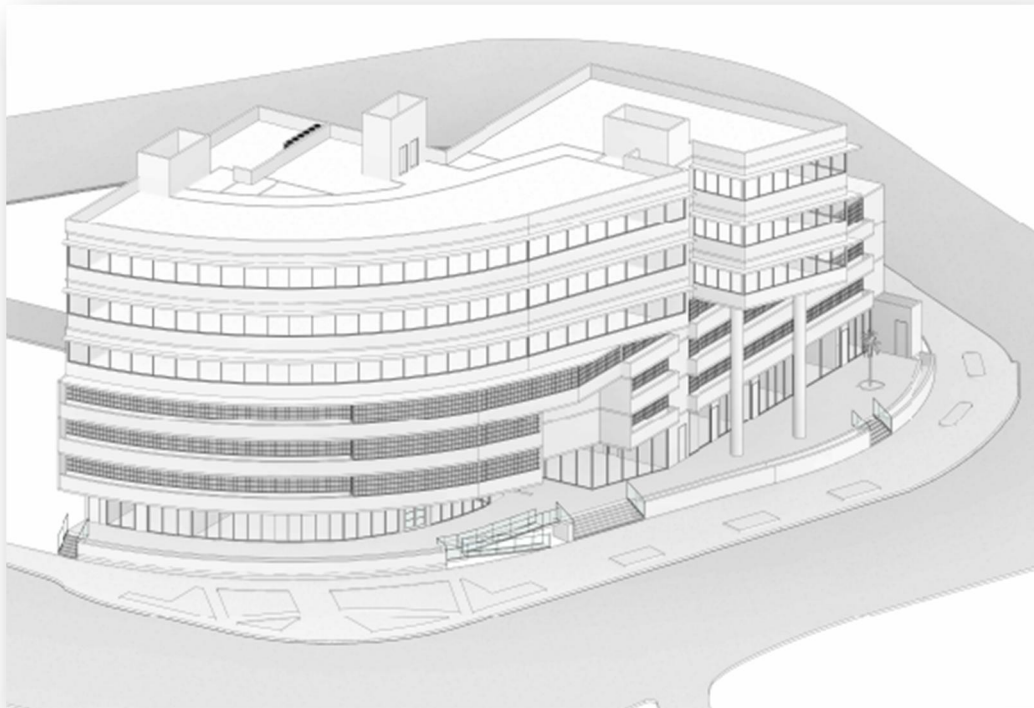




*Traffic Impact Analysis
for Submittal to the
City of Miami Beach*

**976 ARTHUR GODFREY ROAD
MIAMI BEACH, FLORIDA
PB23-0653**



Kimley»Horn

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Updated December 2023
November 2023
143742000

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Prepared for:

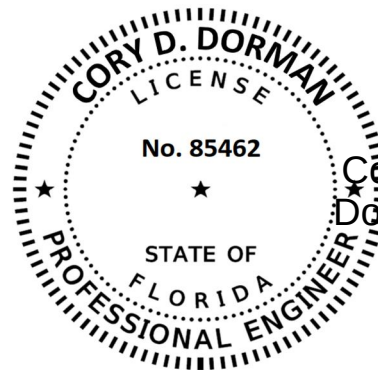
Giller & Giller, Inc.

Prepared by:

Kimley-Horn and Associates, Inc.

Kimley»Horn

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Updated December 2023
November 2023
143742000



This item has been digitally signed and sealed by Cory D. Dorman, P.E., PTOE on the date adjacent to the seal.

Cory D
Dorman

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EXECUTIVE SUMMARY

Giller & Giller, Inc. is proposing to redevelop the property located at 976 Arthur Godfrey Road in Miami Beach, Florida. Currently, the site is occupied by 1,734 square feet of office space, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot of day care center. The proposed redevelopment consists of approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. Additionally, note that the existing development will be demolished as part of the proposed redevelopment. The project is expected to be completed by year 2026.

Access to the proposed redevelopment will be provided via one (1) full-access driveway located along the public alley between W 39th Street and W 40th Street. Further note that loading vehicles will access the site via the public alley.

Trip generation for the existing development and the proposed redevelopment was calculated using rates and/or equations contained in ITE's *Trip Generation Manual*, 11th Edition. The project is expected to generate 24 net new weekday A.M. peak hour trips and 28 net new weekday P.M. peak hour trips.

The results of the intersection capacity analysis of the proposed redevelopment demonstrate that the study area intersections are expected to operate at LOS C or better during the A.M. and P.M. hours under all analysis conditions.

The results of the 95th percentile entry gate analysis indicate that all anticipated queues are expected to be accommodated on-site without extending onto public right-of-way.

The following TDM strategies are proposed to reduce the impacts of the project traffic on the surrounding roadway network:

- Providing 25 bicycle parking spaces (4 short-term and 21 long-term)
- Providing 12 scooter/motorcycle parking spaces
- Providing wide hallways that accommodate bicycles
- Providing elevators that can accommodate bicycles
- Providing a bike workroom

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INTRODUCTION

Giller & Giller, Inc. is proposing to redevelop the property located at 976 Arthur Godfrey Road in Miami Beach, Florida. Currently, the site is occupied by 1,734 square feet of office space, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot of day care center. The proposed redevelopment consists of approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. Additionally, note that the existing development will be demolished as part of the proposed redevelopment. The project is expected to be completed by year 2026. A project location map is provided as Figure 1. A conceptual site plan is included in Appendix A.

Kimley-Horn and Associates, Inc. has completed this traffic impact analysis consistent with the City of Miami Beach requirements. Methodology correspondences detailing the traffic study requirements are included in Appendix B. The purpose of the study is to assess the proposed redevelopment's impact on the surrounding transportation network. This report summarizes the data collection, project trip generation, trip distribution and assignment, intersection capacity analysis, and entry gate analysis.



EXISTING ROADWAY CHARACTERISTICS

The existing roadway characteristics within the vicinity of the study area were evaluated based on a review of high-resolution aerial imagery. The following describes the roadway characteristics of the study roadways:

- SR 112/Julia Tuttle Causeway is a State-maintained, four-lane divided (raised median) urban principal arterial roadway oriented in the east-west direction with a posted speed limit of 30 miles per hour (mph) within the vicinity of the proposed redevelopment.
- SR 112/W 41st Street is a State-maintained, four-lane divided (raised median) urban principal arterial roadway oriented in the east-west direction with a posted speed limit of 30 mph within the vicinity of the proposed redevelopment. Sidewalks, sharrows, designated bus stop areas, and on-street parking are provided along the north and south sides of the roadway within the vicinity of the proposed redevelopment.
- SR 907/Alton Road is a State-maintained, two-lane undivided urban minor arterial roadway south of SR 112/W 41st Street and a State-maintained, four-lane divided (raised median) urban minor arterial roadway north of SR 112/W 41st Street oriented in the north-south direction with a posted speed limit of 30 mph within the vicinity of the proposed redevelopment. Sidewalks, sharrows, bus-stops, and on-street parking are provided along the east and west sides of the roadway within the vicinity of the proposed redevelopment.
- Garden Avenue is a City-maintained, two-lane undivided local roadway oriented in the north-south direction with an assumed speed limit of 20 mph based on data gathered from Miami-Dade County, as a posted speed limit is not provided within the vicinity of the proposed redevelopment. Sidewalks and on-street parking are provided along the east and west sides of the roadway within the vicinity of the proposed redevelopment. Note that signage with a northbound right-turn only restriction is provided at the intersection of SR 112/W 41st Street and Garden Avenue. Further note that there is an existing school zone located between W 40th Street and W 39th Street.
- Meridian Avenue is a City-maintained, two-lane undivided local roadway oriented in the north-south direction with an assumed posted speed limit of 30 mph based on data gathered from Miami-Dade County, as a posted speed limit is not provided within the vicinity of the

proposed redevelopment. Sidewalks, a designated bike-lane, and on-street parking are provided north of SR 112/W 41st Street along the east and west sides of the roadway and sidewalks and on-street parking are provided south of SR 112/W 41st Street along the east and west sides of the roadway within the vicinity of the proposed redevelopment. Note that there is an existing school zone located between SR 112/W 41st Street and W 39th Street.

EXISTING TRAFFIC

A.M. peak period (7:30 A.M. to 9:30 A.M.) and P.M. peak period (4:00 P.M. to 6:00 P.M.) turning movement counts were collected on November 8, 2023 (Wednesday) at the following intersections:

- SR 907/Alton Road and SR 112/W 41st Street
- Garden Avenue and SR 112/W 41st Street
- Meridian Avenue and SR 112/W 41st Street
- SR 907/Alton Road and W 39th Street

All traffic volumes were collected in 15-minute intervals and the peak hour was determined for each intersection. Turning movement counts also included pedestrian and bicycle data. Additionally, the appropriate Florida Department of Transportation (FDOT) peak season correction factor (PSCF) of 1.06 was applied to the turning movement counts to reflect peak season conditions.

Existing signal phasing and timing patterns were obtained from the Miami-Dade County Department of Transportation and Public Works (DTPW) – Traffic Signals and Signs Division for the signalized intersections required to be evaluated in this analysis.

The turning movement counts, FDOT PSCF reports, and signal timing data are included in Appendix C. Figure 2 presents the existing turning movement volumes at the study intersections during the A.M. and P.M. peak hours.



NOT TO SCALE

Legend

- Study Roadway
- Study Intersection
- XX A.M. Peak Hour Traffic
- (XX) P.M. Peak Hour Traffic

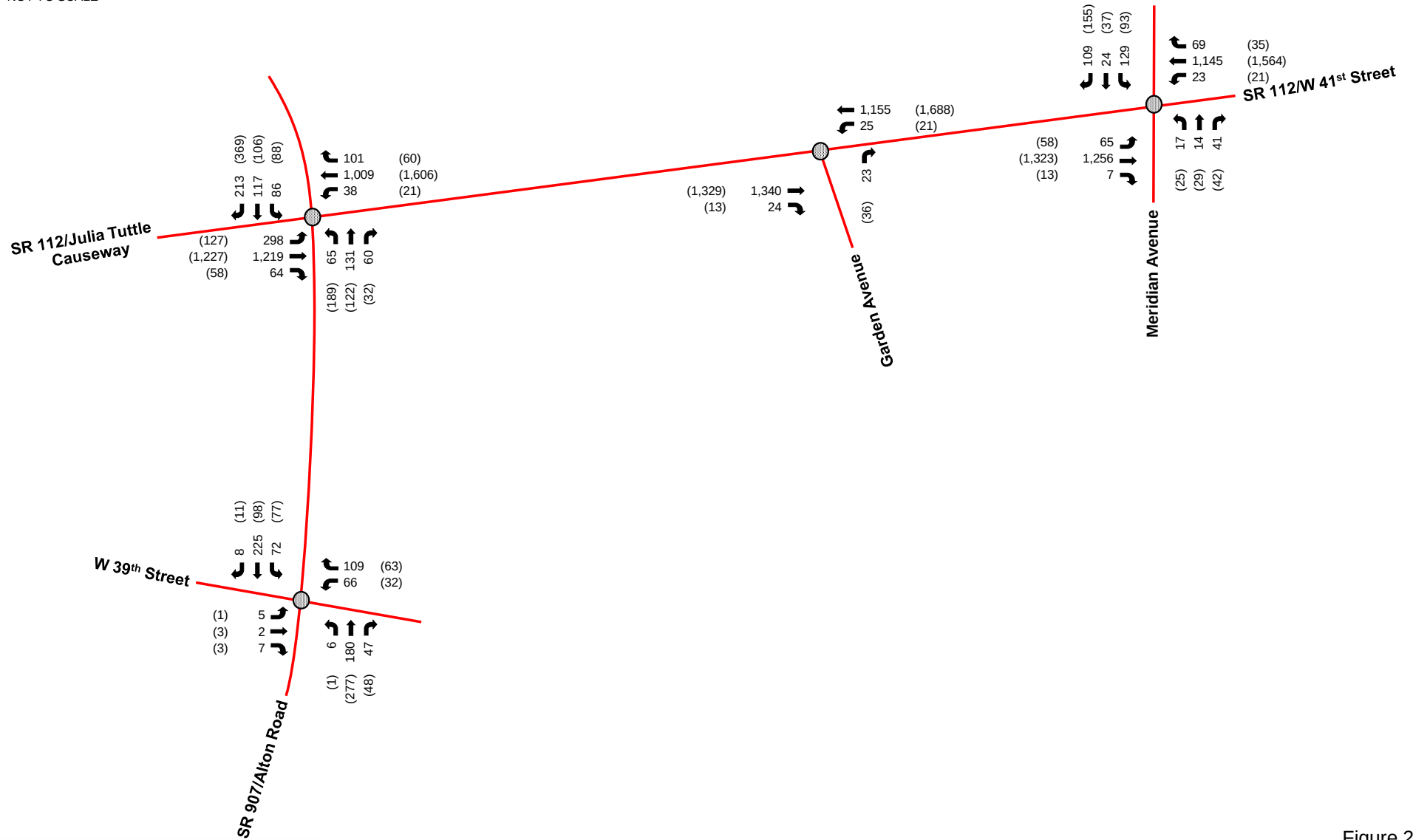


Figure 2
Existing Peak Hour Traffic
976 Arthur Godfrey Road
Miami Beach, Florida

FUTURE BACKGROUND TRAFFIC

Future background traffic conditions are defined as expected traffic conditions on the roadway network in the year 2026 without the construction of the proposed redevelopment. Future background traffic volumes used in the analysis are the sum of the existing traffic, committed development traffic, and additional traffic generated by growth in the study area. Refer to Figure 3 for the future background peak hour traffic volumes.

BACKGROUND AREA GROWTH

Traffic growth on the transportation network was determined based upon (a) historic growth trends at nearby FDOT traffic count stations and (b) traffic volume comparisons from the year 2015 and 2045 Florida Standard Urban Transportation Model Structure (FSUTMS) - Southeast Florida Regional Planning Model (SERPM).

FDOT count stations referenced in this analysis include:

- Count station no. 2647 located on SR 907/Alton Road, 200 feet north of Nautilus Drive
- Count station no. 5388 located on SR 112/Arthur Godfrey Road, 200 feet west of Indian Creek Drive

The historic growth rate analysis, based on FDOT count stations, examined linear, exponential, and decaying exponential growth rates for the most recent five (5) and ten (10) year periods. The linear growth trend yielded a growth rate of negative 0.21 percent (-0.21%) over the most recent five (5) year period and 0.95 percent (0.95%) over the most recent 10-year period. The exponential growth trend yielded a growth rate of negative 0.24 percent (-0.24%) over the most recent five (5) year period and 0.84 percent (0.84%) over the most recent 10-year period. The decaying exponential growth trend yielded a growth rate of 0.88 percent (0.88%) over the most recent five (5) year period and 1.10 percent (1.10%) over the most recent 10-year period. Based on the volume information obtained from the years 2015 and 2045 FSUTMS SERPM, an annual growth rate of 0.71 percent (0.71%) in the vicinity of the redevelopment was calculated.

The growth rate with the highest R-squared value of 0.88 percent (0.88%) was compared to the 0.71 percent (0.71%) growth rate determined from the SERPM model to determine the applicable growth rate in the analysis. As the highest growth rate is less than 1.00 percent (1.00 %), a growth rate of

1.00 percent (1.00%) was applied to existing traffic volumes to provide a conservative analysis to determine future background volumes for the project's expected opening year of 2026. The worksheets used to analyze the historic growth trends along with the FSUTMS SERPM transportation model outputs are included in Appendix D.

COMMITTED DEVELOPMENTS

The following committed developments were identified by the City to be included as part of future traffic conditions. Committed development information is included in Appendix D.

- 340 West 42nd Street
- 4000 Alton Road



NOT TO SCALE

Legend

- Study Roadway
- Study Intersection
- XX A.M. Peak Hour Traffic
- (XX) P.M. Peak Hour Traffic

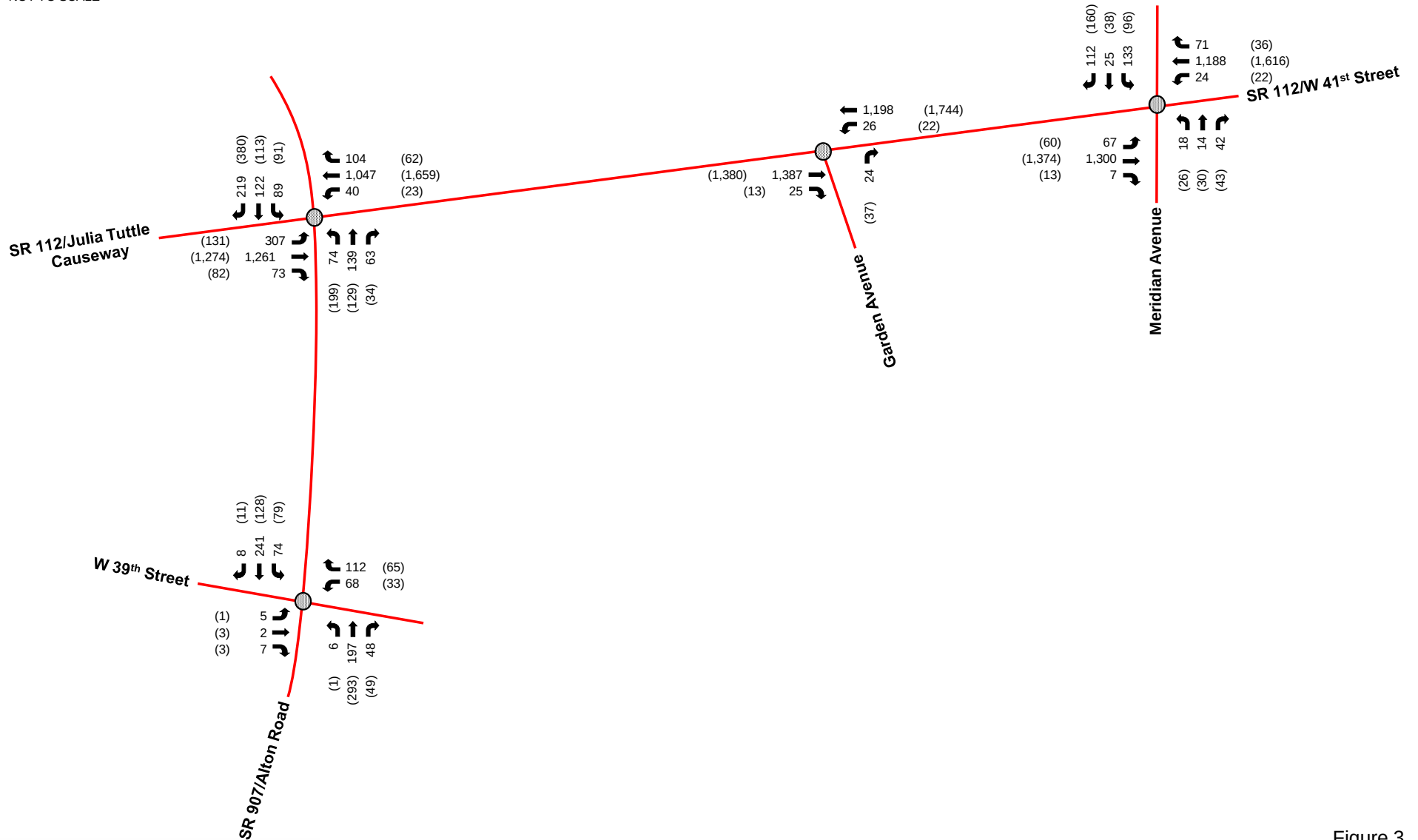


Figure 3
Future Background Peak Hour Traffic
976 Arthur Godfrey Road
Miami Beach, Florida

PROGRAMMED ROADWAY CAPACITY IMPROVEMENTS

Local transportation plans were reviewed in order to gather information about planned and programmed transportation improvements along the study area roadways. The purpose of the plan review is to identify programmed capacity improvements for consideration in the analysis. The following transportation plans were examined as part of the background research.

- Miami-Dade Transportation Planning Organization's (TPO) *Transportation Improvement Program* (TIP)
- FDOT's *Five-Year Work Program*
- Miami-Dade County Transportation Planning Organization's (TPO) *Long Range Transportation Plan* (LRTP)
- City of Miami Beach's Proposed FY 2024-2028 *Capital Improvement Plan & FY 2024 Capital Budget*
- City of Miami Beach's *Transportation Master Plan*

Relevant information from these plans is summarized below.

MIAMI-DADE TPO TRANSPORTATION IMPROVEMENT PROGRAM

The Miami-Dade Transportation Improvement Program (TIP) specifies programmed improvements to be implemented within Miami-Dade County over the next five years. The most recent TIP is for fiscal years 2023 to 2027. Improvements identified in the TIP are characterized as Intermodal, Highway, Transit, Aviation, Seaport, and Non-Motorized. Based on the review of the Miami-Dade TPO TIP, a mobility solution that will assist in reducing traffic congestion along SR 112/W 41st Street by proposing brand-new DTPW transit service operations. This improvement is referred as the Miami-Dade County Draft Better Bus Network and was implemented on November 13, 2023. Improvement details are included in Appendix E.

FLORIDA DEPARTMENT OF TRANSPORTATION'S (FDOT'S) WORK PROGRAM

FDOT's Five Year Work Program specifies state regulated roadway improvements to be implemented over the next five (5) years (2023-2028). Based on the review of FDOT's Work Program, no vehicular capacity improvements are programmed along the study area roadways.

MIAMI-DADE TPO 2045 LONG RANGE TRANSPORTATION PLAN (LRTP)

The Miami-Dade 2045 LRTP, adopted by the Miami-Dade County TPO, was developed to guide long-term transportation investments in Miami-Dade County. The LRTP focuses on the County's transportation infrastructure needs including roadways, transit facilities, bicycle facilities, pedestrian facilities, and other modes of transportation. Based on the review of Miami-Dade TPO's LRTP, no vehicular capacity improvements are programmed along the study area roadways.

CITY OF MIAMI BEACH'S PROPOSED FY 2024-2028 CAPITAL IMPROVEMENT PLAN (CIP) & FY 2024 CAPITAL BUDGET

The City of Miami Beach's Proposed FY 2024-2028 CIP & FY 2024 Capital Budget was developed as a strategic plan that sets the direction and goals for the City, while the budget provides the resources needed to achieve those goals. The CIP and Capital Budget focuses on prioritizing funding to delivering services and projects for the community. Based on the review of City of Miami Beach's CIP and the Capital Budget Plan, no vehicular capacity improvements are programmed along the study area roadways.

CITY OF MIAMI BEACH'S TRANSPORTATION MASTER PLAN (TMP)

The City of Miami Beach's TMP was developed as a vision that serves as an anchor to steer the City's Decisions, and constantly serves as an encouraging reminder of the interconnected multimodal network the City wants to have by the year 2035. The TMP focuses on goals set forth to modify and enhance the mobility and connectivity of the residents as well as its visitors. Based on the review of City of Miami Beach's TMP, no vehicular capacity improvements are programmed along the study area roadways.

PROJECT TRAFFIC

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the project and the distribution and assignment of that traffic over the study roadway network.

EXISTING AND PROPOSED LAND USES

Currently, the site is occupied by 1,734 square feet of office space, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot of day care center. The proposed redevelopment consists of approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. Note that the existing development will be demolished as part of the proposed redevelopment.

PROJECT ACCESS

Access to the proposed redevelopment will be provided via one (1) full-access driveway located along the public alley between W 39th Street and W 40th Street. Further note that loading vehicles will access the site via the public alley.

TRIP GENERATION

Trip generation calculations for the existing development and the proposed redevelopment were performed using rates and/or equations contained in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 11th Edition. The trip generation for the existing development was determined using ITE Land Use Code (LUC) 712 (Small Office Building), LUC 932 (High-Turnover [Sit-Down] Restaurant), LUC 822 (Strip Retail Plaza) and LUC 565 (Day Care Center). The trip generation for the proposed redevelopment was determined using ITE LUC 710 (General Office Building), LUC 822 (Strip Retail Space), and LUC 932 (High-Turnover [Sit-Down] Restaurant).

MULTIMODAL REDUCTION

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tract in which the redevelopment is located. A multimodal factor of 20.3 percent (20.3%) was determined for the proposed redevelopment. However, consistent with the City of Miami Beach requirements and to provide a conservative analysis, a multimodal factor of 20.0 percent (20.0%) was applied to the trip generation.

It is expected that a portion of guests, employees, and patrons will choose to walk, bike, or use public transit to and from the proposed redevelopment.

One (1) City of Miami Beach Trolley Route and three (3) Miami-Dade County DTPW routes operate in close proximity (within ½ mile) to the site during the A.M. and P.M. peak hours. Please note that the DTPW routes were updated per the Better Bus Network effective November 13, 2023.

- DTPW Route 14 operates along SR 112/W 41st Street and SR 907/Alton Road in the vicinity of the study area with 30-minute headways in the eastbound/westbound and northbound/southbound directions during the A.M. and P.M. peak hours.
- DTPW Route 36 operates along SR 112/W 41st Street in the vicinity of the study area with approximately 15 to 30-minute headways in the eastbound and westbound directions during the A.M. and P.M. peak hours.
- DTPW Route 150 operates along SR 112/W 41st Street in the vicinity of the study area with 30-minute headways in the eastbound/westbound and northbound/southbound directions during the A.M. and P.M. peak hours.
- City of Miami Beach Middle Beach Trolley Route operates along SR 112/W 41st Street and SR 907/Alton Road in the vicinity of the study area with approximately 20-minute headways during the A.M. and P.M. peak hours.

Detailed route information and headway data is provided in Appendix F.

INTERNAL CAPTURE

Internal capture trips for the project were determined based upon methodology contained in the ITE's, *Trip Generation Handbook*, 3rd Edition. Internal capture rates of 32.4 percent (32.4%) for the A.M. peak hour trip generation and 25.0 percent (25.0%) for the P.M. peak hour trip generation are expected for the existing development. Internal capture rates of 26.0 percent (26.0%) for the A.M. peak hour trip generation and 19.4 percent (19.4%) for the P.M. peak hour trip generation are expected for the proposed redevelopment.

PASS-BY CAPTURE

Pass-by capture trip rates were determined based on average rates provided in the ITE's *Trip Generation Handbook*, 3rd Edition. The average pass-by rate for LUC 932 (High-Turnover [Sit-Down] Restaurant) is 43.0 percent (43.0%) during the P.M. peak hour. Note that as ITE does not provide pass-by data for LUC 822, a pass-by rate of 40.0 percent (40.0%) based on LUC 821 (Shopping Plaza) was utilized during the P.M. peak hour.

NET NEW PROJECT TRIPS

As shown in Table 1, the proposed redevelopment is expected to generate 24 net new vehicle trips during the A.M. peak hour and 28 net new vehicle trips during the P.M. peak hour. Detailed trip generation information is included in Appendix G.

Table 1: Trip Generation				
<i>A.M. Peak Hour (P.M. Peak Hour)</i>				
Future Land Use (ITE Code)	Scale	Entering Trips	Exiting Trips	Net New External Trips
Existing Development				
Small Office Building (712)	1,734 square feet	1 (1)	0 (2)	1 (3)
High-Turnover (Sit-Down) Restaurant (932)	4,701 square feet	14 (8)	13 (5)	27 (13)
Strip Retail Plaza (822)	7,804 square feet	5 (12)	4 (11)	9 (23)
Day Care Center (565)	2,485 square feet	9 (10)	4 (10)	13 (20)
Sub-Total		29 (31)	21 (28)	50 (59)
Proposed Redevelopment				
General Office Building (710)	36,293 square feet	45 (10)	0 (46)	45 (56)
Strip Retail Plaza (822)	6,682 square feet	5 (10)	3 (10)	8 (20)
High-Turnover (Sit-Down) Restaurant (932)	4,056 square feet	12 (7)	9 (4)	21 (11)
Sub-Total		62 (27)	12 (60)	74 (87)
Net New Vehicle Trips		33 (-4)	-9 (32)	24 (28)

TRIP DISTRIBUTION AND ASSIGNMENT

The likely distribution of project traffic was forecast for the trips expected to be generated by the proposed redevelopment. The trip distribution was based on an interpolated cardinal trip distribution for the project site's traffic analysis zone (TAZ) obtained from the Miami-Dade Transportation Planning Organization's (TPO's) *2045 Long Range Transportation Plan Directional Trip Distribution Report*. The trip distribution for the anticipated build-out year of 2026 was interpolated from the 2015 and 2045 data. The project is located within TAZ 629. The cardinal trip distribution for TAZ 629 provided in Table 2.

Table 2: Cardinal Trip Distribution	
Cardinal Direction	Percentage of Trips
North-Northeast	10.0%
East-Northeast	4.0%
East-Southeast	2.0%
South-Southeast	12.0%
South-Southwest	12.0%
West-Southwest	31.0%
West-Northwest	13.0%
North-Northwest	16.0%
Total	100.0%

Figure 4 presents the A.M. and P.M. peak hour net new trip distribution and Figure 5 presents the A.M. and P.M. peak hour net new trip assignment for the proposed redevelopment. Please note that the proposed redevelopment is expected to result in a reduction of net new outbound project trips during the A.M. peak hours, a reduction of net new inbound project trips during the P.M. peak hour, and a reduction of net new inbound and outbound pass-by trips during the P.M. peak hour. However, to provide a conservative analysis, reductions were not applied to the traffic volumes at the applicable movements. Further note that a pass-by distribution and assignment were not developed as the proposed redevelopment is expected to result in a reduction of both net new inbound and outbound pass-by trips. Detailed cardinal distribution calculations are contained in Appendix H.



NOT TO SCALE

Legend

- Study Roadway
- Existing Public Alley
- Study Intersection
- XX%
(XX%)
- Entering Trip Distribution
- Exiting Trip Distribution

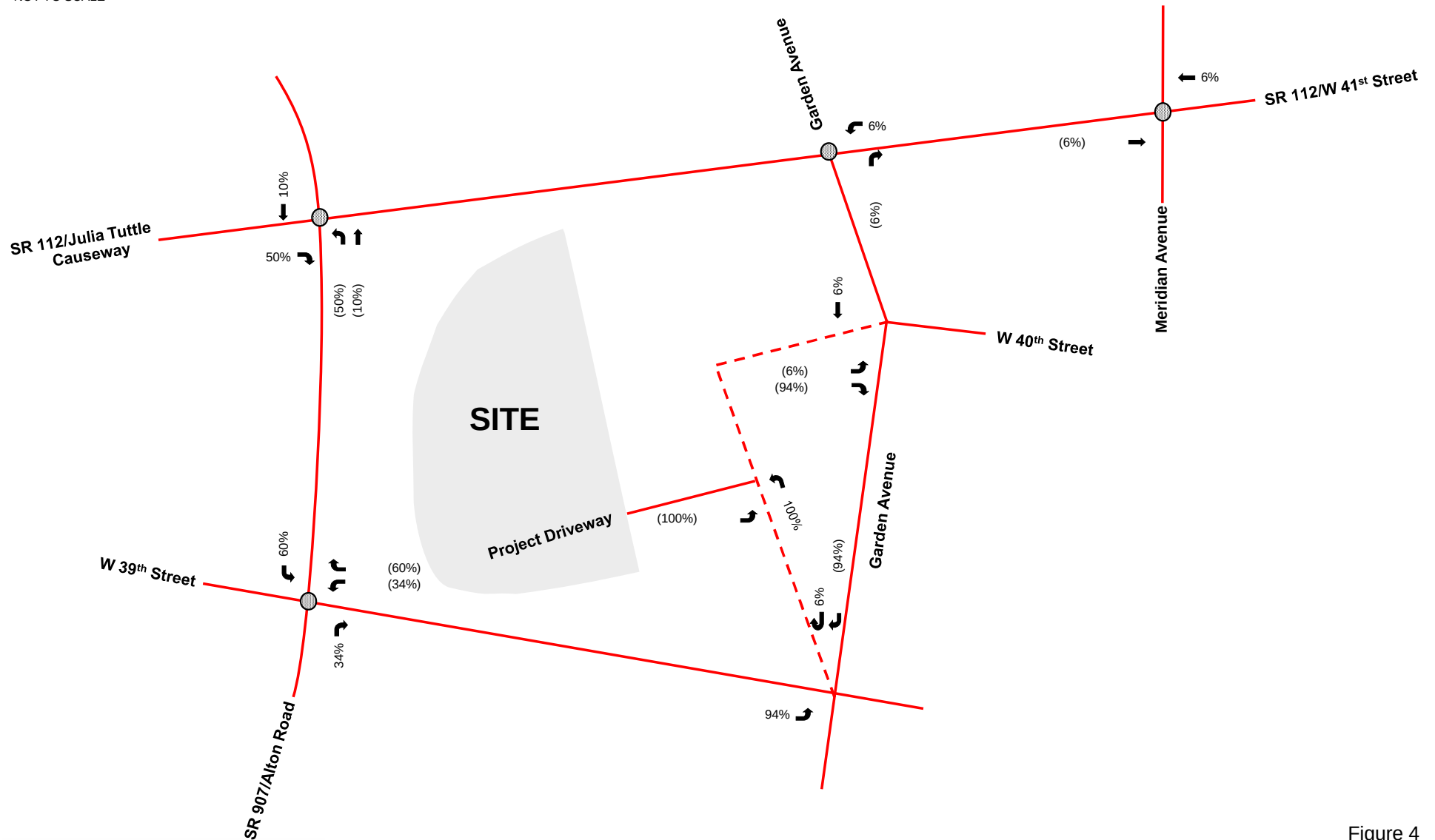


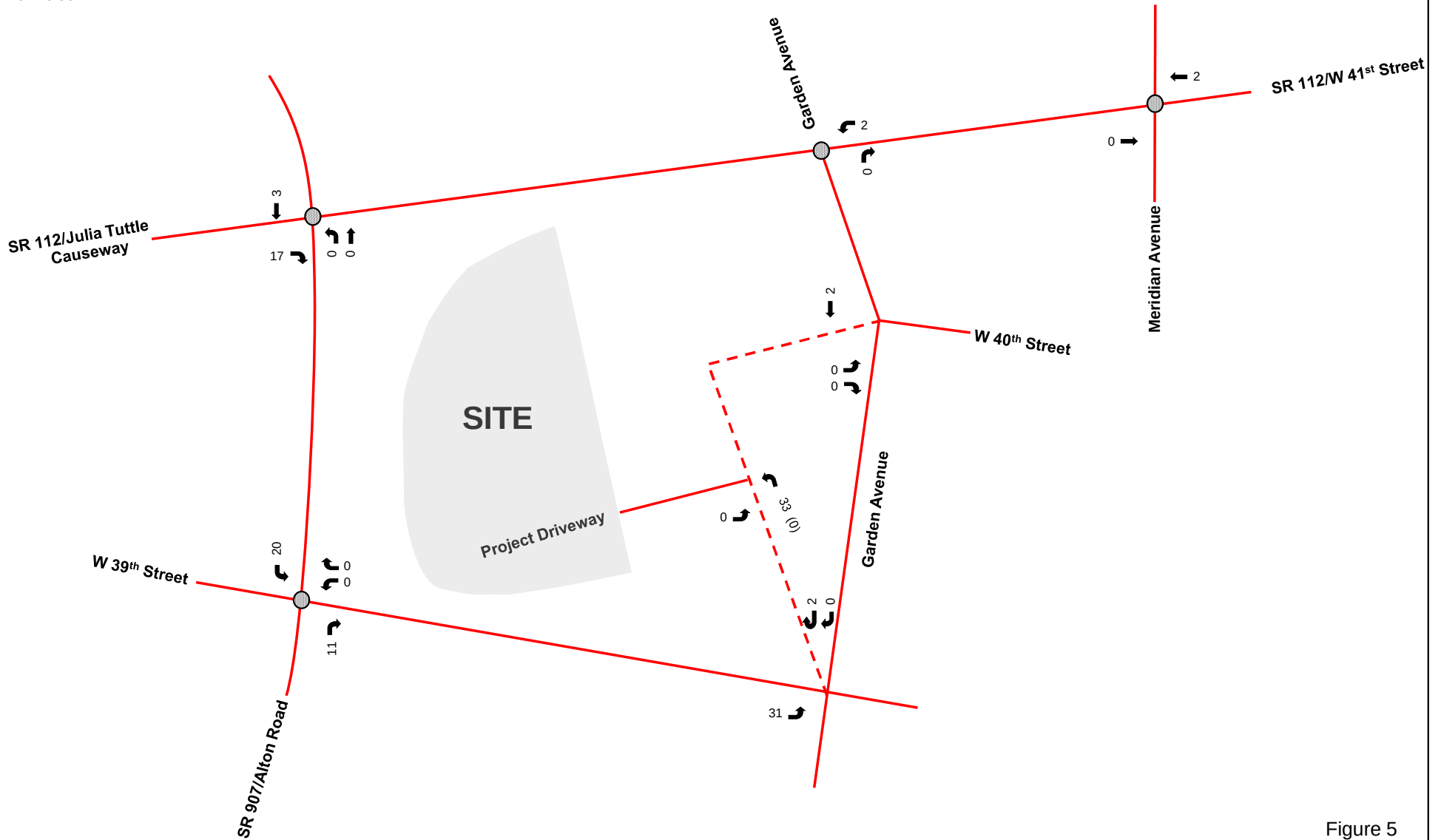
Figure 4
Peak Hour Trip Distribution
976 Arthur Godfrey Road
Miami Beach, Florida



NOT TO SCALE

Legend

- Study Roadway
- Existing Public Alley
-  Study Intersection
- XX A.M. Peak Hour Trip Assignment
- (XX) P.M. Peak Hour Trip Assignment



FUTURE TOTAL TRAFFIC

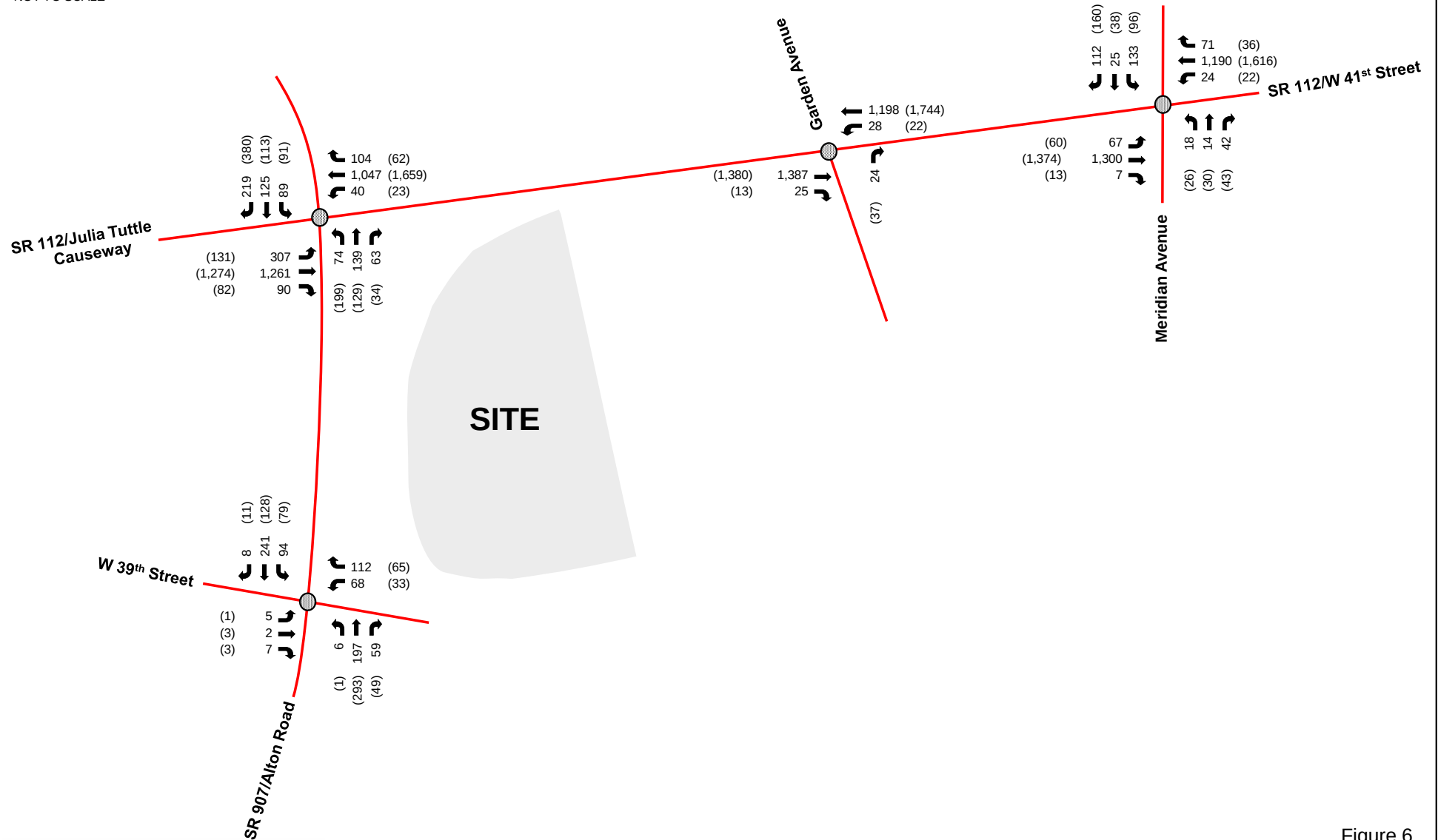
Future total traffic conditions are defined as the expected traffic conditions after the opening of the project. Total traffic volumes considered in the analysis for this project are the sum of the future background traffic volumes and the expected project traffic volumes. Figure 6 presents the future total turning movement volumes at the study intersections during the weekday A.M. and P.M. peak hours. Volume development worksheets for the study intersections are included in Appendix I.



NOT TO SCALE

Legend

- Study Roadway
- Study Intersection
- XX A.M. Peak Hour Traffic
- (XX) P.M. Peak Hour Traffic



INTERSECTION CAPACITY ANALYSIS

The study area intersection operating conditions were analyzed for three (3) scenarios (existing conditions, future background conditions, and future total conditions) using Cubic's *SYNCHRO 12* software, which applies methodologies outlined in the Transportation Research Board's (TRB's) *Highway Capacity Manual* (HCM) 6th Edition. Synchro worksheets for the study intersections are included in Appendix J.

A summary of the intersection analyses for the proposed redevelopment during the A.M. and P.M. hours is presented in Table 3 and Table 4. As Table 3 and 4 indicate, the study intersections are expected to operate at level of service (LOS) C or better during the A.M. and P.M. peak hours under all analysis scenarios.

Table 3: A.M. Peak Hour Intersection Capacity Analysis						
Intersection	Traffic Control	Overall LOS/Delay	Approach LOS/Delay			
			EB	WB	NB	SB
Existing Conditions (Future Background Conditions) [Future Total Conditions]						
SR 907/Alton Road and W 41 st Street	Signalized	C/22.0 sec (C/24.0 sec) [C/24.0 sec]	B (C) [C]	B (B) [B]	D (D) [D]	D (D) [D]
Garden Avenue and W 41 st Street	One-Way Stop Control	(1)	(2)	(2)	B (B) [B]	(3)
Meridian Avenue and W 41 st Street	Signalized	B/10.8 sec (B/11.1 sec) [B/11.1 sec]	A (A) [A]	A (A) [A]	D (D) [D]	E (E) [E]
SR 907/Alton Road and W 39 th Street	Two-Way Stop Controlled	(1)	B (B) [B]	B (B) [B]	(2)	(2)

Notes: (1) Overall intersection LOS is not defined, as intersection operates under stop-control conditions.
(2) Approach operates under free-flow conditions. LOS is not defined.
(3) Approach does not exist.

