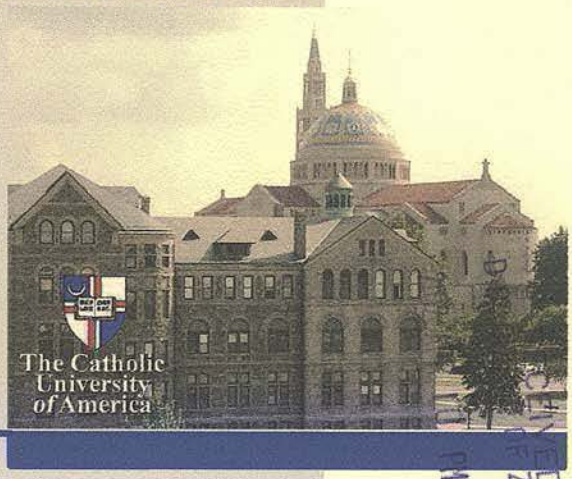
THE CATHOLIC UNIVERSITY OF AMERICA
Washington, D.C.

# The Catholic University of America Campus Master Plan Update -

## *Traffic Impact Assessment*




FILED
ZONING
2:57 PM

*Prepared for:*
**THE CATHOLIC UNIVERSITY OF AMERICA**
Facilities Planning & Construction Department
620 Michigan Avenue, N.E,
Washington D.C. 20064

*Prepared by:*
**O. R. GEORGE & ASSOCIATES, INC.**
Transportation Planning & Engineering Consultants
10210 Greenbelt Road, Suite # 310
Greenbelt, Maryland 20706

April, 2002

ZONING COMMISSION
District of Columbia
CASE NO. 02-38
EXHIBIT NO. 17

ZONING COMMISSION
District of Columbia
Case No. 02-38
Exhibit No. 17

# TABLE OF CONTENTS


Page

**1.0 INTRODUCTION** ..... 1

1.1 Project Background ..... 1
1.2 Study Purpose and Scope ..... 1
1.3 Report Organization and Summary ..... 2

**2.0 EXISTING TRANSPORTATION CONDITIONS** ..... 4

2.1 Land Use and Zoning ..... 4
2.2 Existing Study Area Roadway Network ..... 4
2.3 Existing Peak Hour Traffic Situation ..... 5
2.4 University Traffic Access Patterns ..... 10
2.5 Existing Internal Circulation Situation ..... 12
2.6 Existing Parking Situation ..... 12
2.7 Transit and Multi-Modal Services ..... 16

**3.0 FUTURE TRAFFIC SITUATION** ..... 17

3.1 Background ..... 17
3.2 Through Traffic Growth ..... 17
3.3 Potential Local Area Land Use Developments ..... 18

**4.0 CAMPUS MASTER PLAN AND DEVELOPMENT IMPACTS** ..... 22

4.1 Background ..... 22
4.2 Campus Land Use Plan ..... 22
4.3 Trip Generation Considerations ..... 23
4.4 Trip Distribution and Traffic Assignment ..... 24
4.5 Parking Needs Assessment ..... 25
4.6 Potential Mitigation Measures ..... 29

**5.0 SUMMARY AND CONCLUSION** ..... 30

# LIST OF EXHIBITS


| | | Page |
|---|---|---|
| 1 - | Site Location Map – The Catholic University of America | 3 |
| 2 - | Study Area Roadway Lane Configuration | 6 |
| 3 - | Existing Peak Hour Turning Movement Volumes | 7 |
| 4 - | Existing AM Campus Traffic Access Patterns | 11 |
| 4-A. | Existing PM Campus Traffic Access Patterns | 11A |
| 5 - | CUA Campus Internal Vehicle/Pedestrian Circulation Situation | 13 |
| 6 - | CUA Campus Existing Parking Distribution and Utilization | 15 |
| 7- | Projected Year 2012 Background Traffic Situation | 21 |
| 8- | Projected Year 2012 Total Traffic Situation | 26 |
| 9- | CUA Campus Future Parking Distribution – Net Changes | 28 |

# LIST OF TABLES


Page

1 - Summary of Capacity Analysis Results – Existing Traffic Situation ..... 9

2 - The Catholic University of America - Parking Supply (2002) ..... 12

3 - Traffic Growth Trends – Key Study Area Roadways ..... 17

4 - CUA Population Trend Data – Year 2002 Campus Master Plan Update ..... 22

5 - Projected Trip Generation – CUA Campus ..... 24

6 - Summary of Capacity Analysis Results – Year 2012 Total Traffic Situation ..... 27

# LIST OF APPENDICES


A. Study Scoping Correspondence with DPW Intermodal Planning Office

B. Turning Movement Count Summaries – Existing Traffic Situation

C. Capacity Analysis Worksheets – Existing Traffic Situation

D. Detailed Parking Inventory & Utilization – Existing Situation

E. Year 2012 Base Traffic Situation (Reflecting Through Traffic Growth & Re-assigned Existing Campus Traffic)

F. Projected CUA Traffic Assignment (Incremental Traffic)

G. Analysis Worksheets – Total Traffic Situation

# 1.0 INTRODUCTION

## 1.1 Project Background

This traffic impact assessment was prepared in support of the current campus master plan process for the Catholic University of America ("CUA"/"the University"). This institution occupies a 140.0 ± acre area extending from south of Michigan Avenue to north of Taylor Street, between Harewood Road (to the west) and the Washington Metropolitan Area Transit Authority (WMATA)/CSX Railroad Line (to the east), in the northeast section of Washington, D.C. The physical development of the university is currently guided by the campus master plan approved by the District of Columbia Board of Zoning Adjustment in 1992, per case No. 15382. Since that approval, five (5) projects have been approved under the District of Columbia's Further Processing requirements. These approvals were for the development of a Law School and University parking garage, new grounds maintenance and storage facilities, an addition to the North Dining Hall, a new residence hall, the Curley Court complex, as well as a new University Center.

The District of Columbia's Zoning Regulations require that the University process an application for the update of the campus master plan. This process requires the University to demonstrate that its current proposals for the physical development of the campus facilities are such that they "*will not be likely to become objectionable to neighboring property because of noise, traffic, number of students or other objectionable conditions*" [District of Columbia Municipal Regulations (DCMR), Title 11, Section 210.2]. Safe and efficient pedestrian and vehicular access, on-site circulation and parking are therefore important considerations in meeting this requirement. Enhancement of access and circulation are important elements of the campus planning effort, so the University has identified the need for a comprehensive assessment of the institution's transportation access needs and potential impacts.

## 1.2 Study Purpose and Scope

This study was prepared to address the requirements of the District of Columbia, as well as the access and mobility needs and objectives established by the administration of CUA. The approach to the study recognizes that CUA has existed in its present location for approximately 120 years. Further, the study recognizes that student population and the classification of the University in terms of the institution being "resident" versus "commuter" are among the primary factors, which determine the potential access needs, and impacts. In order to provide background and perspective to the analyses and documentation which follow, the statistics regarding the Full Time Equivalent (FTE) student population and staffing of the University, covering the past three (3) approved campus master plans as well as the subject plan, are summarized in the table following:

| Category | 1981-82 | 1991-92 | Existing (2001-02) | Future (2011-12) |
|---|---|---|---|---|
| • FTE Student Population | 5,670 | 4,813 | 4,357 | 7,500 |
| • FTE Faculty Population | - | 411 | 363 | 400 |
| • FTE Staff Population | - | - | 822 | 1,307 |

Source: The Catholic University of America, and O. R. George & Associates.

In keeping with the projected needs of the student and faculty/staff populations for the University over the current planning horizon, the University's plans call for the development of the following key facilities:

a) Renovation and modest expansion of key academic and administrative buildings within the main campus to enhance service for existing functions;

b) Construction of new residence halls and support facilities within the main campus area to replace existing residence halls located within the campus area, south of Michigan Avenue and to respond to enrollment needs;

c) Provision of parking areas to replace campus roadway parking, and to enhance vehicular and pedestrian circulation; and

d) General upgrade of entranceway features, landscaping and related site amenities.

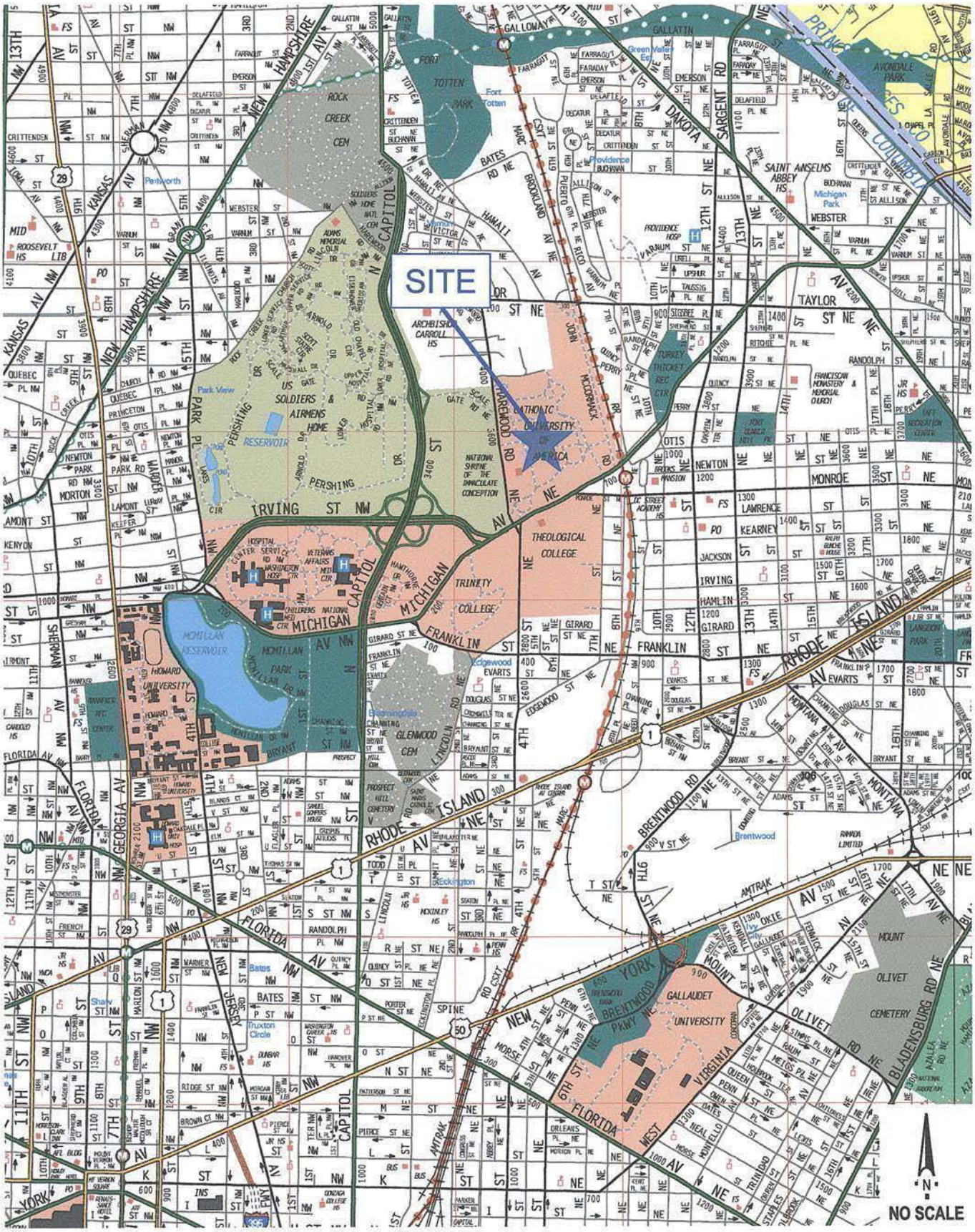
As noted in the campus master plan document, the Catholic University of America is situated within an urban setting, which is traversed by major traffic arteries. It is also in proximity to well established residential and institutional uses; and is well served by public transportation.

Based on the above background and perspective, the focus of this traffic assessment is to quantify the existing and future travel demands of the Catholic University of America campus. The assessment places emphasis on ensuring that the projected access, on-site circulation and parking needs are adequately met, while ensuring that any impacts on adjacent land uses are minimized. Further, the analysis adheres to the general standards and criteria of the District of Columbia planning agencies.

Exhibit 1 shows the location of the University campus as well as the adjacent land uses, Metrorail station and roadway network within the local setting.

## 1.3 Report Organization and Summary

This report is organized into five (5) sections. Section 2 addresses existing transportation conditions. Section 3 discusses general land use and traffic conditions within the campus sub-area that would constitute the "background" traffic situation over the ten-year planning horizon. Section 4 addresses the development proposals per the campus master plan, and analyzes projected year 2012 traffic conditions. Section 4 also discusses potential transportation mitigation measures, in recognition of the University's objective to enhance access and circulation as contributing factors to the overall quality of life within the campus and its environs. Section 5 presents the summary and conclusion of this traffic assessment.




**O. R. GEORGE & ASSOCIATES, INC.**

*Traffic Engineers - Transportation Planners*

**EXHIBIT 1:**

Site Location Map -

The Catholic University of America Washington, D.C.

## 2.0 EXISTING TRANSPORTATION CONDITIONS

### 2.1 Land Use and Zoning

As noted earlier, the campus of the Catholic University of America is situated in northeast Washington, D.C. Its general boundaries are the WMATA/CSX railroad corridor on the east, Michigan Avenue on the south, Harewood Road to the west and Taylor Street on the north. However, it is noted that this area better defines what is known as the main campus. Additional properties and facilities include residence halls south of Michigan Avenue and other properties off Monroe Street. The University also owns properties and facilities to the north of Taylor Street, between the railroad corridor and Hawaii Avenue. These two (2) areas are generally referred to as the south campus and the Athletic Complex, respectively.

The University campus is located within Ward 5. The current zoning of the campus is made up of properties within the R-5-A, R-4 and CM-1 zoning categories. The adjacent areas are zoned for residential, institutional and Special Purpose uses; and are generally built-out in accordance with their respective zoning. Principal land uses include the Theological, Holy Redeemer and Trinity Colleges immediately to the south and southwest, as well as the Pope John Paul II Cultural Center located immediately to the west of the campus. Others include the Washington Hospital Center, National Rehabilitation Hospital, Veterans Affairs Medical Center, and Children's National Medical Center within the North Capitol Street Medical Triangle to the west, as well as the U. S. Soldiers and Airmen's Home campus to the west of North Capitol Street. The Basilica of the National Shrine of the Immaculate Conception ("the Basilica"), which borders the campus on the west, is important both in terms of its proximity, and in view of the fact that it shares a major portal point with the CUA campus. Lastly, the WMATA Brookland/CUA Metrorail station located immediately to the southeast of the campus, is important both as a land use, and as a transportation facility.

The land uses noted above, were shown on Exhibit 1 (on page 3), and are discussed in varying contexts within subsequent sections of this report.

### 2.2 Existing Study Area Roadway Network

Regional access to the CUA campus is provided by a number of major roadway corridors, principal among which are North Capitol Street and Michigan Avenue. Within the local area, Harewood Road/4$^{th}$ Street, Taylor Street and Monroe Street are important collector facilities serving the campus and the general sub-area. The key roadways serving the campus are discussed below to provide background to the analysis, of transportation conditions, which follows:

- **Michigan Avenue**: This roadway is classified as a Minor Arterial on the City's Functional Classification Map. Between North Capitol Street and the District of Columbia/Prince George's County line, the roadway varies from four (4) to six (6) lanes, and serves daily traffic volumes varying between 20,000 and 35,000 vehicles. The posted speed is 25 MPH.

- **North Capitol Street**: This is classified as a Principal Arterial by the District of Columbia, except for the section between Michigan Avenue and Harewood Road, which is classified as an Expressway/Limited Access facility. This roadway is six-lane divided south of Hawaii Avenue, while to the north it is undivided with the same lane configuration. The adjacent section of North Capitol Street serves approximately 40,000 vehicles per day. Posted speeds range from 30 - 40 MPH.

- **Harewood Road**: This roadway is classified as a Minor Arterial by the District of Columbia. It is four-lane undivided, with unrestricted parking along both sides; and serves traffic volumes in the range of 9,000 vehicles per day. The posted speed is 25 MPH.

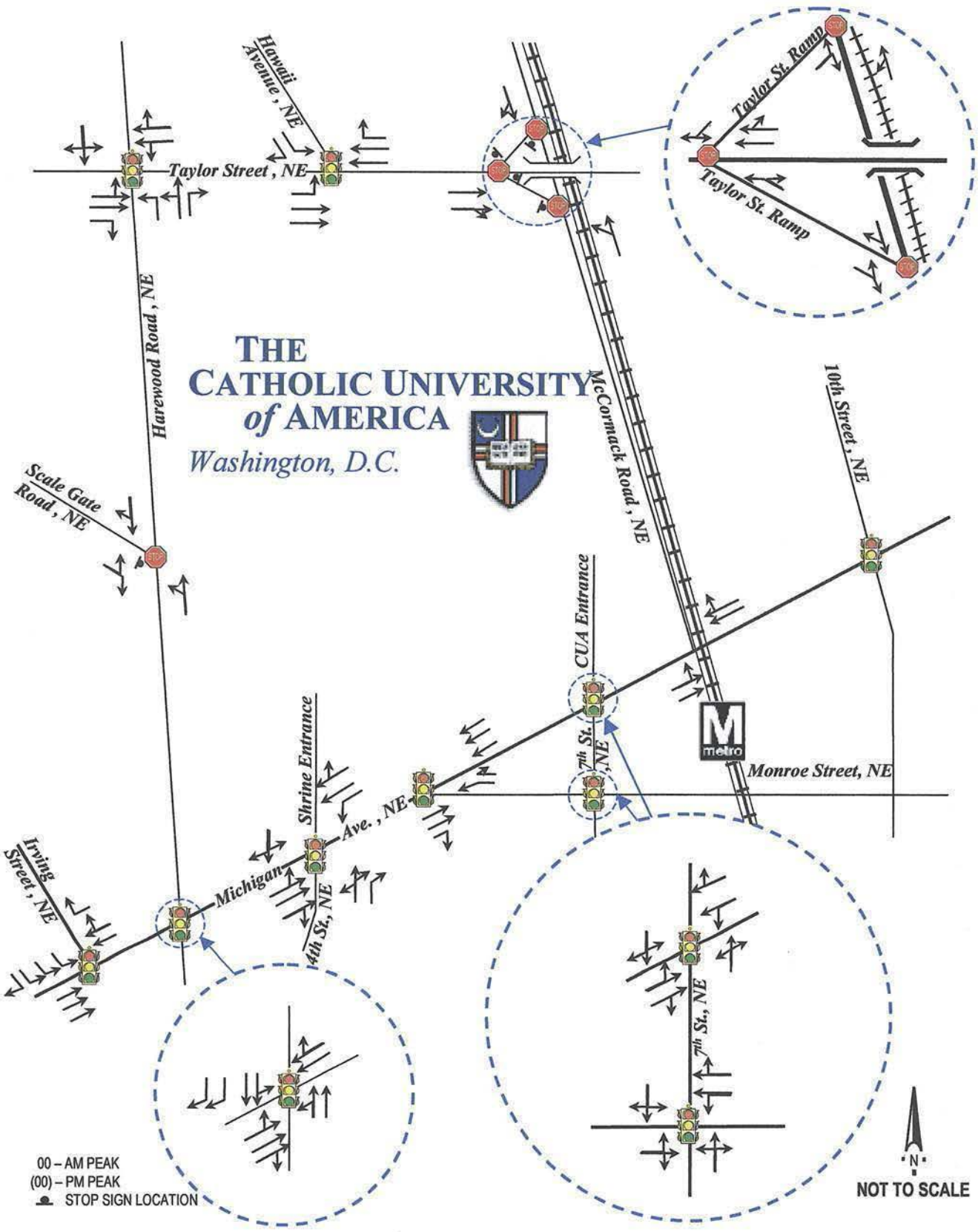
- **Taylor Street**: This is classified as a Minor Arterial, and runs in a generally east-west direction, forming the northern boundary of the main campus. Within the immediate vicinity of the campus, Taylor Street is provided with four (4) travel lanes, carrying volumes in the range of 15,000 vehicles per day. The posted speed is 25 MPH.

- **Monroe Street**: This is classified as a Minor Arterial by the District of Columbia. It is four-lanes wide with parking allowed along both sides of the roadway at all times. Within the immediate vicinity of the CUA campus, Monroe Street serves traffic volumes in the range of 16,000 vehicles per weekday. The posted speed is 25 MPH.

Due to the land use development patterns within the sub-area and the alignment of the WMATA/CSX railroad corridor, as well as the configuration of the campus and other major institutional uses, the study area road network does not conform to the typical grid pattern of the District of Columbia. The study area intersections considered were selected in order to enable the access patterns into the University to be determined, as well as to assess the potential traffic impacts of the campus master plan development proposals. This was done based on discussions with the Department of Public Works Office of Intermodal Planning (see Appendix A). Twelve (12) intersections were selected, covering the key access points to the campus, as well as other key intersections within the sub-area. The study area roadway network defined by these intersections is illustrated schematically in Exhibit 2. This exhibit also shows the roadway lane configuration and traffic control devices for the study area, and includes the key portal points into the campus.

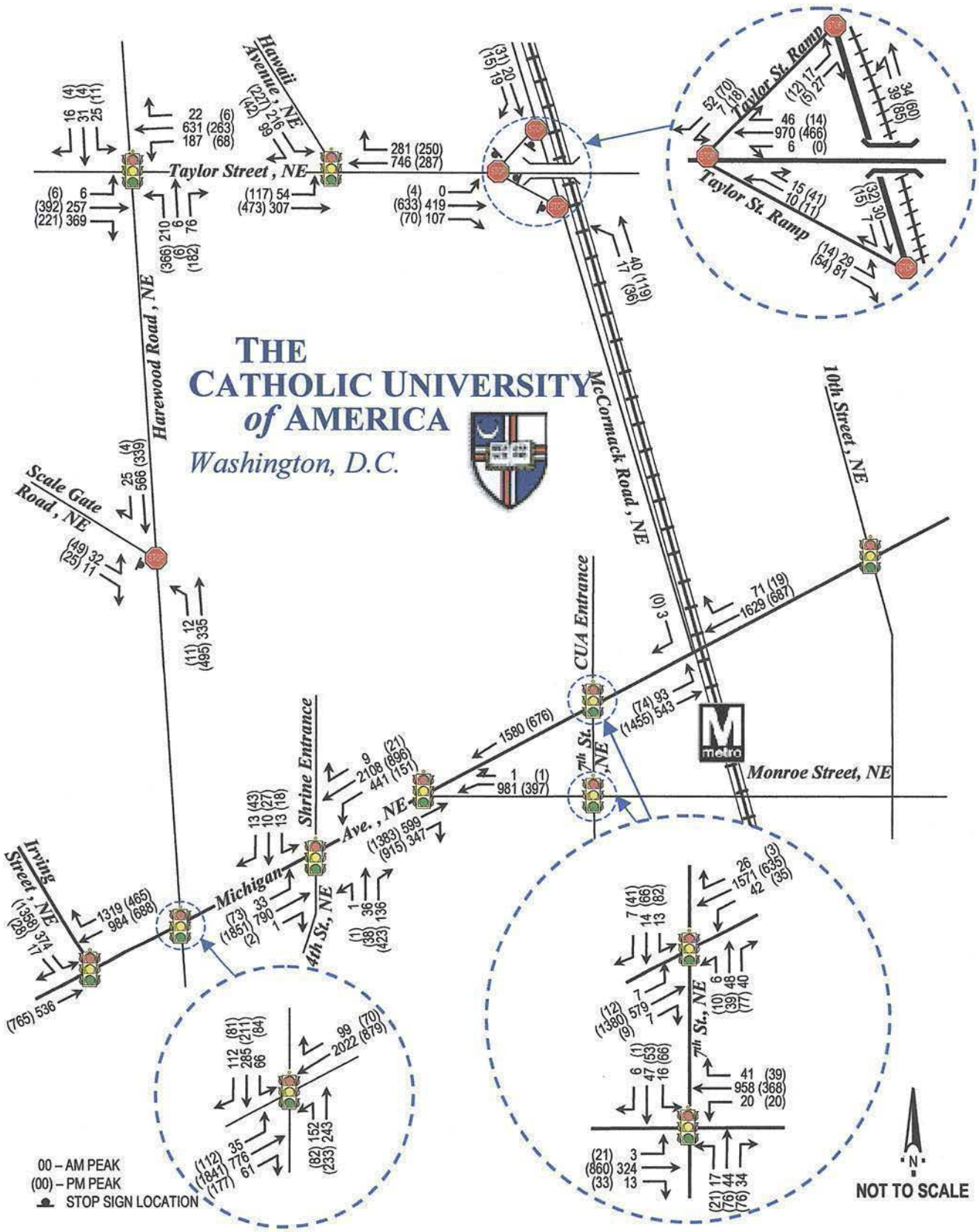
## 2.3 Existing Peak Hour Traffic Situation

This study recognizes that considering the institutional characteristics of the campus, and in particular, the split resident/commuter character of the student population, as well as the schedule of classes and other programs, the University is not a major traffic generator during the weekday peak periods, as is the case for employment or medical uses. However, in order to comply with the requirements of the Zoning Regulations, weekday peak period traffic turning movement counts were performed for the study area intersections and the University entrances. In order to support the evaluation of potential roadway changes, and access improvement concepts, machine counts were also undertaken along adjacent sections of Monroe Street and John McCormack Road. The existing peak hour turning movement volumes are presented in Exhibit 3. The count summaries are included in Appendix B.




**O. R. GEORGE &ASSOCIATES, INC.**
*Traffic Engineers - Transportation Planners*

**EXHIBIT 2:**
Roadway Lane Configuration -
The Catholic University of America, Washington, D.C.




**O. R. GEORGE &ASSOCIATES, INC.**

*Traffic Engineers - Transportation Planners*

**EXHIBIT 3:**

Existing Peak Hour Turning Movement Volumes -
The Catholic University of America, Washington, D.C.

In order to provide "base" conditions for the assessment, which follows, the traffic data presented in Exhibit 3 was analyzed using the capacity analysis procedures prescribed by the City. The results show that all intersections currently operate at acceptable Levels of Service (Level-of-Service D or better) except for the intersections of Michigan Avenue at 4th Street and at Harewood Road.

The adverse capacity situation, at the two (2) critical intersections noted above, is due primarily to heavy through/commuter peak hour volumes along Michigan Avenue. Furthermore, the vehicle trips generated by the CUA campus constitute only ten percent (10%) and fifteen percent (15%) of the total volumes along Michigan Avenue, during the morning and afternoon peak hours, respectively. This indicates that the campus currently has a minimal impact on the capacity and operations of the subject intersections. The capacity analysis results are presented in Table 1 on page 9. The analysis worksheets are presented in Appendix C.

*Level of Service* is a qualitative measure describing operational conditions within a traffic stream or at an intersection, and reflects their perception by drivers and other roadway users. Principal considerations are factors such as speed and travel time, delay, and freedom of maneuver, traffic interruptions, comfort, convenience and safety. Current engineering practice defines six (6) Levels of Service (A-F), with "A" representing best operating conditions, and Level of Service "F" representing the worst conditions. Level of Service D is generally considered by the District of Columbia as the minimum acceptable conditions for planning and design purposes.

In addition to the assessment of peak hour traffic conditions, generalized surveys and observations were made of traffic conditions within the general study area during weekday off-peak and weekend periods. These confirmed that the weekday morning and afternoon peak periods represent the highest travel demand on the sub-area roadway network.

## TABLE 1

## SUMMARY OF CAPACITY ANALYSIS RESULTS - EXISTING TRAFFIC SITUATION

| INTERSECTION | AM PEAK HOUR | | PM PEAK HOUR | |
|---|---|---|---|---|
| | Level of Service | Average Delay Sec./Veh.* | Level of Service | Average Delay Sec./Veh.* |
| 1) Michigan Avenue, N.E. @McCormack Road (Unsignalized) | C | 20.3 | A | 8.5 |
| 2) Michigan Avenue @ 7th Street, N.E. (Signalized) | B | 10.6 | B | 16.1 |
| 3) Michigan Avenue @ Monroe Street, N.E. (Signalized) | C | 24.1 | C | 30.4 |
| 4) Michigan Avenue @ 4th Street, N.E. (Signalized) | ** | ** | ** | ** |
| 5) Michigan Avenue @ Harewood Road, N.E. (Signalized) | ** | ** | ** | ** |
| 6) Michigan Avenue @ Irving Street, N.E. (Signalized) | B | 17.9 | C | 26.6 |
| 7) Harewood Road, N.E. @ Scale Gate Road (Unsignalized) | C | 15.2 | C | 16.7 |
| 8) Taylor Street @ Harewood Road, N.E. (Signalized) | C | 24.2 | C | 27.3 |
| 9) Taylor Street, N.E. @ Hawaii Avenue (Signalized) | B | 14.3 | B | 14.5 |
| 10) Taylor Street, N.E. @ McCormack Road (Unsignalized) | C | 19.0 | B | 10.7 |
| 11) McCormack Road @ Taylor Street North Ramp (Unsignalized) | A | 9.3 | B | 10.4 |
| 12) McCormack Road @ Taylor Street South Ramp (Unsignalized) | A | 9.6 | A | 9.4 |

Note: * Sec./Veh. = Seconds per Vehicle
** Level of Service and Average Delay results are below the District's planning standards.

Source: O. R. George & Associates.

## 2.4 University Traffic Access Patterns

The following aspects of vehicular access patterns for the University campus are important to note when considering the campus master plan proposals:

a) The weekday peak hour situation, as reflected by the volume of traffic, the directions of approach and the access points utilized;

b) The locations of parking within the campus which represent the ultimate destinations of vehicular traffic; and

c) The generalized levels of transit usage, as this relates to the locations of bus stops and the adjacent Metro station access, relative to the campus' major pedestrian thoroughfares.

In order to address these aspects, the necessary surveys and field observations were performed during peak activity periods on weekdays. The findings are summarized below:

1) Average weekday total vehicular access activity for the entire campus is as follows:

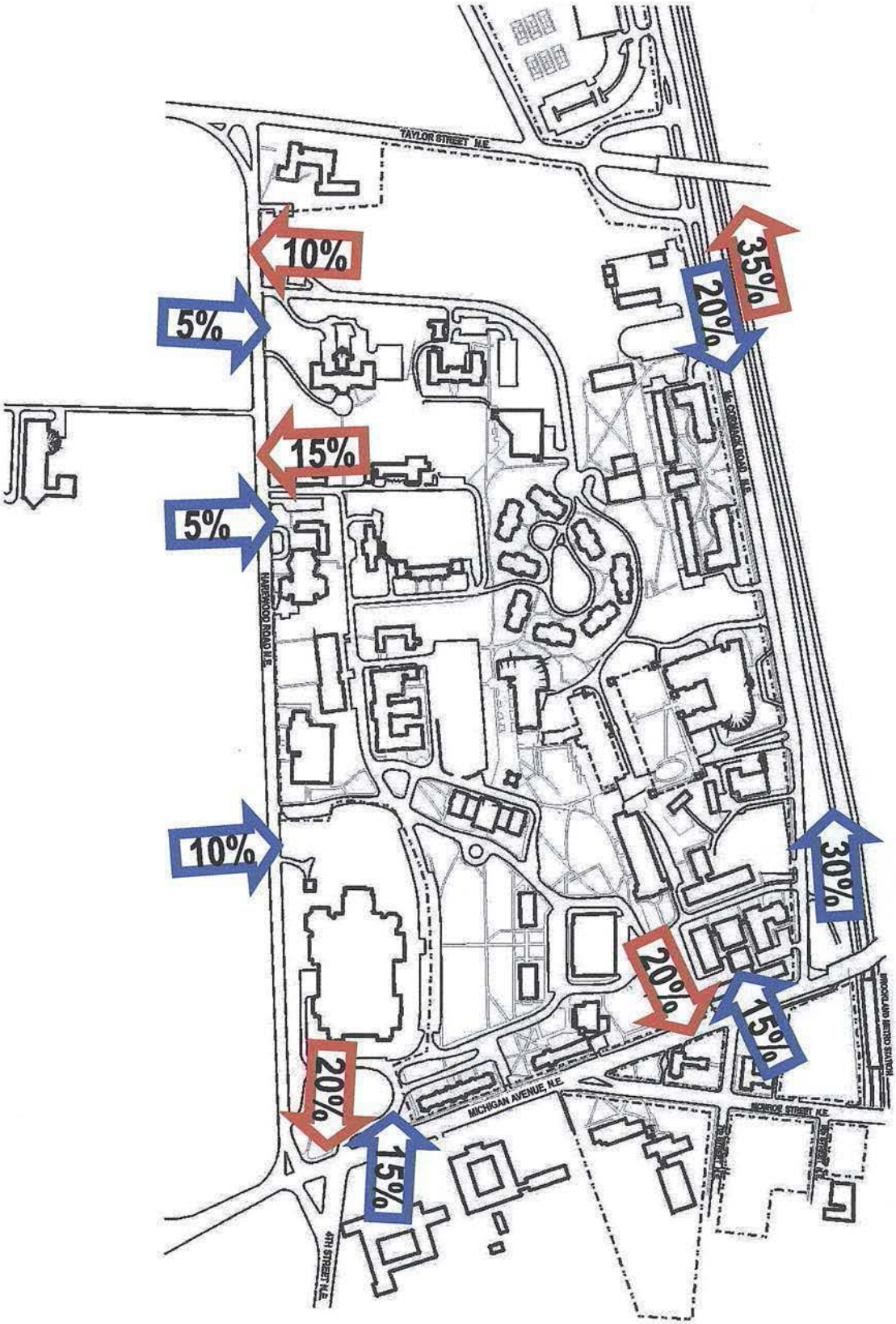
| AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|
| In | Out | Total | In | Out | Total |
| 484 | 158 | 642 | 344 | 499 | 843 |

2) Vehicular access from the adjacent roadways is distributed as follows:

| | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| Roadway | In | Out | Total | In | Out | Total |
| Michigan Ave. | 290 | 70 | 360 | 234 | 277 | 511 |
| Harewood Rd. | 105 | 31 | 136 | 41 | 98 | 139 |
| Taylor St. | 89 | 57 | 146 | 69 | 124 | 193 |
| McCormack Rd. | 220 | 57 | 277 | 143 | 124 | 267 |
| **TOTAL*** | 484 | 158 | 642 | 344 | 499 | 843 |

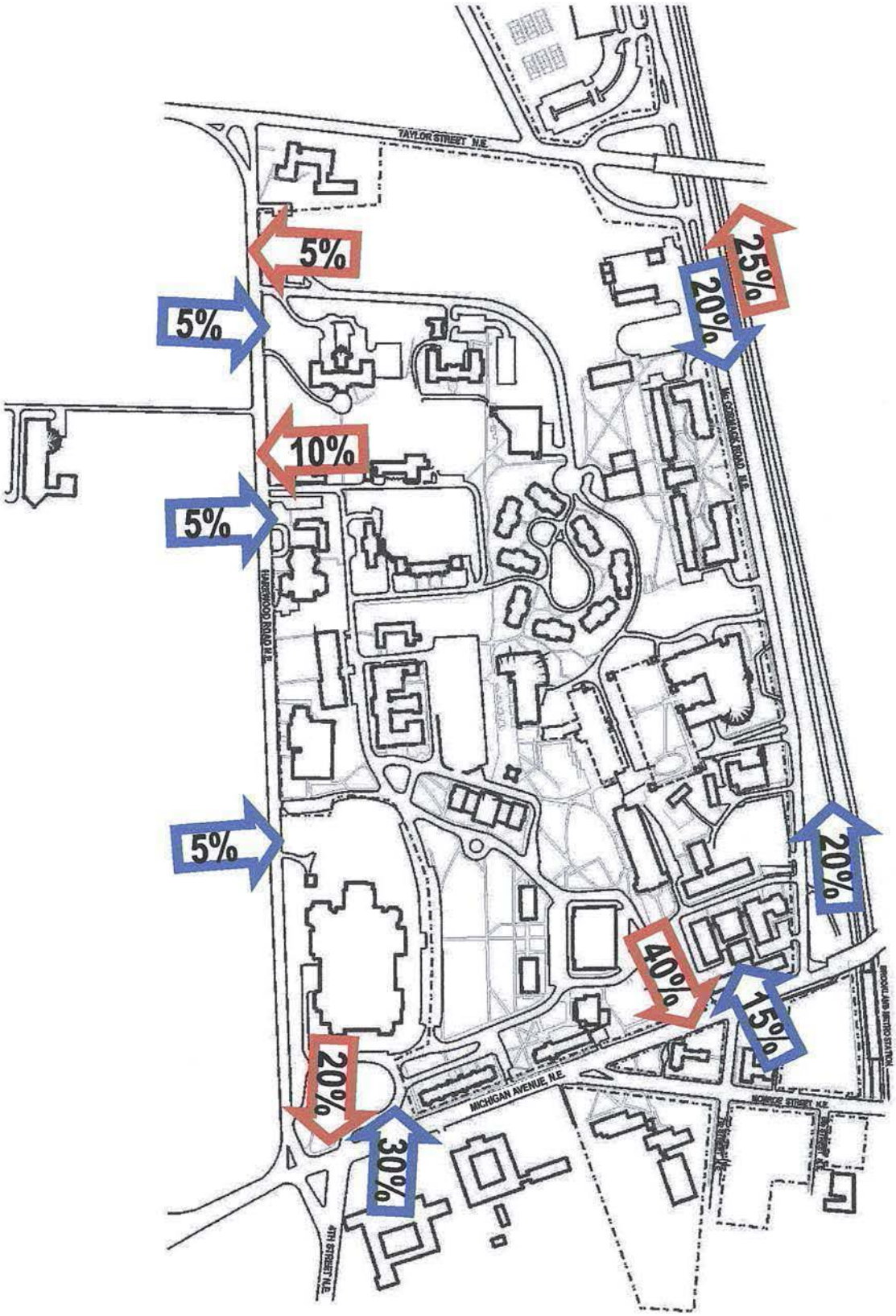
* Does not include McCormack Road, as trips on this roadway originate from either Michigan Avenue or Taylor Street.

The overall trip distribution reflected by the above data summaries is illustrated in Exhibit 4. This exhibit shows that the distribution pattern bears a relatively logical relationship to the regional population distribution and the roadway network discussed earlier. This is further linked to the distribution of parking within the campus. As an illustration, it is noted that of the total campus vehicle trips accessing the campus during the morning peak hour, 30 percent enter from Michigan Avenue and 20 percent from Taylor Street, via McCormack Road. The situation in the afternoon peak hour is 20 percent from Michigan Avenue and 20 percent from Taylor Street, via McCormack Road. This has a direct relationship to the location of the Law School/University parking garage and an adjacent general surface lot, which provide a total of 703 parking spaces, i.e., thirty-three percent (33%) of the total campus parking supply. Factors such as this were primary considerations in the development of the land use and building facility distributions, which evolved from the master plan process.




