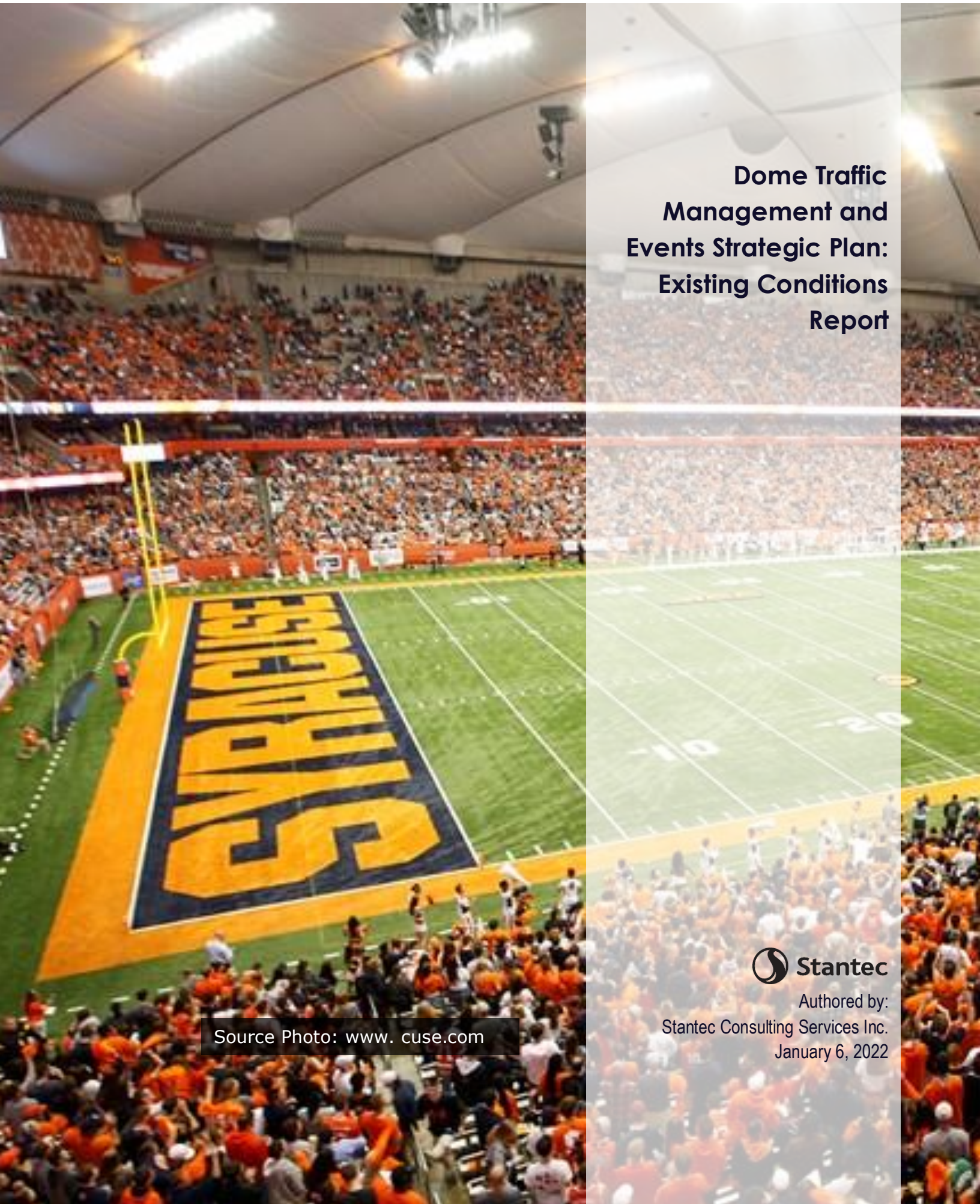

Dome Traffic Management and Events Strategic Plan: Existing Conditions Report

Source Photo: www. cuse.com

Stantec

Authored by:
Stantec Consulting Services Inc.
January 6, 2022

1 Study Purpose

1.1 Overview

An Existing Conditions Report, Strategic Plan and an Operational Plan are the three distinct deliverables that will be created during the execution of this project. An Existing Conditions report forms the basis for documentation of existing operations. The goal of the Strategic Plan is to develop a high-level document that lays out the rational for major events at The Dome from a transportation perspective. The Operational Plan is a detailed, illustrated documented plan to accommodate ingress and egress for Dome events, to streamline guest ingress and egress operations for all modes of travel to and from the Dome.

Figure 1 - Four Plans within the Project

This plan is to be implemented after recommendations from NYSDOT's I-81 Viaduct Project have been implemented.

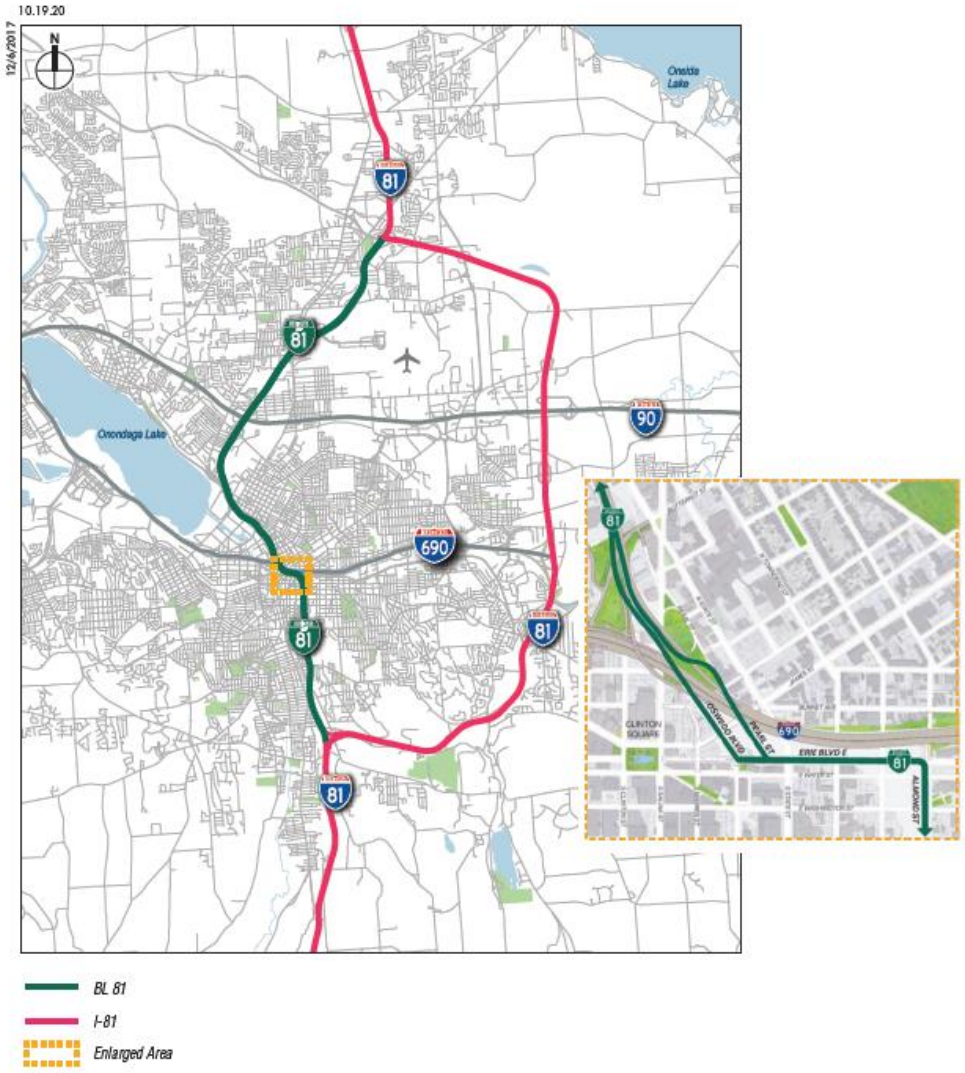

Figure 2 – I-81 Viaduct Project

1.2 Existing Conditions Report

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This document aims to identify the different operational entities, describes their roles and responsibilities, point out areas of improvement with the existing operation, and establish a baseline of existing operations, which will form the foundation of the Strategic Plan as well as the Operations Plan.

Each operational entity has their own detailed understanding of Dome operations for different event types; however, this is not always available in written format, and there is not a single document that describes the interactions of all stakeholders.

Similarly, there are detailed tables on parking accumulation, but there has not been a recent study of the true parking, traffic, pedestrian, transit, and rideshare characteristics for different Dome events

Unlike a traditional traffic study, which includes detailed assessment of capacity analyses at specific intersections, this document is intended to provide a documentation of the major flow patterns and issues on event days, so that these can be addressed in the Strategic Plan and Operations Plan documents, and so that this document can provide a historical record of operations before NYSDOT's implementation of the recommendations from the I-81 Viaduct Project.

1.3 Strategic Plan

The Strategic Plan is intended to provide an overview of recommendations to improve the ingress and egress operation for Dome events. This document will include high-level recommendation categories – such as improved signage and wayfinding, new arrival and departure patterns, roadway reversals and closures, transit connections and off-site parking areas, parking allocations, dedicated rideshare areas, and improved pre-event communication. The strategic plan will provide sample recommendations in each of these areas, lay out the vision for improving operations, and will form the basis of discussion with stakeholders to gather their input towards the development of an Operations Plan.

1.4 Operations Plan

The operations plan will include detailed information on operational elements such as staff allocation and responsibilities, signage and wayfinding, transit shuttles, pedestrian and vehicular travel paths, signage and wayfinding, pre-event communication, and roadway optimization strategies. The intent is for this document to be a vital resource for operators in the field on Dome event days to ensure a logical ingress and egress operations plan for guests. This plan will allow operational entities to check that staff and resource deployment in the field (e.g., traffic control devices) and the traffic, pedestrian, and transit patterns match the plan document. A sample of the type of deliverable in the plan is shown in Figure 3 and Figure 4.

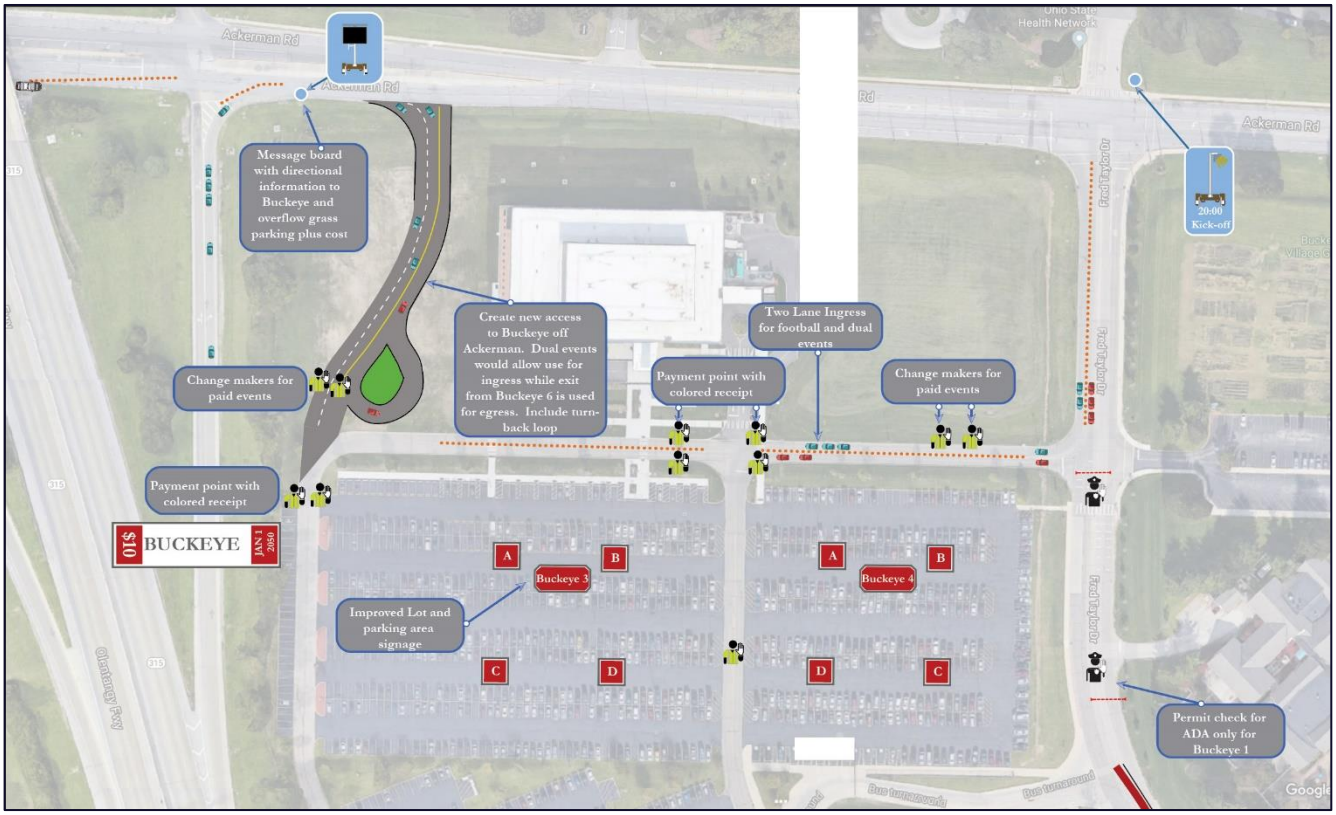


Figure 3: Ingress example for access into parking for the Covelli Center (The Ohio State University)

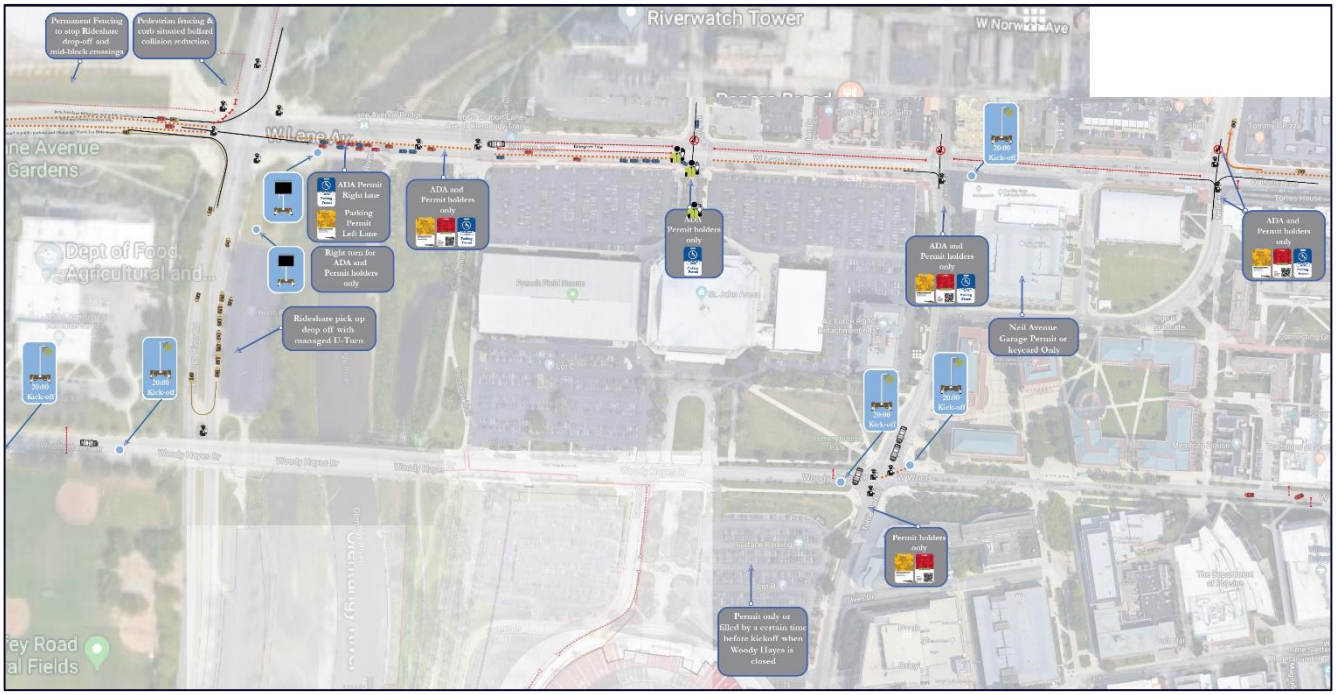


Figure 4: Ingress example for access into parking for St. John's Arena (The Ohio State University)

2 Study Area

The project Study Area is shown in Figure 5 and includes the Dome, the Syracuse University Campus, and the transportation network and infrastructure surrounding the Campus. For the goal of improving the overall guest experience, it is important to look at every aspect of the guest ingress and egress experience. Many travel from locations outside the City for Dome events and some guests park on campus, while others make use of facilities in other locations in the City of Syracuse, such as the Downtown area. For this reason, the project study area includes I-81 north and south of the City, I-481, I-690, the Downtown area, several parking "regions" on the Campus, and major arrival and departure roads, such as Adams Street, Genesee Street, Colvin Street, Irving Avenue, Comstock Avenue, Almond Street, and MLK Drive /Renwick Avenue. The specific zones in the study area that were identified for the analysis of data, is shown in Section 6, Event Profiles.

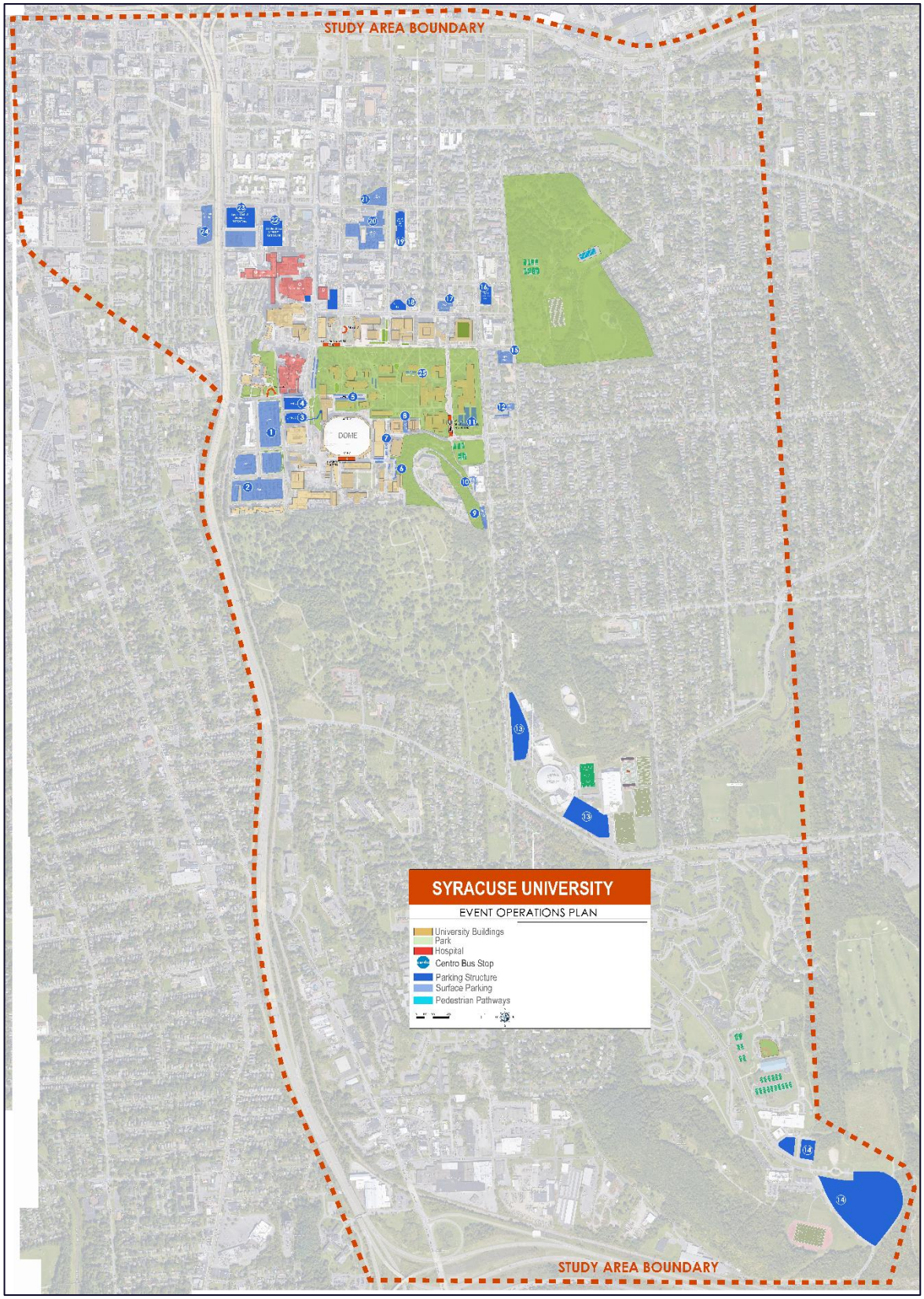


Figure 5: Project Study Area

3 Event Types and Attendance

The Dome has hosted over 100 events per year for each year between 2016 and 2019. The event distributions show the number of events of each type by season, as well as the average and peak attendance. Operational entities such as the Syracuse Police Department and Centro determine the level of staffing based on the event category and the number of tickets sold.

The cuse.com website lists major categories as basketball, football, and lacrosse. Other major events include Monster Jam and concerts. The seating capacity of the Dome is 49,250 persons. Football events are typically the most well-attended, and peak football events have seen attendance levels above 40,000. Men's basketball events have also reached attendance over 30,000 guests. Monster Jam is an annual event that generates attendance between 30,000 and 40,000 guests, and also includes a Pit Party the day before the event with attendance generally less than 5,000 guests. Lacrosse events generally have attendance of less than 10,000 guests.

Based on discussions with stakeholders, concerts and Monster Jam events can generate unique ingress and egress challenges, even at similar attendance levels as football or basketball events. This is partially because football and basketball event attendance includes a large number of season-ticket holders, who are regular attendees and have familiarity with the traffic, parking, and transit operations. Concert and Monster Jam attendees, by comparison, may be unfamiliar with the operations and are more reliant on staff direction, as well as signage and wayfinding. Another contributing factor is that most attendees to Monster Jam and concert events stay until the end of the event, while sports event attendees may depart early, depending on the score. This leads to more concentrated egress departure patterns, and therefore, more congestion.

3.1 Historical Attendance Data

Event attendance data was reviewed from August 2016- March 2020 and is summarized in Table 1, below, by event type. This review encompasses a total of 378 events. All attendance statistics are based on turnstile counts provided by Syracuse University. Section 3.2 discusses the attendance data for each event type in more detail.

Table 1:Dome event attendance by event type (August 2016-March 2020)

Event Type	No of Events	Average Attendance	Maximum Attendance
Men's Basketball	91	12,846	32,251
Lacrosse	74	1,738	7,326
Football	32	20,275	41,820
Concerts	5	12,936	34,876
Monster Jam	3	33,772	35,525
Other*	173	2,633	16,630

Source: Syracuse University (turnstile counts)
* Note "Other" includes convocations, women's basketball, career fairs, high school football, high school band, and other events not included in the table.

Further details on event types are included in Appendix A. Figure 6 shows the number of events by type of event and by attendance categories for all events in the study period

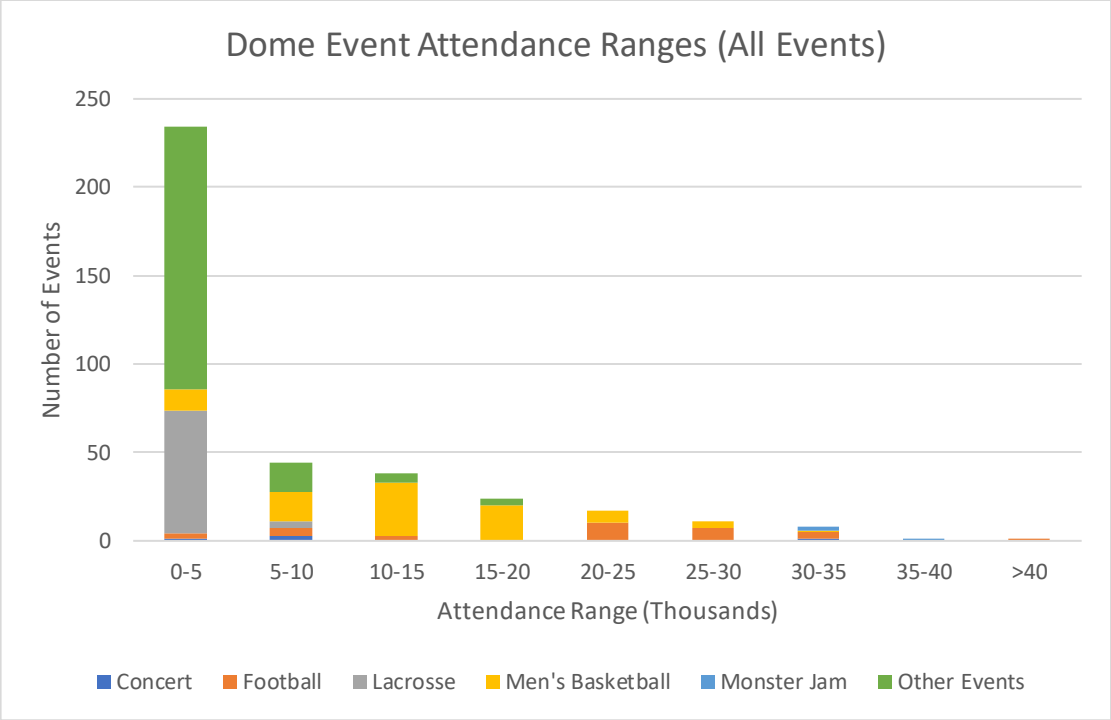


Figure 6: Event Attendance Ranges

Figure 7 excludes events under 5,000 attendance to better show event types at a more appropriate scale.

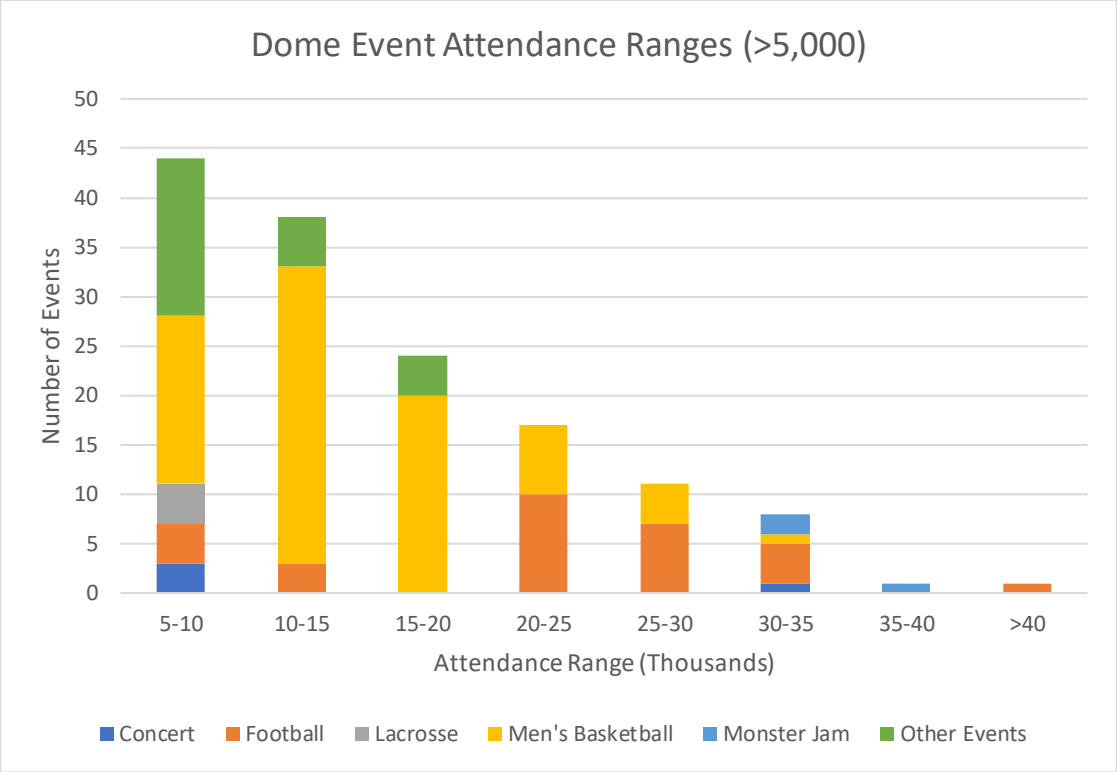


Figure 7: Events Attendance ranges for events with greater than 5,000 guests

The analysis of events provides a basis for developing operations plans for different event types and attendance ranges.

- Most events feature attendance of less than 10,000 guests. When factoring in arrival and departure distributions over the course of 1-2 hours, and different arrival and departure routes, these events are not expected to create a significant event day traffic impact. An operations plan for these events will focus on the options available to make the Campus community aware of these events, and to deploy what may be limited traffic management resources and staff to manage these events.
- Other events in the 10,000-20,000 person range may lead to more noticeable impacts, and may have more dedicated resource and staff management. These events will be categorized into a second event type in the Operations Plan.
- The third event type is 20,000-30,000 persons. Concerts, basketball games, and some football games are in this range. Very few large events are above this range. This type of event will be discussed in the Operations Plan as a third category.
- The peak events are SU football, major concerts, and Monster Jams, and there is usually at least one SU men's basketball event per year that features an attendance over 30,000 guests. An operations plan for these events will focus on the combination of strategies to best manage the circulation patterns on these event days.

Attendance Categories
< 10,000
10,000 – 20,000

20,000 – 30,000
> 30,000

These ranges would allow for flexibility in the operations plans reflecting the available resources (from SU, Police, Centro, and the Dome).

4 Traffic and Origin-Destination Data Sources

The project team has leveraged several data sources to recreate traffic conditions from historical events. At the start of this study, in early 2021, there were no major events with large in-person attendance scheduled at the Dome, so the project team relied on a combination of available non-game day traffic data sources from NYSDOT, event operations data from stakeholders, and smartphone location-based data from AirSage and StreetLight to provide more context for gameday operations.

These data sources provided the project team with an understanding of historical vehicular and pedestrian traffic flows. These sources supplement the anecdotal information on operational challenges provided by stakeholders and allow for a deeper understanding of the quantitative operational metrics on specific event days. Using this information, we can better understand:

1) The relative demand on different types of event days
2) What areas experience the highest demand?
3) Where guests park for different types of events
4) Estimates of the location and duration of congestion
5) Evaluating the differences in traffic patterns between different types of events

4.1 Location-Based Data

Location-based data (LBD) is generated from the movement of smart phone devices which is aggregated and anonymized to provide travel movements by hour of day, day of week, and month of year. This allows for the visualization of traffic flows (for different modes) along roadways, the calibration of data by comparison to traffic counts at specific locations to improve accuracy, and the identification of origins and destinations patterns.
More details on the acquisition, features and analysis of location-based data is contained in Appendix B.