Table 4: P.M. Peak Hour Intersection Capacity Analysis						
Intersection	Traffic Control	Overall LOS/Delay	Approach LOS/Delay			
			EB	WB	NB	SB
Existing Conditions (Future Background Conditions) [Future Total Conditions]						
SR 907/Alton Road and W 41 st Street	Signalized	C/29.1 sec (C/31.6 sec) [C/31.6 sec]	B (B) [B]	B (B) [B]	F (F) [F]	E (E) [E]
Garden Avenue and W 41 st Street	One-Way Stop Control	(1)	(2)	(2)	B (B) [B]	(3)
Meridian Avenue and W 41 st Street	Signalized	B/11.7 sec (B/12.1 sec) [B/12.1 sec]	A (A) [A]	A (A) [A]	E (E) [E]	E (E) [E]
SR 907/Alton Road and W 39 th Street	Two-Way Stop Controlled	(1)	B (B) [B]	B (B) [B]	(2)	(2)

Notes: (1) Overall intersection LOS is not defined, as intersection operates under stop-control conditions.
(2) Approach operates under free-flow conditions. LOS is not defined.
(3) Approach does not exist.

ENTRY GATE ANALYSIS

A 95th percentile parking garage entry gate queuing analysis for the proposed redevelopment using the methodology outlined in ITE's *Transportation and Land Development*, 1988 was performed at the proposed parking garage entry point. The entry gate is proposed to be located on the ramp of the parking garage between the ground level and Level 2, approximately 85 feet (storage for approximately three [3] vehicles) from the public right-of-way. It was conservatively assumed that the proposed entry gate will provide access to all project traffic.

It was assumed that project trips associated with the office component of the proposed redevelopment will gain access to the parking garage via a proximity card (FOB) reader and it was assumed that project trips associated with the retail/restaurant components of the proposed redevelopment will gain access to the parking garage via a ticket-spitter. It was assumed that the average service rate for the proximity card (FOB) will be approximately 600 vehicles per hour (6.0 seconds per vehicle or 0.1 minutes per vehicle) and the average service rate for the ticket-spitter will be approximately 400 vehicles per hour (9.0 seconds per vehicle or 0.15 minutes per vehicle) based on processing times provided in *Parking Structures 3rd Edition: Planning, Design, Construction, Maintenance, and Repair*, 2001. Note that a weighted average service rate was utilized as all project traffic was assumed to enter the parking garage via the entry gate.

Based on the trip generation prepared, a total of 62 A.M. peak hour inbound trips and 39 P.M. peak hour inbound trips are expected at the entry gate.

The queuing analysis used the single-channel waiting line model with Poisson arrivals and exponential service times. The queuing analysis is based on the coefficient of utilization, ρ , which is the ratio of the average vehicle arrival rate over the average service rate multiplied by the number of channels.

If the coefficient of utilization (average service rate/entry gate service capacity) is greater than one (>1), the calculation methodology does not yield a finite queue length. This result indicates overcapacity conditions for the entry gate area. The entry gate service capacity is the number of vehicles the entry gate can service in a one-hour period multiplied by the number of entry gates.

The analysis determined the required queue storage, M, which is exceeded P percent of the time. This analysis seeks to examine if the queue length exceeds the storage provided at a level of confidence of 95 percent (95%).

As Table 5 indicates, the proposed redevelopment is expected to result in a queue of less than one (1) vehicle behind the service position at the entry gate during the A.M. and P.M. peak hours. Therefore, vehicle queues are expected to be accommodated on-site without extending onto public-right-of-way. Detailed entry gate queue calculations are included in Attachment K.

Table 5: Entry Gate Analysis		
A.M. Peak Hour (P.M. Peak Hour)		
Entering Volumes (vph)	Service Rates (Minutes/vehicle)	95 th Percentile Queue Behind Service Position
62 (39)	0.114 (0.137)	< 1 vehicle (< 1 vehicle)

PARKING EVALUATION

The parking requirement for the proposed redevelopment based on the City of Miami Beach's *Code of Ordinances* and parking calculations prepared by others is 100 parking spaces. As part of the proposed redevelopment, 117 parking spaces will be provided, or seven (7) excess parking spaces. Please refer to the detailed parking calculations included in Appendix A.

TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Transportation Demand Management (TDM) strategies are proposed to reduce the impacts of the project traffic on the surrounding roadway network. Typical measures promote use of public transportation, bicycling and walking, encourage car/vanpooling and offer alternatives to the typical workday hours. Additionally, the applicant will commit to providing the following incentives including:

- Providing 25 bicycle parking spaces (4 short-term and 21 long-term)
- Providing 12 scooter/motorcycle parking spaces
- Providing wide hallways that accommodate bicycles
- Providing elevators that can accommodate bicycles
- Providing a bike workroom

CONCLUSION

Giller & Giller, Inc. is proposing to redevelop the property located at 976 Arthur Godfrey Road in Miami Beach, Florida. Currently, the site is occupied by 1,734 square feet of office space, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot of day care center. The proposed redevelopment consists of approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. Additionally, note that the existing development will be demolished as part of the proposed redevelopment. The project is expected to be completed by year 2026.

Access to the proposed redevelopment will be provided via one (1) full-access driveway located along the public alley between W 39th Street and W 40th Street. Further note that loading vehicles will access the site via the public alley.

Trip generation for the existing development and the proposed redevelopment was calculated using rates and/or equations contained in ITE's *Trip Generation Manual*, 11th Edition. The project is expected to generate 24 net new weekday A.M. peak hour trips and 28 net new weekday P.M. peak hour trips.

The results of the intersection capacity analysis of the proposed redevelopment demonstrate that the study area intersections are expected to operate at LOS C or better during the A.M. and P.M. hours under all analysis conditions.

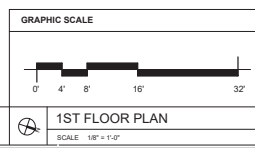
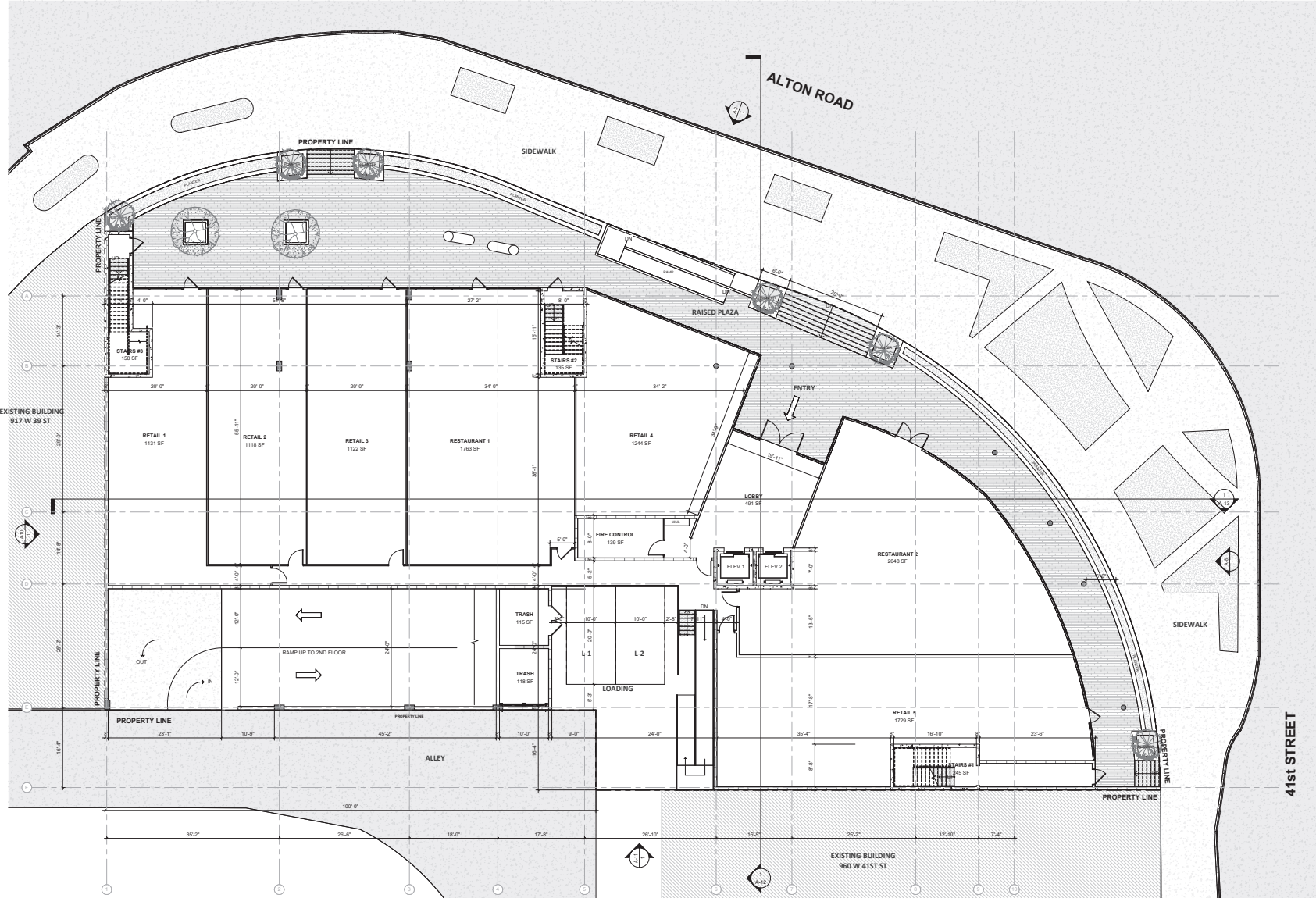
The results of the 95th percentile entry gate analysis indicate that all anticipated queues are expected to be accommodated on-site without extending onto public right-of-way.

The following TDM strategies are proposed to reduce the impacts of the project traffic on the surrounding roadway network:

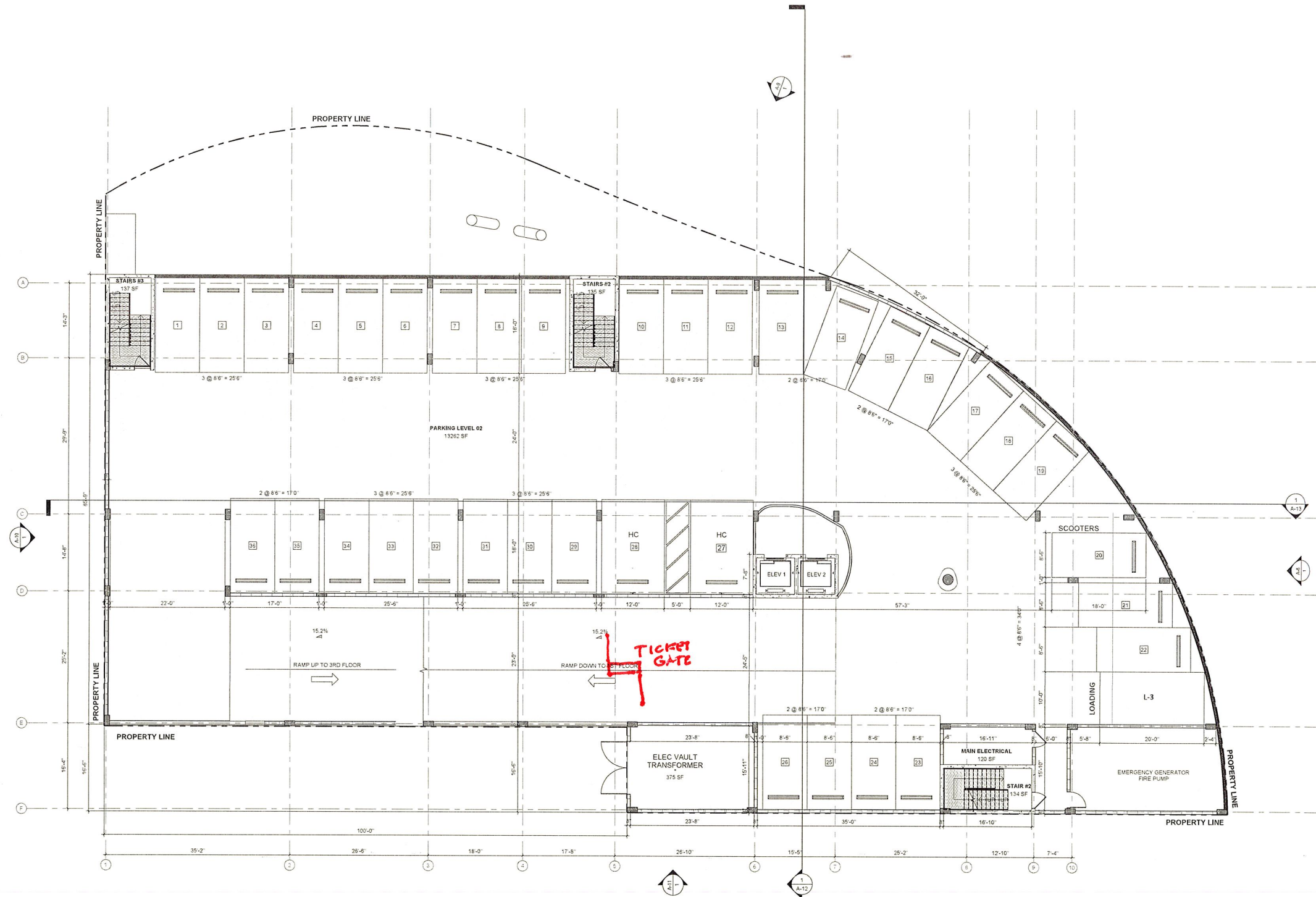
- Providing 25 bicycle parking spaces (4 short-term and 21 long-term)
- Providing 12 scooter/motorcycle parking spaces
- Providing wide hallways that accommodate bicycles
- Providing elevators that can accommodate bicycles
- Providing a bike workroom

Appendix A

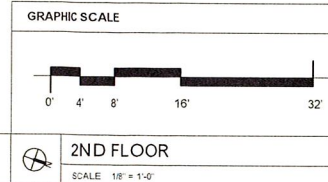
Site Plan



SHEET # A-2	DATE 11/09/23	REVISION DESCRIPTION	GILLER & GILLER, INC. The Giller Building 1000 Brickell Avenue Miami Beach, Florida 33130 (305) 358-1000 WWW.GILLER-FL.COM	PROJECT 110923	ARCHITECT GILLER & GILLER, INC.	ENGINEER GILLER & GILLER, INC.	LANDSCAPE ARCHITECT GILLER & GILLER, INC.	PLANNING GILLER & GILLER, INC.	CONSTRUCTION MANAGER GILLER & GILLER, INC.
GILLER TOWER									
976 Arthur Godfrey Road MIAMI BEACH, FL									



PARKING: 36 SPACES
1 LOADING SPACE



Handwritten signature and date:
11/20/23

Giller & Giller, Inc. 1775 Giller Building 1775 Giller Building Miami Beach, Florida 33140 (305) 336-6324 FAX (305) 336-5021 ARCHITECTS INTERIOR DESIGNERS CONSTRUCTION MANAGERS	
GILLER TOWER MIAMI BEACH, FL 976 Arthur Godfrey Road	
SHEET TITLE 2ND FLOOR PLAN	
SHEET # A-3	DATE 11/08/23
APPROVED BY [Signature]	CAD TO TIME [Signature]
CHECKED BY [Signature]	DATE 11/08/23
ASST. CONW.# 23110	

APPLICABLE BUILDING CODES:

2020 FLORIDA BUILDING CODE
2020 FLORIDA BUILDING CODE ACCESSIBILITY
2020 FLORIDA BUILDING CODE MECHANICAL
2020 FLORIDA BUILDING CODE PLUMBING
2020 FLORIDA BUILDING CODE ENERGY CONSERVATION
2020 FLORIDA BUILDING CODE TEST PROTOCOLS FOR HIGH-VELOCITY HURRICANE ZONES
2020 FLORIDA FIRE PREVENTION CODE, 7TH ED.
NFPA 101 LIFE SAFETY CODE, 2018 ED.
NFPA 70 NATIONAL ELECTRIC CODE, 2023 ED.

CODE STATEMENT:

TO THE BEST OF THE ARCHITECT/ENGINEER'S KNOWLEDGE, THE DRAWINGS AND SPECIFICATIONS SUBMITTED HEREIN ARE COMPLIANT WITH ALL APPLICABLE CODES AS DETERMINED BY LOCAL AUTHORITY.

BUILDING OCCUPANCY CLASSIFICATION: BUSINESS GROUP B & MERCANTILE GROUP M

BUILDING USE CLASSIFICATION: BUSINESS, MERCANTILE & PARKING GARAGE

BUILDING CONSTRUCTION CLASSIFICATION: TYPE 1

SCOPE OF WORK

THE PROJECT CONSISTS OF NEW CONSTRUCTION OF A 7 STORY OFFICE BUILDING, RETAIL, RESTAURANT, & ASSOCIATED PARKING GARAGE. EXISTING SITE CONSISTS OF 1 STORY BUILDINGS AND PARKING THAT WILL BE COMPLETELY DEMOLISHED.

PARKING ANALYSIS

BASED UPON MIAMI BEACH RESILIENCY CODE, CH. 5 & MIAMI BEACH LAND USE ORD.

PARKING CATEGORY: TIER 2

PARKING REQUIREMENTS:

PARKING REQUIREMENTS BASIS:
OFFICES: 1 PER 400SF
MEDICAL OFFICES: 1 PER 300 SF
RETAIL: 1 PER 400 SF
RESTAURANT (FULL SERVICE): 1 PER 4 SEATS

LOADING SPACE REQUIREMENTS:
RETAIL & RESTAURANT @ 10,000 - 20,000SF: 2 SPACES
OFFICES @ 10,000-100,000SF: 2 SPACES

BICYCLE PARKING REQUIREMENTS:
SHORT TERM 4 SPACES
LONG TERM 2 SPACES PER 5,000 SF

PARKING CREDITS BASIS:
BICYCLES 1 SPACE PER 5 BICYCLES
SHARED PARKING- OFF HOURS SEE CALCULATION
MOTORCYCLES, MOPEDS, SCOOTERS 1 SPACE PER 3 MOTORCYCLES, ETC.

PARKING CALCULATIONS:

BICYCLE CALCULATIONS:		REQUIRED		PROVIDED	
SHORT TERM		4	4		
LONG TERM	2/5,000SF	19	21		
	TOTAL	23	25		

RESTAURANT SEAT CALCULATIONS:
TOTAL AREA 4,056 SF
LESS KITCHEN & BOH @ 35% (1,420)
2,636 SF
1 PERSON PER 15 SF X 2,434 SF = 176 PERSONS

PARKING CALCULATIONS:		TOT. SF		REQUIRED		PROVIDED	
USE		22,869	57				
OFFICES:		3,000	10				
MEDICAL OFFICES:		6,681	17				
RETAIL:		176	44				
RESTAURANT (FULL SERVICE) SEATS:							
	SUBTOTAL	128	117				
LESS BIKE CREDIT = 25 BIKES/5 =		-5					
LESS MOTORCYCLE CREDIT = 12 SCOOTERS/3 =		-4					
	TOTAL	119	117				

SHARED USE CALCULATION:		weekdays		weekends		TOTAL	
space	parking required	daytime %	daytime reqd.	evening %	evening reqd.	daytime %	daytime reqd.
OFFICE	67	100%	67.2	5%	3.4	10%	6.7
RETAIL	17	60%	10.0	20%	3.3	80%	13.4
RESTAURANT	44	50%	22.0	75%	33.0	100%	44.0
TOTAL SPACES	128		99.2		39.7		53.1

TOTAL NET PARKING REQUIRED = 100
TOTAL NET PARKING PROVIDED = 117

ZONING ANALYSIS

MIAMIBEACH

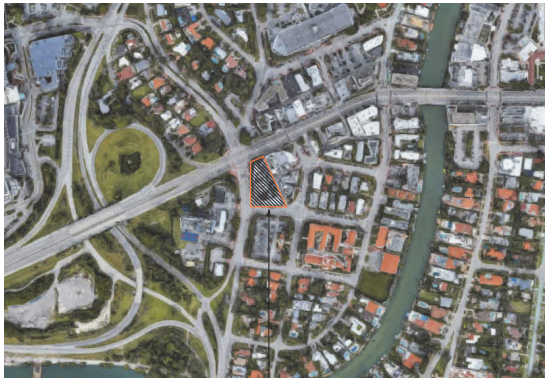
Planning Department
1700 Convention Center Drive, 2nd Floor
Miami Beach, Florida 33139, www.miamibeachfl.gov
305.673.7550

COMMERCIAL - ZONING DATA SHEET

ALL INFORMATION REQUIRED BELOW MUST BE SUBMITTED AS REQUESTED. THE FORMAT OF THIS DOCUMENT MAY NOT BE MODIFIED OR ALTERED IN ANY WAY. SUBMITTALS FOUND INSUFFICIENT OR INCOMPLETE MAY RESULT IN A FAILED REVIEW

Project Information		0232220190040		0232220190000		0232220190020	
1	Address: 976 W 41 ST, 3907 & 3915 ALTON RD	Folio number(s):	1947.3938.1952	Year built:	1947.3938.1952		
2	Board file number(s): Determination of Architectural Significance:			Lot Area:	20,882.8 SF		
3	Located within a Local Historic District (Yes or No):	No		Lot width:	VARIES		
4	Individual Historic Site (Yes or No):	No		Lot Depth:	VARIES		
5	Base Flood Elevation:	7.0 NGVD		Grade value in NGVD:	9.0		
6	Adjusted grade (BFE+Grade / 2):	8.0		Free board:	1.0		
7	Proposed Use:	OFFICES, RETAIL, RESTAURANT & PARKING					
8	Proposed Accessory Use:						
9	Signed and sealed Landscape Plans (Tree/Vegetation Survey, Tree Disposition Plan, and Irrigation Plan):						
ZONING INFORMATION / CALCULATION		Required	Existing	Proposed	Deficiencies		
13	Floor Area Ratio (FAR)	2.25	0	2.25			
14	Building Height	75'	0	85.25'	5.25'		
15	At grade parking lot on the same lot			N/A			
a	Front setbacks						
b	Side interior setback						
c	Side facing street setback						
d	Rear setback						
16	Subterranean, Pedestal & Tower (non-oceanfront)	Required	Existing	Proposed	Deficiencies		
a	Front setbacks	0	0	0			
b	Side interior setback	0	0	0			
c	Side facing street setback	N/A		N/A			
d	Rear setback	0	33.7'	0			
17	Subterranean, Pedestal & Tower (non-oceanfront)	Required	Existing	Proposed	Deficiencies		
a	Front setbacks						
b	Side interior setback						
c	Side facing street setback						
d	Rear setback						
18	Minimum Apartment Unit Size	Required	Existing	Proposed	Deficiencies		
a	New Construction						
b	Rehabilitated Buildings						
c	Hotel Unit						
19	Average Apartment Unit Size	Required	Existing	Proposed	Deficiencies		
a	New Construction						
b	Rehabilitated Buildings						
c	Hotel Unit						
20	Required Open-space ratio (RPS, CPS)						
21	Parking	100	0	115			
22	Loading	4	0	4			

Notes: Indicate N/A if not applicable.



976 ARTHUR GODFREY RD.
MIAMI BEACH, FL.



4

AERIAL VIEW

N.T.S.

DRAWINGS INDEX

SHEET NO.	TITLE
G-1	COVER SHEET
G-2	INDEX, LOCATION, ZONING & PARKING ANALYSES, CODES
G-3	AREA STATEMENT - FLOOR PLATE
G-4	AREA STATEMENT - F.A.R.
G-4.1	RENTAL AREA DIAGRAM
G-5	SURVEY
L-1	LANDSCAPE PLAN
A-1	SITE PLAN
A-2	LEVEL 01 FLOOR PLAN
A-3	LEVEL 02 FLOOR PLAN
A-4	LEVEL 03 FLOOR PLAN
A-5	LEVEL 04 FLOOR PLAN
A-6	LEVEL 05 FLOOR PLAN
A-7	ROOF PLAN
A-8	NORTH ELEVATION - 41ST ST.
A-9	WEST ELEVATION - ALTON RD.
A-10	SOUTH ELEVATION
A-11	EAST ELEVATION - ALLEY
A-12	BLDG SECTION #1 - EAST/WEST - TYP. WALL SECTION
A-13	BLDG SECTION #1 - NORTH/ SOUTH
A-14	EXTERIOR PERSPECTIVES #1
A-15	EXTERIOR PERSPECTIVES #2
A-16	EXTERIOR PERSPECTIVES AERIAL

HEIGHT ANALYSIS

GILLER TOWER HEIGHT ANALYSIS

Existing Adj. Grade - 41st St	4.5	NGVD		
Existing Adj. Grade - Alton Rd.	4.8	NGVD		
Crown of Road - 41st	4.0	NGVD		
Crown of Road - Alton	3.98	NGVD		
Current highest F.F. elev.	5.15	NGVD		
Flood Zone - AE min.	7.0	NGVD		
Base Flood Elev	7.0	NGVD		
MIN. Base Flood Elev + Freeboard	8.5	NGVD		
Base FF elevation- USE	9.0	NGVD		
			Bldg.	
Elevation Location	NGVD	Ht. (Feet)	Elevation	
Sidewalk - 41st				
Sidewalk - Alton				
Alley @ ramp - existing	4.04			
Loading area - existing	4.66			
1st Floor Plaza		-0.33		
1st Floor FF	9.0	0	0	
	Floor to floor ht.	22	13	
2nd FF		9.5	13	
	Floor to floor ht.	31.5	22.5	
3rd FF		9.5		
	Floor to floor ht.	41	32	
4th FF		9.5		
	Floor to floor ht.	50.5	41.5	
5th FF		12.5		
	Floor to floor ht.	63	54	
6th FF		12.5		
	Floor to floor ht.	75.5	66.5	
7th FF		12.5		
	Floor to floor ht.	88	79	
Roof FF		8.75		
Mechanical Room & Stair roofs	96.75		87.75	
BASE ELEVATION - 1ST FL	9	0'		
MAX ALLOWED HEIGHT		75'		
PROPOSED HEIGHT TO MAIN ROOF	88	79'		
WARRANT REQUIRED				



Giller & Giller, Inc.

Principal Architect
1700 Convention Center Drive, 2nd Floor
Miami Beach, Florida 33139
305.673.7550
www.gillerandgiller.com

GILLER TOWER

976 Arthur Godfrey Road

MIAMI BEACH, FL

DATE: 11/08/23

REVISION DESCRIPTION

INDEX, LOCATION, ZONING & PARKING ANALYSES, CODES

G-2

DATE: 11/08/23

PROJECT: 2110

Appendix B

Methodology Correspondence

Dorman, Cory

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>
Sent: Friday, October 13, 2023 11:54 AM
To: Dorman, Cory; Ira Giller
Cc: Rodriguez, Otniel; Choueiry, Ghassan; Garavito, Alejandro; Madan, Rogelio; Eric Czerniejewski; Reyes, Leonor
Subject: Re: 976 Arthur Godfrey Road - Methodology Approval (PB23-0635)
Attachments: 976 Arthur Godfrey Road - Methodology Comments #3.pdf; 976 Arthur Godfrey Road - Revised Methodology #1.pdf

Categories: External

Good morning Cory,

Received, thank you for making the requested updates. Eric turned this around quickly and the Methodology for 976 Arthur Godfrey Road has been approved. Please conduct the Traffic Study in accordance with the attached approved Revised Methodology #1, and please let us know if you have any questions.

Thank you and have a great weekend

Best

MIAMI BEACH

Grant Webster, Transportation Planner
TRANSPORTATION & MOBILITY DEPARTMENT
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305-673-7000 Ext. 26839 www.miamibeachfl.gov

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Please do not print this e-mail unnecessarily

From: Dorman, Cory <cory.dorman@kimley-horn.com>
Sent: Thursday, October 12, 2023 9:40 AM
To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>
Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Choueiry, Ghassan <GhassanChoueiry@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio <RogelioMadan@miamibeachfl.gov>
Subject: RE: 976 Arthur Godfrey Road - Methodology Review (PB23-0635)

[THIS MESSAGE COMES FROM AN EXTERNAL EMAIL - USE CAUTION WHEN REPLYING AND OPENING LINKS OR ATTACHMENTS]

Grant:

Good morning. Please find attached separate PDF of the updated traffic study methodology which was modified to include the Planning Case number in the subject line. Note that I've also attached an updated response to comments memorandum which includes the Planning Case number in the subject line.

Please let me know if you need anything else.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

Kimley-Horn | 2 Alhambra Plaza, Suite 500, Coral Gables, FL 33134

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Thursday, October 12, 2023 9:09 AM

To: Ira Giller <ira@gillerandgiller.com>; Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Choueiry, Ghassan <GhassanChoueiry@miamibeachfl.gov>;

Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito,

Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Review

Good morning All,

Cory, thank you for sharing the Response to Methodology Comments #1, received. I've shared them with the Peer Reviewer and will share comments with you once I receive and review them. Can you also please send the Revised Methodology #1 as a separate document? It's fine to keep it behind the comments as well, but it's most ideal to have it stand alone for recordkeeping purposes.

Ira, thank you for sending the Planning case number. I've put it in our records. Moving forward, Cory, can we put this somewhere on the comments sheets? That is something I'd like to start doing across the board so it's on every document and easy to find.

Rogelio, thank you for sharing the link and instructions to download the Traffic Study. Cory, please refer to the previous email copied and pasted into this thread to download.

Thank you all

Best

MIAMI BEACH

Grant Webster, Transportation Planner

TRANSPORTATION & MOBILITY DEPARTMENT

1700 Convention Center Drive, Miami Beach, FL 33139

Tel: 305-673-7000 Ext. 26839 www.miamibeachfl.gov

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 *Please do not print this e-mail unnecessarily*

Madan, Rogelio

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?

To:

- Ira Giller <ira@gillerandgiller.com>;
- Dorman, Cory <cory.dorman@kimley-horn.com>

Cc:

- Webster, Harrison;
- Rodriguez, Otniel;
- Choueiry, Ghassan;
- Reyes, Leonor <Leonor.Reyes@kimley-horn.com>;
- Eric Czerniejewski;
- Garavito, Alejandro

Wed 10/11/2023 8:39 PM

Hi all,

The traffic study can be downloaded by clicking "Supplemental Documents" at the link below:

<https://miamibeach.novusagenda.com/agendapublic/Coversheet.aspx?ItemID=7506&MeetingID=481>

Best regards,
Rogelio

MIAMIBEACH

Rogelio A. Madan, AICP
Development & Resiliency Officer
City of Miami Beach Planning Department
1700 Convention Center Drive – 2ndFloor, Miami Beach, FL 33139
Direct Tel: [305-673-7000](tel:305-673-7000) x6131 / Fax: [786-394-4285](tel:786-394-4285)
www.miamibeachfl.gov / www.mbrisingabove.com
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printing this email

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On Oct 11, 2023, at 5:47 PM, Ira Giller <ira@gillerandgiller.com> wrote:

PB18-0183

From: Ira Giller <ira@gillerandgiller.com>
Sent: Wednesday, October 11, 2023 5:46 PM
To: Dorman, Cory <cory.dorman@kimley-horn.com>
Cc: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>; Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Choueiry, Ghassan <GhassanChoueiry@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio <RogelioMadan@miamibeachfl.gov>
Subject: Re: 976 Arthur Godfrey Road - Methodology Review
[THIS MESSAGE COMES FROM AN EXTERNAL EMAIL - USE CAUTION WHEN REPLYING AND OPENING LINKS OR ATTACHMENTS]
Planning Case # is PB23-0635.

Ira D. Giller, A.I.A.

President

Giller & Giller, Inc.

975 Arthur Godfrey Rd. #600

Miami Beach, FL 33140

(O) 305-538-6324 (C) 305-205-3878

ARCHITECTS CONSTRUCTION MANAGERS

On Wed, Oct 11, 2023 at 5:40 PM Dorman, Cory <cory.dorman@kimley-horn.com> wrote:

Grant,

Thank you for confirming the committed developments to be included in the traffic impact analysis. Could you please provide the approved traffic impact analysis for the 340 West 42nd Street project? It did not appear to be contained within the provided link. Nonetheless, please find attached response to comments and updated traffic study methodology. Please let us know if the City has any further comments or if we can proceed with the analysis.

Note that I will defer to Ira with respect to whether a Planning Case number has been assigned.

Ghassan – Pleasure to meet you and look forward to working with you throughout this process.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

Kimley-Horn | 2 Alhambra Plaza, Suite 500, Coral Gables, FL 33134

Direct: (954) 535-5114 | Office: (305) 673-2025

Proud to be one of FORTUNE magazine's 100 Best Companies to Work For

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, October 11, 2023 2:32 PM

To: Dorman, Cory <cory.dorman@kimley-horn.com>; Ira Giller <ira@gillerandgiller.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Choueiry, Ghassan

<GhassanChoueiry@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski

<eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio

<RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Review

Hi Cory,

Here are the nearby committed developments (both under construction) per the Planning Department:

- 340 West 42nd Street, which is 7-story mixed use building with 55 units and a bank drive-thru. (PB18-0183)

<https://energovcss.miamibeachfl.gov/energovprod/selfservice#/plan/313221f1-ec2c-4add-ae9e-074cb77c3038?tab=attachments>

- 4000 Alton Road, which is a 9-story multifamily building with 176 units. (DRB21-0664)

<https://miamibeach.novusagenda.com/agendapublic/Coversheet.aspx?ItemID=24088&MeetingID=921>

Thank you Rogelio for sharing. Cory, please include these in the Traffic Study and let me know if you have any questions.

Best



Grant Webster, Transportation Planner
TRANSPORTATION & MOBILITY DEPARTMENT
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305-673-7000 Ext. 26839 www.miamibeachfl.gov

We are committed to providing excellent public service and safety to all who live, work and play in our vibrant, tropical, historic community.

 *Please do not print this e-mail unnecessarily*

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, October 11, 2023 1:27 PM

To: Dorman, Cory <cory.dorman@kimley-horn.com>; Ira Giller <ira@gillerandgiller.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Choueiry, Ghassan

<GhassanChoueiry@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski

<eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio

<RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Review

Good afternoon Cory,

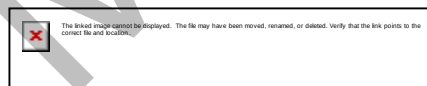
I haven't heard back from the Planning Department yet, but I just sent them a follow-up. I will advise you on their response and will let you know how to move forward if we don't hear back.

Additionally, I am pleased to introduce you to Ghassan Choueiry, the City of Miami Beach Transportation & Mobility Department's new Senior Transportation Engineer, CC'd on this email for your future reference.

Please keep him CC'd on this email and all future applications undergoing Transportation Department review.

Thank you

Best



Grant Webster, Transportation Planner
TRANSPORTATION & MOBILITY DEPARTMENT
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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Wednesday, October 11, 2023 12:11 PM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>;

Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: RE: 976 Arthur Godfrey Road - Methodology Review

[THIS MESSAGE COMES FROM AN EXTERNAL EMAIL - USE CAUTION WHEN REPLYING AND OPENING LINKS OR ATTACHMENTS]

Good Morning Grant,

We are in the process of finalizing our responses to the provided methodology comments as well as the updated traffic study methodology. Please let us know if you were able to obtain a list of nearby committed developments that need to be included in the traffic impact analysis.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, October 4, 2023 10:48 AM

To: Dorman, Cory <cory.dorman@kimley-horn.com>; Ira Giller <ira@gillerandgiller.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>;

Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Review

Good morning Cory,

Thank you for the follow-up. Methodology comments were received yesterday after-hours and reviewed and revised this morning. Attached are our comments on the Methodology for 976 Arthur Godfrey Road. For the committed developments, I will be contacting the Planning Department to confirm those nearby; in the meantime, please include what you already have and we will finalize the list for the Traffic Study. Please also include the Planning Case number on all future documentation once received.

Thank you and please let us know if you have any questions

Best



Grant Webster, Transportation Planner

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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Wednesday, October 4, 2023 7:54 AM

To: Ira Giller <ira@gillerandgiller.com>; Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>;

Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: RE: 976 Arthur Godfrey Road - Methodology Meeting

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Good Morning Grant,

Following-up on the status of the traffic study methodology review. Please let us know if the City has any comments.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

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From: Ira Giller <ira@gillerandgiller.com>

Sent: Tuesday, October 3, 2023 10:53 AM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Dorman, Cory <cory.dorman@kimley-horn.com>; Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Reyes,

Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@corrado.com>; Garavito, Alejandro

<AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Harrison -

I met with the Planning Dept. on September 28, 2023 to discuss the project. It will go to the Planning Board and then DRB. The Planning number will be issued upon my submission of the application later this month.

Ira D. Giller, A.I.A.

President

Giller & Giller, Inc.

975 Arthur Godfrey Rd. #600

Miami Beach, FL 33140

(O) 305-538-6324 (C) 305-205-3878

ARCHITECTS CONSTRUCTION MANAGERS

On Wed, Sep 20, 2023 at 11:59 AM Webster, Harrison <HarrisonWebster@miamibeachfl.gov> wrote:

Good morning Cory,

As a follow-up to my last email, I have spoken with the Planning Department and my Assistant Director, and a Traffic Study will be required for this project due to its lack of previous permits/approval per my current understanding of the existing development. We will provide more details in our Methodology Review as to what we will require.

Additionally, a meeting will still need to be scheduled with the Planning Department to discuss the proposed redevelopment.

Lastly, please send the planning case number for the proposed project.

Thank you

Best



Grant Webster, Transportation Planner

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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Tuesday, September 19, 2023 9:52 AM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>; Garavito, Alejandro <AlejandroGaravito@miamibeachfl.gov>; Madan, Rogelio <RogelioMadan@miamibeachfl.gov>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Good morning All,

Thank you for meeting with us last week to conduct your Methodology Meeting. We are now reviewing the Methodology for your project at 976 Arthur Godfrey Road.

In the meantime, I've spoken with the Planning Department regarding your (Ira's) meeting with Michael Belush and the need for this project to go to the Planning Board. Due to the proposed development being over 50,000 square feet (~96,000), it will need to appear before the Planning Board prior to its appearance at the Design Review Board. Please reach out to [@Garavito, Alejandro](mailto:@Garavito,Alejandro) and [@Madan, Rogelio](mailto:@Madan,Rogelio) with the Planning Department to schedule your pre-app meeting to discuss your project and please send me the invite once scheduled.

Additionally, we need the planning case numbers for the current project and the existing development to determine its previously approved square footage and land uses to see if a Traffic Study will be needed. I left a voicemail for Cory yesterday. Cory/Ira, please send the Planning Case number(s) for this project as discussed in our Methodology Meeting.

For everyone's reference, for projects appearing on 2024 Land Use Board schedules, the Planning Department will be joining the Transportation Department pre-app meetings moving forward.

Thank you

Best



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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, September 13, 2023 11:40 AM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>; Eric Czerniejewski <eczerniejewski@CORRADINO.com>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Hi Cory,

Great, I've sent the Teams invite to you and everyone you had CC'd on this email. Please forward the meeting to anyone else from your team you would like to be in attendance.

Attached are the 2023 and 2024 Land Use Board Schedules, as well as the Transportation Department Coordination Requirements.

What is the PB/HPB/DRB number for this project, and what meeting(s) are you targeting?

Thank you

Best



Grant Webster, Transportation Planner
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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Wednesday, September 13, 2023 11:30 AM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: RE: 976 Arthur Godfrey Road - Methodology Meeting

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Grant:

Good morning. Tomorrow at 10 am works for us.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, September 13, 2023 10:28 AM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Good morning Cory,

Received, thank you. I shared the Methodology for 976 Arthur Godfrey Road with our Peer Reviewer on Monday 9/11. I received their availability to meet today, are you/your team available for a 30-minute Methodology Meeting tomorrow morning, September 14th, at 10AM? Please confirm and I will send the Teams invite.

Thank you

Best



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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Monday, September 11, 2023 2:21 PM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: RE: 976 Arthur Godfrey Road - Methodology Meeting

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Grant:

Good afternoon. Please find attached traffic assessment methodology for the project. Please let us know when the City is ready to schedule a meeting to discuss.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Friday, September 8, 2023 1:54 PM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Great, I just wanted to confirm so there are no misunderstandings. I'll talk to you then, have a great weekend in the meantime.

Thank you

Best



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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Friday, September 8, 2023 1:52 PM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: RE: 976 Arthur Godfrey Road - Methodology Meeting

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Grant,

Understood. We are finalizing and will circulate by EOD Monday.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Friday, September 8, 2023 1:51 PM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: Re: 976 Arthur Godfrey Road - Methodology Meeting

Good afternoon All,

Reminder, we require the Methodology to be delivered in order to schedule a Methodology Meeting.

Thank you

Best



Grant Webster, Transportation Planner
TRANSPORTATION & MOBILITY DEPARTMENT
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305-673-7000 Ext. 26839 www.miamibeachfl.gov

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From: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Sent: Wednesday, September 6, 2023 9:02 AM

To: Dorman, Cory <cory.dorman@kimley-horn.com>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: Re: Proposed Redevelopment at 976 Arthur Godfrey Road - Traffic Study Methodology Meeting

Good morning Cory,

Do you have the Methodology Memorandum for 976 Arthur Godfrey Road prepared? We request it to be delivered three (3) business days prior to our Methodology Meeting for our review. Please share it with me if it is ready, and please prepare it if it is not so it can be shared with the Peer Reviewer.

Thank you

Best



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From: Dorman, Cory <cory.dorman@kimley-horn.com>

Sent: Tuesday, September 5, 2023 4:32 PM

To: Webster, Harrison <HarrisonWebster@miamibeachfl.gov>

Cc: Rodriguez, Otniel <OtnielRodriguez@miamibeachfl.gov>; Ira Giller <ira@gillerandgiller.com>; Reyes, Leonor <Leonor.Reyes@kimley-horn.com>

Subject: Proposed Redevelopment at 976 Arthur Godfrey Road - Traffic Study Methodology Meeting

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Grant:

Good afternoon. We'd like to schedule a traffic study methodology meeting with the Transportation Department to discuss the subject project. The existing development consists of a 1,734 square-foot office building, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot day care center. The proposed redevelopment includes approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. The existing development is proposed to be demolished as part of the proposed redevelopment. Based on the preliminary trip generation calculations, the proposed redevelopment is expected to result in 24 net new A.M. peak hour trips and 28 net new P.M. peak hour trips.

Please let us know Transportation Department's availability to discuss and if any additional information is needed in order to schedule the meeting.

Thanks,

Cory

Cory D. Dorman, P.E., PTOE, IMSA Level II

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MEMORANDUM

To: Otniel Rodriguez, E.I.
City of North Miami Beach

CC: Grant Webster
City of Miami Beach

From: Cory D. Dorman, P.E., PTOE

Date: October 12, 2023

Subject: 976 Arthur Godfrey Road – Proposed Development (PB23-0635)
Miami Beach, Florida
Traffic Study Methodology

The purpose of this memorandum is to summarize the traffic study methodology for the proposed redevelopment located at 976 Arthur Godfrey Road in Miami Beach, Florida. Currently, the site is occupied by 1,734 square feet of office space, a 4,701 square-foot restaurant, 7,804 square feet of retail space, and a 2,485 square-foot of day care center. The proposed redevelopment consists of approximately 36,293 square feet of office space, 6,682 square feet of retail space, and a 4,056 square-foot restaurant. Additionally, note that the existing development will be demolished as part of the proposed redevelopment. A conceptual site plan and a site location map are included in Attachment A. The following sections summarize our proposed traffic study methodology.

TRIP GENERATION

Trip generation calculations for the existing development and proposed redevelopment were performed using Institute of Transportation Engineers' (ITE) Trip Generation Manual, 11th Edition. Trip generation calculations were prepared for the weekday A.M. and P.M. peak hours. Note that the trip generation calculations may be updated based on revisions to the development program or site plan modifications. The trip generation for the existing development was determined using ITE Land Use Code (LUC) 712 (Small Office Building), LUC 932 (High-Turnover [Sit-Down] Restaurant), LUC 822 (Strip Retail Plaza) and LUC 565 (Day Care Center). The trip generation for the proposed redevelopment was determined using ITE LUC 710 (General Office Building), LUC 822 (Strip Retail Space), and LUC 932 (High-Turnover [Sit-Down] Restaurant).

