Traffic Assessment FINAL

WSP USA Inc.

Contents

INTRODUCTION

PROJECT DESCRIPTION

The Buffalo Bills ("Team"), Western New York's National Football League ("NFL") franchise team currently plays its home games at Highmark Stadium ("Existing Stadium") in the Town of Orchard Park, Erie County, New York. The Existing Stadium is located on the east side of Abbott Road and is part of an approximately 242.54-acre complex owned by Erie County (the "Site"). The Existing Stadium opened in 1973 as an 80,000+/- seat facility with surface parking. Later renovations to add club/luxury sections, reduced the total seating capacity to approximately 70,000 seats. Currently there are 9,951 parking spaces on-Site that are available for game day operations, including dedicated spaces for ADA, team member parking, stadium staff, bus, limo and recreational vehicle parking, and preferred parking for ticket holders. Additionally, there are extensive off-Site parking facilities, including 1,648 parking spaces available at the adjacent State University of New York Erie Community College South Campus ("ECC South Campus") that are utilized for game days.

Although the Existing Stadium has undergone several rounds of capital maintenance and upgrades over the years, it is approaching the end of its useful life, particularly in light of changes in the NFL stadium requirements over the last 50 years. As such, Erie County is currently evaluating the construction of a new 1,325,000 square foot stadium with a seating capacity between 60,000 – 63,000 ("New Stadium") and the demolition of the Existing Stadium (the "Project"). The New Stadium is proposed to be constructed on the Site, located on the west side of Abbott Road. The New Stadium feature approximately 10,000 on-Site parking spaces and will be fully constructed prior to the commencement of demolition of the Existing Stadium. The concept site plan for the Project is shown in Figure 1.

Figure 1: Concept Plan for New Stadium

TRAFFIC ASSESSMENT OVERVIEW

As part of the Project, the Team has retained WSP USA Inc. to prepare this traffic assessment to (1) assess the change in traffic conditions and patterns, including pedestrian circulation, associated with relocating the stadium from the east side of Abbott Road to the west side of Abbott Road, and (2) assess the impacts to the on-Site parking conditions during construction of the New Stadium while the Existing Stadium is still in operation. First, available studies and historic data from 2018, 2019, and 2021 when the Existing Stadium was at full attendance (avoiding 2020 when the Existing Stadium was not at full attendance) was utilized to determine the baseline game day traffic conditions and patterns for home games. This included reference to the 2014 Ralph Wilson Stadium Traffic Impact Study[1] ("2014 Study"), data obtained from the Greater Buffalo Niagara Regional Transportation Council ("GBNRTC") showing game day traffic conditions as well as previous traffic studies, Traffic Management Plans ("TMP"), including the current TMP for the Existing Stadium ("Existing Stadium TMP"), and traffic count data obtained from Niagara International Transportation Technology Coalition ("NITTEC"). Then, conceptual site plans for the New Stadium were compared to the existing layout to assess parking, drive aisle, and circulation of the Site and immediate area. Finally, an assessment of pre- and post-game traffic conditions within approximately 1-2 miles of the Site was undertaken to understand the change in traffic conditions and patterns between the game day operations of the Existing Stadium and the anticipated game day operations of the New Stadium.

STUDY AREA

The Existing Stadium is located in Orchard Park, New York, and is bordered by Abbott Road to the west, Smokes Creek to the east, US 20A (Big Tree Road) to the south, and US 20 (Southwestern Boulevard) to the north (the "Study Area"). Smokes Creek meanders along the eastern edge of the Existing Stadium site. The traffic assessment focused on roadways within the vicinity of the Existing Stadium, generally extending to Rt. 219 to the east, Milestrip Road to the north, McKinley Parkway to the west, and just beyond Big Tree Road to the south. Regional travel patterns and origin/ destination locations were also considered as part of the assessment. The Study Area is shown in Figure 2.

[1] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

Figure 2: Study Area

CONCLUSIONS

As will be demonstrated in this assessment, as a result of relocating the Stadium from the east side of Abbott Road to the west side of Abbott Road, the Project is expected to result in traffic, parking, and pedestrian conditions that are similar to those of the Existing Stadium. Game attendee's travel patterns and behavior will largely resemble travel behavior to the Existing Stadium, however, the New Stadium location, west of Abbott Road, will allow patrons and vehicles to enter and exit more equally in all directions as compared to the Existing Stadium, which is currently constrained on the east side by Smokes Creek. A new primary driveway on Southwestern Boulevard and an improved driveway on Big Tree Road from existing parking lots are proposed, along with improved internal roadways which will offer additional ingress and egress opportunities for the New Stadium. Additionally, the New Stadium will incorporate several new internal walkways to enhance pedestrian accommodations and designed to limit potential conflicts between vehicles and pedestrians. Furthermore, the New Stadium will feature approximately 10,000 on-Site parking spaces, as compared to the existing 9,951 spaces on-Site, and the Stadium seating will be reduced from approximately 70,000 seats to no more than 63,000 seats

Site preparation, construction of the New Stadium, and demolition of the Existing Stadium will generate temporary construction related traffic for workers and product delivery and deconstruction. Construction worker traffic will be outside the peak traffic period – starting earlier than morning peak and shift change (if there is a second shift) occurring prior to afternoon peak period. Construction deliveries can be scheduled to avoid peak traffic times as much as possible. Oversize loads and any heavy equipment delivery would

be required to follow local and state ordinances for obtaining roadway use permits. The construction related traffic trips will be temporary and minor and will conclude as the phases of construction are completed. Additionally, during construction of the New Stadium, there will be an overlap period where the Existing Stadium will be operational while the New Stadium is constructed. Construction of the New Stadium on existing parking areas will result in projected available parking spaces ranging from 14,985 to 18,545 during construction, as compared to the 20,088 parking spaces currently available for the Existing Stadium, yielding a reduction of approximately 1,550 to 5,100 to spaces. Any impact in construction related parking space reductions would be temporary and parking constraints during construction will be mitigated by temporary shuttling of event staff between the Site and remote parking lots, introduction of new NFTA Metro Bus service, updates to the Existing Stadium TMP, public notices to encourage alternative arrival methods, and increased use of tertiary lots.

Accordingly, with the reduced capacity and design of the Project, the Project is not expected to result in significant adverse impacts to the transportation network, traffic patterns, parking conditions, and pedestrian safety above and beyond those experienced with the Existing Stadium.

HISTORIC DATA

PREVIOUS STUDIES

The Erie County Department of Public Works ("ECDPW") retained a consultant in 2014 to conduct a Traffic Impact Study (the "2014 Study")[2] to investigate feasible improvements for traffic flow and safety to compliment the improvements being undertaken at the Existing Stadium. The 2014 Study included a strategy that ultimately led to the conversion of Big Tree Road during game days to a two-lane one-way eastbound only roadway for post-game traffic distribution between Abbott Road and Rt. 219. The initial conversion to one-way eastbound traffic occurred on November 3, 2013 following extensive coordination with ECDPW Division of Highways, Erie County Sheriff's Office, New York State Department of Transportation ("NYSDOT"), Orchard Park Police Department, Erie County Emergency Services Department, NITTEC, and the Buffalo Bills. Since then, minor tweaks in the operations have occurred but the pattern is implemented routinely starting about mid-event until several hours after the game's conclusion. Traffic data and anecdotal accounts from the initial pilot suggested a time savings of 30-45 minutes for motorists leaving via Big Tree Road. Pedestrian safety was also considered to be improved as the one-way operation provided more shoulder room for pedestrian movements and the one-way operation limited potential two-way traffic conflicts during street crossings.

Several other recommendations included in the 2014 Study were based on the data collection effort, field observations, and the discussions of the study team participants. There were ten (10) recommendations outlined in the 2014 Study that were identified to improve observed conditions and pedestrian safety, along with the jurisdiction identified as responsible for implementing. These recommendations are outlined below, as taken directly from the 2014 Study, along with the status of their implementation which has been additionally provided through this assessment.

[2] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

Table 1: 2014 Study Recommendations[3]

Issue Identified	Recommendation	Jurisdiction	Status
Pedestrian accommodations on US 20A	Add sidewalks to roadway. Currently, pedestrians use the shoulder on US 20A.	NYSDOT	Not fully implemented. Interim step of using coned-off pedestrian walkway along shoulder per Existing Stadium TMP in place during game days.
Pre- and post-game capacity on US 20A	Permanently restripe US 20A to a 3-lane roadway (two 11-foot travel lanes and one 10-foot center turning lane) to gain additional capacity for pre- and post-game traffic.	NYSDOT	Not implemented.
High volume of pedestrians on Abbott Road	Add/ improve sidewalks on Abbott Road north of US 20. Currently, sidewalks end shortly north of US 20 and only a worn dirt path or asphalt strip exist for pedestrians and pedestrians often spill into the street.	ECDPW	Not Implemented
Need for coordination/ communication of traffic control	Coordinate with NYSDOT and NITTEC for camera deployment on US 20 at 5 locations.	NYSDOT/ NITTEC	Cameras have not been deployed; several TMPs have been developed and are continuously updated to coordinate traffic management.
Lane utilization of entering and exiting traffic	Provide additional information signing for pre- and post-game traffic to help drivers with uncertainty on which lanes to be in.	ECDPW/ NYSDOT	The Existing Stadium TMP is consistently updated outlining positioning of Portable Variable Message Signs.
Pedestrian crossings on Abbott Road	Relocate crosswalks within the Abbott Road closure area.	ECDPW	Crosswalks on Abbott Road have been delineated at major crossings, including at Southwestern Blvd and at Big Tree Road.

[3] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

Issue Identified	Recommendation	Jurisdiction	Status
Pedestrian crossings on US 20A	Relocate the pedestrian walkway to the west side of Drive 1. Pedestrians exiting the stadium to private lots on Big Tree Road are provided with a walkway along the east side of Drive 1. This results in a crossing conflict at Big Tree Road when pedestrians cross in front of vehicles exiting Lot 1 to eastbound Big Tree Road.	ECDPW/ Bills	Not implemented. Lot 1 is expected to be converted to staff parking with the construction of the New Stadium- reducing these conflicts since staff arrives before and departs after peak pedestrian and vehicular flows.
Parking operations	Allow lots 5B and 5E to exit via Drive 5 after initial rush. Traffic from Lots 5B and 5E are directed to Abbott Road; directing this traffic to Big Tree Road would help reduce delays at US 20/ Abbott Road intersection.	Bills	Not Implemented.
Off-site parking pedestrians	Enlarge or add second gate at the northwest corner of the parking lot immediately east of Lot 1.	Bills/ private lot owner	Not Implemented.
Traffic operations	Analyze impacts of opening the Abbott Road closure sooner while US 20A is still one-way eastbound. This would allow traffic to exit on Abbott Road both northbound and southbound.	Bills/ Erie County Sheriff	Not Implemented.

EXISTING STADIUM TRAFFIC MANAGEMENT PLAN

Various agencies are involved in the preparation and implementation of TMPs to manage game day traffic with the goals of maximizing capacity of the adjacent roadways, protecting the high number of pedestrians in the vicinity of the Existing Stadium, and providing real time information.

The Existing Stadium TMP[4] was referenced in the development of this traffic assessment. The Existing Stadium TMP provides for cooperation and coordination with the highway agencies, law enforcement agencies, and the stadium events staff to help control and manage the flow of traffic and to ensure a high level of safety. The Existing Stadium TMP is implemented 5 hours prior to an event at the Existing Stadium. Pre-game methods to increase vehicle capacity and pedestrian safety, as outlined in the Existing Stadium TMP include:

- Close Abbott Road at the Existing Stadium to provide a safe pedestrian crossing from the parking lots on the west side of Abbott Road to the Existing Stadium on the east side.
- Lane restrictions on Abbott Road north of Southwestern Boulevard to provide a pedestrian corridor.

[4] Existing Stadium Transportation Management Plan, Erie County, 2022

- Lane restrictions on Abbott Road north of Southwestern Boulevard to provide increased vehicle capacity.
- Southwestern Boulevard lane restrictions to provide increased vehicle capacity.

Post-game methods to increase vehicle capacity and pedestrian safety, as outlined in the Existing Stadium TMP include:

- Close Abbott Road at the Existing Stadium to provide a safe pedestrian crossing from the parking lots on the west side of Abbott Road to the Existing Stadium on the east side.
- Lane restrictions on Abbott Road north of Southwestern Boulevard to provide a pedestrian corridor.
- Lane restrictions on Big Tree Road east of Abbott Road to provide a pedestrian corridor.
- Lane restrictions on Abbott Road north of Southwestern Boulevard to provide increased vehicle capacity.
- Southwestern Boulevard lane restrictions to provide increased vehicle capacity.
- Lane restrictions on Big Tree Road between Abbott Road and Rt. 219 to provide two lanes eastbound and closed to westbound traffic to increase vehicle capacity.

The Existing Stadium TMP is implemented 5 hours prior to an event at the Existing Stadium. The Existing Stadium TMP utilizes both permanent Dynamic Messaging Signs ("DMS") and Portable Variable Messaging Signs ("PVMS") to suggest alternate and preferred routes to the Existing Stadium. Once congestion and/or closures take place, the signs are adjusted as conditions merit. The following signs are used for Existing Stadium events:

- **PVMS** - The plan contains individual PVMS messages that are to be used during normal conditions, heavy congestion, and for a ramp closure on Rt. 219 South at Rt. 179 (Milestrip Road) MP 62.8. The messages will be activated five hours before an event. The messages will be deactivated one hour following an event after contact with the Erie County Sheriff is conducted confirming all traffic issues have been cleared.
    - PVMS locations are noted as follows:
        - PVMS P-466 Rt.-219 South at Berg Road
        - PVMS P-132 Rt.-5 West Before Milestrip Road
    - Additional PVMS for fans/traffic in the stadium vicinity operate at the following locations:
        - PVMS P-529 Lot 5 Entrance on Southwestern Blvd.
        - PVMS P-516 Abbott Road south of Southwestern Blvd.
        - PVMS P-512 Lot 4 Entrance on Southwestern Blvd.
        - PVMS P-517 Abbot Road at Team Member Lot
        - PVMS P-534 Lot 1 Entrance on Big Tree Road
- **Permanent DMS** - I-90 West boards will be used to direct traffic to Rt. 219 and Big Tree Road MP 61.0. I-190 South boards will be used to direct traffic to Rt. 5, then Milestrip Road to McKinley Parkway.
    - DMS locations are noted as follows:
        - DMS MP 428.3W I-90
        - DMS MP 6.37S I-190
- **Posted Travel Times** automatically activate if there are delays.

- **Abbott Road Northbound/Southbound closure** from US 20 to US 20A beginning approximately five (5) hours prior to an event until 1 hour after event. Wording related to this closure is programmed into PVMS messaging.
- **Abbott Road Pedestrian Walkway** created by the cordoning off of the easternmost outside lane of Abbott Road between Southwestern Boulevard and Milestrip Road. The number of travel lanes utilized for pre- and post-game traffic flow will remain unchanged, with traffic shifted to utilize the center left-turn lane as a travel lane.
- **Route 20A Westbound closure** from Rt. 219 to Abbott Road from approximately mid-event to about one hour after event. Wording related to this closure is programmed into DMS and PVMS messaging. Existing shoulders are demarcated by barrel placement to create defined pedestrian corridors along the roadway.
- **CCTV** – Used to monitor traffic conditions and input queues into messaging.

- **Communication Components:**
    - The Erie County Sheriffs are the main source of information used during this period. The stadium command center is the main point of contact.
    - The NTSTA TSOC is contacted when NITTEC receives information delays and traffic back-ups on the Thruway or Thruway DMS message revisions.

Additionally, the Erie County Sheriff's Office has an Event Action Plan[5] for the Existing Stadium. The Plan is used for traffic management and public safety to support the following goals:

- Minimize (and mitigate, whenever possible) risks to first responders.
- Provide for a safe, secure, clean, comfortable, and friendly environment for all fans, both in the stadium and parking lots by proactively enforcing the Bills Fan Code of Conduct and NYS Laws.
- Provide for traffic control and traffic management at the venue and contiguous area.
- Provide emergency law enforcement / security response at the venue and contiguous area.
- Preserve public and private property.
- Gain and maintain situational awareness of the venue, contiguous assembly areas and transportation corridors proximate to the event.

The plan also outlines locations for manned oversight of intersections and driveways around the Existing Stadium pre and post events. A summary of the locations (subject to change per event) is noted as follows:

Zone 1
#1 – US 20 & Abbott Road
#2 – US 20 & Touchdown Drive
#3 – US 20 & Stadium Drive
#4 – US 20 & California
#5 – Abbott & Milestrip
#6 – Milestrip & California
#7 – US 20 & McKinley (Post Event Only)
#7A – US 20 & ECC Drive (Post Event Only)

Zone 2
#8 – Abbott & Football Drive
#9 – North Abbott Barricade
#10 – Disabled (accessible) Parking North
#11 – South Abbott Barricade
#11a – Disabled (accessible) Parking South (Pre-game Only)
#12 – Abbott & Bills Drive
#13 – Abbott & Camper Drive

Zone 3
#14 – Abbott & US 20A
#15 – US 20A & Fieldhouse Drive
#16 – US 20A & Regional Drive
#17 – US 20A & California
#18 – US 20A & 219 Expressway

[5] Erie County Sheriff's Office Event Action Plan, Erie County Sheriff's Office, January 2022

I-90 TRAFFIC DATA

Traffic volumes and patterns were provided by NITTEC for Interstate 90 (“I-90”) from 2018, 2019 and 2021 when the Existing Stadium was at full attendance (avoiding 2020 when the Existing Stadium was not at full attendance). Observing the traffic volumes and patterns on I-90 of traffic associated with the Existing Stadium in the past few years provides an understanding of how I-90 is used during game days. The traffic data analyzed on I-90 were collected by New York State Thruway Authority (“NYSTA”), which has jurisdiction over I-90, at different locations where the commuters are likely to access the Existing Stadium, and these are shown in Figure 3. Traffic counts at these locations were obtained for a number of game day and non-game day Sundays.

Figure 3: I-90 Data Locations

The traffic data was analyzed to understand traffic patterns for game days by comparing hourly traffic volumes for game days versus non-game days in 2018, 2019, and 2021. The data is most useful in understanding the change in traffic on game days for I-90 exits, which indicates the exits that are most utilized for game day traffic.

The average percentage change over three (3) years at each data site along I-90 on a game day compared to a non-game day is listed in Table 2. The table begins at Hour 0, which is Midnight and captures hourly counts for the entire day. The table illustrates that the highest increase in the traffic volumes across all sites on a game day is observed during Hours 8-9, 9-10, 10-11 (which is the 8:00-11:00AM time period) and Hours 15-16, 16-17, and 17-18 (which is the 4:00-7:00PM time period). This trend is understandable as most of the games started on 1:00PM and patrons may get to the stadium for tailgating few hours before the game, and the peak in the PM hour is when the game ends.

Table 2: Average Percent Change of Game Day Traffic at I-90 Traffic Count Locations for Three Years

	Average Percent Change Over Three Years						
Hour	**Lackawanna**	**428.3***	**442.5**	**East Exits (56&57)**	**West Exits (56&57)**	**East Entry (56&57)**	**West Entry (56&57)**
0	-6%	17%	-6%	-6%	-10%	-6%	10%
1	9%	31%	2%	9%	3%	18%	10%
2	-1%	6%	-1%	12%	0%	-3%	-7%
3	2%	5%	8%	-4%	-9%	-3%	19%
4	8%	13%	-2%	-20%	15%	21%	11%
5	-5%	6%	0%	5%	-1%	-13%	-16%
6	-4%	10%	0%	52%	1%	-9%	-7%
7	5%	38%	7%	57%	8%	-3%	-11%
8	11%	86%	6%	70%	45%	-4%	-18%
9	8%	71%	3%	79%	51%	1%	-1%
10	2%	43%	2%	58%	28%	0%	5%
11	-1%	22%	0%	36%	14%	-6%	3%
12	-3%	1%	-2%	-5%	-5%	-3%	-1%
13	-5%	6%	-5%	-10%	-8%	-6%	-5%
14	-1%	6%	3%	-7%	-7%	0%	6%
15	1%	32%	-2%	10%	-2%	31%	19%
16	-1%	35%	0%	15%	-8%	36%	72%
17	2%	25%	0%	3%	-1%	39%	66%
18	1%	13%	0%	-5%	-5%	17%	30%
19	-2%	11%	-2%	-17%	2%	-5%	13%
20	-2%	6%	-3%	2%	-9%	-2%	-4%
21	0%	6%	-2%	0%	-1%	9%	17%
22	1%	-6%	-3%	-6%	5%	10%	9%
23	2%	-22%	-5%	7%	-2%	2%	33%

EXISTING STADIUM CONDITIONS

ROADWAYS

There are several major roadways in the vicinity of the Existing Stadium. These roadways, along with their characteristics, are inventoried in Table 3 and shown in Figure 4. An overview of the roadways is noted as follows:

- **California Road**. California Road accommodates two-lane, two-way traffic within the project area in a north-south direction. It is classified as a Major Collector. The posted speed limit is 40 MPH. It is owned/ maintained by Erie County. Traffic counts collected by the GBNRTC in 2015 reported an estimated Average Annual Daily Traffic ("AADT") of 3,029 vehicles and the percent of heavy vehicles (classified as F4 - F13) as 3.10%.
- **Southwestern Boulevard (US 20)**. Southwestern Boulevard accommodates four-lane, two-way traffic in a northeast-southwest direction, with a center left-turn lane. The facility is classified as a Principal Arterial with a posted speed limit of 50 MPH. It is owned/ maintained by the NYSDOT. Traffic counts collected by the GBNRTC in 2019 reported an estimated AADT of 21,147 vehicles and the percent of heavy vehicles (F4 - F13) as 4.30%.
- **Milestrip Road (Rt. 179)**. Milestrip Road accommodates four-lane, two-way traffic within the project area in an east-west direction. It is classified as a Minor Arterial. The posted speed limit is 45 MPH. It is owned/ maintained by NYSDOT. Traffic counts collected by the GBNRTC in 2019 reported an estimated AADT of 19,837 vehicles and the percent of heavy vehicles (F4 - F13) as 3.0%.
- **McKinley Parkway**. McKinley Parkway accommodates four-lane, two-way traffic in a north-south direction. The facility is classified as a Minor Arterial with a posted speed limit of 45 MPH. It is owned/maintained by Erie County. Traffic counts collected by the GBNRTC in 2019 reported an estimated AADT of 15,482 vehicles and the percent of heavy vehicles (F4 — F13) as 2.0%.
- **Abbott Road**. Abbott Road north of Big Tree Road accommodates four-lane, two-way traffic in a north-south direction, with a center left-turn lane. The facility is classified as a Minor Arterial with a posted speed limit of 45 MPH. It is owned/ maintained by the Erie County. Traffic counts collected by the GBNRTC in 2019 for the section adjacent to the stadium reported an estimated AADT of 7,586 vehicles and the percent of heavy vehicles (F4 - F13) as 3.0%.
- **Abbott Road (South of Big Tree Road)**. Abbott Road south of Big Tree Road accommodates two-lane, two-way in a north-south direction. The facility is classified as a Minor Arterial with a posted speed limit of 35 MPH. It is owned/ maintained by the Erie County. Traffic counts collected by the GBNRTC in 2018 reported an estimated AADT of 5,682 vehicles.
- **Big Tree Road (US 20A)**. Big Tree Road accommodates two-lane, two-way traffic in an east-west direction. The facility is classified as a Principal Arterial with a posted speed limit of 45 MPH. It is owned/ maintained by the NYSDOT. Traffic counts collected by the GBNRTC in 2018 reported an estimated AADT of 12,584 vehicles and the percent of heavy vehicles (F4 - F13) as 4.0%.

Table 3: Study Area Roadway Inventory

Roadway	Class	Route	# of Lanes	Lane Feature	Lane Width	Shoulder Width	Speed (mph)	AADT	AADT Year
California Road	Major Collector	CR 461	2	Undivided	11’	+/- 3’ (paved)	35	3,029	2015
Southwestern Boulevard	Principal Arterial	US 20	5	Center Turn Lane	12’	+/- 6’ w/curb	50	21,147	2019
Milestrip Road	Minor Arterial	NY 179	4	Divided & Undivided	12’	+/- 2’ gutter w/curb	45	25,087	2014
McKinley Parkway	Minor Arterial	CR 204	4	Undivided	12’	n/a w/curb	45	15,482	2019
Abbott Road (north of Big Tree Road)	Minor Arterial	County	5	Center Turn Lane	12’	n/a w/curb	45	7,586	2019
Abbott Road (south of Big Tree Road)	Minor Arterial	County	2	Undivided	12’	+/- 6’ (paved)	35	5,682	2018
Big Tree Road	Principal Arterial	US 20A	2	Undivided	12’	+/- 8’ (paved)	45	12,584	2018

Existing traffic controls in the vicinity of the Existing Stadium are shown in Figure 4.

Figure 4: Existing Traffic Controls

On game days, certain roadways are converted to allow for additional inbound lanes before games and additional outbound lanes after games, as outlined below:

- Southwestern Boulevard is converted to three westbound lanes between California Road and Abbott Road before games, using the center turn lane a travel lane. The roadway is converted to three eastbound lanes between Abbott Road and California Road after games, using the center left turn lane as a travel lane.
- Abbott Road is converted to three southbound lanes north of Southwestern Boulevard before games, using the center left turn lane as a travel lane. The roadway is converted to three northbound lanes after games, using the center turn lane as a travel lane. This conversion is made between Southwestern Boulevard and Milestrip Road.
- Big Tree Road is converted to two eastbound lanes between Abbott Road and Rt. 219 after games, using the westbound lane as an additional eastbound lane.
- Abbott Road is closed before, during, and immediately after games between Football Drive and Lot 2 drive aisle. DMS signs indicate closure of Abbott Road between Southwestern Boulevard and Big Tree Road.

The pre- and post-game lane utilization is shown in Figure 5 and Figure 6. Certain traffic movements (left turns) are restricted pre- and post-game at various locations (not shown in Figure 5 and Figure 6 but post-game movement restrictions are shown in Figure 8). Post-game vehicles are directed out of parking lots and

forced to go in one direction (as shown by the blue arrows in Figure 6). This may require vehicles to find alternative routes to their final destination.