4.2 New York State DOT Traffic Counts

NYSDOT count data was collected to provide a basis for calibrating the LBD. Location-based data provided an estimate of travel demand based on a sample of all travelers who use smartphones. In order to confirm the accuracy of this data, it requires to be calibrated against actual historical count data. NYSDOT's online portal provides a repository of traffic counts throughout the region against which calibration can be performed.
The calibration process is described in more detail in Appendix C

5 Stakeholder Input

Throughout the process of developing this plan, stakeholder input has been a crucial part of understanding event day operations. We have coordinated with numerous stakeholders to understand the event day travel patterns, their goals for a revised Operations Plan, and any concerns about the existing operation. The Engagement Section describes the coordination calls with specific stakeholders that addressed:

- Available game day resources
- Constraints to event day operations
- Current modifications to the transportation network for events– lane configurations, signal timing override, transit routes, parking areas
- Requests the stakeholders have made from other entities in the past that could help event day operations, which may or may not have been adopted
- Feedback from the traveling public on operational concerns regarding the event day operation
- Event day communications protocols
- Emergency management planning tools, services, or exercises
- Guest communication methods – direct communication, from the University, via season ticket holder mailings, and indirect communication methods, such as rideshare apps, signage and wayfinding, staff to provide direction

5.1 Stakeholder Engagement

An active community involvement plan is crucial for the success of any project. The goals of the public engagement for the Dome's Strategic and Operations plan are similar to the goals laid out by SMTC in its Public Participation Plan, and are listed below:

- Understand the issues and concerns in relation to the Dome activities
- Seek input from the community about opportunities and possible solutions
- Present ideas and receive feedback
- Build community support for final plans and recommendations

The public engagement for this plan includes three focus areas of participation namely the Study Advisory Committee, coordination with stakeholders (focus groups) within the Dome area, and the general public that include patrons attending the Dome for different events.

5.1.1 Study Advisory Committee

Individuals, groups, or organizations that are affected by the activity at The Dome were identified to engage in the development of this plan. Involvement of stakeholders early on is crucial to gain an understanding of the event day operations and associated challenges. All SMTC Planning Committee members as well as Syracuse University were invited to participate on the Study Advisory Committee (SAC). The following agencies/organizations participated on the SAC:

- Central New York Regional Transportation Authority (CNYRTA/Centro)
- New York State Department of Transportation (NYSDOT)
- City of Syracuse Office of the Mayor
- City of Syracuse Department of Public Works

- City of Syracuse Police Department
- Syracuse University (Public Safety and Dome Operations)

An initial SAC meeting was held in March 2021. Additionally, small group meetings were held with SAC representatives and other individuals from their organizations to gain more insight and a deeper understanding of existing event day operations and communications. This helped the project team gain a better understanding of how Dome area stakeholders plan, implement, and operate during different events at the Dome. Below is a summary of discussion topics in each of the stakeholder meetings:

City of Syracuse: The meeting focused on understanding the City's response to special events at the Dome such as signage and wayfinding, understanding the use and operation of City-owned parking facilities in Downtown as well as the University Hill area; as well as traffic signal coordination for ingress and egress. The City staff expressed their preference on encouraging and increasing multimodal usage, thus reducing car ridership that would reduce congestion during game day operations.

Centro: The meeting focused on understanding Centro's adjustments during special events and Game Day operations. Centro is contracted by Syracuse University to operate the parking shuttles, which is Centro's primary role in event day operations. Further discussion included on understanding the response and operations for different types of events by Centro. Centro also provides Game Day shuttles for Saturday night men's basketball games. Centro staff identified the areas of concern from their perspective during their game day operations and provided some suggestions on improving the bus operations, specifically for special events.

Syracuse Police Department: The Police support the on-the-ground traffic management during the ingress and egress for Dome events. They provided the locations of intersections managed by the Police as well as input on in-field operations in terms of traffic and pedestrian flows, key intersections, parking and other concerns related to Dome events.

SU Parking and Transit Department: The Parking and Transit department plays a vital role in the coordination of events throughout the Campus. While the University maintain a calendar, there have been times when there are conflicting events that impact the travel patterns near the Dome. Topics discussed at this meeting included pre-event signage, street closures, game day parking regulation, temporary traffic signal override managed by Police, rideshare pick-up/drop-off location, private parking in the vicinity, staff shuttles, event day staffing, and other Campus transit options.

SU Emergency Management: This meeting focused on understanding the emergency management protocols and procedures followed for Dome events. The Dome internal command center is used for smaller events, while there are additional mobile ones used for larger events. Further understanding of traffic diversion, coordination between agencies, as well as goals and concerns were discussed.

Dome Organization: This meeting mainly focused on the overall event management which included understanding of event typology, event parking permits, pre-event coordination, staffing levels in the Dome and in surrounding areas, attendee feedback, and pre/post event parking rules and enforcement. The Dome gets feedback from the attendees via a guest survey and staff shared the results of the latest survey.

5.1.2 Dome Stakeholder Focus Groups

In addition to the SAC members, smaller working groups of those who were directly or indirectly involved in the operations at The Dome were identified. The project team interviewed a number of stakeholders. The goal of the interview process was to gain an understanding of how different events at the Dome operated and affected the stakeholders. The stakeholder groups were divided into focus groups that included the businesses and institutions located in close proximity of the Dome. Additionally, neighborhood associations in the proximity of the Dome and the Campus were also shortlisted for outreach as the project progresses, and the existing conditions report, strategic plan, and operations plan are developed.

Stakeholder/Focus Groups included the following participants:

- Centerstate CEO
- Syracuse Housing Authority
- Other educational institutions (SUNY ESF, Upstate Medical University)
- Healthcare (Crouse Health, Upstate University Hospital, Syracuse VA Medical Center, Hutchings Psychiatric Center)
- Business and economic development (, East Genesee Regent Association, Crouse Marshall Business Association)
- Ronald McDonald House
- Collegian Hotel & Suites
- SUNY College of Environmental Science and Forestry

The following questions were discussed at the focus group meetings:

1. What are the current issues associated with traffic in the area of the Dome, both during events and on a regular basis (non-event day)?
2. What opportunities do you see for improvements in traffic management around the Dome, in the context of a reimagined I-81 Viaduct?
3. What other challenges and opportunities in the area of the Dome affect the traffic management in the vicinity?
4. What alternative modes are you aware of? What would encourage people to use those modes?
5. Has parking been an issue during Dome events – on weeknight events as well as weekend events? What are your thoughts on improving the situation?
6. Are there certain “pain-points” in terms of traffic in the Main campus area? How do you think we can mitigate it?
7. What does a successful traffic management and event strategic plan look like to you?
8. Who else should we talk to?

5.1.3 Public and Guest Surveys

In order to solicit comments on the general experience of the Dome events, guest participation was also undertaken. The University conducts an annual guest survey that includes several questions about the guest experience, including questions about the ingress and egress experience. The latest results from the 2020 Football Survey were provided to the project team. The majority of respondents were season ticket holders, and many expressed concerns about the traffic and parking experience. The majority of responses indicated satisfaction with the traffic flow entering and exiting the Dome and surrounding

areas to and from events, although some did cite ingress and egress flow as a reason for not renewing their season tickets.

In addition, the project team provided a public survey to the University and SMTC for public distribution and feedback. A total of 168 responses were received during the collection period of September 21st, 2021, to November 28th 2021. The survey generally covered the type/amount/year of events respondents attended, travel mode/route/timing, parking location/price, and shuttles. Below are the responses for the four key travel sentiment questions.

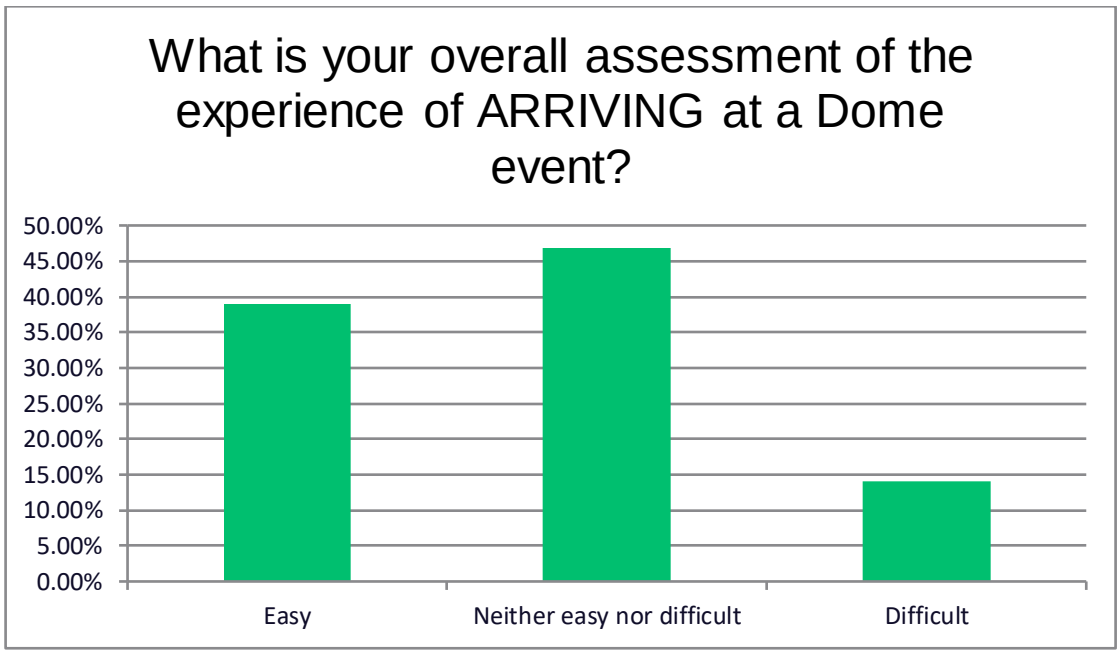


Figure 8: Survey Response - Arrival at Dome

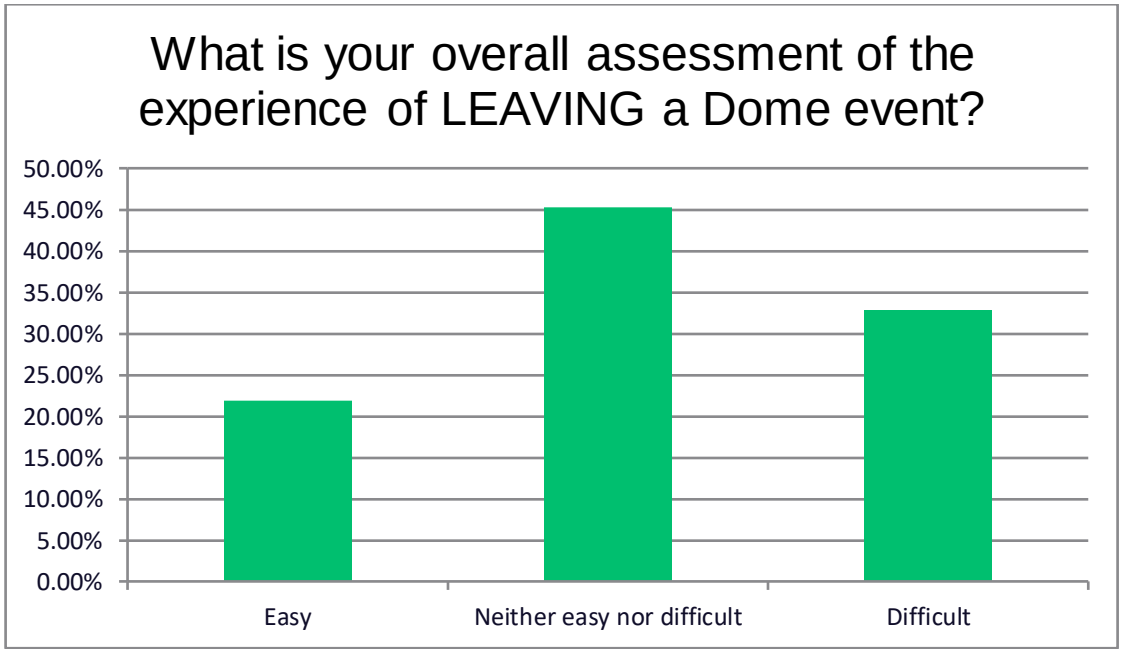


Figure 9: Survey Response - Leaving Dome

Figure 8 and Figure 9 show attendee sentiment verifies the project team's observations that egress from events is more difficult than arrival.

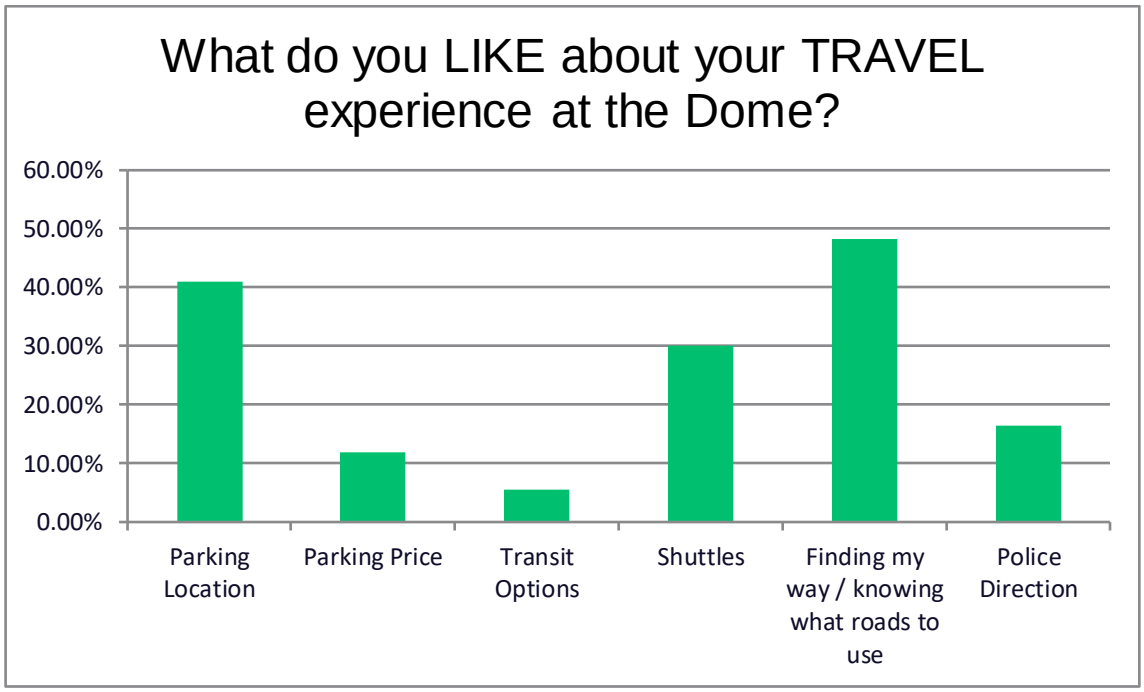


Figure 10: Survey Response - Like About Travel

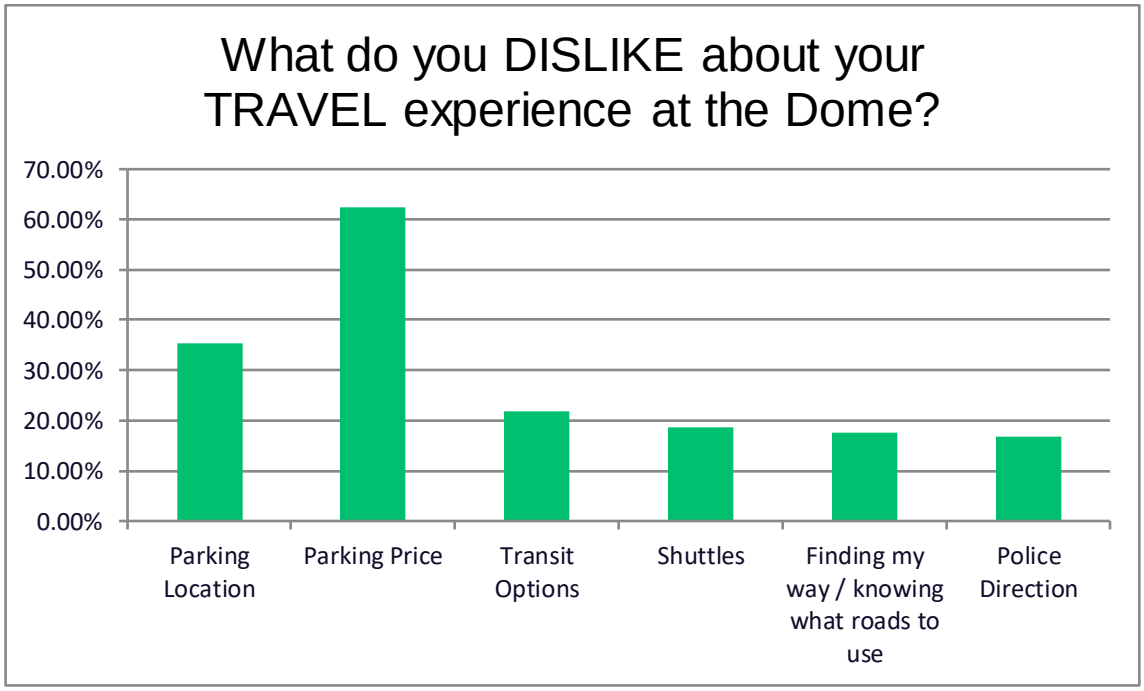


Figure 11: Survey Response - Dislike About Travel

Figure 10 shows the travel aspect attendees like the most is "Finding my way / knowing what roads to use", while Figure 11 shows the travel aspect attendees like the least is parking price. Looking at both of the above figures, parking location is the most divisive topic.

5.2 Summary of Stakeholder and Public input

In general, stakeholders have found ways to work within the existing transportation plan during gameday or event days but recognize there may be ways to improve the experience. Stakeholders are cautious of changes that have potential to create new problems or exacerbating existing issues. Current transportation pain points are mostly related to general commuter peak periods, though they are present during events as well due to the location of the issues. Event transportation strain exists but is not considered unbearable compared to day-to-day issues. There is an appreciation by the stakeholders for what Dome events bring to the community.

Strengths:

- Marked emergency vehicle (ambulances and police) access during event traffic is satisfactory due to police-directed intersections allowing immediate priority for those vehicles.
- Businesses have an opportunity to profit from additional potential customers coming to the area for events.
- Police involvement and assistance with traffic control during events is seen as critical and favorable by all stakeholders, especially medical facilities.

“Pain-points”:

- Medical facilities expect some fans to try to park in their structured parking facilities, and have tried to counteract a small volume of illegal parking (less than 50 vehicles) with subsequent ticketing (many times issued by their own authorized staff).
- Businesses have a difficult time receiving deliveries both during events and outside event times.
- Employee access during event times is an issue for most stakeholders (hospital shift changes, additional emergency department (on-call) staff, business employees).
- Street parking is always in high demand and vehicles must circle to find spots. This can add to the congestion.
- Meters are not enforced on the weekends, so street parking is utilized by all-day employees rather than for business patrons.
- Signals overridden by Police are not always returned to a normal post-event operation after the egress period.
- Insufficient signage to direct vehicles to event parking.
- Insufficient Centro drivers to cover all desired services.
- Insufficient Police Officers to voluntarily cover all desired services (inside the Dome and at intersections).
- Infrequent or first-time event attendees will follow GPS directions to the Dome which does not bring them to the appropriate parking locations.
- Current operations are not well documented, mostly institutional knowledge
- Adams Street is a key arterial for flow in the area and is easily congested.
- Events that are not college sports are the biggest pain (high school events/sports, concerts, monster jam) because these events have the most attendees that are unfamiliar with the area.
- The Irving/Adams light red light in winter causes issues because it is almost impossible to start on that hill in the snow. Vehicles will speed to make the light.
- Speeding on Almond St.
- Confusing lane assignments on Harrison Street
- Illegal parking in restricted use lots.

- Overall parking shortages

The following requests/suggestions were made by stakeholders:

- Businesses would like to have more opportunities to profit from additional potential customers coming to the area for events.
- More public transit options, for both non-event trips (employees, customers, patients, etc.) and for event attendees.
- Consider transitioning very limited number of street parking spaces to loading zones in areas with businesses.
- One way conversion of streets for ingress and egress is desirable. Ainsley to Brighton is a potential route. Comstock between Euclid to University (or Waverly) would be good especially for busses.
- Use the TMC to manage traffic lights during events.
- Restart train service from mall & armory square to campus west side (OnTrack).
- Open city parking garages during weekend events.
- Run the free Connective Corridor Centro route during events.
- More park-and-ride options.
- Operations plan should be “user friendly” and provide real guidance rather than be “another report that sits on a shelf”.
- More parking within walking distance to the Dome
- More carpooling.
- More biking since new facilities have already been installed.

6 Event Day Traffic Profiles

6.1 Overview

Streetlight data for the November 9, 2018, football game against Louisville was examined in detail to understand event day travel patterns. This was a Friday night game that was a typical, but not peak event, with attendance similar to other large events such as Monster Jam, a concert, or a major basketball event.

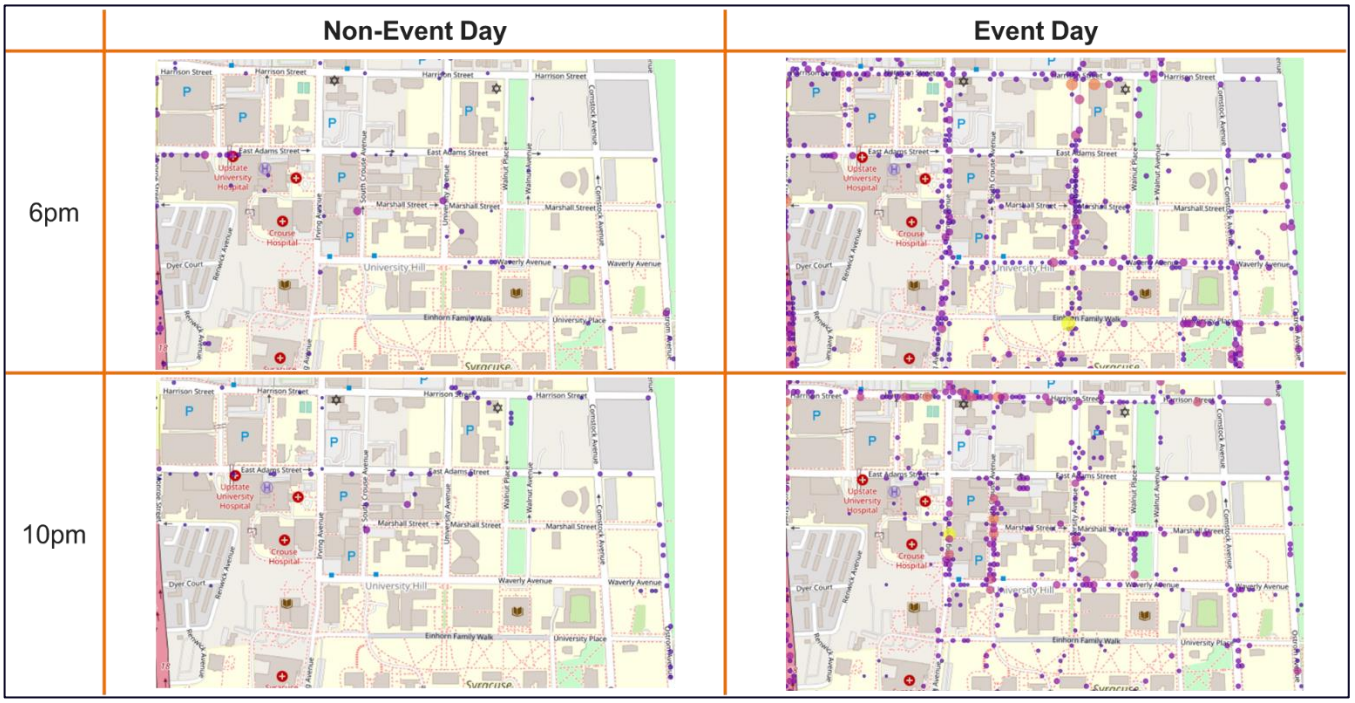
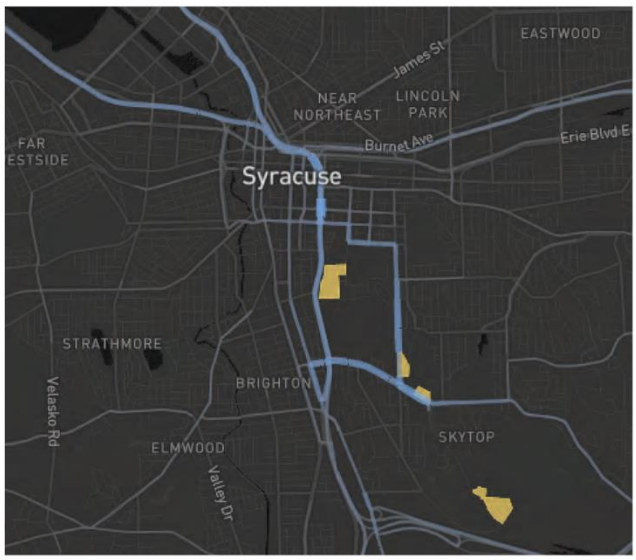
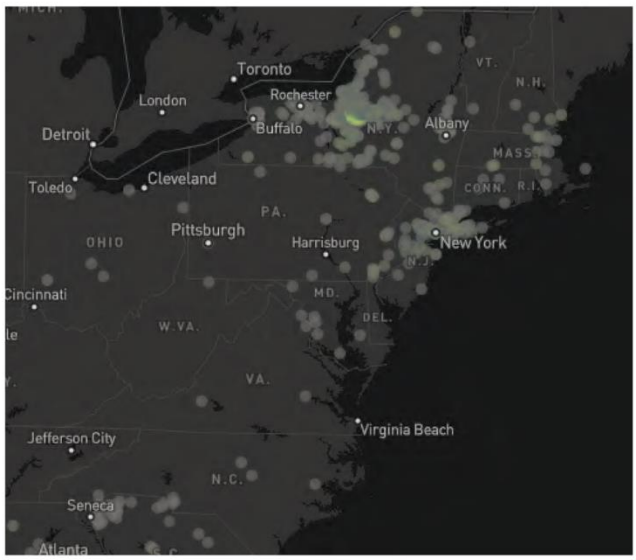


Figure 12: Example of the use of AirSage Data in the North Campus Area During an Event



Source: Streetlight Data. Reflecting Sept. 14, 2019 Syracuse v. Clemson game event—arrival and departute traffic routes mapping



Source: Streetlight Data. Reflecting Sept. 14, 2019 Syracuse v. Clemson game event—origin locations of attendees

Figure 13: Example of use of StreetLight Data Usage

6.2 Local Trip Estimation

Using Streetlight Data, a zone activity analysis with home location grids was used to understand the share of trips to the Dome from nearby residents. It is very likely that the majority of these trips are undertaken by walking or biking, however, it is not possible to confirm this with the Streetlight platform. To analyze this, the home grid locations for travelers to the Dome and major parking lots was used. The Streetlight platform divides the study area into a grid of 1000 meter (3,280ft) rectangles, and assigns the home locations to these grids based on the location of the smartphone during the overnight hours of the previous few months. The home grid analysis is shown in Figure 14 below. The grids are shaded in green in accordance to the number of guests that attended a Dome event and which have a home location in these rectangular grid areas.

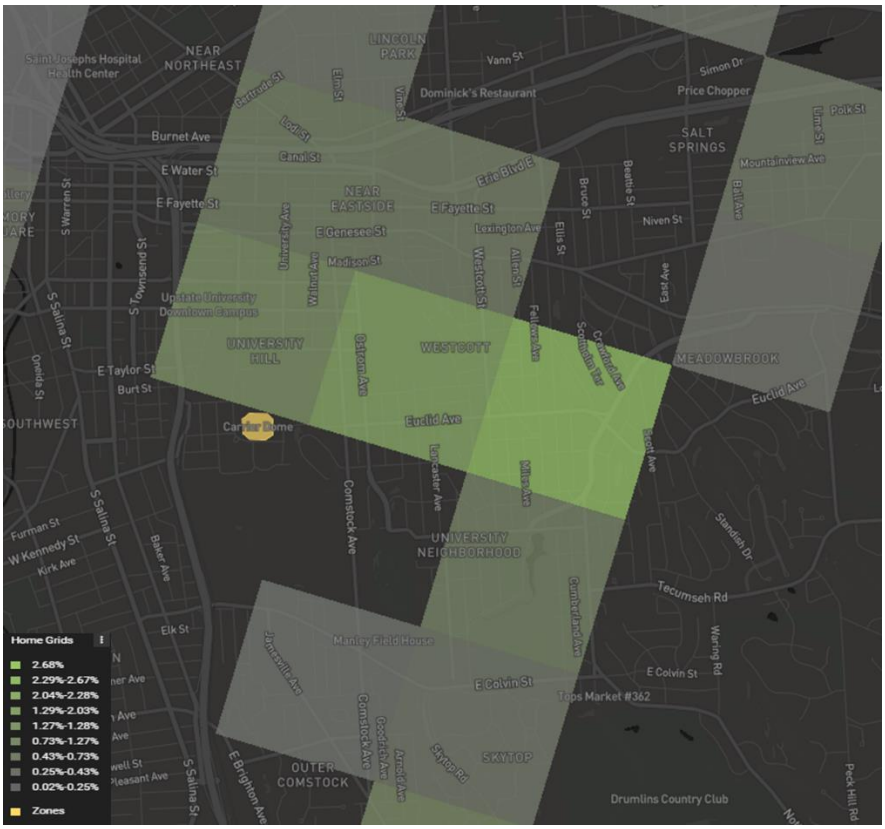


Figure 14: Using the Streetlight platform to determine the share of short or localized trips to the Dome.

In aggregate, the zones shown above that represent the Campus and surrounding areas, comprise between 10-20% of all travelers. These are travelers that likely walk or bike to Dome events; therefore, it was assumed that 15% of attendees for this event arrived via walking or biking, representing a trip distance between 1 and 2 miles or a walk duration of 20 and 30 minutes.

6.3 Mode Share Estimation

Based on the above estimation, the following table shows how the vehicle trips have been derived for this event.

Table 2: Estimated Trip Volumes for November 9, 2018 Event

Event	Football: SU vs Louisville
Date	November 9, 2018
Attendance	33,904
Local (Walk/Bike) %	15%
Local Trips (Walk/Bike)	5,086
Estimated attendees arriving by other modes	28,818
Estimated Increase in Automobiles on Event Day (assuming average occupancy of 2.5 per vehicle)	13,400

It should be noted that the mode share of other modes such as transit, rideshare and coaches were found to be insignificant.

6.4 Points of Interest – Key Roadways and Origin-Destination Zones

As noted in Appendix B, the major destination zones that were identified for this study are shown in Figure 15 below. Destination zones include major parking lots or parking regions. Key roadway links and entry and exit points into the Campus were also identified.

Origin-Destination Zones

The major origin-destination zones include parking areas on the Campus environment. Because it is not practical to analyze every individual parking parcel, the Campus was subdivided into several “zones” encompassing on- and off-street parking areas for the purpose of reviewing location-based data activity estimates. Specific zones were also established for the highest volume destinations, including The Dome, Skytop, Manley and Stadium West.