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation* to Work data was reviewed for the census tract in which the development is located. A multimodal factor of 20.3 percent (20.3%) was determined for the proposed development. However, consistent with the City of Miami Beach requirements and to provide a conservative analysis, a multimodal factor of 20.0 percent (20.0%) was applied to the trip generation. It is expected that a portion of residents, guests, employees, and patrons will choose to walk, bike, or use public transit to and from the proposed development. Please note that the Miami-Dade County Department of Transportation and Public Works (DTPW) provides Metrobus transit Route 110/J, Route 113/M, Route 115, Route 150 and Route 241 within the vicinity of the proposed development. Additionally, the City of Miami Beach

provides the Middle Beach Loop trolley route which operate within the vicinity of the proposed development. Detailed transit route information is included in Attachment B.

Internal capture is expected between the complementary land uses within the project. Internal capture trips for the project were determined based upon methodology contained in the ITE's, *Trip Generation Handbook*, 3rd Edition. Internal capture rates of 32.4 percent (32.4%) for the A.M. peak hour trip generation and 25.0 percent (25.0%) for the P.M. peak hour trip generation are expected for the existing development. Internal capture rates of 26.0 percent (26.0%) for the A.M. peak hour trip generation and 19.4 percent (19.4%) for the P.M. peak hour trip generation are expected for the proposed redevelopment.

Pass-by capture trip rates were determined based on average rates provided in the ITE's *Trip Generation Handbook*, 3rd Edition. The average pass-by rate for LUC 932 (High-Turnover [Sit-Down] Restaurant) is 43.0 percent (43.0%) during the P.M. peak hour. Note that as ITE does not provide pass-by data for LUC 822, a pass-by rate of 40.0 percent (40.0%) based on LUC 821 (Shopping Plaza) was utilized during the P.M. peak hour. Excerpts from ITE's *Trip Generation Handbook*, 3rd Edition are provided in Attachment B.

The proposed redevelopment is expected to result in of 24 net new vehicle trips during the weekday A.M. peak hour and 28 net new vehicle trips during the weekday P.M. peak hour. Detailed trip generation calculations are included in Attachment B.

STUDY AREA

The following intersections will be examined as part of the study area:

- Alton Road and W 41st Street
- Garden Avenue and W 41st Street
- Meridian Avenue and W 41st Street
- Alton Road and W 39th Street

DATA COLLECTION

A.M. (7:30 A.M. to 9:30 A.M.) and P.M. (4:00 P.M. to 6:00 P.M.) peak period turning movement counts will be collected at all study intersections. Turning movement counts will be collected in 15-minute intervals during the two (2) peak periods. Turning movement counts will also include pedestrian, bicycle, and truck data. Additionally, all traffic counts will be adjusted to peak season conditions using the appropriate a Florida Department of Transportation (FDOT) peak season category factors. Traffic signal timing information will be obtained from Miami-Dade County DTPW – Traffic Signals and Signs Division. All traffic data collected will be provided in the Appendix of the traffic impact study.

TRIP DISTRIBUTION

The likely distribution of project traffic was forecast for the trips expected to be generated by the proposed development. The trip distribution was based on an interpolated cardinal trip distribution for the project site's traffic analysis zone (TAZ) obtained from the Miami-Dade Transportation Planning Organization's (TPO) 2045 LRTP *Directional Trip Distribution Report* travel demand model 2015 and 2045 data. The trip distribution for the anticipated build-out year of 2026 was interpolated from the 2015 and 2045 data. The project is located within TAZ 629. Detailed distribution calculations are contained in Attachment C.

EXISTING ROADWAY CHARACTERISTICS

The existing roadway characteristics within the vicinity of the study area will be evaluated based on a review of high-resolution aerial imagery. The existing roadway characteristics will include the number of lanes, roadway direction, sidewalks, bicycle and transit infrastructure, speed limit, and roadway ownership.

BACKGROUND GROWTH RATE

A background growth rate will be calculated based on historic growth trends at nearby FDOT traffic count stations that will examine linear, exponential, and decaying growth rates for the most recent five (5) and 10-year periods. Note that as a result of atypical traffic conditions due to the Covid-19 pandemic, the historic traffic data for the years of 2020 and 2021 will be interpolated between the years of 2019 and 2022. Additionally, growth rates based on the Florida Standard Urban Transportation Model Structure (FSUTMS) Southeast Regional Planning Model (SERPM) projected 2015 and 2045 model network volumes will be examined. The higher of the two (2) growth rates will be used in the analysis.

Additionally, the following projects were identified by the City of Miami Beach as committed developments to be included in future traffic conditions:

- 340 West 42nd Street
- 4000 Alton Road

PROGRAMMED ROADWAY IMPROVEMENTS

Local transportation plans will be reviewed in order to gather information about planned and programmed transportation improvements in the study area. The purpose of the plan review is to identify programmed capacity improvements for consideration in the analysis. The following transportation plans will be examined as part of the background research.

- Miami-Dade Transportation Planning Organization's (TPO) Transportation Improvements Program (TIP)
- Florida Department of Transportation's (FDOT's) Five-Year Work Program
- Miami-Dade County Transportation Planning Organization's (TPO) Long Range Transportation Plan (LRTP)
- City of Miami Beach's *Proposed FY 2024-2028 Capital Improvement Plan & FY 2024 Capital Budget*
- City of Miami Beach's *Transportation Master Plan*

CAPACITY ANALYSIS

Capacity analyses will be conducted for the A.M. and P.M. peak hours at the study intersections and roadway segments. Intersection analyses will be performed using Trafficware's *Synchro 12* traffic engineering analysis software, which applies methodologies outlined in the Transportation Research Board's (TRB's) *Highway Capacity Manual* (HCM), 2000/2010/6th Editions. Roadway segment capacity analyses will be conducted utilizing FDOT's 2023 *Multimodal Quality/Level of Service Handbook*. Capacity analyses will be conducted for three (3) scenarios: existing, future build-out year without project (future background conditions), future build-out year with project (future total conditions). A build-out year of 2026 will be used in the analysis.

The following graphics will be included for the study intersections:

- Existing conditions
- Future background traffic conditions (with growth rate and committed development traffic)
- Trip distribution
- Trip assignment
- Future total traffic conditions (with project)

PARKING EVALUATION

A summary of the required and proposed parking supply will be prepared and included as part of the traffic study based on parking calculations prepared by others.

GARAGE ENTRY GATE OPERATIONS ANALYSIS

If entry gates are proposed, an entry gate analysis will be prepared for parking garage entry points. The entry gate queuing analysis will be prepared for the weekday A.M. and P.M. peak hours. Entry gate queuing analysis will be conducted consistent with the procedures outlined in ITE's *Transportation and Land Development*, 1988 and/or *Parking Structures – Planning, Design, Construction, Maintenance, and Repair*, 2000 and 2011. The purpose of this analysis is to determine any future queue storage deficiencies at the entry gates and provide preliminary recommendations for mitigating these deficiencies.

TRANSPORTATION DEMAND MANAGEMENT STRATEGIES

Transportation Demand Management (TDM) strategies will be developed to reduce the impact of project traffic on the surrounding roadway network and promote trip reduction. Typical measures promote bicycling and walking, encourage car/vanpooling and offer alternatives to the typical workday hours.

DOCUMENTATION

The results of the traffic impact analysis will be summarized in a report. The report will include supporting documents including signal timings, lane geometry, and software output sheets. The report will also include text and graphics necessary to summarize the assumptions and analysis.

MANEUVERABILITY ANALYSIS

A maneuverability analysis for the site loading area will be performed utilizing Transoft Solutions' *AutoTURN* software. The results of the maneuverability analysis will be documented in a technical memorandum.

K:\FTL_TPTO\143742000-976 Arthur Godfrey Road\correspondence\memo\976 Arthur Godfrey Road Traffic Study Methodology.docx

Attachment A

Conceptual Site Plan and Location Map



Attachment B

Trip Generation Calculations and Transit Route Information

METHODOLOGY

Weekday A.M. and P.M Trip Generation Calculations

AM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY AM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS				
					Percent																					
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Small Office Building	11	712	1.734	ksf	82%	18%	2	1	3	20.0%	1	1	1	2	41.7%	1	1	0	1	0.0%	0	1	0	1
	2	High-Turnover (Sit-Down) Restaurant	11	932	4.701	ksf	55%	45%	25	20	45	20.0%	9	20	16	36	25.0%	9	14	13	27	0.0%	0	14	13	27
	3	Strip Retail Plaza	11	822	7.804	ksf	60%	40%	11	7	18	20.0%	4	9	5	14	35.7%	5	5	4	9	0.0%	0	5	4	9
	4	Day Care Center	11	565	2.485	ksf	53%	47%	14	13	27	20.0%	5	11	11	22	41.7%	9	9	4	13	0.0%	0	9	4	13
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
ITE Land Use Code					Rate or Equation		Total:		52	41	93	20.0%	19	41	33	74	32.4%	24	29	21	50	0.0%	0	29	21	50
712					Y=1.67(X)																					
932					Y=9.57(X)																					
822					Y=2.36(X)																					
565					Y=11(X)																					

PROPOSED WEEKDAY AM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS					
Land Use	ITE Edition	ITE Code	Scale	ITE Units	Percent		In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total			
					In	Out																					
1 General Office Building	11	710	36.293	ksf	88%	12%	62	8	70	20.0%	14	50	6	56	19.6%	11	45	0	45	0.0%	0	45	0	45			
2 Strip Retail Plaza	11	822	6.682	ksf	60%	40%	10	6	16	20.0%	3	8	5	13	38.5%	5	5	3	8	0.0%	0	5	3	8			
3 High-Turnover (Sit-Down) Restaurant	11	932	4.056	ksf	55%	45%	21	18	39	20.0%	8	17	14	31	32.3%	10	12	9	21	0.0%	0	12	9	21			
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											
13																											
14																											
15																											
ITE Land Use Code					Rate or Equation		Total:		93	32	125	20.0%	25	75	25	100	26.0%	26	62	12	74	0.0%	0	62	12	74	
710					LN(Y) = 0.86*LN(X)+1.16																						
822					Y=2.36(X)																						
932					Y=9.57(X)																						

	IN	OUT	TOTAL
NET NEW TRIPS	33	-9	24

PM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY PM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS				
					Percent																					
Land Use					ITE Edition	ITE Code	Scale	ITE Units																		
					In	Out			In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Small Office Building	11	712	1.734	ksf	34%	66%	1	3	4	20.0%	1	1	2	3	11.5%	0	1	2	3	0.0%	0	1	2	3
	2	High-Turnover (Sit-Down) Restaurant	11	932	4.701	ksf	61%	39%	26	17	43	20.0%	9	21	13	34	32.4%	11	15	8	23	43.0%	10	8	5	13
	3	Strip Retail Plaza	11	822	7.804	ksf	50%	50%	32	33	65	20.0%	13	26	26	52	26.9%	14	19	19	38	40.0%	15	12	11	23
	4	Day Care Center	11	565	2.485	ksf	47%	53%	13	15	28	20.0%	5	11	12	23	11.5%	3	10	10	20	0.0%	0	10	10	20
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
ITE Land Use Code					Rate or Equation		Total:		72	68	140	20.0%	28	59	53	112	25.0%	28	45	39	84	29.8%	25	31	28	59
712					Y=2.16(X)																					
932					Y=9.05(X)																					
822					LN(Y) = 0.71*LN(X)+2.72																					
565					Y=11.12(X)																					

PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS								
					Percent																									
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total				
GROUP 2	1	General Office Building	11	710	36.293	ksf	17%	83%	12	60	72	20.0%	14	10	48	58	3.4%	2	10	46	56	0.0%	0	10	46	56				
	2	Strip Retail Plaza	11	822	6.682	ksf	50%	50%	29	29	58	20.0%	12	23	23	46	28.3%	13	16	17	33	40.0%	13	10	10	20				
	3	High-Turnover (Sit-Down) Restaurant	11	932	4.056	ksf	61%	39%	23	14	37	20.0%	7	19	11	30	36.7%	11	13	6	19	43.0%	8	7	4	11				
	4																													
	5																													
	6																													
	7																													
	8																													
	9																													
	10																													
	11																													
	12																													
	13																													
	14																													
	15																													
ITE Land Use Code					Rate or Equation					Total:			64	103	167	20.0%	33	52	82	134	19.4%	26	39	69	108	19.4%	21	27	60	87
710					LN(Y) = 0.83*LN(X)+1.29																									
822					LN(Y) = 0.71*LN(X)+2.72																									
932					Y=9.05(X)																									
																						NET NEW TRIPS		IN		OUT		TOTAL		
																						-4		32		28				

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY (EXISTING)

GROSS TRIP GENERATION					
INPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	12	12	12	14
	Retail	9	5	26	26
	Restaurant	20	16	21	13
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		41	33	59	53
INTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	2	8	1	2
	Retail	4	1	7	7
	Restaurant	6	3	6	5
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		12	12	14	14
OUTPUT	Total % Reduction	32.4%		25.0%	
	Office	41.7%		11.5%	
	Retail	35.7%		26.9%	
	Restaurant	25.0%		32.4%	
	Cinema/Entertainment				
	Residential				
	Hotel				
EXTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	10	4	11	12
	Retail	5	4	19	19
	Restaurant	14	13	15	8
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		29	21	45	39

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY (PROPOSED)

GROSS TRIP GENERATION					
INPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	50	6	10	48
	Retail	8	5	23	23
	Restaurant	17	14	19	11
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		75	25	52	82
INTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	5	6	0	2
	Retail	3	2	7	6
	Restaurant	5	5	6	5
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		13	13	13	13
OUTPUT	Total % Reduction	26.0%		19.4%	
	Office	19.6%		3.4%	
	Retail	38.5%		28.3%	
	Restaurant	32.3%		36.7%	
	Cinema/Entertainment				
	Residential				
	Hotel				
EXTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	45	0	10	46
	Retail	5	3	16	17
	Restaurant	12	9	13	6
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		62	12	39	69

METHODOLOGY

US Census Data

MEANS OF TRANSPORTATION TO WORK



Note: This is a modified view of the original table produced by the U.S. Census Bureau. This download or printed version may have missing information from the original table.

$(23+79+269)/(2189-364) = 20.3\%$

Census Tract 40, Miami-Dade County, Florida

Label	Estimate	Margin of Error
▼ Total:	2,189	±21
▼ Car, truck, or van:	1,399	±21
Drove alone	1,212	±19
▼ Carpooled:	187	±11
In 2-person carpool	161	±10
In 3-person carpool	22	±5
In 4-person carpool	0	±1
In 5- or 6-person carpool	0	±1
In 7-or-more-person carpool	4	±1
▼ Public transportation (excluding taxicab):	23	±3
Bus	23	±3
Subway or elevated rail	0	±1
Long-distance train or commuter rail	0	±1
Light rail, streetcar or trolley (carro público in Puerto Rico)	0	±1
Ferryboat	0	±1
Taxicab	0	±1
Motorcycle	55	±5
Bicycle	79	±11
Walked	269	±11
Other means	0	±1
Worked from home	364	±11

Table Notes

MEANS OF TRANSPORTATION TO WORK

Survey/Program: American Community Survey

Universe: Workers 16 years and over

Year: 2019

Estimates: 5-Year

Table ID: B08301

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities, and towns and estimates of housing units for states and counties.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Technical Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see ACS Technical Documentation). The effect of nonsampling error is not represented in these tables.

Workers include members of the Armed Forces and civilians who were at work last week.

2019 ACS data products include updates to several categories of the existing means of transportation question. For more information, see: Change to Means of Transportation.

The 2015-2019 American Community Survey (ACS) data generally reflect the September 2018 Office of Management and Budget (OMB) delineations of metropolitan and micropolitan statistical areas. In certain instances, the names, codes, and boundaries of the principal cities shown in ACS tables may differ from the OMB delineation lists due to differences in the effective dates of the geographic entities.

Estimates of urban and rural populations, housing units, and characteristics reflect boundaries of urban areas defined based on Census 2010 data. As a result, data for urban and rural areas from the ACS do not necessarily reflect the results of ongoing urbanization.

Explanation of Symbols:

An "***" entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

An "-" entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution, or the margin of error associated with a median was larger than the median itself.

An "-" following a median estimate means the median falls in the lowest interval of an open-ended distribution.

An "+" following a median estimate means the median falls in the upper interval of an open-ended distribution.

An "***" entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.

An "*****" entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

An "N" entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.

An "(X)" means that the estimate is not applicable or not available.

ITE Trip Generation Excerpts

[illegible]

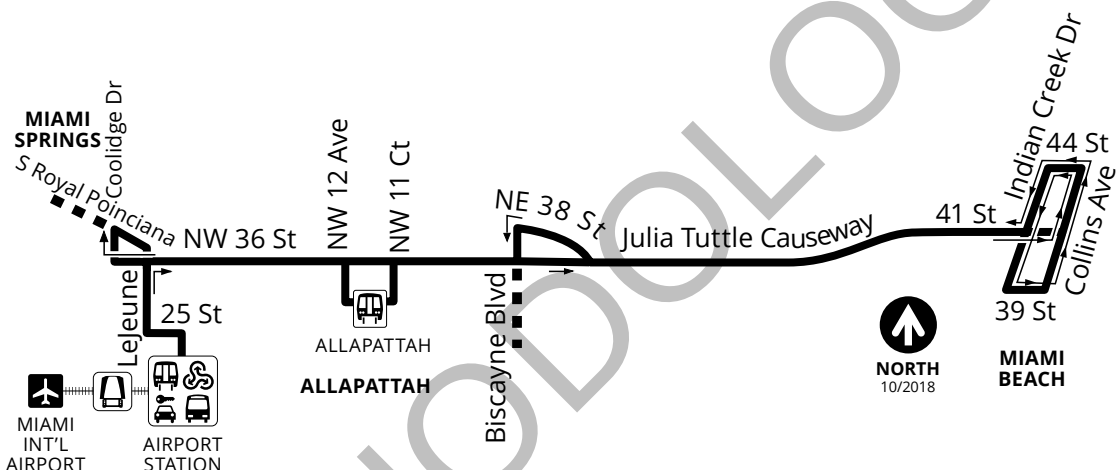
Source: ITE *Trip Generation Manual*, 11th Edition

[illegible]

METHODOLOGY

Transit Route Information

DTPW Routes and Headways



 METRORAIL STATION

 METROBUS TERMINAL

 TRI-RAIL STATION

 RENTAL CAR FACILITY

 MIA MOVER

 AIRPORT

WEEKDAYS / DIAS LABORABLES / LASEMÈN

EASTBOUND RUMBO ESTE / DIREKSYON ÈS		MORNING MAÑANA / MATEN				EVERY CADA/CHAK 20 min		MORNING MAÑANA / MATEN				PM AFTERNOON / TARDE / APRÈ MIDI						EVERY CADA/CHAK 20 min		EVENING / NOCHE / CHAK ASWÈ							
						FROM DESDE/DE	TO HASTA/A											FROM DESDE/DE	TO HASTA/A								
 MIA METRORAIL	4:29	5:20	5:54	6:15	6:30	9:50	10:20	10:50	11:20	11:50	12:20	12:50	1:20	1:50	2:20	2:50	3:20	6:40	7:10	7:50	8:45	9:45	10:45	11:50	12:15		
NW 36 ST & 42 AV	4:34	5:25	5:59	6:21	6:36	9:56	10:26	10:56	11:26	11:56	12:26	12:56	1:26	1:56	2:26	2:56	3:27	6:47	7:16	7:56	8:51	9:51	10:50	11:55	12:20		
NW 36 ST & 33 AV	4:37	5:28	6:03	6:25	6:40	10:00	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:00	2:30	3:00	3:31	6:51	7:20	8:00	8:55	9:55	10:54	11:59	12:23		
NW 36 ST & 32 AV	4:38	5:29	6:04	6:26	6:41	10:01	10:31	11:01	11:31	12:01	12:31	1:01	1:31	2:01	2:31	3:01	3:32	6:52	7:21	8:01	8:56	9:56	10:55	12:00	12:24		
NW 36 ST & 27 AV	4:40	5:31	6:06	6:28	6:43	10:03	10:33	11:03	11:33	12:03	12:33	1:03	1:33	2:03	2:33	3:03	3:34	6:54	7:23	8:03	8:58	9:58	10:57	12:02	12:26		
 ALLAPATTAH METRORAIL	4:46	5:37	6:14	6:36	6:51	10:12	10:42	11:12	11:42	12:12	12:42	1:12	1:42	2:12	2:42	3:12	3:43	7:02	7:29	8:09	9:04	10:04	11:03	12:08	12:32		
NE 36 ST & BISCAYNE BD	4:53	5:44	6:23	6:45	7:02	10:23	10:53	11:23	11:53	12:23	12:53	1:23	1:53	2:23	2:53	3:24	3:55	7:11	7:38	8:18	9:13	10:12	11:11	12:15	12:39		
41 ST & ALTON RD	4:58	5:49	6:29	6:51	7:09	10:31	11:01	11:31	12:01	12:31	1:01	1:31	2:01	2:31	3:01	3:32	4:03	7:17	7:44	8:24	9:19	10:17	11:16	12:20	12:44		
INDIAN CREEK DR & 40 ST	5:04	5:55	6:35	6:57	7:16	10:39	11:09	11:39	12:09	12:39	1:09	1:39	2:09	2:39	3:10	3:41	4:12	7:24	7:51	8:31	9:26	10:23	11:22	12:26	12:50		

WESTBOUND RUMBO OESTE / DIREKSYON WÈS		EVERY 20 min CADA/CHAK		MORNING MAÑANA / MATEN				PM AFTERNOON / TARDE / APRÈ MIDI						EVERY 20 min CADA/CHAK		EVENING / NOCHE / CHAK ASWÈ							
		FROM DESDE/DE	TO HASTA/A											FROM DESDE/DE	TO HASTA/A								
INDIAN CREEK DR & 40 ST	5:09	5:40	9:50	10:20	10:50	11:20	11:50	12:20	12:50	1:25	1:55	2:25	2:55	3:25	7:05	7:35	8:05	8:45	9:31	10:28	11:27	12:30	12:55
41 ST & ALTON RD	5:15	5:46	9:59	10:29	10:59	11:29	11:59	12:29	12:59	1:34	2:05	2:35	3:05	3:35	7:13	7:43	8:13	8:53	9:39	10:35	11:34	12:36	1:01
BISCAYNE BLVD & NE 36 ST	5:20	5:51	10:07	10:37	11:07	11:37	12:07	12:37	1:07	1:42	2:13	2:43	3:13	3:43	7:20	7:50	8:20	9:00	9:46	10:41	11:40	12:41	1:06
 ALLAPATTAH METRORAIL	5:27	5:58	10:18	10:48	11:18	11:48	12:18	12:48	1:18	1:53	2:24	2:54	3:24	3:54	7:29	7:59	8:29	9:09	9:55	10:50	11:49	12:49	1:14
NW 36 ST & 27 AV	5:33	6:06	10:27	10:57	11:27	11:57	12:27	12:57	1:27	2:03	2:34	3:04	3:34	4:04	7:37	8:07	8:37	9:17	10:03	10:57	11:56	12:55	1:20
NW 36 ST & 32 AV	5:35	6:08	10:29	10:59	11:29	11:59	12:29	12:59	1:29	2:05	2:36	3:06	3:36	4:06	7:39	8:09	8:39	9:19	10:05	10:59	11:58	12:57	1:22
NW 36 ST & 33 AV	5:36	6:09	10:30	11:00	11:30	12:00	12:30	1:00	1:30	2:06	2:37	3:07	3:37	4:07	7:40	8:10	8:40	9:20	10:06	11:00	11:59	-	-
NW 36 ST & COOLIDGE DR	5:41	6:14	10:37	11:07	11:37	12:07	12:37	1:07	1:37	2:14	2:45	3:15	3:45	4:15	7:46	8:16	8:46	9:26	10:12	11:06	12:05	-	-
 MIA METRORAIL	5:45	6:19	10:42	11:12	11:42	12:12	12:42	1:12	1:42	2:20	2:51	3:21	3:51	4:21	7:51	8:21	8:51	9:31	10:16	11:10	12:09	-	-

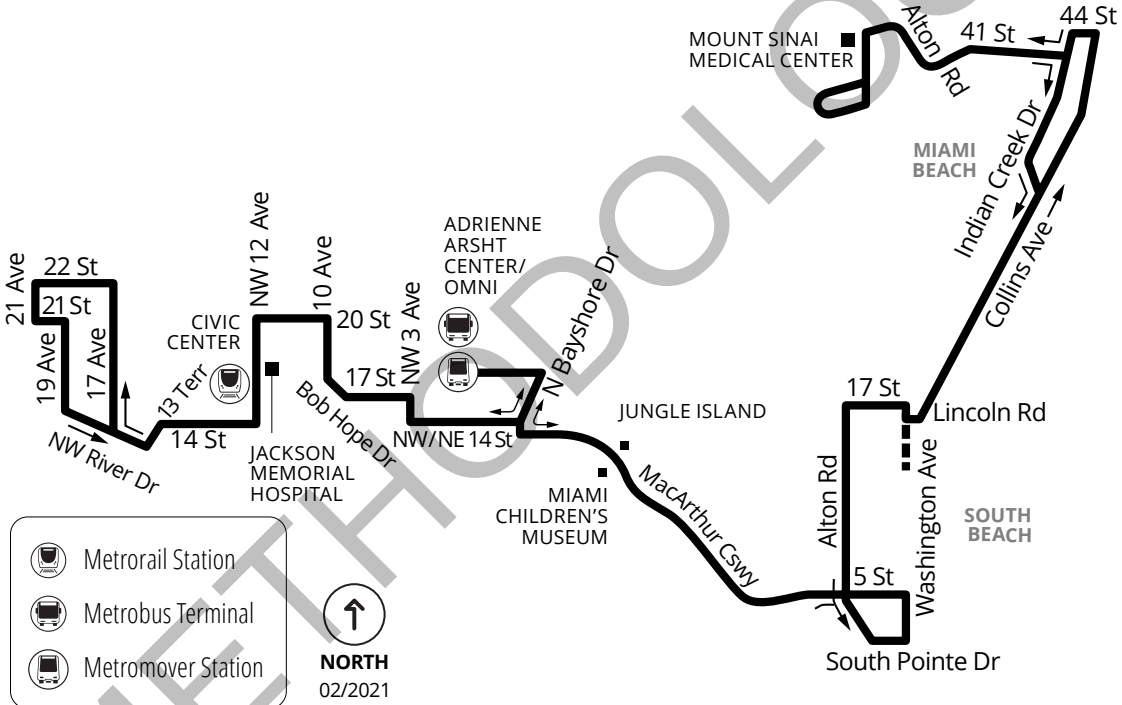
Scheduled times are approximate. Actual arrival and departure times may vary depending on traffic and road conditions.

Las horas publicadas son aproximadas, pues dependen del tráfico y otras condiciones de las vías.
Ore yo apwoksimatif. Vre le bis yo ap rive oswa deplase ka varye selon kondisyon sikilasyon sou wout yo.





M 113 ON GPS APPS



@GoMiamiDade



GO Miami-Dade Transit

miamidade.gov/transit



311 or 305.468.5900 TTY/Fla Relay: 711



WEEKDAYS / DIAS LABORABLES / JOU LASEMÈN

EASTBOUND

RUMBO ESTE / DIREKSYON IS

MORNING / MAÑANA / MATEN

AM

PM

AFTERNOON AND EVENING / TARDE Y NOCHE / APREMIDI AK ASWÈ

NW 21 Ave & 22 St

5:42

6:20

6:55

7:45

8:30

9:15

9:55

10:55

11:55

12:55

1:55

2:55

3:40

4:30

5:15

6:00

6:45

7:35

8:35

9:35

NW 12 Ave & 15 St

5:48

6:27

7:03

7:53

8:38

9:23

10:03

11:03

12:03

1:03

2:03

3:03

3:48

4:38

5:23

6:08

6:53

7:42

8:42

9:42



Omni Terminal / Arsht Metromover

5:58

6:39

7:16

8:06

8:51

9:37

10:17

11:17

12:17

1:17

2:17

3:17

4:02

4:52

5:37

6:22

7:07

7:55

8:55

9:55

Alton Rd & 2 St

6:08

6:49

7:27

8:17

9:02

9:48

10:28

11:28

12:28

1:28

2:28

3:28

4:14

5:04

5:49

6:34

7:18

8:06

9:06

10:06

5 St & Lenox Ave

6:13

6:54

7:33

8:23

9:08

9:54

10:34

11:34

12:34

1:34

2:34

3:34

4:20

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Lincoln Rd & James Ave

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Indian Creek Dr & 43 St

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41 St & Alton Rd

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Mt Sinai Hospital

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WESTBOUND

RUMBO OESTE / DIREKSYON IWÈS

MORNING / MAÑANA / MATEN

AM

PM

AFTERNOON AND EVENING / TARDE Y NOCHE / APREMIDI AK ASWÈ

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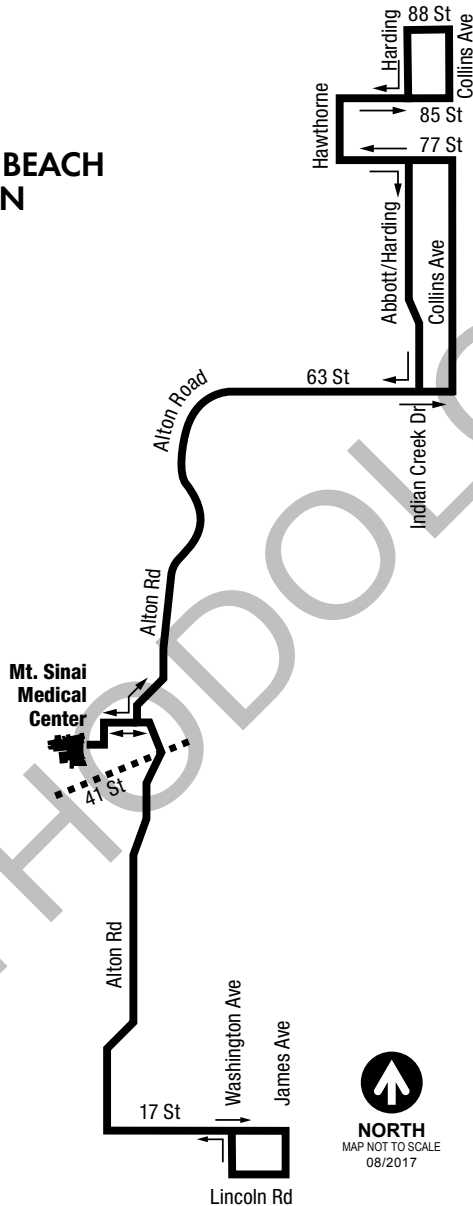
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115

MID-NORTH BEACH CONNECTION



NORTH
MAP NOT TO SCALE
08/2017



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GO Miami-Dade Transit

miamidade.gov/transit 311 or 305.468.5900 TTY/Fla Relay: 711



WEEKDAYS | ENTRE SEMANA | LA SEMEN

SOUTHBOUND RUMBO SUR DIREKSYON SID	MORNING MAÑANA / MATIN						AM	PM	AFTERNOON TARDE / APREMIDI							
Collins Ave & 87 St	7:20	8:10	9:00	9:50	10:40	11:30	12:20	1:10	2:00	2:50	3:40	4:30	5:20	6:10	7:00	
Abbott Ave & 69 St	7:34	8:24	9:12	10:02	10:52	11:42	12:32	1:22	2:12	3:02	3:52	4:42	5:32	6:22	7:12	
Mt Sinai Hospital	7:47	8:37	9:25	10:15	11:05	11:55	12:45	1:35	2:25	3:15	4:05	4:55	5:45	6:35	7:22	
Lincoln & Washington	8:04	8:54	9:44	10:34	11:24	12:14	1:04	1:54	2:44	3:34	4:24	5:14	6:04	6:54	7:37	
NORTHBOUND RUMBO NORTE DIREKSYON NÒ	MORNING MAÑANA / MATIN						AM	PM	AFTERNOON TARDE / APREMIDI							
Lincoln & Washington	8:06	8:56	9:46	10:36	11:26	12:16	1:06	1:56	2:46	3:36	4:26	5:16	6:06	6:56		
Mt Sinai Hospital	8:21	9:11	10:00	10:50	11:40	12:30	1:20	2:10	3:00	3:50	4:40	5:30	6:20	7:10		
Collins Ave & 69 St	8:35	9:25	10:14	11:04	11:54	12:44	1:34	2:24	3:14	4:04	4:54	5:44	6:34	7:22		
Collins Ave & 87 St	8:51	9:41	10:30	11:20	12:10	1:00	1:50	2:40	3:30	4:19	5:09	5:59	6:49	7:37		

WEEKENDS | FINES DE SEMANA | WIKENN

SOUTHBOUND RUMBO SUR DIREKSYON SID	MORNING MAÑANA / MATIN						AFTERNOON TARDE / APREMIDI								
							AM	PM							
Collins Ave & 87 St	7:20	8:10	9:00	9:50	10:40	11:30	12:20	1:10	2:00	2:50	3:40	4:30	5:20	6:10	7:00
Abbott Ave & 69 St	7:30	8:20	9:11	10:01	10:51	11:41	12:31	1:21	2:11	3:01	3:51	4:41	5:31	6:21	7:10
Mt Sinai Hospital	7:40	8:30	9:22	10:12	11:02	11:52	12:42	1:32	2:22	3:12	4:02	4:52	5:42	6:32	7:20
Lincoln & Washington	7:54	8:44	9:38	10:28	11:18	12:08	12:58	1:48	2:38	3:28	4:18	5:08	5:58	6:48	7:33
NORTHBOUND RUMBO NORTE DIREKSYON NÒ	MORNING MAÑANA / MATIN						AFTERNOON TARDE / APREMIDI								
							AM	PM							
Lincoln & Washington	7:56	8:46	9:40	10:30	11:20	12:10	1:00	1:50	2:40	3:30	4:20	5:10	6:00	6:50	
Mt Sinai Hospital	8:08	8:58	9:52	10:42	11:32	12:22	1:12	2:02	2:52	3:42	4:32	5:22	6:12	7:02	
Collins Ave & 69 St	8:20	9:11	10:05	10:55	11:49	12:35	1:25	2:15	3:05	3:55	4:46	5:36	6:26	7:13	
Collins Ave & 87 St	8:34	9:25	10:19	11:09	11:59	12:49	1:39	2:29	3:19	4:09	5:00	5:50	6:40	7:25	

Scheduled times are approximate. Actual arrival and departure times may vary depending on traffic and road conditions.

Las horas publicadas son aproximadas, pues dependen del tráfico y otras condiciones de las vías. Ore yo apwoksimatíf. Vre le bis yo ap rive oswa deplase ka varye selon kondisyon sikilasyon sou wout yo.



115

MID-NORTH
BEACH
CONNECTION



@GoMiamiDade



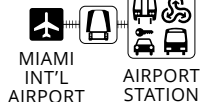
GO Miami-Dade Transit

miamidade.gov/transit



311 or 305.468.5900 TTY/Fla Relay: 711





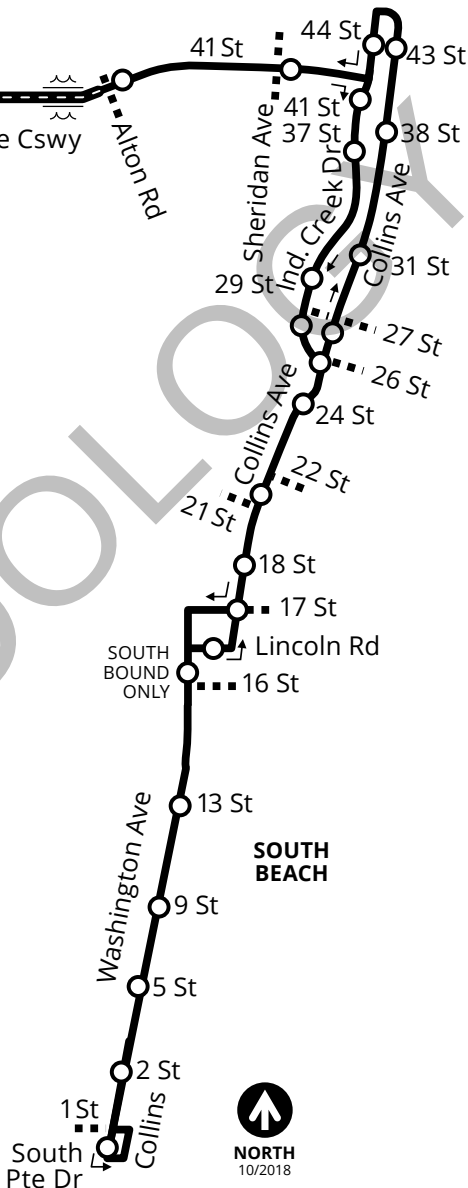
LIMITED STOP
Route serves
these stops only



150

MIAMI BEACH AIRPORT EXPRESS

- | | |
|-------------------|---------------------|
| METRORAIL STATION | METROBUS TERMINAL |
| TRI-RAIL STATION | RENTAL CAR FACILITY |
| MIA MOVER | AIRPORT |



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GO Miami-Dade Transit

miamidade.gov/transit 311 or 305.468.5900 TTY/Fla Relay: 711



SEVEN DAYS A WEEKLOS SIETE DIAS
SET JOU YON SEMEN

EVERY CADA / CHAK

20_m**EASTBOUND**

RUMBO ESTE / DIREKSYON IS

FROM

DESDE • DE

UNTIL*

HASTA • A

**MIA METRORAIL****STATION****6:00****a.m.****11:40****p.m.****41 ST & ALTON RD****6:14****a.m.****11:52****p.m.****41 ST & INDIAN
CREEK****6:20****a.m.****11:57****p.m.****LINCOLN RD &
WASHINGTON AVE****6:29****a.m.****12:06****a.m.****SOUTH POINTE DR &
WASHINGTON AVE****6:39****a.m.****12:16****a.m.****WESTBOUND**

RUMBO OESTE / DIREKSYON WES

FROM

DESDE • DE

UNTIL*

HASTA • A

**SOUTH POINTE DR &
WASHINGTON AVE****5:10****a.m.****10:55****p.m.****LINCOLN RD &
WASHINGTON AVE****5:20****a.m.****11:05****p.m.****41 ST & INDIAN
CREEK****5:29****a.m.****11:14****p.m.****41 ST & ALTON RD****5:33****a.m.****11:18****p.m.****MIA METRORAIL****STATION****5:45****a.m.****11:30****p.m.*****LAST FOUR TRIPS 30 MINUTES APART**

ULTIMOS CUATRO VIAJES 30 MINUTOS APARTE/DENYE KAT SOTI 30 MINIT APA

Frequencies are approximate and may vary depending on traffic and road conditions/Frecuencias son aproximadas, pues dependen del trafico y otras condiciones de las vias/Asosye yo apwoksimatif epi yo ka varye selon kondisyon sikilasyon sou wout yo

**150**MIAMI
BEACH
AIRPORT
EXPRESSMIAMI-DADE
COUNTY

@GoMiamiDade



GO Miami-Dade Transit

miamidade.gov/transit ☎ 311 or 305.468.5900 TTY/Fla Relay: 711



241

TUTTLE LIMITED

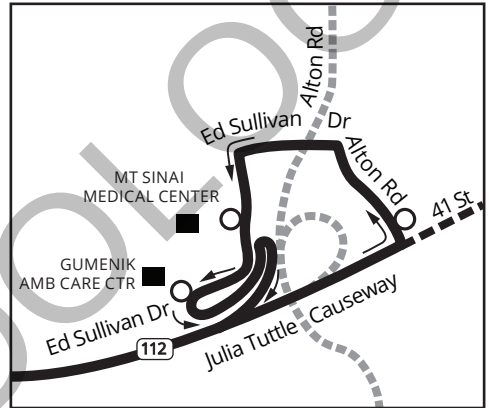
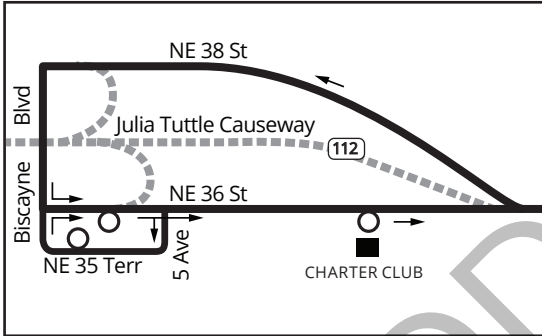


LIMITED STOPS

entire route



NORTH
12/2021



MIDTOWN
MIAMI

Julia Tuttle Causeway

112

MT SINAI
MEDICAL CENTER

MIAMI
BEACH



@GoMiamiDade



GO Miami-Dade Transit

miamidade.gov/transit 311 or 305.468.5900 TTY/Fla Relay: 711



SEVEN DAYS A WEEK

LOS SIETE DIAS SET JOU YON SEMEN

EASTBOUND RUMBO ESTE DIREKSYON IS	EVERY CADA/CHAK 15 min		
	FROM DESDE/DE	AM PM	TO HASTA/A
NE 35 Terr & 5 Ave	5:00		10:00
Mt Sinai Hospital	5:08		10:08
WESTBOUND RUMBO OESTE DIREKSYON IWES	EVERY CADA/CHAK 15 min		
	FROM DESDE/DE	AM PM	TO HASTA/A
Mt Sinai Hospital	5:08		10:08
NE 35 Terr & 5 Ave	5:18		10:18

Frequencies are approximate and may vary depending on traffic and road conditions/
Frecuencias son aproximadas, pues dependen del trafico y otras condiciones de las
vias/Asosye yo apwoksimatif epi yo ka varye selon kondisyon sikilasyon sou wout yo



[@GoMiamiDade](https://www.instagram.com/GoMiamiDade)
[GO Miami-Dade Transit](https://play.google.com/store/apps/details?id=com.miamidade.transit)
miamidade.gov/transit
 311 or 305.468.5900 TTY/Fla Relay: 711

City of Miami Beach Trolley Routes



MIDDLE BEACH LOOP

TROLLEY CONNECTIONS

COLLINS EXPRESS		MIDDLE BEACH LOOP
MIDDLE BEACH LOOP		SOUTH BEACH LOOP
COLLINS EXPRESS		SOUTH BEACH LOOP

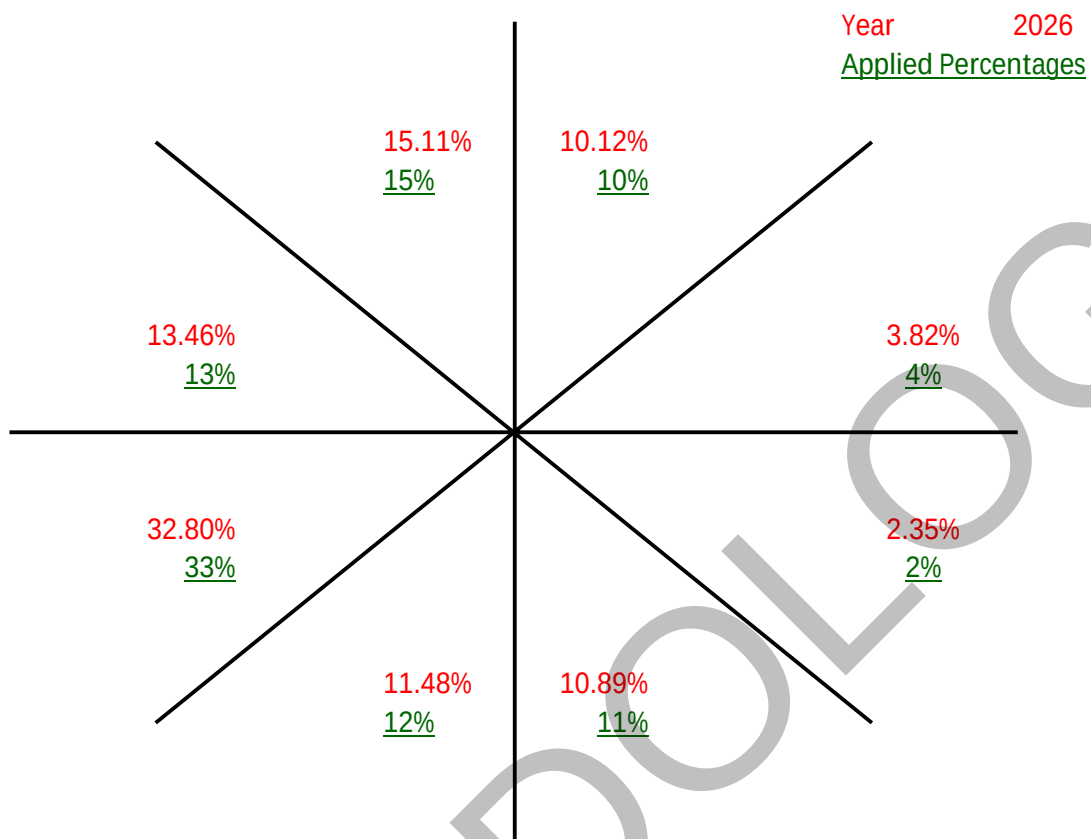


METHODOLOGY

Attachment C

Trip Distribution

Cardinal Distribution for TAZ 629



Cardinal Trip Distribution

Cardinal Direction	Percentage of Trips		2026 Interpolated	2026 Rounded
	2015	2045		
North-Northeast	9.9%	10.5%	10.1%	10.0%
East-Northeast	3.6%	4.2%	3.8%	4.0%
East-Southeast	2.2%	2.6%	2.3%	2.0%
South-Southeast	9.9%	12.6%	10.9%	11.0%
South-Southwest	10.6%	13.0%	11.5%	12.0%
West-Southwest	35.4%	28.3%	32.8%	33.0%
West-Northwest	13.9%	12.7%	13.5%	13.0%
North-Northwest	14.6%	16.0%	15.1%	15.0%
Total	100.1%	99.9%	100.0%	100.0%



