

9 December 2022

Brett Bibeau
Managing Director
Miami River Commission
407 NW 7th Street, Suite D
Miami, Florida, 33125

**Re: Pedestrian Bridge Traffic Statement
Brickell Avenue Bridge
Miami, Florida
Langan Project No.: 300293301**

Dear Mr. Bibeau:

Langan Engineering & Environmental Services, Inc. prepared this pedestrian bridge traffic statement for the Miami River Commission sponsored by HRM Owner, LLC. We assessed existing pedestrian conditions along Brickell Avenue Bridge, and determined that the bridge opening operations can be reduced by one minute and a half with the use of police enforcement. This letter report includes the assessment on pedestrian impacts on the bridge opening operations and the improvements that are observed when a police officer is present. Figure 1 below shows an aerial photograph of the bridge's location.

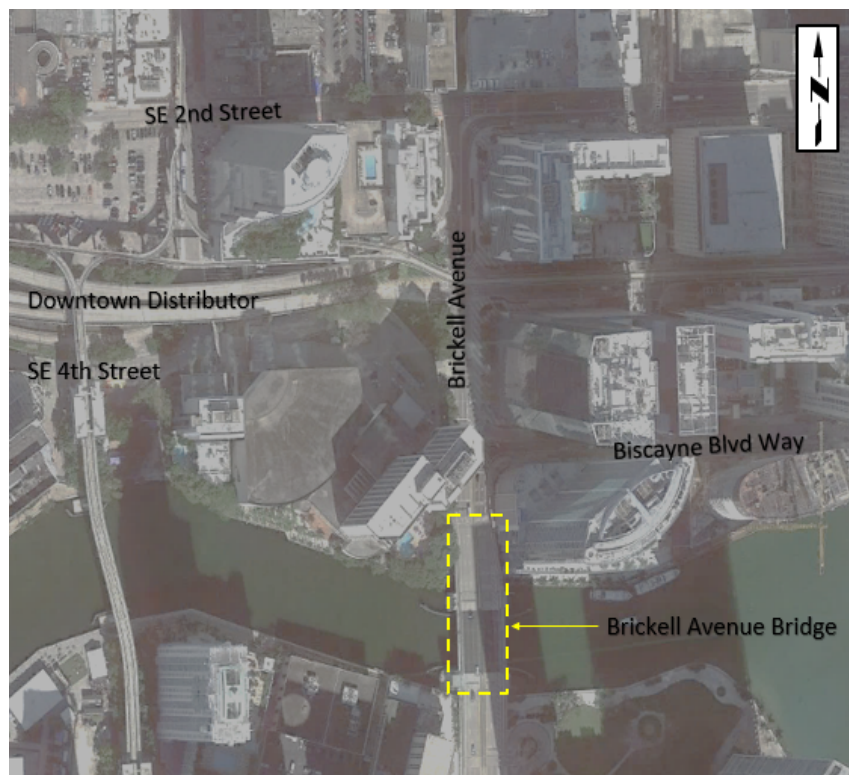


Figure 1: Brickell Avenue Bridge location

Project Description

The Miami River Commission has expressed concerns with the vehicular queues created when the Brickell Avenue Bridge opens during rush hours. In addition, the bridge operator has expressed concerns regarding the number of pedestrians crossing illegally which increases the bridge operation timeframe therefore increasing the vehicular queues along Brickell Avenue. We prepared this study to assess the bridge operating time and what impacts pedestrians pose on the bridge operations.

Pedestrian Study at Brickell Avenue Bridge

The Brickell Avenue Bridge operates with a gate system to control vehicular and pedestrian traffic for the bridge to open and allow vessels to cross under the bridge. The bridge operates from 7 AM to 7 PM and opens every half hour. However, in order to mitigate the traffic impacts to the Downtown and Brickell areas, the bridge has a curfew during the area peak hours (7:35 to 8:59 AM; 12:05 to 12:59 PM; and 4:35 to 5:59 PM). We discussed the current operations with the bridge operator and the Miami River Commission and found that the element that causes the major delays on the bridge operation is when pedestrians cross illegally while the bridge is trying to lockdown for opening.

To understand the impacts of the illegal crossings to the bridge operation, we performed a pedestrian study to understand the average time the bridge takes to open with and without illegal crossings and to evaluate the feasibility of having police enforcement at the bridge to ensure that pedestrians are not crossing illegally. The study aimed to determine the delays caused by pedestrians' illegal crossings while the bridge is closing to allow vessels to cross, which leads to vehicular delays and large queues that impact the Brickell and Downtown area.

