

Lane Repurposing Concept Report

City of Tampa

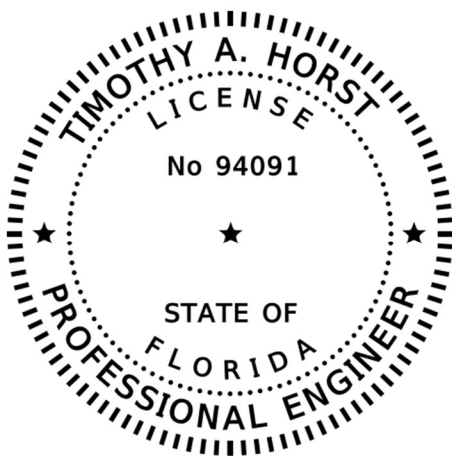
Florida Department of Transportation District 7

Morgan Street Lane Repurposing Project

On Morgan Street from Brorein Street to Harrison Street

Hillsborough County, Florida

Date: 9/16/2025



*THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY*

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.*

*THE ABOVE NAMED PROFESSIONAL IS
RESPONSIBLE FOR THE FOLLOWING SHEETS
IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.*

1. Project Description

1.1. Purpose

The purpose of the Morgan St Lane Repurposing Project is multifaceted and is being pursued by the City of Tampa for the following reasons:

- To provide a high quality, low stress bicycle facility through the downtown core that goes north and south. The city currently lacks a low stress north south facility in downtown despite having multiple high quality east west connections such as Cass Street, Jackson Street, the Selmon Greenway, Cumberland Avenue, and future bike lanes on Twiggs Street. Morgan St will connect these facilities together and enhance the network in the downtown core.
- To calm traffic and slow speeds. This will help to create an urban environment that is more attractive, quiet, and pedestrian friendly.
- To reduce crashes and maximize the safety performance of the roadway.
- To install 11' travel lanes to better accommodate transit on the portion of Morgan St where transit operates.
- To spur economic development along Morgan St, especially in the north and south portions of the project limits where many surface parking lots persist.
- To provide more space for people outside of vehicles, which helps to enhance the livability and perceived comfort of Morgan Street which will be enjoyed by those who live in, work in, and visit downtown Tampa.

1.2. Project Location

The lane repurposing will take place on Morgan Street from Brorein Street to Harrison Street. The project will also resurface Morgan St from Harrison St to Fortune St.

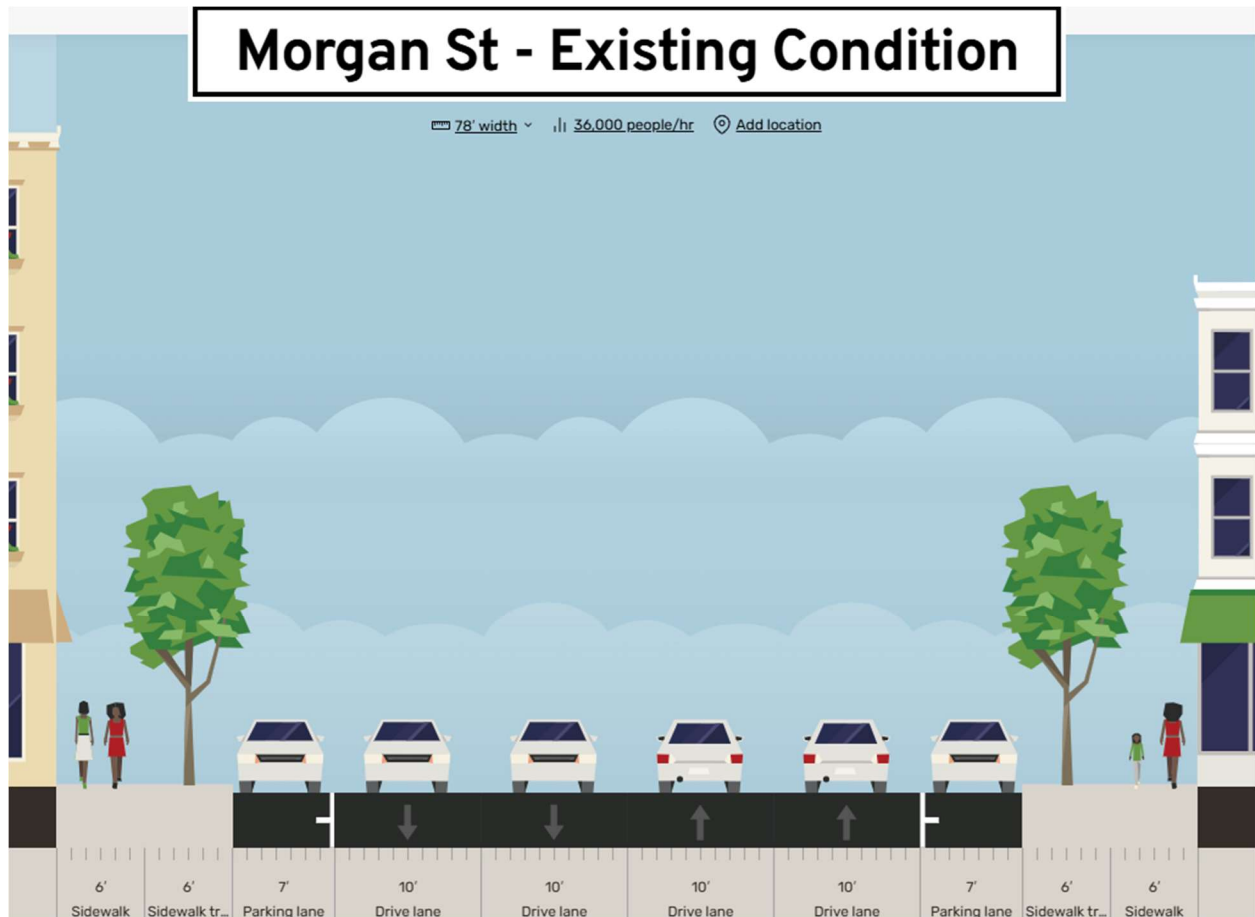
1.3. Existing Conditions Analysis

Morgan St over the project limits is a 4-lane undivided roadway with parallel parking and sidewalks on both side of road. See below for more details.

1.3.1. Typical Section

The typical section of Morgan St from Brorein St to Harrison St is four travel lanes of 10' width, 7' parallel parking on both sides of the road, a 6' buffer that either is a grass strip, or a buffer area filled with street trees and sidewalk

furniture, and a 6' sidewalk. There are minor variations from this typical section along the project limits.



1.3.2. Roadway Functional Classification

The functional classification of Morgan St is a collector roadway.

1.3.3. Context Classification

The context classification of Morgan St is C6 – Urban Core.

1.3.4. Access Class

The access class is not available given that Morgan St is a local roadway and the City of Tampa does not utilize an access classification system for roadways under its jurisdiction.

1.3.5. Posted Speed Limit

The speed limit is not posted along Morgan St and therefore assumes a default speed of 30 mph per Florida law.

1.3.6. Traffic Data

Please see the signed and sealed traffic study attached in the appendix for traffic data.

1.3.7. Signalized Intersections

The corridor has traffic signals at every intersection from Brorein St to Tyler St excluding Washington St and a two way stop at Harrison St. For a detailed analysis of traffic operations and existing and proposed level of service please see the traffic study in the appendix.

1.3.8. Crash Data

A discussion of the five-year crash data (2019-2023) is included in the Traffic Safety Study in the appendix.

2. Proposed Modification

2.1. Conceptual Design

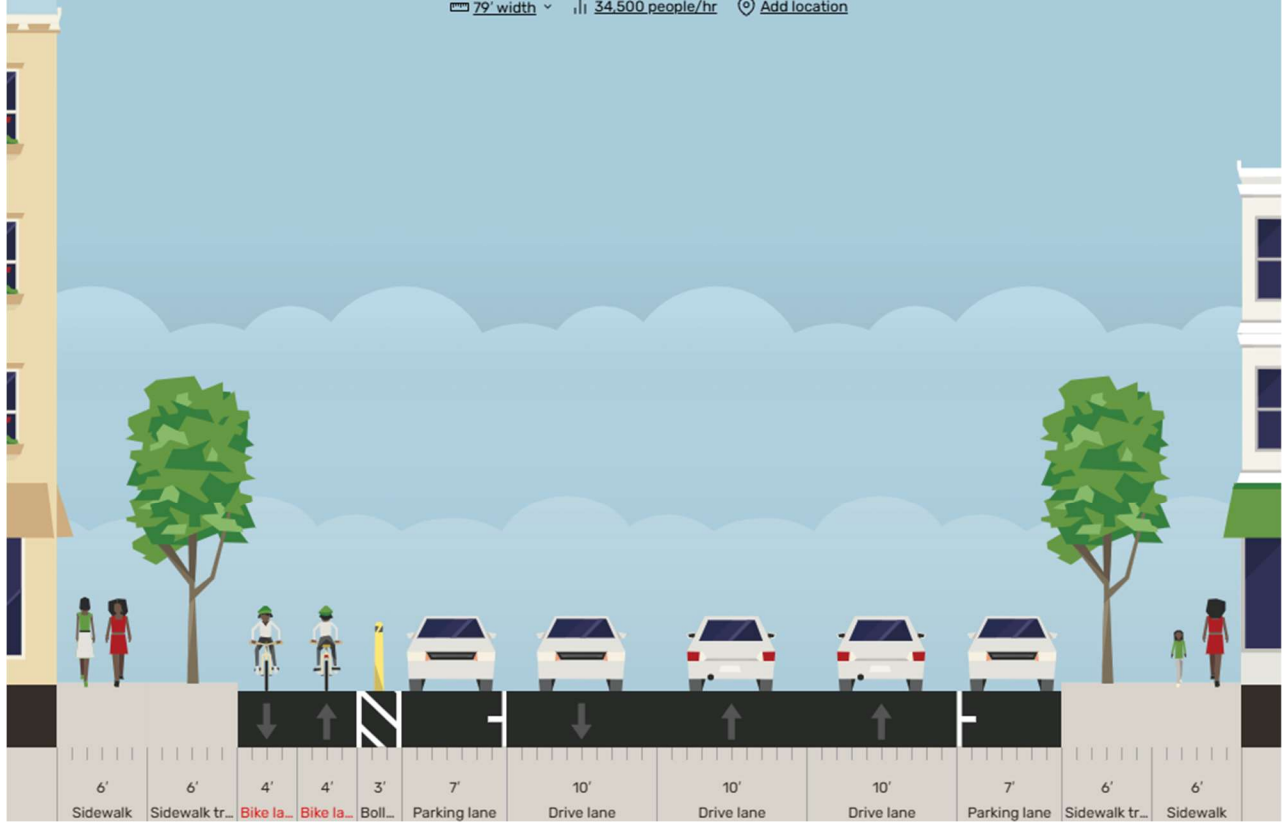
The conceptual design is included in the traffic study in the appendix.

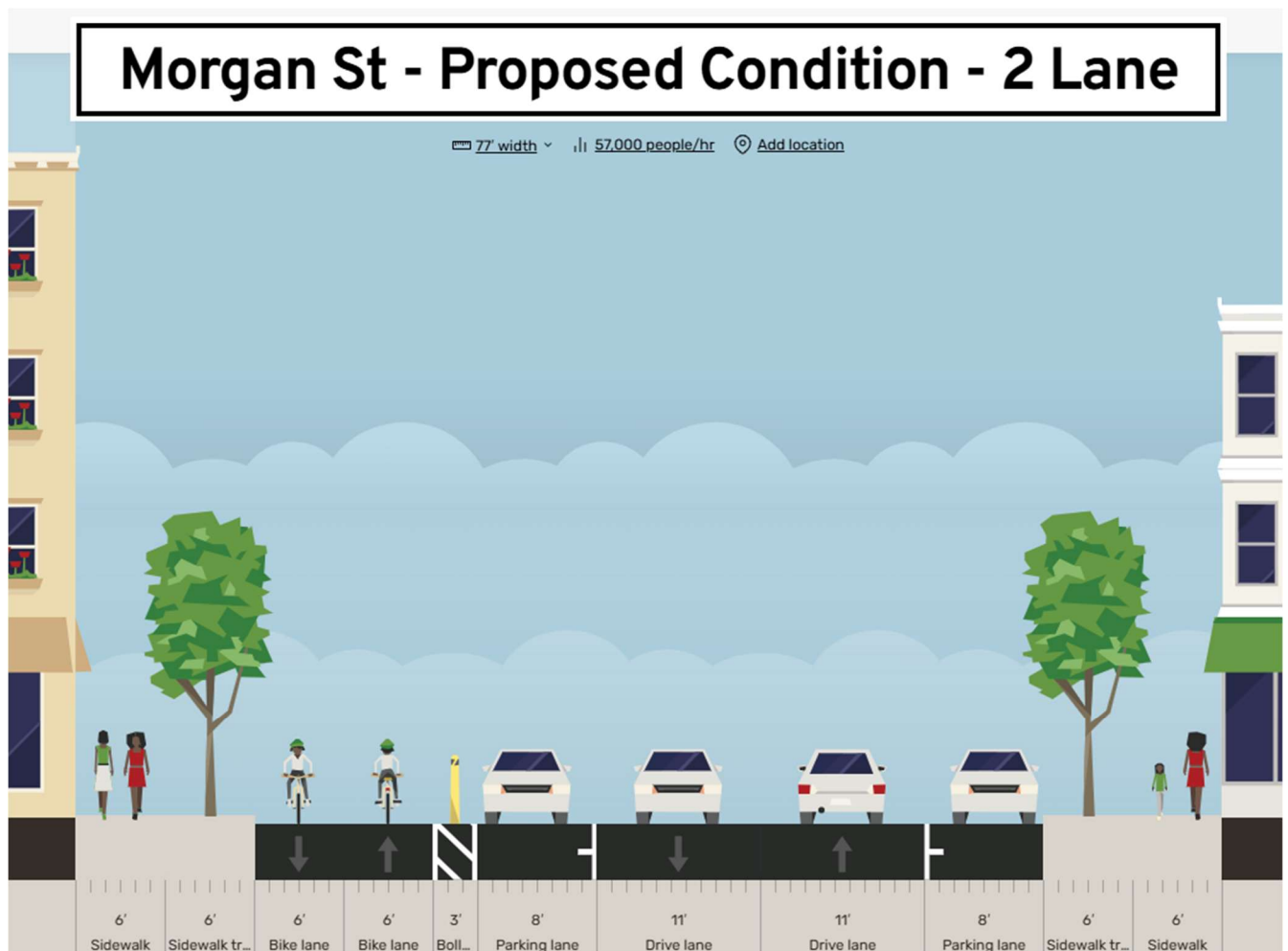
2.1.1. Typical Section

The typical section proposes bidirectional bike lanes on the west side of the Morgan St from Brorein St to Harrison St. Morgan St will have three travel lanes from Brorein St to Kennedy and two travel lanes from Kennedy to Harrison St. For the three-lane typical section, between Jackson St and Kennedy Blvd there are left turn lanes, otherwise the design is typically two northbound lanes and one southbound lane.

Morgan St - Proposed Condition - 3 Lane

79' width | 34,500 people/hr | Add location





2.1.2. Intersection Design

Work at intersections includes ADA side ramp upgrades, bicycle accommodations, crosswalks and stop bars. Please see the concept design in the attached traffic study for details.

2.2. Design Speed and Posted Speed Limit Changes

No changes to the posted speed are being pursued as a part of this project. The design speed and posted speed will remain at 30 mph.

2.3. Design Variation and Design Exception

Design variations will be noted prior to the completion of the design.

2.4. Consistency with Plans

3. Traffic Analysis

See the traffic study in the appendix for a full explanation of the methodology used, the results, and corresponding recommendations.

4. Safety Analysis

See the traffic safety study in the appendix for a full explanation of the methodology used and the predictive safety analysis results. Benefit cost analysis was used using FDOT standard crash costs and a crash modification factor from Clearinghouse.

5. Community Engagement

5.1. Anticipated effect on residents and businesses

The traffic study details the anticipated effect of the project on travel times as does the traffic safety study regarding impacts on safety. Please refer to those appendix documents accordingly. Also, refer to section “1.1 Purpose” for the anticipated effects of the project.

5.2. Community Comments (Including how they were addressed)

To be completed after the public meeting.

5.3. Public Meetings Summary

To be completed after the public meeting.

6. Mitigation Measures

6.1. Improvements

Please see the traffic study in the appendix for the recommended signal timing modifications that will mitigate travel time concerns.

6.2. Costs

Please see the engineering estimate included in the traffic safety study in the appendix.

7. Conclusion and Recommendations

7.1. Summary of Findings

To be completed after the public meeting.

8. Appendices

- Traffic Study
- Traffic Safety Study



August 13th, 2025

TECHNICAL MEMORANDUM

N MORGAN STREET SOUTHBOUND LANE REPURPOSING

From: E Brorein St To: E Fortune St

Traffic Analysis



Submitted to: 

Traffic Management Center, City of Tampa

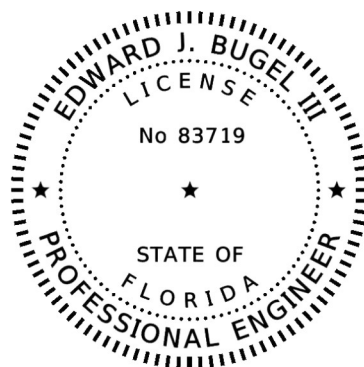
CERTIFICATION

AGENCY: TRAFFIC MANAGEMENT CENTER
TRANSPORTATION AND STORMWATER SERVICES
CITY OF TAMPA
1104 East Twiggs Street, Suite #200
Tampa, Florida 33602

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Bala Consulting Services, LLC authorized to operate as an engineering business (Certificate of Authorization No. 31398) and that I have reviewed or approved the calculations, findings, opinions, conclusions, or technical advice hereby reported for:

PROJECT: N Morgan St from E Brorein St to E Fortune St
Downtown Tampa, Hillsborough County, Florida
REPORT: Lane Repurposing Concept Report

I acknowledge that the procedures and references used to develop the information contained in this report are standard to the professional practices of civil engineering as applied through professional judgement and experience.



SIGNATURE:

Edward Joseph Bugel III, P.E.
P.E. No. 83719
August 13th, 2025
813-481-0607

Executive Summary

Bala Consulting Services, LLC (BCS) conducted a Lane Repurposing study for the southbound lanes on N Morgan St between E Brorein St and E Harrison St located in Downtown Tampa, Hillsborough County, Florida.

The purpose of this study is to determine the feasibility of repurposing N Morgan St. from two existing lanes in the north and southbound direction to one vehicular lane in the north and southbound directions with a north-south bicycle track on the southbound (west side) of the road.

Based on the results of the analysis, field observations during the AM and PM peak hours by a registered professional engineer, and engineering judgement, the following recommendation was developed.

By adjusting the signal phasing at the Brorein Street and Whiting Street intersections, Morgan Street can be repurposed into single northbound and southbound lanes with a dedicated bicycle track, achieving these changes without diminishing the level of service along the corridor's twelve intersections.

Further, this lane repurposing on Morgan Street will not adversely affect the flow of traffic, nor will it cause any undue safety issues. This is primarily due to the current level of traffic volume on Morgan Street being in line with a single lane of traffic instead of a two-lane street as it is currently configured.

The analysis of the proposed condition shows no level of service less than a 'D'. For the southbound direction, nine of the twelve intersections remain the same level of service during the AM peak, and six remaining the same at the PM peak. All other intersections that did degrade in level of service were by one level, except for Brorein Street in the AM peak, which downgraded from an A to a C. The Whiting St intersection improved from a 'B' to an 'A' in the proposed condition in the AM Peak due to signal timing changes. For the northbound direction, the level of service did not change for eight of the twelve intersections during the AM peak, while ten of intersections remained unchanged during the PM peak. The Zack St intersection is reduced from a level of service A to a B, while Madison St improved from an A to a B.

Overall, the analysis shows that a single southbound and northbound lane is a more efficient use of lane configuration along the Morgan St corridor due to low volumes.

Table of Contents

Certification	i
Executive Summary	ii
1. Introduction	1
2. Existing Conditions Traffic Analysis.....	2
3. Proposed Conditions Traffic Analysis	5
4. Comparisons, Conclusions, and Recommendations.....	8

Figures and Tables

Figure 1 Site Vicinity Map.....	1
Table 1 N Morgan St Corridor Volumes	3
Table 2 N Morgan St Intersection Performance Metrics – Exist. Conditions	5
Table 3 N Morgan St Intersection Performance Metrics – Prop. Conditions	7
Table 4 N Morgan Steet Traffic Analysis Comparison	9

Appendices

Appendix A: N Morgan St Bicycle Track Concept Plans

Appendix B: Synchro Reports

Appendix C: Signal Timing Sheets

1. Introduction

Recent City of Tampa initiatives developed by Complete Streets, Vision Zero, and other strategic programs, have focused on revitalizing the existing infrastructure, expanding multimodal networks, creating safer streets, supporting efficient transit, and managing congestion. One such pursuit has been the revisioning of N Morgan St in Downtown Tampa. Aiming to maximize the available right of way within the downtown network, the City identified the two southbound lanes on N Morgan St as having a surplus of capacity. Preliminary design plans, shown in **Appendix A**, were developed to determine the constructability of converting Morgan St from a four-lane roadway into a two-lane roadway with a two-way bicycle track. As part of the City's assessment to fully understand the benefits, impacts, and effects of this proposed project, Bala Consulting Services (BCS), LLC, was tasked to perform a Traffic Analysis Study. This study will inform the City of any adverse impacts of the proposed N Morgan St repurposing project, especially connected to traffic impacts and overall safety.

This study analyzes the twelve intersections along this $\frac{3}{4}$ -mile stretch of N Morgan St. Of the twelve intersections, nine are signalized and three are unsignalized. E Kennedy Blvd and E Jackson St function as a one-way pair in the westbound and eastbound directions respectively. Each intersection was evaluated for level of service, delay, queue length, and volume to capacity (V/C) ratio. These metrics for the existing conditions were then compared to those of the proposed conditions to determine any changes, and to what extent these differences would impact the traffic along southbound N Morgan St. **Figure 1** below shows the site location map.

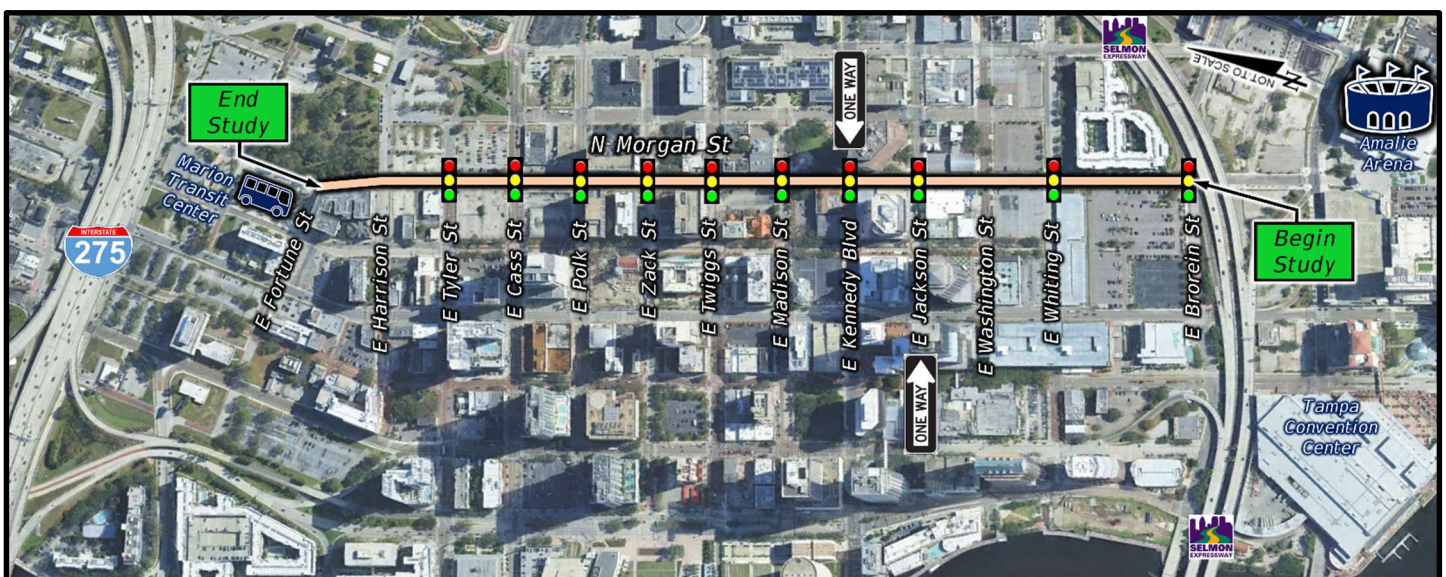


Figure 1: Site Location Map

2. Existing Conditions Traffic Analysis

N Morgan St is a north-south collector roadway part of the downtown grid network, which facilitates maneuverability to various offices, restaurants, commercial spaces, and residential buildings within Downtown Tampa. It is a downtown commercial four-lane undivided collector roadway. N Morgan St extends two blocks south of the southern limits of this study past E Brorein St to Old Water St, and stretches over 1-mile north of the northern limits of this study past E Fortune St where it terminates just north of E Floribaska Ave. The speed limit on N Morgan St is 25 MPH, although it is not posted, which is typical for downtown streets. Per the FDOT Traffic Online Website, the Annual Average Daily Traffic (AADT) is 2,400 VPD. N Morgan St has two through lanes in both the north and southbound directions with no median divider. There are no left turn lanes at any of the twelve intersections studied except for Brorein St, where the southbound inside lane drops into a southbound left turn lane. There is on-street parking throughout the length of the study limits on Morgan St, as well as sidewalk along both sides of the road, and no bike lanes. N Morgan St connects the Marion Transit Center at the northern limit to the Amalie Arena at the southern limit of the project.

Each of the twelve evaluated intersections were modeled using the Cubic Synchro Studio, version 11. The base line Synchro files were provided by the City of Tampa Smart Mobility Department from their overall network model. Lane configurations and signal timings were confirmed with the latest signal timing sheets, and with observations of each intersection. Volumes were provided through the Synchro file volume inputs which were in line with the FDOT AADT values of approximately 2,400 VPD. The greatest southbound volumes on Morgan Street were at Brorein St in the PM peak (392 vehicles), followed by Whiting Street in the PM peak (257 vehicles). The average number of vehicles per hour between the AM and PM peaks for the twelve intersections of this study was 121 VPH for the southbound direction and 127 for the northbound direction. Brorein Street, Jackson Street and Kennedy Blvd had the highest overall intersection volumes averaging roughly between 1,000 and 2,000 VPH across the AM and PM peaks. For reference, Federal Highway guidelines suggest that an 11-foot-wide urban roadway in a downtown setting, with a 25 MPH speed limit can facilitate between 500 and 900 VPH per lane depending on various conditions. With the volumes on Morgan Street falling well below 500 VPH, a single southbound and northbound lane should be sufficient to handle current demands. Corridor Volumes can be viewed below in **Table 1**.

**N Morgan St from E Brorein St to Fortune St
Lane Repurposing Study**



Traffic Management Center

N Morgan St Corridor Volumes		EB Approach	WB Approach	NB Approach	SB Approach	Intersection Total
 Brorein St	AM Peak	0	1503	198	162	1863
	PM Peak	0	1100	267	392	1759
 Whiting St	AM Peak	106	296	184	150	736
	PM Peak	369	186	160	257	972
Washington St	AM Peak	113	649	100	91	953
	PM Peak	74	58	169	130	431
 Jackson St 	AM Peak	577	0	81	139	797
	PM Peak	1028	0	251	156	1435
 Kennedy Bl. 	AM Peak	0	1878	93	108	2079
	PM Peak	0	1309	173	114	1596
 Madison St	AM Peak	43	27	86	108	264
	PM Peak	48	14	112	85	259
 Twiggs St	AM Peak	113	649	100	91	953
	PM Peak	238	222	112	95	667
 Zack St	AM Peak	48	45	127	92	312
	PM Peak	78	47	78	123	326
 Polk St	AM Peak	21	30	161	123	335
	PM Peak	60	21	85	108	274
 Cass St	AM Peak	138	249	85	72	544
	PM Peak	325	181	85	60	651
Tyler St	AM Peak	56	31	129	88	304
	PM Peak	39	48	53	51	191
Harrison Sr	AM Peak	26	47	83	61	217
	PM Peak	45	36	77	49	207

Table 1: N Morgan St Corridor Volumes

Assessing the twelve intersections within the study, only Brorein St and Jackson St showed an existing level of service of 'D', while all other intersections had a level of service of 'C' or better. For the Southbound approach, delay was analyzed which showed the greatest amount of delay was 39.3 seconds at Jackson St in the AM peak, and 37.3 seconds at Brorein St in the PM peak. The PM peak at Jackson St did show a 29.1 second delay as well. The next highest southbound delay time was 20.7 seconds at Kennedy Blvd in the AM peak. All other southbound delays were less than 18 seconds, with the average of all twelve intersections being 14.1 seconds.

For the Northbound approach, delay analysis showed the greatest amount of delay was 28.9 seconds at Kennedy Blvd in the AM peak, and 29.5 seconds at Cass St in the PM

peak. The PM peak at Jackson St for the southbound movement did show a 29.1 second delay as well. Brorein St had 26 seconds and 27.9 seconds of delay in the AM and PM peaks respectively. Average delay in the northbound direction was 16 seconds.

This level of delay for north and southbound Morgan St is consistent with lower volumes as anticipated. The volume to capacity or V/C ratio is also quite low for all intersections along the corridor, with the highest values being 0.24 at Whiting St for the PM peak in the southbound direction, and 0.28 also at Whiting St in the AM peak for the northbound direction. With 1.0 being the ideal ratio to maximize the volume through the available capacity, the two lanes in both the north and southbound direction on Morgan Street absorb greater than 75% of the demand on average.

Finally, the observed queueing during both the AM and PM peak periods were minimal, meaning there were usually no more than five to six cars queued up at the start of green for both the northbound and southbound movements at all intersections, and most queues cleared within one cycle. Both the Average Queue length and the 95th percentile queue lengths were analyzed using the Sim Traffic plugin for Synchro Studio 11 for both the north and southbound queues. The longest queue lengths were associated with the southbound Whiting St (104 FT) and the northbound Brorein St (132 FT) approaches in the existing conditions. An average car length with spacing between cars can be estimated at 25 feet, where a 132-foot queue length would correspond to approximately five to six vehicles. There were no observed queue spillbacks to the upstream intersections for any approach. This shows that reconfiguring the lanes on Morgan Street to single through lanes in the north-south direction is a realistic and achievable roadway design. **Table 2** below shows the intersection performance metrics along Morgan St for the existing conditions.

N Morgan St from E Brorein St to Fortune St
Lane Repurposing Study



Traffic Management Center

N Morgan St Corridor (Existing Condition)		LOS SB Approach	LOS NB Approach	LOS Intersection	Delay SB Approach (sec.)	Delay NB Approach (sec.)	Delay Intersection (sec.)	SB Avg Queue (ft)	SB Queue Length (ft) 95th %	NB Avg Queue (ft)	NB Queue Length (ft) 95th %	V/C SB Approach (Target: ≤ 1.0)	V/C NB Approach (Target: ≤ 1.0)	V/C Intersection Max (Target: ≤ 1.0)	
	Brorein St	AM Exist.	C	C	D	9.3	26.0	8.8	81	89	56	83	0.06	0.11	0.1
		PM Exist.	D	C	C	37.3	27.9	31	69	95	80	132	0.18	0.19	0.52
	Whiting St	AM Exist.	B	C	B	17.2	21.2	14.3	41	82	28	35	0.19	0.28	0.28
		PM Exist.	B	B	B	15.5	12.7	14	59	104	57	68	0.24	0.15	0.38
	Washington St	AM Exist.	B	A	B	11.6	9.8	16.3	24	58	12	35	0.09	0.10	0.73
		PM Exist.	A	A	A	9	9.7	8.7	32	81	33	66	0.1	0.13	0.13
	Jackson St 	AM Exist.	D	C	C	39.3	21.4	20.9	51	90	39	54	0.14	0.08	0.32
		PM Exist.	C	C	C	29.1	24.6	22.6	30	76	49	86	0.18	0.24	0.56
	Kennedy Bl. 	AM Exist.	C	C	C	20.7	28.9	26.8	26	55	52	75	0.09	0.08	0.63
		PM Exist.	B	B	C	15.5	16.6	23.5	35	69	18	41	0.09	0.17	0.45
	Madison St	AM Exist.	A	B	A	3.3	13.2	9.8	24	44	16	50	0.07	0.06	0.09
		PM Exist.	B	B	B	14.6	17.9	14.8	41	80	50	95	0.08	0.10	0.1
	Twiggs St	AM Exist.	B	A	B	17.5	7.2	11.2	33	65	24	44	0.1	0.12	0.41
		PM Exist.	B	C	B	16.2	29.4	12.8	43	70	78	119	0.13	0.14	0.14
	Zack St	AM Exist.	A	B	A	2.6	13.3	11.3	10	43	29	69	0.06	0.09	0.09
		PM Exist.	A	A	B	6.4	19.5	11.5	10	45	36	59	0.11	0.07	0.11
	Polk St	AM Exist.	A	A	A	4.7	5.4	6.9	28	54	20	61	0.08	0.11	0.11
		PM Exist.	B	A	A	10.8	4.4	9.1	28	54	9	37	0.09	0.04	0.09
	Cass St	AM Exist.	B	B	B	10.3	18.4	14.8	25	45	41	57	0.06	0.07	0.3
		PM Exist.	B	C	B	16.8	29.5	14	23	54	40	63	0.07	0.10	0.36
	Tyler St	AM Exist.	A	A	A	9.3	7.6	8.8	27	44	27	67	0.06	0.10	0.1
		PM Exist.	A	A	A	8.7	4.4	7.3	6	27	16	52	0.03	0.04	0.06
	Harrison Sr	AM Exist.	A	A	A	7.1	7.5	7.4	34	49	41	88	0.09	0.10	0.1
		PM Exist.	A	A	A	6.7	8.5	7.5	22	54	32	49	0.08	0.11	0.11

Table 2: N Morgan St Intersection Performance Metrics – Existing Conditions

3. Proposed Conditions Traffic Analysis

The proposed conditions modeled in the Synchro Studio version 11 software reflect the concept drawings shown in **Appendix A** of this report. No growth factor was applied to the current volumetric demands on Morgan Street to analyze the proposed condition, since downtown development is restricted to conversion or transition of one use or business to another. The lack of available real estate restricts new influxes of vehicular traffic; thus, it is not anticipated that future volumes will be appreciably greater than the existing. Further, with greater emphasis on multi-mode travel facilities within the compact spaces of Downtown Tampa, pedestrian and bicycle travel spaces play an important role in improving safety and protecting vulnerable users.

The proposed project for a bicycle track on Morgan Street will convert the existing four-lane typical section on N Morgan Street into a two-lane typical section with two-way north-south delineated bicycle track on the southbound side of the roadway. All intersections will transition from having two northbound and two southbound approach lanes with permissive turning movements to a single approach lane with permissive turning movements in the north-south direction. The only exception to this is at the one-way eastbound intersection of Jackson St where a southbound left turn lane is included in the proposed conditions, as Jackson St has the highest southbound left turn volume of all twelve studied intersections. The addition of the southbound left turn lane at Jackson Street slightly reduces the southbound delay in the AM peak from 39.3 to 37.2 seconds. Having a designated southbound left turn lane at this location provides more clarity to motorists as to where turning vehicles should position themselves and creates more efficiency within the intersection. **Table 3** below shows the intersection performance metrics along Morgan St for the proposed conditions. For the proposed condition, the Jackson St intersection in the AM peak and the Brorein St intersection in the PM peak had levels of service of 'D', which matched the existing condition. All other intersections had a 'C' or better in the proposed condition for both the AM and PM peaks.

N Morgan St from E Brorein St to Fortune St
Lane Repurposing Study



Traffic Management Center

N Morgan St Corridor (Proposed Condition)		LOS SB Approach	LOS NB Approach	LOS Intersection	Delay SB Approach (sec.)	Delay NB Approach (sec.)	Delay Intersection (sec.)	SB Avg Queue (ft)	SB Queue Length (ft) 95th %	NB Avg Queue (ft)	NB Queue Length (ft) 95th %	V/C SB Approach (Target: ≤ 1.0)	V/C NB Approach (Target: ≤ 1.0)	V/C Intersection Max (Target: ≤ 1.0)
	Brorein St	*AM Prop.	C	C	23.3	31.8	27.0	78	99	57	95	0.27	0.35	0.63
		PM Prop.	<u>D</u>	C	36.2	15.1	30.9	<u>93</u>	122	<u>84</u>	128	0.6	0.43	0.6
	Whiting St	*AM Prop.	A	A	7.8	9.8	11.1	39	59	40	76	0.24	0.20	0.24
		PM Prop.	C	B	20.5	15.1	15.7	<u>93</u>	146	75	<u>140</u>	0.43	0.15	0.43
	Washington St	AM Prop.	B	B	18.8	13.2	17.3	37	76	30	57	0.18	0.11	0.73
		PM Prop.	B	A	10.1	9.8	9.1	34	82	46	86	0.19	0.14	0.19
	Jackson St 	AM Prop.	<u>D</u>	C	37.2	23.7	20.8	84	<u>165</u>	20	53	0.21	0.09	0.33
		PM Prop.	C	C	24.1	27	22.5	51	112	80	113	0.19	0.21	0.56
	Kennedy Bl. 	AM Prop.	C	C	22.4	27.7	26.9	52	97	41	97	0.18	0.10	0.63
		PM Prop.	C	B	31.1	11.3	24.1	42	67	23	56	0.17	0.18	0.45
	Madison St	AM Prop.	A	B	3.5	14.9	10.4	12	37	43	110	0.12	0.10	0.12
		PM Prop.	B	A	14.9	6.5	9.9	39	66	39	57	0.13	0.18	0.18
	Twiggs St	AM Prop.	C	B	21.1	11.8	12.1	55	112	41	75	0.18	0.20	0.41
		PM Prop.	C	C	30.9	25.5	14.2	71	113	68	97	0.23	0.24	0.24
	Zack St	AM Prop.	A	B	1.9	10.9	10.1	6	27	58	89	0.11	0.15	0.15
		PM Prop.	B	B	19.5	13.9	15.1	65	101	66	83	0.2	0.12	0.2
	Polk St	AM Prop.	A	A	5.3	6.3	7.5	33	65	37	112	0.14	0.19	0.19
		PM Prop.	B	A	11.3	9.6	10.5	38	80	54	78	0.16	0.13	0.16
	Cass St	AM Prop.	B	B	10.8	12.0	13.9	31	50	39	58	0.11	0.13	0.3
		PM Prop.	B	C	17.6	31.0	14.3	45	89	75	97	0.13	0.17	0.36
	Tyler St	AM Prop.	A	B	9.9	11.8	10.8	54	91	74	73	0.12	0.19	0.19
		PM Prop.	A	A	9	4.5	7.5	23	58	6	27	0.07	0.08	0.08
	Harrison Sr	AM Prop.	A	A	7.2	7.4	7.4	31	48	22	36	0.1	0.11	0.11
		PM Prop.	A	A	6.7	8.8	7.7	33	74	22	41	0.08	0.13	0.13

Table 3: N Morgan St Intersection Performance Metrics – Proposed Conditions

4. Comparisons, Conclusions, and Recommendations

When comparing the existing conditions traffic analysis with the proposed condition traffic analysis, repurposing the four-lane section to a two-lane section with bicycle track on Morgan Street will not adversely affect traffic flow or lead to problematic safety issues. The proposed condition has no level of service less than a 'D', with nine of the twelve intersections remaining at the same level of service during the AM peak, and six remaining the same in the PM peak for the southbound direction. For the northbound direction, eight of the twelve intersections keep the same level of service, while nine of the twelve intersections remain the same during the PM peak. All other intersections that did degrade in level of service only reduced by one level, except for Brorein Street in the AM peak, which downgraded from an A to a C in the southbound direction. Traffic Analysis metrics are compared in **Table 4** below.

The Whiting Street intersection improved from a B to an A level of service in the proposed southbound condition in the AM peak due to a recommended signal phasing change of eliminating the westbound left turn phase, which allows for more time to be provided for the north and southbound movements. The Brorein St intersection is also recommended to have a signal phasing change in the AM peak by eliminating the north and southbound protected left turn phases and maximizing the green time between the thru movements. Timing changes can be viewed in the Synchro reports shown in **Appendix B**.