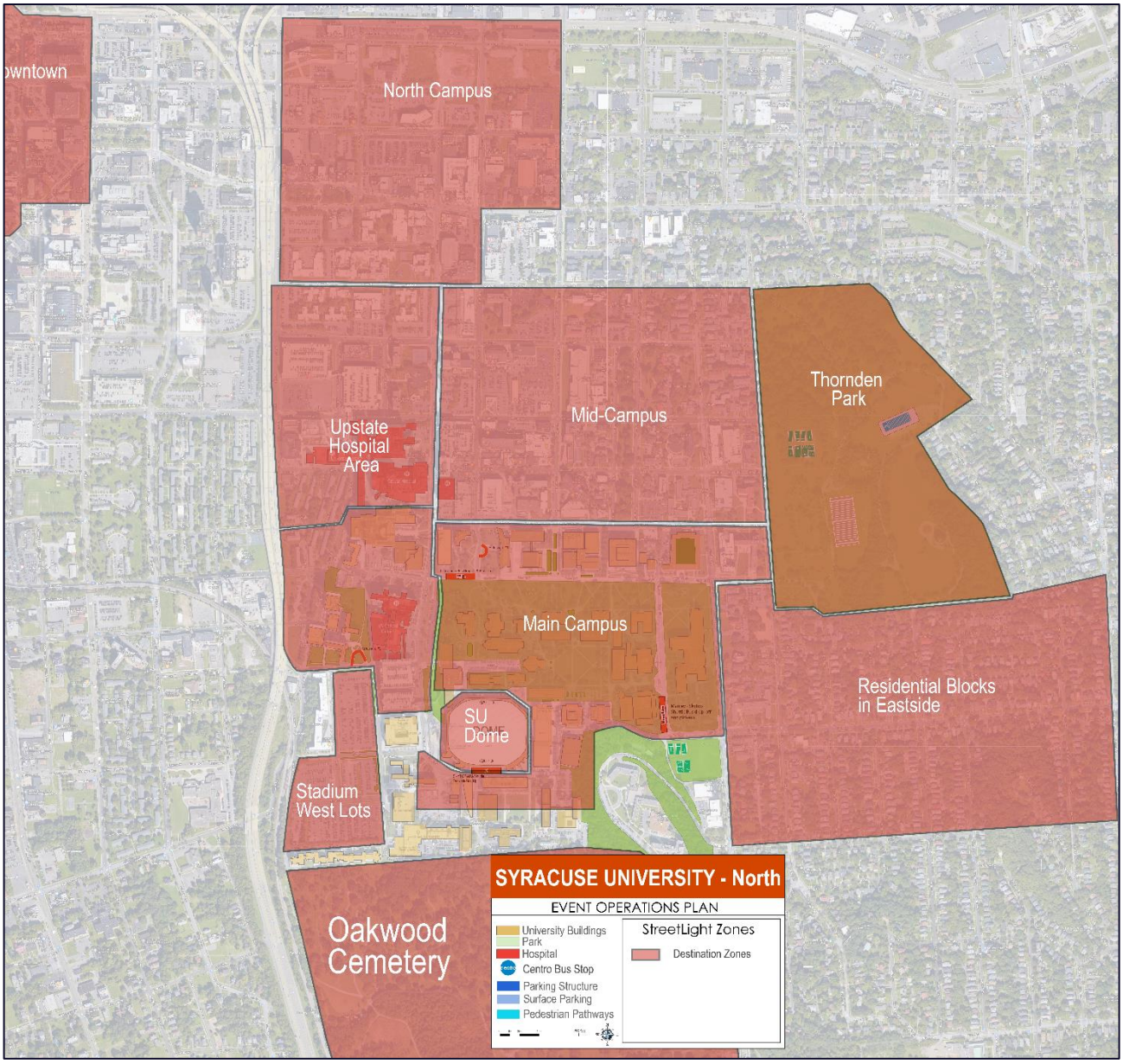


Figure 15: Origin-Destination zones – North Campus

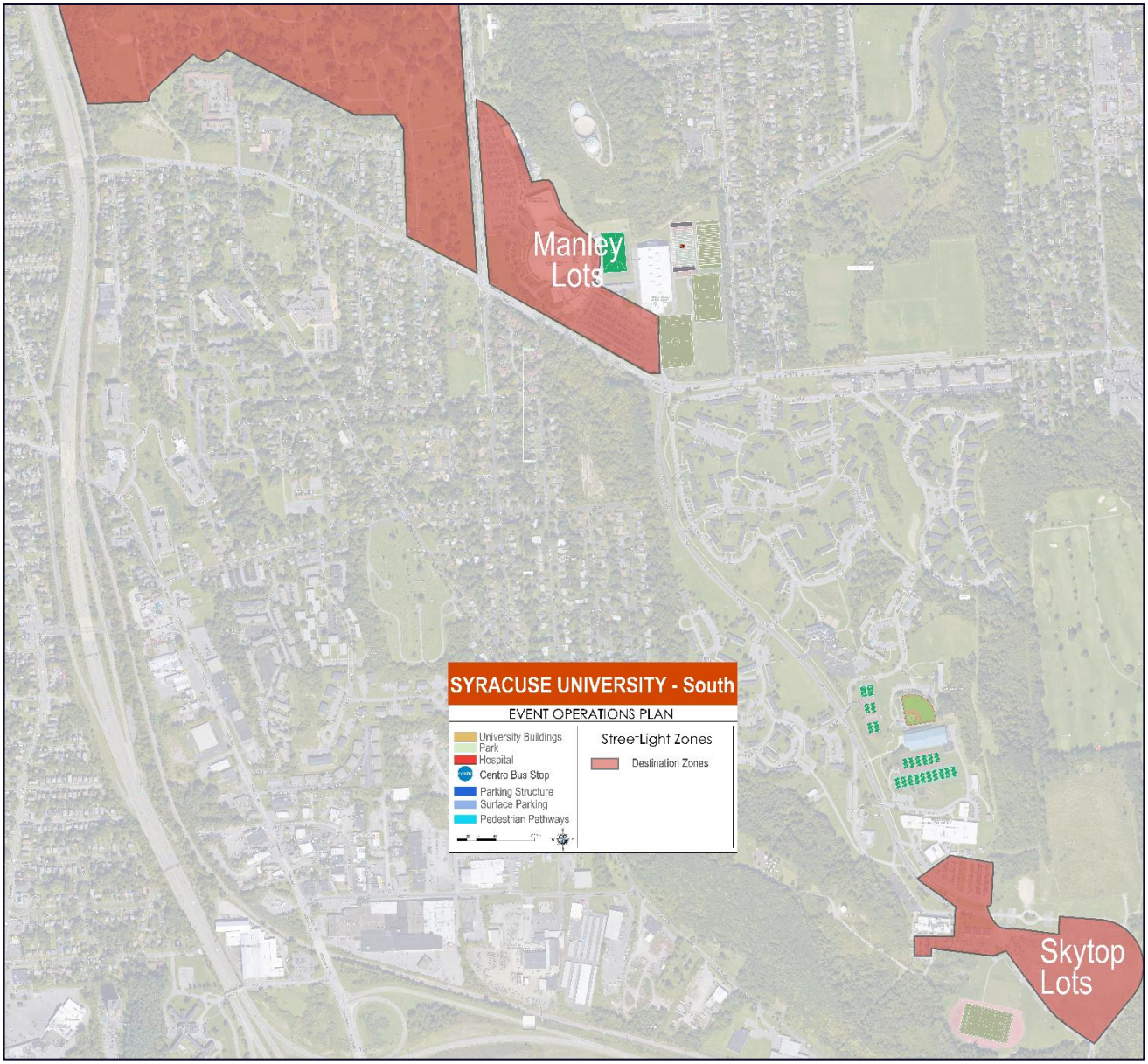


Figure 16: Origin-Destination zones – South Campus

Arrival and Departure Routes

In addition to origin-destination areas, it is also important to identify the major arrival and departure routes for analysis from the location-based data platforms. This includes critical roadway links on the approaches to Campus and the major entry points. This helps track how people from different origins enter the study area and how they move towards parking venues. The following entry points were selected for analysis of incremental event day traffic activity:

1. Adams Street East of I-81 EB
2. Ainsley EB
3. Brighton EB
4. Colvin East of Meadowbrook WB
5. Colvin East of Moore EB
6. Euclid East of Comstock WB

7. Genesee West of Irving EB
8. Harrison EB
9. I-481 SB Towards Dome (south of Route 5)
10. I-690 EB Towards Dome
11. I-690 WB Towards Dome
12. I-81 NB Towards Dome
13. I-81 SB Towards Dome
14. MLK EB
15. University Place WB

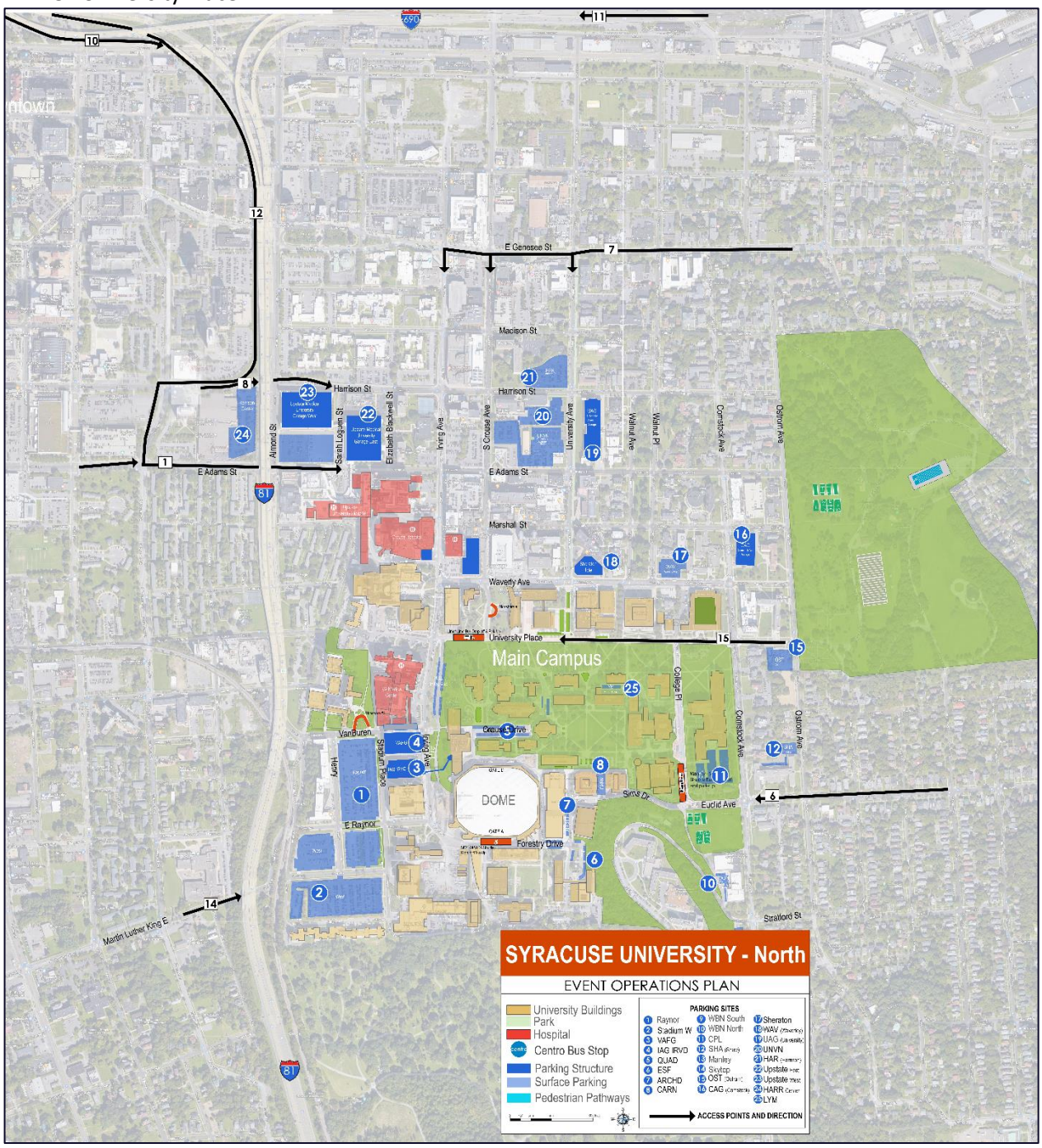


Figure 17: Campus Access Points North Campus

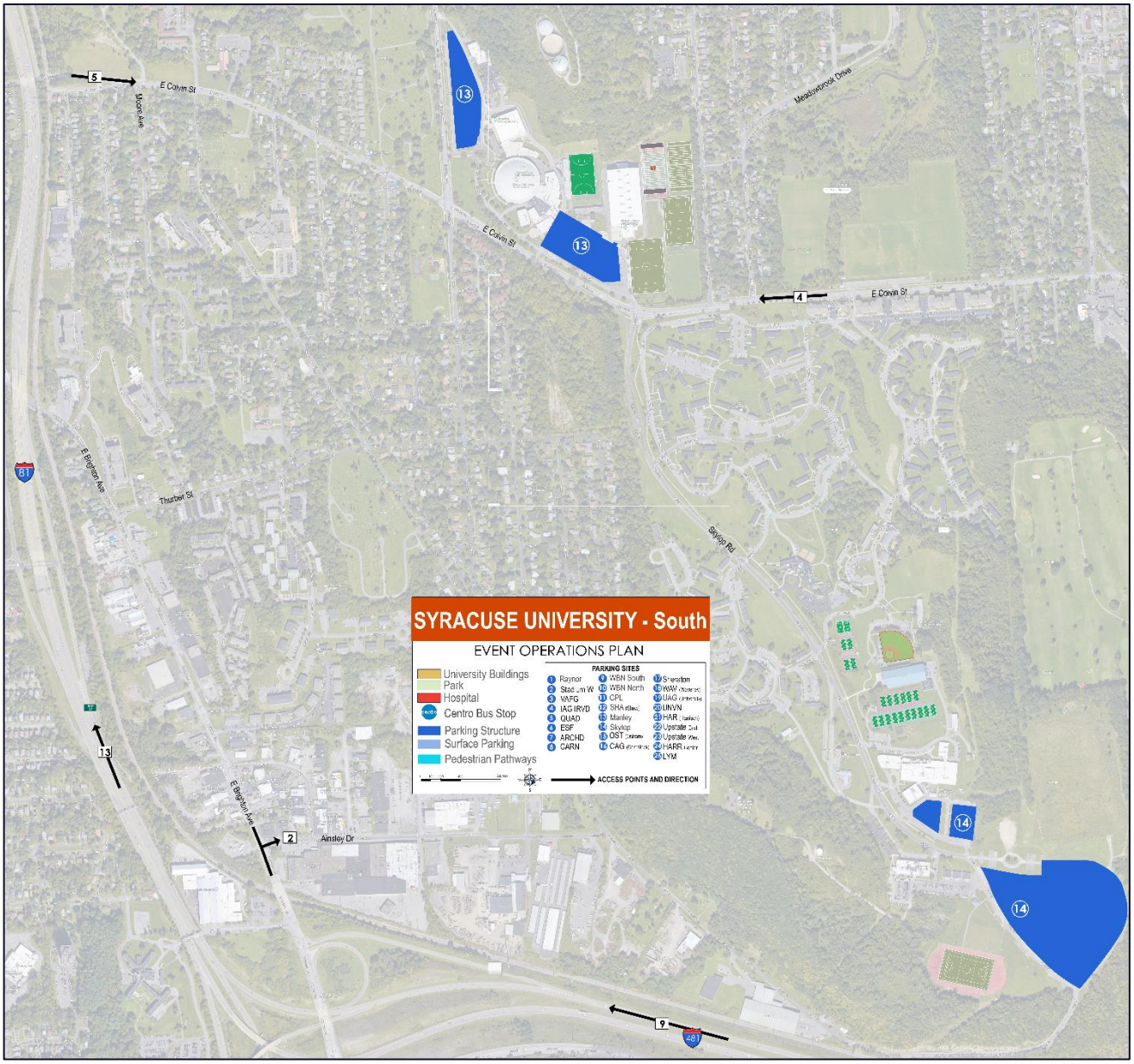


Figure 18: Campus Access Points South Campus

To adequately reflect actual travel patterns, it was assumed that 20% of the traffic on the east-west roadways into the study area arrived on the Campus via local roads, but did not use one or more highways. These are trips that may have started west of I-81, for example. The remainder arrived on the Campus environment via one or more highways. This reduced the incidence of double counting. For example, of all the event day incremental traffic on Adams Street, 20% was assumed to arrive from the areas west of I-81, and 80% were assumed to arrive via I-81.

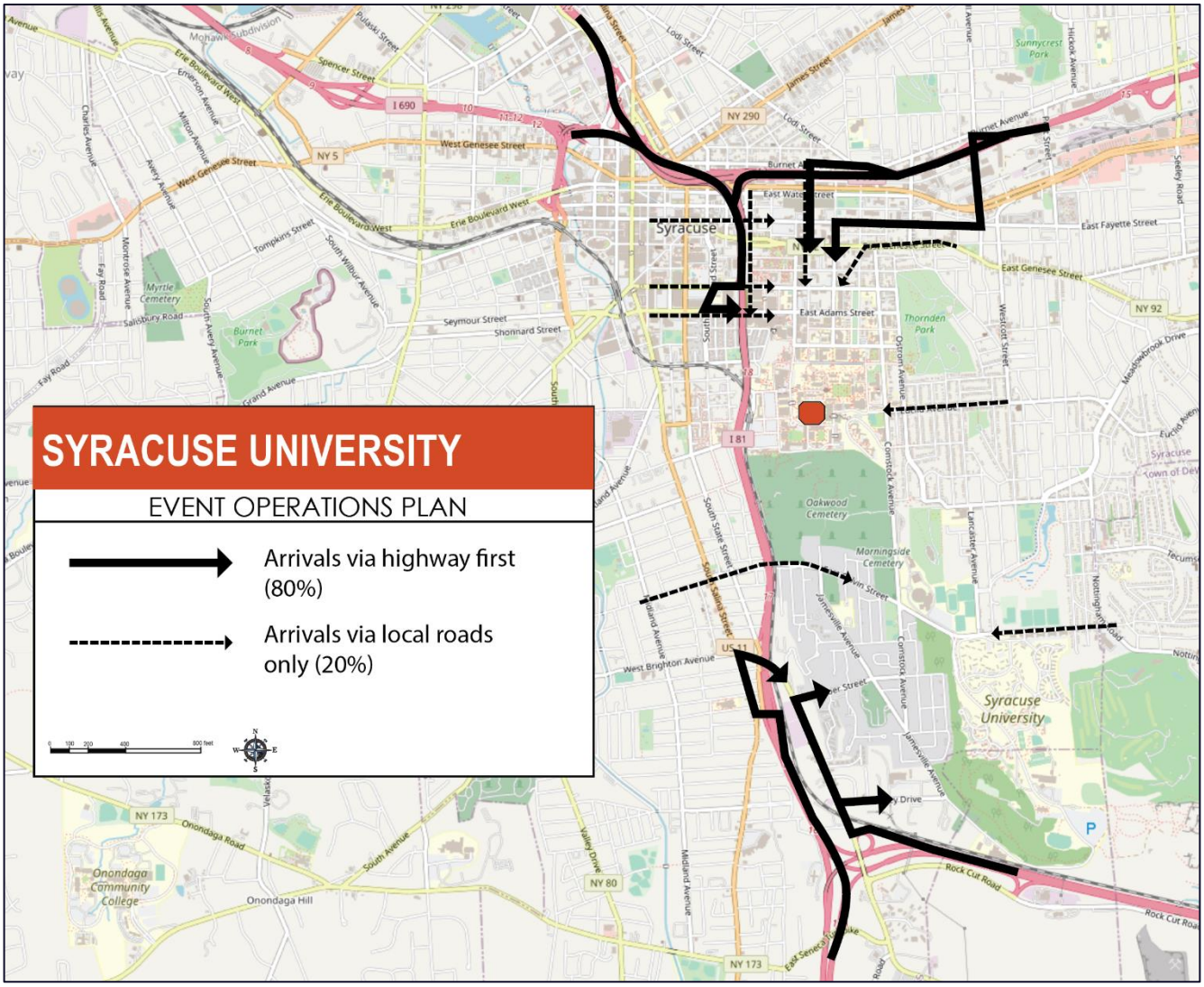


Figure 19: Local Only versus Highway First access to Dome

By examining the travel demand at the roadways identified above, it is possible to estimate the increment of gameday demand. As noted above, the Syracuse football game against Louisville attracted 33,904 guests, and the estimated gameday increment in vehicular traffic was 13,400 vehicles.

6.5 Conclusion

The event day traffic profile for a 30,000+-person event suggests that approximately 15% of the trips started in the residential areas near the Campus. Most of these visitors are expected to bike or walk to the Campus based on the short distance however this cannot be verified with the existing data sources.. This leads to some 29,000 visitors using other modes. While it is not possible to break out the arrivals by transit or rideshare from the location-based data platform for an individual event day, it is possible to estimate vehicle trips by examining the increment in trips between event and non-event days. Based on these estimates, there were some 13,400 additional vehicles approaching the Campus on an event day. A list of parking areas, approach roads, and access points into the Campus was developed for further analysis with the location-based data platforms.

7 Impact of Event Day Traffic

7.1 Overview

Event day traffic conditions affect each roadway in different ways, in terms of the magnitude of traffic demand, the impact to travel speeds, and the duration of the impact. This analysis examined traffic volume data, using the Streetlight platform, at five locations on the regional Interstate highway network and 20 locations on other nearby street.

The November 9 football game selected for this analysis represents a typical peak event with high attendance, for which both Streetlight and Airsage data were available, and it represents a reasonable (but not absolute) worst-case attendance condition, similar to major concerts, peak men's basketball events, and Monster Jam events. This game kicked off at 7pm.

The event day hourly traffic volumes were compared to the typical non-event Friday traffic volumes for the same time periods. The maps in the next two sections summarize this analysis, indicating the magnitude of additional traffic at each location for each hour from 3:00 p.m. to 9:00 p.m. (ingress) and from 9:00 p.m. to 12:00 a.m. (egress).

7.2 Ingress comparison

Event day activity generates significant changes in traffic patterns, compared to non-event day patterns. On ingress, an increment in traffic is observed at some locations as early as 4 PM. On the regional roadway network, the largest sustained increases in traffic were observed on I-81 SB and I-481 NB towards the Dome, which experienced increases in the 5 PM and 6PM hours. There was a noticeable increase in traffic along I-690 EB and I-81 NB, however for at least one hour during the ingress period. Figure 20 and Figure 21show the hours and magnitudes (small, medium, and large) increments in event traffic, compared to a non-event Friday. The increment ranges are all in absolute terms. A small increment is any location that is less than 500 vehicles, a medium increment is 500-1000 vehicles, and a large increment is over 1,000 vehicles in an hour.

Figure 20: Incremental Traffic Increases on Regional Roadways during Ingress

The roadways around the Campus also experience an increase in traffic for several hours. Traffic increases were observed for three or more hours during the ingress period on Comstock, Euclid, Colvin approaching Comstock in both directions, Adams, Irving, and Genesee. Many of these locations experienced an increment in traffic between 5 PM and 7 PM. Other approach roads also experienced an increase in traffic, but not necessarily for an extended period of 3 or more hours.

The bounding range for small (S) is an increment less than 500, medium (M) is increment between 500-1000 and large (L) is increment greater than 1000. We define increment as the difference between a typical day and event day trips.

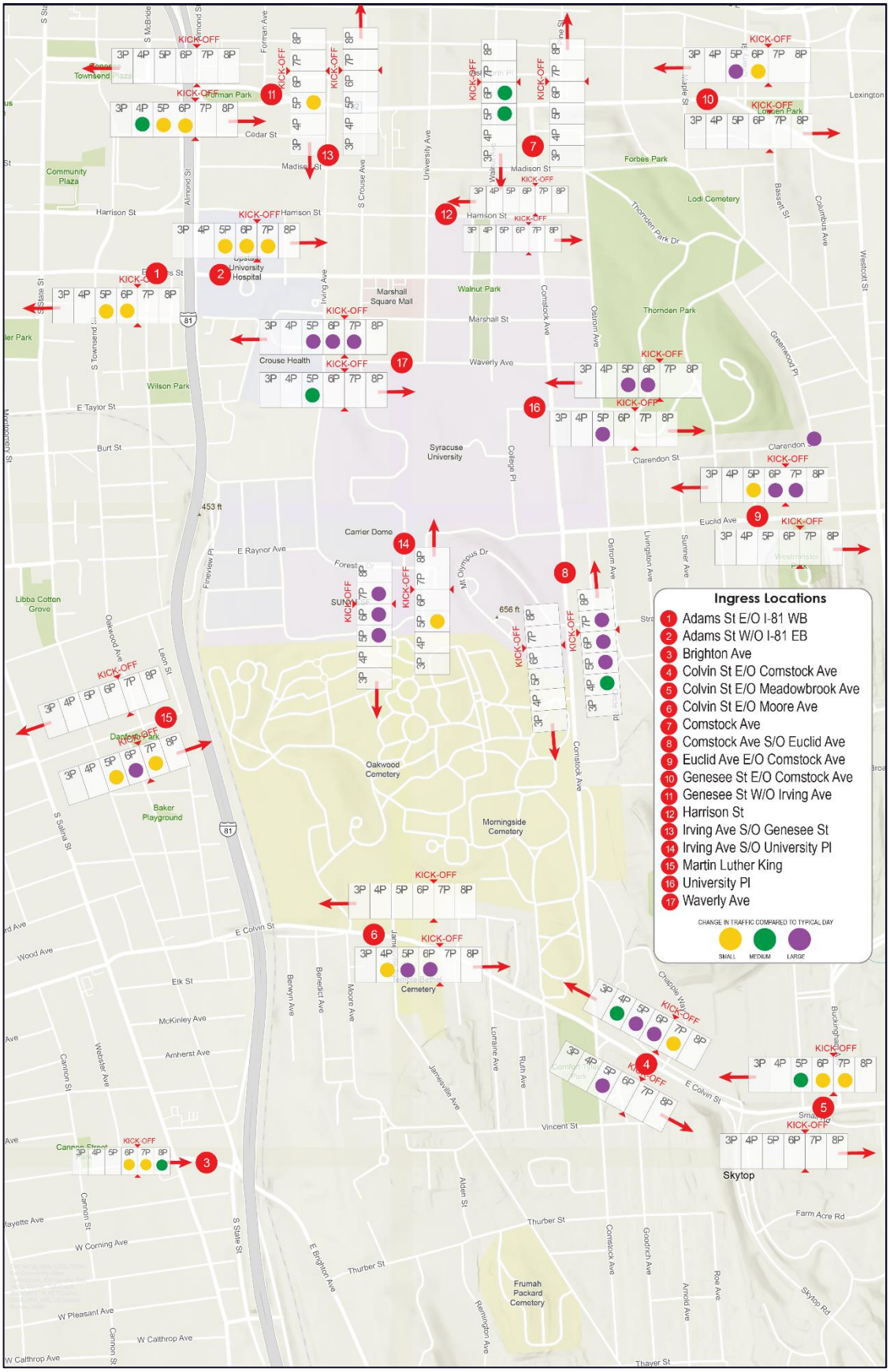


Figure 21: Incremental Traffic Increases on North Campus Local Roads during Ingress

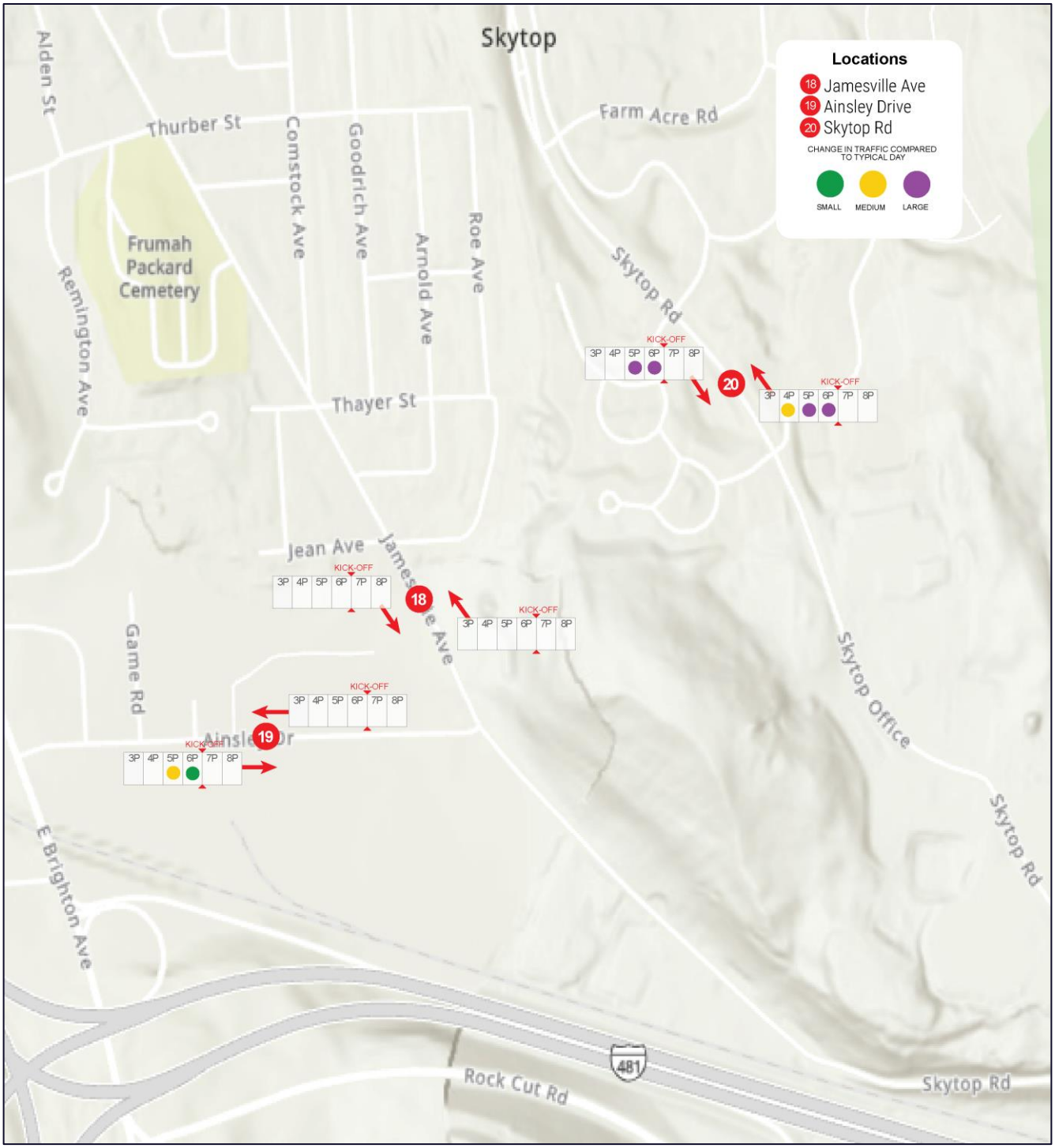


Figure 22: Incremental Traffic Increases on South Campus Local Roads during Ingress

7.3 Egress comparison

Egress patterns on the regional roadway network included increments on several roadways in the 10PM and 11 PM hours. The 690 WB exit movement and I-81 NB exit movement experienced peaks lasting two hours. I-690 EB, I-481 NB, and I-81 SB all experienced event-related traffic in the 11 PM hour, but not the 10 PM hour (see Figure 23). The end of the game was around 10 PM, so this suggests that traffic may have been delayed exiting the Campus before it arrived on these regional roadway locations.