We collected data during two weekdays from 7 AM – 7 PM, where we measured the time it takes the bridge to open while pedestrians are crossing the bridge. In addition, we collected data two additional weekdays from 7 AM – 7 PM with police officers on-site enforcing that pedestrians do not to cross illegally and to evaluate the impacts of the officers to the opening time of the bridge.

Based on our findings, we determined that the bridge opening takes an average of four minutes to open with no police officers present and shows that with police enforcement the bridge opening can be reduced to an average of two and a half minutes or less to open. In addition, it should be noted that when there are 5 or more illegal crossings the bridge opening time increases up to five minutes and in some cases up to nine minutes. Table 1 provides the comparison of the average bridge opening time with and without police enforcement. Attachment A provides the pedestrian data at the bridge.

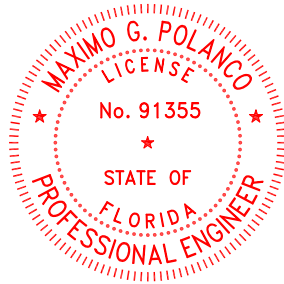
Table 1 – Bridge Study Summary

Direction	Average Bridge Opening Time with Police Enforcement	Average Bridge Opening Time without Police Enforcement
Northbound	0:02:37	0:03:42
Southbound	0:02:24	0:03:30

Conclusion

We determined that the Brickell Avenue Bridge opening operations can be reduced by one minute and a half with police enforcement. Please contact me at (954) 320-2155 with any questions or comments.

Sincerely,
Langan Engineering and Environmental Services, Inc.



This item has been digitally signed and sealed by Maximo Polanco, PE on the date adjacent to the seal.

Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

Maximo G. Polanco, P.E.
P.E. License No. 91355
Project Manager

Eric Schwarz, P.E., LEED AP
Principal/Vice President

MGP:mgp

Attachments:

Attachment A – Pedestrian Data

Florida Certificate of Authorization No. 6601

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**ATTACHMENT A
PEDESTRIAN DATA**

BRICKELL AVE OBSERVATION STUDY

Location: Brickell Bridge
City: Miami, FL
Recording Time: 7:00AM--11:00AM

Day: Thursday
Date: 10/13/2022

NORTHSIDE (VEHICLE DRIVING SOUTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
7:13:00 AM	7:17:00 AM	1	7:26:00 AM
-	-	1	9:00:00 AM
9:59:00 AM	10:03:00 AM		
-	-	1	10:44:00 AM

SOUTHSIDE (VEHICLE DRIVING NORTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
7:14:26 AM	7:17:30 AM		
10:00:05 AM	10:03:40 AM		

BRICKELL AVE OBSERVATION STUDY

Location: Brickell Bridge
City: Miami, FL
Recording Time: 7:00AM-7:00PM

Day: Thursday
Date: 10/14/2022

NORTHSIDE (VEHICLE DRIVING SOUTHBOUND)		
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians
7:30:40 AM	7:33:06 AM	0
10:00:14 AM	10:03:30 AM	3
10:59:40 AM	11:02:46 AM	5
11:13:41 AM	11:17:50 AM	1
12:44:00 PM	12:47:50 PM	3
2:01:05 PM	2:04:17 PM	0
2:30:02 PM	2:32:57 PM	3
3:14:00 PM	3:16:59 PM	4
3:35:16 PM	3:37:34 PM	0
3:50:43 PM	3:56:16 PM	0
5:55:00 PM	5:58:25 PM	1

SOUTHSIDE (VEHICLE DRIVING NORTHBOUND)		
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians
7:30:42 AM	7:33:08 AM	0
10:01:21 AM	10:03:37 AM	2
11:00:49 AM	11:02:35 AM	1
11:14:40 AM	11:17:58 AM	1
12:44:07 PM	12:47:42 PM	0
2:01:30 PM	2:04:20 PM	0
2:30:20 PM	2:32:59 PM	1
3:14:19 PM	3:16:55 PM	3
3:35:26 PM	3:37:40 PM	4
3:51:42 PM	3:56:20 PM	0
5:55:11 PM	5:58:26 PM	0

BRICKELL AVE OBSERVATION STUDY

Location: Brickell Bridge
City: Miami, FL
Recording Time: 7:00AM-7:00PM

Day: Monday
Date: 10/17/2022

NORTHSIDE (VEHICLE DRIVING SOUTHBOUND)		
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians
7:30:35 AM	7:33:10 AM	0
9:32:23 AM	9:35:18 AM	1
10:03:54 AM	10:06:22 AM	1
11:00:20 AM	11:03:06 AM	2
1:30:14 PM	1:33:10 PM	0
3:29:09 PM	3:31:56 PM	1
3:59:50 PM	4:05:49 PM	5
5:57:22 PM	6:00:22 PM	0
6:20:15 PM	6:27:59 PM	16
6:44:31 PM	6:47:38 PM	2