**O. R. GEORGE & ASSOCIATES, INC.**
*Traffic Engineers - Transportation Planners*

**EXHIBIT 4:**
Existing AM Trip Distribution Patterns -
The Catholic University of America, Washington, D.C.




**O. R. GEORGE & ASSOCIATES, INC.**
*Traffic Engineers - Transportation Planners*

**EXHIBIT 4A:**
Existing PM Trip Distribution Patterns -
The Catholic University of America, Washington, D.C.

## 2.5 Existing Internal Circulation Situation

The internal vehicular and pedestrian circulation is clearly linked to the current internal roadway pattern, distribution of parking, as well as the external access patterns discussed in the previous section. Exhibit 5 illustrates these relationships, and highlights the major internal vehicular and pedestrian thoroughfares. Based on this exhibit, as well as discussions with the University's public safety officials, the following can be concluded:

a) Vehicular activity is concentrated within the southeastern section of the main campus, and to a significantly lesser degree within the southwestern section.

b) Vehicular activity within the central and northern portions of the campus is low to moderate.

c) Pedestrian activity is concentrated within the southeastern section, and is relatively well distributed within the central area of the campus.

d) Vehicular speeds along the campus roadways are generally in compliance with the posted speeds, which range from 5 MPH to 15 MPH; and are moderated/ controlled by the provision of stop signs and other traffic calming features.

The above information and perspectives were used as part of the basis for recommendations developed in the campus master plan land use and circulation proposals.

## 2.6 Existing Parking Situation

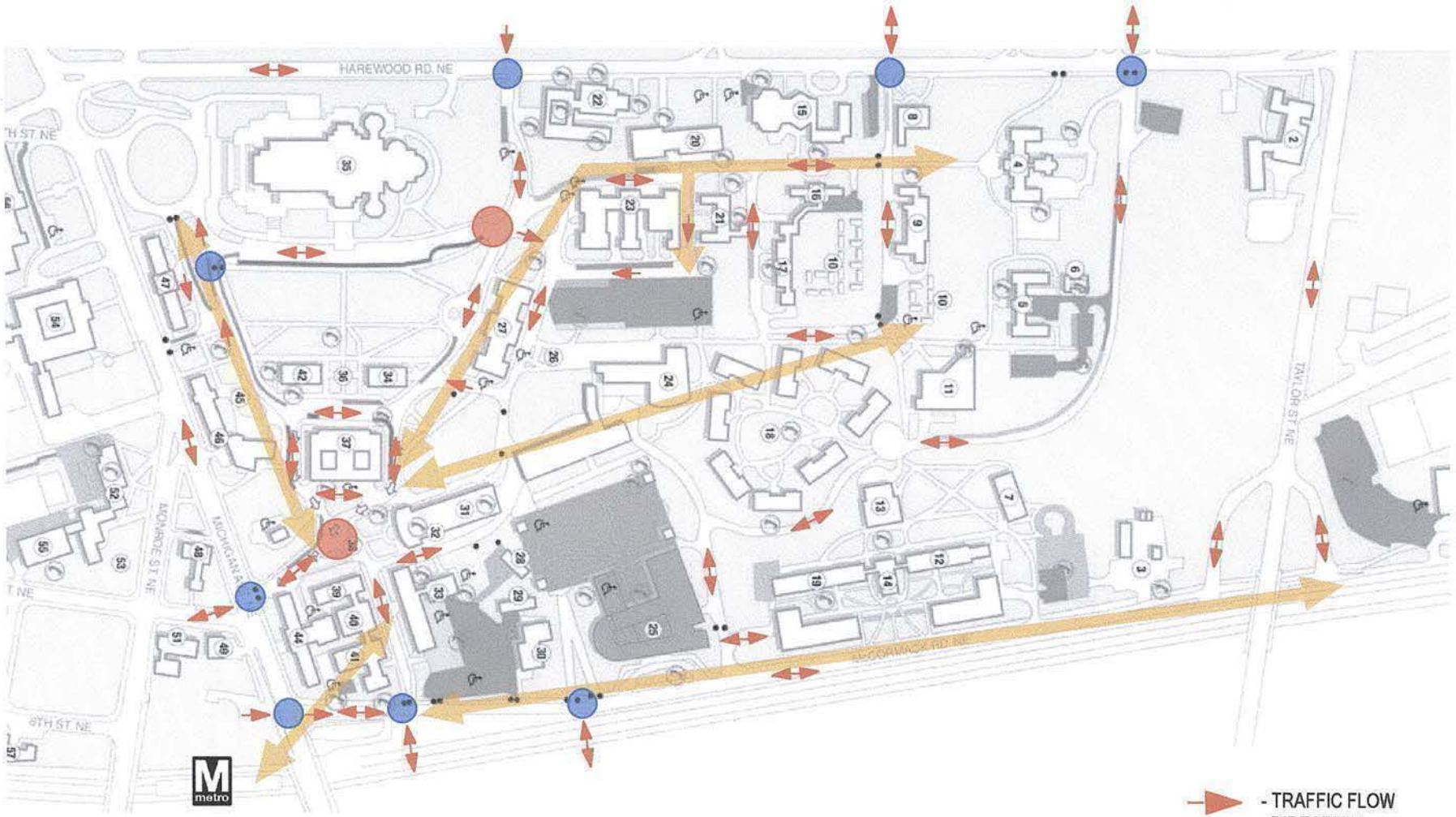
Earlier sections of this report have discussed the demographic and trip-making characteristics of the CUA campus. Parking supply and usage patterns, as well as the University's management policies relating to this key element of its facilities, are clearly important aspects of the current campus planning effort. As documented in the 1992 master plan submitted to the District of Columbia, the CUA campus had a parking supply of 1,762 spaces. The campus is currently served by a total of 1,942 parking spaces located within its recently constructed parking garage, various surface lots, as well as within campus roadway parking locations. The current supply and designated usage categories are summarized in Table 2 following.

**TABLE 2**

**THE CATHOLIC UNIVERSITY OF AMERICA – CAMPUS PARKING SUPPLY (2002)**

| Location/Use | General | Faculty | Handicap | Reserved | Visitor | Resident | Other | Total |
|---|---|---|---|---|---|---|---|---|
| Main Campus | 1,053 | 224 | 83 | 57 | 67 | 156 | 15 | **1,655** |
| Athletic Complex | 148 | 0 | 9 | 0 | 0 | 0 | 0 | **157** |
| South Campus | 106 | 0 | 0 | 0 | 0 | 24 | 0 | **130** |
| **Total** | **1,307** | **224** | **92** | **57** | **67** | **180** | **15** | **1,942** |

Source: O. R. George & Associates.




**Source:** O. R. George & Associates

| | | |
|---|---|---|
| **O. R. GEORGE & ASSOCIATES, INC.**<br>*Traffic Engineers - Transportation Planners* | **EXHIBIT 5:**<br>CUA Campus Internal Vehicle/Pedestrian Circulation Situation | Catholic University Master Plan<br>*Washington, D.C.* |

This parking situation is based on field inventories and discussions with the University's Public Safety Department. The distribution of parking within the campus is summarized in Exhibit 6. For planning purposes, and to facilitate the discussion that follows, this exhibit shows the distribution of the campus parking supply and peak usage levels, with respect to the five (5) campus parking "zones" currently under consideration. A detailed parking inventory is illustrated in Appendix D.

In order to determine the adequacy of the current parking supply, this study conducted usage surveys of all parking areas on two (2) typical weekdays. The data confirms the findings of earlier parking surveys, which indicate that the peak demand occurs between 11:00 AM and 3:00 PM, during which the peak demand represents between 73% and 75% of the total parking supply.

The situation within the recently constructed garage is worthy of note. This facility has an inventory of 551 spaces, and the survey shows peak usage in the range of 70% - 72%. The University provides for the flexible usage of this facility during special events, conferences, etc., when unusual visitor activity occurs on the campus. With respect to the overall parking demands of the campus, it is noted that Harewood Road and McCormack Road both provide a considerable number of campus roadway parking spaces, which are used to a significant extent by the CUA community. The parking usage survey indicated that the O'Boyle Hall overflow lot is not utilized at all and this may be due to its remoteness.

The ratio of student population to overall parking supply is typically used in planning for assessing adequacy of parking supply, and for projecting future needs. To this end, this study examined the student population-to-parking supply ratios for the years 1991 - 92 and 2001 - 2002. These are presented below:

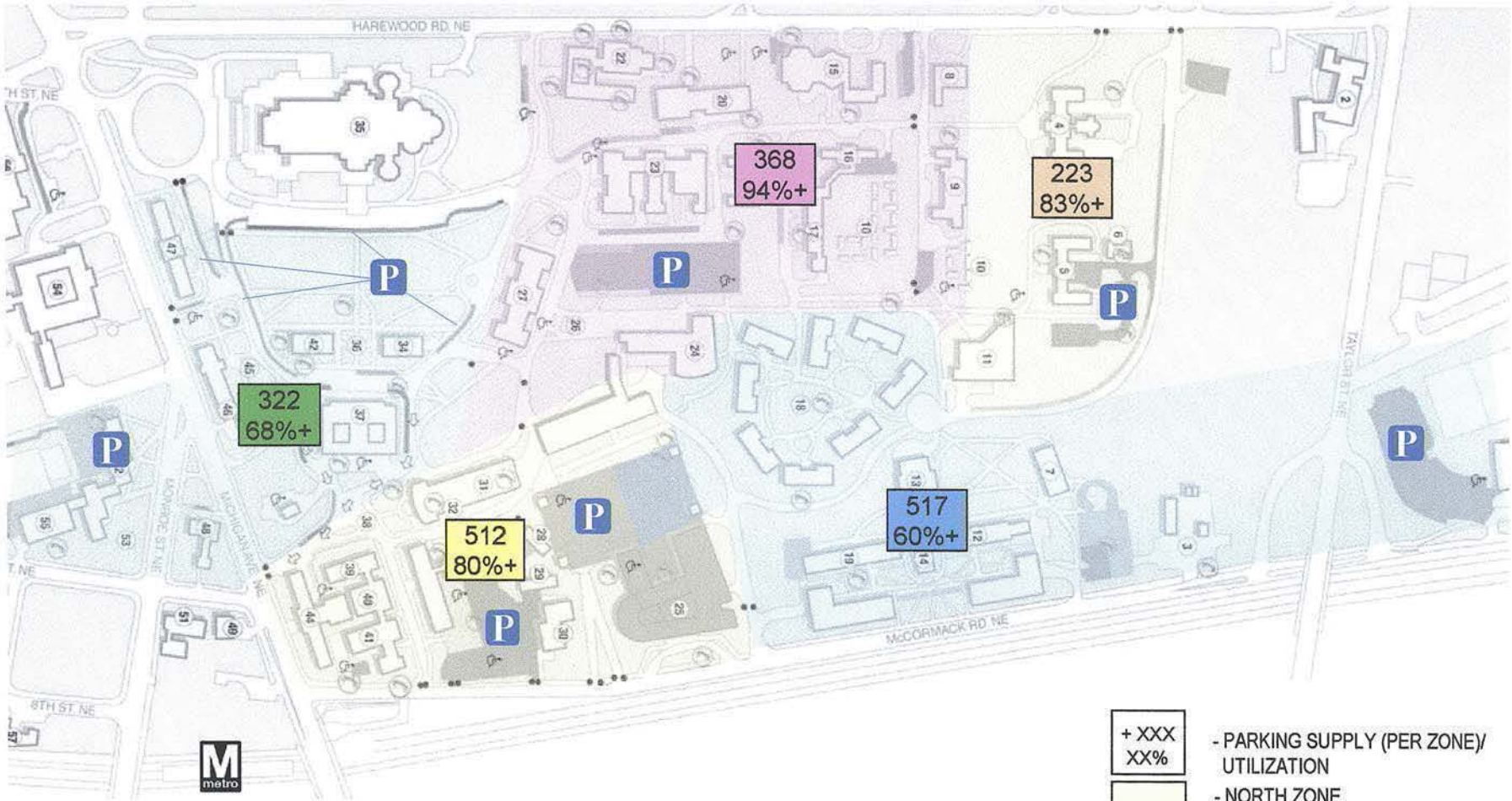
**STUDENT POPULATION-TO-PARKING SUPPLY RATIOS - THE CATHOLIC UNIVERSITY OF AMERICA (1992 - 2002)**

| Year | Student Population* | Parking Supply | Student-to-Parking Ratio |
|---|---|---|---|
| 1991-1992 | 4,813 | 1,762 | 2.73 |
| 2001-2002 | 4,357 | 1,942 | 2.24 |

* Values in Full Time Equivalents (FTE's)

**Source:** The Catholic University of America, and O. R. George & Associates.

The above data and discussion confirm that parking supply is currently adequate. The usage factors for the individual lots and parking zones discussed earlier, in conjunction with the parking ratios cited, provide a good basis for evaluating the current campus master plan proposals, which are discussed in Section 4.




**Source:** O. R. George & Associates

| | | |
|---|---|---|
| **O. R. GEORGE & ASSOCIATES, INC.**<br>*Traffic Engineers - Transportation Planners* | **EXHIBIT 6:**<br>CUA Campus Existing Parking Distribution and Utilization | Catholic University Master Plan<br>*Washington, D.C.* |

## 2.7 Transit and Multi-Modal Services

Earlier sections of the report discussed the location of the CUA campus in relation to the public transportation facilities serving the area. To facilitate the discussion, which follows, these facilities and services are highlighted below:

a) **Brookland/CUA Metrorail Station**: This mass transit station, on the Washington Metropolitan Area Transit Authority (WMATA) Red Line, is situated southeast of the main campus. Pedestrian access is provided via a west side entrance. Ridership data, as reflected in boardings for this station, show average daily usage in the range of 5,950 passengers. Discussions with WMATA planning staff show no station or system capacity deficiencies. The local and campus community, however, continue to be concerned about the lack of adequate accessibility for persons with disabilities residing, working and visiting the areas on the CUA side of the station.

b) **Metrobus Services:** The Catholic University is served by several bus transit routes, nine (9) along Michigan Avenue/Monroe Street, three (3) along Taylor Street/Harewood Road and four (4) along Michigan Avenue/Harewood Road. These routes provide 6-minute headways during the weekday morning and afternoon peak periods, and 17-minute headways during the weekday off-peak periods.

c) **Campus Bus Services**: The University operates the following two (2) transit systems:

- Metro Loop Service that connects the campus with the adjacent Metro Station, with stops at key locations within the main and north campuses. This service operates seven days a week between the hours of 5:00 PM and Midnight, with a 30-minute headway. This service starts at Mullen Library and ends at Curley Court.
- The CUA campus bus service, which serves the University community via several stops within the three (3) sections of the campus. This service operates between Mullen Library and DuFour Center, on weekdays, between the hours of 4:00 PM and 11:15 PM, with 15-minute headways. In addition, a shuttle van operates between Mullen library and Cloisters, with one-hour headways from 5:00 - 11:15 PM, on weekdays.

In addition to the above, the University provides a special shuttle service from the Metrorail Station for morning commuters on weekdays, and makes special provisions for disabled or physically challenged staff and students, as appropriate. The University is also aware of other shuttle bus and paratransit services within the area, and continues to explore opportunities for cooperative service arrangements. Bicycle facilities are also provided at strategic locations. The campus is connected to the section of the regional bike trail system, which runs adjacent to the CSX/WMATA railroad tracks.

## 3.0 FUTURE BACKGROUND TRAFFIC SITUATION

### 3.1 Background

The current campus master plan update covers the ten-year horizon of 2002 - 2012. Per the requirements of the DC-DPW Intermodal Planning Office, the following two (2) elements would need to be addressed in terms of the likely impacts they may have on the study area year 2012 background traffic conditions:

a) Potential growth in through traffic on the study area roadway network; and

b) The potential impacts of planned land use developments within the campus sub-area.

These elements are discussed in the sections following.

### 3.2 Through Traffic Growth

As noted earlier, the Catholic University campus is accessed principally via Michigan Avenue, and via several minor collector and local roadways. It is noted that Michigan Avenue, in particular, serves significant volumes of commuter and other traffic. In keeping with current traffic engineering practice, Average Daily Traffic (ADT) volumes for these roadways were obtained from the District of Columbia Bureau of Traffic Services, and analyzed in order to determine growth trends. The ADT data for key roadway segments within the study area is shown in Table 3 following.

**TABLE 3**

**TRAFFIC GROWTH TRENDS –**
**KEY STUDY AREA ROADWAYS**

| Roadway Segment | 1992 | 1993 | 1996 | 1999 | Avg. Annual Growth Rate |
|---|---|---|---|---|---|
| Michigan Ave. (East of Harewood Rd.) | 33,100 | 33,100 | 30,000 | 35,300 | -1.0% |
| Harewood Rd. (Michigan Ave. – Taylor St.) | 7,600 | 7,600 | 6,600 | 6,200 | -2.2% |
| Taylor St. (Harewood Rd. – McCormack Rd.) | 12,600 | 12,600 | 12,500 | 11,100 | -1.3% |
| McCormack Rd. (Michigan Ave. – Taylor St.) | 1,500 | 1,500 | 1,300 | 1,300 | -1.5% |

Source: District of Columbia Department of Public Works (DC-DPW), and O. R. George & Associates.

The data presented in the above table suggests that traffic volumes along the study area roadways have declined over the past eight (8) years. This is apparently due to multiple factors, including demographic changes such as shifts in employment opportunities to suburban areas, increased use of transit, and other factors including non single-occupant vehicle modes of travel, particularly by commuters.

For planning purposes, the DC-DPW Office of Intermodal Planning typically recommends application of an annual growth rate of two percent (2%), except in cases where more specific data is available. Based on the data above and discussions with the Office of Intermodal Planning, this study considers that an assumed annual growth rate of one and one-half percent (1.5%) allows a sufficient factor of safety appropriate for long range planning purposes. This factor was applied to existing traffic volumes in developing the year 2012 "base" traffic situation, and is shown in Appendix E.

## 3.3 Potential Local Area Land Use Developments

In order to provide a comprehensive (though qualitative) assessment of background conditions relative to the current campus master plan update, this study also examined potential developments of vacant or underutilized properties within the general study area. For ease of reference, this section summarizes the information concerning these land uses, and discusses potential developments and trip generation demands on the local area transportation network.

- **U.S. Soldiers' and Airmen's Home (USSAH)**

  The U. S. Soldiers' and Airmen's Home (USSAH) is located immediately to the west of the Catholic University Campus, across Harewood Road, N.E. The Federal Elements of the current Comprehensive Plan for the Nation's Capital shows this facility as being bounded by Irving Street/Kenyon Street to the south, Harewood Road/North Capitol Street to the east, Scale Gate Road/Harewood Road to the north, and Park Place/Rock Creek Church Road to the west. The underutilized portion lies to the southern/eastern sections of the subject property.

  North Capitol Street constitutes a major physical division between the undeveloped portion of the U. S. Soldiers' Home campus (which is bordered by Michigan Avenue, Irving Street and Harewood Road). Development concepts proposed by U. S. Soldiers' Home (and others) for the area between Harewood Road and North Capitol Street (the Eastern Campus), have all called for moderate-to-high density residential as the dominant use that would generate significant weekday peak hour traffic.

  The development concepts have also called for primary access to be via both North Capitol Street and Harewood Road. However, it is clear that Michigan Avenue and Fourth Street would also be utilized to a significant degree. Trip distribution patterns have shown an orientation toward the west and south. However, it is reasonable to assume that the intersection of Michigan Avenue at Harewood Road, as well as the adjacent section of Harewood Road, would both be impacted to a significant degree.

  Development plans for the USSAH site would be required to address the issue of access and adequacy of roadway facilities, as part of the prospective zoning change or development plans. Also, as a major local institution, CUA would have the opportunity for involvement and input in the public review process. Significant issues for the University would include the potential access points for new development off Harewood Road, and their alignment relative to entrances to the main campus.

- **McMillan Reservoir Sand Filtration Site**

  This site is located to the west of the University, and is bounded by Michigan Avenue to the north, North Capitol Street to the east, Channing Street to the south, and First Street to the west. This 25-acre property was recently transferred to the District of Columbia Government; and the Office of Planning has been charged with conducting a series of community charrettes to develop land use concepts for the property. It is understood that community interest appears to be emphasizing open space, low-density residential, and community-serving retail. From the planning perspective, it should also be noted that the property is designated as a historic site; and that this may be a constraining factor to high-density development.

  In general, current information on this property suggests that its development should not generate high volumes of peak period traffic. Based on the configuration of the site, relative to the adjacent roadways, it is reasonable to assume that vehicular access would be principally off First Street and North Capitol Street, with secondary access off Channing Street, and perhaps limited (i.e., right-in/right-turn out) access off Michigan Avenue to the north.

  Retail uses would generate a low volume of trips during the morning peak hour. While afternoon peak hour trips would be higher, they would include a considerable percentage of "passer-by" trips; that is, trips attracted from vehicles already on the adjacent roadways. With respect to potential residential development, most of the trips generated would be oriented to the south, considering the site's location relative to the Washington, D.C. Central Business District. Trips oriented to the east would be in the "reverse commute" direction, thus minimizing impacts on the study area intersections.

  Office development within a potential C-2-A zoned area of this property, would have the highest impact in terms of trip generation. However, considering the likely site access situation described earlier, as well as the general trip distribution pattern that would be applicable to such employment uses, the impacts on the study area intersections off First Street would not be significant. As with the USSAH property, any development of the McMillan Sand Filtration Site will be subjected to appropriate development reviews, which could consider its specific access needs and potential impacts.

- **Washington Hospital Center**

  This institution is situated south of Irving Street and west of First Street, within an area generally referred to as the "Northwest Medical Triangle". Other facilities within the area include the Veterans Affairs Medical Center, National Rehabilitation Hospital, and the Children's National Medical Center.

  Washington Hospital Center is currently processing an application to rezone portions of the 39.0 ± acre property, which would allow for increased density and an increase in its current employee population from 5,700 to 7,700 persons. Based on reviews of traffic studies performed in support of the application, the Department of Public Works has accepted that transportation facilities would be adequate to accommodate the proposed rezoning and consequent development activity, which are envisioned over the period 2005 to 2015. It is important to note that the planning and analyses included a study area road network, and

distribution of traffic, from the intersection of Michigan Avenue at Irving Street westward. Data from these studies were used in assuming the horizon year traffic situation for the current Catholic University campus master plan update.

- **Trinity College Campus Center**

  The campus master plan for this institution was updated and approved by the District of Columbia Board of Zoning Adjustment in 1996. The plan envisions the following changes as the major elements of its program for the period 1996 – 2006:

  a) Increase in its graduate students from 400 to 600 students.

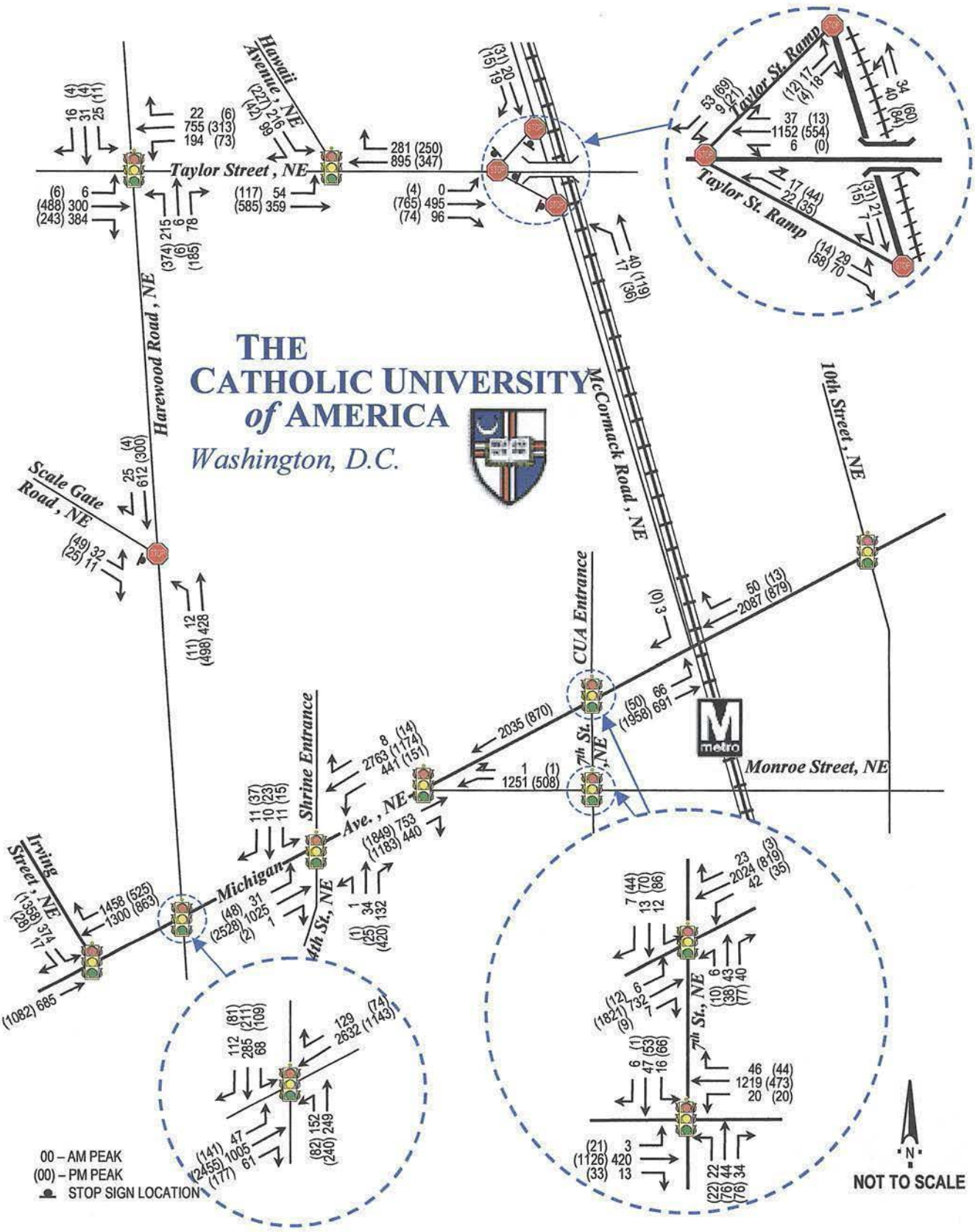
  b) Increase in its weekend undergraduate program from 450 to 1,000 students.

  c) Increase in its student resident population from 200 to 500 students.

  d) Development of the Trinity Center for Women and Girls in Sports to consolidate and upgrade its athletic and recreational facilities. This facility was recently approved by the D.C. Zoning Commission, and is currently under construction.

  Traffic studies submitted in support of the current campus master plan proposals and the subsequent further processing applications of the college, have demonstrated that the programming changes will not result in significant weekday peak period traffic. In addition, the planning approvals included conditions requiring the institution to emphasize transportation management measures. It has been accepted that the planned campus changes should not adversely impact the local area.

The background information and perspective gained from reviews of development and application data, pertaining to the institutional uses discussed above, were used in conjunction with the traffic growth trends cited earlier in this section, to develop estimates of year 2012 background traffic volumes. The projected year 2012 background volumes conditions are shown in Exhibit 7.




**O. R. GEORGE &ASSOCIATES, INC.**

*Traffic Engineers - Transportation Planners*

**EXHIBIT 7:**

Projected Year 2012 Background Traffic Situation -
The Catholic University of America, Washington, D.C.

## 4.0 CAMPUS MASTER PLAN AND DEVELOPMENT IMPACTS

### 4.1 Background

As noted in earlier sections of this report, the student population and the academic programs of the Catholic University have the greatest impact on trip generation and parking demands. It is projected that this will continue to be the case through the 2012 planning horizon year of the campus master plan update, as well as per the current master plan. Other factors and considerations would include changes in the faculty and staff, programming changes with respect to building facilities and their respective usage, as well as parking supply and the transportation management provisions of the institution. These issues and their potential impacts on traffic and parking are addressed in this section. In order to facilitate the discussion, key population statistics for the University, for the period 1982 – 2012, are presented in Table 4.

**TABLE 4**

**CUA POPULATION TREND DATA -**
**YEAR 2002 CAMPUS MASTER PLAN UPDATE**

| | Planning Year/ Time Frame | | | |
|---|---|---|---|---|
| **Population Element** | **1981-82** | **1991-92** | **Existing (2001-02)** | **Future (2011-12)** |
| • Student FTE's* | 5,670 | 4,813 | 4,357 | 7,500 |
| • Full-time Faculty | - | 411 | 363 | 400 |
| • Full-time Staff | - | - | 822 | 1307 |

**Note:** *Full Time Equivalents

**Source:** The Catholic University of America and EDAW, Inc.

The data presented in Table 4 presents a good basis for a generalized assessment of the access needs and impacts of the University by the 2012 campus master plan horizon, and for comparisons of the approved population parameters per the 1992 campus master plan. The planned land use changes are discussed in the section following; and this information will be used in conjunction with the data presented in Table 4 to enable an assessment of the planned campus land uses and programming aspects of the campus.

### 4.2 Campus Land Use Plan

The University campus master plan proposes several initiatives over the next ten (10) years. These are highlighted below:

- **Academic/Administrative Building Demolitions, Renovations and Additions**

  Throughout the campus, building demolitions, renovations and additions are envisioned along with associated parking relocations, internal changes to vehicular circulation and improvements to open spaces associated with those projects.

- **Academic/Administrative Building Construction:** The campus master plan proposes a modest amount of new construction for academic/administrative uses. Potential new buildings are included at sites at Michigan Avenue, John McCormack Road, the south end of the Law School quadrangle, the north end of the quadrangle formed by McMahon, Hannan, and Caldwell Halls, and where the current Salve Regina building sits.

- **Residence Hall Demolitions, Renovations and New Construction:** Consistent with the 1992 master plan, the current plan proposes phasing out the residence halls located on the south side of Michigan Avenue. The plan also suggests renovations to existing residence halls such as Regan and Ryan Halls; and calls for the construction of new residence facilities, if necessary.

- **Vehicular Circulation:** The campus master plan proposes a mini-roundabout within the southern section of McCormack Road in the vicinity of Gowan Hall, adjacent to the pedestrian access to the Brookland-CUA Metrorail station. Traffic flow along this roadway would remain two-way north of the proposed roundabout; and the existing one-way northbound traffic flow between Michigan Avenue and the roundabout would also be maintained. Signage indicating *"No Through Truck Movement to Michigan Avenue"* would be provided at appropriate locations along McCormack Road, in the vicinity of Taylor Street, to prohibit traffic intrusion, particularly by trucks. This improvement would provide for safer pedestrian access between the campus and the Metro station. Operational and capacity improvements are also proposed for the campus entrances at Monroe Street near 7th Street, and for the entrances along Harewood Road. Proposed changes to the internal circulation include removal of parking along some campus roadways, as well as elimination of roadway sections not needed for effective circulation.

- **Parking:** The current plan proposes relocation of some parking from the central core of the campus, primarily the surface parking situated adjacent to McMahon Hall, to proposed surface and structured parking areas along the perimeter of the campus.

## 4.3 Trip Generation Considerations

The 1992 University campus master plan update envisioned the enrollment of 7,500 Full Time Equivalent (FTE) students in year 2000. As was shown in Table 4, the current FTE enrollment is substantially below the 1992 projection. The University's student headcount and FTE projections to the current planning horizon (i.e., year 2012) would be increased to approximate the student enrollment of the University, at the time of the 1992 master plan approval.

Earlier sections of the report have discussed the favorable location of the campus in relation to the adjacent Metrorail station and bus transit services within the sub-area. WMATA has reported a significant upward trend in ridership in recent years. During the 1992 master plan review process, the campus has also established a substantive Transportation Management Program, which takes advantage of the public transportation accessibility factors noted above. The proposed plan envisions a continued emphasis on transit usage and vehicle trip reduction.

The District of Columbia Department of Public Works stipulates that trip generation estimates be based on trip rates recommended by the Institute of Transportation Engineers (ITE) Trip Generation Manual (6th edition, 1997), unless local survey data is available. As noted earlier, the turning movement counts conducted were selected such that the

campus portal points were effectively "cordoned" off to enable the total vehicle trips entering and leaving the campus to be enumerated. Based on the data obtained, trip rates per enrolled student were developed, and compared with the corresponding ITE rates. This comparison is shown in Table 5 following.

**TABLE 5**

**PROJECTED TRIP GENERATION – CUA CAMPUS**

| | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|
| **Trip Rates/Student** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| • Per ORGA Survey | 0.11 | 0.04 | 0.15 | 0.08 | 0.11 | 0.19 |
| • Per ITE | 0.17 | 0.04 | 0.21 | 0.06 | 0.15 | 0.21 |
| **Trip Generation** | | | | | | |
| • Per 4,357 Students* (Existing 2001-02) | 484 | 158 | 642 | 344 | 499 | 843 |
| • Per 7,500 Students* (Future 2011-12)** | 825 | 300 | 1,125 | 600 | 825 | 1,425 |
| • **Net Change** | **+341** | **+142** | **+483** | **+256** | **+326** | **+582** |

* Based on Full Time Equivalents (FTEs)

** Based on the projected student enrollment for the 2002 – 2012 period, and consideration of an appropriate transit reduction factor.

Source: O. R. George & Associates.

The above table shows that, if enrollment goals are achieved in 2012, the CUA campus would generate 483 and 582 additional trips during the morning and afternoon peak hours, respectively. The data shows that the trip rates derived from the campus survey are approximately 25 percent lower than the ITE rates during the morning peak period and 10 percent lower during the PM peak. This is likely due to the proximity of the campus to the Brookland Metrorail station and other transit facilities and services within the sub-area. The difference in trip rates is to be expected since ITE data is usually based upon surveys of stand-alone sites, with little or no access to public transportation. The CUA trip rates derived from this study were therefore considered appropriate for projecting the future traffic generation for the campus. The projected trip generation and the incremental trips that would be generated by the campus based on the student population projection for the 2012 planning horizon, are also presented in Table 5.

## 4.4 Trip Distribution and Traffic Assignment

The existing trip distribution pattern for the Catholic University campus was shown in Exhibit 4. While some minor access and circulation changes are planned, this study assumes that the distribution pattern will remain substantially the same. The incremental trips developed in the previous Section (and shown in Table 5) were assigned to the study area road network, as shown in Appendix F. Exhibit 8 shows the projected year 2012 total traffic situation, which incorporates the background traffic discussed in Section 3, and the projected campus incremental trip assignment (Appendix F).

The year 2012 traffic volumes, which were presented in Exhibit 8, were analyzed using the procedures specified by the City. The results are summarized in Table 6. The capacity analysis worksheets are presented in Appendix G. The results show that the projected year 2012 traffic situation would be generally comparable with existing conditions. While there would be some increase in average delays experienced, the levels of service at the intersections considered would be within the acceptable range, except for the Michigan Avenue/Monroe Street intersection which would be approaching capacity.

The Michigan Avenue/Harewood Road and Michigan Avenue/4$^{th}$ Street intersections would continue to operate at capacity, primarily due to heavy through commuter volumes as well as projected trips from the approved/pending land use developments considered within the general site area. The year 2012 campus master plan trip generation forecasts for the CUA campus will constitute approximately fifteen to twenty percent (15 – 20%) of the projected peak hour volumes along Michigan Avenue. As such, the proposed master plan developments would not contribute significantly to, or exacerbate the projected traffic situation at the two (2) subject intersections.

## 4.5 Parking Needs Assessment

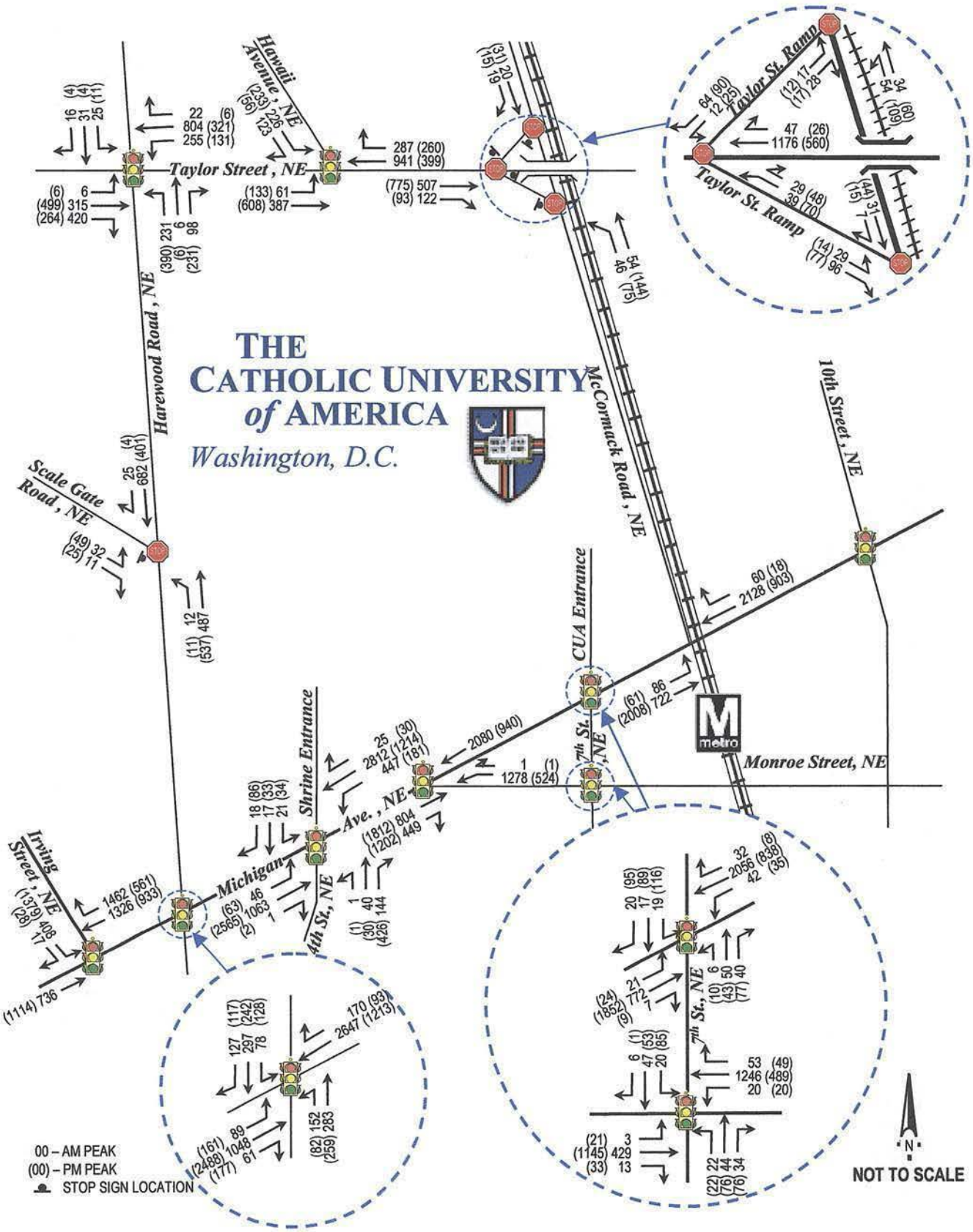
Section 2.6 discussed the existing parking situation. The data shows that the campus is currently provided with 1,942 parking spaces. It was also shown that the maximum demand within the main campus was in the range of 72 percent, and that within the entire campus was in the range of 70 percent. The changes proposed over the next ten (10) years would increase the supply to 2,340 spaces; and also redistribute the supply to enhance convenience to users and be more compatible with the distribution of facilities within the campus. Exhibit 9 (on page 28) shows the net changes in the parking per zone.