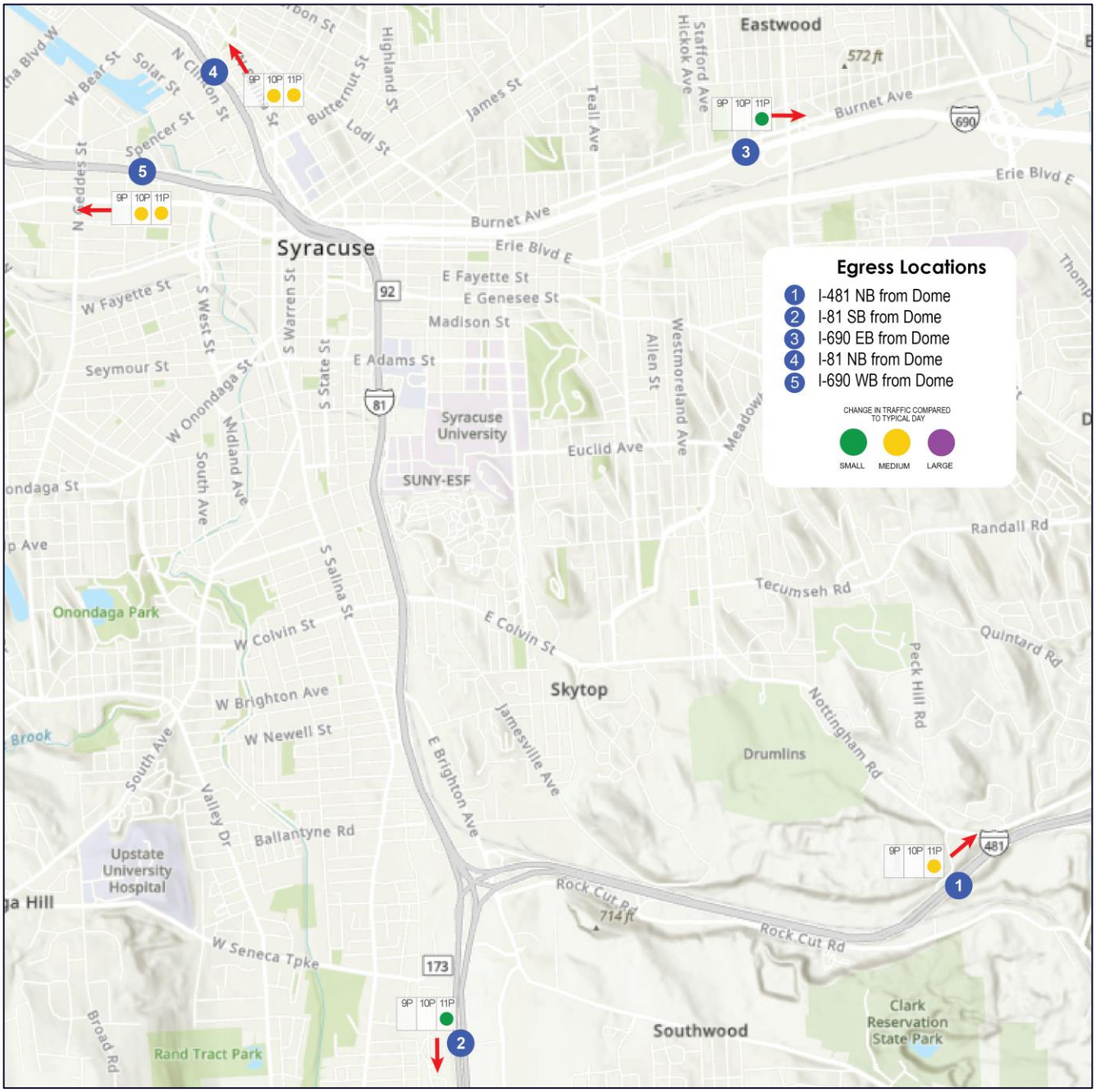


Figure 23: Incremental Traffic Increases on Regional Roadways during Egress

Traffic on the local roadway network confirms a departure pattern that spanned the 10PM and 11PM hours. This includes significant traffic on Colvin, Comstock, Euclid, Harrison, MLK, Irving, Waverly, and Genessee during the 10PM and 11PM hours (see Figure 24).

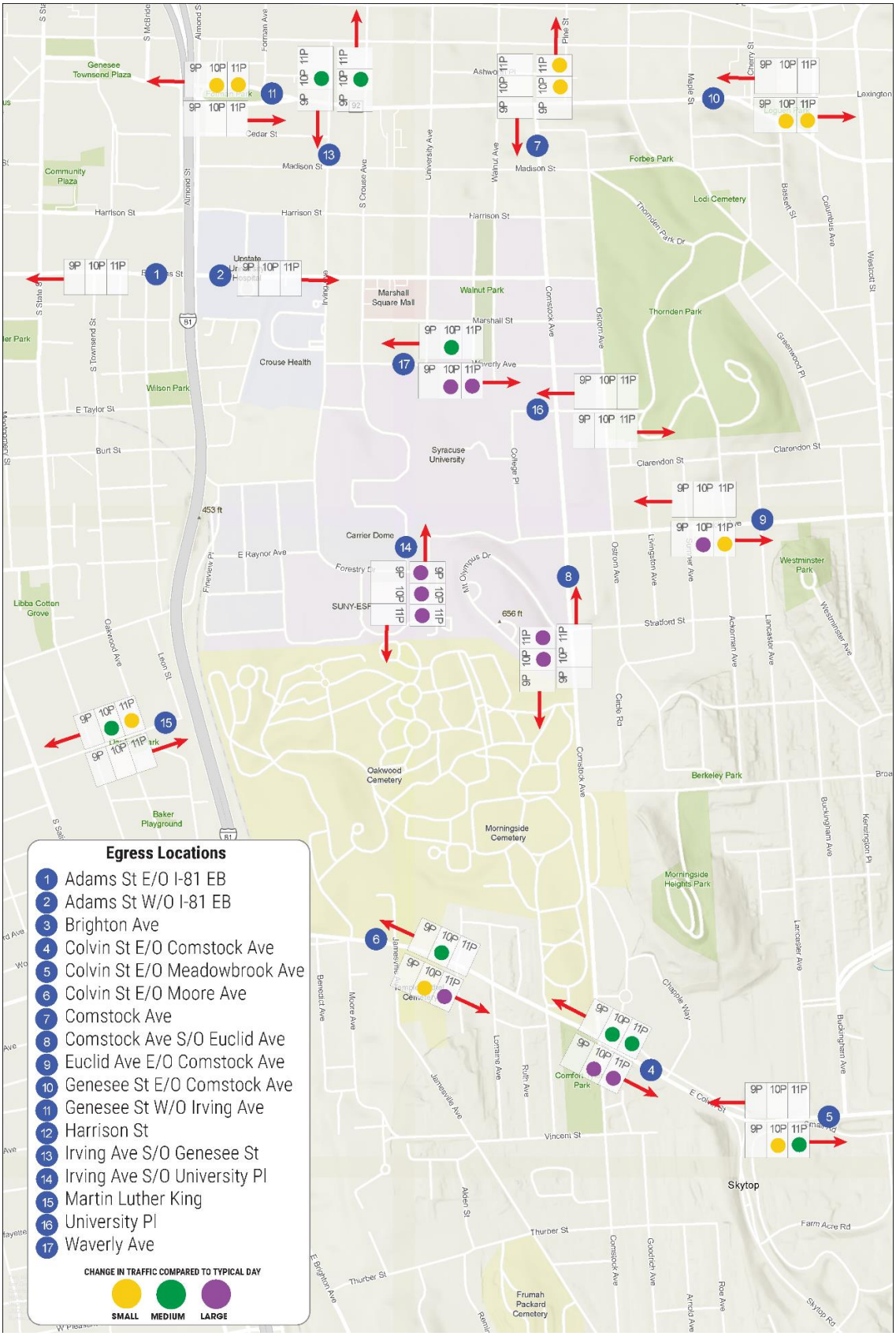


Figure 24: Incremental Traffic Increases on North Campus Local Roads during Egress

On the South Campus, traffic increments were observed on Skytop Road during the 9PM, 10PM, and 11 PM hours, and on Ainsley Drive during the 10 and 11 PM hours (see Figure 25).

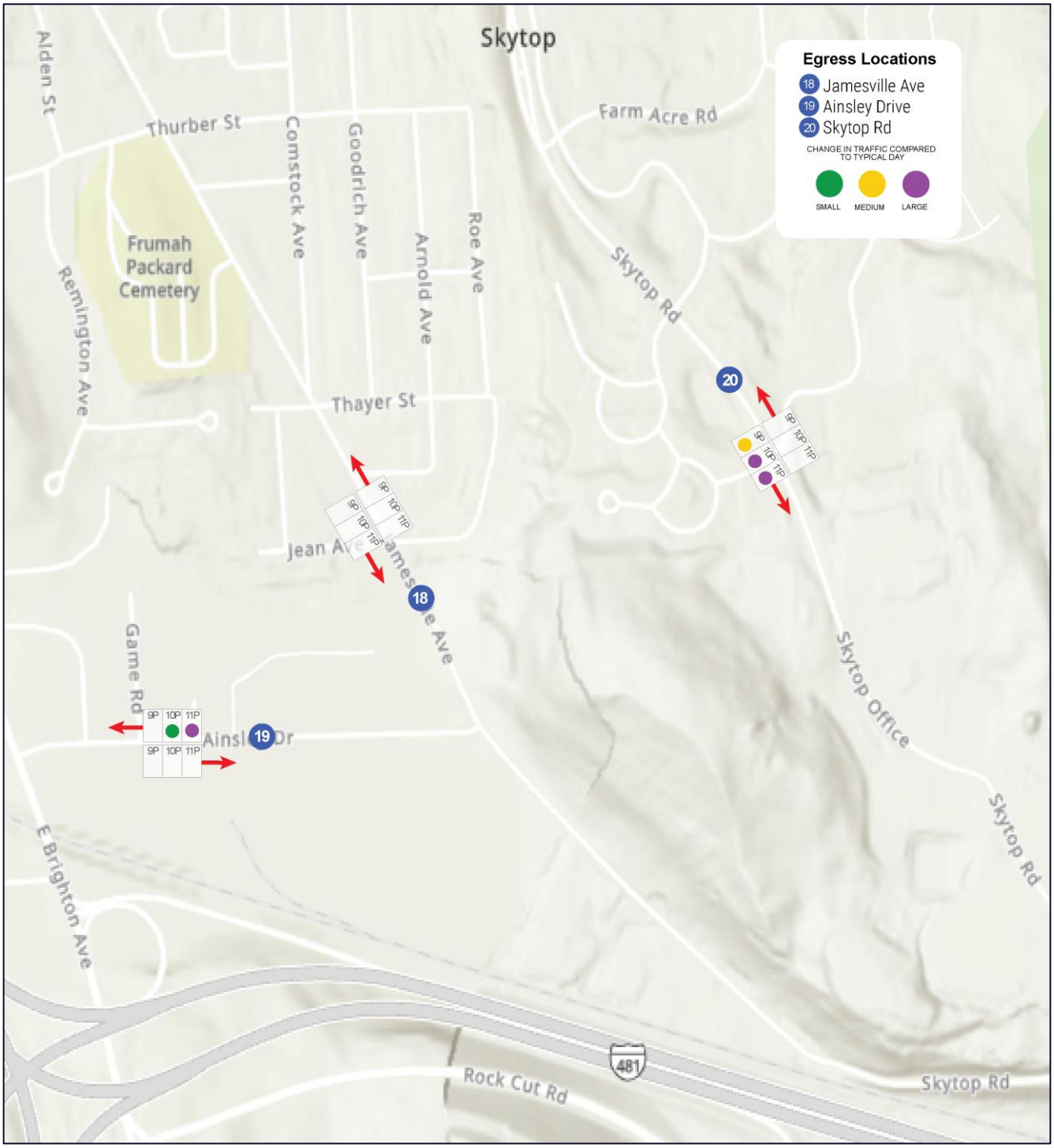


Figure 25: Incremental Traffic Increases on South Campus Local Roads during Egress

7.4 Conclusion

Event day traffic patterns lead to increased demand on many roadways on and around the Campus. This peak lasts for up to four hours during the ingress period, and for up to two hours during the egress period. This increase is experienced on the Main Campus, South Campus, and in Downtown areas. The time to clear the site can take 1.5-2 hours following events.

8 Current Event Operations Plan

8.1 Overview

Any existing documentation of event day operations was requested from all stakeholders. Documentation was received from the Syracuse Police Department, Syracuse University, and SMTC.
Overall documentation of existing operations is outdated and does not fully reflect real conditions based on stakeholder interviews. Stakeholders have staff in place who are experienced with the operations at their specific locations; however, there is limited written documentation about the operations plan for the entire study area. An area of concern is the potential loss of this institutional knowledge as long-time operations staff start to retire in the coming years. The Operations Plan is intended to address this concern with a written, visual representation of operating conditions.

8.2 Recent Planning Studies

The following two planning studies have been undertaken for Syracuse University and their details are documented in Appendix D:

- Transportation Systems Management Plan, Syracuse University – Carrier Dome, 1980
- University Hill Special Event Transportation Study, February 2000.

8.3 Parking

There are multiple parking facilities throughout the University Hill area including University parking facilities, public parking facilities as well as privately owned parking facilities.

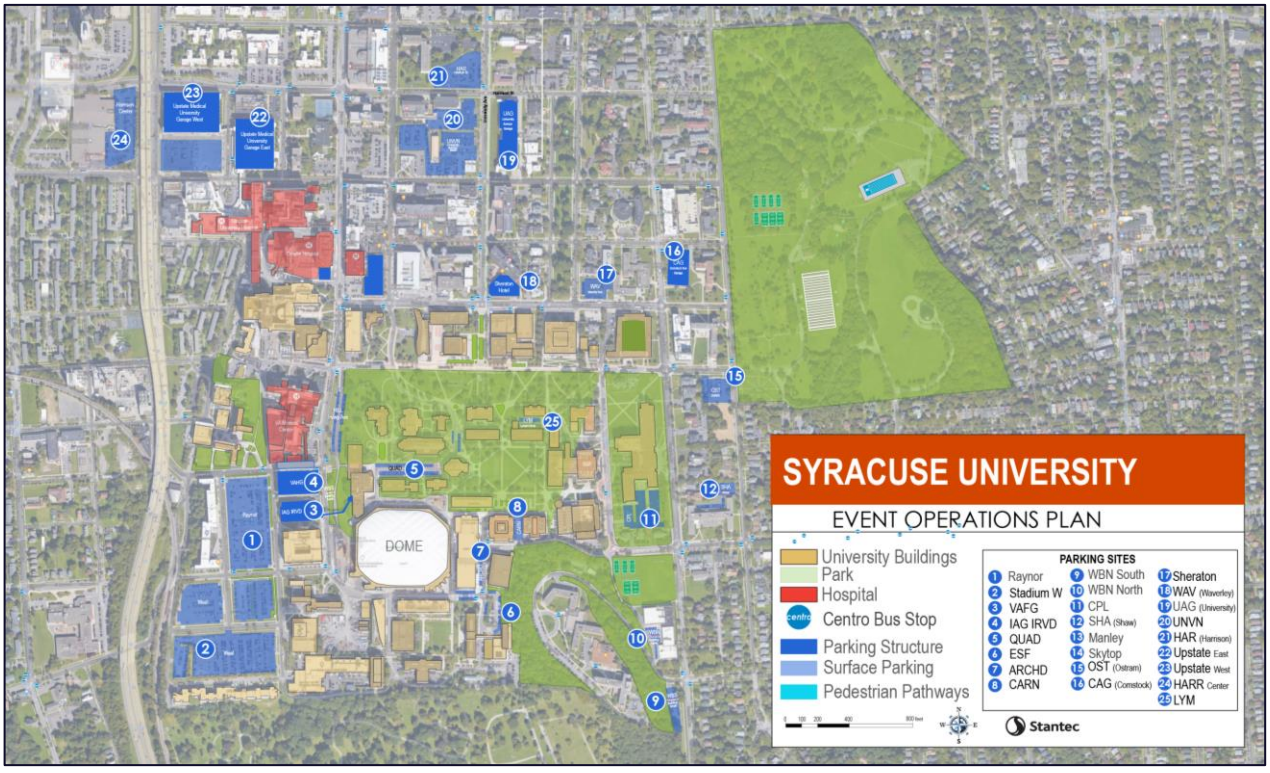


Figure 26: Study Area Parking Facilities (North Campus)

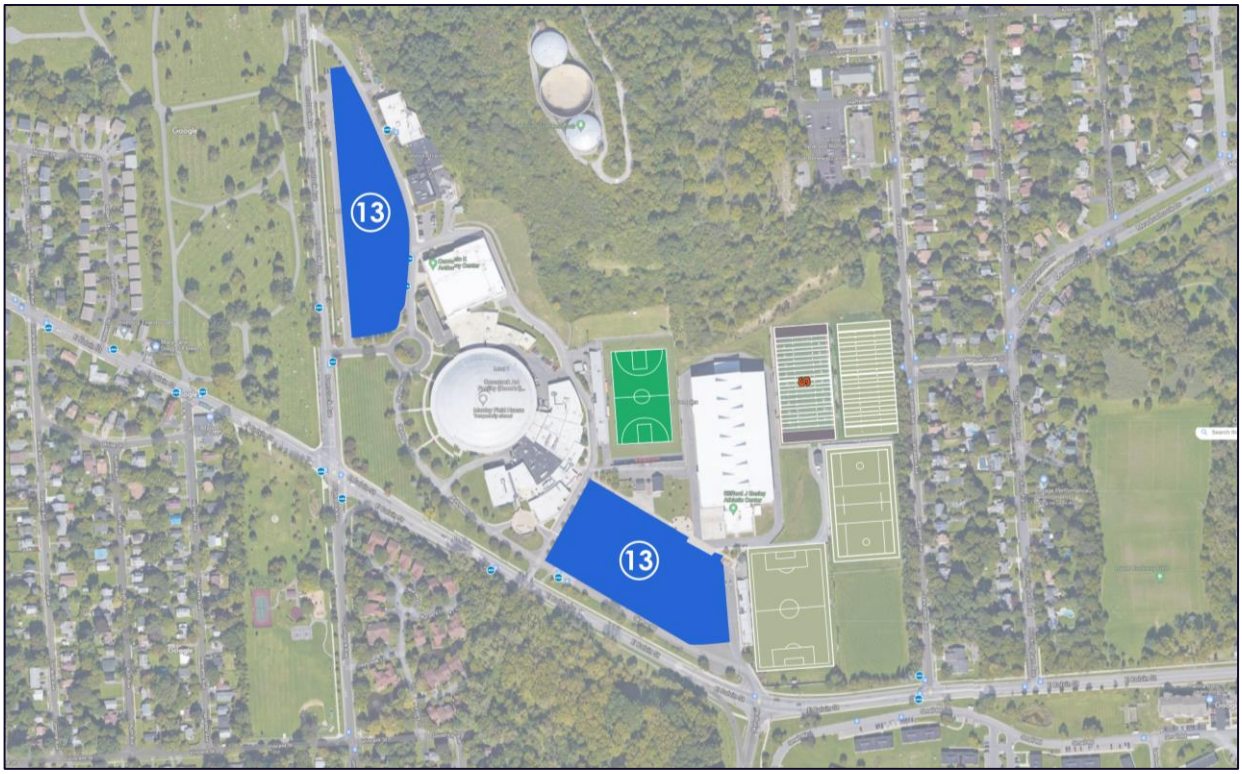


Figure 27: Manley Parking Lot on South Campus

Figure 28: Skytop Parking Lots on South Campus

8.3.1 SU Owned Facilities

SU owns several parking lots and garages for employee and student parking. Visitor parking is limited in designated locations and visitors are encouraged to use metered parking areas. All SU parking facilities are subject to permitting restrictions. Parking permits are required by all students as well as employees for parking. A full inventory of SU owned parking facilities can be found in Appendix E
Depending on the residency, students can park in certain lots during the day. After 4:30 p.m. and on weekends, all students with valid permits can use some of the other SU lots where student parking is restricted during daytime, like employee lots. For the periphery lots like Manley Field House and Skytop parking lots, students can purchase a park and ride permit and use the free shuttle to the main campus area. Employee parking permits are based on seniority ~~titles~~ and years of service.

During Dome events, some parking facilities are restricted to special event permit parking. Parking restrictions on certain parking facilities are in effect three to four hours prior to the game and enforced. Special event permit holders are required to park in University parking facilities designated for the event in the main campus area. The Manley and Skytop lots in the South Campus area are generally used for general admission ticket holders where special parking permits are not required. Accessible parking during Dome events is provided at the Skytop lot and Irving Avenue Garage. The following parking facilities are designated for special events based on the event type:

Table 2: Parking Lot Utilization by Event Type

Event Type	Parking Facilities Utilized		
	Season Parking	ADA Parking	General Admission
Football	Manley, Raynor lot	Skytop	Skytop Lot, Manley, University Avenue & Comstock Ave Garages
Men's Basketball	Manley North & South, Raynor lot	Skytop	Manley, University Avenue & Comstock Ave Garages
Women's Basketball	All parking at Raynor and West Lots		
Men's Lacrosse	Raynor, Manley – for larger attended games	-	West Lots
Women's Lacrosse	Raynor	-	West Lots

Parking usage is based on either an existing university pass, a season ticket holder with a pass, or cash only on the day of the event.

8.3.2 Private Parking Facilities

The University Hill area includes several parking facilities that are privately owned and used during Dome events. While these locations are not controlled or managed by SU, these contribute to the overall parking capacity in the University area and ultimately contribute to the traffic patterns on the adjacent street network. Some of the private locations that are used during Dome events are Oakwood Cemetery, nearby churches, doctor's offices, banks, and sorority and fraternity houses located in close proximity to the Dome. Since these facilities are privately owned, regulating traffic on adjacent street network becomes difficult.

8.3.3 Public Parking Facilities

- City owned Parking Garages: There are five City owned garages with only Madison-Irving garage located near the Campus area. These garages are not open on weekends, but are available for weekday evening games and events. All these garages are located on Centro's "Connective Corridor" route.

- City Owned Parking lots: All the City owned parking lots, most of them located in the Downtown, are open for public use at any time with the exception of City Staff lot which is restricted during business hours.

- On-Street Parking: Several streets in and around the Campus area have free on-street parking. However, for most of the streets the odd/even parking regulations apply. The City enforces the alternate parking in assistance with the SU, especially for game day operations. Some sections of the roadway within Thornden Park also has free on-street parking.

8.3.4 Other Parking Facilities

In addition to the parking facilities around the Campus area, there are many parking locations located in the Downtown. Some guests park in Downtown facilities and use the Centro shuttle bus from the Hub near the Marriott hotel where there are 31 on street parking spaces. With many public and private parking facilities available in the Downtown area, it is difficult to quantify the amount of parking utilized in Downtown specifically for special events though there are approximately 680 on street stalls available along with 4700+ spaces available in parking lots or structures.

8.3.5 Parking Summary

Within the main campus area there are around 750 on street spaces for parking depending on parking restrictions by day of which only 60 spaces are in Thornden Park. Given the large numbers of parking stalls on campus in both lots and structures, the issues appear to be the use of the hospital parking for non-hospital bound users (though this is difficult to determine the extent of the issue) and access to the available lots rather than on-street parking. There are numerous smaller lots around campus and larger that are accessed by an array of SU permit holders with no event day restrictions that can be more of a challenge from an operational perspective in maintaining access into the heart of the campus. More than 40 types of passes exist that allow access to lots that have to be checked at manned entry locations that can cause more of a congestion issue as people ask officers for information and directions than is likely caused by those circulating looking for the available on-street parking spaces.

8.4 Pre-Event Guest Communication

Pre-event communication includes the use of multiple modes of communication to provide guests travel directions on gameday. This can include information on the best routes, routes to avoid, alternative modes, off-site parking, event day roadway changes, directions to specific lots. Methods of communication can include the website, apps, navigation app partnerships, materials provided to season-ticket holders or single game ticket purchasers, rideshare app or website partnerships, transit service notices, and direct communication methods with guests, such as text messages or emails.

This evaluation was performed from the perspective of a guest who is attending a Dome event for the first time, and is unfamiliar with the operation. This is the case for concert and Monster Jam attendees, local first-time or infrequent attendees, and fans of visiting teams or visitors from outside the Syracuse region.

The cuse.com homepage includes a section dedicated to the Dome.

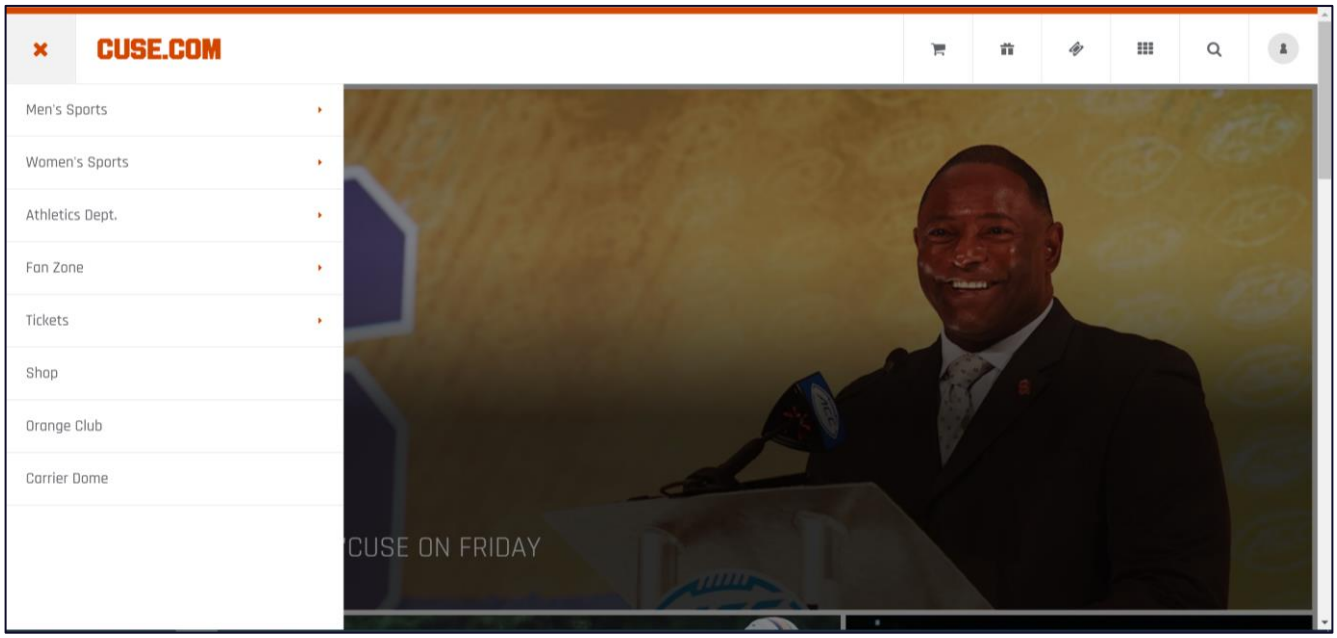


Figure 29: Cuse.Com Homepage

From the homepage, visitors can easily identify options for both “Directions” and for “Parking”.

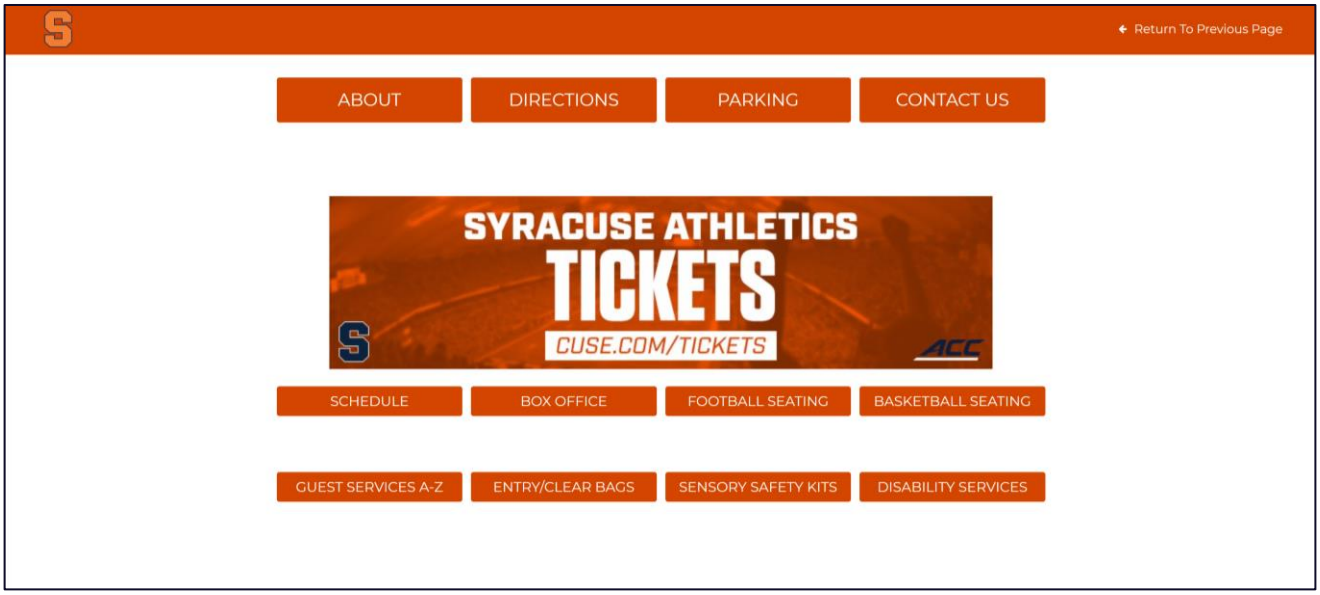


Figure 30: After Clicking on "Carrier" Dome (Page 2)

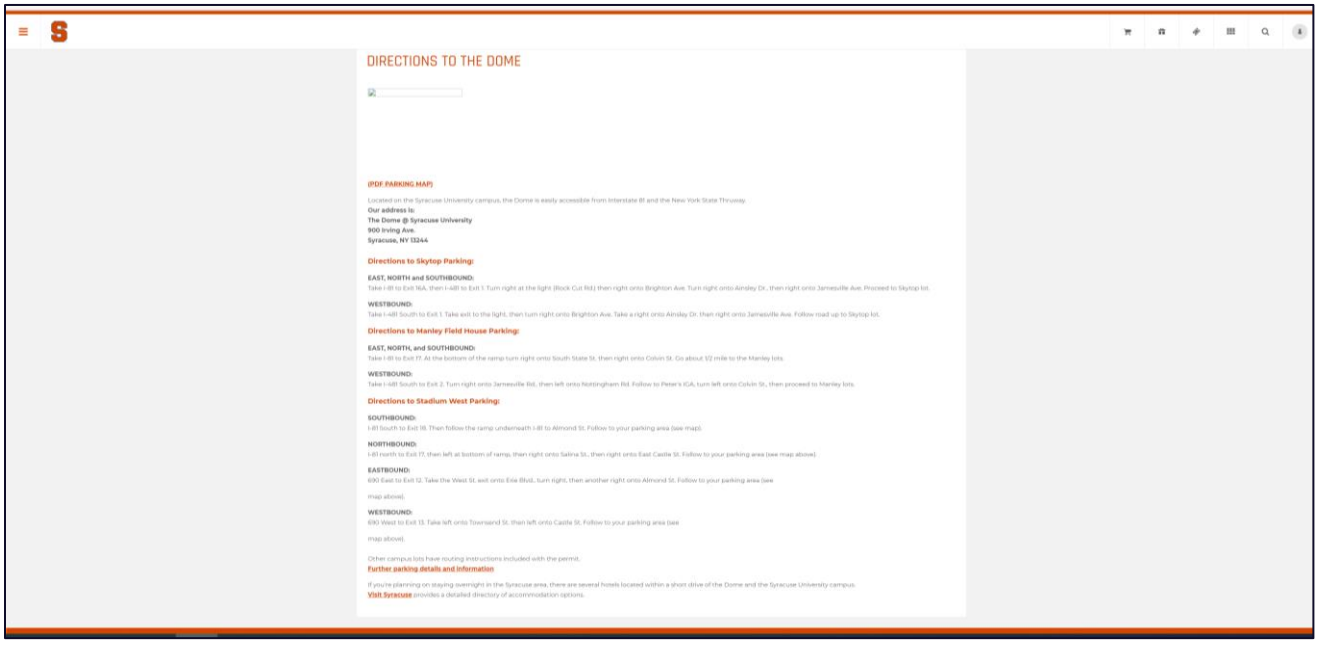
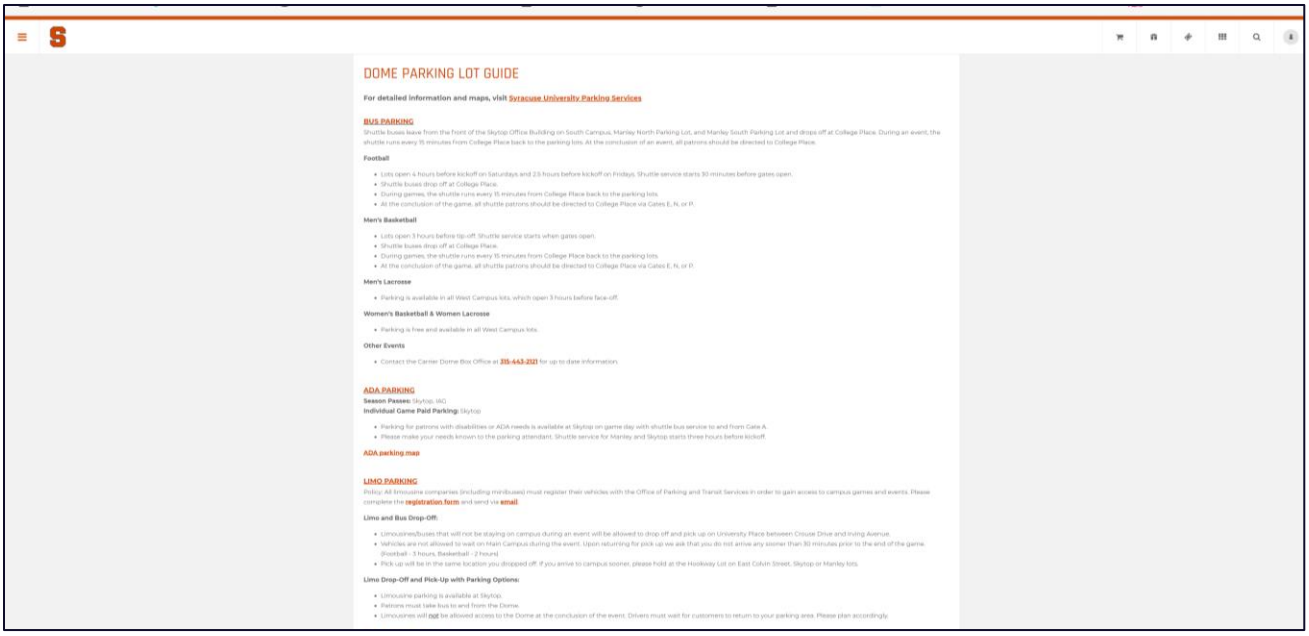


Figure 31: Directions to the Dome (Page 3)

The directions page includes a PDF parking map of the Campus, identifying event day parking locations, as well as general text directions to the Skytop, Manley, and Stadium West Lots. It is not clear why these lots are included; however, there is a note at the bottom of the page that reads "Other campus lots have routing instructions included with the permit" even though Stadium West is a permit only lot as well.