Figure 5: Pre-game Traffic Operations

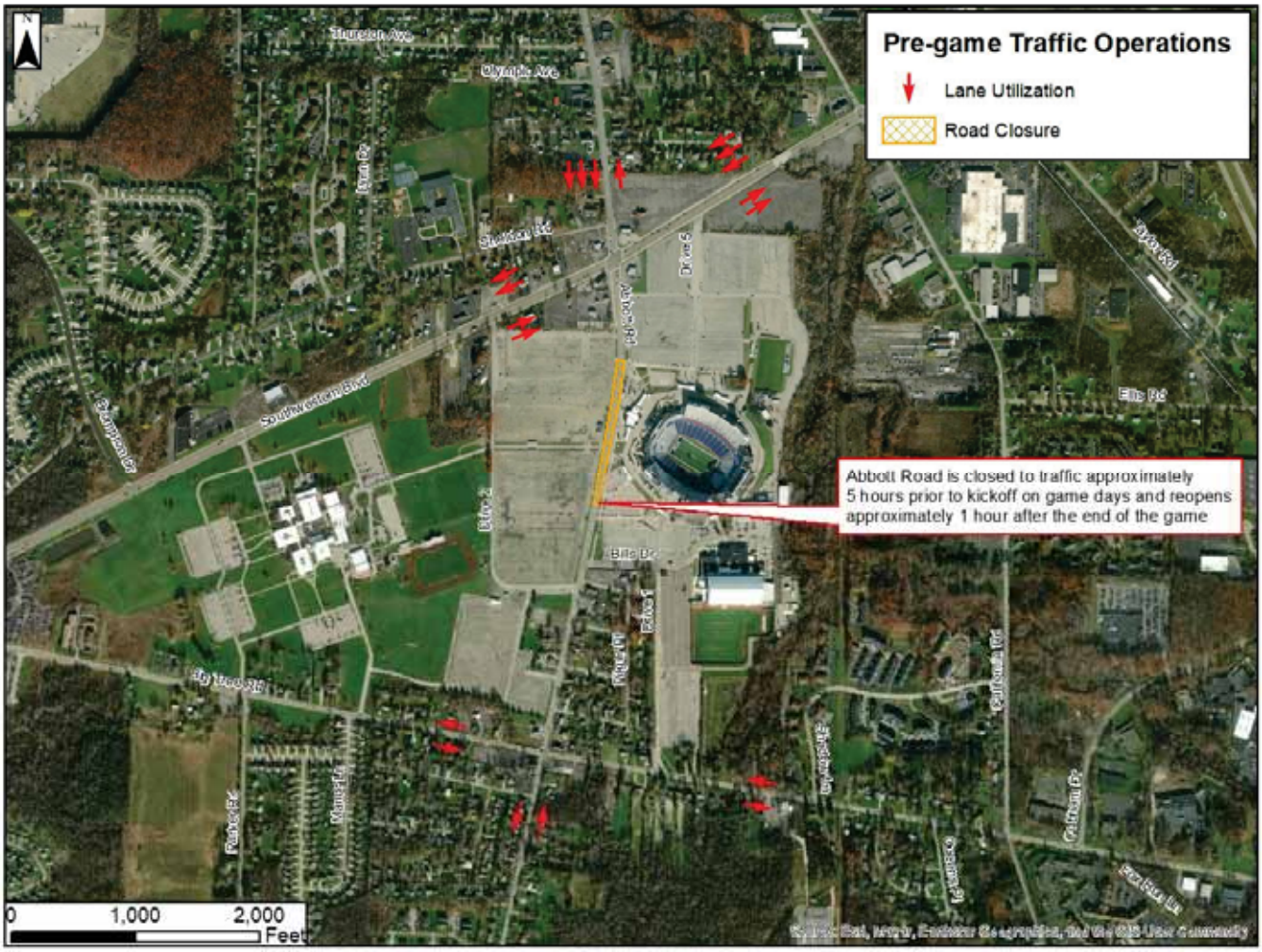
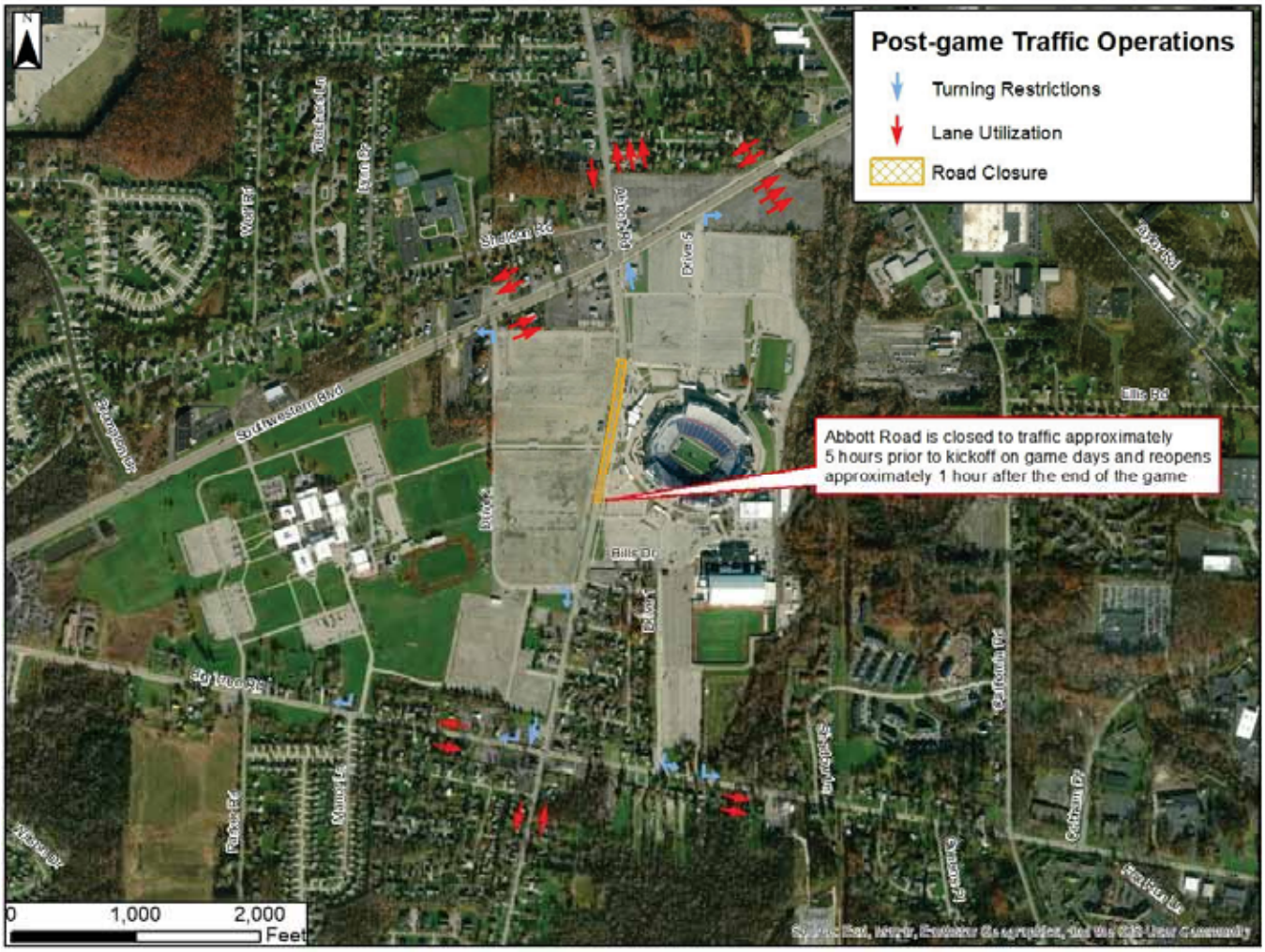


Figure 6: Post-game Traffic Operations



VEHICLE TRIPS

Using the identified mode split information and observational information, an estimation of the vehicles traveling to the site was determined for an at-capacity game at the Existing Stadium. Passenger vehicle demand was determined by referencing the number of utilized parking spaces for various trip modes and applying the persons per vehicle trip to each mode. For passenger vehicles, an occupancy of 2.8 persons per vehicle was assumed. This is a conservative estimate that is lower than the 2.9 - 3.0 persons per passenger vehicle value typically used in sports stadium assessments, as was recently outlined and used in a traffic assessment conducted for the Las Vegas Raiders stadium[6]. Persons per vehicle for bus/ motor coach, limo, and RV were identified based on observational counts conducted by WSP staff in 2016 and related Existing Stadium parking lot designation. Prior to the 2022 season, public transit was not an available mode for patron attendance, and thus does not show a mode split.

Based on an at-capacity game (approximately 70,000 attendance) in the Existing Stadium, approximately 20,089 vehicles travel to the Site to support patron and staff attendance. This breaks down to 277 bus/ motor

[6] Event Traffic Impact Study for Las Vegas Raiders Stadium, Kimley Horn and Associates, Inc., 2017.

coach vehicles, 70 limo vehicles, and 117 RV vehicles, with the vast majority (19,625) being personal vehicles. Table 4 portrays the Existing Stadium vehicle breakdown and associated parking demand.

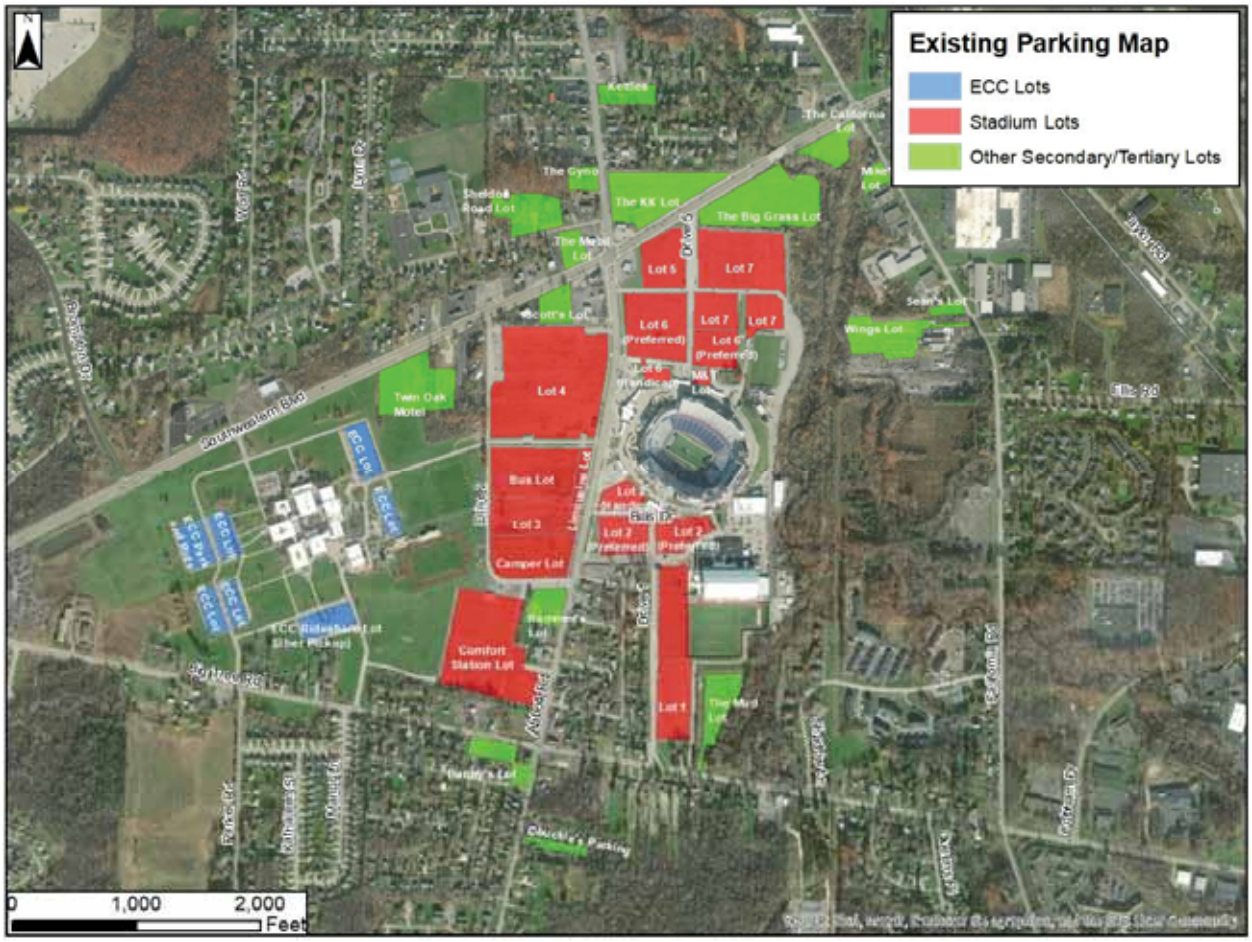
Table 4: Existing Stadium Patron Arrival by Mode

Capacity: 70,000	Transit	Ride Share	Bus / Motor Coach	Limo	RV	Passenger Vehicle	Total
Passengers / Vehicle	-	-	48	10	3	2.8	-
Mode Share	0%	1.0%	19.0%	1.0%	0.5%	78.5%	100%
Patrons	0	700	13,300	700	350	54,950	70,000
Parking Spaces	n/a	n/a	277	70	117	19,625	20,089

PARKING FACILITIES

Existing on-Site parking lots are located on three sides of the Existing Stadium. Site constraints limit parking and access to/from the east due to the lack of vehicular and pedestrian crossing of Smokes Creek (although a makeshift walkway has developed to allow access to/from Wings Flight of Hope parking area to the east). Figure 7 shows the parking areas in the vicinity of the Existing Stadium.

Figure 7: Existing Stadium Parking Facilities



Primary on-Site parking is provided via Bills/ owner-controlled parking facilities directly adjacent to the Existing Stadium, shown in the figure as Stadium Lots. On-Site parking facilities quantified do not include the administrative staff parking, which are restricted to general patron parking and create trips which occur outside of peak traffic periods on event days. Additional parking is provided at the ECC South Campus. This includes general parking for patrons along with a dedicated rideshare lot for Uber/Lyft pick-up and drop-offs. There are numerous secondary parking facilities that includes sizable, defined, consistent formalized parking locations which are typically scattered within proximity around the owner-controlled parking. These secondary lots are available to the general public, although some do require advance reservations or have selected requirements for using. Lastly, a tertiary level of parking option is available which includes private residence or property owner parking typically in front yards or in driveways. These locations are scattered around the Site.

On-Site parking areas and associated driveways, along with exit routes, are identified in Figure 8, which is a parking figure taken from the Existing Stadium TMP.

Figure 8: On-Site Parking Lot Driveways and Exit Routes[7]

[7] Highmark Stadium Transportation Management Plan, various agencies, 2021

There are eight (8) primary driveways that provide access to/from on-Site parking lots, including:

- Stadium Drive on Southwestern Boulevard (Lots 5-7, M&T, Youth Football)
- Football Drive on Abbott Road (Lot 4)
- Touchdown Drive on Southwestern Boulevard (Lot 4, Bus & Limo Lot)
- Camper Drive on Abbott Road (Bus & Limo Lot, Tailgate Village, Camper Lot) Bills Drive on Abbott Road (Lot 2, Fieldhouse Lot)
- Team Member Drive on Big Tree Road (Team Member Lot)
- Fieldhouse Drive on Big Tree Road (Fieldhouse Lot, Lot 1)
- Regional Drive on Big Tree Road (Fieldhouse Lot, Lot 1, connections back to training center lot and Youth Football Lot

The existing Community Drive connection to the ECC South Campus is noted as an access roadway and not listed as a separate driveway since it connects via internal roadways to existing driveway connections from the EEC South Campus. During post-game operations, parking lot driveways are directional exit only to support increased traffic flow. A summary of the directional post-game operations is noted as follows:

- Stadium Drive one-way eastbound to Southwestern Boulevard
- Football Drive one-way northbound to Abbott Road
- Touchdown Drive one-way westbound to Southwestern Boulevard
- Camper Drive one-way southbound to Abbott Road
- Bills Drive one-way southbound to Abbott Road (Lot 2, Fieldhouse Lot)
- Team Member Drive one-way westbound to Big Tree Road
- Fieldhouse Drive one-way eastbound to Big Tree Road
- Regional Drive one-way eastbound to Big Tree Road

As part of this assessment, a quantification of the existing parking facility capacities was developed. Parking space information was obtained via owner-provided information, observations by WSP staff, or by aerial estimation. Owner controlled and ECC Campus parking space capacities were obtained from visual observations and data provided by the owner. Secondary parking space capacity was identified based on observations and calculation of average space per car versus available land. Tertiary parking was estimated via identifying assumed demand based on mode share information outlined in the previous section and quantified to balance out parking demand not accommodated by Primary and Secondary parking areas. This total provided a base line of the existing number of spaces available for patron use for the Existing Stadium condition.

In addition, the location of the parking was used to determine the quantity of parking located to the east and west of Abbott Road. Since Abbott Road closes during a game and approaching the Site is often pre-determined based on the desired parking location, this information is pivotal to the traffic routing to and from the Site. In general, if patrons desire parking in lots to the east of Abbott Road, they would be inclined to approach the site from the east, via Big Tree Road or Southwestern Boulevard. Patrons destined to park to the west of the Site would be more inclined to arrive from the west to reach their destination. Patrons parking in lots to the north and south of the Site are more likely to have equal distribution to/from the east and west. This is supported by the operational exit plan from the on-Site parking lot driveways which direct existing vehicles in a one-way manner to the east or west depending on which side of Abbott Road the parking lot driveway is

located on. As a result, one can correlate arrival and departure traffic patterns based on the comparison of available parking spaces located to the east and west of Abbott Road. Staff member parking is currently located in the Team Member Lot (previous Comfort Station Lot), located to the west of Abbott Road. Staff member arrival and departure can occur within patron traffic periods and since their routing would be anticipated to mirror patron patterns, they are assumed imbedded in the volume numbers as presented in this assessment.

As indicated in Table 5, of the 20,089 estimated available parking spaces, slightly more than half are located to the west of Abbott Road. Bills/ owner-controlled and secondary lots were found to be highest to the east of Abbott Road. The concentration of parking at ECC South Campus is fully located to the west of Abbott Road. Tertiary parking was assumed to be balanced to the east and west of Abbott Road. Full breakdowns of lot capacities and the location to the east or west of Abbott Road is also outlined in Table 6. Names of parking lots are not official and are taken from those available in Google Maps and Reddit.com.

Table 5: Existing Stadium Parking Supply Summary

Parking Lot	Existing Spaces	
	West - Abbott - East	
Bills/Owner-Controlled	4,744	5,207
Erie Com. College (ECC)	1,648	0
Secondary	2,471	3,088
Tertiary	1,465	1,466
Total	**10,328**	**9,761**
	20,089	

Table 6: Existing Stadium Parking Supply Summary

Parking Lot	Existing Spaces	
	W of Abbott	E of Abbott
Bills Controlled		
Lot 1		639
Fieldhouse		611
Lot 2 Preferred		752
Lot 2 ADA		110
Youth Football Preferred		220
Tailgate Village	200	
Camper Lot	400	
Bus & Limo	200	
Lot 4	2,064	
Lot 5		492
Lot 6 Preferred		1,360
Lot 6 ADA		48
M&T Lot		39
Lot 7		936
Team Member Lot	1,880	
Bills Total	**4,744**	**5,207**
ECC South Parking Lots		
East Lots 1 & 2	438	

ECC Lot E (South Side)	294	
North Side	64	
West Lot & Rideshare	606	
Rideshare	246	
ECC South Total	**1,648**	
Secondary Parking Lots		
Kettles		209
The KK Lot		650
Big Grass Lot		750
Parking Lot	**Existing Spaces**	
	W of Abbott	**E of Abbott**
California Lot		209
Mikes Lot		112
Wings Lot		640
Seans Lot		70
The Mud Lot		335
Chuckies Parking		113
Danny's South	241	
Hammer's Lot	240	
Scott's Lot	195	
Twin Oaks Motel	585	
The Mobile Lot	165	
Sheldon Road Lot	404	
The Gyno	223	
Misc. Southwestern	418	
Secondary Total	**2,471**	**3,088**
Tertiary Parking Lots (estimated)	1,465	1,466
Grand Total	**10,328**	**9,761**

PUBLIC TRANSPORTATION

The Niagara Frontier Transportation Authority (“NFTA”) operates public bus transportation in Erie and Niagara County, known as Metro Bus. NFTA operates several Metro Bus routes in the vicinity of the Existing Stadium, as shown in Table 7. Since none of these routes provide direct access to the Existing Stadium, and new direct service was just started in 2022 with unknown ridership, to be conservative, transit has been discounted and not included in the mode split in Table 4.

Table 7: NFTA Metro Bus Routes

Metro Bus Route	Route Operations	Schedule
14 – Abbott	Generally operates along Abbott Road, with access to ECC South Campus.	Weekdays 5:15am – 5:30pm on 30-minute headway; 5:30pm – 11:30pm on 60-minute headway Limited service on Saturdays and Sunday with 60 minute or greater headways.
16 – South Park	Operates along South Park Avenue, with access to McKinley Mall.	Weekdays 5:00am – 6:45pm on 28-minute headway; 6:45pm – Midnight on 60-minute headway Limited service on Saturdays and Sundays with 60 minute or greater headway.
72 – Orchard Park Express	Operates express service between the Village of Orchard Park and the Downtown Transit Center, with the route running along portions of Big Tree Road and Route 219.	One weekday trip inbound at 7:15am and one weekday outbound trip at 4:45pm. No weekend service.

TRAVEL PATTERNS

GBNRTC, at the request of Eric County, was able to provide and help assess available traffic data, obtained through GBNRTC's license with StreetLight. StreetLight uses connected devices to measure vehicle traffic patterns and origin-destination patterns. This data is useful is understanding pre- and post-game traffic patterns for game days. This assessment utilized data obtained from the Buffalo Bills versus Carolina Panthers 1:00PM game held on December 19, 2021. Traffic patterns were assessed for pre-game conditions (7:00AM – 1:00PM) and post-game conditions (3:00PM-8:00PM).

First, a look at regional traffic patterns was observed, with pre-game conditions shown in Figure 9 and post-game conditions shown in Figure 10. Screenshots are taken from the StreetLight software program. Traffic volumes are portrayed both dimensionally and by color, with the thicker lines showing higher traffic volumes; also, green lines indicate the higher end traffic volumes with red lines indicate lower end traffic volumes. This data shows that the majority of game day traffic from throughout the region and beyond is arriving and departing via I-90 north of the Existing Stadium. Other popular, but less used routes include Rt. 5, I-190, Southwestern Boulevard and Big Tree Road. The data shows that pre-game and post-game traffic patterns are very similar. Slightly more traffic can be seen using Southwestern Boulevard and Armor Duells Road to Rt. 219 in post-game conditions.

Figure 9: Regional StreetLight Data for Pre-Game Traffic Conditions

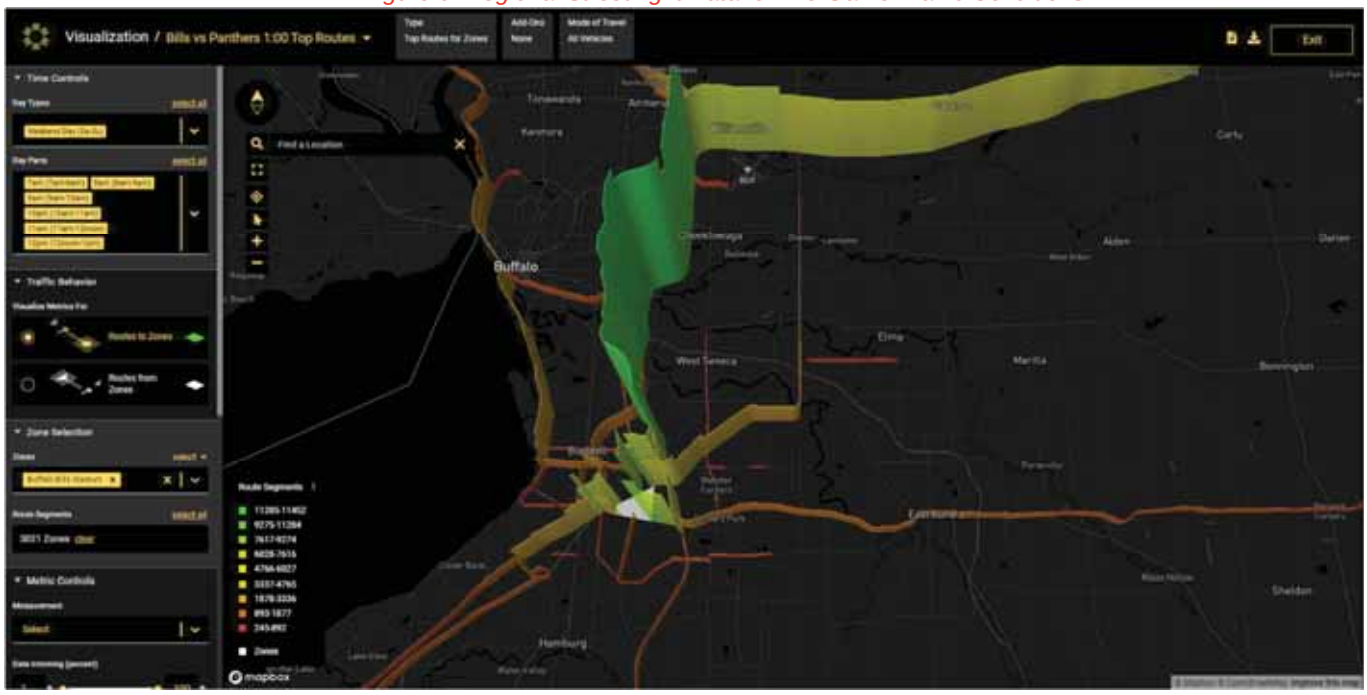
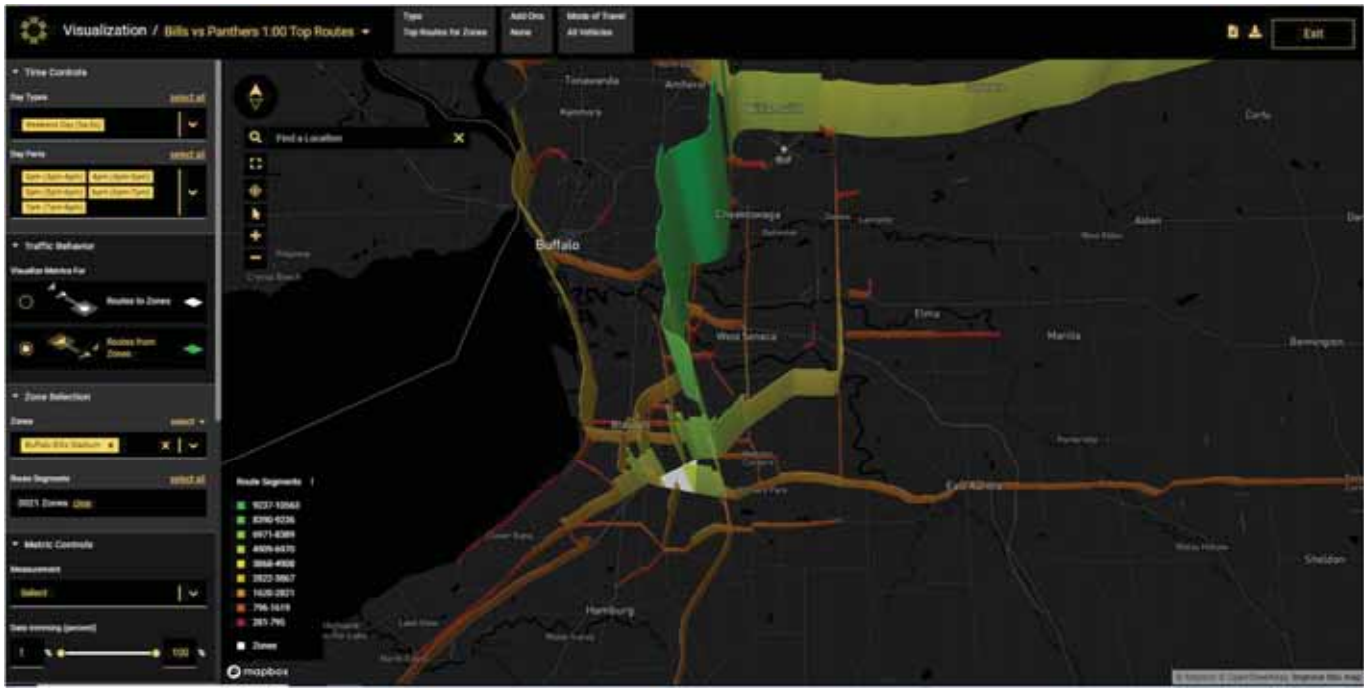


Figure 10: Regional StreetLight Data for Post-Game Traffic Conditions



Next, a more micro-scale look at traffic patterns was observed to understand the localized routes traffic uses to arrive and depart parking areas. Pre-game conditions are shown in Figure 11 and post-game conditions shown in Figure 12. Screenshots are again taken from the StreetLight software program. Looking more closely, the data shows more traffic using the roadways east of the Existing Stadium in both the pre-game and post-game conditions.

Pre-game conditions show more traffic using Rt. 219 than I-90 to various exits that access the stadium. Abbott Road, Southwestern Boulevard, and Big Tree Road handle the highest volumes, which would make sense considering the majority of parking areas are accessible from these roadways. The pre-game conditions indicate a preference from drivers coming southbound on I-90 to use Rt. 219 and exit at either the Milestrip Road or Big Tree Road exits. Milestrip Road handles traffic coming in from Route 5, I-90, and Rt. 219, where it is then distributed to Abbott Road, Southwestern Boulevard, or McKinley Parkway. There is a large convergence of traffic at the intersection of McKinley Parkway, Southwestern Boulevard, and Big Tree Road.

Post-game conditions show similar roadways are used. Roadways on the eastern side of the Existing Stadium still show higher volumes, with high volumes of traffic along Big Tree Road and Southwestern Boulevard, and higher volumes on Rt. 219 than on I-90. Abbott Road north of Southwestern Boulevard handles a high volume of traffic as well to Milestrip Road. Corridors that experience more post-game traffic than pre-game traffic include McKinley Parkway, South Park Avenue, Armor Duells Road, Union Road, Transit Road, Lake Avenue, and Webster Road. The maps suggest that travelers are more willing to find alternative routes after game than before, likely either due to convenience or to avoid congestion.