Overall, the reconfiguration of two lanes to one lane in both the north and southbound directions on Morgan Street will not adversely affect the flow of traffic, nor will it cause any undue safety issues. This is primarily due to the current level of traffic volume on Morgan Street being in line with a one-lane street instead of the two-lane street as it is currently configured.

N Morgan St from E Brorein St to Fortune St
Lane Repurposing Study



Traffic Management Center

N Morgan St Corridor Existing vs Proposed		LOS SB Approach	LOS NB Approach	LOS Intersection	Delay SB Approach (sec.)	Delay NB Approach (sec.)	Delay Intersection (sec.)	SB Avg Queue (ft)	SB Queue Length (ft) 95th %	NB Avg Queue (ft)	NB Queue Length 95th %	V/C SB Approach (Target: ≤ 1.0)	V/C NB Approach (Target: ≤ 1.0)	V/C Intersection Max (Target: ≤ 1.0)	
	Brorlein St	AM Exist.	A	C	A	9.3	26.0	8.8	81	89	56	83	0.06	0.11	0.1
		*AM Prop.	C	C	C	23.3	31.8	27.0	78	99	57	95	0.27	0.35	0.63
		PM Exist.	D	C	C	37.3	27.9	31	69	95	80	132	0.18	0.19	0.52
		PM Prop.	D	C	C	36.2	15.1	30.9	93	122	84	128	0.6	0.43	0.6
	Whiting St	AM Exist.	B	C	B	17.2	21.2	14.3	41	82	28	35	0.19	0.28	0.28
		*AM Prop.	A	A	B	7.8	9.8	11.1	39	59	40	76	0.24	0.20	0.24
		PM Exist.	B	B	B	15.5	12.7	14	59	104	57	68	0.24	0.15	0.38
		PM Prop.	C	B	B	20.5	15.1	15.7	93	146	75	140	0.43	0.15	0.43
	Washington St	AM Exist.	B	A	B	11.6	9.8	16.3	24	58	12	35	0.09	0.10	0.73
		AM Prop.	B	B	B	18.8	13.2	17.3	37	76	30	57	0.18	0.11	0.73
		PM Exist.	A	A	A	9	9.7	8.7	32	81	33	66	0.1	0.13	0.13
		PM Prop.	B	A	A	10.1	9.8	9.1	34	82	46	86	0.19	0.14	0.19
	Jackson St 	AM Exist.	D	C	C	39.3	21.4	20.9	51	90	39	54	0.14	0.08	0.32
		AM Prop.	D	C	C	37.2	23.7	20.8	84	165	20	53	0.21	0.09	0.33
		PM Exist.	C	C	C	29.1	24.6	22.6	30	76	49	86	0.18	0.24	0.56
		PM Prop.	C	C	C	24.1	27	22.5	51	112	80	113	0.19	0.21	0.56
	Kennedy Bl. 	AM Exist.	C	C	C	20.7	28.9	26.8	26	55	52	75	0.09	0.08	0.63
		AM Prop.	C	C	C	22.4	27.7	26.9	52	97	41	97	0.18	0.10	0.63
		PM Exist.	B	B	C	15.5	16.6	23.5	35	69	18	41	0.09	0.17	0.45
		PM Prop.	C	B	C	31.1	11.3	24.1	42	67	23	56	0.17	0.18	0.45
	Madison St	AM Exist.	A	B	A	3.3	13.2	9.8	24	44	16	50	0.07	0.06	0.09
		AM Prop.	A	B	B	3.5	14.9	10.4	12	37	43	110	0.12	0.10	0.12
		PM Exist.	B	B	B	14.6	17.9	14.8	41	80	50	95	0.08	0.10	0.1
		PM Prop.	B	A	A	14.9	6.5	9.9	39	66	39	57	0.13	0.18	0.18
	Twiggs St	AM Exist.	B	A	B	17.5	7.2	11.2	33	65	24	44	0.1	0.12	0.41
		AM Prop.	C	B	B	21.1	11.8	12.1	55	112	41	75	0.18	0.20	0.41
		PM Exist.	B	C	B	16.2	29.4	12.8	43	70	78	119	0.13	0.14	0.14
		PM Prop.	C	C	B	30.9	25.5	14.2	71	113	68	97	0.23	0.24	0.24
	Zack St	AM Exist.	A	B	A	2.6	13.3	11.3	10	43	29	69	0.06	0.09	0.09
		AM Prop.	A	B	B	1.9	10.9	10.1	6	27	58	89	0.11	0.15	0.15
		PM Exist.	A	A	B	6.4	19.5	11.5	10	45	36	59	0.11	0.07	0.11
		PM Prop.	B	B	B	19.5	13.9	15.1	65	101	66	83	0.2	0.12	0.2
	Polk St	AM Exist.	A	A	A	4.7	5.4	6.9	28	54	20	61	0.08	0.11	0.11
		AM Prop.	A	A	A	5.3	6.3	7.5	33	65	37	112	0.14	0.19	0.19
		PM Exist.	B	A	A	10.8	4.4	9.1	28	54	9	37	0.09	0.04	0.09
		PM Prop.	B	A	B	11.3	9.6	10.5	38	80	54	78	0.16	0.13	0.16
	Cass St	AM Exist.	B	B	B	10.3	18.4	14.8	25	45	41	57	0.06	0.07	0.3
		AM Prop.	B	B	B	10.8	12	13.9	31	50	39	58	0.11	0.13	0.3
		PM Exist.	B	C	B	16.8	29.5	14	23	54	40	63	0.07	0.10	0.36
		PM Prop.	B	C	B	17.6	31	14.3	45	89	75	97	0.13	0.17	0.36
	Tyler St	AM Exist.	A	A	A	9.3	7.6	8.8	27	44	27	67	0.06	0.10	0.1
		AM Prop.	A	B	B	9.9	11.8	10.8	54	91	74	73	0.12	0.19	0.19
		PM Exist.	A	A	A	8.7	4.4	7.3	6	27	16	52	0.03	0.04	0.06
		PM Prop.	A	A	A	9	4.5	7.5	23	58	6	27	0.07	0.08	0.08
	Harrison Sr	AM Exist.	A	A	A	7.1	7.5	7.4	34	49	41	88	0.09	0.10	0.1
		AM Prop.	A	A	A	7.2	7.4	7.4	31	48	22	36	0.1	0.11	0.11
		PM Exist.	A	A	A	6.7	8.5	7.5	22	54	32	49	0.08	0.11	0.11
		PM Prop.	A	A	A	6.7	8.8	7.7	33	74	22	41	0.08	0.13	0.13
*Proposed signal timing changes at Brorlein St and at Whiting St in the AM peak period for the proposed condition.															

Table 4: Morgan Steet Traffic Analysis Comparison

APPENDIX A

N Morgan St Bicycle Track Concept Plans

CITY OF TAMPA
MOBILITY DEPARTMENT

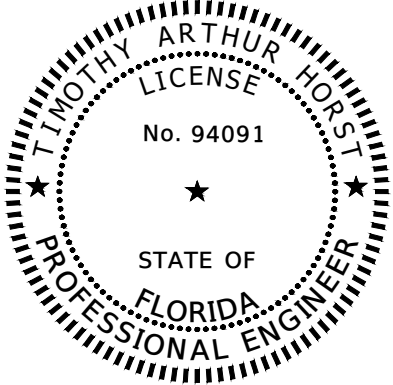
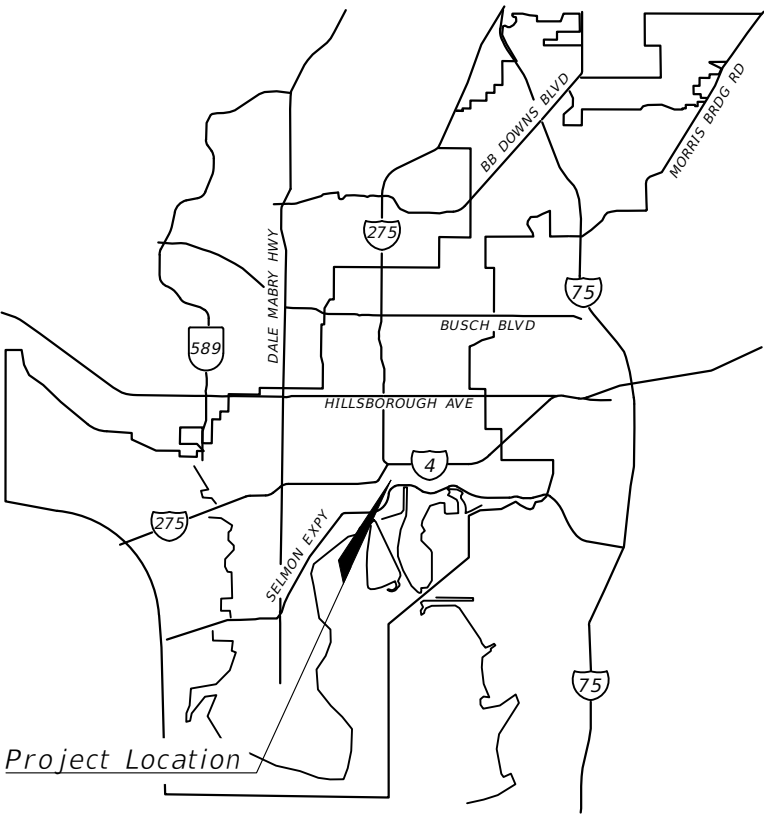
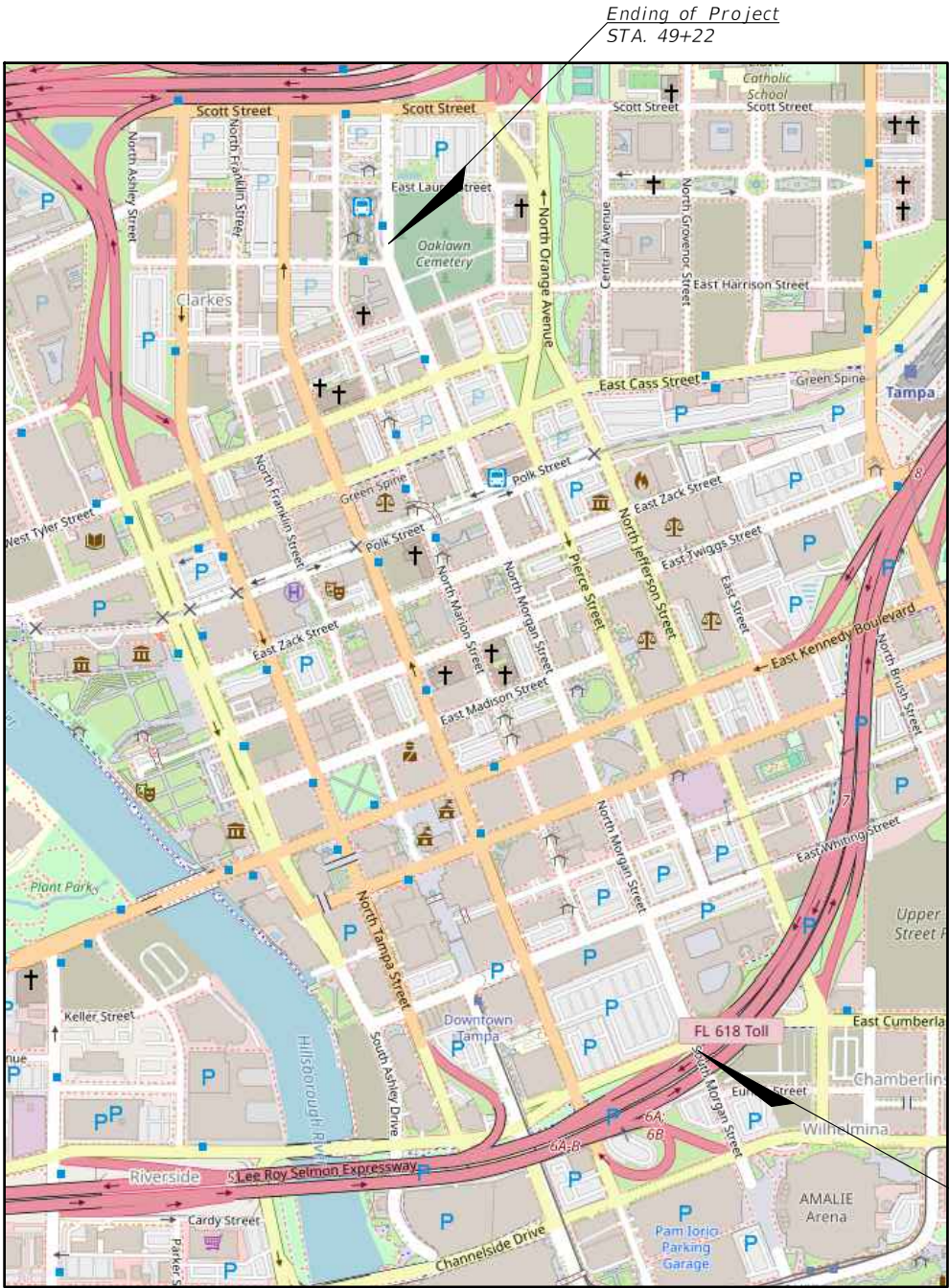
CONTRACT PLANS

FINANCIAL PROJECT ID ----
HILLSBOROUGH COUNTY

INDEX OF MORGAN ST

SHEET NO.	SHEET DESCRIPTION
1	KEYSHEET
2	TABULATION OF QUANTITIES
3	NOTES
4	DETAILS
5-11	ROADWAY PLANS
12-19	PAVEMENT MARKING PLANS
20-27	SIGNING PLANS
28	SIGNAL PLAN
29-30	TEMPORARY TRAFFIC CONTROL PLANS

MORGAN ST - BROREIN ST to FORTUNE ST (0.73 miles)



FINAL PLANS
February
28, 2025

MORGAN ST
ENGINEER OF RECORD:
TIMOTHY ARTHUR HORST
P.E. NO. :94091
CITY OF TAMPA PROFESSIONAL ENGINEER
TRANSPORTATION AND STORMWATER SERVICES
DEPARTMENT
306 E JACKSON ST
TAMPA, FLORIDA 33602
CONTRACT NO.:
VENDOR NO.:
CERTIFICATE OF AUTHORIZATION NO.:

GOVERNING STANDARDS AND SPECIFICATIONS
FLORIDA DEPARTMENT OF TRANSPORTATION FY
2024-25 DESIGN STANDARDS AND REVISED
INDEX DRAWING AS APPENDED HEREIN, AND
FY 2024-25 STANDARD SPECIFICATIONS FOR
ROAD AND BRIDGE CONSTRUCTION, AS
AMENDED BY CONTRACT DOCUMENTS AND THE
CITY OF TAMPA.

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
T-0000	2024	1

TABULATION OF QUANTITIES			
PAY ITEM NO.	DESCRIPTION	UNIT	TOTAL
	MILLING EXISTING ASPHALT PAVEMENT , 1.5" THICK AVG DEPTH	SY	17525
	SUPERPAVE ASPHALTIC CONC, TRAFFIC C, 1.5" THICK AVG DEPTH	TN	1450
	PATTERNED PAVEMENT , VEHICULAR AREAS, GREEN BIKE LANE	SY	1134
	SIGN POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	5
	SIGN PANEL, F&I, UP TO 12 SF	EA	11
	SINGLE COLUMN GROUND SIGN ASSEMBLY, REMOVE	AS	4
	DELINEATOR, 36" FLEXIBLE TUBULAR POST, 42" TUFF CURB	EA	186
	RETRO-REFLECTIVE PAVEMENT MARKERS WHITE/RED	EA	120
	RETRO-REFLECTIVE PAVEMENT MARKERS YELLOW/YELLOW	EA	156
	RETRO-REFLECTIVE PAVEMENT MARKERS BLUE/BLUE	EA	4
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	LF	10118
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK, 12"	LF	2237
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CHEVRON, 18"	LF	2273
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK, 24"	LF	2176
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SKIP, 10-30 SKIP, 6"	LF	338
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 2-4 SKIP, 6"	LF	2309
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 6-10 SKIP, 6"	LF	140
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, ARROWS	EA	13
	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	LF	5898
	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 3-9 SKIP, 6"	LF	1985
	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE, 6-10 SKIP, 6"	LF	129
	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 3-9 SKIP DROP LINE, 12"	LF	358
	THERMOPLASTIC, STANDARD, WHITE, SOLID, 6"	LF	10118
	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 12" FOR CROSSWALK	LF	2237
	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	2273
	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	LF	2176
	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6", 10-30 SKIP	LF	338
	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6" 2-4 SKIP	LF	2309
	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6", 6-10 SKIP	LF	140
	THERMOPLASTIC, PREFORMED, WHITE, ARROW	EA	13
	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 6"	LF	5898
	THERMOPLASTIC, STANDARD, YELLOW, 3-9 DOTTED GUIDE LINE, 6"	LF	1985
	THERMOPLASTIC, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE, 6"	LF	129
	THERMOPLASTIC, STANDARD, WHITE, SKIP, 12" 3-9 LANE DROP	LF	358
	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE, BIKE & SHARROW	EA	52
	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE	EA	14
	THERMOPLASTIC, PREFORMED, WHITE, ARROW, BIKE THRU	EA	45

REVISIONS				CITY OF TAMPA MOBILITY DEPARTMENT	CITY OF TAMPA MOBILITY DEPARTMENT		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION				
----	----			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
				MORGAN ST	HILLSBOROUGH	----	2

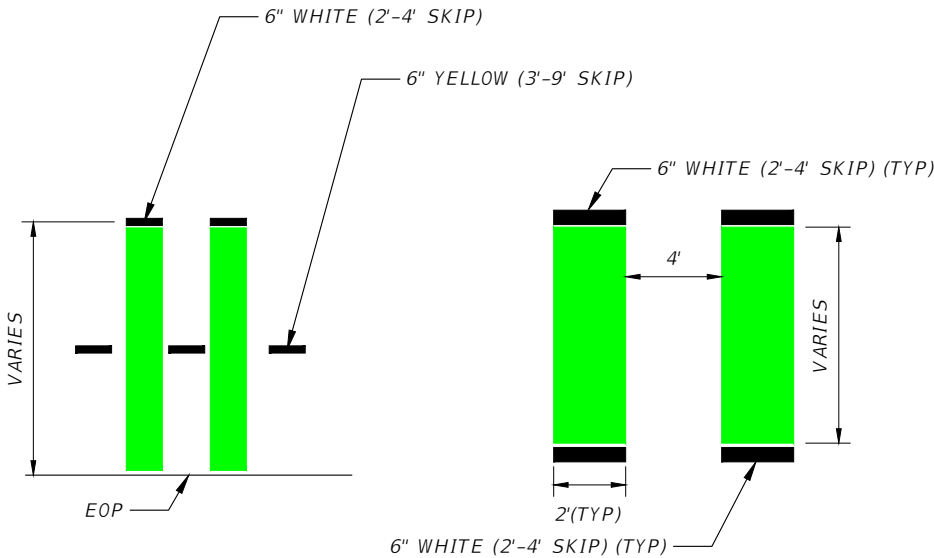
TIMOTHY ARTHUR HORST, P.E.
P.E. LICENSE NUMBER 94091
CITY OF TAMPA
306 E. JACKSON ST
TAMPA, FL 33602
CERTIFICATE OF AUTHORIZATION ----

TABULATION OF QUANTITIES

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

GENERAL NOTES

- 1. CITY OF TAMPA STANDARD DRAWINGS ARE AVAILABLE AT THE CITY HALL ANNEX, 306 E. JACKSON STREET, 6TH FLOOR, EAST WING.
- 2. CALL SUNSHINE (1-800-432-4770) AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY.
- 3. STREET SIGNS AND STREET MARKERS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. ANY LOST OR DAMAGED SIGNS OR MARKERS SHALL BE REPLACED.
- 4. AS-BUILT MUST BE A COPY OF THE FULL DIGITALLY SIGNED AND SEALED SET, WITH CAPTION THAT IDENTIFIES THE SIGNAL CONTRACTORS INFORMATION AND LABELED "AS-BUILT", BOTH MUST BE ON THE COVER SHEET AND THE AS-BUILT MUST BE SCANNED AT 300PPI, PER CITY OF TAMPA ARCHIVE DEPARTMENT POLICIES.



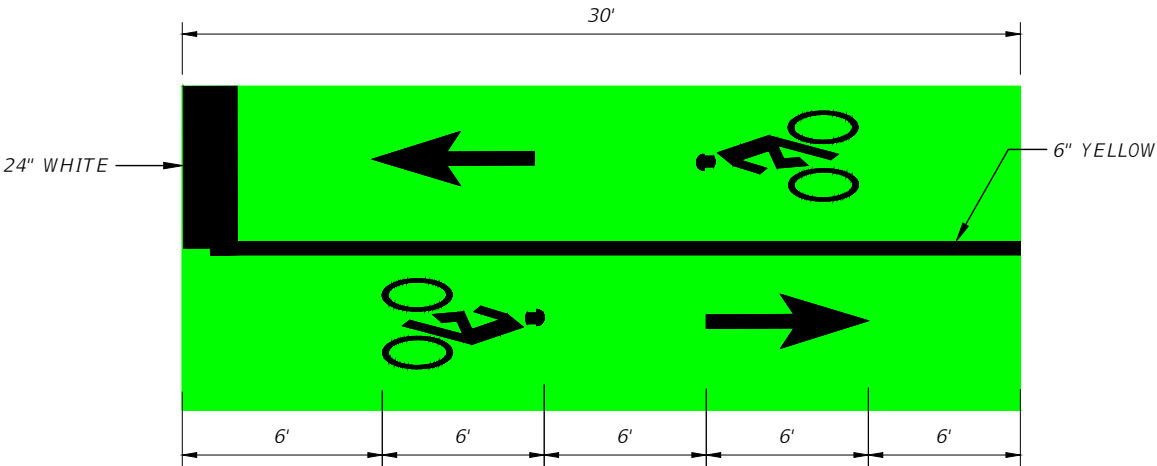
CYCLE TRACK CONFLICT MARKING DETAILS
REFER TO FDOT DESIGN MANUAL SECTION 223

TRAFFIC SIGNAL NOTES:

- 1. CONTACT DAVID WORLEY, SIGNAL SHOP SUPERVISOR, AT DAVID.WORLEY@TAMPAGOV.NET (813.393.8425). CONTRACTOR MUST SCHEDULE, 10 DAYS IN ADVANCE, FOR AN INSPECTION.
- 2. UNDERGROUND SIGNAL CABLE, FIBER OPTIC LINES AND CONDUIT EXIST AT SIGNALIZED INTERSECTIONS. ALL SIGNS WITHIN 50' OF A SIGNALIZED INTERSECTION MUST BE MARKED IN WHITE PRIOR TO CONTACTING SUNSHINE AND INSTALLATION.
- 3. DETECTABLE WARNINGS MUST BE RED IN COLOR.

SIGNING AND PAVEMENT MARKING GENERAL NOTES:

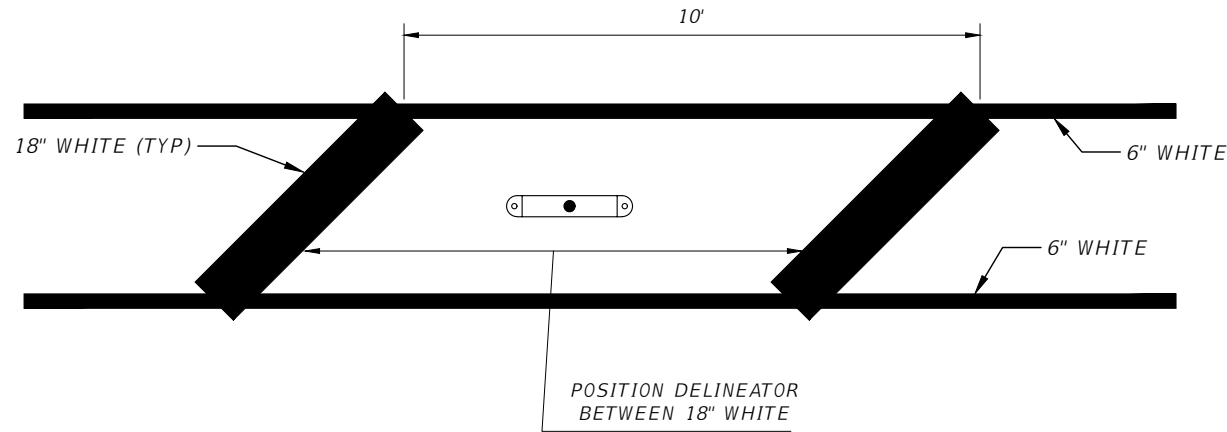
- 1. PAVEMENT MARKINGS SHALL BE PLACED AS SHOWN IN THE PLANS WITH THE APPROPRIATE FDOT DESIGN STANDARD INDEX AND MUTCD ADHERENCE. ALL PAVEMENT MARKINGS SHALL BE REINSTALLED ACCORDING TO EXISTING MARKINGS UNLESS OTHERWISE NOTED.
- 2. CAUTION SHOULD BE EXERCISED WHILE RELOCATING EXISTING SIGNS SO AS TO PREVENT DAMAGE TO THE SIGNS. IF THE SIGNS ARE DAMAGED BEYOND USE, AS DETERMINED BY THE ENGINEER, THEY SHALL BE REPLACED.
- 3. THE SIGN AND PAVEMENT MARKING LOCATIONS ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT AS DIRECTED BY THE ENGINEER.
- 4. ANY EXISTING SIGN TO REMAIN THAT IS DISTURBED DURING CONSTRUCTION SHALL BE RESET TO CURRENT STANDARDS FOR HEIGHT, OFFSET AND METHOD OF INSTALLATION.
- 5. REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED IN ACCORDANCE WITH CURRENT FDOT STANDARD INDEX 706-001.
- 6. INSTALL PROPOSED SIGNS ACCORDING TO FDOT INDEX NO. 700-101 (TYPICAL SECTIONS FOR PLACEMENT OF SINGLE & MULTI-COLUMN SIGNS) UNLESS OTHERWISE NOTED OR AS DIRECTED BY THE ENGINEER.
- 7. WHEN UPGRADING OR INSTALLING PEDESTRIAN CROSSWALKS, PED RAMPS SHALL BE MADE ADA COMPLIANT IF NEEDED.
- 8. ANY VEGETATION INTERFERING WITH THE VISIBILITY OF THE EXISTING AND/OR PROPOSED SIGNS SHALL BE TRIMMED OR REMOVED UNTIL FULL VISIBILITY IS RESTORED.
- 9. ADD BLUE RPM AT EACH FIRE HYDRANT LOCATION ADJACENT TO TPB AS PER FDOT STANDARD PLANS 706-001
- 10. MINOR VARIATIONS IN ROADWAY WIDTH ARE TO BE ACCOMMODATED BY FLUCTUATIONS IN BUFFER WIDTH.



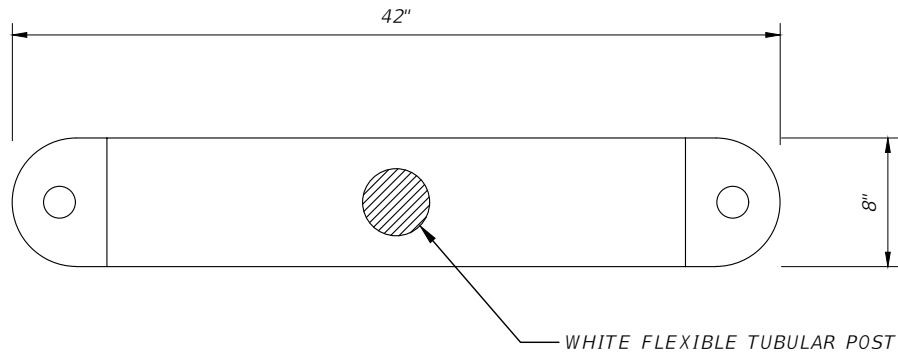
CYCLE TRACK INTERSECTION MARKINGS DETAIL

R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			NOTES	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		3
----	----				MORGAN ST	HILLSBOROUGH	----		

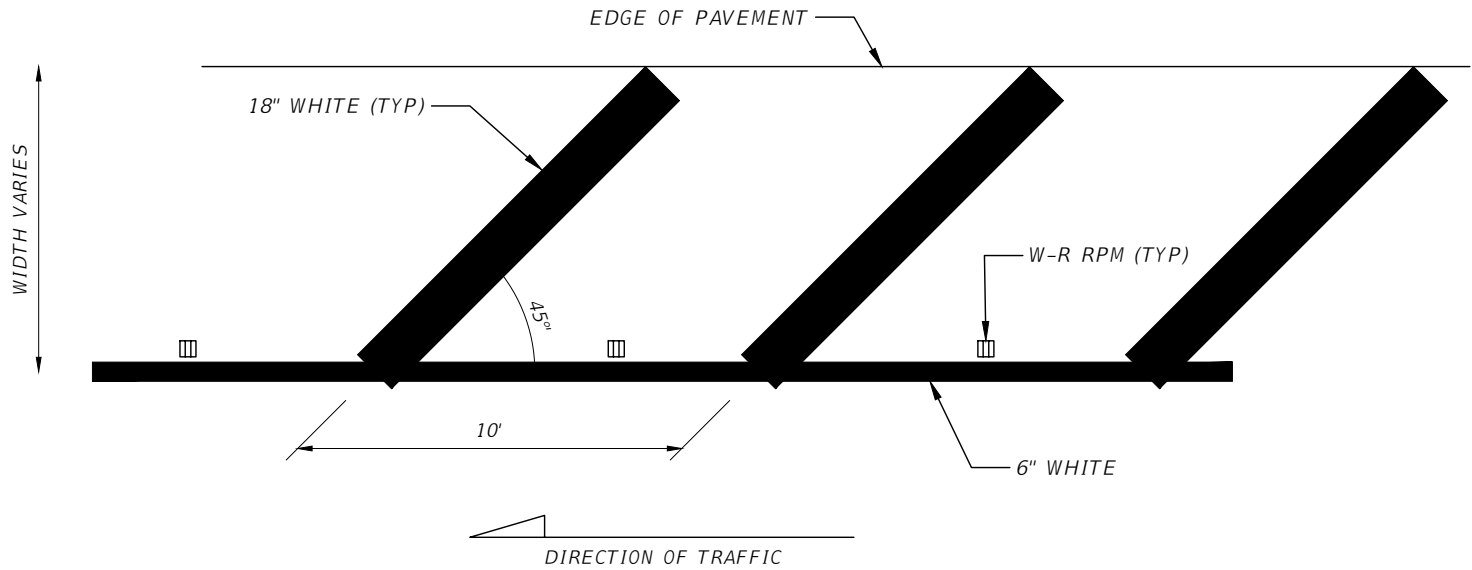
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



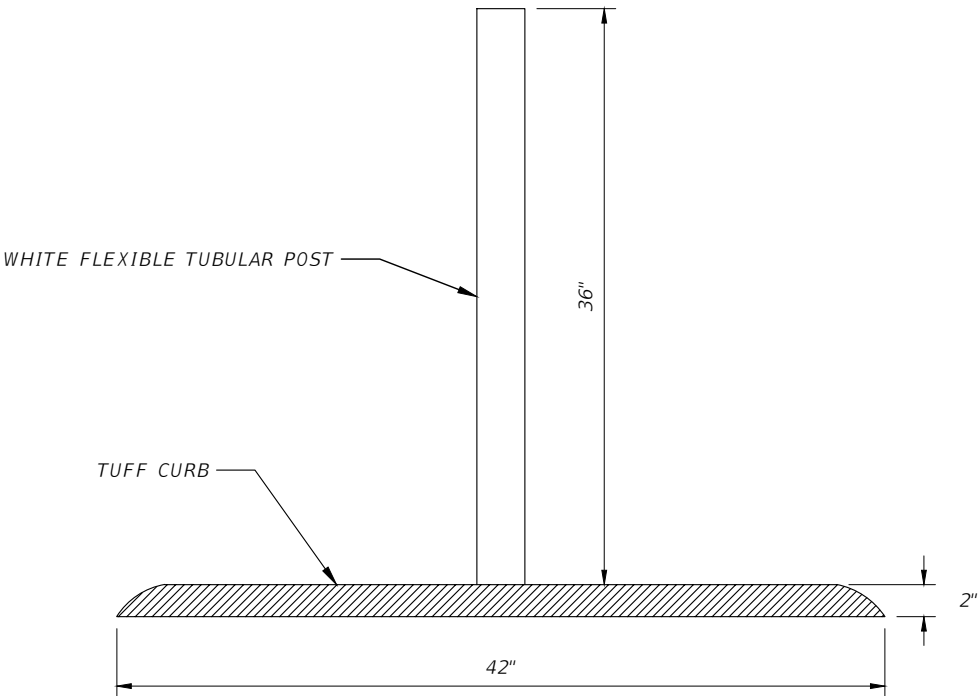
**TRAFFIC SEPARATOR & BUFFER DETAIL
PLAN AND PROFILE VIEW**



TUFF CURB SEPARATOR DETAIL

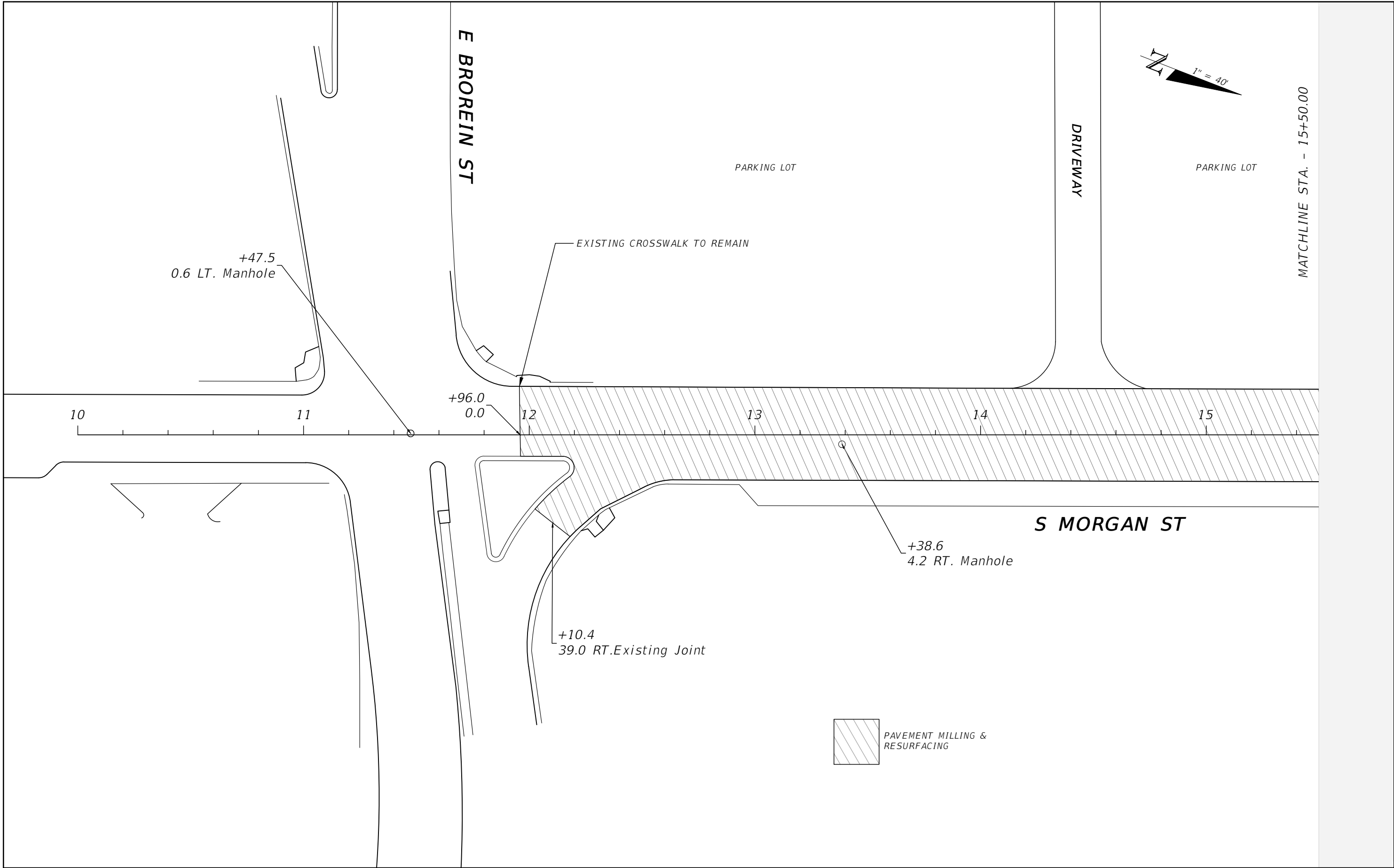


GORE AREA DETAIL

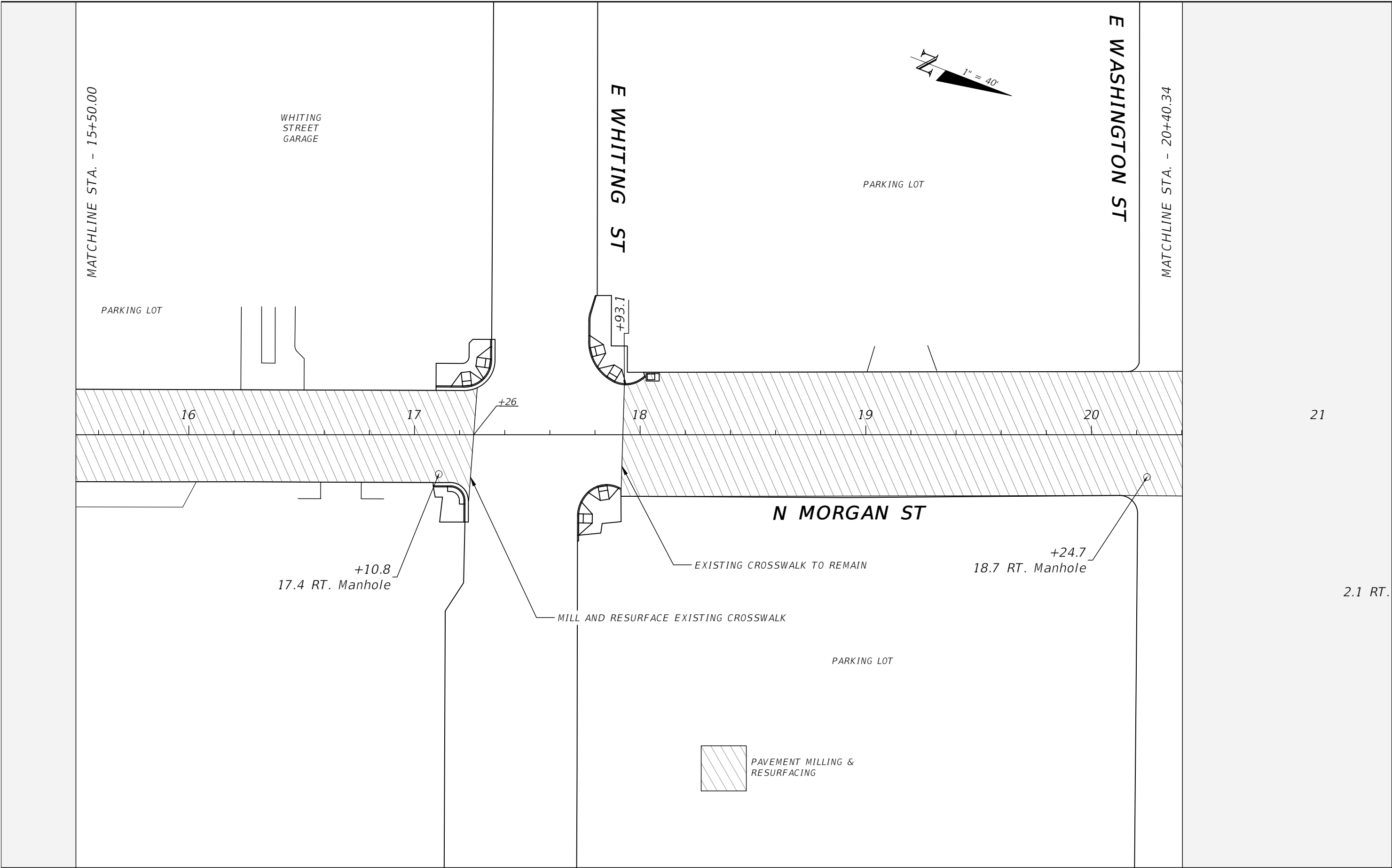


DELINEATOR DETAIL

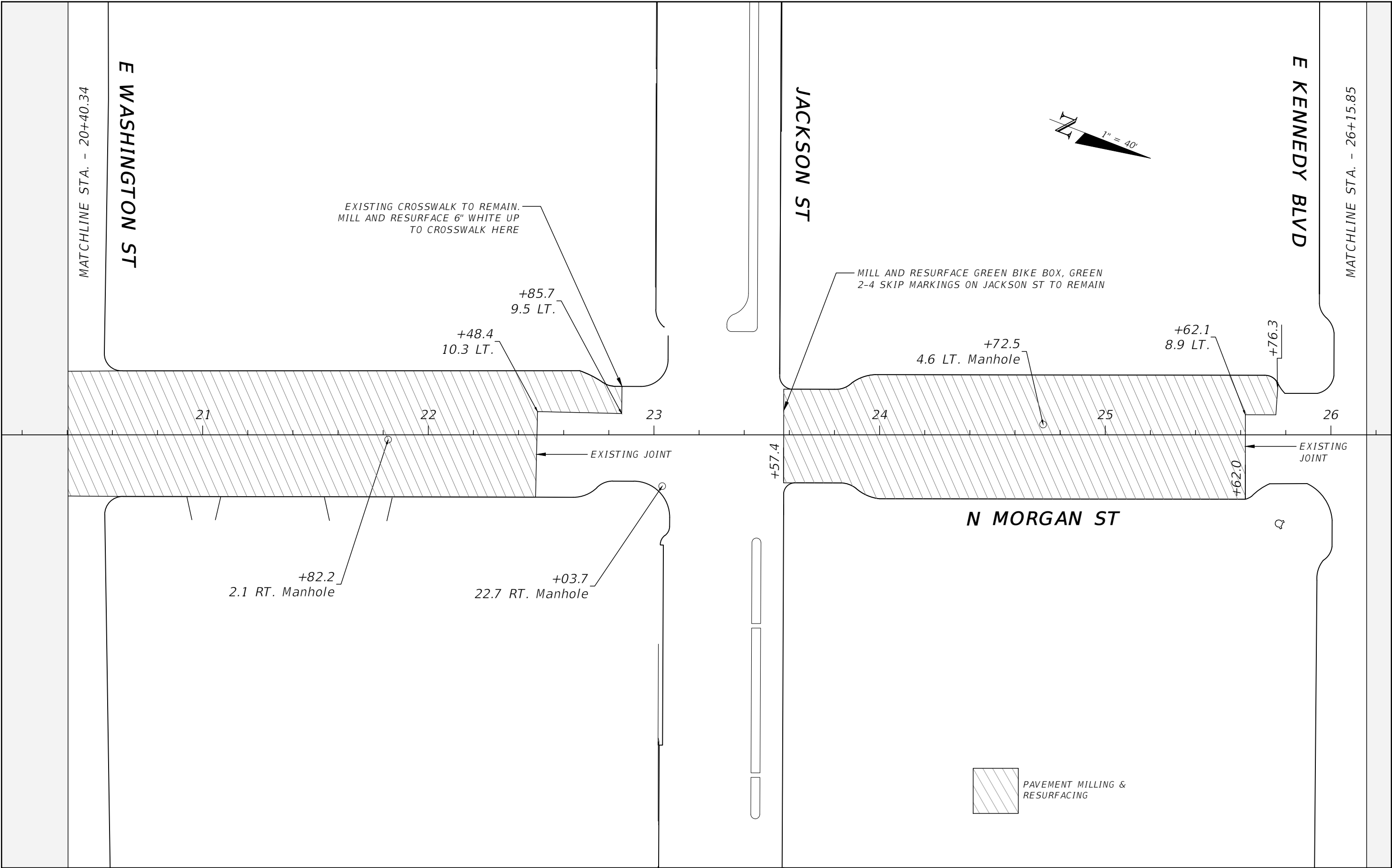
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			<i>DETAILS</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		4



