



Traffic Operations Analysis

W 63RD STREET BASCULE BRIDGE CITY OF MIAMI BEACH, FLORIDA

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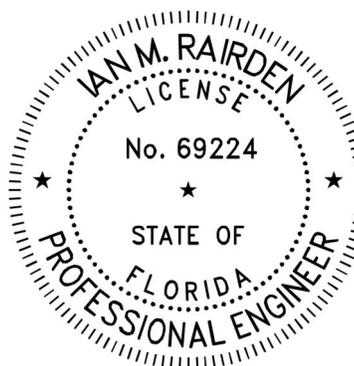
W 63RD STREET BASCULE BRIDGE CITY OF MIAMI BEACH, FLORIDA

Prepared for:

The City of Miami Beach

Prepared by:

Kimley-Horn and Associates, Inc.



This item has been digitally signed and sealed by Ian M. Rairden, PE, on May 17, 2024.

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EXECUTIVE SUMMARY

The City of Miami Beach is proposing to modify the bridge opening schedule for the bascule bridge located along W 63rd Street /SR 907/Alton Road (hereafter referred to as W 63rd Street) between Allison Road and Indian Creek Drive in Miami Beach, Florida. Currently, the W 63rd Street bascule bridge operates under a regulated schedule by the United States Coast Guard. The W 63rd Street bridge currently operates on a fixed schedule from 7:00 A.M. to 7:00 P.M. as noted in the table below. The City of Miami Beach is contemplating modifications to the bridge schedule in order to reduce vehicular traffic congestion in the area. The contemplated changes include restricting weekday and weekend bridge openings to on the hour only instead of on the hour and half hour and modifying the weekend evening schedule (between 7:00 P.M. to 9:00 P.M.) from on demand to scheduled operation, on the hour and half hour when there is demand. The table below summarizes the proposed bridge operation schedule changes. Analyses were performed to determine whether reducing the frequency of the bridge opening during non-peak traffic periods would be beneficial to reducing vehicular traffic congestion in the area.

Existing and Proposed Bridge Operation Schedule				
Analysis Scenario	Existing Schedule	Max # Boat Openings per Hour	Proposed Schedule	Max # Boat Openings per Hour
Weekday ⁽¹⁾	On the Hour/Half Hour 7 A.M. to 7 P.M. ⁽¹⁾	2	On the Hour 7 A.M. to 7 P.M. ⁽¹⁾	1
	On Demand 7 P.M. to 7 A.M.	No Limit	On Demand 7 P.M. to 7 A.M.	No Limit
Weekend – Day	On the Hour/Half Hour 7 A.M. to 7 P.M.	2	On the Hour 7 A.M. to 7 P.M.	1
	On Demand 7 P.M. to 9 P.M.	No Limit	On the Hour/Half Hour 7 P.M. to 9 P.M.	2
	On Demand 9 P.M. to 7 A.M.	No Limit	On Demand 9 P.M. to 7 A.M.	No Limit

Note: ⁽¹⁾ The bridge will not open for the passage of vessels on weekdays, from 7:10 A.M. to 9:55 A.M and from 4:05 P.M. to 6:59 P.M., except for the passage of emergency vessels or tug/tow vessels.

The *SYNCHRO* results of the intersection capacity analysis indicate that all study intersections are expected to operate at adopted levels of service D+20% or better during the study hours under all analysis conditions with the exception of the intersection representing the bridge. Based on the analysis, overall delay is expected to improve under weekend (Saturday) afternoon and weekend (Saturday) evening proposed schedule; however, queues worsen under weekday (Friday)

afternoon, weekend (Saturday) afternoon, and weekend (Saturday) evening proposed schedules scenarios. However, as the *SYNCHRO* software does not account for interaction between adjacent intersections in the model, results did not fully reflect field conditions. Therefore, SimTraffic, a microsimulation software package within *SYNCHRO*, was utilized for more detailed results.

A SimTraffic microsimulation model was developed to analyze queues as a result of the bascule bridge opening. After calibrating to the data collected, the models were adjusted to peak season volumes which were factored up to reflect the higher traffic volumes experienced in Miami Beach during the winter and spring months. The results of the analysis indicated that the vehicular queues and delay are not expected to be significantly improved for the weekday or weekend afternoon proposed schedule with the contemplated modifications. However, vehicular queues and delays are expected to significantly improve with the proposed schedule modification for weekend evening. The proposed weekend evening bridge opening restrictions decreases delay by over 7.5 minutes per vehicle along the west leg and over 4.0 minutes per vehicle along the north leg. The proposed weekend evening schedule is expected to decrease average vehicular queues by approximately 119 vehicles along the west leg and approximately 29 vehicles along the north leg, as well as maximum queues by approximately 144 vehicles along the west leg and approximately 9 vehicles along the north leg.

The results of the network-wide analysis indicated that the number of vehicles entering and exiting the network and the total network travel time improves for the weekday afternoon and weekend evening proposed schedules (i.e., congestion improves) and worsens for the weekend afternoon proposed schedule (i.e., congestion worsens). The proposed weekday afternoon and weekend evening bridge opening restrictions allows more vehicles to travel through the network and reduces the total travel time on the network for all vehicles during the study hour. This is consistent with the results of the queuing and delay analyses along the north and west legs.

RECOMMENDATIONS

Therefore, it is recommended that the proposed modifications to the weekday mid-day and weekend night schedules be implemented to reduce vehicular traffic congestion in the area. The table below summarizes the recommended bridge operation schedule changes.

Existing and Recommended Bridge Operation Schedule				
Analysis Scenario	Existing Schedule	Max # Boat Openings per Hour	Proposed Schedule	Max # Boat Openings per Hour
Weekday ⁽¹⁾	On the Hour/Half Hour 7 A.M. to 7 P.M. ⁽¹⁾	2	On the Hour 7 A.M. to 7 P.M. ⁽¹⁾	1
	On Demand 7 P.M. to 7 A.M.	No Limit	On Demand 7 P.M. to 7 A.M.	No Limit
Weekend – Day	On the Hour/Half Hour 7 A.M. to 7 P.M.	2	On the Hour/Half Hour 7 A.M. to 7 P.M.	2
	On Demand 7 P.M. to 9 P.M.	No Limit	On the Hour/Half Hour 7 P.M. to 9 P.M.	2
	On Demand 9 P.M. to 7 A.M.	No Limit	On Demand 9 P.M. to 7 A.M.	No Limit

Note: ⁽¹⁾ The bridge will not open for the passage of vessels on weekdays, from 7:10 A.M. to 9:55 A.M and from 4:05 P.M. to 6:59 P.M., except for the passage of emergency vessels or tug/tow vessels.

Additionally, due to maintenance, testing, and trainings, the bridge is noted to open with no boats passing through during various points throughout the day. It is recommended to limit non-essential openings to the non-peak hours such as evenings or night when vehicular volumes are the lowest.