | 0 | 3 | 0 | 6 | 86% | 1.57 |
| | OFF | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| **BUS STOP LOCATION** | DOWNSTREAM | 3 | 1 | 3 | 0 | 7 | 100% | 1.83 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| **SEVERITY** | PROPERTY DAMAGE ONLY | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | INJURY | 3 | 1 | 2 | 0 | 6 | 86% | 1.57 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| **FATAL CRASHES** | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| **LIGHT CONDITIONS** | DARK | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | DAYLIGHT | 3 | 1 | 1 | 0 | 5 | 71% | 1.31 |
| | DAWN/DUSK | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| **SURFACE CONDITION** | DRY | 3 | 1 | 2 | 0 | 6 | 86% | 1.57 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| **MONTH OF YEAR** | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 2 | 0 | 0 | 0 | 2 | 29% | 0.52 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | SEPTEMBER | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | OCTOBER | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | NOVEMBER | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| **DAY OF WEEK** | SUNDAY | 1 | 0 | 2 | 0 | 3 | 43% | 0.78 |
| | MONDAY | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 1 | 1 | 0 | 0 | 2 | 29% | 0.52 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| **HOUR OF DAY** | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | 07:00 - 09:00 | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 1 | 0 | 0 | 0 | 1 | 14% | 0.26 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 1 | 0 | 1 | 0 | 2 | 29% | 0.52 |
| | 19:00 - 22:00 | 0 | 0 | 1 | 0 | 1 | 14% | 0.26 |
| | 22:00 - 01:00 | 0 | 1 | 0 | 0 | 1 | 14% | 0.26 |

SOUTH MIAMI-DADE BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 184 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/19/97 | WED | 13:45 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 2 | 02/22/97 | SAT | 16:15 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 3 | 04/20/97 | SUN | 08:20 | A-EB/SB | | 8 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | LOCATION TYPE: ISOLATED | LOCATION TYPE: OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | BUS STOP LOCATION: UPSTREAM | LOOP STATUS: ON | LOOP STATUS: OFF |
| 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 3 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 22,868 ACCIDENT RATE: 0.359 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 184 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/25/98 | WED | 23:30 | A-EB/SB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | OFF |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 22,868 ACCIDENT RATE: 0.120 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 184 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 08/15/99 | SUN | 06:15 | A-EB/SB | | | YES | DAWN | Unk | Veh. 2 -DTS-Not Cited | SW 184 ST. | ISOL | Down | ON |
| 2 | 09/06/99 | MON | 18:50 | A-EB/SB | | 7 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 3 | 10/17/99 | SUN | 20:45 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 184 ST. | ISOL | Down | ON |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | |
| 100% | 0% | 67% | 33% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION: DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS: ON** | **OFF** |
| 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 3 | 0 | 3 | 0 | 3 | 0 |
| 0% | 0% | 0% | 33% | 33% | 0% | 67% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |

TOTAL VEHICLES ENTERING/ADT: 22,868 ACCIDENT RATE: 0.359 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** SW 186 STREET

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | Angle - EB/SB | 2 | 1 | 2 | 1 | 6 | 40% | 1.57 |
| | Angle - EB/NB | 0 | 0 | 6 | 2 | 8 | 53% | 2.09 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **2** | **1** | **9** | **3** | **15** | **100%** | **3.92** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 2 | 1 | 9 | 3 | 15 | 100% | 3.92 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 2 | 0 | 9 | 0 | 11 | 73% | 2.88 |
| | OFF | 0 | 1 | 0 | 3 | 4 | 27% | 1.05 |
| BUS STOP LOCATION | DOWNSTREAM | 2 | 1 | 9 | 3 | 15 | 100% | 3.92 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 1 | 0 | 2 | 1 | 4 | 27% | 1.05 |
| | INJURY | 1 | 1 | 7 | 2 | 11 | 73% | 2.88 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | DAYLIGHT | 2 | 1 | 8 | 3 | 14 | 93% | 3.66 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 2 | 1 | 9 | 3 | 15 | 100% | 3.92 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 1 | 1 | 7% | 0.26 |
| | FEBRUARY | 0 | 0 | 1 | 1 | 2 | 13% | 0.52 |
| | MARCH | 1 | 0 | 1 | 0 | 2 | 13% | 0.52 |
| | APRIL | 0 | 0 | 1 | 1 | 2 | 13% | 0.52 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 1 | 0 | 2 | 0 | 3 | 20% | 0.78 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | SEPTEMBER | 0 | 0 | 2 | 0 | 2 | 13% | 0.52 |
| | OCTOBER | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | NOVEMBER | 0 | 1 | 0 | 0 | 1 | 7% | 0.26 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | MONDAY | 2 | 0 | 1 | 2 | 5 | 33% | 1.31 |
| | TUESDAY | 0 | 0 | 3 | 0 | 3 | 20% | 0.78 |
| | WEDNESDAY | 0 | 0 | 3 | 0 | 3 | 20% | 0.78 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 1 | 1 | 0 | 2 | 13% | 0.52 |
| | SATURDAY | 0 | 0 | 0 | 1 | 1 | 7% | 0.26 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |
| | 09:00 - 11:00 | 0 | 0 | 2 | 0 | 2 | 13% | 0.52 |
| | 11:00 - 14:00 | 1 | 0 | 2 | 1 | 4 | 27% | 1.05 |
| | 14:00 - 16:00 | 0 | 1 | 2 | 0 | 3 | 20% | 0.78 |
| | 16:00 - 19:00 | 1 | 0 | 1 | 2 | 4 | 27% | 1.05 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 22:00 - 01:00 | 0 | 0 | 1 | 0 | 1 | 7% | 0.26 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

**SECTION:** 87020700 **STATE ROUTE:** SOUTH MIAMI-DADE BUSWAY

**INTERSECTION ROUTE:** SW 186 STREET **M.P.:** ________ **ENGINEER:** W.G.H

**STUDY PERIOD: FROM** 02/04/97 **TO** 12/31/97 **COUNTY:** MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 03/17/97 | MON | 18:10 | A-EB/SB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 2 | 06/16/97 | MON | 13:10 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | |
| 100% | 0% | 50% | 50% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 2 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | 13,200 | | | ACCIDENT RATE: | | 0.415 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

ⅭTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 186 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/13/98 | FRI | 14:00 | A-EB/SB | | 15 | | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |

| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 13,200 ACCIDENT RATE: 0.208 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

CTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 186 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/09/99 | TUE | 07:10 | A-EB/NB | | 2 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 2 | 03/02/99 | TUE | 14:10 | A-EB/NB | | 11 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 3 | 04/28/99 | WED | 12:45 | A-EB/SB | | 5 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 4 | 06/04/99 | FRI | 14:05 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 5 | 06/21/99 | MON | 13:30 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | ON |
| 6 | 08/04/99 | WED | 09:20 | A-EB/NB | | 4 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 7 | 09/01/99 | WED | 16:50 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 8 | 09/05/99 | SUN | 22:05 | A-EB/NB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 9 | 10/26/99 | TUE | 10:15 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | ON |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 9 | 0 | 7 | 2 | 0 | 0 | 0 | 1 | 2 | 6 | 0 | 9 | 0 | |
| 100% | 0% | 78% | 22% | 0% | 0% | 0% | 11% | 22% | 67% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 8 | 1 | 0 | 9 | 0 | 9 | 0 | 9 | 0 | 9 | 0 |
| 0% | 0% | 0% | 89% | 11% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 13,200 | | ACCIDENT RATE: | | 1.868 /MEV | | | | | |

COLLISION TYPE:

| | |
|---|---|
| A-SBR/SB | =ANGLE SBR from US 1 with SB on BUSWAY |
| A-SBR/NB | =ANGLE SBR from US 1 with NB on BUSWAY |
| A-WB/SB | =ANGLE WB on CROSS STREET with SB on BUSWAY |
| A-WB/NB | =ANGLE WB on CROSS STREET with NB on BUSWAY |
| A-EB/SB | =ANGLE EB on CROSS STREET with SB on BUSWAY |
| A-EB/NB | =ANGLE WB on CROSS STREET with NB on BUSWAY |
| A-OTH | =ANGLE OTHER - BUS NOT ON BUSWAY |

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

CTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: SW 186 STREET M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/31/00 | MON | 17:20 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Not Cited | SW 186 ST. | ISOL | None | OFF |
| 2 | 02/28/00 | MON | 12:30 | A-EB/NB | | 3 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 3 | 04/15/00 | SAT | 16:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | SW 186 ST. | ISOL | None | OFF |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | US 1 | ISOLATED | OTHER | |
| 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 3 | 0 | |
| 100% | 0% | 67% | 33% | 0% | 0% | 0% | 0% | 33% | 67% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 3 | 0 | 3 | 0 | 0 | 3 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 13,200 ACCIDENT RATE: 0.623 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** MARLIN ROAD

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 3 | 0 | 3 | 19% | 0.78 |
| | Angle - EB/SB | 1 | 1 | 2 | 0 | 4 | 25% | 1.05 |
| | Angle - EB/NB | 3 | 0 | 6 | 0 | 9 | 56% | 2.35 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **4** | **1** | **11** | **0** | **16** | **100%** | **4.19** |
| LOCATION TYPE | US 1 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | ISOLATED | 4 | 1 | 11 | 0 | 16 | 100% | 4.19 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 4 | 0 | 10 | 0 | 14 | 88% | 3.66 |
| | OFF | 0 | 1 | 1 | 0 | 2 | 13% | 0.52 |
| BUS STOP LOCATION | DOWNSTREAM | 4 | 1 | 11 | 0 | 16 | 100% | 4.19 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 5 | 0 | 5 | 31% | 1.31 |
| | INJURY | 4 | 1 | 6 | 0 | 11 | 69% | 2.88 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 2 | 0 | 2 | 0 | 4 | 25% | 1.05 |
| | DAYLIGHT | 2 | 1 | 9 | 0 | 12 | 75% | 3.14 |
| | DAWN/DUSK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SURFACE CONDITION | DRY | 2 | 1 | 7 | 0 | 10 | 63% | 2.62 |
| | WET | 1 | 0 | 4 | 0 | 5 | 31% | 1.31 |
| | UNKNOWN | 1 | 0 | 0 | 0 | 1 | 6% | 0.26 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| | FEBRUARY | 1 | 0 | 0 | 0 | 1 | 6% | 0.26 |
| | MARCH | 1 | 1 | 0 | 0 | 2 | 13% | 0.52 |
| | APRIL | 1 | 0 | 1 | 0 | 2 | 13% | 0.52 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 1 | 0 | 2 | 0 | 3 | 19% | 0.78 |
| | JULY | 0 | 0 | 3 | 0 | 3 | 19% | 0.78 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| | OCTOBER | 0 | 0 | 2 | 0 | 2 | 13% | 0.52 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| DAY OF WEEK | SUNDAY | 0 | 0 | 3 | 0 | 3 | 19% | 0.78 |
| | MONDAY | 1 | 0 | 1 | 0 | 2 | 13% | 0.52 |
| | TUESDAY | 1 | 0 | 1 | 0 | 2 | 13% | 0.52 |
| | WEDNESDAY | 1 | 0 | 2 | 0 | 3 | 19% | 0.78 |
| | THURSDAY | 1 | 0 | 1 | 0 | 2 | 13% | 0.52 |
| | FRIDAY | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| | SATURDAY | 0 | 1 | 2 | 0 | 3 | 19% | 0.78 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| | 09:00 - 11:00 | 2 | 0 | 2 | 0 | 4 | 25% | 1.05 |
| | 11:00 - 14:00 | 0 | 0 | 1 | 0 | 1 | 6% | 0.26 |
| | 14:00 - 16:00 | 0 | 1 | 1 | 0 | 2 | 13% | 0.52 |
| | 16:00 - 19:00 | 0 | 0 | 4 | 0 | 4 | 25% | 1.05 |
| | 19:00 - 22:00 | 2 | 0 | 2 | 0 | 4 | 25% | 1.05 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE BUSWAY**
**CRASH SUMMARY**

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: MARLIN ROAD M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 02/04/97 TO 12/31/97 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 02/25/97 | TUE | 19:22 | A-EB/NB | | 2 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 2 | 03/20/97 | THU | 09:46 | A-EB/NB | | 12 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 3 | 04/30/97 | WED | 21:20 | A-EB/NB | | 2 | | NT | Unk | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 4 | 06/09/97 | MON | 10:00 | A-EB/SB | | 12 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 25% | 75% | 0% | 100% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 2 | 2 | 1 | 2 | 0 | 4 | 0 | 4 | 0 | 4 | 0 |
| 0% | 0% | 0% | 50% | 50% | 25% | 50% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | | 26,970 | | ACCIDENT RATE: | | 0.406 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: MARLIN ROAD M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 03/21/98 | SAT | 14:43 | A-EB/SB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | |
| **FIXED OBJECT** | **PED/ BIKE** | **OTHER** | **DAY** | **NIGHT** | **WET** | **DRY** | **EXCESS SPEED** | **DTS** | **DUI** | **BUS STOP LOCATION DOWNSTREAM** | **UPSTREAM** | **LOOP STATUS ON** | **OFF** |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 0% | 100% |

TOTAL VEHICLES ENTERING/ADT: 26,970 ACCIDENT RATE: 0.102 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

SECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: MARLIN ROAD M.P.: ________ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/99 TO 12/31/99 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 01/24/99 | SUN | 16:35 | A-EB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | OFF |
| 2 | 04/05/99 | MON | 10:04 | A-EB/NB | | 6 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 3 | 06/20/99 | SUN | 20:37 | A-EB/NB | | 6 | | NT | WET | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 4 | 06/22/99 | TUE | 14:57 | A-WB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 5 | 07/08/99 | THU | 17:13 | A-WB/NB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 6 | 07/10/99 | SAT | 13:38 | A-WB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | MARLIN RD. | ISOL | Down | ON |
| 7 | 07/23/99 | FRI | 16:55 | A-EB/SB | | | YES | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 8 | 09/26/99 | SUN | 20:10 | A-EB/NB | | | YES | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 9 | 10/13/99 | WED | 08:45 | A-EB/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 10 | 10/16/99 | SAT | 10:00 | A-EB/NB | | 1 | | DAY | WET | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 11 | 12/08/99 | WED | 18:56 | A-EB/SB | | 1 | | NT | DRY | Veh. 2 -DTS-Cited | MARLIN RD. | ISOL | Down | ON |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE: US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0 | 6 | 5 | 0 | 0 | 0 | 3 | 2 | 6 | 0 | 11 | 0 | |
| 100% | 0% | 55% | 45% | 0% | 0% | 0% | 27% | 18% | 55% | 0% | 100% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION: DOWNSTREAM | UPSTREAM | LOOP STATUS: ON | OFF |
| 0 | 0 | 0 | 9 | 2 | 4 | 7 | 0 | 11 | 0 | 11 | 0 | 10 | 1 |
| 0% | 0% | 0% | 82% | 18% | 36% | 64% | 0% | 100% | 0% | 100% | 0% | 91% | 9% |

TOTAL VEHICLES ENTERING/ADT: 26,970 ACCIDENT RATE: 1.117 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

## CRASH SUMMARY

**YEAR(S):** 1997 - 2000
**LOCATION: Main Street:** SOUTH MIAMI-DADE BUSWAY
**Side Street:** CARIBBEAN BLVD

| | TYPE OF CRASH | NUMBER OF CRASHES YEAR 1997 | 1998 | 1999 | 2000 | 4 Year TOTAL ACC. | Percent OF TOTAL | Mean Crashes PER YEAR |
|---|---|---|---|---|---|---|---|---|
| COLLISION TYPE | Angle - SBR/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - SBR/NB | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | Angle - WB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - WB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/SB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | Angle - EB/NB | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PEDESTRIAN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | **TOTAL CRASHES** | **0** | **1** | **0** | **1** | **2** | **100%** | **0.52** |
| LOCATION TYPE | US 1 | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | ISOLATED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | OTHER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LOOP STATUS | ON | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | OFF | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| BUS STOP LOCATION | DOWNSTREAM | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | UPSTREAM | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| SEVERITY | PROPERTY DAMAGE ONLY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | INJURY | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | FATAL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| FATAL CRASHES | DRIVER/PASS. | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | PED | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | BICYCLE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| LIGHT CONDITIONS | DARK | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DAYLIGHT | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | DAWN/DUSK | 0 | 0 | 0 | 1 | 1 | 0% | 0.26 |
| SURFACE CONDITION | DRY | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | WET | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | UNKNOWN | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| MONTH OF YEAR | JANUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FEBRUARY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MARCH | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | APRIL | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | MAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JUNE | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | JULY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | AUGUST | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SEPTEMBER | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | OCTOBER | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | NOVEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | DECEMBER | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| DAY OF WEEK | SUNDAY | 0 | 1 | 0 | 1 | 2 | 100% | 0.52 |
| | MONDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | TUESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | THURSDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | FRIDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | SATURDAY | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| HOUR OF DAY | 01:00 - 05:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 05:00 - 07:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 07:00 - 09:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 09:00 - 11:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 11:00 - 14:00 | 0 | 1 | 0 | 0 | 1 | 50% | 0.26 |
| | 14:00 - 16:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 16:00 - 19:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |
| | 19:00 - 22:00 | 0 | 0 | 0 | 1 | 1 | 50% | 0.26 |
| | 22:00 - 01:00 | 0 | 0 | 0 | 0 | 0 | 0% | 0.00 |

**SOUTH MIAMI-DADE COUNTY BUSWAY**
**CRASH SUMMARY**

ION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

RSECTION ROUTE: CARIBBEAN BLVD M.P.: ________ ENGINEER: W.G.H

TUDY PERIOD: FROM 01/01/00 TO 11/30/00 COUNTY: MIAMI - DADE

| | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 09/17/00 | SUN | 19:30 | BIKE | | 3 | | DUSK | DRY | Other | CARIBBEAN BLVD. | US 1 | Down | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |

| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | LOCATION TYPE US 1 | ISOLATED | OTHER | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| % | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | BUS STOP LOCATION DOWNSTREAM | UPSTREAM | LOOP STATUS ON | OFF |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | 0% | 100% | 0% | 100% | 0% |

VEHICLES ENTERING/ADT: 19,723 ACCIDENT RATE: 0.139 /MEV

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

SOUTH MIAMI-DADE COUNTY BUSWAY
CRASH SUMMARY

ECTION: 87020700 STATE ROUTE: SOUTH MIAMI-DADE BUSWAY

INTERSECTION ROUTE: CARIBBEAN BLVD M.P.: ______ ENGINEER: W.G.H

STUDY PERIOD: FROM 01/01/98 TO 12/31/98 COUNTY: MIAMI - DADE

| NO. | DATE | DAY | TIME | TYPE | FATAL | INJURY | PROPERTY DAMAGE | DAY/NT | WET/DRY | CONTRIBUTING CAUSE | LOCATION | LOCATION TYPE | BUS STOP LOCATION | LOOP STATUS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10/04/98 | SUN | 12:30 | A-SBR/NB | | 1 | | DAY | DRY | Veh. 2 -DTS-Not Cited | CARIBBEAN BLVD. | US 1 | Down | ON |
| 2 | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | |
| 16 | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | |
| 18 | | | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | |
| 23 | | | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | | | |

| | | | | | | | | | | LOCATION TYPE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL NO. | FATAL | INJURY | P.D. ONLY | A-SBR/SB | A-SBR/NB | A-WB/SB | A-WB/NB | A-EB/SB | A-EB/NB | US 1 | ISOLATED | OTHER | |
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 100% | 0% | 100% | 0% | 0% | 100% | 0% | 0% | 0% | 0% | 100% | 0% | 0% | |
| | | | | | | | | | | BUS STOP LOCATION | | LOOP STATUS | |
| FIXED OBJECT | PED/ BIKE | OTHER | DAY | NIGHT | WET | DRY | EXCESS SPEED | DTS | DUI | DOWNSTREAM | UPSTREAM | ON | OFF |
| 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0% | 0% | 0% | 100% | 0% | 0% | 100% | 0% | 100% | 0% | 100% | 0% | 100% | 0% |
| TOTAL VEHICLES ENTERING/ADT: | | | 19,723 | | | ACCIDENT RATE: | | 0.139 /MEV | | | | | |

COLLISION TYPE:
A-SBR/SB =ANGLE SBR from US 1 with SB on BUSWAY
A-SBR/NB =ANGLE SBR from US 1 with NB on BUSWAY
A-WB/SB =ANGLE WB on CROSS STREET with SB on BUSWAY
A-WB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-EB/SB =ANGLE EB on CROSS STREET with SB on BUSWAY
A-EB/NB =ANGLE WB on CROSS STREET with NB on BUSWAY
A-OTH =ANGLE OTHER - BUS NOT ON BUSWAY

CONTRIBUTING CAUSE:
DTS =DISREGARDED TRAFFIC SIGNAL

# Collision Diagrams for Individual Intersections February 1997 through November 2000

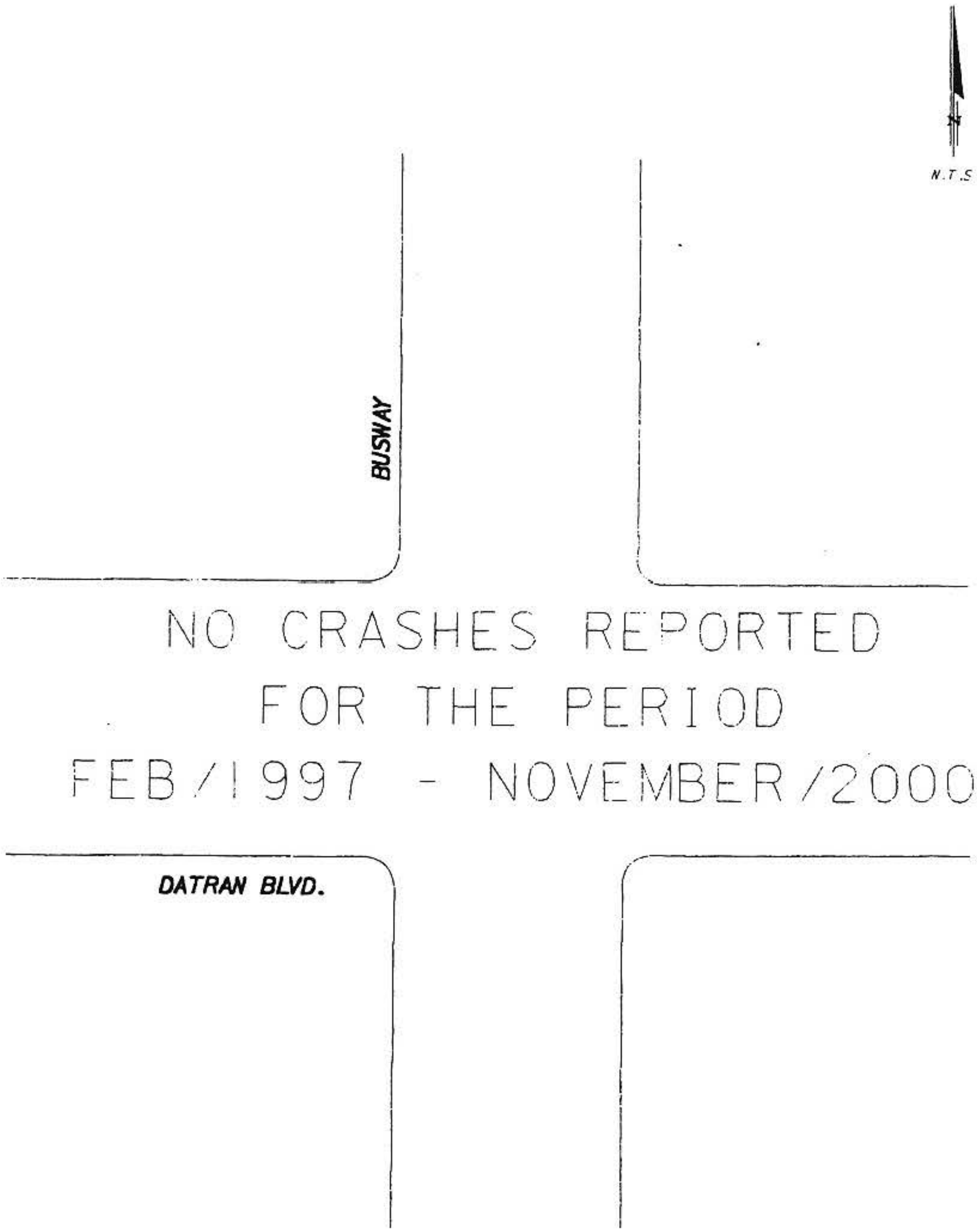
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT DATRAN BLVD.

COUNTY: MIAMI-DADE          CITY: MIAMI

PERIOD:          PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

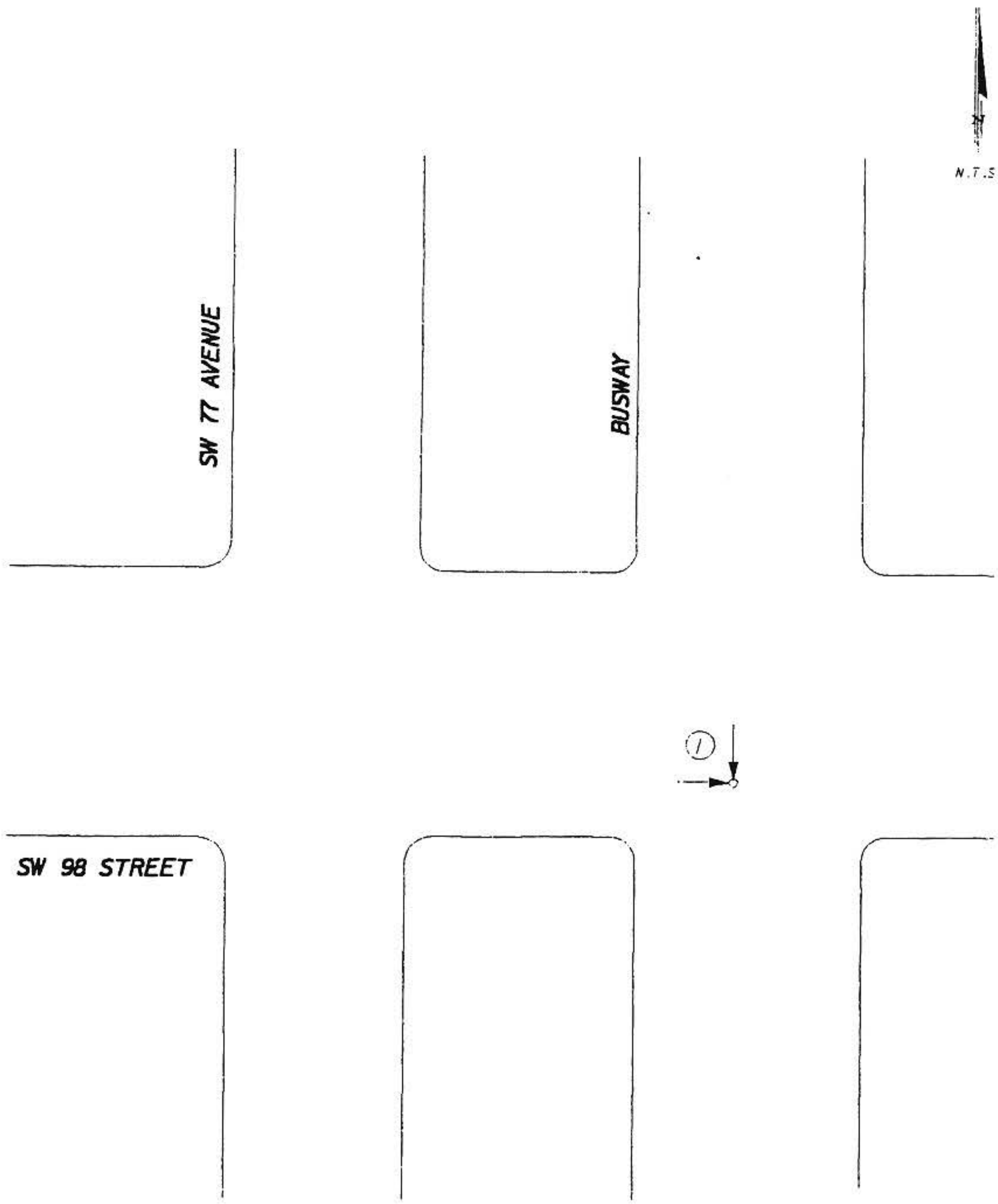
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 98 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1997    PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

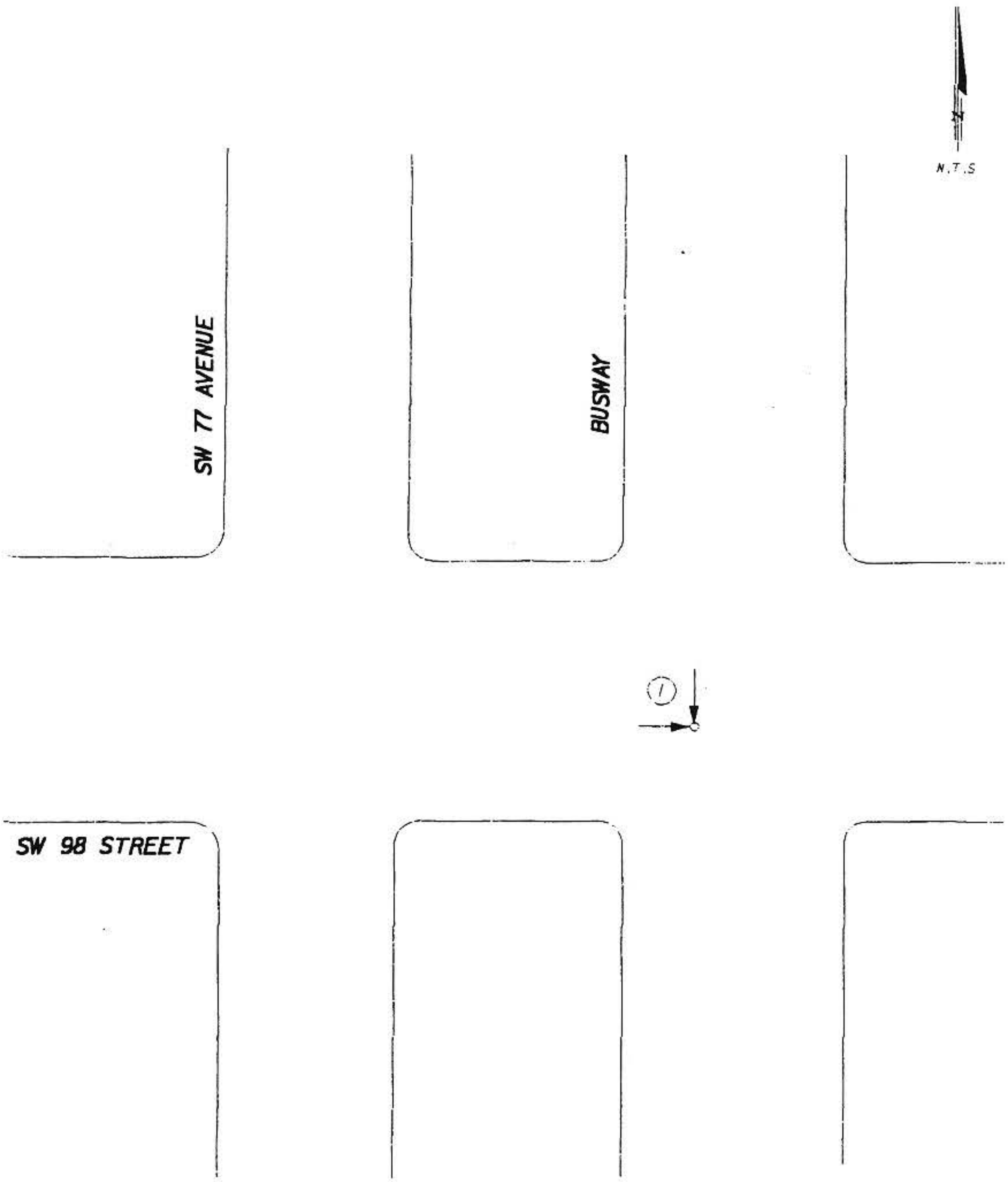
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 98 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

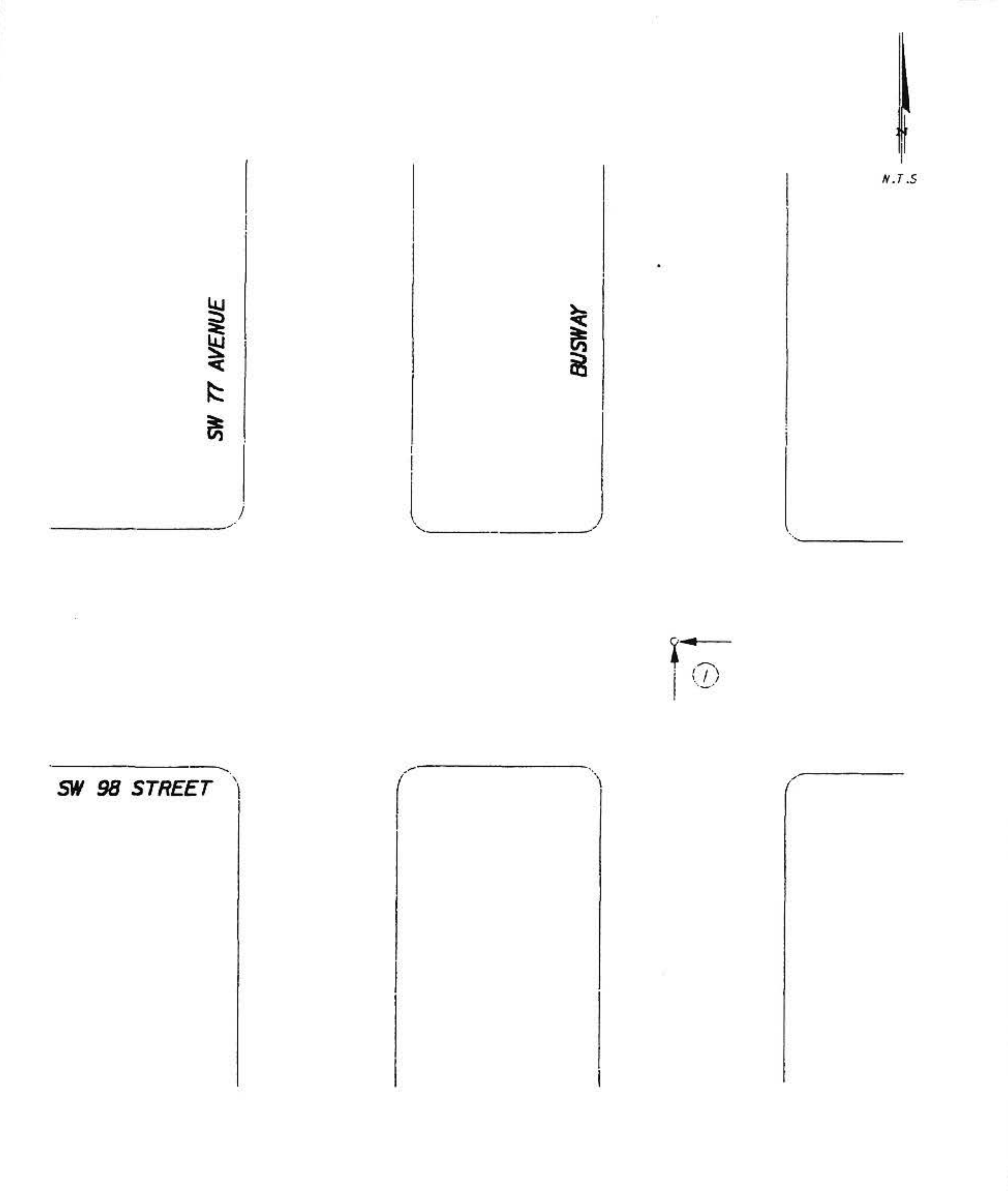
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 98 STREET

COUNTY: MIAMI-DADE　　CITY: MIAMI

PERIOD: 1999　　PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

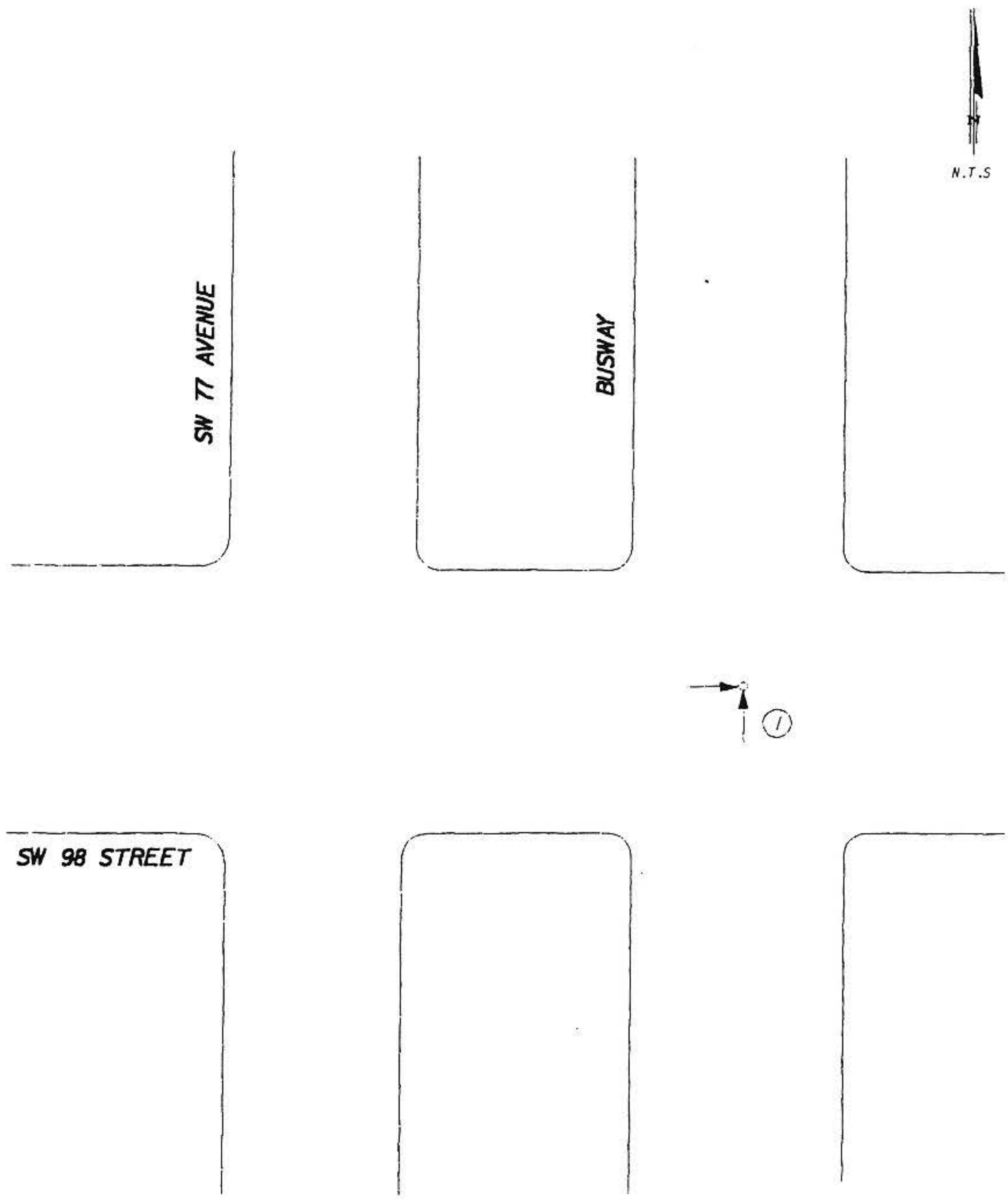
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 98 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: JAN-NOV/2000    PREPARED BY: FRA




2000 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

## COLLISION SYMBOLS

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

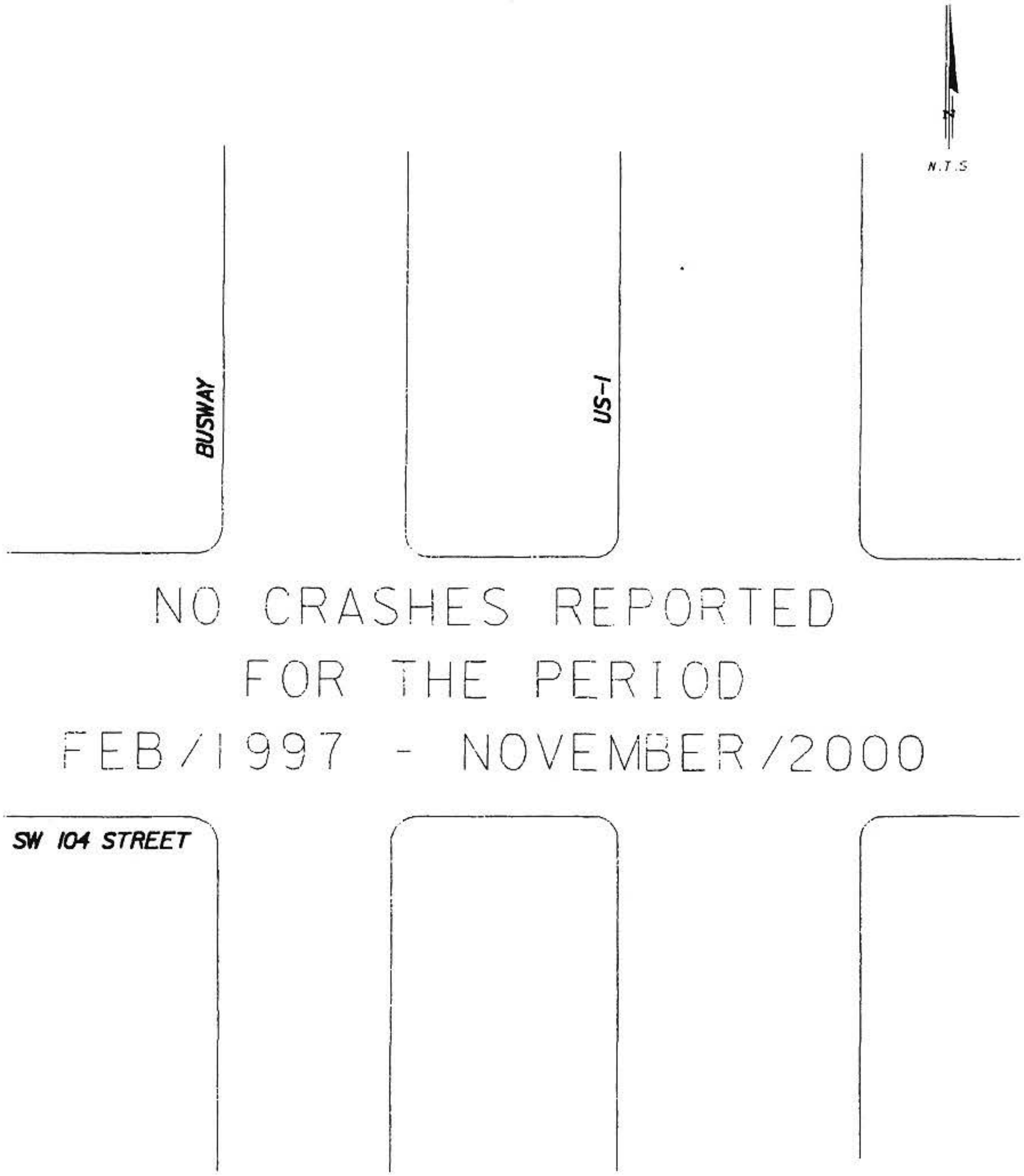
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 104 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

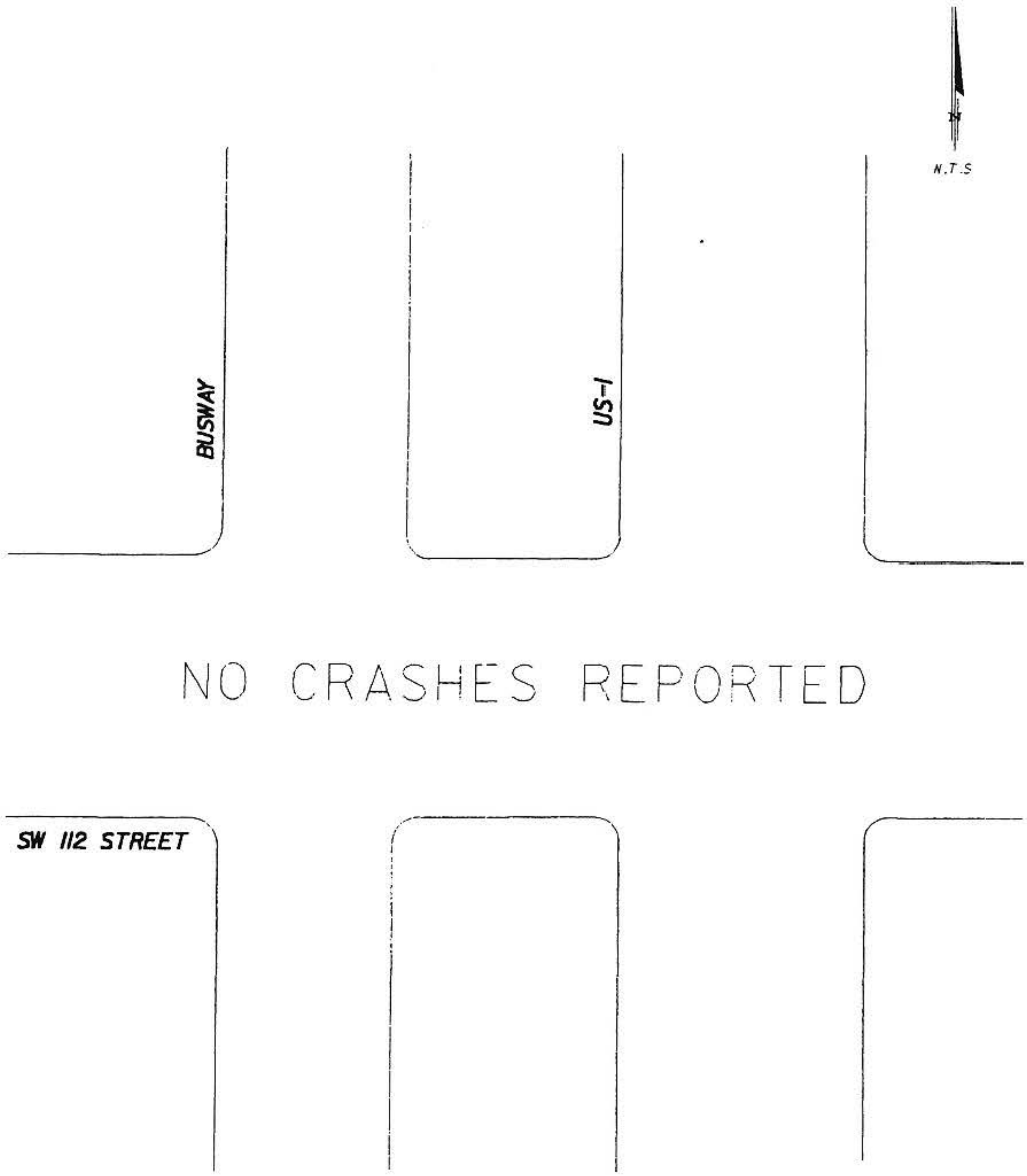
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 112 STREET/KILLIAN DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

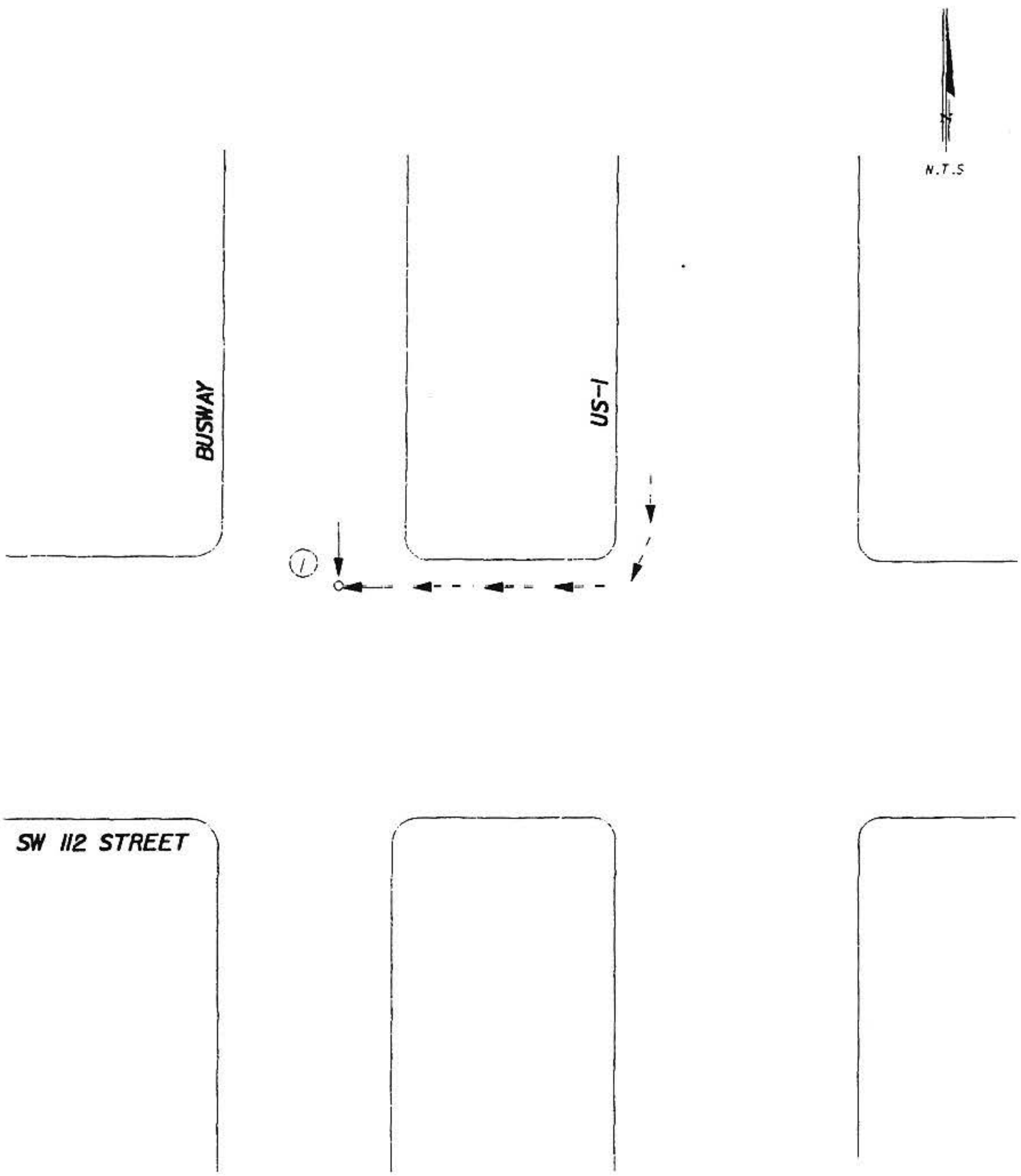
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 112 STREET/KILLIAN DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

## COLLISION SYMBOLS

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

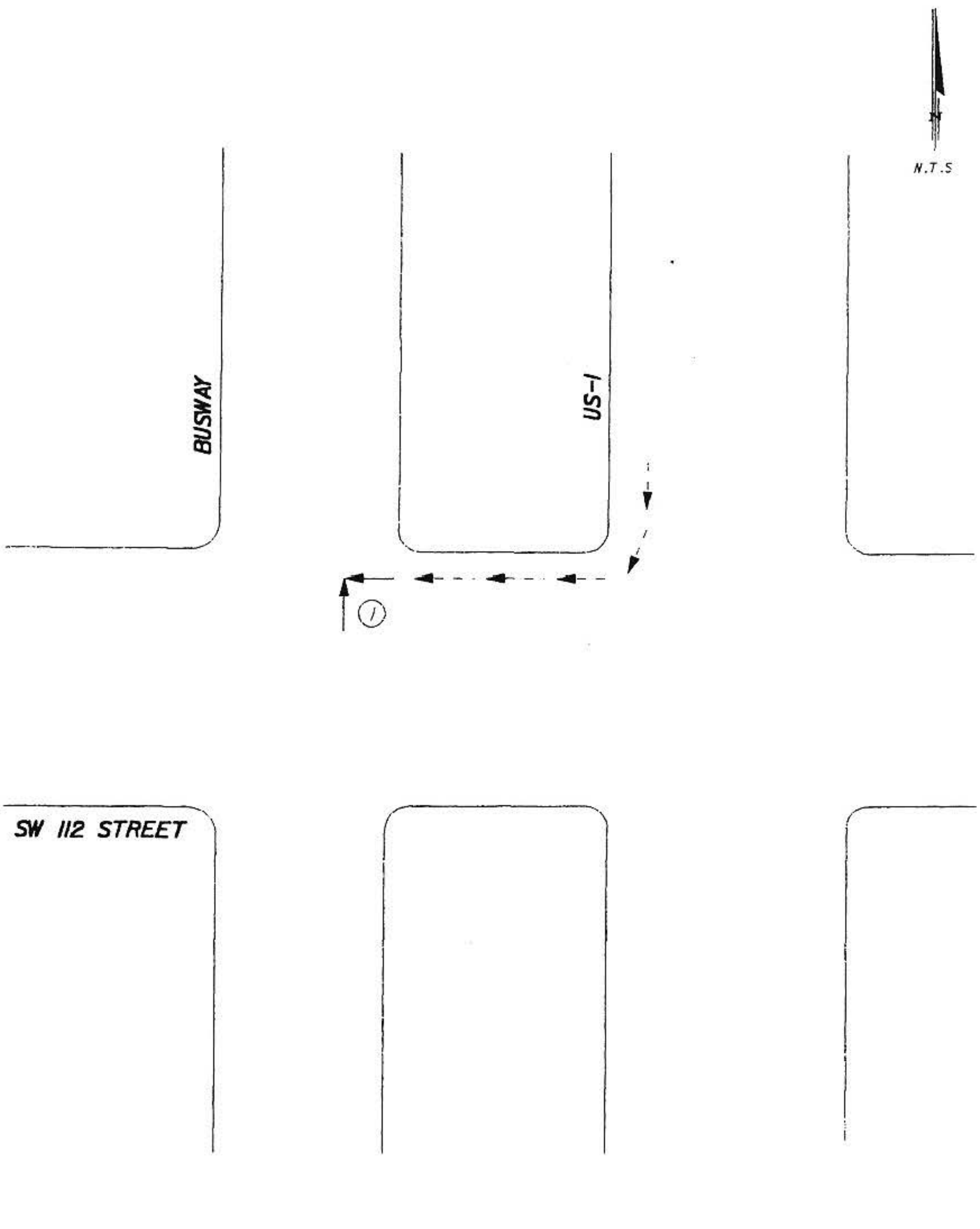
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 112 STREET/KILLIAN DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | 1 | 0 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 0 | 0 | 1 |

## COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

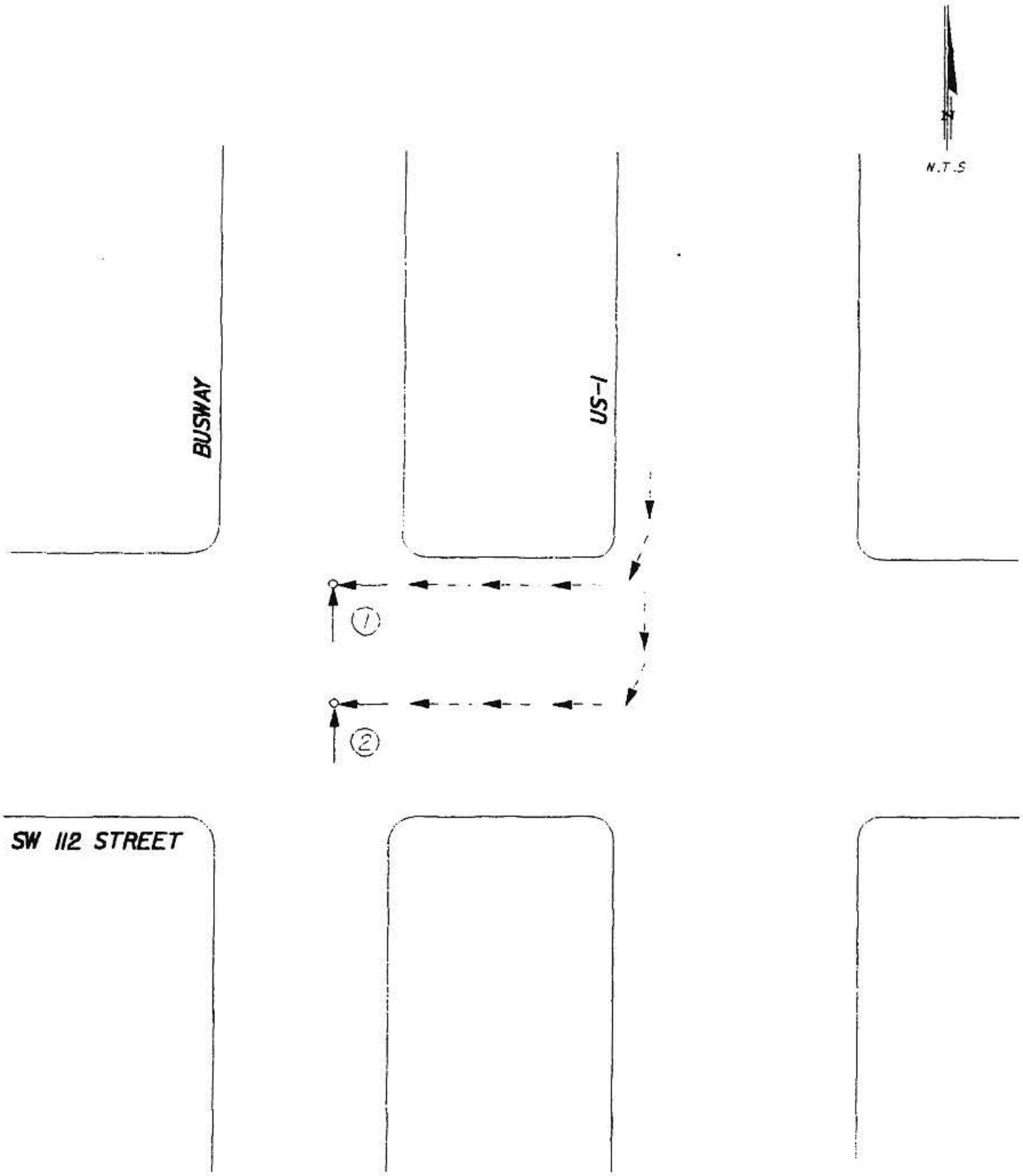
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 112 STREET/KILLIAN DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 1 | 1 | 0 | 2 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 1 | 0 | 2 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