Evaluation of the current (2002) parking situation was based on parking usage surveys, which were used to develop a student population-to-parking space ratio. Discussions with campus administration and student representatives have indicated that the current parking situation is acceptable, in terms of the level of service provided to the campus community. Also, field surveys and discussions with community representatives have not identified any adverse impacts on the neighborhood. Therefore, the existing parking ratio was considered appropriate in assessing the adequacy of the planned 2012 parking situation. This assessment is summarized below:

**PARKING ASSESSMENT SUMMARY**

| | 1991-92 | Existing (2001-02) | Future (2011-12) |
|---|---|---|---|
| • Total Student Enrollment | 4,813 | 4,357 | 7,500 |
| • Parking Supply | 1,762 | 1,942 | 2,340 |
| • Student-to-Parking Ratio | 2.73 | 2.24 | 3.20 |

Source: The Catholic University of America, and
O. R. George & Associates.




**O. R. GEORGE &ASSOCIATES, INC.**
*Traffic Engineers - Transportation Planners*

**EXHIBIT 8:**
Projected Year 2012 Total Traffic Situation -
The Catholic University of America, Washington, D.C.

## TABLE 6

## SUMMARY OF CAPACITY ANALYSIS RESULTS - YEAR 2012 TOTAL TRAFFIC SITUATION

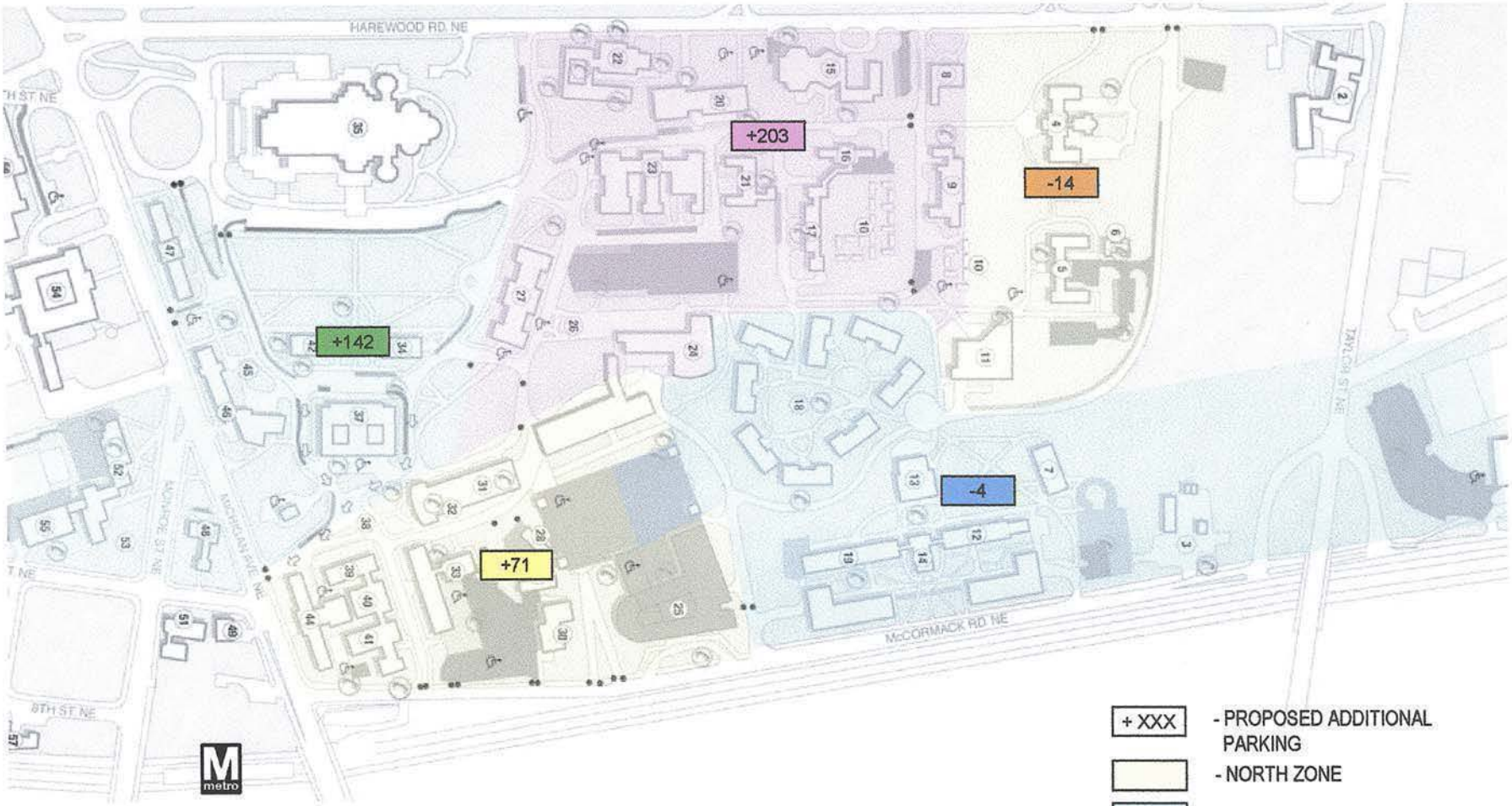
| INTERSECTION | AM PEAK HOUR | | PM PEAK HOUR | |
|---|---|---|---|---|
| | Level of Service | Average Delay Sec./Veh.* | Level of Service | Average Delay Sec./Veh.* |
| 1) Michigan Avenue, N.E. @ McCormack Road (Unsignalized) | D | 33.5 | B | 10.3 |
| 2) Michigan Avenue @ 7th Street, N.E. (Signalized) | C | 33.7 | D | 36.1 |
| 3) Michigan Avenue @ Monroe Street, N.E. (Signalized) | D | 54.5 | C | 30.4 |
| 4) Michigan Avenue @ 4th Street, N.E. (Signalized) | ** | ** | ** | ** |
| 5) Michigan Avenue @ Harewood Road, N.E. (Signalized) | ** | ** | ** | ** |
| 6) Michigan Avenue @ Irving Street, N.E. (Signalized) | C | 24.0 | C | 27.4 |
| 7) Harewood Road, N.E. @ Scale Gate Road (Unsignalized) | C | 20.5 | C | 19.0 |
| 8) Taylor Street @ Harewood Road, N.E. (Signalized) | C | 30.5 | C | 33.2 |
| 9) Taylor Street, N.E. @ Hawaii Avenue (Signalized) | C | 23.6 | C | 22.4 |
| 10) Taylor Street, N.E. @ McCormack Road (Unsignalized) | D | 30.7 | D | 25.9 |
| 11) McCormack Road @ Taylor Street North Ramp (Unsignalized) | A | 9.4 | B | 10.1 |
| 12) McCormack Road @ Taylor Street South Ramp (Unsignalized) | A | 9.9 | A | 9.6 |

Note:

* Sec./Veh. = Seconds per Vehicle

** Level of Service and Average Delay results are below the District's planning standards.

Source: O. R. George & Associates.




+ XXX - PROPOSED ADDITIONAL PARKING

- NORTH ZONE
- NORTHEAST ZONE
- WEST ZONE
- SOUTHEAST ZONE
- SOUTH ZONE

N

NOT TO SCALE

Note:
The numbers shown represent net change to the existing capacity.

**Source:** EDAW

| | | |
|---|---|---|
| **O. R. GEORGE & ASSOCIATES, INC.**<br>*Traffic Engineers - Transportation Planners* | **EXHIBIT 9:**<br>CUA Campus Future Parking Distribution – Net Changes | Catholic University Master Plan<br>*Washington, D.C.* |

## 4.6 Potential Mitigation Measures

Sections 4.4 and 4.5 above examined the horizon year traffic and parking situation. The following data and analyses are based upon the land use changes and enrollment projections proposed in the 2002 campus master plan and the assumption that current peak scheduling of classes would remain unchanged.

a) A modest increase in weekday peak period vehicular traffic generation will result.

b) Of the twelve (12) study area intersections considered, two (2) area locations (Michigan Avenue at 4th Street and at Harewood Road) that already experience minor capacity deficiencies not created by the University will continue to experience the same conditions.

c) Based upon the parking usage patterns and factors developed from surveys conducted in 1992 and 2002, the campus master plan provisions for parking exceed what is necessary to accommodate the University's needs for the planning period.

d) The campus master plan proposes to continue the redistribution of parking within the main campus, which would significantly improve circulation patterns and enhance safety within the campus.

e) The proposed consolidation of all residential facilities within the main campus will significantly reduce pedestrian activity across Michigan Avenue, and address safety concerns with the current arrangement.

In summary, the study has found that the access needs of the University, over the next ten (10) years, can be accommodated by the existing roadway network. The parking supply proposal is adequate; and its redistribution within the site should serve to further reduce walking distances and vehicle pedestrian conflicts.

The University is seeking to create a more prominent gateway at its entrance at Michigan Avenue and 7th Street. This can be done in conjunction with building demolition and renovations, to create an opportunity to increase the entranceway width to provide for two (2) outbound lanes. This measure was identified as necessary, and is reflected in the year 2012 capacity analysis results presented in Table 6. In this connection, discussions have been held with the District of Columbia Department of Public Works concerning the potential need for minor re-alignment of the adjacent section of 7th Street. A proposal has been favorably received. The campus master plan also proposes an upgrade of the northernmost and Nugent Hall entrances to the campus, off Harewood Road. Upgraded entrances would enhance access to parking and new facilities within the central and northern sectors of the main campus.

The University has demonstrated its commitment to transportation management, and currently has a Transportation Management Program (TMP) in place, coordinated by the Office of the Vice President for Administration. The potential impacts of policies, programs and services, included in the subject plan, to reduce vehicle access demands (particularly by single-occupant vehicles) have not been specifically incorporated into traffic projections. However, it is a reasonable assumption that the implementation would have a measurable positive impact on the local area.

## 5.0 SUMMARY AND CONCLUSION

The data, analysis and discussion presented in this report supports the conclusion that the programming changes called for in the updated (2002) campus master plan for the Catholic University of America, are in keeping with the District of Columbia Generalized Land Use and Policy Plans, considering the transportation access needs of the institution as well as the potential impacts on adjacent properties and residential communities. More specifically, it is noted that student population levels (which have the most significant bearing on traffic access and parking needs), are expected to be in the same range as those approved under the 1992 CUA campus master plan. The 2002 plan calls for the following changes, which are noteworthy for their positive impacts on transportation:

a) Campus facilities that would accommodate a student population of approximately 7,500 FTEs, which is closer to the campus population in 1981-82.

b) The proposal to relocate the campus residences currently situated in the south campus to the main campus.

c) The proposal to redistribute classroom and administrative space in conjunction with new and approved facilities under construction, as well as parking facilities within the main campus, will significantly enhance access patterns, as well as improve internal vehicular and pedestrian circulation.

d) Aggressive management of the Transportation Management Program should further enhance traffic operations within the local area. Transit usage and reduced vehicular traffic, experienced when the law center was built adjacent to the Metrorail Station, should continue to improve.

e) Except for minor capacity deficiencies at two (2) of the study area intersections, levels of service within the study area are acceptable, or can be mitigated under the current campus master plan proposals.

As noted earlier, the University proposes to develop several new building facilities in conjunction with parking and minor site access changes. over the ten-year period of the campus master plan. These projects will require review and approval in accordance with the District of Columbia further processing arrangements. This process will allow for refinements and updates to further ensure compliance with the District of Columbia's requirements and the objectives of the University. The process will also provide for public participation to ensure that concerns for potential adverse impacts on the community are appropriately addressed.

<<<<<<<:::::>>>>>>>

# APPENDIX

# A

STUDY SCOPING CORRESPONDENCE WITH DPW
INTERMODAL PLANNING OFFICE

# O. R. GEORGE & ASSOCIATES, INC.

*Traffic Engineers – Transportation Planners*

**10210 Greenbelt Road, Suite # 310 • Greenbelt, Maryland 20706**
Tel: (301) 794-7700 • Fax: (301) 794-4400
E-mail: orgassoc@aol.com


October 29, 2001

Mr. Abdoulaye Bah, Sr. Transportation Engineer
Office of Intermodal Planning
District of Columbia Department of Public Works
2000 14th Street, N.W. 7th Floor
Washington, D.C. 20009

**Re:** Catholic University of America Campus Plan Update Transportation Impact Assessment

Dear Mr. Bah:

Further to our telephone conversation, we hereby confirm that we have been retained by the Applicant, Catholic University of America, to prepare a traffic impact assessment in support of the referenced application. The purpose of this letter is to confirm the project background discussed, and the study parameters agreed upon.

As background, we note that the Catholic University of America is located within an area bounded by Michigan Avenue to the south, Taylor Street to the north, Harewood Road to the west, and McCormack Road to the east, within the northeast section of the city. The CUA campus is situated immediately west of the Brookland/CUA station. The current zoning of the campus is made up of properties within the R-5-A, R-4 and CM-1 categories. The current Campus Plan was approved in 1992. The current year 2011 Campus Plan calls for several facility, building, parking, as well as access and circulation improvements on the campus. The Campus Plan also envisages an increase in student enrollment to attain past peak enrollment levels. The University requires that a traffic impact assessment be undertaken to ensure that the proposed campus improvements and increase in student enrollment are not objectionable to neighboring property from the perspective of traffic.

Based on the considerations, we propose the following as key parameters of the traffic study:

a) The study area road network would be defined by the following twelve (12) intersections:
    1) Michigan Avenue at McCormack Road, N. E.
    2) Michigan Avenue at 7th Street, N. E.
    3) Michigan Avenue at Monroe Street, N. E.
    4) Michigan Avenue at 4th Street, N. E.
    5) Michigan Avenue at Harewood Road, N. E.
    6) Michigan Avenue at Irving Street, N. E.

7) Harewood Road at Scale Gate Road, N. E.
8) Harewood Road at Taylor Street, N. E.
9) Taylor Street at Hawaii Avenue, N. E.
10) Taylor Street at McCormack Road, N. E.
11) McCormack Road at Taylor Street North Ramp, N. E.
12) McCormack Road at Taylor Street South Ramp, N. E.

b) The projected site trips will be based on trip rates developed per enrolled student derived from peak hour traffic turning movement counts conducted at the campus' portal points, as part of the traffic study. This is in keeping with your office's requirement that local survey data be used (in lieu of rates recommended by the Institute of Transportation Engineers), whenever such data is available.

c) The assumed trip distribution pattern would be based primarily on the existing access patterns of the University as well as the traffic patterns on the adjacent roadway network.

Should you have any questions or further information, which may be useful to our study effort, please let us know. Thanks for your usual attention and assistance in this matter.

Sincerely,
O. R. GEORGE & ASSOCIATES, INC.

Osborne R. George
President

ORG/rb

cc: Craig Parker, Esquire (CUA)
Ms. Marsha Lea (EDAW, Inc.)
Allison L. Prince, Esquire (SHAW-PITTMAN, P.C.)

# APPENDIX

# B

TURNING MOVEMENT COUNT SUMMARIES
EXISTING TRAFFIC SITUATION

O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NS
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MOR
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| | McCormack Road From North | | Michigan Avenue From East | | | Michigan Avenue From West | | | |
|---|---|---|---|---|---|---|---|---|---|
| End Time | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Intrvl. Total |
| 09/05/01 | | | | | | | | | |
| 07:15 | 0 | 0 | 308 | 8 | 316 | 10 | 102 | 112 | 428 |
| 07:30 | 0 | 0 | 324 | 11 | 335 | 15 | 116 | 131 | 466 |
| 07:45 | 2 | 2 | 363 | 15 | 378 | 18 | 126 | 144 | 524 |
| 08:00 | 0 | 0 | 440 | 11 | 451 | 15 | 132 | 147 | 598 |
| Hour | 2 | 2 | 1435 | 45 | 1480 | 58 | 476 | 534 | 2016 |
| 08:15 | 2 | 2 | 401 | 21 | 422 | 27 | 136 | 163 | 587 |
| 08:30 | 1 | 1 | 374 | 22 | 396 | 18 | 133 | 151 | 548 |
| 08:45 | 0 | 0 | 414 | 17 | 431 | 33 | 142 | 175 | 606 |
| 09:00 | 1 | 1 | 359 | 26 | 385 | 48 | 137 | 185 | 571 |
| Hour | 4 | 4 | 1548 | 86 | 1634 | 126 | 548 | 674 | 2312 |
| [BREAK] | | | | | | | | | |
| 16:30 | 1 | 1 | 155 | 6 | 161 | 15 | 344 | 359 | 521 |
| 16:45 | 1 | 1 | 157 | 6 | 163 | 23 | 334 | 357 | 521 |
| 17:00 | 0 | 0 | 161 | 6 | 167 | 15 | 348 | 363 | 530 |
| Hour | 2 | 2 | 473 | 18 | 491 | 53 | 1026 | 1079 | 1572 |
| 17:15 | 0 | 0 | 175 | 4 | 179 | 19 | 334 | 353 | 532 |
| 17:30 | 0 | 0 | 168 | 7 | 175 | 20 | 389 | 409 | 584 |
| 17:45 | 0 | 0 | 183 | 2 | 185 | 20 | 382 | 402 | 587 |
| 18:00 | 0 | 0 | 113 | 7 | 120 | 29 | 371 | 400 | 520 |
| Hour | 0 | 0 | 639 | 20 | 659 | 88 | 1476 | 1564 | 2223 |
| Total | 8 | 8 | 4095 | 169 | 4264 | 325 | 3526 | 3851 | 8123 |
| % Apr. | 100.0 | - | 96.0 | 3.9 | - | 8.4 | 91.5 | - | - |
| % Int. | - | - | 50.4 | 2.0 | - | 4.0 | 43.4 | - | - |

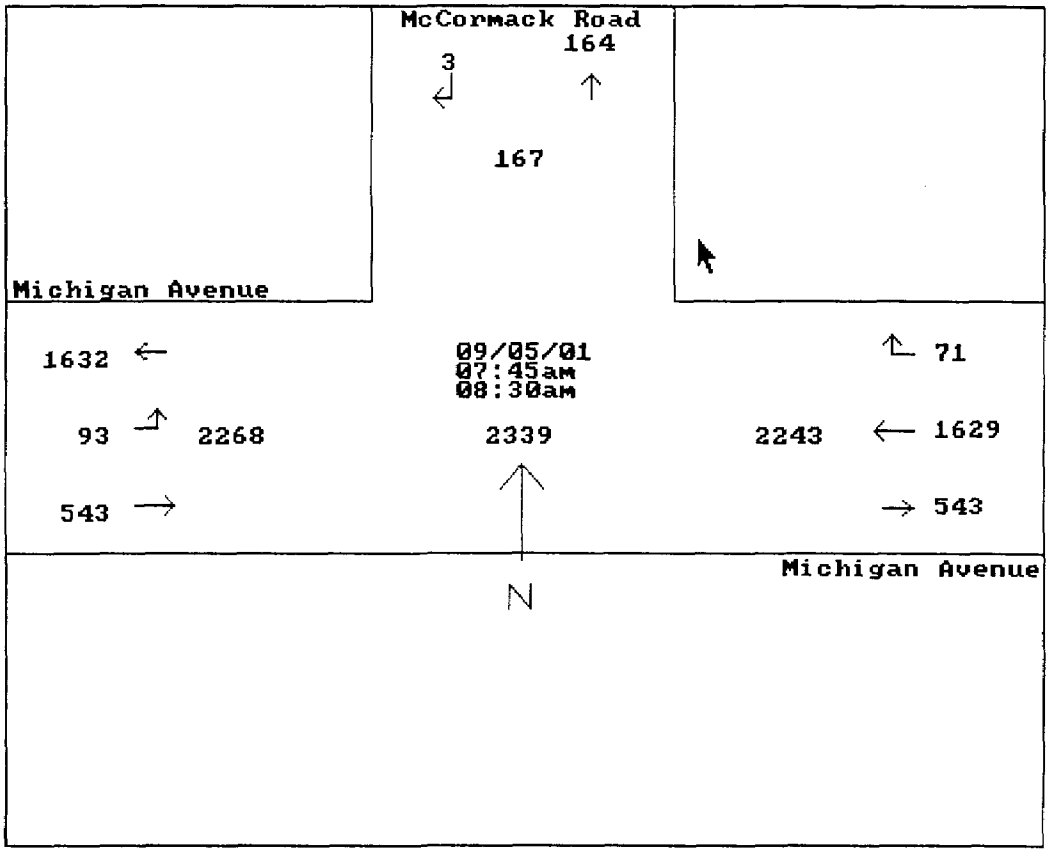
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NS
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MOR
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| End Time | McCormack Road From North Apprch. Right | Total | Michigan Avenue From East Apprch. Thru | Right | Total | Michigan Avenue From West Apprch. Left | Thru | Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/05/01 to 08:45 on 09/05/01 | | | | | | | | | |
| Time | 07:45 | | 07:45 | | | 07:45 | | | |
| Vol. | 3 | | 1629 | 71 | | 93 | 543 | | |
| Pct. | 100.0 | | 95.8 | 4.1 | | 14.6 | 85.3 | | |
| Total | 3 | | 1700 | | | 636 | | | |
| High | 08:00 | | 07:45 | | | 08:30 | | | |
| Vol. | 2 | | 440 | 11 | | 33 | 142 | | |
| Total | 2 | | 451 | | | 175 | | | |
| PHF | 0.375 | | 0.942 | | | 0.908 | | | |



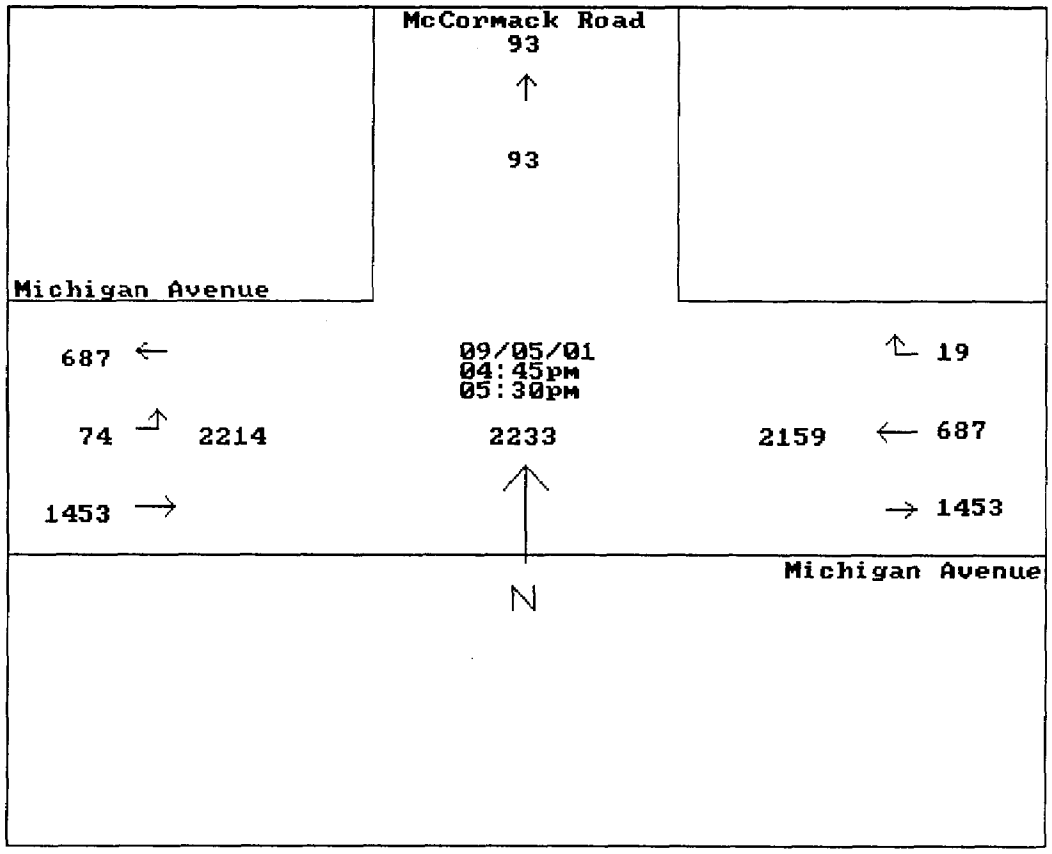
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NS
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MOR
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| | McCormack Road From North | | Michigan Avenue From East | | | Michigan Avenue From West | | | |
|---|---|---|---|---|---|---|---|---|---|
| End | | Apprch. | | | Apprch. | | | Apprch. | Intrvl. |
| Time | Right | Total | Thru | Right | Total | Left | Thru | Total | Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/05/01 to 17:45 on 09/05/01 | | | | | | | | | |
| Time | 16:45 | | 16:45 | | | 16:45 | | | |
| Vol. | 0 | | 687 | 19 | | 74 | 1453 | | |
| Pct. | 0.0 | | 97.3 | 2.6 | | 4.8 | 95.1 | | |
| Total | 0 | | 706 | | | 1527 | | | |
| High | 08:30 | | 17:30 | | | 17:15 | | | |
| Vol. | 0 | | 183 | 2 | | 20 | 389 | | |
| Total | 0 | | 185 | | | 409 | | | |
| PHF | 0.000 | | 0.954 | | | 0.933 | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-1908
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@7TH
Site Code : 01071908
Start Date: 09/19/01


Total Traffic

| | Catholic University Entran | | | | Michigan Avenue | | | | 7th Street, NE | | | | Michigan Avenue | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From North | | | | From East | | | | From South | | | | From West | | | | |
| End | | | | Aprch. | | | | Aprch. | | | | Aprch. | | | | Aprch. | Intvl. |
| Time | Left | Thru | Right | Total | Left | Thru | Right | Total | Left | Thru | Right | Total | Left | Thru | Right | Total | Total |
| 09/19/01 | | | | | | | | | | | | | | | | | |
| 07:15 | 3 | 4 | 2 | 9 | 7 | 289 | 5 | 301 | 2 | 11 | 8 | 21 | 0 | 90 | 1 | 91 | 422 |
| 07:30 | 1 | 6 | 6 | 13 | 7 | 361 | 4 | 372 | 4 | 5 | 4 | 13 | 0 | 123 | 2 | 125 | 523 |
| 07:45 | 4 | 3 | 4 | 11 | 10 | 412 | 4 | 426 | 2 | 5 | 10 | 17 | 1 | 143 | 2 | 146 | 600 |
| 08:00 | 3 | 4 | 2 | 9 | 8 | 389 | 9 | 406 | 2 | 6 | 11 | 19 | 1 | 160 | 0 | 161 | 595 |
| Hour | 11 | 17 | 14 | 42 | 32 | 1451 | 22 | 1505 | 10 | 27 | 33 | 70 | 2 | 516 | 5 | 523 | 2140 |
| 08:15 | 3 | 4 | 1 | 8 | 9 | 390 | 4 | 403 | 1 | 19 | 11 | 31 | 3 | 128 | 3 | 134 | 576 |
| 08:30 | 3 | 3 | 0 | 6 | 15 | 380 | 9 | 404 | 1 | 18 | 8 | 27 | 2 | 148 | 2 | 152 | 589 |
| 08:45 | 6 | 12 | 5 | 23 | 11 | 328 | 21 | 360 | 1 | 15 | 13 | 29 | 7 | 154 | 0 | 161 | 573 |
| 09:00 | 6 | 6 | 4 | 16 | 8 | 317 | 5 | 330 | 0 | 19 | 7 | 26 | 6 | 153 | 1 | 160 | 532 |
| Hour | 18 | 25 | 10 | 53 | 43 | 1415 | 39 | 1497 | 3 | 71 | 39 | 113 | 18 | 583 | 6 | 607 | 2270 |
| [BREAK] | | | | | | | | | | | | | | | | | |
| 16:15 | 16 | 9 | 16 | 41 | 11 | 145 | 2 | 158 | 6 | 5 | 15 | 26 | 3 | 313 | 1 | 317 | 542 |
| 16:30 | 14 | 13 | 22 | 49 | 9 | 149 | 0 | 158 | 3 | 3 | 16 | 22 | 1 | 316 | 2 | 319 | 548 |
| 16:45 | 12 | 10 | 12 | 34 | 10 | 158 | 0 | 168 | 2 | 4 | 12 | 18 | 2 | 344 | 5 | 351 | 571 |
| 17:00 | 28 | 22 | 12 | 62 | 9 | 143 | 2 | 154 | 4 | 13 | 19 | 36 | 7 | 321 | 3 | 331 | 583 |
| Hour | 70 | 54 | 62 | 186 | 39 | 595 | 4 | 638 | 15 | 25 | 62 | 102 | 13 | 1294 | 11 | 1318 | 2244 |
| 17:15 | 20 | 16 | 7 | 43 | 9 | 185 | 1 | 195 | 2 | 8 | 18 | 28 | 1 | 327 | 3 | 331 | 597 |
| 17:30 | 13 | 17 | 14 | 44 | 6 | 155 | 0 | 161 | 2 | 7 | 19 | 28 | 0 | 357 | 3 | 360 | 593 |
| 17:45 | 21 | 11 | 8 | 40 | 11 | 152 | 0 | 163 | 2 | 11 | 21 | 34 | 4 | 375 | 0 | 379 | 616 |
| 18:00 | 6 | 18 | 14 | 38 | 7 | 154 | 3 | 164 | 0 | 12 | 23 | 35 | 6 | 307 | 4 | 317 | 554 |
| Hour | 60 | 62 | 43 | 165 | 33 | 646 | 4 | 683 | 6 | 38 | 81 | 125 | 11 | 1366 | 10 | 1387 | 2360 |
| Total | 159 | 158 | 129 | 446 | 147 | 4107 | 69 | 4323 | 34 | 161 | 215 | 410 | 44 | 3759 | 32 | 3835 | 9014 |
| % Apr. | 35.6 | 35.4 | 28.9 | - | 3.4 | 95.0 | 1.5 | - | 8.2 | 39.2 | 52.4 | - | 1.1 | 98.0 | 0.8 | - | - |
| % Int. | 1.7 | 1.7 | 1.4 | - | 1.6 | 45.5 | 0.7 | - | 0.3 | 1.7 | 2.3 | - | 0.4 | 41.7 | 0.3 | - | - |

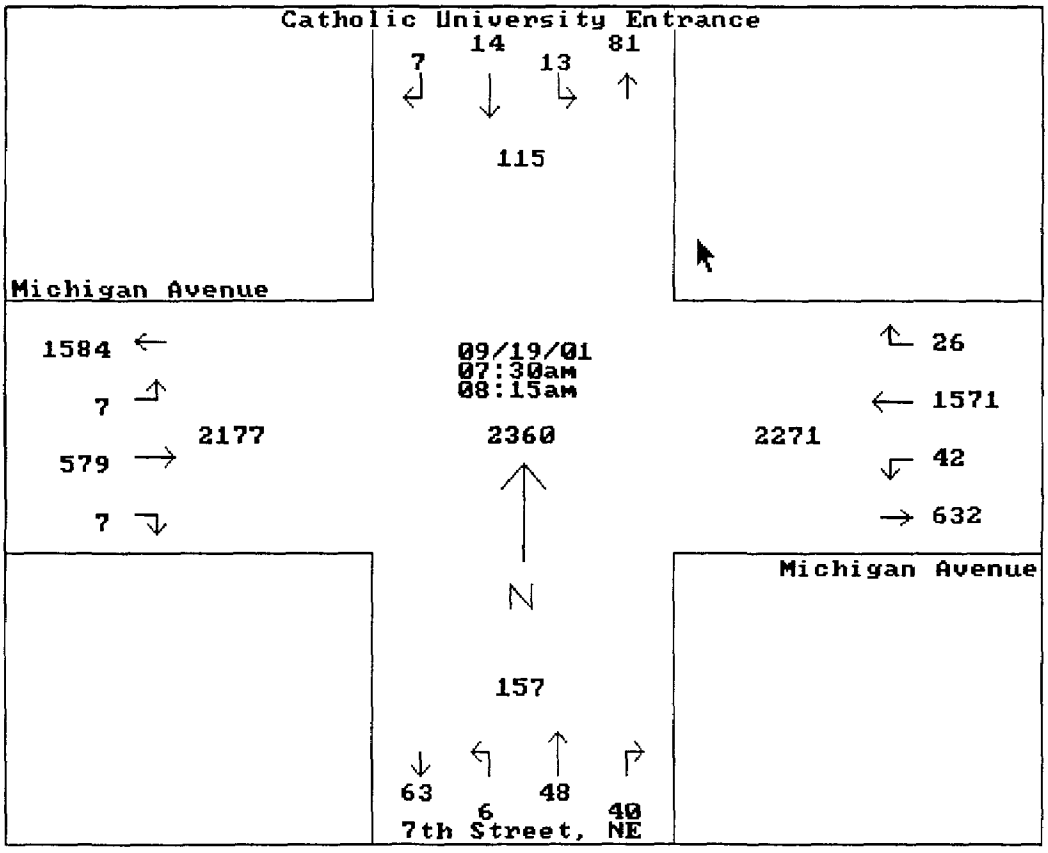
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-1908
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@7TH
Site Code : 01071908
Start Date: 09/19/01


Total Traffic

| | Catholic University Entran From North | | | | Michigan Avenue From East | | | | 7th Street, NE From South | | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/19/01 to 08:45 on 09/19/01 | | | | | | | | | | | | | | | | | |
| Time | 07:30 | | | | 07:30 | | | | 07:30 | | | | 07:30 | | | | |
| Vol. | 13 | 14 | 7 | 0 | 42 | 1571 | 26 | | 6 | 48 | 40 | | 7 | 579 | 7 | | |
| Pct. | 38.2 | 41.1 | 20.5 | | 2.5 | 95.8 | 1.5 | | 6.3 | 51.0 | 42.5 | | 1.1 | 97.6 | 1.1 | | |
| Total | 34 | | | | 1639 | | | | 94 | | | | 593 | | | | |
| High | 07:30 | | | | 07:30 | | | | 08:00 | | | | 07:45 | | | | |
| Vol. | 4 | 3 | 4 | | 10 | 412 | 4 | | 1 | 19 | 11 | | 1 | 160 | 0 | | |
| Total | 11 | | | | 426 | | | | 31 | | | | 161 | | | | |
| PHF | 0.772 | | | | 0.961 | | | | 0.758 | | | | 0.920 | | | | |



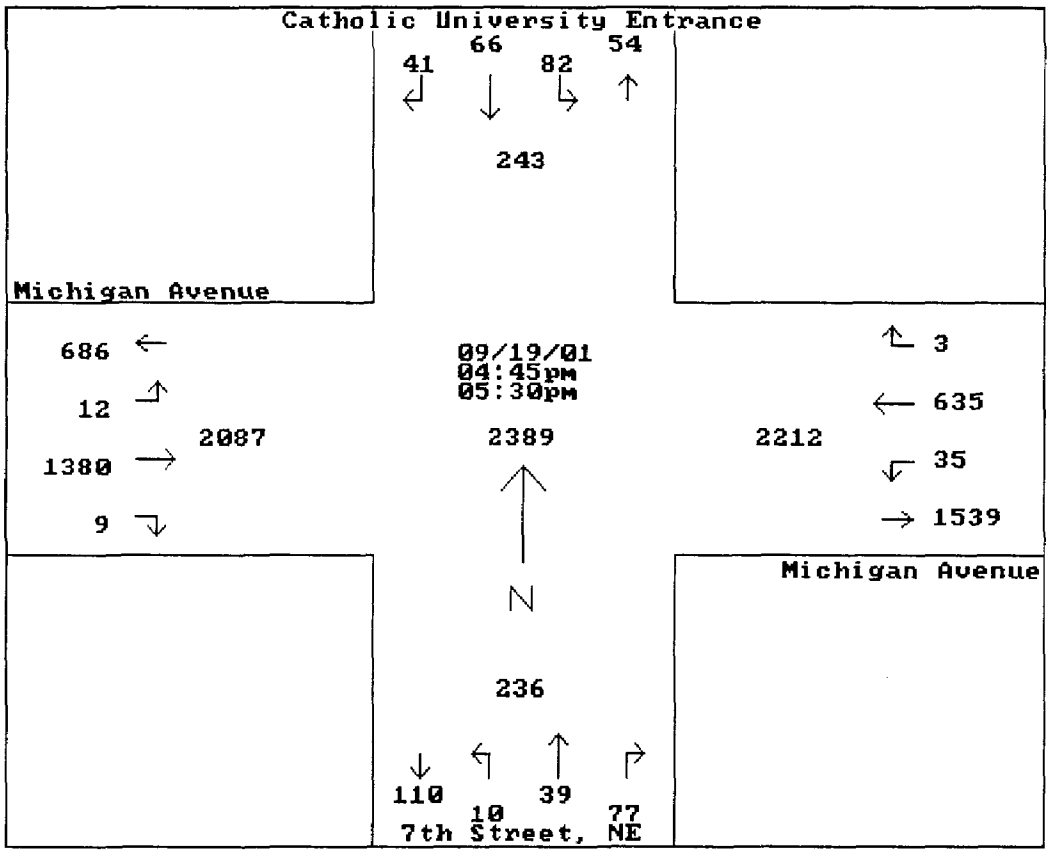
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-1908
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@7TH
Site Code : 01071908
Start Date: 09/19/01


Total Traffic

| End Time | Catholic University Entran From North Left | Thru | Right | Aprch. Total | Michigan Avenue From East Left | Thru | Right | Aprch. Total | 7th Street, NE From South Left | Thru | Right | Aprch. Total | Michigan Avenue From West Left | Thru | Right | Aprch. Total | Intvl. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/19/01 to 17:45 on 09/19/01 | | | | | | | | | | | | | | | | | |
| Time | 16:45 | | | | 16:45 | | | | 16:45 | | | | 16:45 | | | | |
| Vol. | 82 | 66 | 41 | 1 | 35 | 635 | 3 | | 10 | 39 | 77 | | 12 | 1380 | 9 | | |
| Pct. | 43.3 | 34.9 | 21.6 | | 5.2 | 94.3 | 0.4 | | 7.9 | 30.9 | 61.1 | | 0.8 | 98.5 | 0.6 | | |
| Total | 189 | | | | 673 | | | | 126 | | | | 1401 | | | | |
| High | 16:45 | | | | 17:00 | | | | 16:45 | | | | 17:30 | | | | |
| Vol. | 28 | 22 | 12 | | 9 | 185 | 1 | | 4 | 13 | 19 | | 4 | 375 | 0 | | |
| Total | 62 | | | | 195 | | | | 36 | | | | 379 | | | | |
| PHF | 0.762 | | | | 0.862 | | | | 0.875 | | | | 0.924 | | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-LM
Board :D4-2241
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MON
Site Code : 03042241
Start Date: 09/05/01


