Waterville Landing TIS

Waterville, Ohio

October 19, 2022

Prepared for:

HB Concerts Inc
3010 Stewart Rd
Monroe, Michigan 48162
P: 248-730-4393

Devonshire Reit II, INC
P.O. Box 639
Neapolis, OH 43547
P: 419-356-0425

Prepared By:

DGL Consulting Engineers, LLC
3455 Briarfield Blvd, Suite E
Maumee, Ohio 43537
P: 419-535-1015

DGL CONSULTING ENGINEERS

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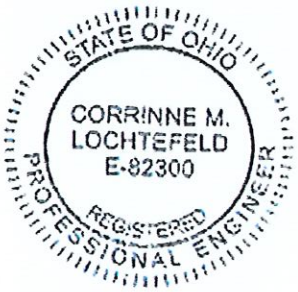

1. EXECUTIVE SUMMARY

DGL was commissioned by HB Concerts Inc. to analyze the impacts of a proposed amphitheater in the Waterville Landing development in Waterville, Ohio. The proposed site is located between SR-64 and Neapolis-Waterville Road, to the east of US-24 on Pray Boulevard. The existing site is currently undeveloped land with residential facilities to the east, and a small commercial development to the north.

The proposed site will provide an outdoor concert facility with both lawn and reserved seating as well as various small buildings to be used for concessions, utilities, production, and restrooms. It is expected that the venue will hold 25-30 events per year, with not all events being sold-out occurrences.

Analysis has been performed in accordance with the Ohio Department of Transportation (ODOT) and Lucas County requirements. Traffic counts were collected at the intersections adjacent to the proposed site. The ITE Trip Generation Manual does not have a land use for Amphitheater nor any other land use that would be similar. A factor of 2.5 tickets per car was used to generate the total trips for the development, which was developed based on similar venue ticket/car occupancy, locally and nationally previously approved studies. The counted peak hour does not correspond to the peak hour of venue traffic, but in order to analyze the "worst-case scenario" all proposed trips to the amphitheater site were added to the peak hour volumes to create the event conditions. It can be expected that local drivers may find other routes when well-known acts are scheduled. This study does not attempt to adjust local traffic away from the area.

The proposed development will impact the entire surrounding roadway system during event days, with SR-64, Pray Boulevard, and Waterville-Monclova Road being the most affected. While analysis can be done using the event traffic, HCS does not accurately analyze the conditions. Although, HCS analysis was conducted for the Event Traffic Conditions, relief of the traffic impacts from the event traffic through permanent infrastructure improvements would be expensive and only necessary the 25-30 times a year when an event occurs. Conversion of the existing infrastructure during events to a Maintenance of Traffic plan with cones, signage and message boards would be just as effective as the HCS suggested infrastructure improvements.

To mitigate the additional traffic generated by the development, an event Maintenance of Traffic plan has been provided and the following are recommended:

- Employ local Law Enforcement Officers to direct and manage traffic during ingress and egress.
- After an event a left turn only will be permitted from Pray Boulevard to SR-64.
- Set up temporary traffic signs and flashing message boards for events.
- Set cones to adjust for the large traffic flow on SR-64 and Pray Boulevard.
- If funding is attainable, construct additional westbound lane between US-24 Eastbound Ramps and Pray Boulevard. Lane will be striped as a designated right turn lane at the US-24 Eastbound Ramp intersection.

2. INTRODUCTION

HB Concerts, Inc. is proposing to construct an amphitheater at the current extension of Pray Boulevard. The development known as "Project Guitar" is located in Waterville, Lucas County Ohio on SR 64 (Waterville-Swanton Road) between the US 24 interchange and Pray Boulevard. Figure 1 illustrates the location of the development area.

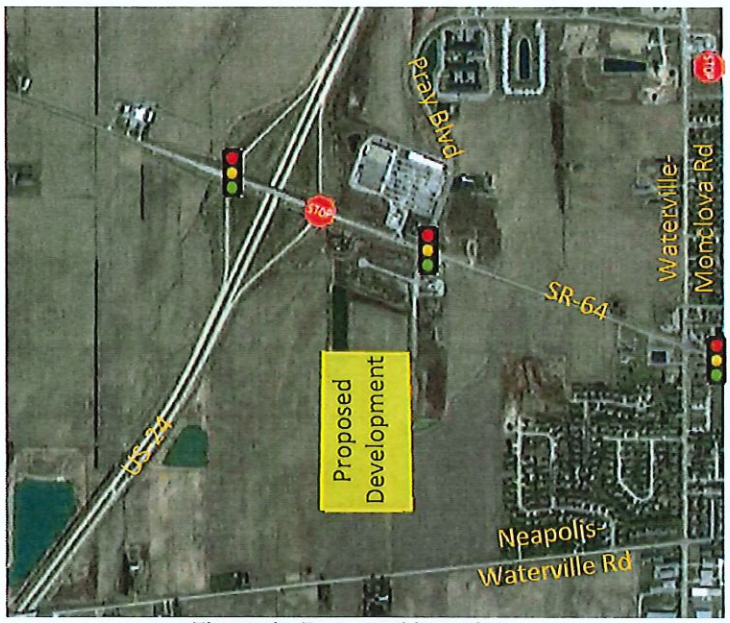

Figure 1 - Proposed Location

3. STUDY LOCATION

The proposed development is located a suburban area southwest of Toledo, Ohio. The site is located near the interchange of US-24 to SR-64 and expected to draw visitors from a regional area. US-24 offers freeway access to I-475 to the northeast which then can access I-75 and the Ohio Turnpike. To the southwest, US-24 provides access to various communities.

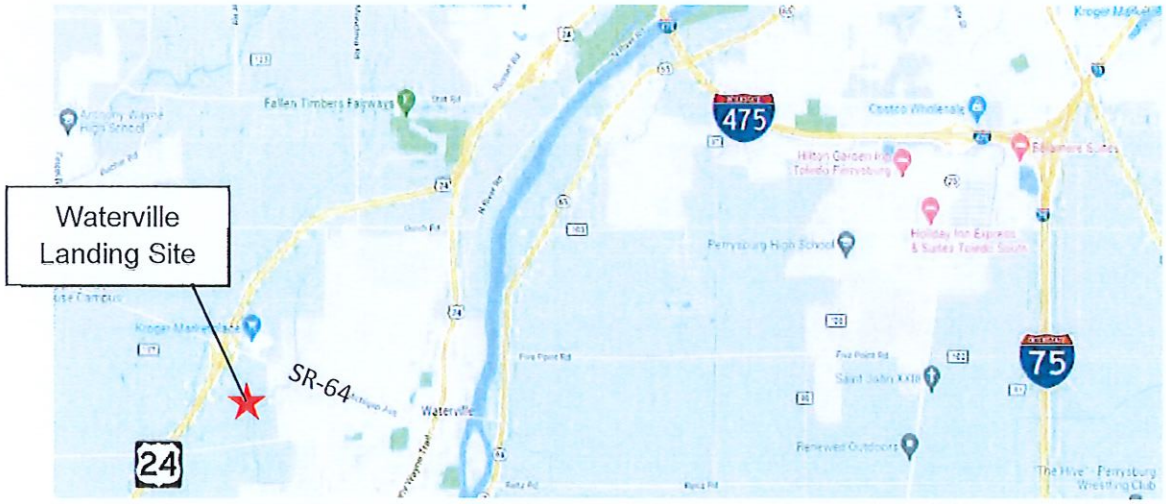

Figure 2 - Study Location

4. EXISTING CONDITIONS

Roadway classification and Annual Average Daily Traffic (AADT) were collected from the ODOT Transportation Information and Mapping System (TIMS) website.

- SR-64 (Waterville-Swanton Road/Michigan Avenue) is a two-lane roadway with an AADT of 13,920 vehicles. It is classified as a major collector with a speed limit of 50 MPH.
- US-24 is a Principal Arterial Freeway, with an AADT of 25,059 and a speed limit of 70 MPH.
- Waterville-Monclova Road is also a two-lane road, classified as a major collector with an AADT of 4,056 vehicles with a speed limit of 35 MPH.
- Pray Boulevard is a local road with no documented AADT. It is a two-lane roadway with a speed limit of 35 MPH.