MIAMI-DADE TRANSPORTATION PLANNING ORGANIZATION

2045 LRTP

SUPPORTING DOCUMENTS

DIRECTIONAL TRIP DISTRIBUTION REPORT

SEPTEMBER 2019

Miami-Dade 2045 Cost Feasible Plan Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
625	3525	Trips	515	114	-	541	802	1,791	829	1,096	5,972
625	3525	Percent	9.1	2.0	-	9.5	14.1	31.5	14.6	19.3	
626	3526	Trips	66	-	-	-	2,417	3,260	1,417	2,993	11,237
626	3526	Percent	0.7	-	-	-	23.8	32.1	14.0	29.5	
627	3527	Trips	174	-	-	-	2,276	3,212	1,138	1,885	9,055
627	3527	Percent	2.0	-	-	-	26.2	37.0	13.1	21.7	
628	3528	Trips	238	-	23	101	1,053	1,266	390	660	4,028
628	3528	Percent	6.4	-	0.6	2.7	28.2	33.9	10.5	17.7	
629	3529	Trips	1,686	621	373	1,692	1,801	6,032	2,362	2,490	18,425
629	3529	Percent	9.9	3.6	2.2	9.9	10.6	35.4	13.9	14.6	
630	3530	Trips	888	-	326	303	1,717	3,876	1,515	1,553	11,277
630	3530	Percent	8.7	-	3.2	3.0	16.9	38.1	14.9	15.3	
631	3531	Trips	296	-	-	-	1,351	2,360	838	1,324	6,591
631	3531	Percent	4.8	-	-	-	21.9	38.3	13.6	21.5	
632	3532	Trips	343	-	-	-	1,500	2,647	1,390	1,098	7,499
632	3532	Percent	4.9	-	-	-	21.5	37.9	19.9	15.7	
633	3533	Trips	368	-	-	-	1,052	1,986	859	841	5,391
633	3533	Percent	7.2	-	-	-	20.6	38.9	16.8	16.5	
634	3534	Trips	1,404	80	149	773	1,637	2,733	1,332	1,712	10,593
634	3534	Percent	14.3	0.8	1.5	7.9	16.7	27.8	13.6	17.4	
635	3535	Trips	566	-	-	-	1,311	2,266	1,228	1,254	7,246
635	3535	Percent	8.5	-	-	-	19.8	34.2	18.5	18.9	
636	3536	Trips	1,066	-	-	607	978	3,045	1,398	1,193	8,805
636	3536	Percent	12.9	-	-	7.3	11.8	36.8	16.9	14.4	
637	3537	Trips	468	44	144	315	198	868	501	309	2,865
637	3537	Percent	16.5	1.6	5.1	11.1	6.9	30.5	17.6	10.9	
638	3538	Trips	127	33	78	94	79	401	285	185	1,342
638	3538	Percent	9.9	2.6	6.1	7.3	6.2	31.3	22.2	14.5	
639	3539	Trips	944	303	253	1,068	176	2,395	1,085	905	7,569
639	3539	Percent	13.2	4.3	3.6	15.0	2.5	33.6	15.2	12.7	
640	3540	Trips	119	74	216	10	30	177	136	147	1,166
640	3540	Percent	13.1	8.2	23.7	1.1	3.4	19.4	14.9	16.2	
641	3541	Trips	1,145	1,056	206	569	242	2,378	1,724	1,142	9,066
641	3541	Percent	13.5	12.5	2.4	6.7	2.9	28.1	20.4	13.5	
642	3542	Trips	1,701	1,196	113	964	433	3,470	2,140	1,631	12,324
642	3542	Percent	14.6	10.3	1.0	8.3	3.7	29.8	18.4	14.0	
643	3543	Trips	1,884	580	-	1,133	631	3,768	2,190	2,157	13,183
643	3543	Percent	15.3	4.7	-	9.2	5.1	30.5	17.7	17.5	
644	3544	Trips	1,948	-	-	-	2,227	5,534	3,264	3,082	17,780
644	3544	Percent	12.1	-	-	-	13.9	34.5	20.3	19.2	
645	3545	Trips	1,314	-	-	-	844	1,661	2,170	1,703	8,075
645	3545	Percent	17.1	-	-	-	11.0	21.6	28.2	22.1	
646	3546	Trips	1,025	-	125	496	263	1,741	1,656	1,299	6,976
646	3546	Percent	15.5	-	1.9	7.5	4.0	26.4	25.1	19.7	
647	3547	Trips	296	122	96	109	79	582	661	405	2,490
647	3547	Percent	12.6	5.2	4.1	4.6	3.4	24.8	28.1	17.3	
648	3548	Trips	943	278	128	313	73	1,525	1,351	576	5,397
648	3548	Percent	18.2	5.4	2.5	6.0	1.4	29.4	26.0	11.1	
649	3549	Trips	643	120	121	216	43	873	952	508	3,661
649	3549	Percent	18.5	3.4	3.5	6.2	1.3	25.1	27.4	14.6	
650	3550	Trips	60	71	65	8	14	279	312	136	969
650	3550	Percent	6.4	7.5	6.9	0.9	1.5	29.5	33.0	14.4	

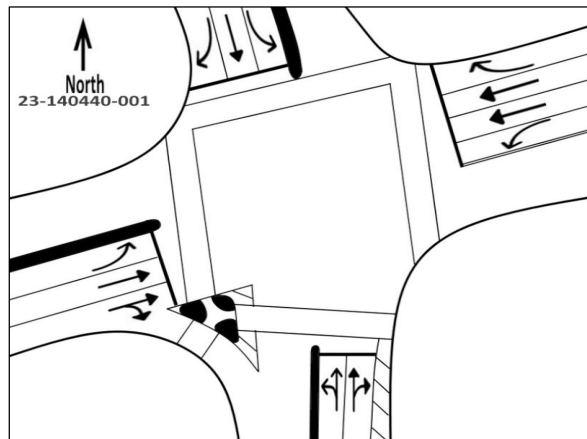
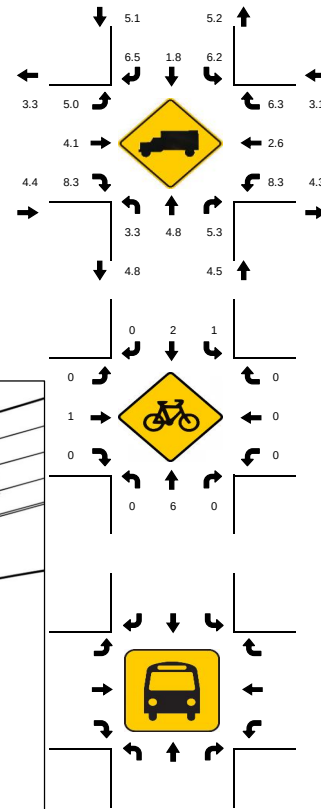
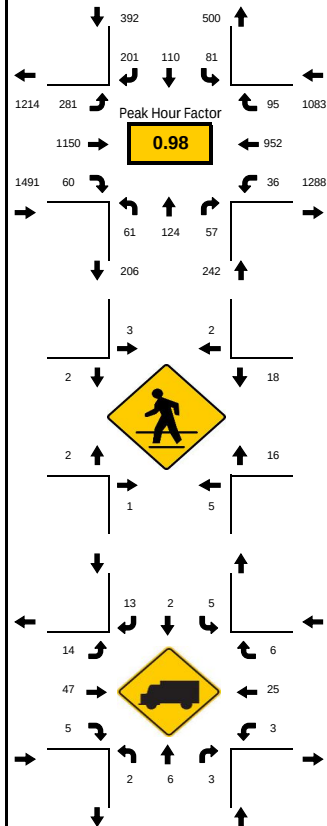
Miami-Dade 2015 Base Year Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
625	3525	Trips	610	160	-	557	431	1,317	679	1,035	4,961
625	3525	Percent	12.7	3.3	-	11.6	9.0	27.5	14.2	21.6	
626	3526	Trips	122	-	-	-	2,090	2,277	1,198	2,942	9,399
626	3526	Percent	1.4	-	-	-	24.2	26.4	13.9	34.1	
627	3527	Trips	279	-	-	-	2,051	2,578	845	1,965	8,061
627	3527	Percent	3.6	-	-	-	26.6	33.4	11.0	25.5	
628	3528	Trips	298	-	49	79	984	902	332	679	3,579
628	3528	Percent	9.0	-	1.5	2.4	29.6	27.2	10.0	20.5	
629	3529	Trips	1,374	549	344	1,656	1,708	3,707	1,668	2,101	14,261
629	3529	Percent	10.5	4.2	2.6	12.6	13.0	28.3	12.7	16.0	
630	3530	Trips	952	-	210	347	1,696	2,375	794	1,114	8,135
630	3530	Percent	12.7	-	2.8	4.6	22.7	31.7	10.6	14.9	
631	3531	Trips	255	-	-	-	1,215	1,471	440	1,030	4,651
631	3531	Percent	5.8	-	-	-	27.6	33.4	10.0	23.4	
632	3532	Trips	309	-	-	-	1,242	1,751	750	635	4,880
632	3532	Percent	6.6	-	-	-	26.5	37.4	16.0	13.5	
633	3533	Trips	310	-	-	-	1,181	1,428	750	730	4,590
633	3533	Percent	7.0	-	-	-	26.9	32.5	17.1	16.6	
634	3534	Trips	1,502	112	240	837	1,718	1,928	976	1,727	9,998
634	3534	Percent	16.6	1.2	2.7	9.3	19.0	21.3	10.8	19.1	
635	3535	Trips	779	-	-	-	2,021	1,994	952	1,411	8,010
635	3535	Percent	10.9	-	-	-	28.2	27.9	13.3	19.7	
636	3536	Trips	1,041	-	-	686	1,152	2,072	911	1,071	7,384
636	3536	Percent	15.0	-	-	9.9	16.6	29.9	13.1	15.4	
637	3537	Trips	323	31	87	217	126	601	303	290	1,987
637	3537	Percent	16.4	1.6	4.4	11.0	6.4	30.4	15.3	14.7	
638	3538	Trips	152	35	87	86	114	218	162	126	999
638	3538	Percent	15.5	3.6	8.9	8.7	11.6	22.3	16.5	12.9	
639	3539	Trips	825	281	277	1,089	131	1,364	796	599	5,721
639	3539	Percent	15.4	5.2	5.2	20.3	2.4	25.4	14.9	11.2	
640	3540	Trips	344	247	868	104	43	685	405	274	3,053
640	3540	Percent	11.6	8.3	29.2	3.5	1.5	23.1	13.6	9.2	
641	3541	Trips	1,051	1,714	291	723	309	1,572	1,188	916	8,356
641	3541	Percent	13.5	22.1	3.7	9.3	4.0	20.3	15.3	11.8	
642	3542	Trips	1,849	1,404	115	1,263	457	2,697	1,962	1,518	12,299
642	3542	Percent	16.4	12.5	1.0	11.2	4.1	23.9	17.4	13.5	
643	3543	Trips	1,747	551	-	965	479	2,595	1,554	1,715	10,383
643	3543	Percent	18.2	5.7	-	10.1	5.0	27.0	16.2	17.9	
644	3544	Trips	2,022	-	-	-	2,250	4,141	2,585	2,646	15,224
644	3544	Percent	14.8	-	-	-	16.5	30.4	19.0	19.4	
645	3545	Trips	1,268	-	-	-	907	1,498	1,720	1,351	7,018
645	3545	Percent	18.8	-	-	-	13.5	22.2	25.5	20.0	
646	3546	Trips	986	-	156	520	250	1,081	1,094	1,181	5,470
646	3546	Percent	18.7	-	3.0	9.9	4.7	20.5	20.8	22.4	
647	3547	Trips	350	103	114	165	66	354	359	408	1,979
647	3547	Percent	18.2	5.4	5.9	8.6	3.5	18.5	18.7	21.2	
648	3548	Trips	1,027	434	254	401	48	903	1,001	514	4,747
648	3548	Percent	22.4	9.5	5.5	8.8	1.0	19.7	21.9	11.2	
649	3549	Trips	754	192	184	230	41	612	743	427	3,320
649	3549	Percent	23.7	6.0	5.8	7.2	1.3	19.2	23.3	13.4	
650	3550	Trips	45	80	104	0	14	155	304	133	850
650	3550	Percent	5.4	9.6	12.4	0.0	1.6	18.5	36.5	16.0	

Appendix C

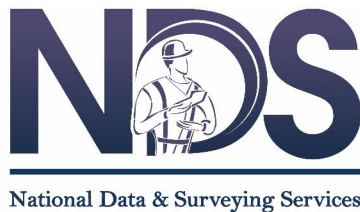
Traffic Data

Turning Movement Counts

PROJECT ID: 23-140440-001
DATE: Wed, Nov 08, 2023



15-Min Count Period Beginning At	Alton Rd Northbound					Alton Rd Southbound					W 41st St Eastbound					W 41st St Westbound					Total	Hourly Total
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
7:30 AM	37	40	9	0		9	51	28	0		79	290	47	1		22	204	13	0		830	3165
7:45 AM	44	31	12	0		18	33	48	0		65	293	35	1		12	222	22	0		836	3150
8:00 AM	13	20	12	0		5	24	33	0		52	313	15	1		6	230	19	0		743	3132
8:15 AM	15	38	9	0		9	17	42	0		70	285	17	0		9	231	14	0		756	3195
8:30 AM	15	43	9	0		20	28	53	0		66	279	16	0		7	252	27	0		815	3208
8:45 AM	19	38	16	0		18	25	57	1		65	273	14	0		4	266	22	0		818	2393
9:00 AM	17	20	11	0		20	39	54	0		78	312	14	0		9	207	25	0		806	1575
9:15 AM	9	23	21	1		22	18	37	0		70	286	16	2		16	227	21	0		769	769
Peak 15-Min Flowrates	Northbound					Southbound					Eastbound					Westbound					Total	
	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*	Left	Thru	Rgt	U	R*		
All Vehicles	76	172	84	4		88	156	228	4		312	1248	64	8		64	1064	108	0		3680	
Heavy Trucks	4	16	8	0		8	4	24	0		16	56	8	0		4	36	12	0		196	
Pedestrians		12					12					12					60				96	
Bicycles	0	12	0	0		4	4	0	0		0	4	0	0		0	0	0	0		24	
Buses																						
Stopped Buses																						

[illegible]

National Data & Surveying Services

Intersection Turning Movement Count

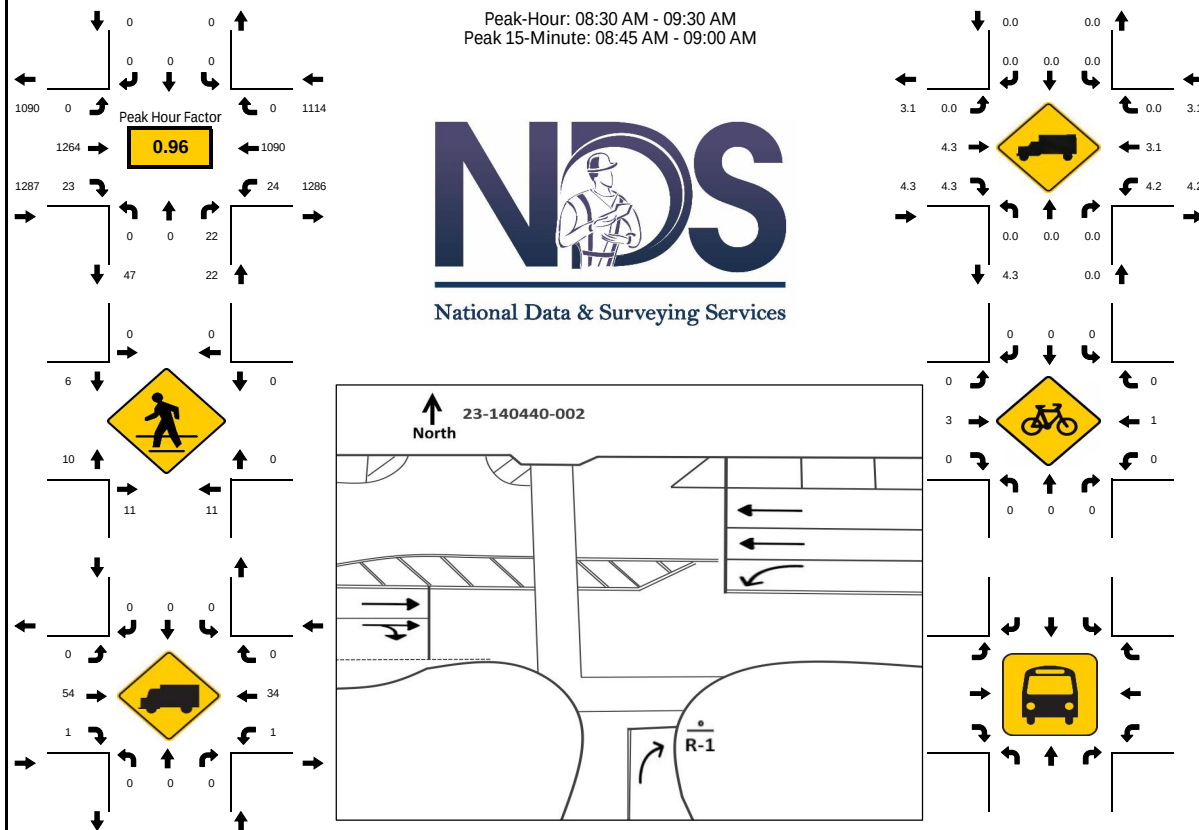
Location: Alton Rd & W 41st St
City: Miami Beach
Control: Signalized

Project ID: 23-140440-001
Date: 11/8/2023

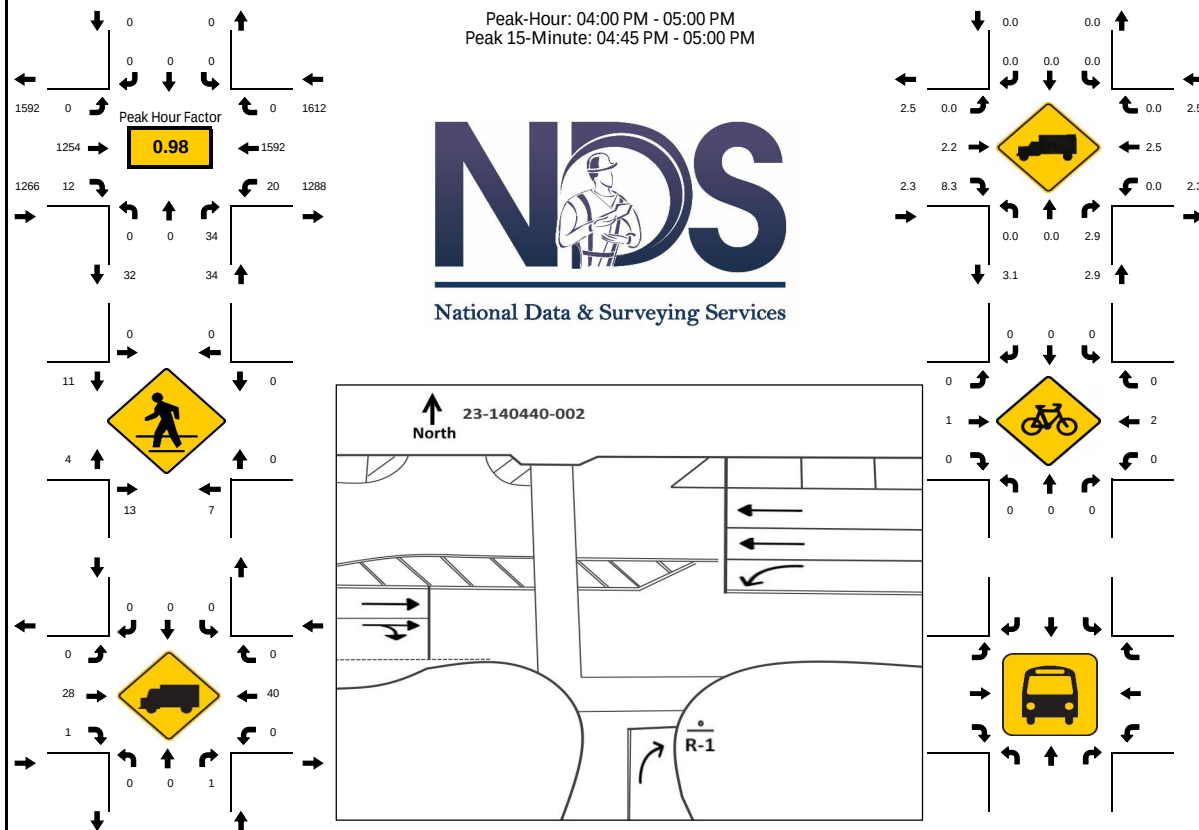
Data - RTOR

NS/EW Streets:	Alton Rd				Alton Rd				W 41st St				W 41st St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:30 AM	0	0	2	0	0	0	19	0	0	0	0	0	0	0	4	0	25
7:45 AM	0	0	4	0	0	0	34	0	0	0	0	0	0	0	0	0	38
8:00 AM	0	0	4	0	0	0	22	0	0	0	0	0	0	0	1	0	27
8:15 AM	0	0	1	0	0	0	38	0	0	0	0	0	0	0	3	0	42
8:30 AM	0	0	1	0	0	0	45	0	0	0	0	0	0	0	6	0	52
8:45 AM	0	0	7	0	0	0	45	0	0	0	0	0	0	0	5	0	57
9:00 AM	0	0	1	0	0	0	37	0	0	0	0	0	0	0	1	0	39
9:15 AM	0	0	5	0	0	0	21	0	0	0	0	0	0	0	12	0	38
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	25	0	0	0	261	0	0	0	0	0	0	0	32	0	318
	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	08:30 AM - 09:30 AM																TOTAL
PEAK HR VOL :	0	0	14	0	0	0	148	0	0	0	0	0	0	0	24	0	186
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.000	0.822	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.816
	0.500				0.822								0.500				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	0	2	0	0	0	60	0	0	0	0	0	0	0	0	0	62
4:15 PM	0	0	3	0	0	0	51	0	0	0	0	0	0	0	3	0	57
4:30 PM	0	0	1	0	0	0	53	0	0	0	0	0	0	0	1	0	55
4:45 PM	0	0	0	0	0	0	54	0	0	0	0	0	0	0	2	0	56
5:00 PM	0	0	0	0	0	0	64	0	0	0	0	0	0	0	1	0	65
5:15 PM	0	0	0	0	0	0	44	0	0	0	0	0	0	0	1	0	45
5:30 PM	0	0	4	0	0	0	81	0	0	0	0	0	0	0	1	0	86
5:45 PM	0	0	3	0	0	0	39	0	0	0	0	0	0	0	1	0	43
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	13	0	0	0	446	0	0	0	0	0	0	0	10	0	469
	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	6	0	0	0	218	0	0	0	0	0	0	0	6	0	230
PEAK HR FACTOR :	0.000	0.000	0.500	0.000	0.000	0.000	0.908	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.927
	0.500				0.908								0.500				

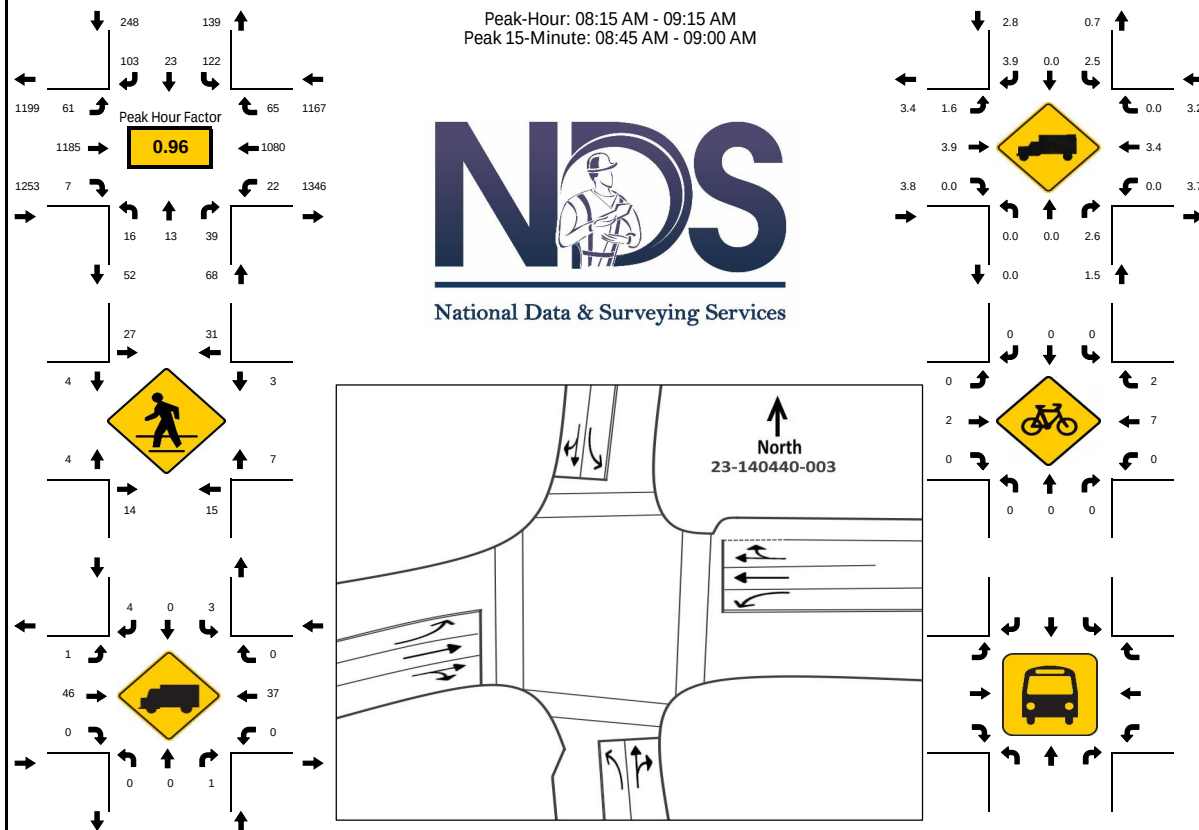
PROJECT ID: 23-140440-002
DATE: Wed, Nov 08, 2023

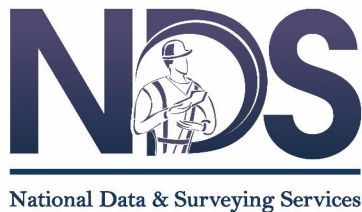
[illegible]

PROJECT ID: 23-140440-002
DATE: Wed, Nov 08, 2023

[illegible]

PROJECT ID: 23-140440-003
DATE: Wed, Nov 08, 2023

[illegible]

[illegible]

National Data & Surveying Services

Intersection Turning Movement Count

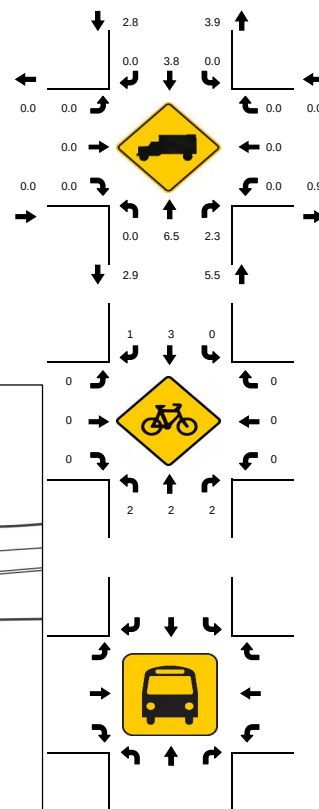
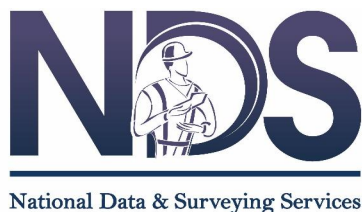
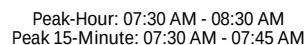
Location: Meridian Ave & W 41st St
City: Miami Beach
Control: Signalized

Project ID: 23-140440-003
Date: 11/8/2023

Data - RTOR

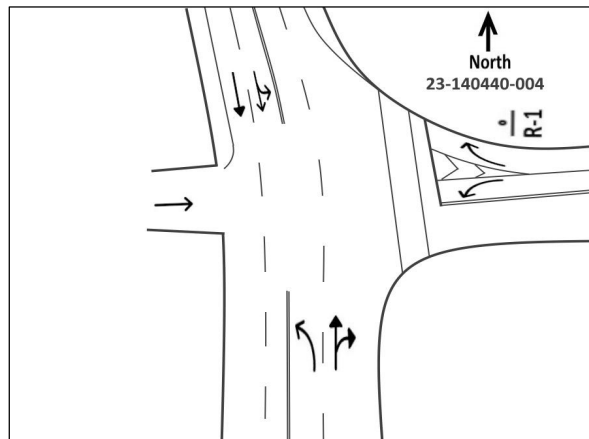
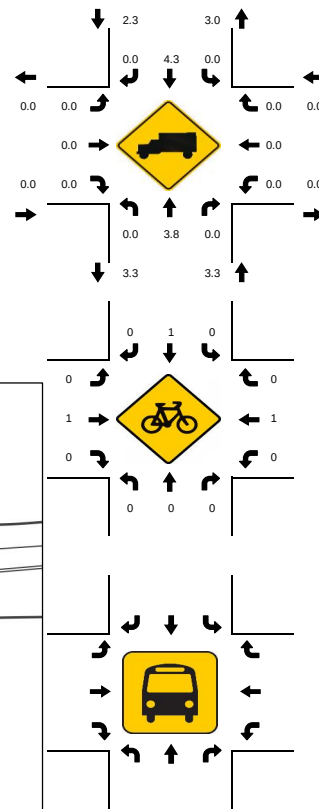
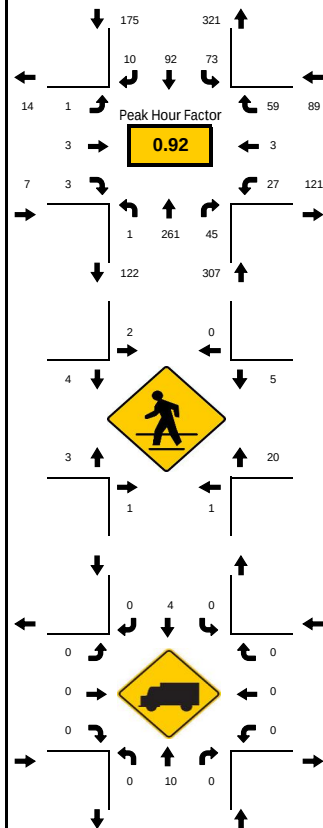
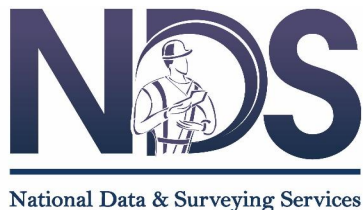
NS/EW Streets:	Meridian Ave				Meridian Ave				W 41st St				W 41st St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:30 AM	0	0	9	0	0	0	13	0	0	0	0	0	0	0	0	0	22
7:45 AM	0	0	1	0	0	0	22	0	0	0	0	0	0	0	0	0	23
8:00 AM	0	0	2	0	0	0	13	0	0	0	0	0	0	0	2	0	17
8:15 AM	0	0	3	0	0	0	13	0	0	0	0	0	0	0	0	0	16
8:30 AM	0	0	8	0	0	0	14	0	0	0	0	0	0	0	0	0	22
8:45 AM	0	0	8	0	0	0	14	0	0	0	0	0	0	0	0	0	22
9:00 AM	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	12
9:15 AM	0	0	2	0	0	0	18	0	0	0	0	0	0	0	0	0	20
TOTAL VOLUMES :	NL 0	NT 0	NR 33	NU 0	SL 0	ST 0	SR 119	SU 0	EL 0	ET 0	ER 0	EU 0	WL 0	WT 0	WR 2	WU 0	TOTAL 154
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	08:15 AM - 09:15 AM																TOTAL
PEAK HR VOL :	0	0	19	0	0	0	53	0	0	0	0	0	0	0	0	0	72
PEAK HR FACTOR :	0.000	0.000	0.594	0.000	0.000	0.000	0.946	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.818
	0.594				0.946												
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0 NL	0 NT	0 NR	0 NU	0 SL	0 ST	0 SR	0 SU	0 EL	0 ET	0 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	0	5	0	0	0	30	0	0	0	0	0	0	0	0	0	35
4:15 PM	0	0	7	0	0	0	12	0	0	0	0	0	0	0	0	0	19
4:30 PM	0	0	4	0	0	0	14	0	0	0	0	0	0	0	1	0	19
4:45 PM	0	0	3	0	0	0	11	0	0	0	1	0	0	0	1	0	16
5:00 PM	0	0	7	0	0	0	11	0	0	0	0	0	0	0	0	0	18
5:15 PM	0	0	4	0	0	0	12	0	0	0	0	0	0	0	0	0	16
5:30 PM	0	0	4	0	0	0	17	0	0	0	0	0	0	0	0	0	21
5:45 PM	0	0	2	0	0	0	14	0	0	0	0	0	0	0	0	0	16
TOTAL VOLUMES :	NL 0	NT 0	NR 36	NU 0	SL 0	ST 0	SR 121	SU 0	EL 0	ET 0	ER 1	EU 0	WL 0	WT 0	WR 2	WU 0	TOTAL 160
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	0	19	0	0	0	67	0	0	0	1	0	0	0	2	0	89
PEAK HR FACTOR :	0.000	0.000	0.679	0.000	0.000	0.000	0.558	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.636
	0.679				0.558				0.250				0.500				

PROJECT ID: 23-140440-004
DATE: Wed, Nov 08, 2023

[illegible]

PROJECT ID: 23-140440-004
DATE: Wed, Nov 08, 2023

Peak-Hour: 04:00 PM - 05:00 PM
Peak 15-Minute: 04:30 PM - 04:45 PM

[illegible]

Peak Season Category Report

2022 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
 CATEGORY: 8700 MIAMI-DADE NORTH

WEEK	DATES	SF	MOCF: 0.96 PSCF
1	01/01/2022 - 01/01/2022	1.06	1.10
2	01/02/2022 - 01/08/2022	1.04	1.08
3	01/09/2022 - 01/15/2022	1.02	1.06
4	01/16/2022 - 01/22/2022	1.01	1.05
5	01/23/2022 - 01/29/2022	1.00	1.04
6	01/30/2022 - 02/05/2022	0.98	1.02
7	02/06/2022 - 02/12/2022	0.97	1.01
* 8	02/13/2022 - 02/19/2022	0.96	1.00
* 9	02/20/2022 - 02/26/2022	0.96	1.00
* 10	02/27/2022 - 03/05/2022	0.96	1.00
* 11	03/06/2022 - 03/12/2022	0.96	1.00
* 12	03/13/2022 - 03/19/2022	0.96	1.00
* 13	03/20/2022 - 03/26/2022	0.96	1.00
* 14	03/27/2022 - 04/02/2022	0.96	1.00
* 15	04/03/2022 - 04/09/2022	0.96	1.00
* 16	04/10/2022 - 04/16/2022	0.95	0.99
* 17	04/17/2022 - 04/23/2022	0.96	1.00
* 18	04/24/2022 - 04/30/2022	0.96	1.00
* 19	05/01/2022 - 05/07/2022	0.97	1.01
* 20	05/08/2022 - 05/14/2022	0.97	1.01
21	05/15/2022 - 05/21/2022	0.98	1.02
22	05/22/2022 - 05/28/2022	0.99	1.03
23	05/29/2022 - 06/04/2022	0.99	1.03
24	06/05/2022 - 06/11/2022	1.00	1.04
25	06/12/2022 - 06/18/2022	1.01	1.05
26	06/19/2022 - 06/25/2022	1.01	1.05
27	06/26/2022 - 07/02/2022	1.01	1.05
28	07/03/2022 - 07/09/2022	1.02	1.06
29	07/10/2022 - 07/16/2022	1.02	1.06
30	07/17/2022 - 07/23/2022	1.02	1.06
31	07/24/2022 - 07/30/2022	1.02	1.06
32	07/31/2022 - 08/06/2022	1.01	1.05
33	08/07/2022 - 08/13/2022	1.01	1.05
34	08/14/2022 - 08/20/2022	1.01	1.05
35	08/21/2022 - 08/27/2022	1.03	1.07
36	08/28/2022 - 09/03/2022	1.04	1.08
37	09/04/2022 - 09/10/2022	1.05	1.09
38	09/11/2022 - 09/17/2022	1.07	1.11
39	09/18/2022 - 09/24/2022	1.05	1.09
40	09/25/2022 - 10/01/2022	1.03	1.07
41	10/02/2022 - 10/08/2022	1.01	1.05
42	10/09/2022 - 10/15/2022	0.99	1.03
43	10/16/2022 - 10/22/2022	1.00	1.04
44	10/23/2022 - 10/29/2022	1.01	1.05
45	10/30/2022 - 11/05/2022	1.01	1.05
46	11/06/2022 - 11/12/2022	1.02	1.06
47	11/13/2022 - 11/19/2022	1.03	1.07
48	11/20/2022 - 11/26/2022	1.04	1.08
49	11/27/2022 - 12/03/2022	1.05	1.09
50	12/04/2022 - 12/10/2022	1.05	1.09
51	12/11/2022 - 12/17/2022	1.06	1.10
52	12/18/2022 - 12/24/2022	1.04	1.08
53	12/25/2022 - 12/31/2022	1.02	1.06

* PEAK SEASON

23-FEB-2023 09:11:23

830UPD

6_8700_PKSEASON.TXT

Signal Timing Data

TOD Schedule Report

for 2650: Alton Rd&Art Godfrey Rd

Print Date:
10/4/2021

Print Time:
3:12 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2650	Alton Rd&Art Godfrey Rd	DOW-2	TOD	[07] NOON/LUNCH	120	97	N/A	1	Max 2

Splits

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	SBL	NBT	WBL	EBT	-	SBT
8	52	6	30	8	52	0	42
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	<u>Phase Bank</u>																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	0	0	0	0	0	5	5	5	2	2	2	6	6	10	22	15	15	3.7	2
2 WBT	5	5	5	37	14	14	7	7	7	1	1	1	30	32	40	0	26	0	4	2.3
3 SBL	0	0	0	0	0	0	5	5	5	2	2	2	6	6	10	10	6	5	3.7	2
4 NBT	4	4	4	33	26	26	7	7	7	2.5	2.5	2.5	15	16	20	22	16	16	4	2.3
5 WBL	0	0	0	0	0	0	5	5	5	2	2	2	6	6	10	20	6	10	3.7	2
6 EBT	5	5	5	37	14	14	7	7	7	1	1	1	30	32	40	0	26	0	4	2.3
7 -	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 SBT	4	4	4	33	26	26	7	7	7	2.5	2.5	2.5	15	16	20	22	16	16	4	2.3

Last In Service Date: unknown

Permitted Phases

	12345678
Default	123456-8
External Permit 0	123456-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

TOD Schedule Report

for 2650: Alton Rd&Art Godfrey Rd

Print Date:
10/4/2021

Print Time:
3:12 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 SBL	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		180	21	99	6	29	7	113	0	42	0	109
2		100	9	31	6	30	9	31	0	37	0	43
3		120	6	54	6	28	7	53	0	42	0	110
4		100	6	34	6	30	7	33	0	42	0	62
5		120	8	52	6	30	8	52	0	42	0	86
6		140	9	68	9	30	19	58	0	45	0	103
7		120	8	52	6	30	8	52	0	42	0	97
8		120	7	52	7	30	7	52	0	43	0	65
9		140	9	68	9	30	19	58	0	45	0	103
10		160	21	79	6	29	7	93	0	42	0	129
11		100	6	34	6	29	7	33	0	42	0	62
13		140	9	70	7	30	9	70	0	43	0	83
18		160	14	83	9	30	14	83	0	45	0	90
19		160	6	93	7	30	6	93	0	43	0	118
23		160	9	74	8	45	9	74	0	59	0	118
24		160	7	82	8	39	7	82	0	53	0	118
25		180	6	114	6	29	27	93	0	42	0	129

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	Su
0600	13	M T W Th F
0700	4	Su
0715	9	M T W Th F
0800	2	Su
0915	5	M T W Th F
1100	5	S
1145	6	M T W Th F
1230	7	S
1230	5	Su
1345	7	M T W Th F
1430	19	W
1530	19	M T Th F
1800	9	Su
1930	2	M T W Th F
2100	4	Su
2300	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFU	----4--	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
2330	TOD OUTPUTS	-----1	M T W Th

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	----4--	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0200	TOD OUTPUTS	-----2-	Su
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su
0800	TOD OUTPUTS	----4--	Su
1800	TOD OUTPUTS	-----	Su
2330	TOD OUTPUTS	-----1	M T W Th

* Settings

Blank - FREE - Phase Bank 1, Max 1
 Blank - Plan - Phase Bank 1, Max 2
 1 - Phase Bank 2, Max 1
 2 - Phase Bank 2, Max 2
 3 - Phase Bank 3, Max 1
 4 - Phase Bank 3, Max 2
 5 - EXTERNAL PERMIT 1
 6 - EXTERNAL PERMIT 2
 7 - X-PED OMIT
 8 - TBA

No Calendar Defined/Enabled

TOD Schedule Report
for 2750: Art Godfrey Rd&Meridian Av

Print Date:
10/4/2021

Print Time:
3:25 PM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2750	Art Godfrey Rd&Meridian Av	DOW-2	TOD	[07] NOON/LUNCH	120	113	N/A	1	Max 2

Splits

<u>PH 1</u>	<u>PH 2</u>	<u>PH 3</u>	<u>PH 4</u>	<u>PH 5</u>	<u>PH 6</u>	<u>PH 7</u>	<u>PH 8</u>
EBL	WBT	-	NBT	WBL	EBT	-	SBT
14	54	0	34	14	54	0	34
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	<u>Phase Bank</u>																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	-	0 - 0	0	-	0 - 0	5	-	5 - 5	2	-	2 - 2	5	-	5 - 15	15	-	15 - 20	3.7	2
2 WBT	5	-	5 - 5	16	-	16 - 16	5	-	5 - 5	1	-	1 - 1	35	-	30 - 50	0	-	0 - 0	4	2.3
3 -	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	0
4 NBT	5	-	5 - 5	25	-	25 - 25	7	-	7 - 7	2.5	-	2.5 - 2.5	12	-	15 - 12	25	-	20 - 16	4	2.3
5 WBL	0	-	0 - 0	0	-	0 - 0	5	-	5 - 5	2	-	2 - 2	5	-	5 - 15	15	-	15 - 20	3.7	2
6 EBT	5	-	5 - 5	16	-	16 - 16	5	-	5 - 5	1	-	1 - 1	35	-	30 - 50	0	-	0 - 0	4	2.3
7 -	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	0
8 SBT	5	-	5 - 5	25	-	25 - 25	7	-	7 - 7	2.5	-	2.5 - 2.5	12	-	15 - 12	25	-	20 - 16	4	2.3