Total Traffic

| | Michigan Avenu From East | | Monroe Street From South | | | Michigan Avenue From West | | | |
|---|---|---|---|---|---|---|---|---|---|
| End Time | Thru | Apprch. Total | Left | Right | Apprch. Total | Thru | Right | Apprch. Total | Intrvl. Total |
| 09/05/01 | | | | | | | | | |
| 07:15 | 289 | 289 | 132 | 0 | 132 | 90 | 48 | 138 | 559 |
| 07:30 | 343 | 343 | 144 | 0 | 144 | 108 | 54 | 162 | 649 |
| 07:45 | 413 | 413 | 187 | 0 | 187 | 121 | 74 | 195 | 795 |
| 08:00 | 426 | 426 | 246 | 0 | 246 | 129 | 81 | 210 | 882 |
| Hour | 1471 | 1471 | 709 | 0 | 709 | 448 | 257 | 705 | 2885 |
| 08:15 | 351 | 351 | 268 | 0 | 268 | 148 | 109 | 257 | 876 |
| 08:30 | 399 | 399 | 247 | 0 | 247 | 170 | 89 | 259 | 905 |
| 08:45 | 404 | 404 | 227 | 1 | 228 | 152 | 68 | 220 | 852 |
| 09:00 | 289 | 289 | 230 | 1 | 231 | 167 | 71 | 238 | 758 |
| Hour | 1443 | 1443 | 972 | 2 | 974 | 637 | 337 | 974 | 3391 |
| [BREAK] | | | | | | | | | |
| 16:15 | 155 | 155 | 81 | 1 | 82 | 349 | 176 | 525 | 762 |
| 16:30 | 187 | 187 | 74 | 0 | 74 | 316 | 211 | 527 | 788 |
| 16:45 | 190 | 190 | 121 | 0 | 121 | 307 | 226 | 533 | 844 |
| 17:00 | 160 | 160 | 107 | 0 | 107 | 327 | 219 | 546 | 813 |
| Hour | 692 | 692 | 383 | 1 | 384 | 1299 | 832 | 2131 | 3207 |
| 17:15 | 185 | 185 | 81 | 0 | 81 | 366 | 239 | 605 | 871 |
| 17:30 | 141 | 141 | 88 | 1 | 89 | 383 | 231 | 614 | 844 |
| 17:45 | 120 | 120 | 79 | 0 | 79 | 381 | 227 | 608 | 807 |
| 18:00 | 107 | 107 | 86 | 1 | 87 | 383 | 236 | 619 | 813 |
| Hour | 553 | 553 | 334 | 2 | 336 | 1513 | 933 | 2446 | 3335 |
| Total | 4159 | 4159 | 2398 | 5 | 2403 | 3897 | 2359 | 6256 | 12818 |
| % Apr. | 100.0 | - | 99.7 | 0.2 | - | 62.2 | 37.7 | - | - |
| % Int. | 32.4 | - | 18.7 | - | - | 30.4 | 18.4 | - | - |

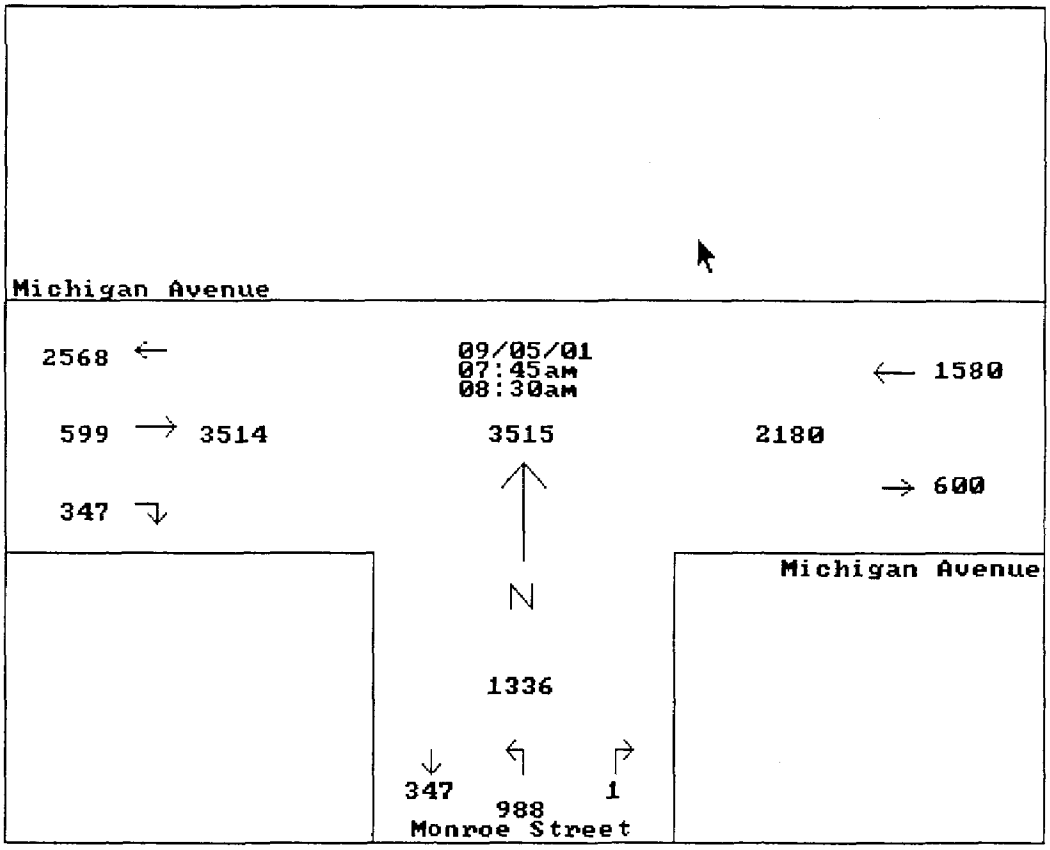
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-LM
Board :D4-2241
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MON
Site Code : 03042241
Start Date: 09/05/01


Total Traffic

| End Time | Michigan Avenu From East Apprch. Thru | Total | Monroe Street From South Apprch. Left | Right | Total | Michigan Avenue From West Apprch. Thru | Right | Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/05/01 to 08:45 on 09/05/01 | | | | | | | | | |
| Time | 07:45 | | 07:45 | | | 07:45 | | | |
| Vol. | 1580 | | 988 | 1 | | 599 | 347 | | |
| Pct. | 100.0 | | 99.8 | 0.1 | | 63.3 | 36.6 | | |
| Total | 1580 | | 989 | | | 946 | | | |
| High | 07:45 | | 08:00 | | | 08:15 | | | |
| Vol. | 426 | | 268 | 0 | | 170 | 89 | | |
| Total | 426 | | 268 | | | 259 | | | |
| PHF | 0.927 | | 0.922 | | | 0.913 | | | |



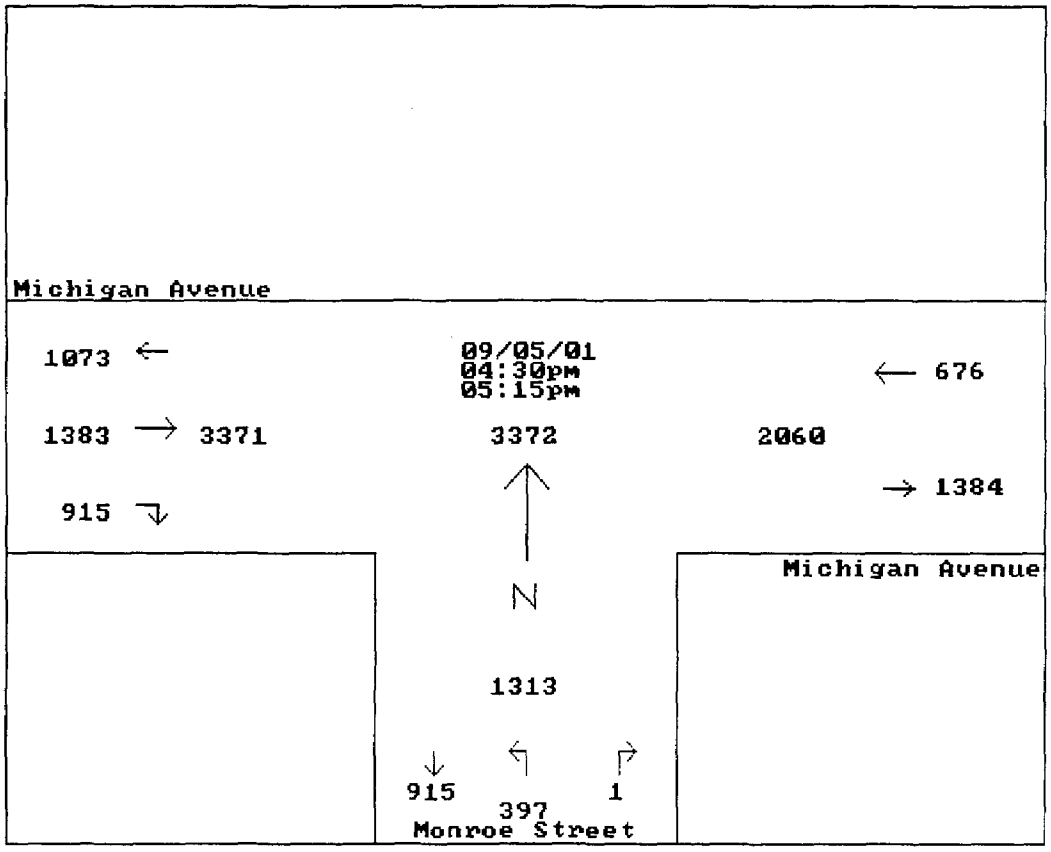
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-LM
Board :D4-2241
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@MON
Site Code : 03042241
Start Date: 09/05/01


Total Traffic

| | Michigan Avenu From East | | Monroe Street From South | | | Michigan Avenue From West | | | |
|---|---|---|---|---|---|---|---|---|---|
| End | Apprch. | | | Apprch. | | | Apprch. | | Intrvl. |
| Time | Thru | Total | Left | Right | Total | Thru | Right | Total | Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/05/01 to 17:45 on 09/05/01 | | | | | | | | | |
| Time | 16:30 | | 16:30 | | | 16:30 | | | |
| Vol. | 676 | | 397 | 1 | | 1383 | 915 | | |
| Pct. | 100.0 | | 99.7 | 0.2 | | 60.1 | 39.8 | | |
| Total | 676 | | 398 | | | 2298 | | | |
| High | 16:30 | | 16:30 | | | 17:15 | | | |
| Vol. | 190 | | 121 | 0 | | 383 | 231 | | |
| Total | 190 | | 121 | | | 614 | | | |
| PHF | 0.889 | | 0.822 | | | 0.935 | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-OS
Board :D4-1607
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICHI@04
Site Code : 04571607
Start Date: 09/05/01


Total Traffic

| | 4th Street From North | | | | Michigan Avenue From East | | | | 4th Street From South | | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| 09/05/01 | | | | | | | | | | | | | | | | | |
| 07:15 | 0 | 1 | 2 | 3 | 54 | 409 | 2 | 465 | 3 | 2 | 24 | 29 | 5 | 119 | 0 | 124 | 621 |
| 07:30 | 0 | 2 | 1 | 3 | 63 | 387 | 1 | 451 | 0 | 3 | 20 | 23 | 6 | 137 | 0 | 143 | 620 |
| 07:45 | 1 | 2 | 6 | 9 | 85 | 492 | 2 | 579 | 2 | 2 | 40 | 44 | 7 | 129 | 0 | 136 | 768 |
| 08:00 | 2 | 3 | 2 | 7 | 115 | 554 | 4 | 673 | 0 | 4 | 37 | 41 | 6 | 167 | 0 | 173 | 894 |
| Hour | 3 | 8 | 11 | 22 | 317 | 1842 | 9 | 2168 | 5 | 11 | 121 | 137 | 24 | 552 | 0 | 576 | 2903 |
| 08:15 | 4 | 6 | 3 | 13 | 95 | 551 | 4 | 650 | 0 | 6 | 25 | 31 | 7 | 225 | 0 | 232 | 926 |
| 08:30 | 2 | 1 | 2 | 5 | 96 | 518 | 1 | 615 | 1 | 7 | 39 | 47 | 4 | 192 | 0 | 196 | 863 |
| 08:45 | 5 | 1 | 3 | 9 | 130 | 516 | 1 | 647 | 0 | 10 | 33 | 43 | 7 | 175 | 0 | 182 | 881 |
| 09:00 | 2 | 2 | 5 | 9 | 120 | 523 | 3 | 646 | 0 | 13 | 39 | 52 | 15 | 198 | 1 | 214 | 921 |
| Hour | 13 | 10 | 13 | 36 | 441 | 2108 | 9 | 2558 | 1 | 36 | 136 | 173 | 33 | 790 | 1 | 824 | 3591 |
| [BREAK] | | | | | | | | | | | | | | | | | |
| 16:15 | 3 | 6 | 6 | 15 | 40 | 209 | 7 | 256 | 1 | 3 | 64 | 68 | 8 | 430 | 0 | 438 | 777 |
| 16:30 | 8 | 2 | 6 | 16 | 45 | 212 | 4 | 261 | 1 | 7 | 76 | 84 | 14 | 417 | 1 | 432 | 793 |
| 16:45 | 5 | 6 | 11 | 22 | 58 | 228 | 7 | 293 | 1 | 2 | 87 | 90 | 11 | 429 | 2 | 442 | 847 |
| 17:00 | 5 | 2 | 9 | 16 | 43 | 228 | 7 | 278 | 0 | 7 | 87 | 94 | 23 | 457 | 0 | 480 | 868 |
| Hour | 21 | 16 | 32 | 69 | 186 | 877 | 25 | 1088 | 3 | 19 | 314 | 336 | 56 | 1733 | 3 | 1792 | 3285 |
| 17:15 | 3 | 12 | 8 | 23 | 36 | 228 | 5 | 269 | 1 | 8 | 111 | 120 | 20 | 472 | 2 | 494 | 906 |
| 17:30 | 8 | 8 | 14 | 30 | 28 | 231 | 3 | 262 | 0 | 13 | 109 | 122 | 12 | 454 | 0 | 466 | 880 |
| 17:45 | 2 | 5 | 12 | 19 | 44 | 209 | 6 | 259 | 0 | 10 | 116 | 126 | 18 | 468 | 0 | 486 | 890 |
| 18:00 | 5 | 8 | 19 | 32 | 40 | 194 | 3 | 237 | 1 | 9 | 94 | 104 | 20 | 454 | 0 | 474 | 847 |
| Hour | 18 | 33 | 53 | 104 | 148 | 862 | 17 | 1027 | 2 | 40 | 430 | 472 | 70 | 1848 | 2 | 1920 | 3523 |
| Total | 55 | 67 | 109 | 231 | 1092 | 5689 | 60 | 6841 | 11 | 106 | 1001 | 1118 | 183 | 4923 | 6 | 5112 | 13302 |
| % Apr. | 23.8 | 29.0 | 47.1 | - | 15.9 | 83.1 | 0.8 | - | 0.9 | 9.4 | 89.5 | - | 3.5 | 96.3 | 0.1 | - | - |
| % Int. | 0.4 | 0.5 | 0.8 | - | 8.2 | 42.7 | 0.4 | - | - | 0.7 | 7.5 | - | 1.3 | 37.0 | - | - | - |

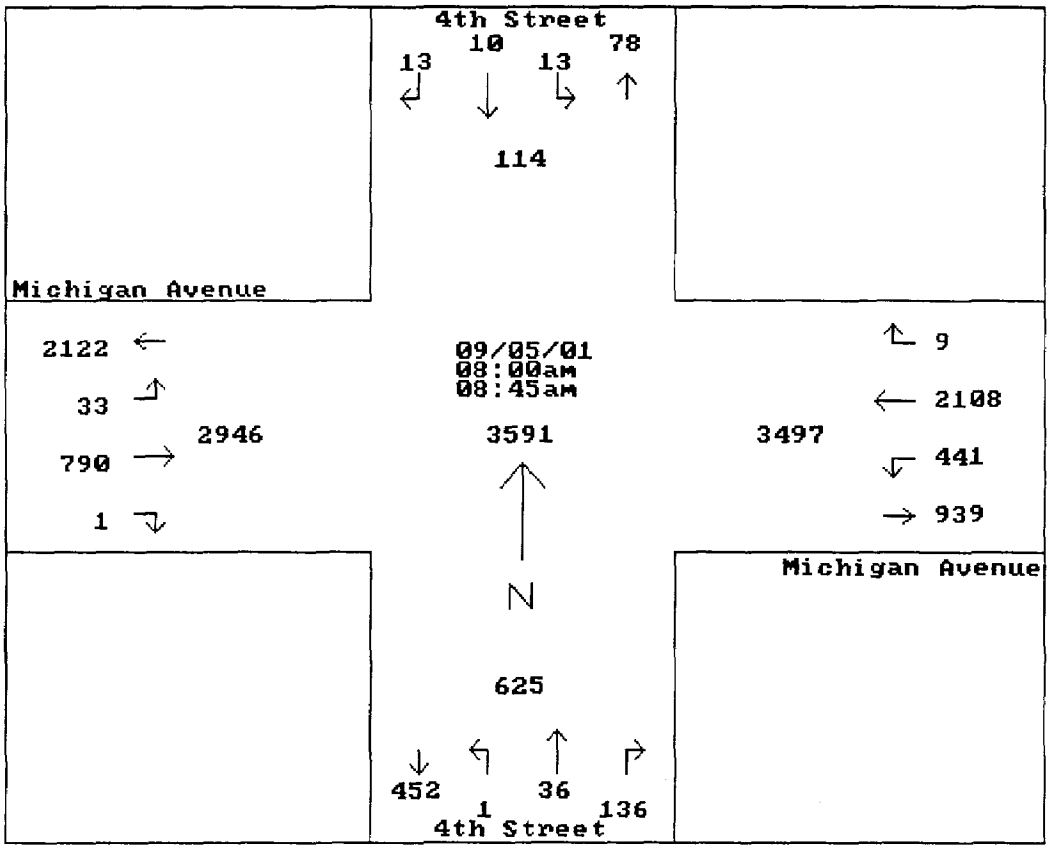
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-OS
Board :D4-1607
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICHI@04
Site Code : 04571607
Start Date: 09/05/01


Total Traffic

| | 4th Street From North | | | | Michigan Avenue From East | | | | 4th Street From South | | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/05/01 to 08:45 on 09/05/01 | | | | | | | | | | | | | | | | | |
| Time | 08:00 | | | | 08:00 | | | | 08:00 | | | | 08:00 | | | | |
| Vol. | 13 | 10 | 13 | 0 | 441 | 2108 | 9 | | 1 | 36 | 136 | | 33 | 790 | 1 | | |
| Pct. | 36.1 | 27.7 | 36.1 | | 17.2 | 82.4 | 0.3 | | 0.5 | 20.8 | 78.6 | | 4.0 | 95.8 | 0.1 | | |
| Total | 36 | | | | 2558 | | | | 173 | | | | 824 | | | | |
| High | 08:00 | | | | 08:00 | | | | 08:45 | | | | 08:00 | | | | |
| Vol. | 4 | 6 | 3 | | 95 | 551 | 4 | | 0 | 13 | 39 | | 7 | 225 | 0 | | |
| Total | 13 | | | | 650 | | | | 52 | | | | 232 | | | | |
| PHF | 0.692 | | | | 0.983 | | | | 0.831 | | | | 0.887 | | | | |



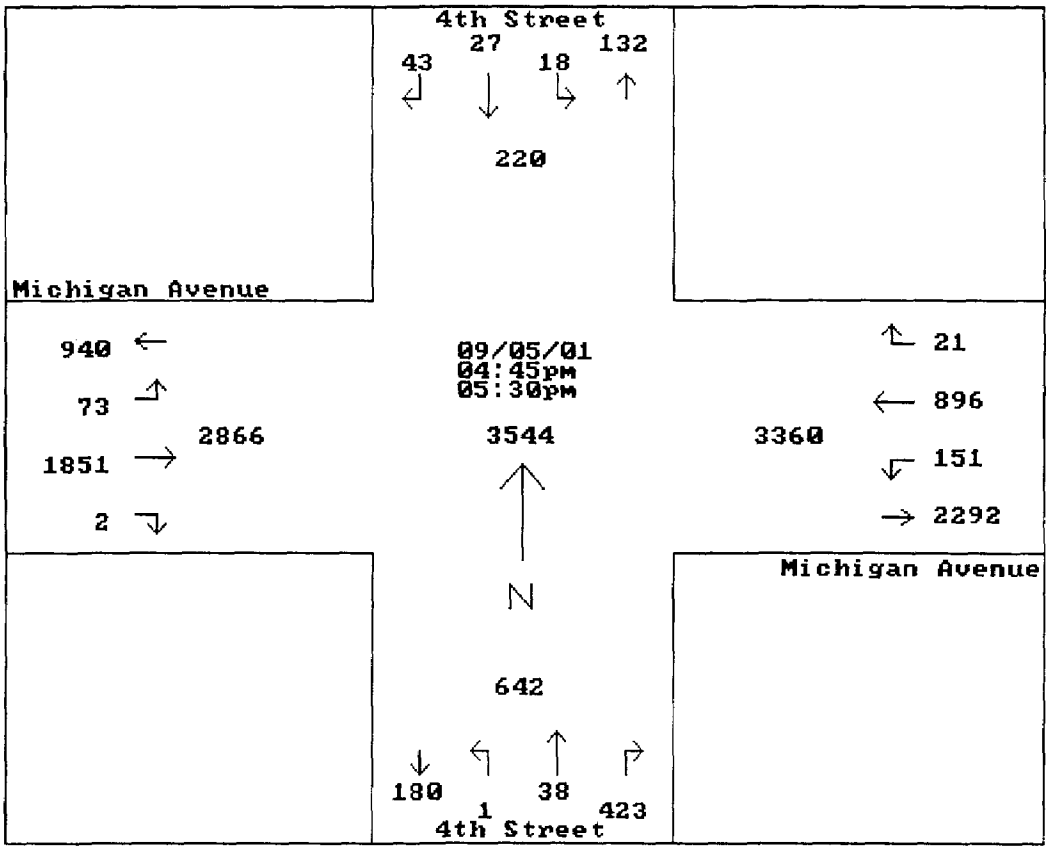
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-OS
Board :D4-1607
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICHI@04
Site Code : 04571607
Start Date: 09/05/01


Total Traffic

| End Time | 4th Street From North Left | Thru | Right | Aprch. Total | Michigan Avenue From East Left | Thru | Right | Aprch. Total | 4th Street From South Left | Thru | Right | Aprch. Total | Michigan Avenue From West Left | Thru | Right | Aprch. Total | Intvl. Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/05/01 to 17:45 on 09/05/01 | | | | | | | | | | | | | | | | | |
| Time | 16:45 | | | | 16:45 | | | | 16:45 | | | | 16:45 | | | | |
| Vol. | 18 | 27 | 43 | 1 | 151 | 896 | 21 | | 1 | 38 | 423 | | 73 | 1851 | 2 | | |
| Pct. | 20.4 | 30.6 | 48.8 | | 14.1 | 83.8 | 1.9 | | 0.2 | 8.2 | 91.5 | | 3.7 | 96.1 | 0.1 | | |
| Total | 88 | | | | 1068 | | | | 462 | | | | 1926 | | | | |
| High | 17:15 | | | | 16:45 | | | | 17:30 | | | | 17:00 | | | | |
| Vol. | 8 | 8 | 14 | | 43 | 228 | 7 | | 0 | 10 | 116 | | 20 | 472 | 2 | | |
| Total | 30 | | | | 278 | | | | 126 | | | | 494 | | | | |
| PHF | 0.733 | | | | 0.960 | | | | 0.916 | | | | 0.974 | | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@HAR
Site Code : 02802236
Start Date: 09/06/01
Page : 1

Total Traffic

| | Harewood Road From North | | | | Michigan Avenue From East | | | Harewood Road From South | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| 09/06/01 | | | | | | | | | | | | | | | |
| 07:15 | 8 | 30 | 14 | 52 | 359 | 19 | 378 | 24 | 38 | 62 | 4 | 149 | 10 | 163 | 655 |
| 07:30 | 6 | 43 | 17 | 66 | 388 | 22 | 410 | 31 | 40 | 71 | 4 | 154 | 12 | 170 | 717 |
| 07:45 | 9 | 56 | 18 | 83 | 464 | 26 | 490 | 53 | 56 | 109 | 6 | 177 | 19 | 202 | 884 |
| 08:00 | 13 | 61 | 30 | 104 | 480 | 24 | 504 | 42 | 52 | 94 | 4 | 199 | 21 | 224 | 926 |
| Hour | 36 | 190 | 79 | 305 | 1691 | 91 | 1782 | 150 | 186 | 336 | 18 | 679 | 62 | 759 | 3182 |
| 08:15 | 20 | 81 | 37 | 138 | 560 | 23 | 583 | 37 | 64 | 101 | 12 | 196 | 15 | 223 | 1045 |
| 08:30 | 19 | 77 | 22 | 118 | 492 | 23 | 515 | 35 | 68 | 103 | 10 | 187 | 14 | 211 | 947 |
| 08:45 | 14 | 66 | 23 | 103 | 490 | 29 | 519 | 38 | 59 | 97 | 9 | 194 | 11 | 214 | 933 |
| 09:00 | 9 | 54 | 24 | 87 | 388 | 20 | 408 | 29 | 60 | 89 | 9 | 181 | 13 | 203 | 787 |
| Hour | 62 | 278 | 106 | 446 | 1930 | 95 | 2025 | 139 | 251 | 390 | 40 | 758 | 53 | 851 | 3712 |
| [BREAK] | | | | | | | | | | | | | | | |
| 16:15 | 29 | 48 | 11 | 88 | 203 | 20 | 223 | 12 | 38 | 50 | 14 | 340 | 21 | 375 | 736 |
| 16:30 | 27 | 60 | 19 | 106 | 197 | 24 | 221 | 17 | 49 | 66 | 17 | 396 | 28 | 441 | 834 |
| 16:45 | 20 | 61 | 17 | 98 | 217 | 12 | 229 | 19 | 51 | 70 | 21 | 432 | 35 | 488 | 885 |
| 17:00 | 26 | 44 | 20 | 90 | 227 | 17 | 244 | 25 | 47 | 72 | 28 | 456 | 47 | 531 | 937 |
| Hour | 102 | 213 | 67 | 382 | 844 | 73 | 917 | 73 | 185 | 258 | 80 | 1624 | 131 | 1835 | 3392 |
| 17:15 | 22 | 61 | 28 | 111 | 218 | 17 | 235 | 20 | 63 | 83 | 34 | 481 | 45 | 560 | 989 |
| 17:30 | 16 | 45 | 16 | 77 | 217 | 16 | 233 | 18 | 72 | 90 | 29 | 472 | 50 | 551 | 951 |
| 17:45 | 12 | 46 | 22 | 80 | 196 | 22 | 218 | 16 | 65 | 81 | 22 | 417 | 39 | 478 | 857 |
| 18:00 | 25 | 51 | 22 | 98 | 202 | 18 | 220 | 20 | 57 | 77 | 28 | 422 | 37 | 477 | 872 |
| Hour | 75 | 203 | 88 | 366 | 833 | 73 | 906 | 74 | 257 | 331 | 103 | 1792 | 171 | 2066 | 3669 |
| Total | 275 | 884 | 340 | 1499 | 5298 | 332 | 5630 | 436 | 879 | 1315 | 241 | 4853 | 417 | 5511 | 13955 |
| % Apr. | 18.3 | 58.9 | 22.6 | - | 94.1 | 5.8 | - | 33.1 | 66.8 | - | 4.3 | 88.0 | 7.5 | - | - |
| % Int. | 1.9 | 6.3 | 2.4 | - | 37.9 | 2.3 | - | 3.1 | 6.2 | - | 1.7 | 34.7 | 2.9 | - | - |

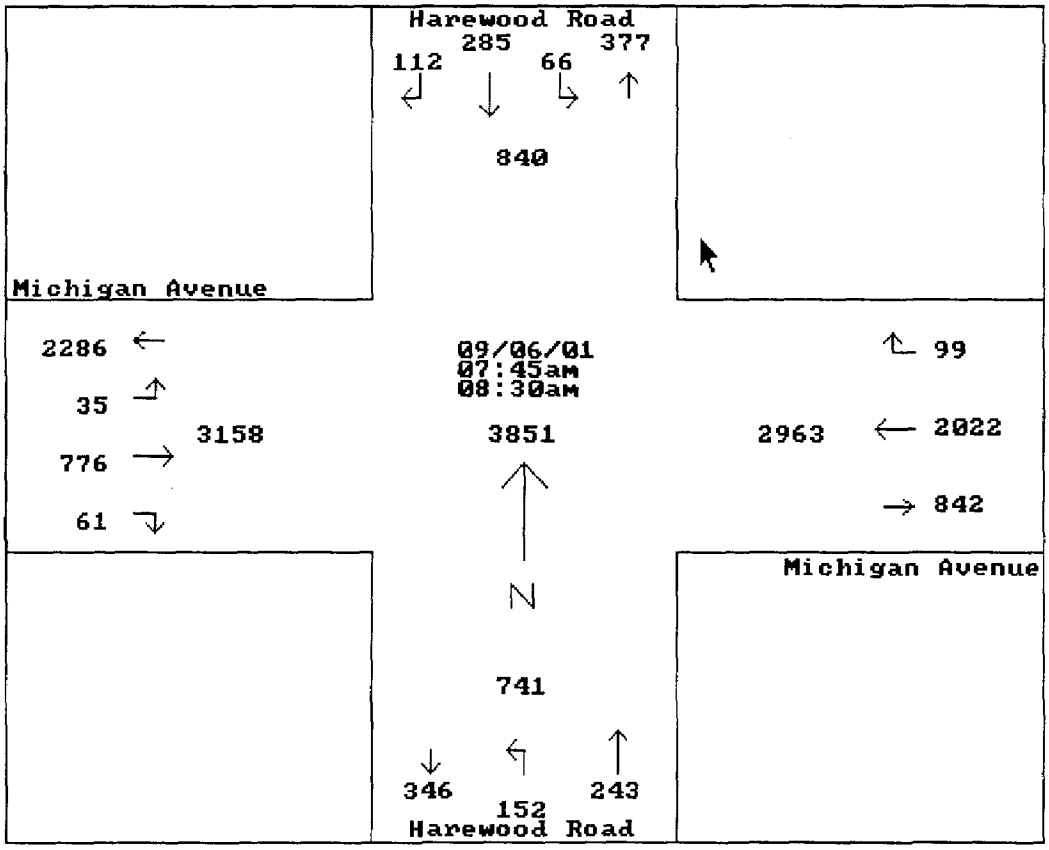
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@HAR
Site Code : 02802236
Start Date: 09/06/01


Total Traffic

| | Harewood Road From North | | | | Michigan Avenue From East | | | Harewood Road From South | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/06/01 to 08:45 on 09/06/01 | | | | | | | | | | | | | | | |
| Time | 07:45 | | | | 07:45 | | | 07:45 | | | 07:45 | | | | |
| Vol. | 66 | 285 | 112 | 07:4 | 2022 | 99 | | 152 | 243 | | 35 | 776 | 61 | | |
| Pct. | 14.2 | 61.5 | 24.1 | | 95.3 | 4.6 | | 38.4 | 61.5 | | 4.0 | 88.9 | 6.9 | | |
| Total | 463 | | | | 2121 | | | 395 | | | 872 | | | | |
| High | 08:00 | | | | 08:00 | | | 08:15 | | | 07:45 | | | | |
| Vol. | 20 | 81 | 37 | | 560 | 23 | | 35 | 68 | | 4 | 199 | 21 | | |
| Total | 138 | | | | 583 | | | 103 | | | 224 | | | | |
| PHF | 0.838 | | | | 0.909 | | | 0.958 | | | 0.973 | | | | |



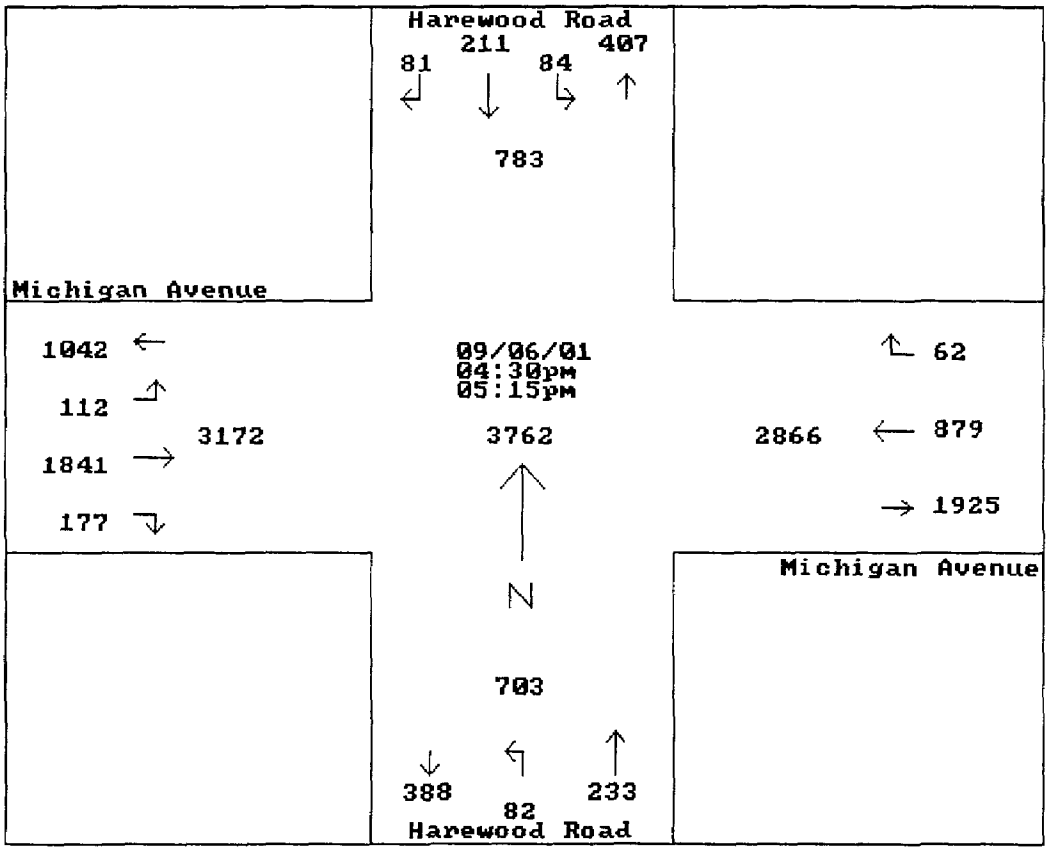
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MICH@HAR
Site Code : 02802236
Start Date: 09/06/01


Total Traffic

| | Harewood Road From North | | | | Michigan Avenue From East | | | Harewood Road From South | | | Michigan Avenue From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/06/01 to 17:45 on 09/06/01 | | | | | | | | | | | | | | | |
| Time | 16:30 | | | | 16:30 | | | 16:30 | | | 16:30 | | | | |
| Vol. | 84 | 211 | 81 | 16:3 | 879 | 62 | | 82 | 233 | | 112 | 1841 | 177 | | |
| Pct. | 22.3 | 56.1 | 21.5 | | 93.4 | 6.5 | | 26.0 | 73.9 | | 5.2 | 86.4 | 8.3 | | |
| Total | 376 | | | | 941 | | | 315 | | | 2130 | | | | |
| High | 17:00 | | | | 16:45 | | | 17:15 | | | 17:00 | | | | |
| Vol. | 22 | 61 | 28 | | 227 | 17 | | 18 | 72 | | 34 | 481 | 45 | | |
| Total | 111 | | | | 244 | | | 90 | | | 560 | | | | |
| PHF | 0.846 | | | | 0.964 | | | 0.875 | | | 0.950 | | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-RB
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@IRV
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| | Irving Street From North | | | Michigan Avenue From East | | | Michigan Avenu From West | | |
|---|---|---|---|---|---|---|---|---|---|
| End | | | Apprch. | | | Apprch. | | Apprch. | Intrvl. |
| Time | Left | Right | Total | Thru | Right | Total | Thru | Total | Total |
| 09/05/01 | | | | | | | | | |
| 07:15 | 57 | 0 | 57 | 193 | 218 | 411 | 89 | 89 | 557 |
| 07:30 | 82 | 2 | 84 | 246 | 260 | 506 | 82 | 82 | 672 |
| 07:45 | 92 | 4 | 96 | 247 | 279 | 526 | 103 | 103 | 725 |
| 08:00 | 103 | 1 | 104 | 251 | 325 | 576 | 119 | 119 | 799 |
| Hour | 334 | 7 | 341 | 937 | 1082 | 2019 | 393 | 393 | 2753 |
| 08:15 | 84 | 4 | 88 | 268 | 330 | 598 | 122 | 122 | 808 |
| 08:30 | 89 | 7 | 96 | 242 | 352 | 594 | 147 | 147 | 837 |
| 08:45 | 98 | 5 | 103 | 223 | 312 | 535 | 148 | 148 | 786 |
| 09:00 | 108 | 4 | 112 | 189 | 249 | 438 | 143 | 143 | 693 |
| Hour | 379 | 20 | 399 | 922 | 1243 | 2165 | 560 | 560 | 3124 |
| [BREAK] | | | | | | | | | |
| 16:15 | 260 | 0 | 260 | 139 | 119 | 258 | 221 | 221 | 739 |
| 16:30 | 321 | 0 | 321 | 138 | 109 | 247 | 257 | 257 | 825 |
| 16:45 | 305 | 0 | 305 | 134 | 107 | 241 | 249 | 249 | 795 |
| 17:00 | 271 | 0 | 271 | 115 | 116 | 231 | 193 | 193 | 695 |
| Hour | 1157 | 0 | 1157 | 526 | 451 | 977 | 920 | 920 | 3054 |
| 17:15 | 330 | 0 | 330 | 185 | 129 | 314 | 196 | 196 | 840 |
| 17:30 | 398 | 0 | 398 | 151 | 108 | 259 | 192 | 192 | 849 |
| 17:45 | 304 | 0 | 304 | 136 | 112 | 248 | 142 | 142 | 694 |
| 18:00 | 326 | 0 | 326 | 166 | 116 | 282 | 235 | 235 | 843 |
| Hour | 1358 | 0 | 1358 | 638 | 465 | 1103 | 765 | 765 | 3226 |
| Total | 3228 | 27 | 3255 | 3023 | 3241 | 6264 | 2638 | 2638 | 12157 |
| % Apr. | 99.1 | 0.8 | - | 48.2 | 51.7 | - | 100.0 | - | - |
| % Int. | 26.5 | 0.2 | - | 24.8 | 26.6 | - | 21.6 | - | - |