5. TRAFFIC DATA COLLECTION

Traffic Data was collected by DGL via video counts at the following locations:

- SR-64 & US-24 Southbound Ramps
  - Thursday - May 5th, 2022 – 4:15 PM to 6:15 PM
  - Saturday - May 7th, 2022 – 12:30 PM to 1:30 PM
- SR-64 & US-24 Northbound Ramps
  - Thursday - May 5th, 2022 – 4:15 PM to 6:15 PM
  - Saturday - May 7th, 2022 – 12:30 PM to 1:30 PM
- SR-64 & Pray Boulevard
  - Thursday - May 5th, 2022 – 4:15 PM to 6:15 PM
  - Saturday - May 7th, 2022 – 12:30 PM to 1:30 PM
- SR-64 & Waterville-Monclova Road
  - Thursday - May 5th, 2022 – 4:15 PM to 6:15 PM
  - Saturday - May 7th, 2022 – 12:30 PM to 1:30 PM
- Waterville-Monclova Road & Pray Boulevard
  - Thursday - May 5th, 2022 – 4:15 PM to 6:15 PM
  - Saturday - May 7th, 2022 – 12:30 PM to 1:30 PM
- ATR along SR-64 – 5/7/2022

The PM Peak Hour occurred from 4:30 PM to 5:30 PM and the Weekend Peak Hour occurred from 12:30 PM to 1:30 PM. It should be noted that only the Weekday PM Peak Hour and Weekend Peak Hour were counted as most amphitheater events occur in the evenings and on weekends.

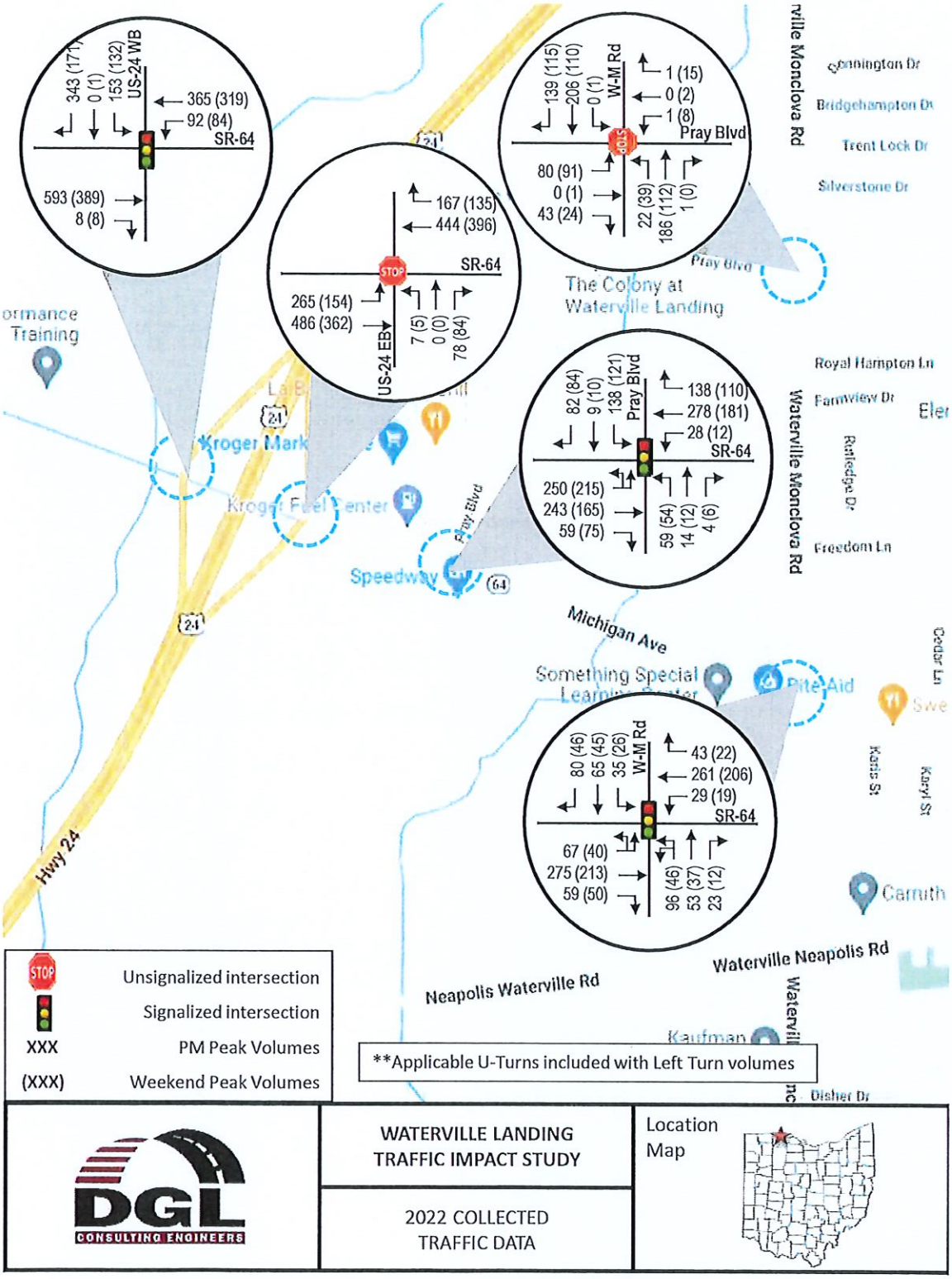

Figure 3 - 2022 Existing Traffic Volumes

6. PROPOSED CONDITIONS

6a. Access Locations

The proposed Waterville Landing venue is shown in Figure 4. The site is located approximately 1,000 feet from the SR-64/Pray Boulevard intersection. All site drives will access Pray Boulevard. There will be three access points into the parking lot, although specific locations of site drives are not critical to this study. It has been determined that assistance in directing traffic to and from the site drives will be conducted by venue staff and local law enforcement. It is anticipated that other establishments along Pray Boulevard (O'Reilly's and Speedway) will not be greatly impacted by the Maintenance of traffic set up. Access to O'Reilly's can be maintained along Pray Boulevard and accommodated in the temporary maintenance of traffic set up, Speedway access can be maintained on SR-64.

Figure 4 - Access Locations

7. ANALYSIS

7a. Trip Generation

The ITE Trip Generation Manual does not have a land use for an Amphitheater nor any other land use that would be similar. It is estimated that the capacity of the amphitheater will be 9,375 seats. A factor of 2.5 tickets per car was used to generate the maximum trips to the development. Trip generation rates from similar venues and studies were used to confirm this rate. A small volume of exiting trips during the pre-event period were included in the study for employees and vehicles dropping off attendees and then exiting the site.

The Peak Hour trips for a sold-out event at the Waterville Landing amphitheater were calculated as follows:

Table 1 Overall Trip Generation Calculations

Trip Generator	PM Event Enter	PM Event Exit	Weekend Event Enter	Weekend Event Exit
Amphitheater Concert	3,563	187	3,375	375
Total Trips	**3,563**	**187**	**3,375**	**375**

7b. No Build Conditions

Collected traffic volumes were grown by 1.0% per year to estimate the 2023 and 2043 traffic volumes. The growth rate was calculated using the ODOT SHIFT Tool. Figure 5 and Figure 6 show the No Build traffic conditions.

7c. Trip Distribution

The new trips to the proposed Waterville Landing site were distributed based on the surrounding area. For entering event traffic, a smaller portion of the trips were assigned to the site from the City of Waterville and from south (20%). A majority of the trips (80%) were assigned to the US-24 interchange which services the greater Toledo area. To create a straightforward egress after an event, 100% of exiting trips from Pray Boulevard will be directed to make a left turn on SR-64 and head west to the US-24 interchange. Figure 7 shows the proposed trip distributions.