DOME PARKING LOT GUIDE

For detailed information and maps, visit Syracuse University Parking Services

BUS PARKING

Shuttle buses leave from the front of the Skytop Office Building on South Campus, Manley North Parking Lot, and Manley South Parking Lot and drops off at College Place. During an event, the shuttle runs every 15 minutes from College Place back to the parking lots. At the conclusion of an event, all patrons should be directed to College Place.

Football

- Lots open 4 hours before kickoff on Saturdays and 2.5 hours before kickoff on Fridays. Shuttle service starts 30 minutes before gates open.
- Shuttle buses drop off at College Place.
- During games, the shuttle runs every 15 minutes from College Place back to the parking lots.
- At the conclusion of the game, all shuttle patrons should be directed to College Place via Gates E, N, or P.

Men's Basketball

- Lots open 3 hours before tip-off. Shuttle service starts when gates open.
- Shuttle buses drop off at College Place.
- During games, the shuttle runs every 15 minutes from College Place back to the parking lots.
- At the conclusion of the game, all shuttle patrons should be directed to College Place via Gates E, N, or P.

Men's Lacrosse

- Parking is available in all West Campus lots, which open 3 hours before face-off.

Women's Basketball & Women Lacrosse

- Parking is free and available in all West Campus lots.

Other Events

- Contact the Carrier Dome Box Office at 315-443-2121 for up to date information.

ADA PARKING

Season Passes: Skytop, WG

Individual Game Paid Parking: Skytop

- Parking for patrons with disabilities or ADA needs is available at Skytop on game day with shuttle bus service to and from Gate A.
- Please make your needs known to the parking attendant. Shuttle service for Manley and Skytop starts three hours before kickoff.

ADA parking map

LIMO PARKING

Policy: All limousine companies (including minibuses) must register their vehicles with the Office of Parking and Transit Services in order to gain access to campus games and events. Please complete the registration form and send via email.

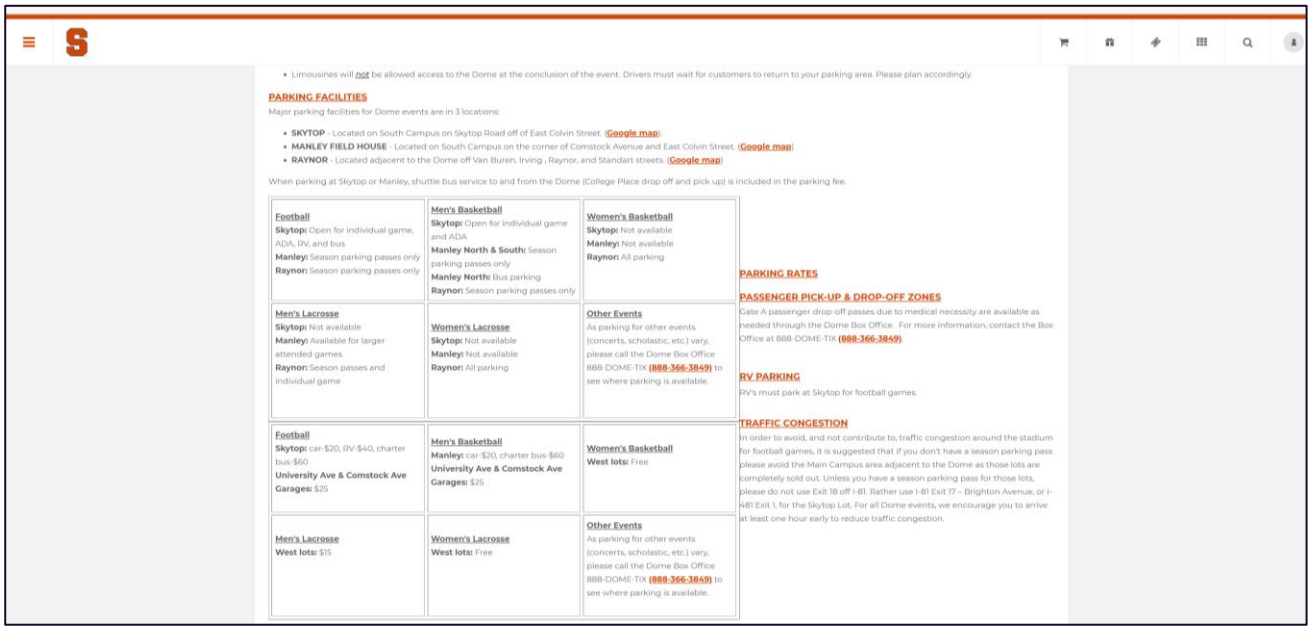
Limo and Bus Drop-Off:

- Limousines/buses that will not be staying on campus during an event will be allowed to drop off and pick up on University Place between Crouse Drive and Irving Avenue.
- Vehicles are not allowed to wait on Main Campus during the event. Upon returning for pick up we ask that you do not arrive any sooner than 30 minutes prior to the end of the game. (Football - 3 hours, Basketball - 2 hours)
- Pick up will be in the same location you dropped off. If you arrive to campus sooner, please hold at the Hookway Lot on East Colvin Street, Skytop or Manley lots.

Limo Drop-Off and Pick-Up with Parking Options:

- Limousine parking is available at Skytop.
- Patrons must take bus to and from the Dome.
- Limousines will not be allowed access to the Dome at the conclusion of the event. Drivers must wait for customers to return to your parking area. Please plan accordingly.

Figure 32: Dome Parking Lot Guide



- Limousines will not be allowed access to the Dome at the conclusion of the event. Drivers must wait for customers to return to your parking area. Please plan accordingly.

PARKING FACILITIES

Major parking facilities for Dome events are in 3 locations:

- **SKYTOP** - Located on South Campus on Skytop Road off of East Colvin Street. (Google map)
- **MANLEY FIELD HOUSE** - Located on South Campus on the corner of Comstock Avenue and East Colvin Street. (Google map)
- **RAYNOR** - Located adjacent to the Dome off Van Buren, Irving , Raynor, and Standart streets. (Google map)

When parking at Skytop or Manley, shuttle bus service to and from the Dome (College Place drop off and pick up) is included in the parking fee.

Football **Skytop:** Open for individual game, ADA, RV, and bus **Manley:** Season parking passes only **Raynor:** Season parking passes only	**Men's Basketball** **Skytop:** Open for individual game and ADA **Manley North & South:** Season parking passes only **Manley North:** Bus parking **Raynor:** Season parking passes only	**Women's Basketball** **Skytop:** Not available **Manley:** Not available **Raynor:** All parking
Men's Lacrosse **Skytop:** Not available **Manley:** Available for larger attended games **Raynor:** Season passes and individual game	**Women's Lacrosse** **Skytop:** Not available **Manley:** Not available **Raynor:** All parking	**Other Events** As parking for other events (concerts, scholastic, etc.) vary, please call the Dome Box Office 888-DOME-TIX (888-366-3849) to see where parking is available.
Football **Skytop:** car-$20, RV-$40, charter bus-$60 **University Ave & Comstock Ave Garages:** $25	**Men's Basketball** **Manley:** car-$20, charter bus-$60 **University Ave & Comstock Ave Garages:** $25	**Women's Basketball** **West lots:** Free
Men's Lacrosse **West lots:** $15	**Women's Lacrosse** **West lots:** Free	**Other Events** As parking for other events (concerts, scholastic, etc.) vary, please call the Dome Box Office 888-DOME-TIX (888-366-3849) to see where parking is available.

PARKING RATES

PASSENGER PICK-UP & DROP-OFF ZONES

Gate A passenger drop-off passes due to medical necessity are available as needed through the Dome Box Office. For more information, contact the Box Office at 888-DOME-TIX (888-366-3849)

RV PARKING

RV's must park at Skytop for football games.

TRAFFIC CONGESTION

In order to avoid, and not contribute to, traffic congestion around the stadium for football games, it is suggested that if you don't have a season parking pass please avoid the Main Campus area adjacent to the Dome as those lots are completely sold out. Unless you have a season parking pass for those lots, please do not use Exit 18 off I-81. Rather use I-81 Exit 17 - Brighton Avenue, or I-481 Exit 1, for the Skytop Lot. For all Dome events, we encourage you to arrive at least one hour early to reduce traffic congestion.

Figure 33: Dome Parking by Event Type

There is also a link on that page to the "Dome Parking Lot Guide". This page includes details about bus parking, ADA parking, limo parking, and RV parking. A matrix of parking availability by event type is also shown on this page for the Manley, Skytop, and Raynor lots, along with parking rates and the location of pick-up and drop-off zones. Links to Google Maps are also provided to allow guests to map their own directions to these lots. Tips to avoid traffic congestion are listed at the bottom of the page, including specific exits for non-permit holders, and instructions to arrive early.

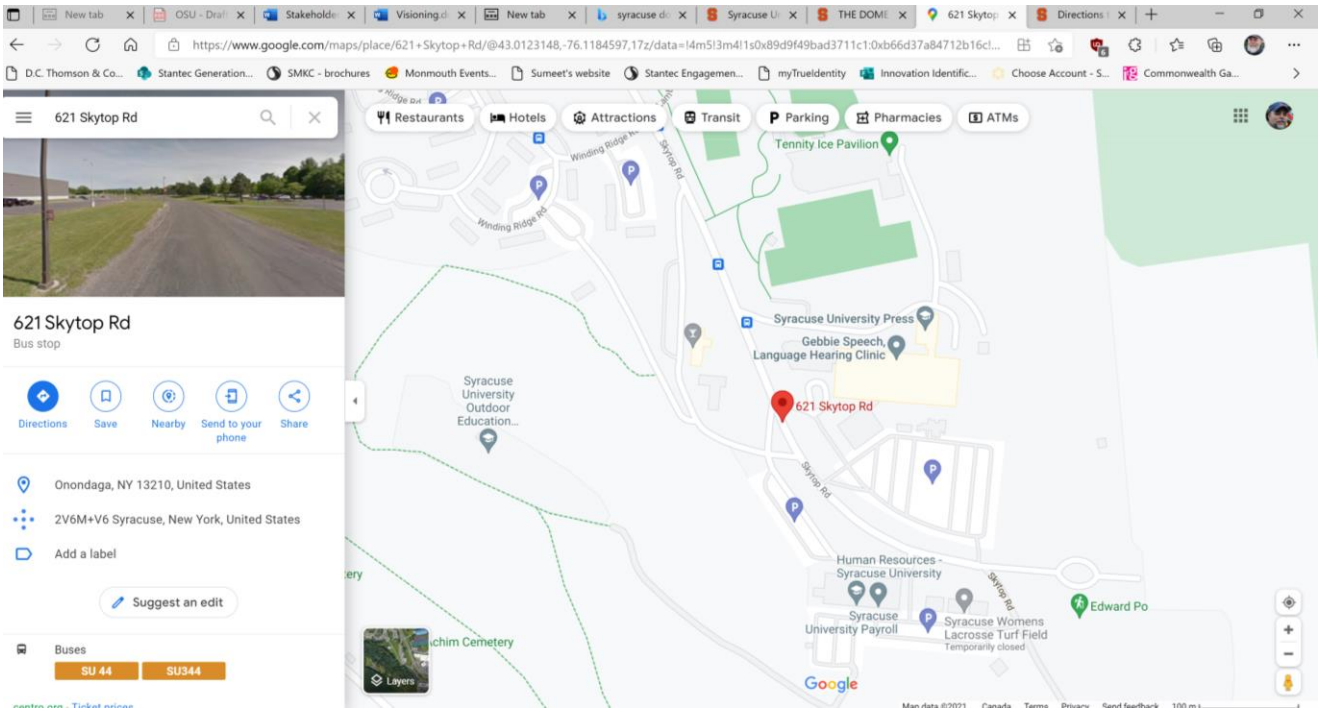


Figure 34: Link to Google Maps for Specific Lots

This page also includes a link to a dedicated page for Syracuse University parking and traffic services. This includes information for events, and for visitors.

The University does not partner with any navigation app providers, and there are no links on the website to transit, rideshare, or off-site parking areas.

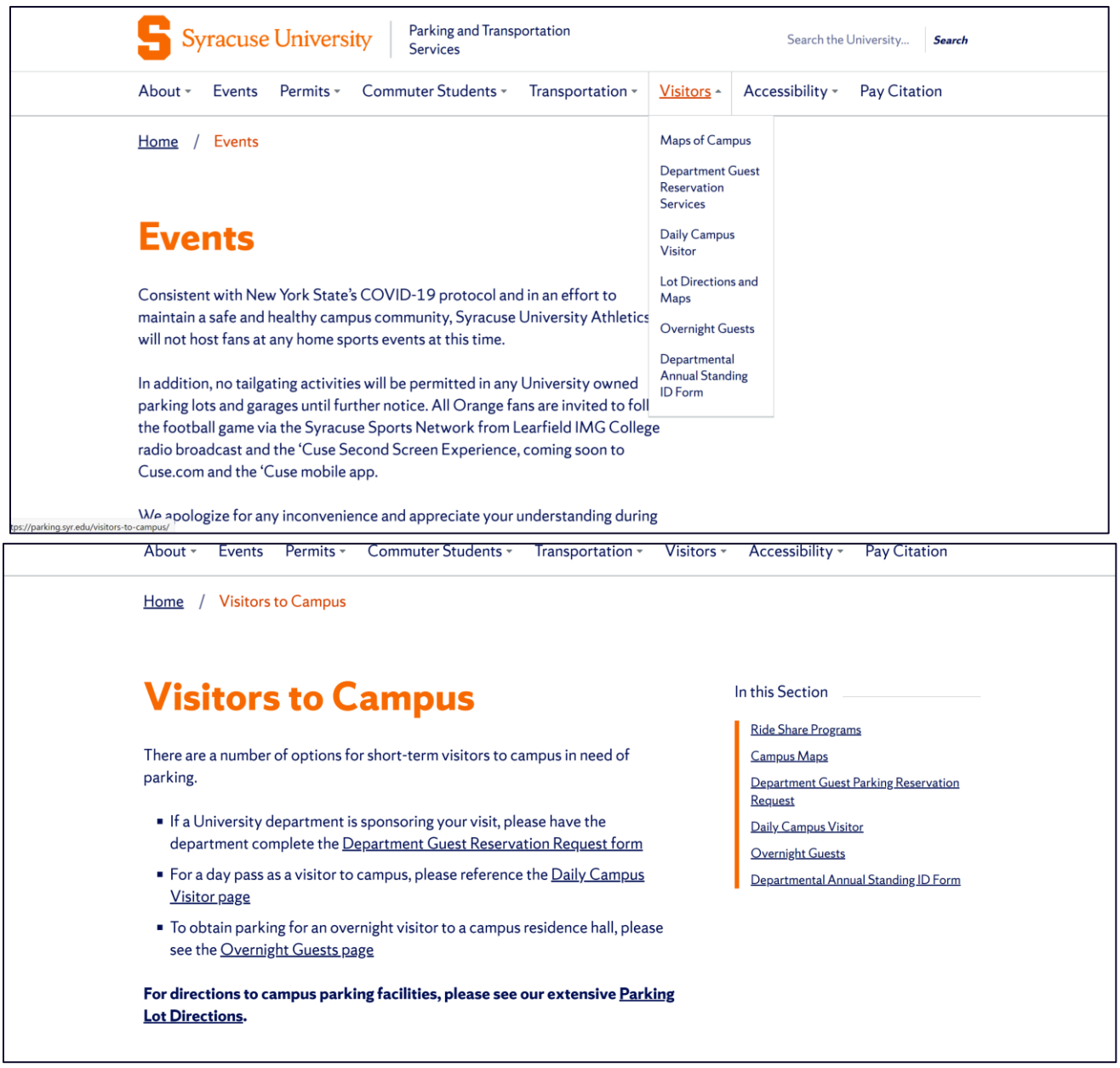


Figure 35: Syracuse University Directions for Visitors

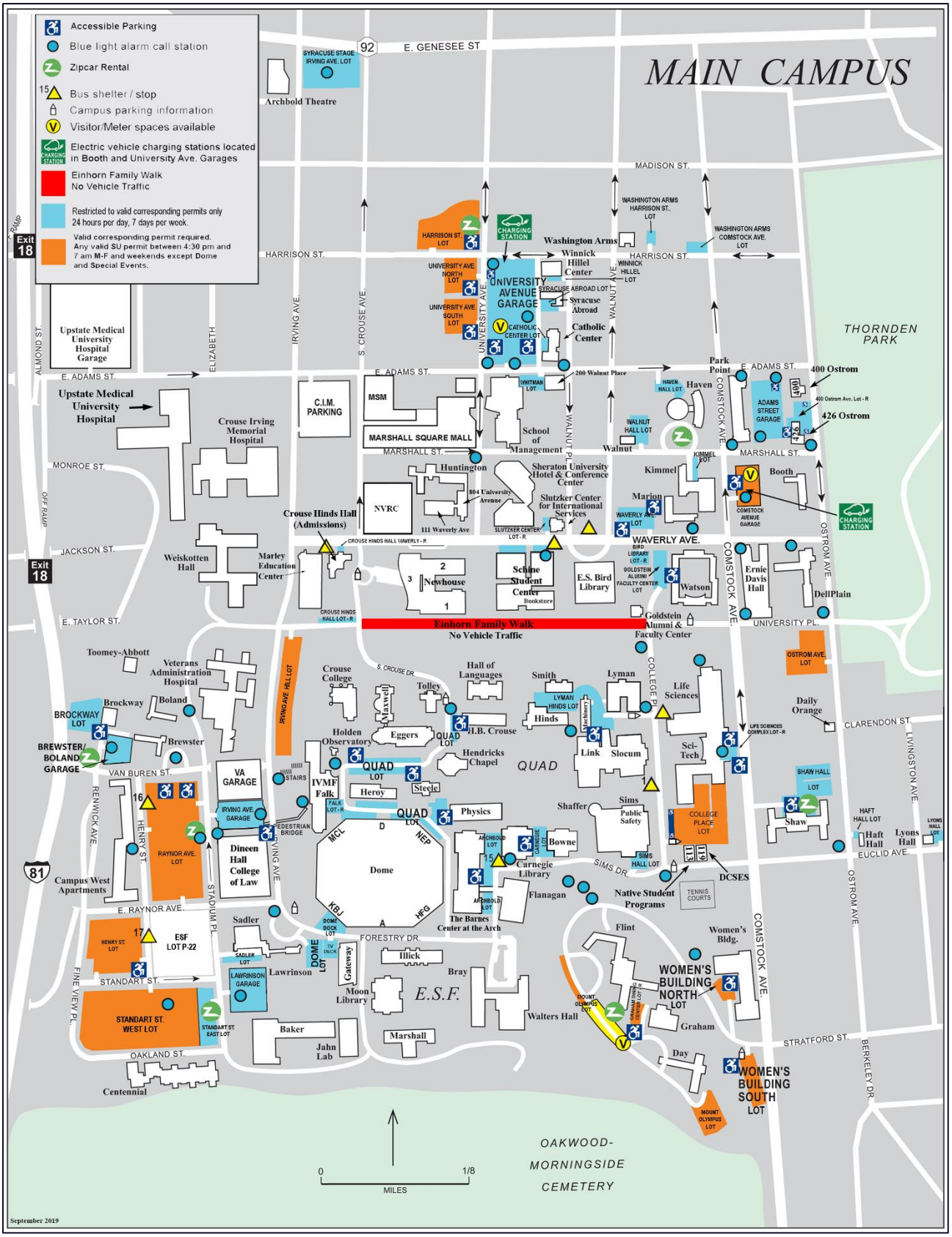


Figure 36: Syracuse University Main Campus Map

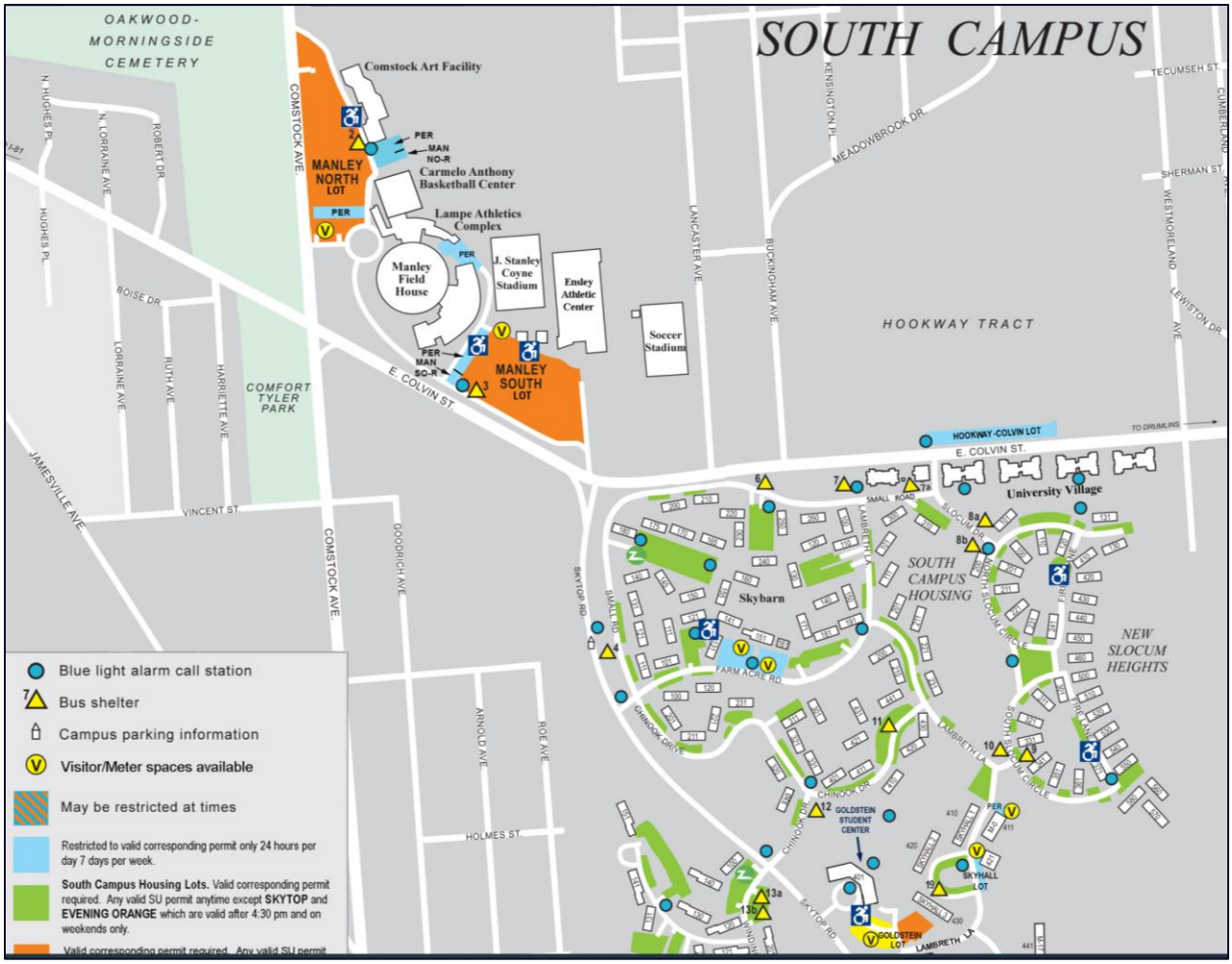


Figure 37: Syracuse University South Campus Map

For information on Centro Bus services, there is a three step process to find out what is available for different types of games. From the main Centro website the user chooses Central Syracuse from the service area drop down menu, then Schedules where Special Event Services are shown. Within that the user can choose specific route maps, or a phone in number. It can be confusing to go through the routes themselves but the information does note that there is an app for download to help with journey planning.