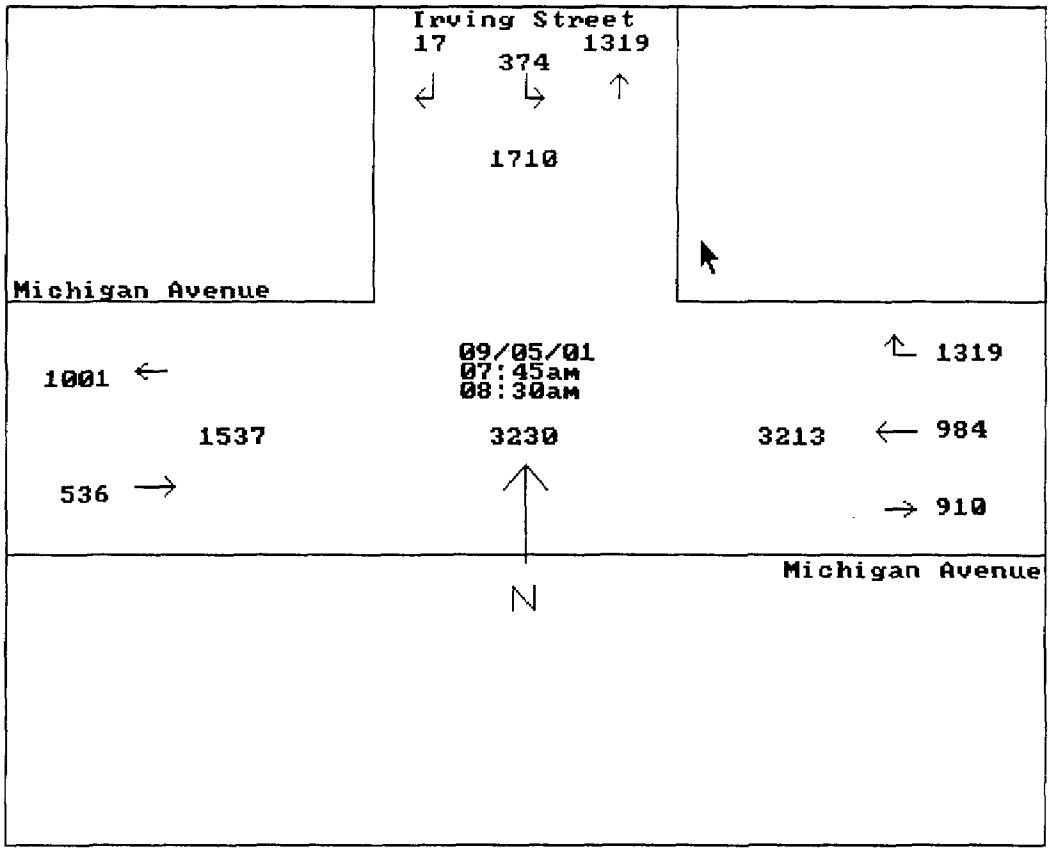
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-RB
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@IRV
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| | Irving Street From North | | | Michigan Avenue From East | | | Michigan Avenu From West | | |
|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Right | Apprch. Total | Thru | Right | Apprch. Total | Thru | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/05/01 to 08:45 on 09/05/01 | | | | | | | | | |
| Time | 07:45 | | | 07:45 | | | 07:45 | | |
| Vol. | 374 | 17 | 07 | 984 | 1319 | | 536 | | |
| Pct. | 95.6 | 4.3 | | 42.7 | 57.2 | | 100.0 | | |
| Total | 391 | | | 2303 | | | 536 | | |
| High | 07:45 | | | 08:00 | | | 08:30 | | |
| Vol. | 103 | 1 | | 268 | 330 | | 148 | | |
| Total | 104 | | | 598 | | | 148 | | |
| PHF | 0.939 | | | 0.962 | | | 0.905 | | |



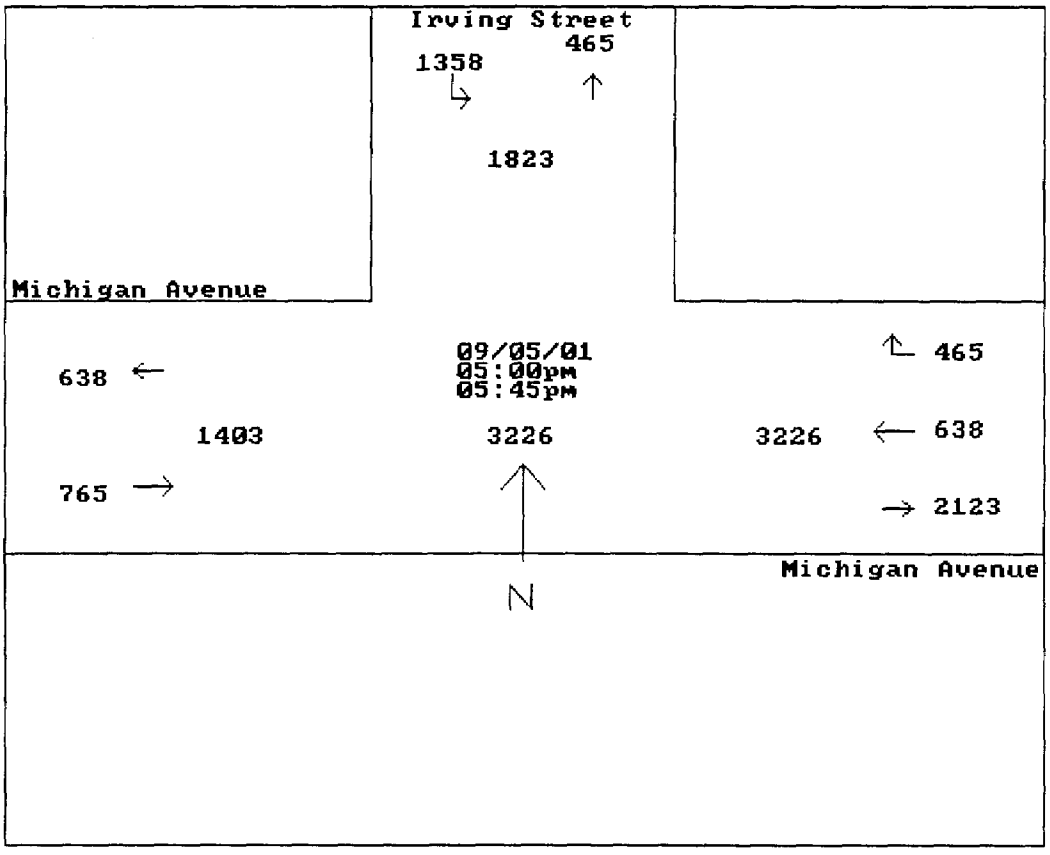
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-RB
Board :D4-2236
City/County:Washington DC
Weather :Warm/Clear/Dry

Study Name: MICH@IRV
Site Code : 02802236
Start Date: 09/05/01


Total Traffic

| End Time | Irving Street From North Left | Right | Apprch. Total | Michigan Avenue From East Thru | Right | Apprch. Total | Michigan Avenu From West Thru | Apprch. Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/05/01 to 17:45 on 09/05/01 | | | | | | | | | |
| Time | 17:00 | | | 17:00 | | | 17:00 | | |
| Vol. | 1358 | 0 | 17 | 638 | 465 | | 765 | | |
| Pct. | 100.0 | 0.0 | | 57.8 | 42.1 | | 100.0 | | |
| Total | 1358 | | | 1103 | | | 765 | | |
| High | 17:15 | | | 17:00 | | | 17:45 | | |
| Vol. | 398 | 0 | | 185 | 129 | | 235 | | |
| Total | 398 | | | 314 | | | 235 | | |
| PHF | 0.853 | | | 0.878 | | | 0.813 | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HAR@SCAL
Site Code : 02802236
Start Date: 09/06/01


Total Traffic

| | Harewood Road From North | | | Harewood Road From South | | | Scale Gate Road From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Right | Apprch. Total | Intrvl. Total |
| 09/06/01 | | | | | | | | | | |
| 07:45 | 150 | 5 | 155 | 4 | 77 | 81 | 8 | 2 | 10 | 246 |
| 08:00 | 140 | 8 | 148 | 3 | 108 | 111 | 9 | 4 | 13 | 272 |
| Hour | 290 | 13 | 303 | 7 | 185 | 192 | 17 | 6 | 23 | 518 |
| 08:15 | 130 | 5 | 135 | 2 | 84 | 86 | 7 | 2 | 9 | 230 |
| 08:30 | 105 | 7 | 112 | 3 | 66 | 69 | 8 | 3 | 11 | 192 |
| [BREAK] | | | | | | | | | | |
| Hour | 235 | 12 | 247 | 5 | 150 | 155 | 15 | 5 | 20 | 422 |
| [BREAK] | | | | | | | | | | |
| 16:45 | 102 | 0 | 102 | 3 | 96 | 99 | 18 | 7 | 25 | 226 |
| 17:00 | 60 | 2 | 62 | 2 | 153 | 155 | 15 | 5 | 20 | 237 |
| Hour | 162 | 2 | 164 | 5 | 249 | 254 | 33 | 12 | 45 | 463 |
| 17:15 | 75 | 1 | 76 | 4 | 145 | 149 | 6 | 4 | 10 | 235 |
| 17:30 | 96 | 1 | 97 | 2 | 88 | 90 | 10 | 9 | 19 | 206 |
| [BREAK] | | | | | | | | | | |
| Hour | 171 | 2 | 173 | 6 | 233 | 239 | 16 | 13 | 29 | 441 |
| [BREAK] | | | | | | | | | | |
| Total | 858 | 29 | 887 | 23 | 817 | 840 | 81 | 36 | 117 | 1844 |
| % Apr. | 96.7 | 3.2 | - | 2.7 | 97.2 | - | 69.2 | 30.7 | - | - |
| % Int. | 46.5 | 1.5 | - | 1.2 | 44.3 | - | 4.3 | 1.9 | - | - |

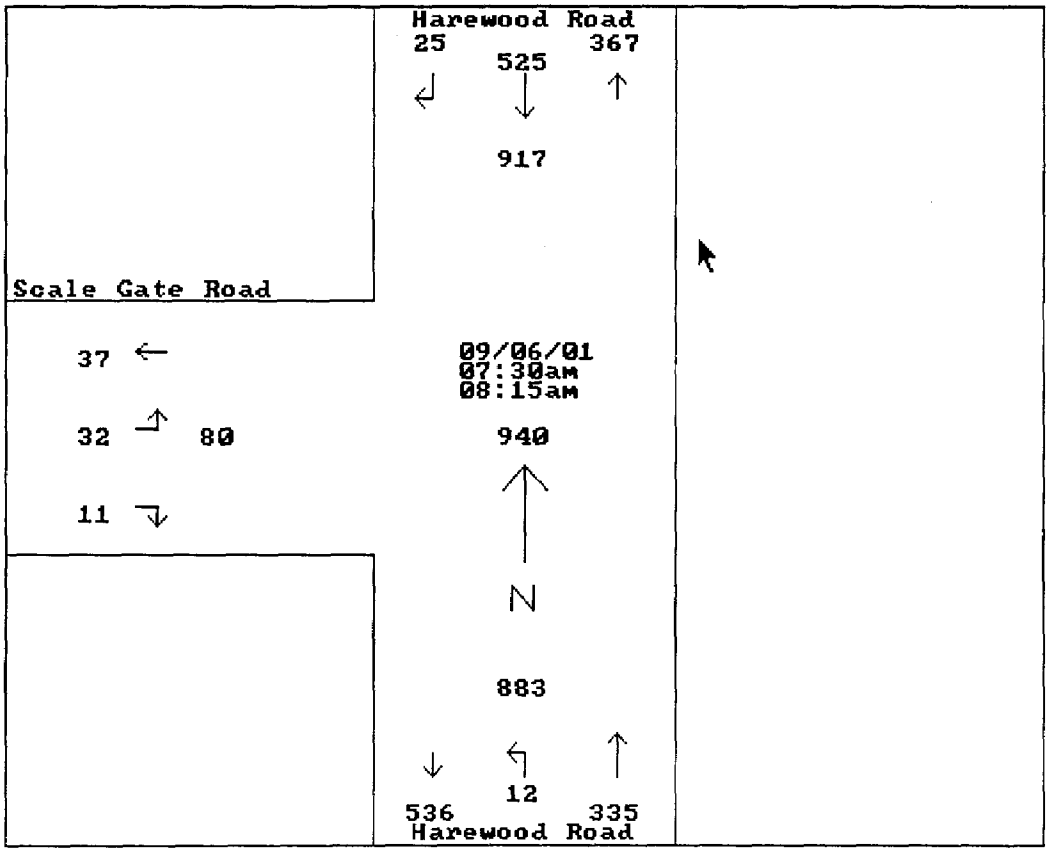
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HAR@SCAL
Site Code : 02802236
Start Date: 09/06/01


Total Traffic

| | Harewood Road From North | | | Harewood Road From South | | | Scale Gate Road From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:30 on 09/06/01 | | | | | | | | | | |
| Time | 07:30 | | | 07:30 | | | 07:30 | | | |
| Vol. | 525 | 25 | 07 | 12 | 335 | | 32 | 11 | | |
| Pct. | 95.4 | 4.5 | | 3.4 | 96.5 | | 74.4 | 25.5 | | |
| Total | 550 | | | 347 | | | 43 | | | |
| High | 07:30 | | | 07:45 | | | 07:45 | | | |
| Vol. | 150 | 5 | | 3 | 108 | | 9 | 4 | | |
| Total | 155 | | | 111 | | | 13 | | | |
| PHF | 0.887 | | | 0.781 | | | 0.826 | | | |



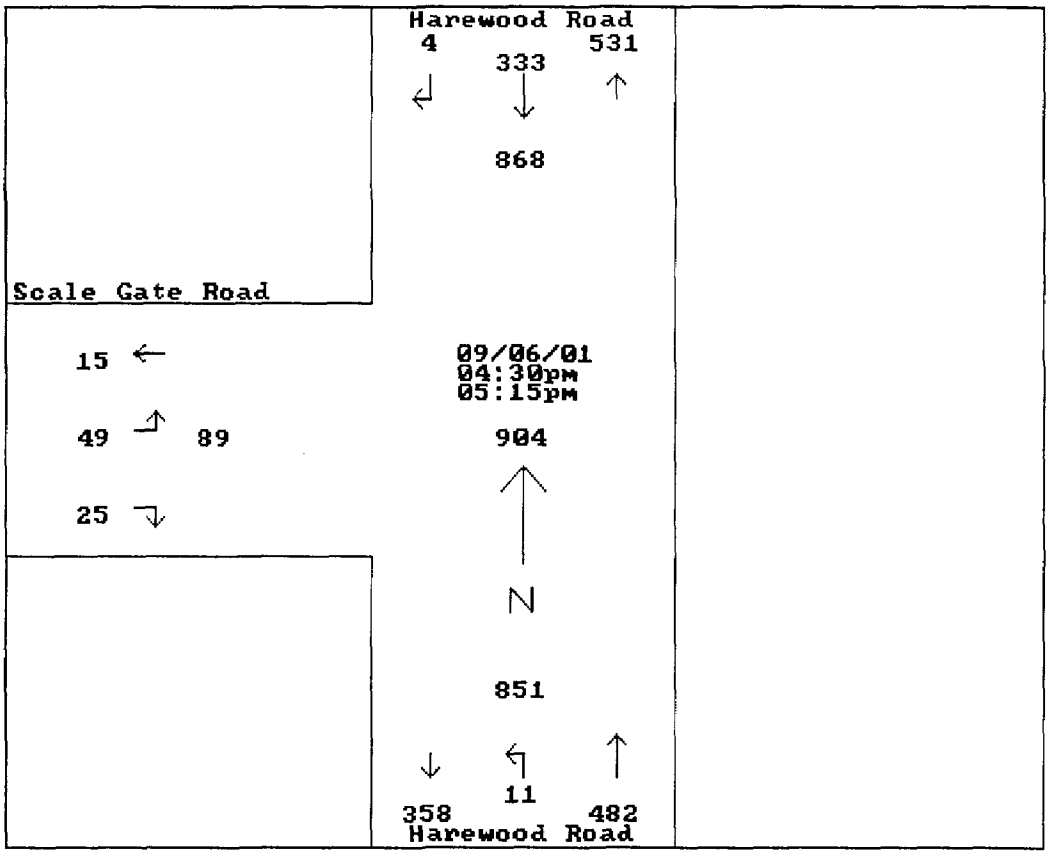
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-HR
Board :D4-2236
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HAR@SCAL
Site Code : 02802236
Start Date: 09/06/01


Total Traffic

| | Harewood Road From North | | | Harewood Road From South | | | Scale Gate Road From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| End | | | Apprch. | | | Apprch. | | | Apprch. | Intrvl. |
| Time | Thru | Right | Total | Left | Thru | Total | Left | Right | Total | Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:30 on 09/06/01 | | | | | | | | | | |
| Time | 16:30 | | | 16:30 | | | 16:30 | | | |
| Vol. | 333 | 4 | 16 | 11 | 482 | | 49 | 25 | | |
| Pct. | 98.8 | 1.1 | | 2.2 | 97.7 | | 66.2 | 33.7 | | |
| Total | 337 | | | 493 | | | 74 | | | |
| High | 16:30 | | | 16:45 | | | 16:30 | | | |
| Vol. | 102 | 0 | | 2 | 153 | | 18 | 7 | | |
| Total | 102 | | | 155 | | | 25 | | | |
| PHF | 0.825 | | | 0.795 | | | 0.740 | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HARE@TAY
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | Entrance From North | | | | Taylor Street From East | | | | Harewood Road From South | | | | Harewood Road From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| 09/19/01 | | | | | | | | | | | | | | | | | |
| 07:15 | 2 | 2 | 4 | 8 | 19 | 80 | 0 | 99 | 34 | 0 | 12 | 46 | 0 | 31 | 40 | 71 | 224 |
| 07:30 | 4 | 2 | 3 | 9 | 24 | 95 | 1 | 120 | 49 | 1 | 22 | 72 | 1 | 41 | 53 | 95 | 296 |
| 07:45 | 3 | 4 | 6 | 13 | 27 | 122 | 0 | 149 | 60 | 1 | 16 | 77 | 0 | 49 | 52 | 101 | 340 |
| 08:00 | 4 | 4 | 3 | 11 | 34 | 161 | 3 | 198 | 61 | 1 | 11 | 73 | 1 | 66 | 85 | 152 | 434 |
| Hour | 13 | 12 | 16 | 41 | 104 | 458 | 4 | 566 | 204 | 3 | 61 | 268 | 2 | 187 | 230 | 419 | 1294 |
| 08:15 | 6 | 10 | 5 | 21 | 45 | 175 | 8 | 228 | 56 | 2 | 16 | 74 | 2 | 76 | 117 | 195 | 518 |
| 08:30 | 10 | 8 | 4 | 22 | 53 | 165 | 6 | 224 | 48 | 3 | 20 | 71 | 2 | 61 | 94 | 157 | 474 |
| 08:45 | 5 | 9 | 4 | 18 | 55 | 130 | 5 | 190 | 45 | 0 | 29 | 74 | 1 | 54 | 73 | 128 | 410 |
| 09:00 | 2 | 4 | 1 | 7 | 44 | 101 | 3 | 148 | 44 | 1 | 17 | 62 | 0 | 53 | 86 | 139 | 356 |
| Hour | 23 | 31 | 14 | 68 | 197 | 571 | 22 | 790 | 193 | 6 | 82 | 281 | 5 | 244 | 370 | 619 | 1758 |
| [BREAK] | | | | | | | | | | | | | | | | | |
| 16:15 | 4 | 1 | 2 | 7 | 15 | 50 | 1 | 66 | 79 | 0 | 31 | 110 | 0 | 72 | 49 | 121 | 304 |
| 16:30 | 3 | 0 | 1 | 4 | 19 | 54 | 2 | 75 | 81 | 1 | 36 | 118 | 0 | 74 | 51 | 125 | 322 |
| 16:45 | 2 | 1 | 1 | 4 | 16 | 61 | 1 | 78 | 84 | 1 | 38 | 123 | 1 | 78 | 57 | 136 | 341 |
| 17:00 | 3 | 3 | 2 | 8 | 21 | 60 | 3 | 84 | 93 | 0 | 40 | 133 | 3 | 94 | 62 | 159 | 384 |
| Hour | 12 | 5 | 6 | 23 | 71 | 225 | 7 | 303 | 337 | 2 | 145 | 484 | 4 | 318 | 219 | 541 | 1351 |
| 17:15 | 4 | 0 | 0 | 4 | 17 | 67 | 1 | 85 | 103 | 2 | 41 | 146 | 2 | 88 | 63 | 153 | 388 |
| 17:30 | 1 | 1 | 1 | 3 | 14 | 64 | 1 | 79 | 93 | 1 | 43 | 137 | 0 | 97 | 51 | 148 | 367 |
| 17:45 | 3 | 0 | 1 | 4 | 16 | 72 | 1 | 89 | 77 | 3 | 58 | 138 | 1 | 113 | 45 | 159 | 390 |
| 18:00 | 2 | 3 | 0 | 5 | 9 | 60 | 4 | 73 | 90 | 2 | 43 | 135 | 0 | 69 | 63 | 132 | 345 |
| Hour | 10 | 4 | 2 | 16 | 56 | 263 | 7 | 326 | 363 | 8 | 185 | 556 | 3 | 367 | 222 | 592 | 1490 |
| Total | 58 | 52 | 38 | 148 | 428 | 1517 | 40 | 1985 | 1097 | 19 | 473 | 1589 | 14 | 1116 | 1041 | 2171 | 5893 |
| % Apr. | 39.1 | 35.1 | 25.6 | - | 21.5 | 76.4 | 2.0 | - | 69.0 | 1.1 | 29.7 | - | 0.6 | 51.4 | 47.9 | - | - |
| % Int. | 0.9 | 0.8 | 0.6 | - | 7.2 | 25.7 | 0.6 | - | 18.6 | 0.3 | 8.0 | - | 0.2 | 18.9 | 17.6 | - | - |

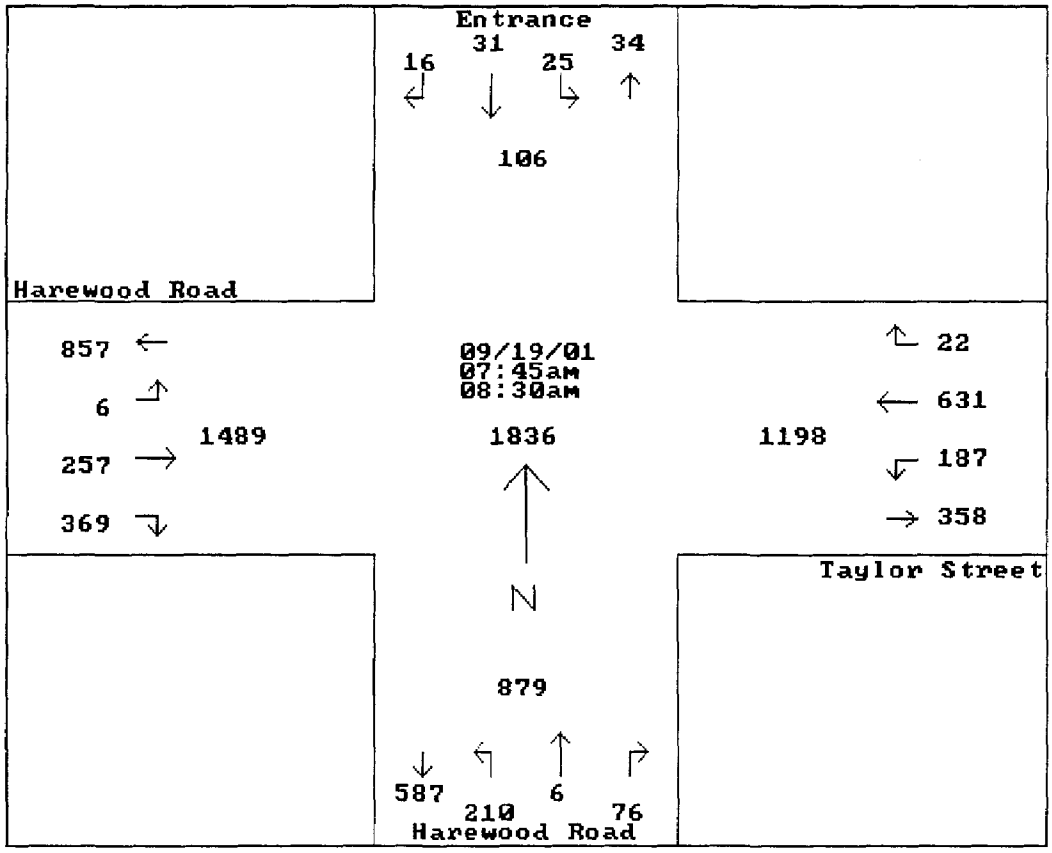
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HARE@TAY
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | Entrance From North | | | | Taylor Street From East | | | | Harewood Road From South | | | | Harewood Road From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/19/01 to 08:45 on 09/19/01 | | | | | | | | | | | | | | | | | |
| Time | 07:45 | | | | 07:45 | | | | 07:45 | | | | 07:45 | | | | |
| Vol. | 25 | 31 | 16 | 0 | 187 | 631 | 22 | | 210 | 6 | 76 | | 6 | 257 | 369 | | |
| Pct. | 34.7 | 43.0 | 22.2 | | 22.2 | 75.1 | 2.6 | | 71.9 | 2.0 | 26.0 | | 0.9 | 40.6 | 58.3 | | |
| Total | 72 | | | | 840 | | | | 292 | | | | 632 | | | | |
| High | 08:15 | | | | 08:00 | | | | 08:00 | | | | 08:00 | | | | |
| Vol. | 10 | 8 | 4 | | 45 | 175 | 8 | | 56 | 2 | 16 | | 2 | 76 | 117 | | |
| Total | 22 | | | | 228 | | | | 74 | | | | 195 | | | | |
| PHF | 0.818 | | | | 0.921 | | | | 0.986 | | | | 0.810 | | | | |



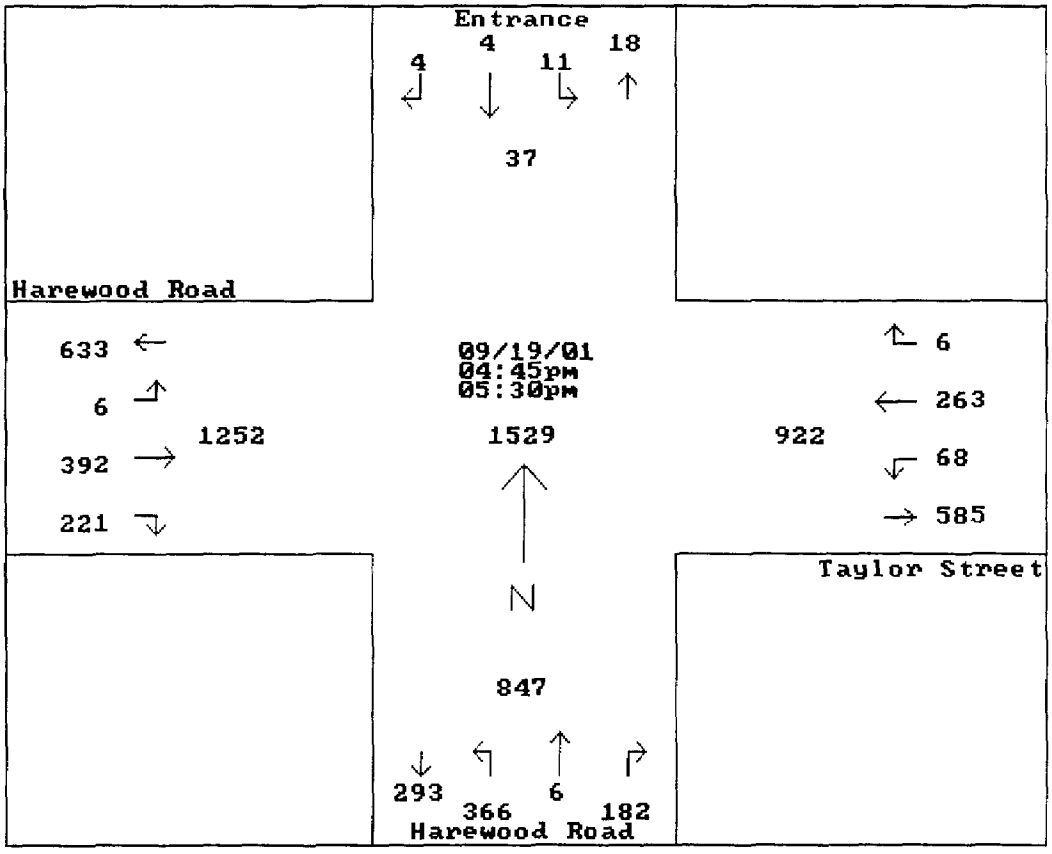
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: HARE@TAY
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | Entrance From North | | | | Taylor Street From East | | | | Harewood Road From South | | | | Harewood Road From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Left | Thru | Right | Aprch. Total | Intvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/19/01 to 17:45 on 09/19/01 | | | | | | | | | | | | | | | | | |
| Time | 16:45 | | | | 16:45 | | | | 16:45 | | | | 16:45 | | | | |
| Vol. | 11 | 4 | 4 | 1 | 68 | 263 | 6 | | 366 | 6 | 182 | | 6 | 392 | 221 | | |
| Pct. | 57.8 | 21.0 | 21.0 | | 20.1 | 78.0 | 1.7 | | 66.0 | 1.0 | 32.8 | | 0.9 | 63.3 | 35.7 | | |
| Total | 19 | | | | 337 | | | | 554 | | | | 619 | | | | |
| High | 16:45 | | | | 17:30 | | | | 17:00 | | | | 16:45 | | | | |
| Vol. | 3 | 3 | 2 | | 16 | 72 | 1 | | 103 | 2 | 41 | | 3 | 94 | 62 | | |
| Total | 8 | | | | 89 | | | | 146 | | | | 159 | | | | |
| PHF | 0.593 | | | | 0.946 | | | | 0.948 | | | | 0.973 | | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: TAY@HAWI
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | Hawaii Ave. From North | | | Taylor Street From East | | | Taylor Street From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Intrvl. Total |
| 09/19/01 | | | | | | | | | | |
| 07:15 | 21 | 8 | 29 | 89 | 35 | 124 | 8 | 31 | 39 | 192 |
| 07:30 | 45 | 11 | 56 | 121 | 55 | 176 | 13 | 58 | 71 | 303 |
| 07:45 | 49 | 21 | 70 | 148 | 68 | 216 | 14 | 50 | 64 | 350 |
| 08:00 | 49 | 23 | 72 | 151 | 61 | 212 | 13 | 66 | 79 | 363 |
| Hour | 164 | 63 | 227 | 509 | 219 | 728 | 48 | 205 | 253 | 1208 |
| 08:15 | 64 | 29 | 93 | 243 | 81 | 324 | 14 | 94 | 108 | 525 |
| 08:30 | 55 | 25 | 80 | 207 | 73 | 280 | 11 | 85 | 96 | 456 |
| 08:45 | 48 | 22 | 70 | 145 | 66 | 211 | 12 | 62 | 74 | 355 |
| 09:00 | 69 | 24 | 93 | 118 | 51 | 169 | 14 | 70 | 84 | 346 |
| Hour | 236 | 100 | 336 | 713 | 271 | 984 | 51 | 311 | 362 | 1682 |
| [BREAK] | | | | | | | | | | |
| 16:15 | 59 | 17 | 76 | 82 | 51 | 133 | 12 | 94 | 106 | 315 |
| 16:30 | 57 | 5 | 62 | 77 | 66 | 143 | 21 | 98 | 119 | 324 |
| 16:45 | 57 | 12 | 69 | 62 | 71 | 133 | 13 | 95 | 108 | 310 |
| 17:00 | 50 | 15 | 65 | 78 | 71 | 149 | 20 | 106 | 126 | 340 |
| Hour | 223 | 49 | 272 | 299 | 259 | 558 | 66 | 393 | 459 | 1289 |
| 17:15 | 41 | 9 | 50 | 65 | 65 | 130 | 29 | 121 | 150 | 330 |
| 17:30 | 45 | 11 | 56 | 60 | 63 | 123 | 39 | 118 | 157 | 336 |
| 17:45 | 55 | 12 | 67 | 86 | 62 | 148 | 23 | 119 | 142 | 357 |
| 18:00 | 86 | 10 | 96 | 76 | 60 | 136 | 26 | 115 | 141 | 373 |
| Hour | 227 | 42 | 269 | 287 | 250 | 537 | 117 | 473 | 590 | 1396 |
| Total | 850 | 254 | 1104 | 1808 | 999 | 2807 | 282 | 1382 | 1664 | 5575 |
| % Apr. | 76.9 | 23.0 | - | 64.4 | 35.5 | - | 16.9 | 83.0 | - | - |
| % Int. | 15.2 | 4.5 | - | 32.4 | 17.9 | - | 5.0 | 24.7 | - | - |

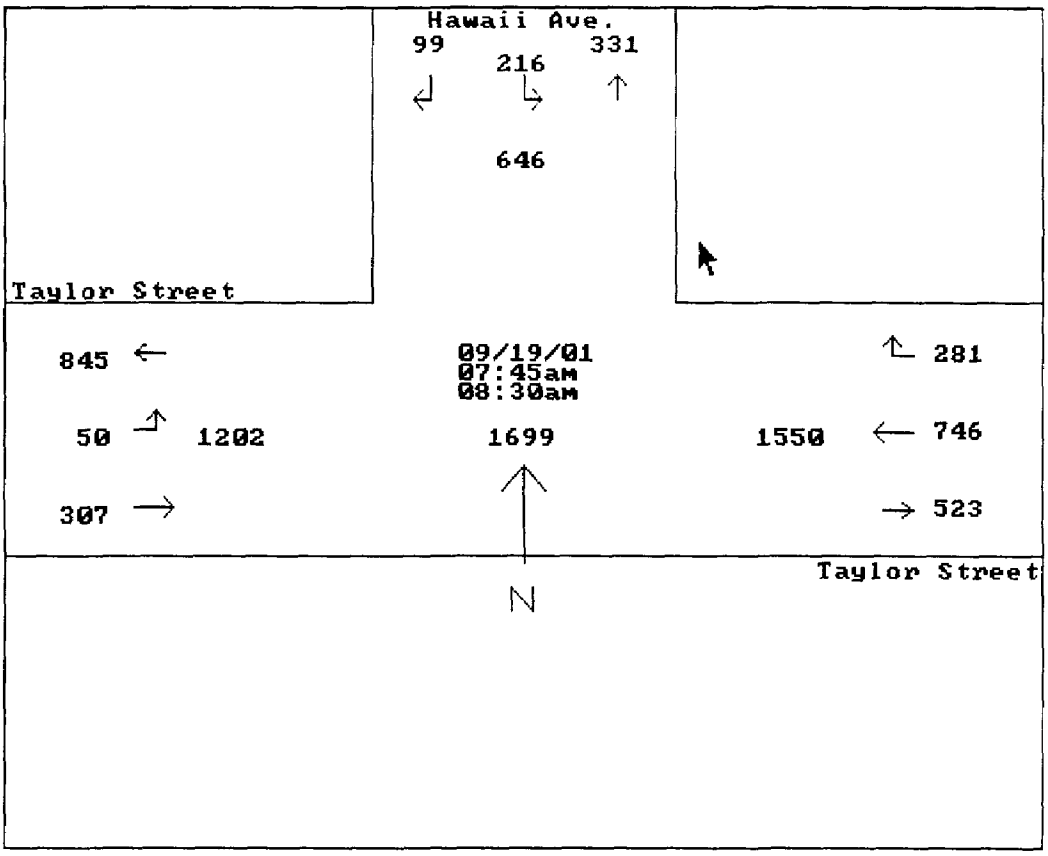
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: TAY@HAWI
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| End | Hawaii Ave. From North | | | Taylor Street From East | | | Taylor Street From West | | | Intrvl. |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | Left | Right | Apprch. Total | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/19/01 to 08:45 on 09/19/01 | | | | | | | | | | |
| Time | 07:45 | | | 07:45 | | | 07:45 | | | |
| Vol. | 216 | 99 | 07 | 746 | 281 | | 50 | 307 | | |
| Pct. | 68.5 | 31.4 | | 72.6 | 27.3 | | 14.0 | 85.9 | | |
| Total | 315 | | | 1027 | | | 357 | | | |
| High | 08:00 | | | 08:00 | | | 08:00 | | | |
| Vol. | 64 | 29 | | 243 | 81 | | 14 | 94 | | |
| Total | 93 | | | 324 | | | 108 | | | |
| PHF | 0.846 | | | 0.792 | | | 0.826 | | | |



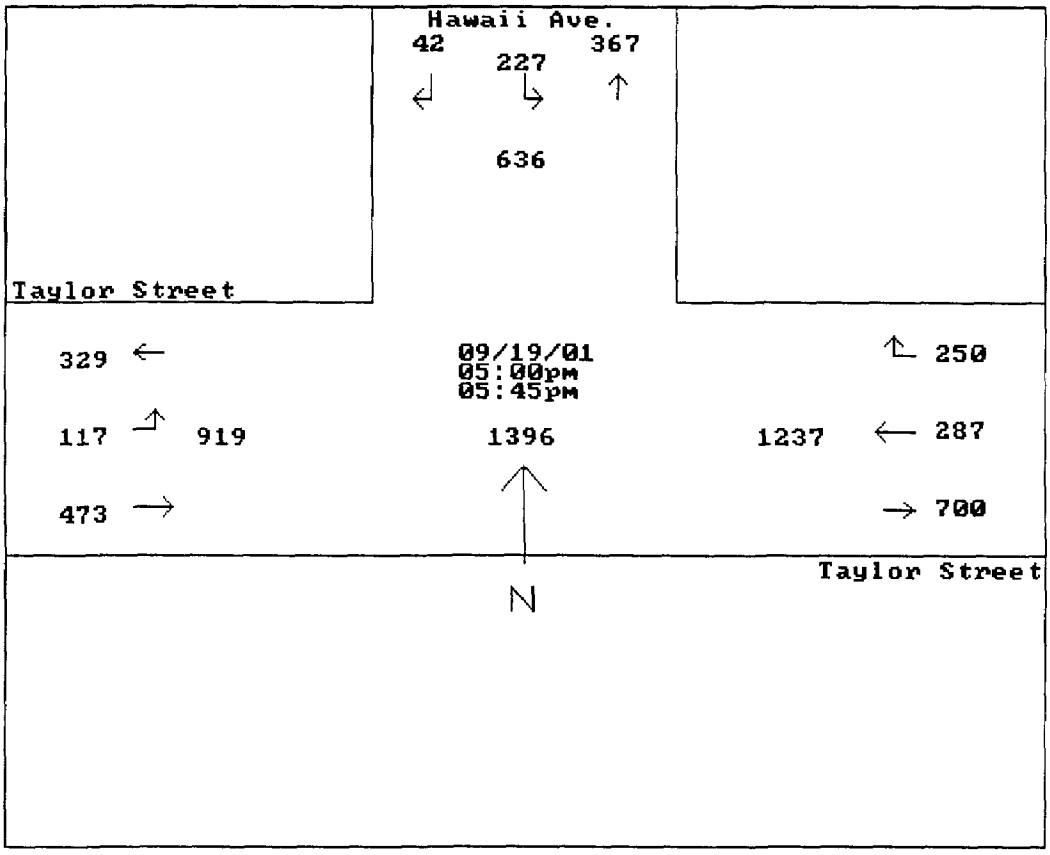
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-AM
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: TAY@HAWI
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| End Time | Hawaii Ave. From North Left | Right | Apprch. Total | Taylor Street From East Thru | Right | Apprch. Total | Taylor Street From West Left | Thru | Apprch. Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/19/01 to 17:45 on 09/19/01 | | | | | | | | | | |
| Time | 17:00 | | | 17:00 | | | 17:00 | | | |
| Vol. | 227 | 42 | 17 | 287 | 250 | | 117 | 473 | | |
| Pct. | 84.3 | 15.6 | | 53.4 | 46.5 | | 19.8 | 80.1 | | |
| Total | 269 | | | 537 | | | 590 | | | |
| High | 17:45 | | | 17:30 | | | 17:15 | | | |
| Vol. | 86 | 10 | | 86 | 62 | | 39 | 118 | | |
| Total | 96 | | | 148 | | | 157 | | | |
| PHF | 0.700 | | | 0.907 | | | 0.939 | | | |