SOUTHSIDE (VEHICLE DRIVING NORTHBOUND)		
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians
7:30:01 AM	7:33:05 AM	0
9:32:00 AM	9:35:12 AM	0
10:03:05 AM	10:06:24 AM	3
10:59:50 AM	11:03:13 AM	4
1:30:31 PM	1:33:07 PM	1
3:28:55 PM	3:31:53 PM	0
3:59:05 PM	4:05:44 PM	2
5:57:03 PM	6:00:20 PM	5
6:19:01 PM	6:27:53 PM	5
6:38:54 PM	6:47:36 PM	7

BRICKELL AVE OBSERVATION STUDY

Location: Brickell Bridge
City: Miami, FL
Recording Time: 7:00AM--11:00AM & 3:00PM-7:00 PM

Day: Thursday
Date: 10/20/2022

NORTHSIDE (VEHICLE DRIVING SOUTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
-	-	1	7:28:00 AM
7:30:00 AM	7:32:00 AM	-	-
-	-	1	10:15:00 AM
10:29:00 AM	10:32:00 AM	-	-
10:42:00 AM	10:45:00 AM	-	-
11:01:00 AM	11:03:00 AM	-	-
11:30:00 AM	11:34:00 AM	1	11:31:00 AM
-	-	1	1:12:00 PM
2:31:00 PM	2:34:00 PM	-	-
3:30:00 PM	3:33:00 PM	-	-
4:29:00 PM	4:32:00 PM	-	-
6:00:00 PM	6:02:00 PM	-	-

SOUTHSIDE (VEHICLE DRIVING NORTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
7:29:20 AM	7:32:40 AM		
10:30:10 AM	10:33:01 AM		
10:42:30 AM	10:45:10 AM		
11:01:20 AM	11:04:02 AM		
11:31:40 AM	11:34:45 AM		
2:31:15 PM	2:34:30 PM		
3:29:30 PM	3:33:20 PM		
4:29:40 PM	4:32:15 PM		
5:59:20 PM	6:02:50 PM		

BRICKELL AVE OBSERVATION STUDY

Location: Brickell Bridge
City: Miami, FL
Recording Time: 7:00AM--11:00AM & 3:00PM-7:00 PM

Day: Friday
Date: 10/21/2022

NORTHSIDE (VEHICLE DRIVING SOUTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
7:44:10 AM	7:46:01 AM		
9:00:53 AM	9:03:18 AM		
9:29:58 AM	9:32:32 AM	2	
9:59:29 AM	10:01:52 AM		
10:27:05 AM	10:29:35 AM		
10:39:06 AM	10:40:14 AM		
11:01:05 AM	11:02:48 AM		
11:08:13 AM	11:10:20 AM		
12:05:20 PM	12:07:17 PM		
12:53:13 PM	12:56:40 PM		
2:30:05 PM	2:31:39 PM		
3:29:31 PM	3:31:50 PM		
3:59:30 PM	4:02:02 PM		
4:29:17 PM	4:31:44 PM		
5:59:33 PM	6:01:59 PM		
6:29:26 PM	6:31:48 PM		

SOUTHSIDE (VEHICLE DRIVING NORTHBOUND)			
GATE ACTIVITY TIMESTAMP		PEDESTRIANS Crossing Illegally	
From the moment the gate starts to come down	To the time the bridge is fully opened upward	# of Pedestrians	TIMESTAMP of Crossing
7:44:13 AM	7:45:59 AM		
9:01:18 AM	9:03:25 AM		
9:30:07 AM	9:32:39 AM	4	
10:00:33 AM	10:01:25 AM		
10:27:20 AM	10:30:00 AM		
10:38:35 AM	10:40:34 AM		
11:00:20 AM	11:02:50 AM		
11:08:34 AM	11:09:48 AM		
12:05:40 PM	12:07:11 PM		
12:54:04 PM	12:56:41 PM		
2:30:40 PM	2:32:23 PM		
3:30:05 PM	3:31:59 PM		
3:59:43 PM	4:02:10 PM	2	
4:29:39 PM	4:31:45 PM		
6:00:00 PM	6:02:06 PM		
6:29:57 PM	6:31:47 PM		