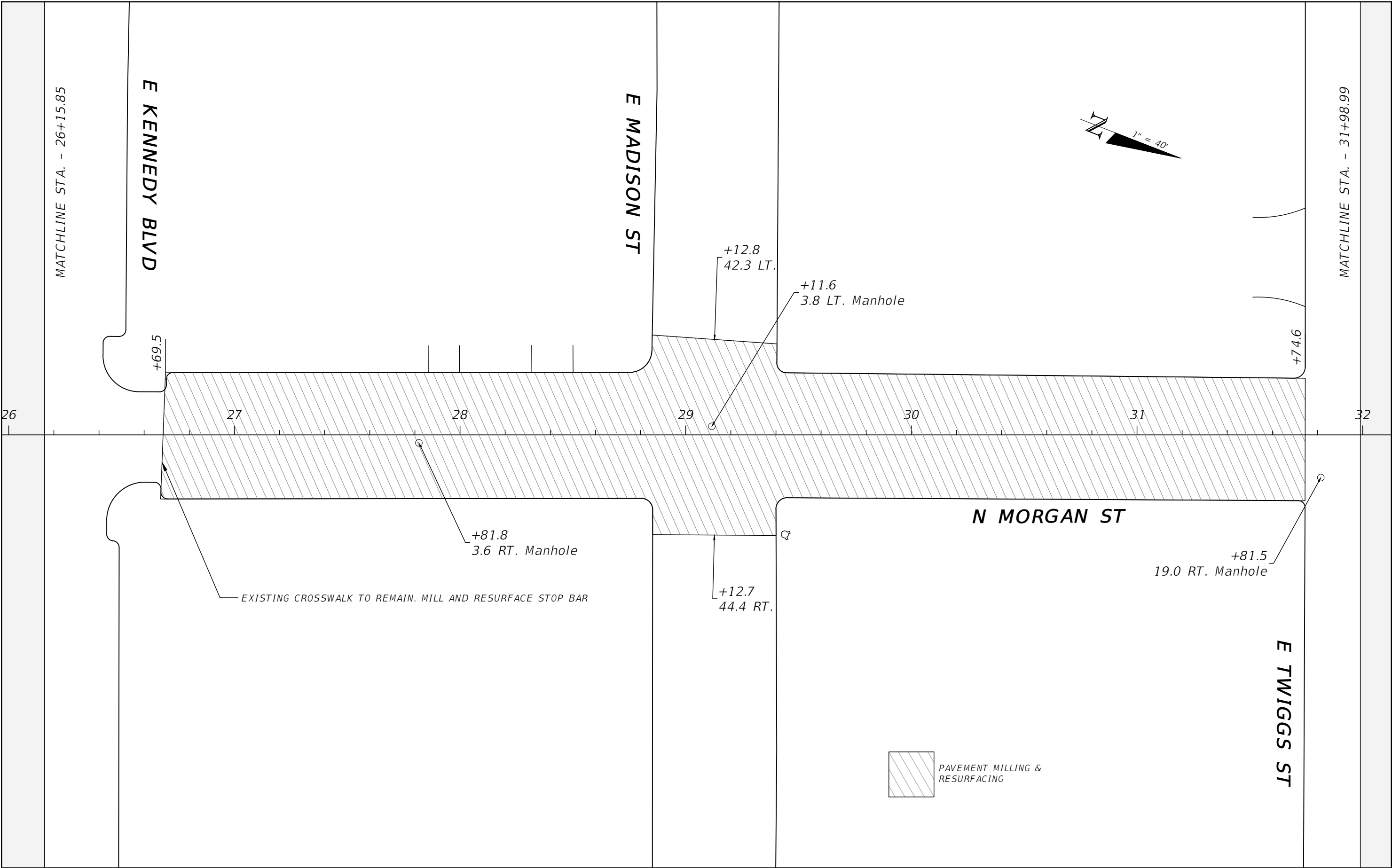
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION						
----					ROAD NO.	COUNTY	FINANCIAL PROJECT ID		5
					MORGAN ST	HILLSBOROUGH	----		



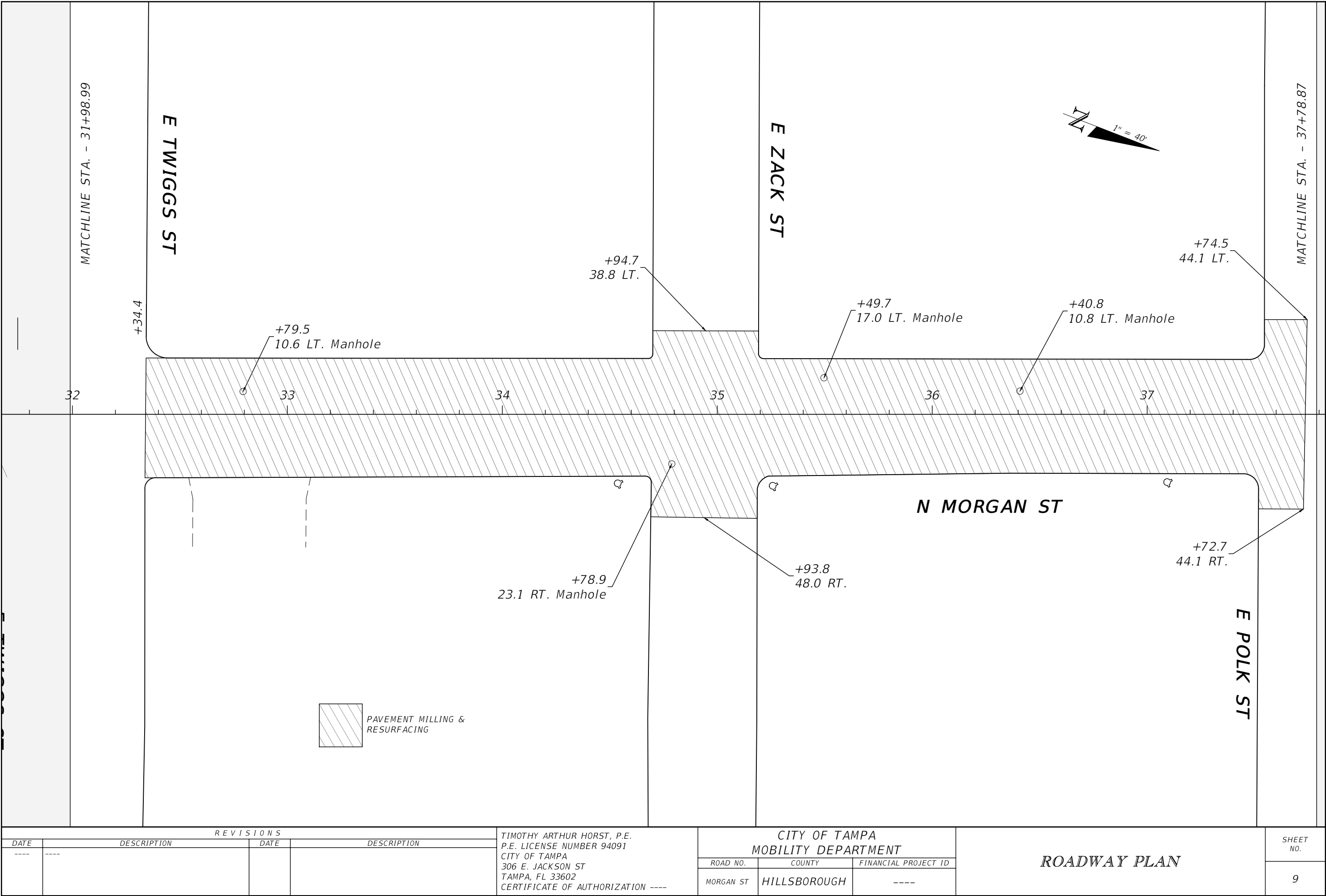
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	-----				MORGAN ST	HILLSBOROUGH	----		6



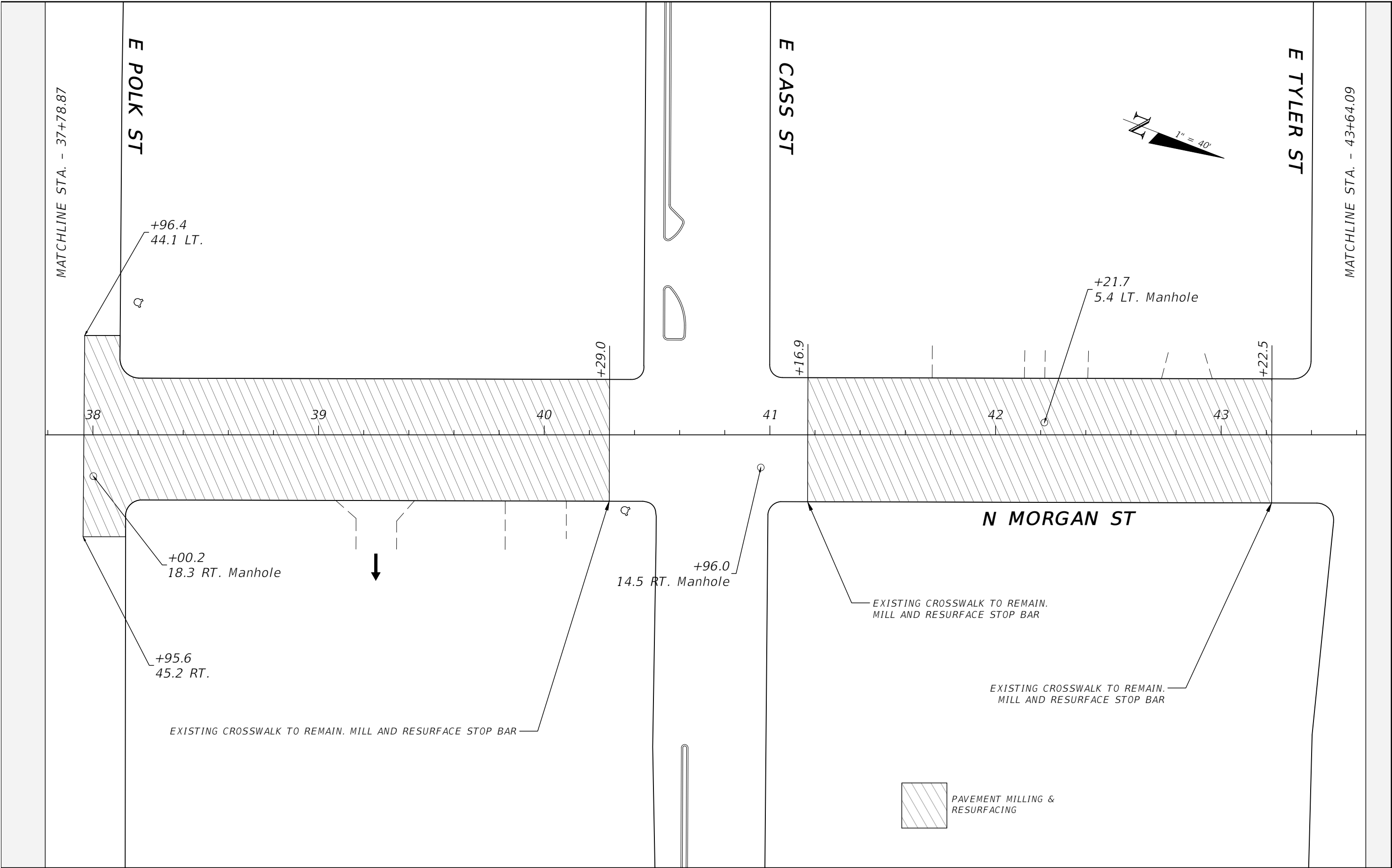
R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		7
----	----				MORGAN ST	HILLSBOROUGH	----		



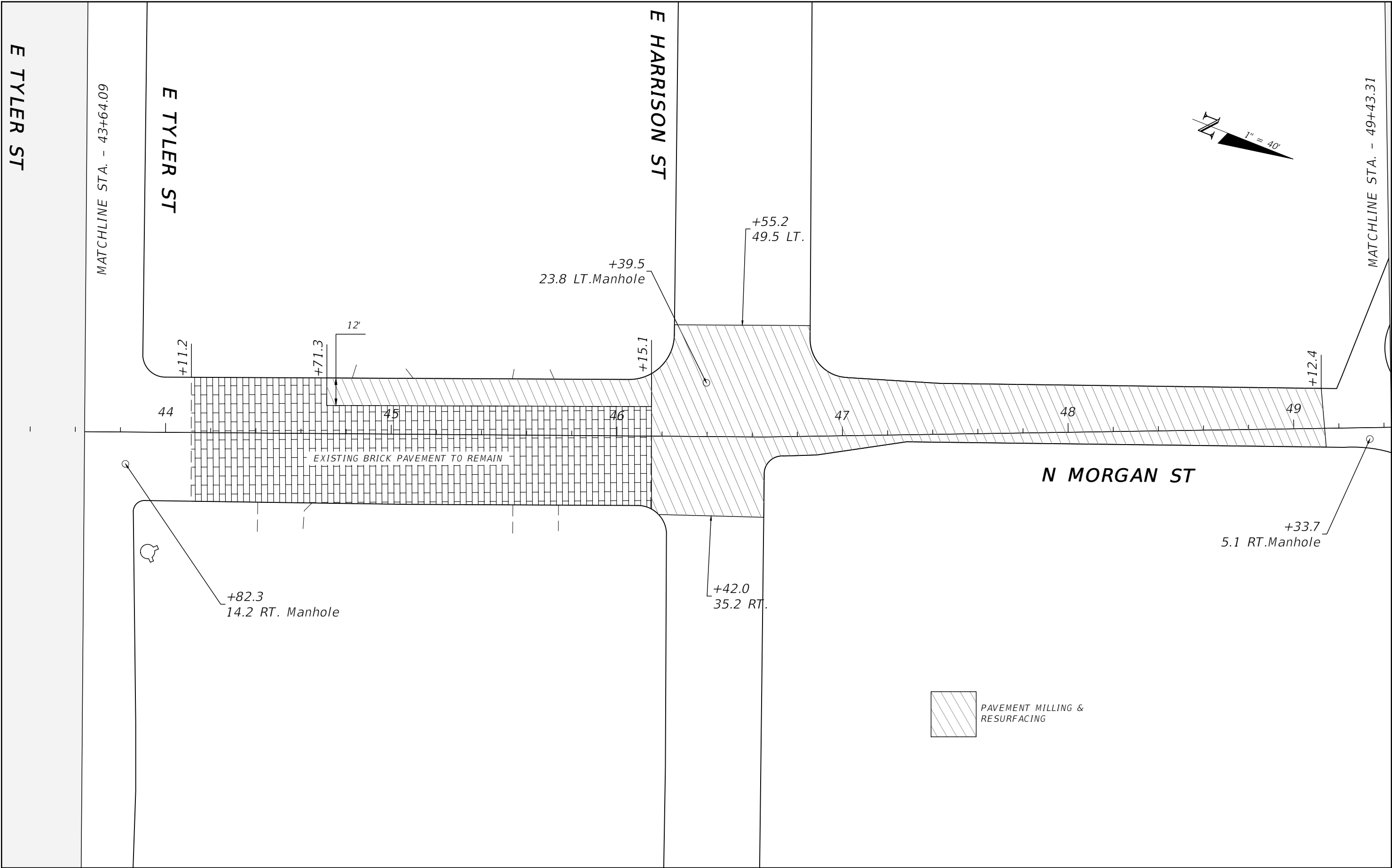
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----				MORGAN ST	HILLSBOROUGH	----		8



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

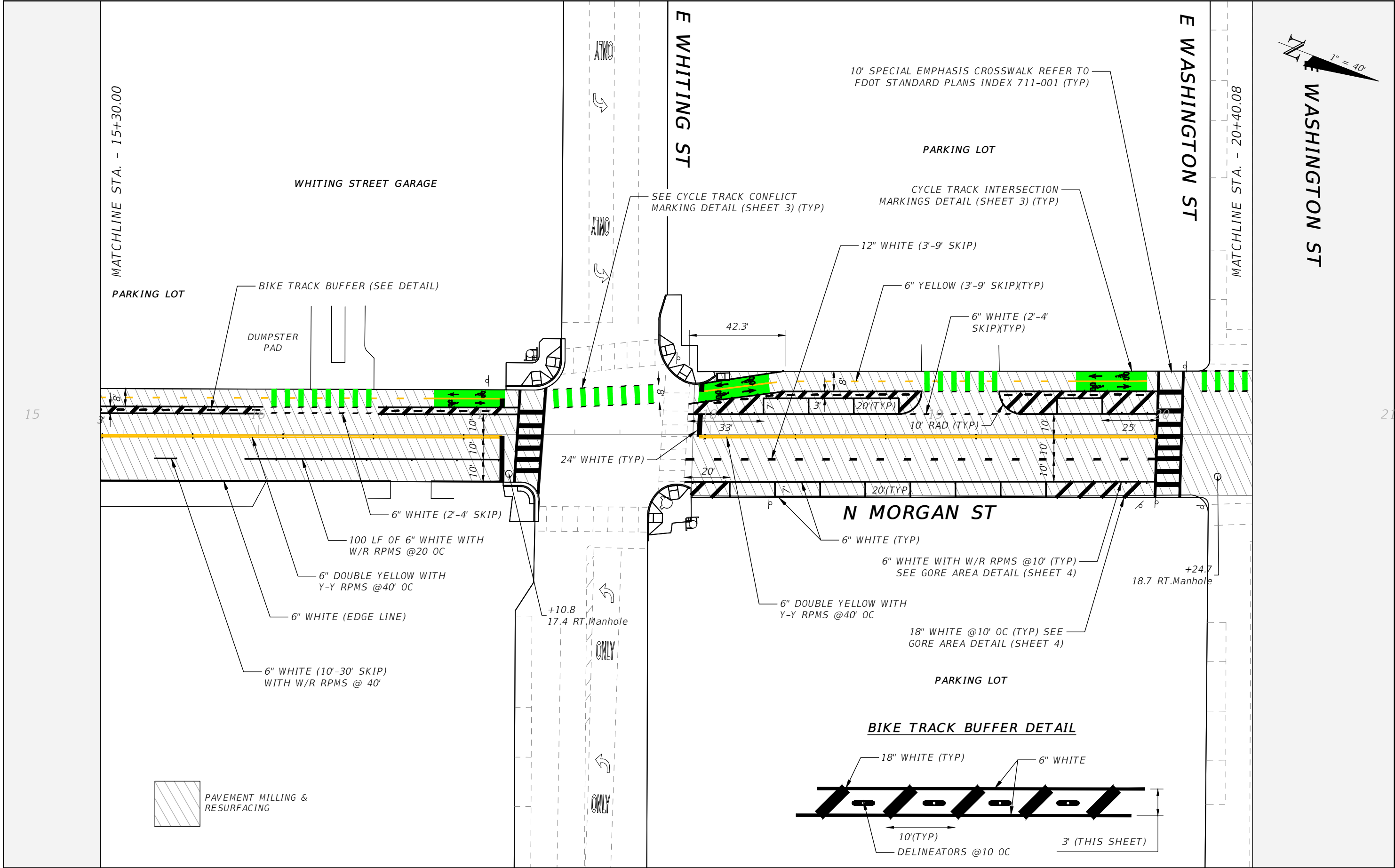


R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		MOBILITY DEPARTMENT				
----	----				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					MORGAN ST	HILLSBOROUGH	----		

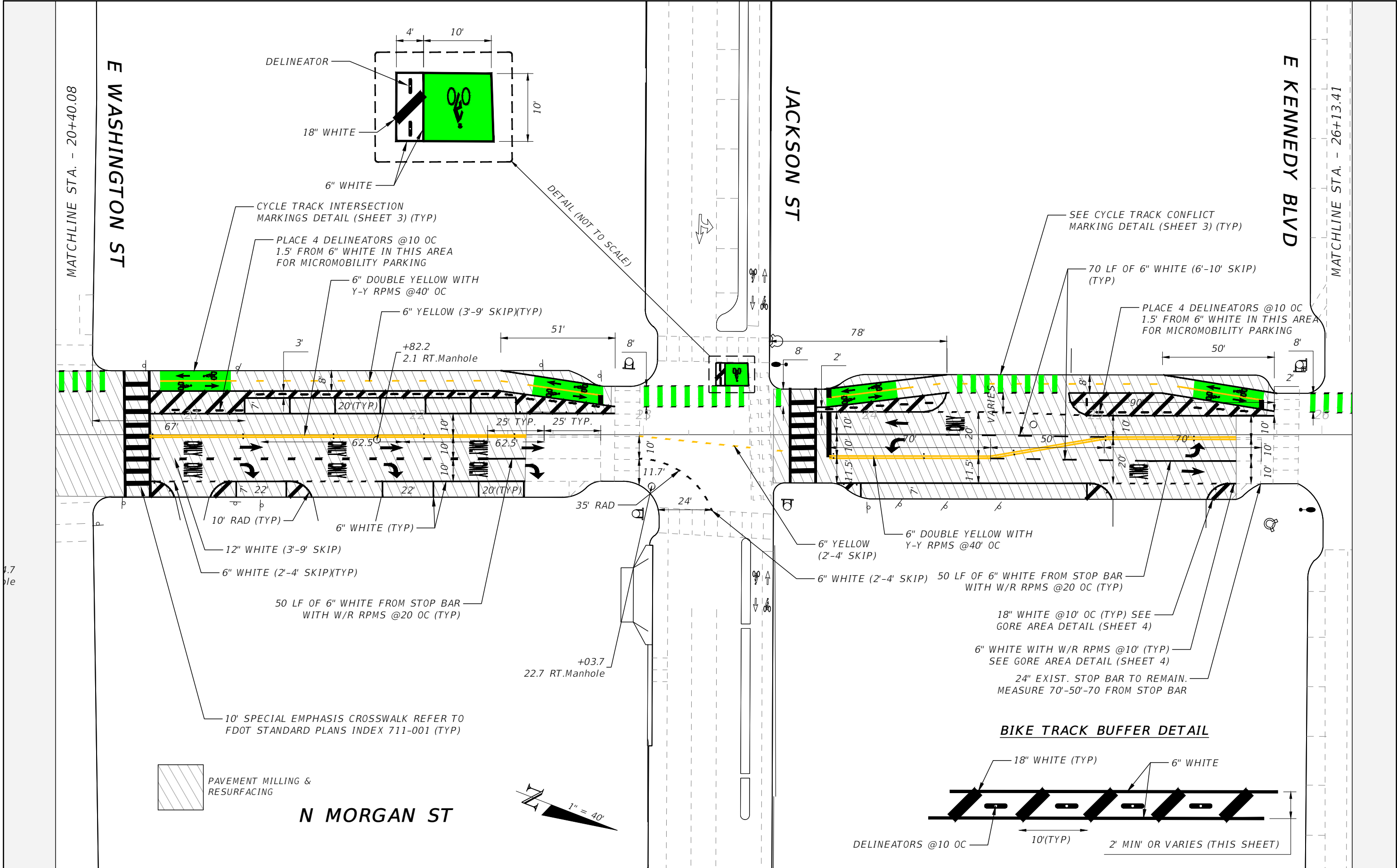


THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

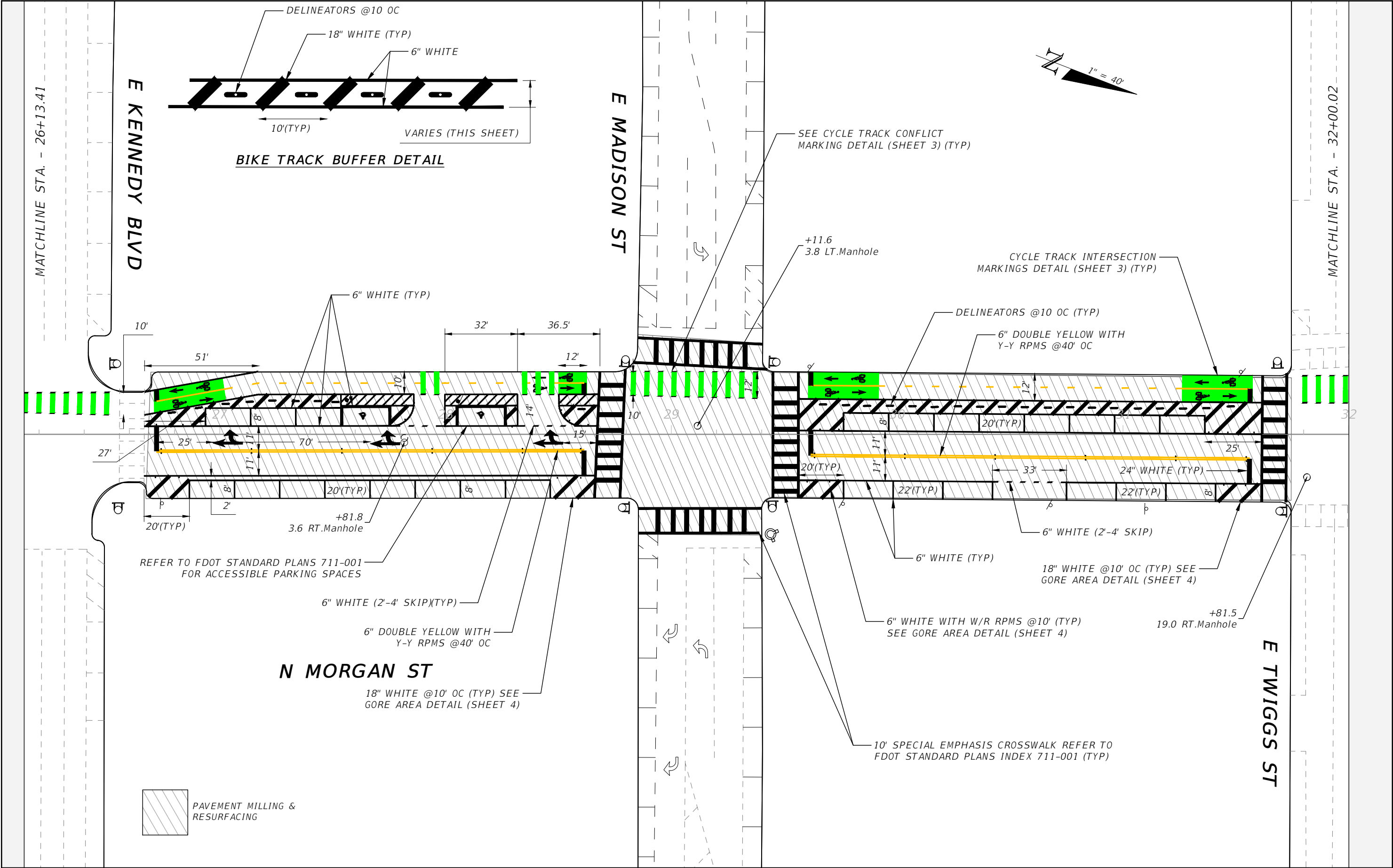
R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA			ROADWAY PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION <td colspan="3">MOBILITY DEPARTMENT</td>		MOBILITY DEPARTMENT				
----	----				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
					MORGAN ST	HILLSBOROUGH	----		



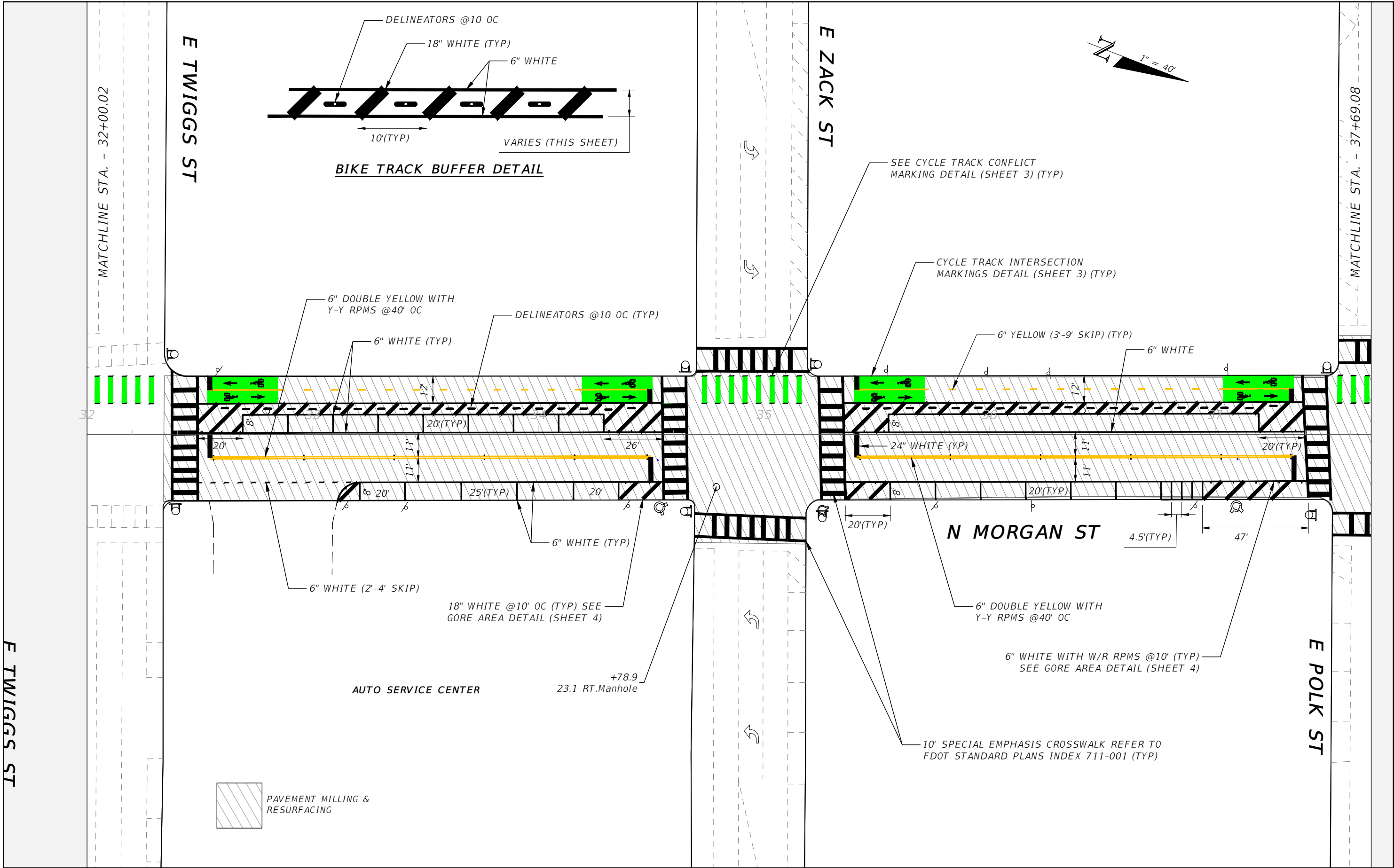
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO. 13
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		



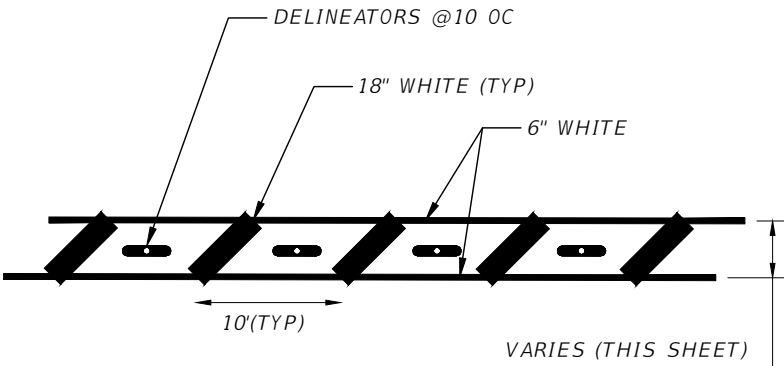
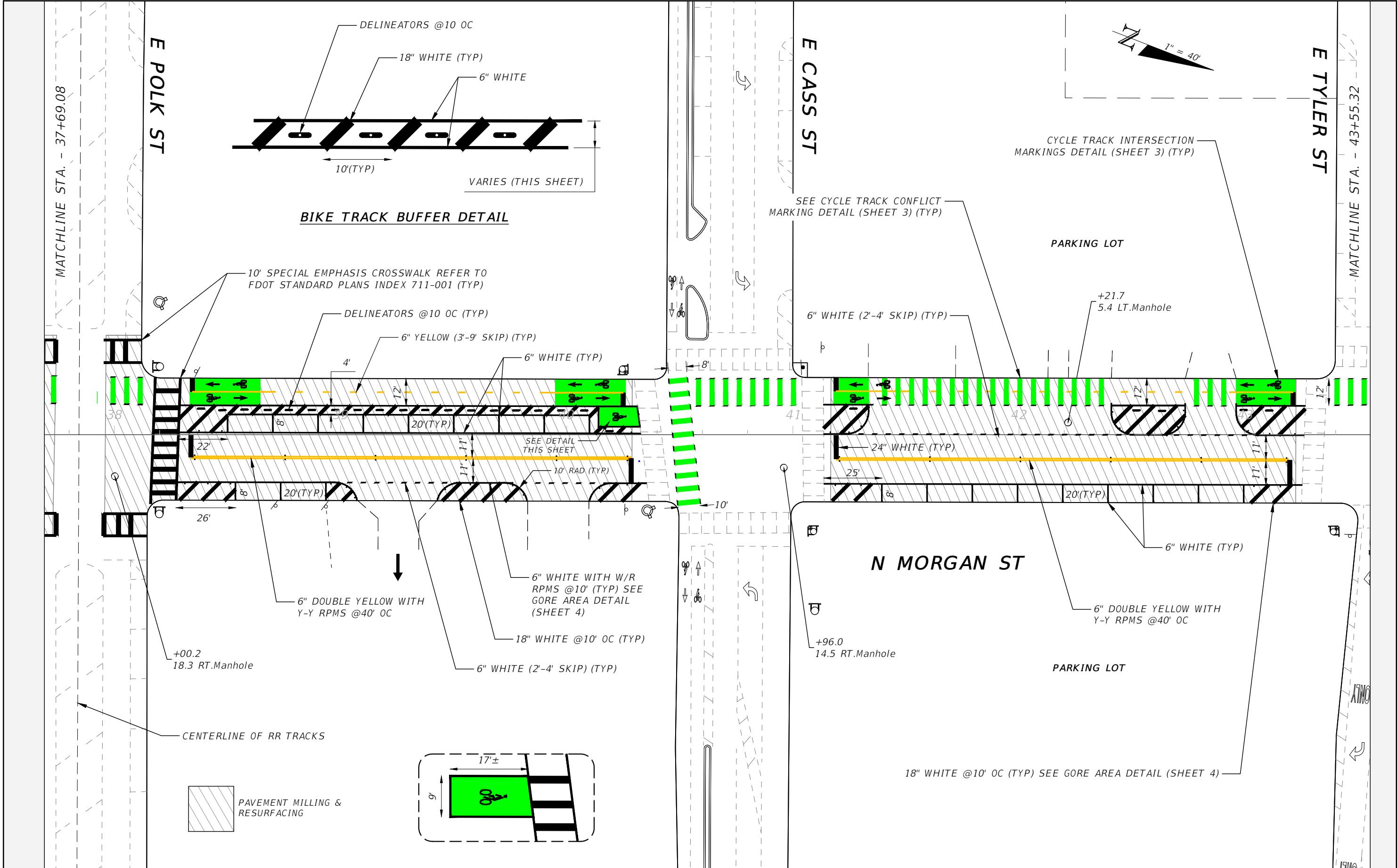
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT		PAVEMENT MARKING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----	14



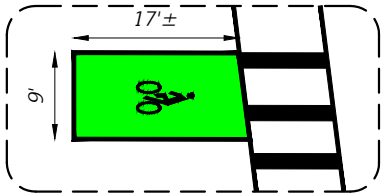
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO. 15
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		



REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		16
----	----				MORGAN ST	HILLSBOROUGH	----		