O.R.George & Associates, Inc

Counted by :ORGA-RB
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Study Name: TAY@MCOR
Site Code : 06241576
Start Date: 09/19/01
Page : 1

Total Traffic

| | McCormack Southbound R From North | | | Taylor Street From East | | | | McCormack Northbound R From South | | | Taylor Street From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| 09/19/01 | | | | | | | | | | | | | | | |
| 07:15 | 0 | 4 | 4 | 0 | 121 | 1 | 122 | 0 | 0 | 0 | 0 | 52 | 5 | 57 | 183 |
| 07:30 | 2 | 5 | 7 | 1 | 148 | 4 | 153 | 0 | 0 | 0 | 0 | 68 | 6 | 74 | 234 |
| 07:45 | 2 | 9 | 11 | 1 | 168 | 11 | 180 | 2 | 6 | 8 | 0 | 79 | 24 | 103 | 302 |
| 08:00 | 2 | 13 | 15 | 2 | 212 | 13 | 227 | 3 | 3 | 6 | 0 | 94 | 27 | 121 | 369 |
| Hour | 6 | 31 | 37 | 4 | 649 | 29 | 682 | 5 | 9 | 14 | 0 | 293 | 62 | 355 | 1088 |
| 08:15 | 1 | 18 | 19 | 3 | 308 | 10 | 321 | 1 | 2 | 3 | 0 | 120 | 34 | 154 | 497 |
| 08:30 | 2 | 12 | 14 | 1 | 278 | 12 | 291 | 4 | 4 | 8 | 0 | 112 | 22 | 134 | 447 |
| 08:45 | 2 | 9 | 11 | 0 | 172 | 11 | 183 | 2 | 6 | 8 | 0 | 93 | 24 | 117 | 319 |
| 09:00 | 2 | 9 | 11 | 3 | 143 | 15 | 161 | 0 | 3 | 3 | 0 | 79 | 26 | 105 | 280 |
| Hour | 7 | 48 | 55 | 7 | 901 | 48 | 956 | 7 | 15 | 22 | 0 | 404 | 106 | 510 | 1543 |
| [BREAK] | | | | | | | | | | | | | | | |
| 16:15 | 3 | 13 | 16 | 0 | 129 | 3 | 132 | 1 | 7 | 8 | 0 | 152 | 26 | 178 | 334 |
| 16:30 | 5 | 19 | 24 | 0 | 117 | 3 | 120 | 3 | 9 | 12 | 0 | 161 | 17 | 178 | 334 |
| 16:45 | 6 | 18 | 24 | 0 | 101 | 6 | 107 | 5 | 13 | 18 | 1 | 148 | 13 | 162 | 311 |
| 17:00 | 4 | 20 | 24 | 0 | 119 | 2 | 121 | 2 | 12 | 14 | 3 | 172 | 14 | 189 | 348 |
| Hour | 18 | 70 | 88 | 0 | 466 | 14 | 480 | 11 | 41 | 52 | 4 | 633 | 70 | 707 | 1327 |
| 17:15 | 1 | 11 | 12 | 0 | 112 | 1 | 113 | 2 | 9 | 11 | 2 | 142 | 5 | 149 | 285 |
| 17:30 | 2 | 13 | 15 | 0 | 96 | 2 | 98 | 2 | 7 | 9 | 0 | 136 | 8 | 144 | 266 |
| 17:45 | 3 | 11 | 14 | 0 | 84 | 1 | 85 | 0 | 6 | 6 | 1 | 118 | 11 | 130 | 235 |
| 18:00 | 2 | 16 | 18 | 0 | 71 | 2 | 73 | 0 | 11 | 11 | 0 | 103 | 18 | 121 | 223 |
| Hour | 8 | 51 | 59 | 0 | 363 | 6 | 369 | 4 | 33 | 37 | 3 | 499 | 42 | 544 | 1009 |
| Total | 39 | 200 | 239 | 11 | 2379 | 97 | 2487 | 27 | 98 | 125 | 7 | 1829 | 280 | 2116 | 4967 |
| % Apr. | 16.3 | 83.6 | - | 0.4 | 95.6 | 3.9 | - | 21.6 | 78.4 | - | 0.3 | 86.4 | 13.2 | - | - |
| % Int. | 0.7 | 4.0 | - | 0.2 | 47.8 | 1.9 | - | 0.5 | 1.9 | - | 0.1 | 36.8 | 5.6 | - | - |

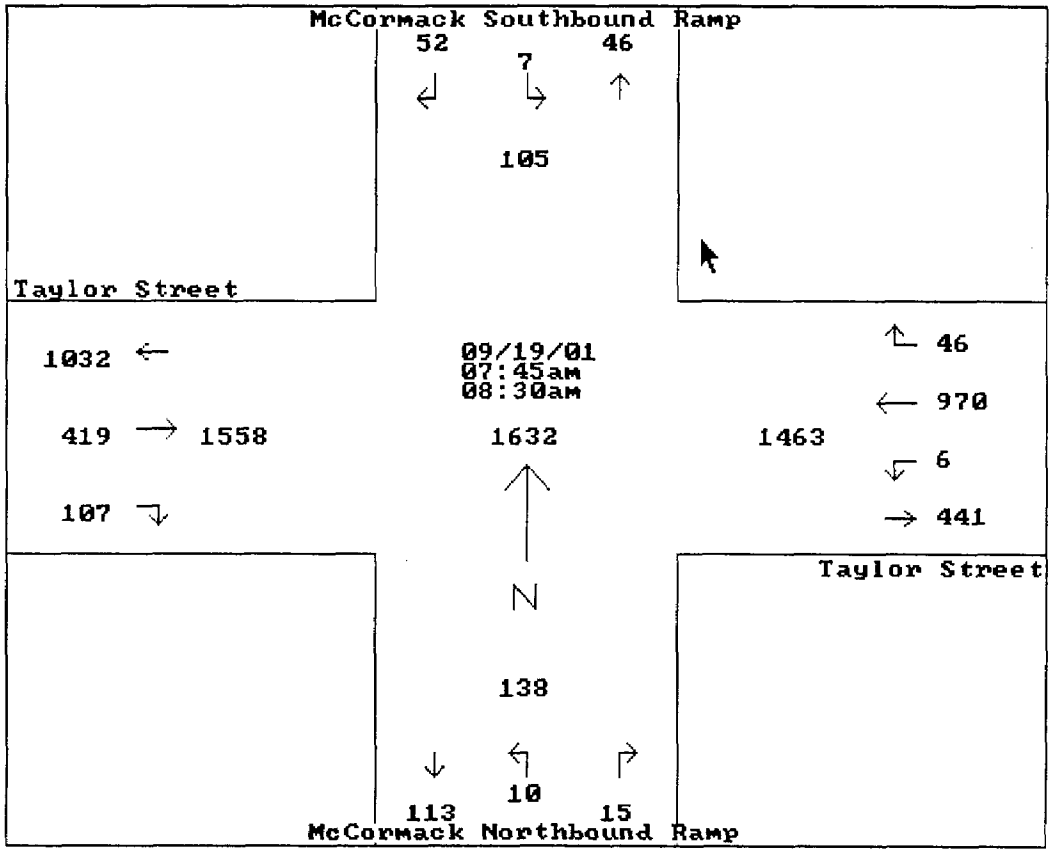
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-RB
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: TAY@MCOR
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | McCormack Southbound R From North | | | Taylor Street From East | | | | McCormack Northbound R From South | | | Taylor Street From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/19/01 to 08:45 on 09/19/01 | | | | | | | | | | | | | | | |
| Time | 07:45 | | | 07:45 | | | | 07:45 | | | 07:45 | | | | |
| Vol. | 7 | 52 | | 6 | 970 | 46 | | 10 | 15 | | 0 | 419 | 107 | | |
| Pct. | 11.8 | 88.1 | | 0.5 | 94.9 | 4.5 | | 40.0 | 60.0 | | 0.0 | 79.6 | 20.3 | | |
| Total | 59 | | | 1022 | | | | 25 | | | 526 | | | | |
| High | 08:00 | | | 08:00 | | | | 08:15 | | | 08:00 | | | | |
| Vol. | 1 | 18 | | 3 | 308 | 10 | | 4 | 4 | | 0 | 120 | 34 | | |
| Total | 19 | | | 321 | | | | 8 | | | 154 | | | | |
| PHF | 0.776 | | | 0.795 | | | | 0.781 | | | 0.853 | | | | |



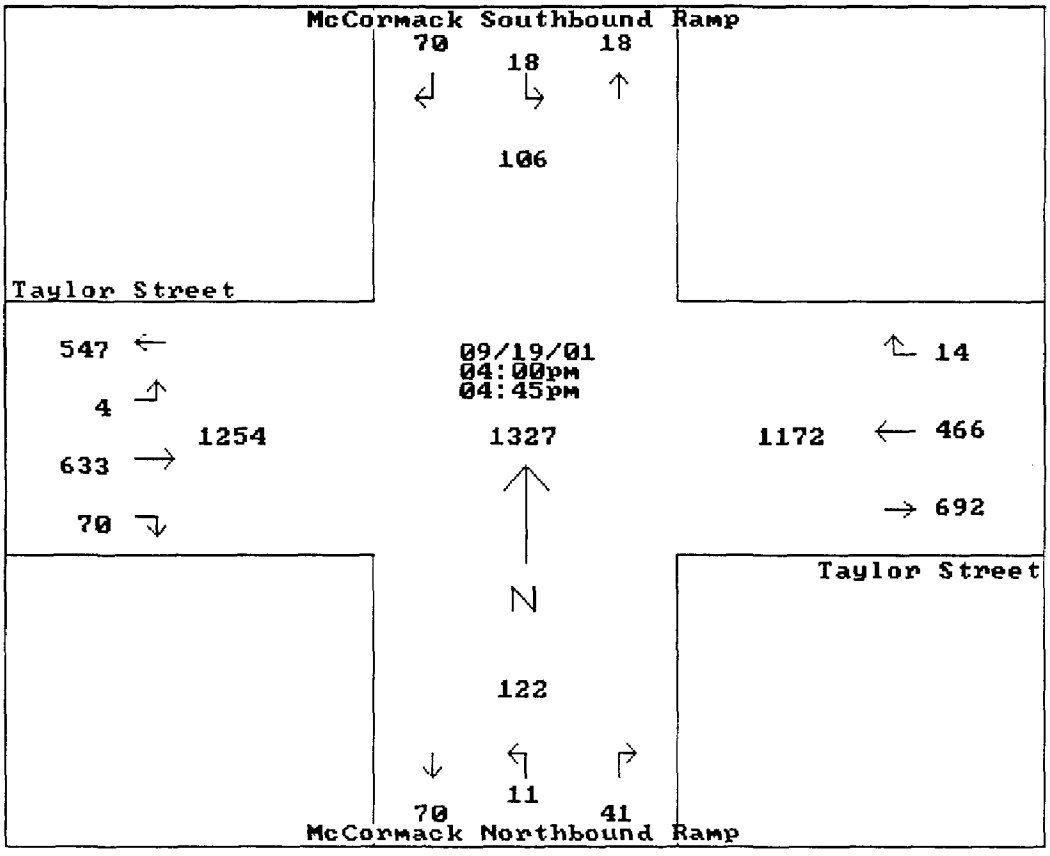
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-RB
Board :D4-1576
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: TAY@MCOR
Site Code : 06241576
Start Date: 09/19/01


Total Traffic

| | McCormack Southbound R From North | | | Taylor Street From East | | | | McCormack Northbound R From South | | | Taylor Street From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Left | Right | Apprch. Total | Left | Thru | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/19/01 to 17:45 on 09/19/01 | | | | | | | | | | | | | | | |
| Time | 16:00 | | | 16:00 | | | | 16:00 | | | 16:00 | | | | |
| Vol. | 18 | 70 | | 0 | 466 | 14 | | 11 | 41 | | 4 | 633 | 70 | | |
| Pct. | 20.4 | 79.5 | | 0.0 | 97.0 | 2.9 | | 21.1 | 78.8 | | 0.5 | 89.5 | 9.9 | | |
| Total | 88 | | | 480 | | | | 52 | | | 707 | | | | |
| High | 16:15 | | | 16:00 | | | | 16:30 | | | 16:45 | | | | |
| Vol. | 5 | 19 | | 0 | 129 | 3 | | 5 | 13 | | 3 | 172 | 14 | | |
| Total | 24 | | | 132 | | | | 18 | | | 189 | | | | |
| PHF | 0.916 | | | 0.909 | | | | 0.722 | | | 0.935 | | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYN
Site Code : 10162240
Start Date: 09/17/01


Total Traffic

| | John McCormack Road (N | | | John McCormack Road (N | | | Taylor Street | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | From North | | | From South | | | From West | | | |
| End | | | Apprch. | | | Apprch. | | | Apprch. | Intrvl. |
| Time | Thru | Right | Total | Left | Thru | Total | Left | Right | Total | Total |
| 09/17/01 | | | | | | | | | | |
| 07:15 | 5 | 2 | 7 | 3 | 10 | 13 | 1 | 4 | 5 | 25 |
| 07:30 | 3 | 2 | 5 | 6 | 7 | 13 | 5 | 5 | 10 | 28 |
| 07:45 | 3 | 2 | 5 | 4 | 5 | 9 | 2 | 3 | 5 | 19 |
| 08:00 | 6 | 4 | 10 | 7 | 9 | 16 | 3 | 9 | 12 | 38 |
| Hour | 17 | 10 | 27 | 20 | 31 | 51 | 11 | 21 | 32 | 110 |
| 08:15 | 3 | 5 | 8 | 11 | 9 | 20 | 4 | 5 | 9 | 37 |
| 08:30 | 6 | 5 | 11 | 13 | 9 | 22 | 6 | 7 | 13 | 46 |
| 08:45 | 5 | 5 | 10 | 8 | 7 | 15 | 4 | 6 | 10 | 35 |
| 09:00 | 4 | 3 | 7 | 7 | 6 | 13 | 4 | 10 | 14 | 34 |
| Hour | 18 | 18 | 36 | 39 | 31 | 70 | 18 | 28 | 46 | 152 |
| [BREAK] | | | | | | | | | | |
| 16:15 | 8 | 9 | 17 | 13 | 19 | 32 | 5 | 0 | 5 | 54 |
| 16:30 | 6 | 5 | 11 | 10 | 18 | 28 | 4 | 3 | 7 | 46 |
| 16:45 | 6 | 3 | 9 | 17 | 16 | 33 | 2 | 1 | 3 | 45 |
| 17:00 | 6 | 4 | 10 | 19 | 15 | 34 | 3 | 1 | 4 | 48 |
| Hour | 26 | 21 | 47 | 59 | 68 | 127 | 14 | 5 | 19 | 193 |
| 17:15 | 8 | 2 | 10 | 28 | 17 | 45 | 3 | 1 | 4 | 59 |
| 17:30 | 11 | 6 | 17 | 21 | 12 | 33 | 4 | 2 | 6 | 56 |
| 17:45 | 8 | 7 | 15 | 17 | 10 | 27 | 3 | 0 | 3 | 45 |
| 18:00 | 7 | 5 | 12 | 14 | 9 | 23 | 2 | 2 | 4 | 39 |
| Hour | 34 | 20 | 54 | 80 | 48 | 128 | 12 | 5 | 17 | 199 |
| Total | 95 | 69 | 164 | 198 | 178 | 376 | 55 | 59 | 114 | 654 |
| % Apr. | 57.9 | 42.0 | - | 52.6 | 47.3 | - | 48.2 | 51.7 | - | - |
| % Int. | 14.5 | 10.5 | - | 30.2 | 27.2 | - | 8.4 | 9.0 | - | - |

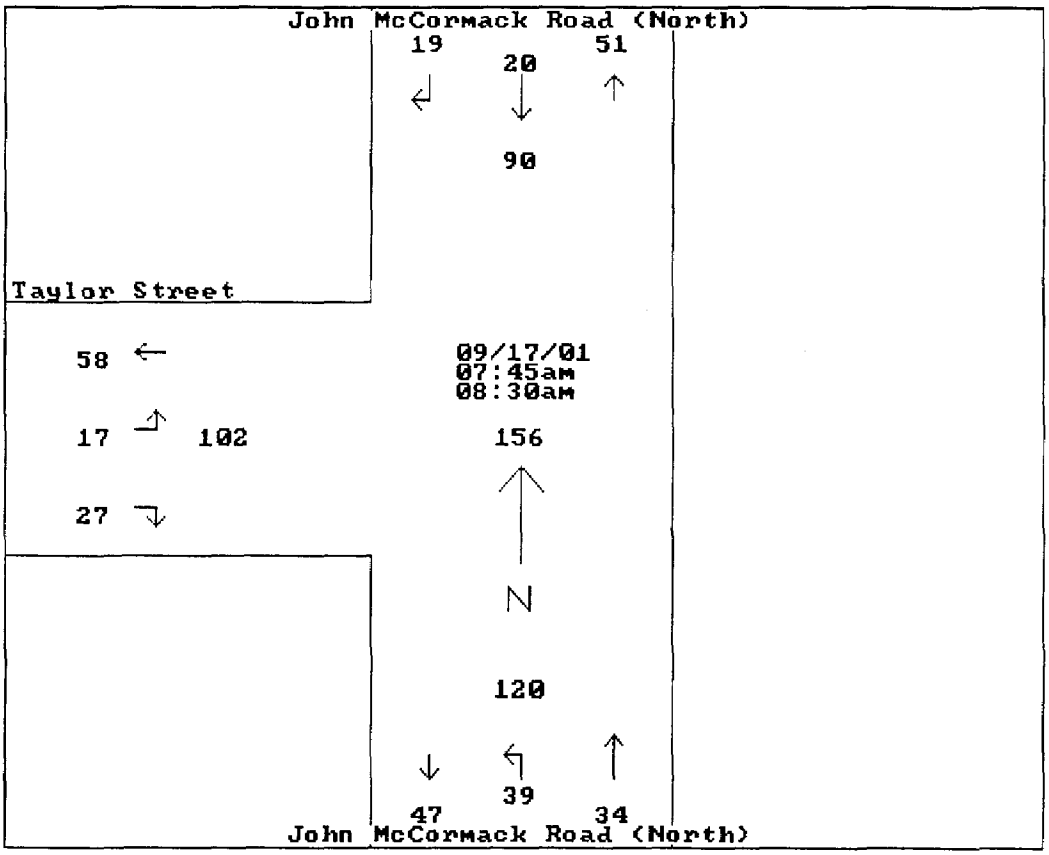
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYN
Site Code : 10162240
Start Date: 09/17/01


Total Traffic

| End | John McCormack Road (N From North | | | John McCormack Road (N From South | | | Taylor Street From West | | | Intrvl. |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Right | Apprch. Total | Total |
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/17/01 to 08:45 on 09/17/01 | | | | | | | | | | |
| Time | 07:45 | | | 07:45 | | | 07:45 | | | |
| Vol. | 20 | 19 | 07 | 39 | 34 | | 17 | 27 | | |
| Pct. | 51.2 | 48.7 | | 53.4 | 46.5 | | 38.6 | 61.3 | | |
| Total | 39 | | | 73 | | | 44 | | | |
| High | 08:15 | | | 08:15 | | | 08:15 | | | |
| Vol. | 6 | 5 | | 13 | 9 | | 6 | 7 | | |
| Total | 11 | | | 22 | | | 13 | | | |
| PHF | 0.886 | | | 0.829 | | | 0.846 | | | |



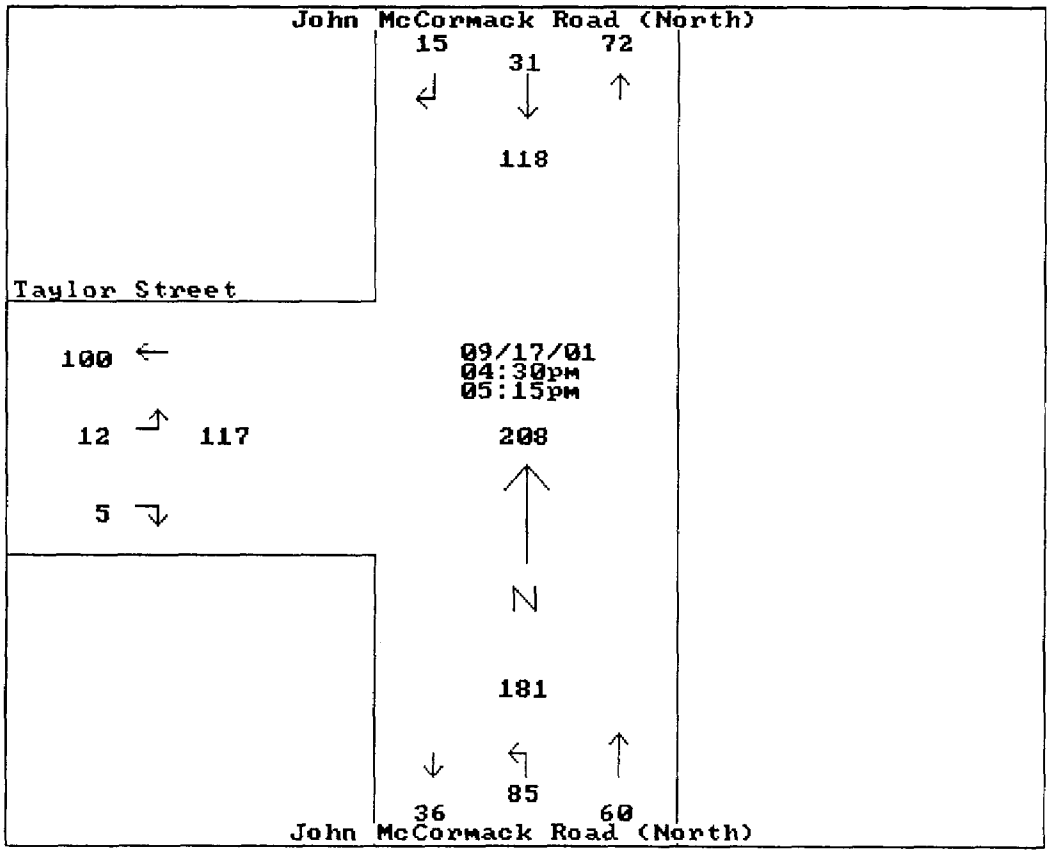
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYN
Site Code : 10162240
Start Date: 09/17/01


Total Traffic

| | John McCormack Road (N From North | | | John McCormack Road (N From South | | | Taylor Street From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| End Time | Thru | Right | Apprch. Total | Left | Thru | Apprch. Total | Left | Right | Apprch. Total | Intrvl. Total |
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/17/01 to 17:45 on 09/17/01 | | | | | | | | | | |
| Time | 16:30 | | | 16:30 | | | 16:30 | | | |
| Vol. | 31 | 15 | 16 | 85 | 60 | | 12 | 5 | | |
| Pct. | 67.3 | 32.6 | | 58.6 | 41.3 | | 70.5 | 29.4 | | |
| Total | 46 | | | 145 | | | 17 | | | |
| High | 17:15 | | | 17:00 | | | 17:15 | | | |
| Vol. | 11 | 6 | | 28 | 17 | | 4 | 2 | | |
| Total | 17 | | | 45 | | | 6 | | | |
| PHF | 0.676 | | | 0.805 | | | 0.708 | | | |



O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYS
Site Code : 10162240
Start Date: 09/18/01


Total Traffic

| | John McCormack Road (N | | | John McCormack Road (S | | | Taylor Street | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | From North | | | From South | | | From West | | | |
| End | | | Apprch. | | | Apprch. | | | Apprch. | Intrvl. |
| Time | Thru | Right | Total | Left | Thru | Total | Left | Right | Total | Total |
| 09/18/01 | | | | | | | | | | |
| 07:15 | 3 | 0 | 3 | 2 | 7 | 9 | 1 | 7 | 8 | 20 |
| 07:30 | 4 | 1 | 5 | 2 | 9 | 11 | 2 | 7 | 9 | 25 |
| 07:45 | 5 | 2 | 7 | 4 | 11 | 15 | 6 | 9 | 15 | 37 |
| 08:00 | 6 | 0 | 6 | 4 | 11 | 15 | 7 | 12 | 19 | 40 |
| Hour | 18 | 3 | 21 | 12 | 38 | 50 | 16 | 35 | 51 | 122 |
| 08:15 | 5 | 1 | 6 | 4 | 10 | 14 | 6 | 15 | 21 | 41 |
| 08:30 | 2 | 3 | 5 | 3 | 13 | 16 | 6 | 16 | 22 | 43 |
| 08:45 | 10 | 2 | 12 | 6 | 10 | 16 | 8 | 22 | 30 | 58 |
| 09:00 | 13 | 1 | 14 | 4 | 7 | 11 | 9 | 28 | 37 | 62 |
| Hour | 30 | 7 | 37 | 17 | 40 | 57 | 29 | 81 | 110 | 204 |
| [BREAK] | | | | | | | | | | |
| 16:15 | 6 | 3 | 9 | 8 | 20 | 28 | 4 | 8 | 12 | 49 |
| 16:30 | 6 | 1 | 7 | 11 | 22 | 33 | 2 | 10 | 12 | 52 |
| 16:45 | 9 | 5 | 14 | 7 | 26 | 33 | 5 | 13 | 18 | 65 |
| 17:00 | 9 | 3 | 12 | 8 | 24 | 32 | 3 | 15 | 18 | 62 |
| Hour | 30 | 12 | 42 | 34 | 92 | 126 | 14 | 46 | 60 | 228 |
| 17:15 | 9 | 4 | 13 | 10 | 30 | 40 | 4 | 13 | 17 | 70 |
| 17:30 | 6 | 4 | 10 | 10 | 35 | 45 | 2 | 11 | 13 | 68 |
| 17:45 | 8 | 4 | 12 | 8 | 30 | 38 | 5 | 15 | 20 | 70 |
| 18:00 | 7 | 1 | 8 | 5 | 27 | 32 | 3 | 18 | 21 | 61 |
| Hour | 30 | 13 | 43 | 33 | 122 | 155 | 14 | 57 | 71 | 269 |
| Total | 108 | 35 | 143 | 96 | 292 | 388 | 73 | 219 | 292 | 823 |
| % Apr. | 75.5 | 24.4 | - | 24.7 | 75.2 | - | 25.0 | 75.0 | - | - |
| % Int. | 13.1 | 4.2 | - | 11.6 | 35.4 | - | 8.8 | 26.6 | - | - |

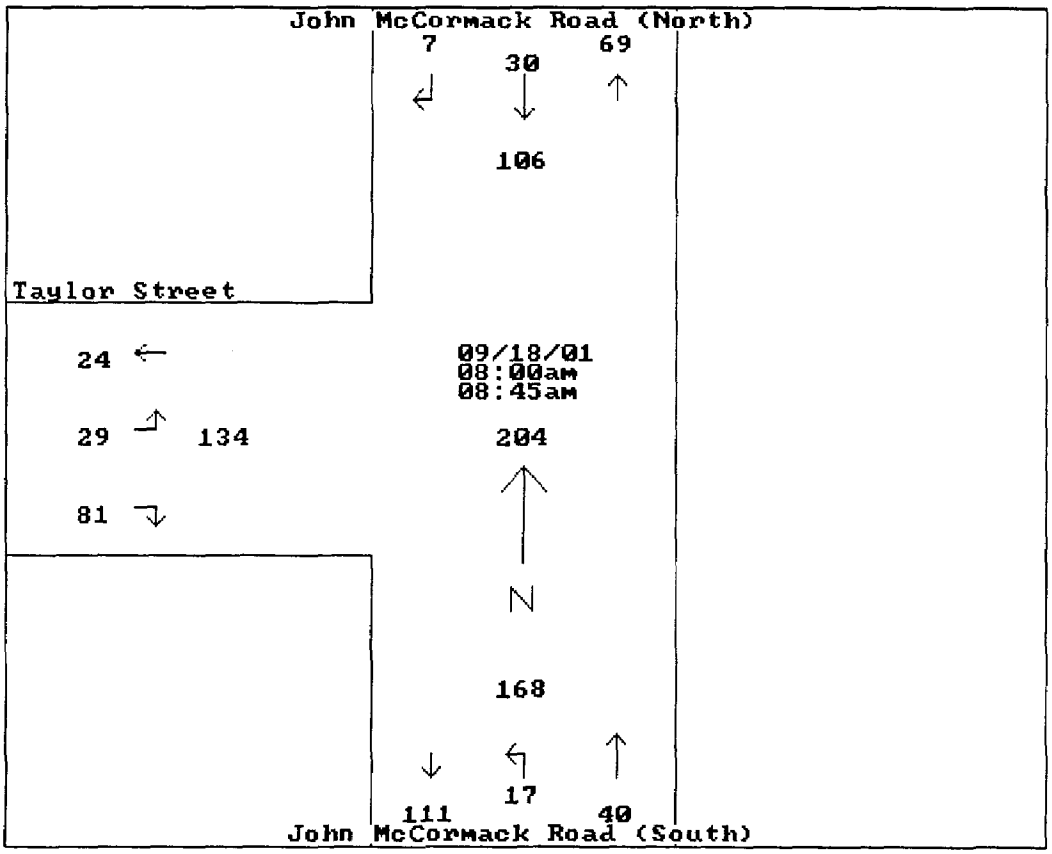
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYS
Site Code : 10162240
Start Date: 09/18/01


Total Traffic

| End Time | John McCormack Road (N From North Thru | Right | Apprch. Total | John McCormack Road (S From South Left | Thru | Apprch. Total | Taylor Street From West Left | Right | Apprch. Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 07:00 on 09/18/01 to 08:45 on 09/18/01 | | | | | | | | | | |
| Time | 08:00 | | | 08:00 | | | 08:00 | | | |
| Vol. | 30 | 7 | 08 | 17 | 40 | | 29 | 81 | | |
| Pct. | 81.0 | 18.9 | | 29.8 | 70.1 | | 26.3 | 73.6 | | |
| Total | 37 | | | 57 | | | 110 | | | |
| High | 08:45 | | | 08:15 | | | 08:45 | | | |
| Vol. | 13 | 1 | | 3 | 13 | | 9 | 28 | | |
| Total | 14 | | | 16 | | | 37 | | | |
| PHF | 0.660 | | | 0.890 | | | 0.743 | | | |



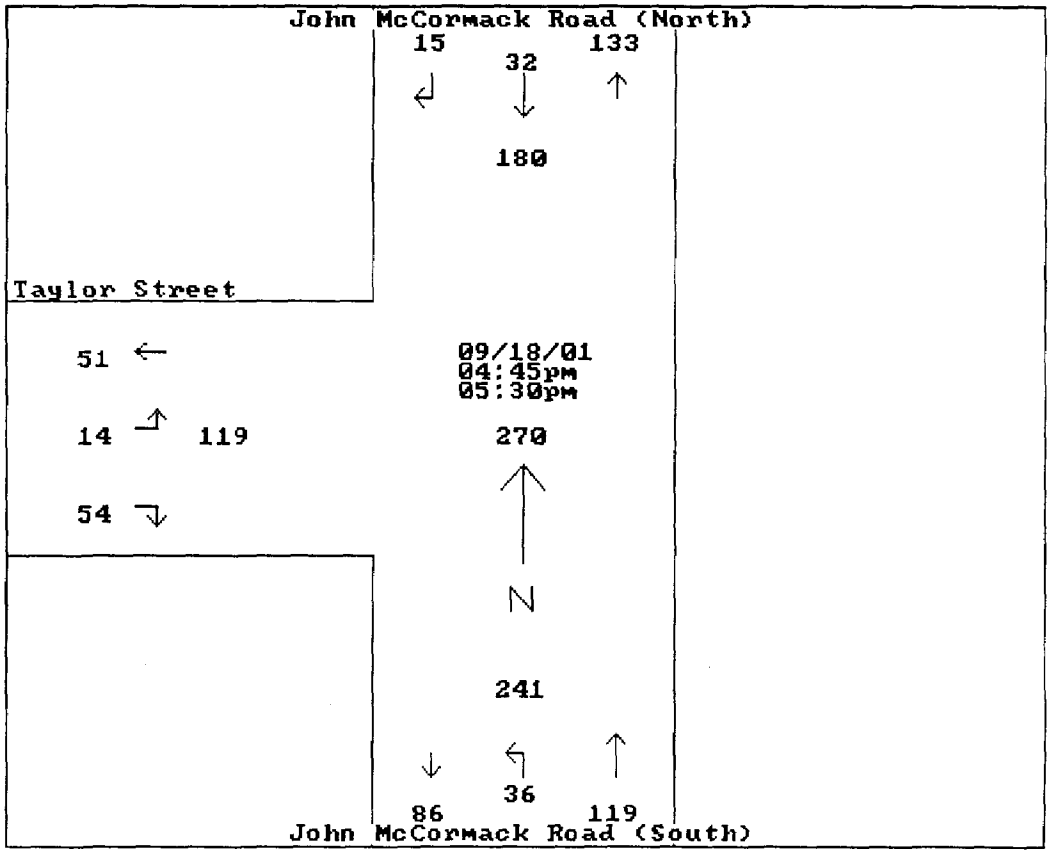
O.R.George & Associates, Inc
10210 Greenbelt Road, Suite 310
Greenbelt, MD 20706
Tel: (301)794-7700 Fax: (301)794-4400

Counted by :ORGA-NL
Board :D4-2240
City/County:Washington D.C.
Weather :Warm/Clear/Dry

Study Name: MCC@TAYS
Site Code : 10162240
Start Date: 09/18/01


Total Traffic

| End Time | John McCormack Road (N From North Thru | Right | Apprch. Total | John McCormack Road (S From South Left | Thru | Apprch. Total | Taylor Street From West Left | Right | Apprch. Total | Intrvl. Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Peak Hour Analysis By Entire Intersection for the Period: 16:00 on 09/18/01 to 17:45 on 09/18/01 | | | | | | | | | | |
| Time | 16:45 | | | 16:45 | | | 16:45 | | | |
| Vol. | 32 | 15 | 16 | 36 | 119 | | 14 | 54 | | |
| Pct. | 68.0 | 31.9 | | 23.2 | 76.7 | | 20.5 | 79.4 | | |
| Total | 47 | | | 155 | | | 68 | | | |
| High | 17:00 | | | 17:15 | | | 17:30 | | | |
| Vol. | 9 | 4 | | 10 | 35 | | 5 | 15 | | |
| Total | 13 | | | 45 | | | 20 | | | |
| PHF | 0.903 | | | 0.861 | | | 0.850 | | | |



# APPENDIX

# C

CAPACITY ANALYSIS WORKSHEETS
EXISTING TRAFFIC SITUATION

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Michigan Ave. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic AM PEAK PERIOD (7:30-8:30 AM) |
| Date: | 10/4/01 |
| East/West Street: | Michigan Ave. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: | EW Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 93 | 543 | | | 1629 | 71 |
| Hourly Flow Rate, HFR | 102 | 596 | | | 1732 | 75 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 2 | | | 2 | 0 |
| Configuration | | LT T | | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 0 | | 3 |
| Hourly Flow Rate, HFR | | | | 0 | | 7 |
| Percent Heavy Vehicles | | | | 0 | | 2 |
| Percent Grade (%) | | 2 | | | 2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 102 | | | | | | 7 | |
| C(m) (vph) | 337 | | | | | | 280 | |
| v/c | 0.30 | | | | | | 0.03 | |
| 95% queue length | 1.30 | | | | | | 0.00 | |
| Control Delay | 20.3 | | | | | | 18.2 | |
| LOS | C | | | | | | C | |
| Approach Delay | | | | | | | 18.2 | |
| Approach LOS | | | | | | | C | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Michigan Ave. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic PM PEAK PERIOD (4:30-5:30PM) |
| Date: | 10/4/01 |
| East/West Street: | Michigan Ave. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: | EW Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 74 | 1453 | | | 687 | 19 |
| Hourly Flow Rate, HFR | 79 | 1562 | | | 723 | 20 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 2 | | | 2 | 0 |
| Configuration | | LT T | | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 0 | | 0 |
| Hourly Flow Rate, HFR | | | | 0 | | 0 |
| Percent Heavy Vehicles | | | | 0 | | 2 |
| Percent Grade (%) | | 2 | | | 2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 79 | | | | | | 0 | |
| C(m) (vph) | 1113 | | | | | | 0 | |
| v/c | 0.07 | | | | | | | |
| 95% queue length | 0.13 | | | | | | | |
| Control Delay | 8.5 | | | | | | | |
| LOS | A | | | | | | | |
| Approach Delay | | | | | | | | |
| Approach LOS | | | | | | | | |

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 7th St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:15-8:15AM)
N/S St: 7th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | | LTR | | | LTR | | | LTR | |
| Volume | 7 | 579 | 7 | 42 | 1571 | 26 | 6 | 48 | 40 | 13 | 14 | 7 |
| Lane Width | | 12.0 | | | 12.0 | | | 12.0 | | | 15.0 | |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 2 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | P | | | | NB Left | P | | |
| Thru | P | | | | Thru | P | | |
| Right | P | | | | Right | P | | |
| Peds | | | | | Peds | | | |
| WB Left | P | | | | SB Left | P | | |
| Thru | P | | | | Thru | P | | |
| Right | P | | | | Right | P | | |
| Peds | | | | | Peds | X | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 58.0 | | | | | 14.0 | | |
| Yellow | 3.0 | | | | | 3.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 2146 | 2960 | 0.30 | 0.725 | 4.2 | A | 4.2 | A |
| Westbound | | | | | | | | |
| LTR | 2126 | 2933 | 0.80 | 0.725 | 10.6 | B | 10.6 | B |
| Northbound | | | | | | | | |
| LTR | 242 | 1384 | 0.51 | 0.175 | 37.5 | D | 37.5 | D |
| Southbound | | | | | | | | |
| LTR | 248 | 1419 | 0.17 | 0.175 | 29.5 | C | 29.5 | C |

Intersection Delay = 10.6 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 7th St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: 7th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | | LTR | | | LTR | | | LTR | |
| Volume | 12 | 1380 | 9 | 35 | 635 | 3 | 10 | 39 | 77 | 82 | 66 | 41 |
| Lane Width | | 12.0 | | | 12.0 | | | 12.0 | | | 12.0 | |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 8 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | X | | | | | Peds | | | | |
| WB | Left | P | | | | SB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | | | | | | Peds | X | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 52.0 | | | | | | 20.0 | | | |
| Yellow | | 3.0 | | | | | | 3.0 | | | |
| All Red | | 1.0 | | | | | | 1.0 | | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1959 | 3014 | 0.78 | 0.650 | 13.0 | B | 13.0 | B |
| Westbound | | | | | | | | |
| LTR | 1676 | 2579 | 0.47 | 0.650 | 8.0 | A | 8.0 | A |
| Northbound | | | | | | | | |
| LTR | 331 | 1322 | 0.44 | 0.250 | 29.4 | C | 29.4 | C |
| Southbound | | | | | | | | |
| LTR | 281 | 1122 | 0.85 | 0.250 | 54.3 | D | 54.3 | D |

Intersection Delay = 16.1 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Monroe St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Monroe St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| LGConfig | | T | R | | T | | L | LR | | | | |
| Volume | | 599 | 347 | | 1580 | | 988 | | 1 | | | |
| Lane Width | | 12.0 | 12.0 | | 12.0 | | 10.0 | 10.0 | | | | |
| RTOR Vol | | | 0 | | | | | | 0 | | | |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | P | | |
| Thru | | P | | | Thru | | | |
| Right | | P | | | Right | P | | |
| Peds | | X | | | Peds | X | | |
| WB Left | | | | | SB Left | | | |
| Thru | | P | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | | 38.0 | | | | 37.0 | | |
| Yellow | | 4.0 | | | | 4.0 | | |
| All Red | | 1.0 | | | | 1.0 | | |

Cycle Length: 85.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 1423 | 3184 | 0.46 | 0.447 | 17.5 | B | 18.9 | B |
| R | 650 | 1453 | 0.59 | 0.447 | 21.5 | C | | |
| Westbound | | | | | | | | |
| T | 2046 | 4577 | 0.83 | 0.447 | 24.8 | C | 24.8 | C |
| Northbound | | | | | | | | |
| L | 1280 | 2941 | 0.84 | 0.435 | 28.1 | C | | |
| LR | 532 | 1223 | 0.00 | 0.435 | 13.6 | B | 28.0 | C |
| Southbound | | | | | | | | |

Intersection Delay = 24.1 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Monroe St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:15-5:15AM)
N/S St: Monroe St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| LGConfig | | T | R | | T | | L | LR | | | | |
| Volume | | 1383 | 915 | | 676 | | 397 | | 1 | | | |
| Lane Width | | 12.0 | 12.0 | | 12.0 | | 10.0 | 10.0 | | | | |
| RTOR Vol | | | 0 | | | | | | 0 | | | |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | P | | |
| Thru | P | | | | Thru | | | |
| Right | P | | | | Right | P | | |
| Peds | X | | | | Peds | X | | |
| WB Left | | | | | SB Left | | | |
| Thru | P | | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 53.0 | | | | | 22.0 | | |
| Yellow | 4.0 | | | | | 4.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 85.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 1985 | 3184 | 0.75 | 0.624 | 13.9 | B | 37.1 | D |
| R | 906 | 1453 | 1.09 | 0.624 | 72.1 | E | | |
| Westbound | | | | | | | | |
| T | 2854 | 4577 | 0.27 | 0.624 | 7.5 | A | 7.5 | A |
| Northbound | | | | | | | | |
| L | 761 | 2941 | 0.64 | 0.259 | 32.0 | C | | |
| LR | 313 | 1209 | 0.00 | 0.259 | 23.4 | C | 32.0 | C |
| Southbound | | | | | | | | |

Intersection Delay = 30.4 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 4th St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:45-8:45AM)
N/S St: 4th St.