Figure 11: Localized StreetLight Data for Pre-Game Traffic Conditions

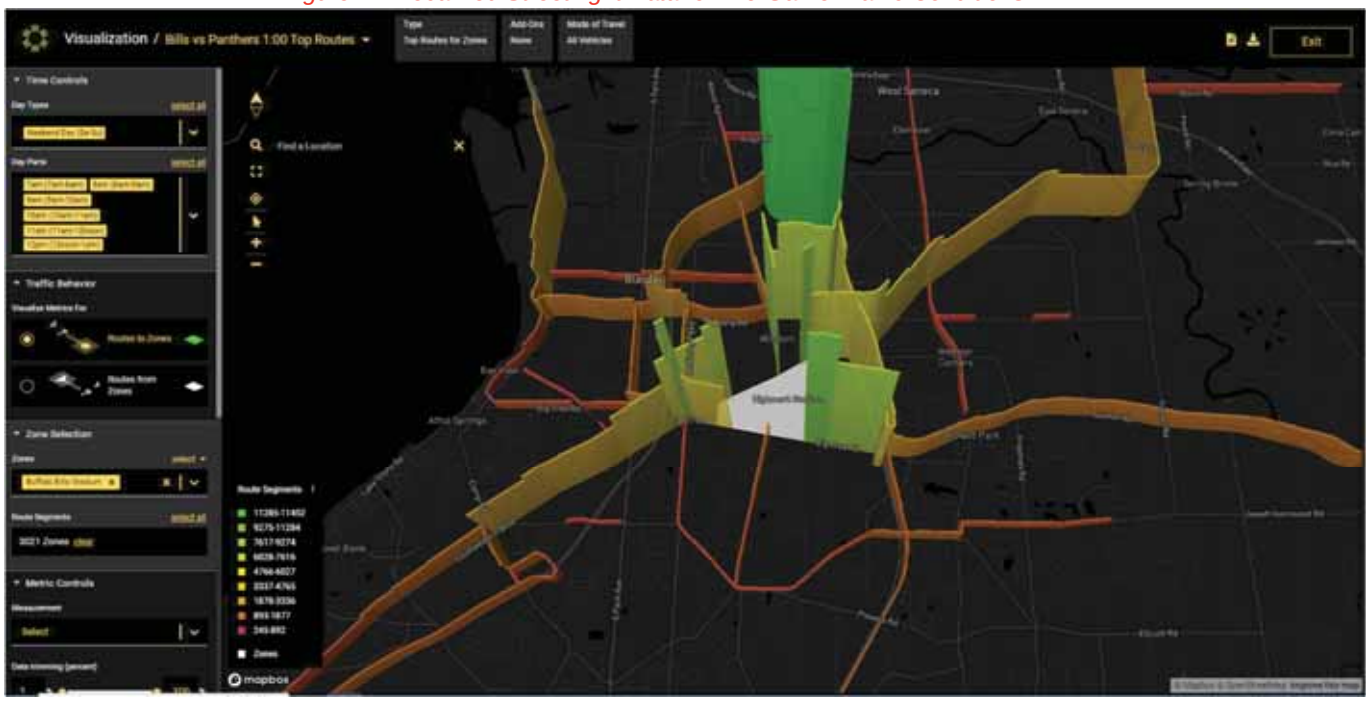


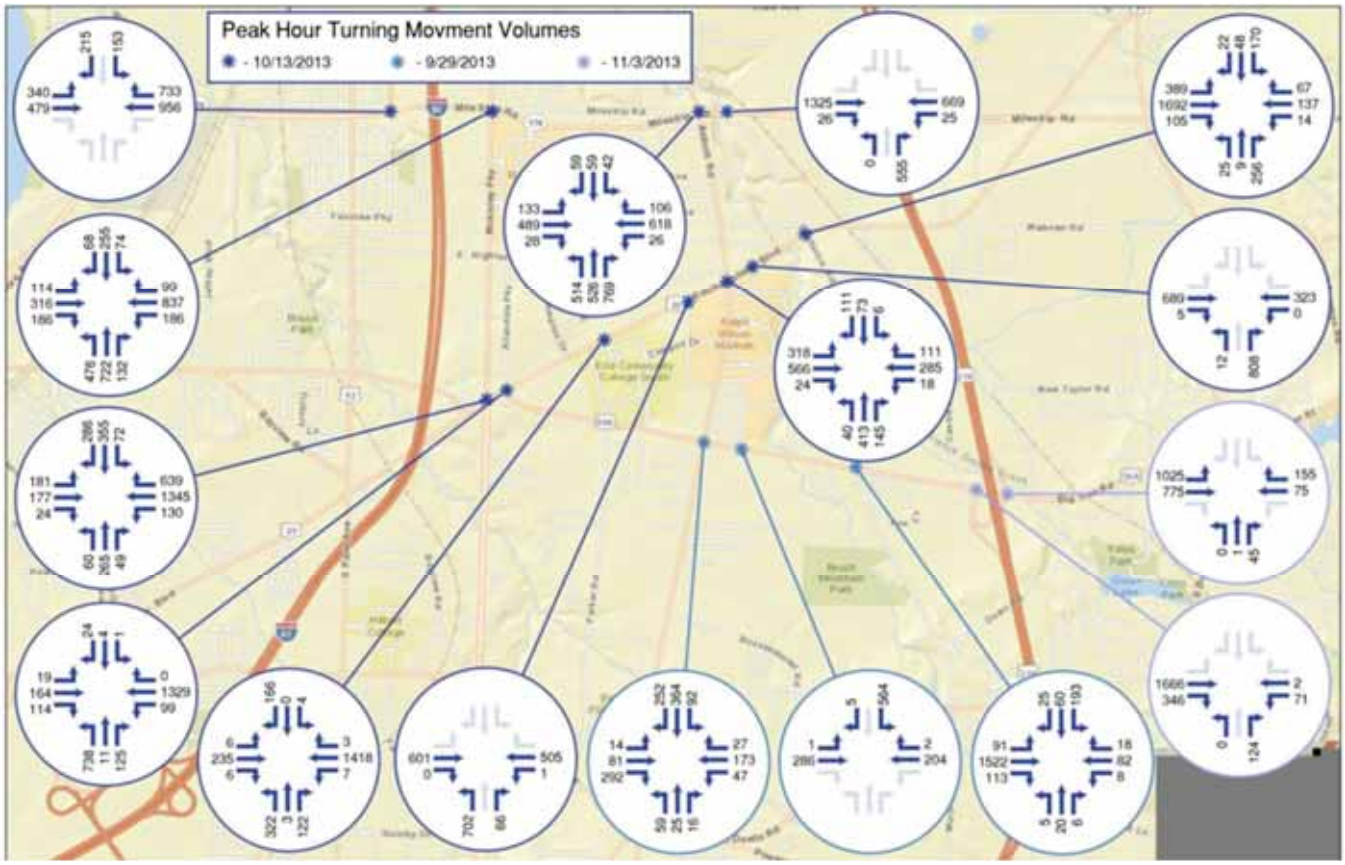
Figure 12: Localized StreetLight Data for Post-Game Traffic Conditions

Traffic arriving or departing from the Site has to travel on Southwestern Boulevard, Abbott Road (north and south), or Big Tree Road to access the majority of the on-Site and off-Site parking lot locations. This roadway network provides eleven (11) travel lanes for arriving traffic and twelve (12) travel lanes for departing traffic due to the post-game eastbound only lane operations on Big Tree Road east from the stadium to Rt. 219, use of the center turn lane on Southwestern Boulevard as a travel lane, and the conversion of travel lanes on Abbott Road to contraflow lanes (3 lanes inbound pre-game and 3 lanes outbound post-game). Typical highway engineering capacity analysis utilizes lane capacities in the 1,000 to 1,500 vehicles per lane per hour range, this indicates rough capacities of 11,000-16,500 vehicles per hour for arriving traffic and 12,000 to 18,000 vehicles per hour for departing traffic.

As part of the 2014 Ralph Wilson Stadium Traffic Impact Study, analysis was conducted to better understand the operations of the intersections in the immediate vicinity of the Existing Stadium, including several parking lot drive aisles. Figure 13 is a screenshot of the Post-Game Turning Movement Volumes, as taken from the 2014 Study[8]. As indicated, traffic flow is heavy outbound from the Site in a post-game condition. Heavy turning movements can be observed at Southwestern Boulevard intersections with Big Tree Road and McKinley Parkway, intersections along Milestrip Road, and at the Rt. 219 ramps.

[8] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

Figure 13: Screenshot of Post-Game Turning Movements from 2014 Ralph Wilson Stadium Traffic Impact Study[9]

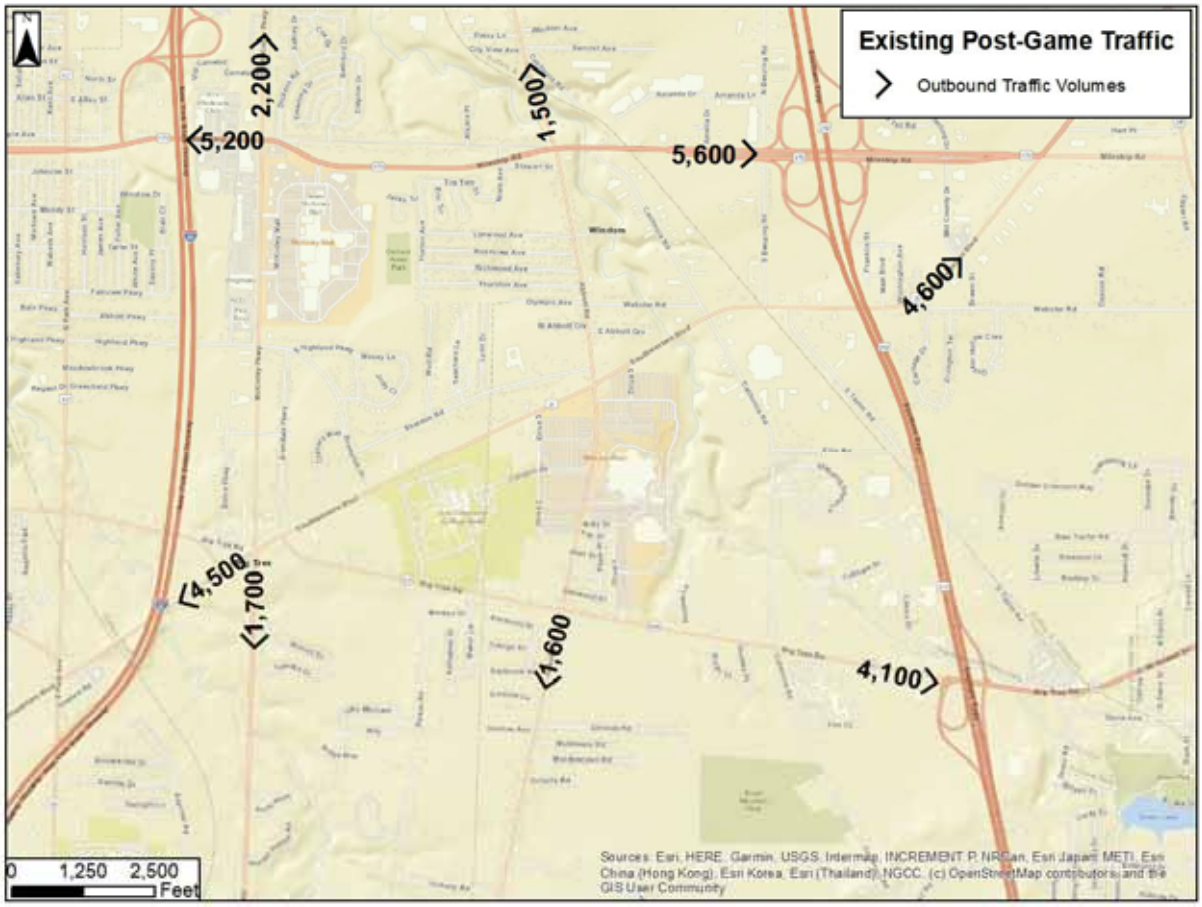


The post-game traffic turning movement counts indicate that Abbott Road acts as a good demarcation between parking lots that consist of exiting traffic that flows east and traffic that flows west. The traffic exiting parking lots to the east of Abbott Road onto Southwestern Boulevard or onto Big Tree Road have the majority of the traffic turning east towards Rt. 219 while the parking lots to the west of Abbott Road that exit to Southwestern Boulevard or Big Tree Road have the majority of their traffic turning west towards McKinley Parkway. Abbott Road also handles a large amount of post-game traffic both northbound and southbound. These assessments were used to help determine New Stadium travel patterns.

Data from the post-game turning movement counts outlined in the 2014 Study[10] was used to document approximate post-game traffic flow volumes, providing an understanding of traffic flows for nine (9) roadway segments during post-game conditions, as shown in Figure 14.

[9] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014
[10] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

Figure 14: Existing Stadium Post-Game Traffic Flow Volumes



The figure shows the eastbound traffic away from the Existing Stadium is the highest directional volume, with eastbound Southwestern Boulevard, Big Tree Road, and Milestrip Road volumes combining for approximately 14,300 vehicle trips. In order from next greatest to least directional flow- westbound Southwestern Boulevard and Milestrip Road volumes combining for approximately 9,700 trips, northbound McKinley Parkway and Abbott Road volumes (north beyond Milestrip Road) combining for approximately 3,700 trips, and southbound McKinley Parkway and Abbott Road volumes combining for approximately 3,300 trips.

Using the typical highway engineering lane capacities in the 1,000 to 1,500 vehicles per lane per hour range, with available rough capacities of 11,000-16,500 vehicles per hour for arriving traffic and 12,000 to 18,000 vehicles per hour for departing traffic, the post-game traffic flow observations do not indicate any constrained capacity of the roadway network. The 2014 Study indicated that much of the delay that is experienced in the vicinity of the Existing Stadium is the result of pedestrian and vehicular interactions at driveways and intersections. Once the traffic is beyond the immediate area, it is only restricted by normal signal or stop controls and flows relatively well[11].

[11] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

In association with the turning movement counts taken in the 2014 Study, another key observation was that on westbound Big Tree Road at the intersection of Southwestern Boulevard, there is a dedicated left turn and a combined left/thru/right lane on the Big Tree Road approach. Left turning traffic typically queues in the left turn lane, not knowing that both lanes can be used for left turns, leaving additional left turn storage capacity unused[12].

Game day use of local streets, such as Parker Road, Brompton Drive, and Sheldon Road, is not available in agency databases (GBNRTC, NYSDOT, or Orchard Park) or via StreetLight data, are not included in operational oversight in the Existing Stadium TMP and was not documented in the 2014 Study. These roadways are acknowledged to handle varying amounts of cut-thru traffic depending upon the main roadway conditions pre- and post-game. However, without access to game day data for these streets, discussion around issues with these roadway operations and the potential need for operational improvements such as traffic signals or police control via the Existing Stadium TMP is not identified. It is noted that new traffic signals are only installed based on a traffic signal warrant analysis prepared by NYSDOT, which focus more on recurring and typical peak hour traffic conditions.

NEW STADIUM CONDITIONS

The New Stadium will be located just to the west of the Existing Stadium, across Abbott Road, as shown earlier in Figure 1. Current estimates indicate that the New Stadium will have a capacity not to exceed 63,000, which is approximately 7,000 fewer seats than the Existing Stadium (10% lower capacity). Additional information includes:

- The New Stadium will feature approximately 10,000 parking spaces controlled by the Buffalo Bills, similar to the 9,950 spaces currently controlled with the Existing Stadium site.
- The New Stadium's location, west of Abbott Road, will allow for patrons and vehicles to enter and exit more equally in all directions as compared to the Existing Stadium which is constrained on the east side by Smokes Creek.
- New driveways will offer additional ingress and egress opportunities for parking areas.
- The New Stadium will be located within existing parking facilities; this will cause a reduction in the number of on-Site parking spaces located to the west of Abbott Road.
- Once the Existing Stadium is demolished, it will be replaced with parking; this will increase the number of on-Site parking spaces located east of Abbott Road.
- The existing training and stadium operations buildings will remain.

PROJECTED CHANGES TO ROADWAYS FACILITIES

As the New Stadium will be located on the west side of Abbott Road (across from the Existing Stadium), the same existing regional street network will be used by game attendees of the New Stadium, as shown in Figures 7 and 8. Notably, an additional driveway will provide a new connection between Southwestern Boulevard and Big Tree Road, adjacent to ECC South Campus. This connecting driveway will provide additional vehicle access to the Site providing additional options for redistributing existing traffic on the west side of Abbott Road.

[12] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

PROPOSED CHANGES TO VEHICLE TRIPS

The methodology to estimate the number of vehicle trips generated by the New Stadium site was based primarily on data and observations collected through the 2014 Study as well as observations conducted by WSP staff and input provided by the Bills on conditions associated with the Existing Stadium and any anticipated changes due to the New Stadium. This information was then factored by the location of the parking spaces to the east and west of Abbott Road. Also, due to the New Stadium size reduction, the attendees' mode split traffic generation, as detailed previously, was updated for the anticipated modes of arrival. Observations related to this calculation and other related factors as part of this methodology include:

- Game day traffic volumes and parking demand will be reduced as compared to existing conditions as a result of the reduction in the number of attendees due to the smaller size of the New Stadium.
- Game attendees' travel patterns and behavior will largely resemble travel behavior to the Existing Stadium. This includes a similar number of occupants per vehicle, how early attendees arrive before each game, how many attendees use other forms of transportation, and the approximate distribution of how many attendees park in secondary and tertiary parking lots versus park in Bills-controlled parking spaces (future changes to parking parameters, including pricing, were not considered as part of the assessment).
- Game attendees' approach and departure orientation was estimated to be proportional to the number of parking spaces located to the east and west of Abbott Road. Parking spaces to the east would favor routing to and from the east, while those spaces on the west side of Abbott Road would favor routing to and from the west.
- Existing operations as detailed in the Existing Stadium TMP to accommodate and manage game day traffic and pedestrian operations resulting from the New Stadium were assumed to remain similar as to what is done today with the Existing Stadium. It is anticipated that updates to the Existing Stadium TMP will occur as operations are reviewed routinely to determine adjustments to the plan, review physical conditions of pedestrian walkways, and determine options for improved roadway and pedestrian operations.
- The New Stadium is expected to incorporate expedited parking validation processes that will help to move pre-game traffic queues for parking areas more expeditiously.

To determine the maximum number of vehicle trips attending each game, as previously discussed in Section 3, an occupancy of 2.8 persons per vehicle was assumed. This is a conservative estimate that is lower than the 2.9 - 3.0 persons per vehicle value typically used in sports stadium assessments, as was recently used in a traffic assessment conducted for the Las Vegas Raiders stadium[13]. As per the existing conditions, it was assumed that 78.5% of all attendees would arrive via passenger vehicle; other mode split percentages include 1.0% for ride share, 19.0% for bus/ motor coach, 1.0% for limo, and 0.5% for RV. Prior to the 2022 season, public transit was not an available mode for patron attendance, and thus a mode split for transit is not shown, however, a new pilot transit service will be launched in 2022 but was discounted in this assessment because its impact is unknown at this time and the service is subject to changes throughout the year based on

[13] Event Traffic Impact Study for Las Vegas Raiders Stadium, Kimley Horn and Associates, Inc., 2017.

conditions and ridership. Table 8 illustrates the projected arrival by mode for the New Stadium's not to exceed 63,000 patrons along with the number of parking spaces demanded by the New Stadium capacity.

Table 8: New Stadium Projected Patron Arrival by Mode

	Ride Share	Bus / Motor Coach	Limo	RV	Passenger Vehicle	Total
Passengers/ Vehicle	-	48	10	3	2.8	-
Mode Share	1.0%	19.0%	1.0%	0.5%	78.5%	100%
Patrons	630	11,970	630	315	49,455	63,000
Parking Spaces	-	249	63	105	17,663	18,080

The number of patrons attending the New Stadium is expected to decrease by at least 7,000 (from approximately 70,000 to 63,000) resulting in a coinciding reduction of the demand for parking spaces of approximately 2,009 from the 20,089 proposed available spaces. The identified demand for parking spaces at the New Stadium will be 18,080. The reduction of parking demand will likely result in a reduction in the number of trips generated by the New Stadium as well. Overall, based on the mode split assumptions and parking lot configurations, the New Stadium is projected to generate approximately 2,000 fewer vehicle trips than the Existing Stadium.

PROJECTED CHANGES TO PARKING FACILITIES

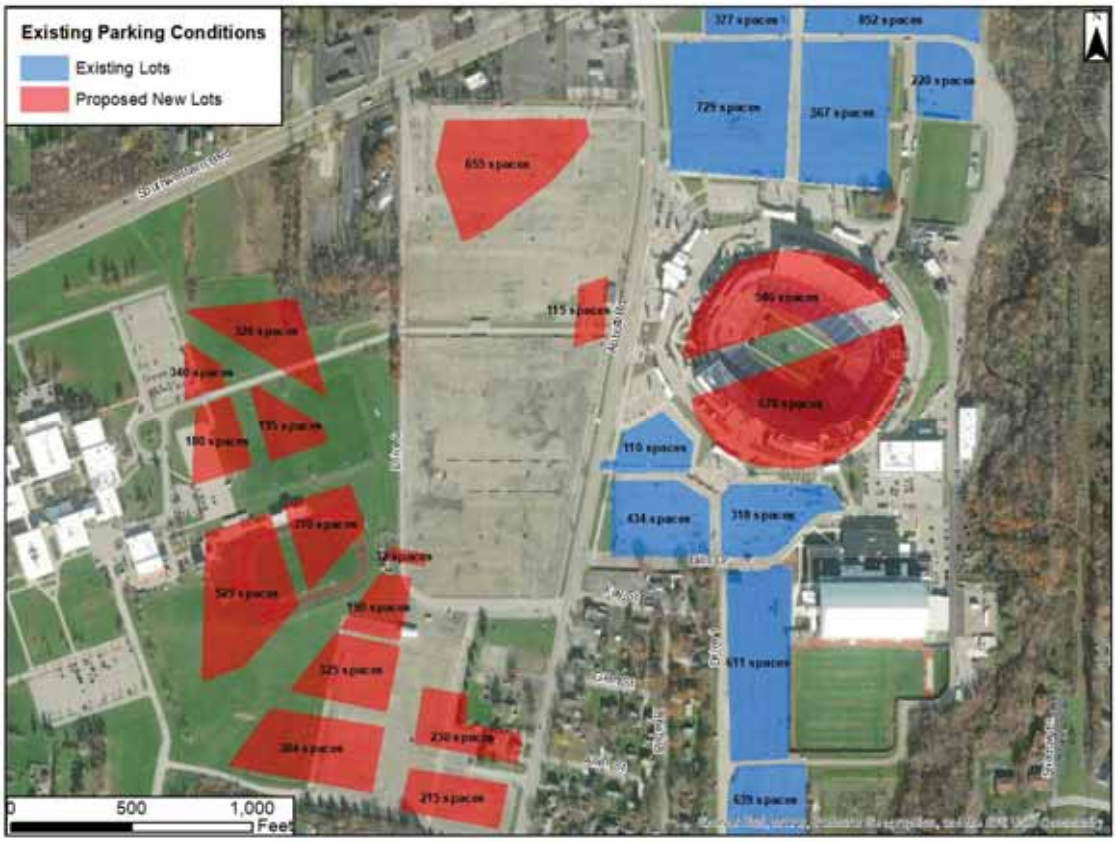
As currently occurs for games at the Existing Stadium, it is anticipated that game attendees will utilize both Bills-controlled parking facilities as well as private parking facilities within walking distance of the New Stadium. Many of these parking areas will remain intact.

BILLS PARKING FACILITIES

Figure 15 illustrates proposed parking conditions of the New Stadium, indicating which parking areas currently exist and which are proposed as part of the New Stadium. Parking will replace the Existing Stadium once demolished. The New Stadium is proposed to replace some of the impacted parking with new lots west and south of the New Stadium. As previously stated, the number of Bills/ owner-controlled parking spaces is approximately 9,950 with the Existing Stadium and 10,000 with the New Stadium.

Existing Lot 1 will become staff parking and thus will see arriving vehicles earlier than surrounding peaks and exiting vehicles later than surrounding peaks. This will help alleviate pedestrian – vehicle conflicts at the Lot 1 driveway at Big Tree Road.

Figure 15: Projected Parking Layout for New Stadium



SECONDARY & TERTIARY PARKING

As detailed previously, in addition to the Bills/ owner-controlled parking spaces, there are a number of secondary and tertiary parking options near the New Stadium site, including the ECC South Campus, private lots, as well as residents allowing patrons to park on their lawn. It was estimated that the total number of these secondary or tertiary parking spaces is 10,138 with the Existing Stadium and 10,040 with the New Stadium. The difference in space is represented primarily by an approximately 100 vehicle reduction in parking capacity at the ECC South lots where new circulator roads will be constructed as part of the New Stadium.

TOTAL PARKING

Between the Bills/ owner-controlled parking spaces, ECC South Campus, and secondary and tertiary parking, the following represent estimates for total stadium-area parking:

- Existing Stadium: 20,089 parking spaces
- New Stadium: 20,022 parking spaces

A summary of the total proposed parking lot spaces and their location to the east and west of Abbott Road is shown in Table 9. The detailed summary breakdown of parking spaces for each lot is shown in Table 10.

Table 9: New Stadium Parking Supply Summary

Parking Location	Existing Stadium Parking Spaces		New Stadium Parking Spaces	
	West - Abbott – East		West - Abbott - East	
Bills/ Owner Controlled	4,744	5,207	3,616	6,366
ECC	1,648	0	1,550	0
Secondary	2,471	3,088	2,471	3,088
Tertiary	1,465	1,466	1,465	1,466
Total	**10,328**	**9,761**	**9,102**	**10,920**
Overall Total	**20,089**		**20,022**	

Table 10: New Stadium Parking Supply Detailed Breakdown

Parking Lot	Existing Stadium Parking Spaces		New Stadium Parking Spaces	
	W of Abbott	E of Abbott	W of Abbott	E of Abbott
Bills Controlled				
Lot 1		639		**0**
Fieldhouse		611		**0**
Lot 2 Preferred		752		752
Lot 2 ADA		110		110
Youth Football		220		200
Tailgate Village	200			
Camper Lot	400			
Bus & Limo	200			
Highmark Stadium				**1,416**

Parking Lot	Existing Stadium Parking Spaces		New Stadium Parking Spaces	
	W of Abbott	E of Abbott	W of Abbott	E of Abbott
South Secure			**222**	
South General			**1104**	
SW New			**835**	
NW New			**685**	
Lot 4	2,064		**770**	
Lot 5		492		**377**
Lot 6 Preferred		1,360		**1,296**
Lot 6 ADA		48		**78**
M&T Lot		39		39
Lot 7 **		936		**852**
Team Member Lot *	1,880		**0**	**1250**
Bills Total	**4,744**	**5,207**	**3,616**	**6,366**
ECC South Parking Lots				
East Lots 1 & 2	438		**340**	
ECC Lot E (South Side)	294		294	
North Side	64		64	
West Lot & Rideshare	606		606	
Rideshare	246		246	
ECC South Total	**1,648**		**1,550**	
Secondary Parking Lots				
Kettles		209		209
The KK Lot		650		650
Big Grass Lot		750		750
California Lot		209		209
Mikes Lot		112		112
Wings Lot		640		640
Seans Lot		70		70
The Mud Lot		335		335
Chuckies Parking		113		113
Danny's South	241		241	
Hammer's Lot	240		240	
Scott's Lot	195		195	
Twin Oaks Motel	585		585	
The Mobile Lot	165		165	
Sheldon Road Lot	404		404	
The Gyno	223		223	
Misc. Southwestern	418		418	
Secondary Total	**2,471**	**3,088**	**2,471**	**3,088**
Tertiary Parking Lots (estimated)	1,465	1,466	1,465	1,466
Grand Total	**10,328**	**9,761**	**9,102**	**10,920**

BOLD *equals change in number from existing*
** Was Lot 1, ** - Includes Bus Lime & Camper*

The 20,022 parking spaces proposed as part of the New Stadium compares with the estimated demand of 18,080 parking spaces needed across each mode. This surplus provides additional flexibility in terms of how patrons arrive at each game and variances in vehicle occupancy as well as differences in how patrons may travel to non-football events. This also allows for flexibility in parking during construction phases.

Proposed on-Site parking lots will surround all four sides of the New Stadium. The New Stadium is proposed to have additional driveway access points with the overall number of driveways increasing to eleven (11) from the existing eight (8) locations. However, since the New Stadium retains the use of the existing parking lots on the east side of Abbott Road and utilizes new internal connections for the new parking lots on the west side of Abbott Road, the overall change in the relative location of the driveways related to existing traffic patterns is minimal.

One (1) new driveway connection is proposed along Southwestern Boulevard east of the existing ECC South Campus driveway. Two (2) new driveway connections to Abbott Road south of the New Stadium will provide increased access opportunities to the new parking areas to the south of the New Stadium and the secure parking zone adjacent to the New Stadium. In addition, an enhanced connection to Big Tree Road from parking areas on the west side of Abbott Road is proposed. A partial new internal roadway connection on the west side of the New Stadium parking lots will provide enhanced connectivity for ingress and egress for the proposed parking lots on the west side on the New Stadium. The proposed partial roadway connection will also provide for the opportunity for redundancy in the operations in the event of a driveway closure or other need to reroute traffic from the various parking lots and would allow enhanced ingress/ egress with Big Tree Road and Southwestern Boulevard.

No new vehicular connections over Smokes Creek to the east are proposed. It is not anticipated that pedestrian access and traffic patterns will change significantly for those patrons who utilize parking off California Road to access the Site.

A summary of the proposed primary driveways to the New Stadium parking lots is noted as follows and can be found in the site plan in Section 1.

- Stadium Drive on Southwestern Boulevard (Lots 5-7, M&T, Youth Football)
- Football Drive on Abbott Road (New Lot 4)
- Touchdown Drive on Southwestern Boulevard west of Touchdown Drive (New Lot 4 & NW Lots)
- **New** Driveway on Southwestern Boulevard (New Lot 4, Bus & Limo Lot)
- **New** Driveway on Abbott Road (secure parking)
- **New** Driveway on Abbott Road south of secure parking access (South Lots)
- Camper Drive on Abbott Road (South Lots)
- Bills Drive on Abbott Road (Lot 2, Fieldhouse Lot)
- **Enhanced** Team Member Drive on Big Tree Road (New SE & West Lots)
- Fieldhouse Drive on Big Tree Road (Fieldhouse Lot, Lot 1)
- Regional Drive on Big Tree Road (Fieldhouse Lot, Lot 1, connections back to training center lot and Youth Football Lot)

During post-game operations, parking lot driveways are anticipated to retain their existing directional exit patterns to support traffic flow. A summary of the directional post-game operations associated with the New Stadium is noted as follows:

- Stadium Drive one-way eastbound to Southwestern Boulevard (existing)

- Football Drive one-way northbound to Abbott Road (existing)
- Touchdown Drive one-way westbound to Southwestern Boulevard (existing)
- **New** Driveway on Southwestern Boulevard (anticipated westbound only exit but could accommodate eastbound turns)
- **New** Driveway on Abbott Road (anticipated southbound only)
- **New** Drive on Abbott Road south of secure parking access (anticipated southbound only)
- Camper Drive one-way southbound to Abbott Road (existing)
- Bills Drive one-way southbound to Abbott Road (Lot 2, Fieldhouse Lot)
- **Enhanced** Team Member Drive (anticipated to retain one-way westbound to Big Tree Road)
- Fieldhouse Drive one-way eastbound to Big Tree Road (existing)
- Regional Drive one-way eastbound to Big Tree Road (existing)

PROJECTED CHANGES TO PUBLIC TRANSPORTATION FACILITIES

NFTA is not proposing any changes to service along Route 14, Route 16, or Route 72 due to the Project. Beginning during the 2022 season, NFTA is piloting game day service that would operate between several locations across Western New York to a passenger drop-off on Abbott Road. Locations NFTA is considering for service pick-up and drop-off include the Downtown Transit Center on Ellicott Street, Black Rock-Riverside Transit Hub, University Station Park and Ride, Thruway Mall, Athol Springs Transit Hub, Eastern Hills Mall, and McKinley Mall) to a passenger drop-off on Abbott Road. Service to/from the Downtown Transit Hub on Ellicott Street is planned to include different service times to accommodate employees and patrons. NFTA buses will use Big Tree Road to Regional Drive as an ingress route, and drop-off at Gate 1. This ingress route will give NFTA priority access for drop-off into the stadium area and give employees and fans a very close spot near their respective gate entry areas. Staff will enter at Employee Gate 1, while fans will enter at Toyota Gate 2. For egress, after last drop-off, buses remaining on-Site will be directed to stage and wait on Bills Drive along the guard rail to the right/ north side of Bills Drive. After the game starts (approximately 15-30 minutes after kickoff), and once pedestrian traffic and ingress is clear, the buses would then move from Bills Drive and stage on the closed portion of Abbott Road facing south along the west side of Abbott Road. This will be done with the assistance of the Sheriff team. After the game, the buses will load on Abbott Road and egress via Big Tree Road back to Rt. 219.

This pilot service is in its initial phase as of the 2022 season and is subject to change throughout the season based on conditions and ridership. Actual impact to travel patterns won't be understood until this pilot service is refined and operating on a regular game day service.