Last In Service Date: unknown

Permitted Phases

12345678

Default 12-456-8
External Permit 0 12-456-8
External Permit 1 -2-4-6-8
External Permit 2 -2-4-6-8

TOD Schedule Report

for 2750: Art Godfrey Rd&Meridian Av

Print Date:
10/4/2021

Print Time:
3:25 PM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		180	14	114	0	34	14	114	0	34	0	142
2		100	14	34	0	34	14	34	0	34	0	50
3		120	14	54	0	34	14	54	0	34	0	63
4		100	14	34	0	34	14	34	0	34	0	67
5		120	14	54	0	34	14	54	0	34	0	1
6		140	14	74	0	34	14	74	0	34	0	136
7		120	14	54	0	34	14	54	0	34	0	113
8		120	14	54	0	34	14	54	0	34	0	83
9		140	14	74	0	34	14	74	0	34	0	136
10		160	14	94	0	34	14	94	0	34	0	129
11		100	14	34	0	34	14	34	0	34	0	17
12		90	14	24	0	34	14	24	0	34	0	29
13		140	14	74	0	34	14	74	0	34	0	116
14		120	14	54	0	34	14	54	0	34	0	45
15		120	14	54	0	34	14	54	0	34	0	1
16		140	14	74	0	34	14	74	0	34	0	136
18		160	10	98	0	34	10	98	0	34	0	139
19		160	6	102	0	34	6	102	0	34	0	143
20		160	9	99	0	34	9	99	0	34	0	129
24		160	8	100	0	34	8	100	0	34	0	144

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0200	Free	Su
0600	13	M T W Th F
0700	4	Su
0715	9	M T W Th F
0800	2	Su
0915	5	M T W Th F
1100	15	S
1145	6	M T W Th F
1230	14	S
1230	15	Su
1345	7	M T W Th F
1430	19	W
1530	19	M T Th F
1800	16	Su
1930	2	M T W Th F
2000	4	Su
2300	Free	M T W Th F

Current Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFU	----4---	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0500	TOD LOCAL MULTIFU	-----	SuM T W ThF S
0500	PED RECALL	8---4---	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
2200	PED RECALL	-----	SuM T W ThF S
2330	TOD OUTPUTS	-----1	M T W Th

Local Time of Day Function

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----1	SuM T W ThF S
0000	TOD LOCAL MULTIFUNCT	----4---	SuM T W ThF S
0100	TOD OUTPUTS	-----2-	M T W ThF
0200	TOD OUTPUTS	-----2-	Su
0500	TOD LOCAL MULTIFUNCT	-----	SuM T W ThF S
0500	PED RECALL	8---4---	SuM T W ThF S
0630	TOD OUTPUTS	-----	M T W ThF
0700	TOD OUTPUTS	-----	Su
0800	TOD OUTPUTS	----4---	Su
1800	TOD OUTPUTS	-----	Su
2200	PED RECALL	-----	SuM T W ThF S
2330	TOD OUTPUTS	-----1	M T W Th

* Settings

Blank - FREE - Phase Bank 1, Max 1
 Blank - Plan - Phase Bank 1, Max 2
 1 - Phase Bank 2, Max 1
 2 - Phase Bank 2, Max 2
 3 - Phase Bank 3, Max 1
 4 - Phase Bank 3, Max 2
 5 - EXTERNAL PERMIT 1
 6 - EXTERNAL PERMIT 2
 7 - X-PED OMIT
 8 - TBA

Appendix D

Growth Rate Calculations and Committed Developments

FDOT Historical Growth Trends

FDOT Growth Rate Summary

Station Number	Location	Historical Growth- Linear				Historical Growth- Exponential				Historical Growth- Decaying Exponential			
		5-year	R-squared	10-year	R-squared	5-year	R-squared	10-year	R-squared	5-year	R-squared	10-year	R-squared
2647	SR 907/Alton Road -- 200 feet north of Nautilus Drive	-3.72%	22.48%	0.51%	1.47%	-3.94%	23.81%	0.33%	1.39%	-2.49%	7.27%	1.18%	8.21%
5833	SR 112/Arthur Godfrey Road -- 200 feet west of Indian Creek Drive	3.30%	30.22%	1.38%	20.70%	3.47%	32.01%	1.34%	20.02%	4.24%	51.40%	1.01%	10.53%
Total		-0.21%	26.35%	0.95%	11.09%	-0.24%	27.91%	0.84%	10.71%	0.88%	29.34%	1.10%	9.37%

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 2647 - SR 907 ALTON ROAD 200' N OF NAUTILUS DR

YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2022	5800 C	N	3900	S	1900	9.00	54.70	3.50
2021	5400 C	N	3700	S	1700	9.00	54.30	2.20
2020	4500 C	N	3100	S	1400	9.00	54.20	3.90
2019	8200 C	N	5800	S	2400	9.00	54.60	2.80
2018	6400 C	N	4200	S	2200	9.00	54.30	3.00
2017	6300 C	N	4300	S	2000	9.00	55.00	2.60
2016	7200 C	N	4800	S	2400	9.00	54.50	4.20
2015	6800 C	N	4600	S	2200	9.00	54.70	2.50
2014	7000 C	N	4600	S	2400	9.00	54.50	3.70
2013	5600 C	N	3600	S	2000	9.00	52.40	5.00
2012	6800 C	N	4600	S	2200	9.00	55.70	6.60
2011	6500 C	N	4400	S	2100	9.00	55.10	4.90
2010	6300 C	N	4100	S	2200	8.98	54.08	1.90
2009	6800 C	N	4600	S	2200	8.99	53.24	4.30
2008	5900 C	N	3800	S	2100	9.09	55.75	4.20
2007	6400 C	N	4100	S	2300	8.01	54.34	4.00

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:

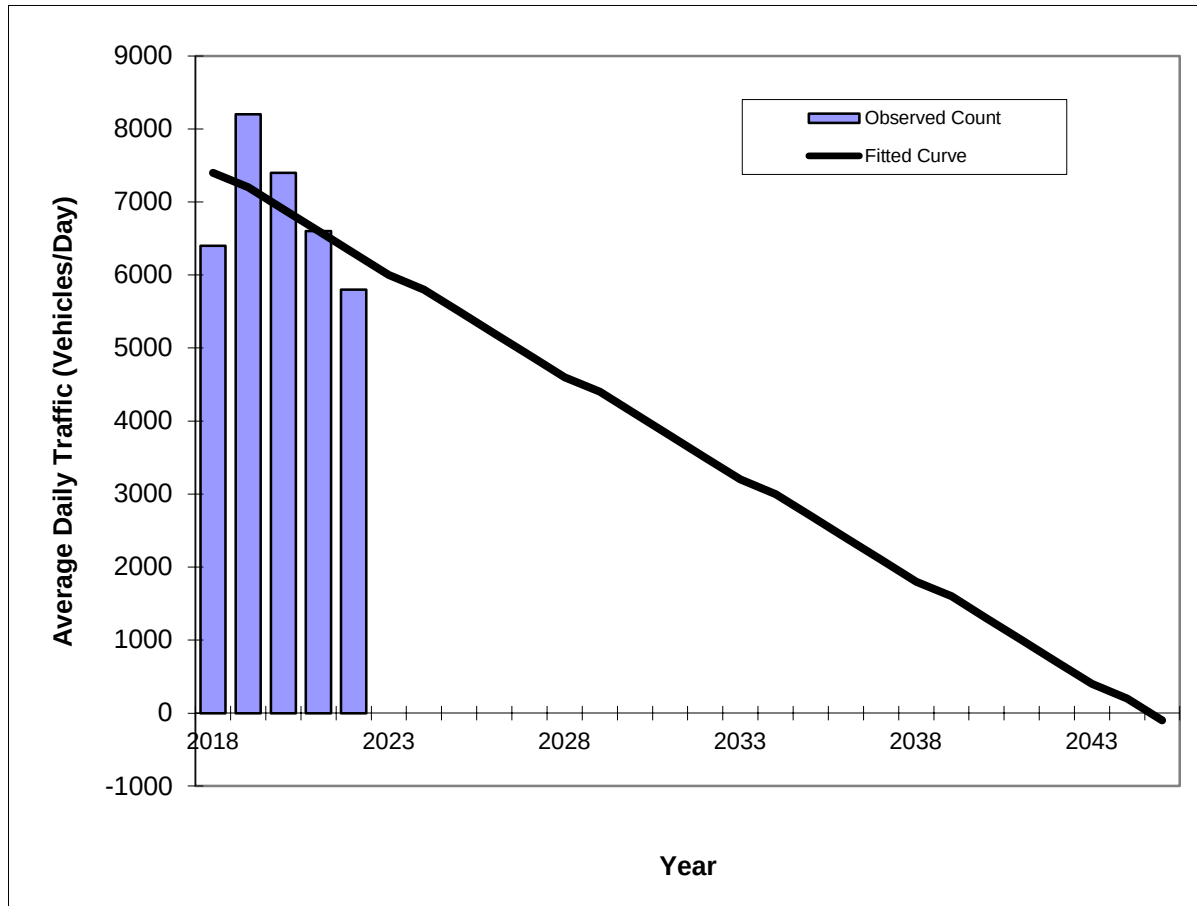
Miami-Dade (87)

Station #:

2647

Highway:

SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	6400	7400
2019	8200	7200
2020	7400	6900
2021	6600	6600
2022	5800	6300

Trend R-squared: 22.48%
Trend Annual Historic Growth Rate: -3.72%
Printed: 26-Oct-23

Straight Line Growth Option

*Axle-Adjusted

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:

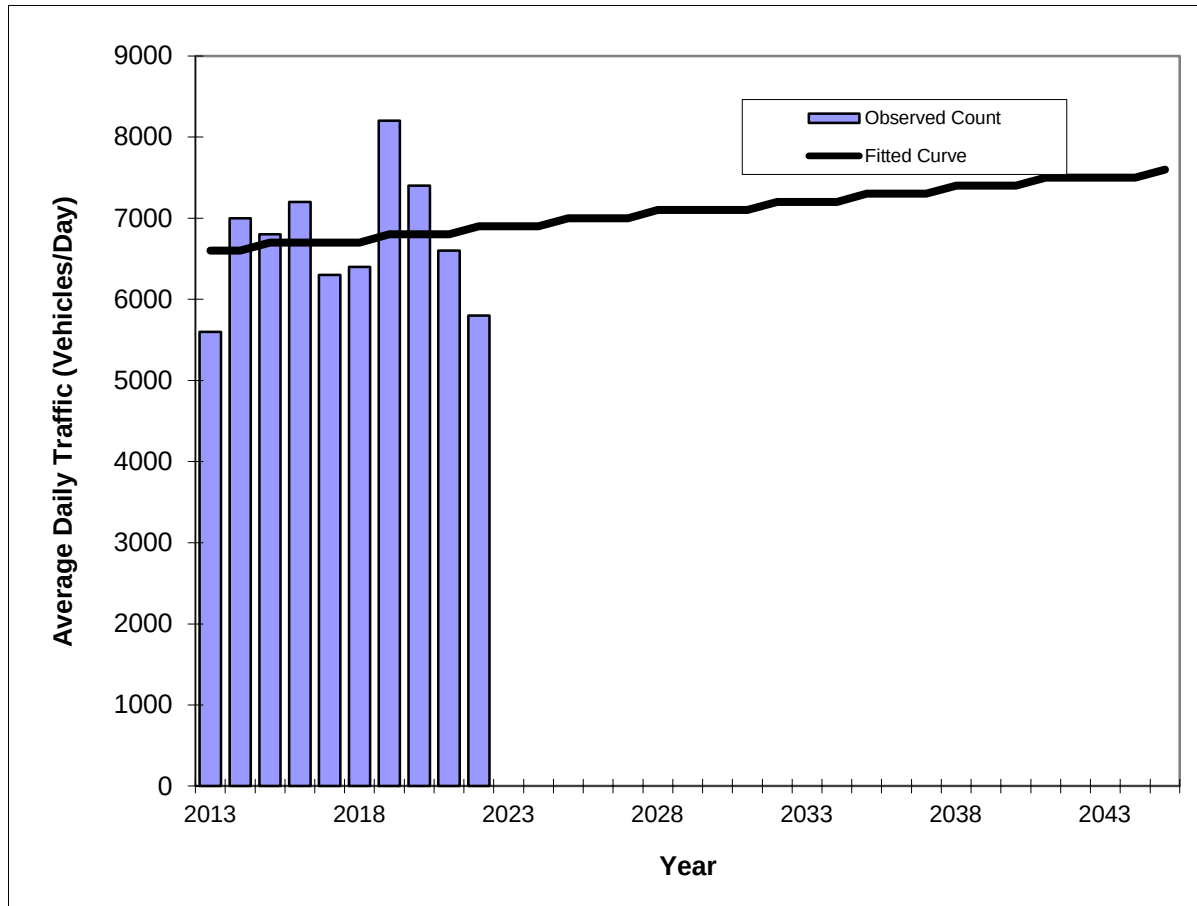
Miami-Dade (87)

Station #:

2647

Highway:

SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	5600	6600
2014	7000	6600
2015	6800	6700
2016	7200	6700
2017	6300	6700
2018	6400	6700
2019	8200	6800
2020	7400	6800
2021	6600	6800
2022	5800	6900

Trend R-squared: 1.47%

Trend Annual Historic Growth Rate: 0.51%

Printed: 26-Oct-23

Straight Line Growth Option

*Axle-Adjusted

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:

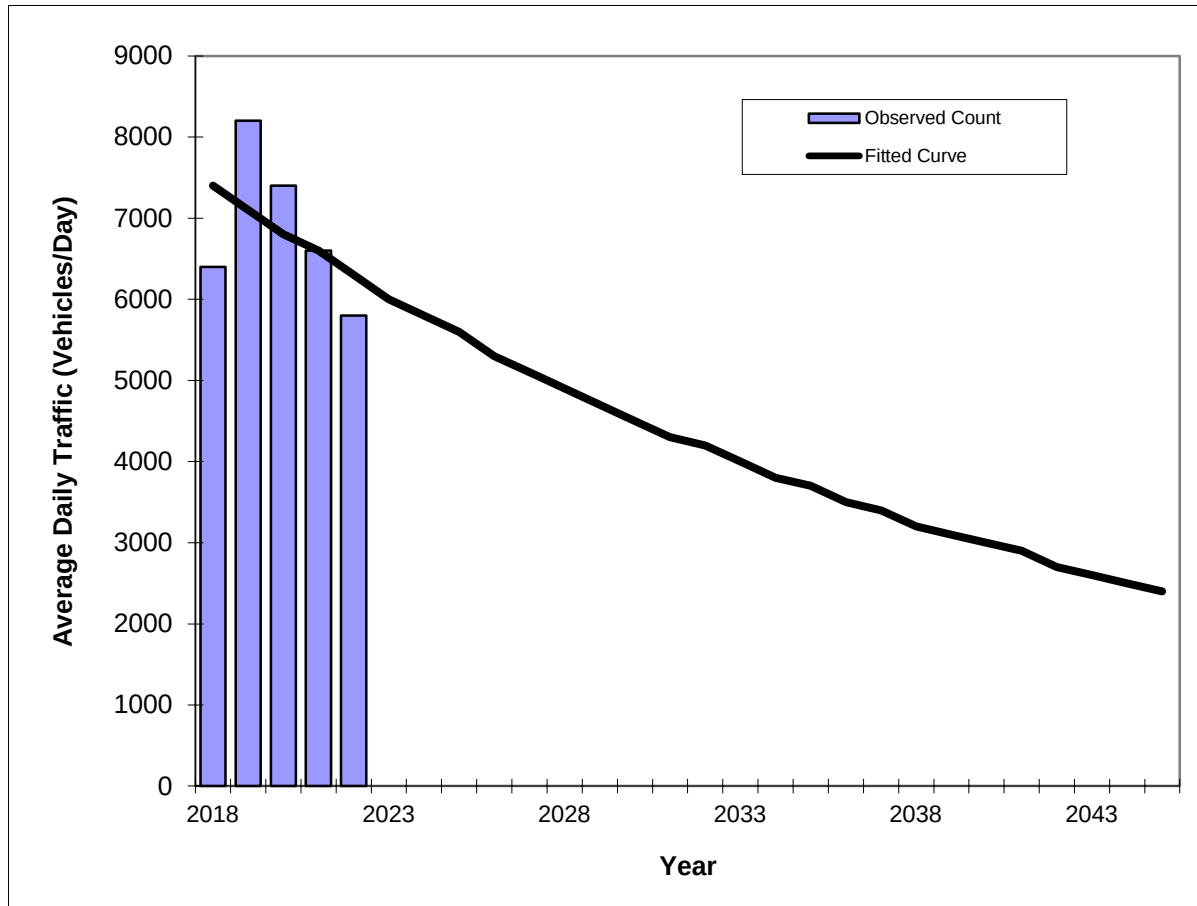
Miami-Dade (87)

Station #:

2647

Highway:

SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	6400	7400
2019	8200	7100
2020	7400	6800
2021	6600	6600
2022	5800	6300

Trend R-squared: 23.81%
 Compounded Annual Historic Growth Rate: -3.94%
 Printed: 26-Oct-23

Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:

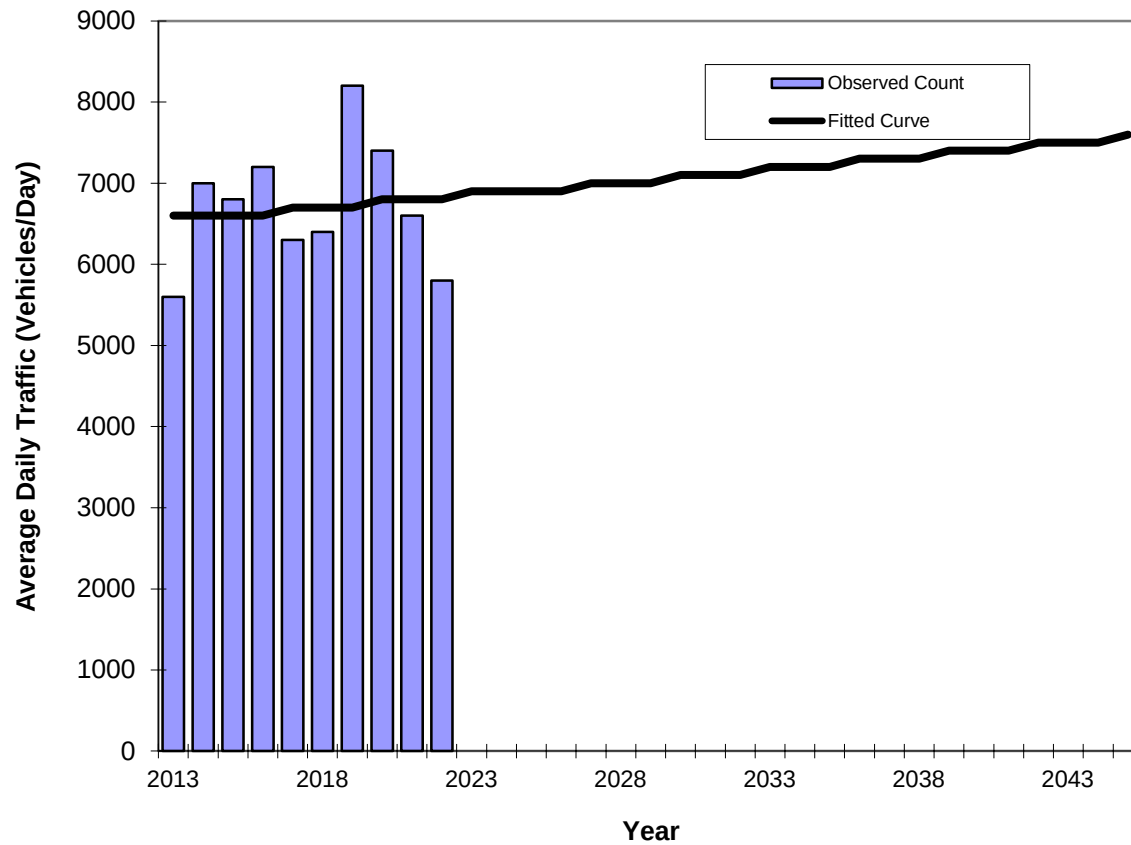
Miami-Dade (87)

Station #:

2647

Highway:

SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	5600	6600
2014	7000	6600
2015	6800	6600
2016	7200	6600
2017	6300	6700
2018	6400	6700
2019	8200	6700
2020	7400	6800
2021	6600	6800
2022	5800	6800

Trend R-squared: 1.39%

Compounded Annual Historic Growth Rate: 0.33%

Printed: 26-Oct-23

Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:

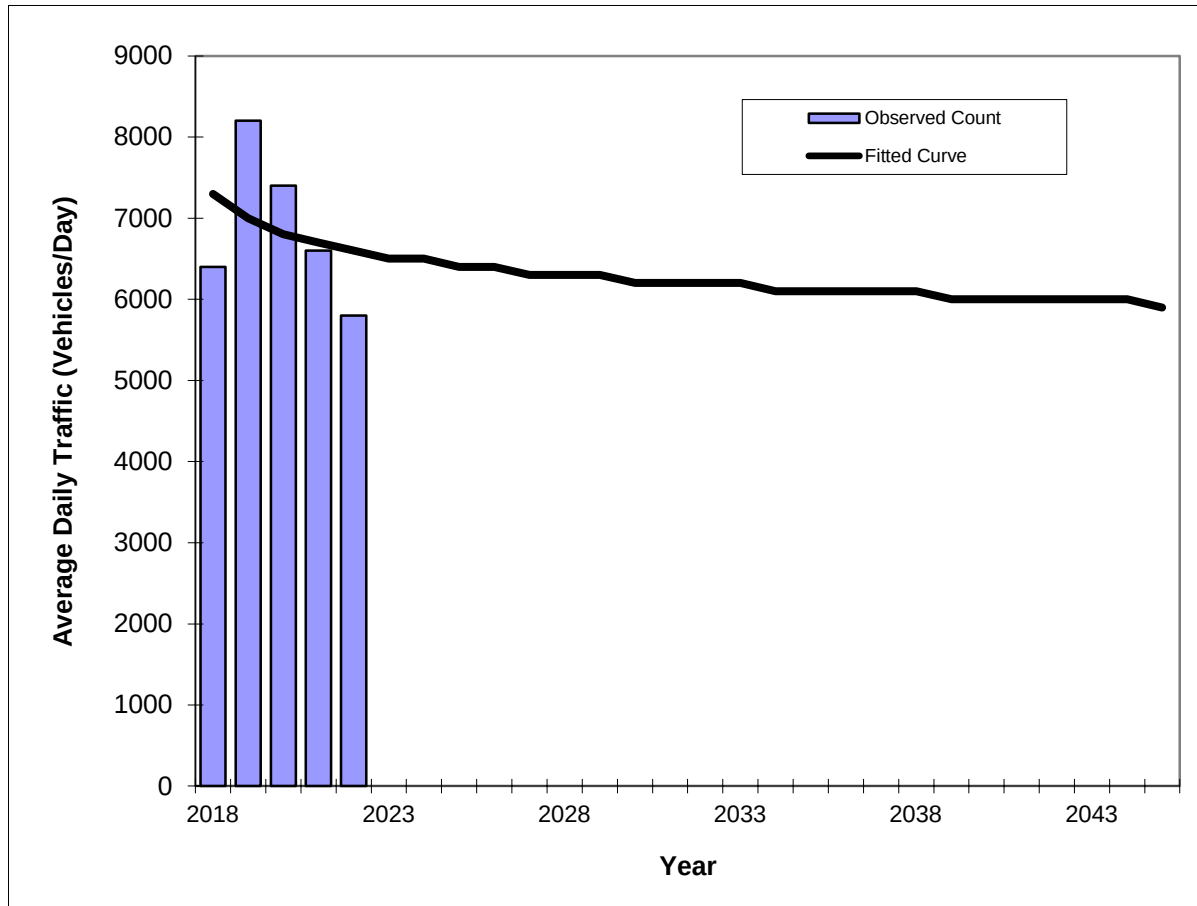
Miami-Dade (87)

Station #:

2647

Highway:

SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	6400	7300
2019	8200	7000
2020	7400	6800
2021	6600	6700
2022	5800	6600

Trend R-squared: 7.27%
 Compounded Annual Historic Growth Rate: -2.49%
 Printed: 26-Oct-23

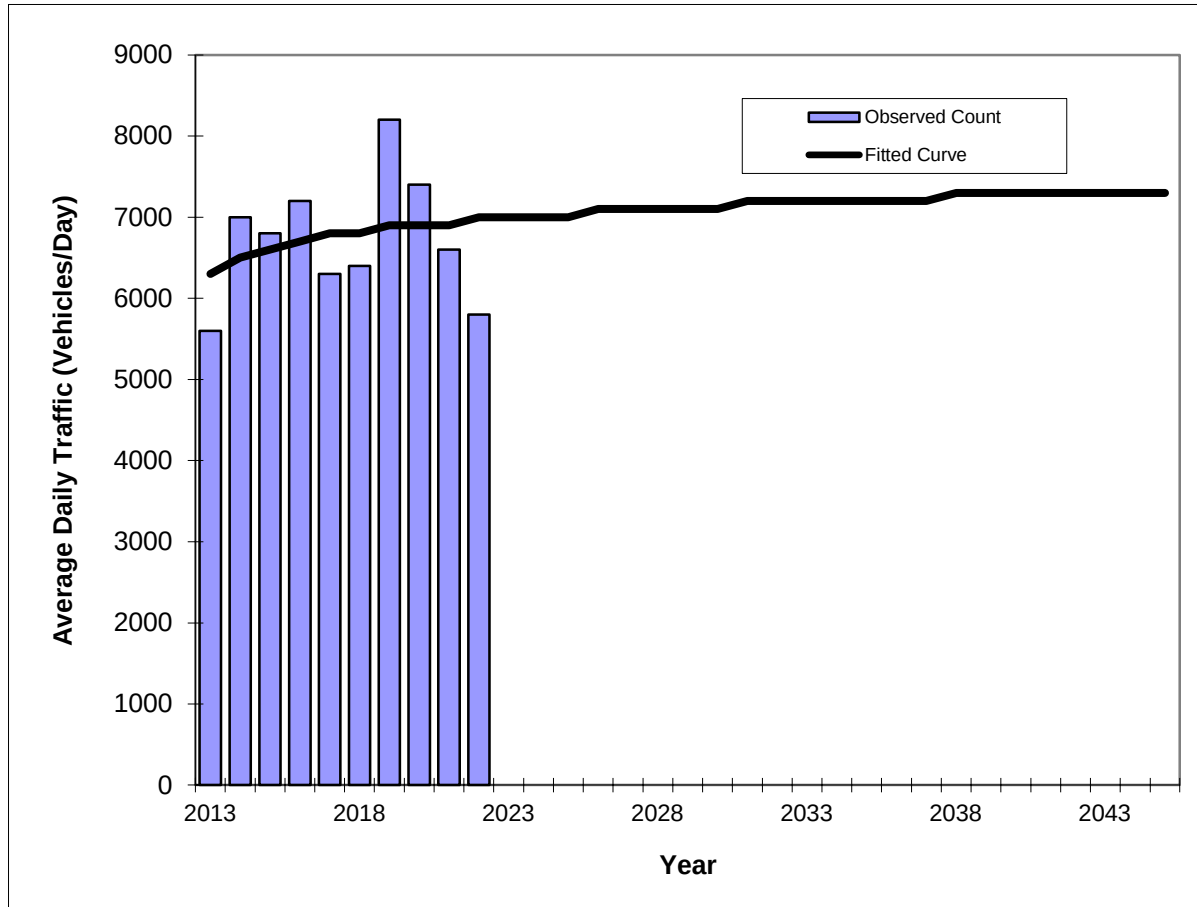
Decaying Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 907/ALTON ROAD -- 200' NORTH OF NAUTILUS DRIVE

County:	Miami-Dade (87)
Station #:	2647
Highway:	SR 907/ALTON ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	5600	6300
2014	7000	6500
2015	6800	6600
2016	7200	6700
2017	6300	6800
2018	6400	6800
2019	8200	6900
2020	7400	6900
2021	6600	6900
2022	5800	7000

Trend R-squared:	8.21%
Compounded Annual Historic Growth Rate:	1.18%
Printed:	26-Oct-23
Decaying Exponential Growth Option	

*Axle-Adjusted

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2022 HISTORICAL AADT REPORT

COUNTY: 87 - MIAMI-DADE

SITE: 5388 - SR 112/ARTHUR GODFREY RD, 200' W INDIAN CREEK DR

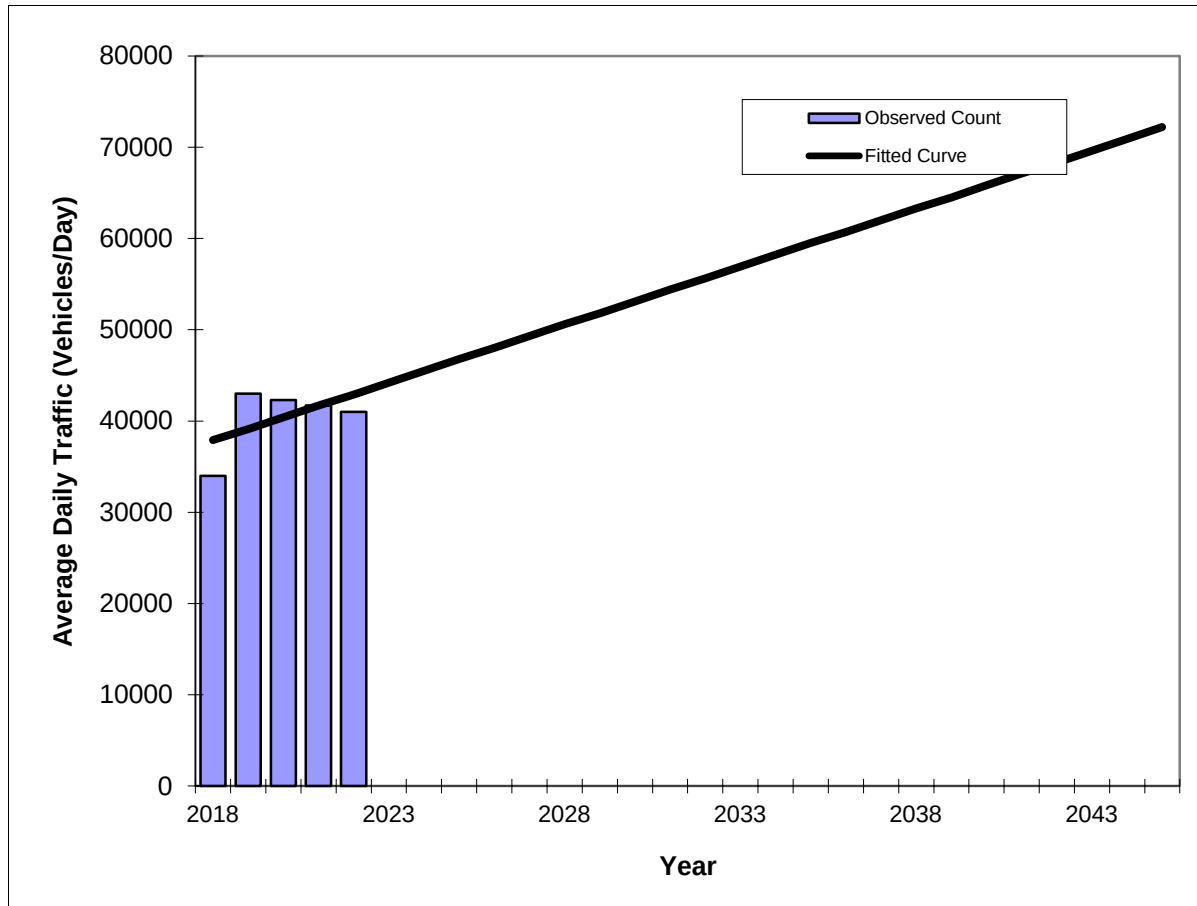
YEAR	AADT		DIRECTION 1		DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
----	-----		-----		-----	-----	-----	-----
2022	41000	C	E 21000		W 20000	9.00	54.70	3.40
2021	44000	C	E 22500		W 21500	9.00	54.30	3.60
2020	41000	F	E 19500		W 21500	9.00	54.20	4.80
2019	43000	C	E 20500		W 22500	9.00	54.60	3.80
2018	34000	C	E 16500		W 17500	9.00	54.30	4.50
2017	41000	C	E 18000		W 23000	9.00	55.00	4.00
2016	36000	C	E 18500		W 17500	9.00	54.50	3.30
2015	39000	C	E 19000		W 20000	9.00	54.70	4.40
2014	34000	C	E 17000		W 17000	9.00	54.50	4.40
2013	41000	C	E 20500		W 20500	9.00	52.40	5.20
2012	42500	C	E 23000		W 19500	9.00	55.70	4.90
2011	44000	C	E 23000		W 21000	9.00	55.10	5.00
2010	38500	C	E 20500		W 18000	8.98	54.08	6.20
2009	37500	C	E 19000		W 18500	8.99	53.24	6.00
2008	36500	C	E 19000		W 17500	9.09	55.75	5.90
2007	39000	C	E 22000		W 17000	8.36	54.73	5.70

AADT FLAGS: C = COMPUTED; E = MANUAL ESTIMATE; F = FIRST YEAR ESTIMATE
S = SECOND YEAR ESTIMATE; T = THIRD YEAR ESTIMATE; R = FOURTH YEAR ESTIMATE
V = FIFTH YEAR ESTIMATE; 6 = SIXTH YEAR ESTIMATE; X = UNKNOWN
*K FACTOR: STARTING WITH YEAR 2011 IS STANDARDK, PRIOR YEARS ARE K30 VALUES

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:	Miami-Dade (87)
Station #:	5388
Highway:	SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	34000	37900
2019	43000	39100
2020	42300	40400
2021	41700	41700
2022	41000	42900

Trend R-squared:	30.22%
Trend Annual Historic Growth Rate:	3.30%
Printed:	26-Oct-23

Straight Line Growth Option

*Axle-Adjusted

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:

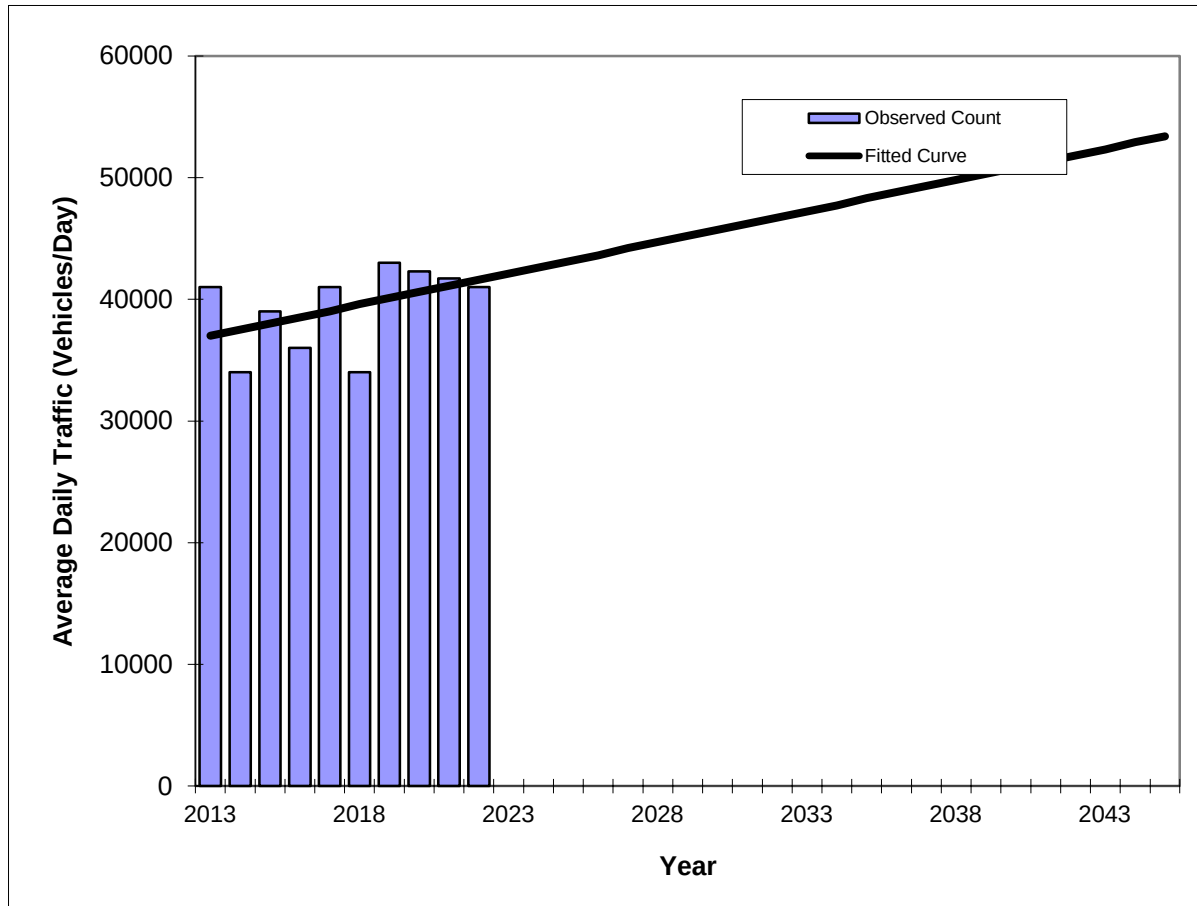
Miami-Dade (87)

Station #:

5388

Highway:

SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	41000	37000
2014	34000	37500
2015	39000	38000
2016	36000	38500
2017	41000	39000
2018	34000	39600
2019	43000	40100
2020	42300	40600
2021	41700	41100
2022	41000	41600

Trend R-squared: 20.70%

Trend Annual Historic Growth Rate: 1.38%

Printed: 26-Oct-23

Straight Line Growth Option

*Axle-Adjusted

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:

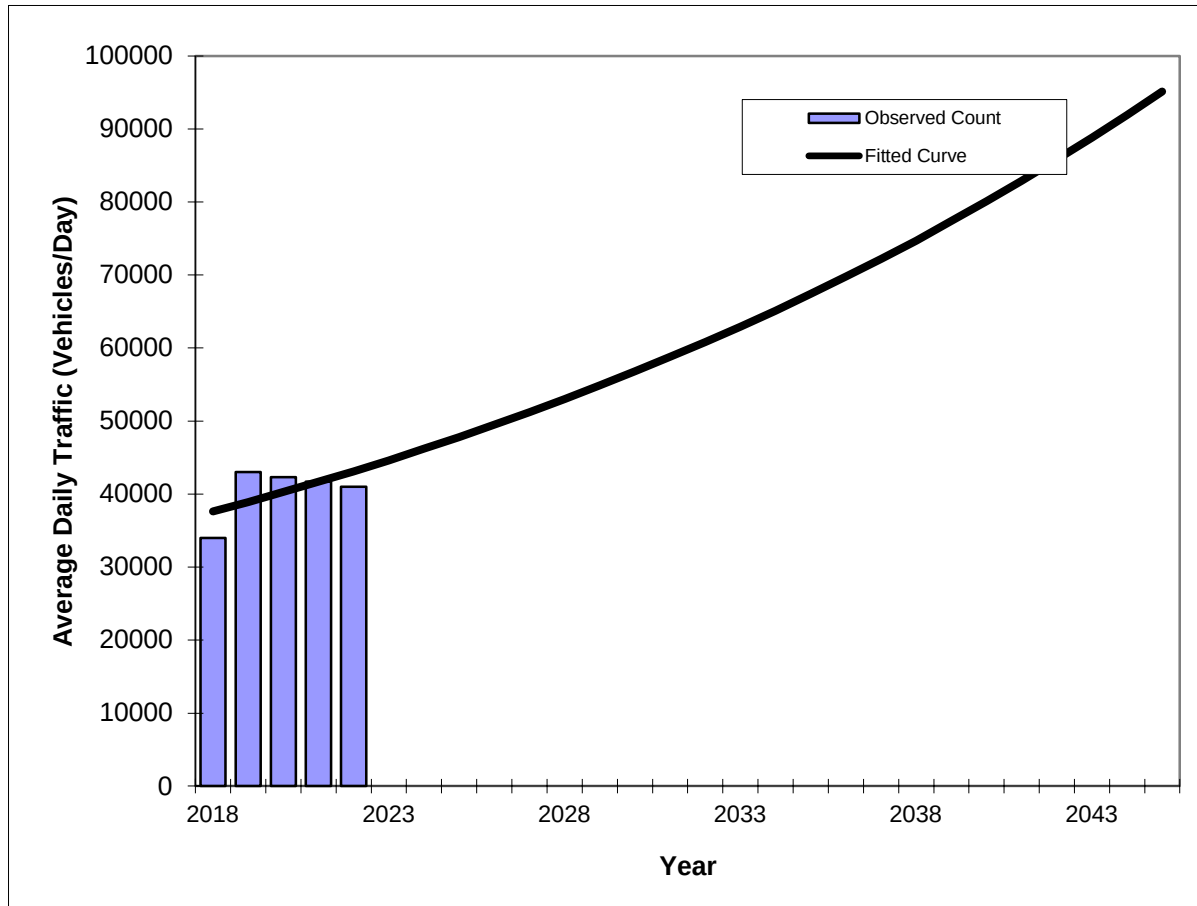
Miami-Dade (87)

Station #:

5388

Highway:

SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	34000	37600
2019	43000	38900
2020	42300	40300
2021	41700	41700
2022	41000	43100

Trend R-squared: 32.01%
 Compounded Annual Historic Growth Rate: 3.47%
 Printed: 26-Oct-23

Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:

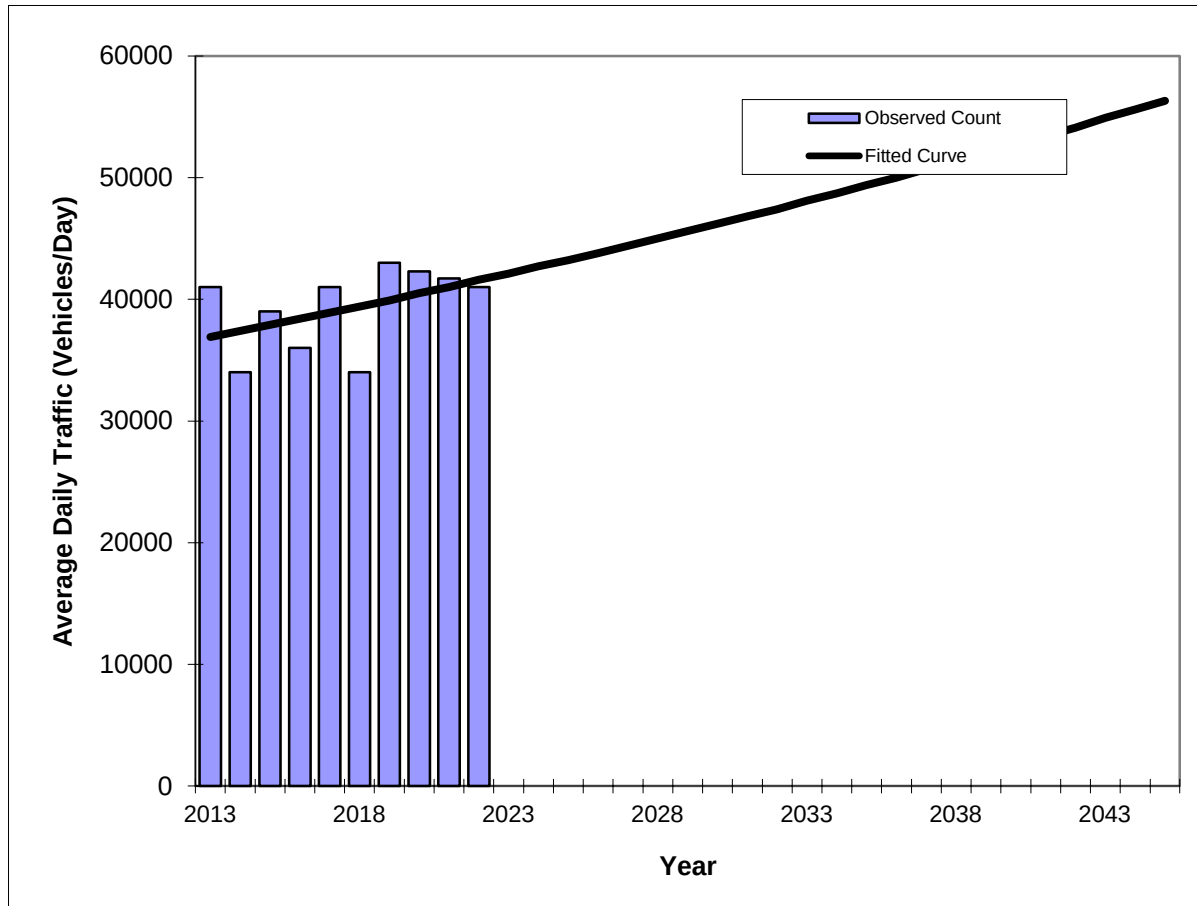
Miami-Dade (87)

Station #:

5388

Highway:

SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	41000	36900
2014	34000	37400
2015	39000	37900
2016	36000	38400
2017	41000	38900
2018	34000	39400
2019	43000	39900
2020	42300	40500
2021	41700	41000
2022	41000	41600

Trend R-squared: 20.02%
 Compounded Annual Historic Growth Rate: 1.34%
 Printed: 26-Oct-23

Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:

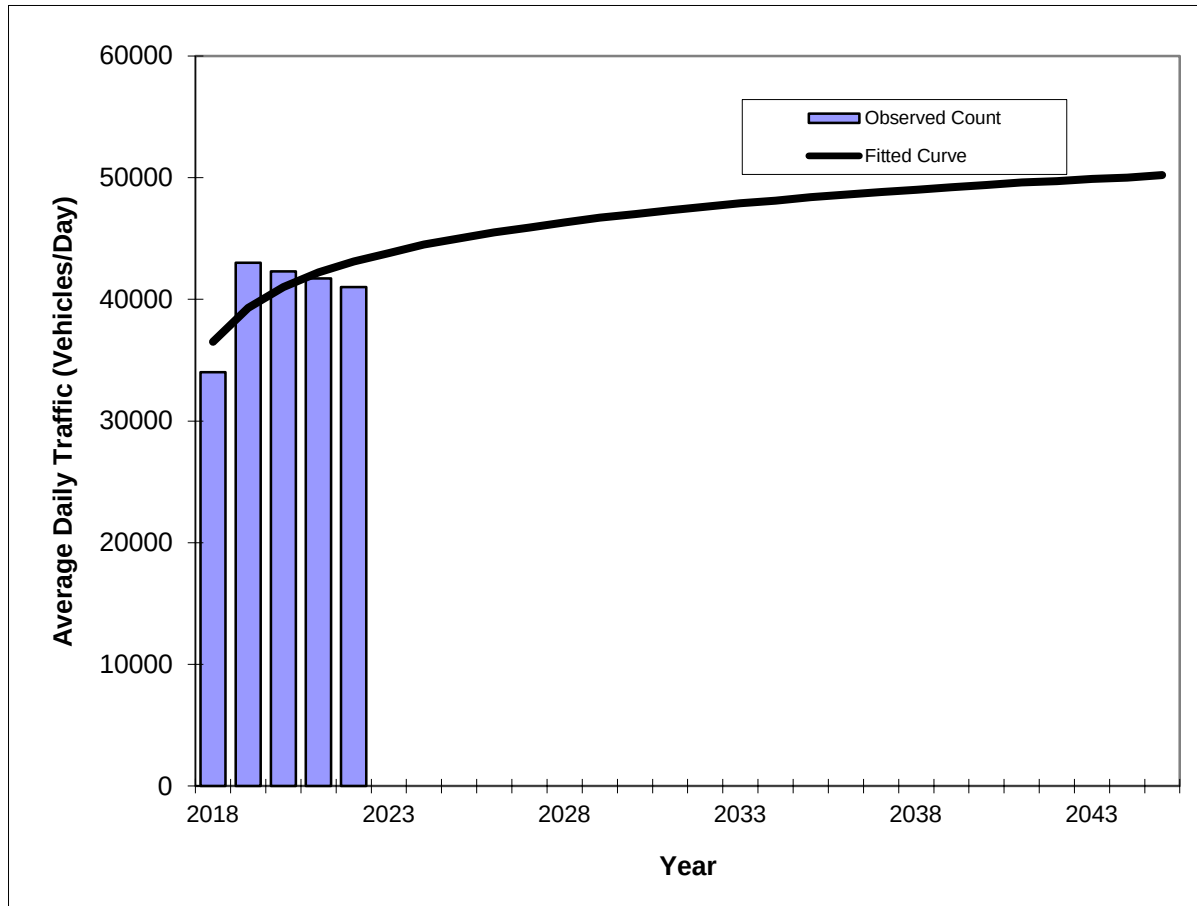
Miami-Dade (87)

Station #:

5388

Highway:

SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2018	34000	36500
2019	43000	39300
2020	42300	41000
2021	41700	42200
2022	41000	43100

Trend R-squared: 51.40%

Compounded Annual Historic Growth Rate: 4.24%

Printed: 26-Oct-23

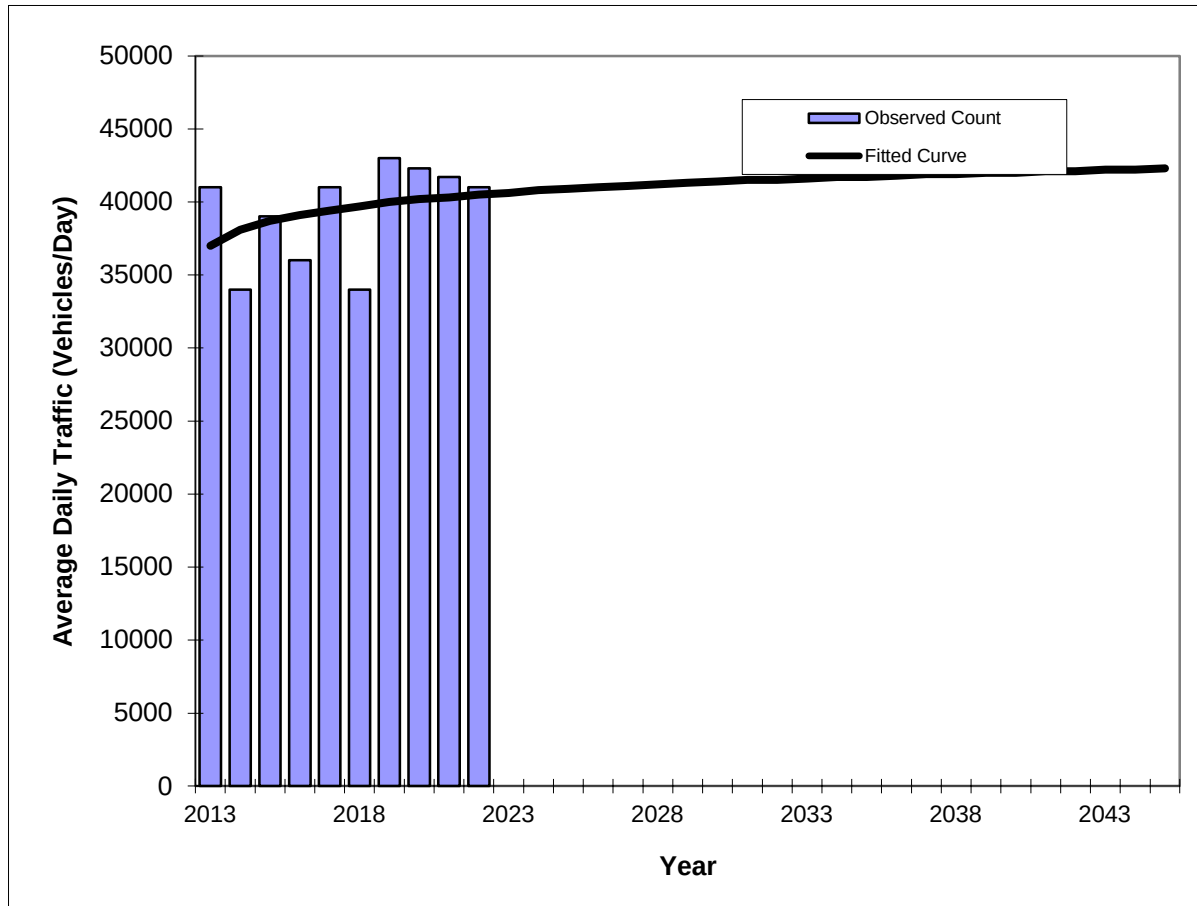
Decaying Exponential Growth Option

*Axle-Adjusted

Traffic Trends

SR 112/ARTHUR GODFREY ROAD -- 200' WEST OF INDIAN CREEK DRIVE

County:	Miami-Dade (87)
Station #:	5388
Highway:	SR 112/ARTHUR GODFREY ROAD



Year	Traffic (ADT/AADT)	
	Count*	Trend**
2013	41000	37000
2014	34000	38100
2015	39000	38700
2016	36000	39100
2017	41000	39400
2018	34000	39700
2019	43000	40000
2020	42300	40200
2021	41700	40300
2022	41000	40500

Trend R-squared: 10.53%
 Compounded Annual Historic Growth Rate: 1.01%
 Printed: 26-Oct-23

Decaying Exponential Growth Option

*Axle-Adjusted

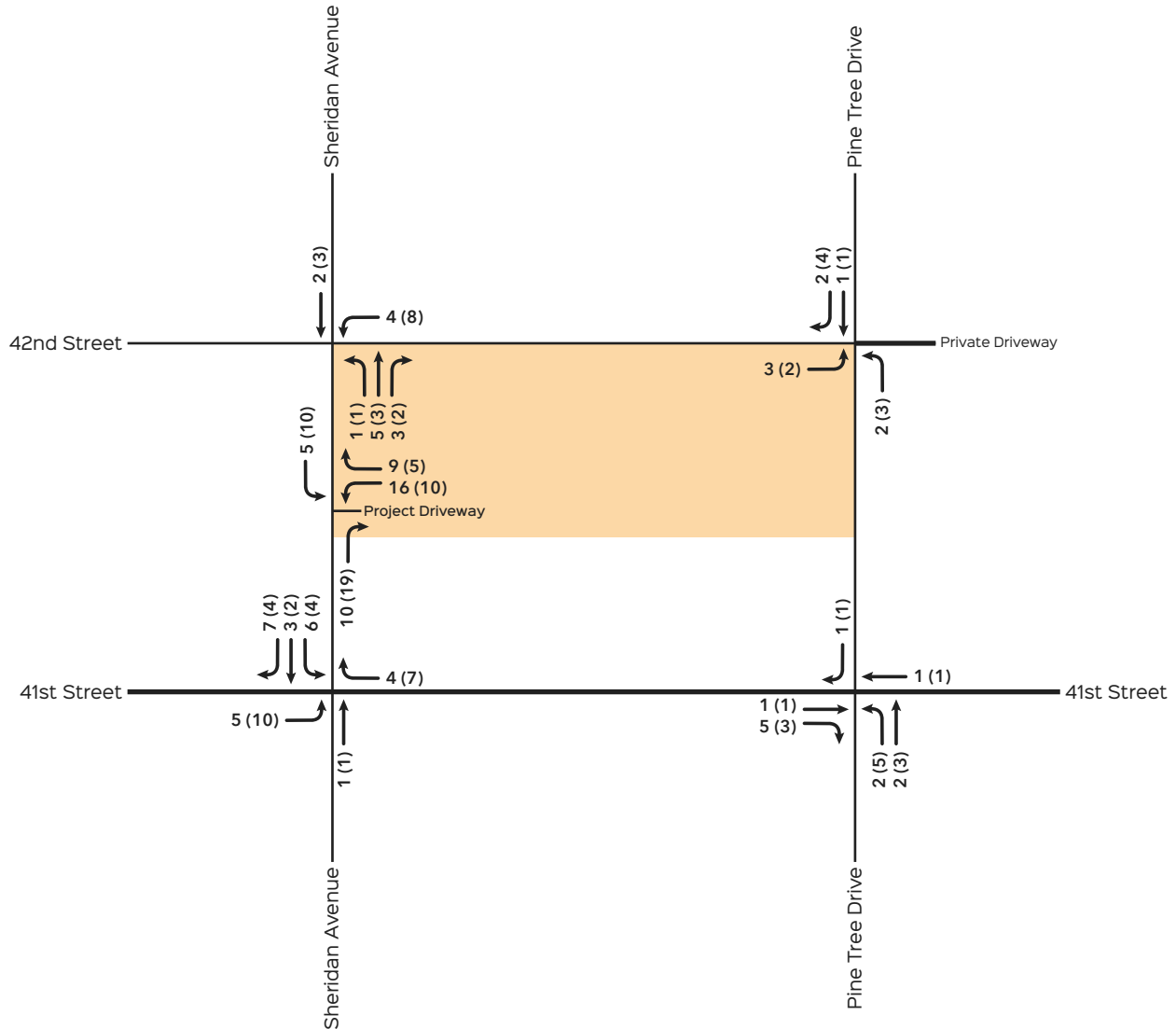
SERPM Analysis

SERPM Growth Rate Summary					
Street Name	2015	2045	Difference	Growth Rate	Annual Growth Rate
SR 907/Alton Road	14,111	23,327	9,216	65.31%	2.18%
	9,945	12,627	2,682	26.97%	0.90%
	40,448	46,711	6,263	15.48%	0.52%
Meridian Avenue	22,731	14,878	-7,853	-34.55%	-1.15%
	31,589	29,872	-1,717	-5.44%	-0.18%
SR 112/W 41st Street	58,948	81,118	22,170	37.61%	1.25%
	40,089	48,711	8,622	21.51%	0.72%
	36,305	43,818	7,513	20.69%	0.69%
	30,022	43,400	13,378	44.56%	1.49%
Total	284,188	344,462	60,274	21.21%	0.71%

Committed Developments

340 W 42nd Street
Transportation Impact Study





00 AM
(00) PM

Project Location

Exhibit 10A

Project Trip Assignment





April 1, 2021

Firat Akcay, M.S.C.E., MBA
City of Miami Beach
Transportation Department
1688 Meridian Avenue, Suite 801
Miami Beach, Florida 33139

**Re: 3900 Alton Road
Traffic Assessment
Miami Beach, Florida**

Dear Mr. Ackay:

Kimley-Horn and Associates, Inc. has performed a traffic assessment for the proposed 3900 Alton Road development in Miami Beach, Florida. The property proposed for development is currently vacant. The proposed development consists of 176 multifamily residential units. As part of the development, a dedicated right-turn lane is proposed on the westbound approach at the intersection of Alton Road/SR 907 (E) and Alton Road/SR 907 (W). A project location map, conceptual site plan, and conceptual design for the proposed right-turn lane improvement are provided in Attachment A. The following sections summarize the trip generation analysis, capacity analysis, queuing analysis, turn lane analyses, mid-block crosswalk analysis, and transportation demand management (TDM) strategies. The traffic assessment was prepared in accordance with the approved traffic assessment methodology contained in Attachment B.

TRIP GENERATION

Trip generation calculations for the proposed development were performed using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10th Edition. The trip generation for the proposed development was determined using ITE Land Use Code (LUC) 221 (Multifamily Housing [Mid-Rise]).

A multimodal (public transit, bicycle, and pedestrian) factor based on US Census *Means of Transportation to Work* data was reviewed for the census tract in which the development is located. A multimodal factor of 16.9 percent (16.9%) was determined for the proposed development. It is expected that a portion of residents and visitors will choose to walk, bike, or use public transit to and from the proposed development.

The development is expected to generate 50 net new weekday A.M. peak hour vehicular trips and 63 net new weekday P.M. peak hour vehicular trips. Detailed trip generation calculations and US Census *Means of Transportation to Work* data are included in Attachment C.

INTERSECTION OPERATIONAL ANALYSIS

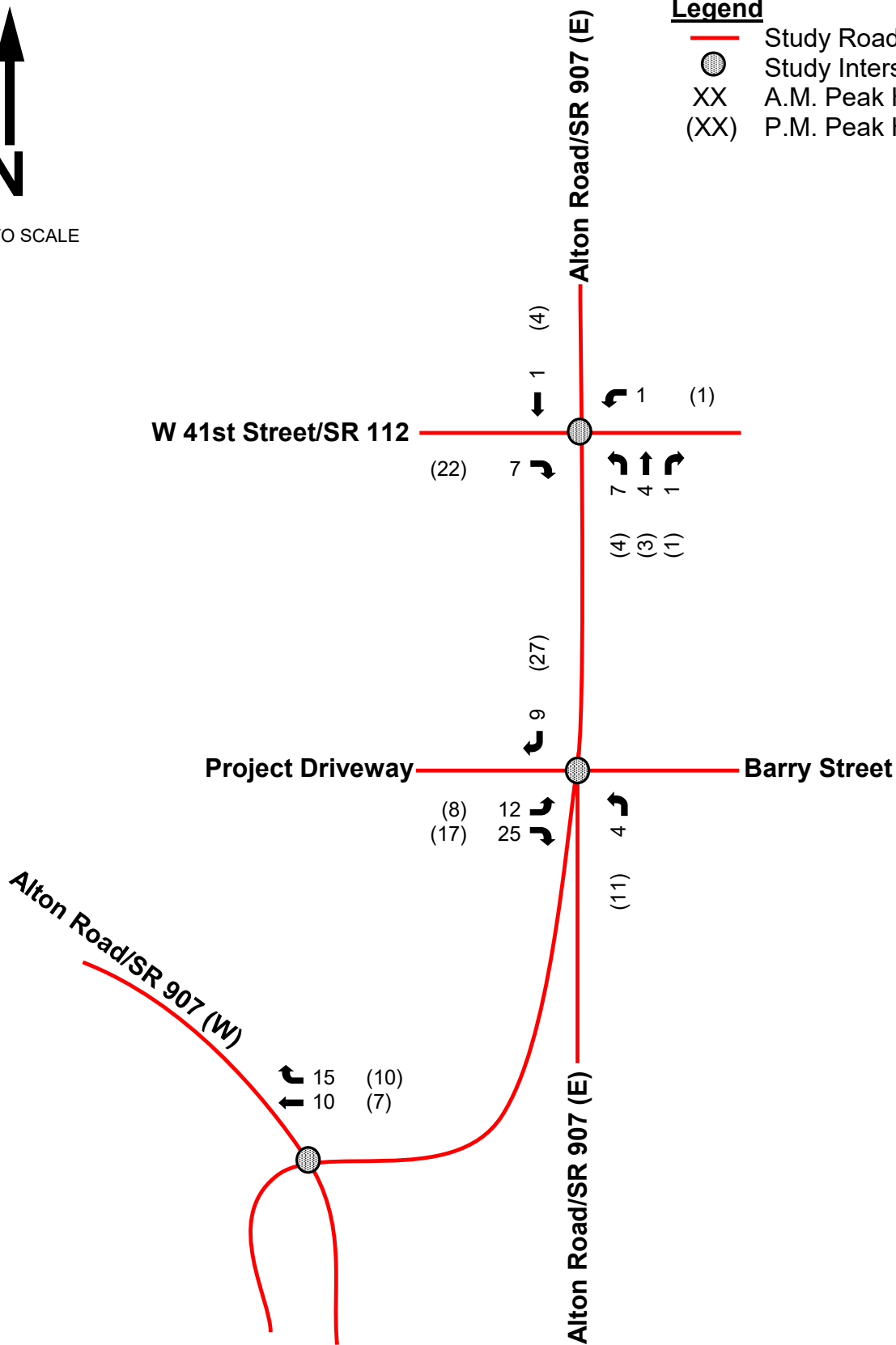
A capacity and turn-lane queuing analysis were prepared for the westbound approach of Alton Road/SR 907 (E) and Alton Road/SR 907 (W) to assess the proposed dedicated westbound right-lane. A capacity analysis was also prepared for the intersection of Alton Road at I-195/Arthur Godfrey Road and Alton Road at Barry Street/Project Driveway.



NOT TO SCALE

Legend

-  Study Roadway
-  Study Intersection
- XX A.M. Peak Hour Traffic
- (XX) P.M. Peak Hour Traffic



Appendix E

Programmed Roadway Capacity Improvements

Miami-Dade TPO Transportation Improvement Program (TIP)



BETTER BUS SHIFTS INTO GEAR!

**YOUR ROUTE-BY-ROUTE GUIDE TO
THE NEW MIAMI-DADE TRANSIT
METROBUS NETWORK
AS OF NOVEMBER 13, 2023**

miamidade.gov/betterbus

DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS



BETTER BUS SHIFTS INTO GEAR NOVEMBER 13, 2023

Accelerating better connections to jobs, education, healthcare and culture



On November 13, Miami-Dade County will experience the most significant Metrobus service transformation in history, providing more people with greater access and frequency.

With the reimagined Better Bus SHIFTS into Gear system optimization, the average resident will be able to access 28% more jobs within 45 minutes. In other words, the redesigned bus network will improve travel times for many riders, especially the most vulnerable and benefiting low-income residents the most.

The new network significantly expands the frequent network – the services that

run every 15 minutes all day. The number of frequent routes in the network will go from five to nineteen, forming a network of frequent lines covering most of the county. Another major benefit is the improvement in weekend and evening service. With Better Bus, weekend service is at or near the same levels as weekdays, for most local routes. When transit is available every day that people need it, more people will also find it possible to reduce the use of cars.

Whether you ride or drive, you will notice the new and improved bus system at work. Everyone truly benefits when people have more options for living rewarding lives without having to drive.

MIAMI-DADE COUNTY METROBUS SYSTEM

NOVEMBER 2023

Metrobus routes

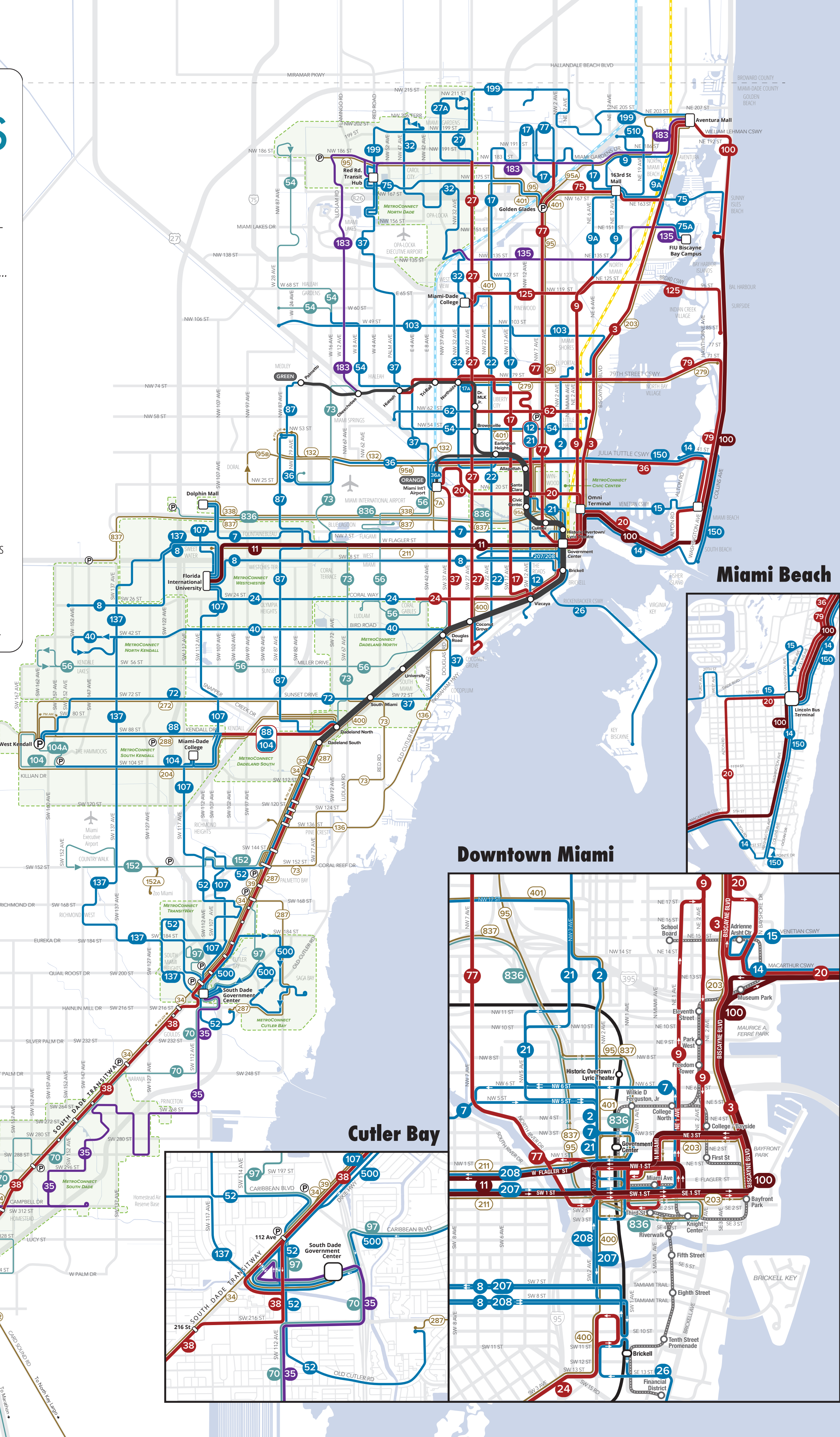
During weekdays at midday, the bus comes every...

- 10 minutes or less
- 15 minutes
- 20 minutes
- 30 minutes
- 60 minutes
- Peak-Only or Limited Service

Other transit services

- MetroConnect Zone
- Metrorail and Station
- Metromover and Station
- South Dade TransitWay Stations
- Tri-Rail
- Brightline

This is a general reference map. Consult individual route maps for details.



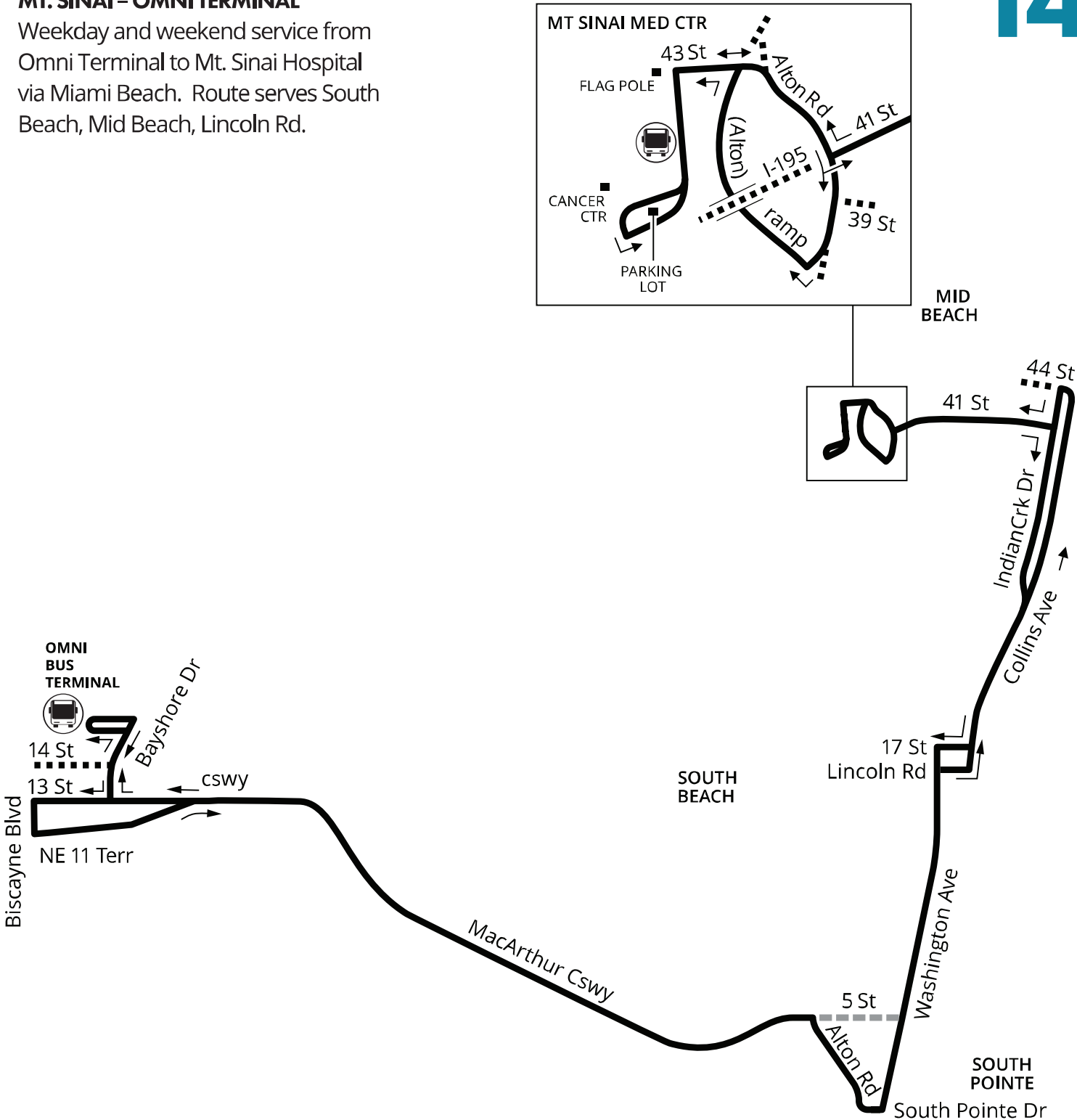
Appendix F

Transit Route Information

DTPW Routes and Headways

MT. SINAI – OMNI TERMINAL

Weekday and weekend service from Omni Terminal to Mt. Sinai Hospital via Miami Beach. Route serves South Beach, Mid Beach, Lincoln Rd.

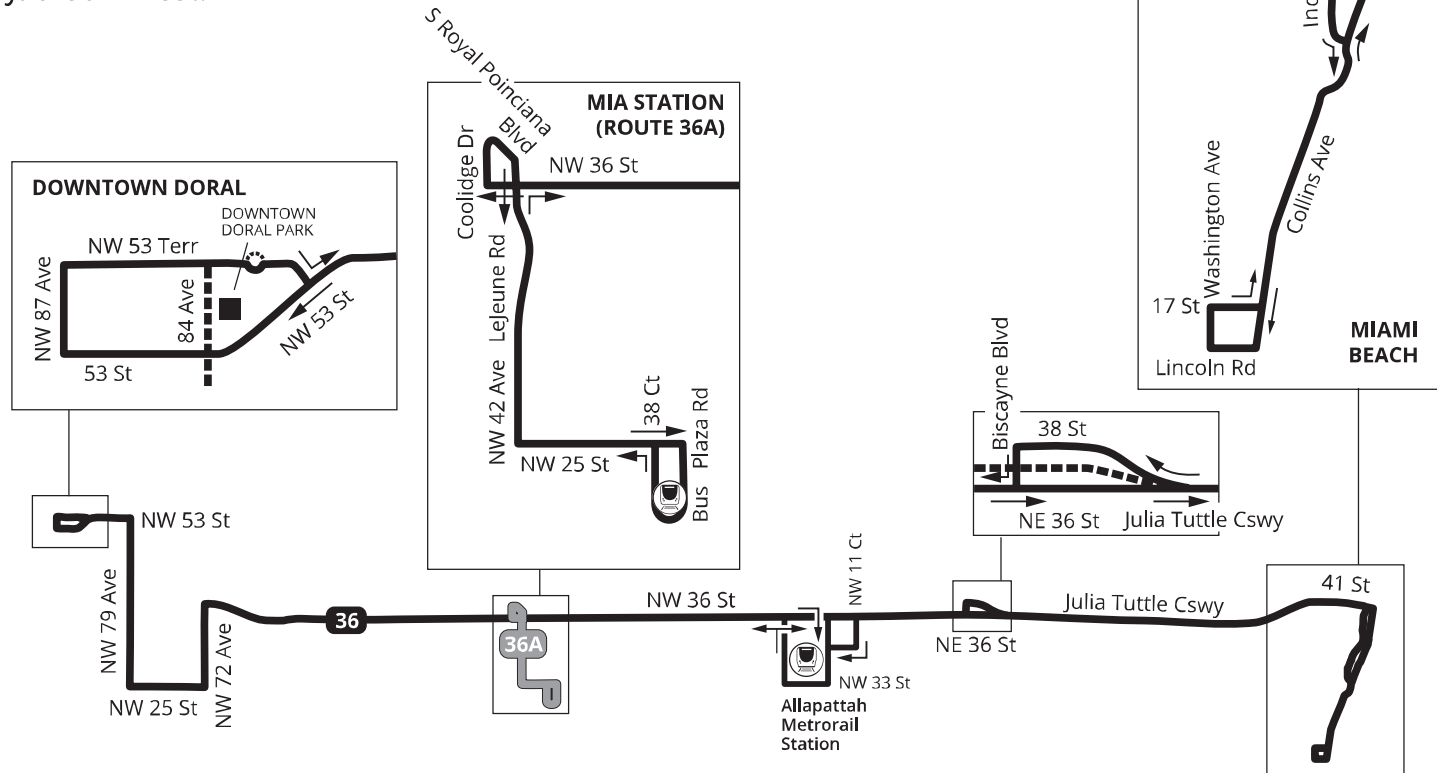


Weekday			Saturday			Sunday		
FROM	TO	EVERY	FROM	TO	EVERY	FROM	TO	EVERY
05:30	22:00	30 min	06:00	22:00	30 min	06:00	22:00	30 min



MIAMI BEACH – AIRPORT – DORAL

Weekday and weekend service from Doral, Airport Station to Miami Beach via NW 36 St. Route serves Miami International Airport, Downtown Doral, Allapattah Station, Jackson West.



	Weekdays	Weekends
Peak Frequency	15/30	30 Sat
Off Peak Frequency	15/30	20/40 Sun
Span of Service	4:00 AM to 12:00 AM	5:00 AM to 12:00 AM

ROUTE 36

Weekday			Saturday			Sunday		
FROM	TO	EVERY	FROM	TO	EVERY	FROM	TO	EVERY
04:00	06:00	60 min	05:00	07:00	60 min	06:00	08:00	60 min
06:00	22:00	30 min	07:00	22:00	30 min	08:00	20:00	40 min
22:00	24:00	60 min	22:00	24:00	60 min			

ROUTE 36A

Weekday			Saturday			Sunday		
FROM	TO	EVERY	FROM	TO	EVERY	FROM	TO	EVERY
04:00	06:00	60 min	05:00	07:00	60 min	05:00	08:00	60 min
06:00	22:00	30 min	07:00	22:00	30 min	08:00	20:00	40 min
22:00	24:00	60 min	22:00	24:00	60 min	20:00	24:00	60 min



MAP NOT TO SCALE

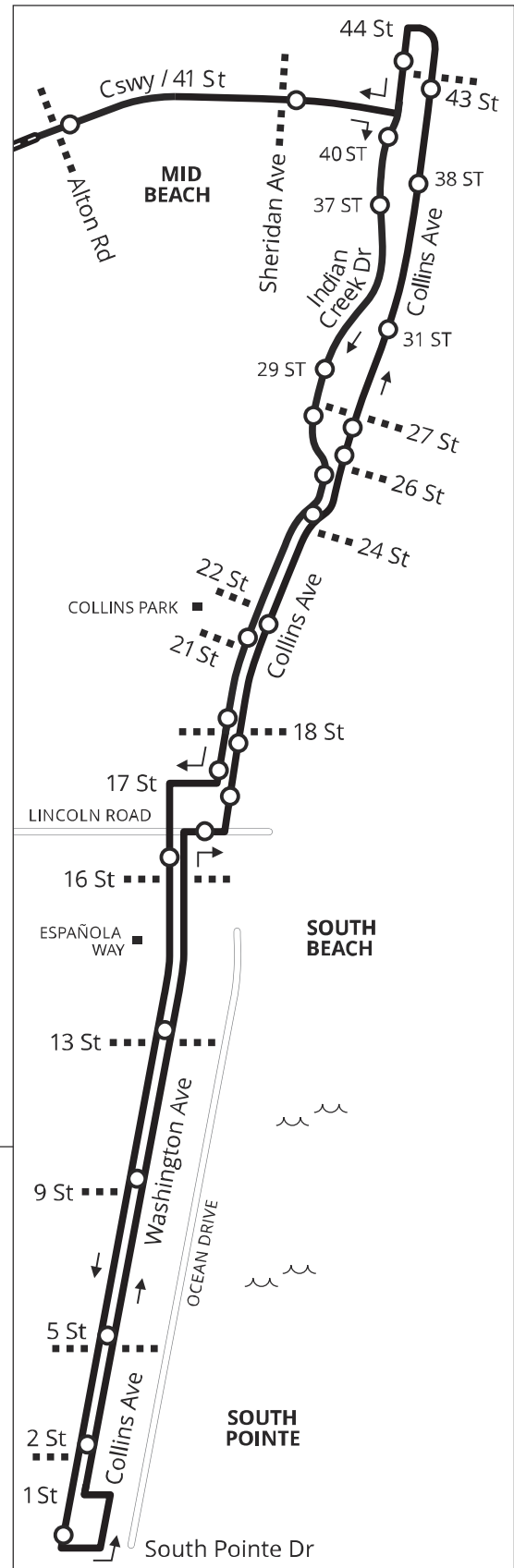
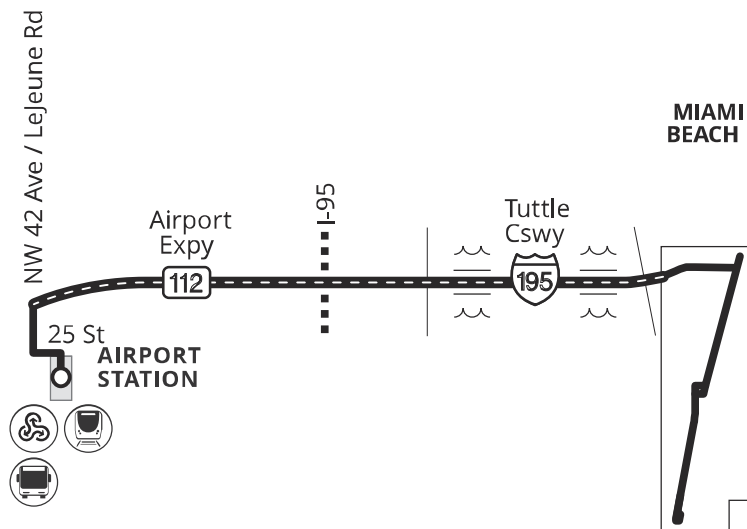
MIAMI BEACH AIRPORT EXPRESS 150

150 MIAMI BEACH AIRPORT EXPRESS

Weekday and weekend express service from Miami International Airport Station to Miami Beach via Julia Tuttle Causeway. Route serves Mid Beach, South Beach, Lincoln Rd.