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | L | TR | | | LTR | | | LTR | |
| Volume | 33 | 790 | 1 | 441 | 2108 | 9 | 1 | 36 | 136 | 13 | 10 | 13 |
| Lane Width | | 10.0 | | 10.0 | 10.0 | | | 10.0 | | | 12.0 | |
| RTOR Vol | | | 0 | | | 6 | | | 97 | | | 8 |

Duration 0.25 Area Type: CBD or Similar

### Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | P | | | | | | |
| Thru | | P | | | | | | |
| Right | | P | | | | | | |
| Peds | | | | | | | | |
| WB Left | P | | | | | | | |
| Thru | P | P | | | | | | |
| Right | P | P | | | | | | |
| Peds | X | X | | | | | | |
| NB Right | | | | | | | | |
| SB Right | | | | | | | | |
| NB Left | | | | | | P | | |
| Thru | | | | | | P | | |
| Right | | | | | | P | | |
| Peds | | | | | X | X | | |
| SB Left | | | | | P | | | |
| Thru | | | | | P | | | |
| Right | | | | | P | | | |
| Peds | | | | | | | | |
| EB Right | | | | | | | | |
| WB Right | | | | | | | | |
| Green | 24.0 | 22.0 | | | 12.0 | 10.0 | | |
| Yellow | | 3.0 | | | 3.0 | 3.0 | | |
| All Red | | 1.0 | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

### Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 823 | 2992 | 1.13 | 0.275 | 100.8 | F | 100.8 | F |
| Westbound | | | | | | | | |
| L | 455 | 1516 | 0.99 | 0.300 | 67.4 | E | | |
| TR | 1709 | 2972 | 1.26 | 0.575 | 139.1 | F | 126.7 | F |
| Northbound | | | | | | | | |
| LTR | 342 | 2733 | 0.27 | 0.125 | 33.6 | C | 33.6 | C |
| Southbound | | | | | | | | |
| LTR | 215 | 1433 | 0.19 | 0.150 | 31.6 | C | 31.6 | C |

Intersection Delay = 116.8 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 4th St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: 4th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | | L TR | | | LTR | | | LTR | |
| Volume | 73 | 1851 | 2 | 151 | 896 | 21 | 1 | 38 | 423 | 18 | 27 | 43 |
| Lane Width | | 10.0 | | 10.0 | 10.0 | | | 10.0 | | | 12.0 | |
| RTOR Vol | | | 0 | | | 13 | | | 151 | | | 28 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | | | | |
| | Peds | | | | | | Peds | X | | | |
| WB | Left | | P | | | SB | Left | | P | | |
| | Thru | | P | | | | Thru | | P | | |
| | Right | | P | | | | Right | | P | | |
| | Peds | X | X | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 24.0 | 17.0 | | | | | 15.0 | 8.0 | | |
| Yellow | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | | |
| All Red | | 1.0 | 1.0 | | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1278 | 4261 | 1.55 | 0.300 | 280.8 | F | 280.8 | F |
| Westbound | | | | | | | | |
| L | 322 | 1516 | 0.49 | 0.213 | 32.9 | C | | |
| TR | 631 | 2970 | 1.49 | 0.213 | 260.9 | F | 228.3 | F |
| Northbound | | | | | | | | |
| LTR | 482 | 2569 | 0.70 | 0.188 | 38.7 | D | 38.7 | D |
| Southbound | | | | | | | | |
| LTR | 143 | 1427 | 0.58 | 0.100 | 50.4 | D | 50.4 | D |

Intersection Delay = 235.6 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Harewood Rd. City/St: Washington D.C.
Analyst: ORGA - RB Proj #: CUA - Existing Traffic
Date: 10/4/01 Period: AM Peak Period (7:30-8:30AM)
E/W St: Michigan Ave. N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 2 |
| LGConfig | | LTR | | | TR | | | LT | | | LT | R |
| Volume | 35 | 776 | 61 | | 2022 | 99 | 152 | 243 | | 66 | 285 | 112 |
| Lane Width | | 10.0 | | | 10.0 | | | 12.0 | | | 12.0 | 12.0 |
| RTOR Vol | | | 48 | | | 78 | | | | | | 93 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | | P | | | NB | Left | P | | | |
| | Thru | | P | | | | Thru | P | | | |
| | Right | | P | | | | Right | | | | |
| | Peds | | X | | | | Peds | | | | |
| WB | Left | | | | | SB | Left | P | | | |
| | Thru | P | P | | | | Thru | P | | | |
| | Right | P | P | | | | Right | P | | | |
| | Peds | X | X | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 5.0 | 30.0 | | | | | 20.0 | | | |
| Yellow | | 4.0 | 4.0 | | | | | 4.0 | | | |
| All Red | | 1.0 | 1.0 | | | | | 1.0 | | | |

Cycle Length: 70.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1314 | 3065 | 0.65 | 0.429 | 18.3 | B | 18.3 | B |
| Westbound | | | | | | | | |
| TR | 1697 | 2969 | 1.32 | 0.571 | 164.5 | F | 164.5 | F |
| Northbound | | | | | | | | |
| LT | 604 | 2113 | 0.68 | 0.286 | 28.3 | C | 28.3 | C |
| Southbound | | | | | | | | |
| LT | 707 | 2473 | 0.59 | 0.286 | 25.1 | C | 24.7 | C |
| R | 731 | 2558 | 0.03 | 0.286 | 18.1 | B | | |

Intersection Delay = 103.2 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Harewood Rd. City/St: Washington D.C.
Analyst: ORGA - RB Proj #: CUA - Existing Traffic
Date: 10/4/01 Period: PM Peak Period (4:15-5:15PM)
E/W St: Michigan Ave. N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | | 0 | 2 | 2 |
| LGConfig | | LTR | | | TR | | | LT | | | LT | R |
| Volume | 112 | 1841 | 177 | | 879 | 62 | 82 | 233 | | 84 | 211 | 81 |
| Lane Width | | 10.0 | | | 10.0 | | | 12.0 | | | 12.0 | 12.0 |
| RTOR Vol | | | 126 | | | 45 | | | | | | 56 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB Left | | P | | | NB Left | P | | | |
| Thru | | P | | | Thru | P | | | |
| Right | | P | | | Right | | | | |
| Peds | | X | | | Peds | | | | |
| WB Left | | | | | SB Left | P | | | |
| Thru | P | P | | | Thru | P | | | |
| Right | P | P | | | Right | P | | | |
| Peds | X | X | | | Peds | | | | |
| NB Right | | | | | EB Right | | | | |
| SB Right | | | | | WB Right | | | | |
| Green | 8.0 | 32.0 | | | | 20.0 | | | |
| Yellow | 4.0 | 4.0 | | | | 4.0 | | | |
| All Red | 1.0 | 1.0 | | | | 1.0 | | | |

Cycle Length: 75.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1436 | 3366 | 1.47 | 0.427 | 236.6 | F | 236.6 | F |
| Westbound | | | | | | | | |
| TR | 1779 | 2965 | 0.53 | 0.600 | 9.9 | A | 9.9 | A |
| Northbound | | | | | | | | |
| LT | 628 | 2356 | 0.58 | 0.267 | 27.7 | C | 27.7 | C |
| Southbound | | | | | | | | |
| LT | 611 | 2292 | 0.57 | 0.267 | 27.6 | C | 27.0 | C |
| R | 682 | 2558 | 0.04 | 0.267 | 20.5 | C | | |

Intersection Delay = 139.8 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Irving St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Irving Street

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 1 |
| LGConfig | | T | | | TR | R | | | | L | | R |
| Volume | | 536 | | | 984 | 1319 | | | | 374 | | 17 |
| Lane Width | | 12.0 | | | 12.0 | 12.0 | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 455 | | | | | | 14 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | | | |
| Thru | P | | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | P | | | | Thru | | | |
| Right | P | | | | Right | P | | |
| Peds | X | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 45.0 | | | | | 25.0 | | |
| Yellow | 4.0 | | | | | 4.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 2573 | 4575 | 0.23 | 0.563 | 9.0 | A | 9.0 | A |
| Westbound | | | | | | | | |
| TR | 1756 | 3121 | 0.69 | 0.563 | 14.7 | B | 19.9 | B |
| R | 815 | 1448 | 0.88 | 0.563 | 28.6 | C | | |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 1359 | 4348 | 0.29 | 0.313 | 21.4 | C | | |
| | | | | | | | 21.3 | C |
| R | 454 | 1454 | 0.01 | 0.313 | 19.0 | B | | |

Intersection Delay = 17.9 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Irving St.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:45-5:45PM)
N/S St: Irving Street

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 1 |
| LGConfig | | T | | | TR | R | | | | L | | R |
| Volume | | 765 | | | 638 | 465 | | | | 1358 | | 0 |
| Lane Width | | 12.0 | | | 12.0 | 12.0 | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 163 | | | | | | 0 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | | | | |
| Thru | | P | | | Thru | | | | |
| Right | | | | | Right | | | | |
| Peds | | | | | Peds | | | | |
| WB Left | | | | | SB Left | P | | | |
| Thru | | P | | | Thru | | | | |
| Right | | P | | | Right | P | | | |
| Peds | | | | | Peds | | | | |
| NB Right | | | | | EB Right | | | | |
| SB Right | | | | | WB Right | | | | |
| Green | | 40.0 | | | | 30.0 | | | |
| Yellow | | 4.0 | | | | 4.0 | | | |
| All Red | | 1.0 | | | | 1.0 | | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 2288 | 4575 | 0.41 | 0.500 | 13.2 | B | 13.2 | B |
| Westbound | | | | | | | | |
| TR | 1593 | 3185 | 0.46 | 0.500 | 13.9 | B | 14.3 | B |
| R | 727 | 1454 | 0.47 | 0.500 | 15.3 | B | | |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 1631 | 4348 | 0.98 | 0.375 | 42.7 | D | | |
| | | | | | | | 42.7 | D |
| R | 545 | 1454 | 0.00 | 0.375 | 15.6 | B | | |

Intersection Delay = 26.6 (sec/veh) Intersection LOS = C

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Harewood Rd. @ Scale Gate Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic AM PEAK PERIOD (7:15-8:15 AM) |
| Date: | 10/4/01 |
| East/West Street: | Scale Gate Rd. |
| North/South Street: | Harewood Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 12 | 335 | | | 25 | 525 |
| Hourly Flow Rate, HFR | 15 | 429 | | | 28 | 589 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 32 | | 11 |
| Hourly Flow Rate, HFR | | | | 38 | | 13 |
| Percent Heavy Vehicles | | | | 0 | | 0 |
| Percent Grade (%) | | 0 | | | -1 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 15 | | | | | | 51 | |
| C(m) (vph) | 963 | | | | | | 405 | |
| v/c | 0.02 | | | | | | 0.13 | |
| 95% queue length | 0.00 | | | | | | 0.40 | |
| Control Delay | 8.8 | | | | | | 15.2 | |
| LOS | A | | | | | | C | |
| Approach Delay | | | | | | | 15.2 | |
| Approach LOS | | | | | | | C | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Harewood Rd. @ Scale Gate Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic |
| Date: | 10/4/01 |
| East/West Street: | Scale Gate Rd. |
| North/South Street: | Harewood Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

PM PEAK PERIOD (4:15-5:15PM)

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 11 | 482 | | | 4 | 333 |
| Hourly Flow Rate, HFR | 13 | 610 | | | 4 | 406 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 49 | | 25 |
| Hourly Flow Rate, HFR | | | | 66 | | 33 |
| Percent Heavy Vehicles | | | | 0 | | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 13 | | | | | | 99 | |
| C(m) (vph) | 1149 | | | | | | 407 | |
| v/c | 0.01 | | | | | | 0.24 | |
| 95% queue length | 0.00 | | | | | | 1.00 | |
| Control Delay | 8.2 | | | | | | 16.7 | |
| LOS | A | | | | | | C | |
| Approach Delay | | | | | | | 16.7 | |
| Approach LOS | | | | | | | C | |

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Harewood Rd.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | |
| LGConfig | | LT | R | | LTR | | | LT | R | | LTR | |
| Volume | 6 | 257 | 369 | 187 | 631 | 22 | 210 | 6 | 76 | 25 | 31 | 16 |
| Lane Width | | 11.0 | 10.0 | | 11.0 | | | 10.0 | 12.0 | | 12.0 | |
| RTOR Vol | | | 0 | | | 8 | | | 30 | | | 5 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB Left | P | | | | NB Left | P | | | |
| Thru | P | | | | Thru | P | | | |
| Right | P | | | | Right | P | | | |
| Peds | X | X | | | Peds | X | X | | |
| WB Left | | P | | | SB Left | | P | | |
| Thru | P | P | | | Thru | | P | | |
| Right | P | P | | | Right | | P | | |
| Peds | | | | | Peds | | | | |
| NB Right | | | | | EB Right | P | | | |
| SB Right | | | | | WB Right | | | | |
| Green | 15.0 | 20.0 | | | | 20.0 | 10.0 | | |
| Yellow | | 4.0 | | | | 4.0 | 4.0 | | |
| All Red | | 1.0 | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 491 | 2620 | 0.66 | 0.188 | 36.9 | D | 25.3 | C |
| R | 1045 | 2388 | 0.44 | 0.438 | 17.0 | B | | |
| Westbound | | | | | | | | |
| LTR | 1282 | 2930 | 0.71 | 0.438 | 21.6 | C | 21.6 | C |
| Northbound | | | | | | | | |
| LT | 709 | 2834 | 0.31 | 0.250 | 25.5 | C | 25.3 | C |
| R | 363 | 1450 | 0.13 | 0.250 | 24.0 | C | | |
| Southbound | | | | | | | | |
| LTR | 180 | 1443 | 0.45 | 0.125 | 40.4 | D | 40.4 | D |

Intersection Delay = 24.2 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Harewood Rd.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | |
| LGConfig | | LT | R | | LTR | | | LT | R | | LTR | |
| Volume | 6 | 392 | 221 | 68 | 263 | 6 | 366 | 6 | 182 | 11 | 4 | 4 |
| Lane Width | | 11.0 | 10.0 | | 11.0 | | | 10.0 | 12.0 | | 12.0 | |
| RTOR Vol | | | 0 | | | 2 | | | 50 | | | 1 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | X | X | | | | Peds | X | X | | |
| WB | Left | | P | | | SB | Left | | P | | |
| | Thru | P | P | | | | Thru | | P | | |
| | Right | P | P | | | | Right | | P | | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | P | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 15.0 | 23.0 | | | | | 18.0 | 9.0 | | |
| Yellow | | | 4.0 | | | | | 4.0 | 4.0 | | |
| All Red | | | 1.0 | | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 550 | 2932 | 0.75 | 0.188 | 39.6 | D | 31.1 | C |
| R | 985 | 2388 | 0.23 | 0.412 | 15.8 | B | | |
| Westbound | | | | | | | | |
| LTR | 1394 | 2934 | 0.25 | 0.475 | 13.0 | B | 13.0 | B |
| Northbound | | | | | | | | |
| LT | 637 | 2832 | 0.61 | 0.225 | 32.3 | C | 31.8 | C |
| R | 326 | 1451 | 0.43 | 0.225 | 30.6 | C | | |
| Southbound | | | | | | | | |
| LTR | 160 | 1425 | 0.19 | 0.112 | 34.9 | C | 34.9 | C |

Intersection Delay = 27.3 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Hawaii Ave.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Hawaii Ave.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| LGConfig | | LT | | | TR | | | | | L | | R |
| Volume | 54 | 307 | | | 746 | 281 | | | | 216 | | 99 |
| Lane Width | | 11.0 | | | 11.0 | | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 112 | | | | | | 30 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| EB Left | P | | | | NB Left | | | | |
| Thru | P | | | | Thru | | | | |
| Right | | | | | Right | | | | |
| Peds | | | | | Peds | | | | |
| WB Left | | | | | SB Left | P | | | |
| Thru | P | | | | Thru | | | | |
| Right | P | | | | Right | P | | | |
| Peds | | | | | Peds | X | | | |
| NB Right | | | | | EB Right | | | | |
| SB Right | | | | | WB Right | | | | |
| Green | 25.0 | | | | | 15.0 | | | |
| Yellow | 4.0 | | | | | 4.0 | | | |
| All Red | 1.0 | | | | | 1.0 | | | |

Cycle Length: 50.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 1054 | 2107 | 0.41 | 0.500 | 9.1 | A | 9.1 | A |
| Westbound | | | | | | | | |
| TR | 1442 | 2884 | 0.80 | 0.500 | 15.3 | B | 15.3 | B |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 478 | 1593 | 0.53 | 0.300 | 18.8 | B | | |
| | | | | | | | 17.6 | B |
| R | 435 | 1451 | 0.19 | 0.300 | 13.9 | B | | |

Intersection Delay = 14.3 (sec/veh) Intersection LOS = B

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Hawaii Ave.
Analyst: ORGA - RB
Date: 10/4/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Existing Traffic
Period: PM Peak Period (4:45-5:45PM)
N/S St: Hawaii Ave.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| LGConfig | | LT | | | TR | | | | | L | | R |
| Volume | 117 | 473 | | | 287 | 250 | | | | 227 | | 42 |
| Lane Width | | 11.0 | | | 11.0 | | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 101 | | | | | | 13 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | | | | |
| | Thru | P | | | | | Thru | | | | |
| | Right | | | | | | Right | | | | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | | | | SB | Left | P | | | |
| | Thru | P | | | | | Thru | | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | | | | | | Peds | X | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 20.0 | | | | | | 20.0 | | | |
| Yellow | | 4.0 | | | | | | 4.0 | | | |
| All Red | | 1.0 | | | | | | 1.0 | | | |

Cycle Length: 50.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 900 | 2251 | 0.70 | 0.400 | 16.9 | B | 16.9 | B |
| Westbound | | | | | | | | |
| TR | 1129 | 2823 | 0.42 | 0.400 | 12.0 | B | 12.0 | B |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 637 | 1593 | 0.51 | 0.400 | 14.2 | B | | |
| | | | | | | | 13.7 | B |
| R | 580 | 1451 | 0.07 | 0.400 | 9.5 | A | | |

Intersection Delay = 14.5 (sec/veh) Intersection LOS = B

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Taylor St. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

AM PEAK PERIOD (7:30-8:30 AM)

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | | 419 | 107 | | 970 | 46 |
| Hourly Flow Rate, HFR | | 492 | 125 | | 1227 | 58 |
| Percent Heavy Vehicles | | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | 2 | 0 | | 2 | 0 |
| Configuration | | T | TR | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 10 | | 15 | 7 | | 52 |
| Hourly Flow Rate, HFR | 12 | | 19 | 8 | | 66 |
| Percent Heavy Vehicles | 0 | | 2 | 0 | | 2 |
| Percent Grade (%) | | 3 | | | 3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | No | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | | 0 | 0 | | 0 |
| Configuration | | LR | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | | LR | | | LR | |
| v (vph) | | | | 31 | | | 74 | |
| C(m) (vph) | | | | 388 | | | 331 | |
| v/c | | | | 0.08 | | | 0.22 | |
| 95% queue length | | | | 0.17 | | | 0.88 | |
| Control Delay | | | | 15.1 | | | 19.0 | |
| LOS | | | | C | | | C | |
| Approach Delay | | | | 15.1 | | | 19.0 | |
| Approach LOS | | | | C | | | C | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Taylor St. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic PM PEAK PERIOD (4:00-5:00PM) |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | | 633 | 70 | | 466 | 14 |
| Hourly Flow Rate, HFR | | 680 | 75 | | 512 | 15 |
| Percent Heavy Vehicles | | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | 2 | 0 | | 2 | 0 |
| Configuration | | T | TR | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 11 | | 41 | 18 | | 70 |
| Hourly Flow Rate, HFR | 15 | | 56 | 19 | | 76 |
| Percent Heavy Vehicles | 0 | | 2 | 0 | | 2 |
| Percent Grade (%) | | 3 | | | 3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | No | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | | 0 | 0 | | 0 |
| Configuration | | LR | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | | LR | | | LR | |
| v (vph) | | | | 71 | | | 95 | |
| C(m) (vph) | | | | 701 | | | 770 | |
| v/c | | | | 0.10 | | | 0.12 | |
| 95% queue length | | | | 0.29 | | | 0.41 | |
| Control Delay | | | | 10.7 | | | 10.3 | |
| LOS | | | | B | | | B | |
| Approach Delay | | | | 10.7 | | | 10.3 | |
| Approach LOS | | | | B | | | B | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStNorthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic AM PEAK PERIOD (7:30-8:30AM) |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. North Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 39 | 34 | | | 20 | 19 |
| Hourly Flow Rate, HFR | 46 | 40 | | | 22 | 21 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 17 | | 27 |
| Hourly Flow Rate, HFR | | | | 19 | | 31 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 46 | | | | | | 50 | |
| C(m) (vph) | 1540 | | | | | | 890 | |
| v/c | 0.03 | | | | | | 0.06 | |
| 95% queue length | 0.00 | | | | | | 0.04 | |
| Control Delay | 7.4 | | | | | | 9.3 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.3 | |
| Approach LOS | | | | | | | A | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStNorthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic PM PEAK PERIOD (4:15-5:15PM) |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. North Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 85 | 60 | | | 31 | 15 |
| Hourly Flow Rate, HFR | 106 | 74 | | | 45 | 22 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 12 | | 5 |
| Hourly Flow Rate, HFR | | | | 16 | | 7 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 106 | | | | | | 23 | |
| C(m) (vph) | 1509 | | | | | | 688 | |
| v/c | 0.07 | | | | | | 0.03 | |
| 95% queue length | 0.12 | | | | | | 0.00 | |
| Control Delay | 7.6 | | | | | | 10.4 | |
| LOS | A | | | | | | B | |
| Approach Delay | | | | | | | 10.4 | |
| Approach LOS | | | | | | | B | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStSouthRamp |
| Analyst: | ORGA-RB |
| Project No.: | CUA - Existing Traffic AM PEAK PERIOD (7:45-8:45AM) |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. South Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: | NS Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 17 | 40 | | | 30 | 7 |
| Hourly Flow Rate, HFR | 19 | 44 | | | 45 | 10 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 29 | | 81 |
| Hourly Flow Rate, HFR | | | | 39 | | 109 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 19 | | | | | | 148 | |
| C(m) (vph) | 1524 | | | | | | 922 | |
| v/c | 0.01 | | | | | | 0.16 | |
| 95% queue length | 0.00 | | | | | | 0.61 | |
| Control Delay | 7.4 | | | | | | 9.6 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.6 | |
| Approach LOS | | | | | | | A | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStSouthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Existing Traffic PM PEAK PERIOD (4:30-5:30PM) |
| Date: | 10/4/01 |
| East/West Street: | Taylor St. South Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: | NS Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 36 | 119 | | | 32 | 15 |
| Hourly Flow Rate, HFR | 41 | 138 | | | 35 | 16 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 14 | | 54 |
| Hourly Flow Rate, HFR | | | | 16 | | 63 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

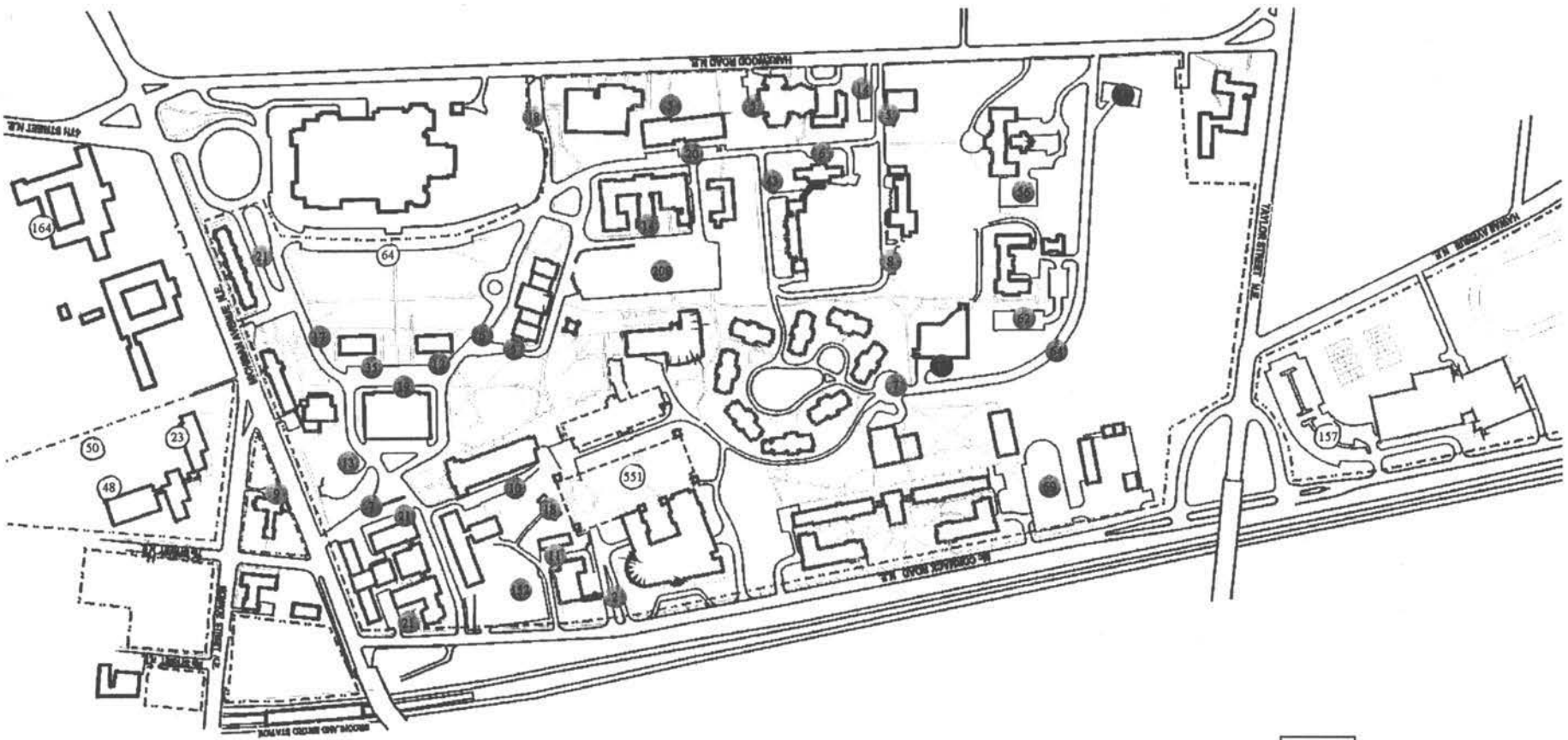
### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 41 | | | | | | 79 | |
| C(m) (vph) | 1529 | | | | | | 906 | |
| v/c | 0.03 | | | | | | 0.09 | |
| 95% queue length | 0.00 | | | | | | 0.22 | |
| Control Delay | 7.4 | | | | | | 9.4 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.4 | |
| Approach LOS | | | | | | | A | |

# APPENDIX

# D

DETAILED PARKING INVENTORY
AND UTILIZATION – EXISTING SITUATION



HEAVY UTILIZATION (75% AND HIGHER)

MODERATE UTILIZATION (40% - 75%)

LOW UTILIZATION (40% AND LOWER)

- NORTH ZONE
- NORTHEAST ZONE
- WEST ZONE
- SOUTHEAST ZONE
- SOUTH ZONE

Note: The numbers indicate parking capacity.

N

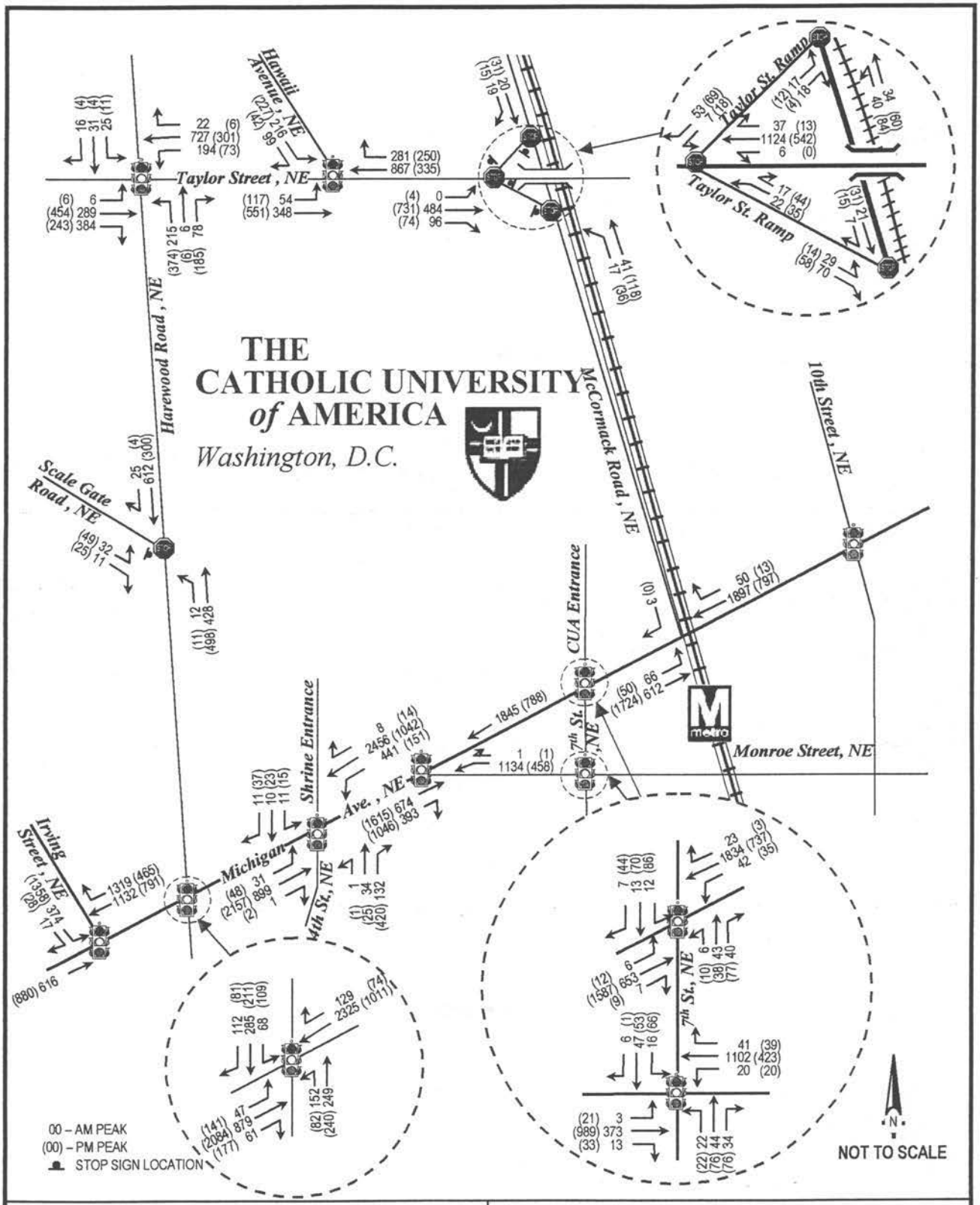
NOT TO SCALE

**Source:** O. R. George & Associates

# APPENDIX

# E

YEAR 2012 BASE YEAR TRAFFIC SITUATION
(REFLECTING THROUGH TRAFFIC GROWTH &
RE-ASSIGNED EXISTING CAMPUS TRAFFIC)

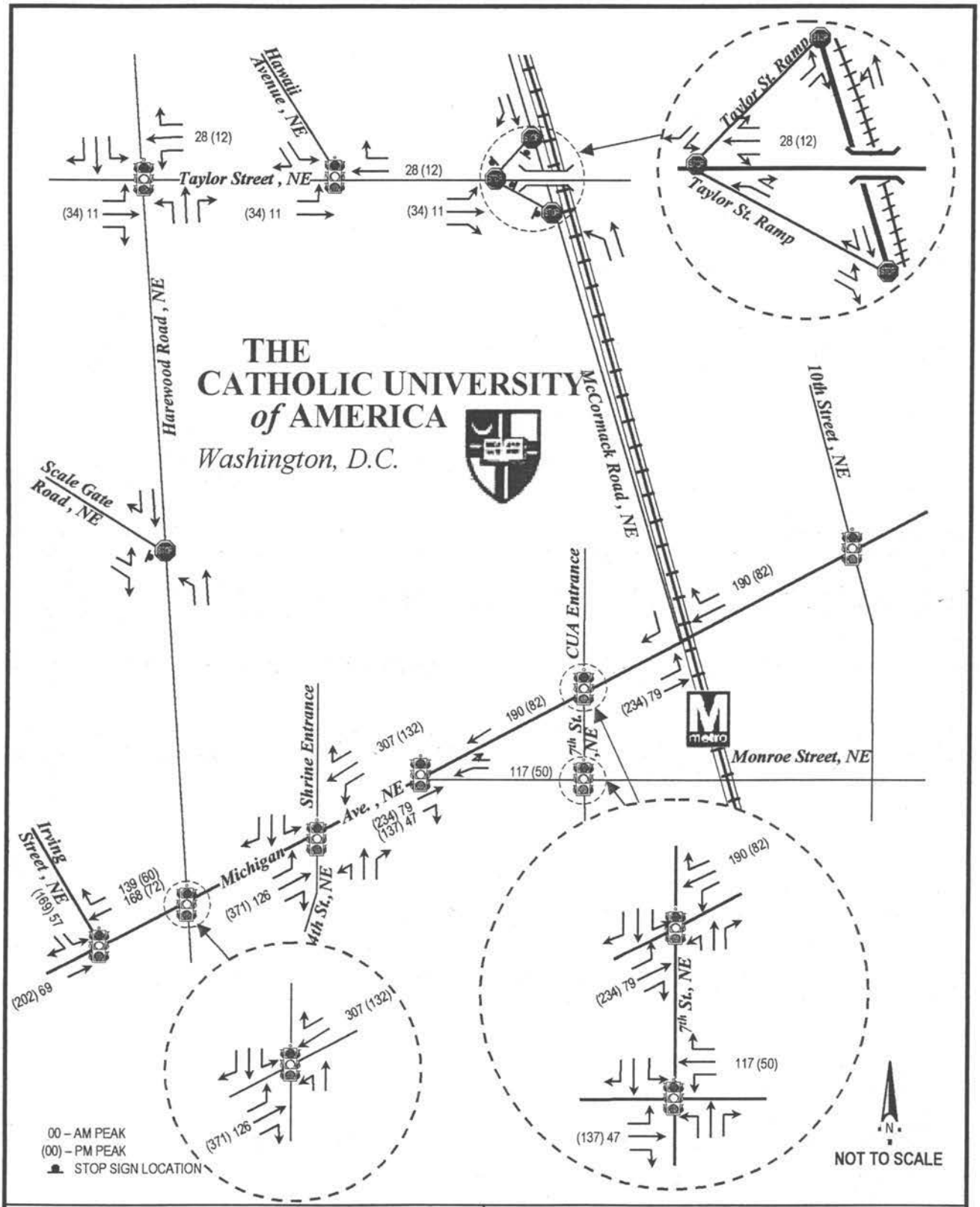



**O. R. GEORGE &ASSOCIATES, INC.**

*Traffic Engineers - Transportation Planners*

**APPENDIX E-1:**

Year 2012 Base Traffic Situation - (Reflecting Through Traffic Growth & Re-assigned Existing Campus Traffic)



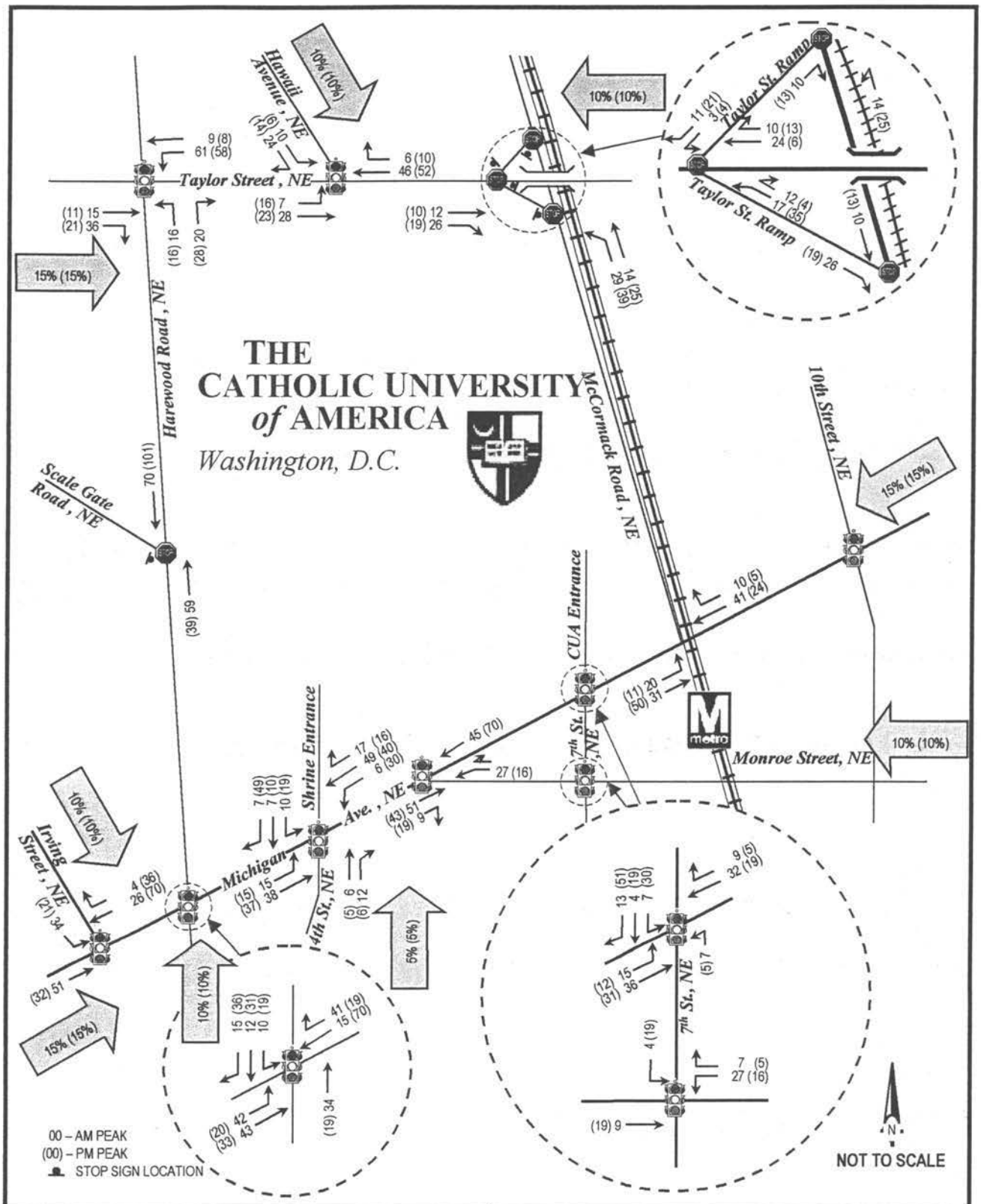

**O. R. GEORGE &ASSOCIATES, INC.**
*Traffic Engineers - Transportation Planners*

**APPENDIX E-2:**
Washington Hospital Center Traffic Assignment –
The Catholic University of America, Washington, D.C.

# APPENDIX

# F

PROJECTED CUA TRAFFIC ASSIGMENT
(INCREMENTAL TRAFFIC)




**O. R. GEORGE &ASSOCIATES, INC.**

*Traffic Engineers - Transportation Planners*

**APPENDIX F:**

Projected CUA Traffic Assignment (Incremental Traffic) – The Catholic University of America, Washington, D.C.