PROJECT CHANGES TO TRAVEL PATTERNS

In addition to understanding the maximum number of vehicle trips to the New Stadium and the parking capacity at the New Stadium, it is important to understand the location of the parking lots at the New Stadium and how the new parking lot locations will result in trip distribution in terms of whether vehicles flow east or west from the New Stadium during egress. Regardless of the number of driveways, generalized regional travel patterns occur as detailed in the existing conditions section of this assessment. Patrons parking in lots to the north and south of the Site will likely continue to equally approach/ depart the Site from/to the west and east while patrons parking to the west will likely continue to approach/ depart from/ to the west and patrons parking to the east will likely continue to approach/ depart from/to the east. This is supported by the operational exit plan from the on-Site parking lot driveways which direct exiting vehicles in a one-way manner

to the east or west depending on which side of Abbott Road the parking lot driveway is located on. As a result, one can estimate the change in arrival patterns based on the comparison of available parking spaces located to the east and west of Abbott Road.

Table 11 illustrates the location of parking spaces associated with the New Stadium in terms of which are east of and which are west of Abbott Road. In comparing the number of parking spaces between the Existing Stadium and New Stadium in terms of location east or west of Abbott Road, the New Stadium will result in 1,126 fewer parking spaces west of Abbott Road and 1,159 additional parking spaces on the east side of Abbott Road. The distribution of traffic to and from these parking areas is expected to remain similar to what exists today.

Table 11: New Stadium Parking Assignment

Parking Location	Existing Stadium Parking Spaces		New Stadium Parking Spaces	
	West - Abbott – East		West - Abbott - East	
Bills/ Owner Controlled	4,744	5,207	3,616	6,366
ECC	1,648	0	1,550	0
Secondary	2,471	3,088	2,471	3,088
Tertiary	1,465	1,466	1,465	1,466
Total	**10,328**	**9,761**	**9,102**	**10,920**
Overall Total	**20,089**		**20,022**	

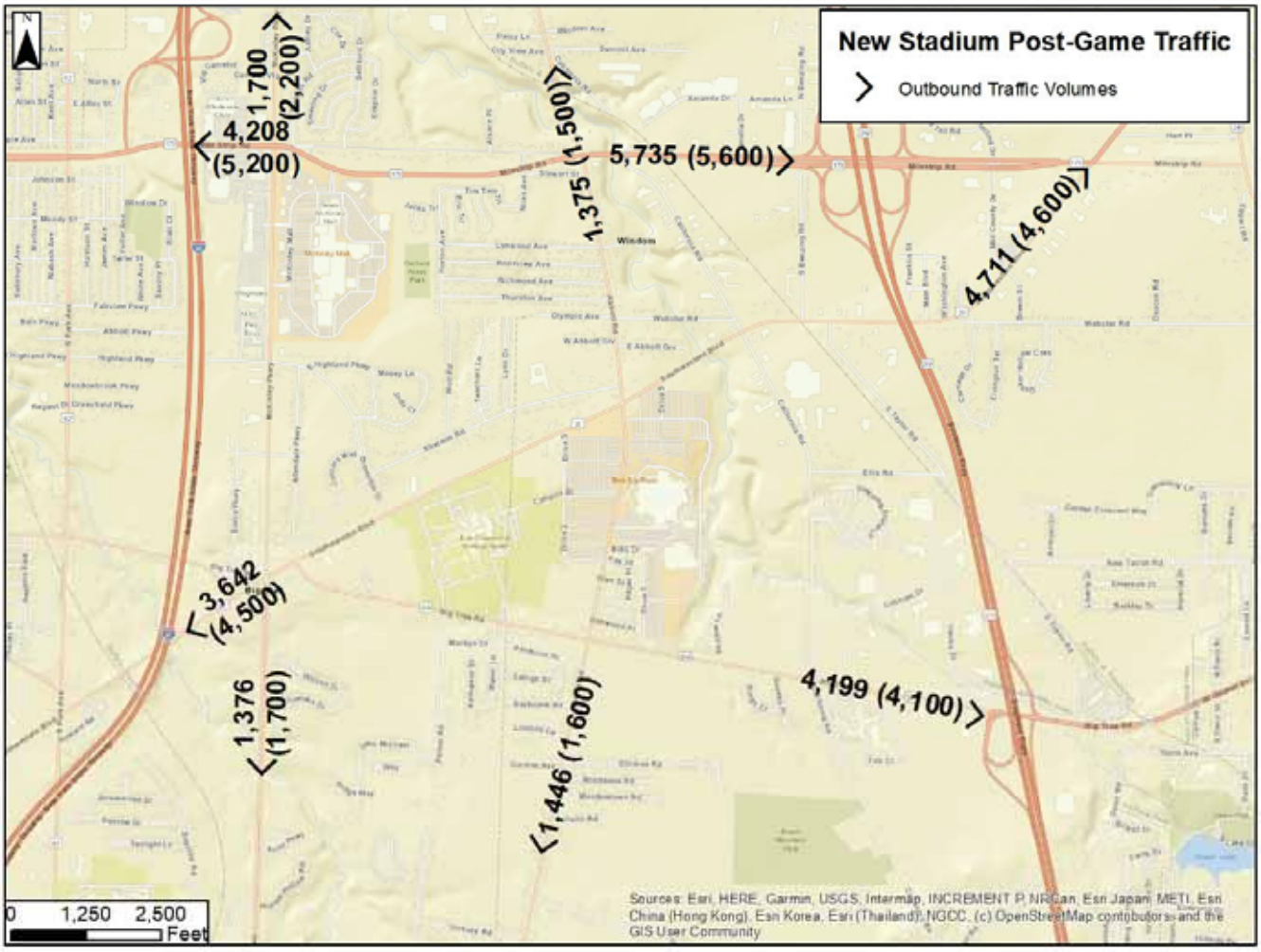
The reduction in stadium size not only correlates to a reduction in parking demand but will likely result in a reduction in the number of trips generated by the New Stadium as well. Using the observed post-game traffic flow volumes outlined previously for the Existing Stadium, a forecast for post-game traffic flow volumes associated with the New Stadium was identified. Using changes in parking space locations reflective of being east or west of Abbott Road, post-game traffic flow volumes were calculated and are summarized in Figure 16.

Volumes on the nine (9) identified roadway segments would be anticipated to reduce slightly overall compared to existing volumes due to the reduction in stadium size. In addition, volumes would be expected to shift more to an eastern orientation due to the increased number of parking spaces east of Abbott Road as part of the New Stadium (this includes the conversion of the Existing Stadium for new parking spaces). As indicated, traffic headed eastbound would remain the largest directional volume and increase slightly on Southwestern Boulevard, Milestrip Road, and Big Tree Road from a total of 14,300 to 14,645, an increase of only 345 vehicles. Westbound traffic along Milestrip Road and Southwestern Boulevard would be reduced. Traffic headed northbound and southbound from the New Stadium would see slightly lower volumes as compared to existing and to the overall eastbound and westbound volumes. The slight 2% increase in eastbound traffic volumes on Southwestern Boulevard, Milestrip Road, and Big Tree Road is not expected to result in any traffic impacts. An updated TMP developed as part of the New Stadium can be used to better distribute traffic from parking areas amongst the new driveways if needed. New/ modified internal roadways and access driveways will provide the flexibility needed to allow adjustments to the TMP based on actual operational experience with the New Stadium.

Game day use of local streets, such as Parker Road, Brompton Drive, and Sheldon Road would be expected to remain similar to existing conditions, and potential experience reduced traffic due to fewer

attendees attending the New Stadium. This is due in large part to the reduction in the total number of attendees with the New Stadium. In addition, the shift in the total number of anticipated parking spaces to the east of Abbott Road would be anticipated to reduce the potential for cut-thru traffic on these roadways which are all located to the west of Abbott Road. Annual review of the Existing Stadium TMP for operational improvements such as traffic signals or police oversight could address traffic related issues along these roadways, if any, after the New Stadium is operational.

Figure 16: New Stadium Projected Post-Game Traffic Flow Volumes (Existing Volumes in Parentheses)



PEDESTRIAN ASSESSMENT

EXISTING PEDESTRIAN CONDITIONS

This section outlines the existing pedestrian conditions in the vicinity of the Existing Stadium.

Table 12 identifies the pedestrian conditions of the roadways in the vicinity of the Existing Stadium.

Table 12: Existing Pedestrian Conditions

Roadway	Roadway Segment	Pedestrian Facilities
US 20 Southwestern Boulevard	California Road to Abbott Road	Sidewalks exist on both sides.
US 20 Southwestern Boulevard	Abbott Road to Big Tree Road	Sidewalks exist on both sides.
Abbott Road	South of Big Tree Road	Sidewalks do not exist; paved shoulders exist on both sides of the roadway.
Abbott Road	Big Tree Road to Bills Drive	Sidewalks or paved walkway exist on both sides, stopping short of the intersection of Big Tree Road.
Abbott Road	Bills Drive to Southwestern Boulevard	Sidewalks exist on both sides.
Abbott Road	Southwestern Boulevard to Sheldon Road	Sidewalks exist on both sides.
Abbott Road	Sheldon Road to Olympic Ave/ Webster Road	No sidewalks or shoulders exist.
US 20A Big Tree Road	California Road to Abbott Road	Sidewalks do not exist; paved shoulders exist on both sides of the roadway.
US 20A Big Tree Road	West of Abbott Road	Sidewalks do not exist; paved shoulders exist on both sides of the roadway.
California Road	US 20 Southwestern Boulevard to US 20A Big Tree Road	Sidewalks do not exist; paved shoulders exist on both sides of the roadway.

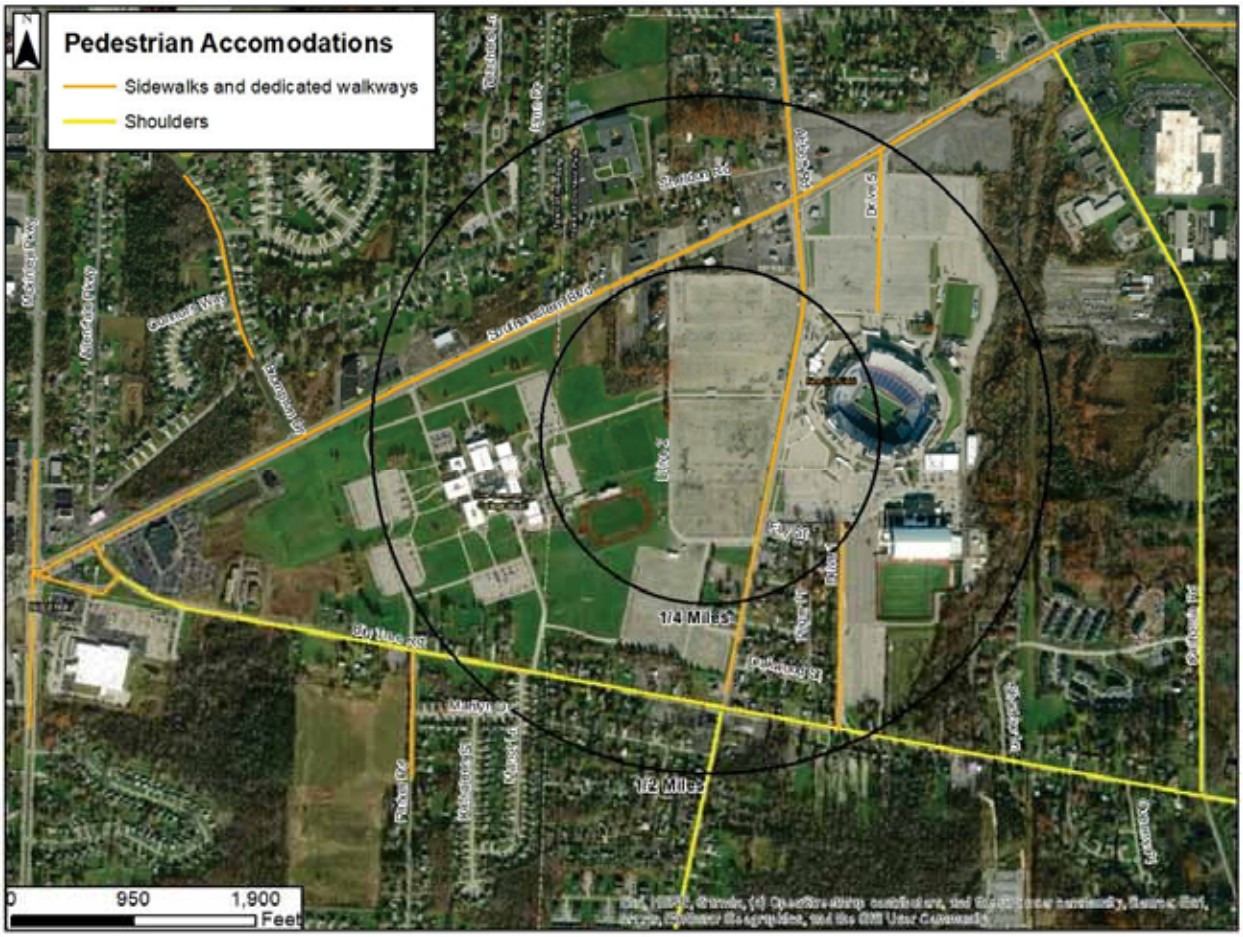
Internal walkways exist throughout ECC South Campus, some of which are available for use specifically during game days, connecting parking areas to Abbott Road, exist along the west side of Stadium Drive between Southwestern Boulevard and the stadium gates, and along the east side of Bills Drive between Big Tree Road and stadium gates.

Crosswalks are in place at the intersections of Abbott Road and Big Tree Road, Bills Drive and Big Tree Road, Abbott Road and Southwestern Boulevard, Southwestern Boulevard and California Road, Big Tree Road and Southwestern Boulevard, and Southwestern Boulevard and ECC Campus driveway.

The Existing Stadium TMP establishes a road closure along Abbott Road in the areas in front of the Existing Stadium from approximately 5 hours before kickoff on game days until approximately 1 hour after the game ends to provide safer pedestrian access to and from the stadium. The Existing Stadium TMP also establishes a coned walkway along the shoulder of Big Tree Road to separate vehicles and pedestrians and a coned walkway along the easternmost outside lane of Abbott Road between Southwestern Boulevard and Milestrip Road to further enhance pre- and post-game walking conditions for patrons.

Figure 17 illustrate the location of sidewalks, walkways, and shoulders, and the ¼- and ½- mile walksheds surrounding the Site.

Figure 17: Location of Pedestrian Facilities



The following pedestrian observations and patterns are obtained from the 2014 Ralph Wilson Stadium Traffic Impact Study[14]:

- Large volumes of pedestrians walk along Big Tree Road. Since there are no sidewalks, pedestrians use the shoulder which, per the Existing Stadium TMP, is coned off on game days for pedestrian use.
- Large volumes of pedestrians walk along Abbott Road, north of Southwestern Boulevard where sidewalks do not exist beyond the first 100 feet or so. Pedestrians use the easternmost lane, which, per the Existing Stadium TMP, is coned off from vehicle traffic on game days for pedestrian use.
- The walkway along Bills Drive between Big Tree Road and the stadium gates is located along the east side of Bills Drive. When pedestrians using this walkway to exit the stadium, they must cross Big Tree Road east of the drive intersection of Big Tree Road. With post game traffic directed eastbound only, this creates a disruption in traffic flow between exiting vehicles and exiting pedestrians.

Coordination with GBNRTC using StreetLight data helps understand pre- and post-game pedestrian flows. A pedestrian is generally identified if a device has an origin or destination outside of the Existing Stadium Site

[14] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

but makes a stop at a location other than the Existing Stadium, than moves at a speed and/or distance that is different than the associated auto trip. Since there are thousands of pedestrians within the vicinity of the Existing Stadium, the pedestrian assessment blocks out all those trips occurring within a boundary delineated by Southwestern Boulevard on the north, Smokes Creek on the east, Big Tree Road on the south, and just west of the ECC South Campus to the west. The StreetLight pedestrian analysis for both pre- and post-game conditions shows a high volume of pedestrians coming from/ going to areas north of Southwestern Boulevard, as shown in the StreetLight screenshot in Figure 18 (pre-game) and Figure 19 (post-game).

Figure 18: StreetLight Observed Pre-Game Pedestrian Conditions

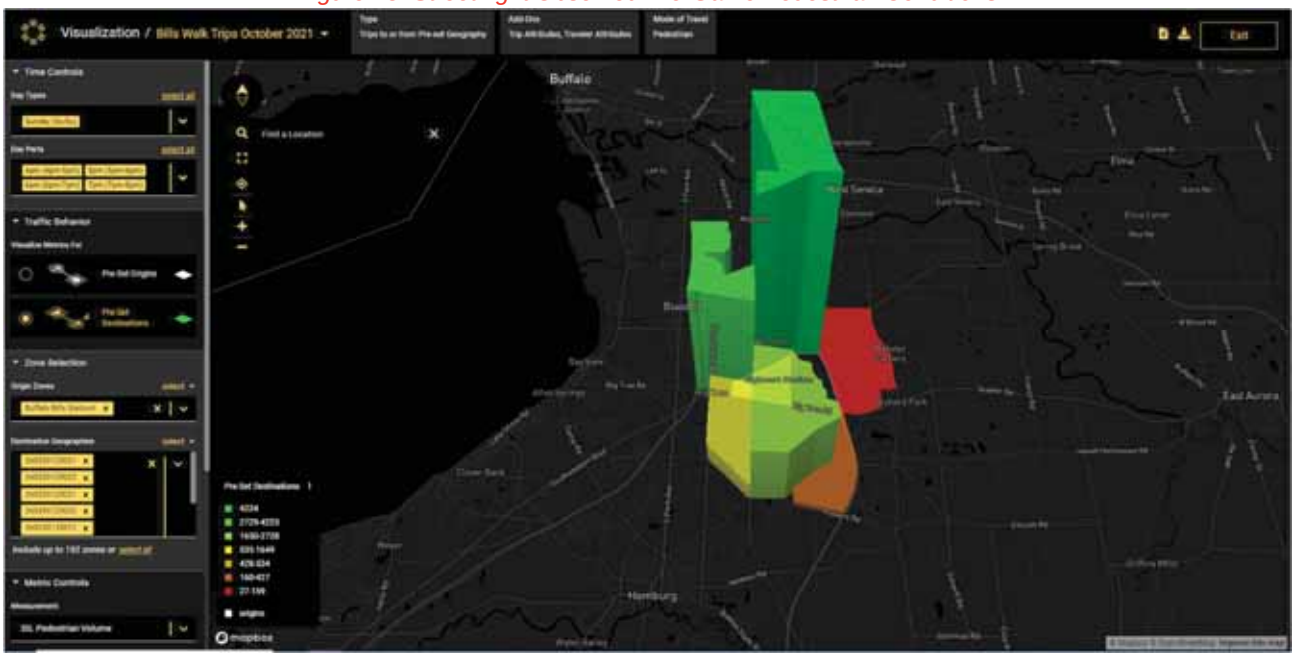


Figure 19: StreetLight Observed Post-Game Pedestrian Conditions

Even with the high number of pedestrians in the vicinity of the Existing Stadium on game days, the Existing Stadium TMP is effective at managing pedestrian safety. Per Erie County accident reports on game days from 2017-2021, there were four (4) vehicle-pedestrian accidents reported over this span, as follows:

- September 10, 2017, 4:00 PM – Southwestern Boulevard and driveway of private lot 800 feet east of Abbott Road: Pedestrian error/ confusion, outside car distraction. Crash occurred when game had just let out and there was heavy pedestrian traffic on the sidewalk and shoulder of Southwestern Boulevard. Driver thought it was clear to exit and says pedestrian made an aggressive movement to stop him from exiting causing driver to run over his foot.
- October 20, 2019, 4:00 PM – Southwestern Boulevard 500 feet west of California Road: Pedestrian error/confusion, multiple pedestrians were "walking/running" outside of crosswalk between stopped traffic on Southwestern Boulevard. Vehicle was in center turn lane with intent to turn left onto California Road and didn't see them running in traffic. Pedestrian was struck in the 3rd lane of traffic they were crossing.
- September 12, 2021, after 4:00 PM – Abbott Road 20 feet north of Southwestern Boulevard: Pedestrian error/confusion, pedestrian crossing Abbott Road outside of a crosswalk against 4 lanes of northbound slow moving traffic. Pedestrian was struck in the 3rd lane of traffic they were crossing.
- October 3, 2021, during game – Intersection of Abbott Road and Southwestern Boulevard: Pedestrian error/confusion, two pedestrians were struck in the crosswalk at the west leg of Abbott Road and Southwestern Boulevard. They were part way into the intersection when the signal turned green, then they proceeded to run the rest of the way. The driver in the right lane stuck both pedestrians.

As part of the 2008 Bicycle and Pedestrian Plan for Erie and Niagara Counties[15], Several roadways around the Existing Stadium were scored for Bicycle Level of Service (BLOS), including:

- Abbott Road – BLOS D-F between Big Tree Road and Milestrip Road.
- Abbott Road – BLOS A-C south of Big Tree Road.
- Southwestern Boulevard – BLOS A-C between McKinley Parkway and Abbott Road.
- Southwestern Boulevard – BLOS D-F east of Abbott Road.
- Big Tree Road – BLOS A-C between Southwestern Boulevard and Rt. 219.

The 2020 Bike Buffalo Niagara Regional Bicycle Master Plan[16] calls for proposed on-road bicycle facilities to be added to Big Tree Road and Abbott Road.

PROJECT CHANGES TO PEDESTRIAN CONDITIONS

The New Stadium will incorporate several new internal walkways to enhance pedestrian accommodations. Pedestrian walkways have been designed in a radial manner following line of sight approaches to the New Stadium. Internal walkways have also been located to limit potential conflicts between vehicles and pedestrians, directing pedestrians to dedicated walkways and away from vehicle drives. Existing pedestrian walkways and accommodations provided on-Site will remain. The closure of Abbott Road for pedestrian accommodation pre- and post-game as part of the Existing Stadium TMP is planned to continue. This closure precludes the need for additional pedestrian accommodation (such as a bridge with has capacity, security,

[15] 2008 Bicycle and Pedestrian Master Plan, https://www.gbnrtc.org/bicycle-and-pedestrian-planning
[16] 2020 Bike Buffalo Niagara Regional Bicycle Master Plan, https://www.gbnrtc.org/bikebuffaloniagara

and crush load accommodation issues) across the roadway. Many pedestrian conditions beyond the Site that exist under conditions associated with the Existing Stadium will continue and can be addressed under an updated TMP for the New Stadium, which can identify temporary and/or permanent pedestrian improvements for game days, including designated walkways, lighting, and surface maintenance, which are all elements that can improve pedestrian conditions.

CONSTRUCTION IMPACTS

During construction of the New Stadium, there are currently estimated three (3) phases of construction occurring across three (3) football seasons. During these three (3) phases, there will be an overlap where the Existing Stadium will be operational while the New Stadium is constructed. Based on guidance from the construction contractor/owner, the construction impact area will generally include portions of existing parking Lots 3 and 4, plus the RV parking area, the bus/ motor coach parking area, and limo parking area. All construction Site impacts to parking spaces will occur to either Bills/ owner-controlled parking lots or ECC Campus parking spaces. No changes to secondary or tertiary parking is anticipated as part of the New Stadium construction. Details of the construction phasing site plans showing the construction project limit areas are shown in figures included in the appendix of this report.

The construction phases will temporarily reduce the available number of on-Site parking spaces and will reduce the number of parking spaces on the west side of Abbott Road. Based on the anticipated construction impact area, an estimate of the available parking lot spaces was compiled for the construction phases, as shown in Table 13. As indicated, construction in Phase III will result in the largest impacts to the Bills/ owner-controlled and ECC Campus parking, reducing the total number of available spaces to 14,985. This compares to the estimated 20,088 existing spaces: a difference of approximately 5,100 spaces.

Table 13: Estimated Construction Stadium Parking Supply Summary

	EXISTING	CONSTRUCTION		
		Phase I	Phase II	Phase III
		March 2023 -Feb 2024	Feb 2024 – Jan/Feb 2025	Jan/Feb 2025 – Jan/Feb 2026
Bills/ Owner-Controlled	9,951	8,915	5,388	5,388
ECC	1,648	1,140	1,140	1,107
Secondary	5,559	5,559	5,559	5,559
Tertiary	2,931	2,931	2,931	2,931
Total	**20,088**	**18,545**	**16,684**	**14,985**

Most of the parking spaces lost during construction will be located to the west side of Abbott Road. Owner-controlled parking takes the main impact during construction along with some impact to ECC South Campus Lot 1. Due to the New Stadium's location to the west of Abbott Road, the parking space reductions are concentrated to the west of Abbott Road during the construction overlap period. Secondary and tertiary parking were assumed to not be impacted and remain balanced to the east and west of Abbott Road. A full breakdown of lot capacities for a construction phase condition and the location to the east of west of Abbott Road is detailed in Table 14.

Table 14: Estimated Construction Stadium Parking Supply Detailed Breakdown

Parking Lot	Existing Parking Spaces		Construction Parking Spaces	
	W of Abbott	E of Abbott	W of Abbott	E of Abbott
Bills Controlled				
Lot 1		639		639
Fieldhouse		611		611
Lot 2 Preferred		752		752
Lot 2 ADA		110		110
Youth Football		220		220
Tailgate Village	200		**0**	
Camper Lot	400		**0**	
Bus & Limo	200		**0**	
Highmark Stadium				**0**
NW New *			**206**	
Lot 4	2,064		**770**	
Lot 5		492		492
Lot 6 Preferred		1,360		**1,296**
Lot 6 ADA		48		**78**
M&T Lot		39		**36**
Lot 7		936		936
Team Member Lot *	1,880		**564**	
Bills Total	**4,744**	**5,207**	**1,540**	**5,170**
ECC South Parking Lots				
East Lots 1 & 2	438		**340**	
ECC Lot E (South Side)	294		294	
North Side	64		64	
West Lot & Rideshare	606		606	
Rideshare	246		246	
ECC South Total	**1,648**		**1,550**	
Secondary Parking Lots				
Kettles		209		209
The KK Lot		650		650
Big Grass Lot		750		750
California Lot		209		209
Mikes Lot		112		112
Wings Lot		640		640
Seans Lot		70		70
The Mud Lot		335		335
Chuckies Parking		113		113
Danny's South	241		241	
Hammer's Lot	240		240	
Scott's Lot	195		195	
Twin Oaks Motel	585		585	
The Mobile Lot	165		165	
Sheldon Road Lot	404		404	
The Gyno	223		223	
Misc. Southwestern	418		418	

Parking Lot	Existing Parking Spaces		Construction Parking Spaces	
	W of Abbott	E of Abbott	W of Abbott	E of Abbott
Secondary Total	**2,471**	**3,088**	**2,471**	**3,088**
Tertiary Parking Lots (estimated)	1,465	1,466	1,465	1,466
Grand Total	**10,328**	**9,761**	**7,026**	**9,724**

BOLD *equals change in number from existing*
** Was Lot 1, ** - Includes Bus Limo & Camper*

Final construction staging will need to be monitored to address potential impacts resulting from the parking space reduction during construction. Any impact in construction related parking space reductions would be temporary but will impact conditions during the phases of construction that occur during games and other events that occur while the Existing Stadium is still in use. Parking space constraints during construction will be addressed through a plan to utilize remote or temporary parking with shuttle service. Approximately 2,000 of the spaces lost during construction are currently parking for staff. During the construction phases, it is anticipated that temporary shuttling will occur to transport event staff between the Site and remote parking lots to reduce the demand for on-Site parking. The introduction of new NFTA Metro Bus service will also provide regular game day service between various areas across Western New York and the Site, which can be promoted to ease parking demand during construction for patrons and staff. Updates to the Existing Stadium TMP, public notices to encourage alternative arrival methods, and increased use of tertiary lots are additional options to address the parking demand during construction.

Using the general traffic patterns discussed in Section 3, traffic patterns during construction were developed, accounting for changes in parking capacity. With an average of 3,339 fewer parking spaces on-Site during construction, most of which are located on the west side of Abbott Road, post-game departure traffic volumes on the nine (9) identified roadway segments discussed under the Existing Stadium would be similar, with a slight decrease anticipated for westbound departure routes along Milestrip Road and Southwestern Boulevard due to the decreased number of parking spaces west of Abbott Road where the New Stadium will be constructed. Traffic headed eastbound, northbound, and southbound from the Site would remain similar to post-game patterns experienced with the Existing Stadium and continue to be lower in volume than the eastbound volumes.

CONSTRUCTION TRAFFIC DISCUSSION

Site preparation, construction of the New Stadium, and demolition of the Existing Stadium will generate temporary construction related traffic for workers and product delivery and deconstruction. The number of workers and delivery vehicles will vary during the construction phases and exact numbers of workers and vehicles anticipated to travel to and from the site are not known at this time.

Construction access points (site gates) will vary in location during the construction phasing but will primarily use existing driveways along Abbott Road. The Site gates will be monitored for operations issues and will include a wheel wash station to minimize soil conveyance. Initial phases I and II of construction will include one Site gate on Abbott Road across from One Bills Drive with a second from the ECC South Campus (primary access from Big Tree Road). During Phase III, additional Site gates will be in operation with a total of three (3) on Abbott Road, the ECC South Campus, and a northern Site gate off Southwestern Boulevard. Final phase construction access will utilize the noted Site gates at the New Stadium Site which will transition to the proposed final driveway locations as construction completes.

Construction vehicle parking and staging is planned to be all accommodated on-Site. No off-Site parking or use of local roadways for parking is anticipated during the construction duration. Limited soil cut and fill delivery activity is anticipated as soil storage locations will be provided on-Site and reuse of cut loads at the

New Stadium is planned as fill at the Existing Stadium location. Oversize loads and any heavy equipment delivery would be required to follow local and state ordinances for obtaining roadway use permits. Material delivery and removal vehicles would be anticipated to and from the Site but would vary in their delivery times during the day and would generally be outside of the AM and PM peak traffic periods. Construction deliveries can be scheduled to avoid peak traffic times as much as possible. Delivery routes will be identified to minimize impacts to travel on adjacent roadways.