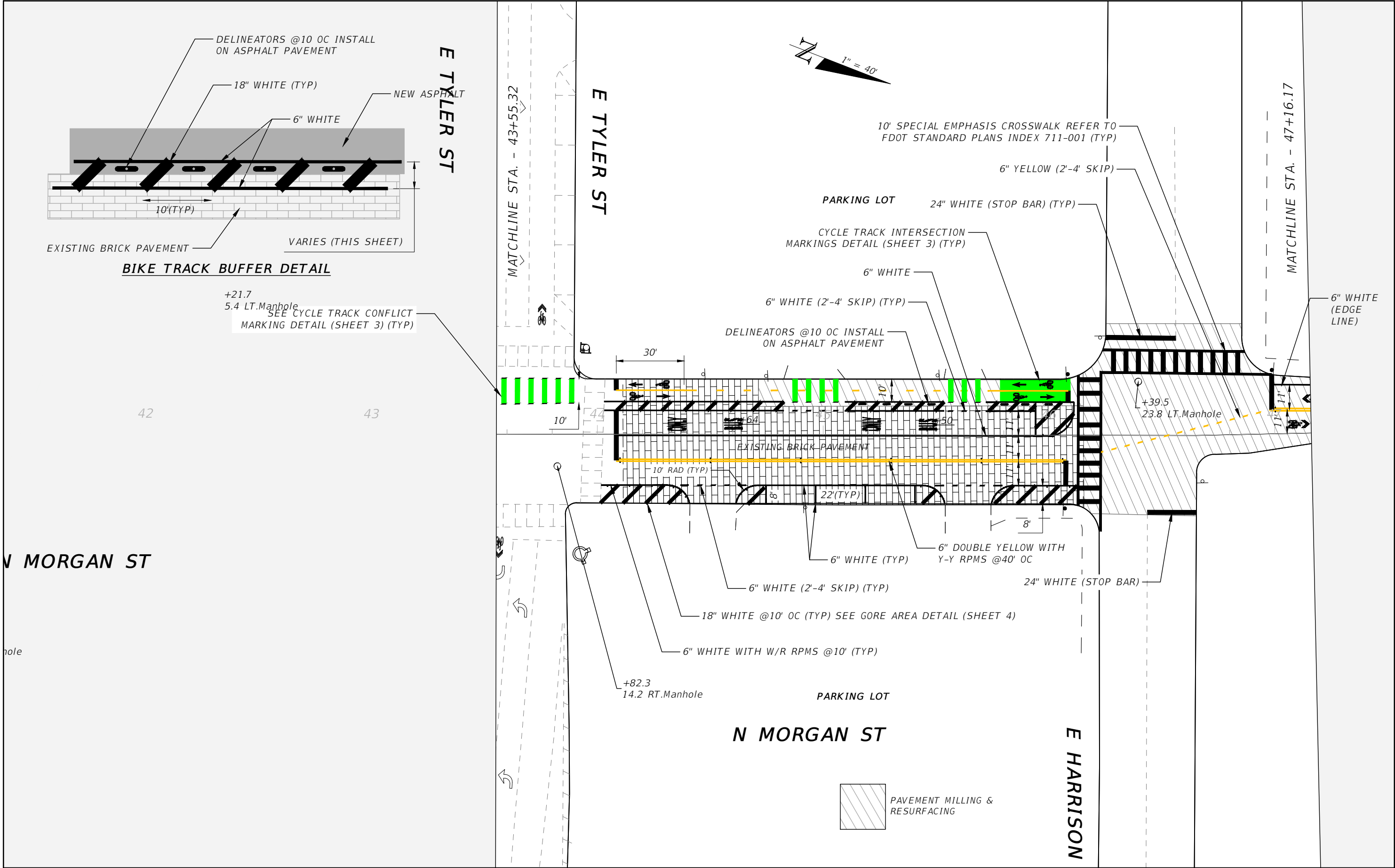


BIKE TRACK BUFFER DETAIL

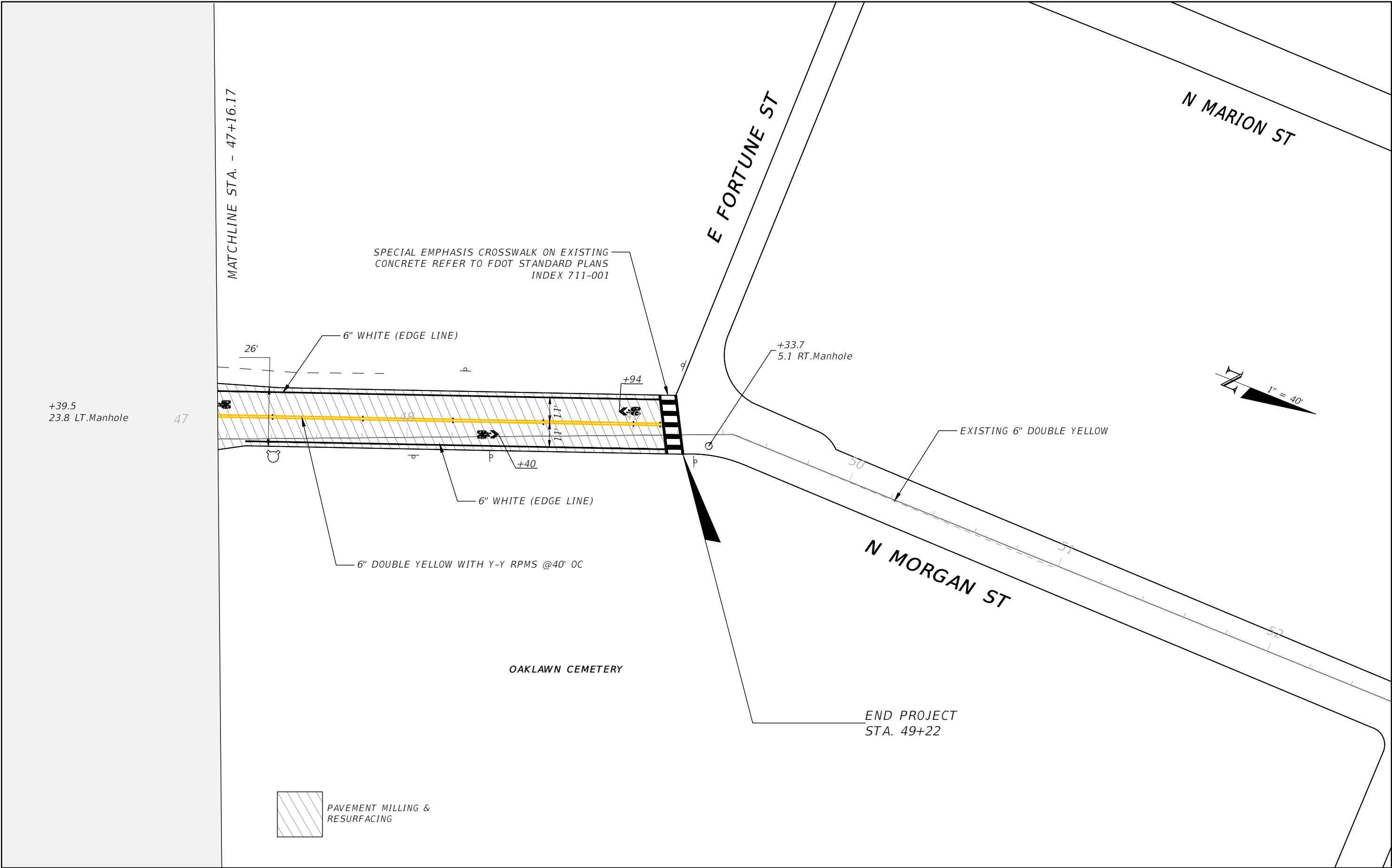


REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----				MORGAN ST	HILLSBOROUGH	----		17

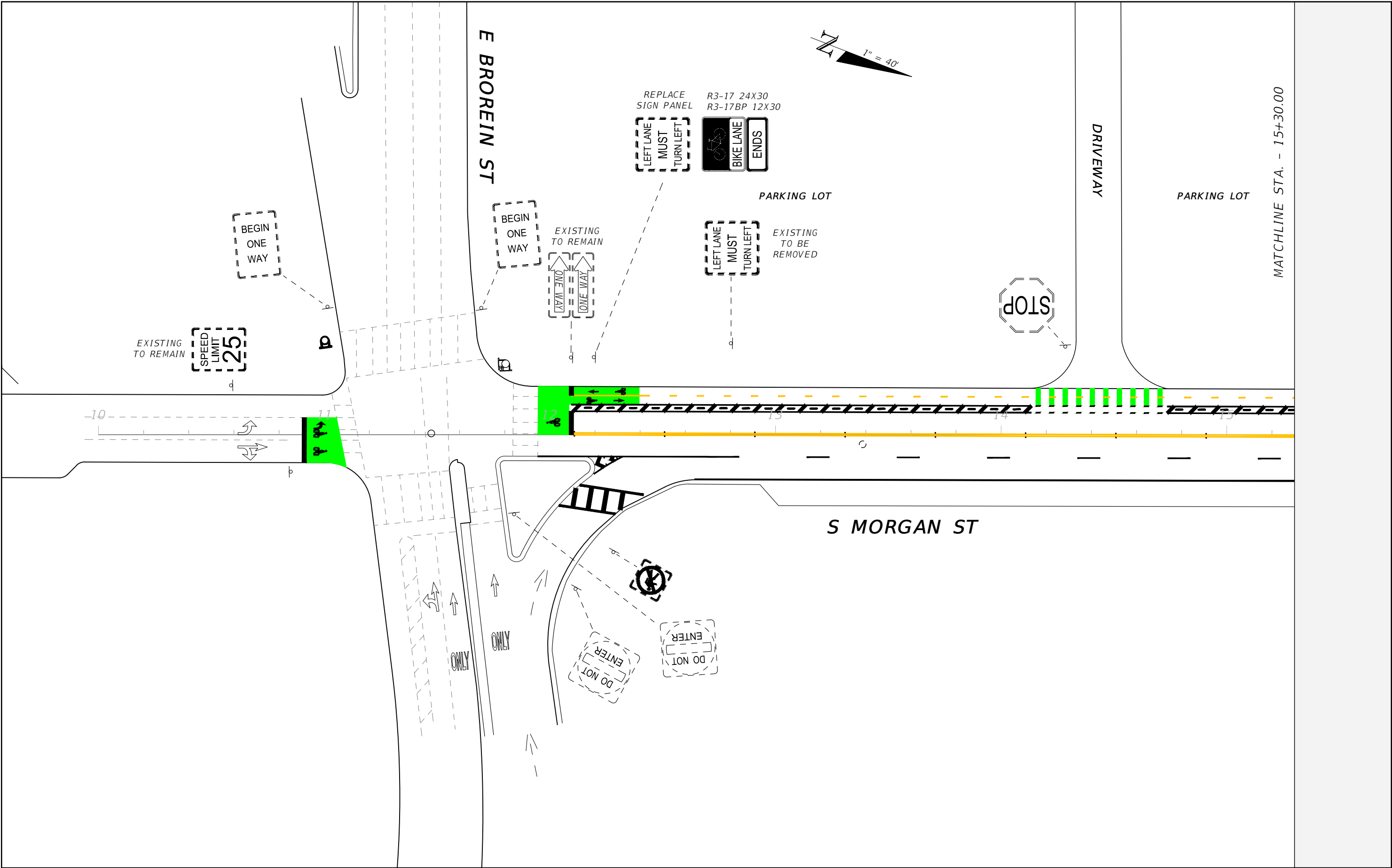
THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



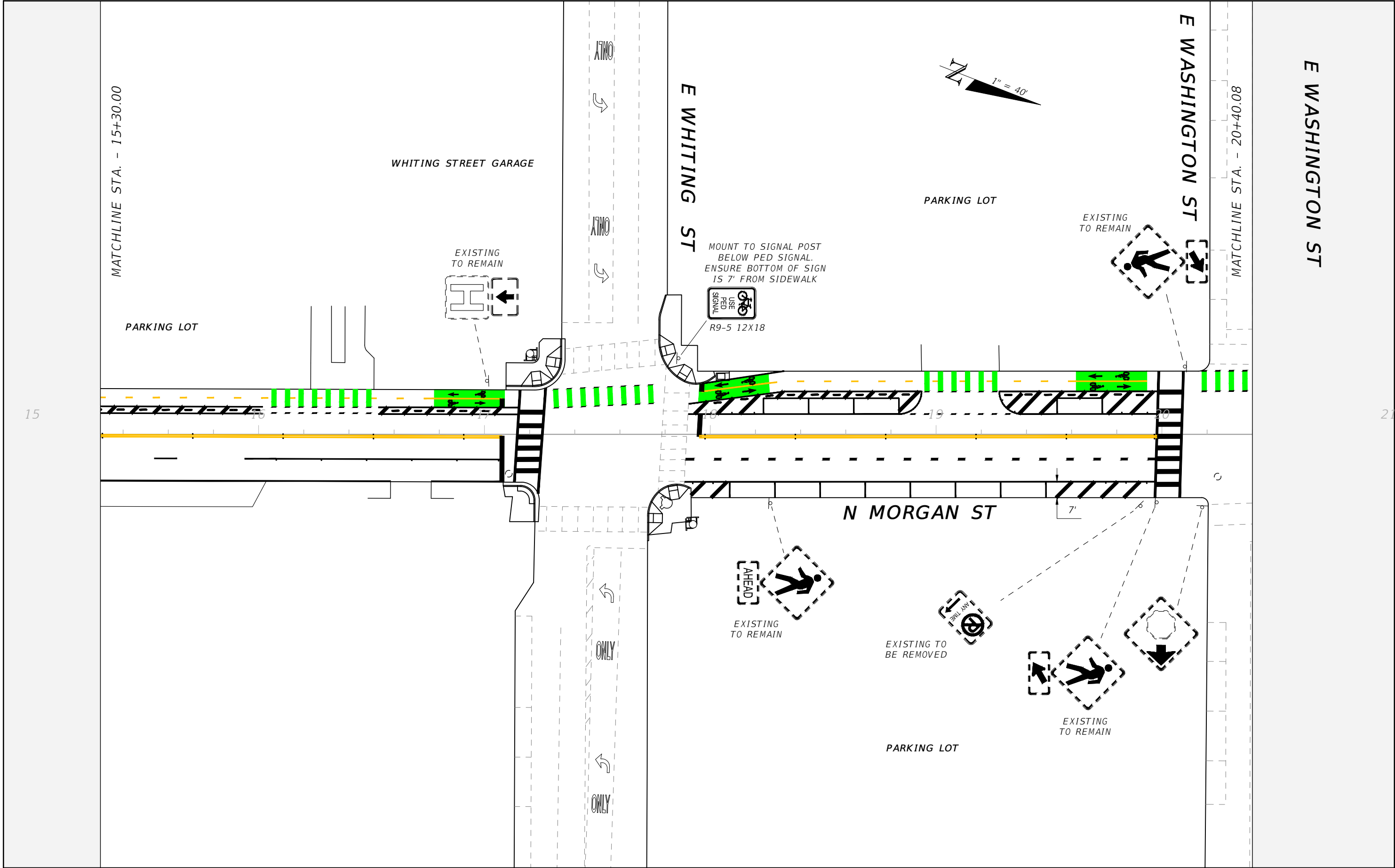
R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		18
----	----				MORGAN ST	HILLSBOROUGH	----		



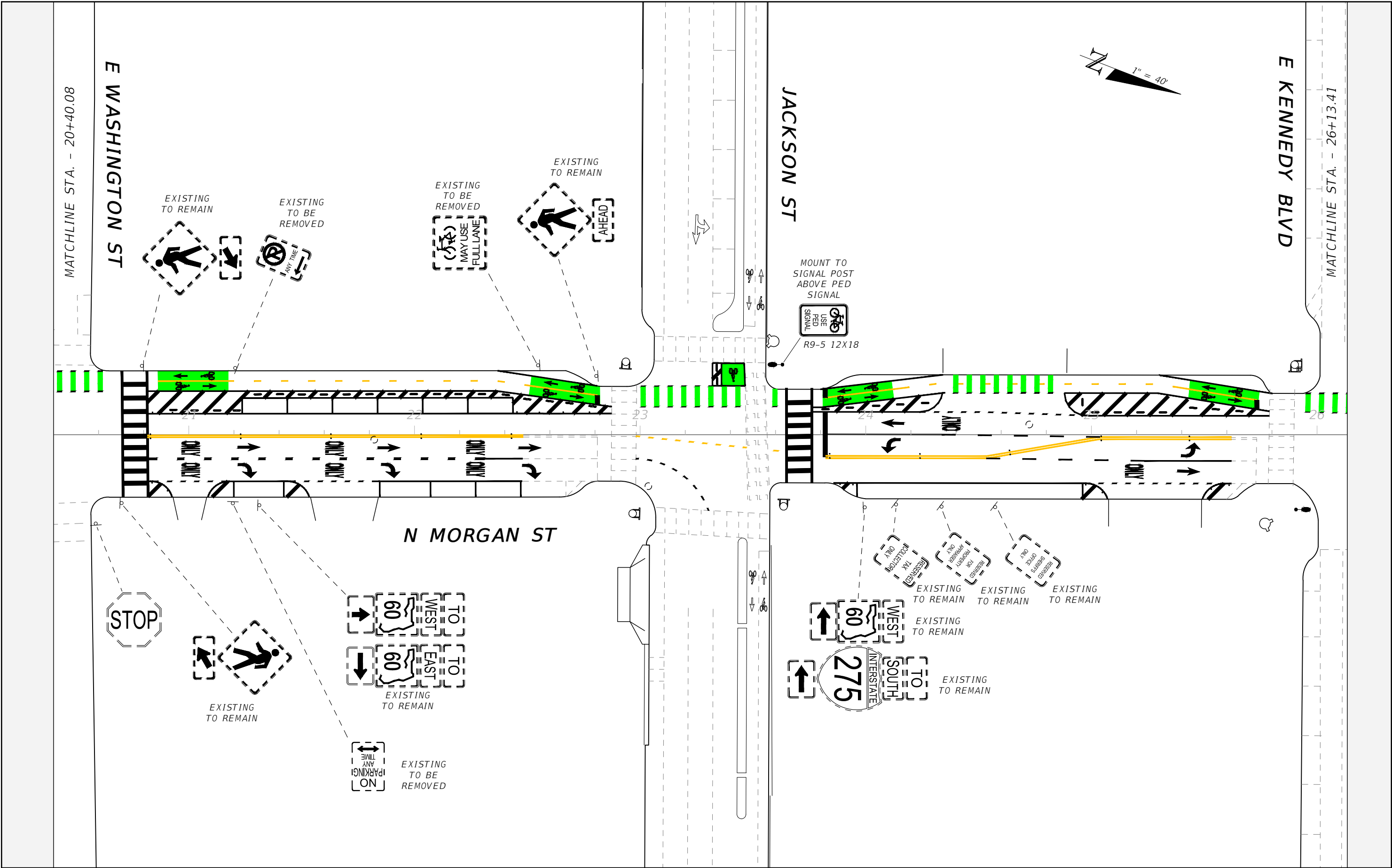
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			PAVEMENT MARKING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		19
----	----				MORGAN ST	HILLSBOROUGH	----		



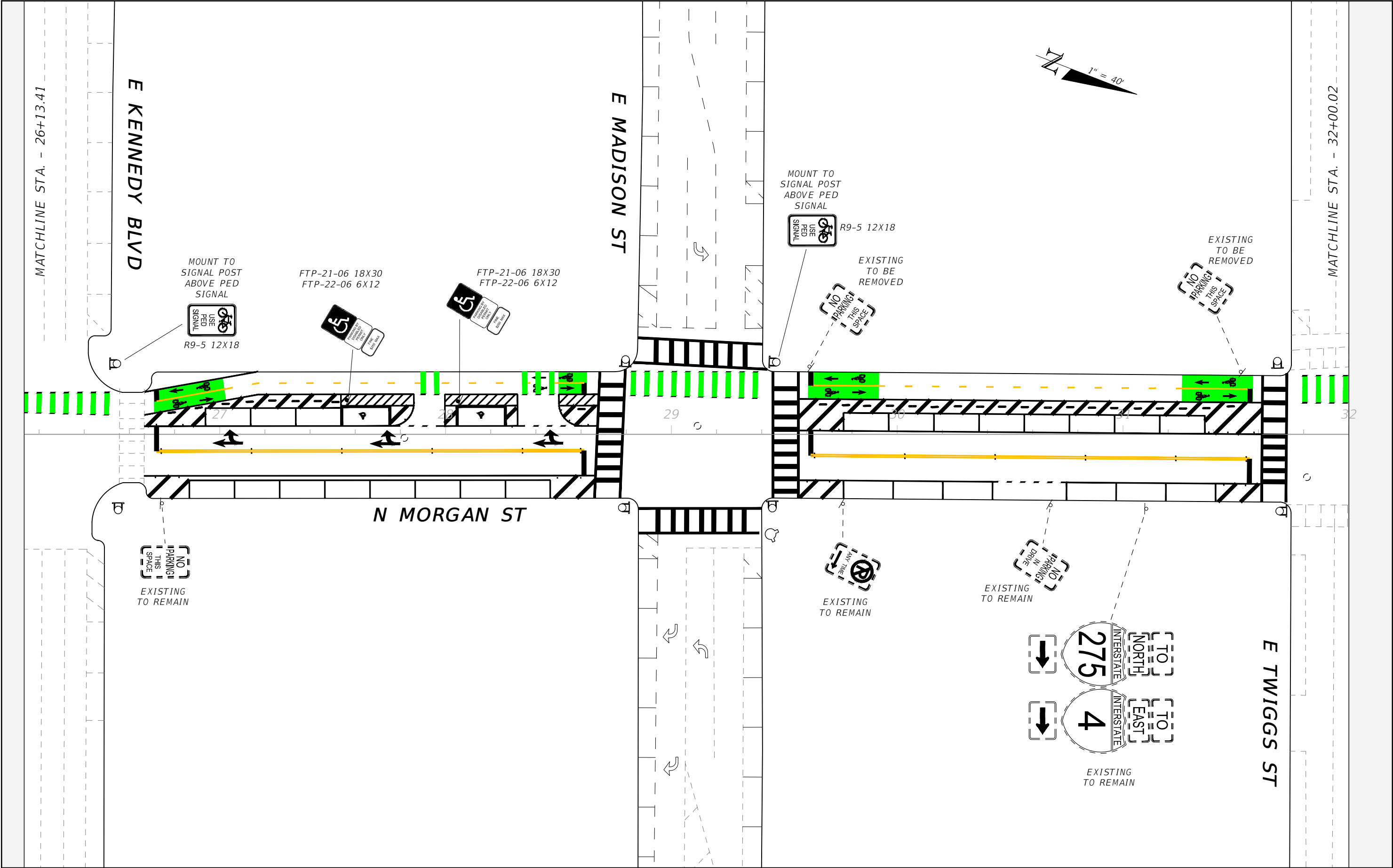
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION							
----	----	----	----		ROAD NO.	COUNTY	FINANCIAL PROJECT ID			
					MORGAN ST	HILLSBOROUGH	----			20



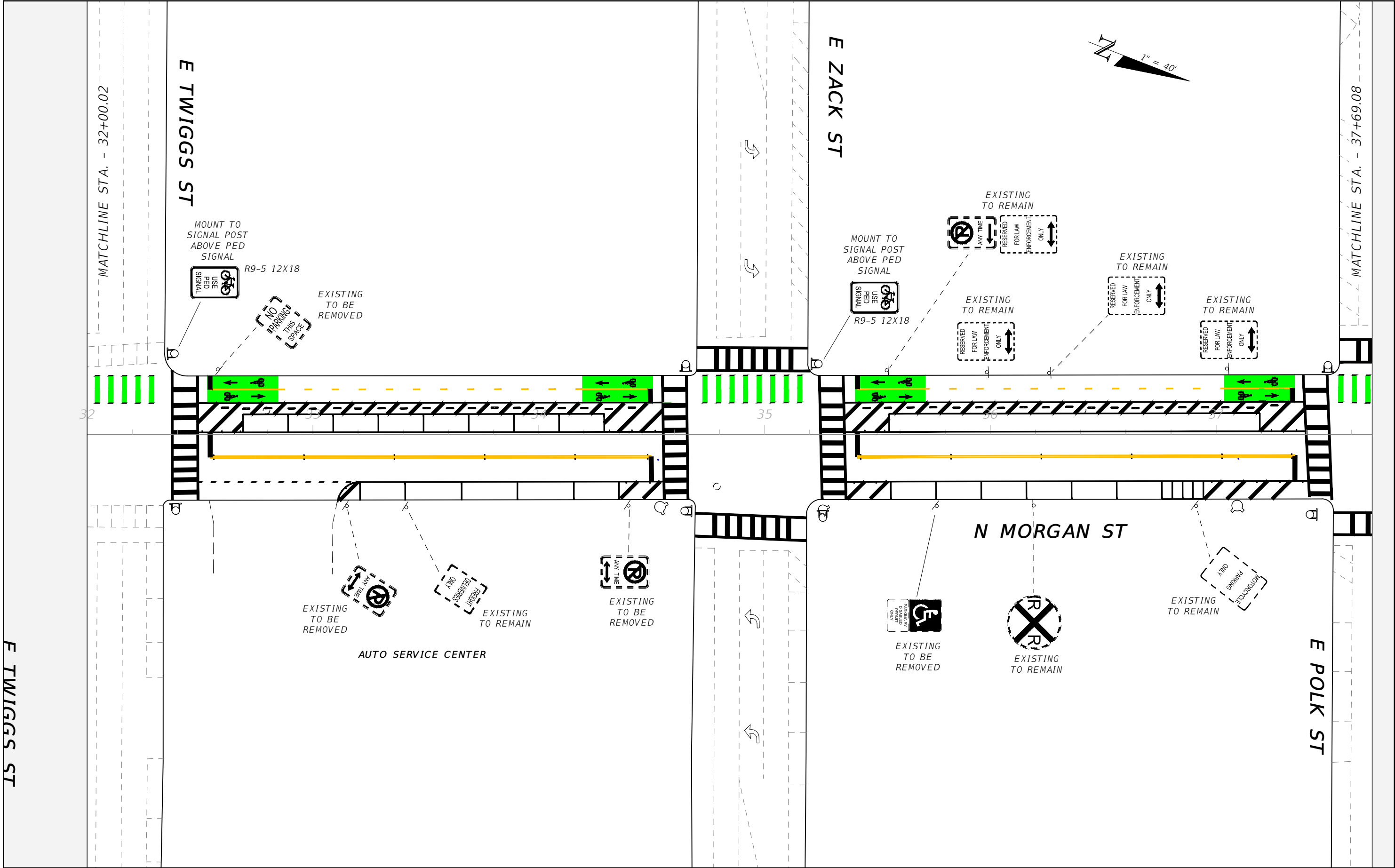
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		21



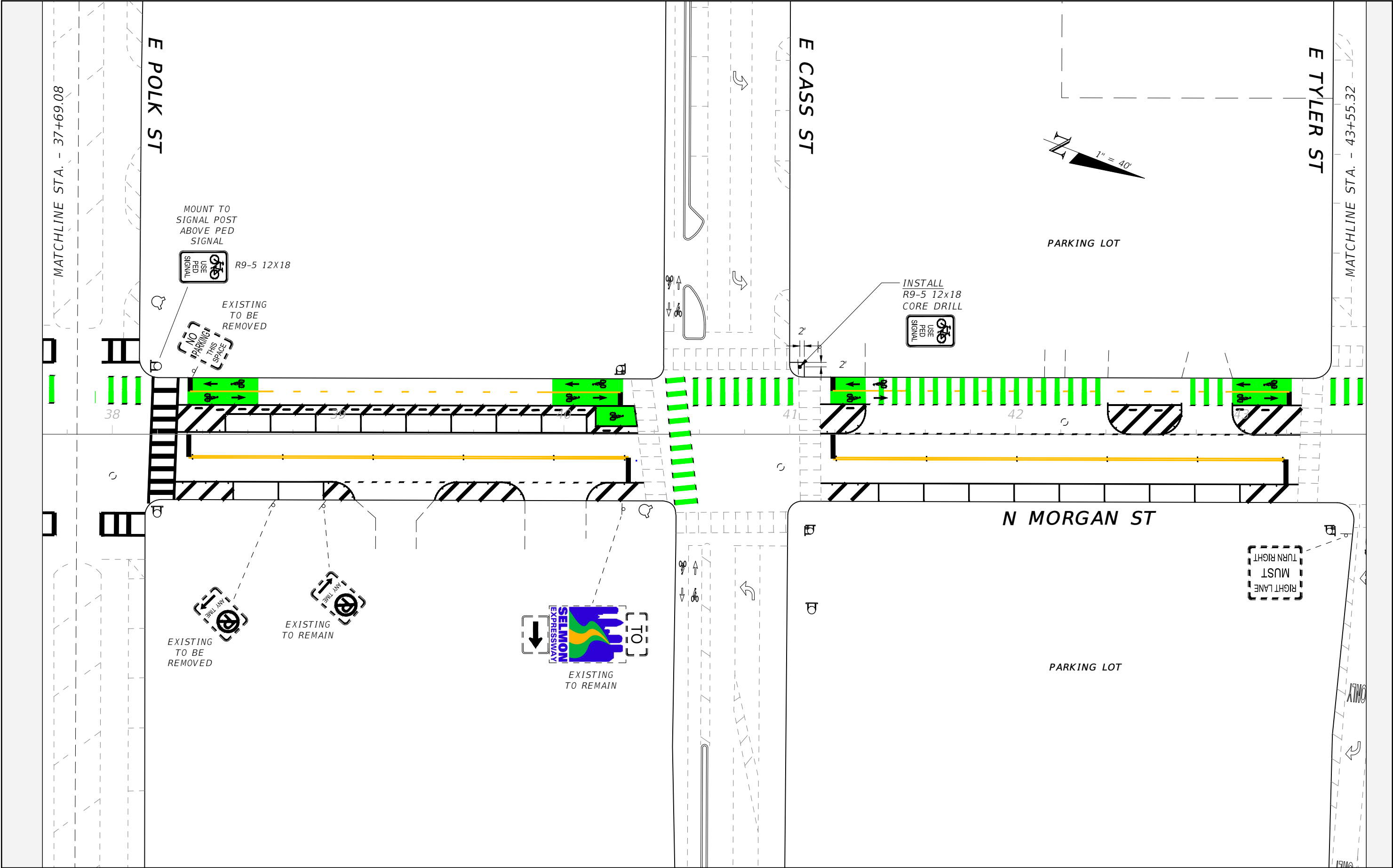
R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		22
----	----				MORGAN ST	HILLSBOROUGH	----		



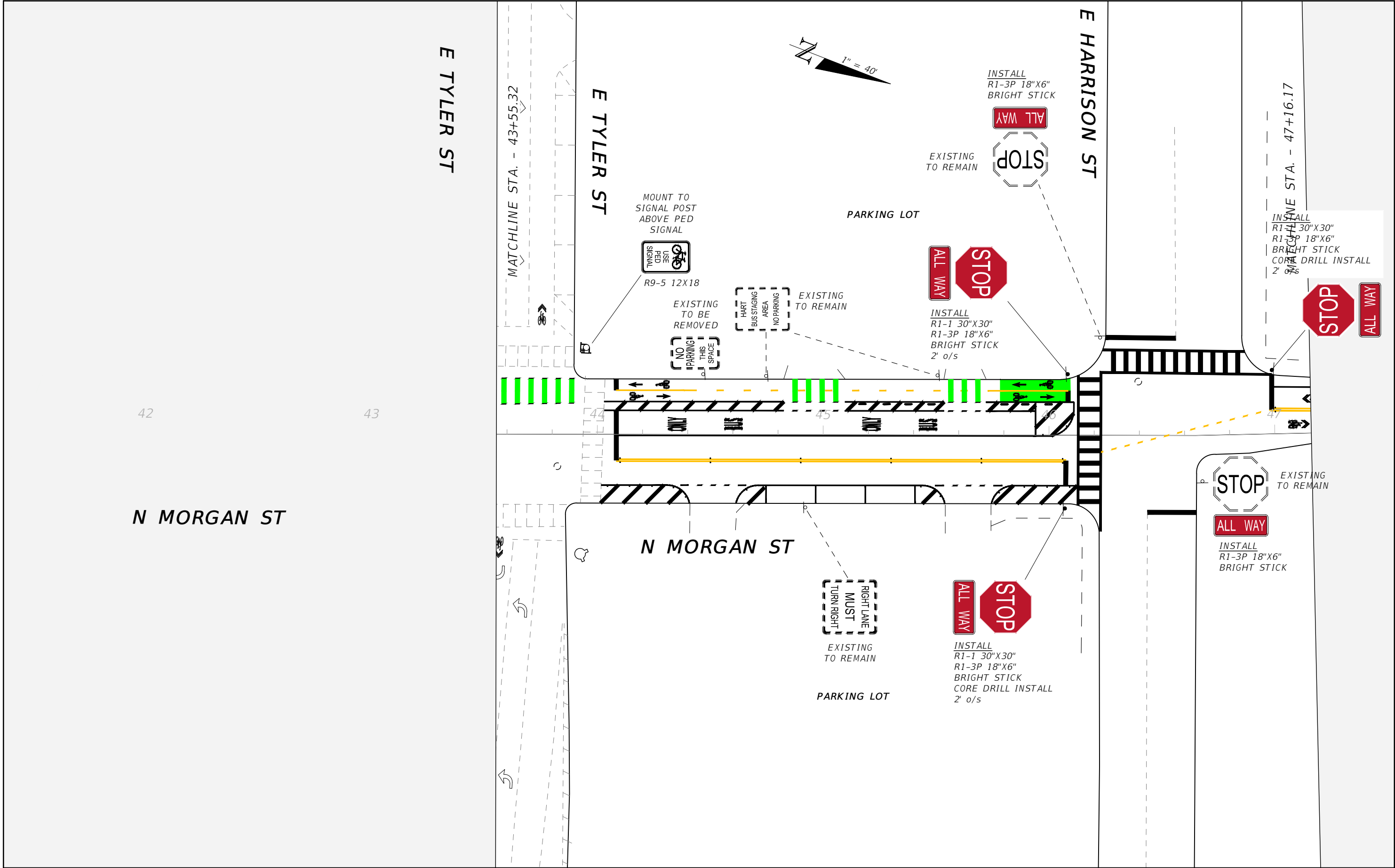
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		23



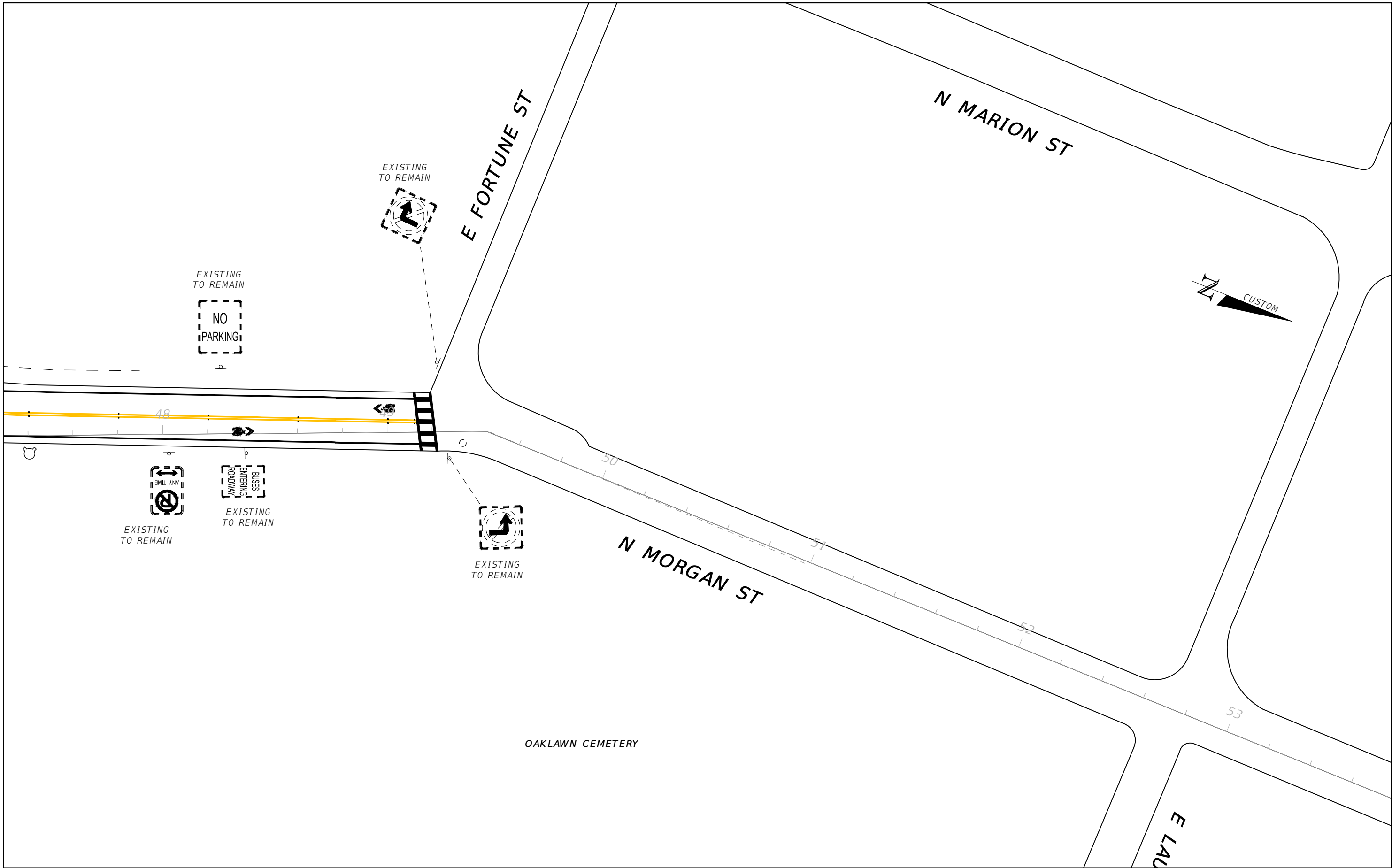
REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SHEET NO. 24
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	
----	----	----	----		MORGAN ST	HILLSBOROUGH	----	



R E V I S I O N S				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		25
----	----				MORGAN ST	HILLSBOROUGH	----		

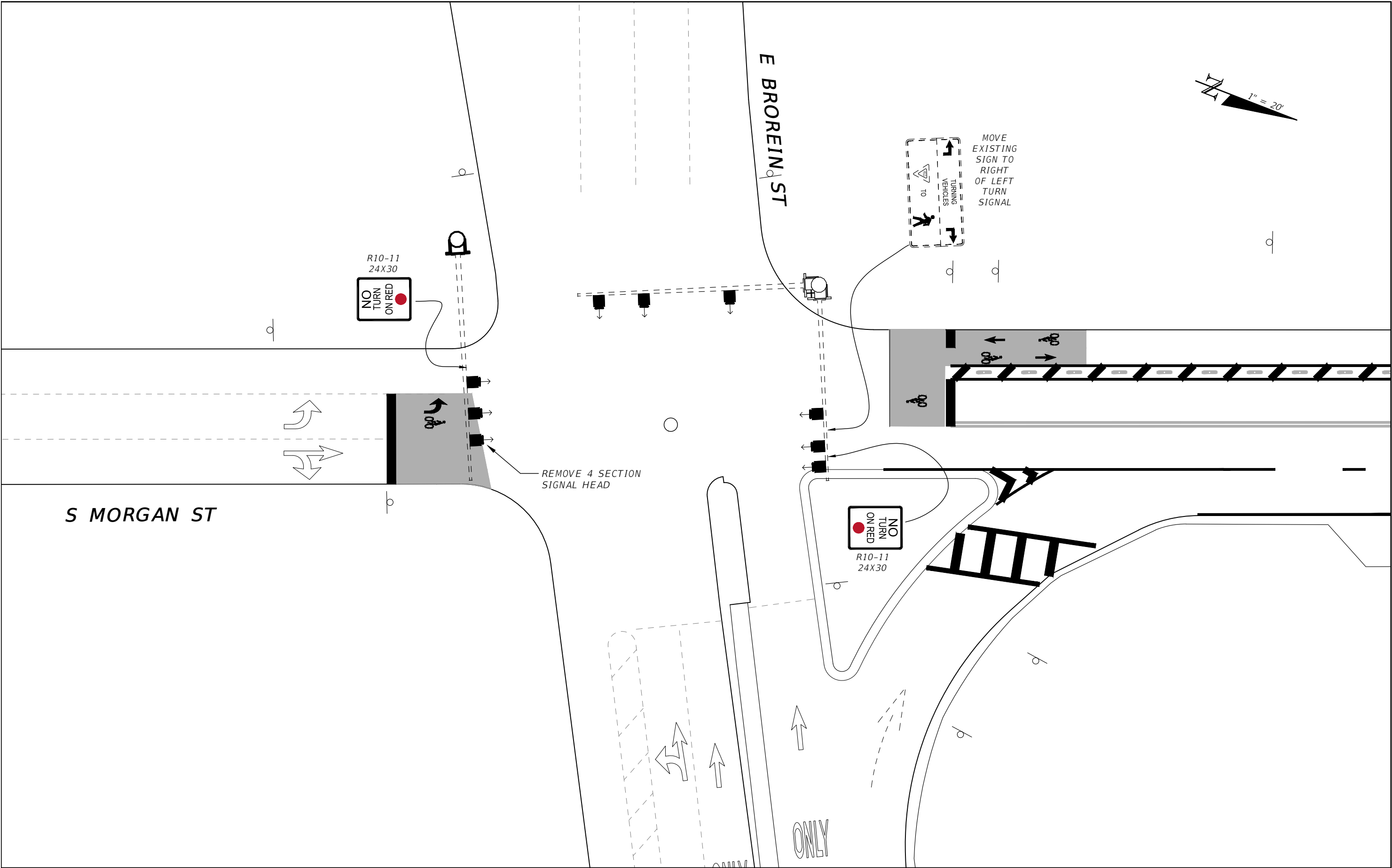


REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
----	----	----	----		MORGAN ST	HILLSBOROUGH	----		26



THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			SIGNING PLAN	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		27
----	----				MORGAN ST	HILLSBOROUGH	----		



REVISIONS				TIMOTHY ARTHUR HORST, P.E. P.E. LICENSE NUMBER 94091 CITY OF TAMPA 306 E. JACKSON ST TAMPA, FL 33602 CERTIFICATE OF AUTHORIZATION ----	CITY OF TAMPA MOBILITY DEPARTMENT			<i>SIGNAL PLAN</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID		28
----	----				MORGAN ST	HILLSBOROUGH	----		

APPENDIX B

Synchro Reports

AM Peak Existing
1: Morgan St & Brorein St

07/01/2025

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑		↑	↑	
Traffic Volume (vph)	0	0	0	15	1311	177	141	51	6	21	54	87
Future Volume (vph)	0	0	0	15	1311	177	141	51	6	21	54	87
Satd. Flow (prot)	0	0	0	0	4938	0	1770	1806	0	1770	1611	0
Flt Permitted							0.659			0.643		
Satd. Flow (perm)	0	0	0	0	4931	0	1169	1806	0	1099	1611	0
Satd. Flow (RTOR)					20			4			61	
Lane Group Flow (vph)	0	0	0	0	1633	0	153	62	0	23	154	0
Turn Type				Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases					8		5	2		1	6	
Permitted Phases				8			2			6		
Total Split (s)				69.0	69.0		20.0	53.0		28.0	61.0	
Total Lost Time (s)					6.0		5.4	5.7		5.4	5.7	
Act Effct Green (s)					63.0		62.2	47.3		75.6	55.3	
Actuated g/C Ratio					0.42		0.41	0.32		0.50	0.37	
v/c Ratio					0.78		0.28	0.11		0.04	0.24	
Control Delay					40.5		22.4	34.7		19.7	22.2	
Queue Delay					0.0		0.0	0.0		0.0	0.0	
Total Delay					40.5		22.4	34.7		19.7	22.2	
LOS					D		C	C		B	C	
Approach Delay					40.5			26.0			21.9	
Approach LOS					D			C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 81 (54%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 37.3

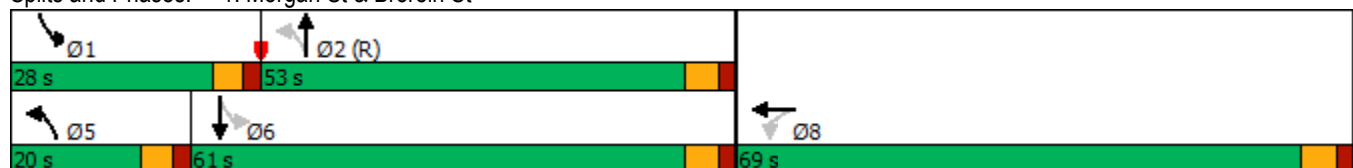
Intersection LOS: D

Intersection Capacity Utilization 73.3%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Morgan St & Brorein St



AM Peak Existing
2: Morgan St & Cass St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	112	12	36	201	12	11	67	7	9	56	7
Future Volume (vph)	14	112	12	36	201	12	11	67	7	9	56	7
Satd. Flow (prot)	1770	1831	0	1770	1845	0	0	3112	0	0	3446	0
Flt Permitted	0.605			0.671				0.929			0.930	
Satd. Flow (perm)	1114	1831	0	1233	1845	0	0	2899	0	0	3214	0
Satd. Flow (RTOR)		9			5			8			8	
Lane Group Flow (vph)	15	135	0	39	231	0	0	93	0	0	79	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	37.0	37.0		37.0	37.0		38.0	38.0		38.0	38.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.7			5.7	
Act Effect Green (s)	31.0	31.0		31.0	31.0			32.3			32.3	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.43			0.43	
v/c Ratio	0.03	0.18		0.08	0.30			0.07			0.06	
Control Delay	13.5	13.8		13.9	15.8			18.4			10.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.5	13.8		13.9	15.8			18.4			10.3	
LOS	B	B		B	B			B			B	
Approach Delay		13.7			15.5			18.4			10.3	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 45 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 14.8

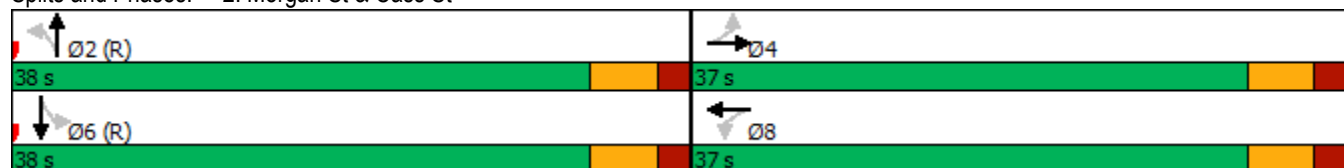
Intersection LOS: B

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Morgan St & Cass St



AM Peak Existing
4: Morgan St & Tyler St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	19	32	14	12	5	19	95	15	1	68	19
Future Volume (vph)	5	19	32	14	12	5	19	95	15	1	68	19
Satd. Flow (prot)	1770	1658	0	1770	1771	0	0	3433	0	0	3376	0
Flt Permitted	0.746			0.720				0.916			0.954	
Satd. Flow (perm)	1368	1658	0	1321	1771	0	0	3155	0	0	3223	0
Satd. Flow (RTOR)		35			5			16			21	
Lane Group Flow (vph)	5	56	0	15	18	0	0	140	0	0	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	29.3	29.3		29.3	29.3			34.3			34.3	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.46			0.46	
v/c Ratio	0.01	0.08		0.03	0.03			0.10			0.06	
Control Delay	14.2	8.0		14.4	11.9			7.6			9.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.2	8.0		14.4	11.9			7.6			9.3	
LOS	B	A		B	B			A			A	
Approach Delay		8.5			13.1			7.6			9.3	
Approach LOS		A			B			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.10

Intersection Signal Delay: 8.8

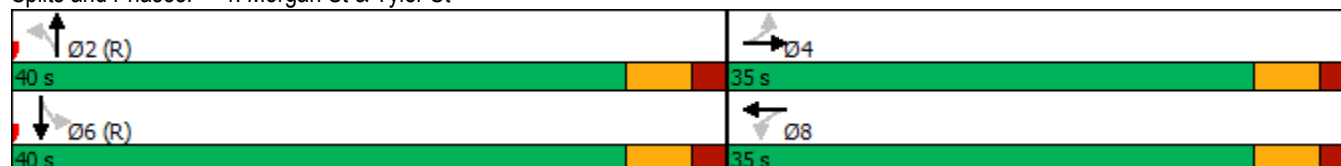
Intersection LOS: A

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Morgan St & Tyler St



AM Peak Existing
6: Morgan St & Polk St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	12	6	0	24	6	20	138	3	5	105	13
Future Volume (vph)	3	12	6	0	24	6	20	138	3	5	105	13
Satd. Flow (prot)	0	1761	0	0	1798	0	0	3154	0	0	3111	0
Flt Permitted		0.979						0.919			0.948	
Satd. Flow (perm)	0	1731	0	0	1798	0	0	2909	0	0	2953	0
Satd. Flow (RTOR)		7			7			3			14	
Lane Group Flow (vph)	0	23	0	0	33	0	0	175	0	0	133	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effct Green (s)		21.3			21.3			42.3			42.3	
Actuated g/C Ratio		0.28			0.28			0.56			0.56	
v/c Ratio		0.05			0.06			0.11			0.08	
Control Delay		16.0			17.0			5.4			4.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.0			17.0			5.4			4.7	
LOS		B			B			A			A	
Approach Delay		16.0			17.0			5.4			4.7	
Approach LOS		B			B			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 57 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 6.9

Intersection LOS: A

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Morgan St & Polk St



AM Peak Existing
9: Morgan St & Zach St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	40	4	6	24	15	13	81	33	8	75	9
Future Volume (vph)	4	40	4	6	24	15	13	81	33	8	75	9
Satd. Flow (prot)	1770	1834	0	1770	1738	0	0	3007	0	0	3108	0
Flt Permitted	0.730			0.726				0.933			0.937	
Satd. Flow (perm)	1339	1834	0	1332	1738	0	0	2812	0	0	2917	0
Satd. Flow (RTOR)		4			16			36			10	
Lane Group Flow (vph)	4	47	0	7	42	0	0	138	0	0	101	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	21.3	21.3		21.3	21.3			42.3			42.3	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.56			0.56	
v/c Ratio	0.01	0.09		0.02	0.08			0.09			0.06	
Control Delay	19.5	19.1		19.7	14.6			13.3			2.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.5	19.1		19.7	14.6			13.3			2.6	
LOS	B	B		B	B			B			A	
Approach Delay		19.1			15.3			13.3			2.6	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 67 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.09

Intersection Signal Delay: 11.3

Intersection LOS: B

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Morgan St & Zach St



AM Peak Existing
12: Morgan St & Twiggs St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Future Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Satd. Flow (prot)	0	3501	0	0	3482	0	0	3092	0	0	3146	0
Flt Permitted		0.917			0.944			0.933			0.925	
Satd. Flow (perm)	0	3218	0	0	3290	0	0	2893	0	0	2918	0
Satd. Flow (RTOR)		5			16			14			3	
Lane Group Flow (vph)	0	123	0	0	705	0	0	109	0	0	99	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effct Green (s)		39.3			39.3			24.3			24.3	
Actuated g/C Ratio		0.52			0.52			0.32			0.32	
v/c Ratio		0.07			0.41			0.12			0.10	
Control Delay		8.6			11.4			7.2			17.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.6			11.4			7.2			17.6	
LOS		A			B			A			B	
Approach Delay		8.6			11.4			7.2			17.6	
Approach LOS		A			B			A			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 28 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 11.2

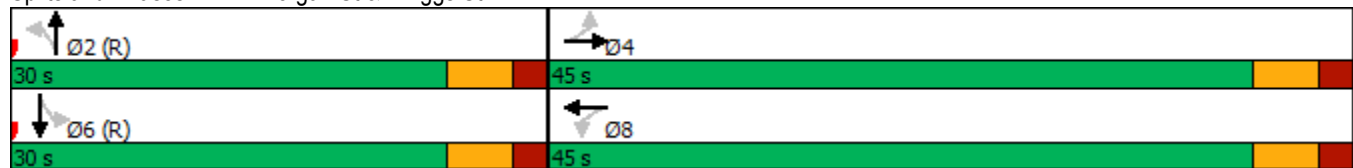
Intersection LOS: B

Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Morgan St & Twiggs St



AM Peak Existing
15: Morgan St & Madison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	23	19	4	20	3	14	65	7	4	89	15
Future Volume (vph)	1	23	19	4	20	3	14	65	7	4	89	15
Satd. Flow (prot)	1770	1714	0	1770	1823	0	0	3106	0	0	3089	0
Flt Permitted	0.741			0.727				0.919			0.950	
Satd. Flow (perm)	1359	1714	0	1334	1823	0	0	2867	0	0	2938	0
Satd. Flow (RTOR)		21			3			8			16	
Lane Group Flow (vph)	1	46	0	4	25	0	0	94	0	0	117	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	21.3	21.3		21.3	21.3			42.3			42.3	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.56			0.56	
v/c Ratio	0.00	0.09		0.01	0.05			0.06			0.07	
Control Delay	19.0	13.5		19.5	18.3			13.2			3.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.0	13.5		19.5	18.3			13.2			3.3	
LOS	B	B		B	B			B			A	
Approach Delay		13.6			18.4			13.2			3.3	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 25 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.09

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 43.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Morgan St & Madison St



AM Peak Existing
18: Morgan St & Kennedy Blvd

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	88	1731	59	25	68	0	0	91	17
Future Volume (vph)	0	0	0	88	1731	59	25	68	0	0	91	17
Satd. Flow (prot)	0	0	0	0	6344	0	0	3493	0	0	3067	0
Flt Permitted					0.998			0.865				
Satd. Flow (perm)	0	0	0	0	6319	0	0	3006	0	0	3067	0
Satd. Flow (RTOR)					6						6	
Lane Group Flow (vph)	0	0	0	0	2042	0	0	101	0	0	117	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2				6
Permitted Phases				8			2					
Total Split (s)				83.0	83.0		67.0	67.0			67.0	
Total Lost Time (s)					5.7			5.7			5.7	
Act Effct Green (s)					77.3			61.3			61.3	
Actuated g/C Ratio					0.52			0.41			0.41	
v/c Ratio					0.63			0.08			0.09	
Control Delay					27.0			28.9			20.7	
Queue Delay					0.0			0.0			0.0	
Total Delay					27.0			28.9			20.7	
LOS					C			C			C	
Approach Delay					27.0			28.9			20.7	
Approach LOS					C			C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 69 (46%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 26.8

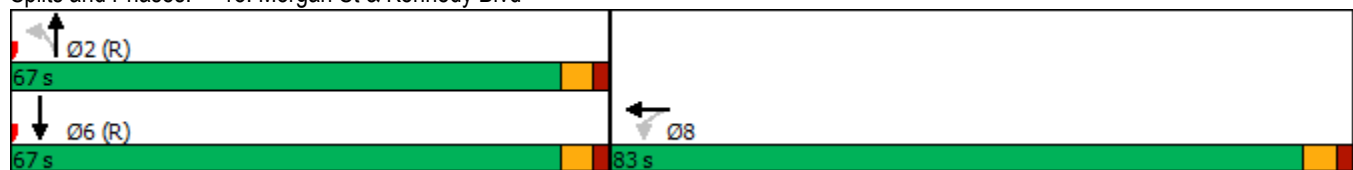
Intersection LOS: C

Intersection Capacity Utilization 52.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Morgan St & Kennedy Blvd



AM Peak Existing
21: Morgan St & Jackson St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	421	99	0	0	0	0	48	33	24	115	0
Future Volume (vph)	57	421	99	0	0	0	0	48	33	24	115	0
Satd. Flow (prot)	0	3378	0	0	0	0	0	3217	0	0	3507	0
Flt Permitted		0.995									0.896	
Satd. Flow (perm)	0	3353	0	0	0	0	0	3217	0	0	3139	0
Satd. Flow (RTOR)		27						36				
Lane Group Flow (vph)	0	628	0	0	0	0	0	88	0	0	151	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Total Split (s)	92.0	92.0						58.0		58.0	58.0	
Total Lost Time (s)		5.8						5.7			5.7	
Act Effct Green (s)		86.2						52.3			52.3	
Actuated g/C Ratio		0.57						0.35			0.35	
v/c Ratio		0.32						0.08			0.14	
Control Delay		16.4						21.4			39.3	
Queue Delay		0.0						0.0			0.0	
Total Delay		16.4						21.4			39.3	
LOS		B						C			D	
Approach Delay		16.4						21.4			39.3	
Approach LOS		B						C			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 88 (59%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 20.9

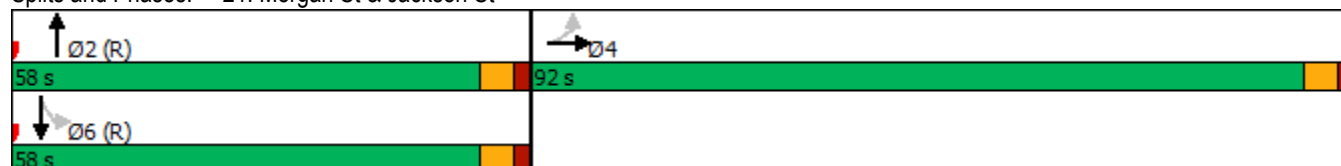
Intersection LOS: C

Intersection Capacity Utilization 46.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 21: Morgan St & Jackson St



AM Peak Existing
24: Morgan St & Whiting St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	62	27	117	170	9	76	75	33	11	105	34
Future Volume (vph)	17	62	27	117	170	9	76	75	33	11	105	34
Satd. Flow (prot)	1770	1764	0	1770	1845	0	0	3122	0	0	3134	0
Flt Permitted	0.635			0.563				0.768			0.929	
Satd. Flow (perm)	1168	1764	0	1036	1845	0	0	2423	0	0	2918	0
Satd. Flow (RTOR)		29			6			34			37	
Lane Group Flow (vph)	18	96	0	127	195	0	0	201	0	0	163	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	30.0	30.0		18.0	48.0		27.0	27.0		27.0	27.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	24.3	24.3		42.3	42.3			21.3			21.3	
Actuated g/C Ratio	0.32	0.32		0.56	0.56			0.28			0.28	
v/c Ratio	0.05	0.16		0.18	0.19			0.28			0.19	
Control Delay	18.0	14.1		8.4	8.3			21.2			17.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	18.0	14.1		8.4	8.3			21.2			17.2	
LOS	B	B		A	A			C			B	
Approach Delay		14.7			8.3			21.2			17.2	
Approach LOS		B			A			C			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.28

Intersection Signal Delay: 14.3

Intersection LOS: B

Intersection Capacity Utilization 63.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 24: Morgan St & Whiting St

 Ø2 (R)	 Ø3	 Ø4
27 s	18 s	30 s
 Ø6 (R)	 Ø8	
27 s	48 s	

AM Peak Existing
32: Morgan St & Washington St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Future Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Satd. Flow (prot)	0	1846	0	0	1837	0	0	3435	0	0	3495	0
Flt Permitted		0.960			0.990			0.934			0.925	
Satd. Flow (perm)	0	1777	0	0	1821	0	0	3218	0	0	3244	0
Satd. Flow (RTOR)		4			8			14			3	
Lane Group Flow (vph)	0	123	0	0	705	0	0	109	0	0	99	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.5			5.5			5.5			5.5	
Act Effect Green (s)		39.5			39.5			24.5			24.5	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		0.13			0.73			0.10			0.09	
Control Delay		9.2			19.2			9.8			11.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.2			19.2			9.8			11.6	
LOS		A			B			A			B	
Approach Delay		9.2			19.2			9.8			11.6	
Approach LOS		A			B			A			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 16.3

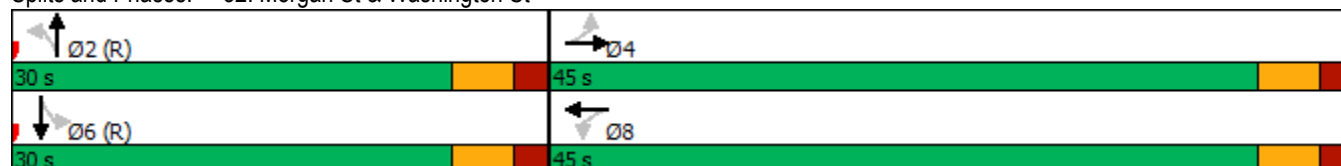
Intersection LOS: B

Intersection Capacity Utilization 68.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 32: Morgan St & Washington St



AM Peak Existing
40: Morgan St & Harrison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	12	9	17	24	6	16	48	19	4	40	17
Future Volume (vph)	5	12	9	17	24	6	16	48	19	4	40	17
Satd. Flow (prot)	0	1975	0	0	1846	0	0	1840	1583	0	1765	0
Flt Permitted		0.971			0.931			0.945			0.989	
Satd. Flow (perm)	0	1929	0	0	1742	0	0	1753	1523	0	1749	0
Satd. Flow (RTOR)		10			7				36		18	
Lane Group Flow (vph)	0	28	0	0	51	0	0	69	21	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Lost Time (s)		4.5			4.5			4.5	4.5		4.5	
Act Effect Green (s)		18.0			18.0			18.0	18.0		18.0	
Actuated g/C Ratio		0.40			0.40			0.40	0.40		0.40	
v/c Ratio		0.04			0.07			0.10	0.03		0.09	
Control Delay		6.8			7.9			9.0	2.8		7.1	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		6.8			7.9			9.0	2.8		7.1	
LOS		A			A			A	A		A	
Approach Delay		6.8			7.9			7.5			7.1	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 45

Actuated Cycle Length: 45

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.10

Intersection Signal Delay: 7.4

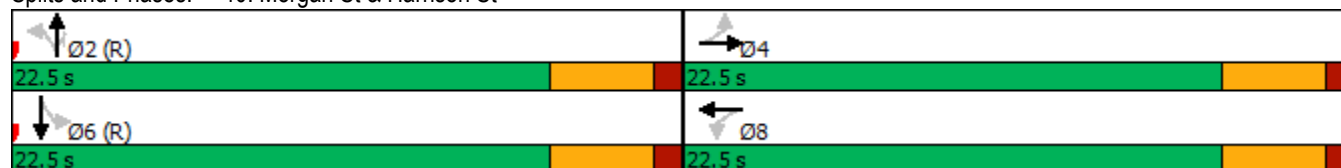
Intersection LOS: A

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 40: Morgan St & Harrison St



PM Peak Existing
1: Morgan St & Brorein St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑			←↑	↑
Traffic Volume (vph)	0	0	0	5	1049	46	170	62	35	56	63	273
Future Volume (vph)	0	0	0	5	1049	46	170	62	35	56	63	273
Satd. Flow (prot)	0	0	0	0	5035	0	1770	1685	0	0	1820	1583
Flt Permitted							0.674				0.831	
Satd. Flow (perm)	0	0	0	0	5032	0	1194	1685	0	0	1491	1464
Satd. Flow (RTOR)					6			20				92
Lane Group Flow (vph)	0	0	0	0	1195	0	185	105	0	0	129	297
Turn Type				Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases					8		5	2		1	6	
Permitted Phases				8			2			6		6
Total Split (s)				75.0	75.0		15.0	55.0		20.0	60.0	60.0
Total Lost Time (s)					6.0		4.5	5.7			5.7	5.7
Act Effect Green (s)					69.0		61.0	49.3			68.6	54.3
Actuated g/C Ratio					0.46		0.41	0.33			0.46	0.36
v/c Ratio					0.52		0.35	0.19			0.18	0.51
Control Delay					29.5		26.7	30.0			32.2	39.5
Queue Delay					0.0		0.0	0.0			0.0	0.0
Total Delay					29.5		26.7	30.0			32.2	39.5
LOS					C		C	C			C	D
Approach Delay					29.5			27.9			37.3	
Approach LOS					C			C			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 144 (96%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 31.0

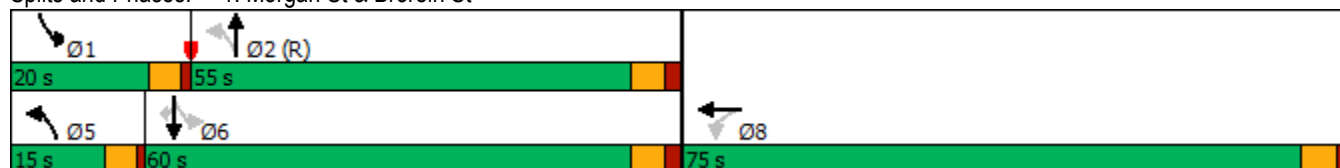
Intersection LOS: C

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Morgan St & Brorein St



PM Peak Existing
2: Morgan St & Cass St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	299	21	57	119	5	10	55	20	16	35	9
Future Volume (vph)	5	299	21	57	119	5	10	55	20	16	35	9
Satd. Flow (prot)	1770	1840	0	1770	1850	0	0	3020	0	0	3383	0
Flt Permitted	0.671			0.515				0.930			0.892	
Satd. Flow (perm)	1233	1840	0	950	1850	0	0	2817	0	0	3036	0
Satd. Flow (RTOR)		7			4			22			10	
Lane Group Flow (vph)	5	348	0	62	134	0	0	93	0	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.7			5.7	
Act Effect Green (s)	39.0	39.0		39.0	39.0			24.3			24.3	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.32			0.32	
v/c Ratio	0.01	0.36		0.13	0.14			0.10			0.07	
Control Delay	8.8	11.8		10.1	9.5			29.5			16.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.8	11.8		10.1	9.5			29.5			16.8	
LOS	A	B		B	A			C			B	
Approach Delay		11.7			9.7			29.5			16.8	
Approach LOS		B			A			C			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 49 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 14.0

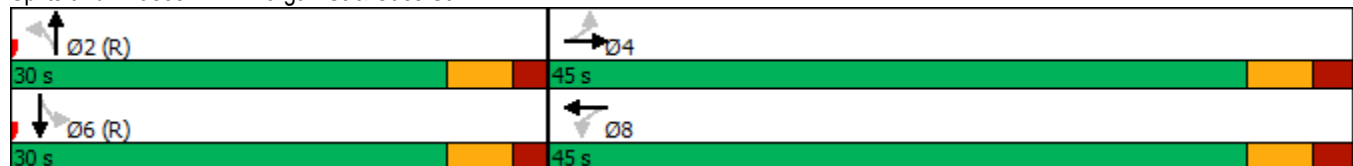
Intersection LOS: B

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Morgan St & Cass St



PM Peak Existing
4: Morgan St & Tyler St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	9	27	6	27	15	6	44	3	0	23	18
Future Volume (vph)	3	9	27	6	27	15	6	44	3	0	23	18
Satd. Flow (prot)	1770	1620	0	1770	1747	0	0	3480	0	0	3218	0
Flt Permitted	0.728			0.732				0.937				
Satd. Flow (perm)	1336	1620	0	1343	1747	0	0	3269	0	0	3218	0
Satd. Flow (RTOR)		29			16			3			20	
Lane Group Flow (vph)	3	39	0	7	45	0	0	58	0	0	45	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effect Green (s)	32.3	32.3		32.3	32.3			31.3			31.3	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.42			0.42	
v/c Ratio	0.01	0.05		0.01	0.06			0.04			0.03	
Control Delay	12.3	6.6		12.3	9.4			4.4			8.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.3	6.6		12.3	9.4			4.4			8.7	
LOS	B	A		B	A			A			A	
Approach Delay		7.0			9.8			4.4			8.7	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.06

Intersection Signal Delay: 7.3

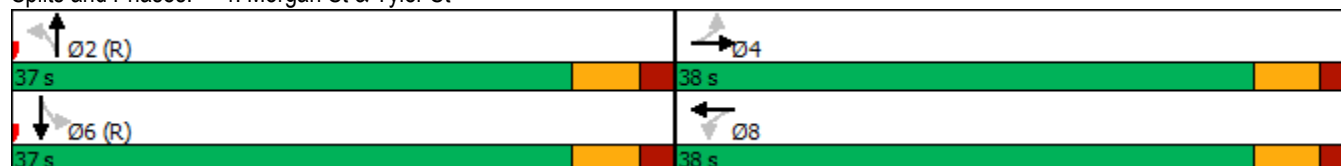
Intersection LOS: A

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Morgan St & Tyler St



PM Peak Existing
6: Morgan St & Polk St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	37	18	0	19	2	5	75	5	4	99	5
Future Volume (vph)	5	37	18	0	19	2	5	75	5	4	99	5
Satd. Flow (prot)	0	1762	0	0	1836	0	0	3143	0	0	3153	0
Flt Permitted		0.989						0.945			0.950	
Satd. Flow (perm)	0	1748	0	0	1836	0	0	2976	0	0	2999	0
Satd. Flow (RTOR)		20			2			5			5	
Lane Group Flow (vph)	0	65	0	0	23	0	0	92	0	0	117	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effect Green (s)		32.3			32.3			31.3			31.3	
Actuated g/C Ratio		0.43			0.43			0.42			0.42	
v/c Ratio		0.09			0.03			0.07			0.09	
Control Delay		9.9			11.8			5.7			10.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.9			11.8			5.7			10.8	
LOS		A			B			A			B	
Approach Delay		9.9			11.8			5.7			10.8	
Approach LOS		A			B			A			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 2 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.09

Intersection Signal Delay: 9.1

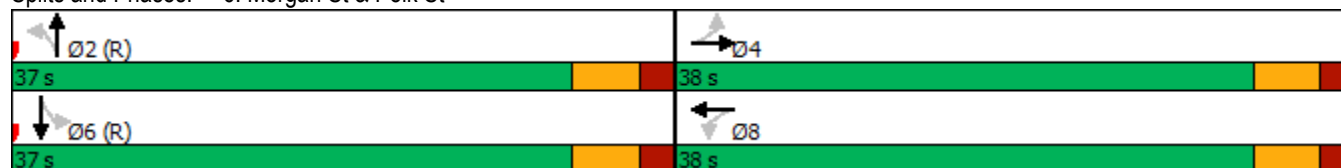
Intersection LOS: A

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Morgan St & Polk St



PM Peak Existing
9: Morgan St & Zach St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	57	14	4	40	3	3	67	8	9	104	10
Future Volume (vph)	7	57	14	4	40	3	3	67	8	9	104	10
Satd. Flow (prot)	1770	1799	0	1770	1841	0	0	3112	0	0	3120	0
Flt Permitted	0.727			0.707				0.949			0.940	
Satd. Flow (perm)	1334	1799	0	1298	1841	0	0	2956	0	0	2938	0
Satd. Flow (RTOR)		15			3			9			11	
Lane Group Flow (vph)	8	77	0	4	46	0	0	85	0	0	134	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	32.3	32.3		32.3	32.3			31.3			31.3	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.42			0.42	
v/c Ratio	0.01	0.10		0.01	0.06			0.07			0.11	
Control Delay	12.4	11.1		12.2	12.2			19.5			6.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.4	11.1		12.2	12.2			19.5			6.4	
LOS	B	B		B	B			B			A	
Approach Delay		11.2			12.2			19.5			6.4	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 73 (97%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 11.5

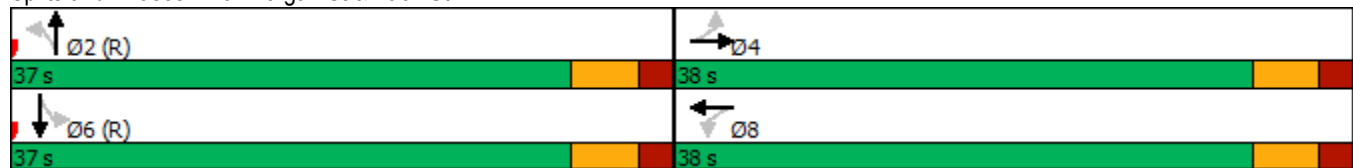
Intersection LOS: B

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Morgan St & Zach St



PM Peak Existing
12: Morgan St & Twiggs St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	222	9	19	187	16	6	66	40	31	57	7
Future Volume (vph)	7	222	9	19	187	16	6	66	40	31	57	7
Satd. Flow (prot)	0	3505	0	0	3475	0	0	2963	0	0	3085	0
Flt Permitted		0.946			0.920			0.942			0.848	
Satd. Flow (perm)	0	3320	0	0	3203	0	0	2795	0	0	2636	0
Satd. Flow (RTOR)		8			17			43			8	
Lane Group Flow (vph)	0	259	0	0	241	0	0	122	0	0	104	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0		28.0	28.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effect Green (s)		41.3			41.3			22.3			22.3	
Actuated g/C Ratio		0.55			0.55			0.30			0.30	
v/c Ratio		0.14			0.14			0.14			0.13	
Control Delay		8.2			7.8			29.4			16.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.2			7.8			29.4			16.2	
LOS		A			A			C			B	
Approach Delay		8.2			7.8			29.4			16.2	
Approach LOS		A			A			C			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 34 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.14

Intersection Signal Delay: 12.8

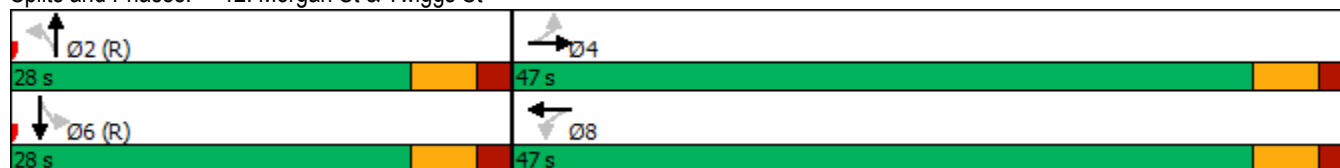
Intersection LOS: B

Intersection Capacity Utilization 48.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Morgan St & Twiggs St



PM Peak Existing
15: Morgan St & Madison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	16	16	1	6	7	15	94	3	1	83	1
Future Volume (vph)	16	16	16	1	6	7	15	94	3	1	83	1
Satd. Flow (prot)	1770	1699	0	1770	1688	0	0	3147	0	0	3174	0
Flt Permitted	0.748			0.735				0.923			0.954	
Satd. Flow (perm)	1371	1699	0	1348	1688	0	0	2915	0	0	3030	0
Satd. Flow (RTOR)		17			8			3			1	
Lane Group Flow (vph)	17	34	0	1	15	0	0	121	0	0	92	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	39.0	39.0		39.0	39.0		36.0	36.0		36.0	36.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effect Green (s)	33.3	33.3		33.3	33.3			30.3			30.3	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.40			0.40	
v/c Ratio	0.03	0.04		0.00	0.02			0.10			0.08	
Control Delay	12.0	8.0		12.0	8.7			17.9			14.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.0	8.0		12.0	8.7			17.9			14.6	
LOS	B	A		B	A			B			B	
Approach Delay		9.3			8.9			17.9			14.6	
Approach LOS		A			A			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 59 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.10

Intersection Signal Delay: 14.8

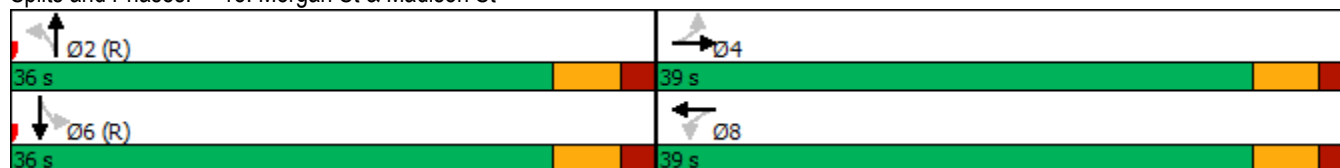
Intersection LOS: B

Intersection Capacity Utilization 43.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Morgan St & Madison St



PM Peak Existing
18: Morgan St & Kennedy Blvd

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					← ↑ ↑			← ↑			↑ ↑	
Traffic Volume (vph)	0	0	0	43	1235	31	82	91	0	0	89	25
Future Volume (vph)	0	0	0	43	1235	31	82	91	0	0	89	25
Satd. Flow (prot)	0	0	0	0	6355	0	0	3458	0	0	3017	0
Flt Permitted					0.998			0.759				
Satd. Flow (perm)	0	0	0	0	6337	0	0	2601	0	0	3017	0
Satd. Flow (RTOR)					4						23	
Lane Group Flow (vph)	0	0	0	0	1423	0	0	188	0	0	124	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Total Split (s)				80.0	80.0		70.0	70.0			70.0	
Total Lost Time (s)					5.7			5.7			5.7	
Act Effct Green (s)					74.3			64.3			64.3	
Actuated g/C Ratio					0.50			0.43			0.43	
v/c Ratio					0.45			0.17			0.09	
Control Delay					25.1			16.6			15.5	
Queue Delay					0.0			0.0			0.0	
Total Delay					25.1			16.6			15.5	
LOS					C			B			B	
Approach Delay					25.1			16.6			15.5	
Approach LOS					C			B			B	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 99 (66%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 23.5

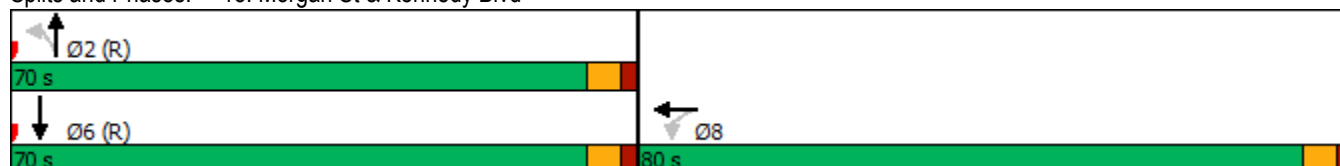
Intersection LOS: C

Intersection Capacity Utilization 44.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 18: Morgan St & Kennedy Blvd



PM Peak Existing
21: Morgan St & Jackson St

07/01/2025

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕						↕↕			↕↕	
Traffic Volume (vph)	20	941	67	0	0	0	0	123	128	44	112	0
Future Volume (vph)	20	941	67	0	0	0	0	123	128	44	112	0
Satd. Flow (prot)	0	3481	0	0	0	0	0	3140	0	0	3490	0
Flt Permitted		0.999									0.791	
Satd. Flow (perm)	0	3476	0	0	0	0	0	3140	0	0	2766	0
Satd. Flow (RTOR)		8						89				
Lane Group Flow (vph)	0	1118	0	0	0	0	0	273	0	0	170	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Total Split (s)	92.0	92.0						58.0		58.0	58.0	
Total Lost Time (s)		5.8						5.7			5.7	
Act Effect Green (s)		86.2						52.3			52.3	
Actuated g/C Ratio		0.57						0.35			0.35	
v/c Ratio		0.56						0.24			0.18	
Control Delay		21.2						23.5			29.1	
Queue Delay		0.0						1.1			0.0	
Total Delay		21.2						24.6			29.1	
LOS		C						C			C	
Approach Delay		21.2						24.6			29.1	
Approach LOS		C						C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 103 (69%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 22.6

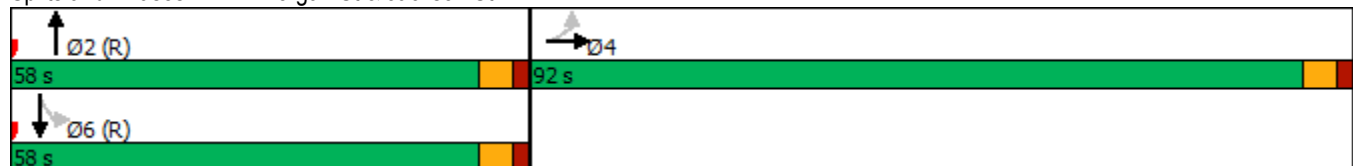
Intersection LOS: C

Intersection Capacity Utilization 78.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 21: Morgan St & Jackson St



PM Peak Existing
24: Morgan St & Whiting St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	262	32	99	72	15	7	100	53	26	216	15
Future Volume (vph)	75	262	32	99	72	15	7	100	53	26	216	15
Satd. Flow (prot)	1770	1827	0	1770	1806	0	0	3081	0	0	3246	0
Flt Permitted	0.696			0.515				0.940			0.915	
Satd. Flow (perm)	1278	1827	0	950	1806	0	0	2899	0	0	2978	0
Satd. Flow (RTOR)		11			16			58			10	
Lane Group Flow (vph)	82	320	0	108	94	0	0	175	0	0	279	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	40.0	40.0		40.0	40.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effect Green (s)	34.3	34.3		34.3	34.3			29.3			29.3	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.39			0.39	
v/c Ratio	0.14	0.38		0.25	0.11			0.15			0.24	
Control Delay	12.7	14.5		14.4	10.3			12.7			15.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.7	14.5		14.4	10.3			12.7			15.5	
LOS	B	B		B	B			B			B	
Approach Delay		14.2			12.5			12.7			15.5	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 30 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 14.0

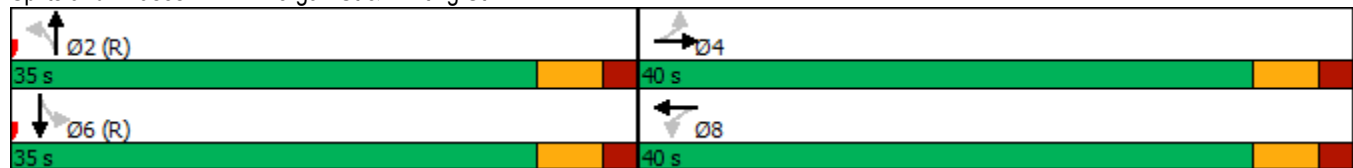
Intersection LOS: B

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 24: Morgan St & Whiting St



PM Peak Existing
32: Morgan St & Washington St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	34	11	25	22	5	164	0	3	120	7
Future Volume (vph)	20	20	34	11	25	22	5	164	0	3	120	7
Satd. Flow (prot)	0	1707	0	0	1737	0	0	3536	0	0	3495	0
Flt Permitted		0.937			0.960			0.950			0.951	
Satd. Flow (perm)	0	1616	0	0	1679	0	0	3361	0	0	3326	0
Satd. Flow (RTOR)		37			24						8	
Lane Group Flow (vph)	0	81	0	0	63	0	0	183	0	0	141	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	26.5	26.5		26.5	26.5		27.5	27.5		27.5	27.5	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Act Effect Green (s)		22.0			22.0			23.0			23.0	
Actuated g/C Ratio		0.41			0.41			0.43			0.43	
v/c Ratio		0.12			0.09			0.13			0.10	
Control Delay		6.9			7.4			9.7			9.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.9			7.4			9.7			9.0	
LOS		A			A			A			A	
Approach Delay		6.9			7.4			9.7			9.0	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 54