7d. Event Conditions

Like the No-Build Conditions, traffic volumes were grown by 1.0% to estimate the 2023 and 2043 traffic volumes at the intersection surrounding the proposed site. The Build Conditions include the traffic generated by the proposed development overlaid on the No-Build volumes. Thus, trips from the trip generation calculations were then added to the grown No-Build volumes to obtain the projected traffic at the intersection and along the roadways

It is anticipated that the peak hours of the roadway will not necessarily align with the peak hour of the amphitheater. With a 7:00 PM event start time and gates opening at 5:30 PM, the end of the weekday PM peak hour may be impacted. To create a "worst-case scenario", the sold-out event trips were added to the peak hour traffic. It can be expected that local drivers may find other routes when well-known acts are scheduled. This study does not attempt to adjust local traffic away from the area. Figure 8 to Figure 11 illustrate Build traffic conditions.

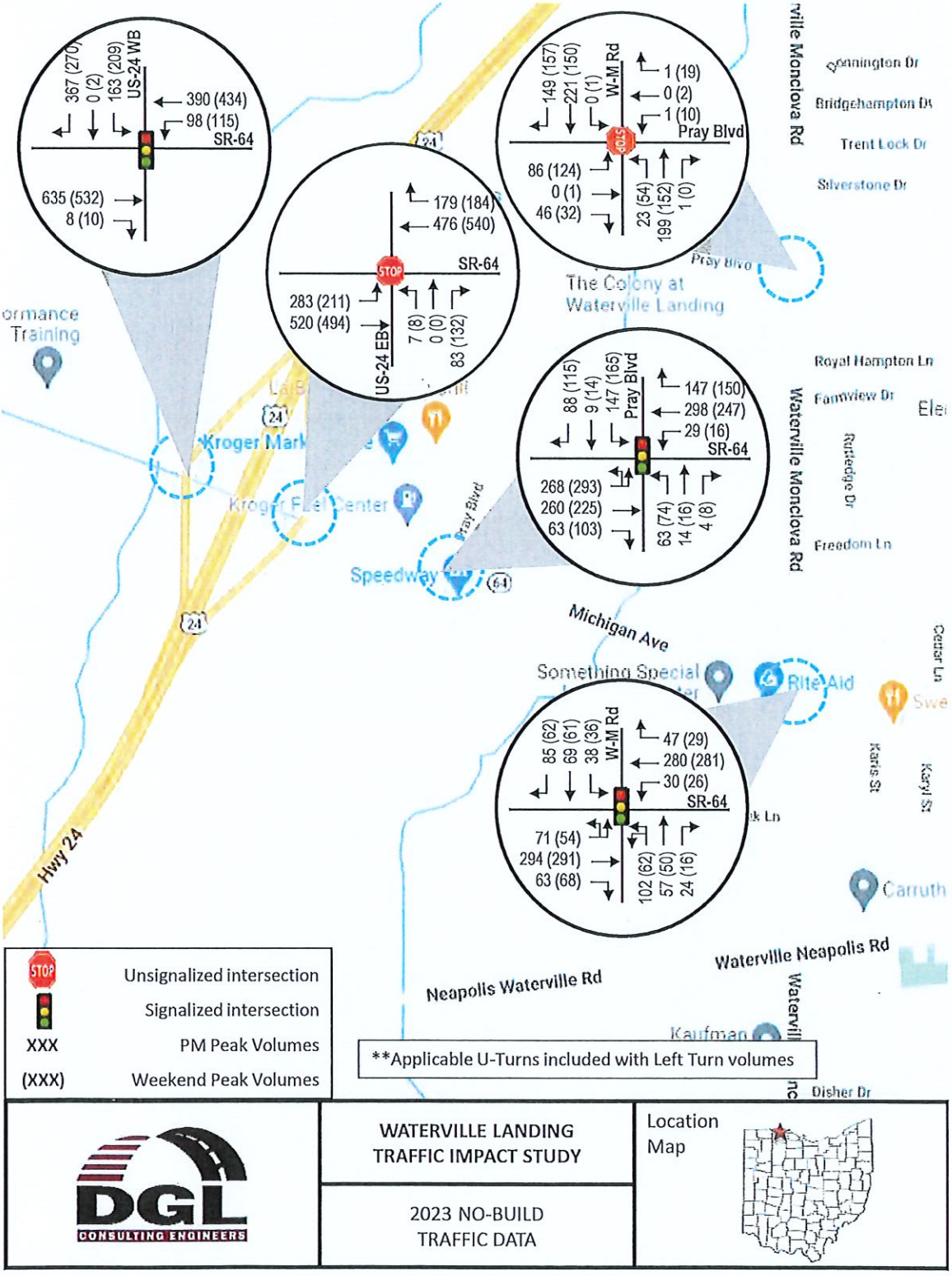

Figure 5 - 2023 No-Build Traffic Volumes

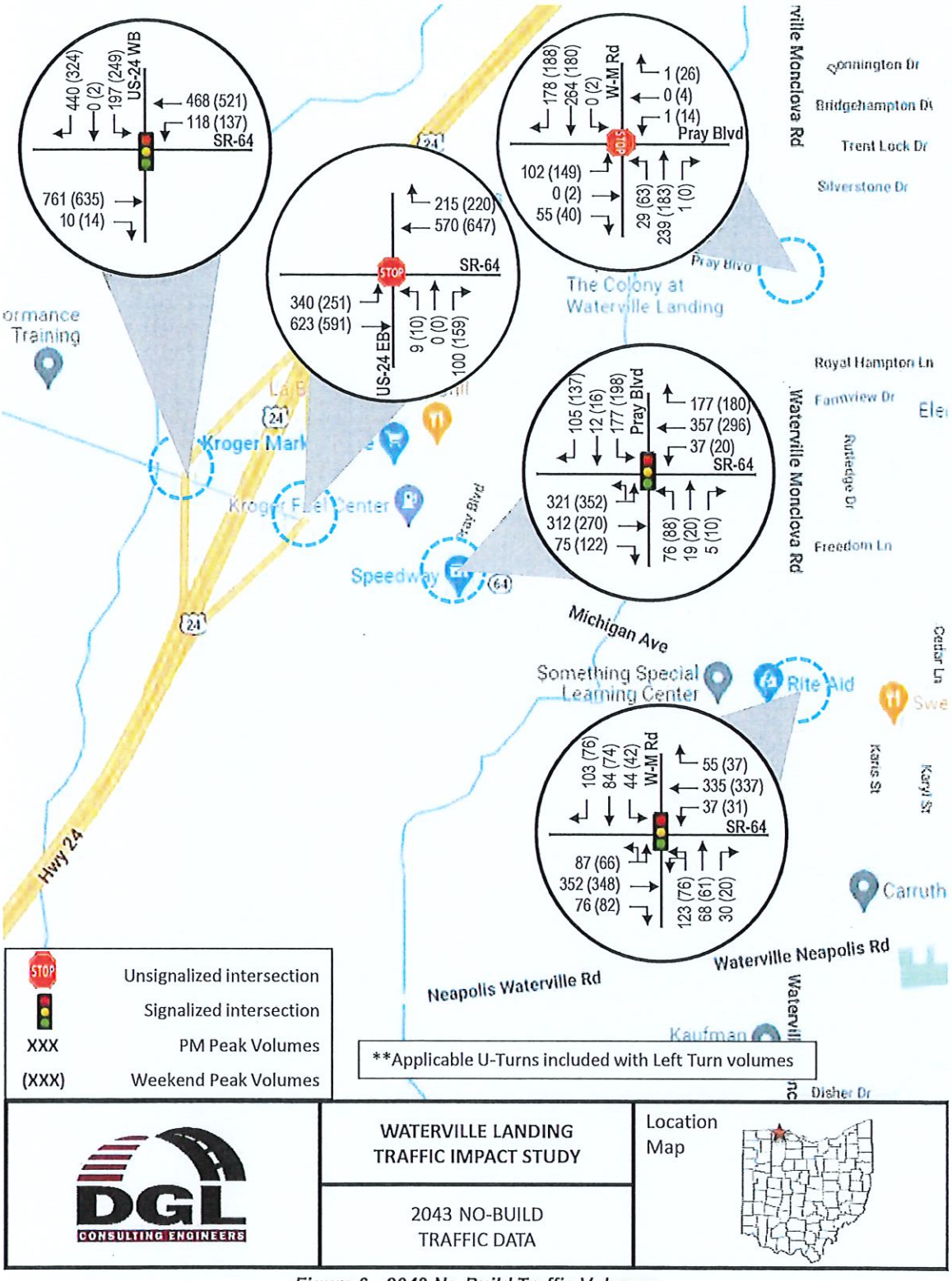

Figure 6 - 2043 No-Build Traffic Volumes

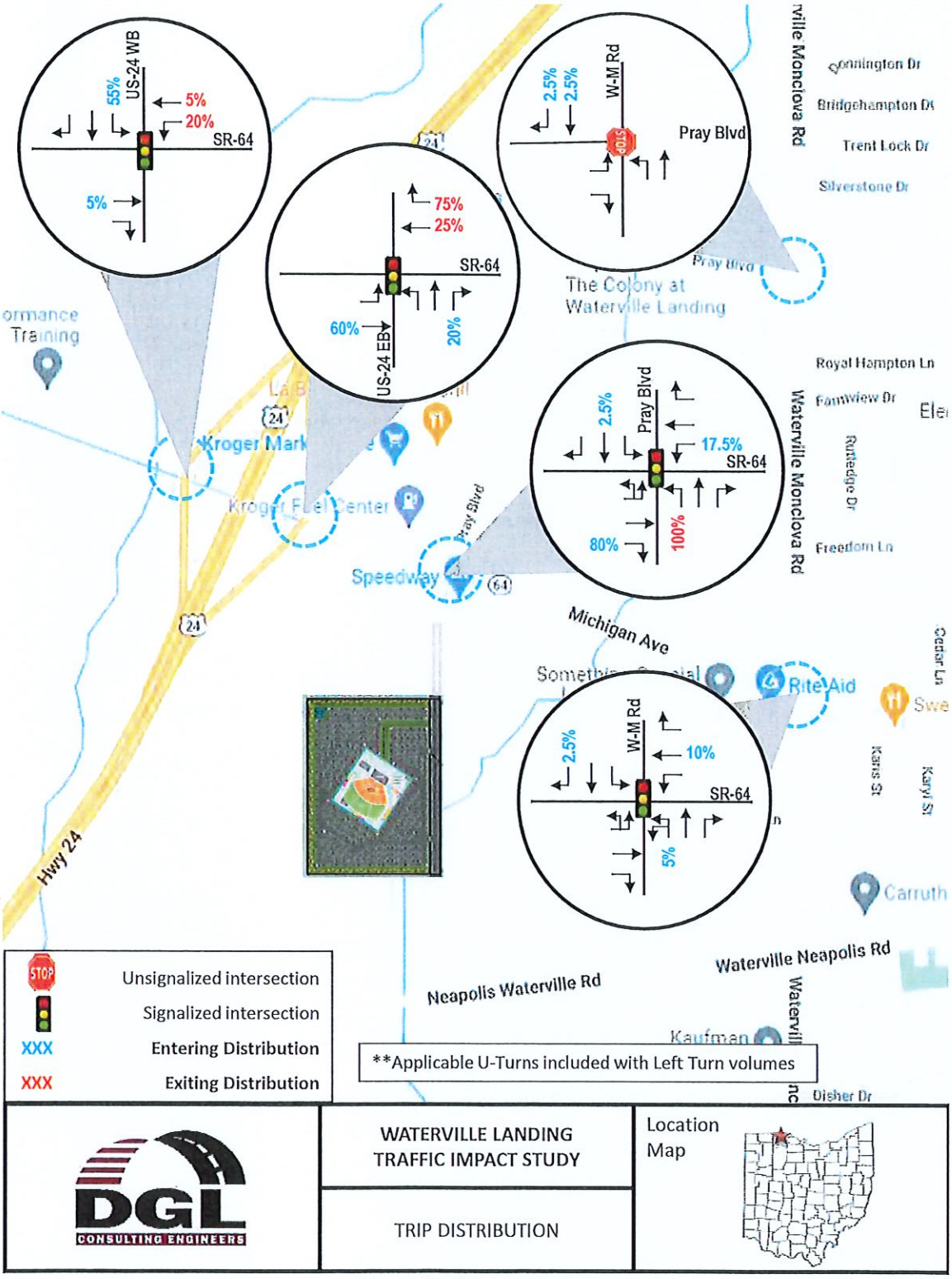

Figure 7 - Trip Distribution

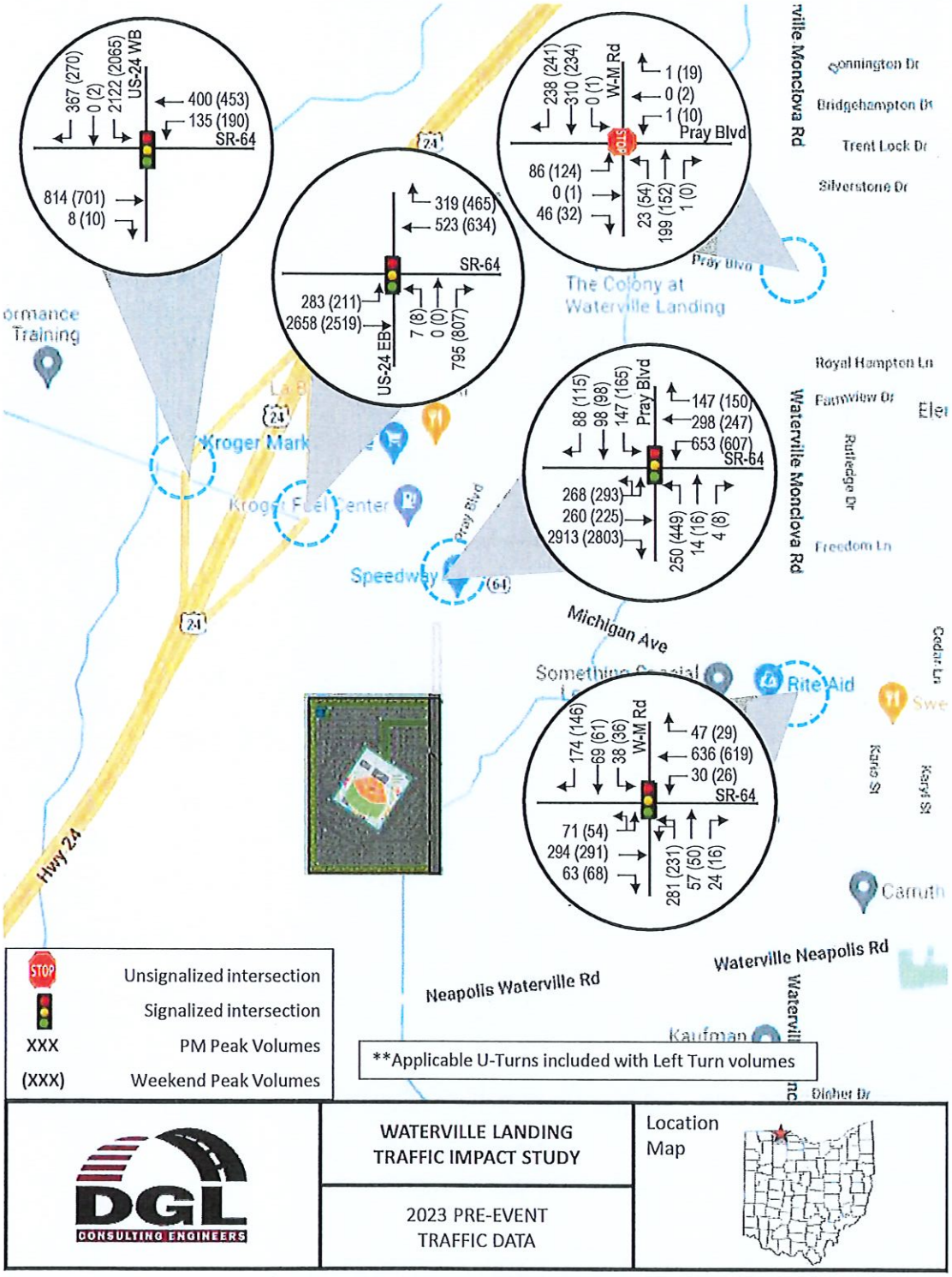

Figure 8 - 2023 Pre-Event Build Traffic Volumes

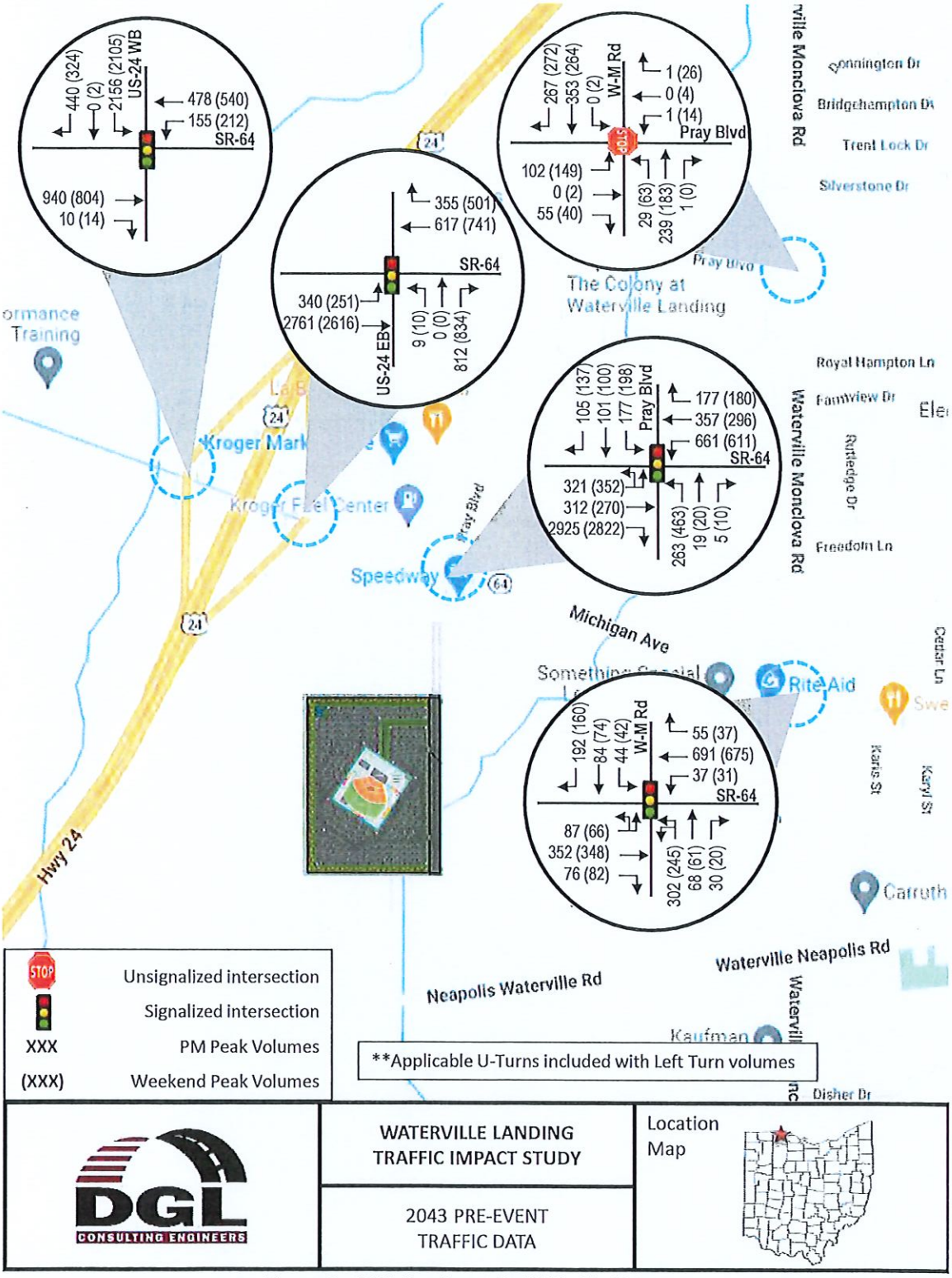

Figure 9 - 2043 Pre-Event Build Traffic Volumes

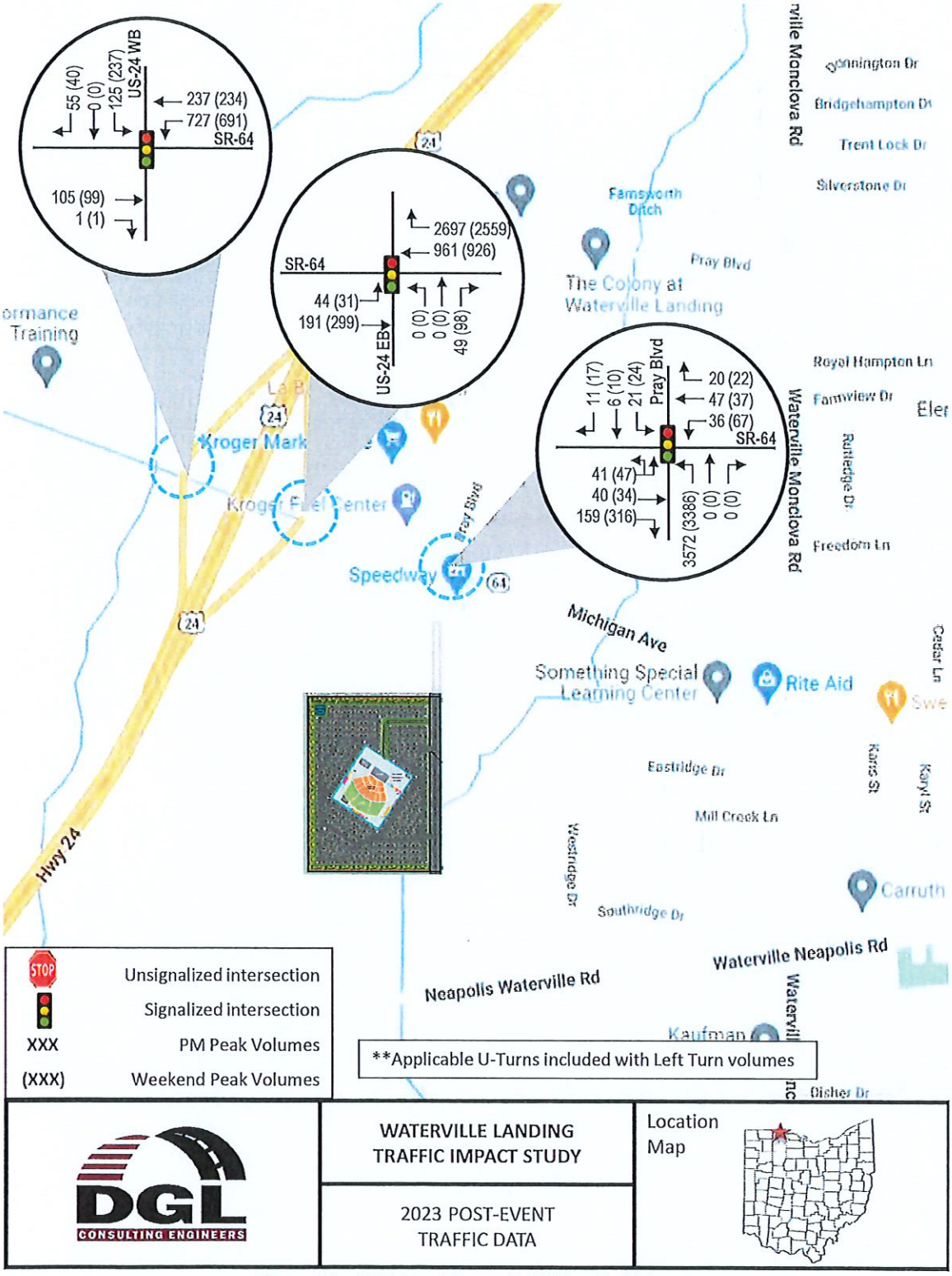

Figure 10 - 2023 Post-Event Build Traffic Volumes

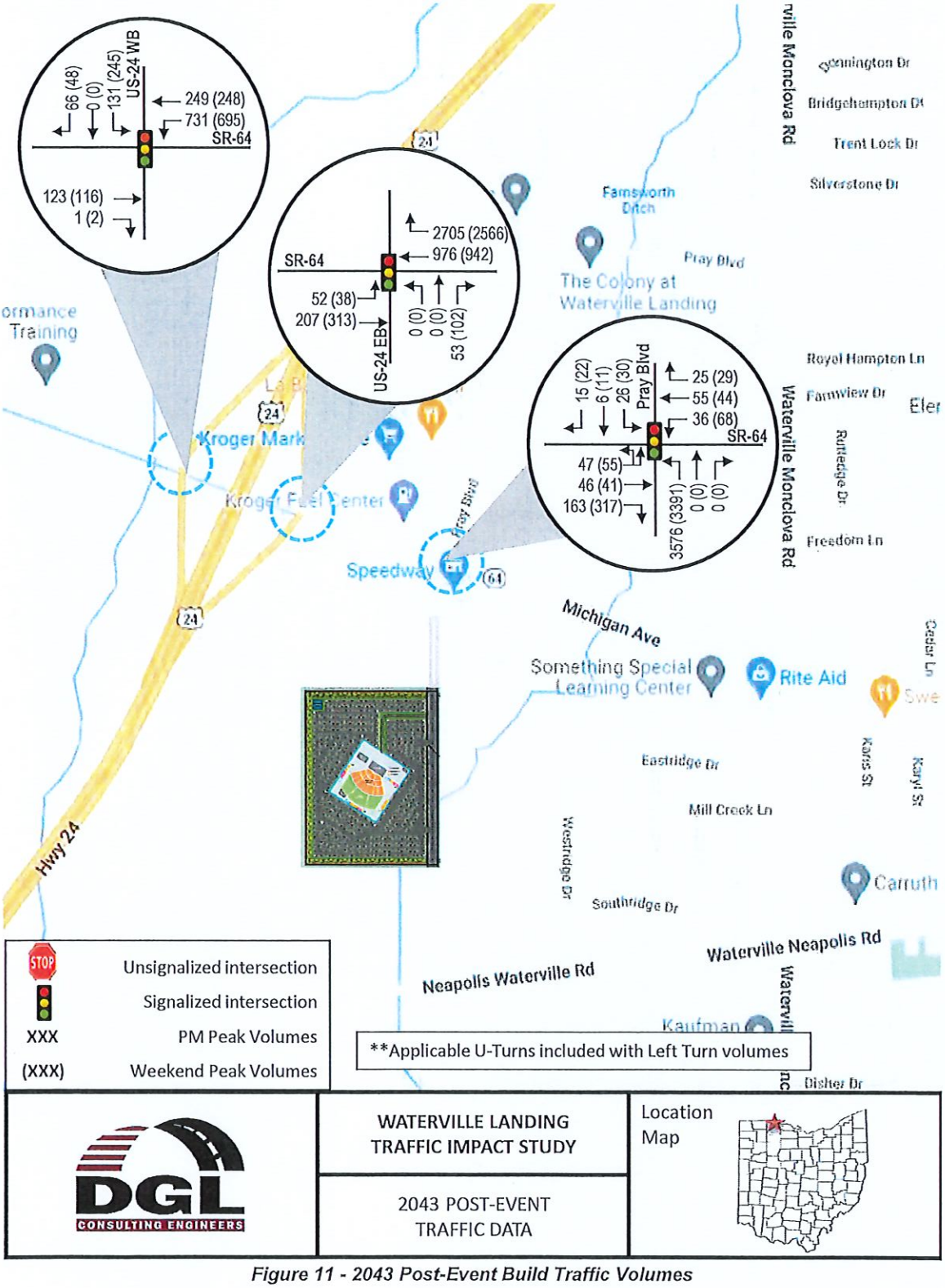

Figure 11 - 2043 Post-Event Build Traffic Volumes

7e. Intersection Capacity

The level of service (LOS) is a way to classify the intersection on a scale of A to F, from a functional standpoint. Intersections and approaches are assigned an overall grade based on traffic volumes, capacity, and overall delay experienced by drivers.

Capacity Analysis was conducted for various geometric and traffic control alternatives. HCS 7 Software was used to determine the LOS for the signalized and stop-controlled