Site preparation, construction of the New Stadium, and demolition of the Existing Stadium will generate temporary construction related traffic for workers and product delivery and deconstruction. Construction worker traffic using passenger vehicles are the primary construction related traffic generated and this traffic will occur outside the peak traffic period – starting earlier than morning peak and shift change (if there is a second shift) occurring prior to afternoon peak period. According to traffic counts posted on GBNRTC's website, the AM and PM peak periods for Abbott Road between Southwestern Boulevard and Big Tree Road are 8-9 AM and 4-5 PM respectively. At peak, it is estimated that upwards of 1,000 to 1,200 construction workers could be anticipated to travel to the Site, however, this peak would only occur for no more than a 10-month duration during the off-season. Construction related traffic would not occur in a way to increase traffic generation on a game day. Thru the use of car-pooling and new transit options, the actual number of vehicles generated would be less than the number of workers. Similar to vehicles approaching the stadium during game-day conditions, construction workers will approach the Site using Southwestern Boulevard, Abbott Road, and Big Tree Road. Distributing construction worker traffic amongst the primary access roadways in patterns similar to game day traffic further reduces the actual number of vehicles on each roadway. The addition of these vehicles would result in negligible impacts to the operations of the roadways due to the available off-peak capacity of the network of roadways near the Site. The construction related traffic trips will be temporary, minor, and will conclude as the phases of construction are completed.

CONCLUSIONS

As outlined in this assessment, the Project is expected to result in traffic, parking, and pedestrian conditions that are similar to those of the Existing Stadium, and thus with the reduced capacity and features included as part of the New Stadium outlined in this assessment, the Project, including the construction phases, is not expected to result in significant adverse impacts to the transportation network above and beyond those experienced with the Existing Stadium.

Some findings taken from this assessment include:

- Game attendees' travel patterns and behavior will largely resemble travel behavior to the Existing Stadium. This includes a similar number of occupants per vehicle, how early attendees arrive before each game, how many attendees use other forms of transportation, and the approximate distribution of how many attendees park in secondary and tertiary parking lots versus park in Bills-controlled parking spaces (future changes to parking parameters, including pricing, were not considered as part of the assessment).
- Game attendees' approach and departure orientation was estimated to be proportional to the number of parking spaces located to the east and west of Abbott Road. Parking spaces to the east would favor routing to and from the east, while those spaces on the west side of Abbott Road would favor routing to and from the west. Further, parking located on the west side of Abbott Road will connect with Big Tree Road through an improved driveway access.
- The New Stadium's location, west of Abbott Road, will allow for patrons and vehicles to enter and exit more equally in all directions as compared to the Existing Stadium which is constrained on the east side by Smokes Creek.

- One new primary driveway on Southwestern Boulevard, an improved driveway on Big Tree Road from existing parking lots, and improved internal roadways will offer additional ingress and egress opportunities for parking areas on the west side of Abbott Road. Parking lot driveways and circulation will remain roughly similar to the existing condition for the parking lots to the east of Abbott Road.
- The New Stadium will be located within existing parking facilities; this will cause a reduction in the number of on-Site parking spaces located to the west of Abbott Road.
- Once the Existing Stadium is demolished, it will be replaced with parking; this will increase the number of on-Site parking spaces located east of Abbott Road.
- The New Stadium will feature approximately 10,000 parking spaces controlled by the Buffalo Bills, similar to the 9,950 spaces currently controlled with the Existing Stadium.
- Existing operations as detailed in the Existing Stadium TMP to accommodate and manage game day traffic and pedestrian operations resulting from the New Stadium were assumed to remain similar as to what is done today with the Existing Stadium. It is anticipated that updates to the Existing Stadium TMP will occur as operations are reviewed routinely to determine adjustments to the plan, review physical conditions of pedestrian walkways, and determine options for improved roadway and pedestrian operations.

VEHICLE TRIPS AND TRAFFIC PATTERNS

With the New Stadium, game day traffic patterns are expected to remain that are in place for the Existing Stadium, with certain roadways converted to allow for additional inbound lanes before games and additional outbound lanes after games, as outlined below:

- Southwestern Boulevard is converted to three westbound lanes between California Road and Abbott Road before games, using the center turn lane a travel lane. The roadway is converted to three eastbound lanes between Abbott Road and California Road after games, using the center left turn lane as a travel lane.
- Abbott Road is converted to three southbound lanes north of Southwestern Boulevard before games, using the center left turn lane as a travel lane. The roadway is converted to three northbound lanes after games, using the center turn lane as a travel lane.
- Big Tree Road is converted to two eastbound lanes between Abbott Road and Rt. 219 after games, using the westbound lane as an additional eastbound lane. A pedestrian walkway is established on the shoulders.
- Abbott Road is closed before, during, and immediately after games between Football Drive and Lot 2 drive aisle. DMS signs indicate closure of Abbott Road between Southwestern Boulevard and Big Tree Road.

A look at traffic patterns using StreetLight data was observed to understand the localized routes traffic uses to arrive and depart parking areas. The primary corridor for approaching traffic is from the north and east along I-90. Pre-game conditions show more traffic choosing to use Rt. 219 than remaining on I-90 to various exits that access the Existing Stadium. Abbott Road, Southwestern Boulevard, and Big Tree Road handle the highest volumes, which would make sense considering the majority of parking areas are accessible from these roadways. The pre-game conditions indicate a preference from drivers coming southbound on I-90 to use Rt. 219 and exit at either the Milestrip Road or Big Tree Road exits. Milestrip Road handles traffic coming in from multiple directions, including Route 5, I-90, and Rt. 219, where it is then distributed to Abbott Road, Southwestern Boulevard, or McKinley Parkway. There is a convergence of traffic at the intersection of

McKinley Parkway, Southwestern Boulevard, and Big Tree Road, however, higher overall volumes approach the Site from the east.

Post-game conditions show similar roadways are used. Roadways on the eastern side of the Existing Stadium still show higher volumes, with high volumes of traffic along Big Tree Road and Southwestern Boulevard, and higher volumes on Rt. 219 than on I-90. Abbott Road north of Southwestern Boulevard handles a high volume of traffic as well to Milestrip Road. Corridors that experience more post-game traffic than pre-game traffic include McKinley Parkway, South Park Avenue, Armor Duells Road, Union Road, Transit Road, Lake Avenue, and Webster Road. The maps suggest that travelers are more willing to find alternative routes after game than before, likely either due to convenience, required directional parking lot exiting patterns, or to avoid congestion.

The post-game traffic turning movement counts taken from the Ralph Wilson Stadium Traffic Impact Study indicate that Abbott Road acts as a good demarcation between parking lots that consist of exiting traffic that flows east and traffic that flows west. The traffic exiting parking lots to the east of Abbott Road onto Southwestern Boulevard or onto Big Tree Road have the majority of the traffic turning east towards Rt. 219 while the parking lots to the west of Abbott Road that exit to Southwestern Boulevard or Big Tree Road have the majority of their traffic turning west towards McKinley Parkway. Abbott Road also handles a large amount of post-game traffic both northbound and southbound. These assessments are used to help determine New Stadium conditions.

With the reduction in stadium size, from a capacity of approximately 70,000 with the Existing Stadium to no more than 63,000 with the New Stadium, the number of patrons attending the New Stadium is expected to decrease by at least 7,000. The smaller stadium size not only correlates to a reduction in parking demand but will also result in a reduction in the number of trips generated by the New Stadium by approximately 2,000 trips.

Volumes on nearby roadway segments are overall anticipated to reduce slightly compared to existing volumes due to the reduction in stadium size. In addition, volumes would be expected to shift more to an eastern orientation due to the increased number of parking spaces east of Abbott Road as part of the New Stadium (this includes the conversion of the Existing Stadium for new parking spaces).

Post-game conditions are used as a worst-case scenario due to the compressed time of the peak travel period. Pre-game traffic conditions are more dispersed across a longer peak period and don't result in the same volumes over a short span as post-game.

As indicated in this assessment, post-game traffic headed eastbound as a result of the New Stadium would remain the largest directional volume. The following outlines anticipated post-game traffic pattern changes between the Existing Stadium and New Stadium conditions, which are based off actual counts presented in the 2014 Study[17] and the capacity and layout of the New Stadium.

- Eastbound traffic will increase slightly on Southwestern Boulevard, Milestrip Road, and Big Tree Road from a total of approximately 14,300 trips associated with the Existing Stadium to approximately 14,645 trips with the New Stadium, an increase of only 345 vehicles.

[17] Ralph Wilson Stadium Traffic Impact Study, Hatch Mott MacDonald, March 14, 2014

- Westbound traffic using Milestrip Road and Southwestern Boulevard would be reduced from approximately 9,700 trips associated with the Existing Stadium to approximately 7,850 trips associated with the New Stadium, a reduction of 1,850 vehicles.
- Northbound traffic using Abbott Road and McKinley Parkway would be reduced from approximately 3,700 trips associated with the Existing Stadium to approximately 3,075 trips associated with the New Stadium, a reduction of 625 vehicles.
- Southbound traffic using Abbott Road and McKinley Parkway would be reduced from approximately 3,300 trips associated with the Existing Stadium to approximately 2,882 trips associated with the New Stadium, a reduction of 478 vehicles.

Traffic volumes and patterns associated with the New Stadium are not anticipated to be greatly different that those associated with the Existing Stadium. Three directional post-game flows are expected to see decreases and only the eastbound direction is expected to see a slight 2% increase in traffic volumes, but nothing that would result in conditions that are much different than experienced with the Existing Stadium. An updated TMP developed as part of the New Stadium can be used to more evenly distribute traffic associated with the New Stadium from parking areas amongst the new driveways to balance traffic volumes to all directions.

With regards to pre-game traffic patterns, the New Stadium is expected to incorporate expedited parking validation processes that will help to move pre-game traffic queues for parking areas more expeditiously.

PARKING

The 21,092 parking spaces available as part of the New Stadium compares with the estimated demand of 18,080 parking spaces needed across each mode. This surplus provides additional flexibility in terms of how patrons arrive at each game and variances in vehicle occupancy as well as differences in how patrons may travel to non-football events.

Proposed on-Site parking lots will surround all four sides of the New Stadium. The New Stadium site is proposed to have additional driveway access points with the overall number of driveways increasing to eleven (11) from the existing eight (8) locations. However, since the New Stadium retains the use of the existing parking lots on the east side of Abbott Road and utilizes new internal connections for the new parking lots on the west side of Abbott Road, the overall change in the relative location of the driveways related to existing traffic patterns is minimal.

One (1) new driveway connection is proposed along Southwestern Boulevard east of the existing ECC South Campus driveway. Two (2) new driveway connections to Abbott Road south of the New Stadium will provide increased access opportunities to the new parking areas to the south of the New Stadium and the secure parking zone adjacent to the New Stadium. In addition, an enhanced connection to Big Tree Road from parking areas on the west side of Abbott Road is proposed. A partial new internal roadway connection on the west side of the New Stadium parking lots will provide enhanced connectivity for ingress and egress for the proposed parking lots on the west side on the New Stadium. The proposed partial roadway connection will also provide for the opportunity for redundancy in the operations in the event of a driveway closure or other need to reroute traffic from the various parking lots and would allow enhanced ingress/ egress with Big Tree Road and Southwestern Boulevard.

No new vehicular connections over Smokes Creek to the east are proposed. It is not anticipated that pedestrian access and traffic patterns will change significantly for those patrons who utilize parking off California Road to access the stadium Site.

A summary of the proposed primary driveways to the New Stadium parking lots is noted as follows and can be found in the site plan in Section 1.

- Stadium Drive on Southwestern Boulevard (Lots 5-7, M&T, Youth Football)
- Football Drive on Abbott Road (New Lot 4)
- Touchdown Drive on Southwestern Boulevard west of Touchdown Drive (New Lot 4 & NW Lots)
- **New** Driveway on Southwestern Boulevard (New Lot 4, Bus & Limo Lot)
- **New** Driveway on Abbott Road (secure parking)
- **New** Driveway on Abbott Road south of secure parking access (South Lots)
- Camper Drive on Abbott Road (South Lots)
- Bills Drive on Abbott Road (Lot 2, Fieldhouse Lot)
- **Enhanced** Team Member Drive on Big Tree Road (New SE & West Lots)
- Fieldhouse Drive on Big Tree Road (Fieldhouse Lot, Lot 1)
- Regional Drive on Big Tree Road (Fieldhouse Lot, Lot 1, connections back to training center lot and Youth Football Lot)

During post-game operations, parking lot driveways are anticipated to retain their existing directional exit patterns to support traffic flow. A summary of the directional post-game operations associated with the New Stadium is noted as follows:

- Stadium Drive one-way eastbound to Southwestern Boulevard (existing)
- Football Drive one-way northbound to Abbott Road (existing)
- Touchdown Drive one-way westbound to Southwestern Boulevard (existing)
- **New** Driveway on Southwestern Boulevard (anticipated westbound only exit but could accommodate eastbound turns)
- **New** Driveway on Abbott Road (anticipated southbound only)
- **New** Drive on Abbott Road south of secure parking access (anticipated southbound only)
- Camper Drive one-way southbound to Abbott Road (existing)
- Bills Drive one-way southbound to Abbott Road (Lot 2, Fieldhouse Lot)
- **Enhanced** Team Member Drive (anticipated to retain one-way westbound to Big Tree Road)
- Fieldhouse Drive one-way eastbound to Big Tree Road (existing)
- Regional Drive one-way eastbound to Big Tree Road (existing)

PEDESTRIANS

The New Stadium will incorporate several new internal walkways to enhance pedestrian accommodations. Pedestrian walkways will be designed to limit potential conflicts between vehicles and pedestrians, directing pedestrians to dedicated walkways and away from vehicle drives. Many pedestrian conditions beyond the Site that exist under conditions associated with the Existing Stadium will continue and can be addressed under an updated TMP for the New Stadium, which can identify temporary pedestrian improvements for game

days, including designated walkways, lighting, and surface maintenance, which are all elements that can improve pedestrian conditions.

CONSTRUCTION

During construction of the New Stadium, there will be an overlap period where the Existing Stadium will be operational while the New Stadium is constructed. Construction of the New Stadium on existing parking areas will result in projected available parking spaces ranging from 14,985 to 18,545 during construction. This is compared to the 20,088 parking spaces currently available for the Existing Stadium, a reduction of approximately 5,100 to 1,550 spaces. During construction, temporary shuttling will occur to transport staff between the Site and remote parking lots. This will help to reduce the demand for on-Site parking during construction.

APPENDIX

Ralph Wilson Stadium
Traffic Impact Study

Preliminary Existing Conditions Report

10/15/2013

Prepared For:

Buffalo Bills
One Bills Drive
Orchard Park, NY 14127

Erie County Department of Public Works
95 Franklin Street
14th Floor
Buffalo, NY 14202

Prepared By:

Hatch Mott MacDonald
438 Main Street, Suite 300
Buffalo, NY 14202
HMM Project # 330186

Introduction

Ralph Wilson Stadium has been the home of the Buffalo Bills since 1973. Improvements to the stadium are currently underway, with a significant effort planned for 2014 after the current season. The Erie County Department of Public Works (ECDPW) has retained Hatch Mott MacDonald (HMM) to conduct a traffic impact study to investigate feasible improvements for traffic flow and safety. The traffic impact study is being conducted in three phases as follows:

1. Analysis of Rt. 20A (Big Tree Road) traffic between Drive 1 and Rt. 219
2. System-wide analysis of traffic operations
3. Development of concept plans for traffic control systems and infrastructure improvement

This report summarizes existing conditions, data collection, Phase 1 analysis and the initial steps of the system-wide analysis.

Existing Conditions

Ralph Wilson Stadium is located in Orchard Park, NY, and is bordered by Abbott Road to the west, California Road to the east, Rt. 20A (Big Tree Road) to the south, and Rt. 20 (Southwestern Boulevard) to the north. The study area extends to Rt. 219 on the east, Armor Duells Road to the south, I-90 to the west, and Milestrip Road (NY Rt. 179) to the north. The study area is shown in **Figure 1.**

Figure 1
Study Area

The stadium has a seating capacity of 73,079 and there are 10,163 parking spaces within the parking lots controlled by the Bills. Numerous private lots surround the stadium and provide additional game day parking. The Bills and Erie County have developed pre-game and post-game plans to address game day

traffic. The purpose of these game day traffic plans is to maximize capacity of the adjacent roadways and to protect the high number of pedestrians in the vicinity of the stadium. The characteristics of the adjacent roadways are shown in **Table 1.**

Table 1
Roadway Features

Street Name	Number of Lanes	Pavement Width	Sidewalks
Rt. 20, Rt. 20A – California	5 (4 + CLTL)	72+/-	Yes
Rt. 20A, Rt. 20 – California	2	44+/-	No
Abbott Road, Rt. 20 to Milestrip	5 (4 +CLTL)	62+/-	Some
Abbot Road, Rt. 20A to Armor Duells	2	30+/-	No

To accommodate entering traffic, Southwestern Blvd. is converted to three lanes westbound between California Road and Abbott Road. This is accomplished by making the center turn lane a westbound lane. Abbott Road is also converted to three lanes southbound between Milestrip Road and Southwestern Blvd. by making the center turn lane a southbound lane. Rt. 20A, which has two travel lanes and 10' shoulders, is signed to be two lanes westbound for entering traffic, but this is achieved only in short sections due to the friction from roadside parking and pedestrians. Pre-game traffic is distributed over a 4 hour period, and the greatest period of congestion is related to pedestrians making their way to the stadium in the hour before game time.

The roadway conversions are reversed for post-game traffic, when Southwestern Blvd. becomes three lanes eastbound and Abbott Road becomes three lanes northbound. Rt. 20A is meant to be two lanes eastbound following games, but this is achieved only in short sections due to roadside parking and pedestrians using the shoulder. These modifications support the exiting traffic patterns for the Bills parking. Post-game traffic suffers greater congestion due to the density of pedestrians crossing the roads and parking lots all emptying at once. Pre-game traffic configurations are shown in **Figure 2**, and **Figure 3** shows the post-game traffic configurations, including the parking lot exits.

Figure 2
Pre-Game Traffic Configuration

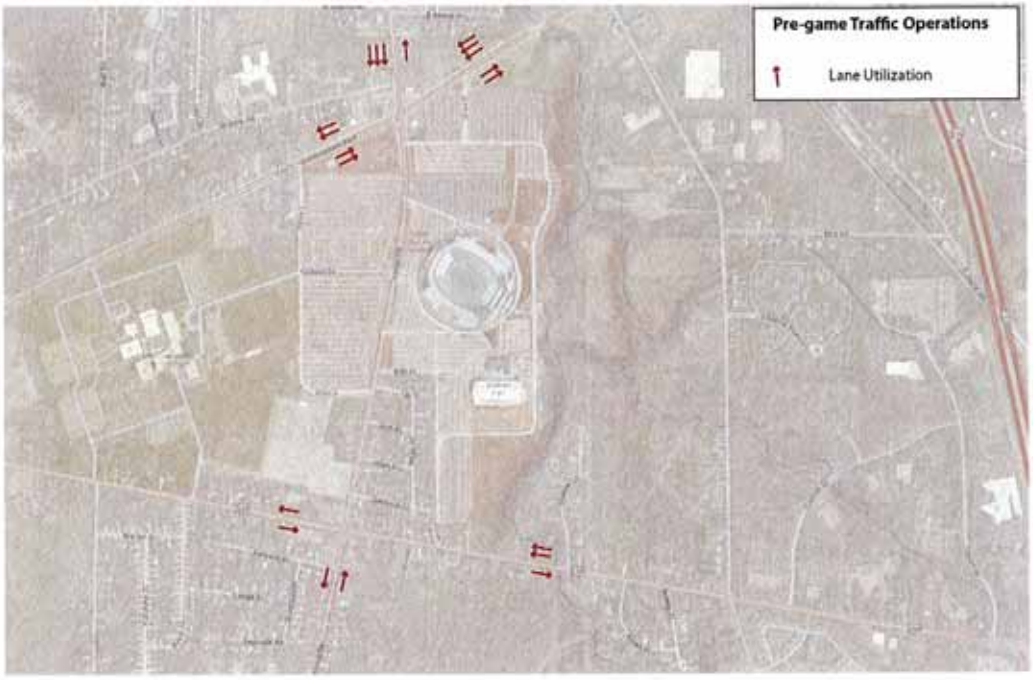
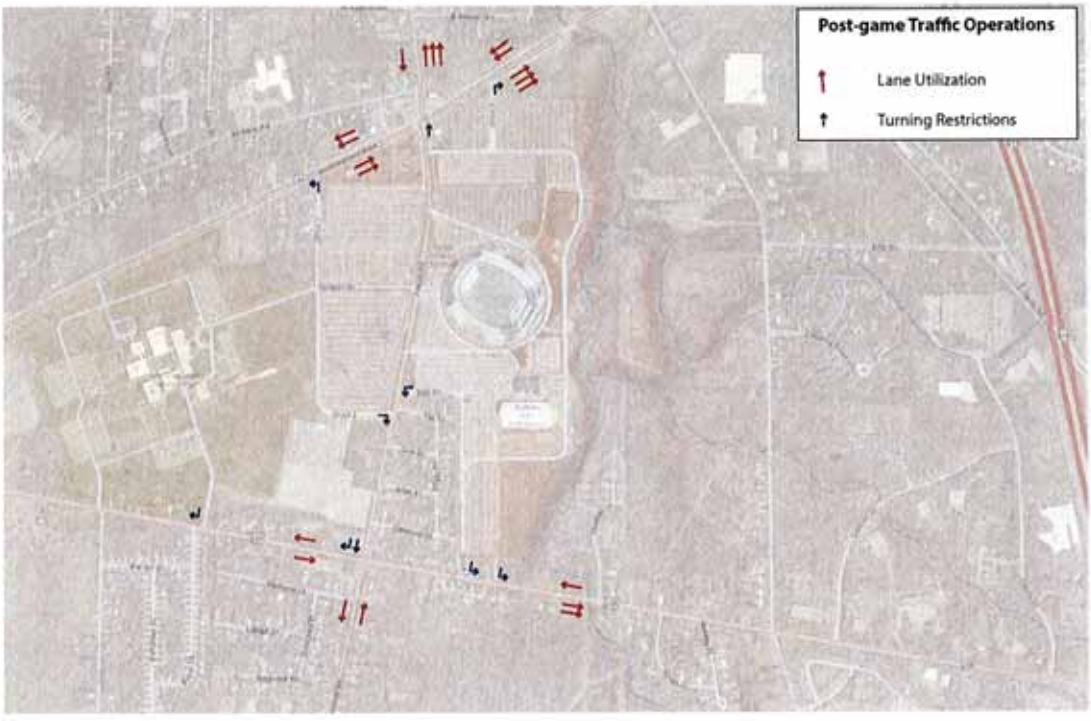


Figure 3
Post-Game Traffic Configuration



Observations and Traffic Data

On September 15, 2013, members of the consultant team and the ECDPW project manager spent the day at Ralph Wilson Stadium to observe traffic operations during the second home game of the season. Weather conditions were warm and sunny, there was a sell-out crowd, and the Bills won on the final play of the game. Conditions along Rt. 20A were observed following the game, and other locations in the study area were observed from the Erie County Sheriff's helicopter. Observations and information from the September 15 game are summarized in **Appendix A.**

The capacity crowd, good weather, and exciting game resulted in a worst case scenario for exiting traffic, and it took almost two hours to clear the traffic from Drive 1 on Route 20A. An accident that occurred approximately one hour after the game and blocked one lane of eastbound traffic on Rt. 20A exacerbated the delay to traffic from Drive 1.

Looking East from Regional Drive

Looking West from California. Note two lanes of eastbound traffic reducing to one lane at the bridge.

Looking East from Drive 1.

On September 29, members of the consultant team and the ECDPW project manager spent the afternoon at Ralph Wilson Stadium to verify observations from the first visit. Again, a sell-out crowd, perfect weather conditions and another game that was decided in the final minute resulted in similar post-game traffic conditions. Drive 1 was cleared in approximately 90 minutes.

Traffic and pedestrian counts were obtained at the following four intersections on September 29 using Miovision® video counters.

- Rt. 20A at Abbott Road
- Rt. 20A at Drive 1
- Rt. 20A at Regional Drive
- Rt. 20A at California Road

Data from these traffic counts are summarized in **Appendix B**.

Phase 1 Traffic Analysis

To investigate possible changes to post-game traffic operations on Rt. 20-A, the existing roadway geometry and traffic data from the 9/29 game was used to create a VISSIM® micro simulation model. The simulation model uses mathematical equations to represent vehicle characteristics and driver behavior on a given roadway. Due to the random behavior of pedestrians and the numerous entry points for vehicles in private lots, the model has pedestrians sharing the shoulder with cars and the private lots are aggregated into various entry points.

Aerial view of Lot 1, Drive 1 is on left, Regional Drive is on right

As noted in the observations from the September 15 game (Appendix A), there are three factors that contribute to Rt. 20A traffic congestion:

1. Initially, pedestrian volumes are so dense that the shoulder cannot be used as a travel lane
2. Vehicles entering the roadway from private lots disrupt the traffic stream
3. Delays caused by north/south traffic on California Road

Solutions that will be investigated to address these causes include:

1. Modifying pedestrian crossing locations or procedures
2. Changing procedures at the Rt. 20A and California intersection
3. Making Rt. 20A one-way eastbound for postgame traffic. This will require a detour for westbound traffic.
4. Changing parking lot exit routes

Concerns associated with these possible solutions include the following:

1. Emergency vehicle access
2. Pedestrian safety

System-wide analysis

Additional Miovision® video traffic counts were obtained at 11 intersections at the October 13 game versus Cincinnati. This data will be used to evaluate operations at the remaining key intersection in the study area. Of particular interest is the capacity of the downstream intersections and their role in the post-game traffic operations.

There are 9 signalized intersections in the study area, and another 4 intersections that are controlled by Erie County Sheriffs during games. Information about each intersection is shown in Table 2.

Table 2
Study Area Intersections

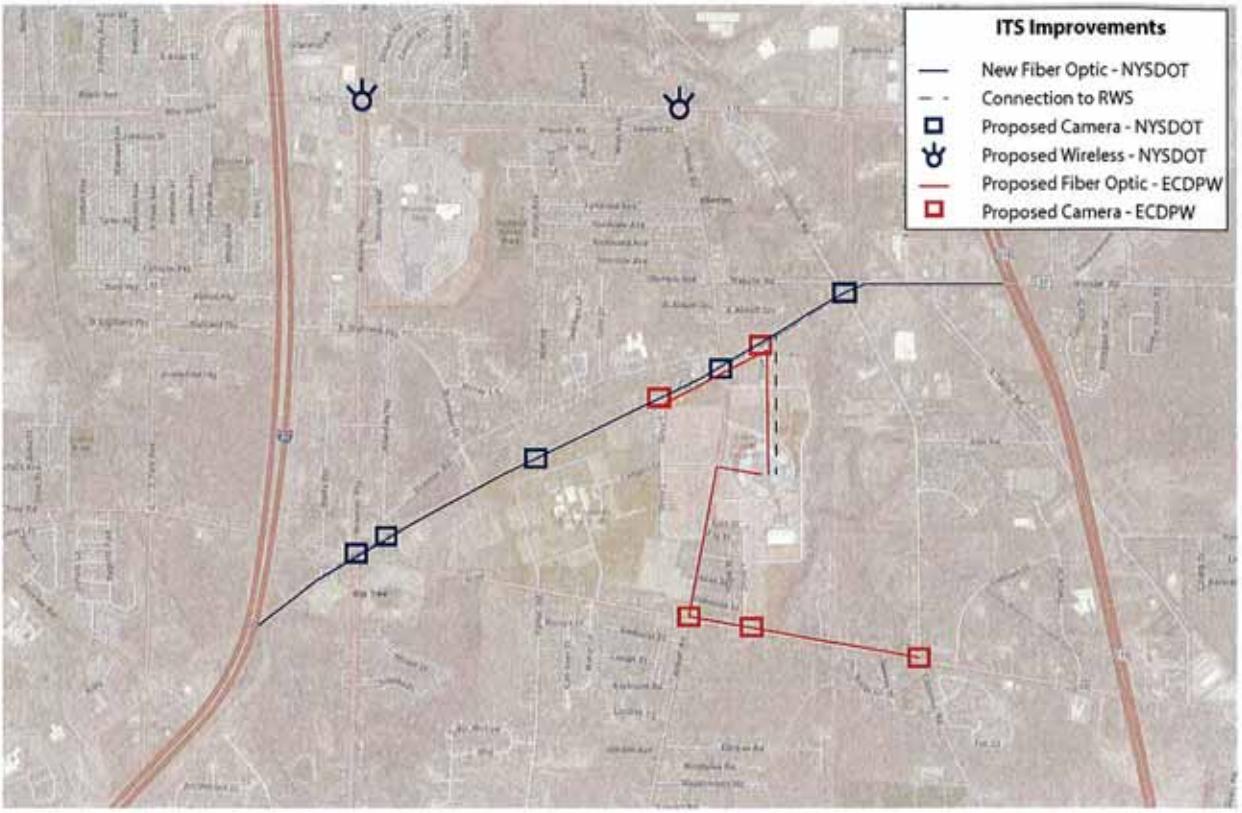
Intersection	Control Type	Jurisdiction	Data	System Connectivity
Rt. 20 at McKinley	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Rt. 20A	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at ECC	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Drive 3	manned	NYSDOT	10/13	
Rt. 20 at Abbott	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Drive 5	manned	NYSDOT	10/13	
Rt. 20 at California	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20A at Abbott	signal	NYSDOT	9/29	Possible fiber optic connection
Rt. 20A at Drive 1	manned	NYSDOT	9/29	Possible fiber optic connection
Rt. 20A at California	signal	NYSDOT	9/29	Possible fiber optic connection
Abbott at Milestrip	signal	NYSDOT	10/13	No fiber optic
Milestrip at McKinley	signal	NYSDOT	10/13	No fiber optic
Milestrip at California	manned	NYSDOT	10/13	No fiber optic

On October 4, the consultant and the ECDPW project manager met with NYSDOT and NITTEC staff to discuss opportunities for installing cameras and Changeable Message Signs at various locations in the study area. NYSDOT is currently expanding the Intelligent Transportation System (ITS) to include Rt. 20 near the stadium, and this presents the opportunity to install video cameras at 5 intersections along Rt. 20.

Erie County has received a Critical Infrastructure grant and intends to provide 360 degree cameras at Rt. 20A and Abbott, Rt. 20A and California, and Rt. 20A and Rt. 219.