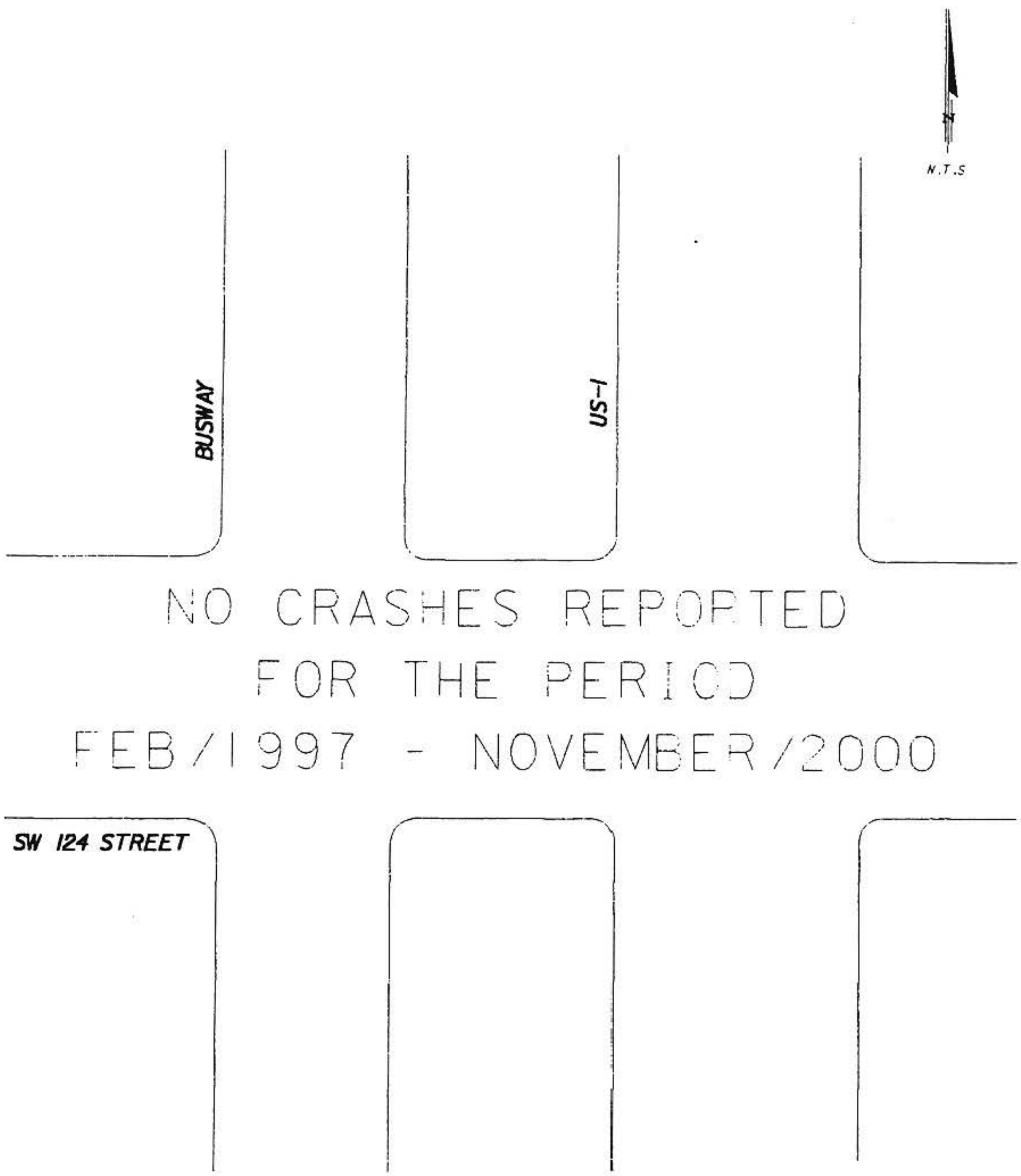
# COLLISION DIAGRAM

F. R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 124 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

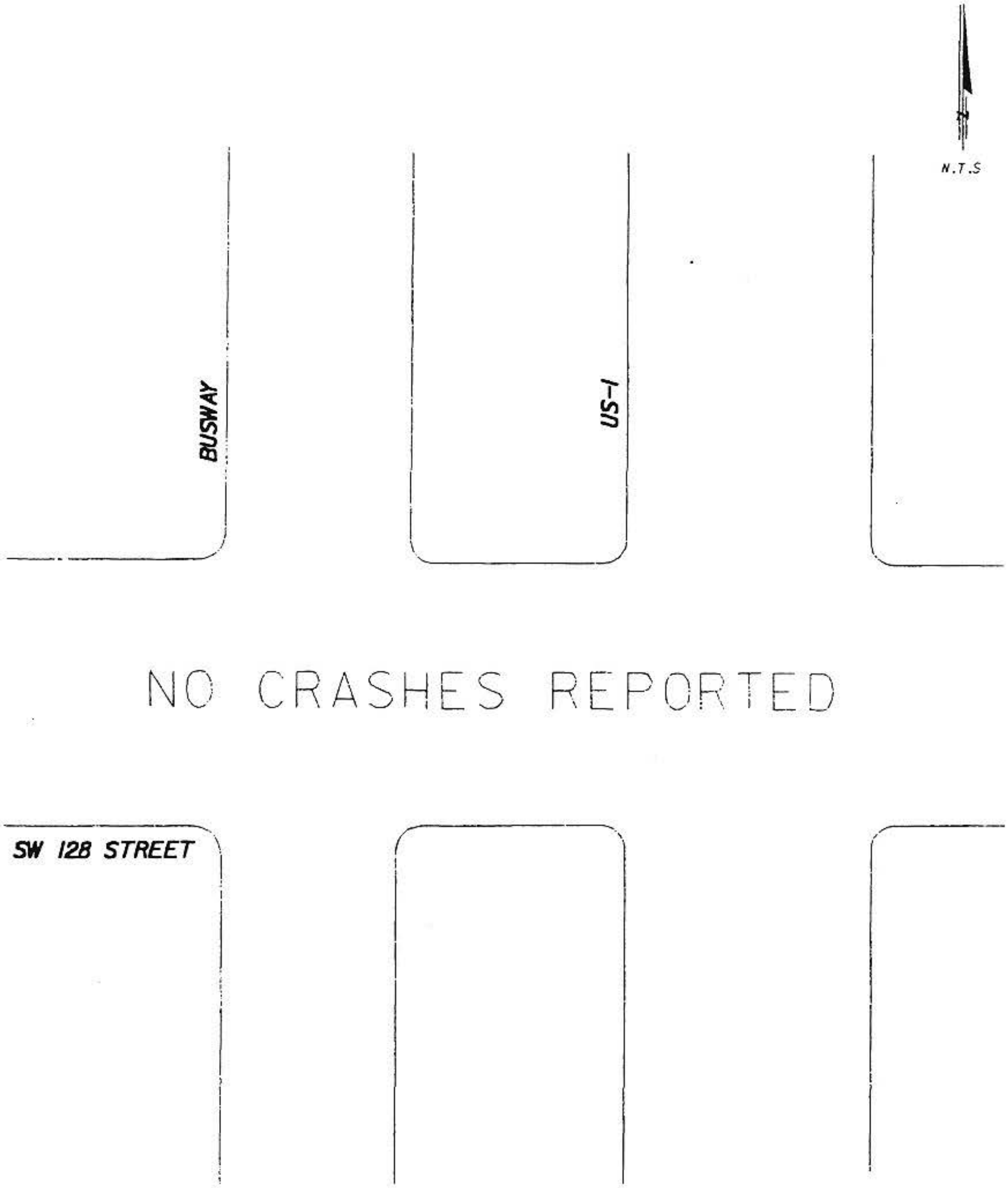
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 128 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

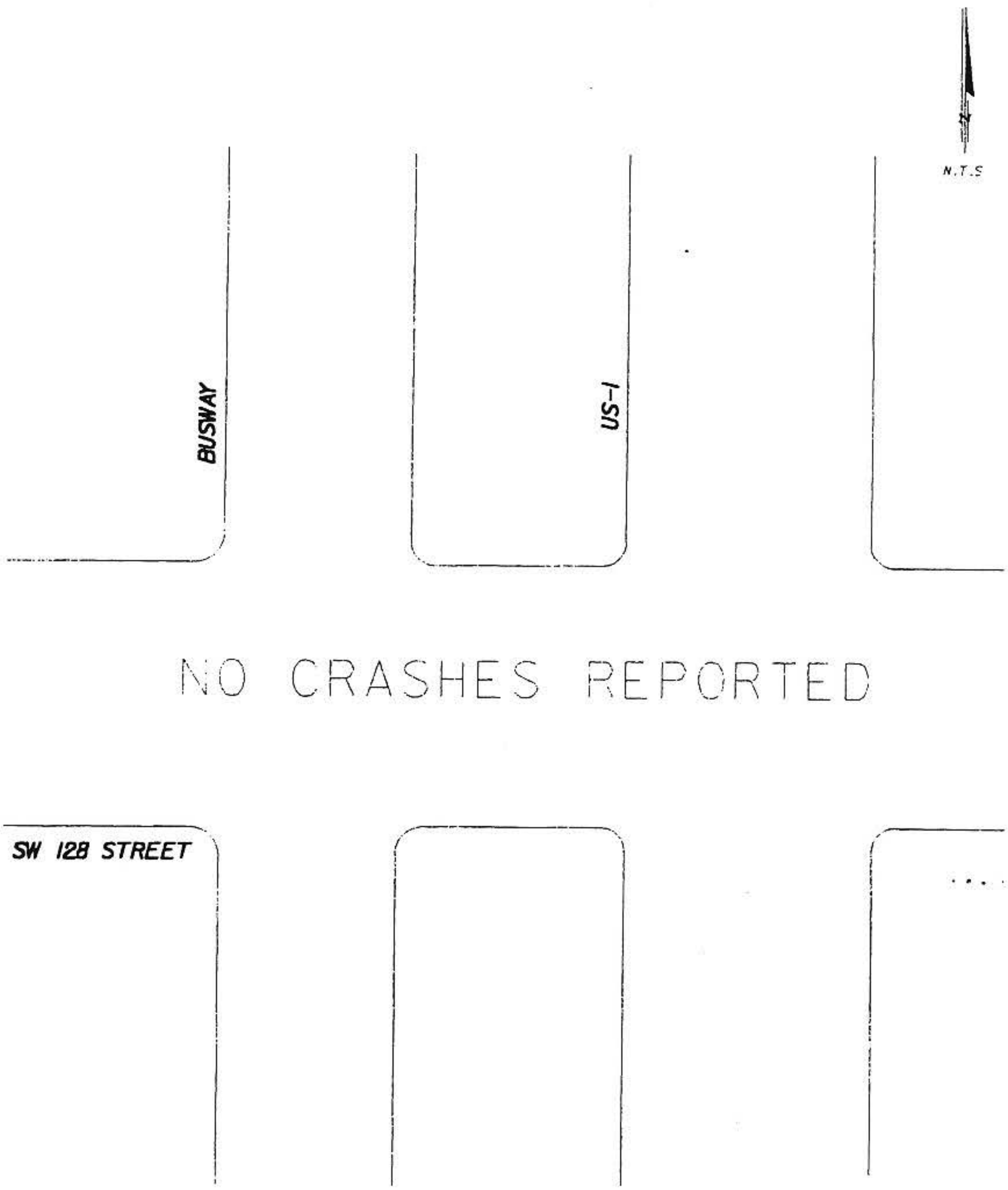
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 128 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

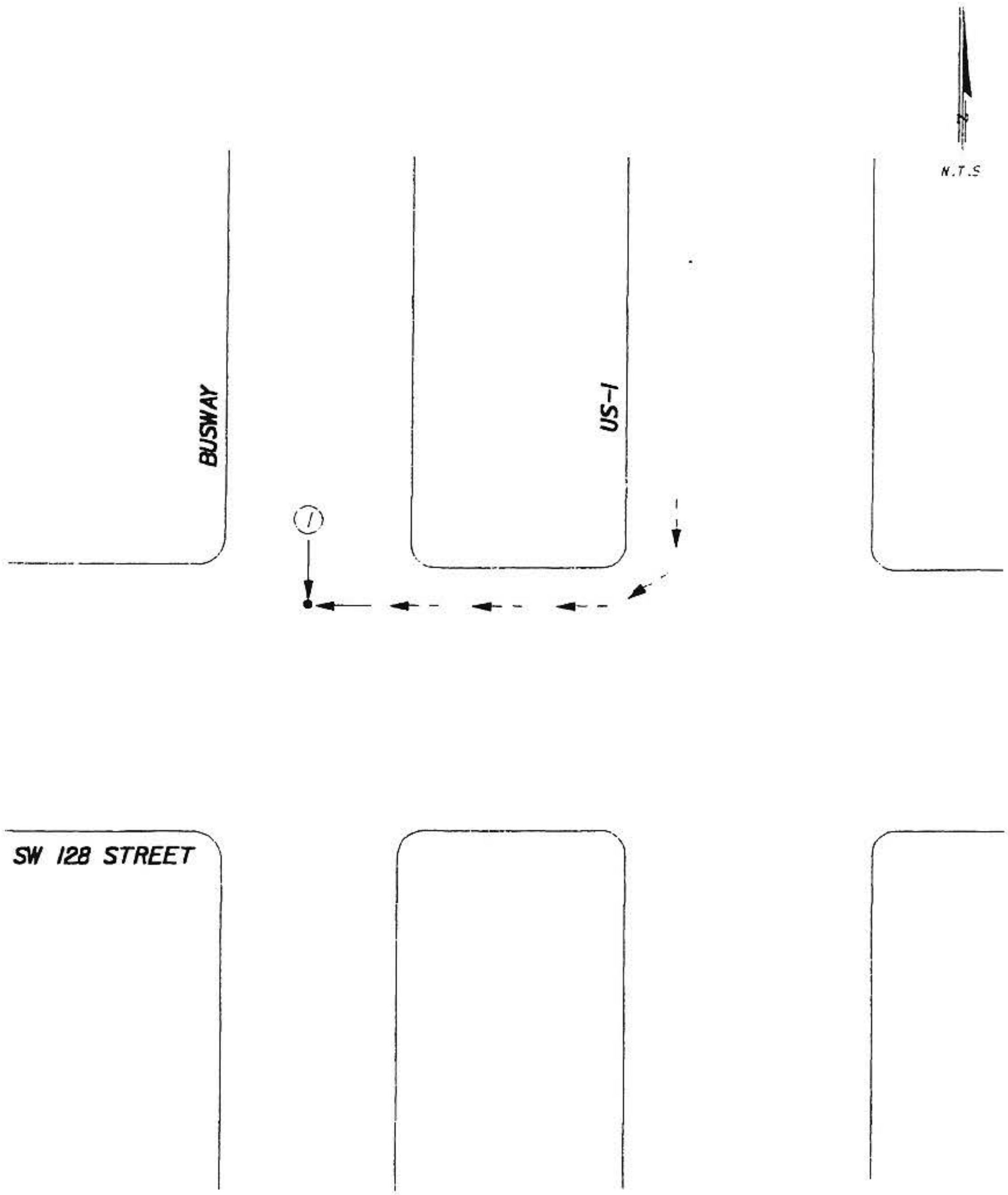
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 128 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 0 | 1 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 0 | 1 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- VEHICLE PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

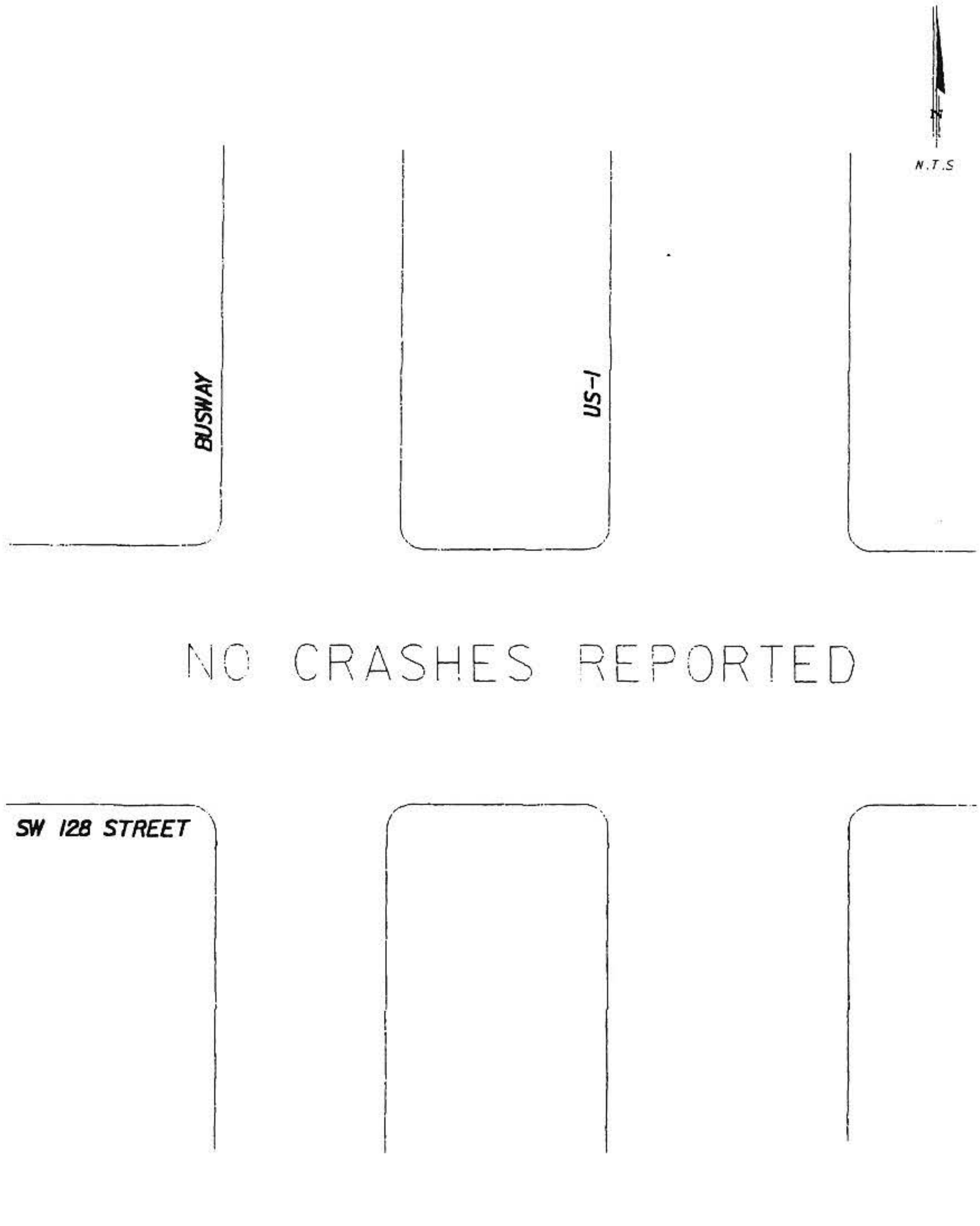
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 128 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




2000 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

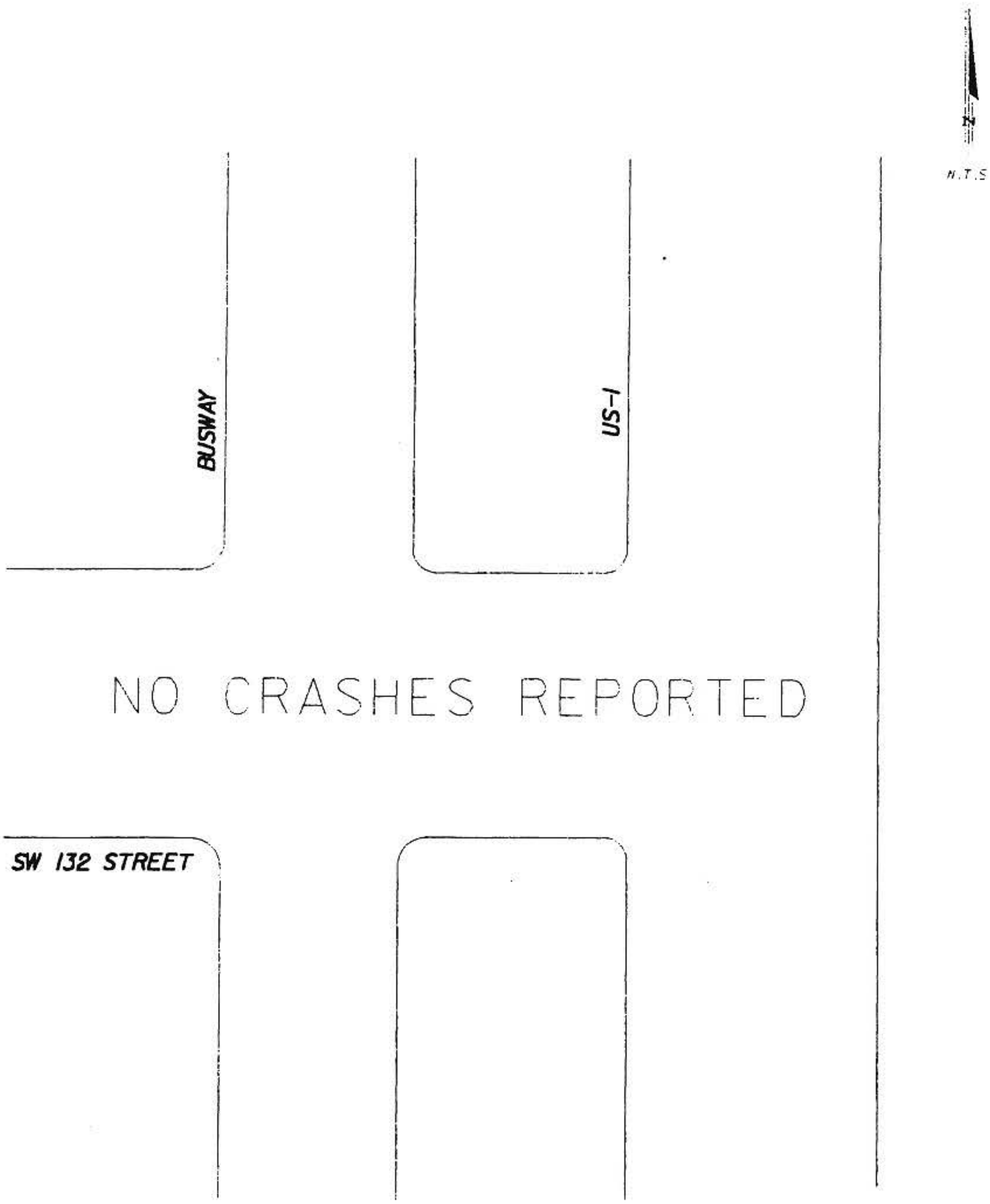
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 132 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1997    PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

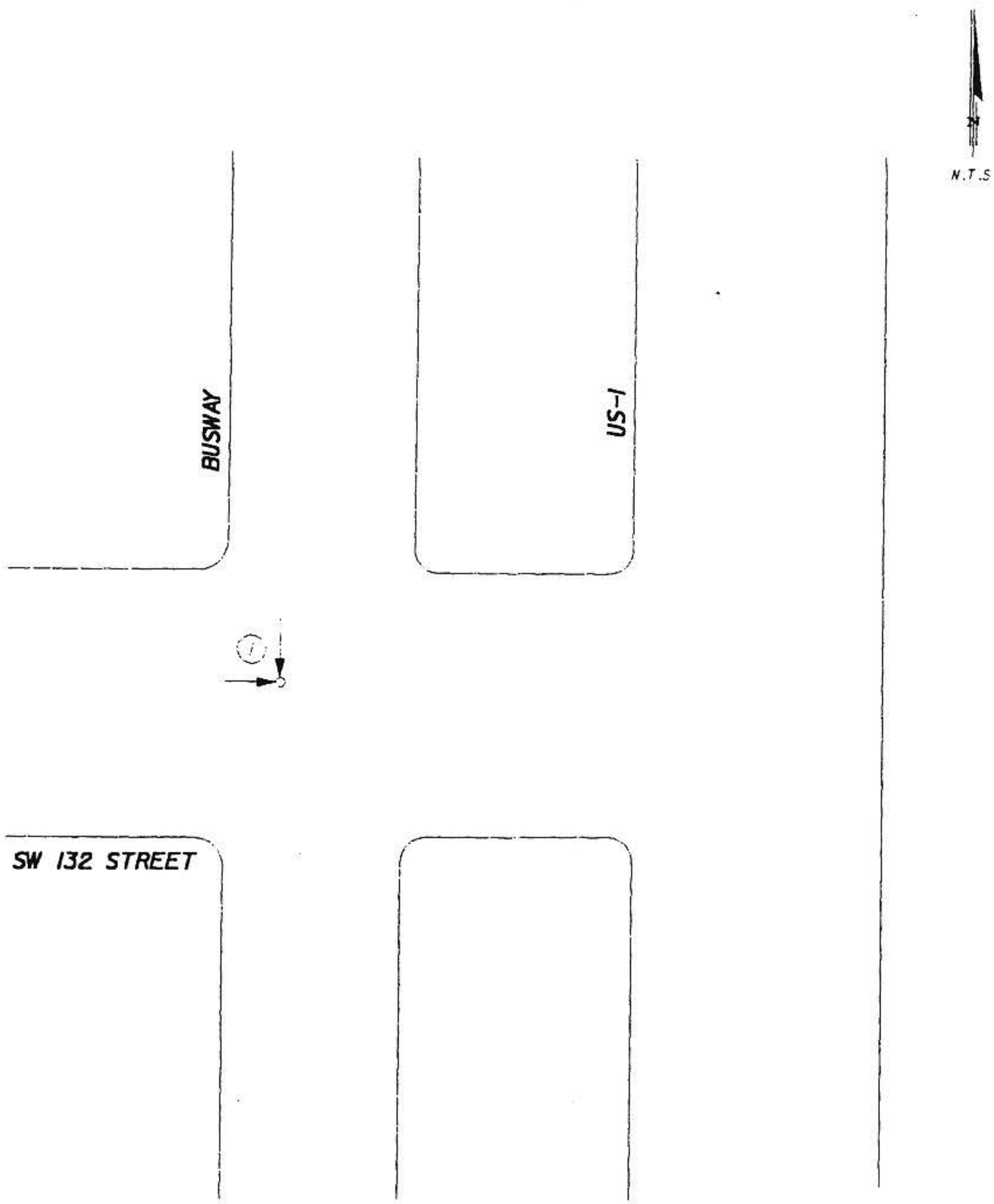
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 132 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

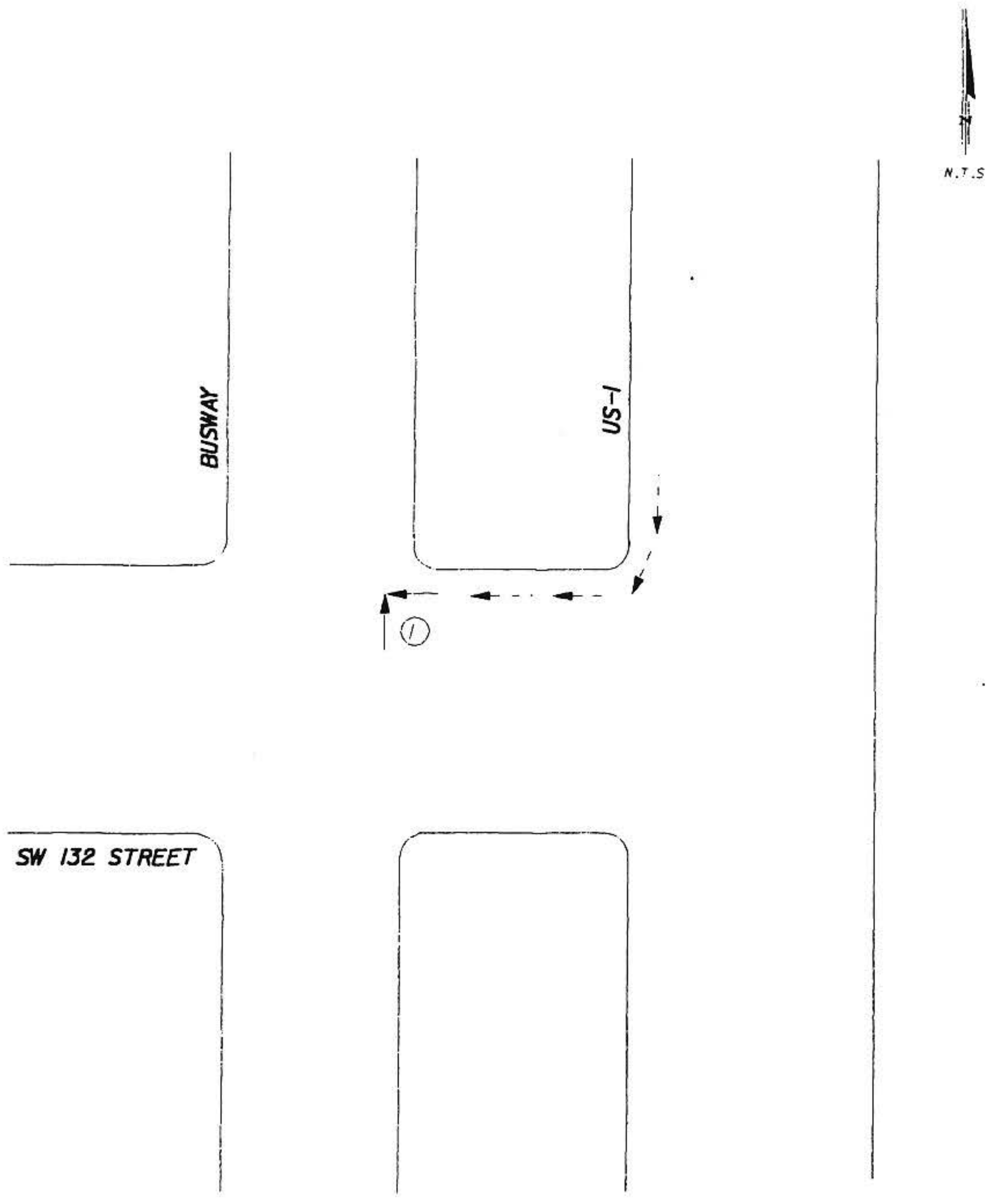
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 132 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 1 | 0 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 0 | 0 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

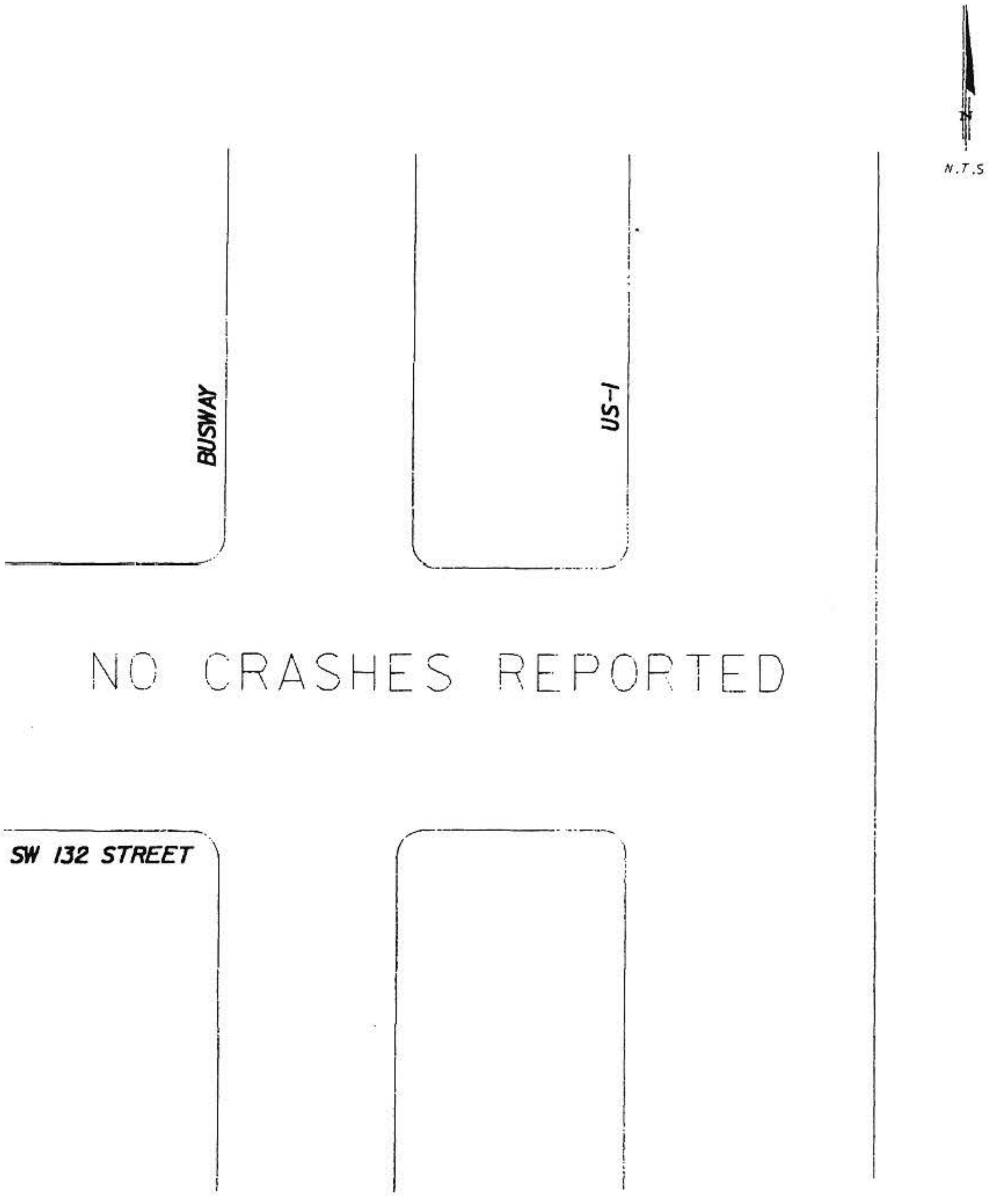
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 132 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
| DAY TIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- X UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

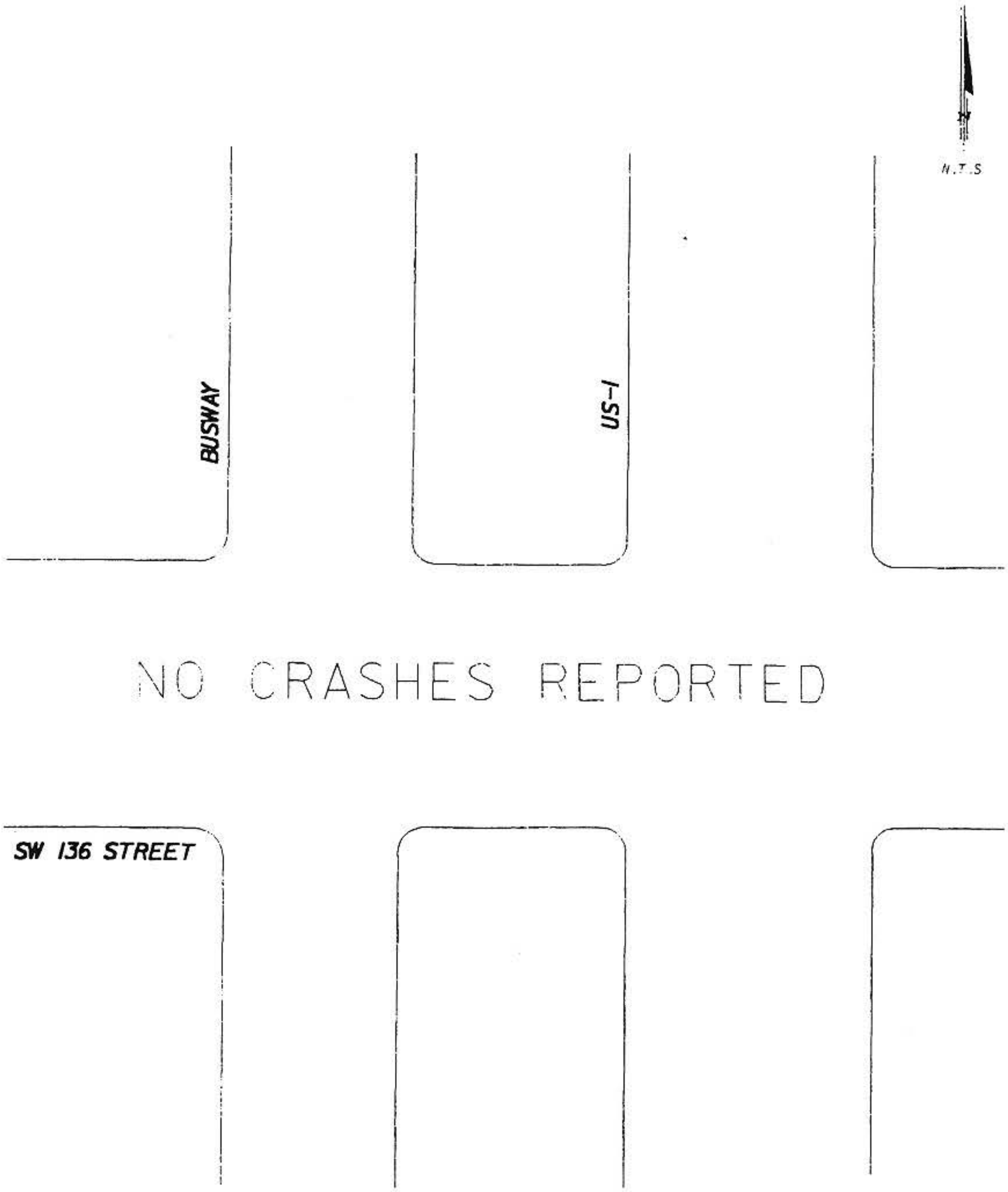
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 136 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

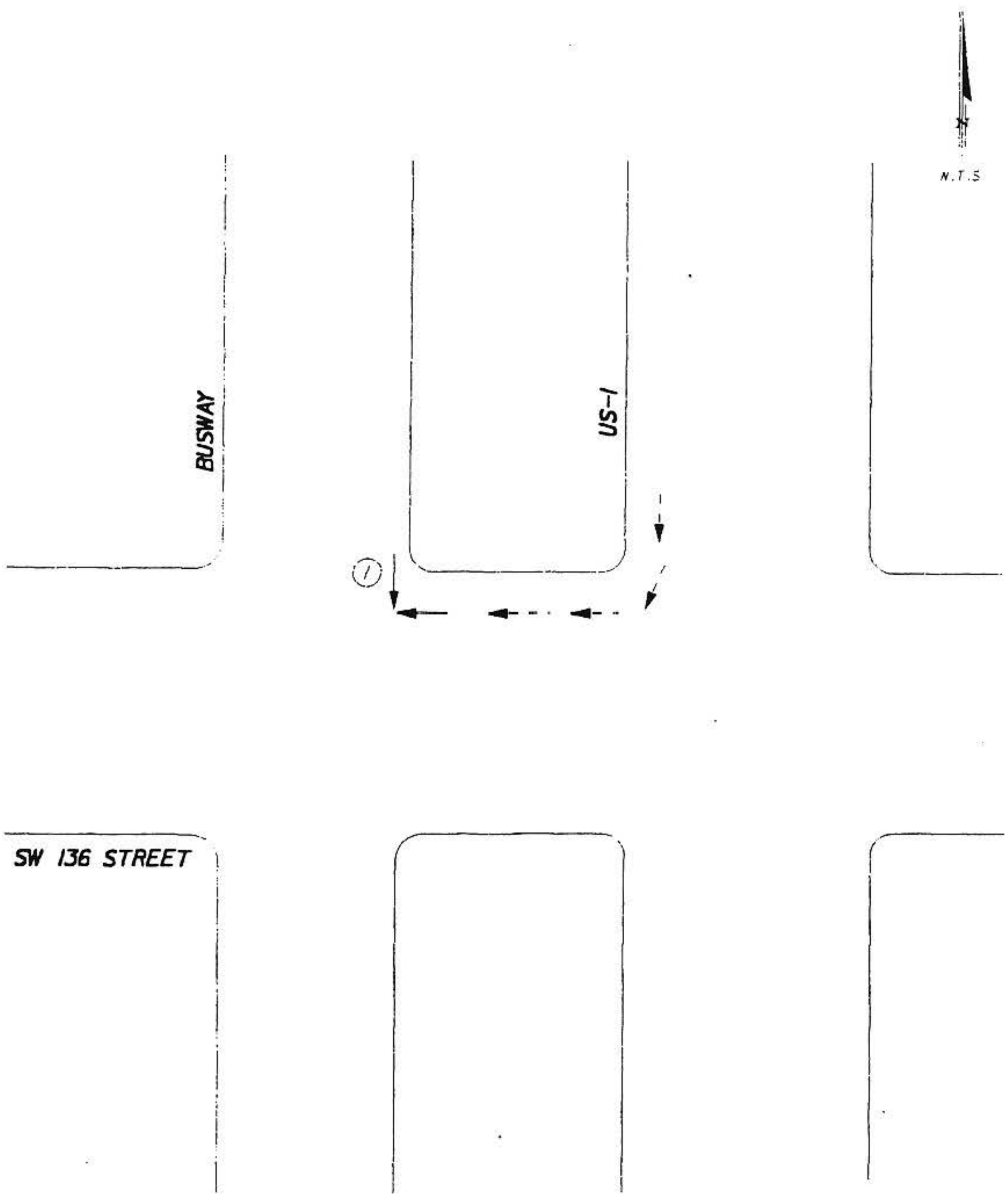
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 136 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

## COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN

REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

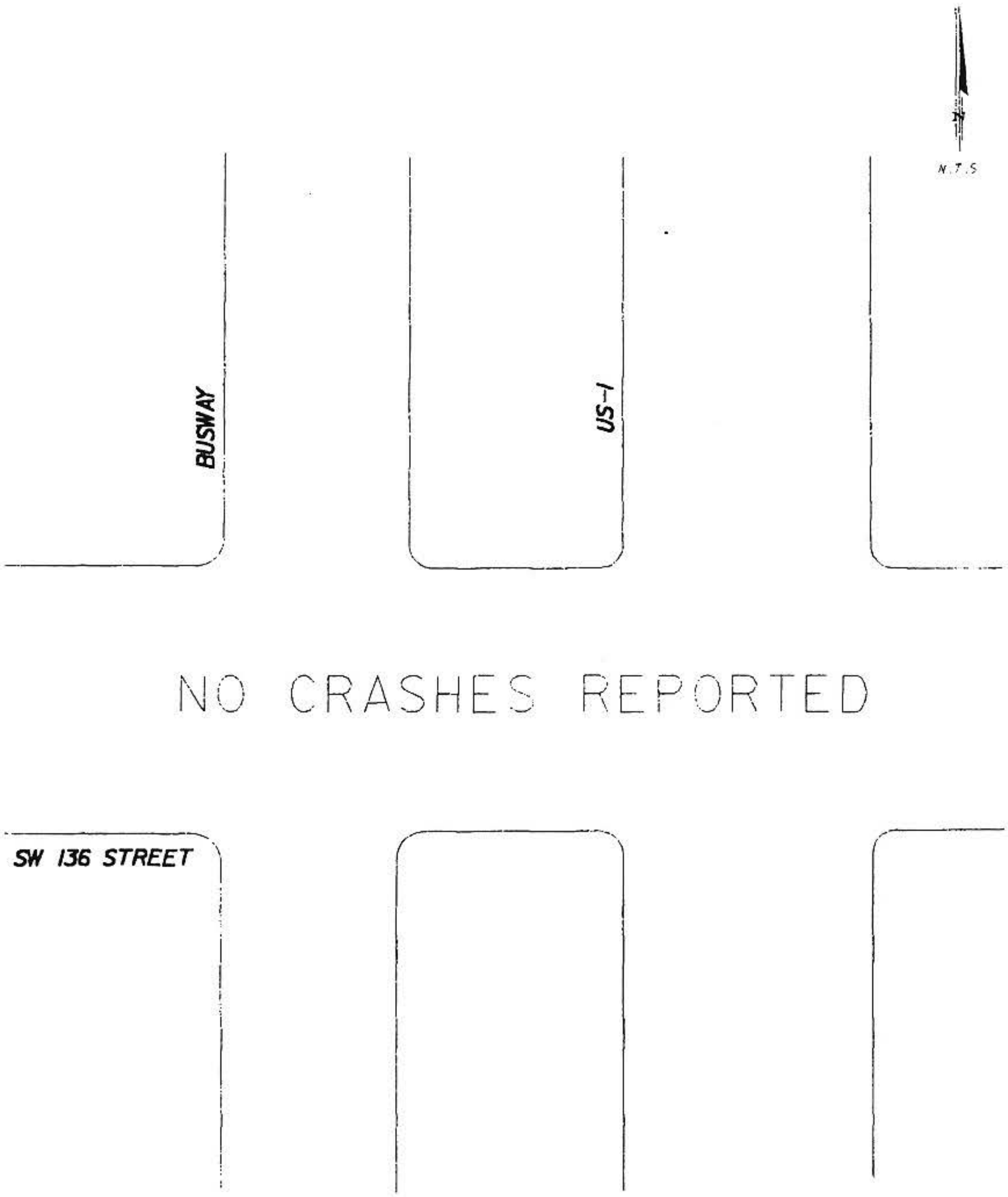
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 136 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAY TIME | | | | |
| NIGHT TIME | | | | |
| TOTAL | | | | |

## COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

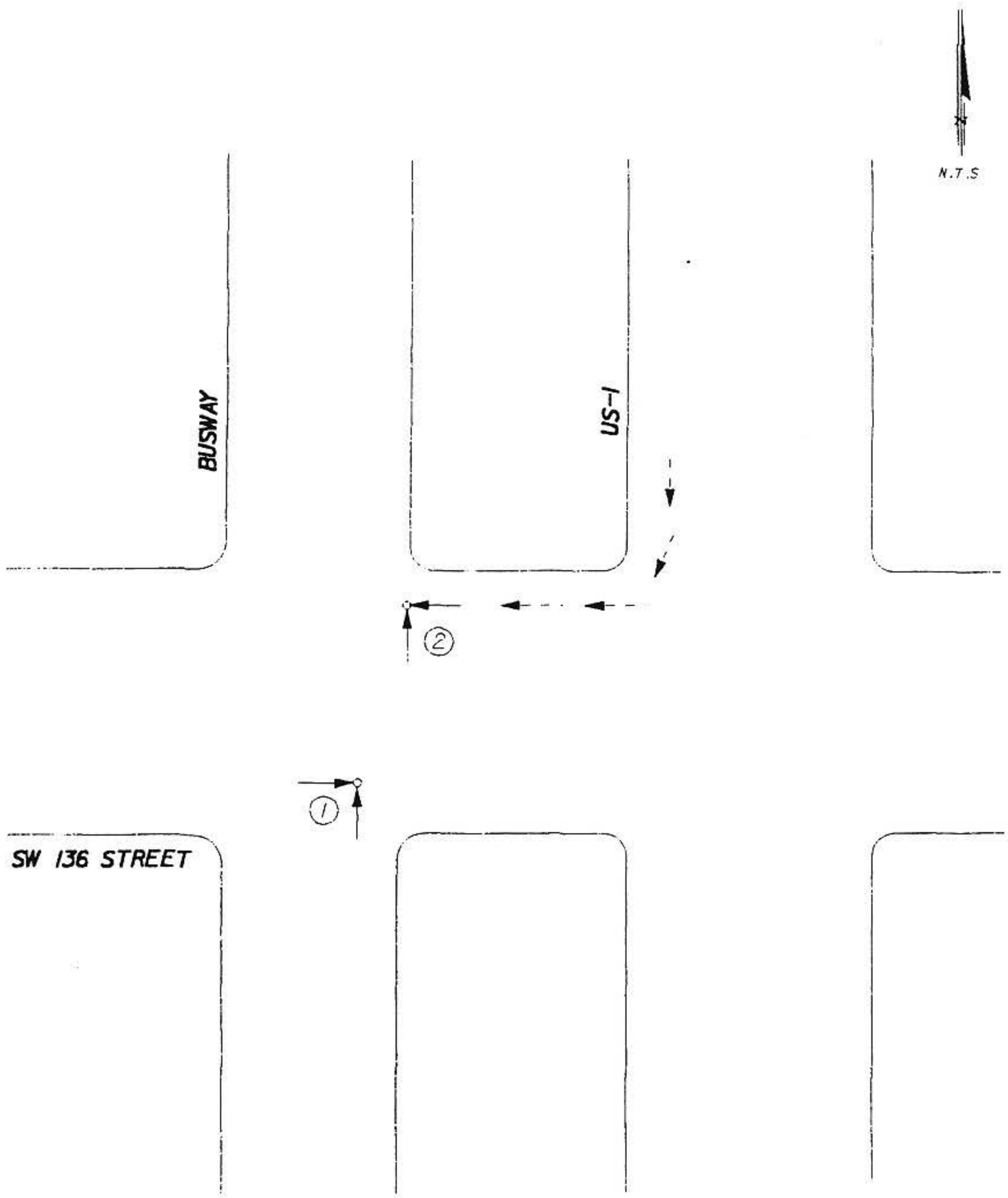
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 136 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 2 | 0 | 2 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 2 | 0 | 2 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

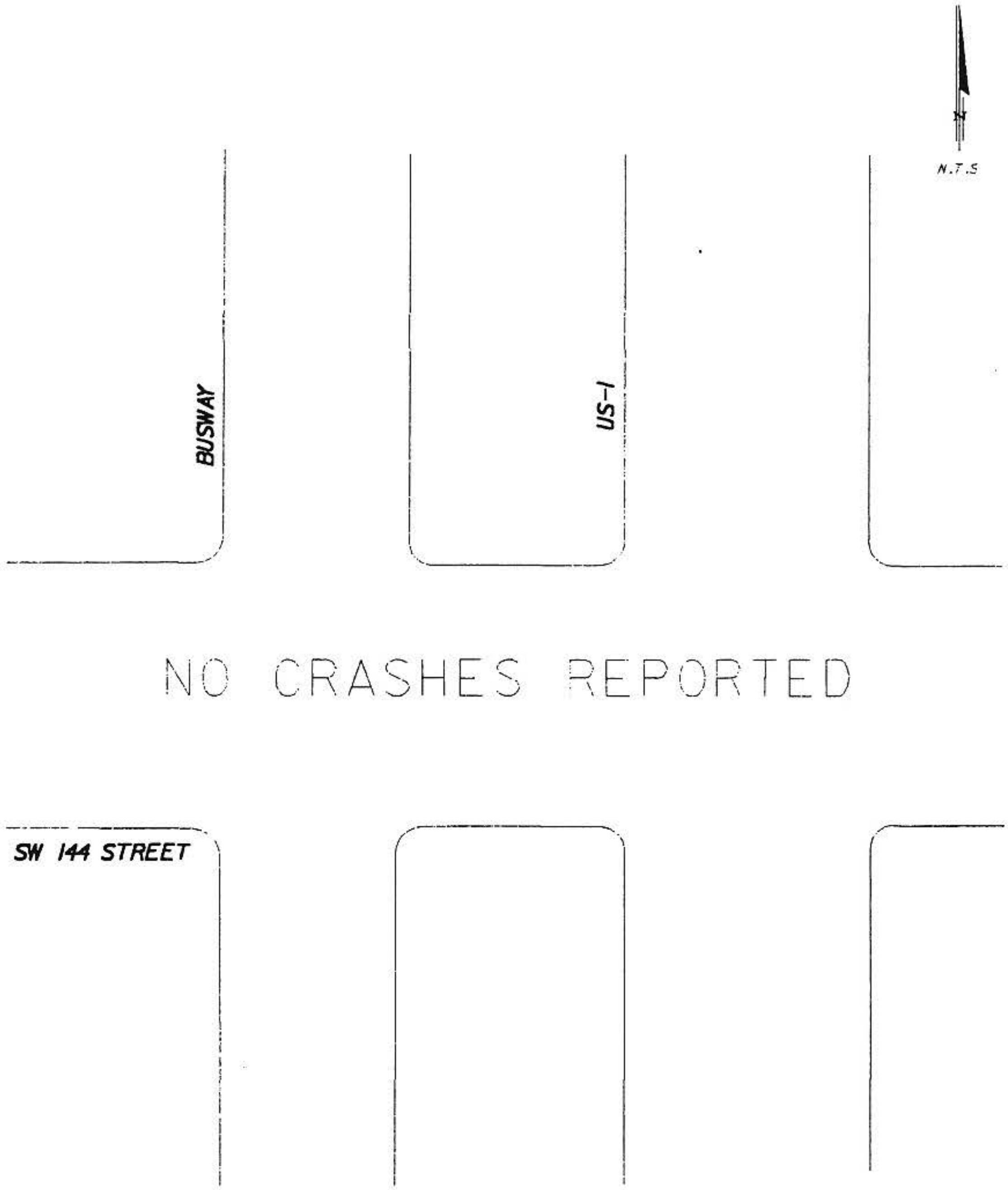
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 144 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

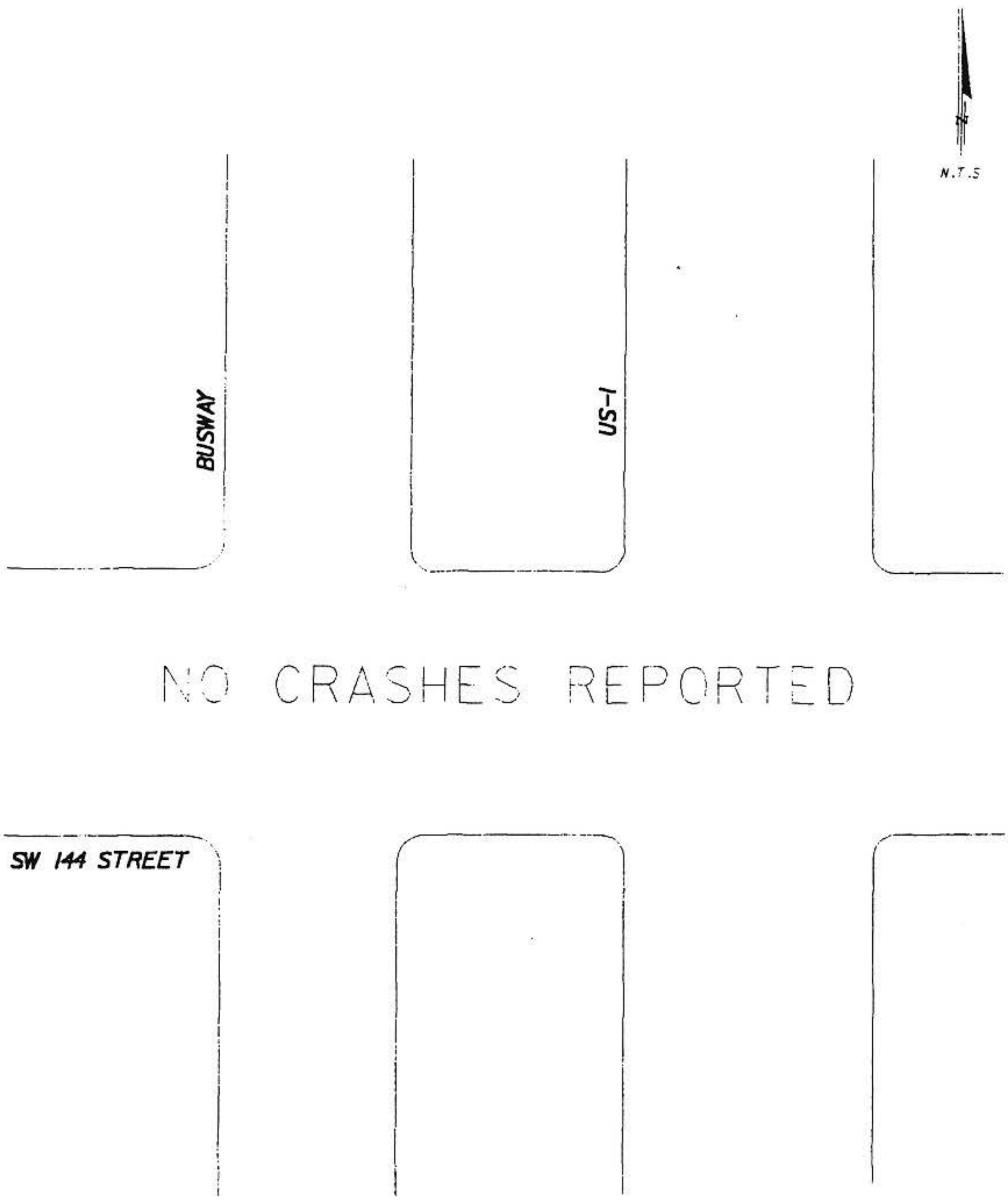
**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=IC
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 144 STREET
COUNTY: MIAMI-DADE CITY: MIAMI
PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAY TIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