intersections. LOS is generally identified for each movement or approach. LOS C is considered acceptable in all conditions, while LOS D is considered acceptable in congested urban areas, such as interchanges and commuter corridors. For Two-Way Stop controlled intersections, the LOS is undefined for the overall intersection.

Table 2 Intersection Level of Service and Delay (in seconds)

Signalized Intersection			Unsignalized Intersection		
A	<=	10s	A	<=	10s
B	>	10-20s	B	>	10-15s
C	>	20-35s	C	>	15-25s
D	>	35-55s	D	>	25-35s
E	>	55-80s	E	>	35-50s
F	>	80s	F	>	50s

Existing Conditions

The 2022 counted traffic was analyzed with existing road conditions to review how the intersections are currently functioning. Currently, all surrounding intersections function at acceptable level of service.

Table 3	Existing Conditions			
	PM Peak		Weekend Peak	
	2022 Existing		2022 Existing	
	LOS	Delay	LOS	Delay
SR-64 & US-24 Westbound - Signalized				
Eastbound (SR-64)	B	17.1	B	13.0
Westbound (SR-64)	B	15.3	B	13.5
Southbound (US-24)	C	20.9	B	17.4
Overall	**B**	**17.8**	**B**	**14.4**
SR-64 & US-24 Eastbound - Unsignalized				
Eastbound (SR-64)	B	10.6	A	9.3
Northbound (US-24)	C	18.0	B	12.6
SR-64 & Pray Boulevard - Signalized				
Eastbound (SR-64)	B	13.1	B	11.4
Westbound (SR-64)	B	10.2	A	9.6
Northbound (Pray)	C	21.4	C	21.3
Southbound (Pray)	C	22.7	C	22.4
Overall	**B**	**14.3**	**B**	**13.8**
SR-64 & Waterville-Monclova Road - Signalized				
Eastbound (SR-64)	C	25.7	C	24.0
Westbound (SR-64)	C	25.7	C	23.9
Northbound (W-M)	C	25.5	C	23.3
Southbound (W-M)	C	23.6	C	22.7
Overall	**C**	**25.3**	**C**	**23.7**
Waterville-Monclova Road & Pray Boulevard - Unsignalized				
Eastbound (Pray)	B	12.4	B	11.5
Westbound (Pray)	B	11.7	B	10.2
Northbound (W-M)	A	8.1	A	7.8
Southbound (W-M)	A	7.6	A	7.4

No-Build Conditions

The No-Build Conditions were also analyzed at the surrounding intersections as they are functioning currently, two-way-stop-controlled and signalized intersections. The existing intersections are anticipated to function at acceptable levels of service for both 2023 and 2043 peak hours.