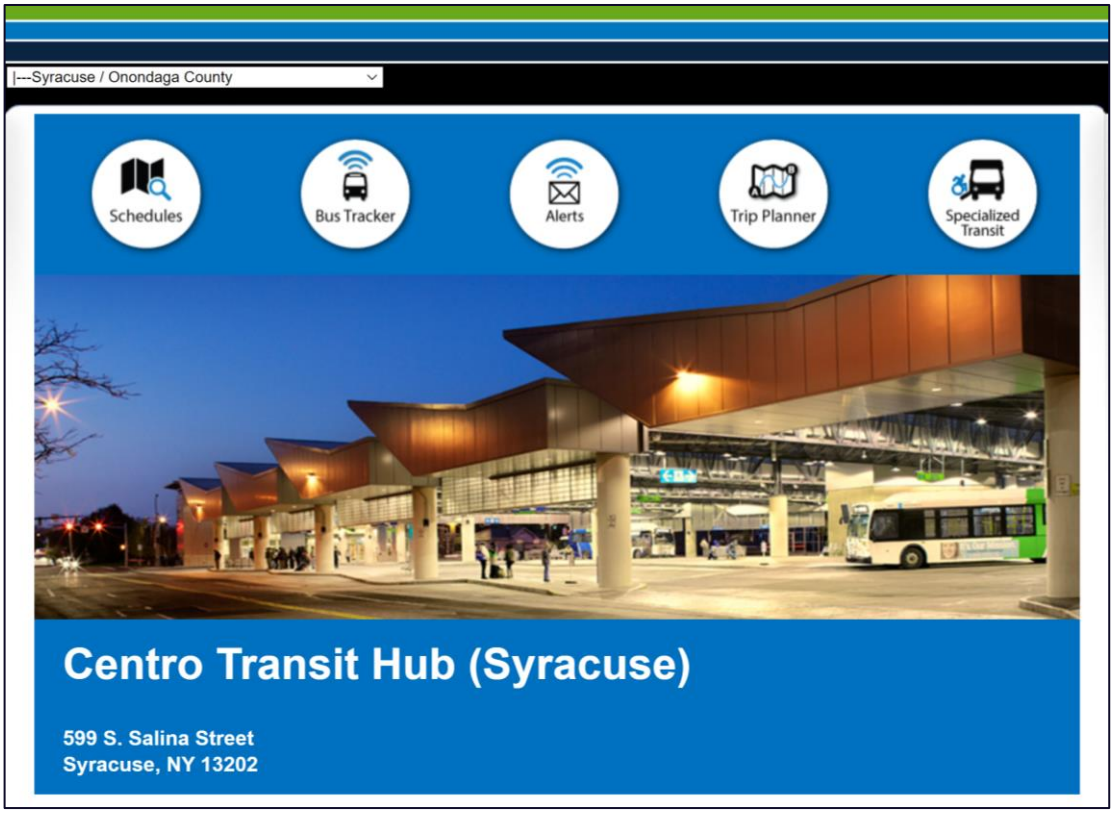


Figure 38: Step 1 – Service Area

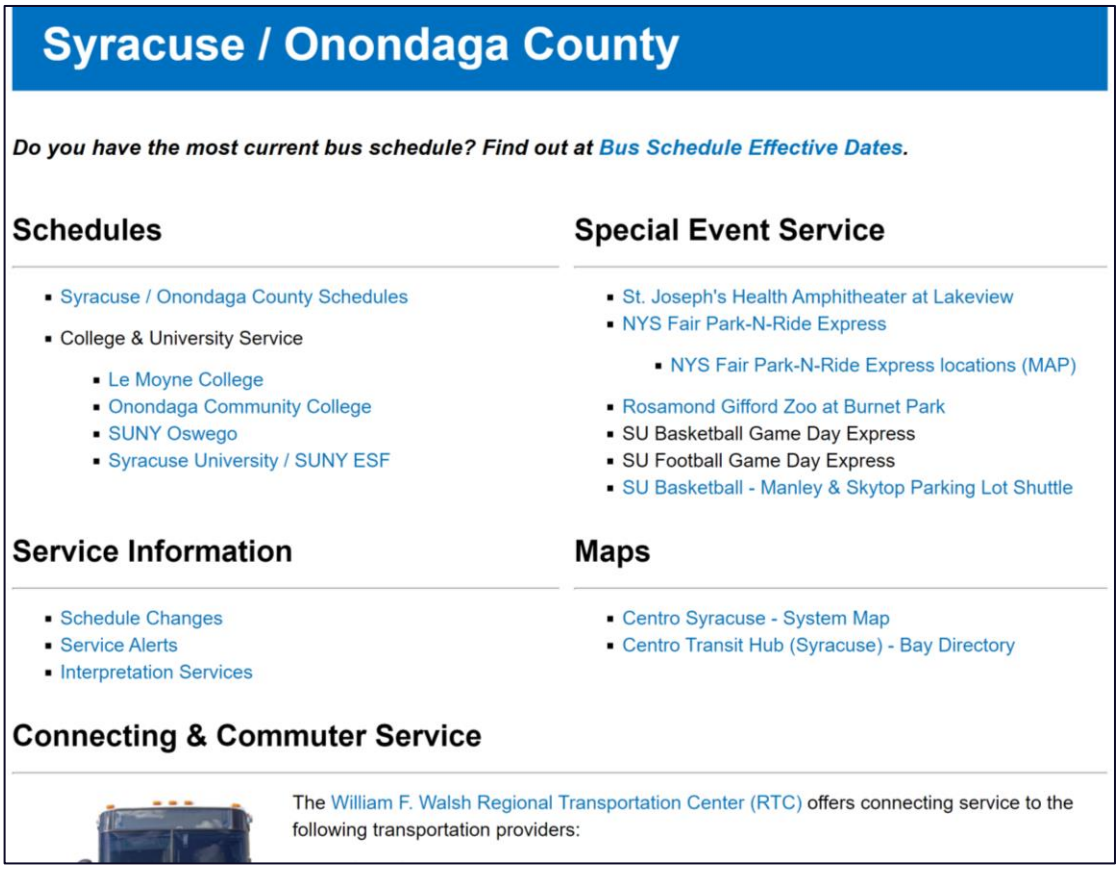


Figure 39: Step 2 - Schedules

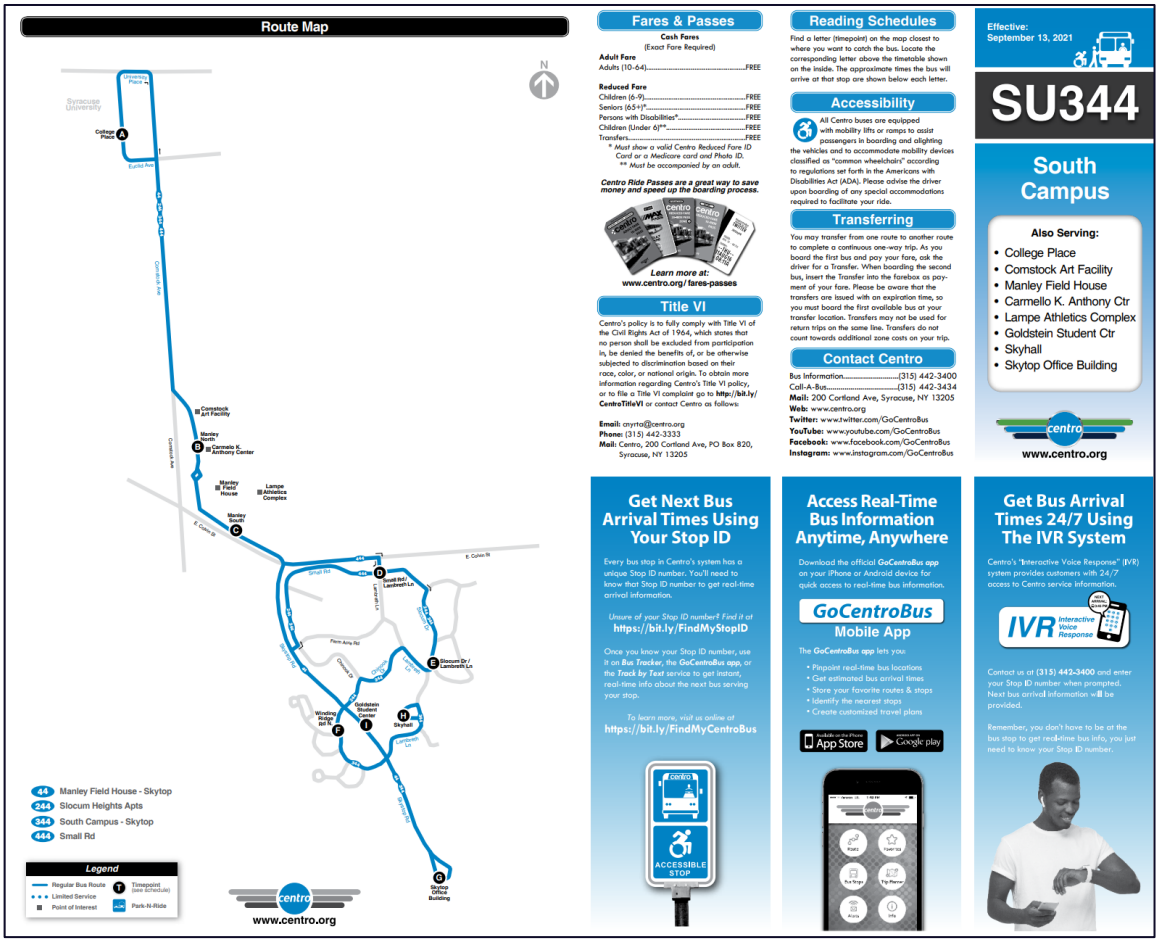


Figure 40: Step 3 Sample Basketball Shuttle Map

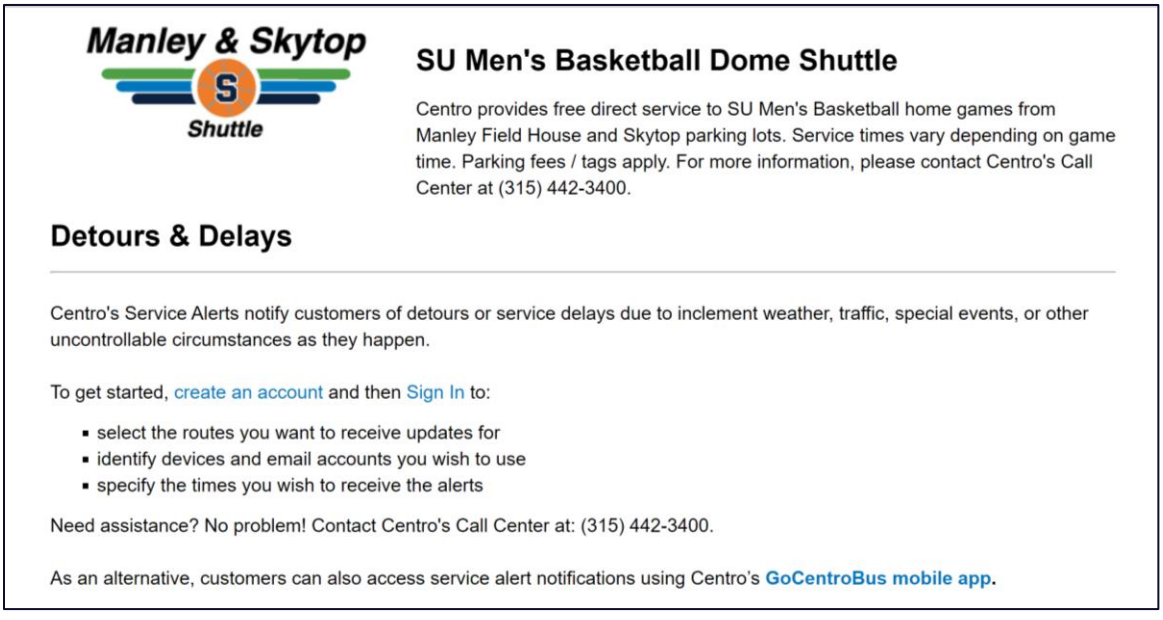


Figure 41: Step 3 – Dome Shuttle Number

8.5 Signage and Wayfinding

8.5.1 Overview

Signage and wayfinding represents one of the most high-impact options to improve the guest experience. Signage and wayfinding plans can be developed in the off-season, and are generally lower cost implementations, compared to other strategies, such as lane adjustments, traffic management optimizations, or staffing changes. In our experience, a significant amount of the congestion around any sports facility is due to travelers who are not aware of parking areas, don't know the best routes to their destination, go directly to the facility instead of the parking areas for the destination, or those who circle the site many times looking for limited available parking. Signage and wayfinding can help address all of these opportunity areas.

8.5.2 Field Inventory

An inventory of permanent signage was conducted for major roads in the study area, including most Campus roadways, the surrounding highway network, and other roads around the University. The goal of this was to document the existing signage and identify opportunities for additional signage in the future when the I-81 Viaduct Project recommendations have been implemented. The field inventory was conducted in May 2021 and it includes most of the highway network around the Campus, as well as major arrival and departure streets. Some Downtown roadways were also included to provide a comprehensive inventory of existing signage.

8.5.3 Local Signage

A sample of the interactive signage viewer is shown in Figure 42, with a location selected and the sign at that location visible that is currently hosted by Stantec. The inventory included over 1,200 photos, which were converted into an interactive webmap showing the locations and contents of signs, which was shared with stakeholders to allow easy access to a visual library that can be referenced when the Operations Plan is created. This is useful to understand the types of signage available, gaps in signage as part of the sequential trailblazing system, and it can be a starting point for recommending supplemental signage in the future.

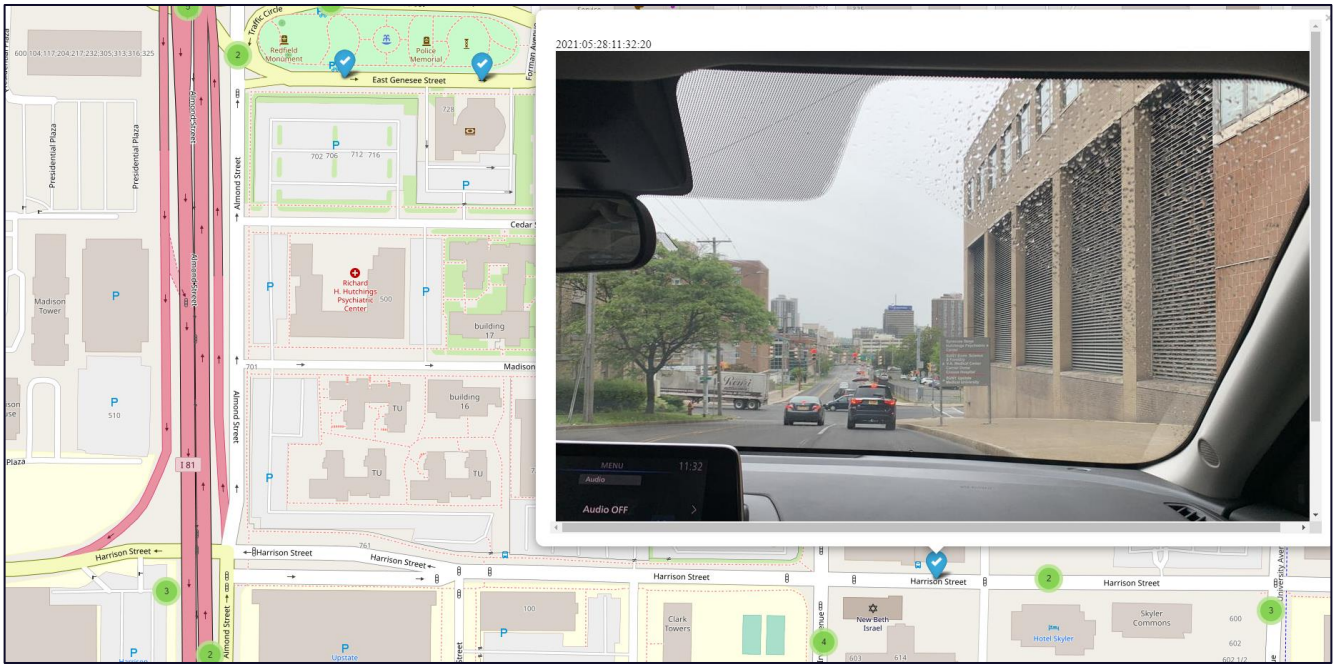


Figure 42: Sample of Signage Inventory Web Map

8.5.4 Regional Signage

As shown in Figure 43, relevant Interstate signs were classified into four categories and examples are provided below, including signage for the Dome, parking areas, the University, and the locations of variable message signs. These are all important because they can be used to convey information to travelers in a game-day environment. Dome signage is what most travelers will look for on their way to events. Parking signage can be useful for travelers who have permits to those specific parking lots (or if they have been informed that cash parking is only available in specific named lots). University signage is helpful for familiar guests who are destined for parking in specific areas of the Campus. Variable message signs can be used to convey information on real-time congestion and incidents, and can convey the recommended arrival and departure routes for operations on specific event days.

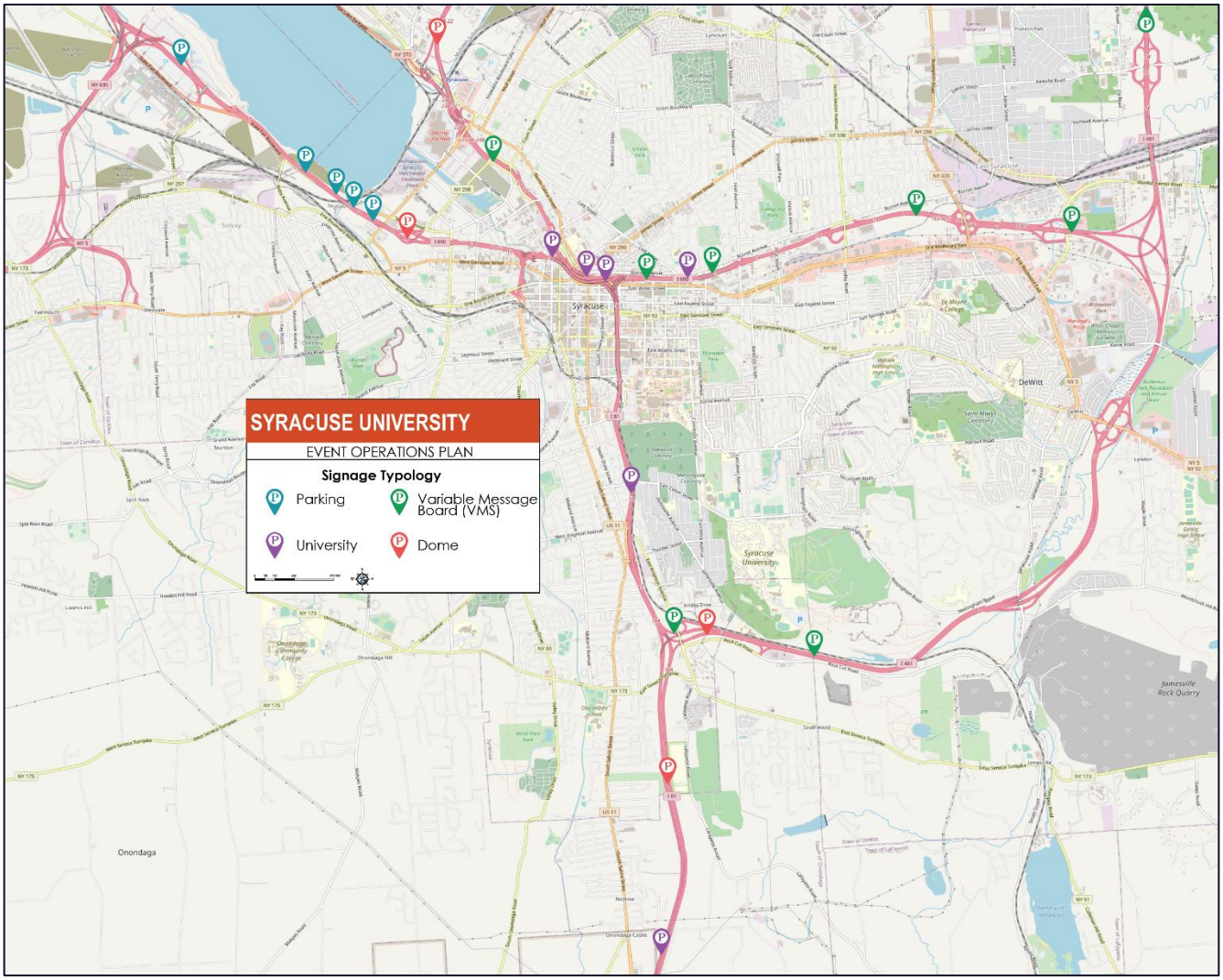


Figure 43: Interstate Signage Locations

Dome Signage

Figure 44: Signage for the Dome

There is limited signage for the Dome itself on the surrounding roadway network. Most of the signs that do show the Dome include a graphic representation of a Dome that may not be consistent with current marketing materials. The sign indicating "Dome Parking" would be a good one to model – the intent should be to identify parking areas for the Dome, and not direct guests to the Dome itself. Along these lines, signs indicating multiple exits for the Dome would be helpful in dispersing traffic patterns.

Parking Signage

Figure 45: Parking Location Signage

Parking signage is in place for "Dome Parking" and for the Fair. Parking signage for specific parts of the Campus, or for specific parking locations, was not observed during the drive around. This can lead to longer travel patterns, for example, if someone exits at the north end of I-81 and travels through the Campus to reach the Skytop lot, instead of accessing it via southern exits on I-81 towards I-481.

Variable Message Signage

Figure 46: Variable Message Signage

A number of variable message signs are installed on the roadways around the study area. These signs can be used to provide additional direction to guests travelling to and from Dome events.

Syracuse University Signage

Figure 47: Signage to Syracuse University

A number of signs were observed to direct travelers to Syracuse University. These sign locations can be considered for supplemental signage on event days to provide direction to specific parking lots, or specific parts of the Campus environment.

Conclusion

There are dozens of permanent signs around the Campus environment that can help travelers find specific parking locations or the Dome on event days. However, the signage varies in the size, style, design, and consistency of the messaging. Gaps in the signage network can be supplemented with day of event signs, and the content of these signs can be used to convey message as part of the pre-event communication program (for example, a message on the website advising cash parkers to "follow signs for Manley and Skytop lots". There also appears to be opportunity to improve the sequence of signs, so that drivers are aware of upcoming decision points and exit locations. The existing signage inventory provides a basis for developing recommendations to support future event day operations plans.

8.6 Transit Operations

The transit operations in and around the Dome area includes Centro regular route service, University Shuttles, and special event operations. Most of the transit services are operated by Central New York Regional Transportation Authority's Centro public transportation service. Depending on the timing of the event, other vendors are used to provide the transit services.

8.6.1 Centro Regular Route Service

There are several regular Centro routes in the area as well other routes passing through the University campus area. Syracuse University students and faculty can ride for free within the Fare Free Zone, when showing their valid SU ID upon boarding. All SU Fare Free Zones operate every day, year-round. The Fare Free Zone covers most of the Main Campus area. SU underwrites the cost of rides for students and staff on portions of Centro regular routes providing the SU Fare Free Zones.

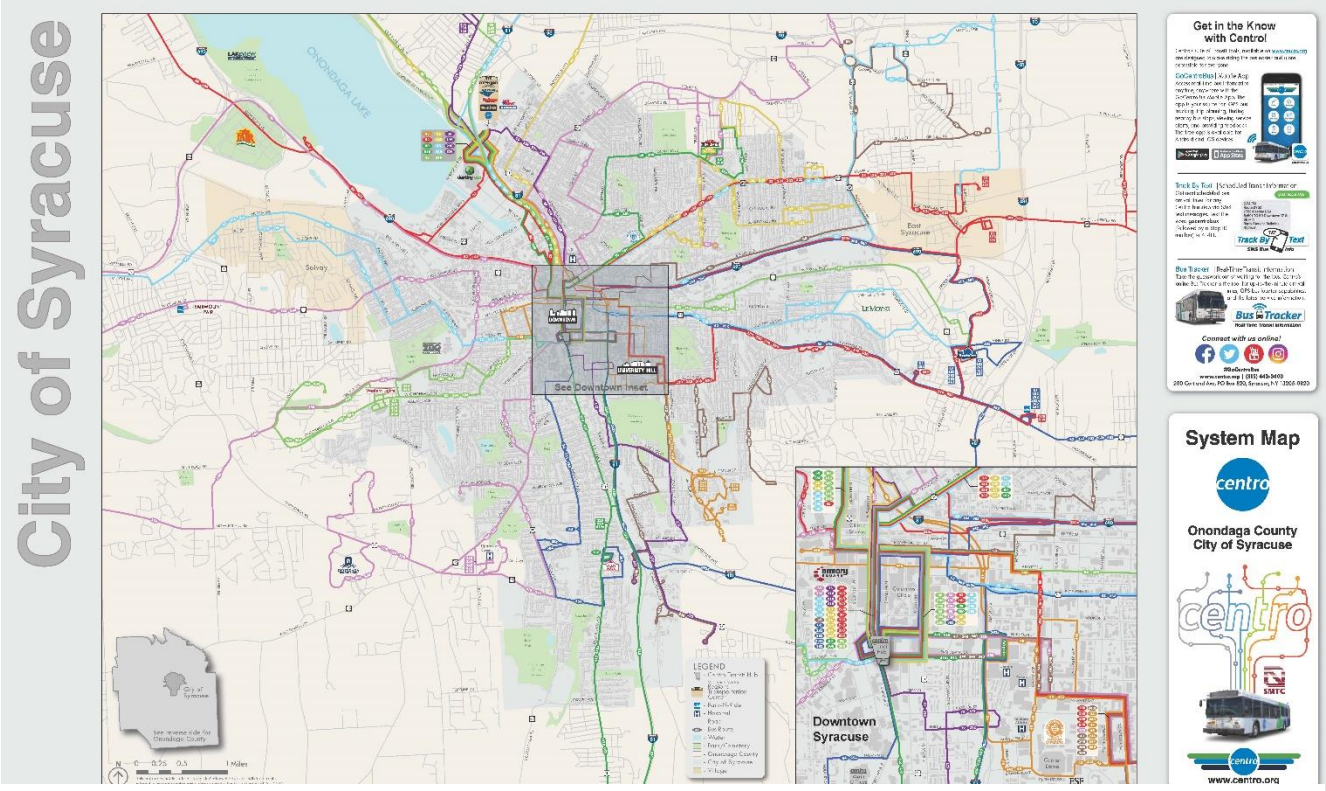


Figure 48: Centro System Map for City of Syracuse

A list of Centro regular service routes in the area are shown in the following table:

Table 3: Regular Centro Service Routes

Centro Route Name	Route #	Service
Centro Hub - College Place	Sy40	Saturday only
Thurber St	Sy140	Weekday, Weekend
Nob Hill	Sy240	Weekday, Weekend
Drumlins - Destiny USA	Sy340	Weekday, Weekend
SU – Destiny USA	SU 45	Saturday
Westcott St-SU-Hub	Sy30	Weekday morning
Nottingham HS – Hub	Sy130	Weekday
Menorah Park – Hub	Sy230	Weekday evening
Dewitt - Downtown	Sy530	Weekday
Manlius – Hub	Sy 62	Weekday, Weekend
Salt Springs - Hub	Sy 76	Weekday, Weekend
North Syracuse – Central Square – Hub	SY 88	Weekday
Lafayette – Tully – Hub	Sy510	Weekday

8.6.2 Campus Transit Operations

8.6.2.1 University Shuttles

SU operates a shuttle system within the University area currently named "'Cuse Trolleys". A Syracuse University ID is required to ride these trolleys. The primary focus of these shuttles is providing internal connectivity within the Campus connecting the University housing, parking as well as academic buildings. These shuttles compliment the Centro regular service during daytime. These shuttles provide connection to the South campus as well as the Downtown campus:

- Manley Loop: The loop runs between College Place to Comstock Avenue to both Manley Lots. This service runs on weekdays only.
- South Campus Loop: The loop runs between College Place to Manley Field House, Skytop Office, Slocum Heights, Winding Ridge and Goldstein Student Center.
- Main Campus Circulator: The loop runs around the major destinations within the Main campus area.
- Blue Loop: The Blue loop circulates around the Main Campus starting west of the Dome to Harrison Street via Comstock Ave, Euclid Avenue, University Avenue, Walnut Avenue and College Place.
- Orange Loop: The Orange loop circulates around the Main Campus, similar to Blue Loop.

In the evenings and weekends, some of these shuttle routes are combined or expanded beyond its daytime route to serve other locations. All these shuttle routes are fully functional during academic session. However, when the University is not in session, these shuttles operate at limited or reduced capacity.

The Safety Escort shuttles provide a secondary resource of transportation within the SU Campus area. These 11-passenger shuttles are on-demand shuttles operating within a fixed boundary. The shuttle escorts do not operate during Centro bus hours of operation, from 9:00 p.m. to 6:00 a.m. These shuttles are only available for students

8.6.2.2 Connective Corridor Service

Connective Corridor is a free loop bus service between University Hill and downtown Syracuse with more than 70 stops. This is operated by Centro as Route 443. The buses are equipped with on-board Wi-Fi, and smart bus GPS technology to track the bus movement with Centro and SU apps. This was created with a collaboration between Syracuse University, The City and Onondaga County to connect University Hill with downtown Syracuse.

Figure 49: Connective Corridor Route Map

8.7 Special Event Operations

Centro regular route services operate under regular schedule even on event days, with the exception of Connective Corridor shuttle and SU 45 Destiny USA route that follow a detour to avoid the congestion west of the Dome. There are special event shuttles that operate during the Dome events and the number of shuttles vary depending on the size of event.

8.7.1.1 Parking Shuttles

The event shuttles include two operations: one that serves the event staff and the other for the attendees. The staff shuttles operate pre and post event for the staff between designated staff parking lots like Ainsley Drive lot and Gate B. Some shuttles are also available during halftime for the staff shift changes.

Parking shuttles are provided by Centro at the request of Syracuse University. The number and demand of parking shuttles are based on the type of the event. For football games, the parking shuttle demands are different than a basketball game, due to the tailgating events. For game day operations, during pre-game the parking shuttles are staged at Manley Circle and Skytop offices and for post-game along College Place with overflow on Comstock Avenue. Typical ridership for large events is between 7,000 and 8,000 riders per event each way, with the highest ridership at 15,000 based on historical transit ridership data provided by Centro. In the event Centro is not able to accommodate the number of shuttles requested by SU, private charters are procured on an as-needed basis.

Figure 50: College Place Shuttle Stop

8.7.1.2 Game Day Express Shuttle

Pre-COVID-19, Centro provided special "Game Day Express" service for football and Saturday men's basketball games at the Dome from the Downtown Transit Hub to Waverly Avenue/Walnut Place prior to COVID. Patrons were urged to board the shuttles early to avoid the congestion near the Dome area at the transit hub opposite the Marriott Hotel. The routes of these shuttles do not have dedicated right of way, so they are subject to event-related traffic delays.

8.7.2 Rideshare and Taxi Operations

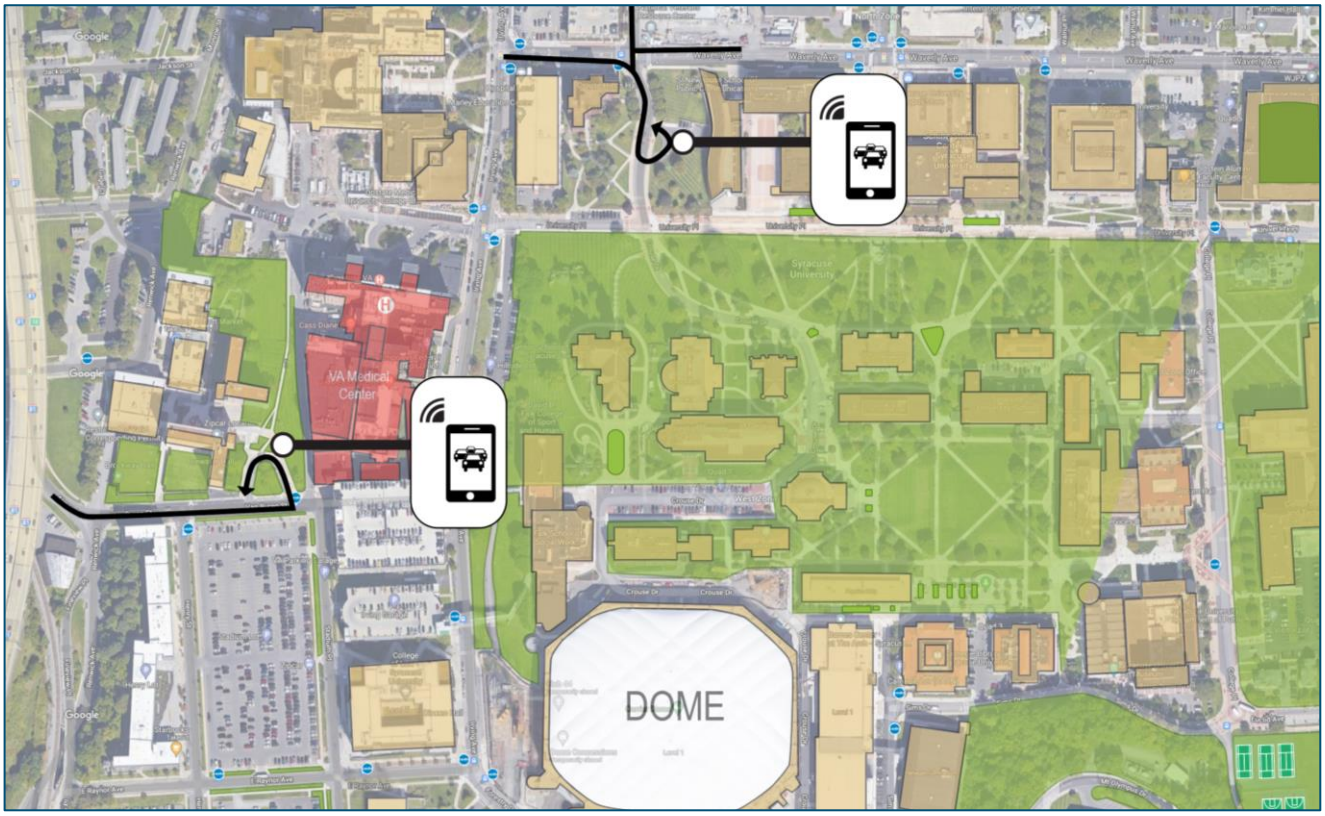


Figure 51: Official Rideshare Locations

SU Office of Parking and Transportation Services recognizes the need of rideshare/taxi operations to meet the travel needs of users on campus. SU recommends all the service providers to use the designated location identified for pick-up as well as drop-off. The operators are instructed to use the loop between Newhouse and Crouse-Hinds Hall or use the circle drive at Brewster Hall. While it is recommended to use the designated location, there is no enforcement resulting in vehicles making stops for pick-up and drop-off at less preferred locations. The university has no formal agreements with Uber or Lyft and thus there is no geo-fencing to push drivers to specific locations only. The University relies on asking that drivers use the sites and that patrons only ask for those sites.

Figure 52: Rideshare location adjacent to Brewster Hall

Figure 53: Rideshare location between Newhouse and Crouse-Hinds Hall

In December 2007 Syracuse University introduced Zipcar – the world's largest provider of cars on demand by the hour or day. Since then, students, faculty, and staff have been taking advantage of this car-sharing program by self-reserving (online and via mobile devices) one of the 20 Zipcars on campus – 24 hours a day, seven days a week.

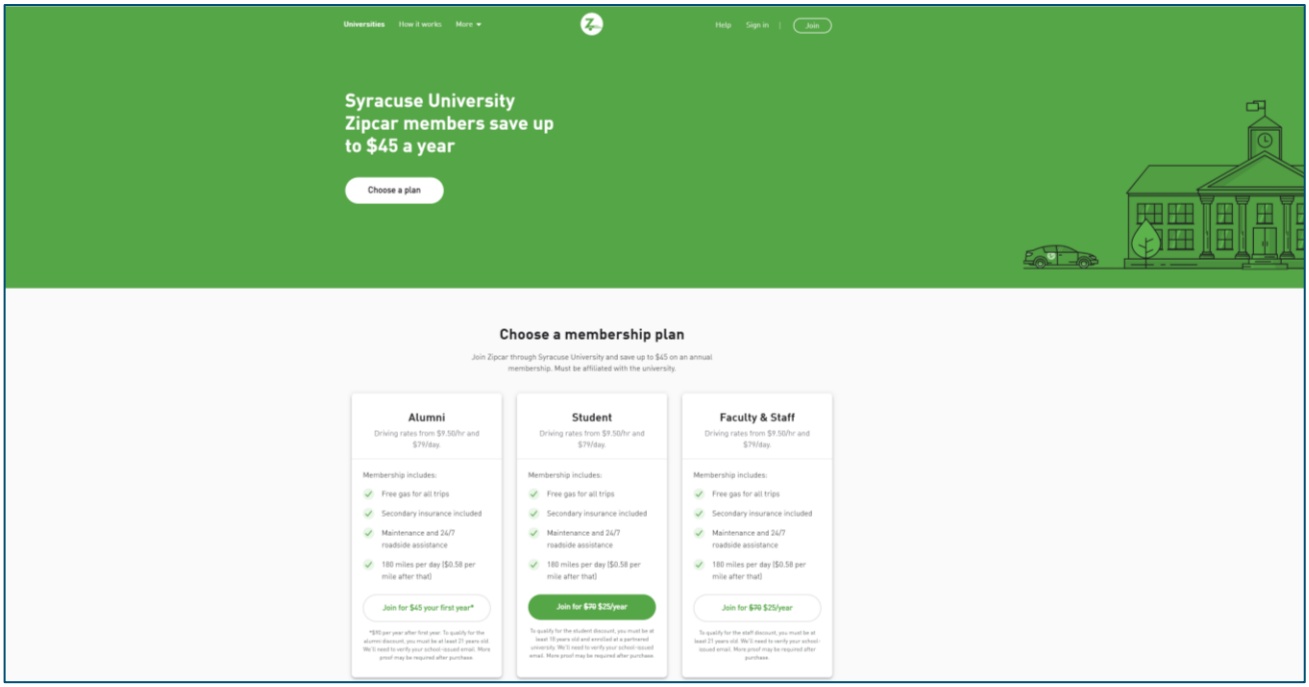


Figure 54: Zipcar website for SU

8.7.2.1 Event Operations

To avoid additional vehicles on the streets near the Dome during an event, a rideshare pick-up and drop-off location was established at Brewster Hall circle on Van Buren Street. This is indicated by few signs in the area. The intent for this location is for the vehicles to pull into the loop for pick-up and drop-off, however since most of the vehicles stop on Van Buren Street, this designated location does not operate as intended. Additionally, there is no mechanism to enforce that the rideshare companies use this location.