Actuated Cycle Length: 54

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.13

Intersection Signal Delay: 8.7

Intersection LOS: A

Intersection Capacity Utilization 45.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 32: Morgan St & Washington St

	
Ø2 (R)	Ø4
27.5 s	26.5 s
	
Ø6 (R)	Ø8
27.5 s	26.5 s

PM Peak Existing
40: Morgan St & Harrison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	14	18	10	23	3	22	50	5	2	30	17
Future Volume (vph)	13	14	18	10	23	3	22	50	5	2	30	17
Satd. Flow (prot)	0	1949	0	0	1873	0	0	1835	1583	0	1745	0
Flt Permitted		0.945			0.947			0.928			0.994	
Satd. Flow (perm)	0	1858	0	0	1794	0	0	1719	1523	0	1737	0
Satd. Flow (RTOR)		20			3				36		18	
Lane Group Flow (vph)	0	49	0	0	39	0	0	78	5	0	53	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5	22.5	22.5	22.5	
Total Lost Time (s)		4.5			4.5			4.5	4.5		4.5	
Act Effect Green (s)		18.0			18.0			18.0	18.0		18.0	
Actuated g/C Ratio		0.40			0.40			0.40	0.40		0.40	
v/c Ratio		0.06			0.05			0.11	0.01		0.08	
Control Delay		6.3			8.2			9.1	0.0		6.7	
Queue Delay		0.0			0.0			0.0	0.0		0.0	
Total Delay		6.3			8.2			9.1	0.0		6.7	
LOS		A			A			A	A		A	
Approach Delay		6.3			8.2			8.5			6.7	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 45

Actuated Cycle Length: 45

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 7.5

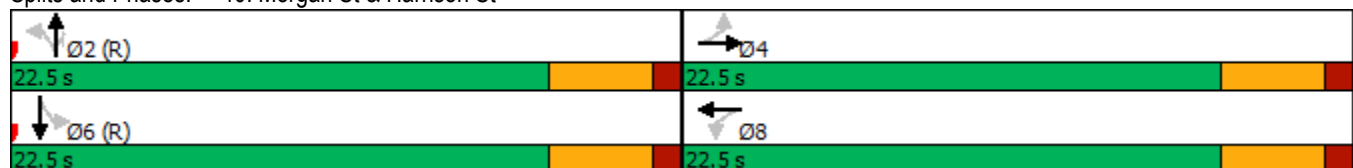
Intersection LOS: A

Intersection Capacity Utilization 56.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 40: Morgan St & Harrison St



AM Peak Proposed
1: Morgan St & Brorein St

07/01/2025

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations					←↑↑↑		↑	↑			↑↓	
Traffic Volume (vph)	0	0	0	15	1311	177	141	51	6	21	54	87
Future Volume (vph)	0	0	0	15	1311	177	141	51	6	21	54	87
Satd. Flow (prot)	0	0	0	0	4938	0	1770	1806	0	0	1650	0
Flt Permitted							0.606				0.962	
Satd. Flow (perm)	0	0	0	0	4931	0	1085	1806	0	0	1577	0
Satd. Flow (RTOR)					24			5			22	
Lane Group Flow (vph)	0	0	0	0	1633	0	153	62	0	0	177	0
Turn Type				Perm	NA		Perm	NA		Perm	NA	
Protected Phases					8			2			6	
Permitted Phases				8			2			6		
Total Split (s)				84.0	84.0		66.0	66.0		66.0	66.0	
Total Lost Time (s)					6.0		5.7	5.7			5.7	
Act Effct Green (s)					78.0		60.3	60.3			60.3	
Actuated g/C Ratio					0.52		0.40	0.40			0.40	
v/c Ratio					0.63		0.35	0.09			0.27	
Control Delay					26.7		34.2	26.0			23.3	
Queue Delay					0.0		0.0	0.0			0.0	
Total Delay					26.7		34.2	26.0			23.3	
LOS					C		C	C			C	
Approach Delay					26.7			31.8			23.3	
Approach LOS					C			C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 27.0

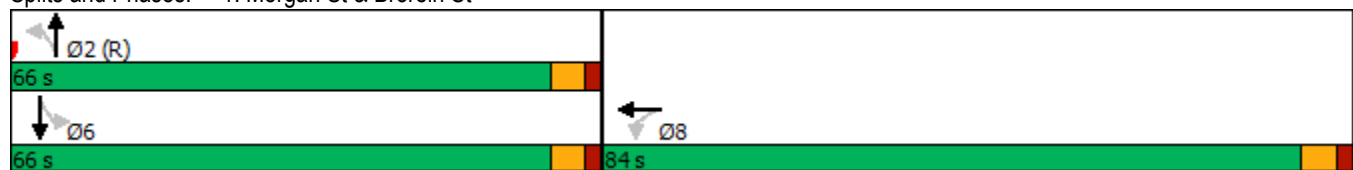
Intersection LOS: C

Intersection Capacity Utilization 81.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Morgan St & Brorein St



AM Peak Proposed
2: Morgan St & Cass St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	112	12	36	201	12	11	67	7	9	56	7
Future Volume (vph)	14	112	12	36	201	12	11	67	7	9	56	7
Satd. Flow (prot)	1770	1828	0	1770	1843	0	0	1700	0	0	1695	0
Flt Permitted	0.605			0.671				0.971			0.972	
Satd. Flow (perm)	1105	1828	0	1222	1843	0	0	1656	0	0	1652	0
Satd. Flow (RTOR)		9			5			8			8	
Lane Group Flow (vph)	15	135	0	39	231	0	0	93	0	0	79	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	37.0	37.0		37.0	37.0		38.0	38.0		38.0	38.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.7			5.7	
Act Effect Green (s)	31.0	31.0		31.0	31.0			32.3			32.3	
Actuated g/C Ratio	0.41	0.41		0.41	0.41			0.43			0.43	
v/c Ratio	0.03	0.18		0.08	0.30			0.13			0.11	
Control Delay	13.5	13.8		13.9	15.8			12.0			10.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	13.5	13.8		13.9	15.8			12.0			10.8	
LOS	B	B		B	B			B			B	
Approach Delay		13.7			15.5			12.0			10.8	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 45 (60%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 13.9

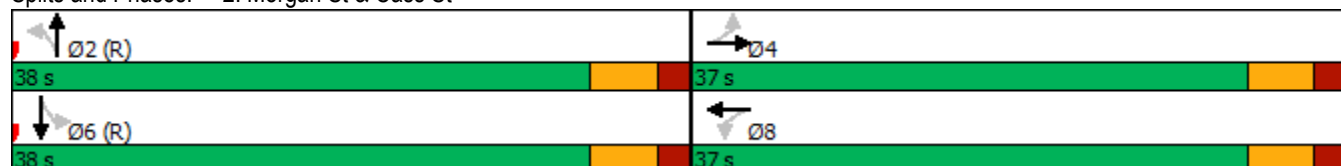
Intersection LOS: B

Intersection Capacity Utilization 57.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Morgan St & Cass St



AM Peak Proposed
4: Morgan St & Tyler St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	19	32	14	12	5	19	95	15	1	68	19
Future Volume (vph)	5	19	32	14	12	5	19	95	15	1	68	19
Satd. Flow (prot)	1770	1639	0	1770	1762	0	0	1690	0	0	1664	0
Flt Permitted	0.746			0.720				0.959			0.999	
Satd. Flow (perm)	1353	1639	0	1308	1762	0	0	1626	0	0	1663	0
Satd. Flow (RTOR)		35			5			11			21	
Lane Group Flow (vph)	5	56	0	15	18	0	0	140	0	0	96	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	35.0	35.0		35.0	35.0		40.0	40.0		40.0	40.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	29.3	29.3		29.3	29.3			34.3			34.3	
Actuated g/C Ratio	0.39	0.39		0.39	0.39			0.46			0.46	
v/c Ratio	0.01	0.08		0.03	0.03			0.19			0.12	
Control Delay	14.2	8.1		14.4	11.9			11.8			9.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	14.2	8.1		14.4	11.9			11.8			9.9	
LOS	B	A		B	B			B			A	
Approach Delay		8.6			13.1			11.8			9.9	
Approach LOS		A			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 42 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.19

Intersection Signal Delay: 10.8

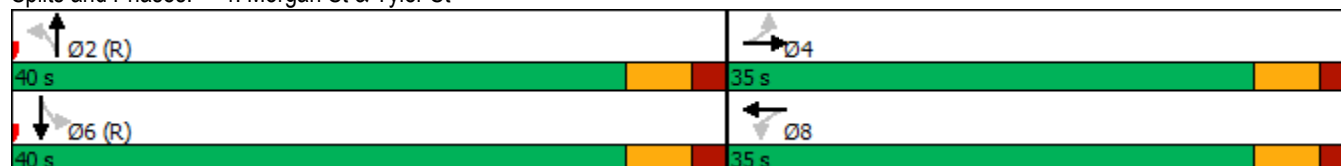
Intersection LOS: B

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Morgan St & Tyler St



AM Peak Proposed
6: Morgan St & Polk St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	12	6	0	24	6	20	138	3	5	105	13
Future Volume (vph)	3	12	6	0	24	6	20	138	3	5	105	13
Satd. Flow (prot)	0	1751	0	0	1791	0	0	1662	0	0	1641	0
Flt Permitted		0.979						0.963			0.992	
Satd. Flow (perm)	0	1718	0	0	1791	0	0	1606	0	0	1630	0
Satd. Flow (RTOR)		7			7			2			13	
Lane Group Flow (vph)	0	23	0	0	33	0	0	175	0	0	133	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effct Green (s)		21.3			21.3			42.3			42.3	
Actuated g/C Ratio		0.28			0.28			0.56			0.56	
v/c Ratio		0.05			0.06			0.19			0.14	
Control Delay		16.0			17.0			6.3			5.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.0			17.0			6.3			5.3	
LOS		B			B			A			A	
Approach Delay		16.0			17.0			6.3			5.3	
Approach LOS		B			B			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 57 (76%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.19

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Morgan St & Polk St



AM Peak Proposed
9: Morgan St & Zach St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	40	4	6	24	15	13	81	33	8	75	9
Future Volume (vph)	4	40	4	6	24	15	13	81	33	8	75	9
Satd. Flow (prot)	1770	1831	0	1770	1726	0	0	1648	0	0	1700	0
Flt Permitted	0.730			0.726				0.976			0.980	
Satd. Flow (perm)	1325	1831	0	1318	1726	0	0	1612	0	0	1669	0
Satd. Flow (RTOR)		4			16			36			10	
Lane Group Flow (vph)	4	47	0	7	42	0	0	138	0	0	101	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effect Green (s)	21.3	21.3		21.3	21.3			42.3			42.3	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.56			0.56	
v/c Ratio	0.01	0.09		0.02	0.08			0.15			0.11	
Control Delay	19.5	19.1		19.7	14.6			10.9			1.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.5	19.1		19.7	14.6			10.9			1.9	
LOS	B	B		B	B			B			A	
Approach Delay		19.1			15.3			10.9			1.9	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 60 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.15

Intersection Signal Delay: 10.1

Intersection LOS: B

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Morgan St & Zach St



AM Peak Proposed
12: Morgan St & Twiggs St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Future Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Satd. Flow (prot)	0	3497	0	0	3474	0	0	1691	0	0	1719	0
Flt Permitted		0.917			0.944			0.976			0.967	
Satd. Flow (perm)	0	3212	0	0	3281	0	0	1655	0	0	1667	0
Satd. Flow (RTOR)		5			16			10			2	
Lane Group Flow (vph)	0	123	0	0	705	0	0	109	0	0	99	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effct Green (s)		39.3			39.3			24.3			24.3	
Actuated g/C Ratio		0.52			0.52			0.32			0.32	
v/c Ratio		0.07			0.41			0.20			0.18	
Control Delay		8.6			11.4			11.8			21.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.6			11.4			11.8			21.1	
LOS		A			B			B			C	
Approach Delay		8.6			11.4			11.8			21.1	
Approach LOS		A			B			B			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 28 (37%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 12.1

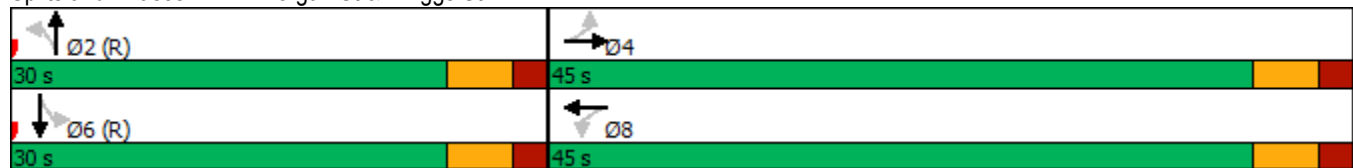
Intersection LOS: B

Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Morgan St & Twiggs St



AM Peak Proposed
15: Morgan St & Madison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1	23	19	4	20	3	14	65	7	4	89	15
Future Volume (vph)	1	23	19	4	20	3	14	65	7	4	89	15
Satd. Flow (prot)	1770	1699	0	1770	1819	0	0	1699	0	0	1691	0
Flt Permitted	0.741			0.727				0.961			0.995	
Satd. Flow (perm)	1345	1699	0	1320	1819	0	0	1639	0	0	1685	0
Satd. Flow (RTOR)		21			3			8			16	
Lane Group Flow (vph)	1	46	0	4	25	0	0	94	0	0	117	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	27.0	27.0		27.0	27.0		48.0	48.0		48.0	48.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	21.3	21.3		21.3	21.3			42.3			42.3	
Actuated g/C Ratio	0.28	0.28		0.28	0.28			0.56			0.56	
v/c Ratio	0.00	0.09		0.01	0.05			0.10			0.12	
Control Delay	19.0	13.5		19.5	18.3			14.9			3.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.0	13.5		19.5	18.3			14.9			3.5	
LOS	B	B		B	B			B			A	
Approach Delay		13.6			18.4			14.9			3.5	
Approach LOS		B			B			B			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 25 (33%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.12

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 43.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Morgan St & Madison St



AM Peak Proposed
18: Morgan St & Kennedy Blvd

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←←←←		↖	↑			↗	
Traffic Volume (vph)	0	0	0	88	1731	59	25	68	0	0	91	17
Future Volume (vph)	0	0	0	88	1731	59	25	68	0	0	91	17
Satd. Flow (prot)	0	0	0	0	6332	0	1770	1863	0	0	1617	0
Flt Permitted					0.998		0.677					
Satd. Flow (perm)	0	0	0	0	6290	0	1177	1863	0	0	1617	0
Satd. Flow (RTOR)					6						6	
Lane Group Flow (vph)	0	0	0	0	2042	0	27	74	0	0	117	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2				6
Permitted Phases				8			2					
Total Split (s)				83.0	83.0		67.0	67.0			67.0	
Total Lost Time (s)					5.7		5.7	5.7			5.7	
Act Effct Green (s)					77.3		61.3	61.3			61.3	
Actuated g/C Ratio					0.52		0.41	0.41			0.41	
v/c Ratio					0.63		0.06	0.10			0.18	
Control Delay					27.1		27.4	27.8			20.6	
Queue Delay					0.0		0.0	0.0			1.7	
Total Delay					27.1		27.4	27.8			22.4	
LOS					C		C	C			C	
Approach Delay					27.1			27.7			22.4	
Approach LOS					C			C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 26.9

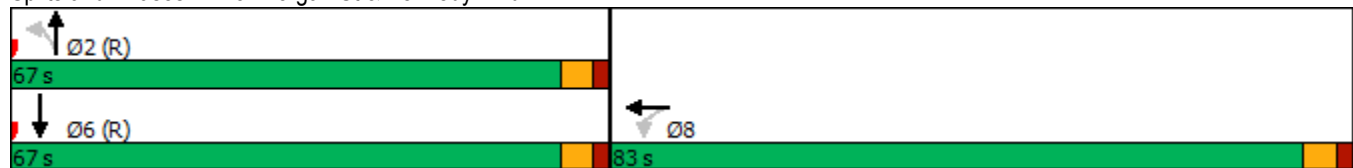
Intersection LOS: C

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Morgan St & Kennedy Blvd



AM Peak Proposed
21: Morgan St & Jackson St

07/01/2025

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↑	↗	↘	↑	
Traffic Volume (vph)	57	421	99	0	0	0	0	48	33	24	115	0
Future Volume (vph)	57	421	99	0	0	0	0	48	33	24	115	0
Satd. Flow (prot)	0	3343	0	0	0	0	0	1739	1478	1711	1739	0
Flt Permitted		0.995								0.723		
Satd. Flow (perm)	0	3301	0	0	0	0	0	1739	1362	1220	1739	0
Satd. Flow (RTOR)		27							36			
Lane Group Flow (vph)	0	628	0	0	0	0	0	52	36	26	125	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4								2	6		
Total Split (s)	92.0	92.0						58.0	58.0	58.0	58.0	
Total Lost Time (s)		5.8						5.7	5.7	5.7	5.7	
Act Effct Green (s)		86.2						52.3	52.3	52.3	52.3	
Actuated g/C Ratio		0.57						0.35	0.35	0.35	0.35	
v/c Ratio		0.33						0.09	0.07	0.06	0.21	
Control Delay		16.5						33.4	9.8	33.2	35.5	
Queue Delay		0.0						0.0	0.0	0.0	2.6	
Total Delay		16.5						33.4	9.8	33.2	38.1	
LOS		B						C	A	C	D	
Approach Delay		16.5						23.7			37.2	
Approach LOS		B						C			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.33

Intersection Signal Delay: 20.8

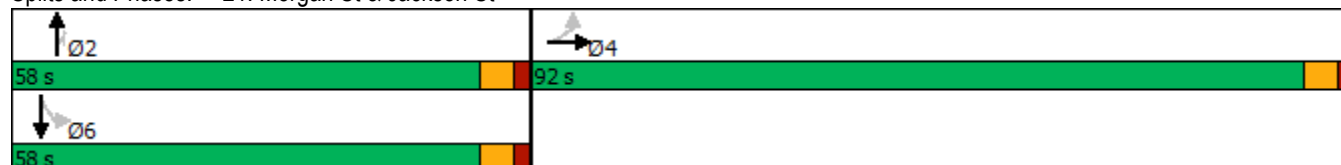
Intersection LOS: C

Intersection Capacity Utilization 64.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 21: Morgan St & Jackson St



AM Peak Proposed
24: Morgan St & Whiting St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	62	27	117	170	9	76	75	33	11	105	34
Future Volume (vph)	17	62	27	117	170	9	76	75	33	11	105	34
Satd. Flow (prot)	1770	1754	0	1770	1845	0	0	3122	0	0	1656	0
Flt Permitted	0.635			0.695				0.784			0.975	
Satd. Flow (perm)	1168	1754	0	1264	1845	0	0	2474	0	0	1618	0
Satd. Flow (RTOR)		29			5			36			24	
Lane Group Flow (vph)	18	96	0	127	195	0	0	201	0	0	163	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	39.0	39.0		39.0	39.0		36.0	36.0		36.0	36.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	33.3	33.3		33.3	33.3			30.3			30.3	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.40			0.40	
v/c Ratio	0.03	0.12		0.23	0.24			0.20			0.24	
Control Delay	12.2	9.5		14.3	13.6			9.8			7.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.2	9.5		14.3	13.6			9.8			7.8	
LOS	B	A		B	B			A			A	
Approach Delay		9.9			13.9			9.8			7.8	
Approach LOS		A			B			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.24

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 58.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 24: Morgan St & Whiting St

 Ø2 (R)	 Ø4
36 s	39 s
 Ø6 (R)	 Ø8
36 s	39 s

AM Peak Proposed
32: Morgan St & Washington St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Future Volume (vph)	7	101	5	21	580	48	9	78	13	11	77	3
Satd. Flow (prot)	0	1848	0	0	1840	0	0	3224	0	0	1721	0
Flt Permitted		0.960			0.990			0.934			0.967	
Satd. Flow (perm)	0	1779	0	0	1826	0	0	3027	0	0	1674	0
Satd. Flow (RTOR)		4			8			14			2	
Lane Group Flow (vph)	0	123	0	0	705	0	0	109	0	0	99	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)		5.5			5.5			5.5			5.5	
Act Effct Green (s)		39.5			39.5			24.5			24.5	
Actuated g/C Ratio		0.53			0.53			0.33			0.33	
v/c Ratio		0.13			0.73			0.11			0.18	
Control Delay		9.2			19.1			13.2			18.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.2			19.1			13.2			18.8	
LOS		A			B			B			B	
Approach Delay		9.2			19.1			13.2			18.8	
Approach LOS		A			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 17.3

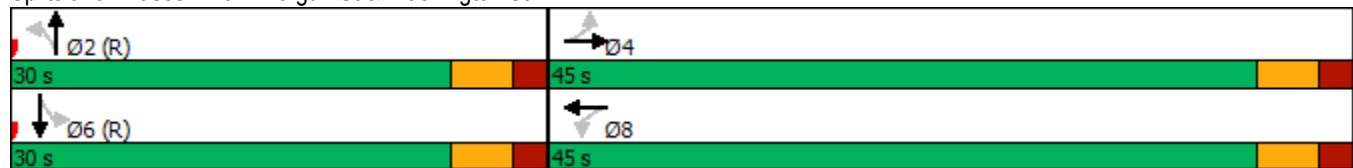
Intersection LOS: B

Intersection Capacity Utilization 60.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 32: Morgan St & Washington St



AM Peak Proposed
40: Morgan St & Harrison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	12	9	17	24	6	16	48	19	4	40	17
Future Volume (vph)	5	12	9	17	24	6	16	48	19	4	40	17
Satd. Flow (prot)	0	1964	0	0	1846	0	1711	1645	0	0	1647	0
Flt Permitted		0.971			0.931		0.715				0.989	
Satd. Flow (perm)	0	1919	0	0	1738	0	1265	1645	0	0	1632	0
Satd. Flow (RTOR)		10			7			21			18	
Lane Group Flow (vph)	0	28	0	0	51	0	17	73	0	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Lost Time (s)		4.5			4.5		4.5	4.5			4.5	
Act Effect Green (s)		18.0			18.0		18.0	18.0			18.0	
Actuated g/C Ratio		0.40			0.40		0.40	0.40			0.40	
v/c Ratio		0.04			0.07		0.03	0.11			0.10	
Control Delay		6.8			7.9		8.5	7.1			7.2	
Queue Delay		0.0			0.0		0.0	0.0			0.0	
Total Delay		6.8			7.9		8.5	7.1			7.2	
LOS		A			A		A	A			A	
Approach Delay		6.8			7.9			7.4			7.2	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 45

Actuated Cycle Length: 45

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.11

Intersection Signal Delay: 7.4

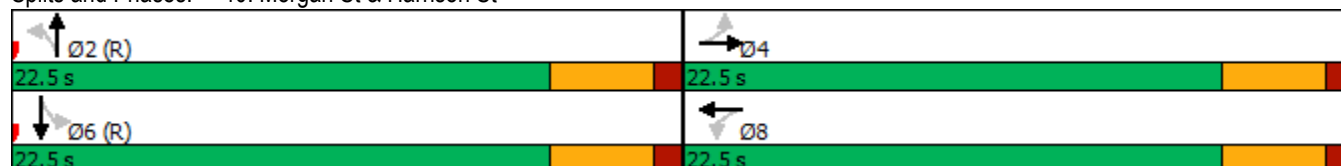
Intersection LOS: A

Intersection Capacity Utilization 37.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 40: Morgan St & Harrison St



PM Peak Proposed
1: Morgan St & Brorein St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑			↑↓	
Traffic Volume (vph)	0	0	0	5	1049	46	170	62	35	56	63	273
Future Volume (vph)	0	0	0	5	1049	46	170	62	35	56	63	273
Satd. Flow (prot)	0	0	0	0	5035	0	1770	1685	0	0	1590	0
Flt Permitted							0.514				0.941	
Satd. Flow (perm)	0	0	0	0	5032	0	926	1685	0	0	1489	0
Satd. Flow (RTOR)					6			20			32	
Lane Group Flow (vph)	0	0	0	0	1195	0	185	105	0	0	426	0
Turn Type				Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases					8		5	2		1	6	
Permitted Phases				8			2			6		
Total Split (s)				75.0	75.0		15.0	55.0		20.0	60.0	
Total Lost Time (s)					6.0		4.5	5.7			5.7	
Act Effect Green (s)					69.0		61.0	49.3			68.6	
Actuated g/C Ratio					0.46		0.41	0.33			0.46	
v/c Ratio					0.52		0.43	0.19			0.60	
Control Delay					29.5		28.0	30.0			36.1	
Queue Delay					0.0		0.0	0.0			0.1	
Total Delay					29.5		28.0	30.0			36.2	
LOS					C		C	C			D	
Approach Delay					29.5			28.7			36.2	
Approach LOS					C			C			D	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:NBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.60

Intersection Signal Delay: 30.9

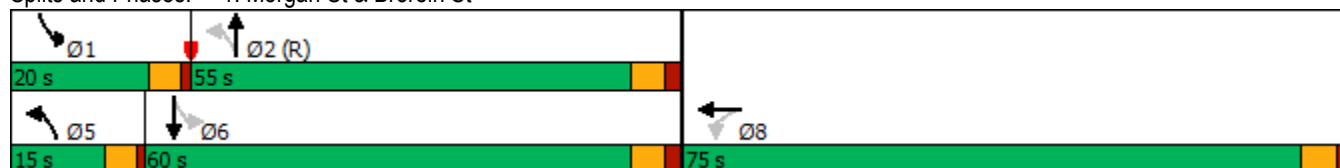
Intersection LOS: C

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: Morgan St & Brorein St



PM Peak Proposed
2: Morgan St & Cass St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	299	21	57	119	5	10	55	20	16	35	9
Future Volume (vph)	5	299	21	57	119	5	10	55	20	16	35	9
Satd. Flow (prot)	1770	1838	0	1770	1848	0	0	1653	0	0	1665	0
Flt Permitted	0.671			0.515				0.972			0.929	
Satd. Flow (perm)	1222	1838	0	944	1848	0	0	1612	0	0	1557	0
Satd. Flow (RTOR)		7			4			22			10	
Lane Group Flow (vph)	5	348	0	62	134	0	0	93	0	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	45.0	45.0		45.0	45.0		30.0	30.0		30.0	30.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0			5.7			5.7	
Act Effect Green (s)	39.0	39.0		39.0	39.0			24.3			24.3	
Actuated g/C Ratio	0.52	0.52		0.52	0.52			0.32			0.32	
v/c Ratio	0.01	0.36		0.13	0.14			0.17			0.13	
Control Delay	8.8	11.8		10.2	9.5			31.0			17.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	8.8	11.8		10.2	9.5			31.0			17.6	
LOS	A	B		B	A			C			B	
Approach Delay		11.7			9.7			31.0			17.6	
Approach LOS		B			A			C			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 49 (65%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 14.3

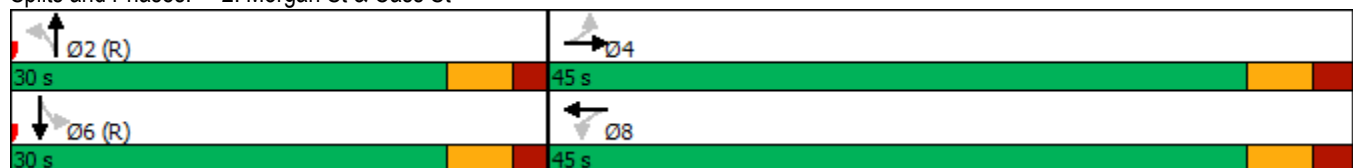
Intersection LOS: B

Intersection Capacity Utilization 58.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 2: Morgan St & Cass St



PM Peak Proposed
4: Morgan St & Tyler St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	9	27	6	27	15	6	44	3	0	23	18
Future Volume (vph)	3	9	27	6	27	15	6	44	3	0	23	18
Satd. Flow (prot)	1770	1597	0	1770	1735	0	0	1711	0	0	1592	0
Flt Permitted	0.728			0.732				0.979				
Satd. Flow (perm)	1322	1597	0	1329	1735	0	0	1680	0	0	1592	0
Satd. Flow (RTOR)		29			16			3			20	
Lane Group Flow (vph)	3	39	0	7	45	0	0	58	0	0	45	0
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	32.3	32.3		32.3	32.3			31.3			31.3	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.42			0.42	
v/c Ratio	0.01	0.06		0.01	0.06			0.08			0.07	
Control Delay	12.3	6.6		12.3	9.4			4.5			9.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.3	6.6		12.3	9.4			4.5			9.0	
LOS	B	A		B	A			A			A	
Approach Delay		7.0			9.8			4.5			9.0	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 43 (57%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.08

Intersection Signal Delay: 7.5

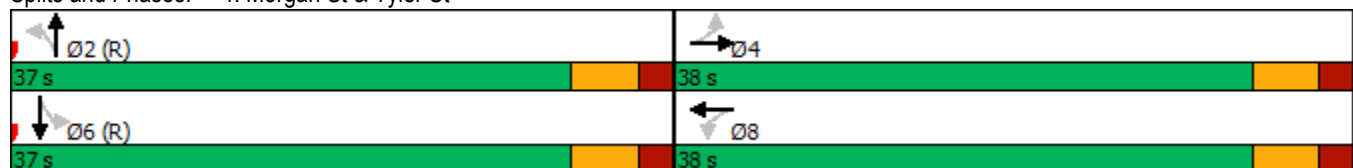
Intersection LOS: A

Intersection Capacity Utilization 42.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Morgan St & Tyler St



PM Peak Proposed
6: Morgan St & Polk St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	37	18	0	19	2	5	75	5	4	99	5
Future Volume (vph)	5	37	18	0	19	2	5	75	5	4	99	5
Satd. Flow (prot)	0	1752	0	0	1833	0	0	1717	0	0	1721	0
Flt Permitted		0.989						0.989			0.994	
Satd. Flow (perm)	0	1736	0	0	1833	0	0	1701	0	0	1713	0
Satd. Flow (RTOR)		20			2			5			4	
Lane Group Flow (vph)	0	65	0	0	23	0	0	92	0	0	117	0
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effct Green (s)		32.3			32.3			31.3			31.3	
Actuated g/C Ratio		0.43			0.43			0.42			0.42	
v/c Ratio		0.09			0.03			0.13			0.16	
Control Delay		9.9			11.8			9.6			11.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.9			11.8			9.6			11.3	
LOS		A			B			A			B	
Approach Delay		9.9			11.8			9.6			11.3	
Approach LOS		A			B			A			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 2 (3%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.16

Intersection Signal Delay: 10.5

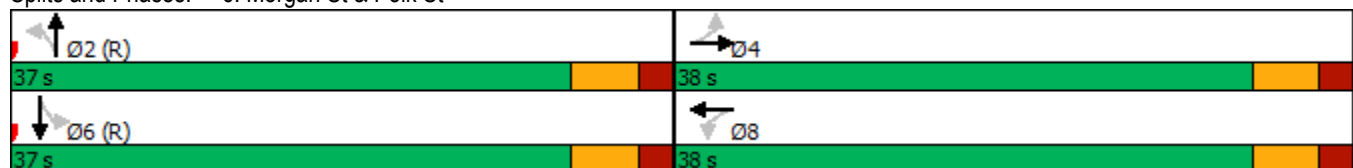
Intersection LOS: B

Intersection Capacity Utilization 46.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 6: Morgan St & Polk St



PM Peak Proposed
9: Morgan St & Zach St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	57	14	4	40	3	3	67	8	9	104	10
Future Volume (vph)	7	57	14	4	40	3	3	67	8	9	104	10
Satd. Flow (prot)	1770	1809	0	1770	1844	0	0	1650	0	0	1651	0
Flt Permitted	0.727			0.707				0.993			0.983	
Satd. Flow (perm)	1354	1809	0	1317	1844	0	0	1641	0	0	1630	0
Satd. Flow (RTOR)		15			3			9			7	
Lane Group Flow (vph)	8	77	0	4	46	0	0	85	0	0	134	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	38.0	38.0		38.0	38.0		37.0	37.0		37.0	37.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	32.3	32.3		32.3	32.3			31.3			31.3	
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.42			0.42	
v/c Ratio	0.01	0.10		0.01	0.06			0.12			0.20	
Control Delay	12.4	11.1		12.2	12.2			13.9			19.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.4	11.1		12.2	12.2			13.9			19.5	
LOS	B	B		B	B			B			B	
Approach Delay		11.2			12.2			13.9			19.5	
Approach LOS		B			B			B			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 60 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.20

Intersection Signal Delay: 15.1

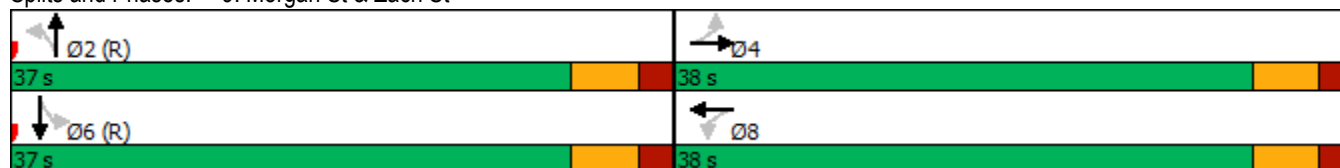
Intersection LOS: B

Intersection Capacity Utilization 27.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 9: Morgan St & Zach St



PM Peak Proposed
12: Morgan St & Twiggs St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	222	9	19	187	16	6	66	40	31	57	7
Future Volume (vph)	7	222	9	19	187	16	6	66	40	31	57	7
Satd. Flow (prot)	0	3501	0	0	3468	0	0	1626	0	0	1687	0
Flt Permitted		0.946			0.920			0.986			0.882	
Satd. Flow (perm)	0	3314	0	0	3192	0	0	1605	0	0	1500	0
Satd. Flow (RTOR)		8			17			37			6	
Lane Group Flow (vph)	0	259	0	0	241	0	0	122	0	0	104	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	47.0	47.0		47.0	47.0		28.0	28.0		28.0	28.0	
Total Lost Time (s)		5.7			5.7			5.7			5.7	
Act Effect Green (s)		41.3			41.3			22.3			22.3	
Actuated g/C Ratio		0.55			0.55			0.30			0.30	
v/c Ratio		0.14			0.14			0.24			0.23	
Control Delay		8.2			7.8			25.5			30.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.2			7.8			25.5			30.9	
LOS		A			A			C			C	
Approach Delay		8.2			7.8			25.5			30.9	
Approach LOS		A			A			C			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 34 (45%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.24

Intersection Signal Delay: 14.2

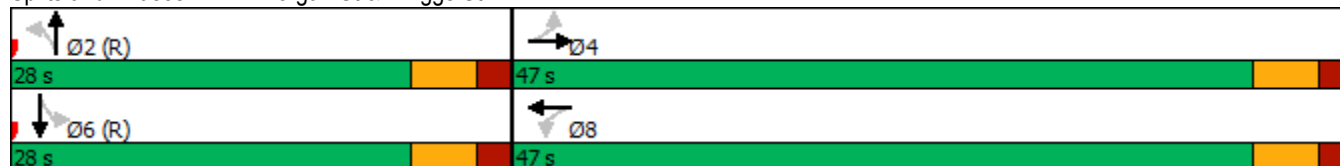
Intersection LOS: B

Intersection Capacity Utilization 48.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 12: Morgan St & Twiggs St



PM Peak Proposed
15: Morgan St & Madison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	16	16	1	6	7	15	94	3	1	83	1
Future Volume (vph)	16	16	16	1	6	7	15	94	3	1	83	1
Satd. Flow (prot)	1770	1683	0	1770	1671	0	0	1719	0	0	1734	0
Flt Permitted	0.748			0.735				0.966			0.998	
Satd. Flow (perm)	1357	1683	0	1334	1671	0	0	1667	0	0	1732	0
Satd. Flow (RTOR)		17			8			2			1	
Lane Group Flow (vph)	17	34	0	1	15	0	0	121	0	0	92	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	39.0	39.0		39.0	39.0		36.0	36.0		36.0	36.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effct Green (s)	33.3	33.3		33.3	33.3			30.3			30.3	
Actuated g/C Ratio	0.44	0.44		0.44	0.44			0.40			0.40	
v/c Ratio	0.03	0.04		0.00	0.02			0.18			0.13	
Control Delay	12.0	8.0		12.0	8.7			6.5			14.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.0	8.0		12.0	8.7			6.5			14.9	
LOS	B	A		B	A			A			B	
Approach Delay		9.3			8.9			6.5			14.9	
Approach LOS		A			A			A			B	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 59 (79%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.18

Intersection Signal Delay: 9.9

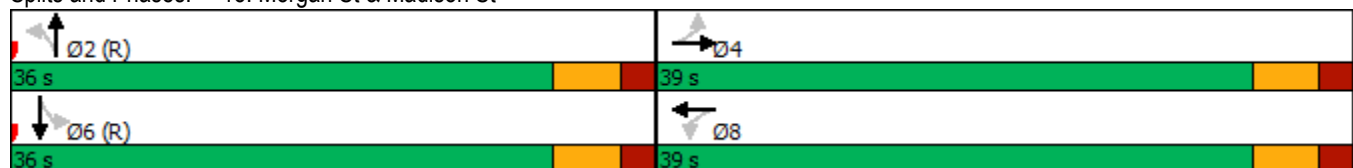
Intersection LOS: A

Intersection Capacity Utilization 43.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 15: Morgan St & Madison St



PM Peak Proposed
18: Morgan St & Kennedy Blvd

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					4111b		7	↑			↑	
Traffic Volume (vph)	0	0	0	43	1235	31	82	91	0	0	89	25
Future Volume (vph)	0	0	0	43	1235	31	82	91	0	0	89	25
Satd. Flow (prot)	0	0	0	0	6345	0	1711	1739	0	0	1653	0
Flt Permitted					0.998		0.671					
Satd. Flow (perm)	0	0	0	0	6316	0	1129	1739	0	0	1653	0
Satd. Flow (RTOR)					4						12	
Lane Group Flow (vph)	0	0	0	0	1423	0	89	99	0	0	124	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Total Split (s)				80.0	80.0		70.0	70.0			70.0	
Total Lost Time (s)					5.7		5.7	5.7			5.7	
Act Effect Green (s)					74.3		64.3	64.3			64.3	
Actuated g/C Ratio					0.50		0.43	0.43			0.43	
v/c Ratio					0.45		0.18	0.13			0.17	
Control Delay					25.2		11.5	11.0			29.5	
Queue Delay					0.0		0.0	0.0			1.5	
Total Delay					25.2		11.5	11.0			31.1	
LOS					C		B	B			C	
Approach Delay					25.2			11.3			31.1	
Approach LOS					C			B			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 24.1

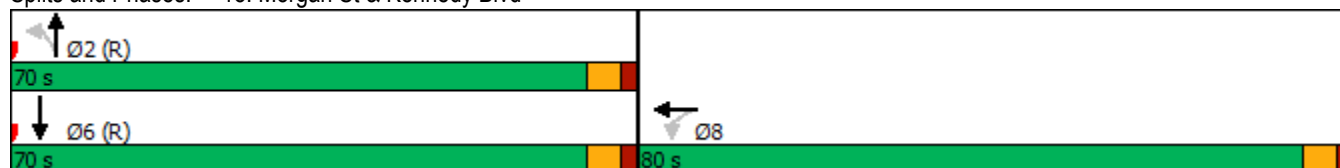
Intersection LOS: C

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 18: Morgan St & Kennedy Blvd