Table 4 No-Build Conditions								
	PM Peak				Weekend Peak			
	2023 No-Build		2043 No-Build		2023 No-Build		2043 No-Build	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
SR-64 & US-24 Westbound - Signalized								
Eastbound (SR-64)	B	18.6	C	28.1	B	15.6	B	19.2
Westbound (SR-64)	B	16.1	C	22.0	B	16.0	B	19.5
Southbound (US-24)	C	22.1	C	28.4	B	19.2	C	21.3
Overall	**B**	**19.0**	**C**	**26.4**	**B**	**16.8**	**B**	**19.9**
SR-64 & US-24 Eastbound - Unsignalized								
Eastbound (SR-64)	B	11.1	B	13.4	B	10.8	B	12.6
Northbound (US-24)	C	19.9	**E**	**35.2**	C	17.3	**D**	**25.2**
SR-64 & Pray Boulevard - Signalized								
Eastbound (SR-64)	B	13.8	B	17.2	B	13.2	B	16.1
Westbound (SR-64)	B	10.4	B	10.9	B	10.0	B	10.4
Northbound (Pray)	C	21.5	C	21.8	C	21.8	C	22.0
Southbound (Pray)	C	22.9	C	23.6	C	23.3	C	24.0
Overall	**B**	**14.7**	**B**	**16.4**	**B**	**15.0**	**B**	**16.5**
SR-64 & Waterville-Monclova Road - Signalized								
Eastbound (SR-64)	C	27.0	C	33.5	C	28.9	**D**	**38.0**
Westbound (SR-64)	C	26.8	C	30.9	C	26.6	C	30.8
Northbound (W-M)	C	25.9	C	27.2	C	24.2	C	25.1
Southbound (W-M)	C	23.8	C	24.4	C	23.3	C	23.8
Overall	**C**	**26.2**	**C**	**30.2**	**C**	**26.7**	**C**	**31.9**
Waterville-Monclova Road & Pray Boulevard - Unsignalized								
Eastbound (Pray)	B	12.9	B	14.9	B	14.0	C	17.1
Westbound (Pray)	B	12.0	B	13.3	B	11.1	B	12.2
Northbound (W-M)	A	8.2	A	8.5	A	8.1	A	8.3
Southbound (W-M)	A	7.6	A	7.7	A	7.5	A	7.6

Event Traffic

It is well known that traffic for an event venue can create major traffic congestion before and after the actual event. HCS analysis was conducted to determine what mitigation is needed under the Event Traffic Conditions. The analyses revealed the infrastructure improvements that would mitigate the additional event traffic. Construction of these improvements would be costly and only needed 25-30 times a year. This led to the development of an Event Traffic plan that could be implemented on Event dates.

Dual lefts from the Westbound US 24 ramps to a two lane Eastbound Right Turn at Pray Boulevard would greatly improve entering traffic volumes. Exiting Northbound Pray Boulevard to SR-64 dual left lanes to the Eastbound US-24 ramp would be possible with the construction of an additional lane between Pray Boulevard and the US-24 Eastbound ramp. The width of Pray Boulevard will allow for two lanes of ingress or egress traffic.

It is expected that Law Enforcement Offices and traffic cones will be used to direct traffic to and from the venue. Flashing message signs, temporary signs along SR-64 between US-24 and Waterville-Monclova Road and the surrounding roadways should also be utilized during the events.

An Event Traffic Plan has been designed and can be found in figures Figure 12 to Figure 15.

WATERVILLE LANDING - PROJECT GUITAR

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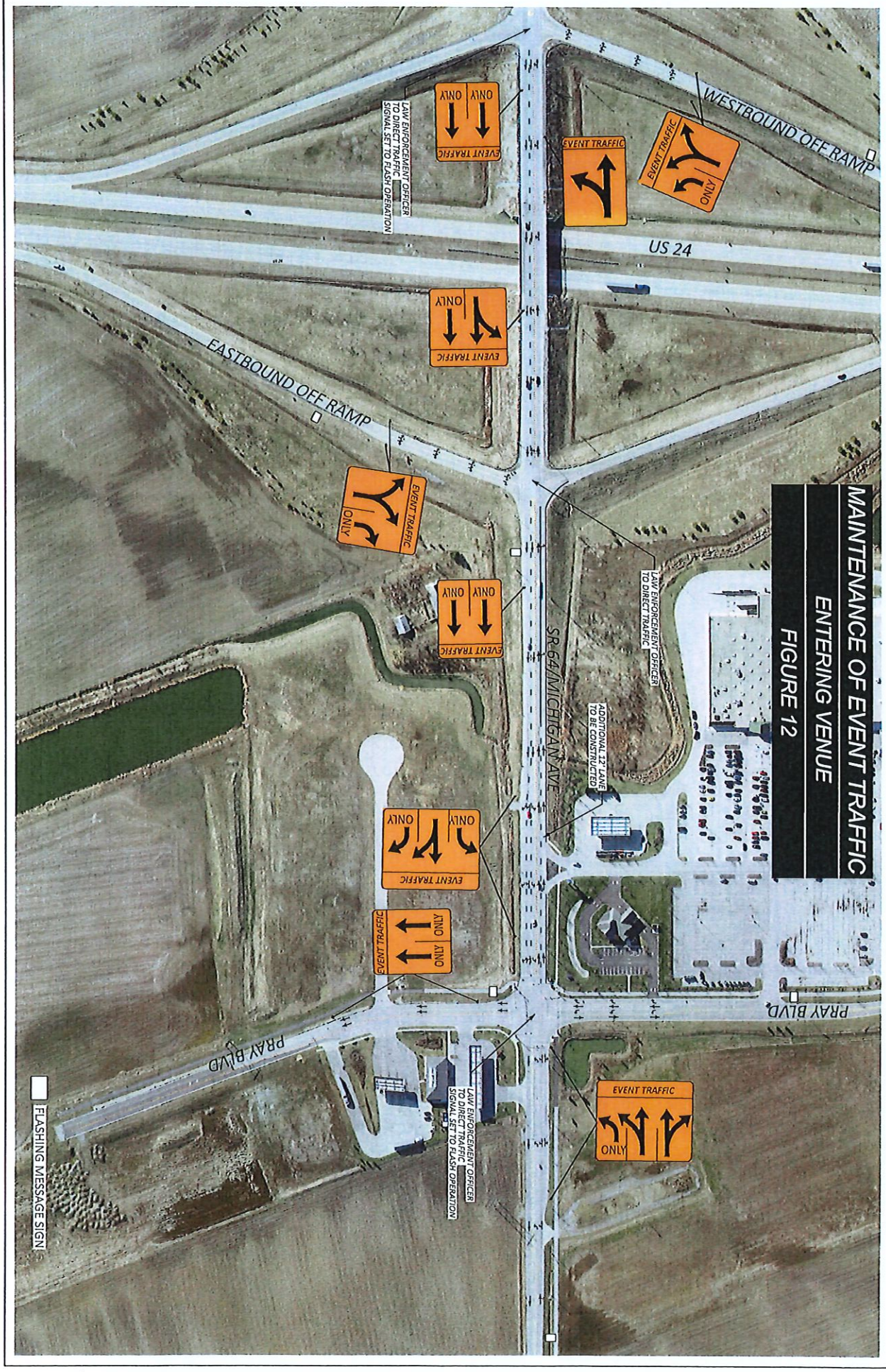

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MAINTENANCE OF EVENT TRAFFIC
INTERCHANGE LAYOUT ENTERING TRAFFIC
FIGURE 13

WATERVILLE LANDING - PROJECT GUITAR

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MAINTENANCE OF EVENT TRAFFIC