8.8 Bicycle and Pedestrian Infrastructure

8.8.1 Bicycle Infrastructure

The Syracuse University Main campus area has existing bicycle infrastructure including dedicated bike lanes on area roadways and bike racks. In the Campus area, there are bicycle racks near most academic and residential buildings. There are dedicated bicycle lanes on University Avenue, most of E Genesee Street - east of I-81, Waverly Street, Comstock Avenue, Colvin Street – east of I-81 and Euclid Avenue. Additionally, Crouse Avenue – between W Genesee Street and Waverly Avenue is a marked as a shared street for bicycles and vehicular traffic.

The City rolled out Syracuse Sync bike share system in July 2019, with an e-bike fleet and about 5 hubs located in the Main campus area. However, the service was suspended in late 2020. In September 2021, the City re-launched a bike share program with a new vendor and added scooters as well.

8.8.2 Pedestrian Infrastructure

Pedestrian infrastructure in the Main campus area includes sidewalks, pedestrian paths, and crosswalks at signalized intersections. Most of the area roadways have sidewalks on both sides of the roadway, with some exceptions due to grade-level restrictions. University Place is restricted to pedestrians only between Crouse Avenue and College Place. There are some uncontrolled crosswalks along Comstock Avenue. Generally, the quality of the pedestrian environment in and around the Main Campus area is considered moderate to high.

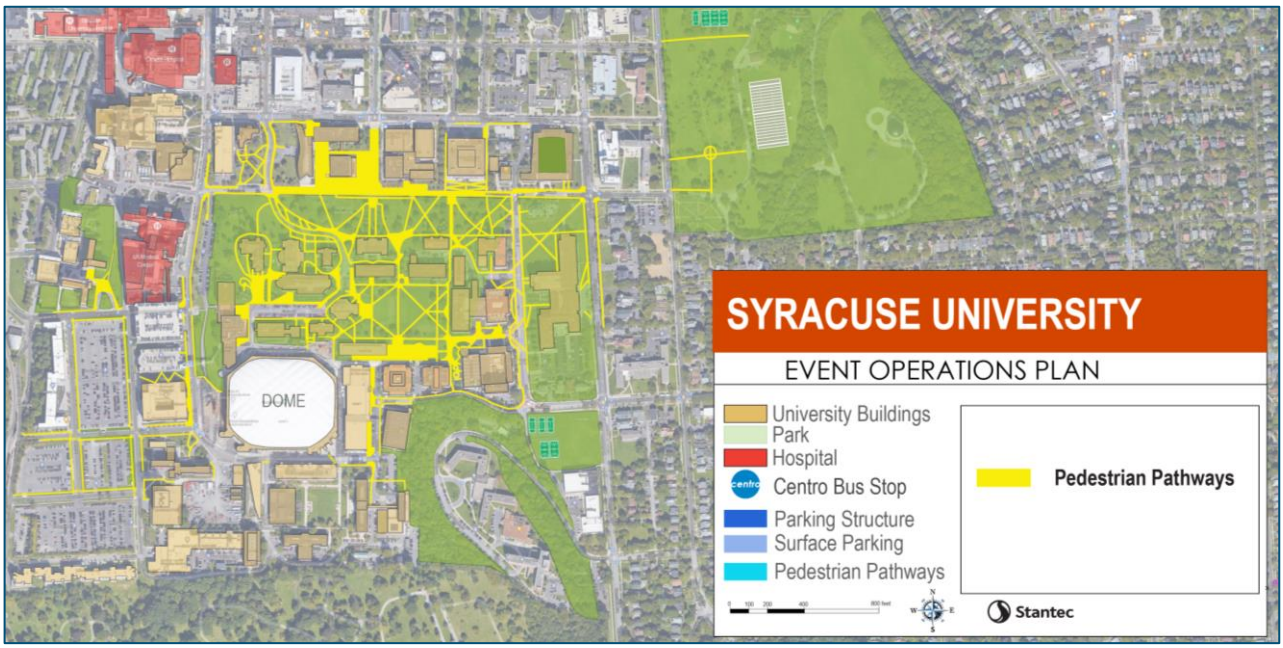


Figure 55: Pedestrian Routes on and Near Campus

8.8.3 Event Operations

Streetlight data was used to estimate pedestrian and bike travel patterns during the November 9, 2018 football game against Louisville. The Streetlight platform provides an index, instead of an actual count of

bicycle and pedestrian trips, and it allows for analysis of a month, not individual event days or hours. It is possible to generate a temporal distribution of a typical day during that month. This information is useful to identify the highest-volume locations.
Among the locations evaluated, the highest levels of pedestrian activity were observed at:

- Euclid Avenue
- Adams Street
- Harrison Street
- Irving Avenue
- University Place
- Waverly Avenue

The highest bicycle demand locations were observed to be at:

- Irving Avenue
- University Place
- Genesee Street
- Comstock Avenue south of Euclid
- Euclid Avenue

8.9 Syracuse Police Department Dome Event Deployment and Assignments

The Syracuse Police Department has a documented matrix based on projected event attendance to determine number of officers deployed. This matrix has different officer deployment numbers for football and non-football events.

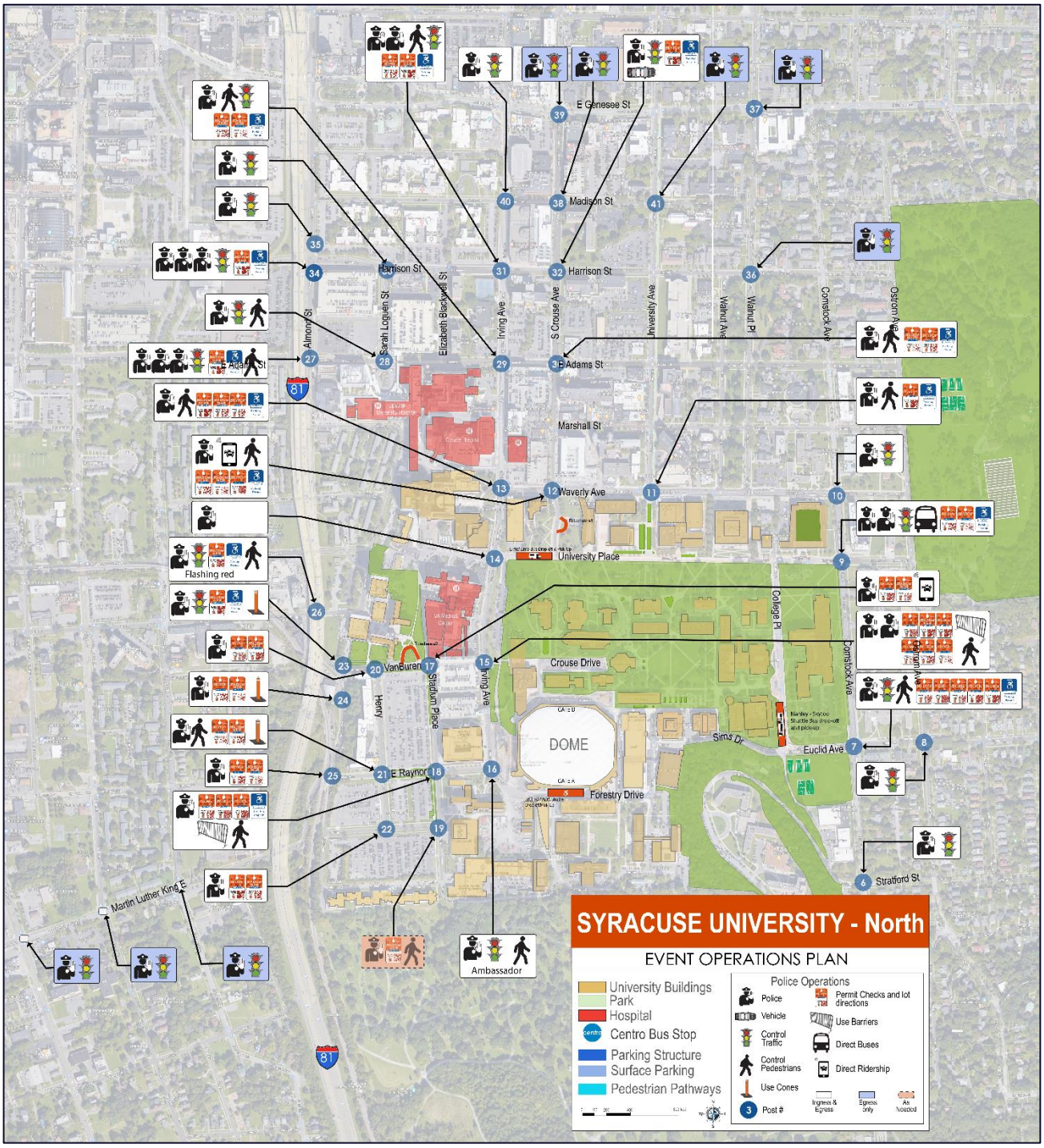


Figure 56: Police Operational Positions North Campus

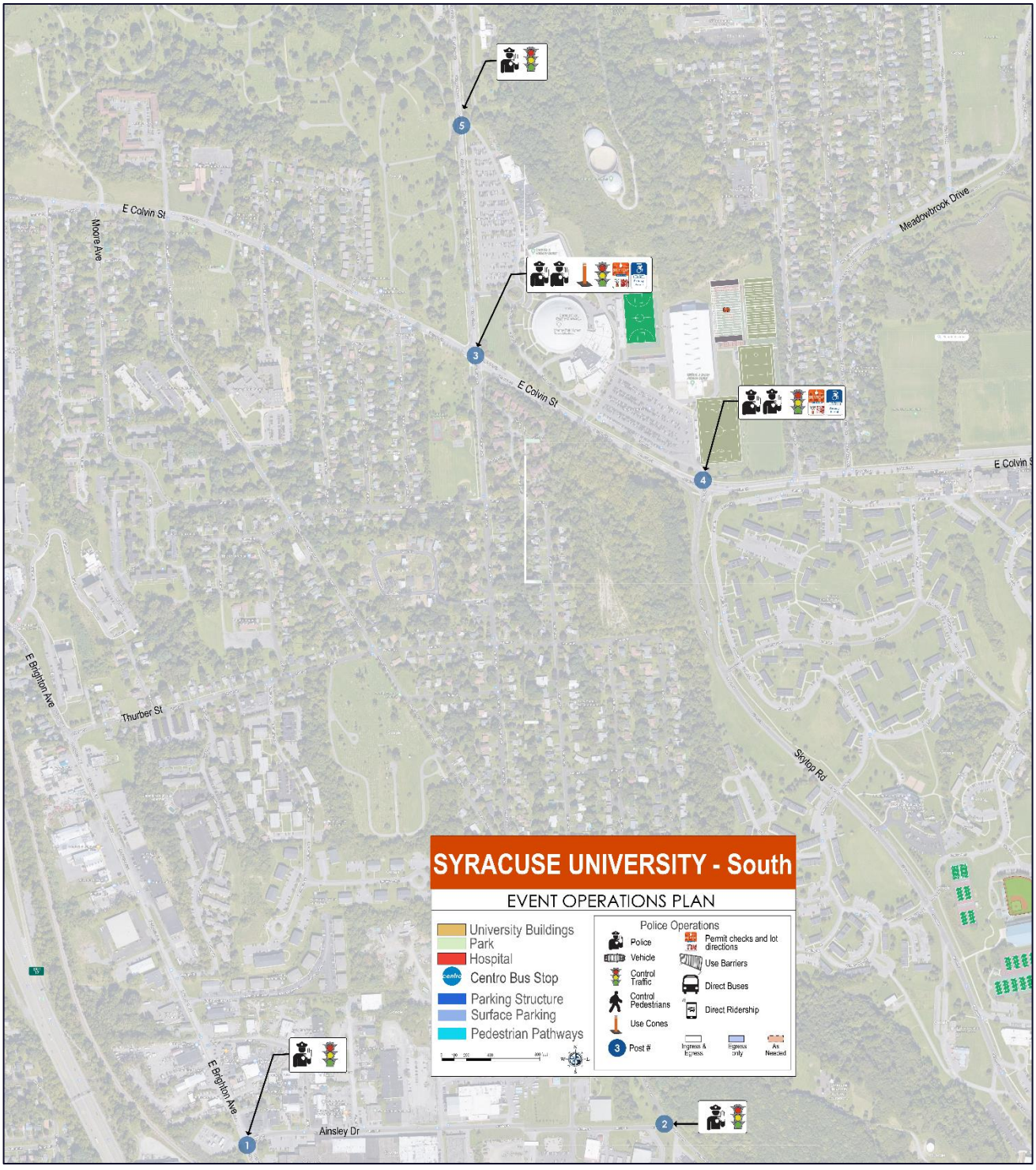


Figure 57: Police Operational Positions South Campus

The Syracuse Police Department has documented assignment locations for officers and brief descriptions of role for each location before and after events greater than 30,000 attendees. The level of staffing is based on the expected attendance, and the plan that was provided is intended to represent the largest allocation. In many cases, roles are not specific (for example, "Direct and assist Dome traffic onto Ainsley Dr."), especially when it comes to exact locations for officer placement and the use of cones. Some mention of barricades and use of signal boxes is included, but not specific methods or placement. Based

on stakeholder discussions, we understand that staff inside the Dome are generally off-duty police officers, while those in the surrounding areas are typically on-duty Syracuse Police.

According to the Syracuse Police Department, the only area that becomes "overrun" with pedestrians is between the Dome and the west parking areas/garages after games. Yet, because that distance is so short the pedestrians have mostly cleared by the time people are in their vehicles and driving out of the lots. There is no "sidewalk widening" currently but the department is not opposed to it if there are identified areas where it would help flows.

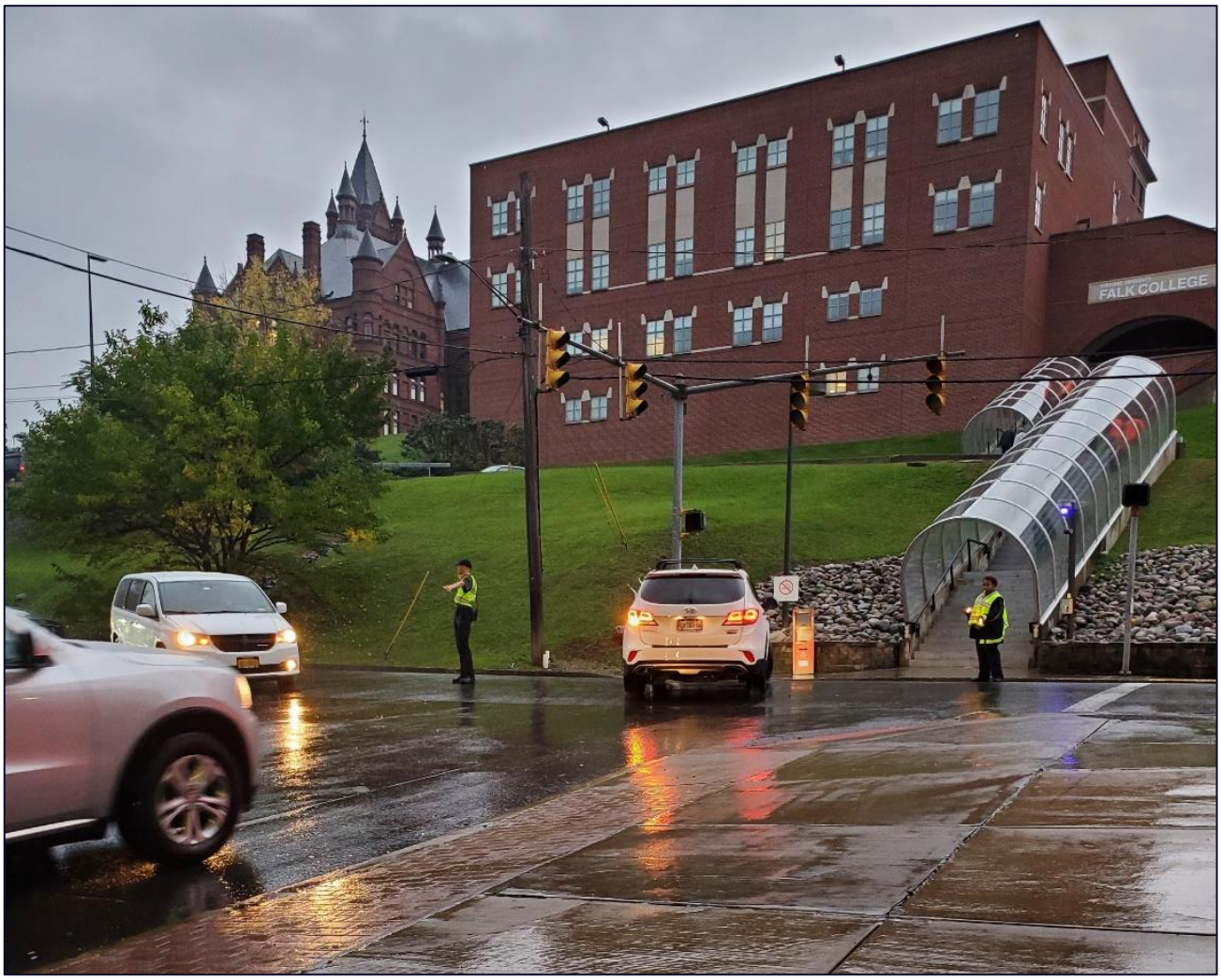


Figure 58: Police Direction of Traffic at Intersection of VanBuren St. and Irving Ave

8.10 Syracuse University Dome Event Deployment and Assignments

The University provided input into the location of both people and infrastructure throughout the campus on major events days that allowed the team to map it out in preparation for the future Operations Plan.

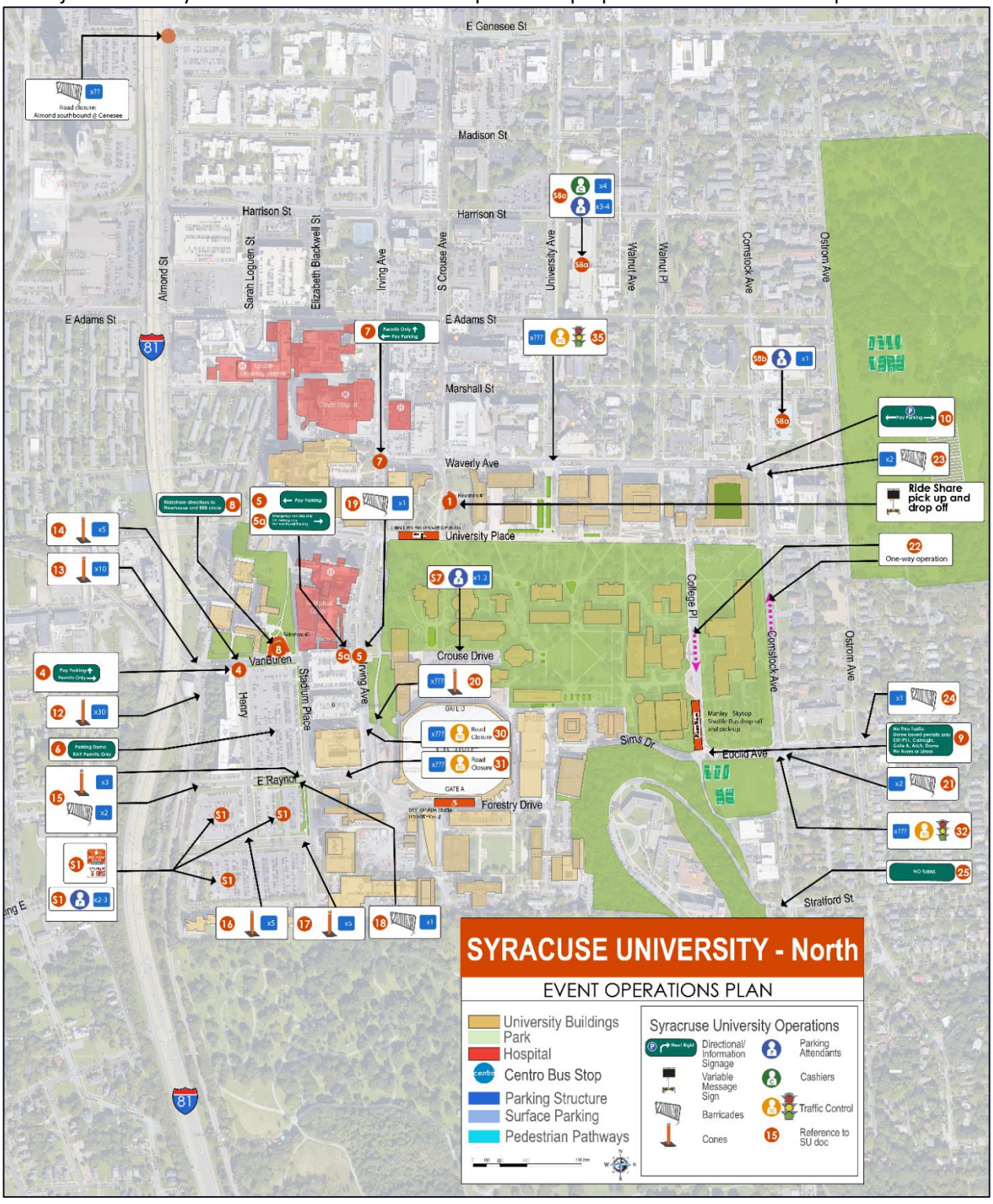


Figure 59: Syracuse University staffing and Infrastructure for Event Days North Campus

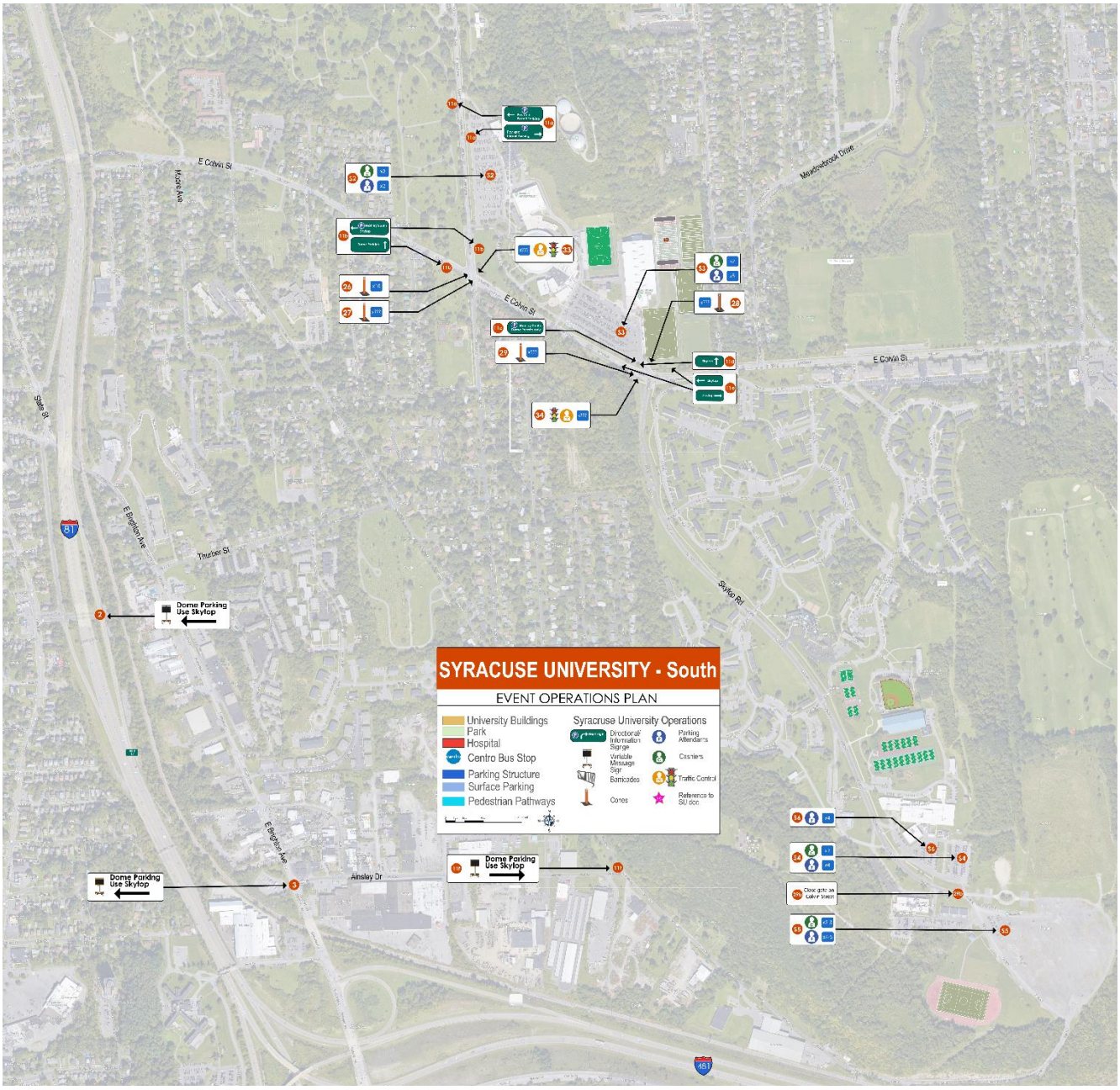


Figure 60: Syracuse University staffing and Infrastructure for Event Days South Campus

9 Event Day Operations Observations

This discussion of event day operations focuses on the observation of travel patterns, the strengths in the operation, and potential areas for improvement. Observations were conducted by a team of four transportation professionals on Friday, October 15, 2021. The observation team focused on pre-event communication, vehicular traffic patterns, pedestrian flow, parking, transit, and overall logistics, signage and wayfinding, and use of staff and traffic management resources. The observation plan included two observers driving along the Adams/Harrison corridors, and along the Sktyop/Brighton corridors, and two observers on foot, covering the area near the Dome and north of the Dome to Adams Street. This provided a good geographical cross-section of the traffic activity on and around the Campus.

The event was a football game between Syracuse University and Clemson University. The game start time was 7:00 PM. The reported attendance on that day was 25,000 persons. This was much lower than previous events between these two teams at the Dome, but it is expected to be one of the highest-attended events in the 2021 season, so it still represents a peak event. Attendance was low possibly because Clemson was not as highly ranked entering this event as they had been in previous seasons, and because of COVID-related restrictions for entering the Dome. All guests were required to confirm their vaccination status prior to entering the facility.

9.1 SU Parking Shuttles

Parking shuttles were operating for both the Skytop and Manley lots for this event. Shuttles for Skytop lot were operated by Centro and shuttle for Manley lot were operated by a private charter company since Centro was not able to provide the number of buses requested due to driver shortages. Shuttles run from their respective parking areas and drop off at the College Place bus stop by traveling north on Comstock Ave, turning left onto University Place, proceeding south on College Place, dropping off passengers at the bus shelter, and then returning to Comstock Ave southbound via Euclid Ave. The same route is taken post-game.

Pick-up operations at the Skytop Lot ran very smoothly with a constant flow of attendees walking from the parking lot to the bus loading zone at the Syracuse University Human Resources building. There were at least five buses is queue waiting for the previous bus to load. When a bus was at capacity, it would move along and then one of the buses in queue would take its place. Similar operations were observed at the Manley South Lot where there was a queue of buses waiting for the previous bus to reach capacity before moving along.

Pre-event drop off operations are smooth with shuttles unloading faster than arrival preventing any bus queuing.

Post-event event shuttles are loaded at the College Place bus stop. Prior to the end of the game when minimal numbers of passengers are arriving, a single shuttle line runs to both the Manley and Skytop lots. When there are sufficient passengers arriving for parking shuttles (at the discretion of SU Parking staff) shuttles are exclusively for either Skytop or Manley lots. Skytop Lot busses are queued on the curb just north of the bus shelter and a few pedestrian barricades are set up to loop the passenger queue on the sidewalk. Manley Lot shuttles are queued on the curb just south of the bus shelter and have no pedestrian control barriers. The ‘Cuse Trolley still runs regular service for students and stops at the bus shelter between the two parking shuttle queues. Parking staff use walkie-talkies to call busses from the lots and keep at least 4 busses in queue/loading at College Place.

ADA shuttles operate between Skytop Lot to Gate A (pre and post-event) by travelling north on Comstock, turning left on Euclid, and proceeding down Sims Drive to Forestry Drive. The shuttles return by the same route by turning around in the Sadler Hall loop. The staff shuttle follows the same general route as the ADA shuttle, but originates from the staff parking on Ainsley Drive and drops off at Gate B.

9.2 Late Arrivals of Fans

Traffic was observed to be late-arriving, compared to previous event days (based on a review of historical location-based data). The flow of entering traffic on Adams Street, for example, was observed to increase significantly around 6:15 PM. This late-arriving pattern may have been due to the day of the event (a Friday evening), but the comparison to previous Friday evening events, such as Louisville in 2018, showed that this was a later arriving profile. The weather was rainy for much of the pre-game period, and this may have also contributed to the late arriving pattern, since guests may have been less inclined to participate in pre-game activities before the event.

9.3 Illegal Parking

Illegal parking had been reported as a concern by some stakeholders, who indicated that the level of illegal parking activity on some event days hindered traffic flows on the Campus. The observation team did not observe a large volume of illegal parking activity on Campus, but it was observed on other areas, such as Thornden Park, and some sections of the neighborhoods to the East.

9.4 Strengths

9.4.1 Rideshare Designated Areas

Two rideshare areas were designated near the Dome. The northern rideshare area was north of Waverly, and a large VMS sign informed drivers and pedestrians about this location. The other location was north of the Stadium West lots, along Van Buren Street. Both areas are designed to accommodate off-street queueing of pedestrians and vehicles, and can accommodate simultaneous loading of five or more vehicles. These locations were well-marked, signage was provided, and they were located some distance from the Dome, which is recommended to minimize conflicts between exiting traffic and entering rideshare vehicles in the areas directly adjacent to a facility. However, geofencing was not implemented, so guests could call vehicles from any location, not just the designated areas. This likely dispersed the rideshare demand. No more than five vehicles were observed at either location at any time by observers.

9.4.2 Pedestrian Flows Near the Dome

Among the heaviest observed flow corridors were the area near the Stadium West lots, and those near the bus pick-up area east of the Dome. Both of these locations were well-managed, with staff at crossing locations, and the adjacent intersections were also managed to minimize the impact of vehicle-pedestrian conflicts.

9.4.3 Campus checkpoint operations

There are several permanent checkpoints around the perimeter of SU campus that prevent unauthorized vehicles from entering the main campus area:

On Forestry Drive south of E Raynor Ave
On S Crouse Ave south of Waverly Ave
On University Place west of Comstock Ave
On Euclid Ave west of Comstock Ave
These checkpoints also serve to provide directions to unauthorized vehicles.

The Euclid Ave checkpoint was observed to have the most traffic during event ingress. One DPS officer checks for credentials at the booth for westbound traffic on Euclid Ave while two additional officers manage the three-way intersection and check for credentials on vehicles turning right onto Sims Drive. Vehicles westbound on Euclid without specific passes are directed north on College Place to exit back to Comstock Ave via University Place. Permitted vehicles entering from Euclid Ave are directed to Sims Drive which provides access to several small parking lots, provides physical plant access for setting up 'Cuse on The Quad, and is the designated route for the staff and ADA shuttles. The average observed processing rate at the checkpoint was 13 seconds.