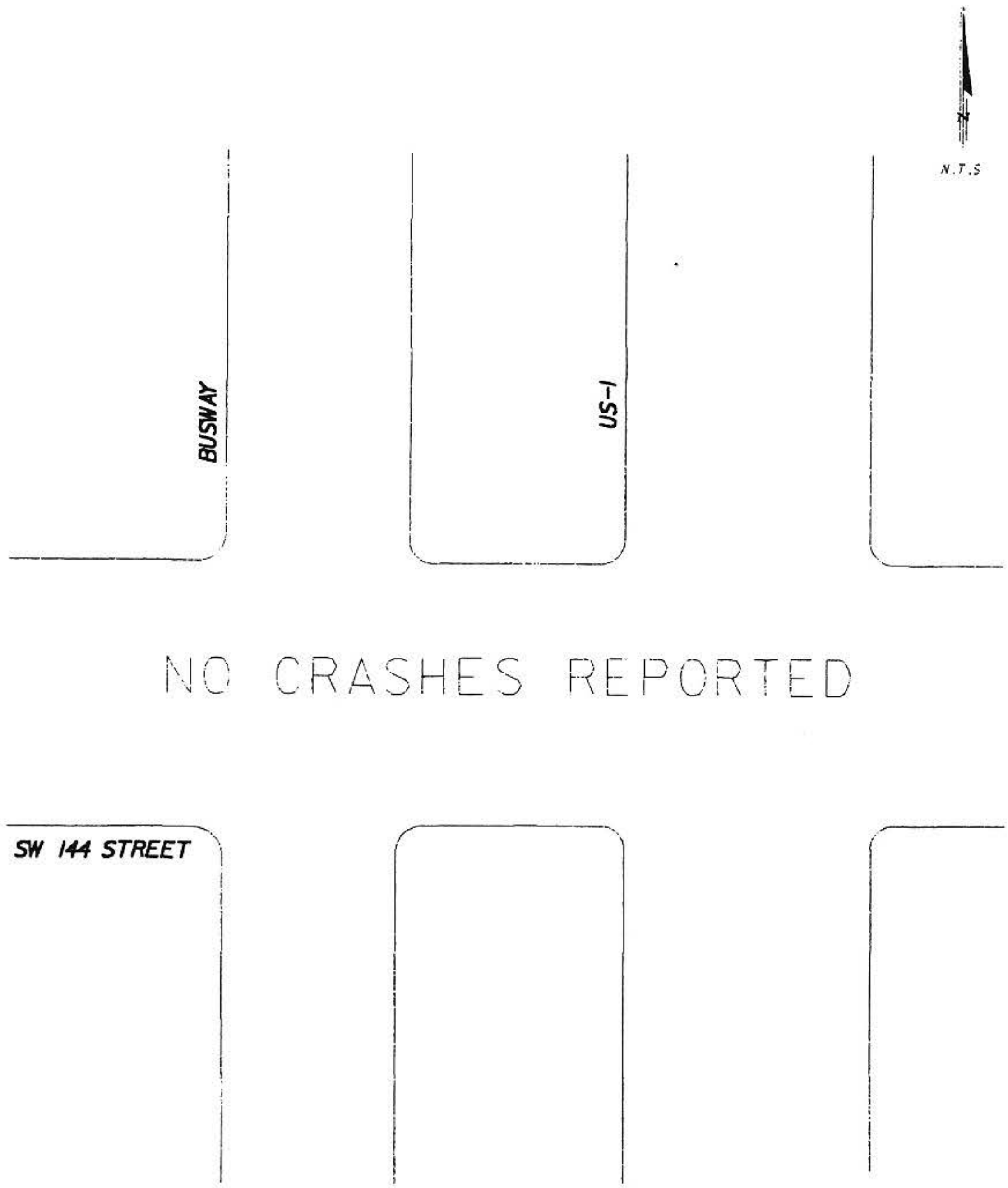
# COLLISION DIAGRAM

F. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 144 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

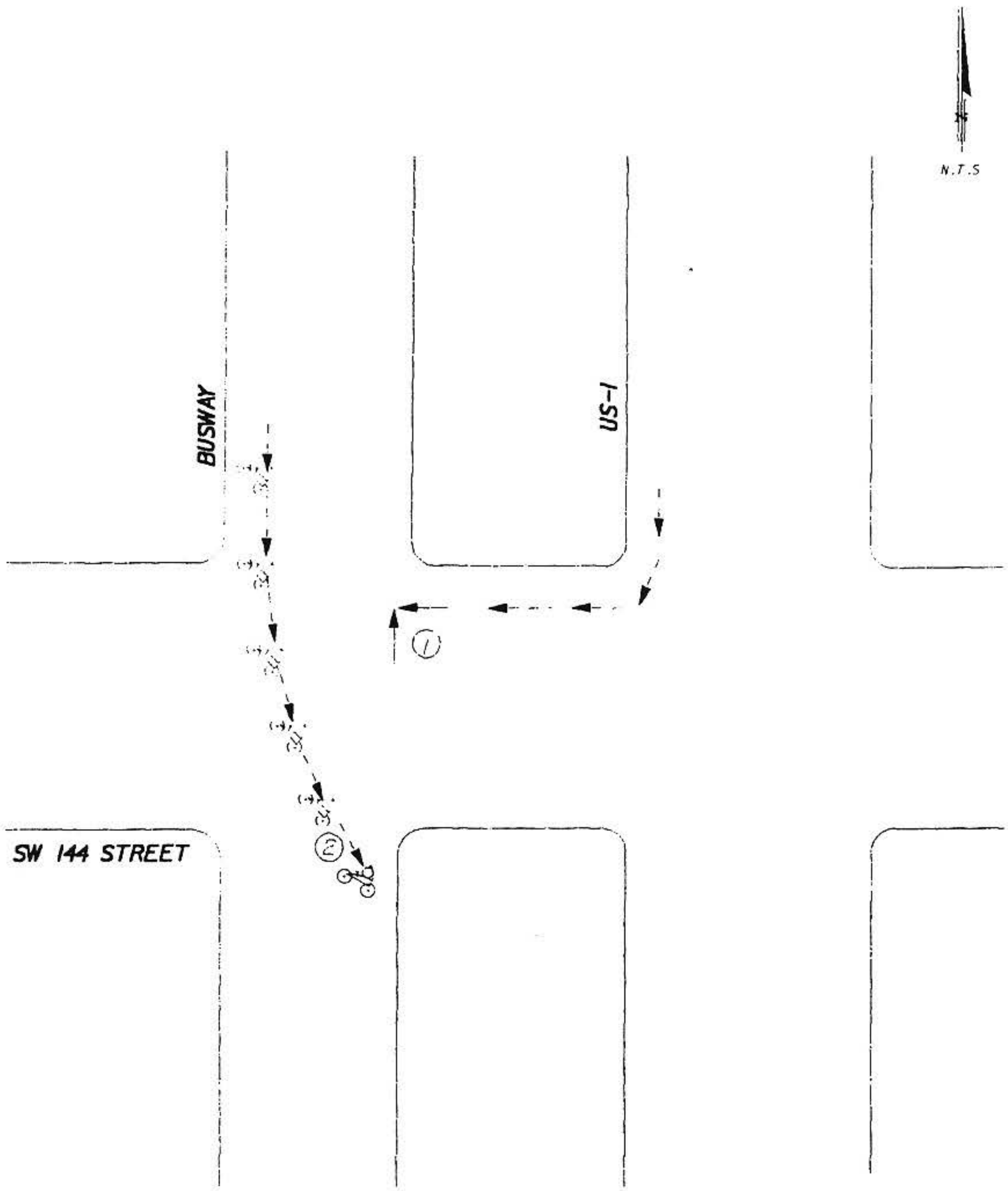
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 144 STREET

COUNTY: MIAMI-DADE          CITY: MIAMI

PERIOD: JAN-NOV/2000          PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 1 | 1 | 0 | 2 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 1 | 0 | 2 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

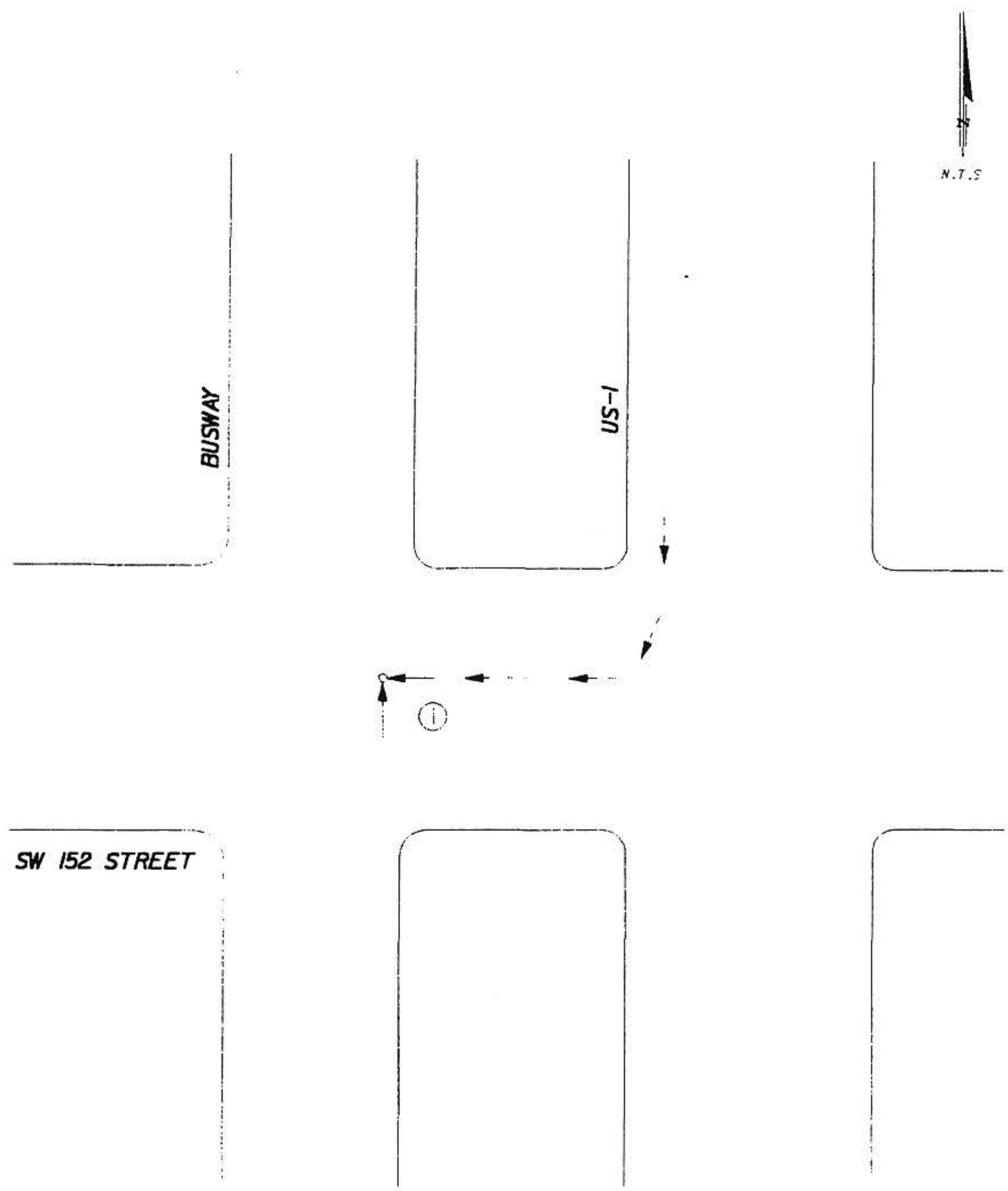
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 152 STREET/CORAL REEF DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | 0 | 0 | 0 | 0 |
| NIGHTTIME | 0 | 1 | 0 | 1 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

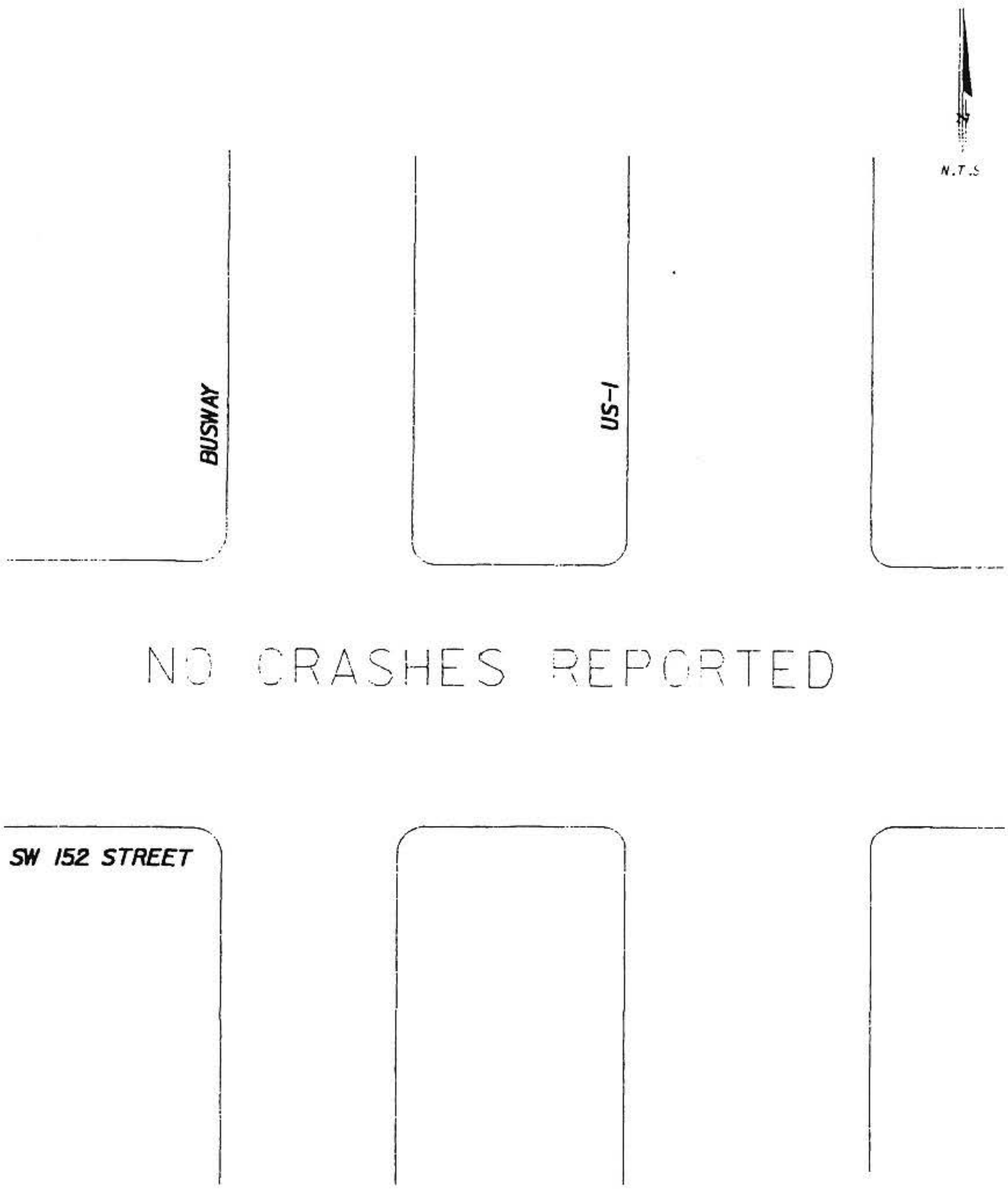
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 152 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

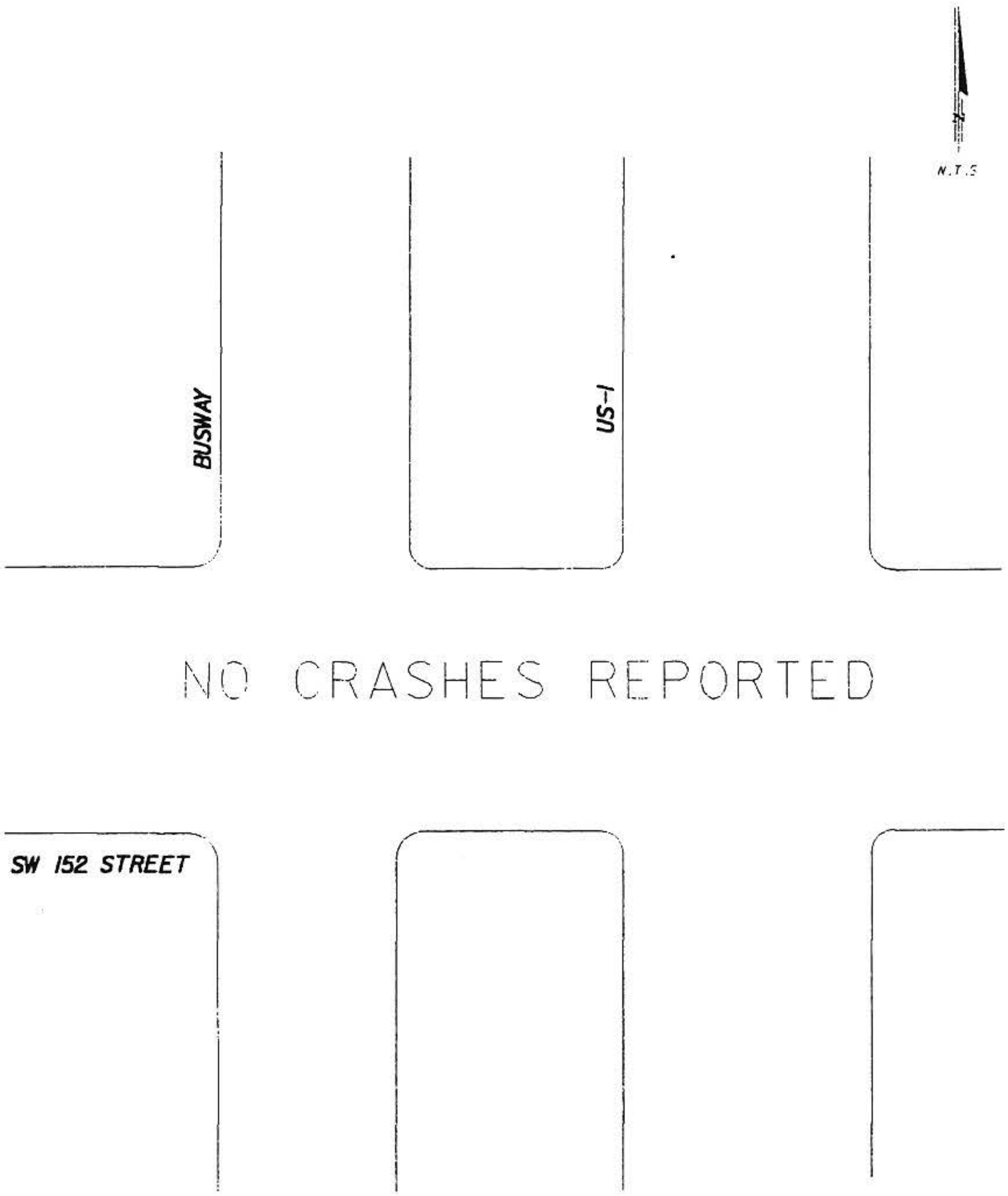
# COLLISION DIAGRAM

FR ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 152 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

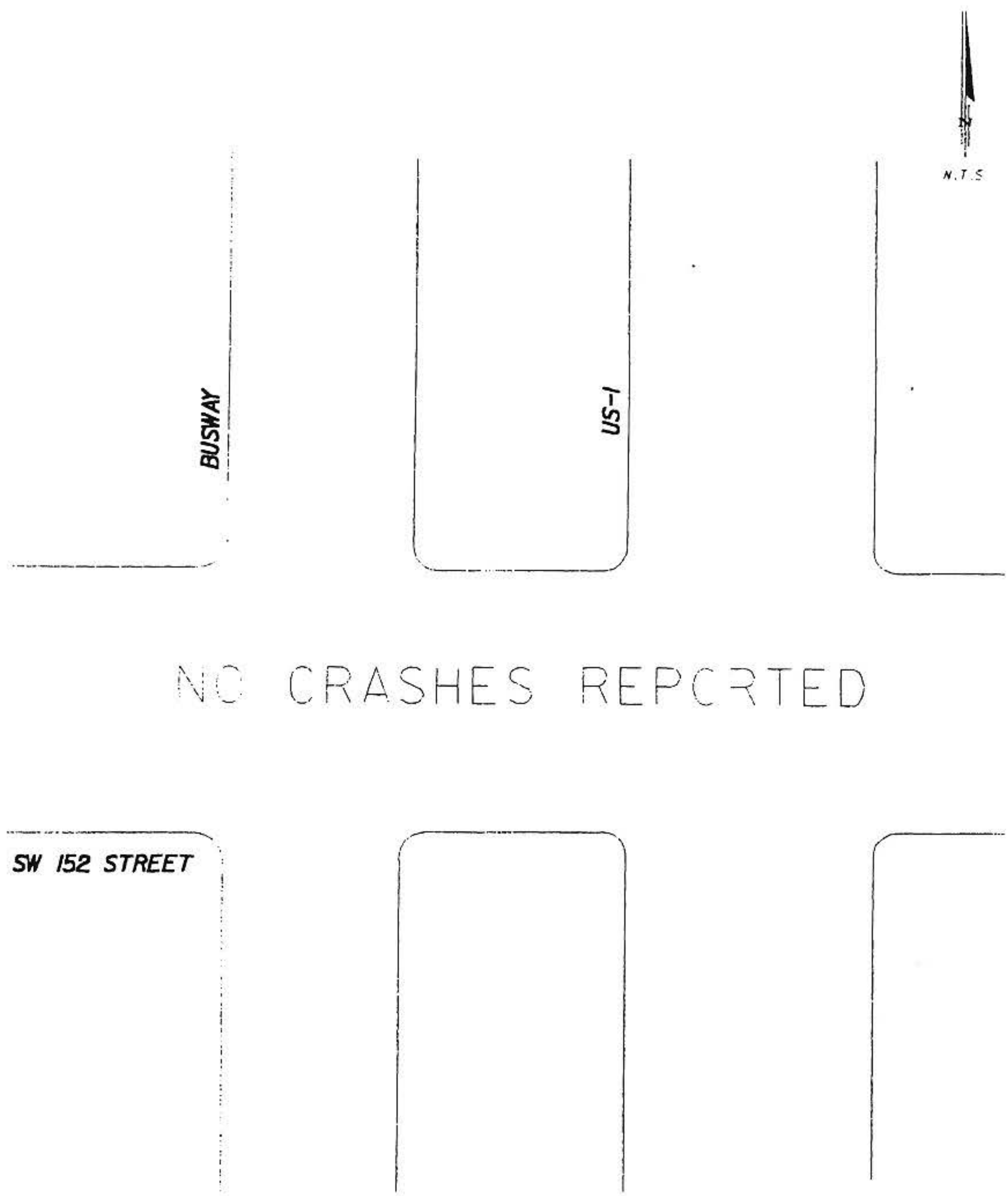
# COLLISION DIAGRAM

F. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 152 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

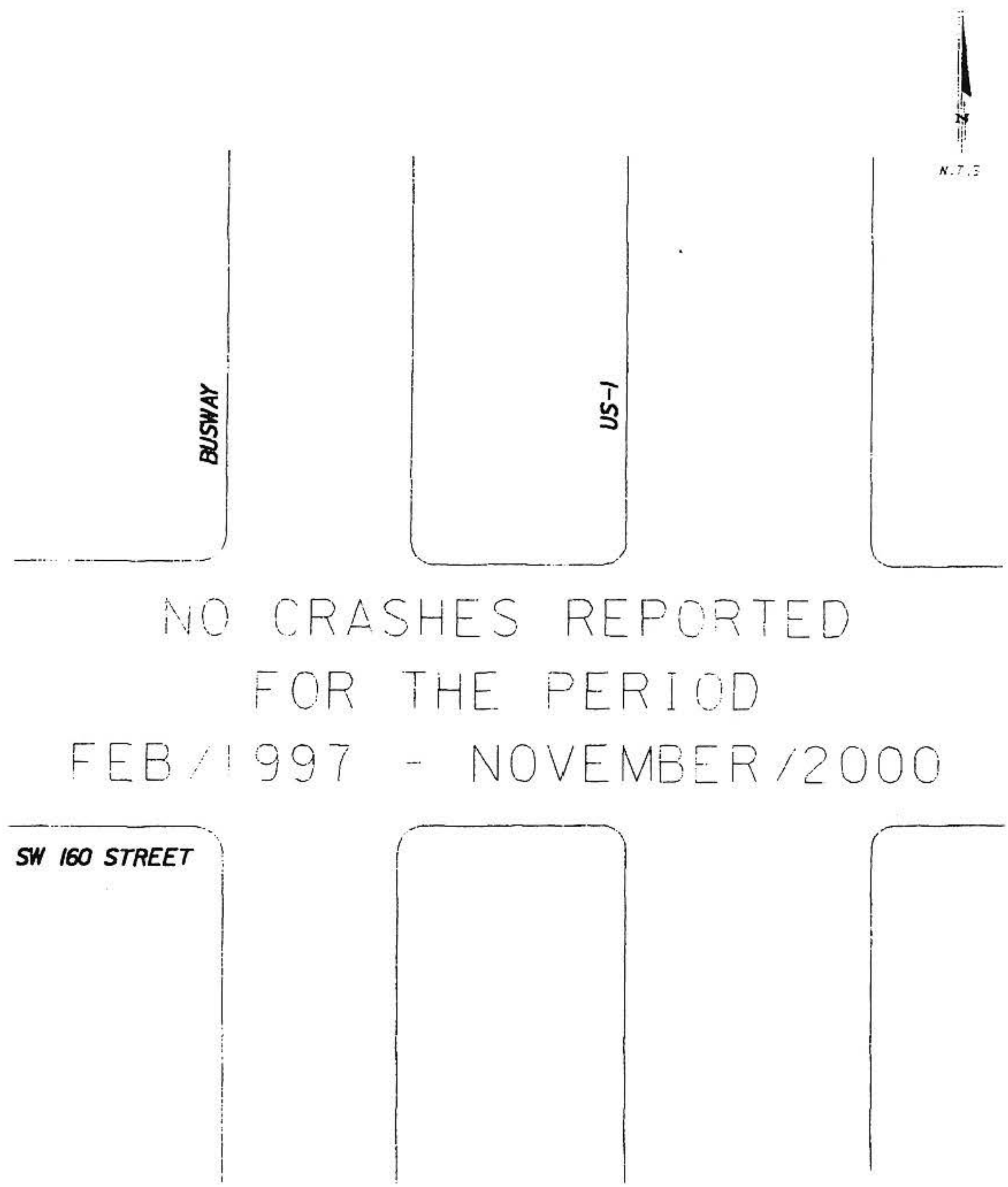
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 160 STREET/COLONIAL DRIVE

COUNTY: MIAMI-DADE          CITY: MIAMI

PERIOD:          PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

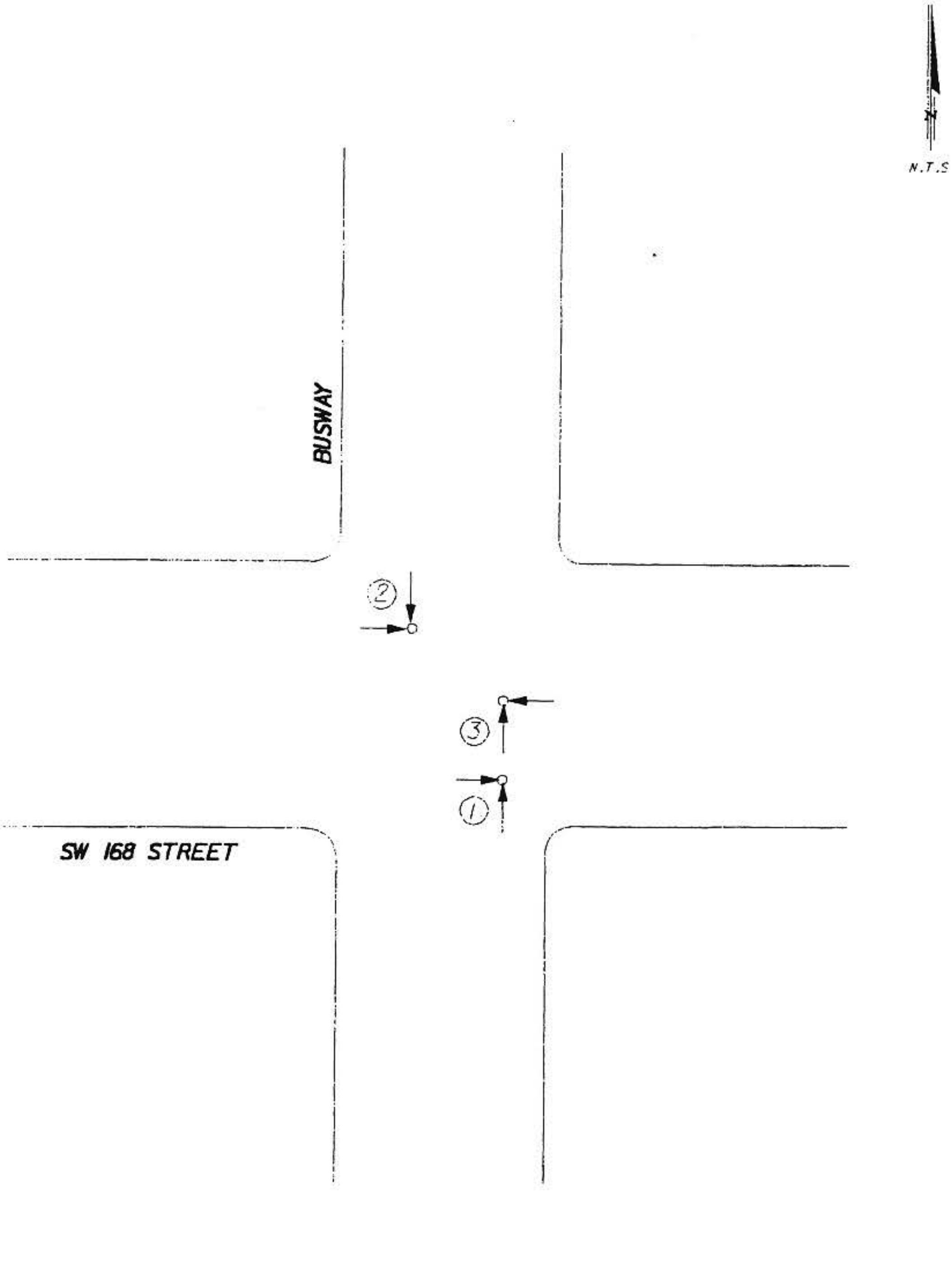
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 168 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




1997 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAY TIME | 0 | 3 | 0 | 3 |
| NIGHT TIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 3 | 0 | 3 |

COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW: DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

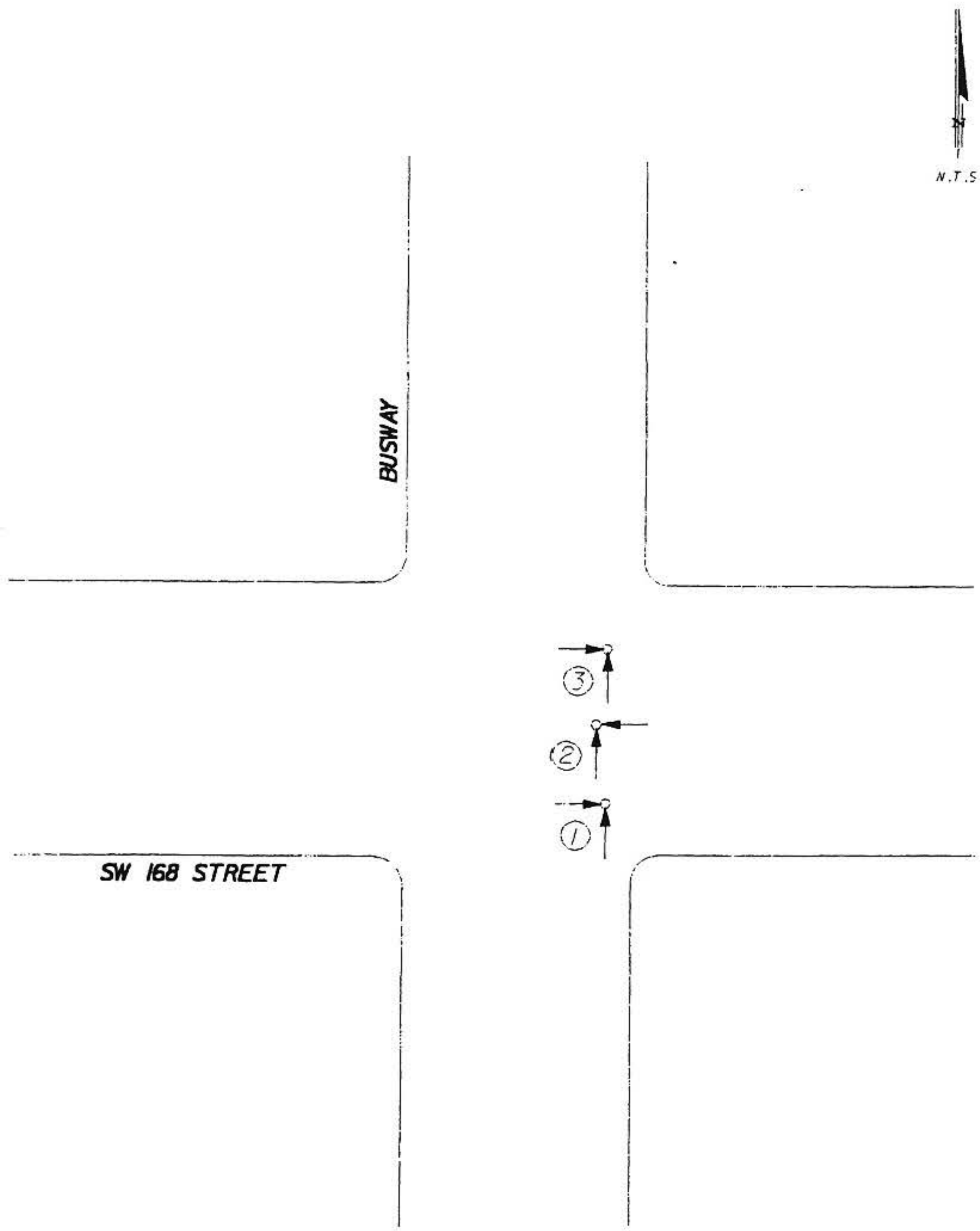
# COLLISION DIAGRAM

F. R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 168 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1998    PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 3 | 0 | 3 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 3 | 0 | 3 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

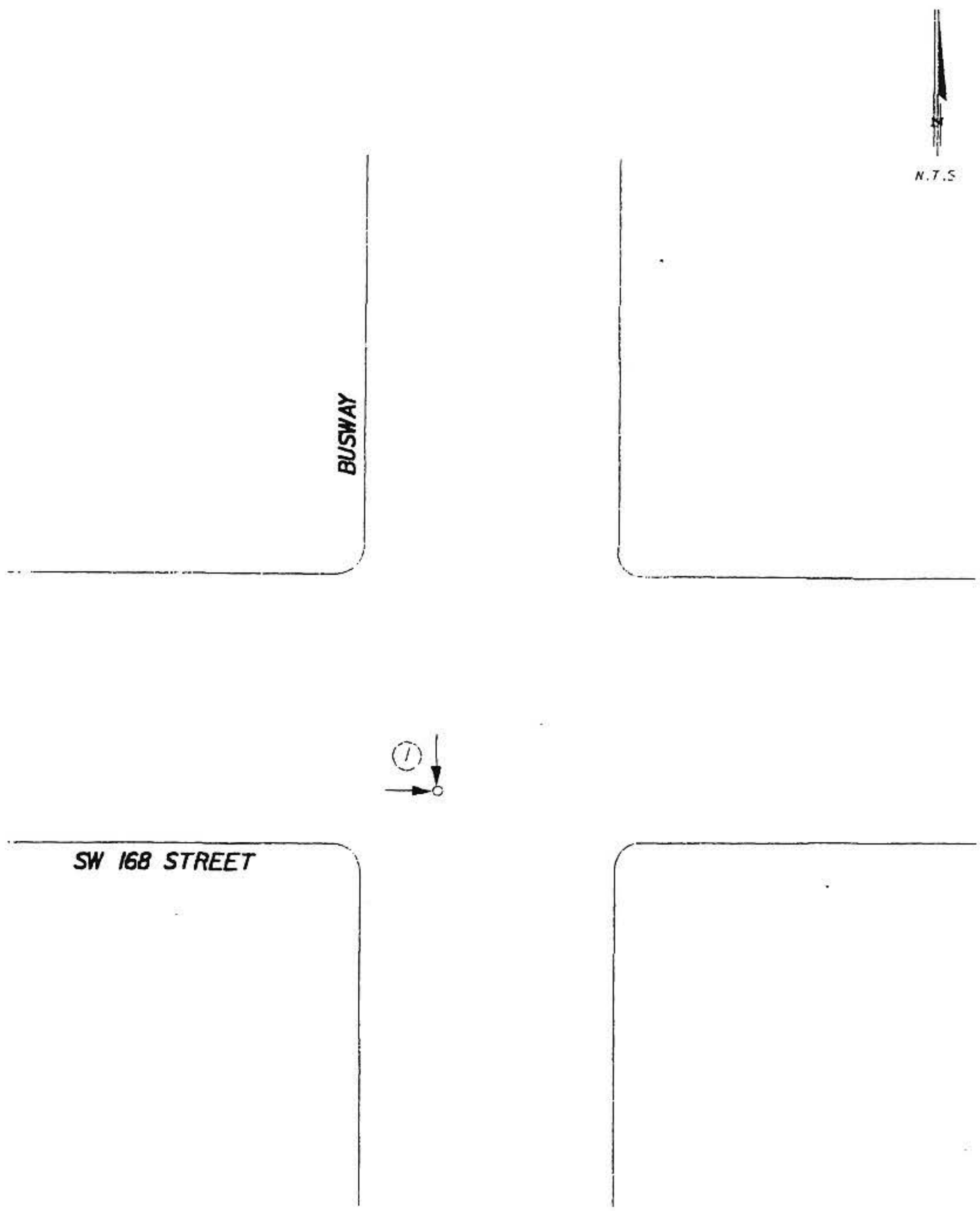
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 168 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

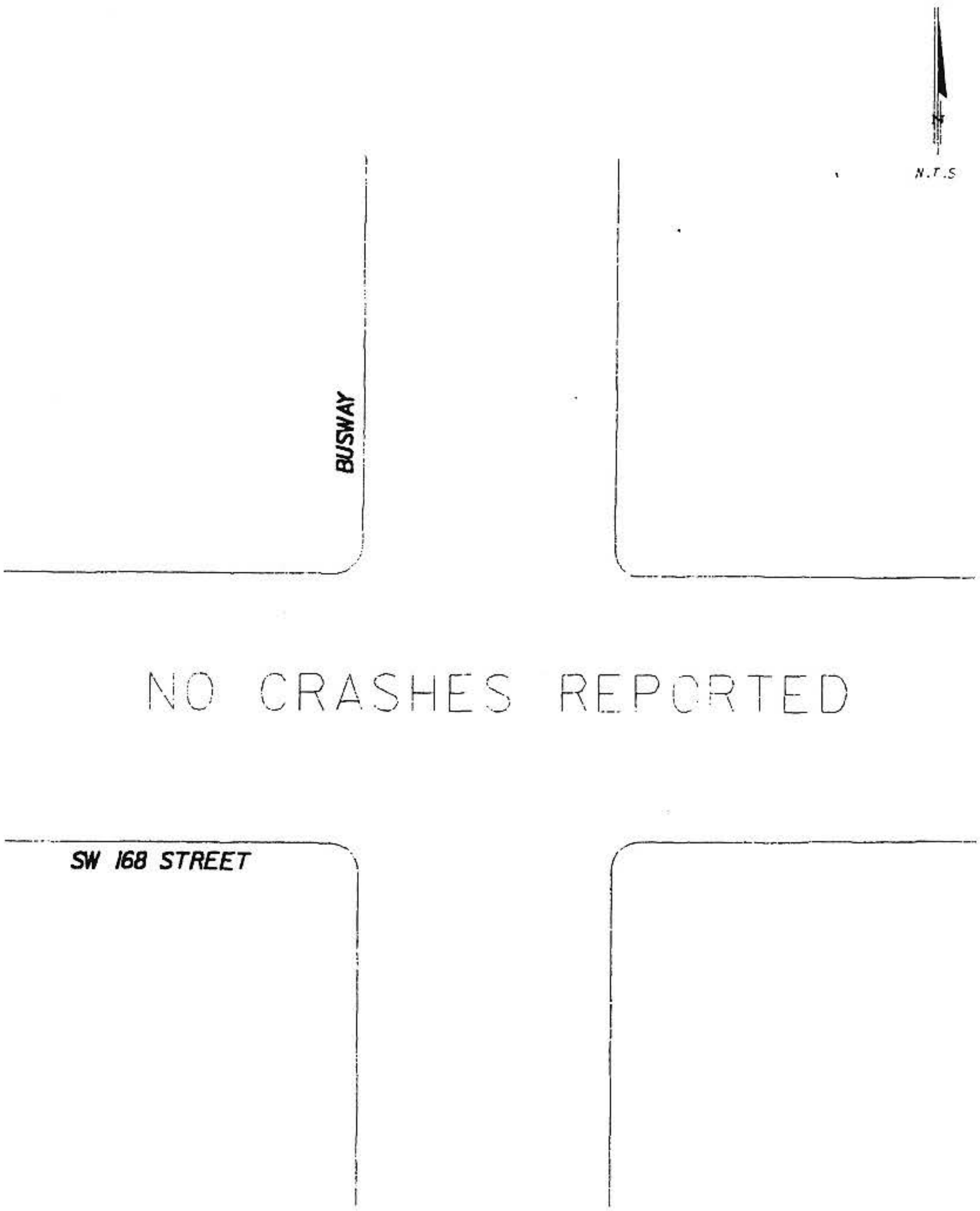
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 168 ST

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

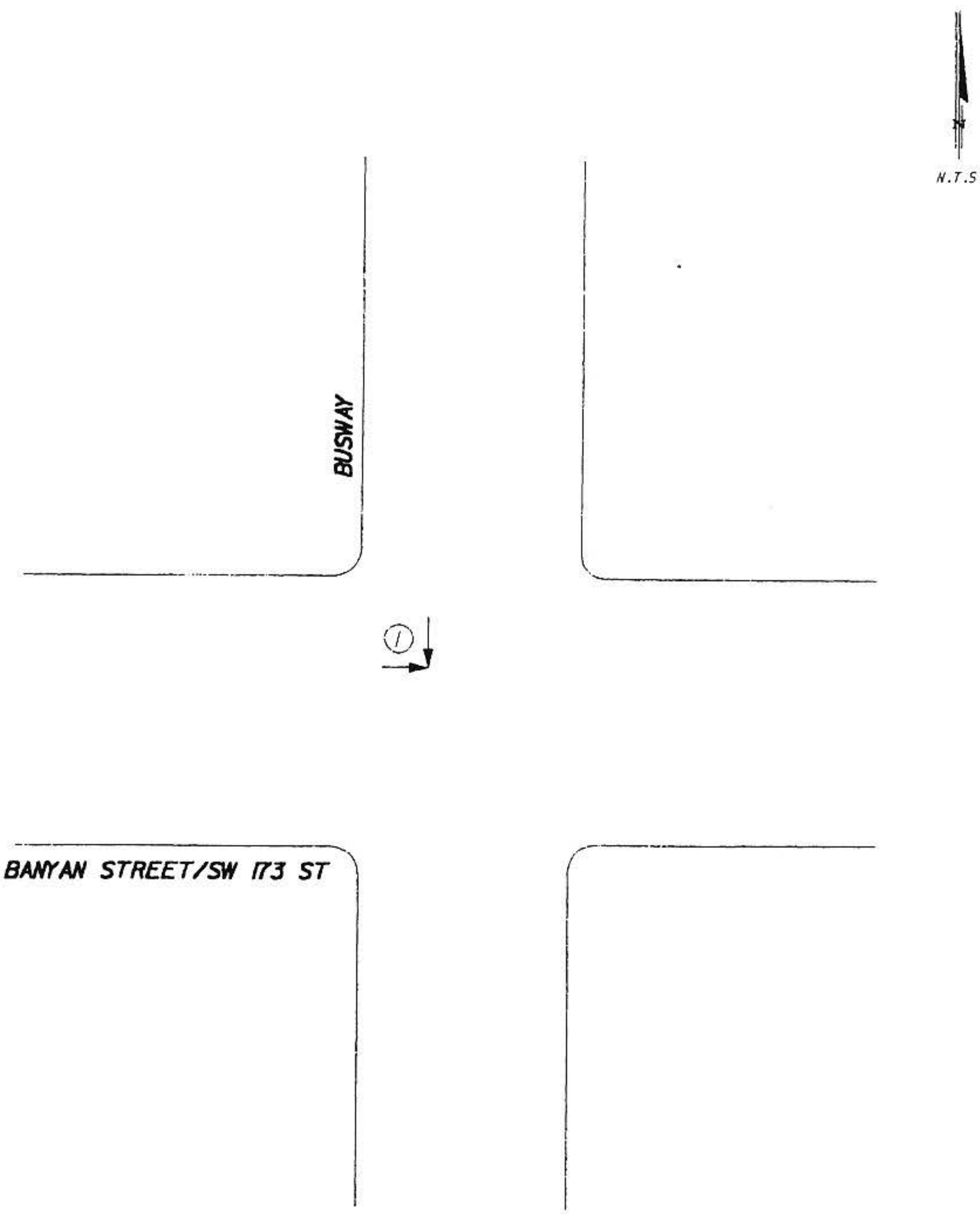
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT BANYAN ST/SW 173 ST

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




1997 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 0 | 0 | 0 |
| NIGHTTIME | 1 | 0 | 0 | 1 |
| TOTAL | 1 | 0 | 0 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

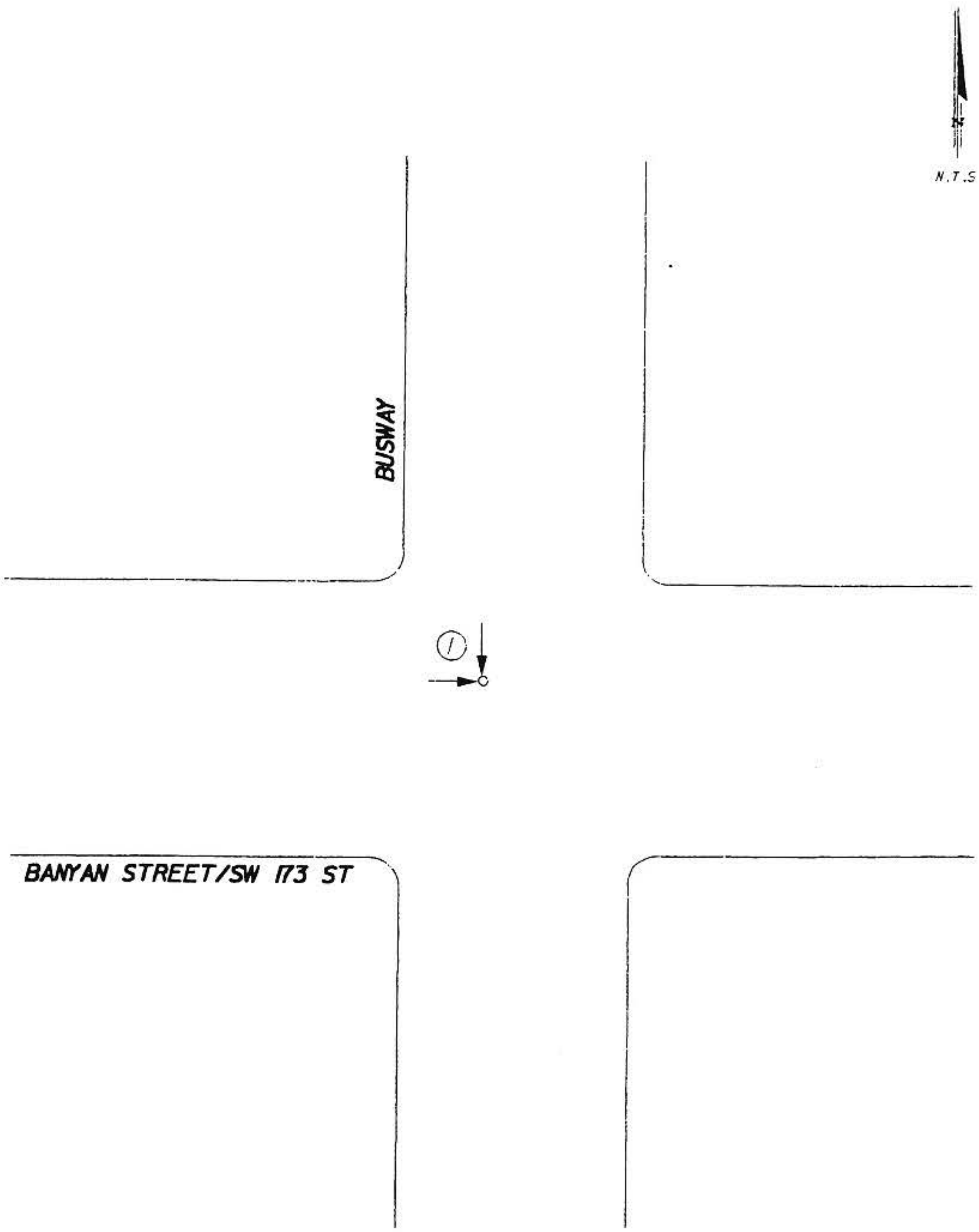
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT BANYAN ST/SW 173 ST

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

## COLLISION SYMBOLS

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

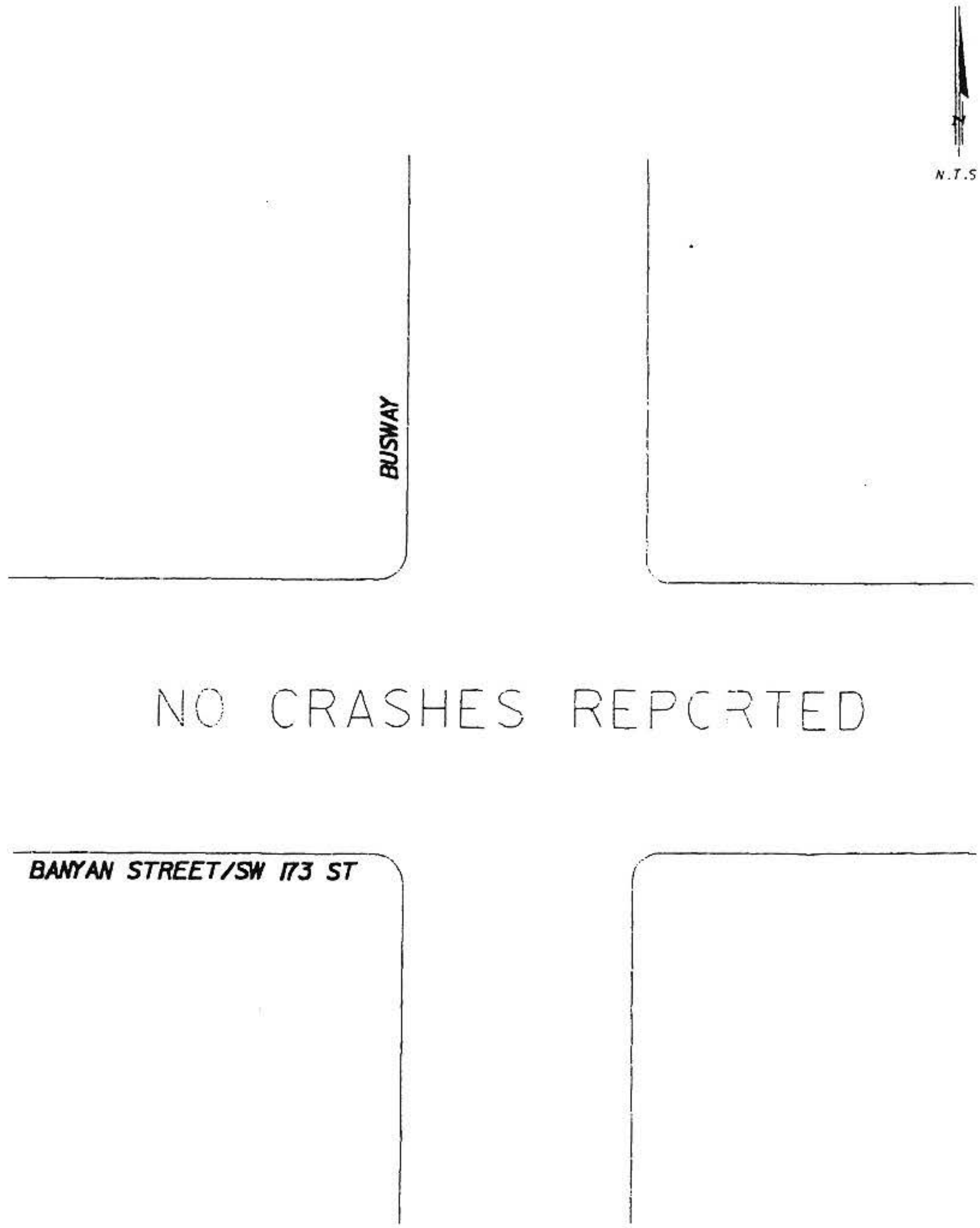
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT BANYAN ST/SW 173 ST

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAY TIME | | | | |
| NIGHT TIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- X UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