Figure 4 shows a proposed camera system that could be linked to the new control center in the stadium.

Figure 4
Proposed Camera Locations



Next Steps

The following tasks are expected to be completed by the end of October, 2013:

1. Analyze traffic data from 10/13/13
2. Analyze conversion of Rt. 20A to one-way traffic
3. Develop preliminary cost estimates for camera system
4. Complete sign inventory and make recommendations

It is anticipated that traffic data analysis and the analysis of the Rt. 20A conversion will be completed by 10/22/13. This will enable the study team to determine if the conversion can be tested at the next home game on 11/3/13.

Appendix A - Field Observations

Hatch Mott MacDonald

MEMO

To The File
From Jonathan Sowinski
Date 9/18/2013
Project # 330186
Reference Ralph Wilson Stadium TIS – Field observations from 9/15/13
Page 1 of 2
CC

The following is a summary of observations by HMM staff at the Buffalo Bills home game on September 15, 2013. HMM staff arrived on site at 8am in order to witness the entire game day traffic operations focusing on US 20A post-game traffic.

Beginning at approximately 9:00 am Erie County DPW staff begin to place temporary signage and traffic cones in order to encourage 20A west bound traffic to form two lanes (utilizing the shoulder as the additional lane) beginning at the 219 interchange and continuing until Drive.

The intersection of the Rt. 219 ramps and Rt. 20A was not manned by an Erie County Sheriff due to a scheduling error. At approximately 9:15 am vehicles exiting 219 southbound to 20A were queued on the ramp back to the mainline diverge.

Cones and temporary signs were placed on Abbott Road between Southwestern Boulevard and Milestrip Road in order to reduce the northbound traffic to one lane and allow for three lanes of southbound.

Additional cones were stacked at the following intersections for the use of sheriff deputies as needed.

- 20A at:
  - Regional Drive
  - Bills Drive 1
  - Abbott Road
- Southwestern at:
  - Abbott
  - Bills Drive 5
- Milestrip at:
  - Abbott
  - California

Pregame operations seemed to operate smoothly; the weather was sunny and 65 degrees. Fans began to arrive in a steady rate at approximately 8:30am and continued until the start of the game at 1:00pm. Having the traffic arriving over such a period of time (4.5 hours) eliminated any major queuing or delays.

At the start of the game (1:00pm) the Bills parking lots looked to be at approximately 80-85% of

capacity. Fans also utilize numerous satellite or off-site parking lots. These lots primarily consist of private property that is in close proximity to the stadium. Erie County Community College parking lots are also used on game day. It is estimated that these off-site lots accommodate 60-70% of the total number of vehicles there for the game.

Based on a brief survey conducted by HMM staff there are approximately 2,000 vehicles parked in satellite lots on 20A between Abbott and California.

Erie County DPW staff changes the temporary signs and cones to accommodate the postgame traffic at approximately halftime of the game. HMM staff was not present to observe the changeover.

Fans began to noticeably exit the stadium at the end of the third quarter. However, due to the close score, the majority of the fans waited to leave until after the game ended, at which point a mass exodus was witnessed. Exiting vehicular traffic proceeded without any significant queuing or delay until approximately 10 minutes after the end of the game. Once enough fans had reached their vehicles and began to exit lots the queuing and delay was apparent.

It was witnessed that most delays at Drive 1 and Regional Drive were caused by the pedestrian/vehicle conflicts. Although temporary signs and traffic cones are set up to allow for three travel lanes along 20A from Drive 1 to the 219 Interchange (one westbound and two eastbound) operations were limited to one lane in each direction due to the amount of pedestrians utilizing the shoulder of the road. In addition to the pedestrian conflicts, vehicles exiting the satellite parking lots caused upstream traffic to yield causing the most delays at Drive 1.

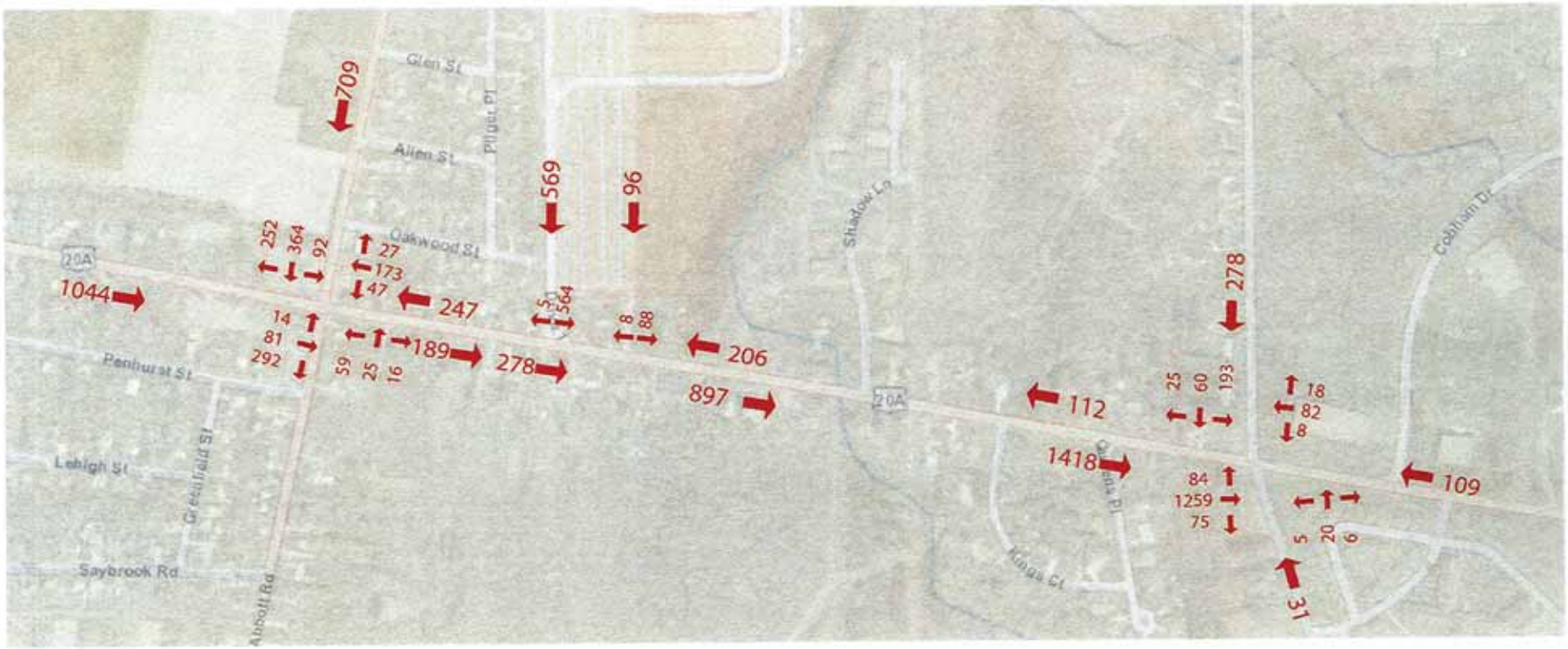
20A westbound traffic was allowed to stack up to approximately 20+ vehicles at Regional Drive before the exiting traffic was held to clear the queue. Eastbound traffic is also delayed along 20A due to traffic on California Road needing to be cleared occasionally.

All traffic was stopped in order to accommodate the vehicle escorts for the visiting team and official buses exiting the stadium. This occurred approximately 45 and 90 minutes after the end of the game.

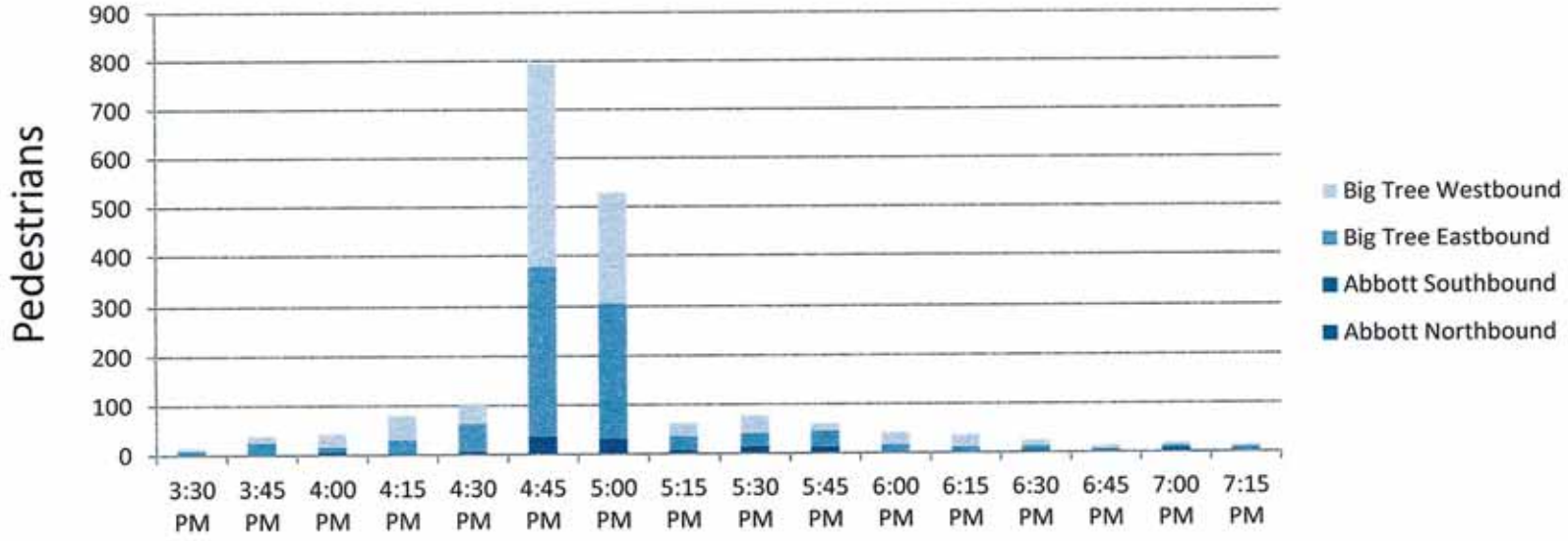
Traffic operations on 20A begin to improve once pedestrian volumes decrease approximately 45-60 minutes after the end of the game, at this time most pedestrians are on the north shoulder allowing for the two lanes eastbound to form. However, on this day a three car accident occurred in the middle lane that resulted in a disabled vehicle that restricted eastbound traffic to one lane from approximately 60-100 minutes after the end of the game.

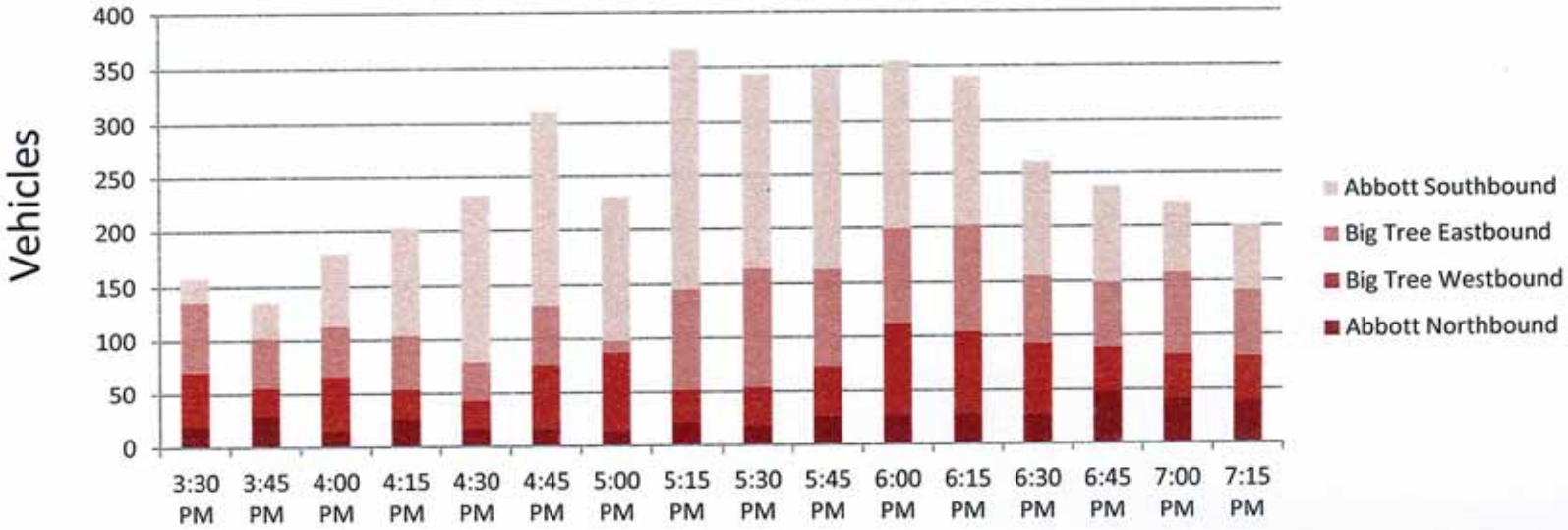
Appendix B - Traffic Data Summary

Peak Hour Traffic (5:30-6:30)

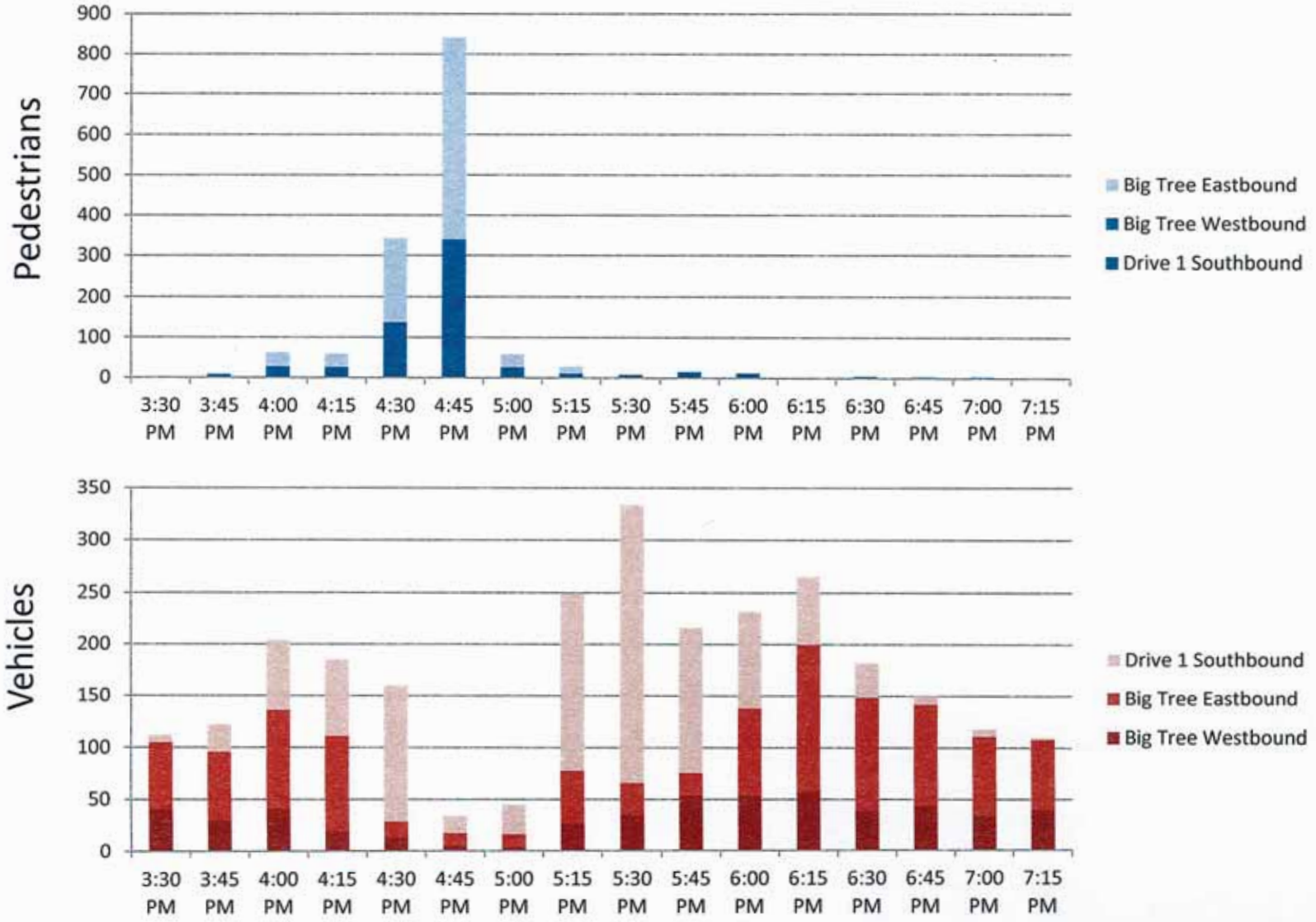


Traffic Data @ Abbott

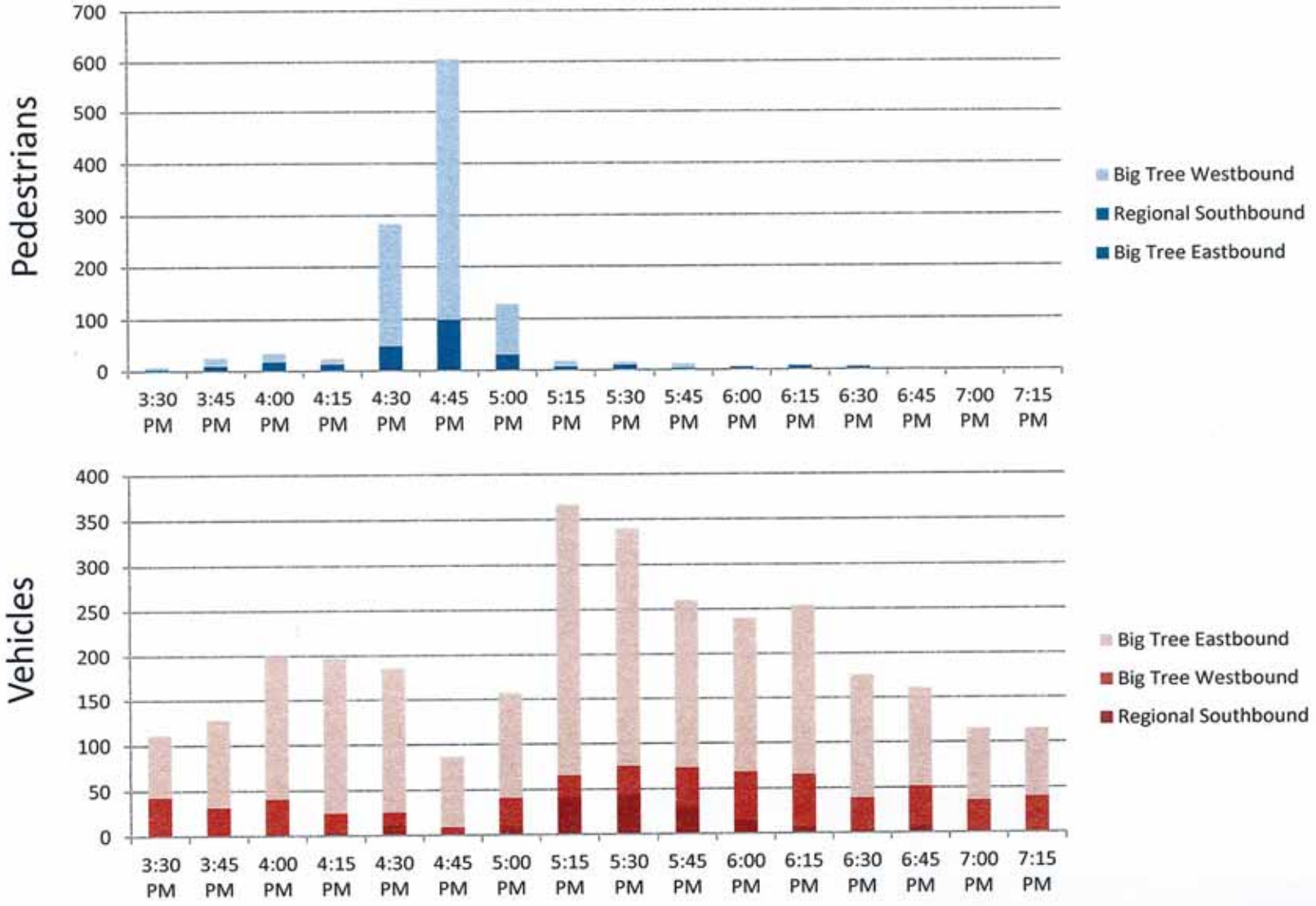




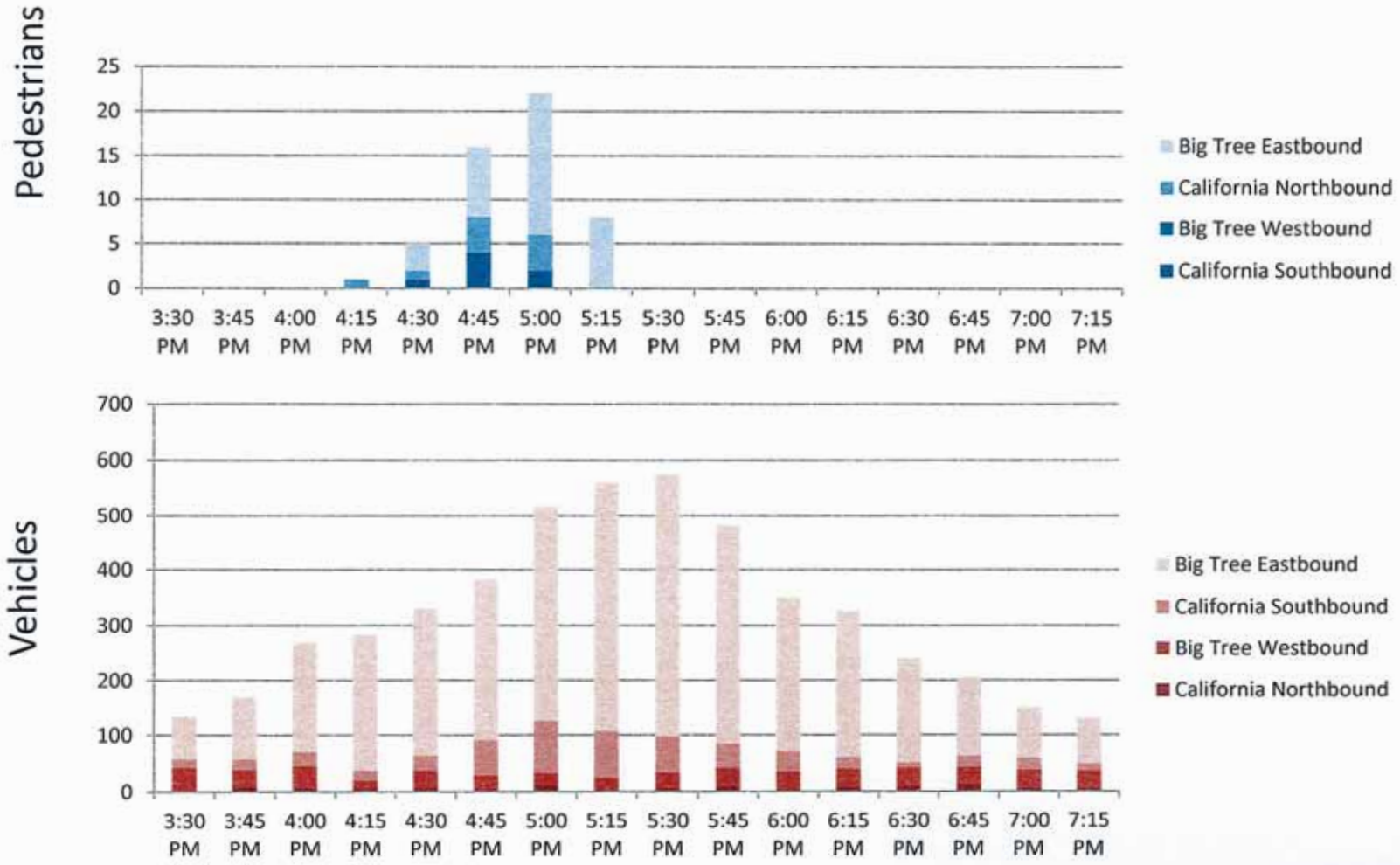
Traffic Data @ Drive 1



Traffic Data @ Regional



Traffic Data @ California



Hatch Mott MacDonald

MEMO

To
From Jonathan Sowinski
Date 11/12/2013
Project # 330186
Reference Ralph Wilson Stadium TIS – Field observations from 10/3/13 One-way Initial Test

CC

The following is a summary of observations by HMM staff at the Buffalo Bills home game on November 3, 2013. HMM staff was on site in order to assist in notifying fans and lot owners of the planed one-way conversion, oversee the set-up of the detour route and closure traffic control devises and observe the traffic operations focusing on the one-way post-game traffic along US 20A.

Overall the one-way conversion was considered to be successful.

Below are issues, comments and improvement suggestions based on our observations:

1) The majority of satellite lot owners were notified, aware and supported the change in postgame traffic.

2) Detour and closure traffic control devices were properly staged and in placed expeditiously once notice was issued from Zone 3 Commander.

3) Traffic control for merging eastbound traffic back into normal operations at the 219 interchange required adjustments from the initial set up in order to improve operations. (See attached plan for details (TBD)).

4) Pedestrians walking south along Drive 1caused initial delay with in Lot 1. Pedestrians crossing between the Fieldhouse lot and Lot 1 conflict with traffic trying to access Drive 1 from Lot 1.

   a) Consider forcing all pedestrians to use Regional as the main mean of egress.

5) Cones placed on 20A at California caused some confusion as to whether drivers were required to choose a lane based on desired direction. Additional signage or improved cone layout is recommended. (See attached plan for details (TBD)).

6) Signs placed along 20A intended to direct satellite lots may be more effective if placed on the opposite side of 20A as the lots they are intended to control (on the south side of 20A).

7) Consider moving barricades from Queens Ct. to Kings Ct. and exiting traffic via Queens.

8) Restrict right turns from Southwestern (20) to California.

9) Consider additional signs for 219 Northbound and 219 Southbound placed east of California.

10) Operations at 20A and Abbott need to be more closely evaluated due to additional westbound traffic.

11) Consider restricting vehicles on Regional to exit via Drive 1 or Drive 5 and using Regional as a pedestrian only walk.

12) Roadway 'give back" should follow a phased transition sequence working from west to east, Abbott intersection to be given back first, followed by Drive 1 then California and finally 219.

13) 20A should be held for longer a period of time.

14) When giving back at Drive 1, cones should be repositioned directing traffic more perpendicular to 20A to allow for left and right turns.

15) Abbott Rd. at Armor Dulles experienced more delays

Other Observations:

- Consider re-opening the Abbott closure sooner, before giving back 20A.
- Consider restriping the pedestrian crosswalks within the Abbott closure.
- Consider allowing lots 5b and 5E to exit via Drive 5 especially after the initial rush.
- Gate in fence at the northwest corner of the Debarco lot was not opened as last as 9 am, individuals were seen jumping the fence at that point. Also, a very large queue developed post game. Consider enlarging gate.
- Squad car at California and Milestrip was positioned on the southeast corner with lights on caused confusion and delay of traffic on California due to hesitation.

Hatch Mott MacDonald

MEMO

To Andy Major
From Jonathan Sowinski
Date 1/27/2015
Project # 330186
Reference Ralph Wilson Stadium TIS – 2014–2015 Season Observations and Improvement Alternatives
Page 1 of 2
CC M. Asklar, ECDPW
J. Lebsack, HMM

The following is a summary of work completed during the 2014-15 season including observations made by HMM staff at the Buffalo Bills home games as well as improvement alternatives that have been developed based on the observations and data collected during this time.

For the 2014-15 season, game day traffic analysis was primarily focused on Abbott Road, Big Tree Road (west of Abbott) and Southwestern Boulevard.

HMM staff was present for or collected data at the following home games:

- August 23, 2014 - Data Collection at Abbott Road at Armor Duells and Lot 6 (now Team Member Lot) and Drive 7
- September 14, 2014 – Pre-game observations, pedestrian behavior and effects of stadium renovations, Erie County Sheriff ride along with Jeff Ely, observe post-game operations on Big Tree Road (east of Abbott).
- October 12, 2014 – Southwestern Blvd. and Big Tree Road west of Abbott Rd. observations

A pre-season effort was coordinated with the University at Buffalo Engineering Department to develop a simulation model of the Southwestern Boulevard corridor. The plan was for HMM to develop a base model and then UB staff and students would develop specific coding script that would allow for the integration of dynamic control at the intersections that are controlled by Erie County Sheriffs on game days, allowing for a realistic representation of existing conditions and providing an opportunity for testing improvement strategies. Unfortunately the effort proved to be more involved than the resources and data available and the dynamic control portion was not able to be fully completed.

Additional traffic volume and movement data was collected at the Abbott Road and Armor Duells Road intersection as well as Drive 7 and Big Tree Road during the pre-season game on August 23rd.

On September 14th, pre-game observations were undertaken in order to assess any effects of the parking lot and mega-gate improvements. HMM staff noticed the improvements resulted in more efficient pedestrian movements immediately adjacent to the stadium and better identified

"pedestrian areas" that attracted fans to the appropriate areas from the satellite parking lots e.g. crossing Abbott Road from Lot 3 and 4 and the bus, limo and camper lots.

HMM staff also rode along with the Erie County Sheriff who escorts the Erie County Department of Public Works staff during their post-game set up to observe and document Sherriff's comments. It was noted that operations on Abbott Road north of Southwestern Boulevard are not consistently implemented with the designation of 3-4 lanes of northbound traffic and with or without pedestrian accommodations through the use of cones and temporary signage. The roadway width limits the possible configurations and the use of temporary signage within the roadway also limits space available due to the footprint that is required for the sign support. It may be possible to improve safety and operations along this portion of Abbott Road through the use of permanent ground mounted sign bases being installed in the roadway reducing the required footprint for signs.