INTERSECTION LAYOUT ENTERING TRAFFIC

FIGURE 14

WATERVILLE LANDING - PROJECT GUITAR

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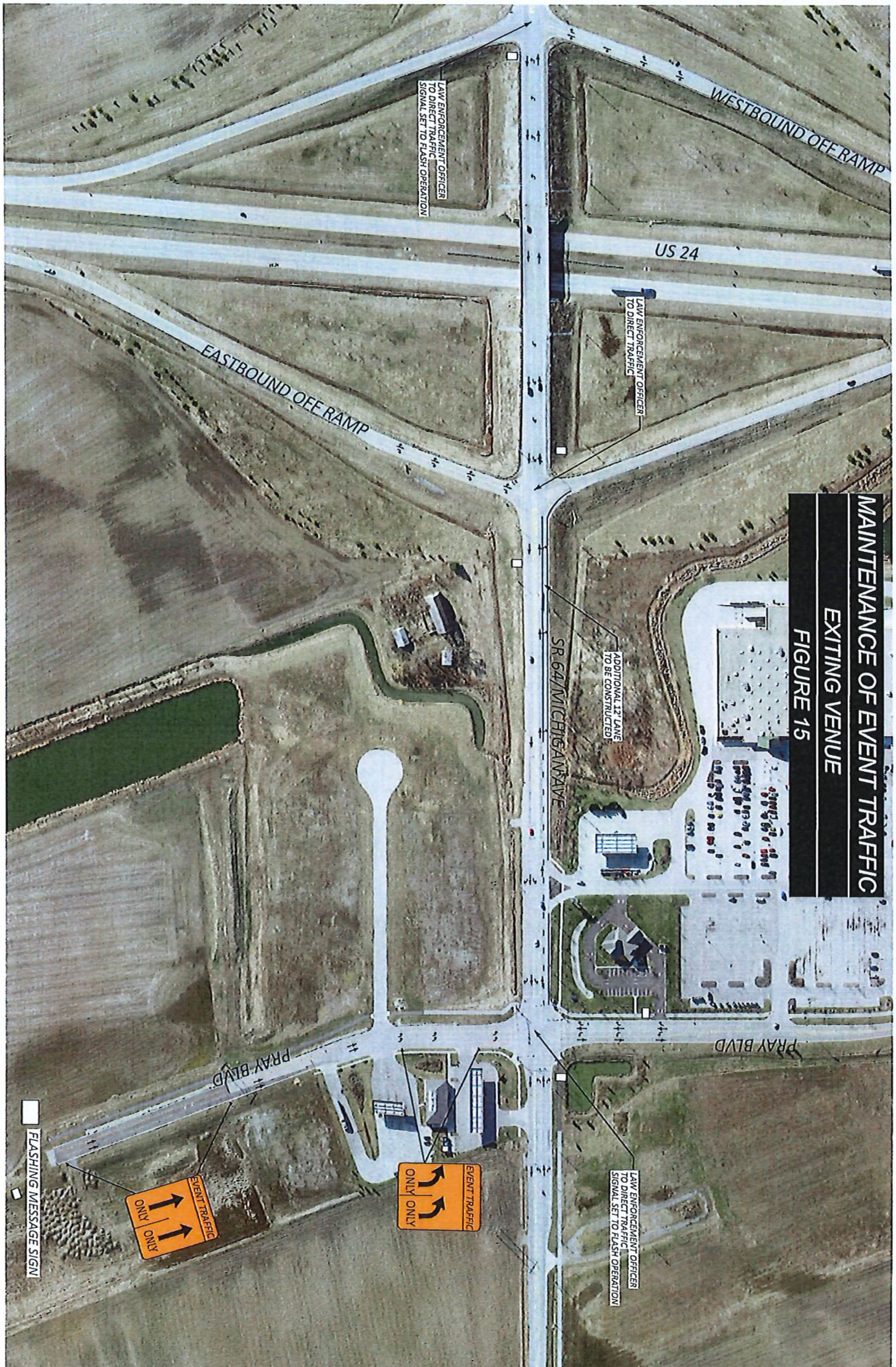

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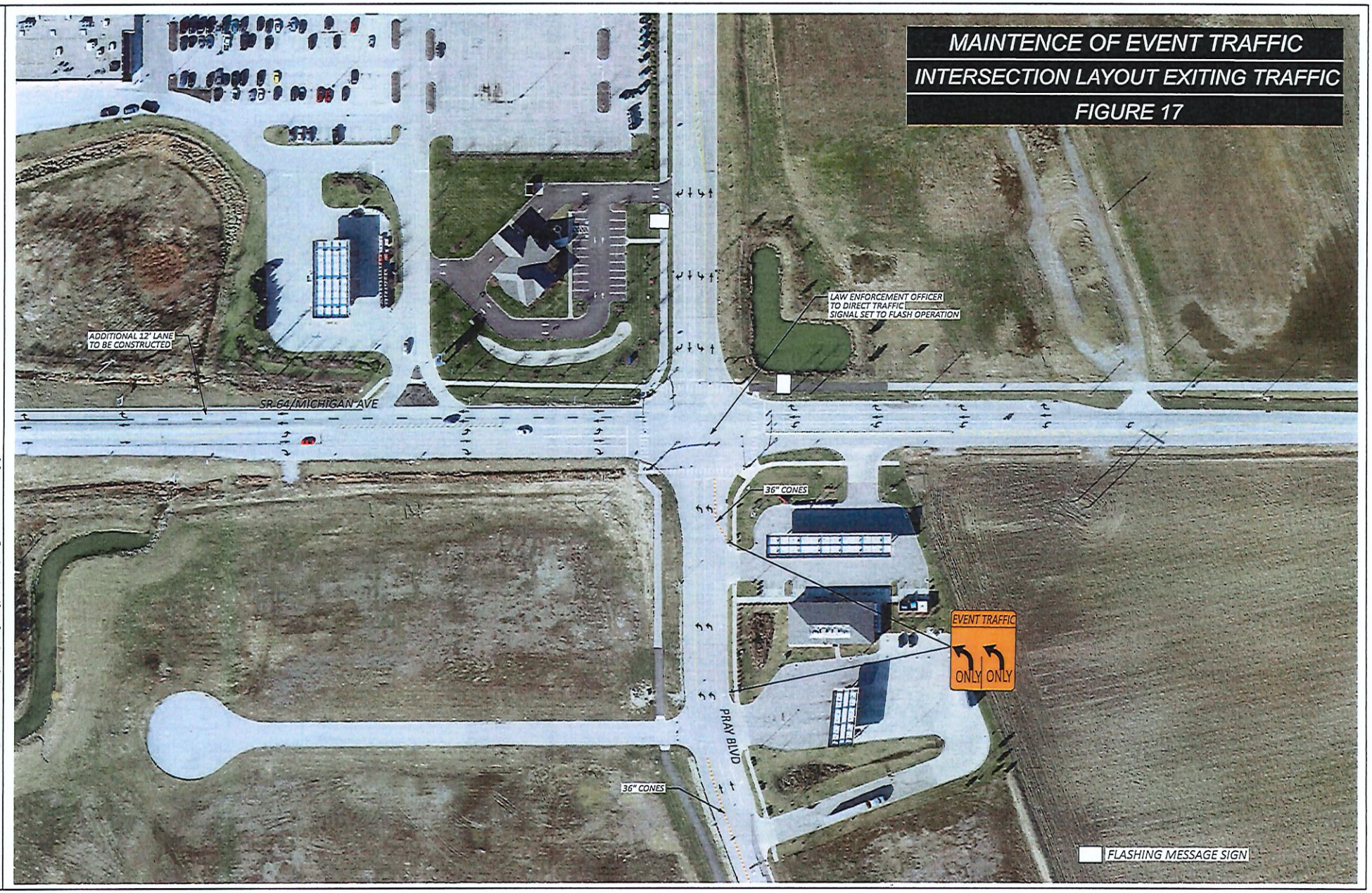
MAINTENCE OF EVENT TRAFFIC

INTERCHANGE LAYOUT EXITING TRAFFIC

FIGURE 16

WATERVILLE LANDING - PROJECT GUITAR



8. CONCLUSIONS

The proposed amphitheater will create large traffic volumes prior to and after an event. It is anticipated that 25 to 30 events will take place per year and not all events will be sold-out. Mitigation of the traffic impacts from the event center though permanent infrastructure improvements would be expensive and only necessary when an event occurs. An Event Traffic Plan utilizing Law Enforcement Offers (LEOs), cones, signage and message boards would be just as effective as the HCS suggested roadway improvements, at much lower cost.

9. RECOMMENDATIONS

The construction of the Waterville Landing Amphitheater will impact the surrounding roads and intersections 25-30 times per year. To mitigate the additional traffic generated by the development, the following recommendations are presented for the adjacent intersections:

- Employ local Law Enforcement Officers to direct and manage traffic during ingress and egress.
- After an event a left turn only will be permitted from Pray Boulevard to SR-64.
- Set up temporary traffic signs and flashing message boards for events.
- Set cones to adjust for the large traffic flow on SR-64 and Pray Boulevard.
- Construct additional westbound lane between US-24 Eastbound Ramps and Pray Boulevard, lane will be striped as a designated right turn lane at the US-24 Eastbound Ramp intersection.