LIMITED STOPS
entire route

Weekday		
FROM	TO	EVERY
05:15	20:45	30 min
Saturday		
FROM	TO	EVERY
05:15	20:45	30 min
Sunday		
FROM	TO	EVERY
05:15	20:45	30 min



MAP NOT TO SCALE

City of Miami Beach Trolley Routes



MIDDLE BEACH LOOP

TROLLEY CONNECTIONS

- | | | |
|--------------------------|--|--------------------------|
| COLLINS EXPRESS | | MIDDLE BEACH LOOP |
| MIDDLE BEACH LOOP | | SOUTH BEACH LOOP |
| COLLINS EXPRESS | | SOUTH BEACH LOOP |



Appendix G

Trip Generation Calculations

AM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY AM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS				
					Percent																					
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Small Office Building	11	712	1.734	ksf	82%	18%	2	1	3	20.0%	1	1	1	2	41.7%	1	1	0	1	0.0%	0	1	0	1
	2	High-Turnover (Sit-Down) Restaurant	11	932	4.701	ksf	55%	45%	25	20	45	20.0%	9	20	16	36	25.0%	9	14	13	27	0.0%	0	14	13	27
	3	Strip Retail Plaza	11	822	7.804	ksf	60%	40%	11	7	18	20.0%	4	9	5	14	35.7%	5	5	4	9	0.0%	0	5	4	9
	4	Day Care Center	11	565	2.485	ksf	53%	47%	14	13	27	20.0%	5	11	11	22	41.7%	9	9	4	13	0.0%	0	9	4	13
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
ITE Land Use Code		Rate or Equation				Total:		52	41	93	20.0%	19	41	33	74	32.4%	24	29	21	50	0.0%	0	29	21	50	
712		Y=1.67(X)																								
932		Y=9.57(X)																								
822		Y=2.36(X)																								
565		Y=11(X)																								

PROPOSED WEEKDAY AM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS							
					Percent																								
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total			
GROUP 2	1	General Office Building			11	710	36.293	ksf	88%	12%	62	8	70	20.0%	14	50	6	56	19.6%	11	45	0	45	0.0%	0	45	0	45	
	2	Strip Retail Plaza			11	822	6.682	ksf	60%	40%	10	6	16	20.0%	3	8	5	13	38.5%	5	5	3	8	0.0%	0	5	3	8	
	3	High-Turnover (Sit-Down) Restaurant			11	932	4.056	ksf	55%	45%	21	18	39	20.0%	8	17	14	31	32.3%	10	12	9	21	0.0%	0	12	9	21	
	4																												
	5																												
	6																												
	7																												
	8																												
	9																												
	10																												
	11																												
	12																												
	13																												
	14																												
	15																												
ITE Land Use Code					Rate or Equation					Total:		93	32	125	20.0%	25	75	25	100	26.0%	26	62	12	74	0.0%	0	62	12	74
710					LN(Y) = 0.86*LN(X)+1.16																								
822					Y=2.36(X)																								
932					Y=9.57(X)																								
																						NET NEW TRIPS		IN	OUT	TOTAL			
																								33	-9	24			

	IN	OUT	TOTAL
NET NEW TRIPS	33	-9	24

PM PEAK HOUR TRIP GENERATION COMPARISON

EXISTING WEEKDAY PM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS				
					Percent																					
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total
GROUP 1	1	Small Office Building	11	712	1.734	ksf	34%	66%	1	3	4	20.0%	1	1	2	3	11.5%	0	1	2	3	0.0%	0	1	2	3
	2	High-Turnover (Sit-Down) Restaurant	11	932	4.701	ksf	61%	39%	26	17	43	20.0%	9	21	13	34	32.4%	11	15	8	23	43.0%	10	8	5	13
	3	Strip Retail Plaza	11	822	7.804	ksf	50%	50%	32	33	65	20.0%	13	26	26	52	26.9%	14	19	19	38	40.0%	15	12	11	23
	4	Day Care Center	11	565	2.485	ksf	47%	53%	13	15	28	20.0%	5	11	12	23	11.5%	3	10	10	20	0.0%	0	10	10	20
	5																									
	6																									
	7																									
	8																									
	9																									
	10																									
	11																									
	12																									
	13																									
	14																									
	15																									
ITE Land Use Code		Rate or Equation				Total:		72	68	140	20.0%	28	59	53	112	25.0%	28	45	39	84	29.8%	25	31	28	59	
712		Y=2.16(X)																								
932		Y=9.05(X)																								
822		LN(Y) = 0.71*LN(X)+2.72																								
565		Y=11.12(X)																								

PROPOSED WEEKDAY PM PEAK HOUR TRIP GENERATION

ITE TRIP GENERATION CHARACTERISTICS					DIRECTIONAL DISTRIBUTION		BASELINE TRIPS			MULTIMODAL REDUCTION		GROSS TRIPS			INTERNAL CAPTURE		EXTERNAL VEHICLE TRIPS			PASS-BY CAPTURE		NET NEW EXTERNAL TRIPS								
					Percent																									
Land Use					ITE Edition	ITE Code	Scale	ITE Units	In	Out	Total	Percent	MR Trips	In	Out	Total	Percent	IC Trips	In	Out	Total	Percent	PB Trips	In	Out	Total				
GROUP 2	1	General Office Building			11	710	36.293	ksf	17%	83%	12	60	72	20.0%	14	10	48	58	3.4%	2	10	46	56	0.0%	0	10	46	56		
	2	Strip Retail Plaza			11	822	6.682	ksf	50%	50%	29	29	58	20.0%	12	23	23	46	28.3%	13	16	17	33	40.0%	13	10	10	20		
	3	High-Turnover (Sit-Down) Restaurant			11	932	4.056	ksf	61%	39%	23	14	37	20.0%	7	19	11	30	36.7%	11	13	6	19	43.0%	8	7	4	11		
	4																													
	5																													
	6																													
	7																													
	8																													
	9																													
	10																													
	11																													
	12																													
	13																													
	14																													
	15																													
ITE Land Use Code					Rate or Equation					Total:			64	103	167	20.0%	33	52	82	134	19.4%	26	39	69	108	19.4%	21	27	60	87
					LN(Y) = 0.83*LN(X)+1.29																									
					LN(Y) = 0.71*LN(X)+2.72																									
					Y=9.05(X)																									
																						NET NEW TRIPS		IN	OUT	TOTAL				
																								-4	32	28				

	IN	OUT	TOTAL
NET NEW TRIPS	-4	32	28

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

SUMMARY (EXISTING)

GROSS TRIP GENERATION					
INPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	12	12	12	14
	Retail	9	5	26	26
	Restaurant	20	16	21	13
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		41	33	59	53
INTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	2	8	1	2
	Retail	4	1	7	7
	Restaurant	6	3	6	5
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		12	12	14	14
OUTPUT	Total % Reduction	32.4%		25.0%	
	Office	41.7%		11.5%	
	Retail	35.7%		26.9%	
	Restaurant	25.0%		32.4%	
	Cinema/Entertainment				
	Residential				
	Hotel				
EXTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	10	4	11	12
	Retail	5	4	19	19
	Restaurant	14	13	15	8
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		29	21	45	39

Internal Capture Reduction Calculations

Methodology for A.M. Peak Hour and P.M. Peak Hour
based on the *Trip Generation Handbook* , 3rd Edition, published by the Institute of Transportation Engineers

Methodology for Daily
based on the average of the Unconstrained Rates for the A.M. Peak Hour and P.M. Peak Hour

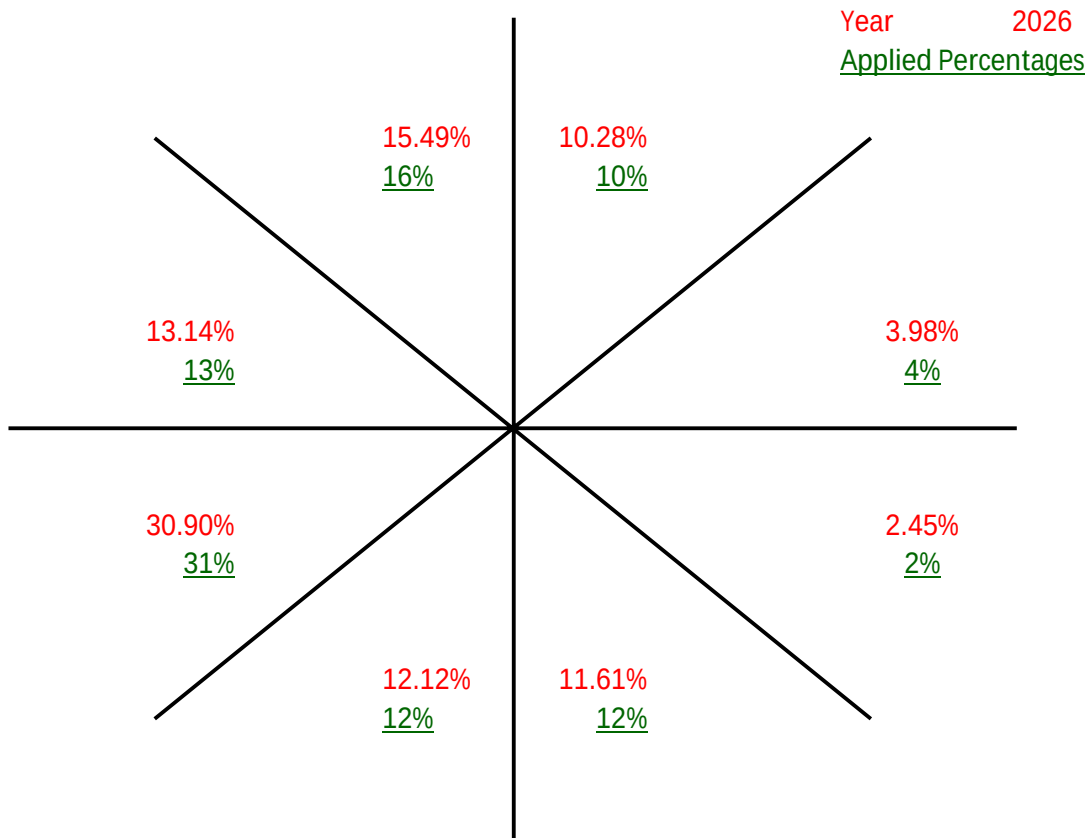
SUMMARY (PROPOSED)

GROSS TRIP GENERATION					
INPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	50	6	10	48
	Retail	8	5	23	23
	Restaurant	17	14	19	11
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		75	25	52	82
INTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	5	6	0	2
	Retail	3	2	7	6
	Restaurant	5	5	6	5
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		13	13	13	13
OUTPUT	Total % Reduction	26.0%		19.4%	
	Office	19.6%		3.4%	
	Retail	38.5%		28.3%	
	Restaurant	32.3%		36.7%	
	Cinema/Entertainment				
	Residential				
	Hotel				
EXTERNAL TRIPS					
OUTPUT	Land Use	A.M. Peak Hour		P.M. Peak Hour	
		Enter	Exit	Enter	Exit
	Office	45	0	10	46
	Retail	5	3	16	17
	Restaurant	12	9	13	6
	Cinema/Entertainment	0	0	0	0
	Residential	0	0	0	0
	Hotel	0	0	0	0
		62	12	39	69

Appendix H

Cardinal Trip Distribution

Cardinal Distribution for TAZ 629



Cardinal Trip Distribution

Cardinal Direction	Percentage of Trips		2026 Interpolated	2026 Rounded
	2015	2045		
North-Northeast	10.5%	9.9%	10.3%	10.0%
East-Northeast	4.2%	3.6%	4.0%	4.0%
East-Southeast	2.6%	2.2%	2.5%	2.0%
South-Southeast	12.6%	9.9%	11.6%	12.0%
South-Southwest	13.0%	10.6%	12.1%	12.0%
West-Southwest	28.3%	35.4%	30.9%	31.0%
West-Northwest	12.7%	13.9%	13.1%	13.0%
North-Northwest	16.0%	14.6%	15.5%	16.0%
Total	99.9%	100.1%	100.0%	100.0%



MIAMI-DADE TRANSPORTATION PLANNING ORGANIZATION

2045 LRTP

SUPPORTING DOCUMENTS

DIRECTIONAL TRIP DISTRIBUTION REPORT

SEPTEMBER 2019

Miami-Dade 2015 Base Year Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
625	3525	Trips	610	160	-	557	431	1,317	679	1,035	4,961
625	3525	Percent	12.7	3.3	-	11.6	9.0	27.5	14.2	21.6	
626	3526	Trips	122	-	-	-	2,090	2,277	1,198	2,942	9,399
626	3526	Percent	1.4	-	-	-	24.2	26.4	13.9	34.1	
627	3527	Trips	279	-	-	-	2,051	2,578	845	1,965	8,061
627	3527	Percent	3.6	-	-	-	26.6	33.4	11.0	25.5	
628	3528	Trips	298	-	49	79	984	902	332	679	3,579
628	3528	Percent	9.0	-	1.5	2.4	29.6	27.2	10.0	20.5	
629	3529	Trips	1,374	549	344	1,656	1,708	3,707	1,668	2,101	14,261
629	3529	Percent	10.5	4.2	2.6	12.6	13.0	28.3	12.7	16.0	
630	3530	Trips	952	-	210	347	1,696	2,375	794	1,114	8,135
630	3530	Percent	12.7	-	2.8	4.6	22.7	31.7	10.6	14.9	
631	3531	Trips	255	-	-	-	1,215	1,471	440	1,030	4,651
631	3531	Percent	5.8	-	-	-	27.6	33.4	10.0	23.4	
632	3532	Trips	309	-	-	-	1,242	1,751	750	635	4,880
632	3532	Percent	6.6	-	-	-	26.5	37.4	16.0	13.5	
633	3533	Trips	310	-	-	-	1,181	1,428	750	730	4,590
633	3533	Percent	7.0	-	-	-	26.9	32.5	17.1	16.6	
634	3534	Trips	1,502	112	240	837	1,718	1,928	976	1,727	9,998
634	3534	Percent	16.6	1.2	2.7	9.3	19.0	21.3	10.8	19.1	
635	3535	Trips	779	-	-	-	2,021	1,994	952	1,411	8,010
635	3535	Percent	10.9	-	-	-	28.2	27.9	13.3	19.7	
636	3536	Trips	1,041	-	-	686	1,152	2,072	911	1,071	7,384
636	3536	Percent	15.0	-	-	9.9	16.6	29.9	13.1	15.4	
637	3537	Trips	323	31	87	217	126	601	303	290	1,987
637	3537	Percent	16.4	1.6	4.4	11.0	6.4	30.4	15.3	14.7	
638	3538	Trips	152	35	87	86	114	218	162	126	999
638	3538	Percent	15.5	3.6	8.9	8.7	11.6	22.3	16.5	12.9	
639	3539	Trips	825	281	277	1,089	131	1,364	796	599	5,721
639	3539	Percent	15.4	5.2	5.2	20.3	2.4	25.4	14.9	11.2	
640	3540	Trips	344	247	868	104	43	685	405	274	3,053
640	3540	Percent	11.6	8.3	29.2	3.5	1.5	23.1	13.6	9.2	
641	3541	Trips	1,051	1,714	291	723	309	1,572	1,188	916	8,356
641	3541	Percent	13.5	22.1	3.7	9.3	4.0	20.3	15.3	11.8	
642	3542	Trips	1,849	1,404	115	1,263	457	2,697	1,962	1,518	12,299
642	3542	Percent	16.4	12.5	1.0	11.2	4.1	23.9	17.4	13.5	
643	3543	Trips	1,747	551	-	965	479	2,595	1,554	1,715	10,383
643	3543	Percent	18.2	5.7	-	10.1	5.0	27.0	16.2	17.9	
644	3544	Trips	2,022	-	-	-	2,250	4,141	2,585	2,646	15,224
644	3544	Percent	14.8	-	-	-	16.5	30.4	19.0	19.4	
645	3545	Trips	1,268	-	-	-	907	1,498	1,720	1,351	7,018
645	3545	Percent	18.8	-	-	-	13.5	22.2	25.5	20.0	
646	3546	Trips	986	-	156	520	250	1,081	1,094	1,181	5,470
646	3546	Percent	18.7	-	3.0	9.9	4.7	20.5	20.8	22.4	
647	3547	Trips	350	103	114	165	66	354	359	408	1,979
647	3547	Percent	18.2	5.4	5.9	8.6	3.5	18.5	18.7	21.2	
648	3548	Trips	1,027	434	254	401	48	903	1,001	514	4,747
648	3548	Percent	22.4	9.5	5.5	8.8	1.0	19.7	21.9	11.2	
649	3549	Trips	754	192	184	230	41	612	743	427	3,320
649	3549	Percent	23.7	6.0	5.8	7.2	1.3	19.2	23.3	13.4	
650	3550	Trips	45	80	104	0	14	155	304	133	850
650	3550	Percent	5.4	9.6	12.4	0.0	1.6	18.5	36.5	16.0	

Miami-Dade 2045 Cost Feasible Plan Direction Trip Distribution Summary											
TAZ of Origin		Trips / Percent	Cardinal Directions								Total Trips
County TAZ	Regional TAZ		NNE	ENE	ESE	SSE	SSW	WSW	WNW	NNW	
625	3525	Trips	515	114	-	541	802	1,791	829	1,096	5,972
625	3525	Percent	9.1	2.0	-	9.5	14.1	31.5	14.6	19.3	
626	3526	Trips	66	-	-	-	2,417	3,260	1,417	2,993	11,237
626	3526	Percent	0.7	-	-	-	23.8	32.1	14.0	29.5	
627	3527	Trips	174	-	-	-	2,276	3,212	1,138	1,885	9,055
627	3527	Percent	2.0	-	-	-	26.2	37.0	13.1	21.7	
628	3528	Trips	238	-	23	101	1,053	1,266	390	660	4,028
628	3528	Percent	6.4	-	0.6	2.7	28.2	33.9	10.5	17.7	
629	3529	Trips	1,686	621	373	1,692	1,801	6,032	2,362	2,490	18,425
629	3529	Percent	9.9	3.6	2.2	9.9	10.6	35.4	13.9	14.6	
630	3530	Trips	888	-	326	303	1,717	3,876	1,515	1,553	11,277
630	3530	Percent	8.7	-	3.2	3.0	16.9	38.1	14.9	15.3	
631	3531	Trips	296	-	-	-	1,351	2,360	838	1,324	6,591
631	3531	Percent	4.8	-	-	-	21.9	38.3	13.6	21.5	
632	3532	Trips	343	-	-	-	1,500	2,647	1,390	1,098	7,499
632	3532	Percent	4.9	-	-	-	21.5	37.9	19.9	15.7	
633	3533	Trips	368	-	-	-	1,052	1,986	859	841	5,391
633	3533	Percent	7.2	-	-	-	20.6	38.9	16.8	16.5	
634	3534	Trips	1,404	80	149	773	1,637	2,733	1,332	1,712	10,593
634	3534	Percent	14.3	0.8	1.5	7.9	16.7	27.8	13.6	17.4	
635	3535	Trips	566	-	-	-	1,311	2,266	1,228	1,254	7,246
635	3535	Percent	8.5	-	-	-	19.8	34.2	18.5	18.9	
636	3536	Trips	1,066	-	-	607	978	3,045	1,398	1,193	8,805
636	3536	Percent	12.9	-	-	7.3	11.8	36.8	16.9	14.4	
637	3537	Trips	468	44	144	315	198	868	501	309	2,865
637	3537	Percent	16.5	1.6	5.1	11.1	6.9	30.5	17.6	10.9	
638	3538	Trips	127	33	78	94	79	401	285	185	1,342
638	3538	Percent	9.9	2.6	6.1	7.3	6.2	31.3	22.2	14.5	
639	3539	Trips	944	303	253	1,068	176	2,395	1,085	905	7,569
639	3539	Percent	13.2	4.3	3.6	15.0	2.5	33.6	15.2	12.7	
640	3540	Trips	119	74	216	10	30	177	136	147	1,166
640	3540	Percent	13.1	8.2	23.7	1.1	3.4	19.4	14.9	16.2	
641	3541	Trips	1,145	1,056	206	569	242	2,378	1,724	1,142	9,066
641	3541	Percent	13.5	12.5	2.4	6.7	2.9	28.1	20.4	13.5	
642	3542	Trips	1,701	1,196	113	964	433	3,470	2,140	1,631	12,324
642	3542	Percent	14.6	10.3	1.0	8.3	3.7	29.8	18.4	14.0	
643	3543	Trips	1,884	580	-	1,133	631	3,768	2,190	2,157	13,183
643	3543	Percent	15.3	4.7	-	9.2	5.1	30.5	17.7	17.5	
644	3544	Trips	1,948	-	-	-	2,227	5,534	3,264	3,082	17,780
644	3544	Percent	12.1	-	-	-	13.9	34.5	20.3	19.2	
645	3545	Trips	1,314	-	-	-	844	1,661	2,170	1,703	8,075
645	3545	Percent	17.1	-	-	-	11.0	21.6	28.2	22.1	
646	3546	Trips	1,025	-	125	496	263	1,741	1,656	1,299	6,976
646	3546	Percent	15.5	-	1.9	7.5	4.0	26.4	25.1	19.7	
647	3547	Trips	296	122	96	109	79	582	661	405	2,490
647	3547	Percent	12.6	5.2	4.1	4.6	3.4	24.8	28.1	17.3	
648	3548	Trips	943	278	128	313	73	1,525	1,351	576	5,397
648	3548	Percent	18.2	5.4	2.5	6.0	1.4	29.4	26.0	11.1	
649	3549	Trips	643	120	121	216	43	873	952	508	3,661
649	3549	Percent	18.5	3.4	3.5	6.2	1.3	25.1	27.4	14.6	
650	3550	Trips	60	71	65	8	14	279	312	136	969
650	3550	Percent	6.4	7.5	6.9	0.9	1.5	29.5	33.0	14.4	

Appendix I

Volume Development Worksheets

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: SR 907/Alton Road and SR 112/W 41st Street
COUNT DATE: November 8, 2023
AM PEAK HOUR FACTOR: 0.98
PM PEAK HOUR FACTOR: 0.98

"AM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
AM Raw Turning Movements			281	1,150	60		36	952	95		61	124	57		81	110	201		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
AM EXISTING CONDITIONS			298	1,219	64		38	1,009	101		65	131	60		86	117	213		
"PM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
PM Raw Turning Movements			120	1,158	55		20	1,515	57		178	115	30		83	100	348		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
PM EXISTING CONDITIONS			127	1,227	58		21	1,606	60		189	122	32		88	106	369		
"AM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				5				7											
3900 Alton Road					7		1				7	4	1			1			
TOTAL "VESTED" TRAFFIC			0	5	7		1	7	0		7	4	1		0	1	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
AM BACKGROUND TRAFFIC GROWTH			9	37	2		1	31	3		2	4	2		3	4	6		
AM NON-PROJECT TRAFFIC			307	1,261	73		40	1,047	104		74	139	63		89	122	219		
"PM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				10				4											
3900 Alton Road					22		1				4	3	1			4			
TOTAL "VESTED" TRAFFIC			0	10	22		1	4	0		4	3	1		0	4	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
PM BACKGROUND TRAFFIC GROWTH			4	37	2		1	49	2		6	4	1		3	3	11		
PM NON-PROJECT TRAFFIC			131	1,274	82		23	1,659	62		199	129	34		91	113	380		
"AM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering				50.0%													10.0%	
	Exiting											50.0%	10.0%						
"PM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering																		
	Exiting																		
"AM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New				17							0	0				3		
AM TOTAL PROJECT TRAFFIC			0	0	17		0	0	0		0	0	0		0	3	0		
AM TOTAL TRAFFIC			307	1,261	90		40	1,047	104		74	139	63		89	125	219		
"PM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New																		
PM TOTAL PROJECT TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0		
PM TOTAL TRAFFIC			131	1,274	82		23	1,659	62		199	129	34		91	113	380		

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: Garden Avenue and SR 112/W 41st Street
COUNT DATE: November 8, 2023
AM PEAK HOUR FACTOR: 0.96
PM PEAK HOUR FACTOR: 0.98

"AM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
AM Raw Turning Movements			0	1,264	23		24	1,090	0		0	0	22		0	0	0		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
AM EXISTING CONDITIONS			0	1,340	24		25	1,155	0		0	0	23		0	0	0		
"PM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
PM Raw Turning Movements			0	1,254	12		20	1,592	0		0	0	34		0	0	0		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
PM EXISTING CONDITIONS			0	1,329	13		21	1,688	0		0	0	36		0	0	0		
"AM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				5				7											
3900 Alton Road				1				1											
TOTAL "VESTED" TRAFFIC			0	6	0		0	8	0		0	0	0		0	0	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
AM BACKGROUND TRAFFIC GROWTH			0	41	1		1	35	0		0	0	1		0	0	0		
AM NON-PROJECT TRAFFIC			0	1,387	25		26	1,198	0		0	0	24		0	0	0		
"PM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				10				4											
3900 Alton Road				1				1											
TOTAL "VESTED" TRAFFIC			0	11	0		0	5	0		0	0	0		0	0	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
PM BACKGROUND TRAFFIC GROWTH			0	40	0		1	51	0		0	0	1		0	0	0		
PM NON-PROJECT TRAFFIC			0	1,380	13		22	1,744	0		0	0	37		0	0	0		
"AM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By	Entering																		
	Exiting																		
Distribution	Entering																		
	Exiting																		
Net New	Entering							6.0%											
	Exiting												6.0%						
"PM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By	Entering																		
	Exiting																		
Distribution	Entering																		
	Exiting																		
Net New	Entering																		
	Exiting																		
"AM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New							2						0					
AM TOTAL PROJECT TRAFFIC			0	0	0			2	0	0		0	0	0		0	0	0	
AM TOTAL TRAFFIC			0	1,387	25		28	1,198	0		0	0	24		0	0	0		
"PM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New																		
PM TOTAL PROJECT TRAFFIC			0	0	0			0	0	0		0	0	0		0	0	0	
PM TOTAL TRAFFIC			0	1,380	13		22	1,744	0		0	0	37		0	0	0		

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: Meridian Avenue and SR 112/W 41st Street
COUNT DATE: November 8, 2023
AM PEAK HOUR FACTOR: 0.96
PM PEAK HOUR FACTOR: 0.99

"AM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
AM Raw Turning Movements			61	1,185	7		22	1,080	65		16	13	39		122	23	103		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
AM EXISTING CONDITIONS			65	1,256	7		23	1,145	69		17	14	41		129	24	109		
"PM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
PM Raw Turning Movements			55	1,248	12		20	1,475	33		24	27	40		88	35	146		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
PM EXISTING CONDITIONS			58	1,323	13		21	1,564	35		25	29	42		93	37	155		
"AM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				5				7											
3900 Alton Road				1				1											
TOTAL "VESTED" TRAFFIC			0	6	0		0	8	0		0	0	0		0	0	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
AM BACKGROUND TRAFFIC GROWTH			2	38	0		1	35	2		1	0	1		4	1	3		
AM NON-PROJECT TRAFFIC			67	1,300	7		24	1,188	71		18	14	42		133	25	112		
"PM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street				10				4											
3900 Alton Road				1				1											
TOTAL "VESTED" TRAFFIC			0	11	0		0	5	0		0	0	0		0	0	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
PM BACKGROUND TRAFFIC GROWTH			2	40	0		1	47	1		1	1	1		3	1	5		
PM NON-PROJECT TRAFFIC			60	1,374	13		22	1,616	36		26	30	43		96	38	160		
"AM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering								6.0%										
	Exiting			6.0%															
"PM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering																		
	Exiting																		
"AM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New			0					2										
AM TOTAL PROJECT TRAFFIC					0	0	0		0	2	0		0	0	0		0	0	0
AM TOTAL TRAFFIC					67	1,300	7		24	1,190	71		18	14	42		133	25	112
"PM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New																		
PM TOTAL PROJECT TRAFFIC					0	0	0		0	0	0		0	0	0		0	0	0
PM TOTAL TRAFFIC					60	1,374	13		22	1,616	36		26	30	43		96	38	160

TRAFFIC VOLUMES AT STUDY INTERSECTIONS

INTERSECTION: SR 907/Alton Road and W 39th Street
COUNT DATE: November 8, 2023
AM PEAK HOUR FACTOR: 0.74
PM PEAK HOUR FACTOR: 0.92

"AM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
AM Raw Turning Movements			5	2	7		62	0	103		6	170	44		68	212	8		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
AM EXISTING CONDITIONS			5	2	7		66	0	109		6	180	47		72	225	8		
"PM EXISTING TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
PM Raw Turning Movements			1	3	3		30	0	59		1	261	45		73	92	10		
Peak Season Correction Factor		1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06		
PM EXISTING CONDITIONS			1	3	3		32	0	63		1	277	48		77	98	11		
"AM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street																			
3900 Alton Road												12				9			
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	12	0		0	9	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
AM BACKGROUND TRAFFIC GROWTH			0	0	0		2	0	3		0	5	1		2	7	0		
AM NON-PROJECT TRAFFIC			5	2	7		68	0	112		6	197	48		74	241	8		
"PM BACKGROUND TRAFFIC"		EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR		
340 W 42nd Street																			
3900 Alton Road												8				27			
TOTAL "VESTED" TRAFFIC			0	0	0		0	0	0		0	8	0		0	27	0		
Years To Buildout		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3		
Yearly Growth Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%		
PM BACKGROUND TRAFFIC GROWTH			0	0	0		1	0	2		0	8	1		2	3	0		
PM NON-PROJECT TRAFFIC			1	3	3		33	0	65		1	293	49		79	128	11		
"AM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering												34.0%			60.0%			
	Exiting							34.0%		60.0%									
"PM PROJECT DISTRIBUTION"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Pass-By Distribution	Entering																		
	Exiting																		
Valet Distribution	Entering																		
	Exiting																		
Net New Distribution	Entering																		
	Exiting																		
"AM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
AM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New							0		0				11		20			
AM TOTAL PROJECT TRAFFIC			0	0	0		0	0	0		0	0	11		20	0	0		
AM TOTAL TRAFFIC			5	2	7		68	0	112		6	197	59		94	241	8		
"PM PROJECT TRAFFIC"		LAND USE	TYPE	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
PM TRAFFIC DIVERSIONS																			
Project Trips	Pass - By																		
	Valet																		
	Net New																		
PM TOTAL PROJECT TRAFFIC			0	0	0		0	0	0		0	0	0		0	0	0		
PM TOTAL TRAFFIC			1	3	3		33	0	65		1	293	49		79	128	11		

Appendix J

Intersection Capacity Analysis

Existing A.M. Peak Hour

Timings

1: SR 907/Alton Road & W 41st Street

Existing Conditions

A.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	298	1219	38	1009	101	65	131	86	117	213
Future Volume (vph)	298	1219	38	1009	101	65	131	86	117	213
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	15.0	64.0	25.0	74.0	15.0	36.0	36.0	15.0	51.0	51.0
Total Split (%)	10.7%	45.7%	17.9%	52.9%	10.7%	25.7%	25.7%	10.7%	36.4%	36.4%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 103 (74%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

Existing Conditions

1: SR 907/Alton Road & W 41st Street

A.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	304	1309	39	1030	103	261	88	119	217
v/c Ratio	0.85	0.66	0.19	0.61	0.12	0.57	0.34	0.24	0.42
Control Delay (s/veh)	42.7	24.8	14.8	24.4	8.1	54.7	40.1	39.2	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	42.7	24.8	14.8	24.4	8.1	54.7	40.1	39.2	14.9
Queue Length 50th (ft)	~165	481	13	222	20	104	57	79	45
Queue Length 95th (ft)	#340	583	m28	313	41	150	100	131	115
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	356	1994	370	1699	868	572	267	589	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.66	0.11	0.61	0.12	0.46	0.33	0.20	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Existing Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	1219	64	38	1009	101	65	131	60	86	117	213
Future Volume (veh/h)	298	1219	64	38	1009	101	65	131	60	86	117	213
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.93	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	304	1244	0	39	1030	103	66	134	61	88	119	217
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	356	1984		276	1848	903	143	272	127	264	517	417
Arrive On Green	0.09	0.75	0.00	0.04	0.70	0.70	0.19	0.19	0.19	0.05	0.28	0.28
Sat Flow, veh/h	1767	3618	0	1767	3526	1567	565	1462	680	1767	1856	1495
Grp Volume(v), veh/h	304	1244	0	39	1030	103	141	0	120	88	119	217
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1567	1372	0	1335	1767	1856	1495
Q Serve(g_s), s	9.3	23.4	0.0	1.4	20.3	2.7	10.3	0.0	11.2	5.5	6.9	17.1
Cycle Q Clear(g_c), s	9.3	23.4	0.0	1.4	20.3	2.7	12.6	0.0	11.2	5.5	6.9	17.1
Prop In Lane	1.00		0.00	1.00		1.00	0.47		0.51	1.00		1.00
Lane Grp Cap(c), veh/h	356	1984		276	1848	903	293	0	249	264	517	417
V/C Ratio(X)	0.85	0.63		0.14	0.56	0.11	0.48	0.00	0.48	0.33	0.23	0.52
Avail Cap(c_a), veh/h	356	1984		470	1848	903	328	0	283	290	592	477
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	10.7	0.0	15.5	13.2	8.4	51.2	0.0	50.9	41.9	38.9	42.6
Incr Delay (d2), s/veh	17.3	1.5	0.0	0.1	1.2	0.3	0.9	0.0	1.1	0.3	0.2	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	7.4	0.0	0.6	7.0	1.0	4.6	0.0	3.9	2.4	3.2	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	40.4	12.2	0.0	15.6	14.4	8.6	52.1	0.0	52.0	42.1	39.1	43.3
LnGrp LOS	D	B		B	B	A	D		D	D	D	D
Approach Vol, veh/h		1548			1172			261			424	
Approach Delay, s/veh		17.7			13.9			52.0			41.9	
Approach LOS		B			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	79.7	13.0	32.4	9.6	85.1		45.3				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	9.3	67.7	9.3	29.7	19.3	57.7		44.7				
Max Q Clear Time (g_c+I1), s	11.3	22.3	7.5	14.6	3.4	25.4		19.1				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.2	0.0	4.1		1.1				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

22.0

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Existing Conditions
A.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1340	24	25	1155	0	23
Future Vol, veh/h	1340	24	25	1155	0	23
Conflicting Peds, #/hr	0	22	22	0	16	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1396	25	26	1203	0	24

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1443
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	466	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	457	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.3	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	484	-	-	457	-
HCM Lane V/C Ratio	0.05	-	-	0.057	-
HCM Control Delay (s/veh)	12.8	-	-	13.4	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.2	-	-	0.2	-

Timings

3: Meridian Avenue & W 41st Street

Existing Conditions

A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	65	1256	23	1145	17	14	129	24
Future Volume (vph)	65	1256	23	1145	17	14	129	24
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	20.0	80.0	20.0	80.0	40.0	40.0	40.0	40.0
Total Split (%)	14.3%	57.1%	14.3%	57.1%	28.6%	28.6%	28.6%	28.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 136 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues
3: Meridian Avenue & W 41st Street

Existing Conditions
A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	68	1315	24	1265	18	58	134	139
v/c Ratio	0.26	0.58	0.10	0.59	0.08	0.18	0.48	0.36
Control Delay (s/veh)	3.9	5.3	7.5	17.5	45.2	33.3	54.8	31.7
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	3.9	5.6	7.5	17.5	45.2	33.3	54.8	31.7
Queue Length 50th (ft)	4	47	6	354	13	29	108	66
Queue Length 95th (ft)	m7	57	15	435	36	70	179	131
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	347	2267	345	2147	265	362	315	422
Starvation Cap Reductn	0	327	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.68	0.07	0.59	0.07	0.16	0.43	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Existing Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	1256	7	23	1145	69	17	14	41	129	24	109
Future Volume (veh/h)	65	1256	7	23	1145	69	17	14	41	129	24	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	68	1308	7	24	1193	72	18	15	43	134	25	114
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	363	2426	13	339	2231	134	166	65	186	233	49	225
Arrive On Green	0.04	0.90	0.90	0.03	0.88	0.88	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3594	19	1767	3362	203	1226	376	1078	1315	287	1307
Grp Volume(v), veh/h	68	641	674	24	625	640	18	0	58	134	0	139
Grp Sat Flow(s),veh/h/ln	1767	1763	1851	1767	1763	1802	1226	0	1454	1315	0	1593
Q Serve(g_s), s	1.7	10.1	10.1	0.6	11.0	11.1	1.9	0.0	4.8	13.7	0.0	11.1
Cycle Q Clear(g_c), s	1.7	10.1	10.1	0.6	11.0	11.1	13.0	0.0	4.8	18.5	0.0	11.1
Prop In Lane	1.00		0.01	1.00		0.11	1.00		0.74	1.00		0.82
Lane Grp Cap(c), veh/h	363	1190	1249	339	1170	1196	166	0	251	233	0	275
V/C Ratio(X)	0.19	0.54	0.54	0.07	0.53	0.54	0.11	0.00	0.23	0.57	0.00	0.51
Avail Cap(c_a), veh/h	485	1190	1249	481	1170	1196	250	0	350	323	0	383
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.1	2.8	2.8	7.2	3.4	3.4	58.4	0.0	49.9	57.9	0.0	52.5
Incr Delay (d2), s/veh	0.1	1.8	1.7	0.0	1.7	1.7	0.2	0.0	0.3	1.7	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.8	2.9	0.2	3.1	3.2	0.6	0.0	1.8	4.7	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.2	4.6	4.5	7.3	5.2	5.1	58.6	0.0	50.3	59.6	0.0	53.6
LnGrp LOS	A	A	A	A	A	A	E		D	E		D
Approach Vol, veh/h		1383			1289			76			273	
Approach Delay, s/veh		4.7			5.2			52.2			56.5	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	99.2		30.5	8.7	100.8		30.5				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	14.3	73.7		33.7	14.3	73.7		33.7				
Max Q Clear Time (g_c+I1), s	3.7	13.1		15.0	2.6	12.1		20.5				
Green Ext Time (p_c), s	0.0	3.4		0.2	0.0	3.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.8									
HCM 6th LOS			B									

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Existing Conditions
A.M. Peak Hour

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔			↔	
Traffic Vol, veh/h	5	2	7	66	0	109	6	180	47	72	225	8
Future Vol, veh/h	5	2	7	66	0	109	6	180	47	72	225	8
Conflicting Peds, #/hr	6	0	10	10	0	6	21	0	19	19	0	21
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	3	9	89	0	147	8	243	64	97	304	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	896	867	189	668	-	300	336	0	0	326	0	0
Stage 1	525	525	-	310	-	-	-	-	-	-	-	-
Stage 2	371	342	-	358	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	490	501	789	584	0	719	1222	-	-	1232	-	-
Stage 1	476	551	-	655	0	-	-	-	-	-	-	-
Stage 2	609	667	-	594	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	349	434	769	516	-	704	1201	-	-	1212	-	-
Mov Cap-2 Maneuver	349	434	-	516	-	-	-	-	-	-	-	-
Stage 1	465	489	-	641	-	-	-	-	-	-	-	-
Stage 2	476	652	-	522	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	12.5		12.2		0.2		2.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1201	-	-	499	516	704	1212	-	-			
HCM Lane V/C Ratio	0.007	-	-	0.038	0.173	0.209	0.08	-	-			
HCM Control Delay (s/veh)	8	-	-	12.5	13.4	11.5	8.2	0.2	-			
HCM Lane LOS	A	-	-	B	B	B	A	A	-			
HCM 95th %tile Q (veh)	0	-	-	0.1	0.6	0.8	0.3	-	-			

Future Background A.M. Peak Hour

Timings

Future Background Conditions

1: SR 907/Alton Road & W 41st Street

A.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	307	1261	40	1047	104	74	139	89	122	219
Future Volume (vph)	307	1261	40	1047	104	74	139	89	122	219
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	15.0	64.0	25.0	74.0	15.0	36.0	36.0	15.0	51.0	51.0
Total Split (%)	10.7%	45.7%	17.9%	52.9%	10.7%	25.7%	25.7%	10.7%	36.4%	36.4%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 103 (74%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

Future Background Conditions

1: SR 907/Alton Road & W 41st Street

A.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	313	1361	41	1068	106	282	91	124	223
v/c Ratio	0.92	0.69	0.21	0.63	0.12	0.61	0.35	0.25	0.42
Control Delay (s/veh)	54.5	26.0	15.7	25.5	8.2	56.0	40.3	39.1	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	54.5	26.0	15.7	25.5	8.2	56.0	40.3	39.1	15.5
Queue Length 50th (ft)	~193	513	14	233	21	114	59	82	49
Queue Length 95th (ft)	#374	622	m30	333	42	162	104	135	121
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	340	1978	355	1694	866	568	262	589	592
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.69	0.12	0.63	0.12	0.50	0.35	0.21	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Future Background Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1261	73	40	1047	104	74	139	63	89	122	219
Future Volume (veh/h)	307	1261	73	40	1047	104	74	139	63	89	122	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.93	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	313	1287	0	41	1068	106	76	142	64	91	124	223
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	341	1966		261	1832	898	153	268	124	261	525	423
Arrive On Green	0.09	0.74	0.00	0.04	0.69	0.69	0.19	0.19	0.19	0.05	0.28	0.28
Sat Flow, veh/h	1767	3618	0	1767	3526	1567	602	1414	657	1767	1856	1496
Grp Volume(v), veh/h	313	1287	0	41	1068	106	151	0	131	91	124	223
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1567	1331	0	1342	1767	1856	1496
Q Serve(g_s), s	9.3	25.7	0.0	1.5	21.9	2.9	12.2	0.0	12.2	5.6	7.2	17.6
Cycle Q Clear(g_c), s	9.3	25.7	0.0	1.5	21.9	2.9	14.1	0.0	12.2	5.6	7.2	17.6
Prop In Lane	1.00		0.00	1.00		1.00	0.50		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	341	1966		261	1832	898	291	0	254	261	525	423
V/C Ratio(X)	0.92	0.65		0.16	0.58	0.12	0.52	0.00	0.51	0.35	0.24	0.53
Avail Cap(c_a), veh/h	341	1966		454	1832	898	320	0	285	284	592	478
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	11.3	0.0	16.1	13.8	8.6	51.4	0.0	51.0	41.6	38.5	42.3
Incr Delay (d2), s/veh	28.4	1.7	0.0	0.1	1.4	0.3	1.1	0.0	1.2	0.3	0.2	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	8.2	0.0	0.6	7.7	1.0	5.0	0.0	4.2	2.5	3.3	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.0	13.0	0.0	16.2	15.1	8.9	52.5	0.0	52.2	41.9	38.7	43.0
LnGrp LOS	E	B		B	B	A	D		D	D	D	D
Approach Vol, veh/h		1600			1215			282			438	
Approach Delay, s/veh		21.2			14.6			52.4			41.6	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	79.1	13.1	32.8	9.7	84.4		45.9				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	9.3	67.7	9.3	29.7	19.3	57.7		44.7				
Max Q Clear Time (g_c+I1), s	11.3	23.9	7.6	16.1	3.5	27.7		19.6				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.2	0.0	4.3		1.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

24.0

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Future Background Conditions

A.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑		↘
Traffic Vol, veh/h	1387	25	26	1198	0	24
Future Vol, veh/h	1387	25	26	1198	0	24
Conflicting Peds, #/hr	0	22	22	0	16	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1445	26	27	1248	0	25

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1493
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	446	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	438	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.3	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	473	-	-	438	-
HCM Lane V/C Ratio	0.053	-	-	0.062	-
HCM Control Delay (s/veh)	13	-	-	13.8	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.2	-	-	0.2	-

Timings

3: Meridian Avenue & W 41st Street

Future Background Conditions

A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	67	1300	24	1188	18	14	133	25
Future Volume (vph)	67	1300	24	1188	18	14	133	25
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	20.0	80.0	20.0	80.0	40.0	40.0	40.0	40.0
Total Split (%)	14.3%	57.1%	14.3%	57.1%	28.6%	28.6%	28.6%	28.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 136 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues

Future Background Conditions

3: Meridian Avenue & W 41st Street

A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	1361	25	1312	19	59	139	143
v/c Ratio	0.29	0.60	0.11	0.61	0.08	0.18	0.50	0.38
Control Delay (s/veh)	4.3	5.3	7.7	18.0	45.3	33.5	55.4	32.4
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.3	5.5	7.7	18.0	45.3	33.5	55.4	32.4
Queue Length 50th (ft)	5	50	6	376	14	30	112	69
Queue Length 95th (ft)	m7	61	16	458	38	71	184	137
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	334	2266	333	2149	261	362	315	422
Starvation Cap Reductn	0	326	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.70	0.08	0.61	0.07	0.16	0.44	0.34

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Future Background Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1300	7	24	1188	71	18	14	42	133	25	112
Future Volume (veh/h)	67	1300	7	24	1188	71	18	14	42	133	25	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	1354	7	25	1238	74	19	15	44	139	26	117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	348	2414	12	324	2222	133	167	65	190	236	51	229
Arrive On Green	0.04	0.89	0.89	0.03	0.88	0.88	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1767	3595	19	1767	3364	201	1222	369	1083	1314	290	1304
Grp Volume(v), veh/h	70	664	697	25	648	664	19	0	59	139	0	143
Grp Sat Flow(s),veh/h/ln	1767	1763	1851	1767	1763	1802	1222	0	1453	1314	0	1594
Q Serve(g_s), s	1.8	11.3	11.3	0.6	12.2	12.3	2.0	0.0	4.9	14.2	0.0	11.4
Cycle Q Clear(g_c), s	1.8	11.3	11.3	0.6	12.2	12.3	13.4	0.0	4.9	19.1	0.0	11.4
Prop In Lane	1.00		0.01	1.00		0.11	1.00		0.75	1.00		0.82
Lane Grp Cap(c), veh/h	348	1184	1243	324	1164	1190	167	0	255	236	0	280
V/C Ratio(X)	0.20	0.56	0.56	0.08	0.56	0.56	0.11	0.00	0.23	0.59	0.00	0.51
Avail Cap(c_a), veh/h	469	1184	1243	466	1164	1190	246	0	350	322	0	384
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	3.1	3.1	7.5	3.6	3.6	58.3	0.0	49.6	57.8	0.0	52.3
Incr Delay (d2), s/veh	0.1	1.9	1.8	0.0	1.9	1.9	0.2	0.0	0.3	1.7	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.1	3.2	0.2	3.4	3.5	0.6	0.0	1.8	4.9	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.5	5.0	4.9	7.5	5.6	5.5	58.6	0.0	49.9	59.5	0.0	53.3
LnGrp LOS	A	A	A	A	A	A	E		D	E		D
Approach Vol, veh/h		1431			1337			78			282	
Approach Delay, s/veh		5.1			5.6			52.0			56.4	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	98.8		30.9	8.8	100.3		30.9				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	14.3	73.7		33.7	14.3	73.7		33.7				
Max Q Clear Time (g_c+I1), s	3.8	14.3		15.4	2.6	13.3		21.1				
Green Ext Time (p_c), s	0.0	3.5		0.2	0.0	3.7		0.8				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

11.1

HCM 6th LOS

B

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Future Background Conditions

A.M. Peak Hour

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔		↔	↔	
Traffic Vol, veh/h	5	2	7	68	0	112	6	197	48	74	241	8
Future Vol, veh/h	5	2	7	68	0	112	6	197	48	74	241	8
Conflicting Peds, #/hr	6	0	10	10	0	6	21	0	19	19	0	21
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	3	9	92	0	151	8	266	65	100	326	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	949	919	200	709	-	324	358	0	0	350	0	0
Stage 1	553	553	-	334	-	-	-	-	-	-	-	-
Stage 2	396	366	-	375	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	470	481	782	566	0	704	1199	-	-	1207	-	-
Stage 1	459	535	-	637	0	-	-	-	-	-	-	-
Stage 2	591	651	-	581	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	329	414	762	497	-	689	1178	-	-	1188	-	-
Mov Cap-2 Maneuver	329	414	-	497	-	-	-	-	-	-	-	-
Stage 1	448	471	-	622	-	-	-	-	-	-	-	-
Stage 2	456	636	-	507	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	12.8		12.5		0.2		2.1					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1178	-	-	479	497	689	1188	-	-			
HCM Lane V/C Ratio	0.007	-	-	0.039	0.185	0.22	0.084	-	-			
HCM Control Delay (s/veh)	8.1	-	-	12.8	13.9	11.7	8.3	0.3	-			
HCM Lane LOS	A	-	-	B	B	B	A	A	-			
HCM 95th %tile Q (veh)	0	-	-	0.1	0.7	0.8	0.3	-	-			