PM Peak Proposed
21: Morgan St & Jackson St

07/01/2025

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔↔						↑	↗	↘	↑	
Traffic Volume (vph)	20	941	67	0	0	0	0	123	128	44	112	0
Future Volume (vph)	20	941	67	0	0	0	0	123	128	44	112	0
Satd. Flow (prot)	0	3466	0	0	0	0	0	1863	1583	1770	1863	0
Flt Permitted		0.999								0.644		
Satd. Flow (perm)	0	3458	0	0	0	0	0	1863	1460	1136	1863	0
Satd. Flow (RTOR)		8							89			
Lane Group Flow (vph)	0	1118	0	0	0	0	0	134	139	48	122	0
Turn Type	Perm	NA						NA	Perm	Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4								2	6		
Total Split (s)	92.0	92.0						58.0	58.0	58.0	58.0	
Total Lost Time (s)		5.8						5.7	5.7	5.7	5.7	
Act Effct Green (s)		86.2						52.3	52.3	52.3	52.3	
Actuated g/C Ratio		0.57						0.35	0.35	0.35	0.35	
v/c Ratio		0.56						0.21	0.25	0.12	0.19	
Control Delay		21.2						35.4	14.5	22.8	23.2	
Queue Delay		0.0						3.0	1.5	0.0	1.3	
Total Delay		21.2						38.4	15.9	22.8	24.5	
LOS		C						D	B	C	C	
Approach Delay		21.2						27.0			24.1	
Approach LOS		C						C			C	

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 60 (40%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 22.5

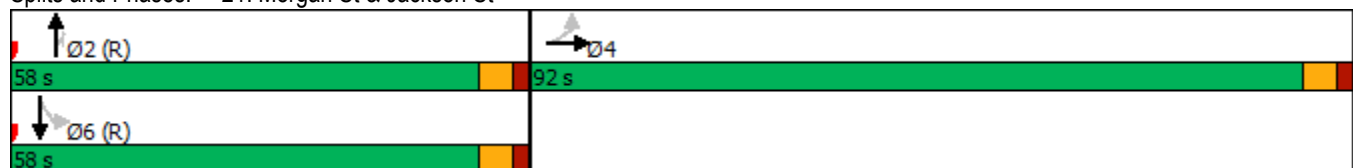
Intersection LOS: C

Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 21: Morgan St & Jackson St



PM Peak Proposed
24: Morgan St & Whiting St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	262	32	99	72	15	7	100	53	26	216	15
Future Volume (vph)	75	262	32	99	72	15	7	100	53	26	216	15
Satd. Flow (prot)	1770	1833	0	1770	1814	0	0	3132	0	0	1716	0
Flt Permitted	0.696			0.515				0.940			0.959	
Satd. Flow (perm)	1296	1833	0	959	1814	0	0	2950	0	0	1654	0
Satd. Flow (RTOR)		11			16			58			5	
Lane Group Flow (vph)	82	320	0	108	94	0	0	175	0	0	279	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	40.0	40.0		40.0	40.0		35.0	35.0		35.0	35.0	
Total Lost Time (s)	5.7	5.7		5.7	5.7			5.7			5.7	
Act Effect Green (s)	34.3	34.3		34.3	34.3			29.3			29.3	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.39			0.39	
v/c Ratio	0.14	0.38		0.25	0.11			0.15			0.43	
Control Delay	12.7	14.5		14.4	10.3			15.1			19.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			1.5	
Total Delay	12.7	14.5		14.4	10.3			15.1			20.5	
LOS	B	B		B	B			B			C	
Approach Delay		14.1			12.5			15.1			20.5	
Approach LOS		B			B			B			C	

Intersection Summary

Cycle Length: 75

Actuated Cycle Length: 75

Offset: 30 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 15.7

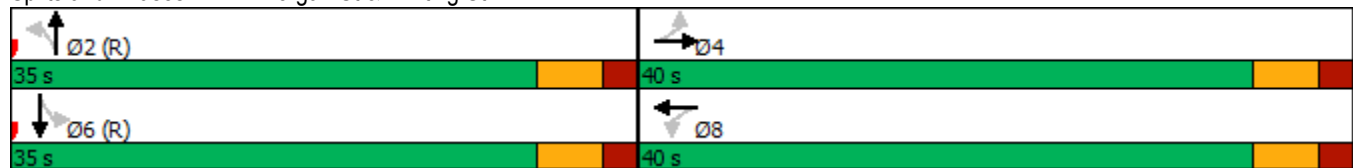
Intersection LOS: B

Intersection Capacity Utilization 65.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 24: Morgan St & Whiting St



PM Peak Proposed
32: Morgan St & Washington St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	34	11	25	22	5	164	0	3	120	7
Future Volume (vph)	20	20	34	11	25	22	5	164	0	3	120	7
Satd. Flow (prot)	0	1695	0	0	1737	0	0	3300	0	0	1718	0
Flt Permitted		0.937			0.960			0.950			0.996	
Satd. Flow (perm)	0	1604	0	0	1677	0	0	3137	0	0	1713	0
Satd. Flow (RTOR)		37			24						7	
Lane Group Flow (vph)	0	81	0	0	63	0	0	183	0	0	141	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	26.5	26.5		26.5	26.5		27.5	27.5		27.5	27.5	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Act Effect Green (s)		22.0			22.0			23.0			23.0	
Actuated g/C Ratio		0.41			0.41			0.43			0.43	
v/c Ratio		0.12			0.09			0.14			0.19	
Control Delay		6.9			7.4			9.8			10.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.9			7.4			9.8			10.1	
LOS		A			A			A			B	
Approach Delay		6.9			7.4			9.8			10.1	
Approach LOS		A			A			A			B	

Intersection Summary

Cycle Length: 54

Actuated Cycle Length: 54

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.19

Intersection Signal Delay: 9.1

Intersection LOS: A

Intersection Capacity Utilization 45.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 32: Morgan St & Washington St

	
Ø2 (R)	Ø4
27.5 s	26.5 s
	
Ø6 (R)	Ø8
27.5 s	26.5 s

PM Peak Proposed
40: Morgan St & Harrison St

07/01/2025

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	14	18	10	23	3	22	50	5	2	30	17
Future Volume (vph)	13	14	18	10	23	3	22	50	5	2	30	17
Satd. Flow (prot)	0	1936	0	0	1873	0	0	1697	0	0	1629	0
Flt Permitted		0.945			0.947			0.932			0.994	
Satd. Flow (perm)	0	1846	0	0	1790	0	0	1596	0	0	1621	0
Satd. Flow (RTOR)		20			3			5			18	
Lane Group Flow (vph)	0	49	0	0	39	0	0	83	0	0	53	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Act Effect Green (s)		18.0			18.0			18.0			18.0	
Actuated g/C Ratio		0.40			0.40			0.40			0.40	
v/c Ratio		0.07			0.05			0.13			0.08	
Control Delay		6.3			8.2			8.8			6.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.3			8.2			8.8			6.7	
LOS		A			A			A			A	
Approach Delay		6.3			8.2			8.8			6.7	
Approach LOS		A			A			A			A	

Intersection Summary

Cycle Length: 45

Actuated Cycle Length: 45

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Pretimed

Maximum v/c Ratio: 0.13

Intersection Signal Delay: 7.7

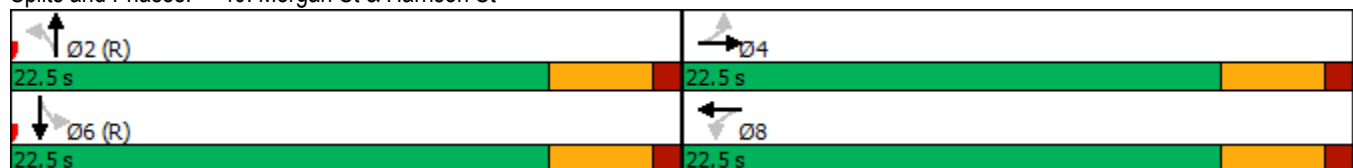
Intersection LOS: A

Intersection Capacity Utilization 37.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 40: Morgan St & Harrison St



Intersection: 1: Morgan St & Brorein St

Movement	WB	WB	WB	B29	B29	B29	NB	NB	SB	SB	B31
Directions Served	LT	T	TR	T	T	T	L	TR	L	TR	T
Maximum Queue (ft)	204	194	212	307	258	60	89	72	14	84	115
Average Queue (ft)	192	181	182	258	207	37	56	42	3	81	53
95th Queue (ft)	205	206	223	315	287	70	91	83	12	89	117
Link Distance (ft)	115	115	115	376	376	376	509	509	11	11	456
Upstream Blk Time (%)	48	37	35						9	39	
Queuing Penalty (veh)	0	0	0						11	49	
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Morgan St & Cass St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	26	65	52	72	53	31	30	31
Average Queue (ft)	5	41	26	50	41	18	6	25
95th Queue (ft)	23	68	64	81	57	42	25	45
Link Distance (ft)		818		515	234	234	227	227
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	127		34					
Storage Blk Time (%)			5	25				
Queuing Penalty (veh)			10	9				

Intersection: 4: Morgan St & Tyler St

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	TR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	30	30	30	56	30	31	31
Average Queue (ft)	12	22	18	27	6	27	19
95th Queue (ft)	36	41	42	67	26	38	44
Link Distance (ft)	855		234	227	227	224	224
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		125					
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Morgan St & Polk St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	74	72	50	51	50	53
Average Queue (ft)	15	25	16	20	28	16
95th Queue (ft)	64	69	50	61	54	52
Link Distance (ft)	1080	613	240	240	234	234
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 9: Morgan St & Zach St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	29	93	28	70	72	50	50	30
Average Queue (ft)	6	49	6	14	29	26	10	6
95th Queue (ft)	25	88	25	60	69	53	43	26
Link Distance (ft)		1111		1692	202	202	240	240
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	91		100					
Storage Blk Time (%)		1						
Queuing Penalty (veh)		0						

Intersection: 12: Morgan St & Twiggs St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (ft)	52	30	140	140	31	31	53	55
Average Queue (ft)	28	21	91	81	12	24	33	23
95th Queue (ft)	56	41	149	168	37	44	65	57
Link Distance (ft)	1108	1108	1643	1643	216	216	202	202
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 15: Morgan St & Madison St

Movement	EB	WB	NB	NB	SB
Directions Served	TR	TR	LT	TR	TR
Maximum Queue (ft)	31	53	51	31	31
Average Queue (ft)	12	26	16	12	24
95th Queue (ft)	36	64	50	36	44
Link Distance (ft)	1083	277	189	189	216
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 18: Morgan St & Kennedy Blvd

Movement	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	T	T	TR	LT	T	T	TR
Maximum Queue (ft)	370	348	366	191	72	52	31	53
Average Queue (ft)	250	251	214	96	52	24	12	26
95th Queue (ft)	364	361	383	206	75	59	36	55
Link Distance (ft)	2060	2060	2060	2060	267	267	189	189
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 21: Morgan St & Jackson St

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	TR	T	TR	LT	T
Maximum Queue (ft)	210	206	31	51	95	77
Average Queue (ft)	150	133	16	39	51	49
95th Queue (ft)	246	234	39	54	90	76
Link Distance (ft)	1105	1105	216	216	267	267
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 24: Morgan St & Whiting St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	29	54	116	54	143	32	30	72
Average Queue (ft)	6	37	51	42	99	28	18	41
95th Queue (ft)	25	52	106	76	177	35	42	82
Link Distance (ft)	1126	1126	1382	1382	456	456	233	233
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 32: Morgan St & Washington St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	92	290	30	31	52	31
Average Queue (ft)	68	254	6	12	24	6
95th Queue (ft)	96	318	26	35	58	26
Link Distance (ft)	261	477	233	233	216	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 40: Morgan St & Harrison St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LT	LTR
Maximum Queue (ft)	46	22	75	52
Average Queue (ft)	9	17	41	34
95th Queue (ft)	39	32	88	49
Link Distance (ft)	507	372	224	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 79

Intersection: 1: Morgan St & Brorein St

Movement	WB	WB	WB	B29	B29	NB	NB	SB	SB	B31	B31
Directions Served	LT	T	TR	T	T	L	TR	LT	R	T	T
Maximum Queue (ft)	194	186	136	262	179	87	116	82	84	24	29
Average Queue (ft)	187	168	115	172	67	59	80	69	65	5	6
95th Queue (ft)	193	214	139	251	189	101	132	87	95	21	25
Link Distance (ft)	115	115	115	376	376	509	509	13	13	456	456
Upstream Blk Time (%)	36	28	5					47	35		
Queuing Penalty (veh)	0	0	0					81	61		
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Morgan St & Cass St

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	TR	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	130	51	92	53	51	30	50
Average Queue (ft)	83	34	51	40	32	23	22
95th Queue (ft)	141	58	104	57	63	42	54
Link Distance (ft)	818		515	234	234	227	227
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		34					
Storage Blk Time (%)	1	4	21				
Queuing Penalty (veh)	0	4	12				

Intersection: 4: Morgan St & Tyler St

Movement	EB	WB	WB	SB
Directions Served	TR	L	TR	TR
Maximum Queue (ft)	31	30	52	31
Average Queue (ft)	6	6	16	6
95th Queue (ft)	26	26	52	27
Link Distance (ft)	855		234	224
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		125		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Morgan St & Polk St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LT	LT	TR
Maximum Queue (ft)	31	51	30	31	49
Average Queue (ft)	22	10	9	12	28
95th Queue (ft)	41	44	29	37	54
Link Distance (ft)	1080	613	240	234	234
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 9: Morgan St & Zach St

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	TR	LT	TR	LT	TR
Maximum Queue (ft)	31	74	71	31	53	52	30
Average Queue (ft)	10	32	42	28	36	10	6
95th Queue (ft)	30	71	70	37	59	45	26
Link Distance (ft)		1111	1692	202	202	240	240
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	91						
Storage Blk Time (%)		0					
Queuing Penalty (veh)		0					

Intersection: 12: Morgan St & Twiggs St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	TR	LT	TR	LT	TR	LT	TR
Maximum Queue (ft)	71	50	70	55	57	113	54	70
Average Queue (ft)	41	22	38	29	37	78	27	43
95th Queue (ft)	81	53	64	69	61	119	67	70
Link Distance (ft)	1108	1108	1643	1643	216	216	202	202
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 15: Morgan St & Madison St

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	TR	LT	TR	LT	TR
Maximum Queue (ft)	31	53	74	74	31	70
Average Queue (ft)	12	11	21	50	31	41
95th Queue (ft)	37	46	69	95	31	80
Link Distance (ft)		1083	189	189	216	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	85					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 18: Morgan St & Kennedy Blvd

Movement	WB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LT	T	T	TR	LT	T	T	TR
Maximum Queue (ft)	277	273	216	169	30	31	31	55
Average Queue (ft)	214	203	173	111	18	15	28	35
95th Queue (ft)	312	293	237	213	41	37	37	69
Link Distance (ft)	2060	2060	2060	2060	267	267	189	189
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)								
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 21: Morgan St & Jackson St

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	TR	T	TR	LT	T
Maximum Queue (ft)	304	276	72	77	70	52
Average Queue (ft)	222	182	42	49	30	24
95th Queue (ft)	310	278	76	86	76	59
Link Distance (ft)	1105	1105	216	216	267	267
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 24: Morgan St & Whiting St

Movement	EB	EB	WB	WB	NB	NB	B31	SB	SB
Directions Served	L	TR	L	TR	LT	TR	T	LT	TR
Maximum Queue (ft)	91	111	52	54	52	71	75	32	96
Average Queue (ft)	55	72	42	33	26	57	15	28	59
95th Queue (ft)	95	119	58	51	55	68	64	37	104
Link Distance (ft)	1126	1126	1382	1382	456	456	13	233	233
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 32: Morgan St & Washington St

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	72	32	30	54	31	75
Average Queue (ft)	29	18	18	33	11	32
95th Queue (ft)	68	42	42	66	32	81
Link Distance (ft)	261	477	233	233	216	216
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 40: Morgan St & Harrison St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LT	LTR
Maximum Queue (ft)	28	40	52	50
Average Queue (ft)	9	17	32	22
95th Queue (ft)	29	42	49	54
Link Distance (ft)	507	372	224	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 159

Intersection: 1: Morgan St & Brorein St

Movement	WB	WB	WB	B29	B29	B29	NB	NB	SB	B31
Directions Served	LT	T	TR	T	T	T	L	TR	LTR	T
Maximum Queue (ft)	204	186	188	255	151	25	88	68	84	176
Average Queue (ft)	188	160	151	156	65	9	57	51	78	72
95th Queue (ft)	201	197	205	271	170	28	95	67	99	177
Link Distance (ft)	115	115	115	376	376	376	509	509	13	456
Upstream Blk Time (%)	35	21	14						40	
Queuing Penalty (veh)	0	0	0						100	
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 2: Morgan St & Cass St

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	28	71	58	180	53	52
Average Queue (ft)	9	44	15	90	39	31
95th Queue (ft)	27	72	53	191	58	50
Link Distance (ft)		832		529	234	228
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	127		34			
Storage Blk Time (%)			2	29		
Queuing Penalty (veh)			3	11		

Intersection: 4: Morgan St & Tyler St

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	30	30	31	31	72	96
Average Queue (ft)	6	29	12	12	47	54
95th Queue (ft)	26	32	37	37	73	91
Link Distance (ft)		863		243	228	224
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	116		125			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: Morgan St & Polk St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	51	26	120	53
Average Queue (ft)	10	10	37	33
95th Queue (ft)	44	31	112	65
Link Distance (ft)	1088	621	241	234
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Morgan St & Zach St

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	TR	LTR	LTR
Maximum Queue (ft)	53	30	30	84	31
Average Queue (ft)	17	6	29	58	6
95th Queue (ft)	53	26	30	89	27
Link Distance (ft)	1119		1699	202	241
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: Morgan St & Twiggs St

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	70	30	118	173	52	92
Average Queue (ft)	36	17	78	114	41	55
95th Queue (ft)	75	41	126	170	75	112
Link Distance (ft)	1116	1116	1651	1651	216	202
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Morgan St & Madison St

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	TR	LTR	LTR
Maximum Queue (ft)	31	28	30	116	31
Average Queue (ft)	12	6	11	43	12
95th Queue (ft)	36	24	33	110	37
Link Distance (ft)	1091		285	189	216
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		93			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 18: Morgan St & Kennedy Blvd

Movement	WB	WB	WB	WB	NB	NB	SB
Directions Served	LT	T	T	TR	L	T	TR
Maximum Queue (ft)	409	373	357	243	29	74	96
Average Queue (ft)	299	304	283	208	6	41	52
95th Queue (ft)	393	405	359	266	25	97	97
Link Distance (ft)	2067	2067	2067	2067		267	189
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)					70		
Storage Blk Time (%)						15	
Queuing Penalty (veh)						4	

Intersection: 21: Morgan St & Jackson St

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	TR	T	R	L	T
Maximum Queue (ft)	206	159	53	31	94	164
Average Queue (ft)	173	120	20	18	28	84
95th Queue (ft)	213	159	53	43	86	165
Link Distance (ft)	1113	1113	215	215		267
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					70	
Storage Blk Time (%)						24
Queuing Penalty (veh)						6

Intersection: 24: Morgan St & Whiting St

Movement	EB	WB	WB	NB	NB	SB
Directions Served	TR	L	TR	LT	TR	LTR
Maximum Queue (ft)	53	120	96	55	72	55
Average Queue (ft)	41	72	72	40	37	39
95th Queue (ft)	64	129	111	59	76	59
Link Distance (ft)	1138	1386	1386	456	456	233
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 32: Morgan St & Washington St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	TR	LTR
Maximum Queue (ft)	72	284	31	50	71
Average Queue (ft)	32	196	6	30	37
95th Queue (ft)	70	295	27	57	76
Link Distance (ft)	275	480	233	233	215
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 40: Morgan St & Harrison St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	28	31	30	29	49
Average Queue (ft)	6	12	12	22	31
95th Queue (ft)	24	37	36	40	48
Link Distance (ft)	516	381		224	254
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			100		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 123

Intersection: 1: Morgan St & Brorein St

Movement	WB	WB	WB	B29	B29	B29	NB	NB	SB	B31
Directions Served	LT	T	TR	T	T	T	L	TR	LTR	T
Maximum Queue (ft)	199	186	183	244	144	127	134	102	122	135
Average Queue (ft)	187	156	118	150	56	25	84	61	93	80
95th Queue (ft)	197	198	177	233	168	109	128	116	122	155
Link Distance (ft)	115	115	115	376	376	376	509	509	13	456
Upstream Blk Time (%)	37	25	10						58	
Queuing Penalty (veh)	0	0	0						200	
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 2: Morgan St & Cass St

Movement	EB	WB	WB	NB	SB
Directions Served	TR	L	TR	LTR	LTR
Maximum Queue (ft)	161	57	91	96	76
Average Queue (ft)	107	39	41	75	45
95th Queue (ft)	167	74	91	97	89
Link Distance (ft)	832		529	234	229
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		34			
Storage Blk Time (%)	5	19	14		
Queuing Penalty (veh)	0	23	8		

Intersection: 4: Morgan St & Tyler St

Movement	EB	WB	NB	SB
Directions Served	TR	TR	LTR	LTR
Maximum Queue (ft)	50	45	31	55
Average Queue (ft)	27	33	6	23
95th Queue (ft)	54	43	27	58
Link Distance (ft)	869	248	229	224
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 6: Morgan St & Polk St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	31	78	78
Average Queue (ft)	28	18	54	38
95th Queue (ft)	55	43	78	80
Link Distance (ft)	1088	622	241	234
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 9: Morgan St & Zach St

Movement	EB	WB	NB	SB
Directions Served	TR	TR	LTR	LTR
Maximum Queue (ft)	50	31	75	95
Average Queue (ft)	22	12	66	65
95th Queue (ft)	54	37	83	101
Link Distance (ft)	1119	1700	202	241
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: Morgan St & Twiggs St

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	TR	LT	TR	LTR	LTR
Maximum Queue (ft)	74	30	72	73	97	120
Average Queue (ft)	50	15	37	34	68	71
95th Queue (ft)	85	37	66	77	97	113
Link Distance (ft)	1116	1116	1651	1651	216	202
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Morgan St & Madison St

Movement	EB	EB	NB	SB
Directions Served	L	TR	LTR	LTR
Maximum Queue (ft)	31	27	53	72
Average Queue (ft)	18	9	39	39
95th Queue (ft)	43	28	57	66
Link Distance (ft)		1090	189	216
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	85			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Morgan St & Kennedy Blvd

Movement	WB	WB	WB	WB	NB	NB	SB
Directions Served	LT	T	T	TR	L	T	TR
Maximum Queue (ft)	272	236	222	181	52	31	55
Average Queue (ft)	209	205	185	84	23	22	42
95th Queue (ft)	284	253	230	206	56	42	67
Link Distance (ft)	2069	2069	2069	2069		267	189
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)					120		
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 21: Morgan St & Jackson St

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	TR	T	R	L	T
Maximum Queue (ft)	318	315	118	94	94	94
Average Queue (ft)	241	243	80	73	51	47
95th Queue (ft)	328	315	113	104	98	112
Link Distance (ft)	1111	1111	215	215		267
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					70	
Storage Blk Time (%)					5	4
Queuing Penalty (veh)					5	2

Intersection: 24: Morgan St & Whiting St

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	TR	LTR
Maximum Queue (ft)	52	139	97	72	73	141	144
Average Queue (ft)	28	74	66	46	42	75	93
95th Queue (ft)	56	139	103	72	74	140	146
Link Distance (ft)	1138	1138	1386	1386	456	456	233
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 32: Morgan St & Washington St

Movement	EB	WB	NB	NB	SB
Directions Served	LTR	LTR	LT	TR	LTR
Maximum Queue (ft)	54	52	74	50	72
Average Queue (ft)	34	22	46	32	34
95th Queue (ft)	55	55	86	62	82
Link Distance (ft)	275	476	233	233	215
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 40: Morgan St & Harrison St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	31	29	77
Average Queue (ft)	28	24	22	33
95th Queue (ft)	55	44	41	74
Link Distance (ft)	521	386	224	254
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 239

APPENDIX C

Signal Timing Sheets



Timingsheet and Controller Operation - Phases 1 - 8

SECID: 1208 Timing Date: 10/22/2021 Phasing Date: 10/22/2021

Shop Number: 1469 Drop: Ver. B

Major Street **BROREIN**

Orientation: Westbound

Controller Type: COBALT

Minor Street **MORGAN**

Orientation: North-South

Computer System Cen

Last Date Sent 11/1/2018

Controller Timings (seconds)								
Controller Phase Number		2	3	4		6	7	8
Direction		WB	SBLT	NB		EBWlk	NBLT	SB
Minimum Green		10	5	10		10	5	10
Vehicle Extension		3.0	3.0	3.0		3.0	3.0	3.0
Yellow Clr/Alt Clr		4	3.4	3.7		4	3.4	3.7
Red Clr/Alt Red Clr		2	2	2		2	2	2
Max Green I		75	20	50		75	20	50
Max Green II		80	20	60		80	20	60
Walk		7		7		7		7
Walk - XGuard								
FDW		8		15		9		16
FDW - XGuard								
Detector Memory								
Phase Recall		MAX				MAX		
Ped Recall		ON				ON		
Flash Operation		RED	RED	RED			RED	RED

Controller Operation	
RXR Preempt: No	FDOT SOP: 7 MOD
Fire Preempt: No	Backup Protection: N
Bridge Preempt: No	LPI Location(Y/N): Yes
Transit Preempt: False	LPI Date: 2/1/2021
Crossing Guard Times AM:	
Crossing Guard Times PM:	
Free Time Primary:	
Free Time Secondary:	
Flash Source- (C)omputer or (F)ield:	
Flash Times Primary:	
Flash Times Secondary	
CNA Ø's	Ø2, Ø6

Cabinet Load Switch Assignments															
LS1:		LS2:	Ø2	LS3:		LS4:	Ø4	LS5:		LS6:		LS7:		LS8:	
LS9:		LS10:		LS11:		LS12:		LS13:	P2	LS14:	P4FYAG	LS15:	P6	LS16:	P8FYAK

Comments	MAX II: MONDAY THRU THURSDAY (06:15 - 09:00 & 15:15 - 18:30) / FRIDAY (06:15 - 09:00 & 14:45 - 18:30)
	MAX I ALL OTHER TIMES
	3 Sec. LPI

Phase Ring Assignments															
Seq 1	R 1:	1	2		3	4									
	R 2:	5	6		7	8									
Seq 2	R 1:														
	R 2:														
Seq 3	R 1:														
	R 2:														
Seq 4	R 1:														
	R 2:														

Submitted By: *CNB* Date: 2021-10-22 Review By: *JMC* Date: 11/17/2021 Approved By: *NHA* Date: 11/17/2021

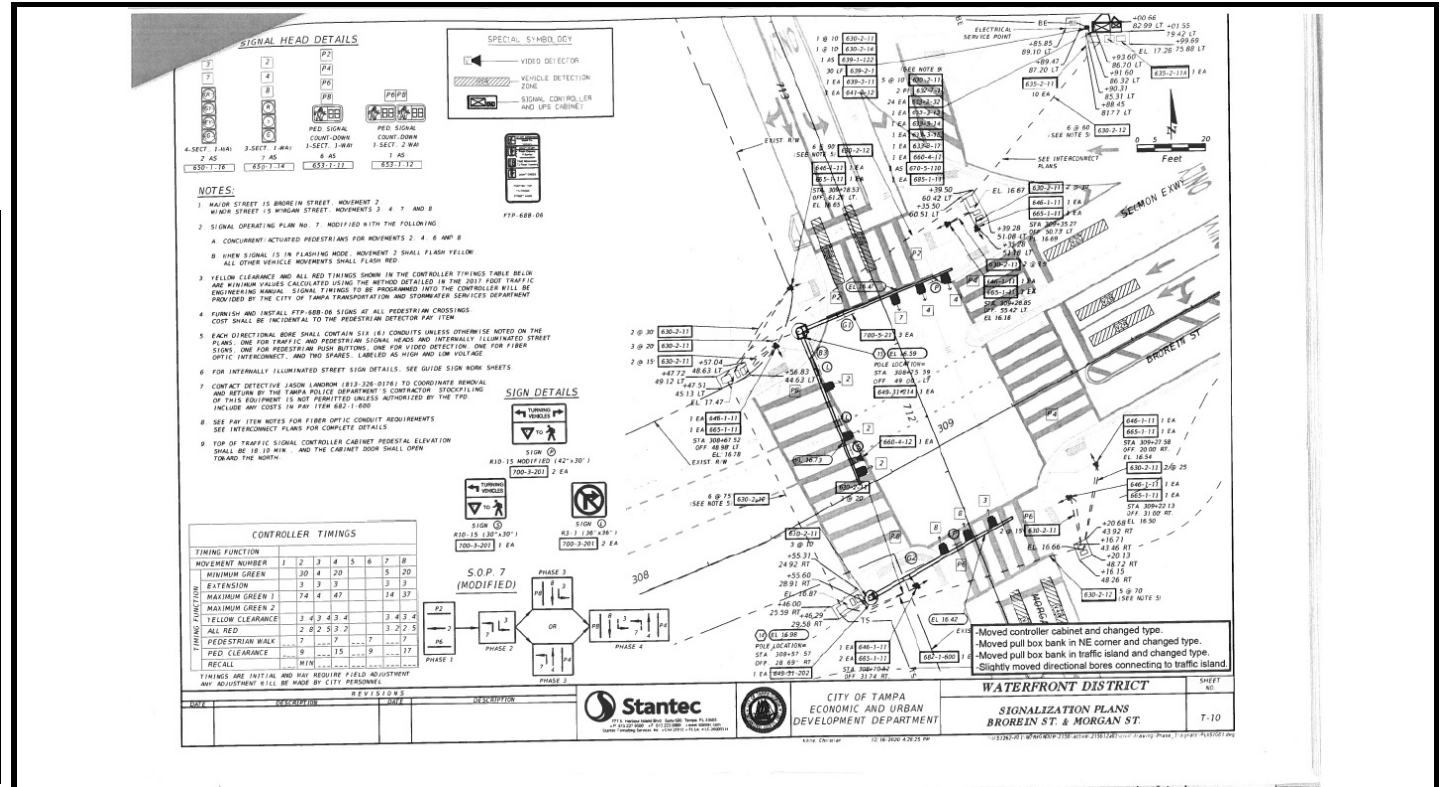
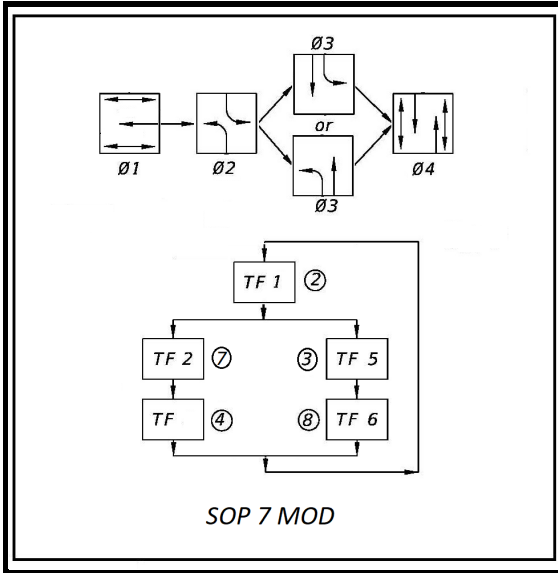
Implemented By: Date: Notes:

Section Id **1208** Controller Type **COBALT**

Major Street **BROREIN**

Minor Street **MORGAN**

Coord Date **1/27/2021** FDOT SOP: **7 MOD**



Ped 1 Selector 1ped-wlk-fdw-count PED Signal 1: P2, P4, P6, P8	Sig 1 Selector 3-section-ball-vertica Signal Head 1: 2, 4, 8	Sig 2 Selector 4-section-gl-fyl-yl-rl-v Signal Head 2: 3, 7	Sig 3 Selector Signal Head 3:	Sig 4 Selector Signal Head 4:	Sig 5 Selector Signal Head 5:	Sig 6 Selector Signal Head 6:	Sig 7 Selector Signal Head 7:	Sig 8 Selector Signal Head 8:
								
Ped 2 Selector PED Signal 2:	Sig 9 Selector Signal Head 9:	Sig 10 Selector Signal Head 10:	Sig 11 Selector Signal Head 11:	Sig 12 Selector Signal Head 12:	Sig 13 Selector Signal Head 13:	Sig 14 Selector SIGNAL HEAD 14	Sig 15 Selector SIGNAL HEAD 15	Sig 16 Selector SIGNAL L HEAD 16

Submitted by: CD 6-15-20

Approved by: TS 6-15-20

Location Details			
Signal ID:	1202	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Whiting St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB	WBLT	EB/WB													
Turn Type			Prot Perm														
Min Green		10	5	10													
Ext		3.0	3.0	3.0													
Yellow		3.7	3.7	3.7													
All Red		2.0	2.0	2.0													
Max I		40	20	25													
Max II		40	20	25													
Walk		7	1	7													
Flashing Don't Walk		12	1	14													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED	MAX PED	MAX PED													
CNA		ON	ON	ON													

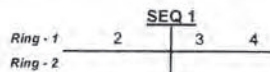
Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		27 MAX	18	30													44	1	2
2		60		30 MAX		30													59	1	2
3		60		30 MAX		30													54	1	2
4		60		30 MAX		30													54	1	2
5		75		35 MAX		40													30	1	2
6		60		30 MAX		30													54	1	2
7		60		30 MAX		30													59	1	2
8		60		30 MAX		30													59	1	2
9		60		30 MAX		30													59	1	2
10		60		30 MAX		30													59	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds for Ø2, Ø3, Ø4.



Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0057	Date:	May 16, 2020
Major Street:	Jackson St (SR 60 EB)	Orientation:	E-W
Minor Street:	Morgan St	Orientation:	N-S

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		EB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.1													
Max I		50		80													
Max II		50		80													
Walk		7		7													
Flashing Don't Walk		13		11													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

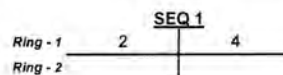
Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		150		58 MAX		92													88	1	2
2		60		30 MAX		30													45	1	2
3		120		52 MAX		68													102	1	2
4		120		52 MAX		68													102	1	2
5		150		58 MAX		92													103	1	2
6		120		52 MAX		68													102	1	2
7		60		30 MAX		30													45	1	2
8		60		30 MAX		30													45	1	2
9		60		30 MAX		30													45	1	2
10		60		30 MAX		30													45	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds for Ø2, Ø4



Signal ID:	0057
Major Street:	Jackson St (SR 60 EB)
Minor Street:	Morgan St

Day Plans

[illegible]

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	150
09	30	2	60
11	30	3	120
13	30	4	120
15	00	5	150
18	15	6	120
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0056	Date:	May 16, 2020
Major Street:	Kennedy Blvd (SR 60 WB)	Orientation:	E-W
Minor Street:	Morgan St	Orientation:	N-S

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		WB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.0													
Max I		45		80													
Max II		45		80													
Walk		7		7													
Flashing Don't Walk		10		9													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

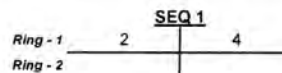
Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		150		67 MAX		83													69	1	2
2		60		30 MAX		30													35	1	2
3		120		60 MAX		60													47	1	2
4		120		60 MAX		60													47	1	2
5		150		70 MAX		80													99	1	2
6		120		60 MAX		60													47	1	2
7		60		30 MAX		30													35	1	2
8		60		30 MAX		30													35	1	2
9		60		30 MAX		30													35	1	2
10		60		30 MAX		30													35	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds for Ø2 & Ø4.



Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0055	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Madison St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		EB/WB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.0													
Max I		60		35													
Max II		95		55													
Walk		7		7													
Flashing Don't Walk		13		14													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

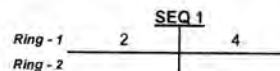
Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		48 MAX		27													25	1	2
2		60		30 MAX		30													33	1	2
3		60		30 MAX		30													38	1	2
4		60		30 MAX		30													38	1	2
5		75		36 MAX		39													59	1	2
6		60		30 MAX		30													42	1	2
7		60		30 MAX		30													33	1	2
8		60		30 MAX		30													33	1	2
9		60		30 MAX		30													33	1	2
10		60		30 MAX		30													33	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds on Ø2 & Ø4.



Signal ID:	0055
Major Street:	Morgan St
Minor Street:	Madison St

Day Plans

Mon-Thurs			
Day Plan 1			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0054	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Twiggs St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		EB/WB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.0													
Max I		65		65													
Max II		75		75													
Walk		7		7													
Flashing Don't Walk		15		13													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

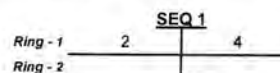
Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		30 MAX		45													28	1	2
2		60		30 MAX		30													16	1	2
3		60		30 MAX		30													27	1	2
4		60		30 MAX		30													27	1	2
5		75		28 MAX		47													34	1	2
6		60		30 MAX		30													27	1	2
7		60		30 MAX		30													16	1	2
8		60		30 MAX		30													16	1	2
9		60		30 MAX		30													16	1	2
10		60		30 MAX		30													16	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 5 seconds for Ø2 & Ø4.



Signal ID:	0054
Major Street:	Morgan St
Minor Street:	Twiggs St

Day Plans

Mon-Thurs			
Day Plan 1			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Submitted by: SS 06/11/2020

Approved by: TJ 6/11/2020

Location Details			
Signal ID:	0053	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Zack St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		EB/WB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.0													
Max I		75		35													
Max II		95		35													
Walk		7		7													
Flashing Don't Walk		12		14													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		48 MAX		27													67	1	2
2		60		30 MAX		30													16	1	2
3		60		30 MAX		30													7	1	2
4		60		30 MAX		30													7	1	2
5		75		37 MAX		38													73	1	2
6		60		30 MAX		30													7	1	2
7		60		30 MAX		30													16	1	2
8		60		30 MAX		30													16	1	2
9		60		30 MAX		30													16	1	2
10		60		30 MAX		30													16	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds for Ø2 & Ø4.

Ring - 1 2 SEQ 1 4
Ring - 2

Signal ID:	0053
Major Street:	Morgan St
Minor Street:	Zack St

Day Plans

Mon-Thurs			
Day Plan 1			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0052	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Polk St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		NB/SB		EB/WB													
Turn Type																	
Min Green		10		10													
Ext		3.0		3.0													
Yellow		3.7		3.7													
All Red		2.0		2.0													
Max I		75		35													
Max II		95		45													
Walk		7		7													
Flashing Don't Walk		16		14													
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED													
CNA		ON		ON													

Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		48 MAX		27													57	1	2
2		60		30 MAX		30													16	1	2
3		60		30 MAX		30													45	1	2
4		60		30 MAX		30													45	1	2
5		75		37 MAX		38													2	1	2
6		60		30 MAX		30													45	1	2
7		60		30 MAX		30													16	1	2
8		60		30 MAX		30													16	1	2
9		60		30 MAX		30													16	1	2
10		60		30 MAX		30													16	1	2

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2 and Ø4 during coordination.
- 3) LPI = 3 seconds on Ø2 & Ø4.

Ring - 1 2 SEQ 1 4
Ring - 2

Signal ID:	0052
Major Street:	Morgan St
Minor Street:	Polk St

Day Plans

Mon-Thurs			
Day Plan 1			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]

Submitted by: SS 06/12/2020

Approved by: TS 6/12/2020

Location Details			
Signal ID:	0051	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Cass St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		SB		EB/WB		NB		BIKE									
Turn Type																	
Min Green		10		10		10		10									
Ext		3.0		3.0		3.0		3.0									
Yellow		3.7		3.7		3.7		3.7									
All Red		2.0		2.3		2.0		2.3									
Max I		60		60		60		60									
Max II		80		70		80		70									
Walk		7		7		7		7									
Flashing Don't Walk		14		14		12		14									
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED		MAX PED		MAX									
CNA		ON		ON		ON											

Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		38 MAX		37		38 MAX		37									45	1	2, 6
2		60		30 MAX		30		30 MAX		30									14	1	2, 6
3		60		30 MAX		30		30 MAX		30									48	1	2, 6
4		60		30 MAX		30		30 MAX		30									48	1	2, 6
5		75		30 MAX		45		30 MAX		45									49	1	2, 6
6		60		30 MAX		30		30 MAX		30									48	1	2, 6
7		60		30 MAX		30		30 MAX		30									14	1	2, 6
8		60		30 MAX		30		30 MAX		30									14	1	2, 6
9		60		30 MAX		30		30 MAX		30									14	1	2, 6
10		60		30 MAX		30		30 MAX		30									14	1	2, 6

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2, Ø4, and Ø6 during coordination.
- 3) Max recall Ø8 during coordination (Bike Phase).
- 3) LPI = 3 seconds for Ø2, Ø4, Ø6, & Ø8.