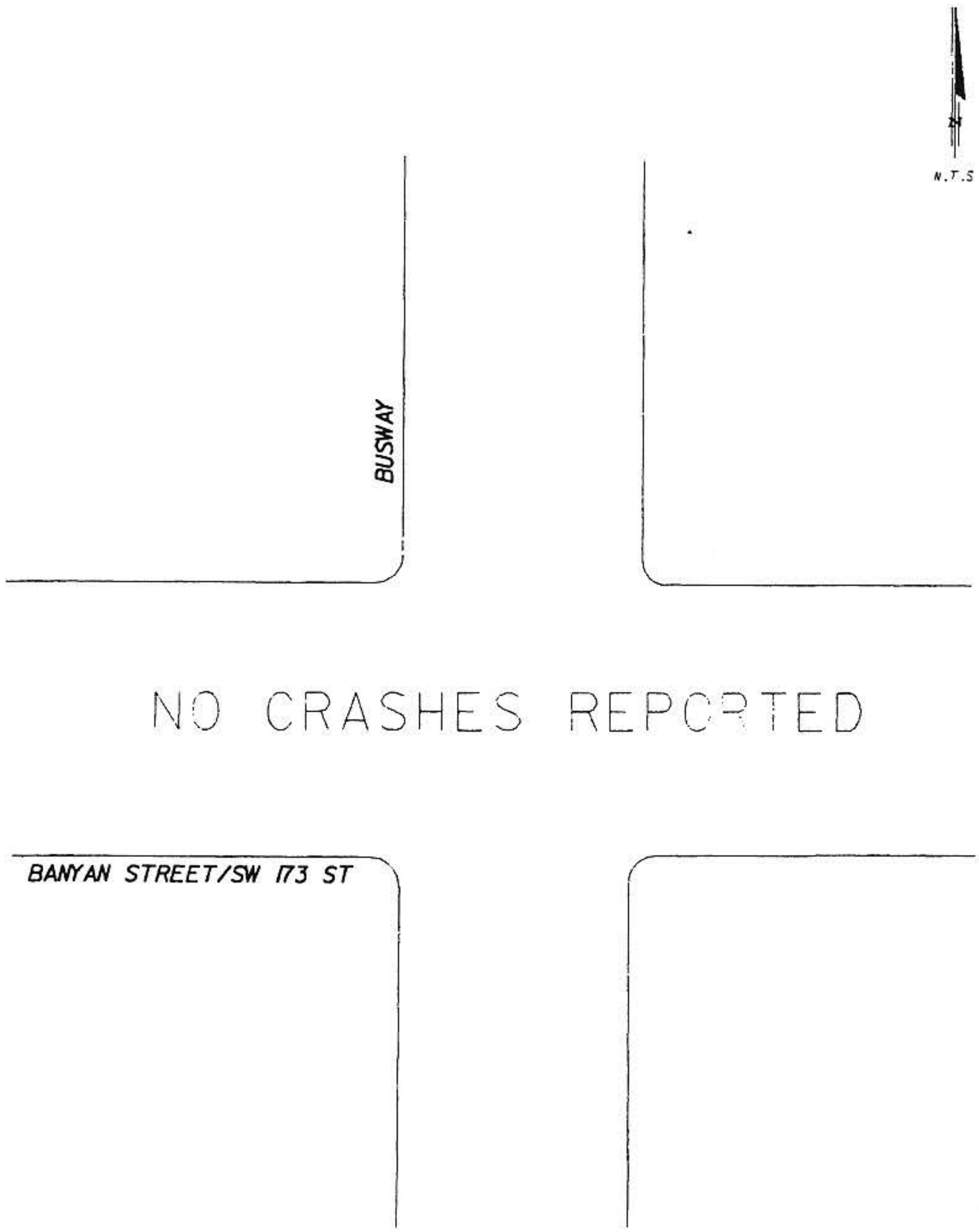
# COLLISION DIAGRAM

R. ALEMAN
& Associates, Inc.

LOCATION I.D.: BUSWAY AT BANYAN ST/SW 173 ST

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




2000 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN

REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

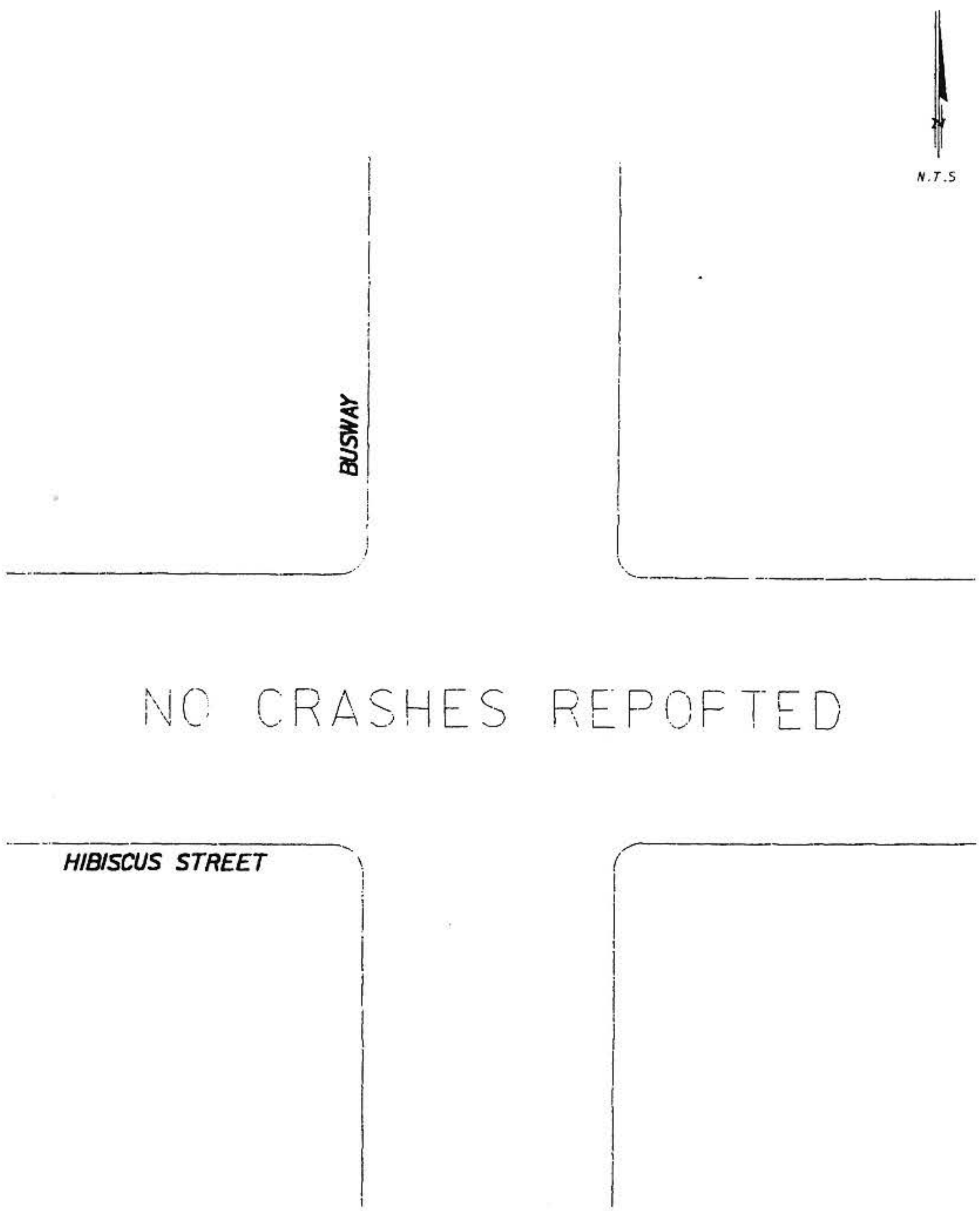
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT HIBISCUS ST/SW 176 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




1997 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

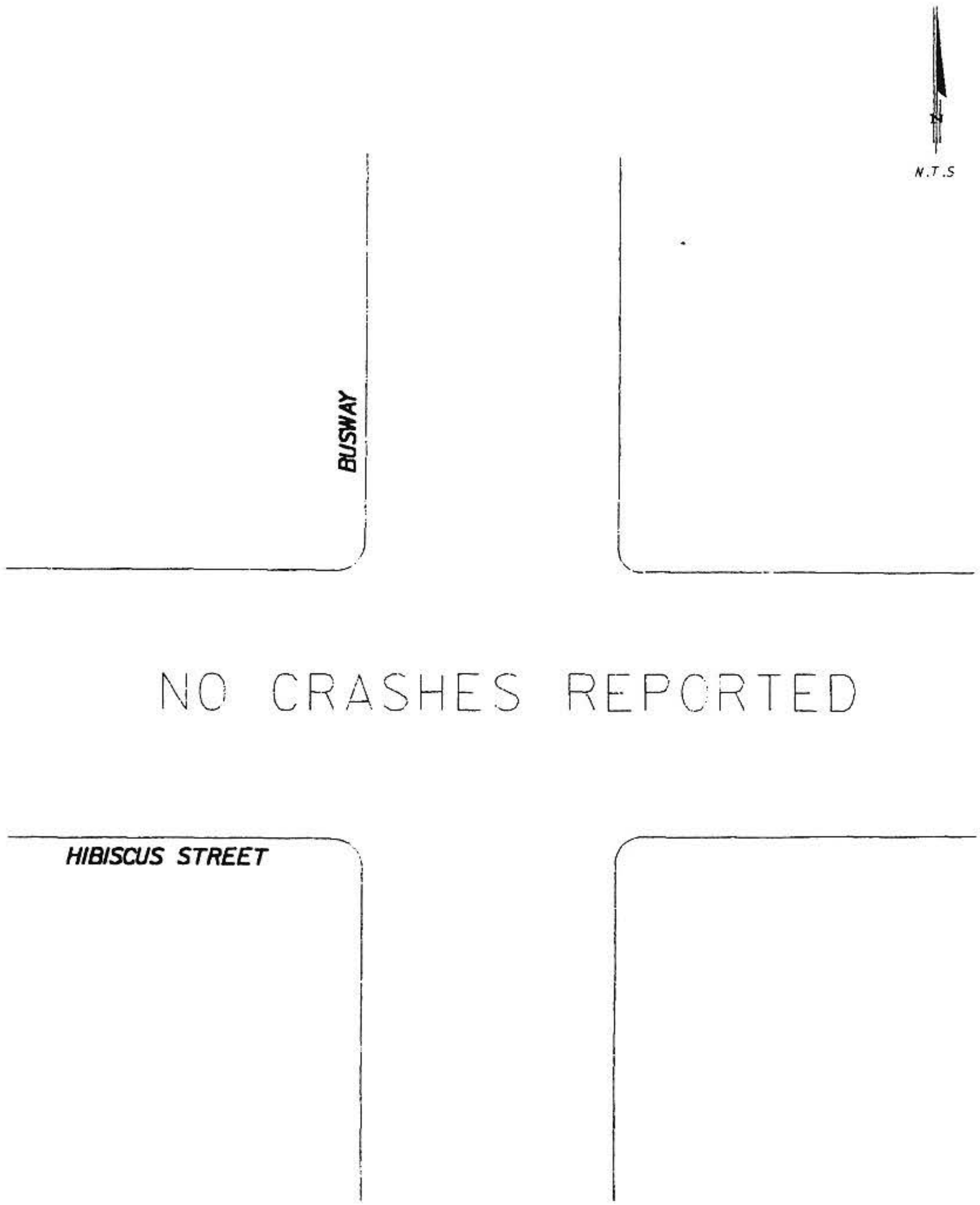
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT HIBISCUS ST/SW 176 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

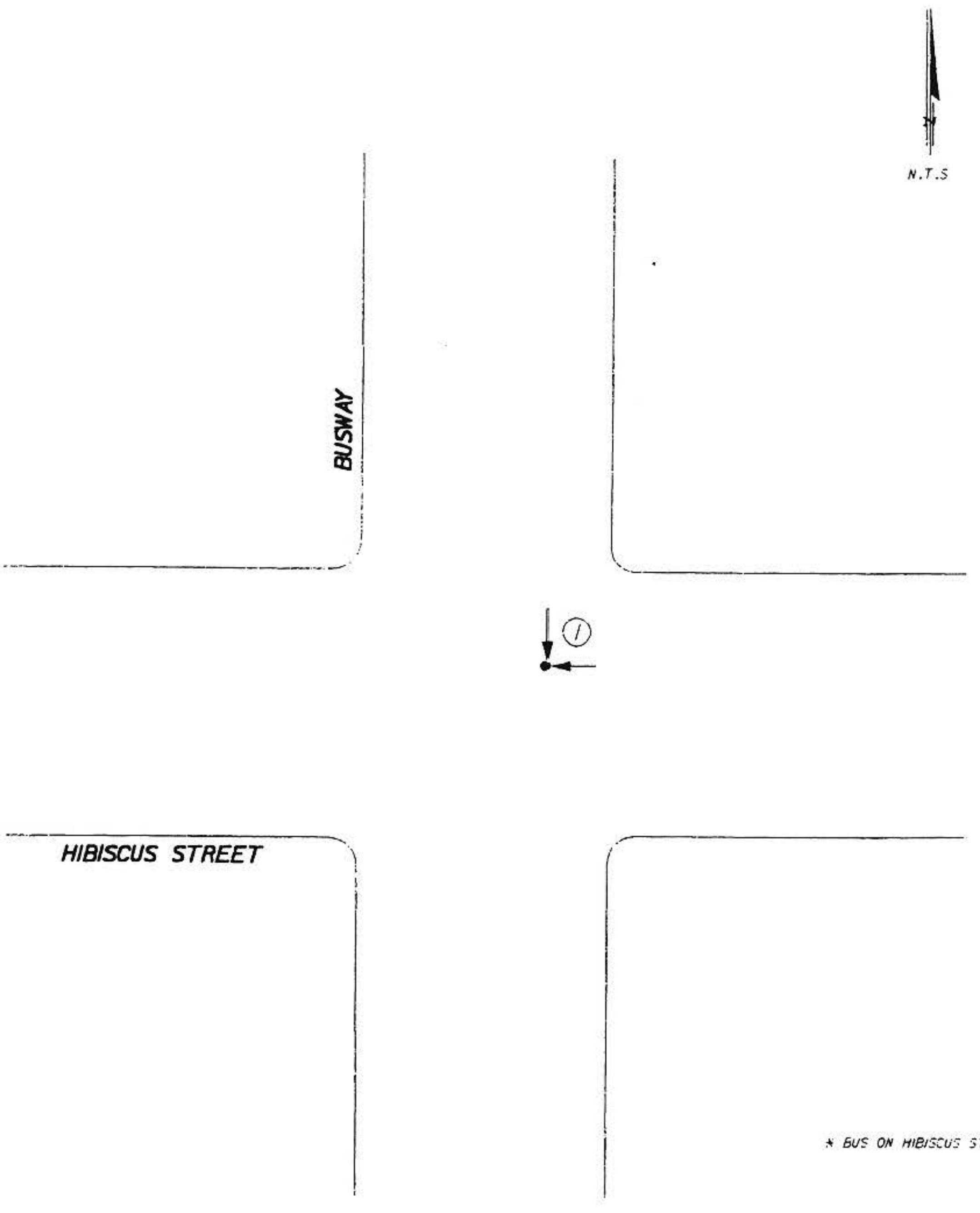
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT HIBISCUS STREET/SW 176 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 0 | 0 | 0 |
| NIGHTTIME | 0 | 0 | 1 | 1 |
| TOTAL | 0 | 0 | 1 | 1 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- X UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

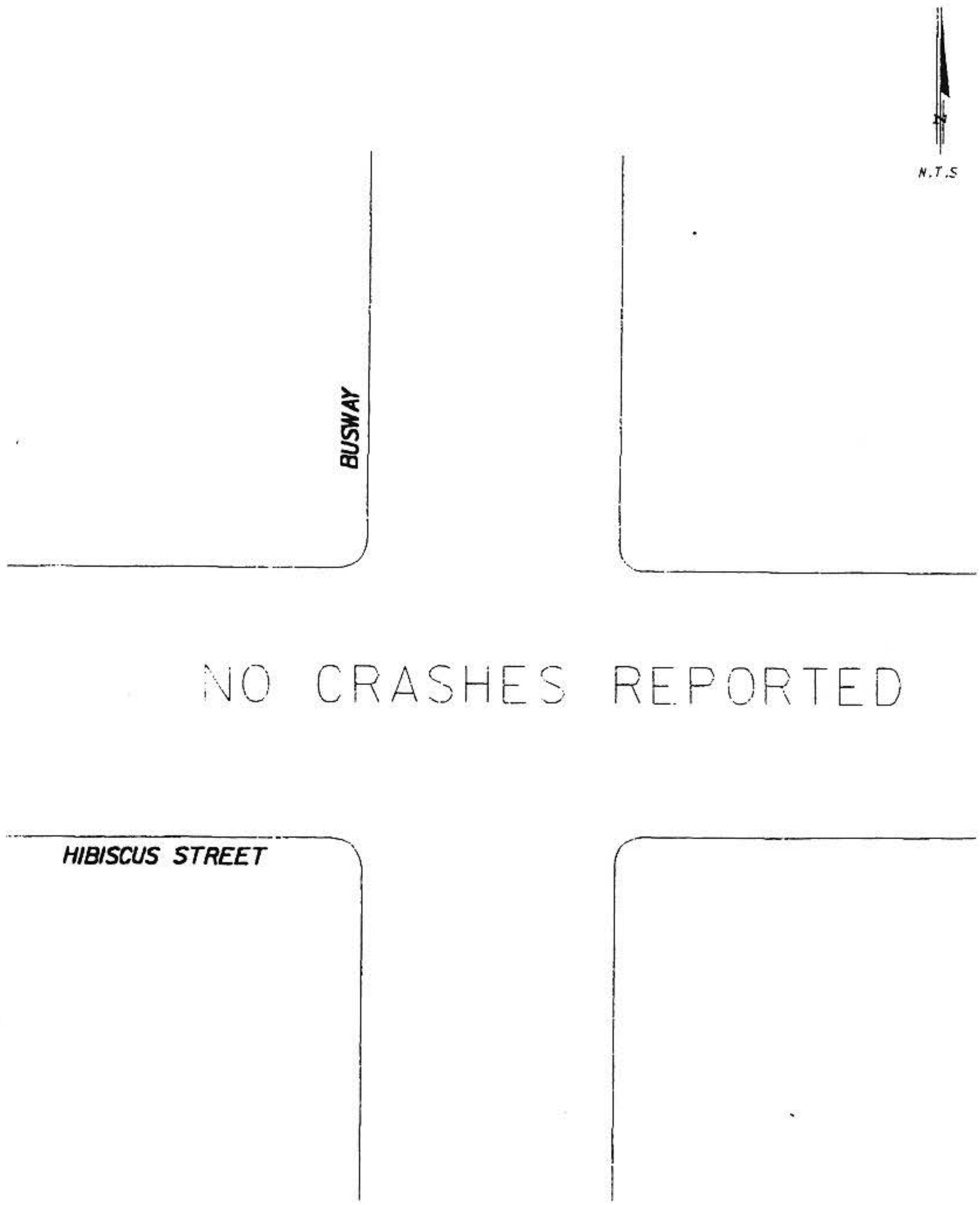
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT HIBISCUS STREET/SW 176 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: JAN-NOV/2000    PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

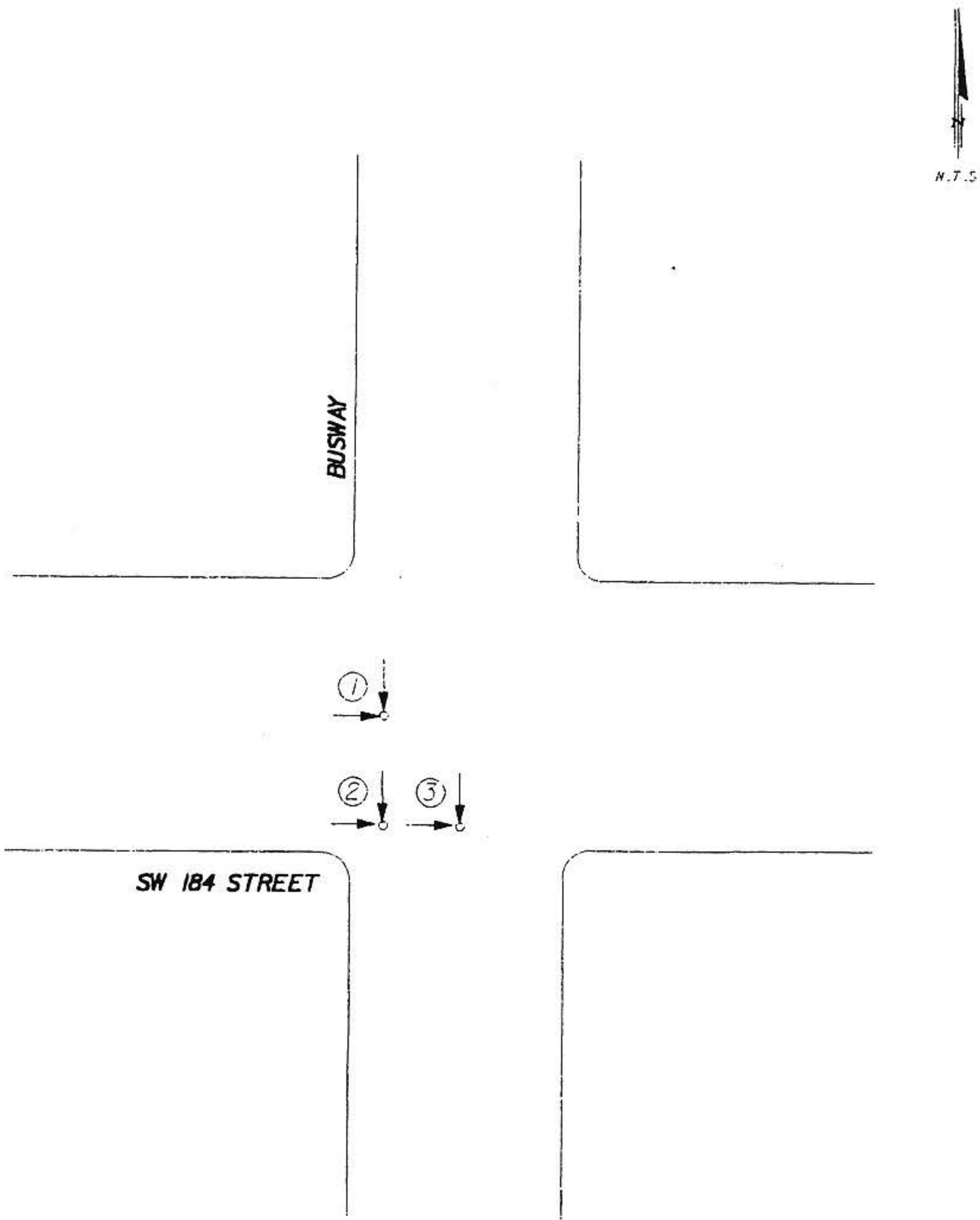
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 184 STREET/EUREKA DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




1997 COLLISION SUMMARY

| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 3 | 0 | 3 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 3 | 0 | 3 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

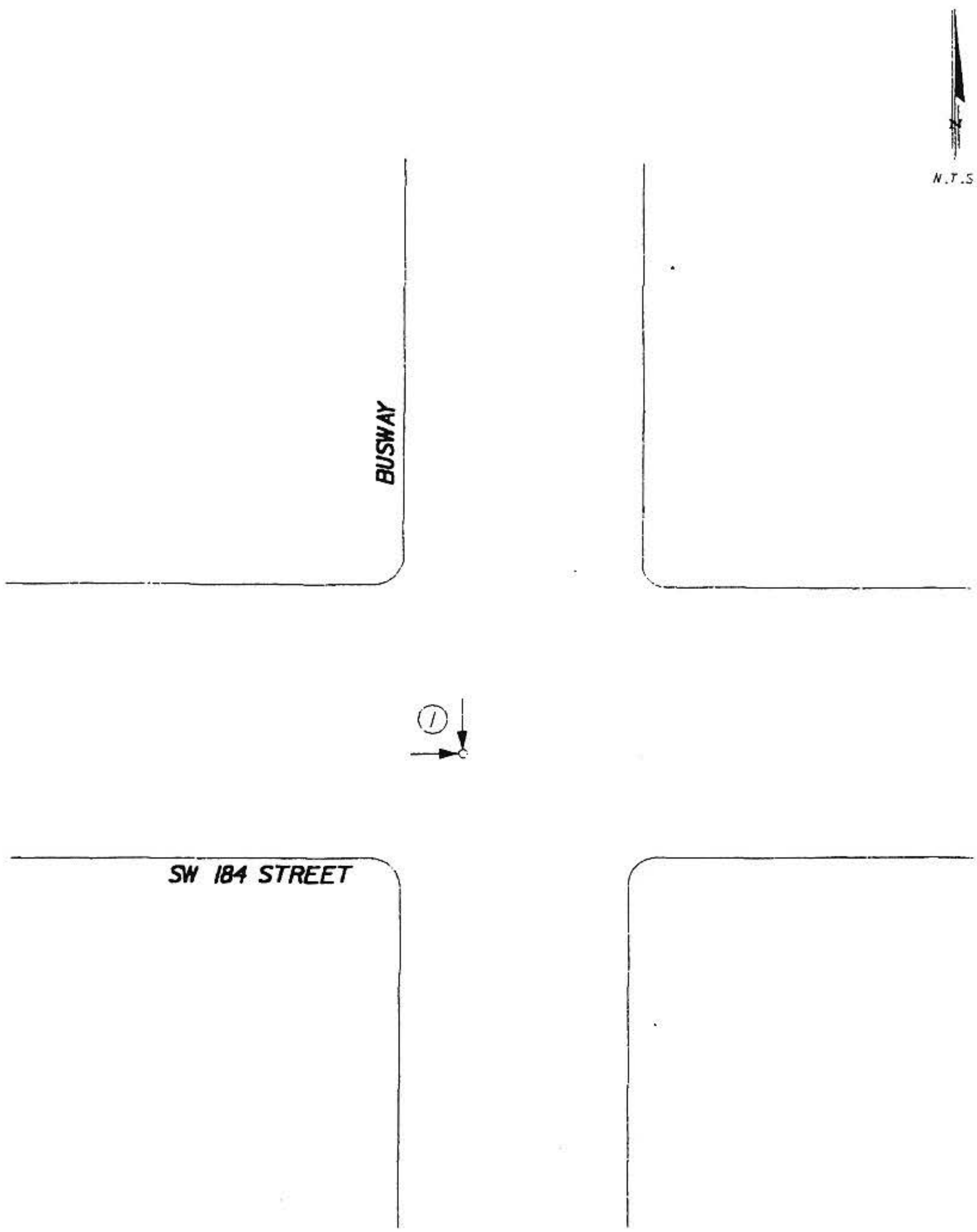
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 184 STREET/EUREKA DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




1998 COLLISION SUMMARY

| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN

REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

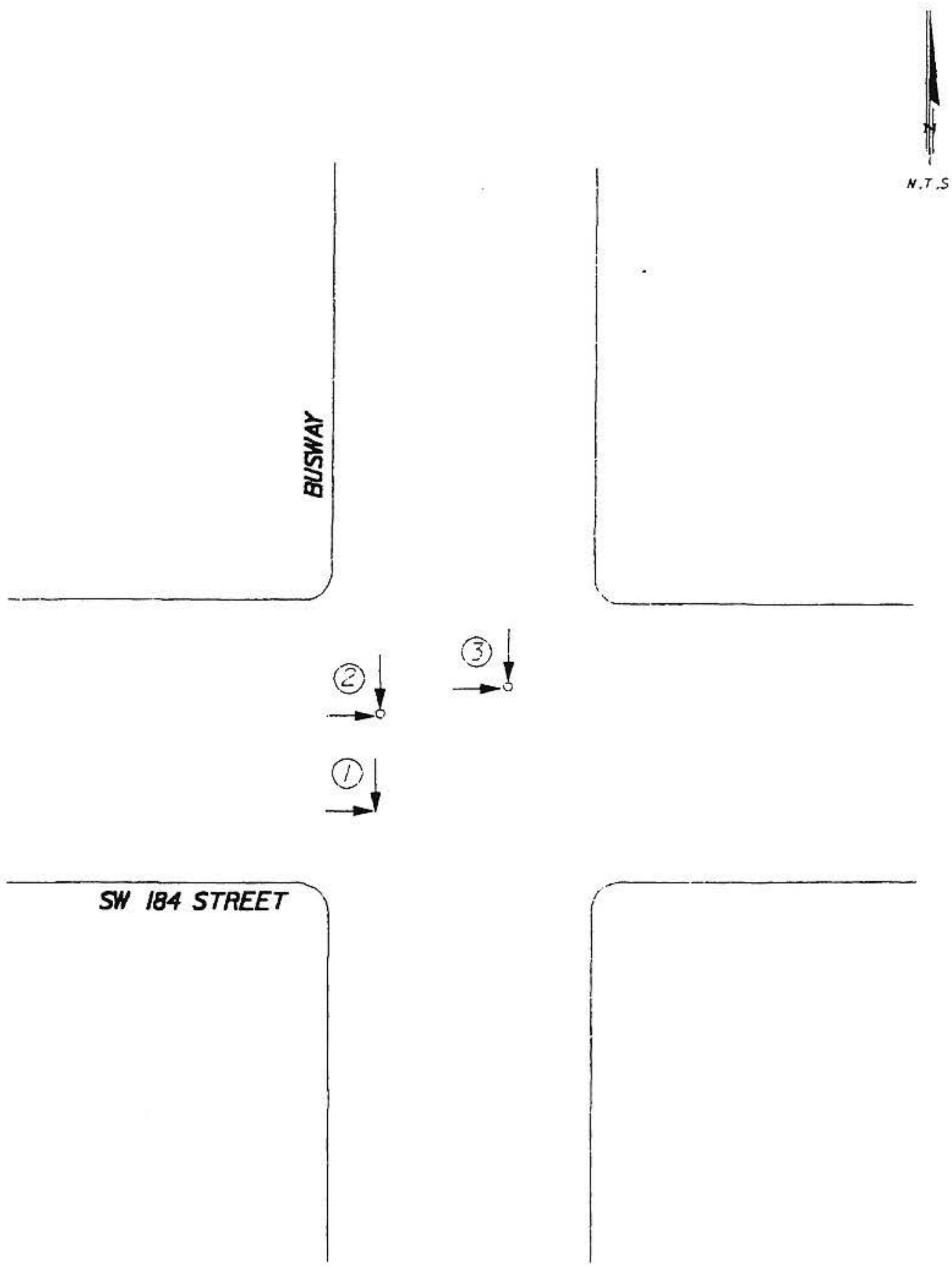
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 184 STREET/EUREKA DR.

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1999    PREPARED BY: FRA




1999 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 1 | 1 | 0 | 2 |
| NIGHTTIME | 0 | 1 | 0 | 1 |
| TOTAL | 1 | 2 | 0 | 3 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

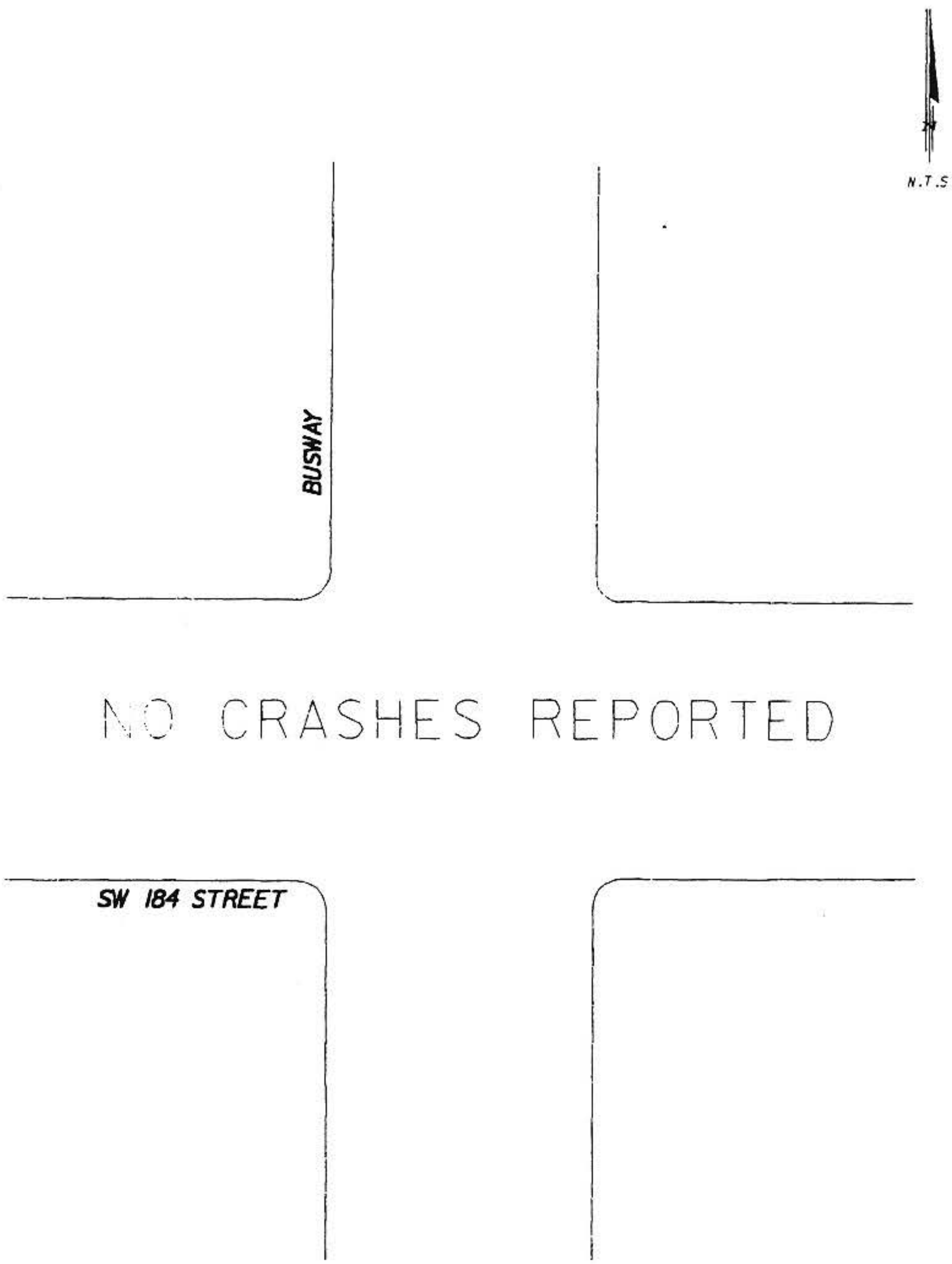
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 184 STREET/EUREKA DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

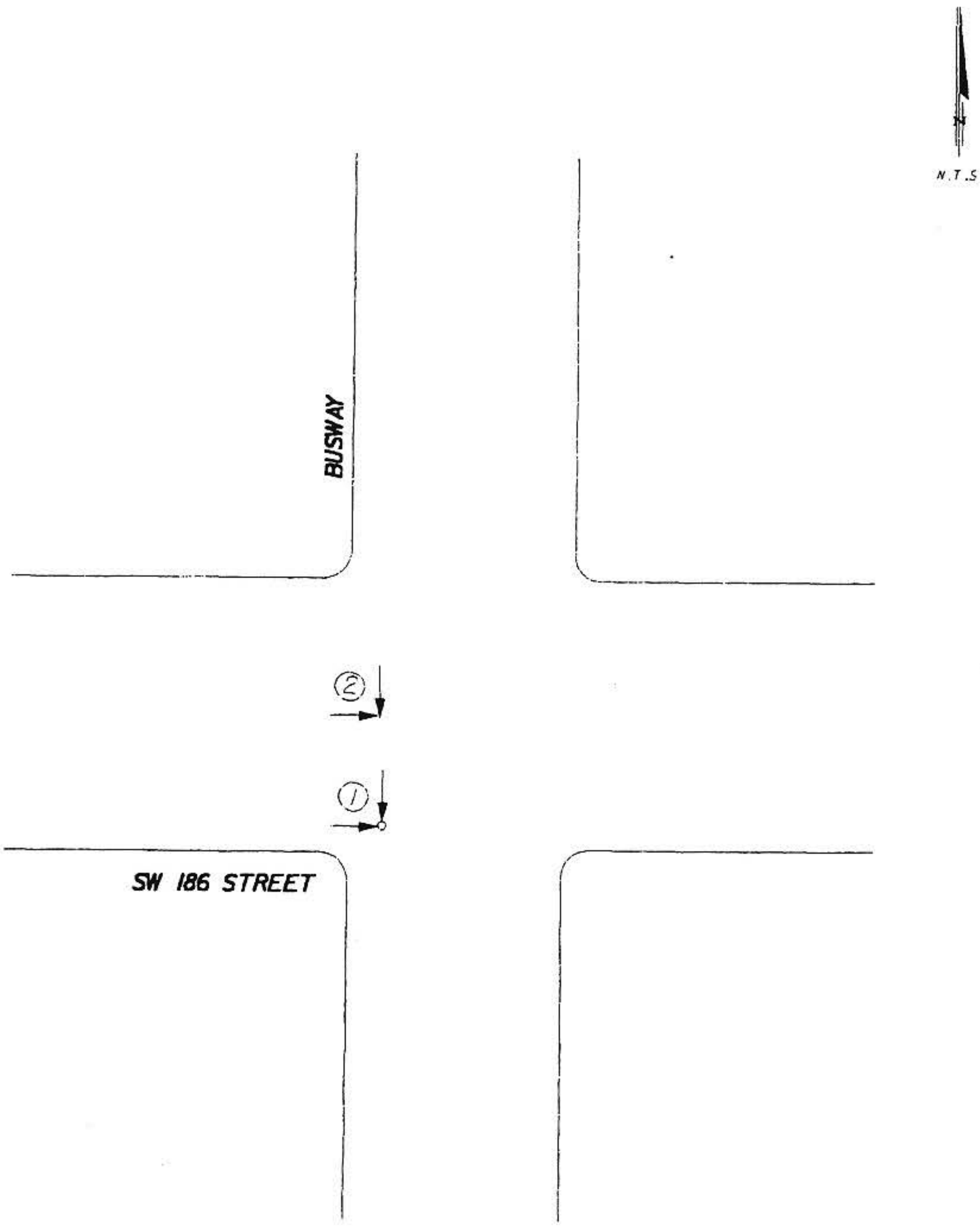
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 186 STREET/QUAIL ROOST DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1997 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAY TIME | 1 | 1 | 0 | 2 |
| NIGHT TIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 1 | 0 | 2 |

## COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

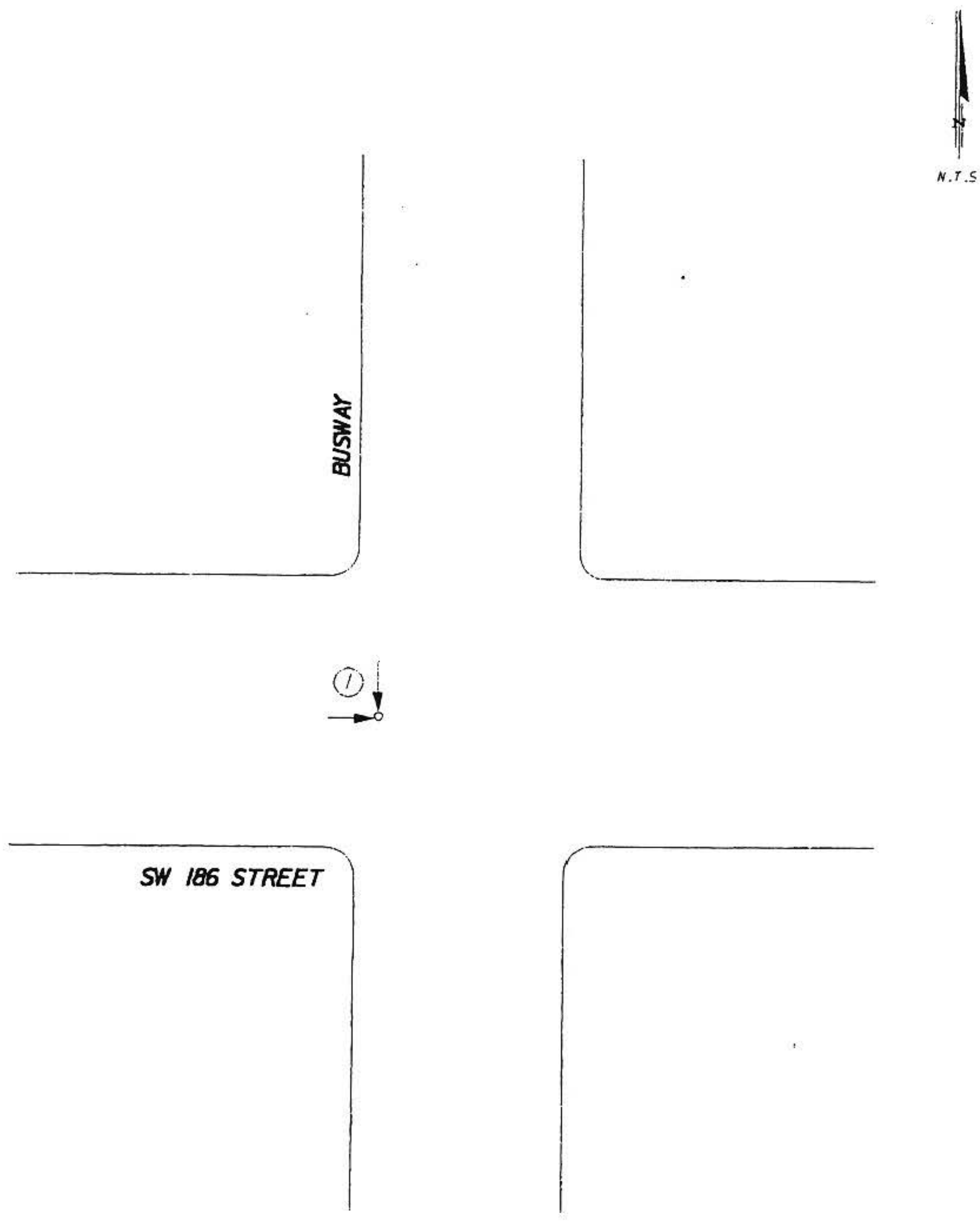
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 186 STREET

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1998    PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

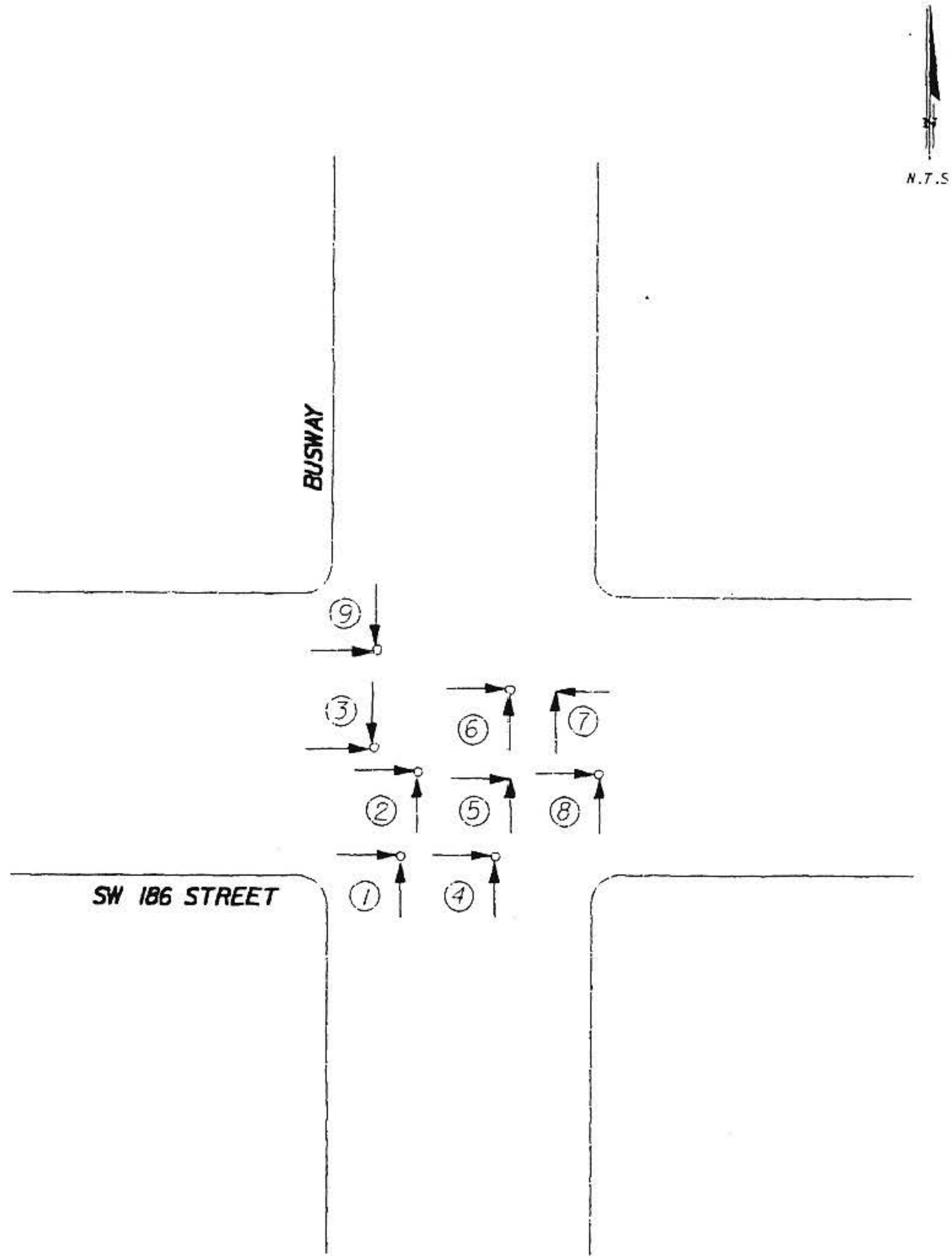
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 186 STREET/QUAIL ROOST DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAY TIME | 2 | 6 | 0 | 8 |
| NIGHTTIME | 0 | 1 | 0 | 1 |
| TOTAL | 2 | 7 | 0 | 9 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

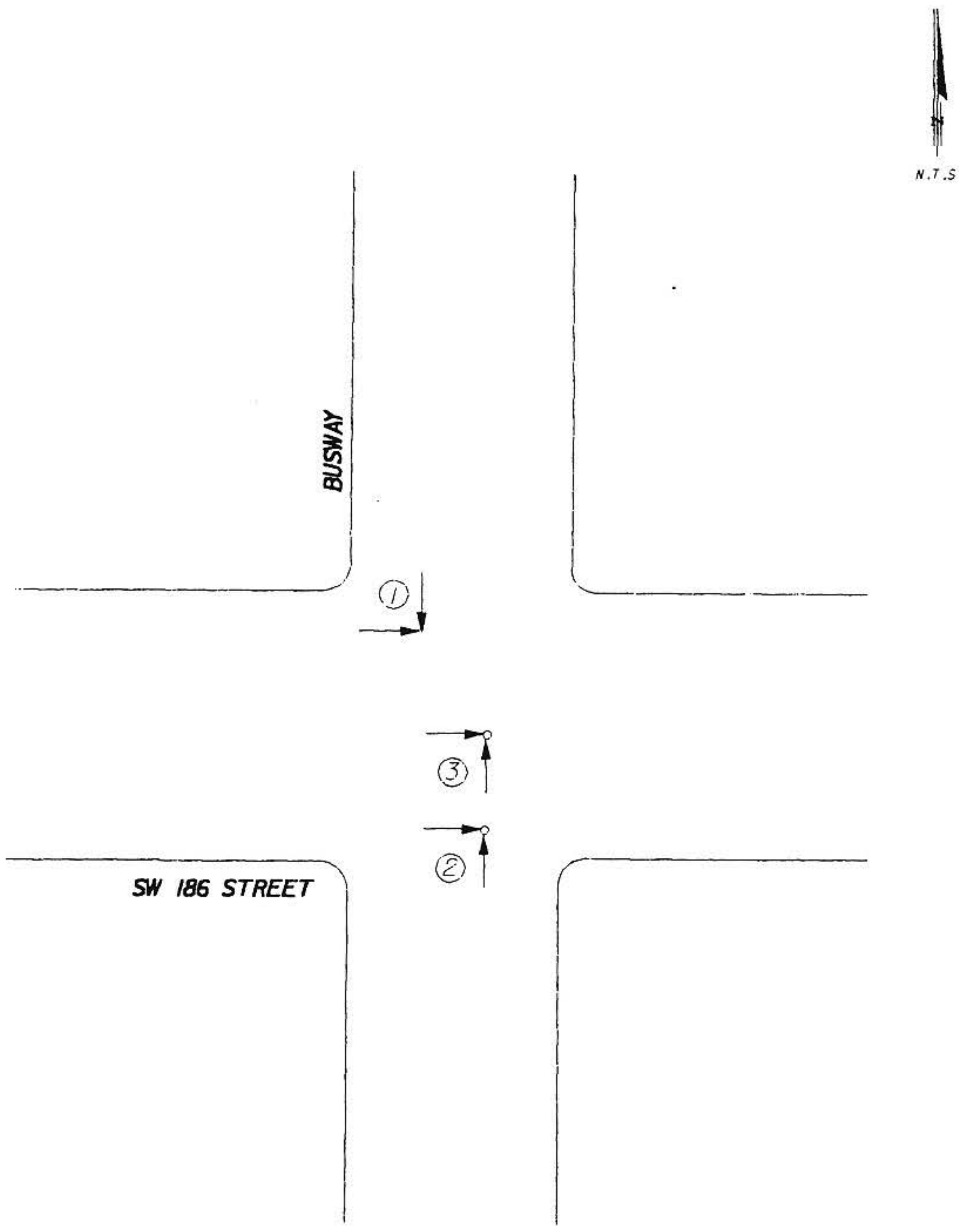
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW 186 STREET/QUAIL ROOST DR.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 1 | 2 | 0 | 3 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 1 | 2 | 0 | 3 |

## COLLISION SYMBOLS

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN

REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

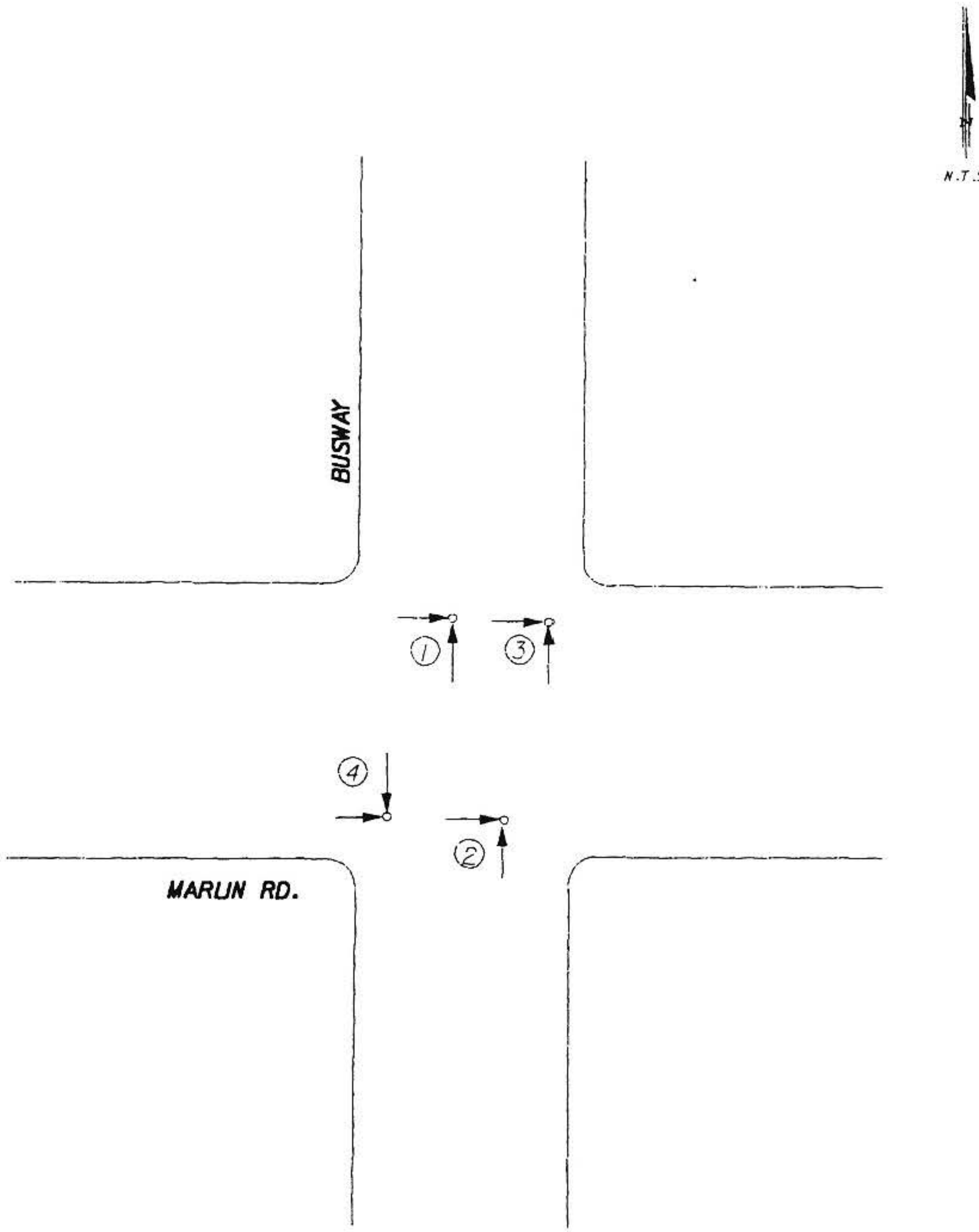
# COLLISION DIAGRAM

R. ALEMAN & Associates Inc.

LOCATION I.D.: BUSWAY AT MARLIN ROAD

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1997 PREPARED BY: FRA




| 1997 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 2 | 0 | 2 |
| NIGHTTIME | 0 | 2 | 0 | 2 |
| TOTAL | 0 | 4 | 0 | 4 |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

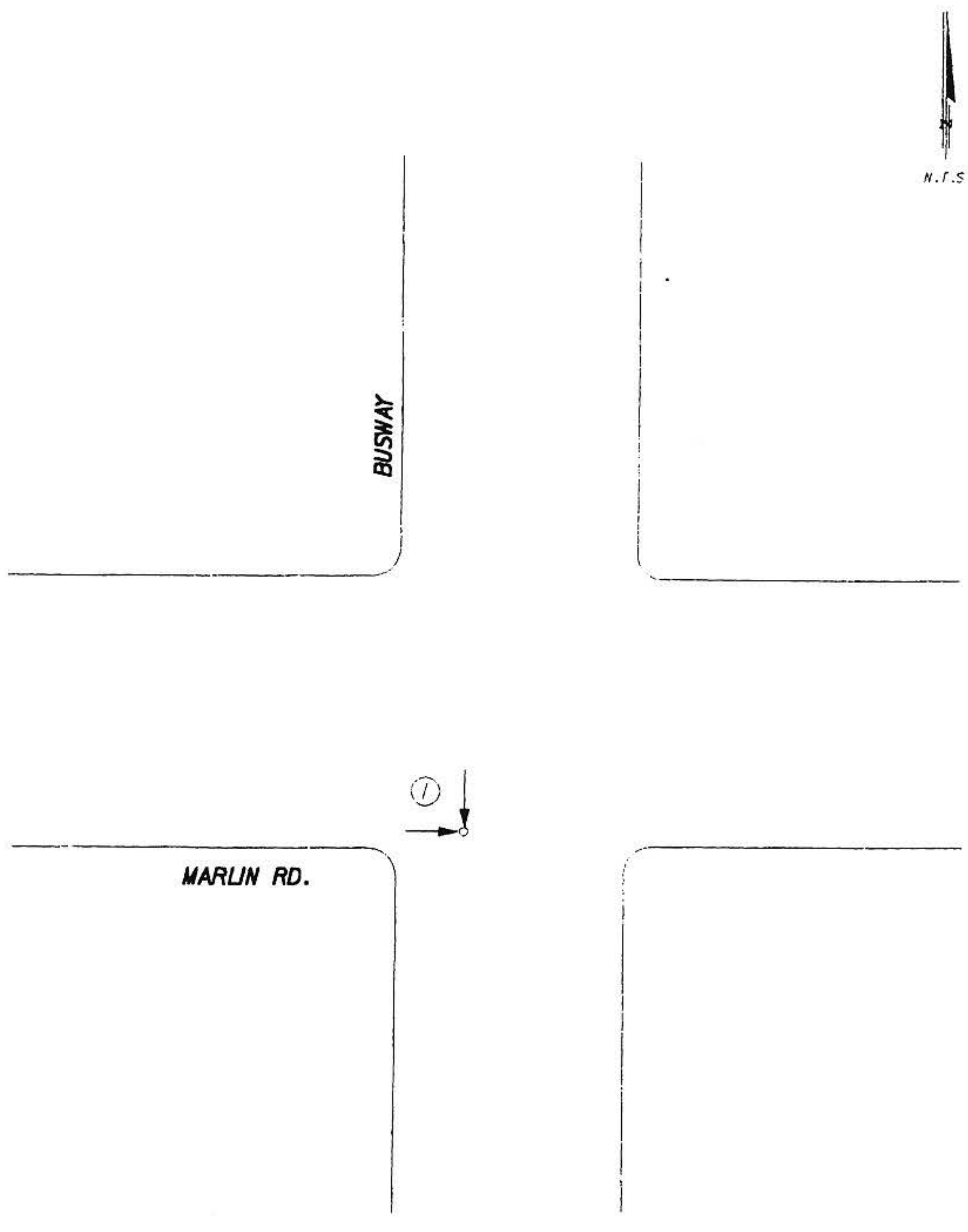
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT MARLIN ROAD

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROF. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