On October 12, an analysis of the Southwestern Boulevard corridor west of Abbott Road including the intersections with Drive 3, Big Tree Road and McKinley Parkway was conducted. Time lapse photographs were taken of post-game traffic in order to document the length of queues at the intersections for the two hours after a game. HMM staff observed that the intersections at Big Tree and McKinley did not appear to operate at maximum efficiency or in a fully coordinated effort. It was also noted that capacity was limited on Southwestern by only utilizing the traditional travel lanes. It was suggested that Erie County Department of Public Works place traffic cones along the south edge of center turn lane that would allow for an additional westbound lane to be occupied by exiting traffic.

To address the signal coordination issue, HMM developed a "preferred large event signal timing plan" for the Big Tree Road and Southwestern Boulevard and Southwestern Boulevard and McKinley Parkway intersections.

It was also noted that capacity was limited for vehicles utilizing Big Tree. The current roadway configuration allows for dual left turns to be made from Big Tree onto Southwestern. However, vehicles that queue at the signal do not occupy the left turn storage area more than a few hundred feet and once vehicles begin to proceed, gaps increase from vehicles changing lanes once they reach the storage lane. Additional signage similar to what is found on Big Tree east of Abbott for "Stadium Traffic Form Two Lanes" could be placed upstream to address this condition. Additionally, current geometry would allow for three lanes to queue at this intersection; allowing triple lefts. This would require additional control measures and signage for McKinley Northbound traffic to keep right to access the dedicated right turn lane once on Southwestern.

Ralph Wilson Stadium
Traffic Impact Study

Existing Conditions, Phase I Results
& Phase II Recommendations
3/14/2014

Prepared For:

Erie County Department of Public Works
95 Franklin Street
14th Floor
Buffalo, NY 14202

Buffalo Bills
One Bills Drive
Orchard Park, NY 14127

Prepared By:

Hatch Mott MacDonald
438 Main Street, Suite 300
Buffalo, NY 14202

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

CHAPTER 1 – INTRODUCTION

Ralph Wilson Stadium has been the home of the Buffalo Bills since 1973. Improvements to the stadium are currently underway, with significant completion scheduled for the 2014 season. The Erie County Department of Public Works (ECDPW) has retained Hatch Mott MacDonald (HMM) to conduct a traffic impact study to investigate feasible improvements for traffic flow and safety to compliment the improvements at the stadium. The traffic impact study is being conducted in four phases as follows:

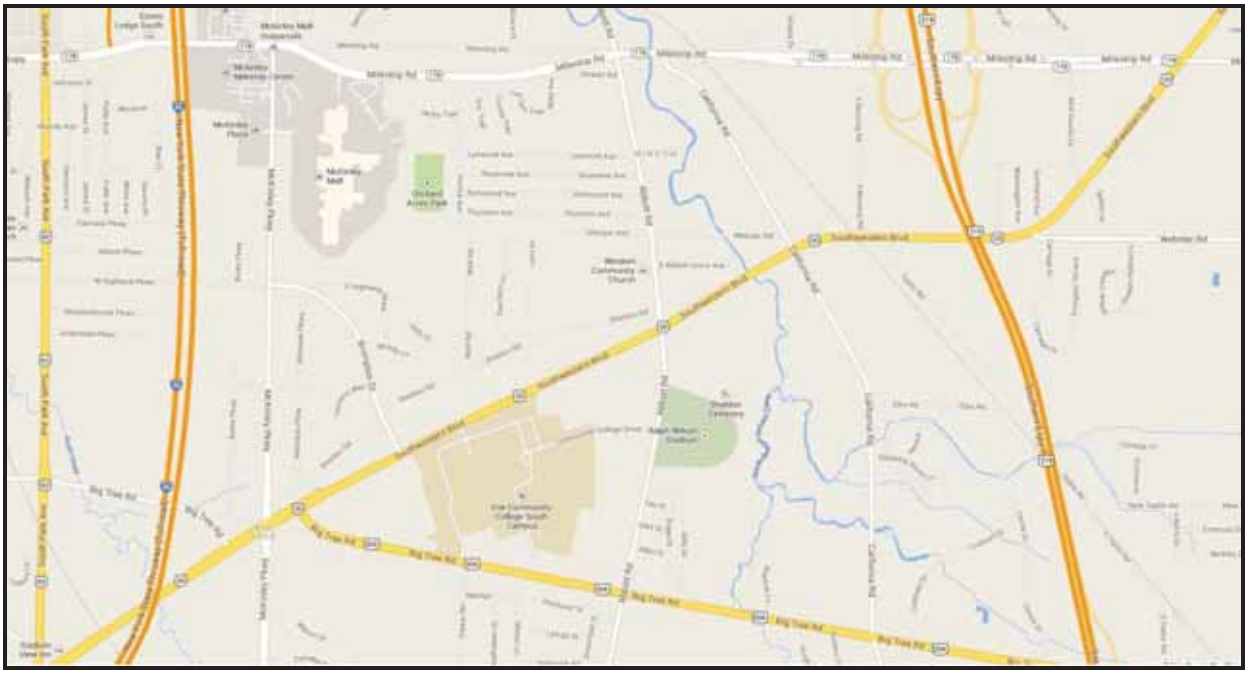
- Analysis of Rt. 20A (Big Tree Road) traffic between Drive 1 and Rt. 219
- System-wide analysis of traffic operations
- Development of concept plans for traffic control systems and infrastructure improvement
- Plans and Estimates for Capital Projects

This report summarizes existing conditions, data collection, Phase I results and the initial recommendations from the system-wide analysis.

CHAPTER 2 – EXISTING CONDITIONS

Ralph Wilson Stadium is located in Orchard Park, NY, and is bordered by Abbott Road to the west, California Road to the east, Rt. 20A (Big Tree Road) to the south, and Rt. 20 (Southwestern Boulevard) to the north. The study area extends to Rt. 219 on the east, Armor Duells Road to the south, I-90 to the west, and Milestrip Road (NY Rt. 179) to the north. The study area is shown in **Figure 1.**

Figure 1
Study Area



The stadium has a seating capacity of 73,079 and there are 10,163 parking spaces within the parking lots controlled by the Bills. Numerous private lots surround the stadium and provide additional game day parking. The Bills and Erie County have developed pre-game and post-game plans to address game day traffic. The purpose of these game day traffic plans is to maximize capacity of the adjacent roadways and to protect the high number of pedestrians in the vicinity of the stadium. The characteristics of the adjacent roadways are shown in **Table 1.**

Table 1
Roadway Features

Street Name	Number of Lanes	Pavement Width	Sidewalks
Rt. 20, Rt. 20A – California	5 (4 + CLTL)	72+/-	Yes
Rt. 20A, Rt. 20 – California	2	44+/-	No
Abbott Road, Rt. 20 to Milestrip	5 (4 +CLTL)	62+/-	Some
Abbot Road, Rt. 20A to Armor Duells	2	30+/-	No

To accommodate entering traffic, Southwestern Blvd. is converted to three lanes westbound between California Road and Abbott Road. This is accomplished by making the center turn lane a westbound lane. Abbott Road is also converted to three lanes southbound between Milestrip Road and Southwestern Blvd. by making the center turn lane a southbound lane. Rt. 20A, which has two travel lanes and 10' shoulders, is signed to be two lanes westbound for entering traffic, but this is achieved only in short sections due to the friction from roadside parking and pedestrians. Pre-game traffic is distributed over a 4 hour period, and the greatest period of congestion is related to pedestrians making their way to the stadium in the hour before game time.

The roadway conversions are reversed for post-game traffic, when Southwestern Blvd. becomes three lanes eastbound and Abbott Road becomes three lanes northbound. Rt. 20A is meant to be two lanes eastbound following games, but this is achieved only in short sections due to roadside parking and pedestrians using the shoulder. These modifications support the exiting traffic patterns for the Bills parking. Post-game traffic suffers greater congestion due to the density of pedestrians crossing the roads and parking lots all emptying at once. Pre-game traffic configurations are shown in **Figure 2**, and **Figure 3** shows the post-game traffic configurations, including the parking lot exits.

Figure 2
Pre-Game Traffic Configuration

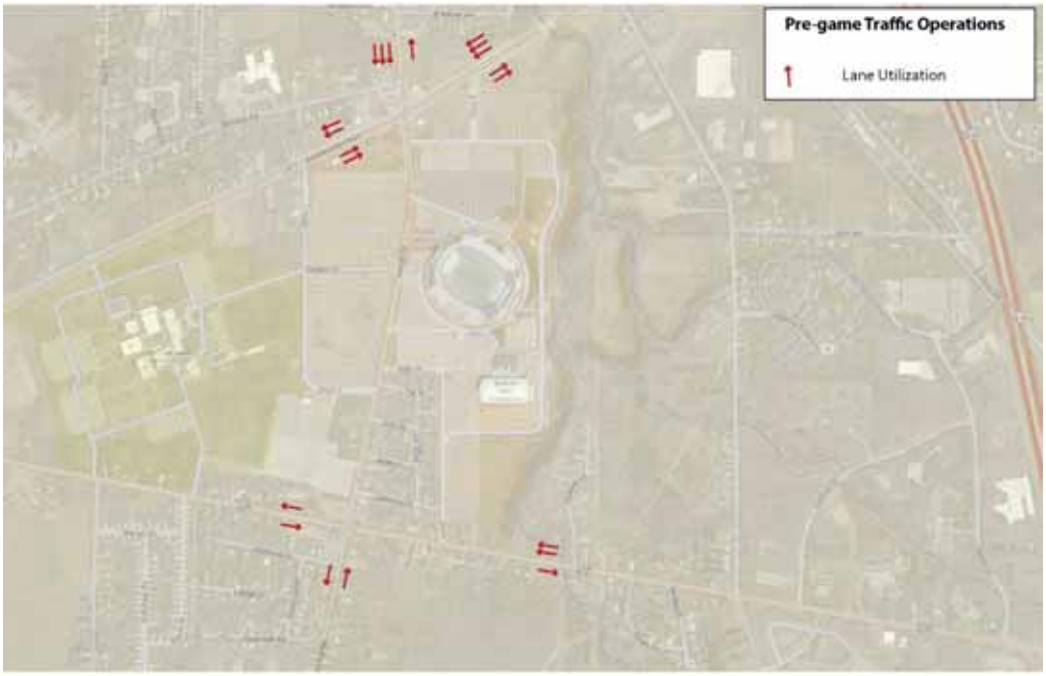
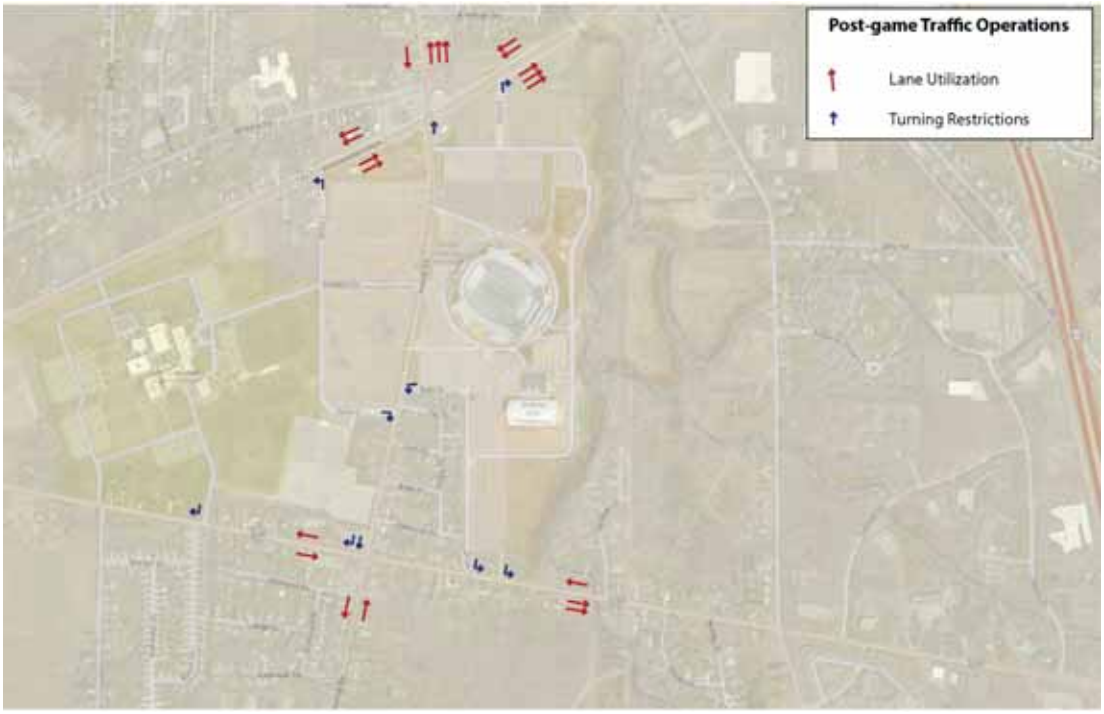


Figure 3
Post-Game Traffic Configuration



CHAPTER 3 – OBSERVATIONS AND TRAFFIC DATA

On September 15, 2013, members of the consultant team and the ECDPW project manager spent the day at Ralph Wilson Stadium to observe traffic operations during the second home game of the season. Weather conditions were warm and sunny, there was a sell-out crowd, and the Bills won on the final play of the game. Conditions along Rt. 20A were observed following the game, and other locations in the study area were observed from the Erie County Sheriff's helicopter. Observations and information from the September 15 game are summarized in **Appendix A.**

The capacity crowd, good weather, and exciting game resulted in a worst case scenario for exiting traffic, and it took almost two hours to clear the traffic from Drive 1 on Route 20A. An accident that occurred approximately one hour after the game and blocked one lane of eastbound traffic on Rt. 20A exacerbated the delay to traffic from Drive 1.

Looking East from Regional Drive

Looking West from California
Note two lanes of eastbound traffic reducing to one lane at the bridge

Looking East from Drive 1

On September 29, members of the consultant team and the ECDPW project manager spent the afternoon at Ralph Wilson Stadium to verify observations from the first visit. Again, a sell-out crowd, perfect weather conditions and another game that was decided in the final minute resulted in similar post-game traffic conditions. Drive 1 was cleared in approximately 90 minutes.

Traffic and pedestrian counts were obtained at the following four intersections on September 29 using Miovision® video counters.

- Rt. 20A at Abbott Road
- Rt. 20A at Drive 1
- Rt. 20A at Regional Drive
- Rt. 20A at California Road

Data from these traffic counts are summarized in **Appendix B**.

3.1 Phase 1 Traffic Analysis

To investigate possible changes to post-game traffic operations on Rt. 20-A, the existing roadway geometry and traffic data from the 9/29 game was used to create a VISSIM® micro simulation model. The simulation model uses mathematical equations to represent vehicle characteristics and driver behavior on a given roadway. Due to the random behavior of pedestrians and the numerous entry points for vehicles in private lots, the model has pedestrians sharing the shoulder with cars and the private lots are aggregated into various entry points.

Aerial view of Lot 1, Drive 1 is on left, Regional Drive is on right

As noted in the observations from the September 15 game (Appendix A), there are three factors that contribute to Rt. 20A traffic congestion:

1. Initially, pedestrian volumes are so dense that the shoulder cannot be used as a travel lane
2. Vehicles entering the roadway from private lots disrupt the traffic stream
3. Delays caused by north/south traffic on California Road

Solutions that will be investigated to address these causes include:

1. Modifying pedestrian crossing locations or procedures
2. Changing procedures at the Rt. 20A and California intersection
3. Making Rt. 20A one-way eastbound for postgame traffic. This will require a detour for westbound traffic.
4. Changing parking lot exit routes

Concerns associated with these possible solutions include the following:

1. Emergency vehicle access
2. Pedestrian safety

3.2 Study Area Intersections

On October 4, the consultant and the ECDPW project manager met with NYSDOT and NITTEC staff to discuss opportunities for installing cameras and Changeable Message Signs at various locations in the study area. NYSDOT is currently expanding the Intelligent Transportation System (ITS) to include Rt. 20 near the stadium, and this presents the opportunity to potentially install video cameras at five intersections along Rt. 20.

Additional Miovision® video traffic counts were obtained at 11 intersections at the October 13 game versus Cincinnati. This data will be used to evaluate operations at the remaining key intersections in the study area. Of particular interest is the capacity of the downstream intersections and their role in the post-game traffic operations.

There are 9 signalized intersections in the study area, and another 4 intersections that are controlled by Erie County Sheriffs during games. Information about each intersection is shown in Table 2.

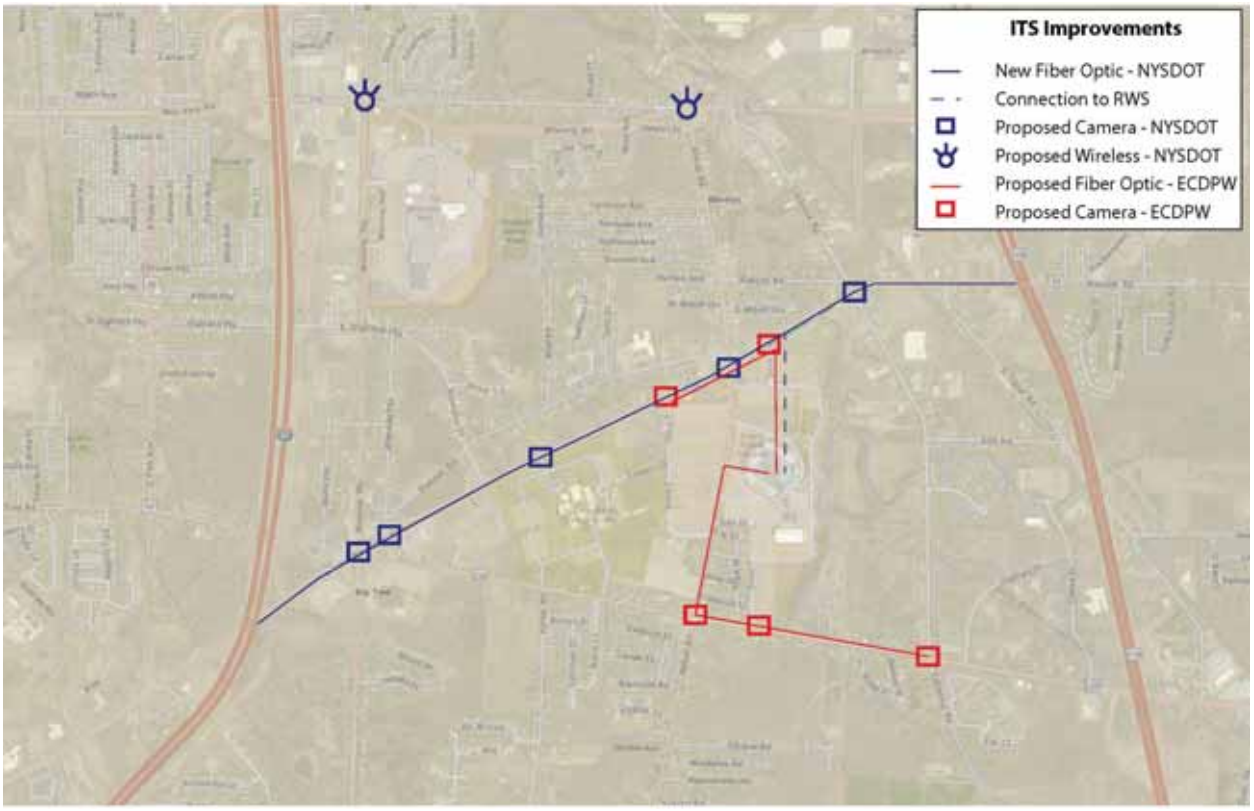
Table 2
Study Area Intersections

Intersection	Control Type	Jurisdiction	Data	System Connectivity
Rt. 20 at McKinley	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Rt. 20A	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at ECC	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Drive 3	manned	NYSDOT	10/13	None (no pole)
Rt. 20 at Abbott	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20 at Drive 5	manned	NYSDOT	10/13	None (no pole)
Rt. 20 at California	signal	NYSDOT	10/13	NYSDOT fiber optic available
Rt. 20A at Abbott	signal	NYSDOT	9/29	Possible fiber optic connection
Rt. 20A at Drive 1	manned	NYSDOT	9/29	Possible fiber optic connection
Rt. 20A at California	signal	NYSDOT	9/29	Possible fiber optic connection
Abbott at Milestrip	signal	NYSDOT	10/13	No fiber optic
Milestrip at McKinley	signal	NYSDOT	10/13	No fiber optic
Milestrip at California	manned	NYSDOT	10/13	No fiber optic

Erie County has received a Critical Infrastructure grant and intends to provide 360 degree cameras at Rt. 20A and Abbott, Rt. 20A and California, and Rt. 20A and Rt. 219.

Figure 4 shows a proposed camera system that could be linked to the new control center in the stadium

Figure 4
Proposed Camera Locations



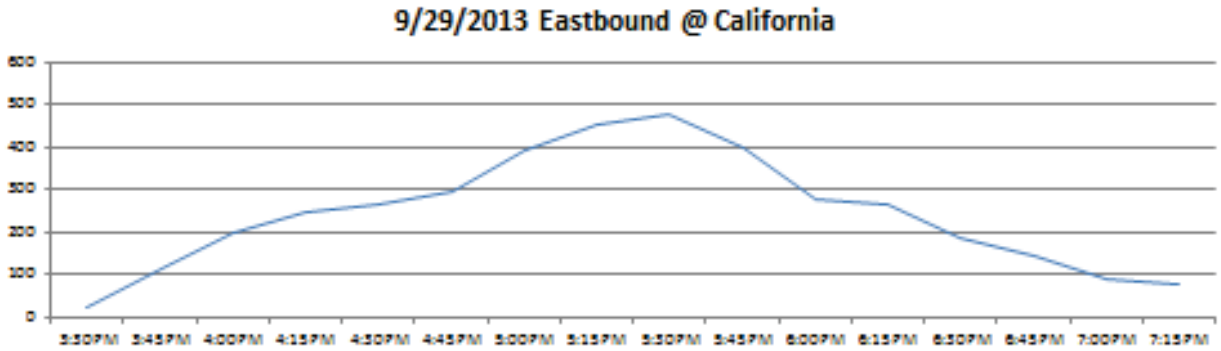
CHAPTER 4 – PHASE I RESULTS

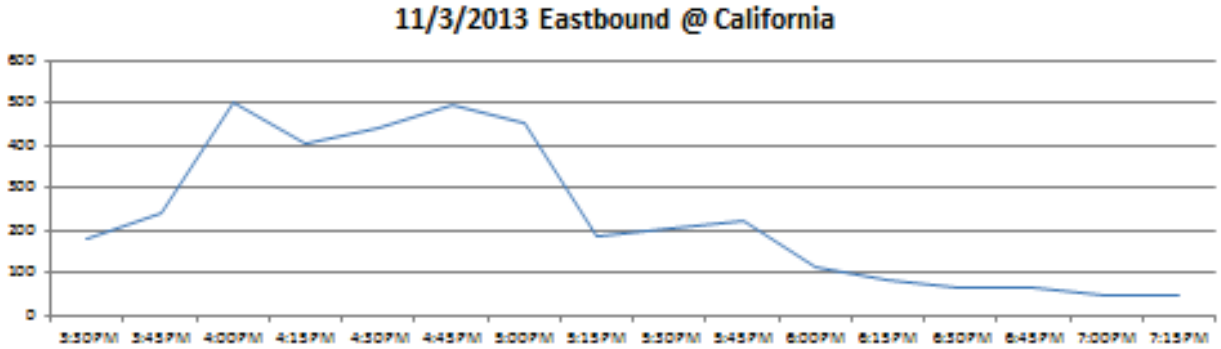
Route US 20A (Big Tree Road) was converted to one-way eastbound traffic on November 3, 2013 following extensive coordination with ECDPW Division of Highways, Erie County Sheriff's Office, NYSDOT, Orchard Park Police Department, Erie County Emergency Services Department, NITEC, and the Buffalo Bills. HMM staff was on site in order to assist in notifying fans and lot owners of the planned one-way conversion, oversee the set-up of the detour route and traffic control devices, and observe the post-game traffic operations along US 20A.

Overall the one-way conversion was considered to be successful. Traffic data and anecdotal accounts suggested a time savings of 30-45 minutes for fans leaving via Rt. 20A. Figures 5 and 6 illustrate how the peak traffic volume was shifted from 5:30 PM to about 5:00 PM with the one-way conversion in place.

The traffic study working group reviewed the results, and minor adjustments were made to the plan for the November 17 game. The one-way conversion plan is included in **Appendix C.**

Figure 6
Volumes 3:30-7:30 Eastbound at California (9/29/13 & 11/3/13)





As shown in Figures 5 and 6, converting US 20A to one-way eastbound traffic had a noticeable improvement in post-game operations. Not only were fans able to save at least 30 minutes to leave the stadium, pedestrian safety was also improved by forcing private lots to the west of Drive 1 to exit to the west.

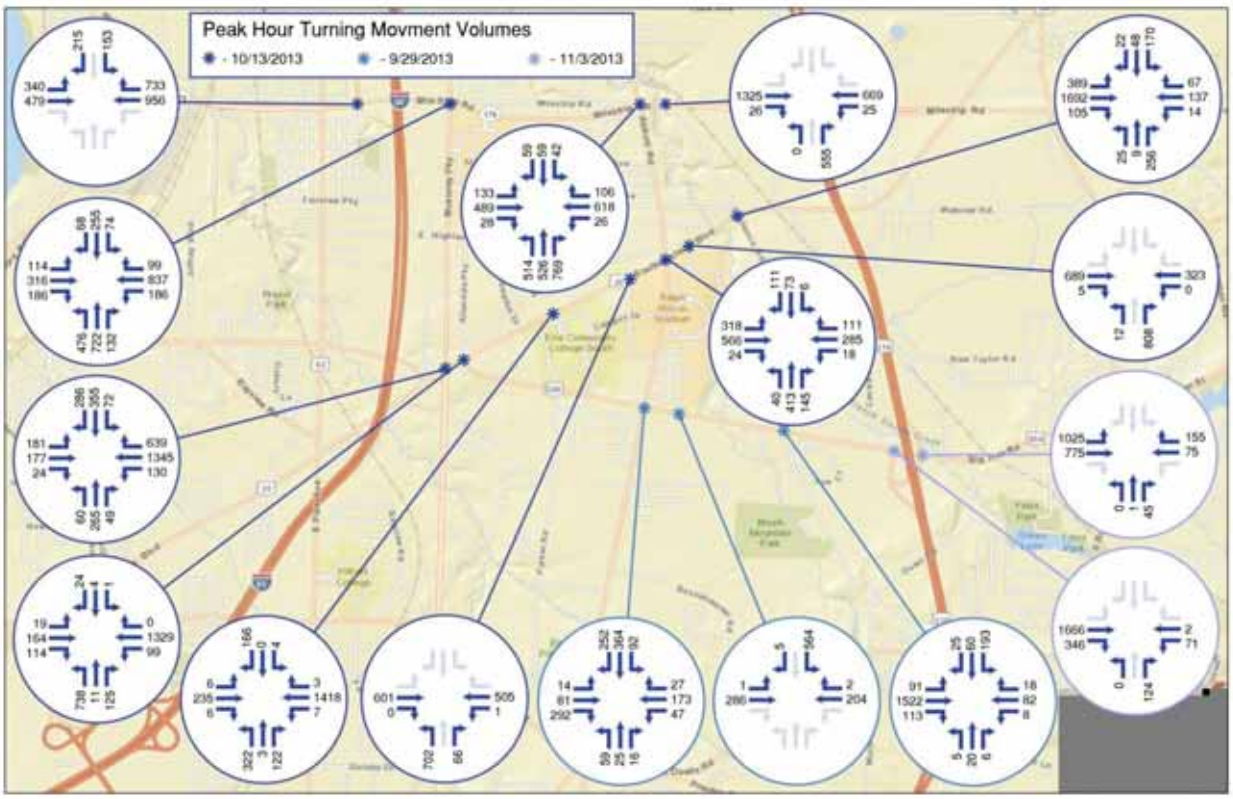
CHAPTER 5 – PHASE II ASSESSMENT

Additional analysis was conducted in order to better understand the operations of the intersections in the immediate and peripheral network. Within the immediate network are a number of driveways that access Southwestern Blvd. and Abbott Rd. that are controlled by Sheriffs immediately following the end of the game. In addition to the driveways some signalized and stop controlled intersections are also taken over post game (See Figure 7 for locations).

The peripheral network reaches from I 90 to Rt. 219 and Rt. 179 to US 20A. The intersection at Abbott Road and Armor Duells was also taken into account after the one way conversion was implemented. A summary of postgame traffic turning movement volumes is shown in Figure 8.