# APPENDIX

# G

ANALYSIS WORKSHEETS –
TOTAL TRAFFIC SITUATION

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Michigan Ave. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic AM PEAK PERIOD (7:30-8:30 AM) |
| Date: | 10/24/01 |
| East/West Street: | Michigan Ave. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 86 | 722 | | | 2128 | 60 |
| Hourly Flow Rate, HFR | 91 | 768 | | | 2171 | 61 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 2 | | | 2 | 0 |
| Configuration | LT | T | | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | | | |
| Hourly Flow Rate, HFR | | | | | | |
| Percent Heavy Vehicles | | | | | | |
| Percent Grade (%) | | 2 | | | 2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | | | |
| Configuration | | | | | | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | | |
| v (vph) | 91 | | | | | | | |
| C(m) (vph) | 229 | | | | | | | |
| v/c | 0.40 | | | | | | | |
| 95% queue length | 1.75 | | | | | | | |
| Control Delay | 30.7 | | | | | | | |
| LOS | D | | | | | | | |
| Approach Delay | | | | | | | | |
| Approach LOS | | | | | | | | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Michigan Ave. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic PM PEAK PERIOD (4:30-5:30 PM) |
| Date: | 10/24/01 |
| East/West Street: | Michigan Ave. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 61 | 2008 | | | 903 | 18 |
| Hourly Flow Rate, HFR | 65 | 2159 | | | 950 | 18 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 2 | | | 2 | 0 |
| Configuration | | LT T | | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | | | |
| Hourly Flow Rate, HFR | | | | | | |
| Percent Heavy Vehicles | | | | | | |
| Percent Grade (%) | | 2 | | | 2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | | | |
| Configuration | | | | | | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | | |
| v (vph) | 65 | | | | | | | |
| C(m) (vph) | 743 | | | | | | | |
| v/c | 0.09 | | | | | | | |
| 95% queue length | 0.22 | | | | | | | |
| Control Delay | 10.3 | | | | | | | |
| LOS | B | | | | | | | |
| Approach Delay | | | | | | | | |
| Approach LOS | | | | | | | | |

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 7th St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:15-8:15AM)
N/S St: 7th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| LGConfig | | LTR | | | LTR | | | LTR | | L | TR | |
| Volume | 21 | 772 | 7 | 42 | 2056 | 32 | 6 | 50 | 40 | 19 | 17 | 20 |
| Lane Width | | 12.0 | | | 12.0 | | | 12.0 | | 10.0 | 10.0 | |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 5 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | P | | | | NB Left | P | | |
| Thru | P | | | | Thru | P | | |
| Right | P | | | | Right | P | | |
| Peds | | | | | Peds | | | |
| WB Left | P | | | | SB Left | P | | |
| Thru | P | | | | Thru | P | | |
| Right | P | | | | Right | P | | |
| Peds | | | | | Peds | X | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 58.0 | | | | | 14.0 | | |
| Yellow | 3.0 | | | | | 3.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1866 | 2574 | 0.47 | 0.725 | 5.4 | A | 5.4 | A |
| Westbound | | | | | | | | |
| LTR | 2117 | 2920 | 1.05 | 0.725 | 44.6 | D | 44.6 | D |
| Northbound | | | | | | | | |
| LTR | 243 | 1388 | 0.52 | 0.175 | 37.8 | D | 37.8 | D |
| Southbound | | | | | | | | |
| L | 123 | 702 | 0.20 | 0.175 | 31.9 | C | | |
| TR | 255 | 1455 | 0.16 | 0.175 | 29.4 | C | 30.3 | C |

Intersection Delay = 33.7 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 7th St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: 7th St.

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 0 |
| LGConfig | | LTR | | | LTR | | | LTR | | L | TR | |
| Volume | 24 | 1852 | 9 | 35 | 838 | 8 | 10 | 43 | 77 | 116 | 89 | 95 |
| Lane Width | | 12.0 | | | 12.0 | | | 12.0 | | 10.0 | 10.0 | |
| RTOR Vol | | | 0 | | | 0 | | | 0 | | | 0 |

Duration 0.25 Area Type: CBD or Similar

### Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | P | P | | | NB Left P | | | |
| Thru | P | P | | | Thru P | | | |
| Right | P | P | | | Right P | | | |
| Peds | | | | | Peds X | | | |
| WB Left | | P | | | SB Left P | | | |
| Thru | | P | | | Thru P | | | |
| Right | | P | | | Right P | | | |
| Peds | | | | | Peds X | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 12.0 | 40.0 | | | 20.0 | | | |
| Yellow | | 3.0 | | | 3.0 | | | |
| All Red | | 1.0 | | | 1.0 | | | |

Cycle Length: 80.0 secs

### Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 2021 | 3110 | 1.01 | 0.650 | 37.5 | D | 37.5 | D |
| Westbound | | | | | | | | |
| LTR | 1118 | 2236 | 0.92 | 0.500 | 31.5 | C | 31.5 | C |
| Northbound | | | | | | | | |
| LTR | 332 | 1329 | 0.45 | 0.250 | 29.7 | C | 29.7 | C |
| Southbound | | | | | | | | |
| L | 197 | 789 | 0.78 | 0.250 | 53.3 | D | | |
| TR | 361 | 1443 | 0.67 | 0.250 | 36.6 | D | 43.0 | D |

Intersection Delay = 36.1 (sec/veh) Intersection LOS = D

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Monroe St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Monroe St.

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| LGConfig | | T | R | | T | | L | LR | | | | |
| Volume | | 804 | 449 | | 2080 | | 1278 | | 1 | | | |
| Lane Width | | 12.0 | 12.0 | | 12.0 | | 10.0 | 10.0 | | | | |
| RTOR Vol | | | 0 | | | | | | 0 | | | |

Duration 0.25 Area Type: CBD or Similar

### Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | P | | |
| Thru | | P | | | Thru | | | |
| Right | | P | | | Right | P | | |
| Peds | | X | | | Peds | X | | |
| WB Left | | | | | SB Left | | | |
| Thru | | P | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | | 38.0 | | | | 37.0 | | |
| Yellow | | 4.0 | | | | 4.0 | | |
| All Red | | 1.0 | | | | 1.0 | | |

Cycle Length: 85.0 secs

### Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 1423 | 3184 | 0.62 | 0.447 | 20.0+ | C | 22.8 | C |
| R | 650 | 1453 | 0.76 | 0.447 | 27.8 | C | | |
| Westbound | | | | | | | | |
| T | 2046 | 4577 | 1.06 | 0.447 | 61.2 | E | 61.2 | E |
| Northbound | | | | | | | | |
| L | 1280 | 2941 | 1.09 | 0.435 | 75.6 | E | | |
| LR | 532 | 1223 | 0.00 | 0.435 | 13.6 | B | 75.6 | E |
| Southbound | | | | | | | | |

Intersection Delay = 54.5 (sec/veh) Intersection LOS = D

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Monroe St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:15-5:15AM)
N/S St: Monroe St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 1 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| LGConfig | | T | R | | T | | L | LR | | | | |
| Volume | | 1892 | 1202 | | 940 | | 524 | | 1 | | | |
| Lane Width | | 12.0 | 12.0 | | 12.0 | | 10.0 | 10.0 | | | | |
| RTOR Vol | | | 535 | | | | | | 0 | | | |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | P | | |
| Thru | P | | | | Thru | | | |
| Right | P | | | | Right | P | | |
| Peds | X | | | | Peds | X | | |
| WB Left | | | | | SB Left | | | |
| Thru | P | | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 53.0 | | | | | 22.0 | | |
| Yellow | 4.0 | | | | | 4.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 85.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 1985 | 3184 | 1.02 | 0.624 | 42.7 | D | 36.5 | D |
| R | 906 | 1453 | 0.79 | 0.624 | 18.9 | B | | |
| Westbound | | | | | | | | |
| T | 2854 | 4577 | 0.37 | 0.624 | 8.2 | A | 8.2 | A |
| Northbound | | | | | | | | |
| L | 761 | 2941 | 0.84 | 0.259 | 40.6 | D | | |
| LR | 313 | 1209 | 0.00 | 0.259 | 23.4 | C | 40.6 | D |
| Southbound | | | | | | | | |

Intersection Delay = 30.4 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 4th St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:45-8:45AM)
N/S St: 4th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | L | TR | | | LTR | | | LTR | |
| Volume | 46 | 1063 | 1 | 447 | 2812 | 25 | 1 | 40 | 144 | 18 | 17 | 21 |
| Lane Width | | 10.0 | | 10.0 | 10.0 | | | 10.0 | | | 15.0 | |
| RTOR Vol | | | 0 | | | 10 | | | 109 | | | 0 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | P | | | NB Left | P | | |
| Thru | | P | | | Thru | P | | |
| Right | | P | | | Right | P | | |
| Peds | | | | | Peds | X | X | |
| WB Left | P | | | | SB Left | P | | |
| Thru | P | P | | | Thru | P | | |
| Right | P | P | | | Right | P | | |
| Peds | X | X | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 24.0 | 22.0 | | | | 12.0 | 10.0 | |
| Yellow | | 3.0 | | | | 3.0 | 3.0 | |
| All Red | | 1.0 | | | | 1.0 | 1.0 | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 788 | 2866 | 1.58 | 0.275 | 297.2 | F | 297.2 | F |
| Westbound | | | | | | | | |
| L | 455 | 1516 | 1.00 | 0.300 | 70.7 | E | | |
| TR | 1708 | 2971 | 1.69 | 0.575 | 329.4 | F | 294.1 | F |
| Northbound | | | | | | | | |
| LTR | 345 | 2758 | 0.26 | 0.125 | 33.5 | C | 33.5 | C |
| Southbound | | | | | | | | |
| LTR | 231 | 1539 | 0.35 | 0.150 | 34.7 | C | 34.7 | C |

Intersection Delay = 285.5 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ 4th St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: 4th St.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 |
| LGConfig | | LTR | | L | TR | | | LTR | | | LTR | |
| Volume | 63 | 2565 | 2 | 181 | 1214 | 30 | 1 | 30 | 426 | 34 | 33 | 86 |
| Lane Width | | 10.0 | | 10.0 | 10.0 | | | 10.0 | | | 15.0 | |
| RTOR Vol | | | 0 | | | 8 | | | 197 | | | 0 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | | | | | | Peds | X | | | |
| WB | Left | | P | | | SB | Left | | P | | |
| | Thru | | P | | | | Thru | | P | | |
| | Right | | P | | | | Right | | P | | |
| | Peds | X | X | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 24.0 | 17.0 | | | | | 15.0 | 8.0 | | |
| Yellow | | 3.0 | 3.0 | | | | | 3.0 | 3.0 | | |
| All Red | | 1.0 | 1.0 | | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1279 | 4264 | 2.12 | 0.300 | 534.5 | F | 534.5 | F |
| Westbound | | | | | | | | |
| L | 322 | 1516 | 0.59 | 0.213 | 36.0 | D | | |
| TR | 630 | 2966 | 2.04 | 0.213 | 507.0 | F | 446.8 | F |
| Northbound | | | | | | | | |
| LTR | 484 | 2579 | 0.58 | 0.188 | 34.8 | C | 34.8 | C |
| Southbound | | | | | | | | |
| LTR | 150 | 1498 | 1.40 | 0.100 | 251.1 | F | 251.1 | F |

Intersection Delay = 463.9 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Harewood Rd. City/St: Washington D.C.
Analyst: ORGA - RB Proj #: CUA - Total Traffic
Date: 10/24/01 Period: AM Peak Period (7:30-8:30AM)
E/W St: Michigan Ave. N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | | 0 | 2 | 2 |
| LGConfig | | LTR | | | TR | | | LT | | | LT | R |
| Volume | 89 | 1048 | 61 | | 2647 | 170 | 152 | 283 | | 78 | 297 | 127 |
| Lane Width | | 10.0 | | | 10.0 | | | 12.0 | | | 12.0 | 12.0 |
| RTOR Vol | | | 48 | | | 152 | | | | | | 107 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | P | | | NB Left | P | | |
| Thru | | P | | | Thru | P | | |
| Right | | P | | | Right | | | |
| Peds | | X | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | P | P | | | Thru | P | | |
| Right | P | P | | | Right | P | | |
| Peds | X | X | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 5.0 | 30.0 | | | | 20.0 | | |
| Yellow | 4.0 | 4.0 | | | | 4.0 | | |
| All Red | 1.0 | 1.0 | | | | 1.0 | | |

Cycle Length: 70.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1179 | 2750 | 1.01 | 0.429 | 47.4 | D | 47.4 | D |
| Westbound | | | | | | | | |
| TR | 1697 | 2970 | 1.73 | 0.571 | 344.2 | F | 344.2 | F |
| Northbound | | | | | | | | |
| LT | 599 | 2098 | 0.76 | 0.286 | 31.4 | C | 31.4 | C |
| Southbound | | | | | | | | |
| LT | 653 | 2284 | 0.68 | 0.286 | 27.9 | C | 27.4 | C |
| R | 731 | 2558 | 0.03 | 0.286 | 18.1 | B | | |

Intersection Delay = 216.7 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Harewood Rd. City/St: Washington D.C.
Analyst: ORGA - RB Proj #: CUA - Total Traffic
Date: 10/24/01 Period: PM Peak Period (4:15-5:15PM)
E/W St: Michigan Ave. N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 0 | 0 | 2 | | 0 | 2 | 2 |
| LGConfig | | LTR | | | TR | | | LT | | | LT | R |
| Volume | 161 | 2488 | 177 | | 1213 | 93 | 82 | 259 | | 128 | 242 | 117 |
| Lane Width | | 10.0 | | | 10.0 | | | 12.0 | | | 12.0 | 12.0 |
| RTOR Vol | | | 82 | | | 84 | | | | | | 97 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | P | | | NB Left | P | | |
| Thru | | P | | | Thru | P | | |
| Right | | P | | | Right | | | |
| Peds | | X | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | P | P | | | Thru | P | | |
| Right | P | P | | | Right | P | | |
| Peds | X | X | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 8.0 | 32.0 | | | 20.0 | | | |
| Yellow | | 4.0 | | | 4.0 | | | |
| All Red | | 1.0 | | | 1.0 | | | |

Cycle Length: 70.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LTR | 1369 | 2995 | 2.11 | 0.457 | 520.8 | F | 520.8 | F |
| Westbound | | | | | | | | |
| TR | 1697 | 2970 | 0.75 | 0.571 | 14.4 | B | 14.4 | B |
| Northbound | | | | | | | | |
| LT | 646 | 2261 | 0.61 | 0.286 | 25.8 | C | 25.8 | C |
| Southbound | | | | | | | | |
| LT | 627 | 2196 | 0.70 | 0.286 | 28.6 | C | 28.0 | C |
| R | 731 | 2558 | 0.03 | 0.286 | 18.1 | B | | |

Intersection Delay = 308.3 (sec/veh) Intersection LOS = F

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Irving St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Irving Street

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 1 |
| LGConfig | | T | | | TR | R | | | | L | | R |
| Volume | | 736 | | | 1326 | 1462 | | | | 408 | | 17 |
| Lane Width | | 12.0 | | | 12.0 | 12.0 | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 512 | | | | | | 14 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | | | |
| Thru | | P | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | | P | | | Thru | | | |
| Right | | P | | | Right | P | | |
| Peds | | X | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | | 45.0 | | | | 25.0 | | |
| Yellow | | 4.0 | | | | 4.0 | | |
| All Red | | 1.0 | | | | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 2573 | 4575 | 0.32 | 0.563 | 9.6 | A | 9.6 | A |
| Westbound | | | | | | | | |
| TR | 1762 | 3132 | 0.90 | 0.563 | 23.0 | C | 29.4 | C |
| R | 815 | 1448 | 0.97 | 0.563 | 42.3 | D | | |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 1359 | 4348 | 0.32 | 0.313 | 21.6 | C | | |
| | | | | | | | 21.6 | C |
| R | 454 | 1454 | 0.01 | 0.313 | 19.0 | B | | |

Intersection Delay = 24.0 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Michigan Ave. @ Irving St.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Michigan Ave.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:45-5:45PM)
N/S St: Irving Street

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 3 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 3 | 0 | 1 |
| LGConfig | | T | | | TR | R | | | | L | | R |
| Volume | | 1114 | | | 933 | 561 | | | | 1379 | | 28 |
| Lane Width | | 12.0 | | | 12.0 | 12.0 | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 173 | | | | | | 11 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | | | | | NB Left | | | |
| Thru | | P | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | | P | | | Thru | | | |
| Right | | P | | | Right | P | | |
| Peds | | | | | Peds | | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | | 40.0 | | | | 30.0 | | |
| Yellow | | 4.0 | | | | 4.0 | | |
| All Red | | 1.0 | | | | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| T | 2288 | 4575 | 0.60 | 0.500 | 15.5 | B | 15.5 | B |
| Westbound | | | | | | | | |
| TR | 1570 | 3139 | 0.76 | 0.500 | 19.6 | B | 18.6 | B |
| R | 727 | 1454 | 0.43 | 0.500 | 14.5 | B | | |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 1631 | 4348 | 0.99 | 0.375 | 45.9 | D | | |
| | | | | | | | 45.6 | D |
| R | 545 | 1454 | 0.04 | 0.375 | 16.0 | B | | |

Intersection Delay = 27.4 (sec/veh) Intersection LOS = C

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Harewood Rd. @ Scale Gate Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic AM PEAK PERIOD (7:15 - 8:15 AM) |
| Date: | 10/24/01 |
| East/West Street: | Scale Gate Rd. |
| North/South Street: | Harewood Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 12 | 487 | | | 25 | 682 |
| Hourly Flow Rate, HFR | 15 | 624 | | | 28 | 766 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 32 | | 11 |
| Hourly Flow Rate, HFR | | | | 38 | | 13 |
| Percent Heavy Vehicles | | | | 0 | | 0 |
| Percent Grade (%) | | 0 | | | -1 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 15 | | | | | | 51 | |
| C(m) (vph) | 827 | | | | | | 283 | |
| v/c | 0.02 | | | | | | 0.18 | |
| 95% queue length | 0.00 | | | | | | 0.65 | |
| Control Delay | 9.4 | | | | | | 20.5 | |
| LOS | A | | | | | | C | |
| Approach Delay | | | | | | | 20.5 | |
| Approach LOS | | | | | | | C | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Harewood Rd. @ Scale Gate Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic PM PEAK PERIOD (4:15 - 5:15 PM) |
| Date: | 10/24/01 |
| East/West Street: | Scale Gate Rd. |
| North/South Street: | Harewood Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 11 | 537 | | | 4 | 401 |
| Hourly Flow Rate, HFR | 13 | 679 | | | 4 | 489 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 49 | | 25 |
| Hourly Flow Rate, HFR | | | | 66 | | 33 |
| Percent Heavy Vehicles | | | | 0 | | 0 |
| Percent Grade (%) | | 0 | | | 0 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 13 | | | | | | 99 | |
| C(m) (vph) | 1071 | | | | | | 355 | |
| v/c | 0.01 | | | | | | 0.28 | |
| 95% queue length | 0.00 | | | | | | 1.18 | |
| Control Delay | 8.4 | | | | | | 19.0 | |
| LOS | A | | | | | | C | |
| Approach Delay | | | | | | | 19.0 | |
| Approach LOS | | | | | | | C | |

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Harewood Rd.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Harewood Rd.

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | |
| LGConfig | | LT | R | | LTR | | | LT | R | | LTR | |
| Volume | 6 | 315 | 420 | 255 | 804 | 22 | 231 | 6 | 98 | 25 | 31 | 16 |
| Lane Width | | 11.0 | 10.0 | | 11.0 | | | 10.0 | 12.0 | | 12.0 | |
| RTOR Vol | | | 0 | | | 8 | | | 30 | | | 5 |

Duration 0.25 Area Type: CBD or Similar

### Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | X | X | | | | Peds | X | X | | |
| WB | Left | | P | | | SB | Left | | P | | |
| | Thru | P | P | | | | Thru | | P | | |
| | Right | P | P | | | | Right | | P | | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | P | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 15.0 | 20.0 | | | | | 20.0 | 10.0 | | |
| Yellow | | | 4.0 | | | | | 4.0 | 4.0 | | |
| All Red | | | 1.0 | | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

### Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 491 | 2620 | 0.81 | 0.188 | 44.4 | D | 29.3 | C |
| R | 1045 | 2388 | 0.50 | 0.438 | 17.9 | B | | |
| Westbound | | | | | | | | |
| LTR | 1282 | 2930 | 0.91 | 0.438 | 32.1 | C | 32.1 | C |
| Northbound | | | | | | | | |
| LT | 709 | 2834 | 0.34 | 0.250 | 25.9 | C | 25.7 | C |
| R | 363 | 1450 | 0.19 | 0.250 | 24.8 | C | | |
| Southbound | | | | | | | | |
| LTR | 180 | 1443 | 0.45 | 0.125 | 40.4 | D | 40.4 | D |

Intersection Delay = 30.5 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Harewood Rd.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:30-5:30PM)
N/S St: Harewood Rd.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 1 | |
| LGConfig | | LT | R | | LTR | | | LT | R | | LTR | |
| Volume | 6 | 499 | 264 | 131 | 321 | 6 | 390 | 6 | 231 | 11 | 4 | 4 |
| Lane Width | | 11.0 | 10.0 | | 11.0 | | | 10.0 | 12.0 | | 12.0 | |
| RTOR Vol | | | 0 | | | 2 | | | 50 | | | 1 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | P | | | |
| | Thru | P | | | | | Thru | P | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | X | X | | | | Peds | X | X | | |
| WB | Left | | P | | | SB | Left | | P | | |
| | Thru | P | P | | | | Thru | | P | | |
| | Right | P | P | | | | Right | | P | | |
| | Peds | | | | | | Peds | | | | |
| NB | Right | | | | | EB | Right | P | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 15.0 | 23.0 | | | | | 18.0 | 9.0 | | |
| Yellow | | | 4.0 | | | | | 4.0 | 4.0 | | |
| All Red | | | 1.0 | | | | | 1.0 | 1.0 | | |

Cycle Length: 80.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 550 | 2932 | 0.95 | 0.188 | 59.1 | E | 44.4 | D |
| R | 985 | 2388 | 0.28 | 0.412 | 16.3 | B | | |
| Westbound | | | | | | | | |
| LTR | 1390 | 2927 | 0.35 | 0.475 | 13.9 | B | 13.9 | B |
| Northbound | | | | | | | | |
| LT | 637 | 2832 | 0.65 | 0.225 | 33.4 | C | 33.9 | C |
| R | 326 | 1451 | 0.59 | 0.225 | 35.2 | D | | |
| Southbound | | | | | | | | |
| LTR | 160 | 1425 | 0.19 | 0.112 | 34.9 | C | 34.9 | C |

Intersection Delay = 33.2 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Hawaii Ave.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: AM Peak Period (7:30-8:30AM)
N/S St: Hawaii Ave.

SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| LGConfig | | LT | | | TR | | | | | L | | R |
| Volume | 61 | 387 | | | 941 | 287 | | | | 226 | | 123 |
| Lane Width | | 11.0 | | | 11.0 | | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 116 | | | | | | 30 |

Duration 0.25 Area Type: CBD or Similar

Signal Operations

| Phase Combination | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| EB Left | P | | | | NB Left | | | |
| Thru | P | | | | Thru | | | |
| Right | | | | | Right | | | |
| Peds | | | | | Peds | | | |
| WB Left | | | | | SB Left | P | | |
| Thru | P | | | | Thru | | | |
| Right | P | | | | Right | P | | |
| Peds | | | | | Peds | X | | |
| NB Right | | | | | EB Right | | | |
| SB Right | | | | | WB Right | | | |
| Green | 25.0 | | | | | 15.0 | | |
| Yellow | 4.0 | | | | | 4.0 | | |
| All Red | 1.0 | | | | | 1.0 | | |

Cycle Length: 50.0 secs

Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 948 | 1895 | 0.57 | 0.500 | 11.2 | B | 11.2 | B |
| Westbound | | | | | | | | |
| TR | 1449 | 2897 | 0.97 | 0.500 | 29.8 | C | 29.8 | C |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 478 | 1593 | 0.56 | 0.300 | 19.3 | B | | |
| | | | | | | | 18.0 | B |
| R | 435 | 1451 | 0.26 | 0.300 | 14.7 | B | | |

Intersection Delay = 23.6 (sec/veh) Intersection LOS = C

HCS: Signalized Intersections Release 3.2

Inter: Taylor St. @ Hawaii Ave.
Analyst: ORGA - RB
Date: 10/24/01
E/W St: Taylor St.

City/St: Washington D.C.
Proj #: CUA - Total Traffic
Period: PM Peak Period (4:45-5:45PM)
N/S St: Hawaii Ave.

## SIGNALIZED INTERSECTION SUMMARY

| | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L | T | R | L | T | R | L | T | R | L | T | R |
| No. Lanes | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| LGConfig | | LT | | | TR | | | | | L | | R |
| Volume | 133 | 608 | | | 399 | 260 | | | | 233 | | 56 |
| Lane Width | | 11.0 | | | 11.0 | | | | | 12.0 | | 12.0 |
| RTOR Vol | | | | | | 106 | | | | | | 20 |

Duration 0.25 Area Type: CBD or Similar

### Signal Operations

| Phase Combination | | 1 | 2 | 3 | 4 | | | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EB | Left | P | | | | NB | Left | | | | |
| | Thru | P | | | | | Thru | | | | |
| | Right | | | | | | Right | | | | |
| | Peds | | | | | | Peds | | | | |
| WB | Left | | | | | SB | Left | P | | | |
| | Thru | P | | | | | Thru | | | | |
| | Right | P | | | | | Right | P | | | |
| | Peds | | | | | | Peds | X | | | |
| NB | Right | | | | | EB | Right | | | | |
| SB | Right | | | | | WB | Right | | | | |
| Green | | 20.0 | | | | | | 20.0 | | | |
| Yellow | | 4.0 | | | | | | 4.0 | | | |
| All Red | | 1.0 | | | | | | 1.0 | | | |

Cycle Length: 50.0 secs

### Intersection Performance Summary

| Appr/ Lane Grp | Lane Group Capacity | Adj Sat Flow Rate (s) | Ratios v/c | Ratios g/C | Lane Group Delay | Lane Group LOS | Approach Delay | Approach LOS |
|---|---|---|---|---|---|---|---|---|
| Eastbound | | | | | | | | |
| LT | 840 | 2100 | 0.94 | 0.400 | 33.6 | C | 33.6 | C |
| Westbound | | | | | | | | |
| TR | 1139 | 2848 | 0.53 | 0.400 | 13.2 | B | 13.2 | B |
| Northbound | | | | | | | | |
| Southbound | | | | | | | | |
| L | 637 | 1593 | 0.52 | 0.400 | 14.4 | B | | |
| | | | | | | | 13.8 | B |
| R | 580 | 1451 | 0.09 | 0.400 | 9.6 | A | | |

Intersection Delay = 22.4 (sec/veh) Intersection LOS = C

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Taylor St. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic AM PEAK PERIOD (7:30 - 8:30 AM) |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | | 507 | 122 | | 1176 | 47 |
| Hourly Flow Rate, HFR | | 596 | 143 | | 1488 | 59 |
| Percent Heavy Vehicles | | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | 2 | 0 | | 2 | 0 |
| Configuration | | T | TR | | T | TR |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 39 | | 29 | 12 | | 64 |
| Hourly Flow Rate, HFR | 50 | | 37 | 15 | | 82 |
| Percent Heavy Vehicles | 0 | | 2 | 0 | | 2 |
| Percent Grade (%) | | 3 | | | 3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | No | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | | 0 | 0 | | 0 |
| Configuration | | LR | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | | LR | | | LR | |
| v (vph) | | | | 87 | | | 97 | |
| C(m) (vph) | | | | 211 | | | 237 | |
| v/c | | | | 0.41 | | | 0.41 | |
| 95% queue length | | | | 1.81 | | | 1.83 | |
| Control Delay | | | | 33.5 | | | 30.3 | |
| LOS | | | | D | | | D | |
| Approach Delay | | | | 33.5 | | | 30.3 | |
| Approach LOS | | | | D | | | D | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStSouthRamp |
| Analyst: | ORGA-RB |
| Project No.: | CUA - Total Traffic AM PEAK PERIOD (7:45-8:45 AM) |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. South Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

## Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 46 | 54 | | | 31 | 7 |
| Hourly Flow Rate, HFR | 51 | 60 | | | 46 | 10 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 29 | | 96 |
| Hourly Flow Rate, HFR | | | | 39 | | 129 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

## Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 51 | | | | | | 168 | |
| C(m) (vph) | 1523 | | | | | | 903 | |
| v/c | 0.03 | | | | | | 0.19 | |
| 95% queue length | 0.00 | | | | | | 0.74 | |
| Control Delay | 7.4 | | | | | | 9.9 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.9 | |
| Approach LOS | | | | | | | A | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | Taylor St. @ McCormack Rd. |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic PM PEAK PERIOD (4:00-5:00 PM) |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: EW | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Eastbound | | | Westbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | | 775 | 93 | | 560 | 26 |
| Hourly Flow Rate, HFR | | 833 | 99 | | 615 | 28 |
| Percent Heavy Vehicles | | -- | -- | | -- | -- |
| Median Type | Undivided | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | 2 0 | | | 2 0 | |
| Configuration | | T TR | | | T TR | |
| Upstream Signal? | | Yes | | | Yes | |

| Minor Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | 70 | | 48 | 25 | | 90 |
| Hourly Flow Rate, HFR | 97 | | 66 | 27 | | 97 |
| Percent Heavy Vehicles | 0 | | 2 | 0 | | 2 |
| Percent Grade (%) | | 3 | | | 3 | |
| Median Storage 1 | | | | | | |
| Flared Approach: Exists? | | No | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 0 | | 0 | 0 | |
| Configuration | | LR | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | EB | WB | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | | | | LR | | | LR | |
| v (vph) | | | | 163 | | | 124 | |
| C(m) (vph) | | | | 332 | | | 659 | |
| v/c | | | | 0.49 | | | 0.19 | |
| 95% queue length | | | | 2.55 | | | 0.74 | |
| Control Delay | | | | 25.9 | | | 11.7 | |
| LOS | | | | D | | | B | |
| Approach Delay | | | | 25.9 | | | 11.7 | |
| Approach LOS | | | | D | | | B | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStNorthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. North Ramp AM PEAK PERIOD (7:30-8:30 AM) |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 54 | 34 | | | 20 | 19 |
| Hourly Flow Rate, HFR | 65 | 40 | | | 22 | 21 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 17 | | 28 |
| Hourly Flow Rate, HFR | | | | 19 | | 32 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 65 | | | | | | 51 | |
| C(m) (vph) | 1540 | | | | | | 872 | |
| v/c | 0.04 | | | | | | 0.06 | |
| 95% queue length | 0.00 | | | | | | 0.05 | |
| Control Delay | 7.4 | | | | | | 9.4 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.4 | |
| Approach LOS | | | | | | | A | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStNorthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic PM PEAK PERIOD (4:15 - 5:15 PM) |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. North Ramp |
| North/South Street: | McCormack Rd. |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 109 | 54 | | | 31 | 15 |
| Hourly Flow Rate, HFR | 136 | 67 | | | 45 | 22 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 12 | | 17 |
| Hourly Flow Rate, HFR | | | | 16 | | 23 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -3 | |
| Median Storage 1 | | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 136 | | | | | | 39 | |
| C(m) (vph) | 1509 | | | | | | 751 | |
| v/c | 0.09 | | | | | | 0.05 | |
| 95% queue length | 0.24 | | | | | | 0.01 | |
| Control Delay | 7.6 | | | | | | 10.1 | |
| LOS | A | | | | | | B | |
| Approach Delay | | | | | | | 10.1 | |
| Approach LOS | | | | | | | B | |

## TWO-WAY STOP CONTROL SUMMARY

| | |
|---|---|
| Intersection: | McCormackRd@TaylorStSouthRamp |
| Analyst: | ORGA - RB |
| Project No.: | CUA - Total Traffic PM PEAK PERIOD (4:30 - 5:30PM) |
| Date: | 10/24/01 |
| East/West Street: | Taylor St. |
| North/South Street: | McCormack Rd. South Ramp |
| Intersection Orientation: NS | Study period (hrs): 0.25 |

### Vehicle Volumes and Adjustments

| Major Street: Approach | Northbound | | | Southbound | | |
|---|---|---|---|---|---|---|
| Movement | 1 | 2 | 3 | 4 | 5 | 6 |
| | L | T | R | L | T | R |
| Volume | 75 | 144 | | | 15 | 44 |
| Hourly Flow Rate, HFR | 87 | 167 | | | 16 | 48 |
| Percent Heavy Vehicles | 2 | -- | -- | | -- | -- |
| Median Type | Raised curb | | | | | |
| RT Channelized? | | | | | | |
| Lanes | 0 | 1 | | | 1 | 0 |
| Configuration | | LT | | | | TR |
| Upstream Signal? | | No | | | No | |

| Minor Street: Approach | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|
| Movement | 7 | 8 | 9 | 10 | 11 | 12 |
| | L | T | R | L | T | R |
| Volume | | | | 14 | | 77 |
| Hourly Flow Rate, HFR | | | | 16 | | 90 |
| Percent Heavy Vehicles | | | | 2 | | 0 |
| Percent Grade (%) | | 0 | | | -2 | |
| Median Storage | 1 | | | | | |
| Flared Approach: Exists? | | | | | No | |
| Storage | | | | | | |
| RT Channelized? | | | | | | |
| Lanes | | | | 0 | | 0 |
| Configuration | | | | | LR | |

### Delay, Queue Length, and Level of Service

| Approach | NB | SB | Westbound | | | Eastbound | | |
|---|---|---|---|---|---|---|---|---|
| Movement | 1 | 4 | 7 | 8 | 9 | 10 | 11 | 12 |
| Lane Config | LT | | | | | | LR | |
| v (vph) | 87 | | | | | | 106 | |
| C(m) (vph) | 1513 | | | | | | 897 | |
| v/c | 0.06 | | | | | | 0.12 | |
| 95% queue length | 0.05 | | | | | | 0.38 | |
| Control Delay | 7.5 | | | | | | 9.6 | |
| LOS | A | | | | | | A | |
| Approach Delay | | | | | | | 9.6 | |
| Approach LOS | | | | | | | A | |