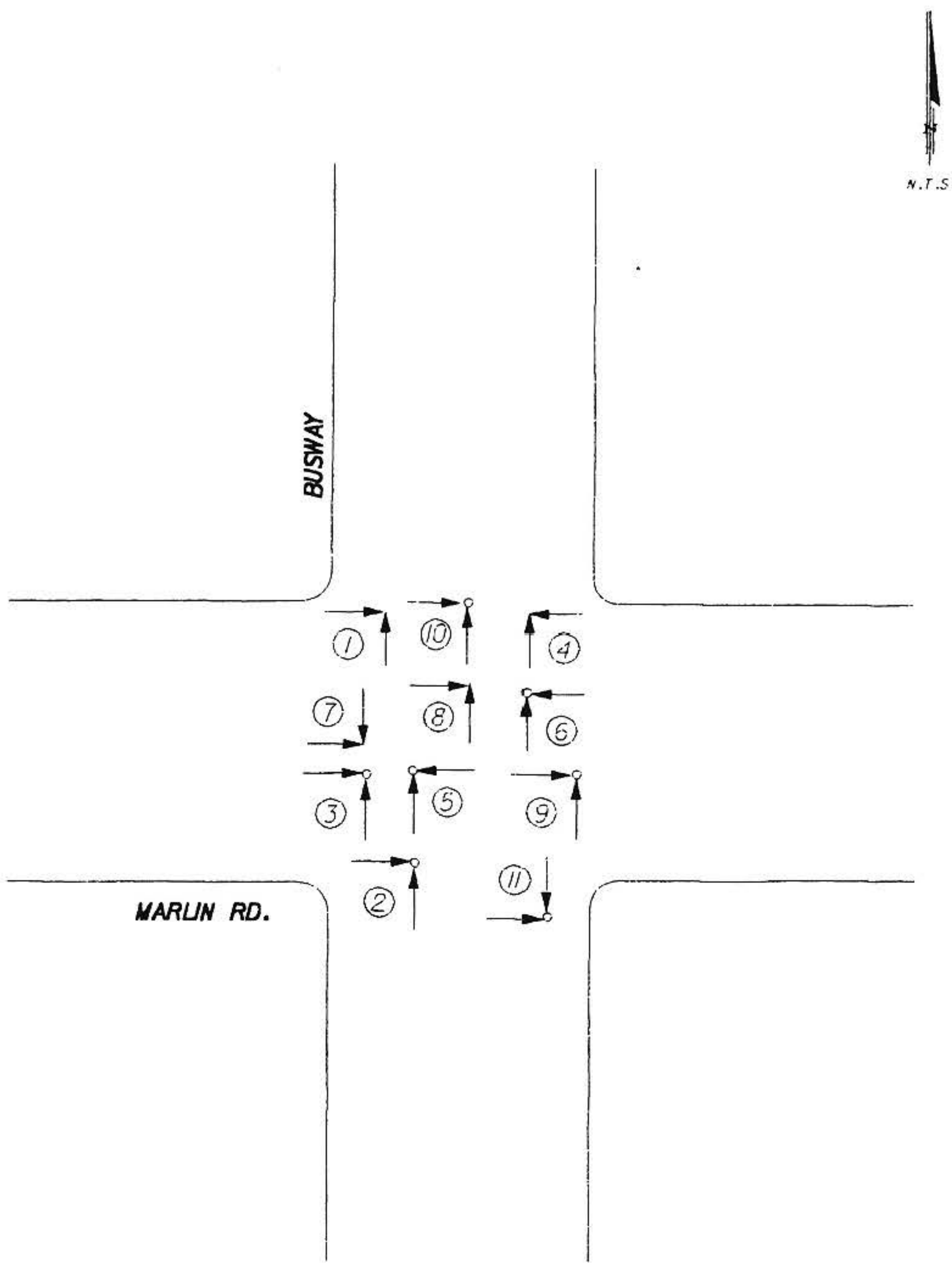
# COLLISION DIAGRAM

F. ALEMAN & Associates Inc.

LOCATION I.D.: BUSWAY AT MARLIN ROAD

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 5 | 4 | 0 | 9 |
| NIGHTTIME | 0 | 2 | 0 | 2 |
| TOTAL | 5 | 6 | 0 | 11 |

## COLLISION SYMBOLS

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

## CONDITION CODES

PAVEMENT CONDITION:
D=DRY W=WET I=ICY

WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

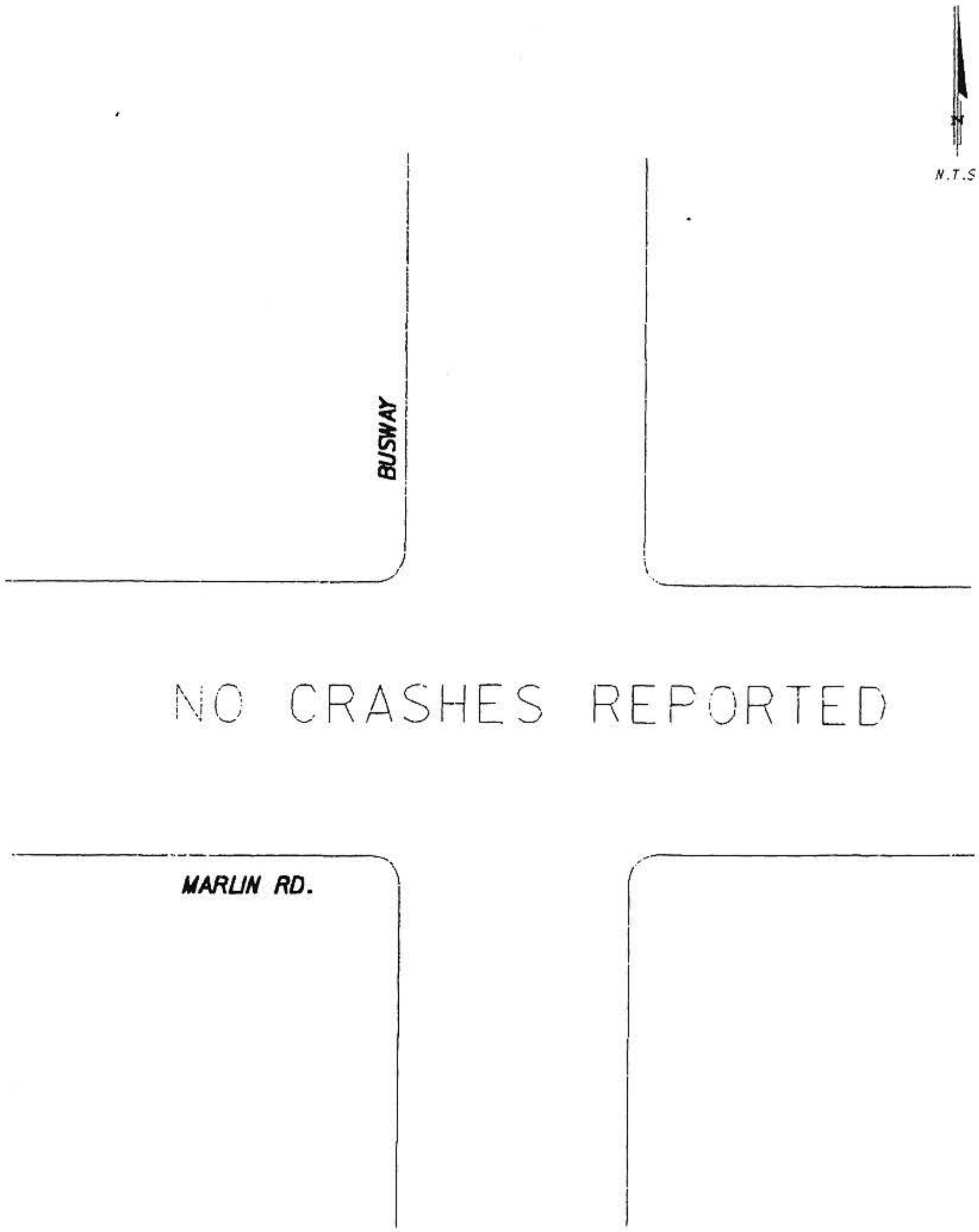
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT MARLIN ROAD

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




**2000 COLLISION SUMMARY**

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

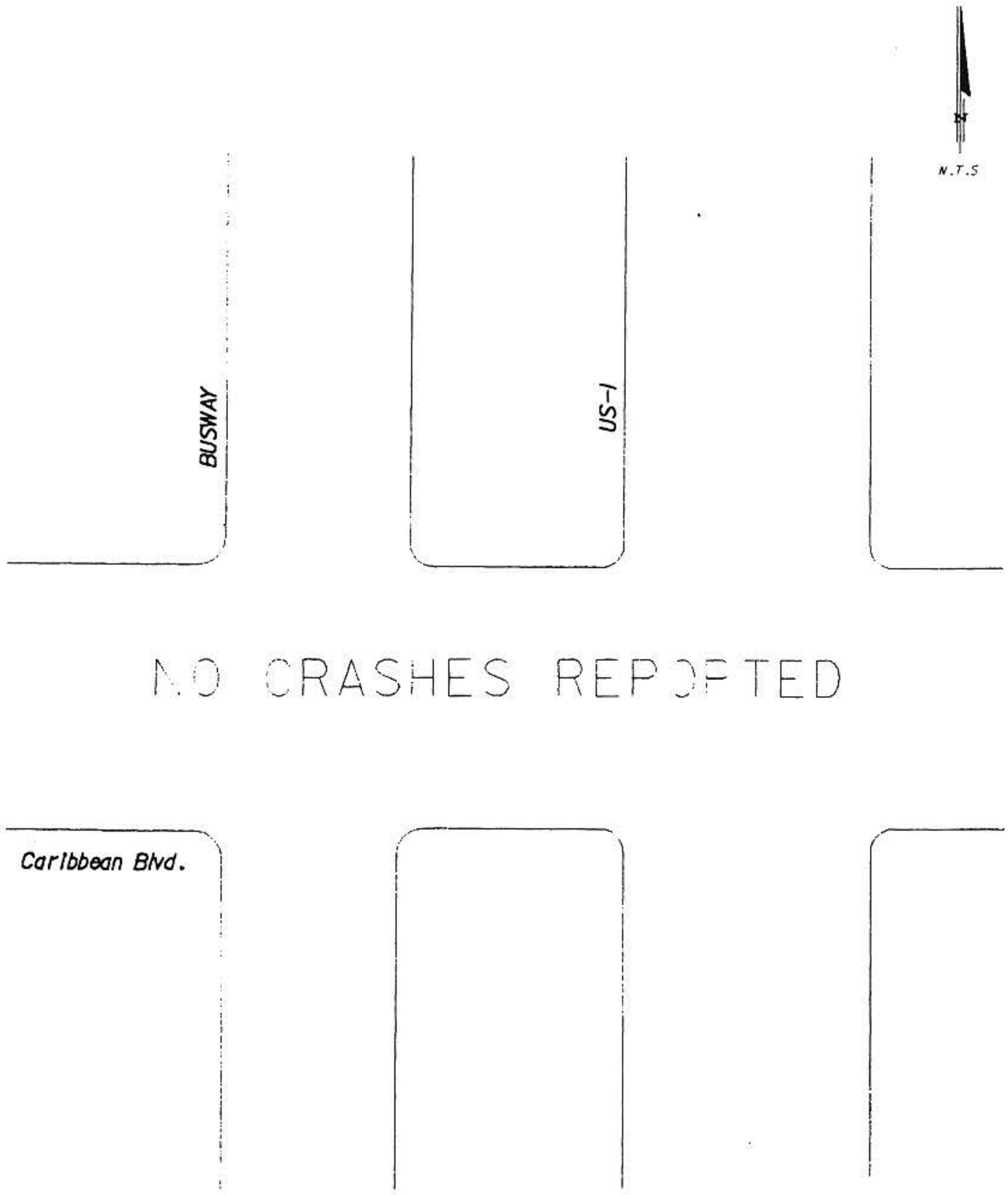
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT CARIBBEAN BLVD.

COUNTY: MIAMI-DADE    CITY: MIAMI

PERIOD: 1997    PREPARED BY: FRA




1996 COLLISION SUMMARY

| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY

WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW

LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK

TIME OF DAY (MILITARY)

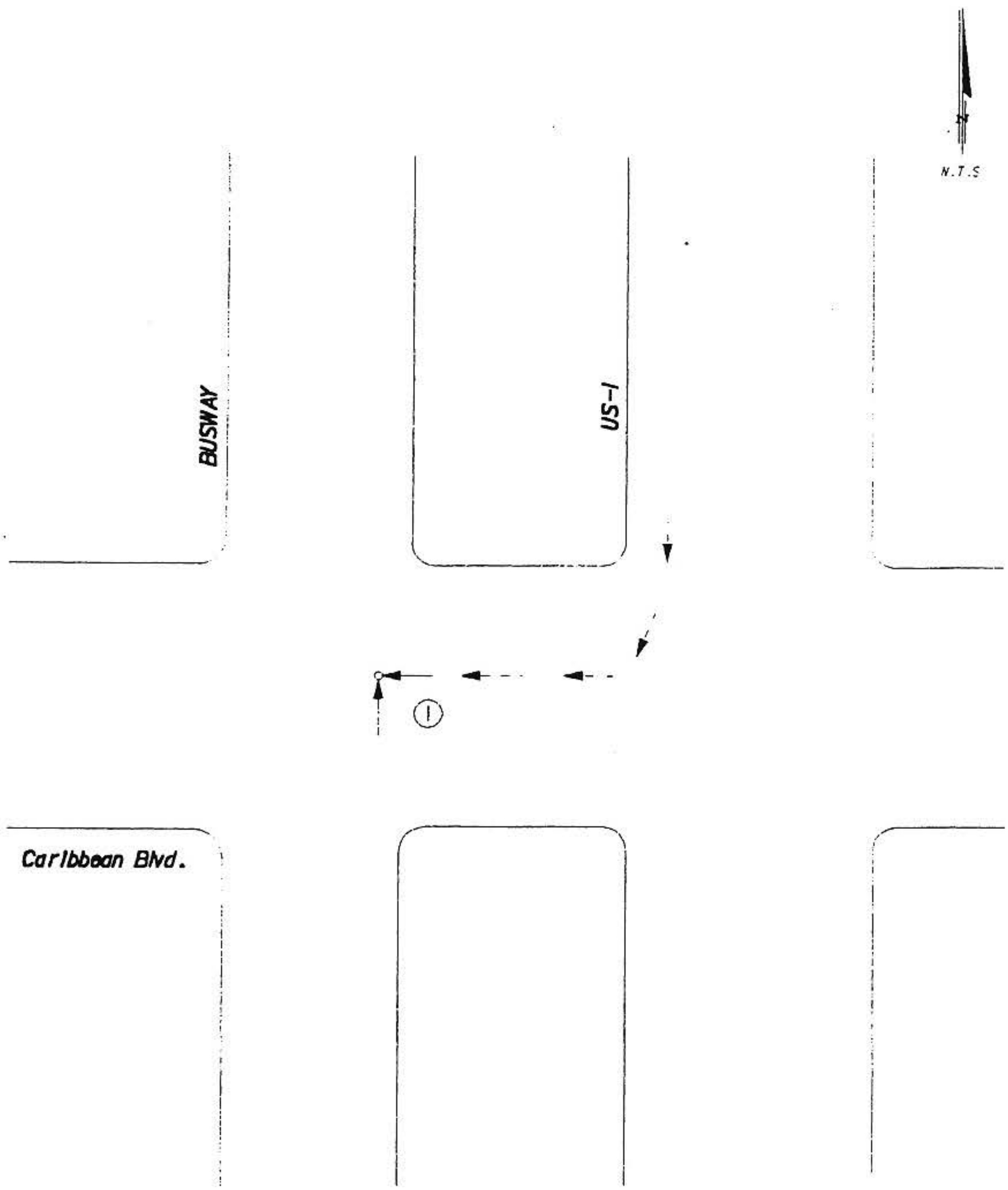
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT CARIBBEAN BLVD./SW 200 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1998 PREPARED BY: FRA




| 1998 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | 0 | 1 | 0 | 1 |
| NIGHTTIME | 0 | 0 | 0 | 0 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

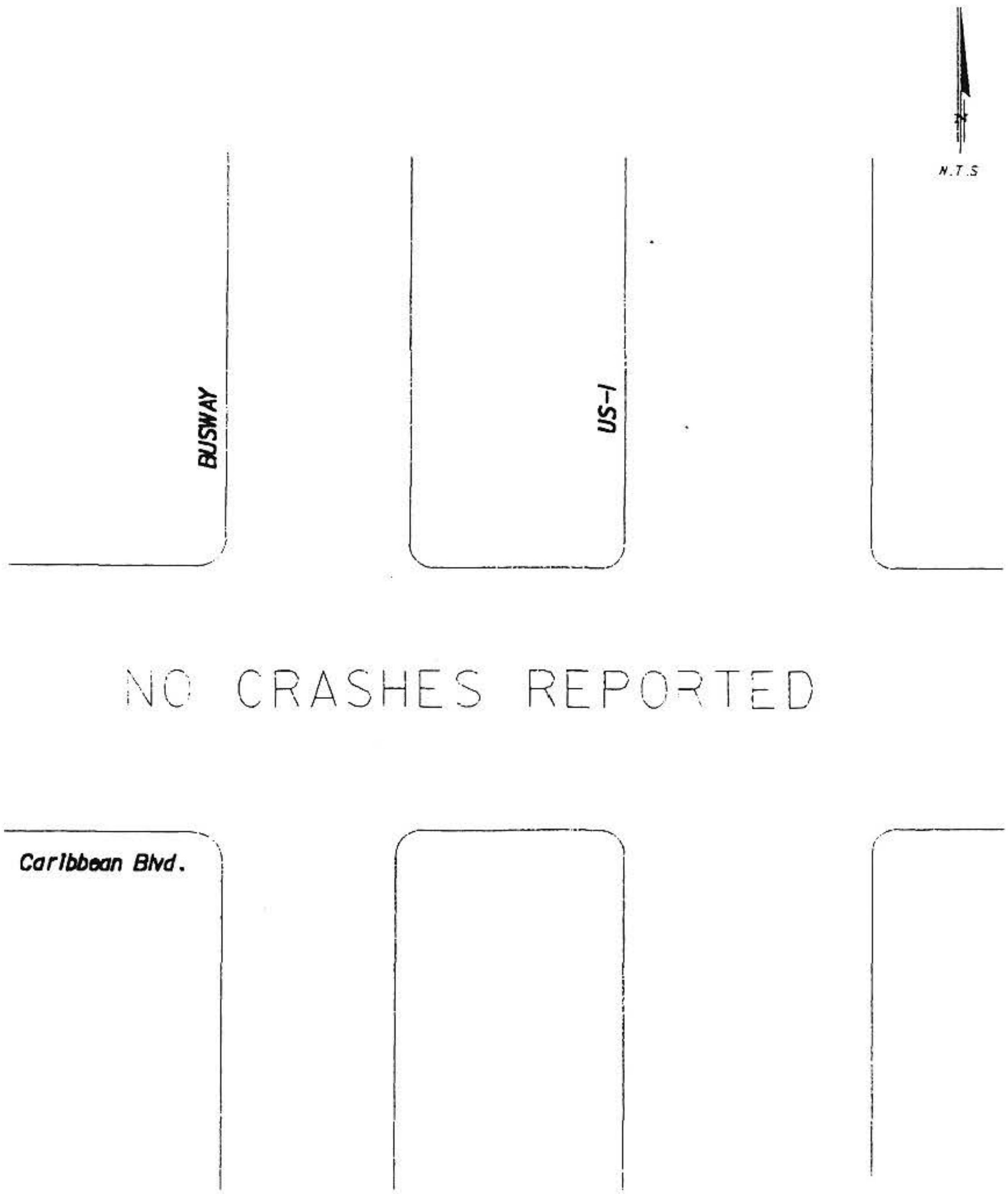
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT CARIBBEAN BLVD.

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: 1999 PREPARED BY: FRA




| 1999 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

- VEHICLE PATH
- BACKING VEHICLE
- NON-INVOLVED VEHICLE
- PEDESTRIAN PATH
- FIXED OBJECT
- PARKED VEHICLE
- PERSONAL INJURY
- FATALITY
- UNKNOWN
- REAR-END COLLISION
- HEAD-ON COLLISION
- SIDE SWIPE
- OUT OF CONTROL
- OVERTURNED VEHICLE
- LEFT TURN COLLISION
- RIGHT ANGLE COLLISION
- BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

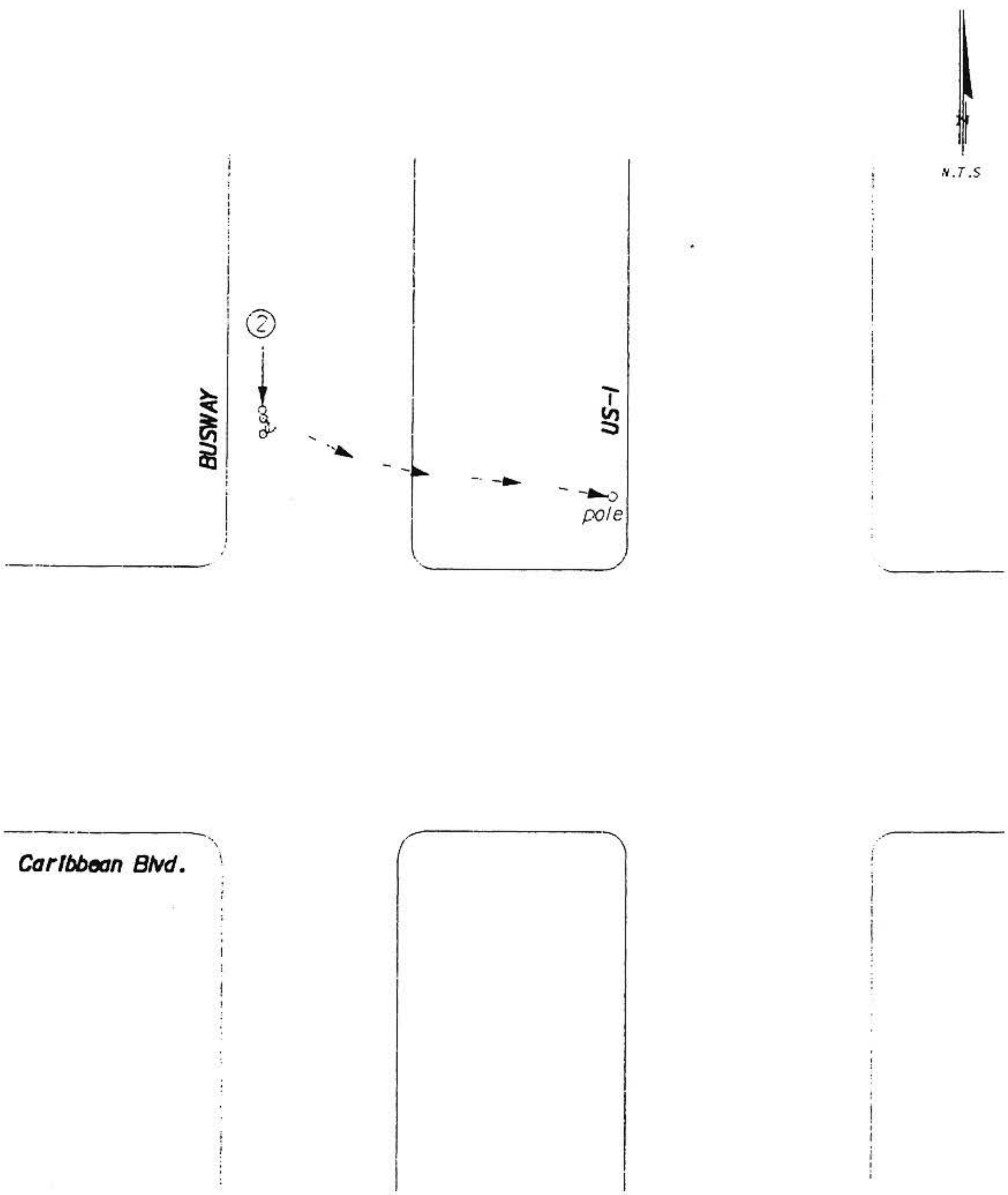
# COLLISION DIAGRAM

F.R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT CARIBBEAN BLVD./SW 200 STREET

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: JAN-NOV/2000 PREPARED BY: FRA




| 2000 COLLISION SUMMARY | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
|---|---|---|---|---|
| DAY TIME | 0 | 0 | 0 | 0 |
| NIGHT TIME | 0 | 1 | 0 | 1 |
| TOTAL | 0 | 1 | 0 | 1 |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

**CONDITION CODES**

PAVEMENT CONDITION: D=DRY W=WET I=ICY
WEATHER CONDITION: C=CLEAR R=RAIN CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

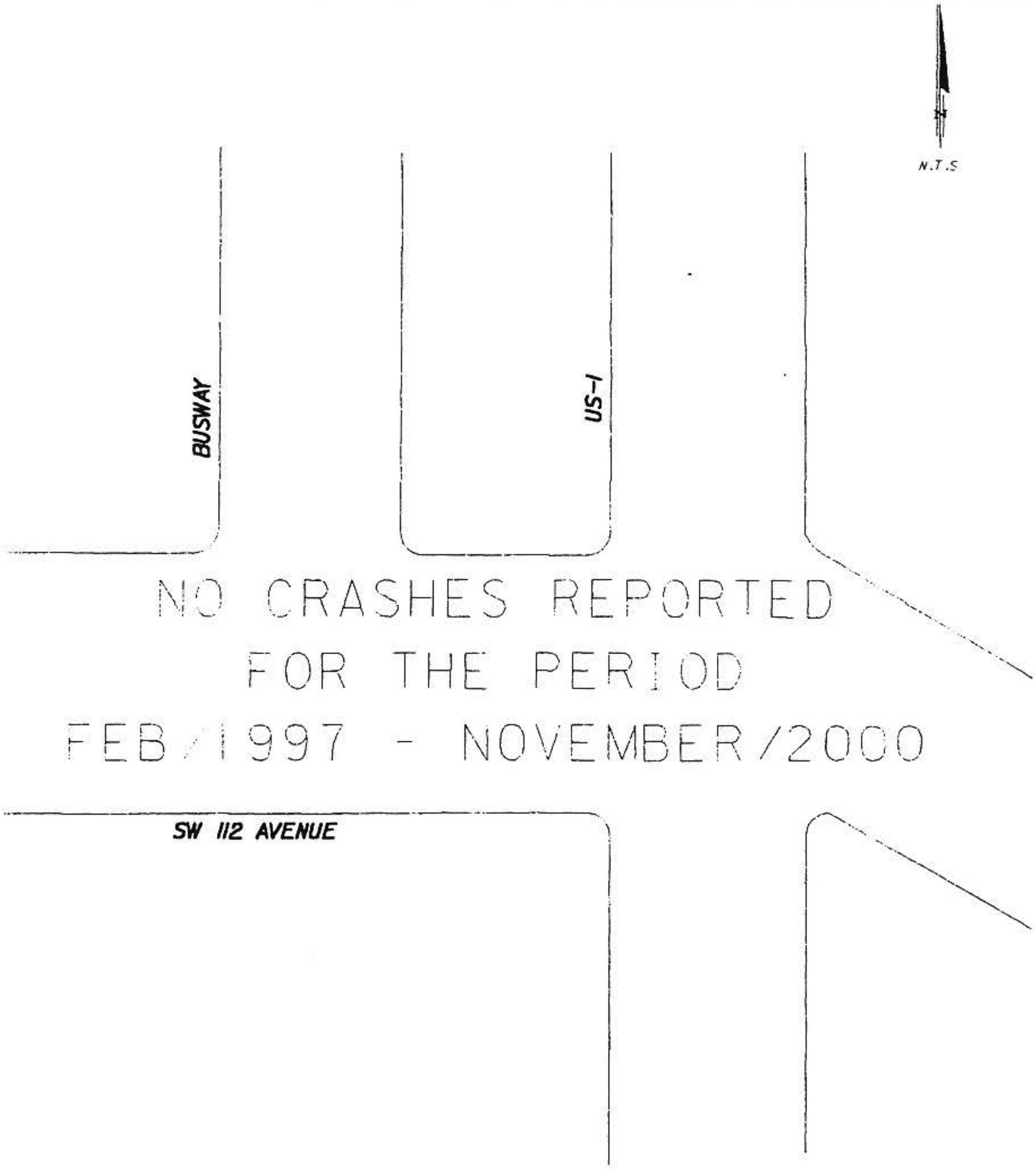
# COLLISION DIAGRAM

R. ALEMAN & Associates, Inc.

LOCATION I.D.: BUSWAY AT SW. 112 AVENUE

COUNTY: MIAMI-DADE CITY: MIAMI

PERIOD: PREPARED BY: FRA




| 1998 COLLISION SUMMARY | | | | |
|---|---|---|---|---|
| | PROP. DMG ONLY | INJURY | FATAL | TOTAL |
| DAYTIME | | | | |
| NIGHTTIME | | | | |
| TOTAL | | | | |

**COLLISION SYMBOLS**

VEHICLE PATH
BACKING VEHICLE
NON-INVOLVED VEHICLE
PEDESTRIAN PATH
FIXED OBJECT
PARKED VEHICLE
PERSONAL INJURY
FATALITY
X UNKNOWN
REAR-END COLLISION
HEAD-ON COLLISION
SIDE SWIPE
OUT OF CONTROL
OVERTURNED VEHICLE
LEFT TURN COLLISION
RIGHT ANGLE COLLISION
BICYCLE COLLISION

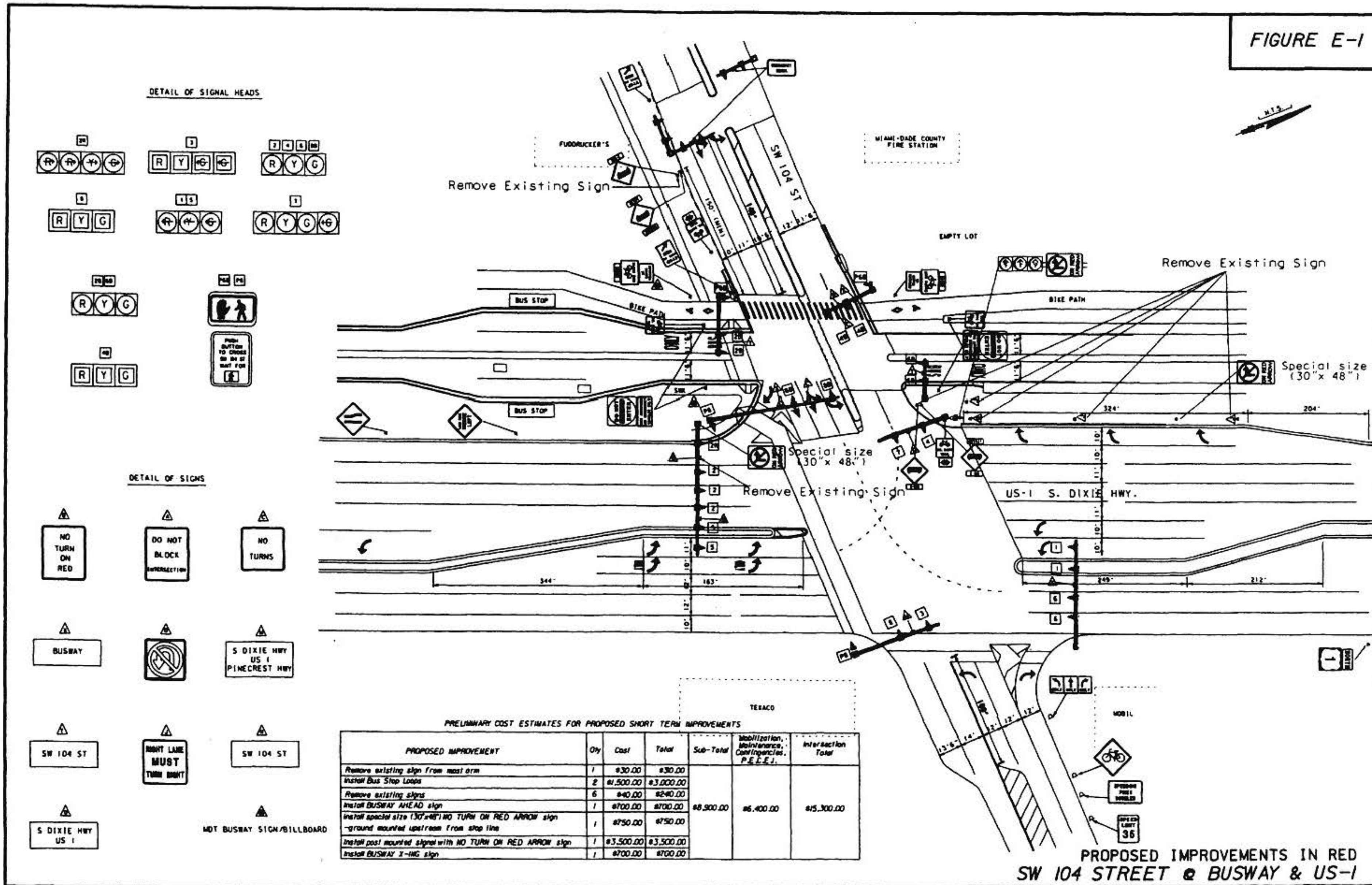
**CONDITION CODES**

PAVEMENT CONDITION:
D=DRY W=WET I=ICY
WEATHER CONDITION:
C=CLEAR R=RAIN
CL=CLOUDY S=SNOW
LIGHT CONDITION: DW=DAWN
L=DAYLIGHT DK=DARK
TIME OF DAY (MILITARY)

# APPENDIX E

# Recommended Short Term Improvements

FIGURE E-1




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $8,900.00 | $6,400.00 | $15,300.00 |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Remove existing signs | 6 | $40.00 | $240.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |

PROPOSED IMPROVEMENTS IN RED

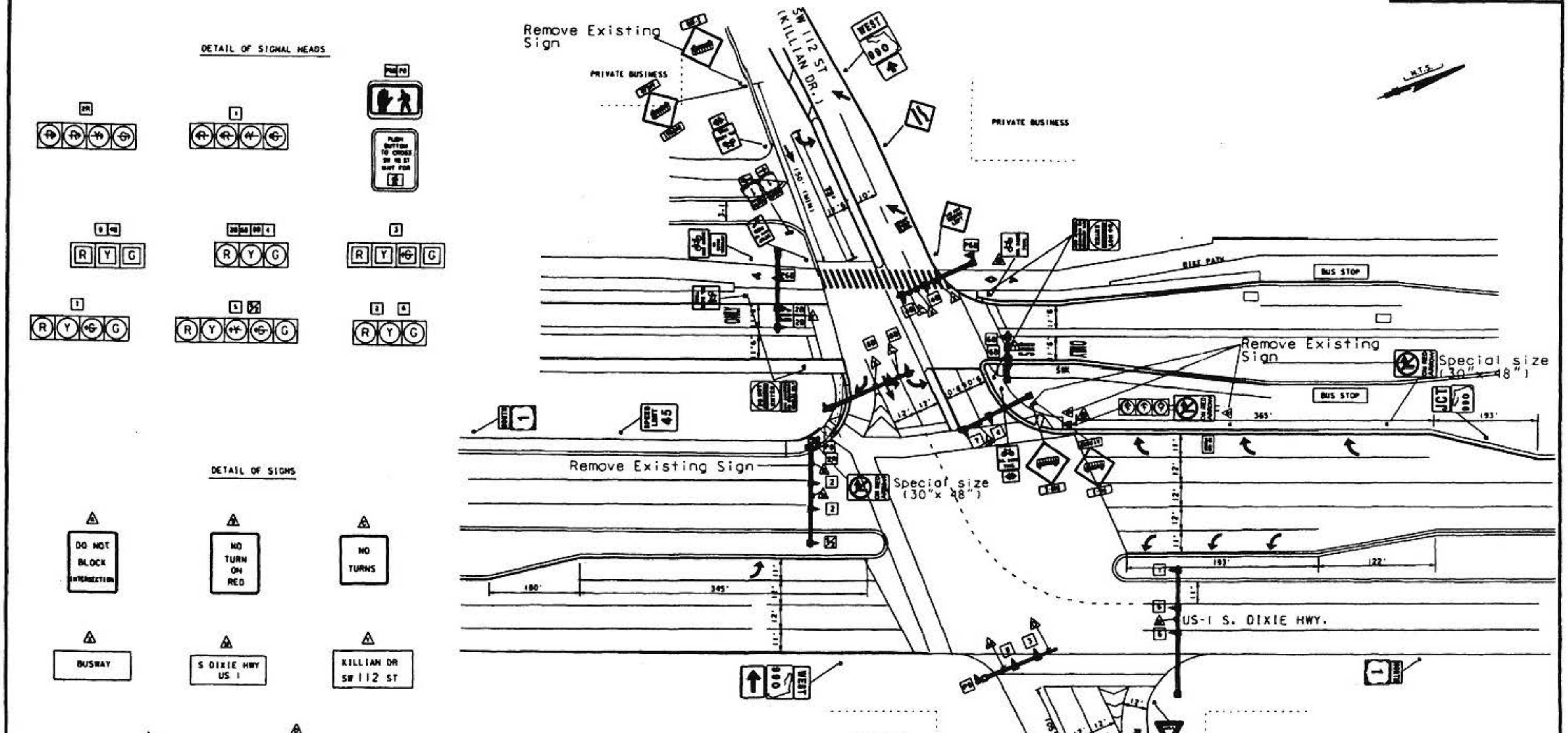
SW 104 STREET @ BUSWAY & US-1

| | | | |
|---|---|---|---|
| A.G. | 2/01 | | |
| W.G.H. | 2/01 | | |

F.R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

# FIGURE E-2




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $8,800.00 | $6,300.00 | $15,100.00 |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Remove existing signs | 4 | $40.00 | $160.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |

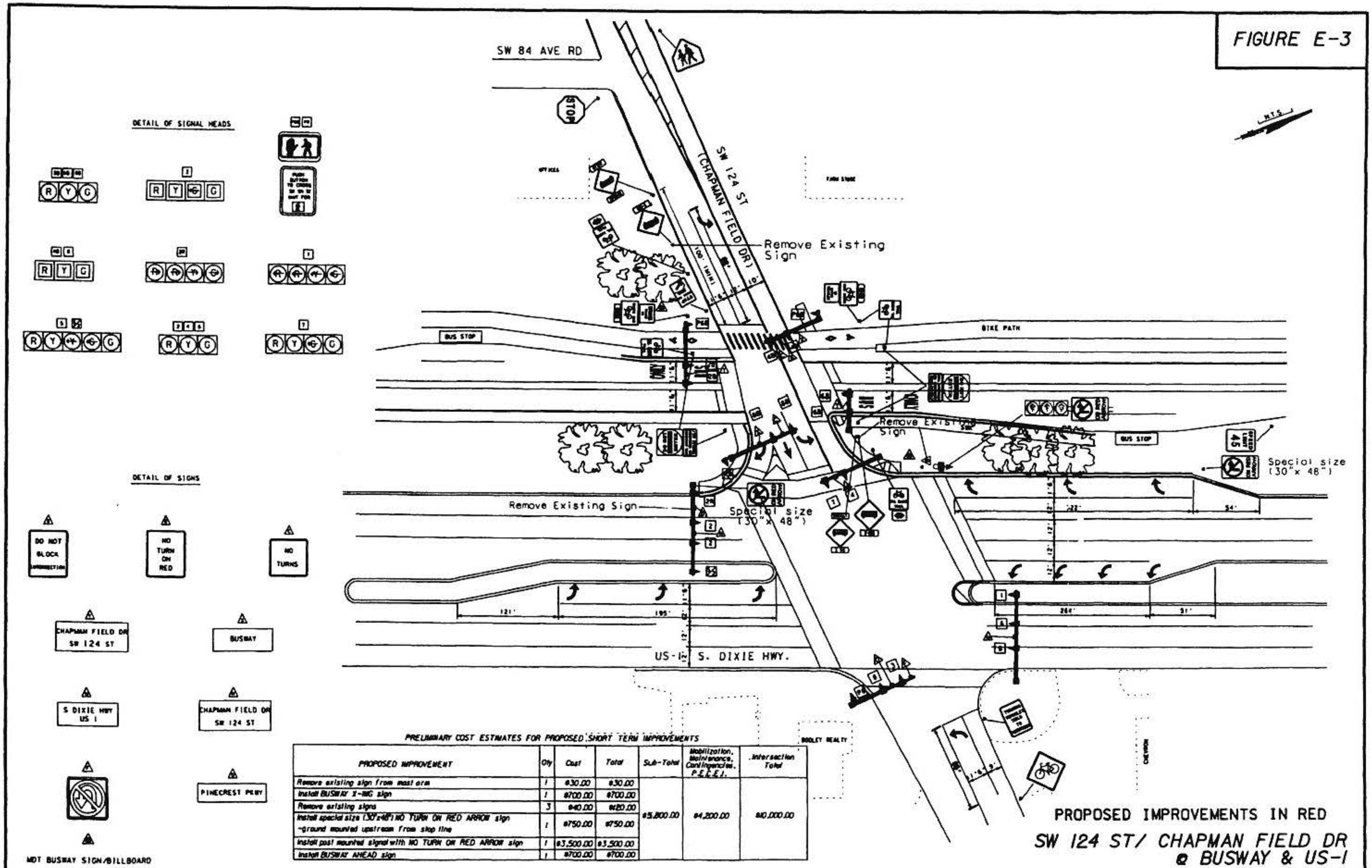
PROPOSED IMPROVEMENTS IN RED

SW 112 STREET/ KILLIAN DRIVE @ BUSWAY & US-1

| | |
|---|---|
| A.G. | 2/01 |
| W.G.H. | 2/01 |

R.ALEMAN & Associates, Inc.

CONDITION DIAGRAM




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

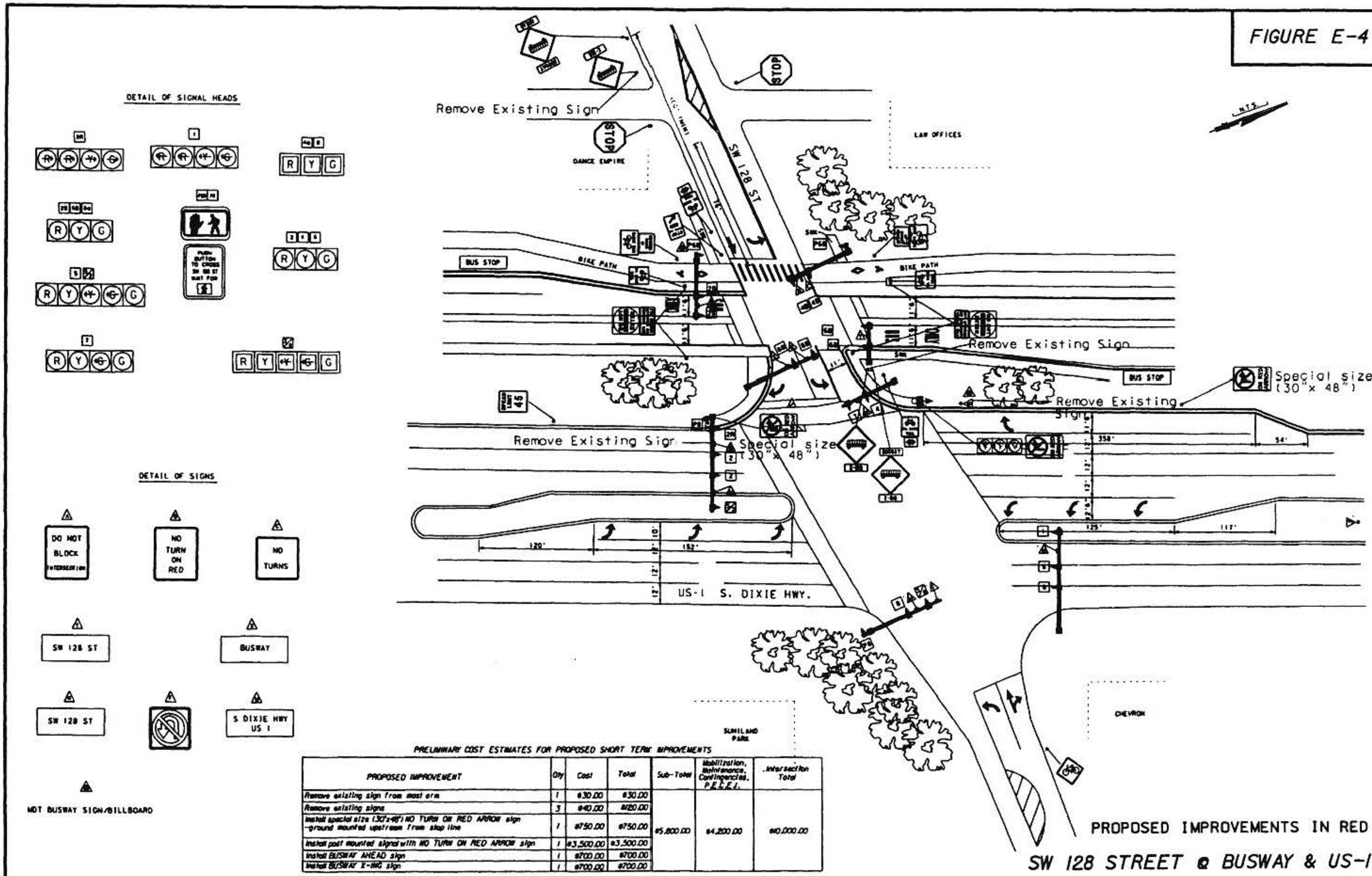
| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $5,800.00 | $4,200.00 | $10,000.00 |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Remove existing signs | 3 | $40.00 | $120.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |

| | NAME | DATE |
|---|---|---|
| | A.G. | 2/01 |
| | W.G.H. | 2/01 |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE E-4




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $5,800.00 | $4,200.00 | $10,000.00 |
| Remove existing signs | 3 | $40.00 | $120.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |

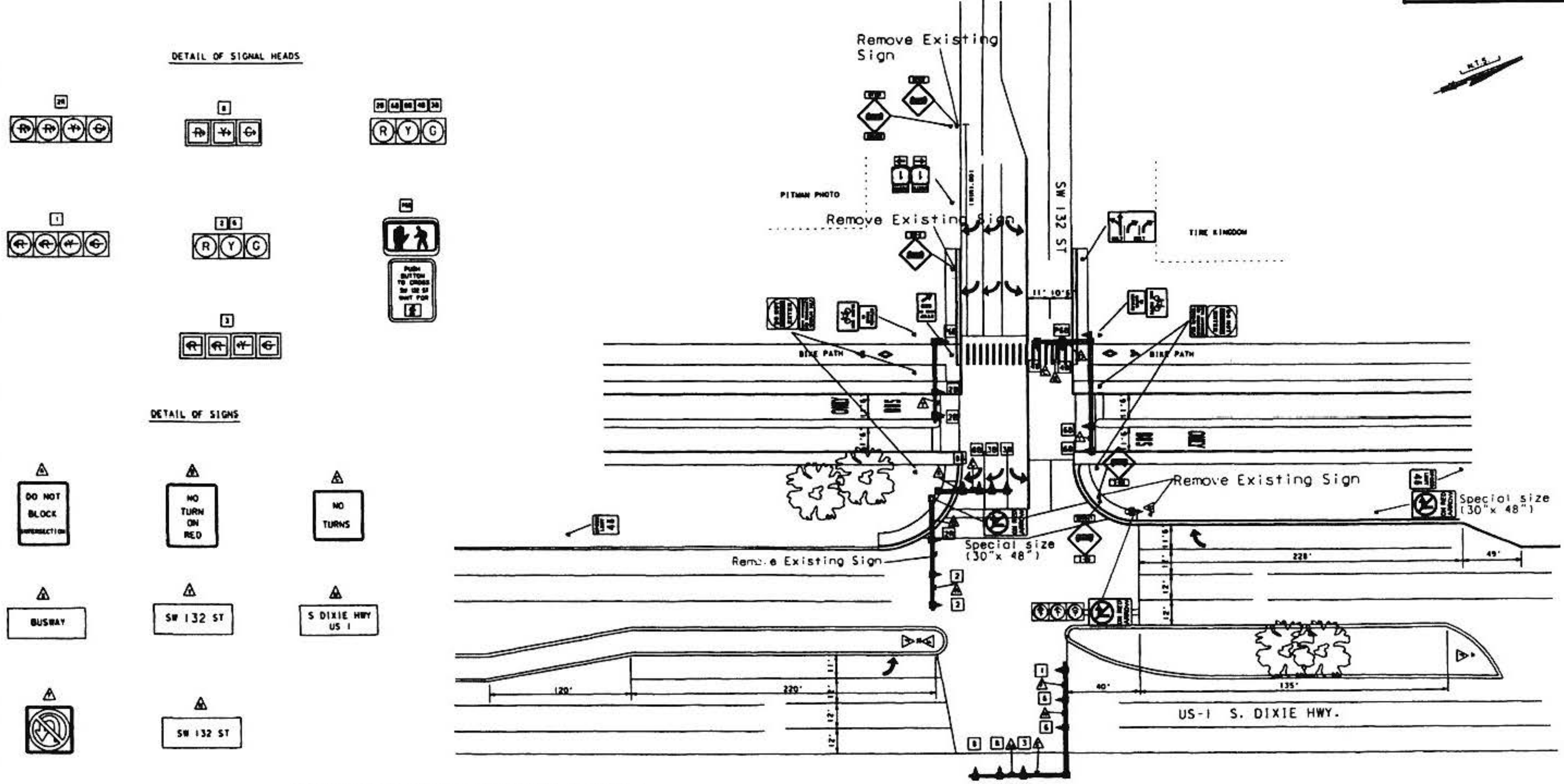
SW 128 STREET @ BUSWAY & US-1

A.G. 2/01
W.G.H. 2/01

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE E-5




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $5,800.00 | $4,200.00 | $10,000.00 |
| Remove existing signs | 3 | $40.00 | $120.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |

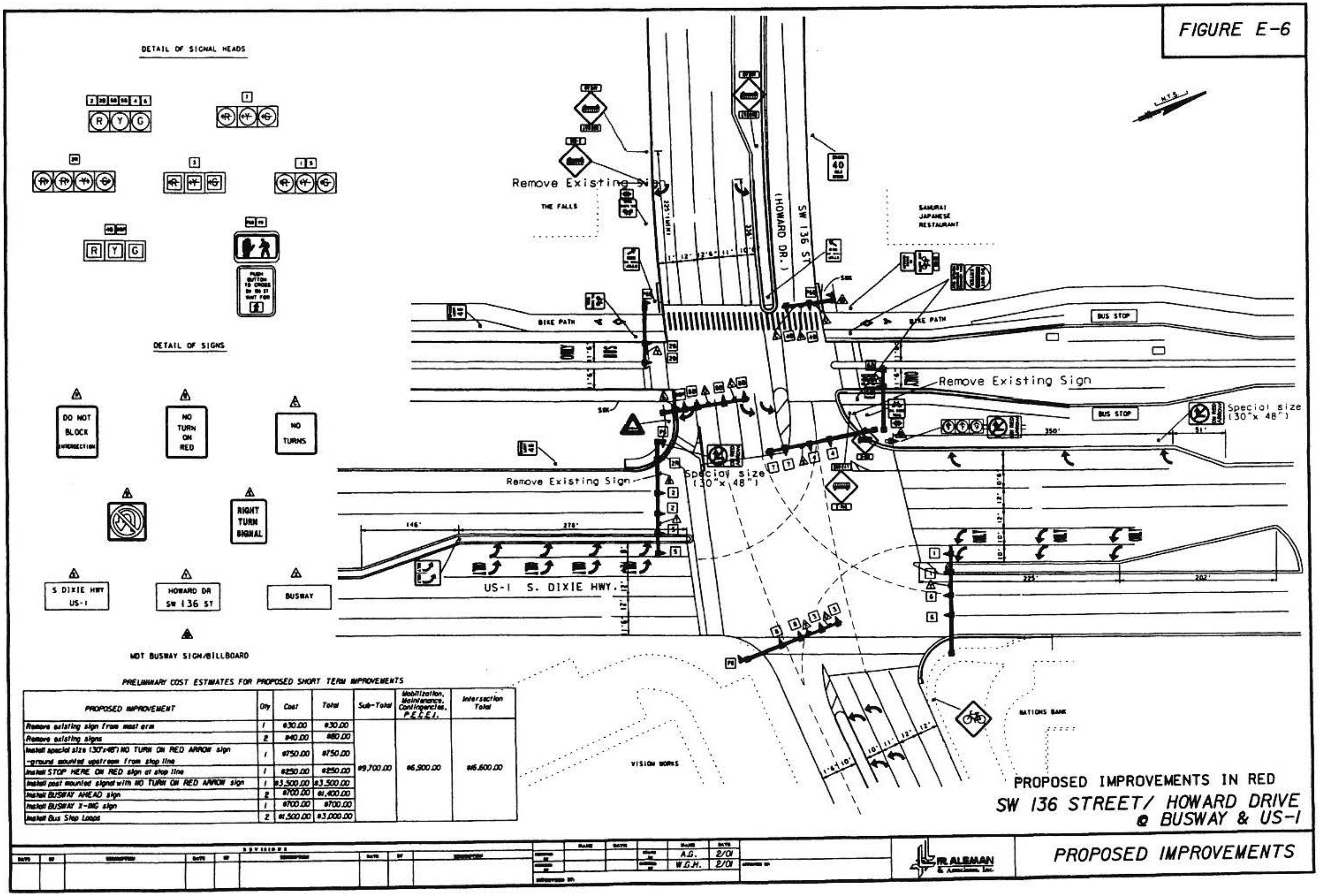
PROPOSED IMPROVEMENTS IN RED

SW 132 STREET @ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

R. ALEMAN & Associates, Inc.

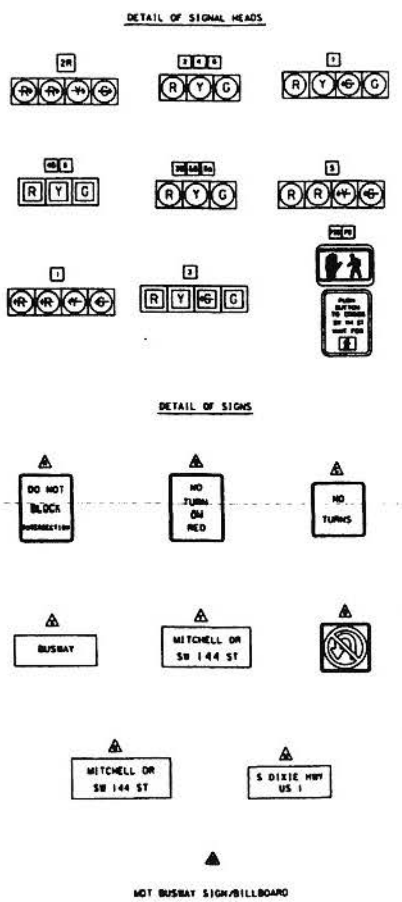
CONDITION DIAGRAM

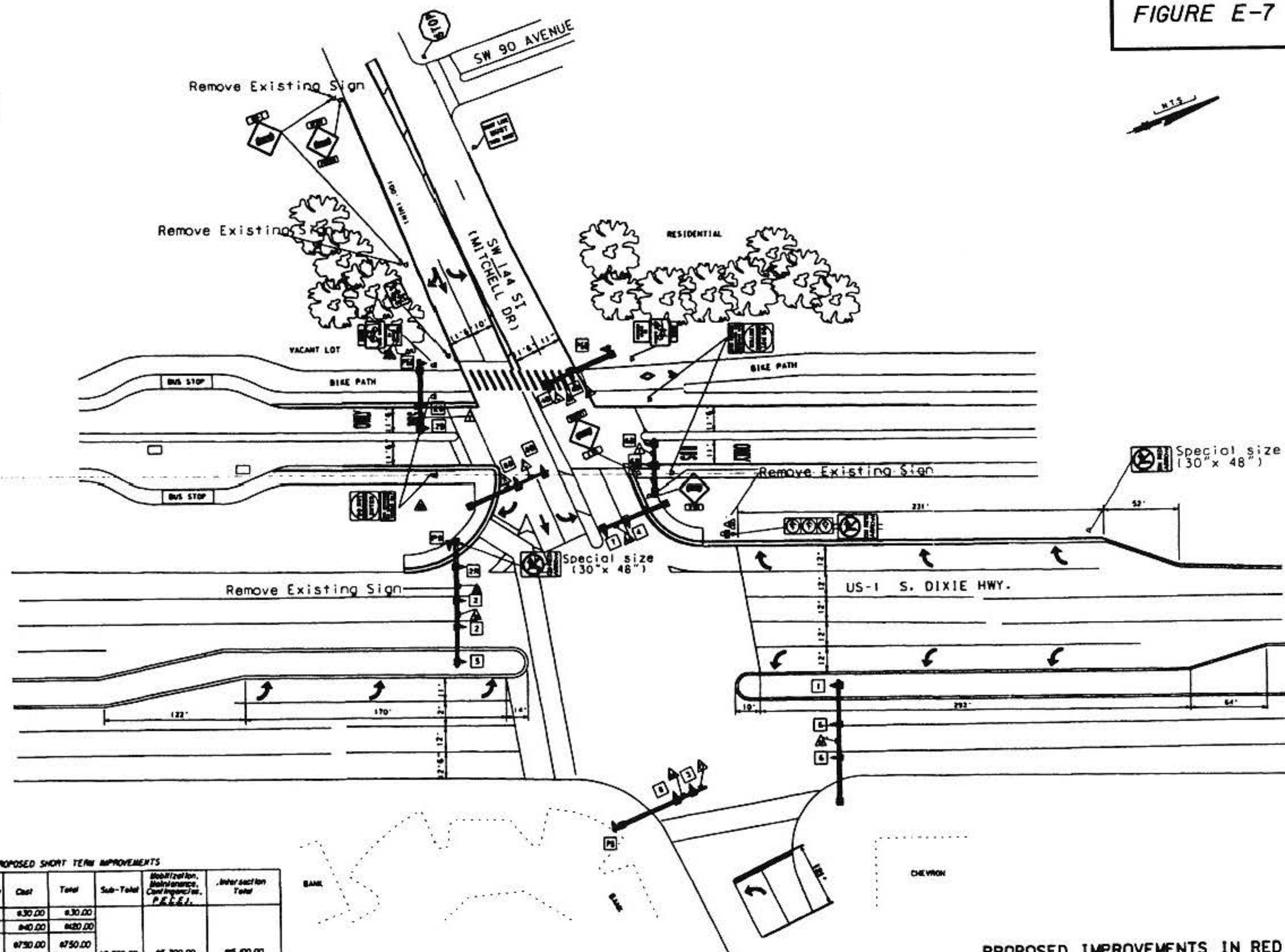



PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $9,700.00 | $6,900.00 | $16,600.00 |
| Remove existing signs | 2 | $40.00 | $80.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install STOP HERE ON RED sign at stop line | 1 | $250.00 | $250.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 2 | $700.00 | $1,400.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |

# FIGURE E-7




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $8,800.00 | $6,300.00 | $15,100.00 |
| Remove existing signs | 3 | $40.00 | $120.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |

PROPOSED IMPROVEMENTS IN RED

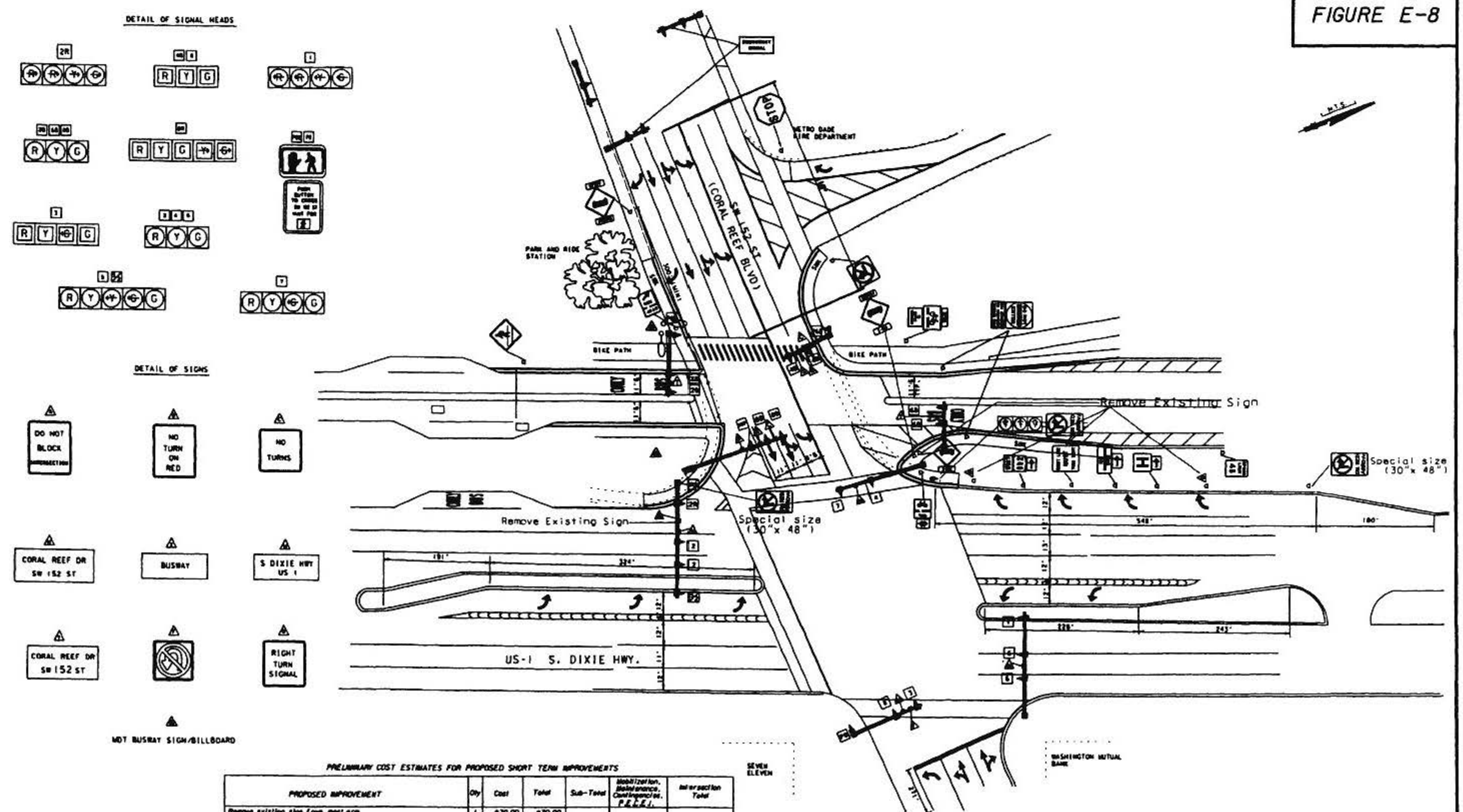
SW 144 STREET/ MITCHELL DR.
@ BUSWAY & US-1

| | NAME | DATE |
|---|---|---|
| | A.G. | 2/01 |
| | W.G.H. | 2/01 |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE E-8




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $9,100.00 | $6,500.00 | $15,600.00 |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Install STOP HERE ON RED sign at stop line | 1 | $250.00 | $250.00 | | | |
| Remove existing signs | 4 | $40.00 | $160.00 | | | |
| Install BUSWAY AHEAD sign | 1 | $700.00 | $700.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $1,500.00 | | | |

PROPOSED IMPROVEMENTS IN RED

SW 152 STREET/ CORAL REEF BLVD
@ BUSWAY & US-1

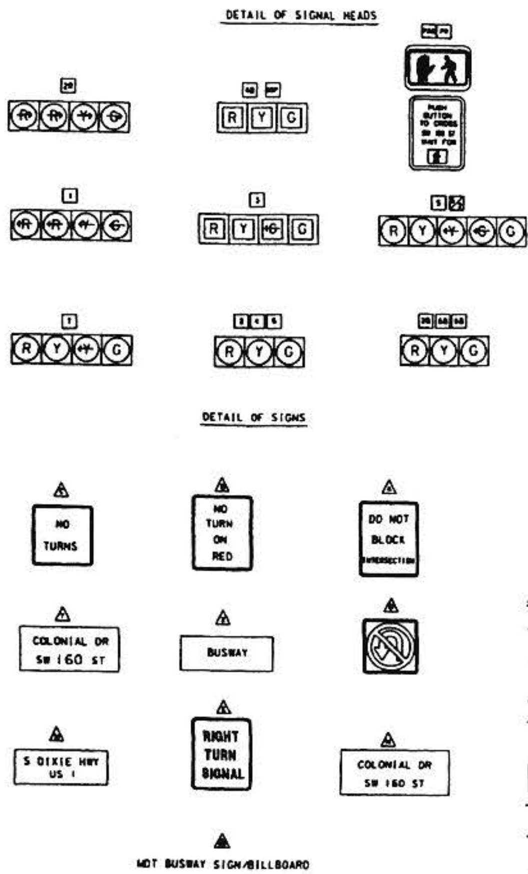
REVISIONS

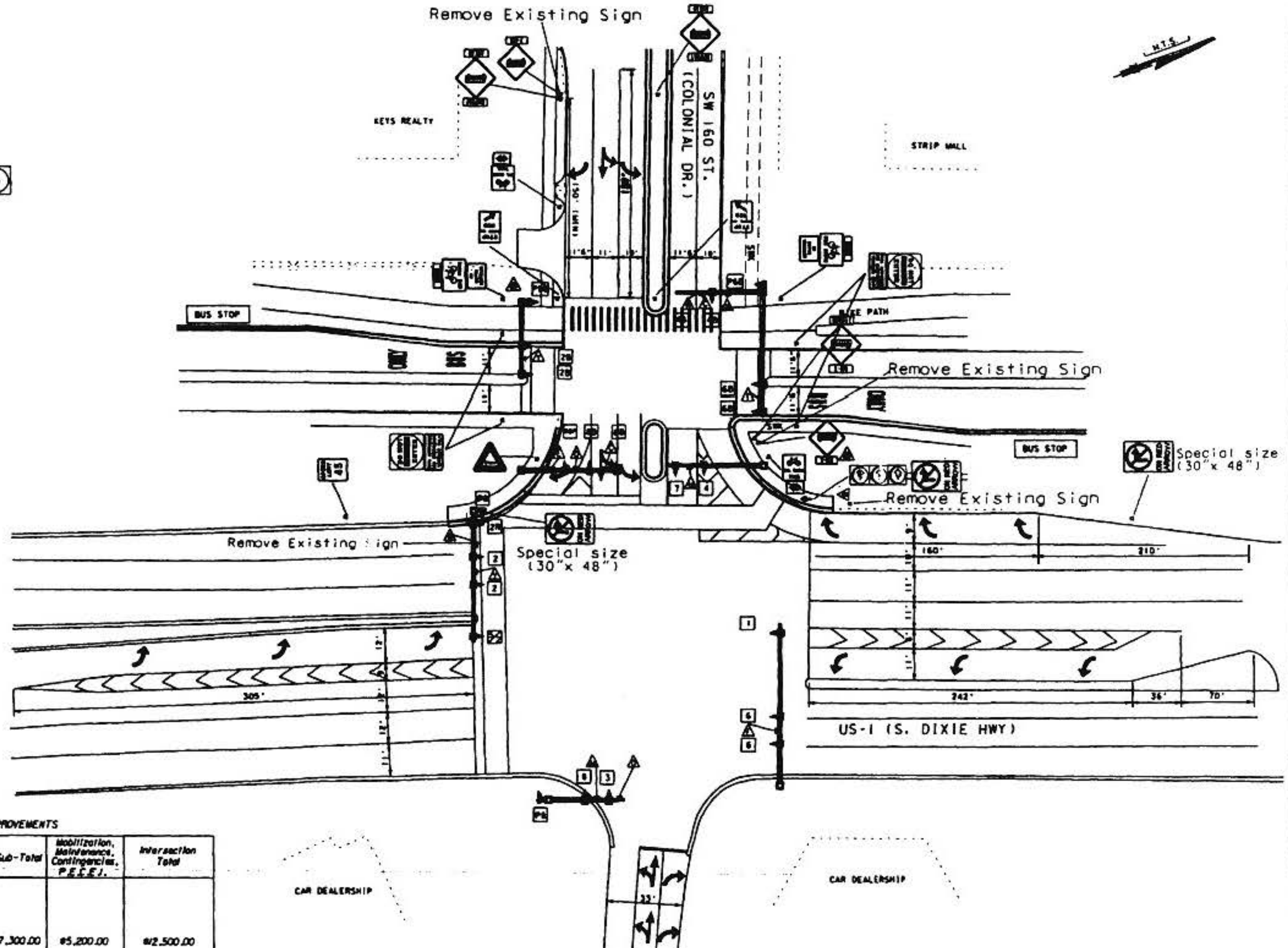
A.G. 2/01
W.G.H. 2/01

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

FIGURE E-9




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign from mast arm | 1 | $30.00 | $30.00 | $7,300.00 | $5,200.00 | $12,500.00 |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | $750.00 | $750.00 | | | |
| Install post mounted signal with NO TURN ON RED ARROW sign | 1 | $3,500.00 | $3,500.00 | | | |
| Remove existing signs | 3 | $40.00 | $120.00 | | | |
| Install STOP HERE ON RED sign -ground mounted at stop line | 1 | $750.00 | $750.00 | | | |
| Install BUSWAY AHEAD sign | 2 | $700.00 | $1,400.00 | | | |

PROPOSED IMPROVEMENTS IN RED

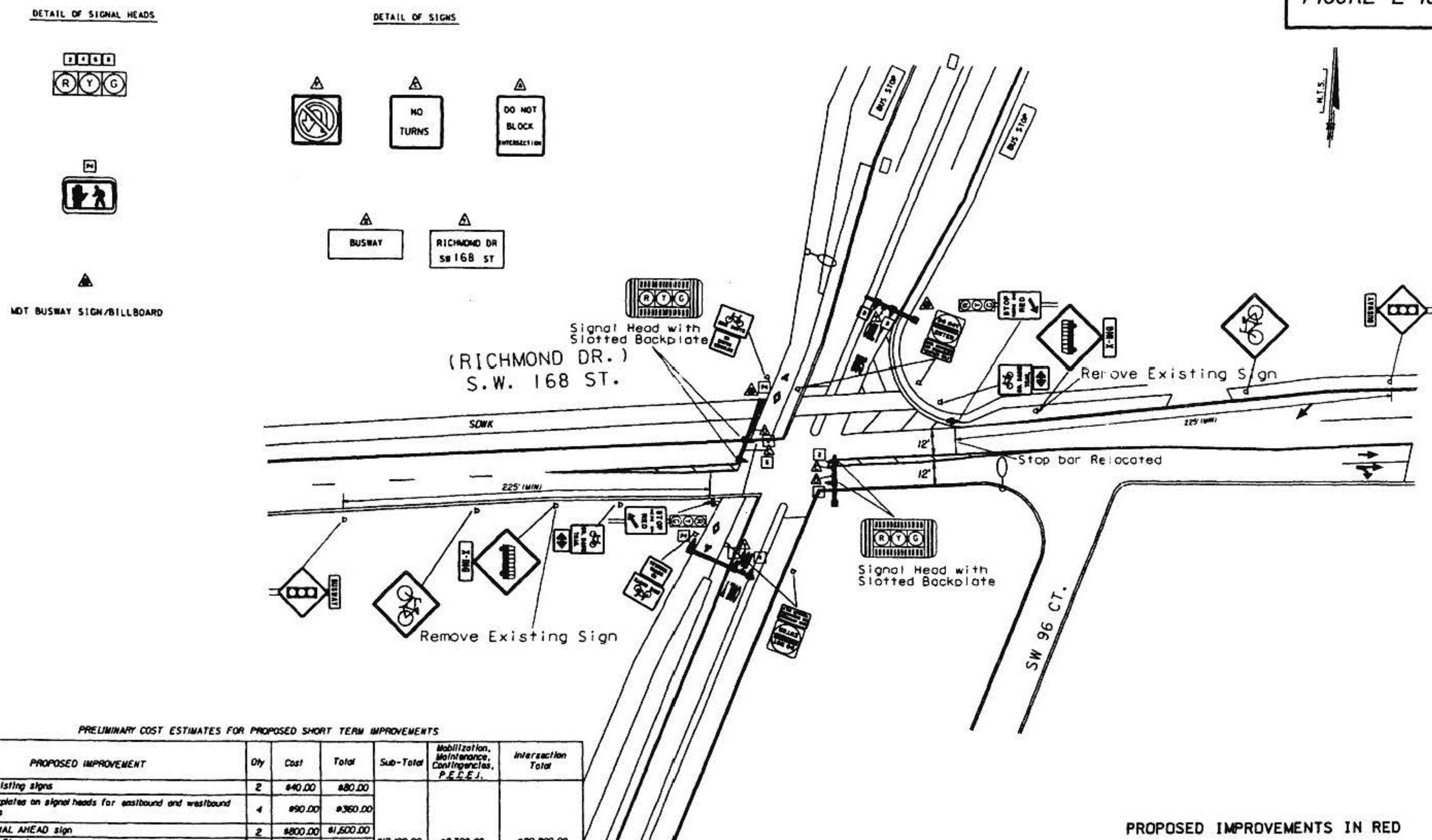
SW 160 STREET/ COLONIAL DR @ BUSWAY & US-1

A.G. 2/01
W.G.H. 2/01

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

# FIGURE E-10




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing signs | 2 | $40.00 | $80.00 | $12,100.00 | $8,700.00 | $20,800.00 |
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | | | |
| Install SIGNAL AHEAD sign | 2 | $800.00 | $1,600.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 2 | $3,500.00 | $7,000.00 | | | |
| Remove existing stop bar (per sq-ft) | 12 | $2.00 | $24.00 | | | |
| Install new 24" stoop bar (per LF) | 12 | $2.50 | $30.00 | | | |

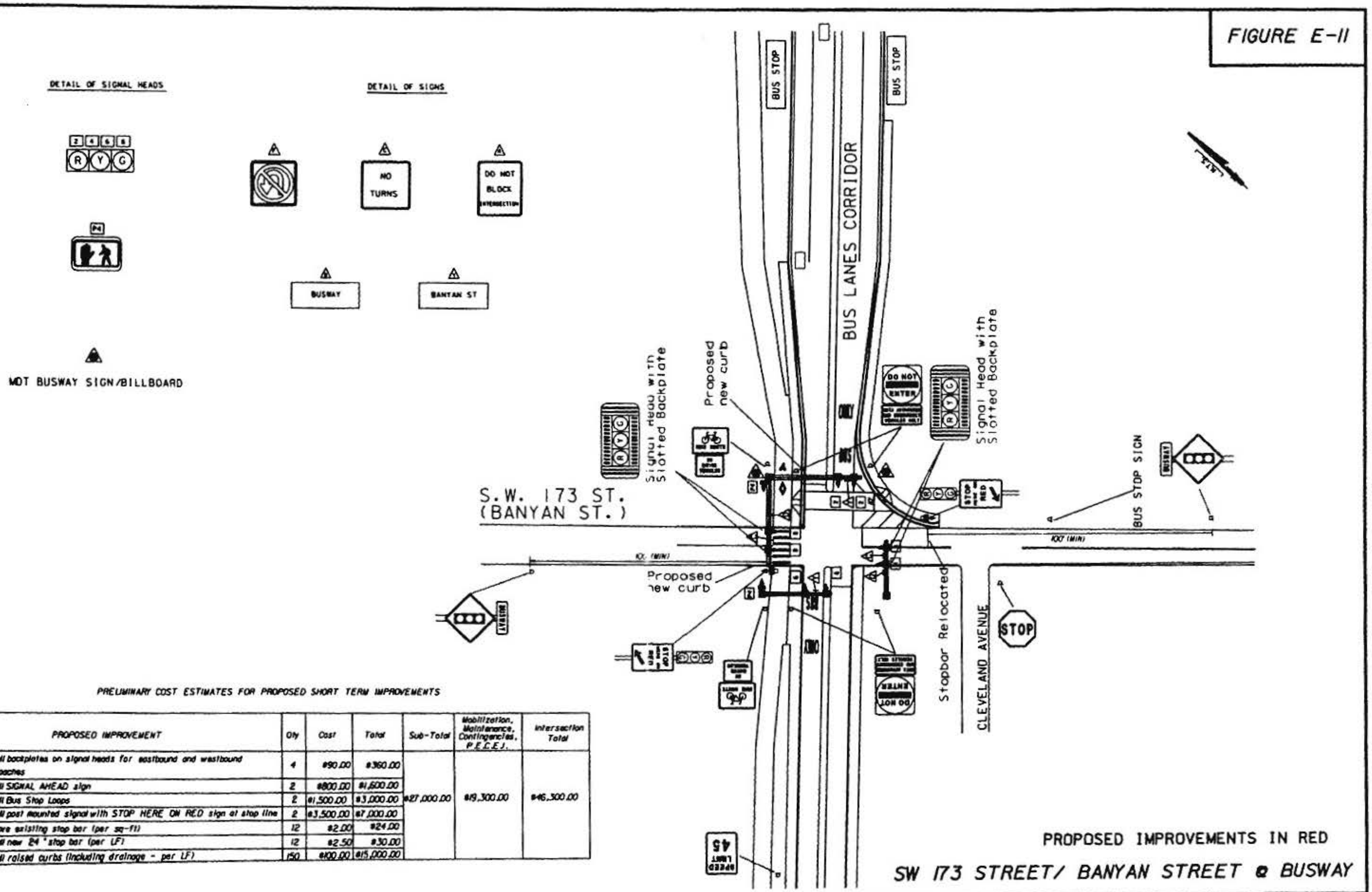
PROPOSED IMPROVEMENTS IN RED

SW 168 STREET/ RICHMOND DRIVE
@ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

R. ALEMAN & Associates, Inc.

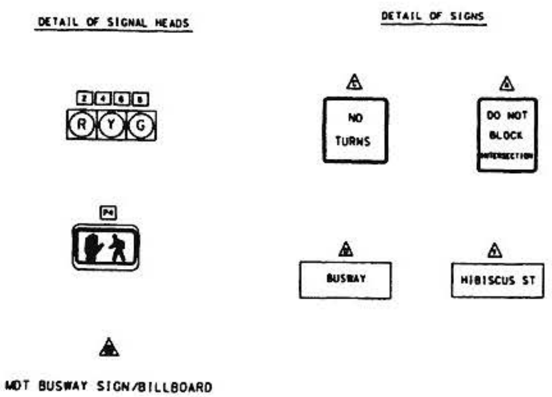
CONDITION DIAGRAM

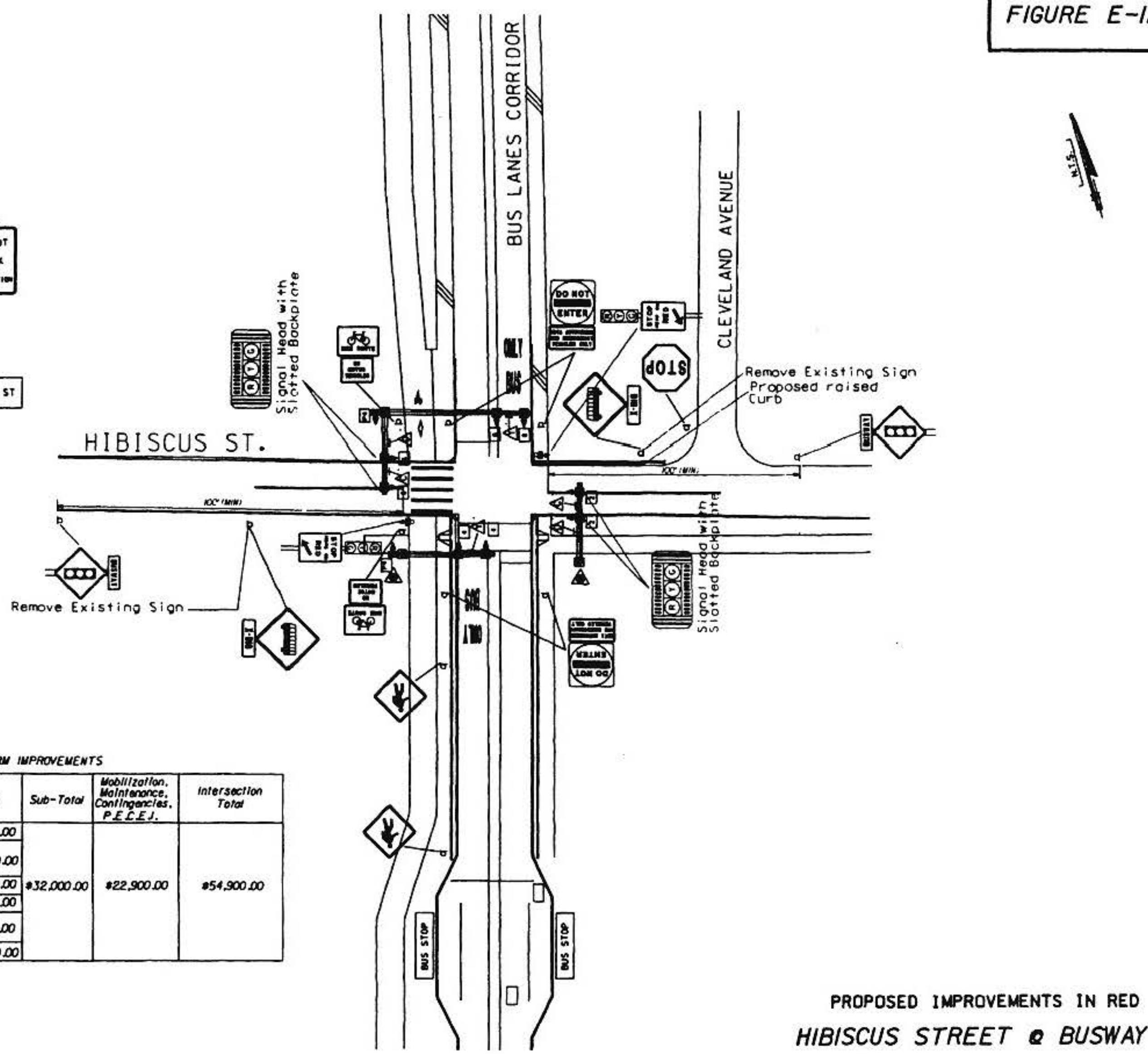



PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | $27,000.00 | $19,300.00 | $46,300.00 |
| Install SIGNAL AHEAD sign | 2 | $800.00 | $1,600.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 2 | $3,500.00 | $7,000.00 | | | |
| Remove existing stop bar (per sq-ft) | 12 | $2.00 | $24.00 | | | |
| Install new 24" stop bar (per LF) | 12 | $2.50 | $30.00 | | | |
| Install raised curbs (including drainage - per LF) | 150 | $100.00 | $15,000.00 | | | |

# FIGURE E-12




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing signs | 2 | $40.00 | $80.00 | $32,000.00 | $22,900.00 | $54,900.00 |
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | | | |
| Install SIGNAL AHEAD sign | 2 | $800.00 | $1,600.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 2 | $3,500.00 | $7,000.00 | | | |
| Install raised curbs (including drainage - per LF) | 200 | $100.00 | $20,000.00 | | | |

PROPOSED IMPROVEMENTS IN RED

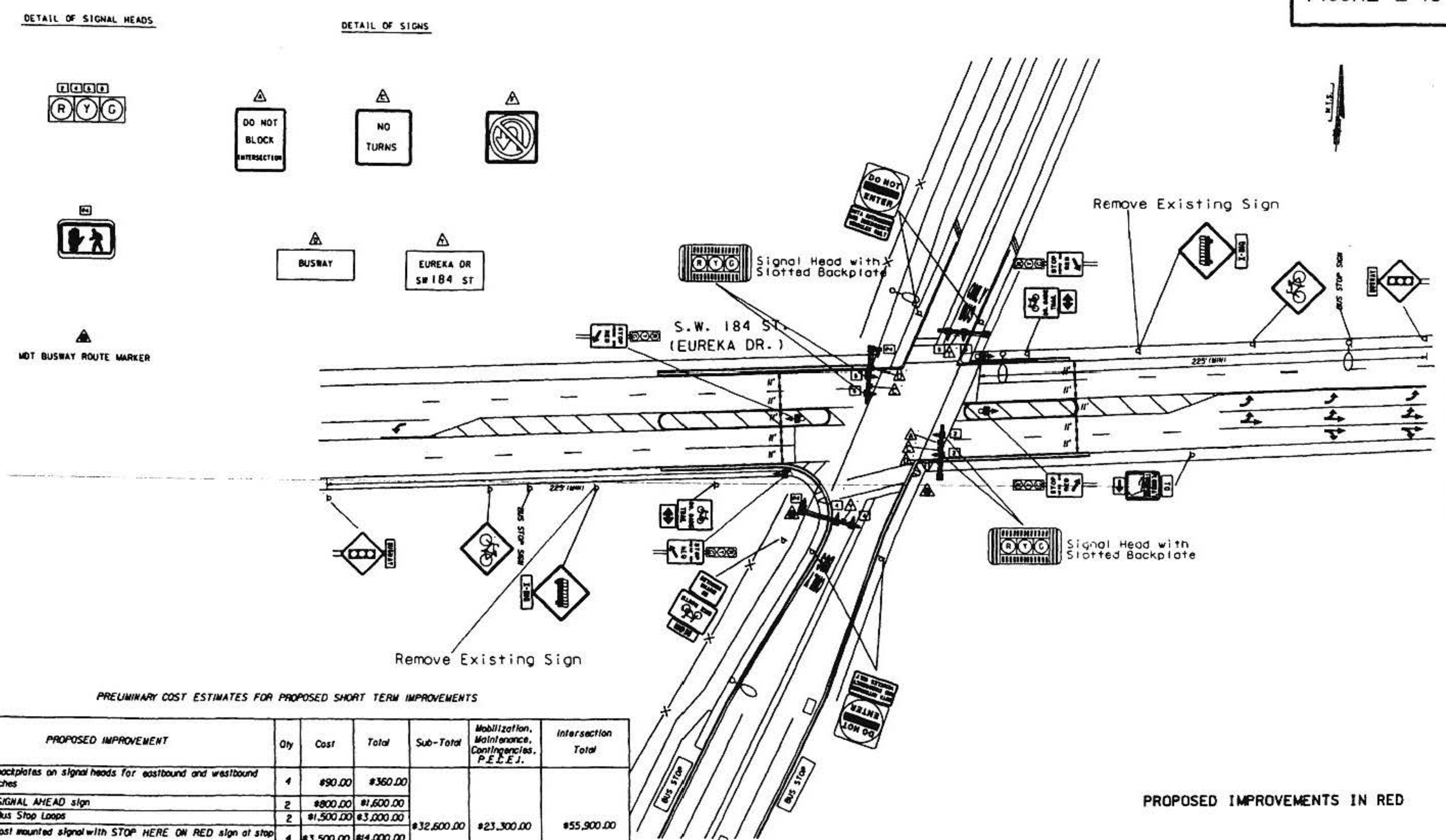
## HIBISCUS STREET @ BUSWAY

A.G. 5/01
W.G.H. 5/01

R.ALEMAN & Associates, Inc.

## CONDITION DIAGRAM

FIGURE E-13




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | $32,600.00 | $23,300.00 | $55,900.00 |
| Install SIGNAL AHEAD sign | 2 | $800.00 | $1,600.00 | | | |
| Install Bus Stop Loops | 2 | $1,500.00 | $3,000.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 4 | $3,500.00 | $14,000.00 | | | |
| Install raised curbs (including drainage - per LF) | 100 | $100.00 | $10,000.00 | | | |
| Install raised curbs along median (per LF) | 400 | $9.00 | $3,600.00 | | | |
| Remove existing sign | 2 | $40.00 | $80.00 | | | |

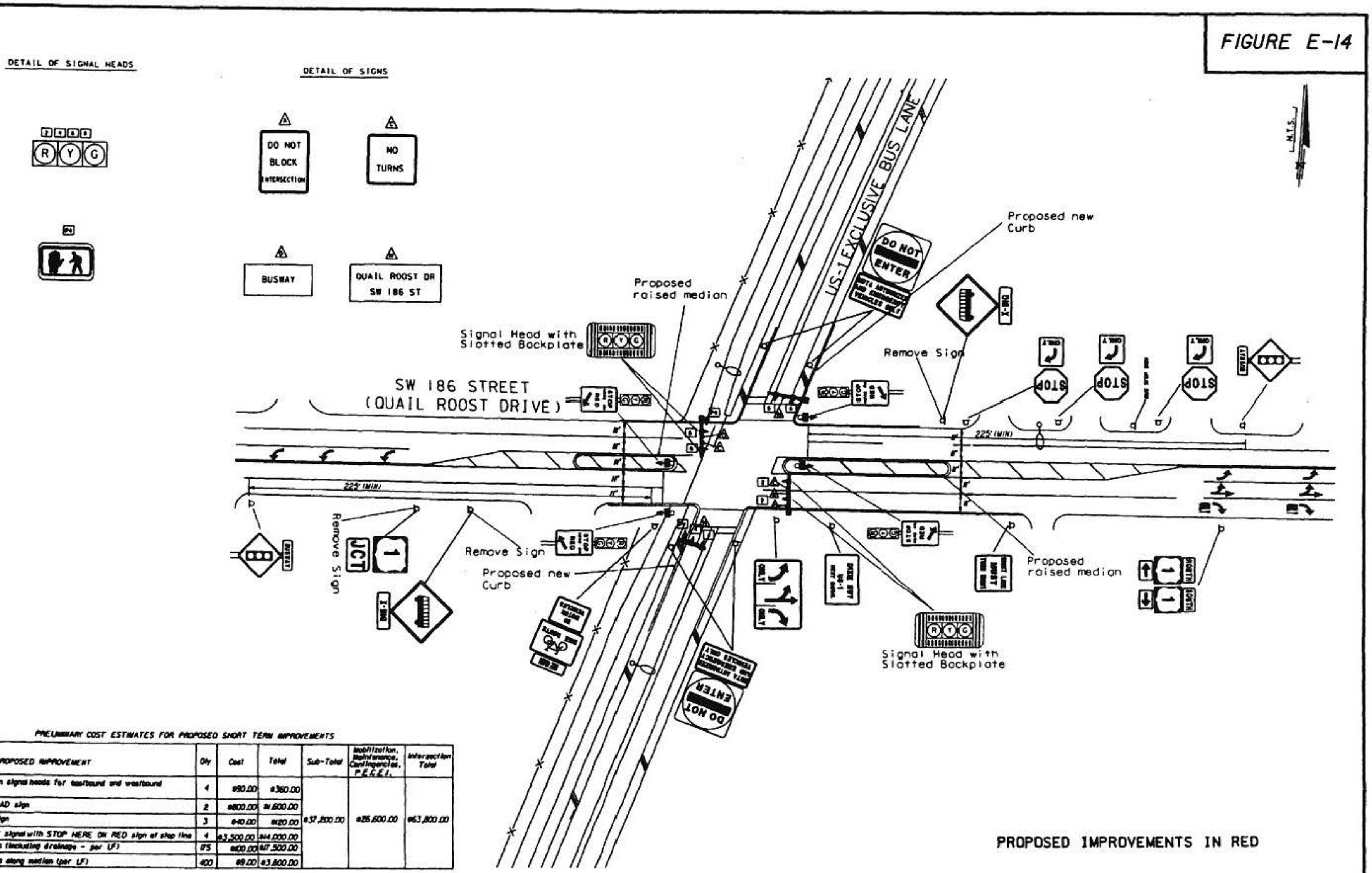
SW 184 STREET/ EUREKA DRIVE @ BUSWAY & US-1

A.G. 2/01
W.G.H. 2/01

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

## FIGURE E-14




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

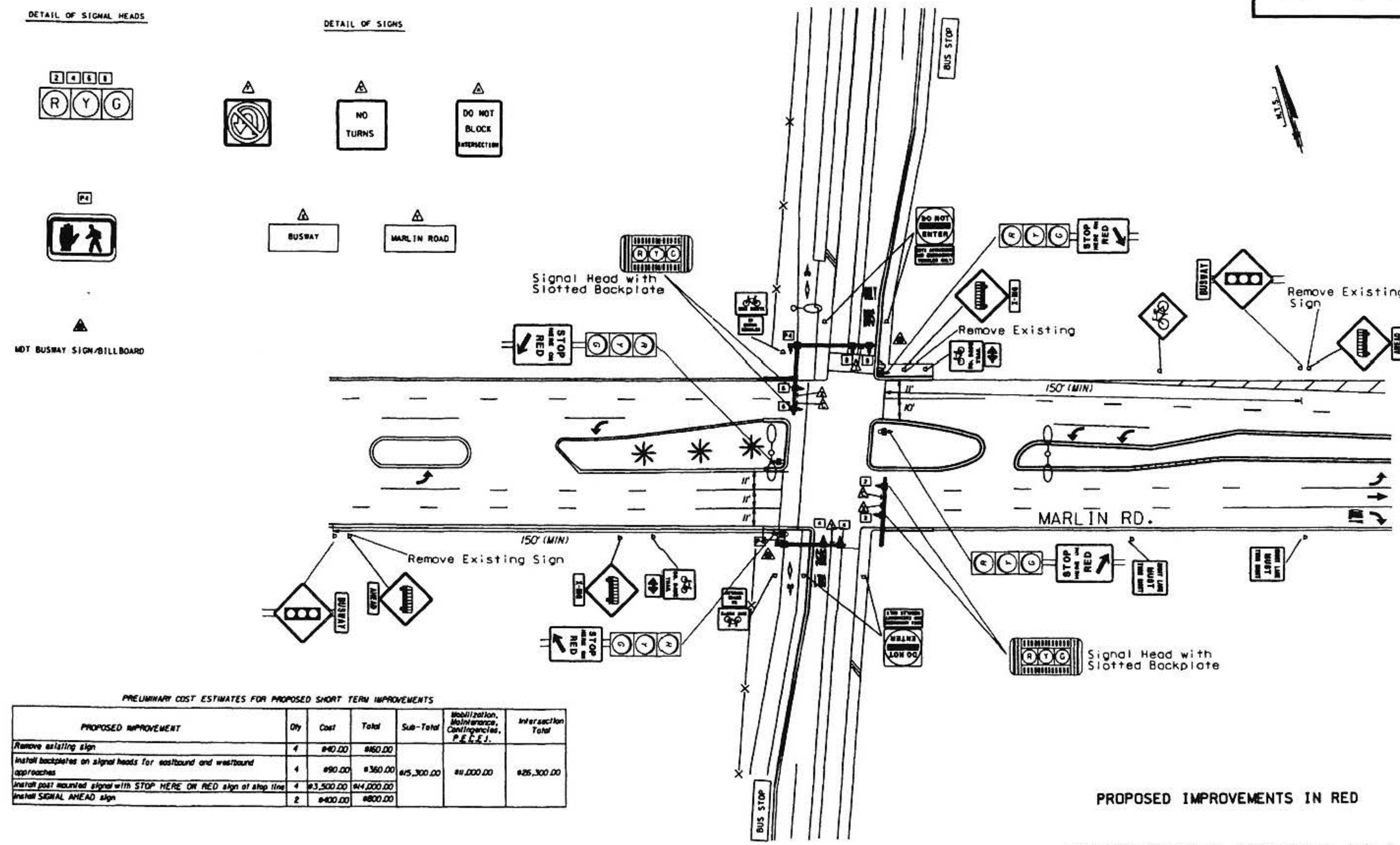
| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | $37,200.00 | $26,600.00 | $63,800.00 |
| Install SIGNAL AHEAD sign | 2 | $800.00 | $1,600.00 | | | |
| Remove existing sign | 3 | $40.00 | $120.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 4 | $3,500.00 | $14,000.00 | | | |
| Install raised curbs (including drainage - per LF) | 175 | $100.00 | $17,500.00 | | | |
| Install raised curbs along median (per LF) | 400 | $9.00 | $3,600.00 | | | |

PROPOSED IMPROVEMENTS IN RED

SW 186 STREET/ QUAIL ROOST DRIVE @ BUSWAY & US-1

| | | | |
|---|---|---|---|
| A.G. | 2/01 | R. ALEMAN & Associates, Inc. | CONDITION DIAGRAM |
| W.G.H. | 2/01 | | |

FIGURE E-15




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Remove existing sign | 4 | $40.00 | $160.00 | $15,300.00 | $11,000.00 | $26,300.00 |
| Install backplates on signal heads for eastbound and westbound approaches | 4 | $90.00 | $360.00 | | | |
| Install post mounted signal with STOP HERE ON RED sign at stop line | 4 | $3,500.00 | $14,000.00 | | | |
| Install SIGNAL AHEAD sign | 2 | $400.00 | $800.00 | | | |

PROPOSED IMPROVEMENTS IN RED

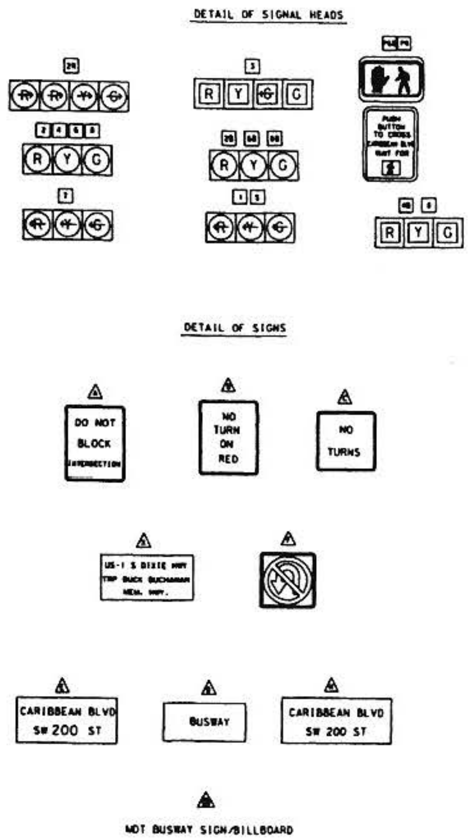
MARLIN ROAD @ BUSWAY & US-1

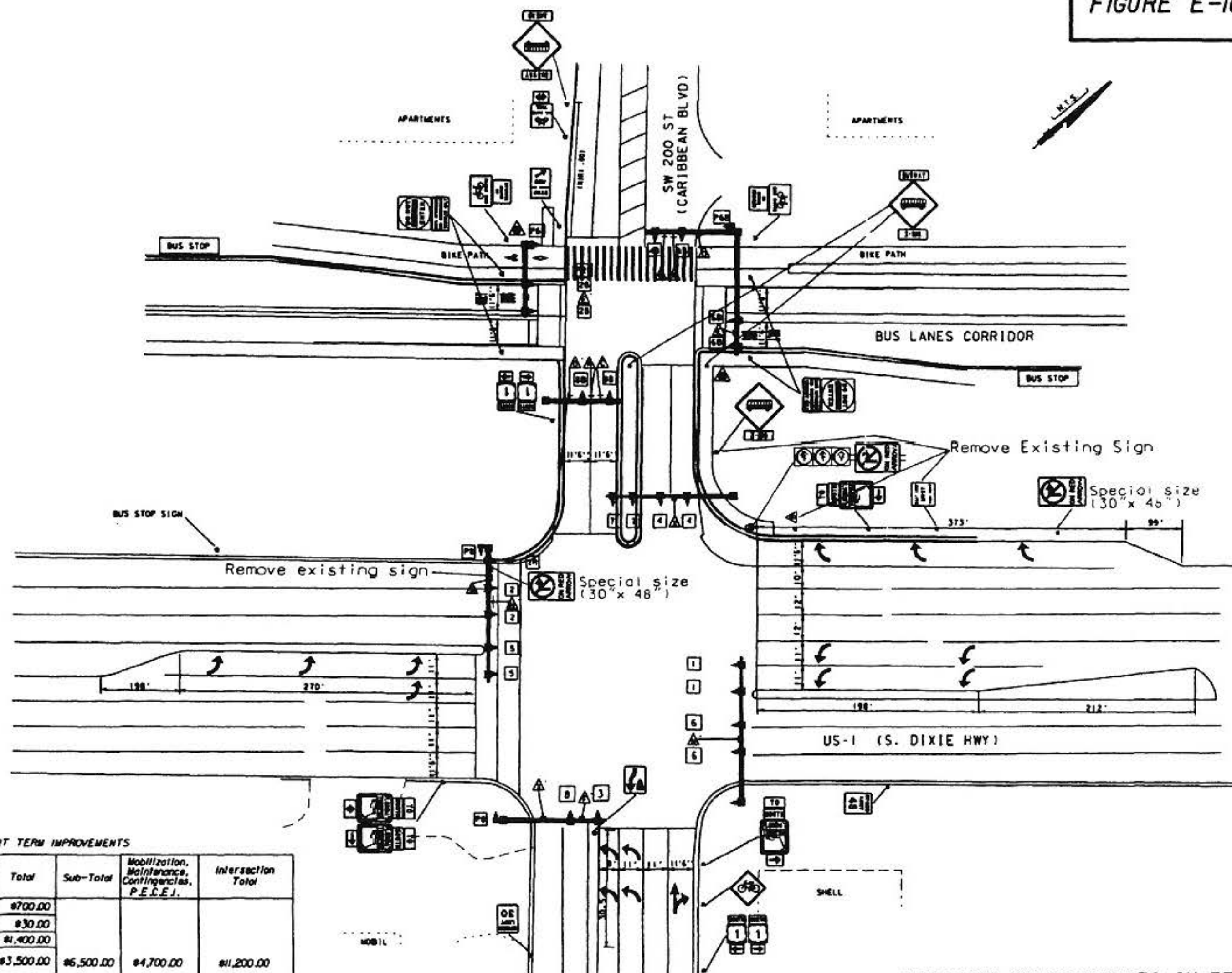
| DRAWN BY | A.G. | 2/01 |
|---|---|---|
| CHECKED BY | W.G.H. | 2/01 |

F.R. ALEMAN & Associates, Inc.

PROPOSED IMPROVEMENTS

FIGURE E-16




PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Install BUSWAY AHEAD sign | 1 | \$700.00 | \$700.00 | \$6,500.00 | \$4,700.00 | \$11,200.00 |
| Remove existing sign from mast arm | 1 | \$30.00 | \$30.00 | | | |
| Install BUSWAY X-ING sign | 2 | \$700.00 | \$1,400.00 | | | |
| Install post mounted signal with NO TURN ON RED sign at stop line | 1 | \$3,500.00 | \$3,500.00 | | | |
| Install special size (30"x48") NO TURN ON RED ARROW sign -ground mounted upstream from stop line | 1 | \$750.00 | \$750.00 | | | |
| Remove existing sign | 3 | \$40.00 | \$120.00 | | | |

PROPOSED IMPROVEMENTS IN RED

SW 200 STREET/ CARIBBEAN BLVD @ BUSWAY & US-1

| | | | |
|---|---|---|---|
| A.G. | 2/01 | | |
| W.G.H. | 2/01 | | |

R. ALEMAN & Associates, Inc.

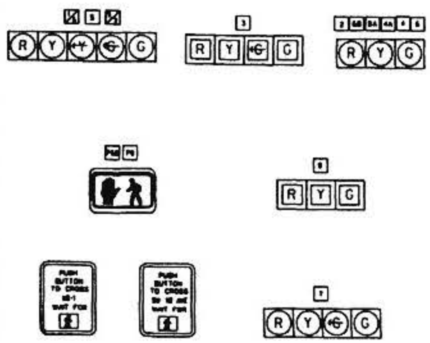
CONDITION DIAGRAM

FIGURE E-17

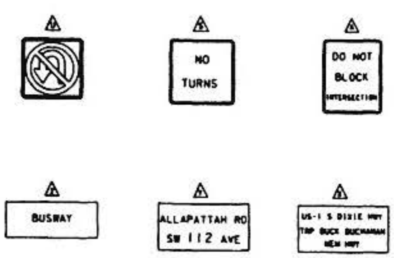
PRELIMINARY COST ESTIMATES FOR PROPOSED SHORT TERM IMPROVEMENTS

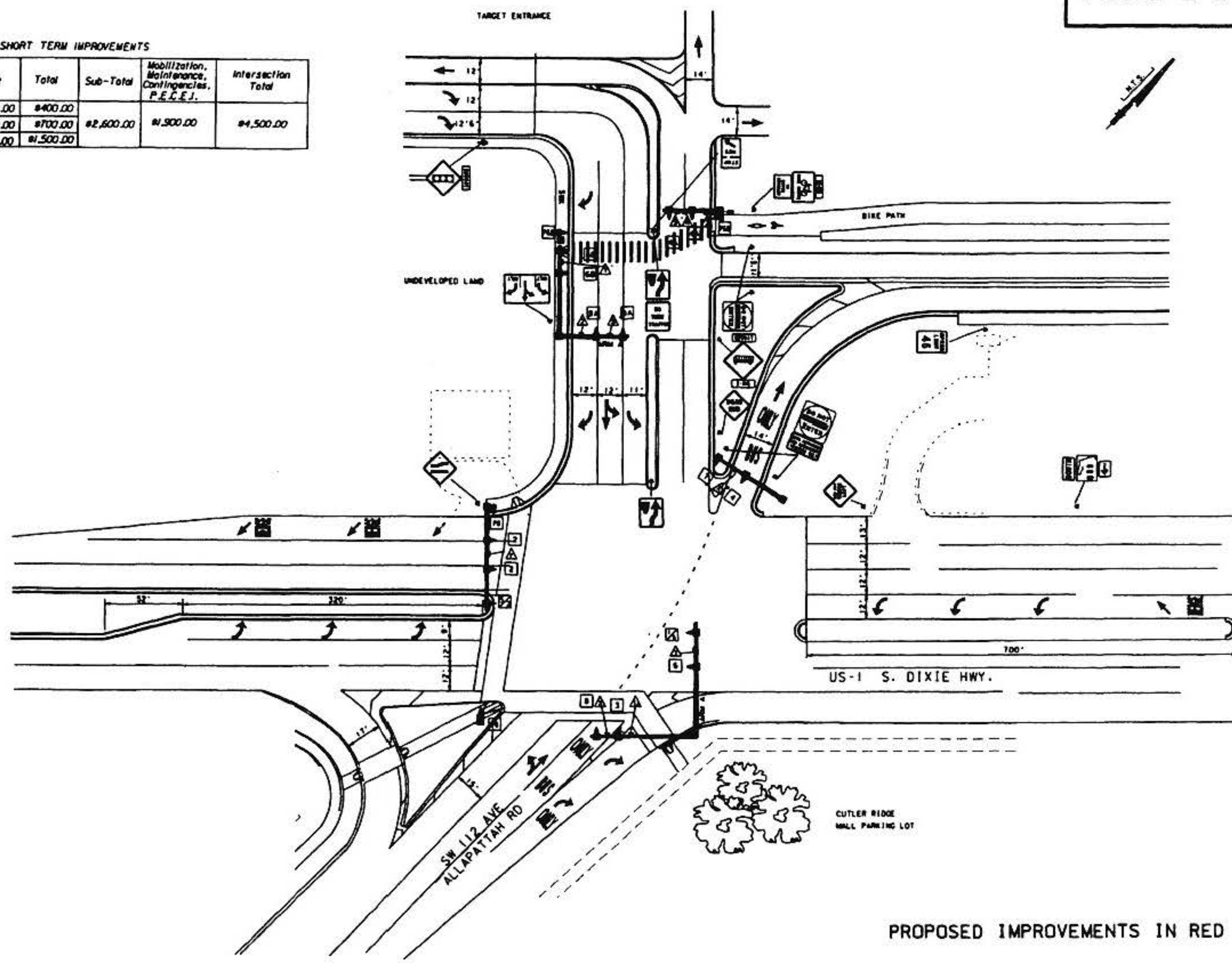
| PROPOSED IMPROVEMENT | Qty | Cost | Total | Sub-Total | Mobilization, Maintenance, Contingencies, P.E.C.E.I. | Intersection Total |
|---|---|---|---|---|---|---|
| Install SIGNAL AHEAD sign | 1 | $400.00 | $400.00 | $2,600.00 | $1,900.00 | $4,500.00 |
| Install BUSWAY X-ING sign | 1 | $700.00 | $700.00 | | | |
| Install STOP HERE ON RED sign -ground mounted at stop line | 2 | $750.00 | $1,500.00 | | | |

DETAIL OF SIGNAL HEADS




DETAIL OF SIGNS




PROPOSED IMPROVEMENTS IN RED

SW 112 AVENUE/ ALLAPATTAH RD @ BUSWAY & US-1

| | | |
|---|---|---|
| A.G. | 2/01 | |
| W.G.H. | 2/01 | |

R. ALEMAN & Associates, Inc.

CONDITION DIAGRAM

# APPENDIX F

# REVIEWERS COMMENTS AND RESPONSES

# LIST OF REVIEWERS

| NAME | COMPANY/AGENCY |
|---|---|
| Isabel Padron | MDT |
| F. Lyle Mannion | MDT |
| Lee Vega | MDT |
| David Flalkoff | MDT |
| Muhammed Hasan | Miami-Dade PWD |
| Robert Williams | Miami-Dade PWD |
| Fred Badrampour | Miami-Dade PWD |
| Carlos M. Cejas | Gannett Fleming |
| Oscar Gonzalez | DMJM |
| Philip Tokich | DMJM |
| Winston Harris | FRA |
| Arthur Cushnie | FRA |

(1) why order above different
than order following dec's?
(2) why J.G. not listed on list?

## P[illegible]on, Isabel (MDT)

| | |
|---|---|
| F[illegible] | Fialkoff, David R. (MDT) |
| Sent: | Wednesday, April 04, 2001 12:51 PM |
| To: | Padron, Isabel (MDT) |
| Cc: | Pearsall, Robert (MDT); Morejon, Rafael (MDT) |
| Subject: | Busway Accident Draft Report |

General comments:

My comments are based on operational and planning considerations and usually do not deal with traffic engineering issues.

Who authored this report? I presume DMJM.

We are having a consultant (PMG) conduct a market research of drivers and residents in the Busway corridor. We are reviewing the draft final report. I suspect that there will be conclusions that will support some of the recommendations in the DMJM report.

The recommendations and non-recommendations should be grouped and put into priority order.

There are a lot of recommendations that do not seem to have a techical basis.

Detailed comments:

On page 4, there is a hand-written commnet "contact DF". I presume that the writer is asking for my comment on the issue of travel time on the Busway. We have done some data collection and CUTR is completing a study that will provide a [illegible]nplete set of run times. In the mean time, we have added some run time for the April 15 line-up to help the on-time pe[illegible]rmance of Busway trips.

Bus stations on the operating section of the Busway were designed from two aspects: far side stations (called downstream stops in the report) were favored because of the general consideration from the MUTCD that far side bus stops are safer. There are exceptions:

- Some stops are near side because buses are turning on or off the Busway;
- At 152 Street, both stations are on the south side of the cross street because of the conservation area to the north; and
- At 136 Street, both stations are on the north side of the cross street because Bloomingdales did not want the station adjacent to the parking structure for their patrons.

On the Busway extension, stations are located generally near side to reduce the travel distance to the cross street, a significant issue for handicapped riders. The exceptions are because of physical limitations and access to a proposed park-ride lot.

I did not see any recommendation that includes a yellow light with a sign: "Be prepared to stop with yellow light is flashing".

Was any consideration given to a sign: "No (right) turn on red arrow". That was a suggestion I heard at a meeting the week after the 112 Street accident occurred.

*David R. Fialkoff, P.E.*
Chief, Service and Mobility Planning
Miami-Dade Transit
305-637-3740

# Padron, Isabel (MDT)

**From:** Williams, Robert (PWD)
**Sent:** Wednesday, April 18, 2001 4:18 PM
**To:** Padron, Isabel (MDT)
**Cc:** Badrampour, Ferydoun (PWD); Hasan, Muhammed, (PWD)
**Subject:** Our Review of your Miami-Dade Busway Safety Study

This appears to be a well presented and very thorough draft report. Nonetheless, we have a number of comments:

1. Add a date and author to the title page.

2. On pg. 1, address the possibility that the relatively low (.244 crashes / MEV) found at the Busway intersections adjacent to US-1 supports the immediate reactivation of the upstream Bus detection loops.

3. At the top of pg. 2, fix the tab on item 5.

4. In the middle pp on pg. 2, change "29.42 crashes per year" and "4.29 crashes per year" to "___ crashes / MEV" to be consistent with the rest of the analysis and enable comparisons.

5. Pg. 3 has three uses of the term "FRA". I suspect they should say "FRAAA", as Frank Aleman once advised that "FRA" is his initials and "FRAAA" is his firm's acronym.

6. The *shocking top pp. of pg. 3* indicates that the Crash Countermeasures presented in the rest of the report should include one for increased police enforcement.

7. State in the top pp of pg. 3 whether the 12.6% of motorists who violate the SB "NoRTOR" sign on US-1 proceed to also violate the WBR display at the Busway.

8. Consider adding a 3rd reason below the top pp on pg. 3: "Drivers deliberately disregard controls with which they disagree."

9. The thorough list of Crash Countermeasures (hereinafter referred to as CC) presented on pgs. 3 - 11 is impressive, but leeds some semblance of order. Please categorize them into groups such as those which address the SBRT movement from US-1 at closely spaced intersections v. those which address the EW approaches to the Busway distant from US-1. The short term, medium term, and long term solutions could each also be presented separately.

10. In CC 3, note that we turned off the upstream loops when the Busway was new to prevent the signal from cycling for busses which stop in upstream bus stops.

11. Re. CC 6, using backplates on EW mastarm-mounted signals would be a policy change that needs to be addressed by Co. mgt. due to the disadvantages of them during wind storms.

12. Useful cost estimates for some of the CCs is provided. Such information should be provided for every one of them. Additionally, a recommendation re. who would be responsible for installing and maintaining the CCs should be added.

13. Consider deleting CCs such as 14 and 15, which are already in place.

14. Cost estimate for CC 20 seems high.

15. Re. CC 22, "RL must turn R" signs should not be used for turn bays, but should be used for trap RT lanes. Which types of locations are referred to herein?

16. CC 24 seems to overlap or duplicates CC 9.

17. CC 26 seems to overlap CC 10.

18. Delete "an" from line 1 of CC 28.

19. Re. CC 28, specify which side street approaches would be applicable. Also, note that the small horizontal curves which would result from short center median installations would probably assist to bring the drivers' attentions to the

existence of the intersection.

. CC 32 overlaps CC 28.

CCs 34 & 36 have grammar errors.