		SEQ 1	
Ring - 1	2		4
Ring - 2	6		8

Submitted by: SS 06/11/2020

Approved by: TS 6/11/2020

Location Details			
Signal ID:	0050	Date:	May 16, 2020
Major Street:	Morgan St	Orientation:	N-S
Minor Street:	Tyler St	Orientation:	E-W

Controller Timings (seconds)

Movement # (Controller Phase Ø)	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16	Notes
Direction		SB		WB		NB		EB									
Turn Type																	
Min Green		10		10		10		10									
Ext		3.0		3.0		3.0		3.0									
Yellow		3.7		3.7		3.7		3.7									
All Red		2.0		2.0		2.0		2.0									
Max I		75		55		75		55									
Max II		85		45		85		45									
Walk		7		7		7		7									
Flashing Don't Walk		12		14		9		14									
Detector Memory																	
Det. Switching to:																	
Recall		MAX PED		MAX PED		MAX PED		MAX PED									
CNA		ON		ON		ON		ON									

Coordination Timings (seconds)

Pattern	C-S-O	Cycle Length	Splits																Offset	Seq	Coord Ø
			Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16			
1		75		40 MAX		35		40 MAX		35									42	1	2, 6
2		60		30 MAX		30		30 MAX		30									24	1	2, 6
3		60		30 MAX		30		30 MAX		30									24	1	2, 6
4		60		30 MAX		30		30 MAX		30									24	1	2, 6
5		75		37 MAX		38		37 MAX		38									43	1	2, 6
6		60		30 MAX		30		30 MAX		30									24	1	2, 6
7		60		30 MAX		30		30 MAX		30									24	1	2, 6
8		60		30 MAX		30		30 MAX		30									24	1	2, 6
9		60		30 MAX		30		30 MAX		30									24	1	2, 6
10		60		30 MAX		30		30 MAX		30									24	1	2, 6

Offset Reference Point	Phase Mode
Beginning of First Green	

Notes:

- 1) Use 'Max I' during FREE Operation.
- 2) Max & Ped recall Ø2, Ø4, Ø6, and Ø8 during coordination.
- 3) LPI = 3 seconds on Ø2, Ø4, Ø6, & Ø8.

		SEQ 1	
Ring - 1	2		4
Ring - 2	6		8

Signal ID:	0050
Major Street:	Morgan St
Minor Street:	Tyler St

Day Plans

[illegible]

Friday			
Day Plan 2			
Hr	Min	Patt	Cycl
00	00	7	60
06	15	1	75
09	30	2	60
11	30	3	60
13	30	4	60
15	00	5	75
18	15	6	60
20	00	7	60

[illegible][illegible][illegible][illegible][illegible][illegible][illegible]



City of Tampa

306 E Jackson St
Tampa, FL 33602

Jane Castor
Mayor

Brandon Campbell, P.E.
Interim Mobility Director

TRAFFIC SAFETY STUDY

DATE: September 16, 2025

FROM: Timothy Horst, P.E., Vision Zero Engineer

SUBJECT: Morgan Street Lane Repurposing Project

Introduction

The purpose of this Traffic Safety Study is to address the impacts on safety of the Morgan St Lane Repurposing Project and satisfy the requirements of Florida Statute 334.61. The project limits extend on Morgan Street from Brorein Street to Fortune Street with lane repurposing occurring from Brorein Street to Harrison St. Morgan Street has separated bicycle lanes planned for the full length of the project limits according to the MOVES transportation plan and it is the desire of the city to implement that plan. It is the recommendation of the City of Tampa's Mobility team that separated bike lanes are constructed to reduce the number and severity of crashes and provide a north south bicycle facility through downtown Tampa. It has been shown that adding bicycle lanes to an existing roadway will reduce the number of total crashes. Discussed in this memorandum are the project description and justification, crash data analysis, recommendations, and safety evaluations.

Project Description and Justification

The purpose of this project is to propose the installation of separated bike lanes on Morgan Street from Brorein Street to Harrison Street in Hillsborough County, Florida. The existing configuration of Morgan Street is a four-lane undivided roadway, and this project proposes three vehicular travel lanes from Brorein Street to Kennedy Boulevard and two travel lanes from Kennedy Boulevard to Harrison St. Separated bike lanes will be installed from Brorein Street to Harrison Street and parallel parking will be maintained on the entire corridor where allowable. As a downtown corridor with significant pedestrian and bicycle traffic, it is crucial to improve safety and provide transportation alternatives as more people choose to live in and around downtown Tampa.

Repurposing travel lanes on Morgan Street to install separated bike lanes will improve safety for

all users in the following ways:

1. The proposed condition reduces conflict points by providing refuge to left turning vehicles in the project limits with 3 lanes. Turning vehicles also have fewer lanes to cross when making turning maneuvers. This design will also reduce weaving as drivers no longer have to navigate around turning vehicles.
2. The proposed condition improves speed management by no longer allowing passing maneuvers and it reduces perceived roadway width which creates more consistent speeds on the corridor.
3. The proposed condition enhances pedestrian safety by reducing the crossing distance since the number of vehicular lanes is reduced from 4 to 3 or 2. Sight distance to crossing pedestrians is improved as vehicles no longer “double threat” pedestrians (where one car stops, and the other keeps going).
4. The proposed condition protects bicyclists since the separated bike lanes move cyclists out of mixed traffic and provide physical separation with flexible delineators.
5. Studies from the Crash Modification Factors Clearinghouse showed that adding bike lanes to a 4 lane undivided roadway in an urban context reduced all crashes by 57%. This finding was statistically significant at the 95% confidence level. A road diets is also a proven safety countermeasure according to FHWA with an anticipated 19-47% reduction in crashes.

Implementing separated bike lanes on Morgan Street from Brorein Street to Harrison Street in Hillsborough County, Florida, is a crucial step toward enhancing the safety of Morgan St, providing transportation alternatives, and reducing crashes.

Crash Data Analysis

Crash data was gathered from Signal Four during the period of 2019 to 2023 within the limits of the stop bars for the intersecting streets on the project corridor. During that 5 year period there were 194 crashes. Of those crashes 29, or 15% of crashes occurred in dark conditions suggesting that lighting is not significant contributing cause of the crash problem. Angle crashes were the dominant crash type with 100 or 52% of crashes, second was sideswipe crashes with 46 or 24%, and third was rear end crashes with 21 or 11% of crashes. Encouragingly, the lane repurposing is anticipated to reduce these three crash types for the previously listed reasons.

As seen in the benefit cost calculation sheet crash types were broken down by the KABCO crash severity rankings. From this analysis it was found that during the 5 years from 2019-2023 there were 0 fatal, 2 serious injuries, 7 non-incapacitating, 21 possible injury crashes, and 164 property damage only crashes along this corridor. A CRF of 57% was applied to all crashes. From the analysis the bike lanes would have prevented 1.13 incapacitating crashes, 3.96 non-incapacitating crashes, 11.87 possible injury crashes, and 92.66 property damage only crashes.

Recommendations

Based on the crash data and analysis done by the City of Tampa, the Morgan Street Lane Repurposing Project should be advanced to public outreach project phase.

Benefit-Cost Analysis

A benefit-cost analysis was completed as part of this review. A crash reduction factor of 57% was applied, yielding a benefit-cost ratio of 9.87. See the attached BC sheet for further details.

Net Present Value

A net present value calculation was completed using the same crash data that was used in the benefit-cost analysis. An estimated service life of 20 years was used for the proposed changes. The net present value is \$8,996,802. This number represents the total monetary value from reduced crashes the project brings to the community if all the 20 years of benefits were brought to present day dollars.

Summary of Enclosures:

- Professional Engineer Endorsement
- Benefit cost/ NPV analysis
- Engineers estimate
- 2019-2023 5-year crash data
- Crash modification factor details

PROFESSIONAL ENGINEER ENDORSEMENT

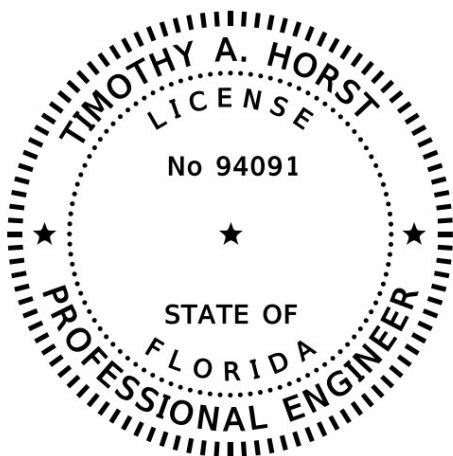
I hereby certify that I am a Registered Professional Engineer in the State of Florida. I have prepared or supervised the preparation of the evaluation, findings, conclusions, recommendations, or professional opinions/advice contained in this document. My endorsement constitutes my approval of this document detailing the Traffic Safety Study of the Morgan Street Lane Repurposing Project.

The results contained in this study were developed using procedures and references standard to the transportation engineering practice. These references and procedures were applied using professional judgment and experience.

Name: Timothy Horst

P.E. No.: 94091

Date: September 16, 2025



*THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY*

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.*

*THE ABOVE NAMED PROFESSIONAL IS
RESPONSIBLE FOR THE FOLLOWING SHEETS
IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.*

City of Tampa

ANNUAL BENEFIT COST ANALYSIS

Yellow cells require information from you.

Gray cells are automatically tabulated.

1. SUBMITTED BY:

2. DATE SUBMITTED:

3. FM PROJECT NO.:

4. ALTERNATIVE NO.:

6. COUNTY:

7. FROM

Tim Horst

09/16/25

Hillsborough

Brorain St

WPA NO.:

SKID (I.D.):

ON:

Morgan St

Harrison St

30

S.R.:

0.660

U.S. RD.:

8. DESCRIPTION OF LOCATION/FACILITY TYPE:

9. CAUSE OF CRASH PROBLEMS (LIST AND DISCUSS):

10. PROPOSED IMPROVEMENTS (LIST AND DISCUSS):

COMMENTS/CRASH REDUCTION METHOD:

HIGH CRASH LISTINGS:

Morgan St from Brorain St to Harrison St is a 4 lane undivided roadway. Functional Classification: Collector. Context Classification: C6: Urban Core

Varied, but the 4 vehicle lanes in comparison to the relatively modest amount of traffic contributes to higher speeds and crash severities. Common crash types are angle, sideswipe, and rear end crashes. Weaving and changing lanes contributes to crash problems. More travel lanes contributes to greater crossing distances for pedestrians in a urban core context.

Lane repurposing to add dedicated turn lanes and separated bicycle lanes

Countermeasure: Install Bicycle Lanes
All crash types and severities; Prior Condition: Roadway without bike lanes
CMF ID: 10737. Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths, 2021

N/A

11. CRASH TYPES

NO. OF CRASHES

CRF %

TOTAL TO BE

14. CRASH INFORMATION FOR FACILITY

A. Fatal (K)

2019

2020

2021

2022

2023

57%

0.00

See table below

All Crashes

0.0

0.0

0.0

0.0

0.0

57%

0.00

\$ 100 per year

SUBTOTAL: CORRECTED FATAL CRASHES:

0.00

C. INTEREST (DISCOUNT) RATE:

4.0%

B. Incapacitating Injury (A)

NO. OF CRASHES

CRF %

TOTAL TO BE

All Crashes

1.0

0.0

0.0

1.0

0.0

57%

1.13

SUBTOTAL: CORRECTED INCAPACITATING INJURY CRASHES:

1.13

C. Non-Incapacitating Injury (B)

NO. OF CRASHES

CRF %

TOTAL TO BE

All Crashes

1.0

0.0

4.0

2.0

0.0

57%

3.96

SUBTOTAL: CORRECTED NON-INCAPACITATING INJURY:

3.96

D. Minor Injury (C)

NO. OF CRASHES

CRF %

TOTAL TO BE

All Crashes

4.0

3.0

2.0

7.0

5.0

57%

11.87

SUBTOTAL: CORRECTED MODERATE INJURY:

11.87

E. Property Damage Only (O)

NO. OF CRASHES

CRF %

PREVENTED

All Crashes

32.0

25.0

30.0

47.0

30.0

57%

92.66

SUBTOTAL: CORRECTED MODERATE INJURY:

92.66

H. SUBTOTAL:

\$ 959,293

20

0.0736

\$ 70,586

I. CHANGE IN MAINTENANCE:

\$ -

K. TOTAL ANNUAL COST:

\$ 74,240

16. BENEFIT/COST:

9.87

17. NET PRESENT VALUE

A. CURRENT YEAR

2025

B. PROJECT COMPLETION

2026

C. NPV

\$ 8,996,802

A. TOTAL CRASH BENEFIT

\$ 3,662,935

Prepared By:

T. Horst

Date:

9/16/2025

B. TOTAL ANNUAL BENEFIT:

\$ 732,587

Approved By:

Date:

Crash Severity

Translation to HSMV

Crash Cost

Fatal (K)

Fatal

\$10,890,000

Severe Injury (A)

Incapacitating

\$888,030

Moderate Injury (B)

Non-Incapacitating

\$180,180

Minor Injury (C)

Possible

\$103,950

Property Damage Only (O)

None

\$7,700

Topic #625-000-002

FDOT Design Manual

January 1, 2025

Table 122.6.2

FDOT KABCO Crash Costs

Crash Severity

Comprehensive Crash Cost

Fatal (K)

\$10,890,000

Severe Injury (A)

\$888,030

Moderate Injury (B)

\$180,180

Minor Injury (C)

\$103,950

Property Damage Only (O)

\$7,700

Note:

(1) Source: Florida Department of Transportation State Safety Office's Crash Analysis Reporting (CAR) System, analysis years 2015 through 2019. Published by FDOT State Safety Office on 2/23/2022.

ENGINEER'S ESTIMATE
City of Tampa
(2025 12-month Statewide Averages)

PROJECT DESCRIPTION:

Morgan St Lane Repurposing Project

SUBMITTED BY:

Tim Horst

DATE : 9/4/2025

COUNTY: Hillsborough

SECTION: Morgan St

BEGIN MP: Brorein St

END MP: Harrison St

PAY ITEM #	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
	Roadway				
0327 70 16	MILLING EXISTING ASPHALT PAVEMENT, 1.5" THICK AVG DEPTH	SY	17525	\$ 3.24	\$ 56,781.00
0334 1 13 (1-99)	SUPERPAVE ASPHALTIC CONC, TRAFFIC C, 1.5" THICK AVG DEPTH	TN	1450	\$ 149.00	\$ 216,050.00
0520 1 10	CONCRETE CURB & GUTTER, TYPE F	LF	300	\$ 50.00	\$ 15,000.00
0522 1	CONCRETE SIDEWALK AND DRIVEWAY, 4" THICK	SY	500	\$ 71.00	\$ 35,500.00
0527 2	DETECTABLE WARNINGS	SF	250	\$ 43.00	\$ 10,750.00
	Signing and Pavement Markings				
0523 3	PATTERNED PAVEMENT, VEHICULAR AREAS, GREEN BIKE LANE	SY	750	\$ 208.00	\$ 156,000.00
0700 1 11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	5	\$ 555.00	\$ 2,775.00
0700 3101	SIGN PANEL, F&I, UP TO 12 SF	EA	11	\$ 304.00	\$ 3,344.00
0700 1600	SINGLE COLUMN GROUND SIGN ASSEMBLY, REMOVE	AS	4	\$ 67.00	\$ 268.00
	DELINEATOR, 36" FLEXIBLE TUBULAR POST, 42" TUFF CURB	EA	184	\$ 105.00	\$ 19,320.00
0706 1 1	RETRO-REFLECTIVE PAVEMENT MARKERS WHITE/RED	EA	125	\$ 5.00	\$ 625.00
0706 1 1	RETRO-REFLECTIVE PAVEMENT MARKERS YELLOW/YELLOW	EA	156	\$ 5.00	\$ 780.00
0706 1 1	RETRO-REFLECTIVE PAVEMENT MARKERS BLUE/BLUE	EA	4	\$ 5.00	\$ 20.00
0710 11101	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID, 6"	GM	1.90	\$ 1,620.00	\$ 3,083.83
0710 11123	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK, 12"	LF	2237	\$ 2.00	\$ 4,474.00
0710 11124	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CHEVRON, 18"	LF	2273	\$ 2.00	\$ 4,546.00
0710 11125	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SOLID FOR CROSSWALK, 24"	LF	2176	\$ 3.00	\$ 6,528.00
0710 11131	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, SKIP, 10-30 SKIP, 6"	GM	0.06	\$ 735.00	\$ 47.05
0710 11141	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 2-4 SKIP, 6"	GM	0.44	\$ 882.00	\$ 385.71
0710 11141	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 6-10 SKIP, 6"	GM	0.03	\$ 882.00	\$ 23.39
0710 11170	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, ARROWS	EA	13	\$ 45.00	\$ 585.00
0710 11201	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, SOLID, 6"	GM	1.12	\$ 1,613.00	\$ 1,801.79
0710 11231	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 3-9 SKIP, 6"	GM	0.38	\$ 921.00	\$ 346.25
0710 11241	PAINTED PAVEMENT MARKINGS, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE, 6-10 SKIP, 6"	GM	0.02	\$ 901.00	\$ 22.01
0710 11133	PAINTED PAVEMENT MARKINGS, STANDARD, WHITE, 3-9 SKIP DROP LINE, 12"	GM	0.07	\$ 1,400.00	\$ 94.92
0711 16102	THERMOPLASTIC, STANDARD, WHITE, SOLID, 6"	GM	1.90	\$ 7,820.00	\$ 14,886.14
0711 14125	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 12" FOR CROSSWALK	LF	2237	\$ 18.00	\$ 40,266.00
0711 11224	THERMOPLASTIC, STANDARD, WHITE, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	2273	\$ 7.00	\$ 15,911.00
0711 14160	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 24" FOR CROSSWALK	GM	0.41	\$ 273.00	\$ 112.51
0711 16201	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6", 10-30 SKIP	GM	0.06	\$ 5,849.00	\$ 374.42
0711 11141	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6" 2-4 SKIP	GM	0.44	\$ 3,068.00	\$ 1,341.67
0711 11241	THERMOPLASTIC, STANDARD, WHITE, SKIP, 6", 6-10 SKIP	GM	0.03	\$ 3,232.00	\$ 85.70
0711 11170	THERMOPLASTIC, PREFORMED, WHITE, ARROW	EA	13	\$ 92.00	\$ 1,196.00
0711 16201	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 6"	GM	1.12	\$ 847.00	\$ 946.14
0711 11231	THERMOPLASTIC, STANDARD, YELLOW, 3-9 DOTTED GUIDE LINE, 6"	GM	0.38	\$ 2,566.00	\$ 964.68
0711 11231	THERMOPLASTIC, STANDARD, YELLOW, 2-4 DOTTED GUIDE LINE, 6"	GM	0.02	\$ 2,566.00	\$ 62.69
0711 16133	THERMOPLASTIC, STANDARD, WHITE, SKIP, 12" 3-9 LANE DROP	GM	0.07	\$ 7,031.00	\$ 476.72
0711 14160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE, BIKE & SHARROW	EA	52	\$ 273.00	\$ 14,196.00
0711 14160	THERMOPLASTIC, PREFORMED, WHITE, MESSAGE	EA	14	\$ 273.00	\$ 3,822.00
0711 14170	THERMOPLASTIC, PREFORMED, WHITE, ARROW, BIKE THRU	EA	45	\$ 175.00	\$ 7,875.00
ESTIMATE SUB-TOTAL (PAY ITEMS ONLY)					\$ 641,667.63
PROJECT UNKNOWNNS				15.00%	\$ 96,250.14
MOT (MAINTENANCE OF TRAFFIC)				15.00%	\$ 110,687.67
MOB (MOBILIZATION)				15.00%	\$ 110,687.67
PROJECT GRAND TOTAL					\$ 959,293.10

REPORT_NUMBER	CRASH_YEAR	CRASH_DATE_AND_TIME	ON_STREET_ROAD_HIGHWAY	FROM_INTERSECTION_OF	LIGHT_CONDITION	TYPE_OF_IMPACT	S4_CRASH_SEVERITY_DETAIL
89161394	2019	11/6/2019 17:59	N MORGAN ST	E TYLER ST	Dark - Lighted	Angle	No Injury
89159748	2019	10/7/2019 17:42	E HARRISON ST	N MORGAN ST	Daylight	Angle	No Injury
88763128	2019	2/23/2019 2:33	E WHITING ST	S MORGAN ST	Dark - Lighted	Angle	No Injury
89162660	2019	12/3/2019 9:00	E WHITING ST	S MORGAN ST	Daylight	Angle	No Injury
89159415	2019	10/1/2019 12:53	E WHITING ST	S MORGAN ST	Daylight		Non-Incapacitating Injury
89155415	2019	7/14/2019 9:30	E WHITING ST	S MORGAN ST	Daylight	Angle	Possible Injury
89162812	2019	12/6/2019 11:54	S MORGAN ST	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
89154392	2019	6/21/2019 18:40	S MORGAN ST	E WHITING ST	Daylight		No Injury
88765206	2019	4/1/2019 7:40	E WHITING ST		Dawn		No Injury
88761292	2019	1/17/2019 9:00	MORGAN ST N	WHITING ST E	Daylight		No Injury
89162273	2019	11/23/2019 23:09	E JACKSON ST	N MORGAN ST	Dark - Lighted	Angle	No Injury
88764621	2019	3/21/2019 12:14	JACKSON ST E	N MORGAN ST	Daylight		No Injury
88767714	2019	5/16/2019 16:00	N MORGAN ST	E JACKSON ST	Daylight	Front to Rear	No Injury
88762357	2019	2/8/2019 10:05	MORGAN ST N	E JOHN F KENNEDY BLVD	Daylight		No Injury
89163620	2019	12/20/2019 14:51	N MORGAN ST	E TWIGGS ST	Daylight	Sideswipe, Same Direc	No Injury
89162656	2019	12/3/2019 7:02	N MORGAN ST	E TWIGGS ST	Daylight	Angle	No Injury
89155667	2019	7/19/2019 15:18	N MORGAN ST	E MADISON ST	Daylight	Angle	No Injury
88766229	2019	4/19/2019 12:10	N MORGAN ST	E CASS ST	Daylight	Other	No Injury
89156665	2019	8/7/2019 7:05	E POLK ST	N MORGAN ST	Dusk		Incapacitating Injury
88761639	2019	1/24/2019 16:44	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
88763856	2019	3/7/2019 8:10	E BROREIN ST	SELMON EXPY	Daylight	Front to Rear	No Injury
88763689	2019	3/4/2019 8:54	BROREN ST E	MORGAN ST	Daylight	Angle	Possible Injury
88765128	2019	3/30/2019 13:05	BROREIN ST E	MORGAN ST	Daylight	Angle	Possible Injury
89160485	2019	10/19/2019 20:47	BROREIN ST E	MORGAN ST S	Dark - Lighted	Sideswipe, Same Direc	No Injury
89169750	2020	5/30/2020 13:58	N MORGAN ST	E JACKSON ST	Daylight	Angle	Possible Injury
89171507	2020	8/6/2020 7:50	KENNEDY BLVD E	MORGAN S	Daylight		No Injury

89166490	2020	2/19/2020 16:40	KENNEDY BLVD E	MORGAN ST W	Daylight	Angle	No Injury
89962595	2020	9/26/2020 0:02	N MORGAN ST	E JOHN F KENNEDY BLVD	Dark - Lighted	Angle	Possible Injury
89172804	2020	9/9/2020 5:45	N MORGAN ST	E ZACK ST	Dark - Lighted	Other	No Injury
89965868	2020	12/16/2020 17:51	N MORGAN ST	E TWIGGS ST	Dark - Lighted		No Injury
89164403	2020	1/10/2020 17:00	N MORGAN ST	E CASS ST	Dusk	Angle	No Injury
89964696	2020	11/15/2020 11:16	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89167154	2020	3/2/2020 12:15	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
89964533	2020	11/11/2020 9:47	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
89964967	2020	11/23/2020 11:22	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
89173234	2020	9/19/2020 12:39	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
89165690	2020	2/4/2020 11:31	BROREIN ST E	MORGAN ST	Daylight	Front to Rear	No Injury
89168104	2020	3/24/2020 19:14	S MORGAN ST	MORGAN ST	Daylight	Front to Rear	No Injury
89963638	2020	10/20/2020 18:10	E BROREIN ST	SELMON EXPY	Dusk	Angle	No Injury
89170769	2020	7/14/2020 7:33	BROREIN ST E	MORGAN ST S	Daylight	Angle	No Injury
89169969	2020	6/16/2020 17:35	BROREIN ST E	MORGAN ST N	Daylight	Sideswipe, Same Direc	No Injury
89171581	2020	8/8/2020 14:20	BROREIN ST E	MORGAN ST S	Daylight	Angle	Possible Injury
89167232	2020	3/3/2020 16:00	BROREIN ST E	MORGAN S	Dark - Lighted	Sideswipe, Same Direc	No Injury
89963784	2020	10/24/2020 13:42	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
89172375	2020	8/30/2020 9:15	BROREIN ST	MORGAN ST S	Daylight	Angle	No Injury
89171815	2020	8/8/2020 17:08	MORGAN ST E	BOREIN ST	Daylight	Angle	No Injury
89165672	2020	2/4/2020 7:15	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89167822	2020	3/14/2020 17:59	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89167204	2020	3/3/2020 11:13	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89969373	2021	3/8/2021 17:29	N MORGAN ST	E TYLER ST	Daylight	Angle	No Injury
89966861	2021	1/11/2021 19:26	N MORGAN ST	E TYLER ST	Dark - Lighted	Sideswipe, Same Direc	No Injury
89974027	2021	6/13/2021 17:53	E HARRISON ST	N MORGAN ST	Daylight	Angle	No Injury
24578724	2021	10/16/2021 18:14	MORGAN ST N	WHITING ST E	Dusk	Angle	No Injury
89974755	2021	6/29/2021 8:00	E WHITING ST	N MORGAN ST	Daylight	Angle	Non-Incapacitating Injury
89972944	2021	5/22/2021 12:28	E WHITING ST	S MORGAN ST	Daylight	Angle	No Injury
24579812	2021	11/6/2021 20:29	E WHITING ST	N MORGAN ST	Dark - Lighted		Non-Incapacitating Injury
24582157	2021	12/28/2021 17:36	N MORGAN ST	KENNEDY BLVD E	Dusk	Angle	No Injury
89968980	2021	2/28/2021 17:10	N MORGAN ST	E JACKSON ST	Daylight	Angle	No Injury
89971935	2021	4/30/2021 9:05	N MORGAN ST	E JOHN F KENNEDY BLVD	Daylight	Angle	Possible Injury
24579127	2021	10/25/2021 10:31	N MORGAN ST	E JOHN F KENNEDY BLVD	Daylight	Angle	No Injury
24581306	2021	12/7/2021 16:35	N MORGAN ST	E JOHN F KENNEDY BLVD	Daylight	Angle	Non-Incapacitating Injury
24574085	2021	7/12/2021 7:20	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24581203	2021	12/8/2021 8:32	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24577833	2021	9/28/2021 8:36	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Front to Rear	No Injury
89968503	2021	2/17/2021 18:08	MADISON ST E	MORGAN ST N	Dark - Lighted	Other	No Injury
24574066	2021	7/11/2021 13:50	S MORGAN ST		Daylight		No Injury
24578392	2021	10/9/2021 17:18	E BROREIN ST	MORGAN ST S	Daylight	Sideswipe, Same Direc	No Injury
89969412	2021	3/9/2021 18:36	E BROREIN ST	SELMON EXPY	Dawn	Sideswipe, Same Direc	No Injury
89969781	2021	3/17/2021 11:34	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89974138	2021	6/15/2021 23:18	E BROREIN ST	SELMON EXPY	Dark - Lighted	Front to Rear	No Injury

24580691	2021	11/26/2021 7:35	RAMP FROM SELMON EXPY TO S MC S MORGAN ST		Daylight	Angle	Possible Injury
89972296	2021	5/7/2021 15:47	S MORGAN ST	MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24579184	2021	10/26/2021 9:45	S MORGAN ST	E BROREIN ST	Daylight	Angle	Non-Incapacitating Injury
24580102	2021	11/13/2021 13:35	S MORGAN ST	MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24578116	2021	10/4/2021 18:55	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24578580	2021	10/13/2021 15:58	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
24580579	2021	11/23/2021 10:20	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
89971127	2021	4/13/2021 7:40	S MORGAN ST	MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
89966983	2021	1/15/2021 7:18	S MORGAN ST	MORGAN ST	Daylight	Front to Front	No Injury
24579578	2021	11/3/2021 6:40	E BROREIN ST	SELMON EXPY	Dawn	Angle	No Injury
24578134	2021	10/3/2021 19:16	E BROREIN ST	SELMON EXPY	Dark - Lighted	Angle	No Injury
89966519	2021	1/2/2021 16:58	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
89969132	2021	3/3/2021 14:08	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89967810	2021	2/4/2021 7:40	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89967606	2021	1/30/2021 14:36	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25575229	2022	12/7/2022 10:05	N MORGAN ST	E TYLER ST	Daylight	Angle	No Injury
24587995	2022	4/30/2022 19:00	E HARRISON ST	N MORGAN ST	Daylight	Angle	Possible Injury
25572644	2022	10/11/2022 15:10	E HARRISON ST	N MORGAN ST	Daylight	Angle	No Injury
25575731	2022	12/16/2022 22:20	N MORGAN ST	E WHITING ST	Dark - Lighted	Front to Rear	No Injury
24592635	2022	8/16/2022 15:56	S MORGAN ST	MORGAN ST	Dusk	Angle	No Injury
24593018	2022	8/24/2022 19:00	S MORGAN ST	MORGAN ST	Dusk	Angle	No Injury
24587841	2022	4/27/2022 23:11	E WHITING ST		Dark - Lighted		No Injury
24586236	2022	3/26/2022 9:30	S MORGAN ST	E BELL ST	Daylight	Angle	Possible Injury
24585061	2022	3/2/2022 8:10	N MORGAN ST	E JACKSON ST	Daylight	Angle	No Injury
25572270	2022	10/4/2022 17:30	E JACKSON ST	N MORGAN ST	Daylight	Front to Rear	No Injury
25573834	2022	11/6/2022 11:59	N MORGAN ST	E JACKSON ST	Daylight	Angle	No Injury
89975253	2022	9/6/2022 20:28	N MORGAN ST	E JACKSON ST	Dark - Lighted	Angle	Possible Injury
24587416	2022	4/19/2022 15:10	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Front to Rear	No Injury
24592066	2022	8/3/2022 14:30	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
25574487	2022	11/19/2022 13:56	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24592569	2022	8/15/2022 7:58	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24583195	2022	1/22/2022 18:53	N MORGAN ST	E JOHN F KENNEDY BLVD	Dark - Lighted	Sideswipe, Same Direc	No Injury
25572933	2022	10/18/2022 6:48	E JOHN F KENNEDY BLVD	N MORGAN ST	Dawn	Sideswipe, Same Direc	No Injury
24590477	2022	6/27/2022 8:12	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Angle	No Injury
25575042	2022	12/3/2022 12:50	E WASHINGTON ST	N MORGAN ST	Daylight	Angle	No Injury
24583753	2022	2/3/2022 15:39	MORGAN ST N	KENNEDY BLVD E	Daylight		No Injury
24584993	2022	2/28/2022 15:00	N MORGAN ST	E MADISON ST	Daylight		No Injury
24589644	2022	6/7/2022 17:03	E CASS ST	N MORGAN ST	Daylight	Front to Front	No Injury
24589923	2022	6/14/2022 8:54	MORGAN ST N	CASS ST E	Daylight	Angle	No Injury
24588474	2022	5/11/2022 14:56	E CASS ST	N MORGAN ST	Daylight	Sideswipe, Opposite D	Possible Injury
25574658	2022	11/23/2022 11:50	E POLK ST	N MORGAN ST	Daylight	Angle	Possible Injury
89974913	2022	9/7/2022 15:17	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24583797	2022	2/4/2022 13:45	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24583396	2022	1/26/2022 20:56	E BROREIN ST	SELMON EXPY	Dark - Lighted	Sideswipe, Same Direc	No Injury

24592262	2022	8/8/2022 13:04	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
89975738	2022	9/23/2022 12:13	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24583167	2022	1/22/2022 9:07	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24588890	2022	5/20/2022 16:07	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
24585079	2022	3/1/2022 9:03	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
24583185	2022	1/22/2022 13:11	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25573718	2022	11/3/2022 10:20	E BROREIN ST	SELMON EXPY	Daylight	Front to Rear	No Injury
25575751	2022	12/17/2022 8:51	S MORGAN ST	MORGAN ST	Daylight	Front to Rear	Non-Incapacitating Injury
24587194	2022	4/14/2022 12:37	S MORGAN ST	BROREIN ST E	Daylight	Angle	Possible Injury
25574191	2022	11/11/2022 16:30	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
24586028	2022	3/22/2022 19:55	S MORGAN ST	MORGAN ST	Dusk	Angle	No Injury
25572171	2022	10/2/2022 15:50	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
24582606	2022	1/10/2022 10:39	E BROREIN ST	MORGAN ST	Daylight	Angle	No Injury
24587439	2022	4/19/2022 16:30	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
24588678	2022	5/16/2022 15:35	S MORGAN ST	BROREIN ST E	Daylight	Angle	Non-Incapacitating Injury
24584598	2022	2/21/2022 15:03	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
24589395	2022	6/1/2022 18:50	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25572124	2022	10/1/2022 10:19	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
24583550	2022	1/30/2022 9:17	S MORGAN ST	MORGAN ST	Daylight	Angle	Possible Injury
24592087	2022	8/4/2022 10:57	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
24586831	2022	4/7/2022 15:21	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	Incapacitating Injury
24592225	2022	8/6/2022 21:41	E BROREIN ST	SELMON EXPY	Dark - Lighted	Angle	No Injury
24587992	2022	4/30/2022 16:28	MORGAN ST S	BOREIN ST	Dusk	Angle	No Injury
24585433	2022	3/8/2022 10:03	BROREIN ST E	MORGAN ST S	Daylight	Angle	No Injury
25575544	2022	12/13/2022 14:01	S MORGAN ST	MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
24591225	2022	7/16/2022 10:25	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
24588022	2022	5/1/2022 11:38	E BROREIN ST	SELMON EXPY	Daylight	Front to Rear	No Injury
25574852	2022	11/29/2022 12:55	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25590703	2023	11/2/2023 14:23	E HARRISON ST	N MORGAN ST	Daylight	Angle	No Injury
25588299	2023	9/12/2023 11:02	E WHITING ST	N MORGAN ST	Daylight	Sideswipe, Same Direc	No Injury
25591641	2023	11/21/2023 16:45	S MORGAN ST	E WHITING ST	Daylight	Angle	No Injury
89975987	2023	12/3/2023 15:25	S MORGAN ST	N MORGAN ST	Daylight	Angle	No Injury
25585525	2023	7/11/2023 17:14	S MORGAN ST	E BELL ST	Daylight	Front to Rear	Possible Injury
25589256	2023	10/2/2023 14:10	E JACKSON ST	N MORGAN ST	Daylight	Angle	No Injury
25584069	2023	6/7/2023 10:15	N MORGAN ST	E JOHN F KENNEDY BLVD	Daylight	Angle	No Injury
89976621	2023	12/16/2023 13:22	E JACKSON ST	N MORGAN ST	Daylight	Angle	Possible Injury
25583622	2023	5/27/2023 15:45	E JACKSON ST	N MORGAN ST	Daylight	Angle	No Injury
89977040	2023	12/27/2023 22:10	N MORGAN ST	E JACKSON ST	Dark - Lighted	Front to Rear	No Injury
25579706	2023	3/9/2023 18:46	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Angle	No Injury
25584145	2023	6/8/2023 18:22	N MORGAN ST	E JOHN F KENNEDY BLVD	Daylight	Sideswipe, Same Direc	No Injury
25579644	2023	3/8/2023 17:57	E JOHN F KENNEDY BLVD	N MORGAN ST	Daylight	Sideswipe, Same Direc	Possible Injury
25579457	2023	3/4/2023 19:18	N MORGAN ST	E WASHINGTON ST	Dark - Lighted	Sideswipe, Opposite D	No Injury
25589194	2023	9/30/2023 19:43	E WASHINGTON ST	N MORGAN ST	Dark - Lighted	Front to Rear	No Injury
89976555	2023	12/16/2023 0:10	N MORGAN ST	E WASHINGTON ST	Dark - Lighted	Angle	No Injury

25589476	2023	10/5/2023 13:38	N MORGAN ST	E WASHINGTON ST	Daylight	Sideswipe, Same Direc	No Injury
25587150	2023	8/17/2023 14:10	N MORGAN ST	E WASHINGTON ST	Daylight	Sideswipe, Same Direc	No Injury
25589382	2023	10/5/2023 13:55	N MORGAN ST	E WASHINGTON ST	Daylight		No Injury
25589523	2023	10/8/2023 19:32	N MORGAN ST	E JOHN F KENNEDY BLVD	Dark - Lighted	Front to Rear	No Injury
25579573	2023	3/7/2023 9:45	N MORGAN ST	E CASS ST	Daylight		No Injury
25587175	2023	8/17/2023 18:53	N MORGAN ST	E TYLER ST	Daylight		No Injury
25583648	2023	5/27/2023 20:40	N MORGAN ST	E POLK ST	Dark - Lighted	Sideswipe, Same Direc	No Injury
25582936	2023	5/14/2023 10:43	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
25580785	2023	3/31/2023 17:49	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25581593	2023	4/17/2023 9:28	E BROREIN ST	SELMON EXPY	Daylight	Angle	No Injury
25582079	2023	4/26/2023 13:46	E BROREIN ST	SELMON EXPY OFF RAMP	Daylight	Angle	No Injury
25581813	2023	4/20/2023 22:50	E BROREIN ST	SELMON EXPY	Dark - Lighted	Sideswipe, Same Direc	No Injury
89976758	2023	12/20/2023 14:57	S MORGAN ST	MORGAN ST/E BROREIN ST/SEL	Daylight	Angle	Possible Injury
25588198	2023	9/10/2023 13:58	S MORGAN ST	MORGAN ST/SELMON EXPY/SR-	Daylight	Front to Rear	No Injury
25582940	2023	5/14/2023 12:47	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
25579621	2023	3/8/2023 9:25	S MORGAN ST	MORGAN ST	Daylight	Angle	Possible Injury
25585565	2023	7/12/2023 18:30	S MORGAN ST	MORGAN ST	Daylight	Angle	No Injury
25580367	2023	3/24/2023 10:12	E BROREIN ST	SELMON EXPY	Daylight	Sideswipe, Same Direc	No Injury
25576375	2023	1/1/2023 13:38	S MORGAN ST	MORGAN ST	Daylight	Front to Rear	No Injury

CMF / CRF Details

CMF ID: 10737

CMF Name: Install bicycle lanes

Description:

Prior Condition: No Bicycle Lane

Category: Bicyclists

Study ID: [*Development of Crash Modification Factors for Bicycle Lane Additions While Reducing Lane and Shoulder Widths, 2021*](#)

Star Quality Rating	
Star Quality Rating:	4 Stars

Crash Modification Factor (CMF)	
Value:	0.435
Adjusted Standard Error:	
Unadjusted Standard Error:	0.225

Crash Reduction Factor	
Value:	
Adjusted Standard Error:	
Unadjusted Standard Error:	

Applicability	
Crash Type:	All
Crash Severity:	All
Roadway Types:	All
Minimum Number of Lanes:	4
Maximum Number of Lanes:	4
Number of Lanes Direction:	
Number of Lanes Comment:	
Road Division Type:	Undivided
Minimum Speed Limit:	
Maximum Speed Limit:	
Speed Unit:	
Speed Limit Comment:	
Area Type:	Urban
Traffic Volume:	Minimum of 10 to Maximum of 92462 Annual Average Daily Traffic (AADT)
Average Traffic Volume:	
Time of Day:	All
<i>If countermeasure is intersection-based.</i>	
Intersection Type:	
Intersection Geometry:	
Traffic Control:	
Major Road Traffic Volume:	
Minor Road Traffic Volume:	

Average Major Road Volume:	
Average Minor Road Volume:	

Development Details	
Date Range of Data Used:	2015 to 2018
Municipality:	
State:	TX
Country:	
Type of Methodology Used:	Regression cross-section
Sample Size (sites):	372 sites

Other Details	
Included in HSM:	No
Date Added to Clearinghouse:	Feb 25, 2021
Comments:	This CMF is for bicycle lane addition resulting in reduced shoulder or lane width and no change in average daily bicycle traffic (ADBT). The base condition was 11-ft lanes, no shoulder, no median, and four-lane urban collector or local road.

This site is funded by the U.S. Department of Transportation Federal Highway Administration and maintained by the University of North Carolina Highway Safety Research Center

The information contained in the Crash Modification Factors (CMF) Clearinghouse is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in the CMF Clearinghouse. The information contained in the CMF Clearinghouse does not constitute a standard, specification, or regulation, nor is it a substitute for sound engineering judgment.