Future Total A.M. Peak Hour

Timings

1: SR 907/Alton Road & W 41st Street

Future Total Conditions

A.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	307	1261	40	1047	104	74	139	89	125	219
Future Volume (vph)	307	1261	40	1047	104	74	139	89	125	219
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	15.0	64.0	25.0	74.0	15.0	36.0	36.0	15.0	51.0	51.0
Total Split (%)	10.7%	45.7%	17.9%	52.9%	10.7%	25.7%	25.7%	10.7%	36.4%	36.4%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 103 (74%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 125

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

Future Total Conditions

1: SR 907/Alton Road & W 41st Street

A.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	313	1379	41	1068	106	282	91	128	223
v/c Ratio	0.92	0.70	0.22	0.63	0.12	0.61	0.36	0.26	0.40
Control Delay (s/veh)	53.2	26.0	16.1	25.6	3.9	53.6	40.5	39.4	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	53.2	26.0	16.1	25.6	3.9	53.6	40.5	39.4	9.6
Queue Length 50th (ft)	~193	523	14	224	7	109	59	85	21
Queue Length 95th (ft)	#374	633	m30	327	21	157	104	139	86
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	342	1981	351	1694	887	576	261	589	621
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.70	0.12	0.63	0.12	0.49	0.35	0.22	0.36

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Future Total Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1261	90	40	1047	104	74	139	63	89	125	219
Future Volume (veh/h)	307	1261	90	40	1047	104	74	139	63	89	125	219
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.88	0.95		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	313	1287	0	41	1068	106	76	142	64	91	128	223
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	341	1965		261	1832	898	152	264	122	256	526	424
Arrive On Green	0.09	0.74	0.00	0.04	0.69	0.69	0.19	0.19	0.19	0.05	0.28	0.28
Sat Flow, veh/h	1767	3618	0	1767	3526	1567	598	1392	643	1767	1856	1496
Grp Volume(v), veh/h	313	1287	0	41	1068	106	152	0	130	91	128	223
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1567	1331	0	1302	1767	1856	1496
Q Serve(g_s), s	9.3	25.7	0.0	1.5	22.0	2.9	12.4	0.0	12.5	5.6	7.4	17.6
Cycle Q Clear(g_c), s	9.3	25.7	0.0	1.5	22.0	2.9	14.3	0.0	12.5	5.6	7.4	17.6
Prop In Lane	1.00		0.00	1.00		1.00	0.50		0.49	1.00		1.00
Lane Grp Cap(c), veh/h	341	1965		261	1832	898	291	0	247	256	526	424
V/C Ratio(X)	0.92	0.65		0.16	0.58	0.12	0.52	0.00	0.53	0.35	0.24	0.53
Avail Cap(c_a), veh/h	341	1965		454	1832	898	320	0	276	280	592	478
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	11.3	0.0	16.1	13.8	8.6	51.5	0.0	51.1	41.6	38.6	42.3
Incr Delay (d2), s/veh	28.5	1.7	0.0	0.1	1.4	0.3	1.1	0.0	1.3	0.3	0.2	0.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	8.2	0.0	0.6	7.7	1.0	5.0	0.0	4.2	2.5	3.5	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.2	13.0	0.0	16.2	15.2	8.9	52.5	0.0	52.4	41.9	38.8	43.0
LnGrp LOS	E	B		B	B	A	D		D	D	D	D
Approach Vol, veh/h		1600			1215			282			442	
Approach Delay, s/veh		21.3			14.6			52.5			41.6	
Approach LOS		C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	79.0	13.1	32.8	9.7	84.3		46.0				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	9.3	67.7	9.3	29.7	19.3	57.7		44.7				
Max Q Clear Time (g_c+I1), s	11.3	24.0	7.6	16.3	3.5	27.7		19.6				
Green Ext Time (p_c), s	0.0	3.4	0.0	1.2	0.0	4.3		1.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

24.0

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Future Total Conditions
A.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1387	25	28	1198	0	24
Future Vol, veh/h	1387	25	28	1198	0	24
Conflicting Peds, #/hr	0	22	22	0	16	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1445	26	29	1248	0	25

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1493
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	446	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	438	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.3	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	473	-	-	438	-
HCM Lane V/C Ratio	0.053	-	-	0.067	-
HCM Control Delay (s/veh)	13	-	-	13.8	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.2	-	-	0.2	-

Timings

3: Meridian Avenue & W 41st Street

Future Total Conditions

A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	67	1300	24	1190	18	14	133	25
Future Volume (vph)	67	1300	24	1190	18	14	133	25
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	20.0	80.0	20.0	80.0	40.0	40.0	40.0	40.0
Total Split (%)	14.3%	57.1%	14.3%	57.1%	28.6%	28.6%	28.6%	28.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 140

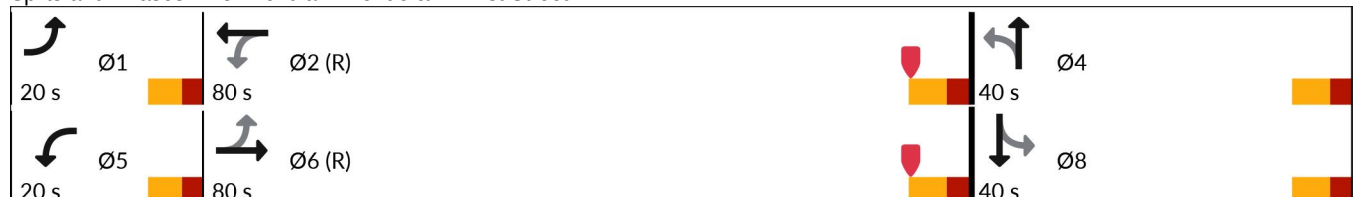
Actuated Cycle Length: 140

Offset: 136 (97%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues

3: Meridian Avenue & W 41st Street

Future Total Conditions

A.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	1361	25	1314	19	59	139	143
v/c Ratio	0.29	0.60	0.11	0.61	0.08	0.17	0.50	0.33
Control Delay (s/veh)	4.2	5.3	7.7	17.9	45.3	18.5	55.4	14.1
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	4.2	5.6	7.7	17.9	45.3	18.5	55.4	14.1
Queue Length 50th (ft)	4	50	6	374	14	11	112	19
Queue Length 95th (ft)	m7	61	16	457	38	51	184	80
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	334	2267	333	2151	261	381	315	470
Starvation Cap Reductn	0	328	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.70	0.08	0.61	0.07	0.15	0.44	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Future Total Conditions

A.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	1300	7	24	1190	71	18	14	42	133	25	112
Future Volume (veh/h)	67	1300	7	24	1190	71	18	14	42	133	25	112
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	0.98		0.98	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	1354	7	25	1240	74	19	15	44	139	26	117
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	347	2414	12	324	2222	132	165	65	190	236	50	227
Arrive On Green	0.04	0.89	0.89	0.03	0.88	0.88	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1767	3595	19	1767	3365	200	1213	369	1083	1314	287	1291
Grp Volume(v), veh/h	70	664	697	25	649	665	19	0	59	139	0	143
Grp Sat Flow(s),veh/h/ln	1767	1763	1851	1767	1763	1803	1213	0	1453	1314	0	1578
Q Serve(g_s), s	1.8	11.3	11.3	0.6	12.3	12.4	2.0	0.0	4.9	14.2	0.0	11.5
Cycle Q Clear(g_c), s	1.8	11.3	11.3	0.6	12.3	12.4	13.5	0.0	4.9	19.1	0.0	11.5
Prop In Lane	1.00		0.01	1.00		0.11	1.00		0.75	1.00		0.82
Lane Grp Cap(c), veh/h	347	1184	1243	324	1164	1190	165	0	255	236	0	277
V/C Ratio(X)	0.20	0.56	0.56	0.08	0.56	0.56	0.12	0.00	0.23	0.59	0.00	0.52
Avail Cap(c_a), veh/h	469	1184	1243	466	1164	1190	244	0	350	322	0	380
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	3.1	3.1	7.5	3.6	3.6	58.4	0.0	49.6	57.8	0.0	52.3
Incr Delay (d2), s/veh	0.1	1.9	1.8	0.0	1.9	1.9	0.2	0.0	0.3	1.7	0.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.1	3.2	0.2	3.4	3.5	0.6	0.0	1.8	4.9	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.5	5.0	4.9	7.5	5.6	5.5	58.7	0.0	49.9	59.5	0.0	53.4
LnGrp LOS	A	A	A	A	A	A	E		D	E		D
Approach Vol, veh/h		1431			1339			78			282	
Approach Delay, s/veh		5.1			5.6			52.1			56.4	
Approach LOS		A			A			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	98.8		30.9	8.8	100.3		30.9				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	14.3	73.7		33.7	14.3	73.7		33.7				
Max Q Clear Time (g_c+I1), s	3.8	14.4		15.5	2.6	13.3		21.1				
Green Ext Time (p_c), s	0.0	3.5		0.2	0.0	3.7		0.8				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			11.1									
HCM 6th LOS			B									

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Future Total Conditions
A.M. Peak Hour

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	2	7	68	0	112	6	197	59	94	241	8
Future Vol, veh/h	5	2	7	68	0	112	6	197	59	94	241	8
Conflicting Peds, #/hr	6	0	10	10	0	6	21	0	19	19	0	21
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	3	9	92	0	151	8	266	80	127	326	11
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1011	988	200	770	-	331	358	0	0	365	0	0
Stage 1	607	607	-	341	-	-	-	-	-	-	-	-
Stage 2	404	381	-	429	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	448	456	782	540	0	700	1199	-	-	1192	-	-
Stage 1	427	505	-	631	0	-	-	-	-	-	-	-
Stage 2	585	641	-	541	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	305	380	762	463	-	685	1178	-	-	1173	-	-
Mov Cap-2 Maneuver	305	380	-	463	-	-	-	-	-	-	-	-
Stage 1	417	430	-	616	-	-	-	-	-	-	-	-
Stage 2	450	626	-	456	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	13.3		12.8		0.2		2.5					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1178	-	-	454	463	685	1173	-	-			
HCM Lane V/C Ratio	0.007	-	-	0.042	0.198	0.221	0.108	-	-			
HCM Control Delay (s/veh)	8.1	-	-	13.3	14.7	11.7	8.4	0.3	-			
HCM Lane LOS	A	-	-	B	B	B	A	A	-			
HCM 95th %tile Q (veh)	0	-	-	0.1	0.7	0.8	0.4	-	-			

Existing P.M. Peak Hour

Timings

1: SR 907/Alton Road & W 41st Street

Existing Conditions

P.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	127	1227	21	1606	60	189	122	88	106	369
Future Volume (vph)	127	1227	21	1606	60	189	122	88	106	369
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	12.0	99.0	12.0	99.0	13.0	36.0	36.0	13.0	49.0	49.0
Total Split (%)	7.5%	61.9%	7.5%	61.9%	8.1%	22.5%	22.5%	8.1%	30.6%	30.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 118 (74%), Referenced to phase 2:WBT and 6:EBTL, Start of Yellow

Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

Existing Conditions

1: SR 907/Alton Road & W 41st Street

P.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	130	1311	21	1639	61	350	90	108	377
v/c Ratio	0.88	0.60	0.10	0.80	0.06	0.96dl	0.46	0.23	0.68
Control Delay (s/veh)	74.3	20.6	9.7	19.1	7.1	77.7	53.9	47.9	28.2
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	74.3	20.6	9.7	19.3	7.1	77.7	53.9	47.9	28.2
Queue Length 50th (ft)	65	460	6	324	15	182	73	89	151
Queue Length 95th (ft)	#211	543	m10	369	m21	244	124	145	275
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	147	2176	227	2053	984	461	197	492	571
Starvation Cap Reductn	0	0	0	57	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.60	0.09	0.82	0.06	0.76	0.46	0.22	0.66

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Existing Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	1227	58	21	1606	60	189	122	32	88	106	369
Future Volume (veh/h)	127	1227	58	21	1606	60	189	122	32	88	106	369
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.95	0.97		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	130	1252	0	21	1639	61	193	124	33	90	108	377
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	200	2115		283	2043	981	208	212	56	228	495	399
Arrive On Green	0.05	0.80	0.00	0.03	0.77	0.77	0.19	0.19	0.19	0.05	0.27	0.27
Sat Flow, veh/h	1767	3618	0	1767	3526	1569	879	1141	304	1767	1856	1495
Grp Volume(v), veh/h	130	1252	0	21	1639	61	193	0	157	90	108	377
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1569	879	0	1445	1767	1856	1495
Q Serve(g_s), s	4.9	21.8	0.0	0.8	44.7	1.3	29.7	0.0	15.9	6.5	7.2	39.5
Cycle Q Clear(g_c), s	4.9	21.8	0.0	0.8	44.7	1.3	29.7	0.0	15.9	6.5	7.2	39.5
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	200	2115		283	2043	981	208	0	268	228	495	399
V/C Ratio(X)	0.65	0.59		0.07	0.80	0.06	0.93	0.00	0.59	0.39	0.22	0.94
Avail Cap(c_a), veh/h	200	2115		319	2043	981	208	0	268	228	495	399
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	8.7	0.0	14.1	12.8	6.3	67.4	0.0	59.5	49.3	45.7	57.5
Incr Delay (d2), s/veh	5.7	1.2	0.0	0.0	3.4	0.1	42.3	0.0	2.8	0.4	0.2	31.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	6.5	0.0	0.3	14.6	0.5	10.5	0.0	6.1	2.9	3.4	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.2	9.9	0.0	14.1	16.3	6.4	109.7	0.0	62.4	49.7	45.8	88.6
LnGrp LOS	C	A		B	B	A	F		E	D	D	F
Approach Vol, veh/h		1382			1721			350			575	
Approach Delay, s/veh		11.7			15.9			88.5			74.5	
Approach LOS		B			B			F			E	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	99.0	13.0	36.0	8.7	102.3		49.0				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	92.7	7.3	29.7	6.3	92.7		42.7				
Max Q Clear Time (g_c+l1), s	6.9	46.7	8.5	31.7	2.8	23.8		41.5				
Green Ext Time (p_c), s	0.0	6.5	0.0	0.0	0.0	4.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

29.1

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Existing Conditions
P.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑		↘
Traffic Vol, veh/h	1329	13	21	1688	0	36
Future Vol, veh/h	1329	13	21	1688	0	36
Conflicting Peds, #/hr	0	20	20	0	15	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1356	13	21	1722	0	37

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1389
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	489	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	481	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.2	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	498	-	-	481	-
HCM Lane V/C Ratio	0.074	-	-	0.045	-
HCM Control Delay (s/veh)	12.8	-	-	12.8	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.2	-	-	0.1	-

Timings

3: Meridian Avenue & W 41st Street

Existing Conditions

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	58	1323	21	1564	25	29	93	37
Future Volume (vph)	58	1323	21	1564	25	29	93	37
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	12.0	108.0	12.0	108.0	40.0	40.0	40.0	40.0
Total Split (%)	7.5%	67.5%	7.5%	67.5%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 143 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues

3: Meridian Avenue & W 41st Street

Existing Conditions

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	59	1349	21	1615	25	71	94	194
v/c Ratio	0.32	0.56	0.09	0.69	0.17	0.24	0.39	0.56
Control Delay (s/veh)	8.6	5.0	6.5	18.3	58.1	42.7	62.3	44.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.6	5.1	6.5	18.3	58.1	42.7	62.3	44.9
Queue Length 50th (ft)	6	78	5	530	22	46	87	122
Queue Length 95th (ft)	m10	85	13	626	54	97	149	211
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	188	2420	259	2346	166	329	274	383
Starvation Cap Reductn	0	197	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.61	0.08	0.69	0.15	0.22	0.34	0.51

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Existing Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	1323	13	21	1564	35	25	29	42	93	37	155
Future Volume (veh/h)	58	1323	13	21	1564	35	25	29	42	93	37	155
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.98		0.97	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	59	1336	13	21	1580	35	25	29	42	94	37	157
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	278	2486	24	334	2413	53	109	103	150	211	52	219
Arrive On Green	0.04	0.92	0.92	0.03	0.91	0.91	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3575	35	1767	3521	78	1161	604	875	1286	301	1276
Grp Volume(v), veh/h	59	659	690	21	789	826	25	0	71	94	0	194
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1763	1836	1161	0	1479	1286	0	1577
Q Serve(g_s), s	1.6	8.9	8.9	0.6	15.7	15.8	3.3	0.0	6.7	11.0	0.0	18.6
Cycle Q Clear(g_c), s	1.6	8.9	8.9	0.6	15.7	15.8	21.9	0.0	6.7	17.7	0.0	18.6
Prop In Lane	1.00		0.02	1.00		0.04	1.00		0.59	1.00		0.81
Lane Grp Cap(c), veh/h	278	1226	1284	334	1208	1258	109	0	253	211	0	270
V/C Ratio(X)	0.21	0.54	0.54	0.06	0.65	0.66	0.23	0.00	0.28	0.44	0.00	0.72
Avail Cap(c_a), veh/h	297	1226	1284	370	1208	1258	155	0	311	262	0	332
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.6	2.2	2.2	7.2	2.9	2.9	73.0	0.0	57.7	65.4	0.0	62.6
Incr Delay (d2), s/veh	0.1	1.7	1.6	0.0	2.8	2.7	0.8	0.0	0.4	1.1	0.0	4.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.5	2.6	0.2	3.7	3.9	1.0	0.0	2.6	3.7	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	3.9	3.8	7.2	5.7	5.6	73.8	0.0	58.2	66.5	0.0	67.6
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1408			1636			96			288	
Approach Delay, s/veh		4.0			5.7			62.2			67.2	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.3	116.0		33.7	8.7	117.6		33.7				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	101.7		33.7	6.3	101.7		33.7				
Max Q Clear Time (g_c+I1), s	3.6	17.8		23.9	2.6	10.9		20.6				
Green Ext Time (p_c), s	0.0	4.9		0.2	0.0	3.6		1.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh				11.7								
HCM 6th LOS				B								

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Existing Conditions
P.M. Peak Hour

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔			↔	
Traffic Vol, veh/h	1	3	3	32	0	63	1	277	48	77	98	11
Future Vol, veh/h	1	3	3	32	0	63	1	277	48	77	98	11
Conflicting Peds, #/hr	2	0	2	2	0	2	7	0	25	25	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	3	35	0	68	1	301	52	84	107	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	653	668	69	579	-	354	126	0	0	378	0	0
Stage 1	288	288	-	354	-	-	-	-	-	-	-	-
Stage 2	365	380	-	225	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	590	584	872	624	0	686	1459	-	-	1179	-	-
Stage 1	652	706	-	621	0	-	-	-	-	-	-	-
Stage 2	613	642	-	708	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	494	523	865	568	-	671	1450	-	-	1154	-	-
Mov Cap-2 Maneuver	494	523	-	568	-	-	-	-	-	-	-	-
Stage 1	647	647	-	607	-	-	-	-	-	-	-	-
Stage 2	549	628	-	646	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	10.9		11.3		0		3.5					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1450	-	-	623	568	671	1154	-	-			
HCM Lane V/C Ratio	0.001	-	-	0.012	0.061	0.102	0.073	-	-			
HCM Control Delay (s/veh)	7.5	-	-	10.9	11.8	11	8.4	0.1	-			
HCM Lane LOS	A	-	-	B	B	B	A	A	-			
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.3	0.2	-	-			

Future Background P.M. Peak Hour

Timings

Future Background Conditions

1: SR 907/Alton Road & W 41st Street

P.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	131	1274	23	1659	62	199	129	91	113	380
Future Volume (vph)	131	1274	23	1659	62	199	129	91	113	380
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	12.0	99.0	12.0	99.0	13.0	36.0	36.0	13.0	49.0	49.0
Total Split (%)	7.5%	61.9%	7.5%	61.9%	8.1%	22.5%	22.5%	8.1%	30.6%	30.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 118 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

Future Background Conditions

1: SR 907/Alton Road & W 41st Street

P.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	134	1384	23	1693	63	370	93	115	388
v/c Ratio	0.95	0.64	0.12	0.83	0.06	1.00dl	0.49	0.24	0.70
Control Delay (s/veh)	97.2	21.7	10.3	20.6	7.1	81.4	55.1	48.1	29.7
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	97.2	21.7	10.3	20.9	7.1	81.4	55.1	48.1	29.7
Queue Length 50th (ft)	~101	503	7	335	15	194	76	95	163
Queue Length 95th (ft)	#251	592	m11	401	m21	#268	127	153	292
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	141	2163	206	2030	974	459	191	492	571
Starvation Cap Reductn	0	0	0	57	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.64	0.11	0.86	0.06	0.81	0.49	0.23	0.68

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Future Background Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1274	82	23	1659	62	199	129	34	91	113	380
Future Volume (veh/h)	131	1274	82	23	1659	62	199	129	34	91	113	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	1300	0	23	1693	63	203	132	35	93	115	388
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	189	2111		270	2043	981	206	212	56	219	495	399
Arrive On Green	0.05	0.80	0.00	0.03	0.77	0.77	0.19	0.19	0.19	0.05	0.27	0.27
Sat Flow, veh/h	1767	3618	0	1767	3526	1569	865	1142	303	1767	1856	1495
Grp Volume(v), veh/h	134	1300	0	23	1693	63	203	0	167	93	115	388
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1569	865	0	1445	1767	1856	1495
Q Serve(g_s), s	5.1	23.6	0.0	0.8	48.8	1.4	29.7	0.0	17.0	6.7	7.8	41.1
Cycle Q Clear(g_c), s	5.1	23.6	0.0	0.8	48.8	1.4	29.7	0.0	17.0	6.7	7.8	41.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	189	2111		270	2043	981	206	0	268	219	495	399
V/C Ratio(X)	0.71	0.62		0.09	0.83	0.06	0.99	0.00	0.62	0.42	0.23	0.97
Avail Cap(c_a), veh/h	189	2111		304	2043	981	206	0	268	219	495	399
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	8.9	0.0	14.3	13.3	6.3	68.3	0.0	60.0	49.5	45.8	58.1
Incr Delay (d2), s/veh	10.0	1.4	0.0	0.0	4.1	0.1	59.0	0.0	4.0	0.5	0.2	37.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	0.0	0.3	16.0	0.5	11.8	0.0	6.6	3.0	3.7	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.8	10.3	0.0	14.3	17.4	6.4	127.2	0.0	64.0	50.0	46.0	95.7
LnGrp LOS	D	B		B	B	A	F		E	D	D	F
Approach Vol, veh/h		1434			1779			370			596	
Approach Delay, s/veh		12.8			16.9			98.7			79.0	
Approach LOS		B			B			F			E	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	99.0	13.0	36.0	8.9	102.1		49.0				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	92.7	7.3	29.7	6.3	92.7		42.7				
Max Q Clear Time (g_c+I1), s	7.1	50.8	8.7	31.7	2.8	25.6		43.1				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.0	0.0	4.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

31.6

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Future Background Conditions

P.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑		↘
Traffic Vol, veh/h	1380	13	22	1744	0	37
Future Vol, veh/h	1380	13	22	1744	0	37
Conflicting Peds, #/hr	0	20	20	0	15	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1408	13	22	1780	0	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1441
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	467	-
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	459	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.2	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	486	-	-	459	-
HCM Lane V/C Ratio	0.078	-	-	0.049	-
HCM Control Delay (s/veh)	13	-	-	13.2	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.3	-	-	0.2	-

Timings

3: Meridian Avenue & W 41st Street

Future Background Conditions

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	60	1374	22	1616	26	30	96	38
Future Volume (vph)	60	1374	22	1616	26	30	96	38
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	12.0	108.0	12.0	108.0	40.0	40.0	40.0	40.0
Total Split (%)	7.5%	67.5%	7.5%	67.5%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 143 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues

Future Background Conditions

3: Meridian Avenue & W 41st Street

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	1401	22	1668	26	73	97	200
v/c Ratio	0.35	0.58	0.09	0.71	0.18	0.25	0.40	0.57
Control Delay (s/veh)	11.2	4.9	6.6	19.1	58.6	43.2	62.8	46.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.2	5.1	6.6	19.1	58.6	43.2	62.8	46.1
Queue Length 50th (ft)	6	82	6	565	23	48	90	128
Queue Length 95th (ft)	m12	89	14	664	55	100	154	219
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	176	2420	244	2345	161	330	273	382
Starvation Cap Reductn	0	210	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.63	0.09	0.71	0.16	0.22	0.36	0.52

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Future Background Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1374	13	22	1616	36	26	30	43	96	38	160
Future Volume (veh/h)	60	1374	13	22	1616	36	26	30	43	96	38	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	61	1388	13	22	1632	36	26	30	43	97	38	162
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	265	2478	23	319	2405	53	107	105	151	213	52	222
Arrive On Green	0.04	0.92	0.92	0.03	0.91	0.91	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3577	33	1767	3522	77	1155	608	872	1284	300	1277
Grp Volume(v), veh/h	61	684	717	22	815	853	26	0	73	97	0	200
Grp Sat Flow(s),veh/h/ln	1767	1763	1847	1767	1763	1836	1155	0	1480	1284	0	1577
Q Serve(g_s), s	1.6	10.1	10.1	0.6	17.6	17.8	3.5	0.0	6.9	11.4	0.0	19.2
Cycle Q Clear(g_c), s	1.6	10.1	10.1	0.6	17.6	17.8	22.7	0.0	6.9	18.2	0.0	19.2
Prop In Lane	1.00		0.02	1.00		0.04	1.00		0.59	1.00		0.81
Lane Grp Cap(c), veh/h	265	1221	1280	319	1204	1254	107	0	257	213	0	273
V/C Ratio(X)	0.23	0.56	0.56	0.07	0.68	0.68	0.24	0.00	0.28	0.46	0.00	0.73
Avail Cap(c_a), veh/h	283	1221	1280	354	1204	1254	150	0	312	260	0	332
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.0	2.3	2.3	7.4	3.1	3.1	73.3	0.0	57.5	65.4	0.0	62.6
Incr Delay (d2), s/veh	0.2	1.9	1.8	0.0	3.1	3.0	0.9	0.0	0.4	1.1	0.0	5.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.7	2.8	0.2	4.1	4.2	1.1	0.0	2.6	3.8	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.2	4.2	4.1	7.4	6.2	6.1	74.2	0.0	57.9	66.6	0.0	68.3
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1462			1690			99			297	
Approach Delay, s/veh		4.3			6.2			62.2			67.7	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	115.6		34.0	8.8	117.1		34.0				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	101.7		33.7	6.3	101.7		33.7				
Max Q Clear Time (g_c+I1), s	3.6	19.8		24.7	2.6	12.1		21.2				
Green Ext Time (p_c), s	0.0	5.2		0.2	0.0	3.8		1.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			12.1									
HCM 6th LOS			B									

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Future Background Conditions

P.M. Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	3	3	33	0	65	1	293	49	79	128	11
Future Vol, veh/h	1	3	3	33	0	65	1	293	49	79	128	11
Conflicting Peds, #/hr	2	0	2	2	0	2	7	0	25	25	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	3	36	0	71	1	318	53	86	139	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	708	722	85	617	-	372	158	0	0	396	0	0
Stage 1	324	324	-	372	-	-	-	-	-	-	-	-
Stage 2	384	398	-	245	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	566	560	861	606	0	676	1420	-	-	1161	-	-
Stage 1	621	680	-	608	0	-	-	-	-	-	-	-
Stage 2	599	630	-	689	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	470	499	855	550	-	661	1412	-	-	1137	-	-
Mov Cap-2 Maneuver	470	499	-	550	-	-	-	-	-	-	-	-
Stage 1	617	619	-	595	-	-	-	-	-	-	-	-
Stage 2	534	616	-	625	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	11.1		11.4		0		3.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL		NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR		
Capacity (veh/h)	1412		-	-	601	550	661	1137	-	-		
HCM Lane V/C Ratio	0.001		-	-	0.013	0.065	0.107	0.076	-	-		
HCM Control Delay (s/veh)	7.6		-	-	11.1	12	11.1	8.4	0.2	-		
HCM Lane LOS	A		-	-	B	B	B	A	A	-		
HCM 95th %tile Q (veh)	0		-	-	0	0.2	0.4	0.2	-	-		

Future Total P.M. Peak Hour

Timings

1: SR 907/Alton Road & W 41st Street

Future Total Conditions

P.M. Peak Hour

										
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	131	1274	23	1659	62	199	129	91	113	380
Future Volume (vph)	131	1274	23	1659	62	199	129	91	113	380
Turn Type	pm+pt	NA	pm+pt	NA	pm+ov	Perm	NA	pm+pt	NA	Perm
Protected Phases	1	6	5	2	3		4	3	8	
Permitted Phases	6		2		2	4		8		8
Detector Phase	1	6	5	2	3	4	4	3	8	8
Switch Phase										
Minimum Initial (s)	5.0	7.0	5.0	7.0	5.0	7.0	7.0	5.0	7.0	7.0
Minimum Split (s)	10.7	48.3	10.7	48.3	10.7	43.3	43.3	10.7	43.3	43.3
Total Split (s)	12.0	99.0	12.0	99.0	13.0	36.0	36.0	13.0	49.0	49.0
Total Split (%)	7.5%	61.9%	7.5%	61.9%	8.1%	22.5%	22.5%	8.1%	30.6%	30.6%
Yellow Time (s)	3.7	4.0	3.7	4.0	3.7	4.0	4.0	3.7	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.0	2.3	2.3	2.0	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	5.7		6.3	5.7	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead		
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Recall Mode	None	C-Max	None	C-Max	None	None	None	None	None	None

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 160

Offset: 118 (74%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 1: SR 907/Alton Road & W 41st Street



Queues

1: SR 907/Alton Road & W 41st Street

Future Total Conditions

P.M. Peak Hour

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	134	1384	23	1693	63	370	93	115	388
v/c Ratio	0.95	0.64	0.12	0.83	0.06	1.00dl	0.49	0.24	0.84
Control Delay (s/veh)	97.2	21.7	10.4	20.5	1.3	81.4	55.1	48.1	60.1
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	97.2	21.7	10.4	20.8	1.3	81.4	55.1	48.1	60.1
Queue Length 50th (ft)	~101	503	7	331	0	194	76	95	305
Queue Length 95th (ft)	#251	592	m11	397	m4	#268	127	153	#470
Internal Link Dist (ft)		343		235		203		339	
Turn Bay Length (ft)	285		115		80		175		
Base Capacity (vph)	141	2163	206	2030	994	459	191	492	476
Starvation Cap Reductn	0	0	0	54	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.64	0.11	0.86	0.06	0.81	0.49	0.23	0.82

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

HCM 6th Signalized Intersection Summary

1: SR 907/Alton Road & W 41st Street

Future Total Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	1274	82	23	1659	62	199	129	34	91	113	380
Future Volume (veh/h)	131	1274	82	23	1659	62	199	129	34	91	113	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.97		0.95	0.98		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	134	1300	0	23	1693	63	203	132	35	93	115	388
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	189	2111		270	2043	981	206	212	56	219	495	399
Arrive On Green	0.05	0.80	0.00	0.03	0.77	0.77	0.19	0.19	0.19	0.05	0.27	0.27
Sat Flow, veh/h	1767	3618	0	1767	3526	1569	865	1142	303	1767	1856	1495
Grp Volume(v), veh/h	134	1300	0	23	1693	63	203	0	167	93	115	388
Grp Sat Flow(s),veh/h/ln	1767	1763	0	1767	1763	1569	865	0	1445	1767	1856	1495
Q Serve(g_s), s	5.1	23.6	0.0	0.8	48.8	1.4	29.7	0.0	17.0	6.7	7.8	41.1
Cycle Q Clear(g_c), s	5.1	23.6	0.0	0.8	48.8	1.4	29.7	0.0	17.0	6.7	7.8	41.1
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	189	2111		270	2043	981	206	0	268	219	495	399
V/C Ratio(X)	0.71	0.62		0.09	0.83	0.06	0.99	0.00	0.62	0.42	0.23	0.97
Avail Cap(c_a), veh/h	189	2111		304	2043	981	206	0	268	219	495	399
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	8.9	0.0	14.3	13.3	6.3	68.3	0.0	60.0	49.5	45.8	58.1
Incr Delay (d2), s/veh	10.0	1.4	0.0	0.0	4.1	0.1	59.0	0.0	4.0	0.5	0.2	37.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	0.0	0.3	16.0	0.5	11.8	0.0	6.6	3.0	3.7	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	36.8	10.3	0.0	14.3	17.4	6.4	127.2	0.0	64.0	50.0	46.0	95.7
LnGrp LOS	D	B		B	B	A	F		E	D	D	F
Approach Vol, veh/h		1434			1779			370			596	
Approach Delay, s/veh		12.8			16.9			98.7			79.0	
Approach LOS		B			B			F			E	
Timer - Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	99.0	13.0	36.0	8.9	102.1		49.0				
Change Period (Y+Rc), s	5.7	6.3	5.7	6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	92.7	7.3	29.7	6.3	92.7		42.7				
Max Q Clear Time (g_c+I1), s	7.1	50.8	8.7	31.7	2.8	25.6		43.1				
Green Ext Time (p_c), s	0.0	6.8	0.0	0.0	0.0	4.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay, s/veh

31.6

HCM 6th LOS

C

Notes

User approved pedestrian interval to be less than phase max green.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th TWSC
2: Garden Avenue & W 41st Street

Future Total Conditions
P.M. Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1380	13	22	1744	0	37
Future Vol, veh/h	1380	13	22	1744	0	37
Conflicting Peds, #/hr	0	20	20	0	15	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	90	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1408	13	22	1780	0	38

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1441
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	4.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	2.22	-
Pot Cap-1 Maneuver	-	467	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	459	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.2	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	486	-	-	459	-
HCM Lane V/C Ratio	0.078	-	-	0.049	-
HCM Control Delay (s/veh)	13	-	-	13.2	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q (veh)	0.3	-	-	0.2	-

Timings

3: Meridian Avenue & W 41st Street

Future Total Conditions

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	60	1374	22	1616	26	30	96	38
Future Volume (vph)	60	1374	22	1616	26	30	96	38
Turn Type	pm+pt	NA	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	1	6	5	2		4		8
Permitted Phases	6		2		4		8	
Detector Phase	1	6	5	2	4	4	8	8
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	7.0	7.0	7.0	7.0
Minimum Split (s)	10.7	27.3	10.7	27.3	36.3	36.3	36.3	36.3
Total Split (s)	12.0	108.0	12.0	108.0	40.0	40.0	40.0	40.0
Total Split (%)	7.5%	67.5%	7.5%	67.5%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.7	4.0	3.7	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.3	2.0	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.3	5.7	6.3	6.3	6.3	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	None	C-Max	Ped	Ped	Ped	Ped

Intersection Summary

Cycle Length: 160

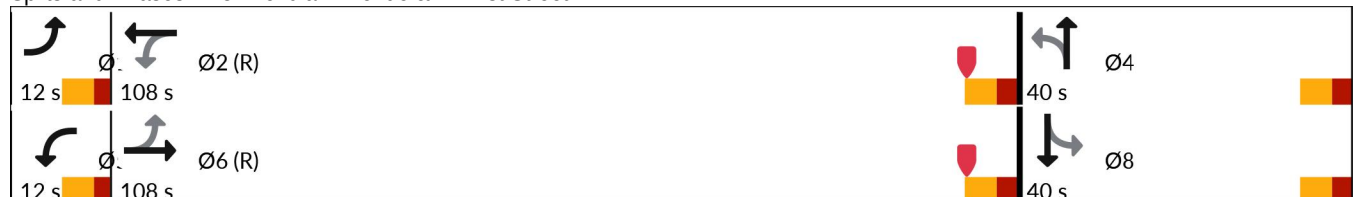
Actuated Cycle Length: 160

Offset: 143 (89%), Referenced to phase 2:WBTL and 6:EBTL, Start of Yellow

Natural Cycle: 100

Control Type: Actuated-Coordinated

Splits and Phases: 3: Meridian Avenue & W 41st Street



Queues

3: Meridian Avenue & W 41st Street

Future Total Conditions

P.M. Peak Hour

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	1401	22	1668	26	73	97	200
v/c Ratio	0.35	0.58	0.09	0.71	0.18	0.23	0.40	0.55
Control Delay (s/veh)	11.2	4.9	6.6	19.0	58.6	28.9	62.8	37.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	11.2	5.1	6.6	19.0	58.6	28.9	62.8	37.9
Queue Length 50th (ft)	6	82	6	564	23	28	90	104
Queue Length 95th (ft)	m12	89	14	664	55	78	154	193
Internal Link Dist (ft)		452		220		103		80
Turn Bay Length (ft)	70		120		50		50	
Base Capacity (vph)	176	2420	244	2345	161	347	273	401
Starvation Cap Reductn	0	210	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.63	0.09	0.71	0.16	0.21	0.36	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

3: Meridian Avenue & W 41st Street

Future Total Conditions

P.M. Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1374	13	22	1616	36	26	30	43	96	38	160
Future Volume (veh/h)	60	1374	13	22	1616	36	26	30	43	96	38	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.98		0.97	0.98		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	61	1388	13	22	1632	36	26	30	43	97	38	162
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	265	2478	23	319	2407	53	107	105	151	213	52	222
Arrive On Green	0.04	0.92	0.92	0.03	0.91	0.91	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1767	3577	33	1767	3524	78	1155	608	872	1284	300	1277
Grp Volume(v), veh/h	61	684	717	22	815	853	26	0	73	97	0	200
Grp Sat Flow(s),veh/h/ln	1767	1763	1848	1767	1763	1838	1155	0	1480	1284	0	1577
Q Serve(g_s), s	1.6	10.1	10.1	0.6	17.6	17.8	3.5	0.0	6.9	11.4	0.0	19.2
Cycle Q Clear(g_c), s	1.6	10.1	10.1	0.6	17.6	17.8	22.7	0.0	6.9	18.2	0.0	19.2
Prop In Lane	1.00		0.02	1.00		0.04	1.00		0.59	1.00		0.81
Lane Grp Cap(c), veh/h	265	1221	1280	319	1204	1256	107	0	257	213	0	273
V/C Ratio(X)	0.23	0.56	0.56	0.07	0.68	0.68	0.24	0.00	0.28	0.46	0.00	0.73
Avail Cap(c_a), veh/h	283	1221	1280	354	1204	1256	150	0	312	260	0	332
HCM Platoon Ratio	1.33	1.33	1.33	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.0	2.3	2.3	7.4	3.1	3.1	73.3	0.0	57.5	65.4	0.0	62.6
Incr Delay (d2), s/veh	0.2	1.9	1.8	0.0	3.1	3.0	0.9	0.0	0.4	1.1	0.0	5.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.7	2.8	0.2	4.1	4.2	1.1	0.0	2.6	3.8	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.2	4.2	4.1	7.4	6.2	6.1	74.2	0.0	57.9	66.6	0.0	68.3
LnGrp LOS	A	A	A	A	A	A	E		E	E		E
Approach Vol, veh/h		1462			1690			99			297	
Approach Delay, s/veh		4.3			6.2			62.2			67.7	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.4	115.6		34.0	8.8	117.1		34.0				
Change Period (Y+Rc), s	5.7	6.3		6.3	5.7	6.3		6.3				
Max Green Setting (Gmax), s	6.3	101.7		33.7	6.3	101.7		33.7				
Max Q Clear Time (g_c+I1), s	3.6	19.8		24.7	2.6	12.1		21.2				
Green Ext Time (p_c), s	0.0	5.2		0.2	0.0	3.8		1.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			12.1									
HCM 6th LOS			B									

HCM 6th TWSC
4: SR 907/Alton Road & W 39th Street

Future Total Conditions
P.M. Peak Hour

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔			↔	
Traffic Vol, veh/h	1	3	3	33	0	65	1	293	49	79	128	11
Future Vol, veh/h	1	3	3	33	0	65	1	293	49	79	128	11
Conflicting Peds, #/hr	2	0	2	2	0	2	7	0	25	25	0	7
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	0	0	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	3	3	36	0	71	1	318	53	86	139	12
Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	708	722	85	617	-	372	158	0	0	396	0	0
Stage 1	324	324	-	372	-	-	-	-	-	-	-	-
Stage 2	384	398	-	245	-	-	-	-	-	-	-	-
Critical Hdwy	4.4	4.4	4.9	4.4	-	4.9	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.8	3.8	3.9	3.8	-	3.9	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	566	560	861	606	0	676	1420	-	-	1161	-	-
Stage 1	621	680	-	608	0	-	-	-	-	-	-	-
Stage 2	599	630	-	689	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	470	499	855	550	-	661	1412	-	-	1137	-	-
Mov Cap-2 Maneuver	470	499	-	550	-	-	-	-	-	-	-	-
Stage 1	617	619	-	595	-	-	-	-	-	-	-	-
Stage 2	534	616	-	625	-	-	-	-	-	-	-	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s/v	11.1		11.4		0		3.2					
HCM LOS	B		B									
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR			
Capacity (veh/h)	1412	-	-	601	550	661	1137	-	-			
HCM Lane V/C Ratio	0.001	-	-	0.013	0.065	0.107	0.076	-	-			
HCM Control Delay (s/veh)	7.6	-	-	11.1	12	11.1	8.4	0.2	-			
HCM Lane LOS	A	-	-	B	B	B	A	A	-			
HCM 95th %tile Q (veh)	0	-	-	0	0.2	0.4	0.2	-	-			

Appendix K

Entry Gate Analysis

Entry Gate Analysis (A.M. Peak Hour)

Arrival Rate

IN
62

 veh/hr

Number of Entry Gates (N) = 1
 Level of Confidence = 0.95
 Storage Provided On-Site = 3 vehicles

Service Rate

IN
0.114

 mins/veh

Total Entering and Exiting Vehicles(q) = 62 veh/hr
 Service Capacity per N (60 mins/Service Rate) (Q) = 600.00 veh/hr/pos
 Average Service Rate (t) = 0.114 mins/veh
 $\rho (t/Q) = 0.103$

Expected (avg.) number of vehicles in the system	E(m)=	0.01	
Expected (avg.) number of vehicles waiting in queue	E(n)=	0.12	
Mean time in the queue	E(w)=	0.01	mins
Mean time in system	E(t)=	0.11	mins

Proportion of customers who wait (P) (E(w) > 0)=	10.33%
Probability of a queue exceeding a length (M) P(x > M)=	5.00%

Queue length which is exceeded 5.00% of the times is equal to -0.7 vehicles

Entry Gate Analysis (P.M. Peak Hour)

Arrival Rate

IN
39

 veh/hr

Number of Entry Gates (N) = 1

Level of Confidence = 0.95

Storage Provided On-Site = 3 vehicles

Service Rate

IN
0.137

 mins/veh

Total Entering and Exiting Vehicles(q) = 39 veh/hr

Service Capacity per N (60 mins/Service Rate) (Q) = 600.00 veh/hr/pos

Average Service Rate (t) = 0.137 mins/veh

rho (t/Q) = 0.065

Expected (avg.) number of vehicles in the system E(m)= 0.00

Expected (avg.) number of vehicles waiting in queue E(n)= 0.07

Mean time in the queue E(w)= 0.01 mins

Mean time in system E(t)= 0.11 mins

Proportion of customers who wait (P) (E(w) > 0)= 6.50%

Probability of a queue exceeding a length (M) P(x > M)= 5.00%

Queue length which is exceeded 5.00% of the times is equal to -0.9 vehicles

Entry Gate Weighted Average Processing Time Calculation

Land Use	A.M. Peak Hour	P.M. Peak Hour
	Entering Trips	
General Office Building	45	10
Strip Retail Plaza	5	16
High-Turnover (Sit-Down) Restaurant	12	13
Total	62	39
FOB Processing Time (s/veh)	6	
Ticket-Spitter Processing Time (s/veh)	9	
Weighted Average Processing Time (s/veh)	6.82	8.23