22. CCs 35 & 36 seem to overlap each other.

23. A table summarizing all the CCs including costs and applicability to various problems needs to be added to the report.

24. Add Figure Nos. in the upper R corners.

25. Specify if the proposed improvements shown in the figures are short, medium, and/or long term.

*Robert B. Williams, P.E.*
Traffic Control Center Eng.
Miami-Dade Public Works
rbw@co.miami-dade.fl.us
305-592-8925*247

ad-on, Isabel (MDT)

| | |
|---|---|
| 'c | Williams, Robert (PWD) |
| ent: | Monday, May 21, 2001 12:11 PM |
| ): | Padron, Isabel (MDT) |
| c: | Ferydoun Badrampour (E-mail) |
| ubject: | Busway Safety Study Review & Comments |

hanks for sending the referenced report to us for review. Following are comments:

. This report is thorough, nicely organized, and well presented.

. Check the organization of the Executive Summary on pgs i - iii and the Conclusion on pgs. 41 & 2. Numbered Items fall into three different categories, probably unintentionally. For example, rash Countermeasures should be numbered 1 - 3, not 8 - 10.

) If accurate, the 12.5% SBRT red signal violation rate reported on pg. ii is incredible. MDPD hould be immediately brought in to straighten out the drivers' behavior, and this recommendation hould be made in the report.

. Each of the short term crash countermeasures listed need a little additional detail describing 'here each countermeasure would go and what direction it would face.

. Consider making the last short term crash countermeasure a medium term countermeasure.

. , recommended, we are ready to re-activate the upstream loops at the adjacent intersection ε )as soon as requested by MDTA.

. We concur with the recommendation to return the upstream loops to operational status at the ;olated intersections on a gradual and control-testing basis.

. In the list on pg. 1, the S 104 St. intersection is missing.

. In Section 2.2 on pg. 3, delete "SW 98 St." from the first list and add SW 168 St. to the second st.

. I didn't take the time to study all of the optional countermeasures at this review, but our Traffic ,ignal Operations Engineer for the area, Fred Badrampour, did and favors the following ecommendations as being the most likely to work: 1-3, 7~~8~~9, 16, 28, 33, & 34.

.et us know when the presentation is scheduled.

?obert B. Williams, P.E.
raffic Control Center Eng.
/iami-Dade Public Works
bw@co.miami-dade.fl.us
05-592-8925*247
ax-305-592-0364

**Comments form Muhammed Hassan – Miami-Dade PWD, 6/29/01**

Comment 1: Various Comments of Report Organization.

Comment 2: Crash Patterns – Same for US 1?

Comment 3: Crash Countermeasures – Removal of unnecessary RIGHT LANE MUST TURN RIGHT signs. These are regulatory signs.

Comment 4: Crash Countermeasures – It is further recommended that the advanced loop detectors be reactivated at the US1/Busway intersections. – Contradicts #5.

Comment 5: Table 1 – Show all signs. Specify what the signs are.

Comment 6: Table 5 – Show time span for Crash Summary.

Comment 7: Table 7 – Install special size (36" x 48") NO TURN ON RED sign. Disagree.

Comment 8: Table 7 – Install grade separated intersection. Not practical.

Comment 9: Figure E-1 – Post mounted right turn signal. Must be actuated by Busway Signal.

Comment 10: Figure E-1 – BUS X-ING pavement markings. Reverse sequence.

# Florida Department of Transportation

JEB BUSH
GOVERNOR

District Traffic Operations Office
1000 NW 111 Avenue, Room 6202
Miami, Florida 33172-5800
Telephone (305) 470-5335

THOMAS E. BARRY, JR.
SECRETARY

April 5, 2001

Ms. Isabel Padron
Miami Dade Transit Authority
111 NW 1 Street, Suite 910
Miami, Florida 33128-1999

Dear Ms. Padron:

SUBJECT: Section 87020-700/South Miami Dade Busway Crash Analysis Research Project. CTP 2001-03-0059

I have reviewed the above-mentioned study and offer the following comments for your consideration:

> Page 1 – We recommend that up-to-date crash data be included in this analysis throughout the analysis period instead of just through November 2000. Please correct text as it indicates "through November 2001."
>
> Please explain why Datran Boulevard and SW 98 Street were treated as unique intersections.
>
> Page 2 – While predominant crash patterns are described for both isolated & US-1 intersections as groups, each intersection needs to be analyzed individually to assess that the patterns at each intersection coincide with the group statistics. In addition, injury severity, time of day and other possible patterns should be further analyzed and discussed.
>
> Page 3 – Explain where the statistics for typical red light running (1 to 3%) came from.
>
> The following comments will be directed at the crash countermeasures specifically. In general the countermeasures should be grouped based on the type of crash to be remedied. Each countermeasure should provide a benefit (crash reduction) and this should be quantified.

April 5, 2001
Ms. Padron
Page-2-

**Countermeasure 1** – This improvement should not and cannot be removed from further consideration at this time. The one factor, which has shown to dramatically reduce crashes along the Busway, is having the loops turned off. Removing this option this early is unacceptable.

**Countermeasure 3** – Why is this improvement recommended if the crash statistics indicate otherwise? Does the review of the individual crash data indicate otherwise? If not, why not maintain the stops on the nearside and work with the placement and operation of the loops to prevent false calls.

**Countermeasure 5** – Review and reprogramming of signal heads was requested as part of a previous study. If it is an ongoing maintenance activity, there is no need to list it as a crash countermeasure.

**Countermeasure 8** – Same as previous comment. – but should be noted on the report.

**Countermeasure 9 & 10** – Again, the countermeasure has to be tied to a type of crash to be mitigated. Its benefit must be quantified. Too much signage and pavement markings could lead to confusion as motorist approach the intersections.

**Countermeasure 11** – Pavers have unknown skid resistance properties. How is that to be addressed?

**Countermeasure 12** – How many of the wet weather crashes involved rear-end collisions? Were there any visual clues as to a low skid resistance for the pavement at the location?

**Countermeasure 14 & 15** – Why are these countermeasures listed if they are already an existing condition?

**Countermeasure 16** – This seems viable only if the design speed is lowered dramatically as in countermeasure 2. Is this a short term, mid term or long term recommendation? Have you considered stop controlled?

**Countermeasure 17** – Need to provide the details of the Anaheim test site and how this translates to a busway application. Any other test sites? What were their results?

**Countermeasure 18** – This appears to be a feasible improvement. However, this improvement needs to be tied to crash mitigation. What is the benefit of this improvement in terms of crash reduction? How will this work in conjunction with countermeasures 9, 10, etc?

April 5, 2001
Ms. Padron
Page-3-

**Countermeasure 21** – This sign must comply with MUTCD. Again, what is the benefit and the cost of this improvement.

**Countermeasure 22** – Where are these signs located and why are they unnecessary?

**Countermeasure 24** – What is the difference between this and countermeasure 9? If this is existing condition, why is it listed as a countermeasure?

**Countermeasure 28** – How does this improvement work with all the other countermeasures already recommended? Again, the benefit of each countermeasure needs to be assessed. You may be recommending too many items to make the intersections conspicuous. They may become over conspicuous and confusing. The study indicates "recommended where cost feasible." But is it short term, mid term, or long term..

**Countermeasure 32** – Basically the same as the previous comment. In addition, the drainage impacts need to be verified.

**Countermeasure 34-37** – These long term consideration would only apply if the short and mid term improvements do not mitigate the crash patterns.

One last general comment we have is that several countermeasures cited in this study have been previously identified in prior studies. Those studies should be referenced in this current study effort.

We appreciate the opportunity to have addressed this matter for you and should there be any questions, please feel free to call us at the above number.

Sincerely,

Javier Gonzalez, P.E.
Assistant District Traffic Operations Engineer

cf/JG
cc: R. J. Santana, P.E., District Traffic Operations Engineer
C. Francis, P.E., District Safety Engineer
file

From: Padron, Isabel (MDT) [IPadron@co.miami-dade.fl.us]
Sent: Tuesday, June 05, 2001 11:42 AM
To: 'FRAAINC@GATE.NET'
Cc: Morejon, Rafael (MDT); 'oscar.gonzalez@dmjmharris.com'
Subject: FW: Section 87020-700/South Miami Dade Busway Safety Study. CTP

Below please find FDOT's comments. Feel free to call me if you have any questions. Thanks.

Isabel Padron
Senior Professional Engineer
Miami-Dade Transit
ipadron@co.miami-dade.fl.us
(305) 375-4504 Office
(305) 375-4505 Fax

-----Original Message-----
From: Javier Gonzalez [mailto:Javier.Gonzalez@dot.state.fl.us]
Sent: Monday, June 04, 2001 3:13 PM
To: ipadron
Cc: Richard Garcia; Carlos Francis; Rory Santana
Subject: Section 87020-700/South Miami Dade Busway Safety Study. CTP

Dear Ms. Padron:

We have reviewed the above-mentioned study and offer several comments below for
your consideration. In general, none of our previous comments identified in my
letter to you dated April 05, 2001 appear to have been addressed. We request
that all of our previous comments be responded to in writing.

General Comments:

Please explain how the short-term improvements will be evaluated to measure their effectiveness in reducing crashes. In other words, what system will be
in place to see if there is a need to proceed to the medium-term improvements
based on some level of predetermined crash reduction expected from the short-term improvements. Also, describe a time frame to evaluate the short-term improvements and the means (statistical test) to determine if the after crash rates are significantly lower.

Executive Summary:
? Please clarify that when using the safety ratio formula there are limitations in regards to *&similar locations in Florida.*8

? Explain why the southbound right turn violations are *&considerably high.*8

? Again, is the *&activated blank-out*8 sign MUTCD 2000 compliant?

? For consistency, why not recommend the installation of textured road surface at all intersections?

Figure 2:

? Show all US-1 movements in the appropriate boxes.

Table 2:
? It would be useful if you could add another column to the table indicating the rank of the intersection related to the ADT.

Page 11:
? The statement *&Based on these findings, safety at the busway intersections would not be considered a primary concern based solely*(*8 This
statement describes the meaning of a safety ratio below one incorrectly. A safety ratio below one simply means that the total number of crashes is not abnormally high when compared to intersections of similar traffic and geometric
conditions. A proper crash analysis is needed to determine if a safety concern
exists.

Table 3:
? Again another column to provide a rank of the safety ratio would be useful. Also please note that in 1999, SW 104 Street, SW 186 Street, and Marlin Road intersections with the busway had safety ratios very near one. This is alarming considering the very low exposure on the busway.

Page 13:
? The result does not imply *&risk of a crash.*8 All it states is the crash rate. Please modify statement.

Table 5:
? The number of crashes for SW 104 Street and SW 112 Avenue conflict with results of Table 3. Please correct.

Figures 3,4, & 5:
? These figures have errors and are missing information. Also the data for SW 104 Street and SW 112 Avenue conflict with data on Table 3.

Page 20:
? Clarify the statement *&*(intersections with the highest crash rates*(*8 Is this rate for a specific year or is it averaged. What about highest safety
ratio? What about severity? Need to break down the US-1 southbound right turn
crash with northbound vs southbound bus.

Page 21:
? For inadequate signal visibility, a market research is discussed. However, no details of the market research are given. The text reads *&a number
of motorists expressed complaints with regards*(.*8 How many motorists? How
viable are the conclusions drawn from this study?

Other than the 2 reasons given for the high percentage of red light runs, one could argue that several green indications (3-4) could potentially contradict the signal indication to the right turn movement. Also, lack of channelization to make the right turn movement separate from the through movement. Even too many signs could be argued to be a contributing cause to the red light running. All of these should be also considered.

Page 22, Table 6:

? Is this right turn violation study a statistically significant test
and does it provide statistically significant results?

Page 25:
? Please describe the test period and test sites procedure more
clearly. It almost seems as if there is a recommendation to turn the loops
on
for 3 isolated intersections without reducing the bus speeds. This is
unacceptable. Why is there no consideration for leaving the advanced loops
off
for the isolated intersections only?
Page 31:
? Why not consider improving sight triangles at intersections, both at
busway and at US-1(relocating landscaping and other fixed objects)?

Appendices:
? Many of the condition diagrams are lacking details and features such
as landscaping, structures, controllers, etc.

We appreciate the opportunity to have addressed this matter for you and
should
there be any questions, please feel free to call us at the above number.

Javier S. Gonzalez, P.E.
Assistant District Traffic Operations Engineer
Florida Department of Transportation, District 6
1000 NW 111 Avenue, Room 6202
Miami, Florida 33172

javier.gonzalez@dot.state.fl.us
305 470 5335 office
305 470 5815 fax

**Gannett Fleming**

Suite 301
901 Ponce de Leon Boulevard
Coral Gables, FL 33134

E-mail: ccejas@gfnet.com
Fax: (305) 448-1939
**Office: (305) 448-1848**

# MEMO

**DATE:** **May 25, 2001**

| | | | |
|---|---|---|---|
| **PROJECT:** | Traffic Operations and Design Review for US-1 Busway | **CC:** | A. Bravo, GF |
| **TO:** | Javier Rodriguez, FDOT | **FM No.:** | 25062212201, Task Authorization # 1 |
| **FROM:** | Carlos M. Cejas | **RE:** | **Technical Memorandum** |
| **FILE NO.** | 38977 | **SUBJECT:** | **Review of South Miami-Dade Busway Safety Study** |

**Background:**

A technical review was performed for the South Miami-Dade Busway Safety Study Draft Final Report dated May 2 2001, prepared by DMJM/Harris and F.R. Aleman & Associates (FRA). The review was performed for the safety improvement recommendations made in the report by the consultant (FRA).

The consultant (FRA) developed short-term, medium-term and long-term crash countermeasures for the following intersections:

- Datran Boulevard
- SW 98th Street
- SW 104th Street
- SW 112th Street/Killian Drive
- SW 124th Street/Chapman Field Drive
- SW 128th Street
- SW 132nd Street
- SW 136th Street/Howard Drive
- SW 144th Street/Mitchell Drive
- SW 152nd Street/Coral Reef Drive
- SW 160th Street/Colonial Drive
- SW 168th Street/Richmond Drive
- SW 173rd Street/Banyan Street
- SW 176th Street/Hibiscus Street
- SW 184th Street/Eureka Drive
- SW 186th Street/Quail Roost Drive
- Marlin Road
- SW 200th Street/Caribbean Boulevard
- SW 112th Avenue/Allapattah Road

**Report Comments/Recommendations:**

The following are our technical comments to the safety study.
Overall:

- Should have performed a conflict/violation study in the field in order to determine more comprehensively the types of events occurring at the busway crossings. With this more insightful and complete information, the countermeasures could be developed to be more effective. Relying solely on the limited crash data is not recommended.
- The right turn on red violations survey should have obtained more specific information as to driver behavior and or potential reason for the violation.
- No traffic operational analysis was performed to determine delays of cross street vehicles. However, conclusions relating to traffic operations are being made.
- The recommended improvements were illustrated on a simplified schematic diagram. There are many existing topographic elements (especially roadside objects) that were not considered when placing the new

devices. The existing roadside environment in most locations is currently very cluttered with utilities, trees, signs, lights, etc. Placing more traffic control devices without "clearing up" the roadside could create more confusion and indecision.

- Pedestrian and bicycle safety issues were not addressed. There is a lack of adequate sidewalks along the cross streets and the bicycle path crossing of the cross streets could be enhanced.

Geometric Layout:

- More specific horizontal geometric information should have been included related to the intersections and cross streets. This should have included items such as sight distance, horizontal breaks, auxiliary turn lengths, radii, etc.
- A more detailed and realistic topographic survey should be obtained to evaluate the true geometry of each crossing site.
- Existing access conditions (driveways, median openings, minor street connections) were not considered within the functional area of the intersections. Many sites are in violation of current FDOT access management criteria.
- Other existing features such as sidewalk use and width, drainage inlets, and clear zone violations should be identified and evaluated.

Traffic Volumes/Data:

- Turning volume along with pedestrian and bicycle crossing counts should have been included at each cross street.
- Vehicle classification counts should have been included for the cross streets (and the busway) to consider such vehicle types as school buses, transit buses, hazardous material vehicles, emergency vehicles, etc.
- The number of Metro-bus vehicle crossings (by time of day) should have been a consideration at each location. The more the number of bus crossings the greater the exposure. This should have been a consideration in the MEV calculations.
- User surveys/interviews should have been considered to obtain specific feedback as to perceived problems.
- Vehicular intersection delay data should have been obtained in the field for both cross street vehicles and buses, particularly during peak travel times. This would serve to justify the need for cross street capacity enhancements as well as the need for advanced loop operation along the busway.

Crash Analysis:

- The intersections should have been ranked from worst to best in terms of the safety ratio. These rankings are different than those considering the crash rate.
- Utilizing such a high probability factor (99.95) does indeed ensure that only a truly high crash location is classified as a high crash location (correctly identify an abnormal location as abnormal). However, the high probability factor also increases the chances that a truly high crash location is <u>not</u> identified as a high crash location (incorrectly identify an abnormal location as normal). This is the concept of statistical effectiveness. May want to reconsider use of such a high value.
- The analysis should clarify which types of crashes are included/excluded from the crash database (current FDOT threshold). Many reported crashes are not included. It should also be clarified that there could be many unreported crashes.
- The 67 crashes involving buses are probably over represented when compared to those 13 crashes not involving buses. Crashes involving the buses are likely more severe and are typically recorded since a government vehicle is involved. Minor crashes not involving buses have a high probability of not being reported and if reported may still not be included in the FDOT database.
- The consultant should be <u>very</u> careful (not recommended) when comparing the busway intersection crash statistics with other "typical" or "similar" intersections in Florida. The reasons for this include:
    - There are no other busway intersections within the State.
    - The busway intersections do not have turning movements, only through movements.
    - The number (4 versus 22) and types (only through flow) of conflicts is a lot less at these through busway intersections.
    - The amount of traffic (primarily buses) approaching along the busway (the minor street) is <u>very</u> low,

especially when compared to other urban intersections.

- The drivers on the minor street (the busway) are all professionally trained and experienced drivers working under the control of a single government agency. Along most minor streets, there is a very large spectrum of general drivers in terms of training, skill, experience, age, fatigue, etc.

Based on these factors, the busway intersections **should** have lower crash rates than typical urban intersections. It might be more useful to compare the approaching crash rates at the busway with similar at-grade railroad or light rail crossing approaches. However, it should be clarified that the busway intersections are unique in many ways.

Probable Causal Factors:

- This area should be expanded upon based on more precise data collected in the field (conflict/violation analysis, delay/queue analysis, field survey, traffic counts, etc.). There are likely other more specific causal factors that can be identified. At a minimum, the long delays (due to lack of physical capacity and green times favoring US-1) experienced by drivers on the cross streets should be identified as a probable causal factor.
- A matrix should be prepared illustrating the four or more major probable causal factors and the potential countermeasures to address each.
- The busway "intersections" should not be treated as though they were normal, standard or typical vehicular intersections. Due to the physical characteristics of buses compared to automobiles, the overall concept of a bus rapid transit system, and the potential for severe impact crashes, the busway crossings should be treated more similar to a railroad or light rail "crossing" in terms of traffic control devices and overall design. It would probably be best to avoid referring to these crossing sites as intersections.
- 
- The busway intersections are "inconspicuous" primarily for four reasons:
  - The proximity to the major signalized intersection with US-1. The busway intersection is typically well within the functional area of the US-1 intersection.
  - The narrowness of the busway roadway section (two lane undivided roadway crossing)
  - The use of normal asphalt material for the busway and cross streets with essentially no change in vertical elevation. Additionally, the asphalt was all placed at the same time thus producing a common color and texture.
  - There are a large number of roadside objects (utilities, vegetation, signs, signals, etc.) present close to the cross street which detract attention and physically obstruct views to/from the busway.

  These four items should be specifically identified and expanded upon so that specific countermeasures can be developed. One additional item potentially contributing to the lack of conspicuity of the busway is the relatively low number of vehicles utilizing the busway.
- There are likely other reasons for drivers making "illegal" red light runs at these locations. These include: too many signs including inappropriate signs that detract attention from the No Right Turn signs, an overhead No Turn On Red sign that is standard size (probably not visually conspicuous in a cluttered urban environment), the conflicting 3 to 4 green circular signal indications for the through movement, the signal indications all being on the same support, the lack of physical separation of the right turn lane, to name a few. These should all be included and addressed.
- It should be noted that research indicates that red light runs are <u>significantly</u> higher for right turn movements compared to through movements. The rates observed at right turn lanes are also highest in the evening peak period. In other words, what was measured for the busway intersections could be supported by research at other locations as normal or expected behavior. The probable reasons for this behavior include the following:
  - Making an illegal right turn on red is normally a low risk maneuver while a through crossing (or left turn) red light violation is typically a high-risk maneuver. (Drivers must be made aware that from US-1 southbound, a right on red is a <u>very</u> high-risk maneuver. The risk is high not only due to the potential presence of a bus (with large size/weight) but also due to the fact that drivers are looking sharply left for approaching westbound automobiles instead of forward to the busway.) Additionally, making a right turn on red is at most intersections a legal maneuver while a through on red is <u>never</u> a legal maneuver.
  - Right turn prohibitions are most commonly implemented at signalized intersections via a standard

size regulatory sign that is often not very conspicuous in a highly urban environment.

  - Right turn prohibitions are most commonly implemented at locations with high pedestrian-vehicle conflicts. If implemented for other reasons, or if pedestrian demand is inconsistent, respect could be lost for the prohibition.
  - Drivers are most aggressive during the greatest travel demand periods due to delays (and stress) experienced along the travel route.

- Please elaborate on what is meant by "Driver ignorance of the red arrow signal display" as compared to a circular red signal display. The right turn arrow indicates no right turn on red but research has indicated that 25 % or more of drivers do not understand the meaning and most believe they are permitted to turn right after coming to a complete stop (as in the case of a circular red display). This is a possible area for a driver education campaign. It is worth noting that some research has shown that the use of a red ball resulted in fewer violations than the red arrow when used for right turns.
- More detailed information should be obtained and summarized from the PMG Associates research. What specifically is meant by a signal "visibility" problem? Is it the sun or background glare? Is it too many signals and signs in such a limited distance? Is it the use of the programmable signal heads which (by design) cannot be seen from far away and then suddenly "appear"? Is it the location of the signal supports and heads in relation to the stop bar? Is it roadside obstacles (including overgrown vegetation)? If this type of more specific information is not available in the study, then another more refined survey should be performed.
- Should evaluate and identify if there is an existing roadway drainage deficiency at Marlin Road that is contributing towards the wet condition crashes. It appears that most of the cross streets lack efficient roadway drainage systems. The assessment should consider items such as pavement cross slope, longitudinal grades, inlets, barriers, etc.

Crash Countermeasures:

- This area should be labeled "Potential Countermeasures". The focus of countermeasures should not be on a limited number of reported "crashes" over a short period of time. Other factors such as conflicts, violations, delays, geometry, and user experience (surveys/interviews) should be included when developing the countermeasures. These other factors are more accurate and reliable for predicting future events.
- The crash countermeasure should be developed/structured specifically to address the previously identified causal factors. As structured now, all countermeasures appear to fall under only the "inadequate traffic control devices" probable cause. Additionally the countermeasures should be grouped by common type of item such as traffic signs, traffic markings, signal improvements, roadside enhancements, pavement improvements, and design/geometric improvements instead of simply being in a random number sequence.
- The anticipated crash reduction effectiveness of each countermeasure should be discussed. This should include the estimated percentage reduction in crashes by crash type and crash severity. The estimated percentage reduction in conflicts and violations should also be included.
- Number 1 and 2: The busway intersection locations are being proposed to operate with buses not stopping (approach speeds of 10 to 15 MPH) with the advanced loops being reactivated. Currently the loops are deactivated and all buses are required to stop at the intersections. The severity (and in all likelihood the long term probability) of the crashes is directly affected by the speed condition of crossing buses. Higher speeds upon impact with a bus, will most likely result in more severe type crashes (more injuries and fatalities). Buses approaching at higher speeds are less able to stop or make avoidance maneuvers as opposed to buses that stop at the intersection and cross at very low speeds. Additionally, motorists do not as easily see buses that do not stop and approach at higher speeds. An analysis of a limited amount of crash data over a limited amount of time will not accurately reflect the relative crash risk at these sites.
- Number 2. Advanced loop designs/operation should also be considered for the cross streets and US-1 to allow the signals to be more demand responsive and ultimately more efficient.
- Number 5: It does not appear that the programmed signal heads are operating properly. On several field visits it was observed that the visibility cones were not set up properly. A thorough per lane, per approach field inspection should be performed and documented.
- Number 8: The problem is more than overgrown foliage. Clear zones, intersection sight distance and fixed objects must be reviewed for compliance with safety criteria. There appears to be several violations especially when it is considered that most of the cross streets do not have a raised curb (no curb and gutter).

- Number 9: Both warning signs should have the BUSWAY shield (educational plaque) located on top for consistency and redundancy since the bus symbol in non-standard. Additionally, the Busway Ahead sign will be seen first by approaching motorists.
- Number 9: Should consider placing flashing beacons as an active device (activated by approaching buses) on the advanced warning BUSWAY AHEAD signs. This will make the signs more conspicuous and inform drivers when a potential bus crossing is occurring.
- Number 9: Should place a warning sign for the SB right turn lane similar to the EB approach lanes. This should also be an active (flashing beacon) sign or an activated blank-out sign. The use of advanced warning signs is common at railroad (and light rail) crossings (W10-2 or W10-7) for turning vehicles.
- Number 15: Will the red rest mode cause additional delays to vehicles? How much more and how will it progress over time as traffic increases. Should document all anticipated operational impacts prior to installation. May want to mitigate for these impacts.
- Number 16: This signal/sign arrangement should be included at all intersections including 200th Street and 112th Avenue. Should consider this on all eastbound approaches that have red light running. Should illustrate the No Turn On Red international symbol sign with the post-mounted signal in this section of the report. This is an important and potentially effective countermeasure for the most hazardous movement.
- Number 17: Consider utilizing a No Turn On Red sign with a red ball (or red arrow) in the center. This sign has been illustrated to be noticed more easily by approaching right turn motorists than the standard black-and-white (R10-11a) sign. A similar sign has been developed in Canada that includes the No Right Turn symbol sign (right turn arrow with red cross hatch and circle) on the top with a signal symbol (with the red ball or arrow indication in red and the other indications in white) on the bottom.
- Number 18: This sign should be more similar to the R3-1a light rail sign illustrated in the MUTCD page 10C-3. This newer light rail transit sign visually illustrates the crossing conflict.
- Number 21: There should be a way to provide lateral control of the through signals. If louvers are provided, can't the intensity of the light be increased to compensate? Is there a current safety problem at all the existing signals throughout the county (many located along US-1) that have louvers?
- Number 22: A conflict analysis will determine if this sign (Do Not Stop On Busway) is needed and not the limited crash analysis. The need for this sign should be more thoroughly evaluated before being discarded. It could be argued that the use of the word "intersection" is inappropriate for the at-grade busway crossing as it would be for an at-grade railroad or light rail crossing. Drivers should not be made to think that they are simply blocking a typical vehicular intersection. It would be more effective and safe to inform drivers that they are blocking or stopping within a BRT system busway. This sign would also make the busway slightly more conspicuous, whereas a lack of conspicuity has been identified as a causal factor of crashes.
- Number 23: Operational efficiency is a very significant need at these sites. Placement of these signs should not to be based solely on a limited crash analysis. Observing vehicles in the field along with an operational analysis is a more appropriate way. These signs appear to be warranted based on our observations. Red light running (which was illustrated in the crash analysis) is also caused by aggressive driving resulting from large delays (and long signal cycles).
- Number 25: This third signal in flashing mode so close to the busway is potentially contradictory to the downstream signal (flashing yellow with steady burn red or green) and can create confusion. The crash analysis indicates red light running, which could be partially caused by the emergency signal. If additional signal heads and signs are added to these locations (as proposed), the amount of traffic control information reaching approaching drivers could be even more confusing. The research by PMG Associates also indicated an existing "visibility problem" with the busway signals. The third signal could be contributing to this problem.
- Number 26: It is recognized that the use of FYG sign sheeting is not approved in the MUTCD for general use warning signs. A busway crossing is also not expressly prohibited from utilizing FYG sign sheeting and a busway crossing warning sign could be considered a special use similar in many ways to those uses that are approved. For a unique warning condition such as a busway crossing where safety is an issue, the use of FYG sheeting could be effective and could be tested in a pilot type program. For the very minimal amount of investment and the potential benefit, this option should be reconsidered.
- Number 30: Architectural pavers are not recommended for use. Stamped/patterned colored concrete, stamped asphalt or colored asphalt would be more appropriate in this type of environment. They also would be lower in installation and maintenance costs than pavers. This option should be implemented immediately

as a short-term improvement.
- Number 32: It would seem appropriate to "lay out" this alternative before dismissing it. Cost and drainage impacts are not a substitute for improved safety. Benefit-cost should be considered. It would appear better to move the right turn lane slightly west toward the busway and eliminate the very short storage area just east of the busway. This small area is part of the problem for right turn vehicles who find themselves in a short "no mans land" for a brief period of time.
- Number 33: Should include a raised median at 200th Street approach since space is currently available. All cross street approaches should be provided with a raised median separator. This will allow for supplemental post mounted signals and signs to be installed on the left side.
- Number 34: Cannot see how the crash analysis performed was supposed to indicate an operational efficiency problem. It would appear that an operational analysis and a conflict analysis would determine the need for widening and additional storage. An operational study performed in 1998 by Corradino indicated an operational need at the time. Additionally, red light running crashes could be caused by more aggressive driving resulting from excessive vehicular delays. Field observations have indicted a need for new and enhanced auxiliary turn lanes at most intersections.
- Short term versus long-term countermeasure recommendations: Please clarify what distinguished those items listed as medium-term improvements from not being more immediate short-term improvements. Was it only the estimated investment cost? What is the estimated time frame difference between the two alternatives? Should not the potential benefit of each improvement be a major factor?
- Other countermeasures 1: Other potential countermeasures should be looked at in more detail. These include the following:
  - Increasing the sight triangles at the busway intersections. This can be done by removing or relocating all nearby fixed objects and acquiring right-of-way if necessary. This will allow vehicles to see approaching buses and buses to see approaching vehicles.
  - Increase the visual and auditory conspicuity of all busway vehicles. This will allow them to "stand out" more in this busy urban environment.
  - Consider use of rumble strips in advance of the busway crossing. FHWA has seen success in applying thermoplastic rumble strips in advance of work zones in order to slow motorists and make them more alert.
  - Consider Investments in currently available safety technology such as bus collision avoidance systems and red light photo enforcement systems.
- Other countermeasures 2: All of the countermeasures in the report were "Engineering" solutions. For the types of events occurring at the busway, it is strongly recommended that the other two legs of the commonly utilized "three-legged stool" also be applied. The other two types of general solutions fall under either the "Enforcement" or "Education" categories. Please consider specific enforcement and educational countermeasures as a means to obtain the greatest improvement in safety and operations at the busway intersections.

Cost Analysis:
- A cost estimate should be developed for the recommended improvements per intersection location considering all devices/improvements. Three estimates (short, medium, long-term) per location should be included. This should include the total cost for a complete installation including electrical systems, mobilization and MOT.
- The **benefit(s)** anticipated from each improvement/countermeasure (for the investment) should be a consideration. This is much more important than just the initial investment cost.

It is our recommendation that the improvements to these intersections be done in a more comprehensive manner considering not only crashes, but also conflicts/violations, traffic operations, access, geometric design elements, total cost and anticipated benefits. All of the improvements should be developed on a recent and accurate topographic file with existing right-of-way information. The specific comments raised in this review should be addressed as applicable. If an incremental installation approach is taken due to a limitation on financial resources, then it should be logical, optimize safety and operations, and minimize potential throw-away.

If you should have any questions, please feel free to contact me at 305-448-1848.

*g:\projects\38977\corradino study\memos\060501jr.mem.doc*

## RESPONSE TO COMMENTS

**PROJECT:** South Miami-Dade Busway Safety Study
Contract No: TA97-TPS-4

BY: F.R. Aleman and Associates, Inc.
Date: August 13, 2001

---

**Responses to FDOT's Comments of April 5, 2001**

Comment 1: Page 1. We recommend that up-to-date crash data be included in this analysis throughout the analysis period instead of just through November 2000. Please correct text as it indicates "through November 2001".

*Response: Crash data contained in the report represents the latest information that was available at the time when the study was commissioned. Information obtained from the MDT on June 12, 2001 indicated that there were no reported bus crashes along the busway between December 1, 2000 through May 31, 2001. This latest information has been included in the report as a note on page 11.*

Comment 2: Please explain why Datran Boulevard and SW 98 Street were treated as unique intersections.

*Response: The geometry and signal controls at Datran Boulevard and SW 98 Street distinguish these two intersections from the grouping of US 1/Busway intersections and Isolated Busway Intersections. This was explained on page 13 of the Draft Report.*

Comment 3: Page 2 – While predominant crash patterns are described for both isolated & US 1 intersections as groups, each intersection needs to be analyzed individually to assess that the patterns at each intersection coincide with the group statistics. In addition, injury severity, time of day and other possible patterns should be further analyzed and discussed.

*Response: Detailed crash analysis for each individual intersection is presented in Appendix D. The analysis includes injury severity, time of day and other pertinent crash statistics.*

Comment 4: Page 3 – Explain where the statistics for typical red light running (1 to 3 %) came from.

*Response: The reference source for this data is the ITE report Determining Vehicle Change intervals, 1985. This was mentioned on page 21 of the Draft Report.*

Comment 5: In general the countermeasures should be grouped based on the type of crash to be remedied. Each countermeasure should provide a benefit (crash reduction) and this should be quantified.

*Response:* *Table 9 in the report references the probable causal factors and the associated crash countermeasures. Given the uniqueness of the busway reliable crash reduction data could not be specified for each individual countermeasure. As recommended in the report, we believe the effectiveness of the countermeasures could best be studied using before and after studies.*

Comment 6: Countermeasure 1 (Deactivate advanced loops) – This improvement should not be removed from further consideration at this time. The one factor, which has shown to dramatically reduce crashes along the Busway, is having the loops turned off. Removing this option this early is unacceptable.

*Response:* *Deactivating the advanced loops has been maintained as a viable option pending analysis of the impact on travel times with the loops deactivated and the crash reductions realized from other recommended less restrictive measures.*

Comment 7: Countermeasure 3 (Relocate bus stops to far side) – Why is this improvement recommended if the crash statistics indicate otherwise? Does the review of the individual crash data indicate otherwise? If not, why not maintain the stops on the nearside and work with the placement and operation of the loops to prevent false calls.

*Response:* *This countermeasure is not recommended for implementation.*

Comment 8: Countermeasure 5 (Review programmed signal heads) – Review and reprogramming of signal heads was requested as part of a previous study. If it is an ongoing maintenance activity, there is no need to list as a crash countermeasure.

*Response:* *This countermeasure and others are included to provide a complete and comprehensive listing of potential improvements which were mentioned in various studies of the busway.*

Comment 9: Countermeasure 8 (Trim foliage around busway x-ing signs)– Same as previous comment – but should be noted on the report.

*Response:* *This countermeasure and others are included to provide a complete and comprehensive listing of potential improvements which were mentioned in various studies of the busway.*

Comment 10: Countermeasure 9 & 10 (Install additional busway x-ing signs; install BUS X-ING pavement markings) – Again, the countermeasure has to be tied to a type of crash to be mitigated. Its benefit must be quantified. Too much signage and pavement markings could lead to confusion as motorist approach the intersections.

*Response:* *Consideration has been given to minimize unnecessary signage. Some signs have been recommended for removal. The new signs recommended are primarily complementing and reinforcing the existing traffic control devices at the intersections. The new signs are recommended to improve visual impact of the desired message. See also response to Comment #5*

Comment 11: Countermeasure 11 – Pavers have unknown skid resistance properties. How is that to be addressed?

*Response:* *The skid resistance of the pavers or other materials used would need to be tested and enhanced, if necessary, to meet the minimum standards.*

Comment 12: Countermeasure 12 (Check surface skid resistance) – How many of the wet weather crashes involved rear-end collisions? Were there any visual clues as to a low skid resistance for the pavement at the location?

*Response:* *None of the wet weather crashes involved rear-end collisions. There were no visual clues as to low skid resistance. However, the percentage of wet weather crashes at Marlin Road (29%) was significantly high when compared with the wet weather exposure (approximately 8%). The skid resistance test is therefore recommended to ascertain whether or not low skid resistance is a problem at the intersection.*

Comment 13: Countermeasure 14 & 15 (Install optically programmable signals; replace 8" signal heads)– Why are these countermeasures listed if they are already an existing condition?

*Response:* *See response to Comment #9.*

Comment 14: Countermeasure 16 (Operate using red rest mode)– This seems viable only if the design speed is lowered dramatically as in countermeasure 2. Is this a short term, mid term or long term recommendation? Have you considered stop controlled?

*Response:* *Research has shown that red rest operation can also be an effective speed control measure (Conner, TK; Public Works Journal, 1997). Red rest operation is a short term consideration. Stop sign control is discussed under Countermeasure # 37 in the Final Report – signal warrant study recommended.*

Comment 15: Countermeasure 17 (in-road amber red lights) – Need to provide the details of the Anaheim test site and how it translates to a busway application. Any other test sites? What were their results?

*Response:* *We are unaware of any other test sites using this technology at signalized intersections (other than cross-walks).*

Comment 16: Countermeasure 18 (Install post mounted signals at stop line) – This appears to be a feasible improvement. However, this improvement needs to be tied to crash mitigation. What is the benefit of this improvement in terms of crash reduction? How will this work in conjunction with countermeasures 9, 10, etc.?

*Response:* *See response to Comment #5.*

Comment 17: Countermeasure 21 – This sign must comply with MUTCD. Again, what is the benefit and the cost of this improvement?

*Response:* *The proposed sign has been certified by the FDOT.*

Comment 18: Countermeasure 22 (reduce signs – RIGHT LANE MUST TURN RIGHT) – Where are these signs located and why are they unnecessary?

*Response:* *The signs are installed in the exclusive southbound right turn lanes as shown in the Condition Diagrams. These sign may be omitted per MUTCD.*

Comment 19: Countermeasure 24 (install advanced busway signs) – What is the difference between this and countermeasure 9? If this is existing condition, why is it listed as a countermeasure?

*Response:* *Countermeasure 24 refers to the use of advanced busway signs (as existing) whereas Countermeasure 9 suggests installing more of these signs. See also response to Comment #9.*

Comment 20: Countermeasure 28 (Install raised median on side street approaches) – How does this improvement work with all other countermeasures already recommended? Again, the benefit of each countermeasure needs to be assessed. You may be recommending too many items to make the intersections conspicuous. They may become over conspicuous and confusing. The study indicates "recommended where cost feasible". But is it short term, mid term, or long term?

*Response:* *The recommend application of the raised median is shown in Appendix E. This improvement is recommended for medium term consideration. See also response to Comment #5.*

Comment 21: Countermeasure 32 (install raised curbs) – Basically the same as the previous comment. In addition, the drainage impacts need to be verified.

*Response:* *Recommended for medium term consideration. See also response to Comment #5.*

Comment 22: Countermeasure 34-37 – These long-term considerations would only apply if the short and mid term improvements do not mitigate the crash patterns.

*Response:* *These measures would be considered after evaluating short and medium term measures.*

Comment 23: One last general comment we have is that several countermeasures cited in this study have been previously identified in prior studies. These studies should be referenced in this current study effort.

*Response:* *Previous studies have been referenced.*

## Responses to FDOT's Comments of June 4, 2001

Comment 1: Please explain how the short-term improvements will be evaluated to measure their effectiveness in reducing crashes. In other words, what system will be in place to see if there is a need to proceed to the medium-term improvements based on some level of predetermined crash reduction expected from the short-term improvements. Also, describe a time frame to evaluate the short-term improvements and the means (statistical test) to determine if the after crash rates are significantly lower.

*Response:* *A proposed procedure for evaluating the short-term countermeasures is discussed in Section 6 of the report. In brief, it is suggested that before and after studies should be conducted for the evaluation. The before and after studies would assess both the change in frequency and severity of bus crashes. The FDOT's Safety Manual recommends assessing crashes for a three year period before and after implementation of countermeasures. Before and after conflict/violation studies could also be conducted which could provide an assessment over a shorter period of time.*

Comment 2: Executive Summary - Please clarify that when using the safety ratio formula there are limitations in regards to "similar locations in Florida".

*Response:* *The text in the report has been edited indicating that caution should be exercised when using the safety ratio procedure for this unique case.*

Comment 3: Executive Summary – Explain why the southbound right turn violations are "considerably high"?

*Response:* *The preliminary investigations indicate that southbound right turn violations may be in the order of 12.5%. This rate of violation is considerably higher than desired given the risk associated with this movement and the posted signs and signals.*

Comment 4: Executive Summary – Again, is the "activated blank-out" sign MUTCD 2000 compliant?

*Response:* *The recommended sign is certified by FDOT.*

Comment 5: Executive Summary – For consistency, why not recommend the installation of textured road surface at all intersections?

Response: *Textured surface treatment is recommended for consideration only at the locations where the conspicuity of the intersection is problematic.*

Comment 6: Figure 2 – Show all US 1 movements in the appropriate boxes.

*Response:* *The referenced figure was intended to highlight the sequencing of the clearance intervals for specific movements. Including other movements would detract from the intended purpose of the figure.*

Comment 7: Table 2 – It would be useful if you could add another column to the table indicating the rank of the intersection related to the ADT.

*Response:* *An additional column has been added as requested.*

Comment 8: Page 11 – The statement "based on these findings, safety at the busway intersections would not be considered a primary concern based solely..." This statement describes the meaning of a safety ratio below one incorrectly. A safety ratio below one simply means that the total number of crashes is not abnormally high when compared to intersections of similar traffic and geometric conditions. A proper crash analysis is needed to determine if a safety concern exists.

*Response:* *The safety ratio at all busway intersections was below 1.0 in each year of the study. This implies that none of the busway intersections experienced an abnormally high crash rate. The procedure used for computing the safety ratio is based on comparing the actual crash rate at the subject location with the critical crash rate for locations with similar characteristics. The analyses showed that the actual crash rate at the study locations was below the critical crash rate. This therefore implies that the crash rate at the study locations is not abnormally high, i.e. the number of crashes experienced at the locations is not significantly different from that which would have been expected at a similar location throughout the State. It therefore follows that the number of crashes experienced at the study locations would not create a safety concern.*

Comment 9: Table 3 – Again, another column to provide a rank of the safety ratio would be useful. Also please note that in 1999, SW 104 Street, SW 186 Street, and Marlin Road intersections with the busway had safety ratios very near one. This is alarming considering the very low exposure on the busway.

*Response:* *An additional column has been added to the table as requested.*

Comment 10: Page 13 – The result does not imply "risk of a crash". All it states is the crash rate. Please modify statement.

*Response:* *In the application of the accident rate method, as used in this study, the computed crash rate per MEV provides a measure of the relative risk at each location. The Institute of Transportation Engineers, Transportation Safety Council Committee states that "The accident rate is a measure of the risk road users (drivers, bicyclists and pedestrians) face" (ref: Statistical Evaluation in Traffic Safety Studies, ITE, 1999). The statement "risk of a crash" is therefore consistent with the ITE's interpretation of the crash analysis results.*

Comment 11: Table 5 – The number of crashes for SW 104 Street and SW 112 Avenue conflict with the results of Table 3. Please correct.

*Response:* *The tables have been edited as necessary.*

Comment 12: Figures 3, 4 & 5 – These figures have errors and are missing information. Also the data for SW 104 Street and SW 112 Avenue conflict with data on Table 3.

*Response:* *The figures and tables have been edited as necessary.*

Comment 13: Page 20 – Clarify the statement "intersections with the highest crash rates". Is this rate for a specific year or is it averaged. What about highest safety ratio? What about severity? Need to break down the US 1 southbound right turn crash with northbound vs. southbound bus.

*Response:* *The listing shows the intersections with the highest computed bus crash rates per million entering vehicles, averaged over the study period. Due to the uniqueness of the busway, the safety ratio procedure is not directly applicable to the busway. It is acknowledged that other procedures could have been used to rank the sites based on severity. However, the procedure adopted for the study, is simple to apply, easily understood and widely used throughout the industry. The drawings in Figure 7 provide the break down of crashes by direction.*

Comment 14: Page 21 – For inadequate signal visibility, a market research is discussed. However, no details of the market research are given. The text reads "a number of motorists expressed complaints with regards…" How many motorists? How viable are the conclusions drawn from this study?

Response: *The market survey received 482 responses to the question regarding the visibility of the traffic signals. Eighty (16.6%) of the respondents said the signals were not clearly visible. It is stated in the Market Research Report that the survey achieved a 95% confidence level with an error of plus or minus 5%.*

Comment 15: Other than the 2 reasons given for the high percentage of red light runs, one could argue that several green indications (3-4) could potentially contradict the signal indication to the right turn movement. Also, lack of channelization to make the right turn movement separate from the through movement. Even too many signs could be argued to be a contributing cause to the red light running. All of these should be also considered.

Response: *It is acknowledged that there may be other reasons for the high percentage of red light runs. Indeed, it was not our intent to provide a complete listing of possible reasons for red light runs. However, we believe it was appropriate to mention the two reasons described in the report, since they were frequently cited in the literature (and with which we agree) as possible contributing causes for right turn on red violations.*

Comment 16: Page 22, Table 6 – Is this right turn violation study a statistically significant test and does it provide statistically significant results?

Response: *The study was intended to provide a preliminary investigation of right turn on red violations. A more in-depth study would be required to provide statistically significant data.*

Comment 17: Page 25 – Please describe the test period and test sites procedure more clearly. It almost seems as if there is a recommendation to turn the loops on for 3 isolated intersections without reducing the bus speeds. This is unacceptable. Why is there no consideration for leaving the advanced loops off for the isolated intersections only?

Response: *The discussion of Countermeasure # 1 has been revised. An additional section (Section 6) has been included in the report, which describes a recommended implementation and evaluation process.*

Comment 18: Page 31 – Why not consider improving sight triangles at intersections, both at busway and at US 1 (relocating landscaping and other fixed objects)?

Response: *Improving sight triangles is discussed under Countermeasure # 30 of the Final Report.*

Comment 19: Appendices – Many of the condition diagrams are lacking details and features such as landscaping, structures, controllers, etc.

*Response:* *Additional details have been added to the condition diagrams, to the extent of the scope of services for this project.*

## Comments from Rory Santana, FDOT – Review Meeting on July 17, 2001

Comment # 1: Existing busway warning signs were installed following a request submitted to the State's Traffic Operations Engineer.

*Response:* *This information has been included in the Final Report.*

Comment #2: FDOT would agree to reactivate the advanced loops provided the bus approach speeds are reduced at the intersection.

*Response:* *Recommendations in the Final Report include reactivating the advanced loops and reducing bus approach speeds to 15 m.p.h.*

Comment #3 FDOT does not support installing BUS X-ING pavement markings, due to maintenance considerations.

*Response:* *The Final Report has been edited reflecting the Departments concerns.*

Comment #4: FDOT does not support installing post mounted signals – installation could generate widespread request for similar signals at other locations. (In telephone discussion on 7/26/01 – Santana/Harris it was agreed that post mounted signals would be acceptable at the US 1 intersections for southbound right turn movement)

*Response:* *Installation of post mount signals has been maintained based on support from other reviewers.*

Comment 5: Backplates should have been installed at the opening of the project.

*Response:* *Installation of backplates has been recommended.*

Comment 6: FDOT does not support installing BE PREPARED TO STOP WHEN FLASHING – sign could create confusion with downstream signals. Further, spacing between signals is limited. Consideration could be given to adding flashing beacon to the busway warning signs.

*Response:* *BE PREPARED TO STOPWHEN FLASHING sign has not been recommended based on FDOT concerns.*

Comment 7: FDOT does not support red rest mode of operation – this would imply that signal is not warranted.

*Response:* *The report has been edited to reflect FDOT's concerns.*

## Comments from FDOT's Consultant – Gannett Flemming

Comment #1: Technical content – overall, geometric layout, traffic volumes/data, cost analyses.

*Response:* *Safety analyses, surveys and drawings were done to the extent permitted by the scope of services of the project.*

Comment # 2: Crash Analysis

*Response* *The procedure for computing safety ratio is not directly applicable for the busway. Hence, the crash rate per MEV was considered more reasonable for ranking purposes.*

*The crash analysis utilized data available from MDT and FDOT*

*The safety ratio was computed only as an indicator of relative crash risk at the busway intersections.*

*The existing busway operations were not considered similar to rail road operations.*

Comment #3 Probable Causal Factors

*Response* *This section has been expounded in the Final Report. The concerns expressed have been addressed where applicable.*

Comment # 4 Crash Countermeasures

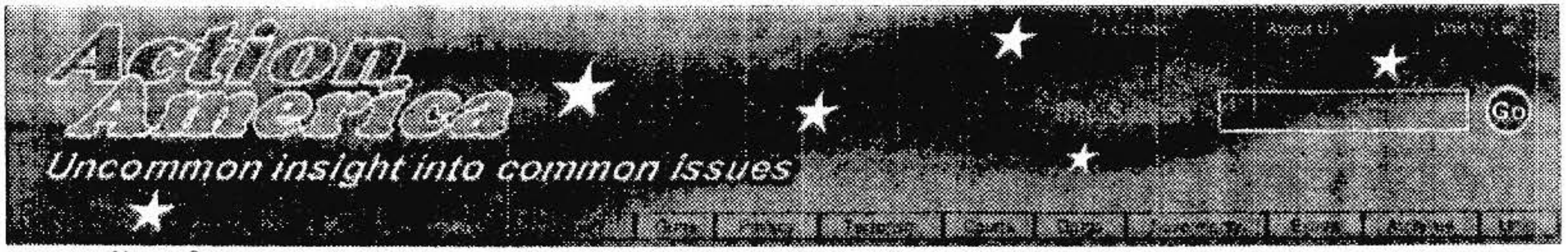
Response: *Table 9 summarizes countermeasures recommended to address specific crash patterns.*

*Reliable crash reduction data is lacking for the unique conditions at the busway. Before and after studies are recommended for evaluating crash reduction.*

*Suggestions and concerns expressed regarding the crash countermeasures have been incorporated in the Final Report where applicable.*

# EXHIBIT XXVIII

# WHAM-BAM-TRAM RAM COUNTER




News & Features

# Welcome to the Houston Pages

**Houston, Texas is home to Action America and although we generally concentrate on national issues, recent events have inspired us to try to help cover important issues in Houston.**



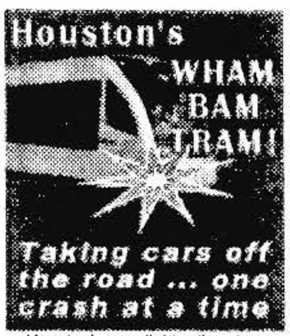
---

## Wham-Bam-Tram Shut Down due to a little rain

**Most of the Wham-Bam-Tram route remained out of service till after 7:00AM on Nov. 2**

Gee, this sounds familiar. Where have we heard this before? Oh, yes! **We said it.** Back when it was first proposed, long before the Wham-Bam-Tram earned its nickname, Action America and many other voices of reason warned Metro and the City of Houston that the proposed train would not run in more than 3 inches of water. This is the second time that the Wham-Bam-Tram has had to be shut down because of high water. Passengers riding from the south, had to transfer, at the Med Center, in the rain, to guess what - good old dependable BUSSES - to complete their trip into downtown. Interestingly, if the bus routes had not been eliminated, to force riders onto the failing Wham-Bam-Tram, those riders would have likely not even known that there was high water, because the busses would have simply gone around or even through the high water. Also, bus riders would not have had to change vehicles in the downpour, either. This is Metro's idea of a World Class mass transit system. 20 times the national average in crashes, 13 times the previous worst crash record, 50% more pedestrians hit than the national average for all kinds of accidents, shut down twice, because of power lines and shut down twice due to high water. And those are only the incidents that they have not been able to hide.

---




Houston's new light rail system shattered all prior annual crash records, in only the first few months, earning it the descriptive nicknames "Wham Bam Tram"

## Who says HPD doesn't have ticket quotas?

**33 traffic officers put on desk duty for not writing enough tickets (KHOU)**

---

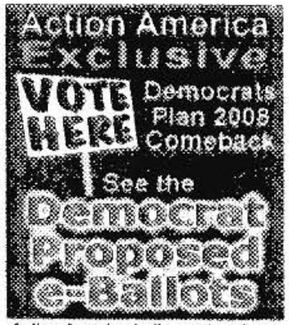
### The Action America Exclusive

## Wham-Bam-Tram Ram Counter

**The Most Accurate such list available anywhere and we can prove it**

**(includes pedestrian accidents, only when an injury is recorded)**

nicknames, Wham-Bam-Tram and the "Streetcar Named Disaster".




Action America believes that these ballots are at least as authentic as the Killian Air National Guard memos, publicized by Dan Rather and CBS News.

By combining crash data from many local news reports and the updated **Metro Light Rail Accident Report**, which appears as a scanned document on this site, Action America now has the "most accurate" listing of Wham-Bam-Tram Crashes available to the public. It seems that there were four accidents that were not reported in the local media, that show up in the Metro Light Rail Accident Report. Conversely, there were originally three crashes that were reported by the local media, that did not show up in the original Metro Crash Report, but in the updated report, there are only two crashes that Metro fails to report. It also seems that Metro has finally given in, largely under pressure from our readers and now counts the pedestrian who was dragged 100 feet, on July 8th, even though it "may" have been a suicide attempt.

No other source is presenting the complete list of Wham-Bam-Tram crashes, except Action America. Our thanks go out to 18th Congressional District Independent candidate, **Tom Bazan**, for his work in obtaining the Metro documents. We should note that for this and other reasons, Action America is endorsing Tom Bazan for Congress.

9/27/04: The Chronicle is now reporting four less crashes than have actually occurred. We have recently acquired an updated version of the Metro Light Rail Accident Report, dated September 22, 2004 and also verified all of our links, so we invite you to click on the date of each crash and verify that our count is correct and that the Chronicle is still underreporting crashes.

10/7/04: **KPRC-TV** (2) becomes the first local news outlet, in months, to accurately report the number of Wham-Bam-Tram crashes, by counting the 10/6/04 accident as number 67. At the time, we commended KPRC-TV for finally achieving the accuracy that the Chronicle can't or won't achieve. But, that's not the end of the story.

10/22/04: **KPRC-TV** (2) is now reporting that after two additional Wham-Bam-Tram crashes, since they correctly reported the total at 67, the crash total is now only 64. Basic math is obviously not their best suit. Click the blue links and see for yourself. We contacted KPRC-TV, via web feedback and notified them of this discrepancy on 10/22/04. We'll be watching for the correction. They had it right once, so we really expect that this is just an oversight. We'll see.

**For the record, we are not opposed to rail, but rather to bureaucratic incompetence.**

## Recommended Off-Site Articles

Action America may or may not agree with everything in the following offsite articles, but we think that they make, enough, very valid points, to make them worth your time.

- Conservatives for Bush shattering the illusion that Bush is conservative
- More Houston Metro light rail problems (AP cites our own John Gaver)
- Parallels between the Patriot Act and the Alien and Sedition Acts

# PEDESTRIAN #6!

**3rd pedestrian in one month!**

10/6/04: Wham-Bam-Tram hits another pedestrian! 3rd pedestrian in

one month. Click the date links. Pedestrians were hit on:

3/17, 3/27, 7/8, 9/15, 10/4, 10/6

Think about it. The Wham-Bam-Tram, in just over 9 months, has exceeded by 50%, the national average for all kinds of accidents for a 7.5 mile route, in **PEDESTRIANS ONLY!**

**As you read these statistics, keep in mind that the national average crash rate for 7.5 miles of light rail is only 4 crashes per year. The Wham-Bam-Tram has hit more pedestrians (6) than that!**

The dates and locations of each crash are listed below.


Come back soon, as Metro keeps this counter turning over quite often.

**The current time is Sunday, November 21, 2004 10:54:17 AM. It has been**

JavaScript is used to display the Wham-Bam-Tram Crash Clock in this box. To see how

**75 hours since the last "reported" Wham-Bam-Tram Crash**

many hours have elapsed since the last crash, enable JavaScript and refresh this window.
which occurred about, Thursday, November 18, 2004 7:23:00 AM. Because the

Chronicle has decided to hide as many crashes as possible, by not reporting them, our crash clock is probably higher than the actual time, since the last crash. The record time between "reported" crashes is only 642 hours, though we suspect that even that number may be inflated, due to the Chronicle's effective "censorship" of news about Wham-Bam-Tram crashes. In fact, we have already had to reduce this number once, after learning about a previously unreported crash. And, the Chronicle has the audacity to call themselves a "NEWS"paper!

**The Wham-Bam-Tram now averages one accident every 4.95 days, since the beginning of public operation on January 1, 2004.**
(322 days / 65 crashes since "1/1/04" = 4.95 days between crashes)

**At that rate, there will be about 74 crashes this year.**
(365 days / 4.95 days per crash = 73.7 projected crashes per year)

**That's quite a difference from the only 4 crashes that should be expected.**

## Add our Wham-Bam-Tram Ram Counter to your web site.


A reader suggested that, because this is such a popular cause, we should provide a counter that others could put on their web page. We agree and here it is. Just place the following code on your site, where you want the 9Kb counter (seen to the left) to appear.