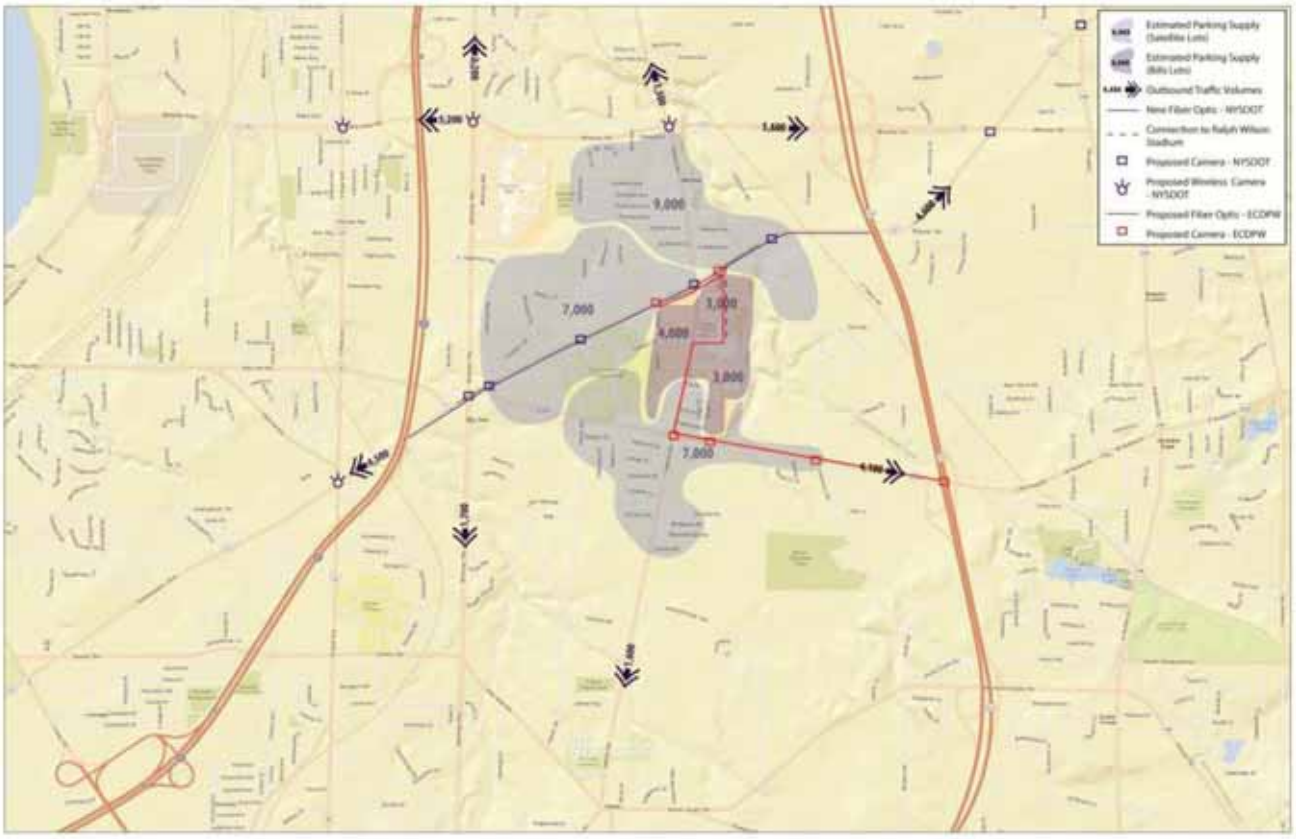
Figure 7
Postgame Network Conditions

Figure 8
Postgame Turning Movement Volumes



Based on traffic data, observations and aerial photos, assumptions were made in order to balance vehicle origins and destinations. **Figure 9** illustrates parking areas and general flow rates for traffic leaving Ralph Wilson Stadium.

Figure 9
Postgame Traffic Flows

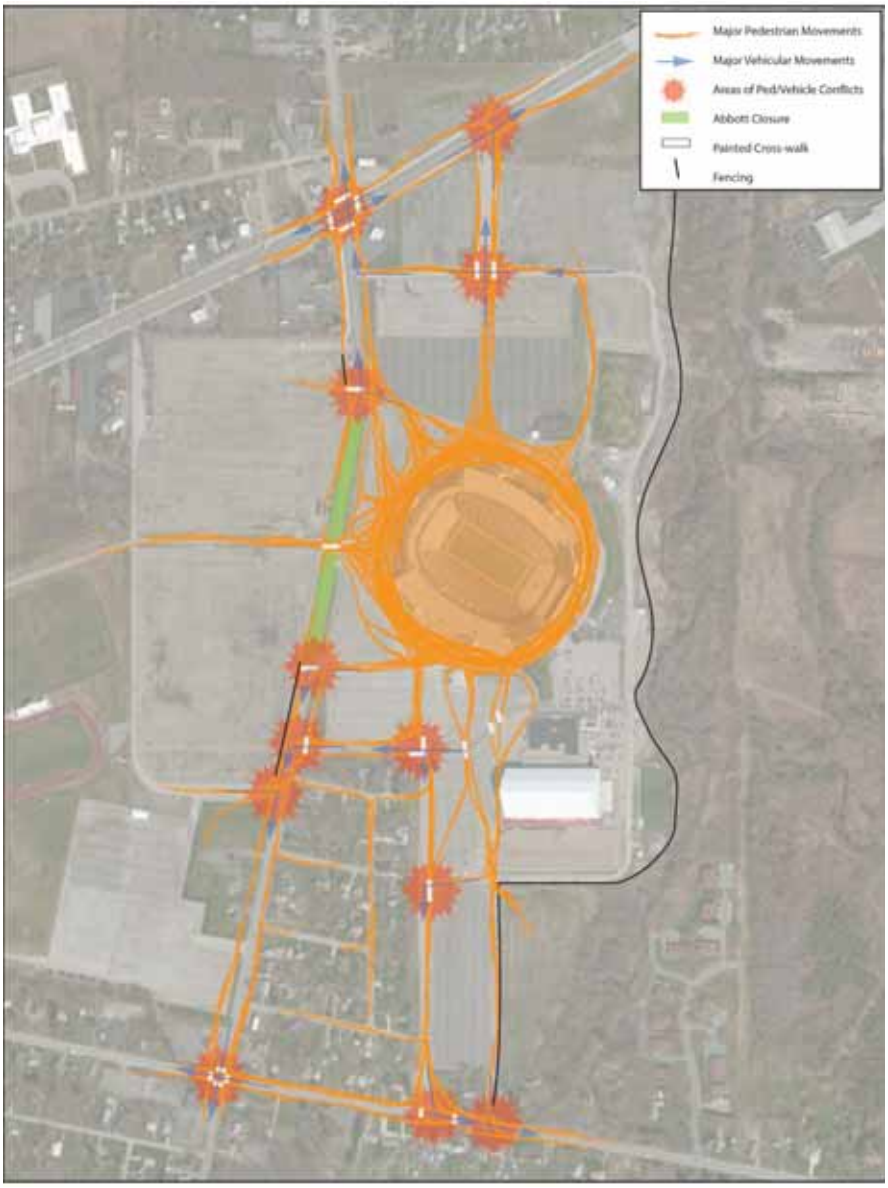


Intersection capacity analysis was conducted using traffic modeling software (Synchro 8) in order to evaluate operations and identify problem areas.

Level of Service at intersections is based on the intersection throughput volumes and does not account for unmet demand of upstream vehicles or the various conflicts that exiting traffic may experience. It was observed that much of the delay that is experienced in the immediate network is caused by pedestrian and vehicular interactions at driveways and intersections in the immediate stadium area. (**Figure 10**) Once the traffic is outside of the area of the satellite parking lots they are only restricted by normal signal operations and existing access points along their particular route. The ideal condition would be to direct the majority of exiting non-local traffic to the nearest high capacity, restricted access highway or expressway in order to limit any potential conflicts and disperse the traffic to the greater network, in this case I-90 or Rt. 219.

Additional observations of the peripheral network were conducted for the game on 12/22/13 in order to better understand the effects that additional traffic related to holiday shopping at the McKinley Mall and other nearby shopping centers has on post-game traffic operations. It was estimated that non-game traffic volumes were increased by up to 50% adding to the saturation of the network.

Figure 10
Major Conflict Locations



5.1 Phase II Preliminary Improvement Strategies

Based on the extensive data collection effort, field observations and the discussions of the study team participants, a number of improvements have been identified to improve traffic operations at Ralph Wilson Stadium. The improvements all include a priority on safety, especially for pedestrians, as that was identified as a prime concern for traffic operations.

The identified issues and proposed improvements are shown in **Table 3.**

Table 3
Issues and Proposed Improvements

Issue	Proposed Improvement	Jurisdiction
Pedestrian accommodations on US 20A	Add sidewalks to roadway	NYSDOT
Pre and Post-Game capacity on US 20A	Restripe Roadway for 3-lanes	NYSDOT
High volume of pedestrians on Abbott Rd.	Add/Improve sidewalks on Abbott Rd.	ECDPW
Need for coordination/communication of traffic control	Coordinate with NYSDOT and NITEC for camera deployment on Rt. 20	NYSDOT/NITEC
Lane utilization of entering and exiting traffic	Provide additional information signing for Pre and Post-Game Traffic	ECDPW/NYSDOT
Pedestrian crossings on Abbott Road	Relocate crosswalks within the Abbott Rd. closure area.	ECDPW
Pedestrian crossings on US 20	Relocate the pedestrian walkway to the west side of Drive 1	ECDPW/Bills
Parking operations	Allow lots 5B and 5E to exit via Drive 5 after initial rush	Bills
Off-site parking pedestrians	Enlarge or add second gate at the northwest corner of the “Barco” lot	Bills
Traffic operations	Analyze impacts of opening the Abbott Road closure sooner while US 20A is still one-way eastbound.	Dills, EC Sheriff

The 10 proposed improvements are discussed in greater detail in the following section.

1. Add sidewalks to US 20A (Big Tree Road). The large numbers of pedestrian on Big Tree Road currently use the 10-foot shoulder on the side of the road to travel between their parking area and the stadium. Currently, pre-game traffic is encouraged to use the westbound shoulder to provide two lanes for stadium traffic. With the current one-way eastbound arrangement for post-game traffic, pedestrians are walking with their backs to traffic on both sides of the road. Adding sidewalks would remove the pedestrians from the roadway, but could require right-of-way acquisition, drainage modifications, and opposition from property owners who would be responsible for maintaining the sidewalks.

2. Restripe US 20A to 3-lanes. The current width of Big Tree Road is 44 feet. Re-striping the road to provide two, 11-foot travel lanes and one 10-foot center turning lane would provide two 6-foot shoulders for pedestrian use. Consultation with NYSDOT to determine the appropriate lane and shoulder widths is required for further investigations.

3. Add or improve sidewalks on Abbot Road north of Rt. 20. Currently Abbott Road has a narrow asphalt snow storage area on both sides of the street, with obstructions such as mailboxes. This asphalt strip does accommodate normal pedestrian volumes, but on game days the pedestrians spill over into the street. Providing appropriate width sidewalks on Abbott Road north of Rt. 20 would allow the full use of Abbott Road for post-game exiting traffic.

4. Camera deployment on Rt. 20. NYSDOT has installed fiber optic cable on the Rt. 20 corridor north of Ralph Wilson Stadium. This would allow camera deployment at at least five locations. The camera feeds could be connected to the new Command Center at Ralph Wilson Stadium through conduit that could be included in the stadium improvements.

5. Provide additional information signing for Pre and Post-Game Traffic. Erie County Sheriffs have observed that many entering and exiting vehicles are unsure of which lane to be in based on their intended destination. This improvement would add temporary signs to be installed on game days to guide travelers and improve lane utilization at intersections.

6. Relocate crosswalks with the Abbott Road closure. At least one pedestrian crosswalk is outside the closed section on Abbott Road. Sidewalks and crosswalks should be oriented to guide pedestrians to the closed pedestrian only area on Abbott Road west of the stadium.

7. Relocate the pedestrian walkway to the west side of Drive 1. Pedestrians exiting the stadium to private lots on Big Tree Road are provided with a walkway east of Drive 1. This creates a crossing conflict at Big Tree Road when pedestrians bound for the south side of Big Tree cross in front of exiting traffic from Drive 1. Moving this walkway the west side of Drive 1 could mitigate this conflict, but would require substantial modifications within the Bills parking lots.

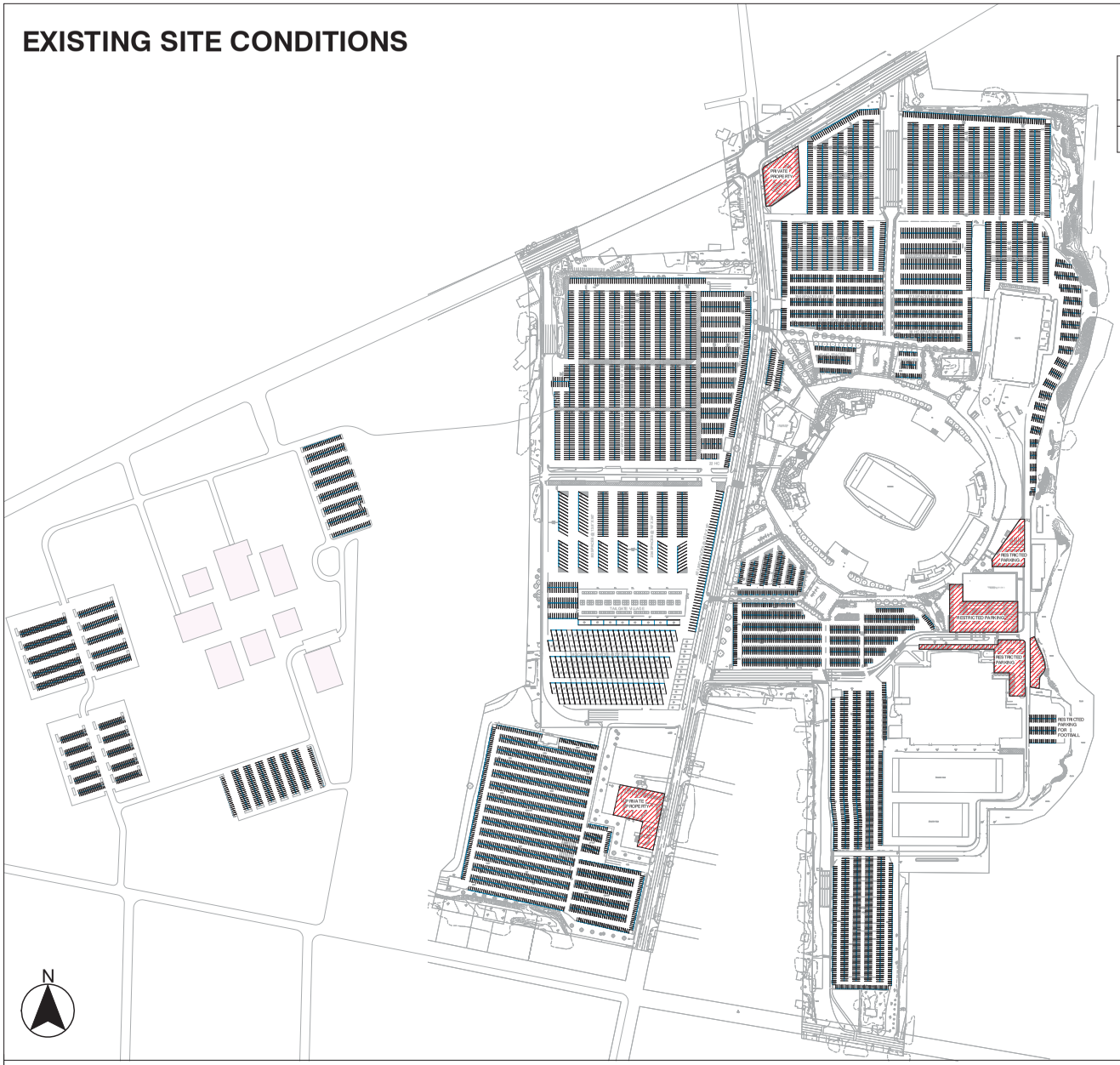
8. Allow lots 5B and 5E to exit via Drive 5 – Traffic from lots 5B and 5E are directed to Abbott Road. However, Rt. 20 has significant capacity after the initial exiting rush, and allowing some of the traffic from 5B and 5E would reduce delays at the Rt. 20/Abbott Road intersection.

9. Enlarge or add second gate at northwest corner of "Barco" lot. The private lot immediate east of Lot 1 has a high number of loyal Bills fans. However, during peak pedestrian flows immediately before and after games, the current gate is insufficient for demand.

10. Analyze impacts of opening the Abbott Road closure sooner. One of the unintended consequences of the US 20A conversion was the identification of capacity constraints on Abbott Road south of the stadium. Anecdotal information from Sheriffs and observers indicate that exiting flows on southbound Abbott could be reduced if the closure were opened sooner. This operational change would require additional data collection along Abbott Road south of the closure.

Preliminary Sketches and cost estimates will be prepared for the proposed improvements suggested for advancement by the project advisory team.

EXISTING SITE CONDITIONS

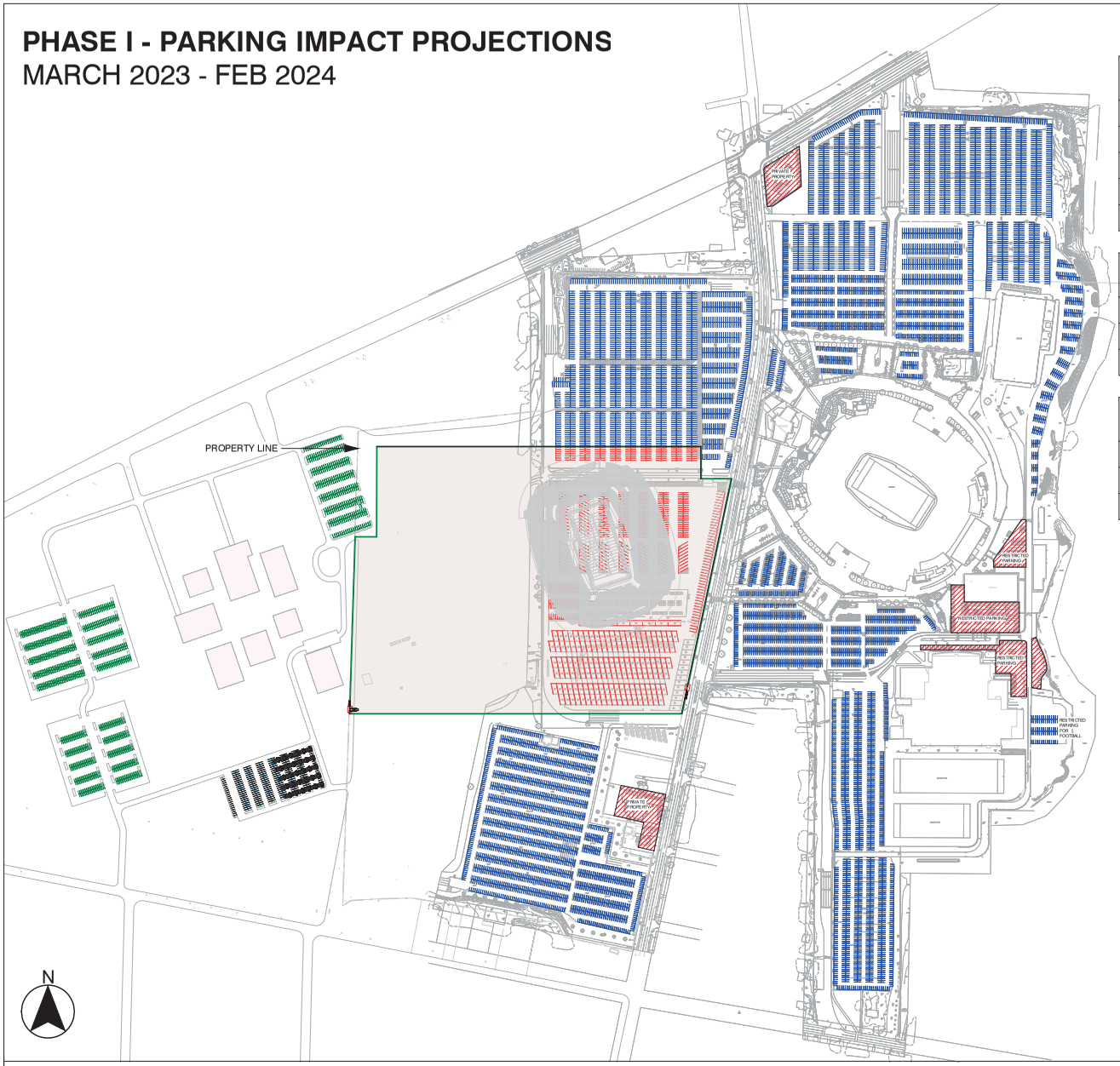


EXISTING PARKING SPACES
Count
10970

BUFFALO BILLS FOOTBALL STADIUM

PHASE I - PARKING IMPACT PROJECTIONS

MARCH 2023 - FEB 2024



PHASE 1 - PARKING SPACES - TOTAL SUMMARY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	621
TRADE PARKING (AVAILABLE GAMEDAY)	1140
PARKING (AVAILABLE GAMEDAY)	8915
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Parking Spaces (Includes 1434 ECC Spots): 10970	

PHASE 1 - PARKING SPACES - AVAILABLE GAMEDAY	
TRADE PARKING (AVAILABLE GAMEDAY)	1140
PARKING (AVAILABLE GAMEDAY)	8915
Total Spaces Available Gameday: 10055	91.7%

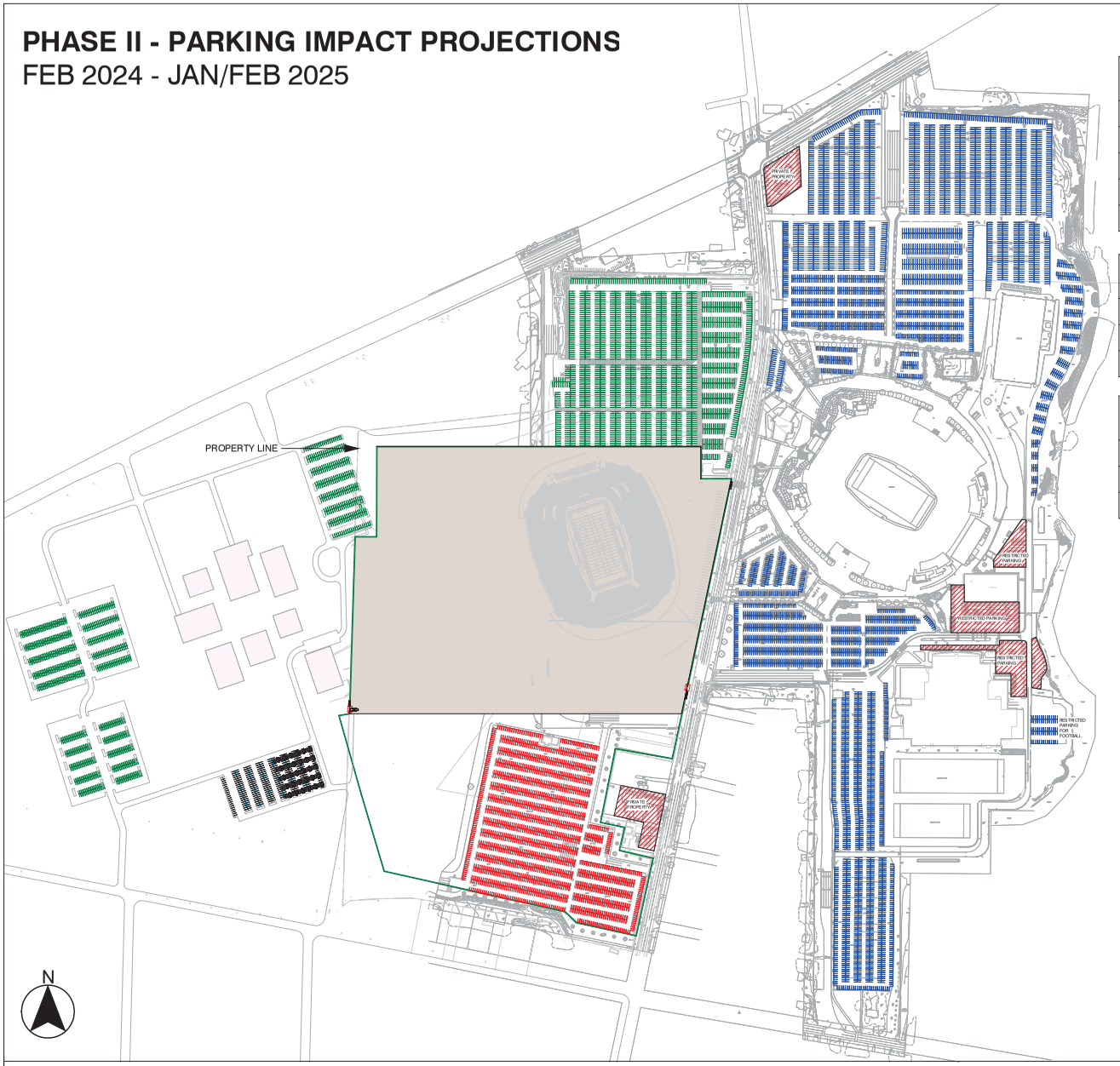
PHASE 1 - PARKING SPACES - UNAVAILABLE GAMEDAY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	621
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Spaces Unavailable Gameday: 915	8.3%

*BILLS TO IDENTIFY RELOCATED CAMPER/BUS PARKING FOR '23-'24 SEASON

BUFFALO BILLS FOOTBALL STADIUM

PHASE II - PARKING IMPACT PROJECTIONS

FEB 2024 - JAN/FEB 2025



PHASE 2 - PARKING SPACES - TOTAL SUMMARY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	2482
TRADE PARKING (AVAILABLE GAMEDAY)	2806
PARKING (AVAILABLE GAMEDAY)	5388
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Parking Spaces (Includes 1434 ECC Spots): 10970	

PHASE 2 - PARKING SPACES - AVAILABLE GAMEDAY	
TRADE PARKING (AVAILABLE GAMEDAY)	2806
PARKING (AVAILABLE GAMEDAY)	5388
Total Spaces Available Gameday: 8194	74.7%

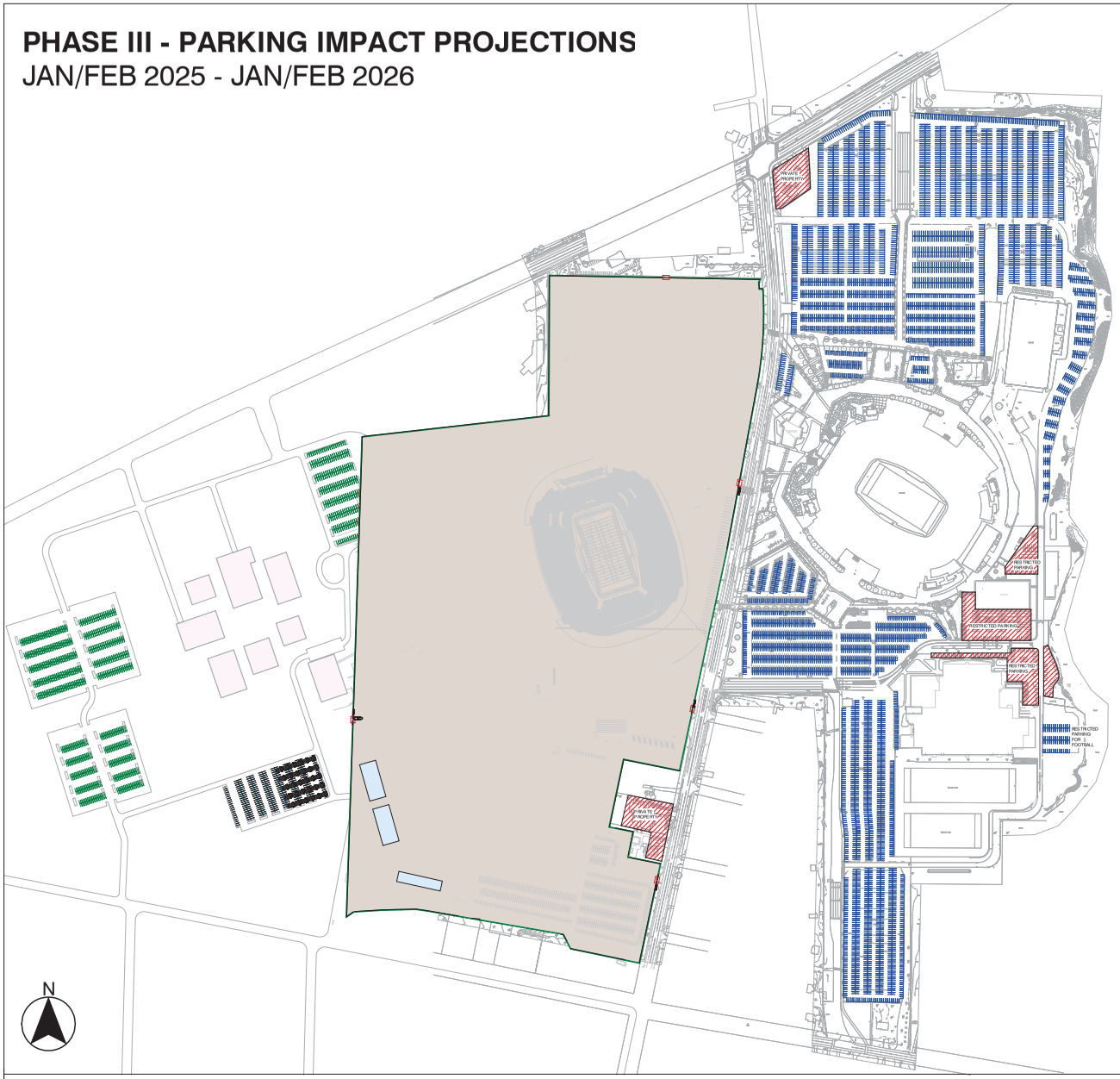
PHASE 2 - UNAVAILABLE GAMEDAY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	2482
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Spaces Unavailable Gameday: 2776	25.3%

*BILLS TO IDENTIFY RELOCATED CAMPER/BUS PARKING FOR '24-'25 SEASON

BUFFALO BILLS FOOTBALL STADIUM

PHASE III - PARKING IMPACT PROJECTIONS

JAN/FEB 2025 - JAN/FEB 2026



PHASE 3 - PARKING SPACES - TOTAL SUMMARY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	4181
TRADE PARKING (AVAILABLE GAMEDAY)	1107
PARKING (AVAILABLE GAMEDAY)	5388
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Parking Spaces (Includes 1434 ECC Spots): 10970	

PHASE 3 - PARKING SPACES - AVAILABLE GAMEDAY	
TRADE PARKING (AVAILABLE GAMEDAY)	1107
PARKING (AVAILABLE GAMEDAY)	5388
Total Spaces Available Gameday: 6495	59.3%

PHASE 3 - PARKING SPACES - UNAVAILABLE GAMEDAY	
WITHIN CONSTRUCTION FENCE (NOT AVAILABLE GAMEDAY)	4181
FIELD OFFICE (NOT AVAILABLE GAMEDAY)	294
Total Spaces Unavailable Gameday: 4475	40.7%

*BILLS TO IDENTIFY RELOCATED CAMPER/BUS PARKING FOR '25-'26 SEASON

BUFFALO BILLS FOOTBALL STADIUM