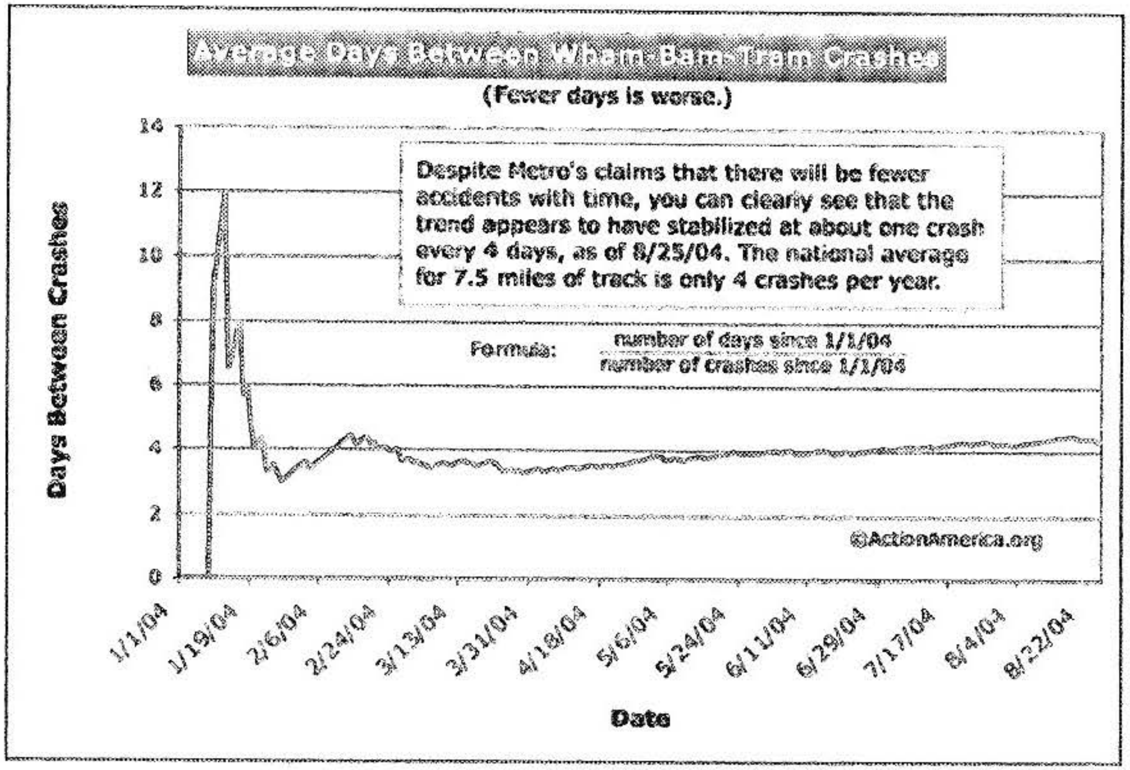
<a href="http://www.actionAmerica.org/houston/index.html"><img src="http://www.actionAmerica.org/images/wham-link.jpg" alt="Wham-Bam-Tram Ram Counter Details" width="140" height="160" border="0"></a>

The crash number on the image will be updated along with this page, so you do **NOT** want to copy the image to your site - just the code.

The counter image is copyright 2004 Action America. All that we require for its free use, is that you link the image back to this page, as provided for, in the code, above. Oh, yes. We would also appreciate it if you would let us know wherre you are using it. — Enjoy.

Certainly, the overt cause of all these crashes is driver error. But, with a 10-month average of almost 2 crashes a week, it becomes clear that the root cause of these crashes is that the

serious design flaws of the Wham-Bam-Tram itself, provoke driver error.




Click on date to go to a news article mentioning that crash.
The 2 dates in red are only referenced on the Houston Chronicle's interactive map of Wham-Bam-Tram crashes and in the Metro Crash Report. The crashes highlighted in light blue were not reported by the media, while those highlighted in yellow, do not appear in the Metro Crash Report.

**11/19 - no injury - Main at Gray**
**12/17 - no injury - Fannin at Southmore**
**12/19 - 1 injury - Main at Alabama**
**12/20 - no injury - Fannin at John Freeman**

**4/17 - 3 injuries/2 on train - Fannin at Rosedale**
**4/21 - 2 injuries - Fannin at Holly Hall (2 cars)**
**5/4 - no injuries - Fannin at a Med Center garage**
**5/5 - no injuries - Fannin at Rosedale**

12/30 - no injury - 8250 1/2 Fannin (driveway)
1/9 - 1 injury - Fannin at Binz

1/13 - no injury - Fannin at John Freeman
1/17 - ?? injury - Fannin at Rosedale
1/19 - 1 injury - Fannin at Dryden
1/20 - ?? injuries - 6500 Fannin near Dryden
1/23 - 2 injuries - (derailed) Kirby at Holmes Rd.
1/23 - no injuries - Fannin at TX Childrens Hosp.
1/26 - 2 injuries - Fannin at Southmore
1/27 - no injury - Main at McGowen
2/3 - no injury - Fannin at Dryden
2/15 - 1 injury - Main at Pierce
2/19 - no injury - Fannin at Southmore (bank lot)
2/21 - no injury - Fannin at Montrose
2/24 - no injury - Fannin at Dryden
2/27 - 1 injury - Fannin at San Jacinto split
2/27 - 1 injury - Fannin at Oakdale
3/1 - no injury - San Jacinto at Southmore
3/3 - no injury - Fannin at Rosedale
3/5 - no injury - San Jacinto at Rosedale (hit & run)
3/10 - no injury - Main at Gray
3/15 - no injury - Main at Gray
3/17 - 1 injury - Pedestrian - Fannin at Reliant Pk.
3/22 - 1 injury - Main at Wheeler
3/23 - no injury - Fannin at TX Childrens Hosp.
3/24 - no injury - Greenbriar near Braeswood
3/27 - 1 injury - Wheelchair - Main at McGowen
3/29 - 3 injuries - Fannin at Binz
4/3 - no injury - Main at St. Joseph Pkwy.
4/7 - no injury - Fannin at John Freeman
4/12 - no injury - Main near Southmore (driveway)

5/9 - no injuries - Fannin near Dryden
5/15 - 1 injury - Fannin at Rosedale

5/24 - no injuries - Fannin at 610E Service Rd.
5/27 - no injuries - Congress at Main
6/3 - no injuries - Rosedale at Fannin
6/7 - no injuries - Fannin at John Freeman
6/8 - no injuries - Main at Pierce
6/16 - 3 injuries - Main at Elgin
6/17 - no injuries - Main at Franklin
6/22 - 1 injury - Main at Alabama
7/2 - no injuries - Fannin at Dryden (Metro fault)
7/8 - 1 critical injury - Pedestrian - Main at Rusk
7/13 - 1 injury - Main at Texas
7/14 - no injuries - Fannin at TX Childrens Hosp.
7/22 - no injuries - Fannin at Holly Hall
7/24 - no injuries - Main at Clay
7/28 - no injuries - Main at Texas
7/29 - no injuries - Fannin near Dryden
8/2 - 2 injuries - Fannin at University
8/19 - ?? injuries - Main at Gray
8/20 - 5 injuries - Main at Congress (prison van)
8/24 - no injuries - McGregor at Fannin
8/25 - 1 injury - Main at Pierce
9/7 - no injuries - Main in Midtown
9/15 - 1 injury - Pedestrian - Main near Lamar
9/19 - 1 injury on train - Main at Pierce
10/4 - 1 injury - Pedestrian - Fannin at Reliant Pk.
10/6 - 1 injury - Pedestrian - Main near Walker
10/8 - no injuries - Main at Franklin
10/22 - no injuries - Main at Jefferson
11/18 - no injuries - Fannin near Ross Sterling

This list only includes crashes involving the Wham-Bam-Tram, itself and does not include other rail related accidents, such as the woman who flipped her car and died, while trying to get her wheel out of the track groove, the two vehicles that ran into the fountain under similar circumstances, the pedestrian who was bumped by the Wham-Bam-Tram during testing, nor the downed power line, that remained hot for over an hour on February 6.

## Highlights

(in reverse order)

# PEDESTRIAN #5!

## (Correction - Not 4 as reported in the media.)

10/4/04: Wham-Bam-Tram passenger is hit after exiting the tram! 2nd pedestrian in one month. The local media is **incorrectly** reporting this as the 4th pedestrian that the Wham-Bam-Tram has hit. It's 5. Click the links. Pedestrians were hit on:

**3/17, 3/27, 7/8, 9/15, 10/4**

Think about it. The national average for all kinds of accidents for a 7.5 mile route, is 4 accidents per year. The Wham-Bam-Tram has passed that, in **pedestrians alone**, in just over 9 months.

# UPDATED TOTAL! 65!

## 9/28/04: Texas Open Records Request Pays Off!

Through the tireless efforts of Congressional candidate, Tom Bazan, we have acquired the latest Wham-Bam-Tram Accident Report from Metro and it isn't pretty. There have been two more crashes that have gone **unreported** by any local news source, since we posted the last Metro report, ending on June 1, 2004. That brings to four, the total number of unreported crashes, since the Wham-Bam-Tram began operation and brings the overall total number of crashes to 65. Of course, that could be changing, even as this is being written, so watch our counter. This is the ONLY place where you will find every Wham-Bam-Tram crash reported.

The effective censorship of news, by the Chronicle and other news outlets, concerning

Wham-Bam-Tram crashes, as is demonstrated by this document, is why we ask our readers to help us stay up to date, by reporting Wham-Bam-Tram crashes, when you see or hear of them (see below).

# IT'S A RECORD! 62!

## The WHAM-BAM-TRAM breaks the Record!

## 4th PEDESTRIAN!

The Houston Wham-Bam-Tram Ram total reached 62, on September 15, breaking the record of 61, set in 2001, by San Francisco's MUNI light rail line. But, it's really much worse than it sounds. The MUNI total occurred over 73.3 route miles of rail and over a period of a whole year, while Houston's Wham-Bam-Tram Ram total only occurred over 7.5 route miles of rail, in less than 10 months. Incidentally, the national crash average for 7.5 miles of track is 4 per year. The Wham-Bam-Tram has now reached that number with **PEDESTRIANS ONLY!** When will Houstonians end this insanity?

# 8/7: The Associated Press Takes Notice of the Wham-Bam-Tram

This AP article was printed in newspapers and reported on TV stations around the state and across the nation, but not in the Houston Chronicle or on KHOU-TV. From the Dallas Morning News to the the Waco Tribune-Herald, from local stations like KTRK-TV and KPRC-TV, to national news archival sites like Topix and 1st Headlines (who both linked to the KTRK-TV version), this AP article was part of the news. It is being discussed on transportation forums and government waste blogs across the country. But our search of the Houston Chronicle and KHOU-TV sites show that neither the Chronicle nor KHOU-TV chose to run this timely AP story about Houston's light rail fiasco, once more showing that, like Nero, while Houstonians' ears are burning, as the nation laughs at Houston, Metro and the Chronicle fiddle. As for KHOU-TV, who knows? I'm not suggesting that KHOU's reporting is great, but they are normally better than that.

We, at Action America, are proud to have provided the URL's for the light rail crash data, in the National Transportation Database, to AP journalist, Mark Babineck, for use in his research for this article and would like to thank him for going to the effort of getting the real facts, rather than just parroting the Metro spin, as has become commonplace for the Houston Chronicle. Of course, those facts are probably why the Chronicle chose not to print it, too. That's the difference between journalism and spin.

Also, congratulations are in order for our friends at the PublisTX Blog, for being mentioned as a source for this article.

## !! We Need Your Help !!
## 8/4: Chronicle policy is now to censor news of Wham-Bam-Tram crashes

Gathering Timely Wham-Bam-Tram Crash Data Will Now Become Much Harder.

If you see or hear of a Wham-Bam-Tram crash please use our "Feedback Form" to let us know about it. We will have to resort to Texas Open Records Act requests, every month or so, to fill in the blanks.

In a comment posted on MET-Houston and forwarded to me by Spence Kerrigan, the Chronicle's Lucas Wall stated, *"But FYI, the Chronicle is no longer reporting every light rail collision in the paper. This decision has to do with space constraints and the fact we do not report on every fender bender car crash."* Wall can't even stop his spinning ways in newsgroup posts. He tries to equate automobile "fender benders", that unless a city vehicle is involved, does not cost taxpayers a dime, with the many Wham-Bam-Tram crashes, each and every one of which, costs the taxpayers of Houston, thousands of dollars, on average ($600,000 in just the first two months) and clearly demonstrates just what a boondoggle the Wham-Bam-Tram has become.

It would seem that since the Chronicle was one of the biggest supporters of what has now become widely known, as the Wham-Bam-Tram Boondoggle, they are now too embarrassed

to keep reporting on what a big mistake it was to build that ill-advised and ill-fated system, in the first place. With arrogance that is typical of the media, they seem to think that if they don't report it, then we shouldn't care about it. So, instead of reporting on Wham-Bam-Tram crashes, that many taxpayers are concerned about, they gleefully report that ridership was up 11% in July, as if anyone outside of Metro should care. Interestingly, since the All Star Game was in July, that number should have been much higher than just 11%. They would like to think that sites like this receive few visitors. In fact, roughly half of the 650,000 plus hits that this site received in August, comprised visit this page.

8/31/04: Thanks in part, to letters from many of our readers, the Chronicle has partially reversed their decision. We understand that they will now report all crashes that fall within FTA guidelines. Those guidelines are concerned only with human injury and damage to the trains - not cars. That means that if the Wham-Bam-Tram, were to total a $200,000 Ferrari Maranello, but the driver was uninjured and the tram only sustained minor cosmetic damage, it would not qualify as a crash under FTA guidelines. Would the Chronicle report such a crash? I would hope so. But, where would they draw the line? Based on the Chronicle's bias on this issue, it is only reasonable to conclude that there will still be a number of crashes that will go unreported. In fact, we are currently in the process of trying to validate information about another possible Wham-Bam-Tram crash that has not been reported by the Chronicle.

Thank you for your understanding and any assistance that you might provide.

## 7/24: $320 Million Tram System Brought to a Halt by Low-hanging Wire

The Chronicle is reporting that two of the Wham-Bam-Tram's hit a low hanging wire yesterday, requiring both trams to be towed in for repair, halting rail service for almost an hour. They do not mention any associated power or telephone outage, so we are left to assume that a small wire remained undamaged, after bringing a $320 million tram service to a complete halt. And, this represents dependability?

## 7/23: More Spin From Metro and their

## Mouthpiece, the Chronicle

Metro and the Chronicle are now trying to make the public believe that the 49th accident, where a pedestrian was almost killed, "DOESN'T COUNT", since they "think" that it "may" have been a suicide attempt. To put things in perspective, the FTA includes ALL accidents, including suicide attempts, kids pranks gone wrong, etc., in the accident statistics for ALL cities. The FTA even includes a column in the reports for attempted or successful suicides. Just because Metro's record is 20 times the national average, including such data, doesn't give them a pass to ignore it. It's just more evidence that the Wham-Bam-Tram should not have been built at grade, ... if at all.

## 7/13: CRASH 50!
## All-Star Game visitor scores the big Five-Oh!
## How's that for a big Houston welcome?

## 7/8: Wham-Bam-Tram Accident Victim Critically Injured; Requires CPR

Hundreds of riders are stranded, as rail system shuts down for over 1-1/2 hours, after pedestrian is hit and dragged 100 yards by the train. This was the 3rd pedestrian victim of the tram and the 4th major outage for the system. The pedestrian accident rate for the Wham-Bam-Tram now exceeds any other city's over-all accident rate.

## 7/1: Tram Driver Suspended With Pay

(Note: When car drivers are at fault, they get a ticket and must pay a fine and damages, while tram drivers get what amounts to a paid vacation. If this is Metro's idea of justice, we can certainly expect to see more tram driver "mistakes".)

## The Escalating Cost of MetroRail

(Note the blood red arches.)

**Total Cost of repairs to rail cars in 2 months: $600,000**
**At that rate, repairs will cost more than 3.5 million dollars this year.**

**Enough is enough! According to a KHOU report, the Wham-Bam-Tram had more crashes in its first two months of operation, than the rail systems of any other city had in the first year of operation. With these numbers, this is a class action suit against the city, just waiting to happen. How many more accidents will it take, before Metro or the City of Houston takes this menace to traffic safety and growing expense to taxpayers out of commission?**

Last updated: November 21, 2004

---

## How Safe Are Children In Your Neighborhood?

To aid you in answering that question, **Action America** provides this link to the official **Texas Department of Public Safety**

**Sex Offenders Database.**

---

## Houston Contact Numbers

Action America provides email and/or phone contacts for the Mayor, City Council and a number of city and county departments, as well as some media sources. Follow this **link**. We hope that you find this and county departments, as well as some media sources. Follow this **link**. We hope that you find this information useful.

## ★ Houston Conservative Links ★

As time goes by, we hope to add more links here. But, for now, here's a start. If you manage or know of a Houston centered Conservative Site that you think should be listed here, please use the **Action America Feedback Page** to let us know and we will review it at our earliest opportunity.

**Houston Area Texans**
The Houston Chapter of The FreeRepublic Network

KSEV Radio

**Chronically Biased**
Keeping tabs on Houston's leading misinformation source

Houston Taxpayer's Discussion Forum

## ★ In Memory of a True Patriot ★

Former Marine (2nd Force Recon) and well known conservative activist, Herb Meadows was killed in an arson house fire on October 4, 2001. As of January 11, 2004, the police and fire departments have issued no finding, other than that it was arson. There were many oddities about the case that investigators were told about, but have yet to act on. Follow this **link** to find out what you can do to bring the perpetrator of this horrible crime to justice.

**MORE TO COME...**

**EXHIBIT XXIX**

**LUCAS WALL, "RAIL RIDERSHIP FIGURES CALLED 'IMPRESSIVE,'" *HOUSTON CHRONICLE*, APRIL 6, 2004**

*April 6, 2004, 3:03AM*

# Rail ridership figures called `impressive'

**By LUCAS WALL**


Ridership on the Main Street light rail line is rapidly growing, according to first-quarter statistics the transit authority released Monday.

**Take a tour:** Explore Houston's new light rail system.

Some 1.58 million passengers have taken the train in the first quarter of this year, and average weekday boardings -- the transit industry's standard for reporting ridership -- has topped 13,000.

An estimated 604,300 passengers rode the train in March, the highest monthly total logged since passenger operations on Houston's first light rail line began Jan. 1. The March total topped the 558,257 boardings estimated for January, when hundreds of thousands of people rode the new train just to have the experience. Last month's tally was boosted by the three-week Houston Livestock Show and Rodeo at Reliant Park, which accounted for about 169,000 boardings.

To gauge true daily demand, Metro compares ridership figures excluding special events, such as the four-day rail grand opening, Super Bowl festivities and the rodeo. The March numbers show roughly 435,000 nonevent trips made aboard trains, a 22 percent increase over February's nonevent boardings of 357,088. January saw 354,180 nonevent boardings.

David Wolff, addressing reporters Monday afternoon at his first news conference as chairman of the Metropolitan Transit Authority, called the ridership figures "impressive."

"Clearly, Houstonians are taking to rail, and rail is rising to the challenge as a key component of meeting Houston's needs for an integrated transit system," Wolff said.

"Our city has been one of dispersed activity centers, often isolated from one another. Now we have people from the Medical Center going downtown for lunch, people who need treatment at the Medical Center are staying at downtown hotels, and families can go to Reliant Park and the Museum District easily on the same day."

He said he expects that number to almost triple by year's end, helped in large part by modifications to Metro's bus system, scheduled to take effect May 30, that will force thousands of passengers to switch to trains.

"We feel these changes will increase our boardings, based on our current ridership, to 35,000 passengers per day," Wolff said.

Despite the increase in ridership, the "street-running" 7 1/2-mile MetroRail line has been plagued by collisions. The latest, No. 32, occurred Friday evening when Metro police say a woman ignored a red light downtown and clipped a train's side.

Metro last week completed adjustments to traffic signals in Midtown and the Museum District to stop all car traffic with red lights 15 seconds before a train enters an intersection. Previously, traffic moving parallel to the trains would get a green light, which Metro police said led to 19 crashes from illegal turns.

Other safety improvements are under review, including whether to extend the all-red signals to the Texas Medical Center.

"We are busy working to get drivers and street-running rail to be compatible," Wolff said. "It would help if drivers would observe the traffic laws."



---

HoustonChronicle.com -- http://www.HoustonChronicle.com | Section: Light rail
This article is: http://www.chron.com/cs/CDA/ssistory.mpl/special/04/lightrail/2487749

# EXHIBIT XXX

# MARGINAL HOURLY COST OF BUS SERVICE

## LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
## MARGINAL HOURLY COST OF BUS SERVICE

| | | Annual Corridor Revenue Hours | | | | Annual Corridor Operating Cost Comparison | | | | Operating Cost Per Bus Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Metro Bus Line | Operator | Existing | Proposed | Change | % Change | Existing | Proposed | Change | % Change | Existing Service | Added Service | Change | % Change |
| South Broadway | MTA | 123,047 | 132,378 | 9,331 | 7.6% | $7,331,000 | $8,484,000 | $1,153,000 | 15.7% | $59.58 | $64.09 | $4.51 | 7.6% |
| Vermont | MTA | 183,575 | 184,899 | 1,324 | 0.7% | 10,476,000 | 11,555,000 | 1,079,000 | 10.3% | 57.07 | 62.49 | 5.43 | 9.5% |
| Florance | MTA | 99,913 | 101,271 | 1,358 | 1.4% | 6,017,000 | 6,457,000 | 440,000 | 7.3% | 60.22 | 63.76 | 3.54 | 5.9% |
| Van Nuys | MTA | 112,379 | 110,510 | (1,869) | -1.7% | 6,929,000 | 7,605,000 | 676,000 | 9.8% | 61.66 | 68.82 | 7.16 | 11.6% |
| Soto | MTA | 101,555 | 102,195 | 640 | 0.6% | 5,752,000 | 6,186,000 | 434,000 | 7.5% | 56.64 | 60.53 | 3.89 | 6.9% |
| Crenshaw-Rossmore | MTA | 105,280 | 105,815 | 535 | 0.5% | 6,336,000 | 6,726,000 | 390,000 | 6.2% | 60.18 | 63.56 | 3.38 | 5.6% |
| Pico | SMMBL | 204,753 | 208,011 | 3,258 | 1.6% | 11,620,000 | 12,443,000 | 823,000 | 7.1% | 56.75 | 59.82 | 3.07 | 5.4% |
| Santa Monica | MTA | 216,705 | 207,935 | (8,770) | -4.0% | 12,329,000 | 12,829,000 | 500,000 | 4.1% | 56.89 | 61.70 | 4.80 | 8.4% |
| Hawthorne | MTA | 140,910 | 139,799 | (1,111) | -0.8% | 8,307,000 | 8,704,000 | 397,000 | 4.8% | 58.95 | 62.26 | 3.31 | 5.6% |
| Long Beach Blvd. | MTA | 163,621 | 166,808 | 3,187 | 1.9% | 9,583,000 | 10,454,000 | 871,000 | 9.1% | 58.57 | 62.67 | 4.10 | 7.0% |
| Hollywood-Fairfax-Pasadena | MTA | 181,724 | 188,481 | 6,757 | 3.7% | 10,236,000 | 11,137,000 | 901,000 | 8.8% | 56.33 | 59.09 | 2.76 | 4.9% |
| Western | MTA | 145,202 | 143,090 | (2,112) | -1.5% | 8,297,000 | 8,859,000 | 562,000 | 6.8% | 57.14 | 61.91 | 4.77 | 8.3% |
| Beverly | MTA | 107,769 | 108,432 | 663 | 0.6% | 6,185,000 | 6,441,000 | 256,000 | 4.1% | 57.39 | 59.40 | 2.01 | 3.5% |
| Vernon-La Clenega | MTA | 91,253 | 91,508 | 255 | 0.3% | 5,528,000 | 5,648,000 | 120,000 | 2.2% | 60.58 | 61.72 | 1.14 | 1.9% |
| Atlantic | MTA | 88,071 | 88,224 | 153 | 0.2% | 5,394,000 | 5,860,000 | 466,000 | 8.6% | 61.25 | 66.42 | 5.18 | 8.5% |
| Central | MTA | 74,634 | 76,037 | 1,403 | 1.9% | 4,484,000 | 4,731,000 | 247,000 | 5.5% | 60.08 | 62.22 | 2.14 | 3.6% |
| San Fernando-Lankershim | MTA | N/A | 19,457 | 19,457 | N/A | N/A | 1,521,000 | 1,521,000 | | | 78.17 | 78.17 | |
| West Olympic | MTA | 108,615 | 113,970 | 5,355 | 4.9% | 6,482,000 | 7,191,000 | 709,000 | 10.9% | 59.68 | 63.10 | 3.42 | 5.7% |
| Garvey-Chavez | MTA | 192,770 | 178,778 | (13,992) | -7.3% | 11,321,000 | 10,950,000 | (371,000) | -3.3% | 58.73 | 61.25 | 2.52 | 4.3% |
| Manchester | MTA | 81,064 | 81,064 | 0 | 0.0% | 5,022,000 | 5,122,000 | 100,000 | 2.0% | 61.95 | 63.18 | 1.23 | 2.0% |
| San Fernando (south) | MTA | 120,556 | 113,084 | (7,472) | -6.2% | 7,794,000 | 7,516,000 | (278,000) | -3.6% | 64.65 | 66.46 | 1.81 | 2.8% |
| Sepulveda (south) | CCMBL | 60,029 | 59,519 | (510) | -0.8% | 3,372,000 | 3,504,000 | 132,000 | 3.9% | 56.17 | 58.87 | 2.70 | 4.8% |
| Torrance-Long Beach | TT | 51,912 | 48,597 | (3,315) | -6.4% | 3,202,000 | 3,207,000 | 5,000 | 0.2% | 61.68 | 65.99 | 4.31 | 7.0% |
| Lincoln | SMMBL | 72,535 | 73,657 | 1,122 | 1.5% | 4,211,000 | 4,633,000 | 422,000 | 10.0% | 58.05 | 62.90 | 4.84 | 8.3% |
| MTA-Only Subtotals | | 2,438,643 | 2,453,735 | 15,092 | 0.6% | 143,803,000 | 153,976,000 | 10,173,000 | 7.1% | $\boxed{58.97}$ | 62.75 | 3.78 | 6.4% |
| Non-MTA Subtotals | | 389,229 | 389,784 | 555 | 0.1% | 22,405,000 | 23,787,000 | 1,382,000 | 6.2% | 57.56 | 61.03 | 3.46 | 6.0% |
| Grand Totals | | 2,827,872 | 2,843,519 | 15,647 | 0.6% | $166,208,000 | $177,763,000 | $11,555,000 | 7.0% | $58.77 | $62.52 | $3.74 | 6.4% |

### Notes

All data from MTA Board Action Item, "Metro Rapid Five-Year Implementation Plan – Approve Implementation of the Metro Rapid Five-Year Implementation Plan," September 18, 2002, "Metro Rapid Five Year Implementation F Transportation Management & Design, Inc., August 2002.

"Operator" from Section 3.2, "Metro Rapid Service Providers," pp. 5-6.

"Annual Corridor Revenue Hours" data from Table 4, "Corridor Service Requirement Comparison."

Annual Corridor Operating Cost Comparison" data from Table 5 of that name. From Note 2 to this Table, costs are in FY2002 dollars.

The following is from Section 5.2, "Operating Costs," page 9: "Table 5 indicates the estimated annual operating costs for each of the Metro Rapid corridors based on the most recent available MTA cost allocation model for marginal costing."

Under "Operators," "CCMBL" is Culver City Municipal Bus Lines," "SMMBL" is Santa Monica Municipal Bus Lines, and "TT" is Torrance Transit System.

The $58.97 value highlighted above is the weighted average marginal cost for over 2.4 million of bus revenue service hours operated on 20 routes, many of them major ones, in FY02.

# EXHIBIT XXXI

# LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY MID-CITY/WESTSIDE TRANSIT CORRIDOR STUDY DRAFT EIS/EIR APRIL 6, 2001 (EXCERPTS)

way segment, additional funding would be required if the subway design option were to be incorporated into the Expo BRT or LRT project.

**Issue #8 - Expo BRT/LRT: Sepulveda Boulevard Shared Lane**

A dedicated bus or LRT facility on Sepulveda Boulevard would require widening of the street curb-to-curb dimension to approximately 84 feet. The community has expressed strong opposition to any such widening, as it would require the narrowing of sidewalks and landscaped parkway areas to 8 feet and the removal of 157 on-street parking spaces (approximately 30% of the total of 526 on-street parking spaces located along this segment of Sepulveda Boulevard). Off-street parking would need to be developed as a mitigation measure for this impact.

Alternatively, this impact could be reduced or eliminated if the BRT were operated as a Rapid Bus (no dedicated lane) in this segment or the LRT were operated as a streetcar (no dedicated lane) in this segment. The implementation of Rapid Bus or Streetcar LRT service in this segment would reduce one of the significant project impacts, but would also reduce the effectiveness of the BRT/LRT, particularly during the rush hour periods, when significant traffic congestion levels would slow the transit running times. This potential impact would require more detailed engineering before a definitive definition of this impact can be defined, and would be evaluated as a part of the Final EIS/Preliminary Engineering.

**Issue #9 - Exposition BRT/LRT: Equity of At-grade Alignment**

A number of residential areas along the Exposition route have expressed concerns regarding the potential proximity effects of bus or light rail operations at-grade in residential areas. These concerns have been expressed in South Los Angeles, Baldwin Hills and East Culver City neighborhoods. The communities have placed strong emphasis on mitigation treatments in other residential areas and maintain that an equitable treatment would be place bus or LRT operations in a subway configuration adjacent to their areas. For LRT operations, placing the LRT in a shallow cut or trench with adjacent earth berms or low soundwalls could reduce these types of community concerns. Because of the 10-foot height of bus exhaust stacks (a primary noise source) the shallow cut would have to accompanied by a 7 to 8 foot wall or berm.

Other neighborhoods have been concerned about the overall alignment for Exposition and the MTA Board's explicit direction for the preferred Exposition alignment to depart from the MTA owned right-of-way between Venice and Sepulveda in order to avoid the neighborhoods in the Cheviot Hills section of the corridor. Both the cities of Los Angeles and Culver City have asked the MTA to revisit this decision because of the impacts to Venice and Sepulveda boulevards due to the LRT alignment using these city thoroughfares.

**Issue #10 - Wilshire BRT/Exposition LRT: Pedestrian and Vehicular Safety**

As noted in the description for Alternative 1 and 1a, station platforms would be constructed in the center median of Wilshire Boulevard. The safety of transit patrons getting to these center platforms as well as the size of platforms has been identified as an issue of concern. Within the City of Santa Monica segment, the large number of unsignalized pedestrian crosswalks has been a concern of the City. The Wilshire BRT proposal would provide signals at all crosswalks, however, the volume of pedestrian activity in Santa Monica remains a concern.

The conversion of the former Exposition railroad right-of-way for an exclusive bus or light rail facility has raised concerns regarding both cross street vehicular safety and pedestrian crossing safety. The proposed BRT or LRT project would include fencing along segments of the route, and special designs would be implemented to designate pedestrian crossings of the transitway. A parallel bikepath will be designed in such a way to provide continuous separation between the bikeway and the transitway. Near areas of pedestrian activity, signalized pedestrian crossings would be employed to protect pedestrians from both cars and transit vehicles.

At vehicular intersections, crossing gates would be utilized where transit speeds are greater than 35 mph. Such gates may not be possible in certain areas due to noise or traffic concerns, and in such cases, transit speeds would be slowed to less than 35 mph.

| SAFETY (Section 3.14) - The focus of this topic is whether the proposed improvements create unique hazards to pedestrians or to motorists. | | | |
|---|---|---|---|
| | **Wilshire BRT** | **Wilshire BRT/ Exposition BRT** | **Wilshire BRT/ Exposition LRT** |
| **Impact** | Pedestrians will be required to cross Wilshire Blvd only at signalized intersections. Pedestrians will be required to queue on median island platforms in Wilshire Boulevard. Curb Lane Alt 1B would not require pedestrians to use median island platforms. | Same as Wilshire BRT. Exposition BRT route passes adjacent to schools and parks where pedestrian activity is high. Pedestrians will be required to cross BRT lanes only at signalized intersections. | Same as Wilshire BRT. Exposition LRT route passes adjacent to schools and parks where pedestrian activity is high. Pedestrians will be required to cross LRT lanes only at signalized intersections. |
| **Degree** | Alt 1. Significant at unsignalized crosswalks. Significant if station median island platforms are too small to accommodate pedestrian queues. Less than significant for motorists. Alt 1A -Significant for vehicle left turns. Alt 1B - Less than significant for vehicle right turns. | Significant | Significant |
| **Mitigation** | All pedestrian crosswalk crossings shall be signalized.; Median island stations shall be of sufficient width and length to meet anticipated pedestrian queues, platform barriers may also be installed; posting warning signs, and identifiable BRT lane demarcations; left turning motorists shall have a dedicated left turn pocket and signal phase. | Crossing gates shall be installed at all streets crossing the Exposition ROW where BRT operates at speeds above 35 mph. Pedestrian crossing gates shall be installed near schools; Fencing shall be installed in all segments with BRT speeds greater than 35 mph; school and community safety education/information programs shall be implemented. | Crossing gates shall be installed at all streets crossing the Exposition ROW where BRT operates at speeds above 35 mph. Pedestrian crossing gates shall be installed near schools; Fencing shall be installed in all segments with LRT speeds greater than 35 mph; school and community safety education/information programs shall be implemented. |
| **Conclusion** | Beneficial impact to pedestrians. Less than significant for motorists. | Less than significant | Less than significant |

- *Mitigation Measure 3.14-2:* All station areas shall be lighted to provide a safe environment and visibility of the station platform and parking areas from adjacent land uses.
- *Mitigation Measure 3.14-3:* For all schools and parks within one-half mile of the transit alignment, the LACMTA shall sponsor a pedestrian safety education program, explaining acceptable methods to cross the guideway lanes.
- *Mitigation Measure 3.14-4:* In all mixed flow sections of the route, where transit vehicles will operate in street traffic, appropriate warning signs shall be installed making drivers aware of the condition, particularly in those segments where LRT vehicles will operate in mixed traffic.

Implementation of Mitigation Measures 3.14-1 through 3.14-4 will ensure a less than significant impact (with respect to motorists) or beneficial impact (with respect to pedestrians) would occur.

**Alternative 1A: Wilshire BRT (Median Adjacent Design Option)**

Many of the same safety concerns for motorists described for the Wilshire BRT Median Reconstruction Baseline (Alternative 1) are also applicable for the Wilshire BRT Median Adjacent Design Option. The main difference from the standpoint of motorist safety is the location of the interface between the motorist and the BRT. In this alternative, a motorist intending to make a left turn must first merge into the BRT lane and then merge into the exclusive left turn lane, all in one movement. This alignment moves the conflict point between the motorist and the BRT from the signalized intersection, to the approach lanes, where the movement is not controlled. Although conducting a lane change is generally not considered a high risk movement, the motorist must cross the BRT lane into the exclusive left turn lane at a speed that may be slower than the speed of the BRT (approaching from behind). This difference in speed may cause the motorist to misjudge the speed of the BRT approaching from behind and create a potentially hazardous situation and a potentially significant safety impact. However, implementation of Mitigation Measures 3.14-1 through 3.14-4 will ensure that a less-than-significant impact (with respect to motorists) or a beneficial impact (with respect to pedestrians) would occur.

**Alternative 1B: Wilshire BRT (Curb Adjacent Design Option)**

Many of the same safety concerns for motorists described for the Wilshire BRT Median Reconstruction Baseline (Alternative 1) are also applicable for the Wilshire BRT Curb Adjacent Design Option. The main difference from the standpoint of motorist safety is the location of the interface between the motorist and the BRT. This alternative eliminates the possibility of a left turning motorist becoming involved in a collision with a bus approaching from behind. However, in this alternative, a motorist making a right turn has an additional conflict to consider prior to conducting the right turn. The motorist must turn into and drive in the exclusive BRT lane in order to turn right. This movement is generally not considered a high risk movement, as the motorist should have adequate visibility of a bus approaching on the right. However, the bus will be required to yield the right of way to a motorist making a right turn in the exclusive bus lane. Impacts would be less than significant (with respect to motorists) and beneficial (with respect to pedestrians).

**Alternative 2: Wilshire BRT and Exposition BRT (Full Length)**

In addition to the safety impact for the Wilshire BRT alternative, discussed previously, the introduction of BRT along the Exposition corridor will have various safety impacts. The alignment type and operational characteristics of the BRT in a semi-exclusive right of way creates a situation similar to light rail transit. The Exposition BRT line utilizes a similar alignment to that of the Exposition LRT and has similar operating parameters. As such, many of the safety treatments utilized for the Exposition LRT alignment can also be utilized for the Exposition BRT alignment. However, some differences do exist. The use of automatic gates at BRT crossings has not been attempted in the United States, and may require special legislation in order to install the devices.

Also, in order to detect the bus to allow for full preemption of the traffic signal and to lower the automatic gates, BRT detection must be used. Trains have this detection feature built into the tracks, but buses do not have that option. Inductive loops may be the favorable solution, but they must have a built in redundant system to provide a fail-safe grade crossing. As such, if the loops malfunction, the gates lower, not allowing motorist or pedestrians to enter the crossing. A fail-safe design is necessary when using gates, because the BRT operator is not expecting to stop at the crossing.

Another factor that must be addressed with the use of gates at grade crossings is the frequency at which the bus arrives at the crossing. It can take from 40-60 seconds for a bus to clear a grade crossing, including the time required to call and lower the gates, pass through the crossing, and raise the gates after the bus has passed. As such, if the headway for the BRT is too small, the cross street traffic could be adversely affected, resulting in a potentially significant impacts. A possible solution for this is to platoon the buses through the grade crossings that are gate controlled, so that the total delay for the cross street is minimized.

In addition to the impact on student safety of the Wilshire BRT alignment, the Exposition BRT alignment will also have a positive impact on student safety. Twenty-two (22) schools exist within ½ mile of the Exposition BRT alignment, 13 of which are in the Exposition BRT MOS. Along the Exposition BRT alignment, 13 new traffic signals will be installed within ½ mile of the existing schools. Along the Exposition BRT MOS, 4 new traffic signals will be installed within ½ mile of an existing school. All of the traffic signals will be equipped with pedestrian signals. The additional signalized pedestrian crossings of Wilshire Boulevard and the Exposition right-of-way will increase pedestrian safety along the alignment.

Another factor to be considered with the introduction of the Exposition BRT is trespassing along the BRT right-of-way. Because the BRT will be traveling at speeds up to 55 mph, trespassing along the right-of-way is a primary concern. Fencing will be provided on the outside of the busway at all locations where the BRT exceeds 35 mph. In addition, at designated pedestrian crossings along the side-running alignment of the BRT located within a school zone, pedestrian automatic gates may be utilized to increase student safety. A pedestrian automatic gate is configured and operates much in the same manner as a vehicular gate, blocking the pedestrian approach in the presence of a bus.

In addition to the impact on pedestrian safety near parks along the Wilshire BRT alignment, the Exposition BRT alignment will also have a positive impact on pedestrian safety. Thirteen (13) parks exist within ½ mile of the Exposition BRT alignment, 8 of which are in the Exposition BRT MOS. Along the Exposition BRT alignment, 10 new traffic signals will be installed within ½ mile of the existing parks. Along the Exposition BRT MOS, 3 new traffic signals will be installed within ½ mile of an existing park. All of the traffic signals will be equipped with pedestrian signals. The additional signalized pedestrian crossings of Wilshire Boulevard and the Exposition right-of-way will increase pedestrian safety along the alignment.

Implementation of Mitigation Measures 3.14-5 through 3.14-9 will ensure that less than significant impacts occur:

- *Mitigation Measure 3.14-5:* In the vicinity of all schools along the Exposition alignment, pedestrian crossing gates shall be installed.
- *Mitigation Measure 3.14-6:* All station areas shall be lighted to provide a safe environment and visibility of the station platform and parking areas from adjacent land uses.
- *Mitigation Measure 3.14-7:* For all schools and parks within one-half mile of the transit alignment, the LACMTA shall sponsor a pedestrian safety education program, explaining acceptable methods to cross the guideway lanes.
- *Mitigation Measure 3.14-8:* In all mixed flow sections of the route, where transit vehicles will operate in street traffic, appropriate warning signs shall be installed making drivers aware of the condition.
- *Mitigation Measure 3.14-9:* All stations will be equipped with monitoring equipment and/or be monitored by LACMTA security personnel on a regular periodic basis.

**Alternative 2A: Wilshire BRT and Exposition BRT (MOS)**

Impacts would be similar to the Alternative 2. The MOS would include the portion of the corridor that contains the greatest concentration of schools and parks that would generate safety concerns.

**Alternative 3: Wilshire BRT and Exposition LRT (Full Length)**

In addition to the safety impact for the Wilshire BRT alternative, discussed previously, the introduction of LRT along the Exposition corridor will have various safety impacts. A review of data from prior research, safety oversight authorities and direct surveys of LRT system staff in the western United States conducted in recent years reveals that LRV-pedestrian collisions are divided into two general location types. The first location type, at station platforms, represents the largest percentage of LRV-pedestrian collisions. This high percentage may be attributed to the inherent purpose of a station, where large numbers of people converge near light rail vehicles, and cross the trackway. Many collisions at stations are also easily preventable, through safe design, appropriate signage and public education to encourage safe behavior. The second location type is along the LRT right-of-way, away from the stations. This location type includes paths to stations, such as crossings at intersections where pedestrians cross over the light rail tracks, and right of way intrusion (trespassing).

Although the low number and unique circumstances of historic pedestrian collisions do not allow a valid quantitative projection for the Exposition LRT alignment, some trends are present in the background data of collision causes. For example, pedestrians standing too close to the edge of the platform as a light rail vehicle approaches, represent a large number of LRV-pedestrian collisions at stations. In addition, intoxicated pedestrians represent a large percentage of the collisions. Furthermore, LRV-pedestrian collisions at crossings are typically the result of pedestrians proceeding without waiting for a green signal to walk.

Achieving a low number of pedestrian involved collisions with LRV is a result of several conditions including safety orientated design, light rail operator training, train speeds, and public education that warns pedestrians of potential hazards involved with light rail transit.

# EXHIBIT XXXI

# LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY MID-CITY/WESTSIDE TRANSIT CORRIDOR STUDY DRAFT EIS/EIR APRIL 6, 2001 (EXCERPTS)

way segment, additional funding would be required if the subway design option were to be incorporated into the Expo BRT or LRT project.

**Issue #8 - Expo BRT/LRT: Sepulveda Boulevard Shared Lane**

A dedicated bus or LRT facility on Sepulveda Boulevard would require widening of the street curb-to-curb dimension to approximately 84 feet. The community has expressed strong opposition to any such widening, as it would require the narrowing of sidewalks and landscaped parkway areas to 8 feet and the removal of 157 on-street parking spaces (approximately 30% of the total of 526 on-street parking spaces located along this segment of Sepulveda Boulevard). Off-street parking would need to be developed as a mitigation measure for this impact.

Alternatively, this impact could be reduced or eliminated if the BRT were operated as a Rapid Bus (no dedicated lane) in this segment or the LRT were operated as a streetcar (no dedicated lane) in this segment. The implementation of Rapid Bus or Streetcar LRT service in this segment would reduce one of the significant project impacts, but would also reduce the effectiveness of the BRT/LRT, particularly during the rush hour periods, when significant traffic congestion levels would slow the transit running times. This potential impact would require more detailed engineering before a definitive definition of this impact can be defined, and would be evaluated as a part of the Final EIS/Preliminary Engineering.

**Issue #9 - Exposition BRT/LRT: Equity of At-grade Alignment**

A number of residential areas along the Exposition route have expressed concerns regarding the potential proximity effects of bus or light rail operations at-grade in residential areas. These concerns have been expressed in South Los Angeles, Baldwin Hills and East Culver City neighborhoods. The communities have placed strong emphasis on mitigation treatments in other residential areas and maintain that an equitable treatment would be place bus or LRT operations in a subway configuration adjacent to their areas. For LRT operations, placing the LRT in a shallow cut or trench with adjacent earth berms or low soundwalls could reduce these types of community concerns. Because of the 10-foot height of bus exhaust stacks (a primary noise source) the shallow cut would have to accompanied by a 7 to 8 foot wall or berm.

Other neighborhoods have been concerned about the overall alignment for Exposition and the MTA Board's explicit direction for the preferred Exposition alignment to depart from the MTA owned right-of-way between Venice and Sepulveda in order to avoid the neighborhoods in the Cheviot Hills section of the corridor. Both the cities of Los Angeles and Culver City have asked the MTA to revisit this decision because of the impacts to Venice and Sepulveda boulevards due to the LRT alignment using these city thoroughfares.

**Issue #10 - Wilshire BRT/Exposition LRT: Pedestrian and Vehicular Safety**

As noted in the description for Alternative 1 and 1a, station platforms would be constructed in the center median of Wilshire Boulevard. The safety of transit patrons getting to these center platforms as well as the size of platforms has been identified as an issue of concern. Within the City of Santa Monica segment, the large number of unsignalized pedestrian crosswalks has been a concern of the City. The Wilshire BRT proposal would provide signals at all crosswalks, however, the volume of pedestrian activity in Santa Monica remains a concern.

The conversion of the former Exposition railroad right-of-way for an exclusive bus or light rail facility has raised concerns regarding both cross street vehicular safety and pedestrian crossing safety. The proposed BRT or LRT project would include fencing along segments of the route, and special designs would be implemented to designate pedestrian crossings of the transitway. A parallel bikepath will be designed in such a way to provide continuous separation between the bikeway and the transitway. Near areas of pedestrian activity, signalized pedestrian crossings would be employed to protect pedestrians from both cars and transit vehicles.

At vehicular intersections, crossing gates would be utilized where transit speeds are greater than 35 mph. Such gates may not be possible in certain areas due to noise or traffic concerns, and in such cases, transit speeds would be slowed to less than 35 mph.

**SAFETY (Section 3.14) -** The focus of this topic is whether the proposed improvements create unique hazards to pedestrians or to motorists.

| | Wilshire BRT | Wilshire BRT/ Exposition BRT | Wilshire BRT/ Exposition LRT |
|---|---|---|---|
| **Impact** | Pedestrians will be required to cross Wilshire Blvd only at signalized intersections. Pedestrians will be required to queue on median island platforms in Wilshire Boulevard. Curb Lane Alt 1B would not require pedestrians to use median island platforms. | Same as Wilshire BRT. Exposition BRT route passes adjacent to schools and parks where pedestrian activity is high. Pedestrians will be required to cross BRT lanes only at signalized intersections. | Same as Wilshire BRT. Exposition LRT route passes adjacent to schools and parks where pedestrian activity is high. Pedestrians will be required to cross LRT lanes only at signalized intersections. |
| **Degree** | Alt 1. Significant at unsignalized crosswalks. Significant if station median island platforms are too small to accommodate pedestrian queues. Less than significant for motorists. Alt 1A -Significant for vehicle left turns. Alt 1B - Less than significant for vehicle right turns. | Significant | Significant |
| **Mitigation** | All pedestrian crosswalk crossings shall be signalized.; Median island stations shall be of sufficient width and length to meet anticipated pedestrian queues, platform barriers may also be installed; posting warning signs, and identifiable BRT lane demarcations; left turning motorists shall have a dedicated left turn pocket and signal phase. | Crossing gates shall be installed at all streets crossing the Exposition ROW where BRT operates at speeds above 35 mph. Pedestrian crossing gates shall be installed near schools; Fencing shall be installed in all segments with BRT speeds greater than 35 mph; school and community safety education/information programs shall be implemented. | Crossing gates shall be installed at all streets crossing the Exposition ROW where BRT operates at speeds above 35 mph. Pedestrian crossing gates shall be installed near schools; Fencing shall be installed in all segments with LRT speeds greater than 35 mph; school and community safety education/information programs shall be implemented. |
| **Conclusion** | Beneficial impact to pedestrians. Less than significant for motorists. | Less than significant | Less than significant |

- *Mitigation Measure 3.14-2:* All station areas shall be lighted to provide a safe environment and visibility of the station platform and parking areas from adjacent land uses.
- *Mitigation Measure 3.14-3:* For all schools and parks within one-half mile of the transit alignment, the LACMTA shall sponsor a pedestrian safety education program, explaining acceptable methods to cross the guideway lanes.
- *Mitigation Measure 3.14-4:* In all mixed flow sections of the route, where transit vehicles will operate in street traffic, appropriate warning signs shall be installed making drivers aware of the condition, particularly in those segments where LRT vehicles will operate in mixed traffic.

Implementation of Mitigation Measures 3.14-1 through 3.14-4 will ensure a less than significant impact (with respect to motorists) or beneficial impact (with respect to pedestrians) would occur.

**<u>Alternative 1A: Wilshire BRT (Median Adjacent Design Option)</u>**

Many of the same safety concerns for motorists described for the Wilshire BRT Median Reconstruction Baseline (Alternative 1) are also applicable for the Wilshire BRT Median Adjacent Design Option. The main difference from the standpoint of motorist safety is the location of the interface between the motorist and the BRT. In this alternative, a motorist intending to make a left turn must first merge into the BRT lane and then merge into the exclusive left turn lane, all in one movement. This alignment moves the conflict point between the motorist and the BRT from the signalized intersection, to the approach lanes, where the movement is not controlled. Although conducting a lane change is generally not considered a high risk movement, the motorist must cross the BRT lane into the exclusive left turn lane at a speed that may be slower than the speed of the BRT (approaching from behind). This difference in speed may cause the motorist to misjudge the speed of the BRT approaching from behind and create a potentially hazardous situation and a potentially significant safety impact. However, implementation of Mitigation Measures 3.14-1 through 3.14-4 will ensure that a less-than-significant impact (with respect to motorists) or a beneficial impact (with respect to pedestrians) would occur.

**<u>Alternative 1B: Wilshire BRT (Curb Adjacent Design Option)</u>**

Many of the same safety concerns for motorists described for the Wilshire BRT Median Reconstruction Baseline (Alternative 1) are also applicable for the Wilshire BRT Curb Adjacent Design Option. The main difference from the standpoint of motorist safety is the location of the interface between the motorist and the BRT. This alternative eliminates the possibility of a left turning motorist becoming involved in a collision with a bus approaching from behind. However, in this alternative, a motorist making a right turn has an additional conflict to consider prior to conducting the right turn. The motorist must turn into and drive in the exclusive BRT lane in order to turn right. This movement is generally not considered a high risk movement, as the motorist should have adequate visibility of a bus approaching on the right. However, the bus will be required to yield the right of way to a motorist making a right turn in the exclusive bus lane. Impacts would be less than significant (with respect to motorists) and beneficial (with respect to pedestrians).

**<u>Alternative 2: Wilshire BRT and Exposition BRT (Full Length)</u>**

In addition to the safety impact for the Wilshire BRT alternative, discussed previously, the introduction of BRT along the Exposition corridor will have various safety impacts. The alignment type and operational characteristics of the BRT in a semi-exclusive right of way creates a situation similar to light rail transit. The Exposition BRT line utilizes a similar alignment to that of the Exposition LRT and has similar operating parameters. As such, many of the safety treatments utilized for the Exposition LRT alignment can also be utilized for the Exposition BRT alignment. However, some differences do exist. The use of automatic gates at BRT crossings has not been attempted in the United States, and may require special legislation in order to install the devices.

Also, in order to detect the bus to allow for full preemption of the traffic signal and to lower the automatic gates, BRT detection must be used. Trains have this detection feature built into the tracks, but buses do not have that option. Inductive loops may be the favorable solution, but they must have a built in redundant system to provide a fail-safe grade crossing. As such, if the loops malfunction, the gates lower, not allowing motorist or pedestrians to enter the crossing. A fail-safe design is necessary when using gates, because the BRT operator is not expecting to stop at the crossing.

Another factor that must be addressed with the use of gates at grade crossings is the frequency at which the bus arrives at the crossing. It can take from 40-60 seconds for a bus to clear a grade crossing, including the time required to call and lower the gates, pass through the crossing, and raise the gates after the bus has passed. As such, if the headway for the BRT is too small, the cross street traffic could be adversely affected, resulting in a potentially significant impacts. A possible solution for this is to platoon the buses through the grade crossings that are gate controlled, so that the total delay for the cross street is minimized.

In addition to the impact on student safety of the Wilshire BRT alignment, the Exposition BRT alignment will also have a positive impact on student safety. Twenty-two (22) schools exist within ½ mile of the Exposition BRT alignment, 13 of which are in the Exposition BRT MOS. Along the Exposition BRT alignment, 13 new traffic signals will be installed within ½ mile of the existing schools. Along the Exposition BRT MOS, 4 new traffic signals will be installed within ½ mile of an existing school. All of the traffic signals will be equipped with pedestrian signals. The additional signalized pedestrian crossings of Wilshire Boulevard and the Exposition right-of-way will increase pedestrian safety along the alignment.

Another factor to be considered with the introduction of the Exposition BRT is trespassing along the BRT right-of-way. Because the BRT will be traveling at speeds up to 55 mph, trespassing along the right-of-way is a primary concern. Fencing will be provided on the outside of the busway at all locations where the BRT exceeds 35 mph. In addition, at designated pedestrian crossings along the side-running alignment of the BRT located within a school zone, pedestrian automatic gates may be utilized to increase student safety. A pedestrian automatic gate is configured and operates much in the same manner as a vehicular gate, blocking the pedestrian approach in the presence of a bus.

In addition to the impact on pedestrian safety near parks along the Wilshire BRT alignment, the Exposition BRT alignment will also have a positive impact on pedestrian safety. Thirteen (13) parks exist within ½ mile of the Exposition BRT alignment, 8 of which are in the Exposition BRT MOS. Along the Exposition BRT alignment, 10 new traffic signals will be installed within ½ mile of the existing parks. Along the Exposition BRT MOS, 3 new traffic signals will be installed within ½ mile of an existing park. All of the traffic signals will be equipped with pedestrian signals. The additional signalized pedestrian crossings of Wilshire Boulevard and the Exposition right-of-way will increase pedestrian safety along the alignment.

Implementation of Mitigation Measures 3.14-5 through 3.14-9 will ensure that less than significant impacts occur:

- *Mitigation Measure 3.14-5:* In the vicinity of all schools along the Exposition alignment, pedestrian crossing gates shall be installed.
- *Mitigation Measure 3.14-6:* All station areas shall be lighted to provide a safe environment and visibility of the station platform and parking areas from adjacent land uses.
- *Mitigation Measure 3.14-7:* For all schools and parks within one-half mile of the transit alignment, the LACMTA shall sponsor a pedestrian safety education program, explaining acceptable methods to cross the guideway lanes.
- *Mitigation Measure 3.14-8:* In all mixed flow sections of the route, where transit vehicles will operate in street traffic, appropriate warning signs shall be installed making drivers aware of the condition.
- *Mitigation Measure 3.14-9:* All stations will be equipped with monitoring equipment and/or be monitored by LACMTA security personnel on a regular periodic basis.

**Alternative 2A: Wilshire BRT and Exposition BRT (MOS)**

Impacts would be similar to the Alternative 2. The MOS would include the portion of the corridor that contains the greatest concentration of schools and parks that would generate safety concerns.

**Alternative 3: Wilshire BRT and Exposition LRT (Full Length)**

In addition to the safety impact for the Wilshire BRT alternative, discussed previously, the introduction of LRT along the Exposition corridor will have various safety impacts. A review of data from prior research, safety oversight authorities and direct surveys of LRT system staff in the western United States conducted in recent years reveals that LRV-pedestrian collisions are divided into two general location types. The first location type, at station platforms, represents the largest percentage of LRV-pedestrian collisions. This high percentage may be attributed to the inherent purpose of a station, where large numbers of people converge near light rail vehicles, and cross the trackway. Many collisions at stations are also easily preventable, through safe design, appropriate signage and public education to encourage safe behavior. The second location type is along the LRT right-of-way, away from the stations. This location type includes paths to stations, such as crossings at intersections where pedestrians cross over the light rail tracks, and right of way intrusion (trespassing).

Although the low number and unique circumstances of historic pedestrian collisions do not allow a valid quantitative projection for the Exposition LRT alignment, some trends are present in the background data of collision causes. For example, pedestrians standing too close to the edge of the platform as a light rail vehicle approaches, represent a large number of LRV-pedestrian collisions at stations. In addition, intoxicated pedestrians represent a large percentage of the collisions. Furthermore, LRV-pedestrian collisions at crossings are typically the result of pedestrians proceeding without waiting for a green signal to walk.

Achieving a low number of pedestrian involved collisions with LRV is a result of several conditions including safety orientated design, light rail operator training, train speeds, and public education that warns pedestrians of potential hazards involved with light rail transit.