The University Place checkpoint only allows shuttles to enter, all other vehicles are made to U-turn and return to Comstock Ave. The S Crouse Ave checkpoint only allows university vehicles or vehicles with passes to park in the Quad 1 lot. The Forestry Drive checkpoint only allows university vehicles, media vehicles, and vehicles going to the Dome loading dock at Gate B.

9.4.4 Parking Lot Entry Operations

The parking lot entry operations at the Skytop lot were well-managed, with cones set up to direct vehicles into specific entry checkpoint locations. The layout of these cones was changed during the ingress period, based on the available staff and portions of the Lot with remaining parking supply. Entry operations were efficient, with greeters advising guests of the parking fare, and queues were observed to be minimal during the ingress period.

9.4.5 Ingress Pedestrian Flow To Campus

Once on campus, pedestrian wayfinding is easy, with visible staff posted at key locations to provide directions and answer questions.

9.5 Opportunities

9.5.1 Signage and Wayfinding

Event-day signage was limited throughout the observation areas. There were some small signs, for example, on the exit from I-481 SB and on Brighton Ave to direct guests to the Stadium parking lots. However, these were small, and may have been difficult to identify and read from a distance, to allow drivers sufficient time to make their decisions. On Adams Street, as well, there was limited signage for cash or permit parking areas. As a result, many vehicles were observed driving down Irving Avenue, since it appeared to be the first turn-off for the zone for traffic approaching from I-81, and not using Comstock Avenue to access the cash lots on the South Campus. Limited signage was observed on the regional roadway network as well, in observations before the ingress period.

Cash parking in Skytop and Manley is accessed most efficiently from the South. However, there is limited sequential signage to provide trailblazing to these lots. For example, after a sign on Brighton Ave advises

drivers to turn onto Ainsley Drive, no signage was observed on Ainsley Drive, Jamesville Drive, or on the approach to Skytop Road. Some signage at these locations, when combined with signage on the I-481 exit ramps, may help reduce the volume of traffic entering via Adams Street now, or via the other campus access points in the future. If these guests are ultimately looking for cash parking, taking alternative entry routes from the south should reduce congestion on the North Campus significantly.

9.5.2 Irving Ave

As described above, ingress traffic patterns seemed to be more concentrated in the hour before kickoff, so congestion on Adams Street was not observed until after 6:00 PM. However, traffic congestion on Irving Ave was observed as early as 3:00 PM. Observers followed some vehicles, and it appeared that the majority of these drivers traveled south on Irving, west on Van Buren, and were directed back to Almond Street. These were likely cash parkers who were not aware of the cash parking areas. This flow contributed to congestion on Irving Ave, Van Buren Street, and on Almond Street. Signage may be helpful to notify incoming traffic on Adams Street of the location of cash parking areas.

9.5.3 Parking in Thornden Park and Surrounding Neighborhoods

As discussed above, illegal parking was not observed in large quantities on the streets on Campus. However, there were many vehicles parked along the roadways in Thornden Park, and along the side streets approaching Comstock. Some of these vehicles were parked on both sides of the road, in Thornden Park, for example, so that it was difficult for vehicles to pass through the area. Parking in the neighborhoods was largely limited to the block or two closest to Comstock. For example, parking was observed on nearly the entire curb on Euclid Avenue one block west of Comstock, but not in other areas. These block-faces are attractive to drivers because they provide seemingly “free” parking a short walking distance from the Dome. “No parking” restrictions and signs, and targeted enforcement in these block faces and/or the Park may help reduce some of the incidence of illegal parking that occurs on these block-faces.

9.5.4 Access to Skytop from the South

Observations of ingress operations to the Skytop lot from the south revealed very little queueing and delay with less than 2-4 cars observed in queue at the ticket booth. It appears more vehicles accessed the Skytop lot via the north as queueing was slightly longer at those ticket booths. At both access points, ingress operations ran smoothly with little delay.

Egress observations were made from the south of the Skytop lot and utilized Skytop Road, Jamesville Avenue, to Ainsley Drive. Two police officers were stationed at the intersection of Jamesville Avenue and Ainsley Drive for traffic control. It is noted that there was one steady line of cars queued on Jamesville Avenue. Discussions with the police officer revealed that Skytop Road and Jamesville Avenue are converted to one-way roadways during egress operations of special events. Two lines of cars are formed along Skytop Road; however, it is unknown when the line of cars flows back into one as observed at Jamesville Avenue. The signalized intersection at Ainsley Drive and Brighton Avenue worked well. Queueing from Ainsley Drive would occasionally reach Jamesville Avenue, but it was a steady queue that kept moving.

9.5.5 Stadium West Flows

Egress from the Stadium West lots was characterized by congestion on the approaches to Almond Street. Queues were observed extending from Almond Street into the parking areas in the Stadium West lots, for over 30 minutes after the end of the game. The congestion was due to intersection operations along Almond Street between the Stadium West lots and the I-81 NB entry ramp at Harrison. Traffic management agents were in place at some of the intersections, including a coordinated team of agents at Adams Street. The traffic management and signal timing at other intersections along Almond Street, such as Dyer Court and Taylor Street, can be arranged to allow more green time to the Almond Street movement, and less green time for the lower-volume side streets. Overall, as congested as this egress pattern was, it was attributable in large part to the lack of alternative access points to I-81 NB. Once the Community Grid option is in place, drivers will have alternative access points onto the Almond Street corridor and can use side streets to access I-690.

9.5.6 Traffic Management Resources

Traffic management agents were observed to arrive late in the ingress period, at which time congestion had manifested on Irving Ave, Adams Street, Van Buren Street, and Comstock Avenue. The Operations Plan will highlight key management locations, and it will prioritize those locations, so that any early arriving staff can prioritize those locations.

9.5.7 Sims Drive to Forestry Drive

Sims Drive is a popular pedestrian route (between Forestry Drive and Euclid Ave) during both ingress and egress. Pedestrian overflow onto the roadway was observed along the route which conflicted with vehicles. Pedestrians on this route appeared to be approximately 50% students.

9.5.8 Cash Parking Sign for Southern Lots

Variable or static event-day signage on the approaches to the South Lots would help reduce the volume of cash parkers driving through the North Campus. This in turn would provide a better ingress experience for cash parkers, and for permit parkers, who would not experience as much congestion from cash parkers, on the approaches to their parking destination in the North Campus.

9.5.9 Parking Shuttles During Peak Egress

Post-game it took 45 minutes to clear the passenger queue for the Skytop parking shuttle and 30 minutes to clear the passenger queue for the Manley parking shuttle. The maximum queue of 750’ for the Skytop shuttle was reached 17 minutes after the game ended. Parking shuttle passengers could have wait times at College Place reduced by implementing a more aggressive bus loading protocol which currently takes several minutes per bus. Shuttles were also not always available to load queued passengers, so methods to reduce bus delay on Comstock Avenue would improve wait times. Additionally, the ‘Cuse Trolley picking up in the center of the College Place stop blocks the other buses coming in and out.

10 Conclusions

Event typologies

Based upon the information available, it appears that the event operation plan should be based upon four basic categories to be able categorize the needs for personnel, signage, and infrastructure rather than a sliding scale that is used today. The > 30,000 event will be a limited occurrence; therefore, the three other categories should be the focus.

Attendance Categories
< 10,000
10,000 – 20,000
20,000 – 30,000
> 30,000

Engagement

- Egress was felt to be more difficult than ingress by a factor of two according to survey respondents.
- Parking shuttles and parking location were generally rated highly relative to other issues whilst transit was not a factor (>5% responded to it as something they liked)
- The price of parking was the major dislike
- Stakeholders acknowledge that there is an additional strain on the transportation resources created by events but were generally cautious about new mitigations that may solve one issue at the expense of another
- Street parking and access to businesses were noted by stakeholders as issues as well as insufficient signage to direct event goers to the appropriate parking location
- Streets that were noted as issues are Adams Street, Irving at Adams, Almond Street and Harrison Street.
- Centro noted that congestion on Comstock was an issue for the parking shuttles to Manley and Skytop.
- There are a number of potential mitigations to be considered for the future operations plan as noted in Section 5.2

Event Day Traffic Profile

- Based on the empirical evidence, 80% of attendees are using the highway network first before reaching the local road network.
- Approximately 15% of all attendees are within a walk/bike distance of the Dome
- Most attendees drive to the event with minor use of transit or rideshare noted
- This equates to about 13,400 additional vehicles on the local road network around the campus on a large event day
- Ingress showed some minor impacts to levels of service on the approach roads but because ingress occurs over a 2-3 hour period, there is little additional congestion created until within the main campus area.
- Egress patterns showed high I-690 Westbound and I-81 Northbound movements for several hours post event while I-690 Eastbound, I-481 Northbound and I-81 Southbound showed delayed

congestion (ie. an hour post event it started and lasted an hour suggesting delays exiting the campus area for that first hour post event)

- Overall, the time to clear the main campus area post event appears to be 1.5-2 hours suggesting that there may be mitigations in the future operations plan that can be applied.
- The vast number of permits that allow full access to small and large lots all over the campus create more of a congestion issue as event goers stop to ask about event day access than is likely created by the small number of on street parking stalls available across the entire campus. Permit consolidation or changes to the event day access may be a consideration for the future operations plan as would the impact of any changes to the surface lots in the future by the university (such as using existing lots for new buildings)

Pre-event communications

www.cuse.com provides significant information about parking locations and permits but links to Centro bus services simply point to the home page. The Centro website takes navigation of several windows to reach the appropriate information. It may be worth considering a single source link from the main page of Cuse.com to all travel information including parking lot shuttles, and Centro services.

Signage and Wayfinding

A field inventory was conducted in May 2021 with signage placed in 4 categories:

- Parking
- Dome
- University
- Variable Message Boards

The overall impression is that there is very little directional signage to the Dome or the various parking lots on the regional road network or the local street network. This can be improved based on the signage inventory that was taken to provide key messages at critical decision points on the journey into the campus to help eliminate unnecessary through traffic in the main campus area for those who have to park at Skytop or Manley or crossing the campus east to west.

Transit

Centro and SU have a number of routes through the campus area as well as on-demand shuttles for students, but they do not appear to be highly utilized for parking in the Downtown or north campus area on event days. The parking shuttles from Skytop and Manley appear well used when they operate, which can vary by the type of event. Any event-based congestion in the main campus area impacts these services so there may be options to consider transit priority in some areas within the future operations plan.

College Place transit stop for the 'Cuse Trolley could be relocated to reduce friction with buses using the shuttle pick up area.

Rideshare

There are two formal rideshare locations on campus however there are no existing agreements with the rideshare companies to limit pick up and drop off to those locations. As a result, during the observations, the lack of signage and enforcement meant that those two locations were not operating as intended.

Walking and Cycling

There are existing bike lanes on several key streets in the main campus area and a bike share program on campus that included the use of scooters starting in September. There was no data available on its usage in time for this review but will be a consideration for the future operations plan.

The walking environment is well established with sidewalks and walking paths on the main access points to the dome and through the main campus area.

APPENDIX A: EVENT TYPES

1 Men's Basketball

There were 91 men's basketball events in the historical review period (August 2016-March 2020). The average attendance for a men's basketball event was around 13,000 guests. The chart below shows the range of attendance for these events.

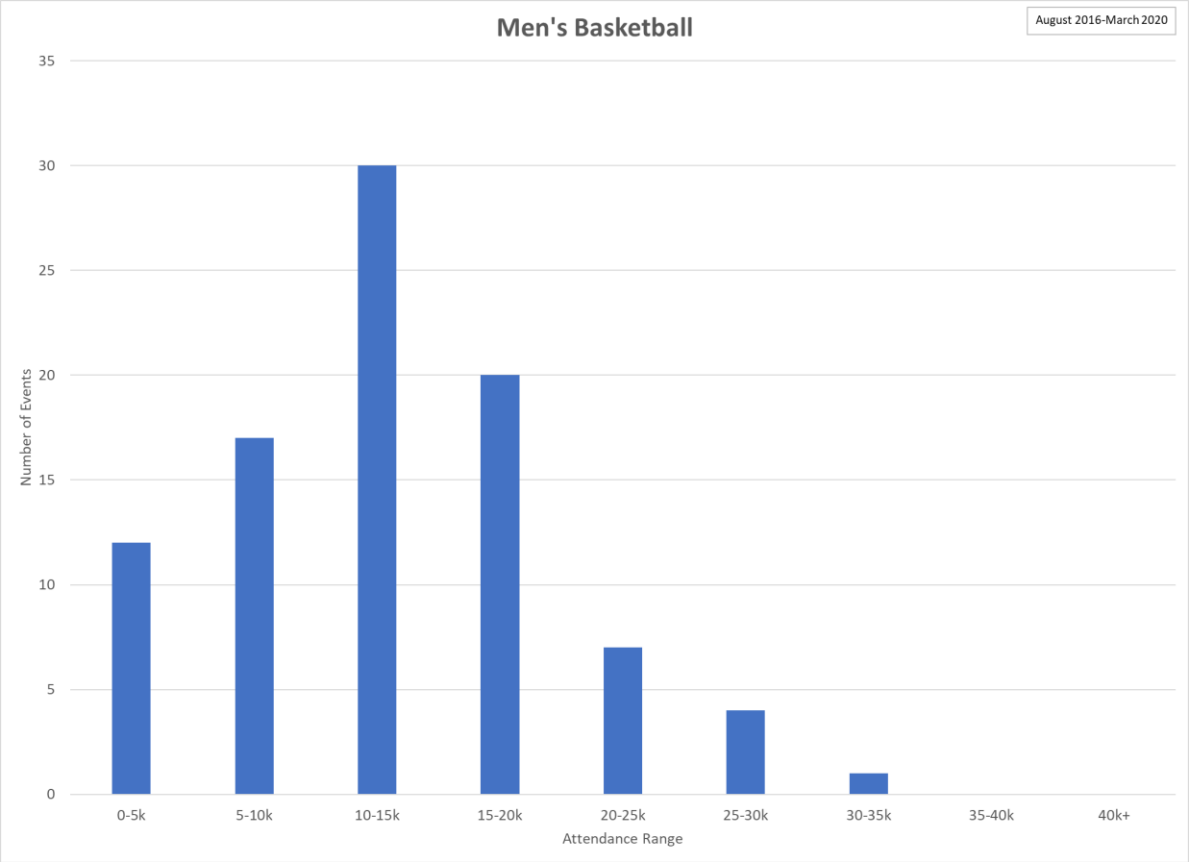


Figure 61: SU Men's Basketball attendance

The highest attended events included games against Duke, with an attendance of 32,251. Other high-attendance events included games against Florida State and Georgia State.

2 Football

There were 32 men's football events in the historical review period (August 2016-March 2020). The average attendance for a football event was around 20,000 guests. The chart below shows the range of attendance for these events:

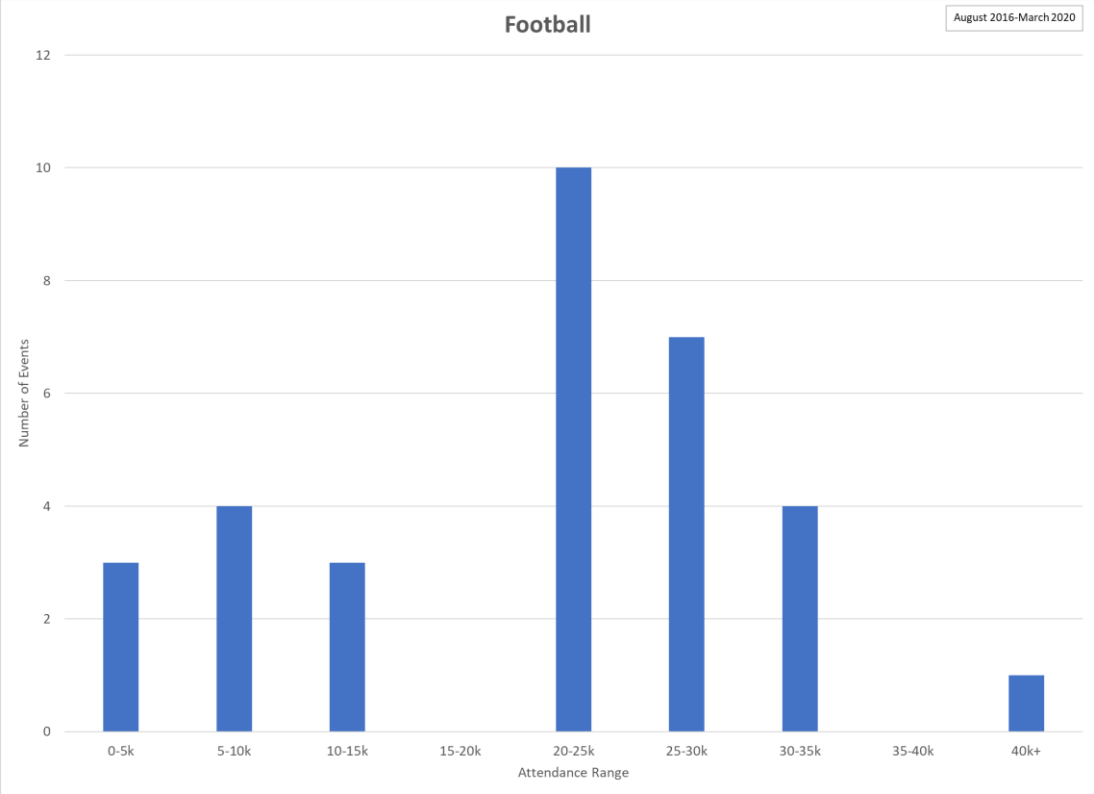


Figure 62: SU Football Events Attendance

The highest attended event was a game against Clemson, with an attendance of 41,820. Other high-attendance events included games against Pittsburgh, North Caroline State, and Louisville.

Lacrosse

There were 74 lacrosse events in the historical review period (August 2016-March 2020). The average attendance for a lacrosse event was around 1,738 guests. The chart below shows the range of attendance for these events. Most events featured an attendance of less than 5,000 guests. There were 4 events with attendance over 5,000 persons.

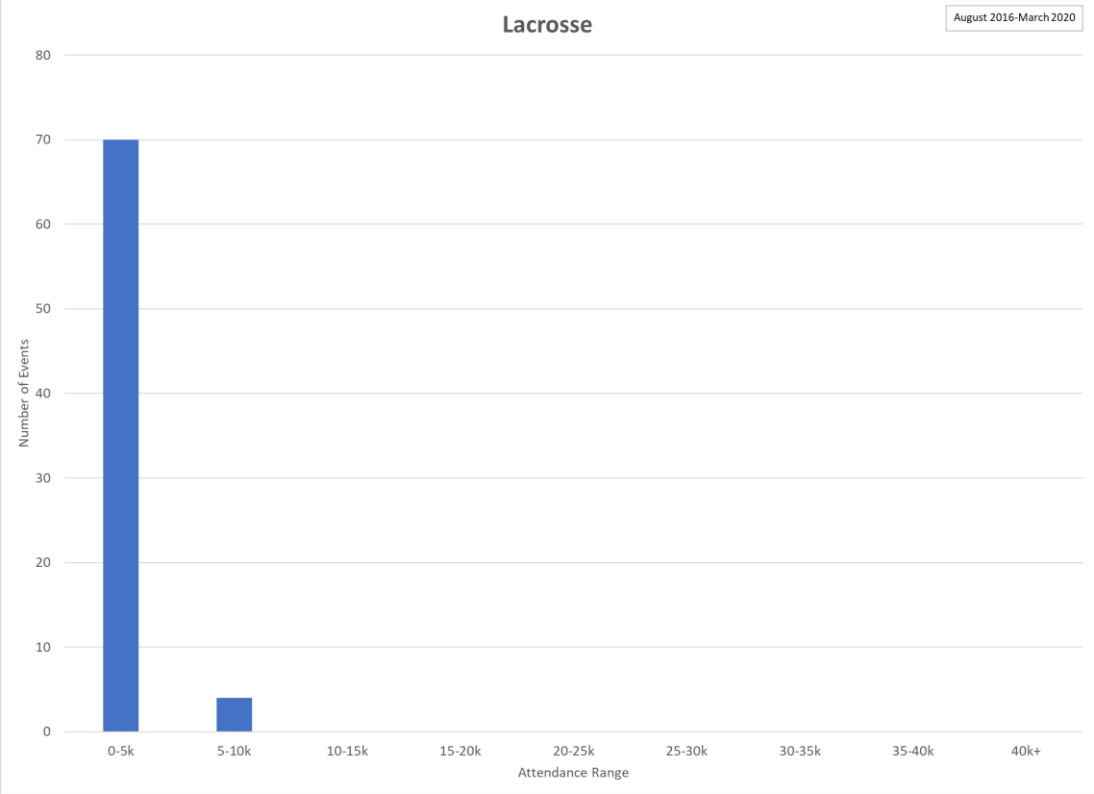


Figure 63: Lacrosse Events Attendance

The highest attended event was a game against Albany, with an attendance of 7,326 guests.

3 Monster Jam

There were 3 Monster Jam events in the historical review period (August 2016-March 2020). Each of the Monster Jam events featured attendance between 30,000 and 35,500. A Pit Party is typically held the day before the event, and usually has an attendance of less than 5,000 guests. A Monster Jam event is unlike traditional sports events because it occurs only once a year, and typically includes more infrequent attendees, who may not be familiar with the operations plan. As a result, the event requires more traffic, parking, pedestrian, and traffic management resources, to direct guests to the appropriate locations for parking, transit, and identify routes to and from the Dome.

4 Concerts

There were 5 concerts in the historical review period (August 2016-March 2020). The average attendance for a concert event was around 13,000 guests.

The concert events included Block Party for the years 2017, 2018, and 2019, a “Rock the Dome” event in 2016, and a “Paul McCartney One on One Tour” event in 2017. The Paul McCartney concert featured an attendance of nearly 35,000, while the Block Party events featured an attendance of around 10,000, and the Rock the Dome event was less than 5,000 persons. A major concert event typically occurs at the Dome every few years. An Elton John concert has been scheduled for 2022, nearly five years after the Paul McCartney concert.

5 Other Events

Nearly half of all events at the Dome during the study period are not in one of the categories described above. These are classified as “other events” for the purposes of this review, because they include events

such as career fairs, high school events, and SU events such as Convocation, Commencement, and Women's Basketball games. In total, there were 173 events of this type in the study period, and the average attendance for these events was around 2,600 guests. The chart below shows the attendance ranges for these events.

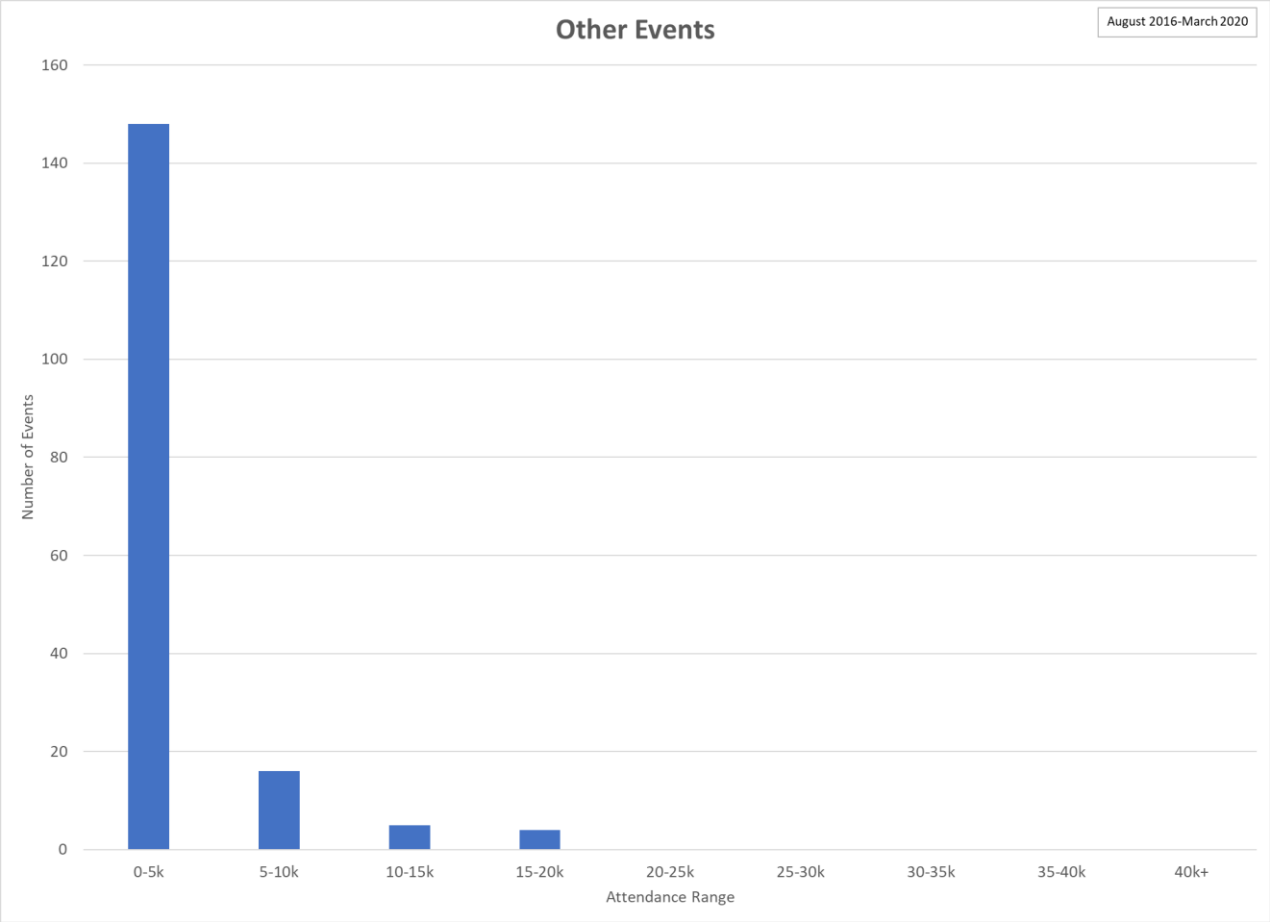


Figure 64 - Other Events at the Dome

As shown **Error! Reference source not found.**, most of these events featured attendance of less than 5,000 guests. The larger events include Convocation, Commencement, and high school basketball, football, and band events. A 2017 women's basketball event against Notre Dame also featured attendance of over 10,000 guests.

APPENDIX B: LOCATION-BASED DATA

1 AirSage

AirSage is a location-based data services provider. We have used AirSage to generate an animation of event day operational flows. For this project, AirSage data was acquired for a 30-day period in 2018 that included several basketball and football events. AirSage report provided mobility patterns at a 10-meter by 10-meter grid resolutions for the entire study area, in hourly increments. This provides an opportunity to visualize event flows, parking locations, ingress and egress periods and patterns. The AirSage data was also used to select zones for additional analysis in the StreetLight platform. **Error! Reference source not found.** shows a sample visualization from the AirSage data of major traffic flows on specific event and non-event days. This portrays pre-event Vehicle flow around the Manley Field House in the hour before a 7PM football event in November 2018. The AirSage data is intended to show areas with activity, and this figure demonstrates the increased level of activity on event days.

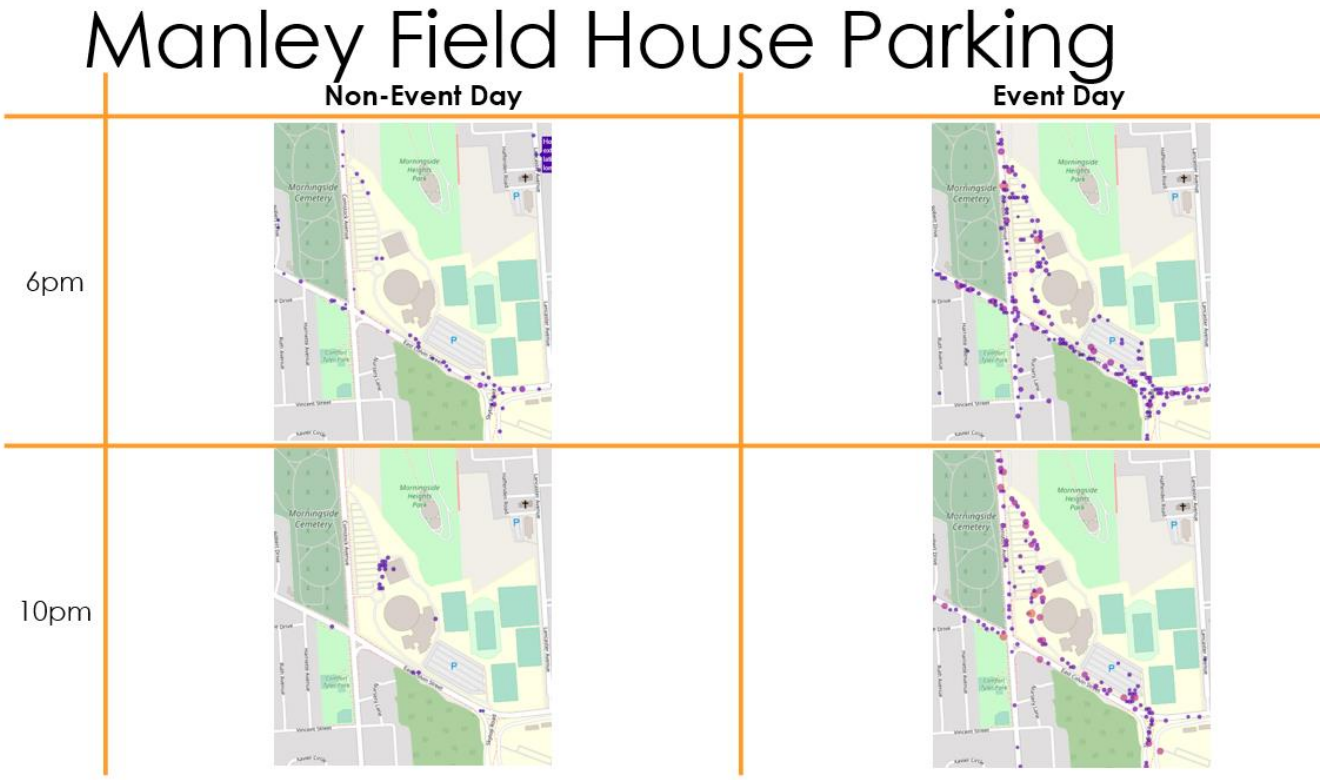


Figure 65: AirSage platform visualization.

2 StreetLight Data

StreetLight Data is a smartphone location-based data provider that provides anonymized, aggregated data on travel patterns. For this project, the team used the Multimode platform, which includes historical data on travel patterns by mode – auto, truck, pedestrian, bicycle, and transit, for any hour since 2018. This platform allows for analysis of travel demand at key locations around the Dome during pre- and post-event periods for specific event days, as well as non-event day conditions. The metrics provided by the

platform are estimates, based on a sample size of around 100 million devices across the lower 48 US states and Canada (approximately 1/3 of those countries' population) that are tracked regularly by StreetLight Data and their partners. Trip penetration rates (the percentage of total trips that are covered by location based data services) for individual analyses can range from 1% to 35%. Trip penetration varies based on data period, geography, mode, and other factors. The estimates can be scaled to actual traffic counts using available count data.

For the purposes of this analysis, two sets of zones were established – pass-through zones and origin-destination zones. Pass-through zones are those where traffic passes through but does not stop. This is a good way to estimate demand along roadways and pedestrian paths. Pass-through zones include the major highways and key locations on the roadways around the Dome.

Origin-destination zones are used to model locations where travelers start and end their trips. These zones were set up at the Dome and at specific parking lots on and off campus. A map of the zones in the StreetLight platform is shown in **Error! Reference source not found.** and through below.

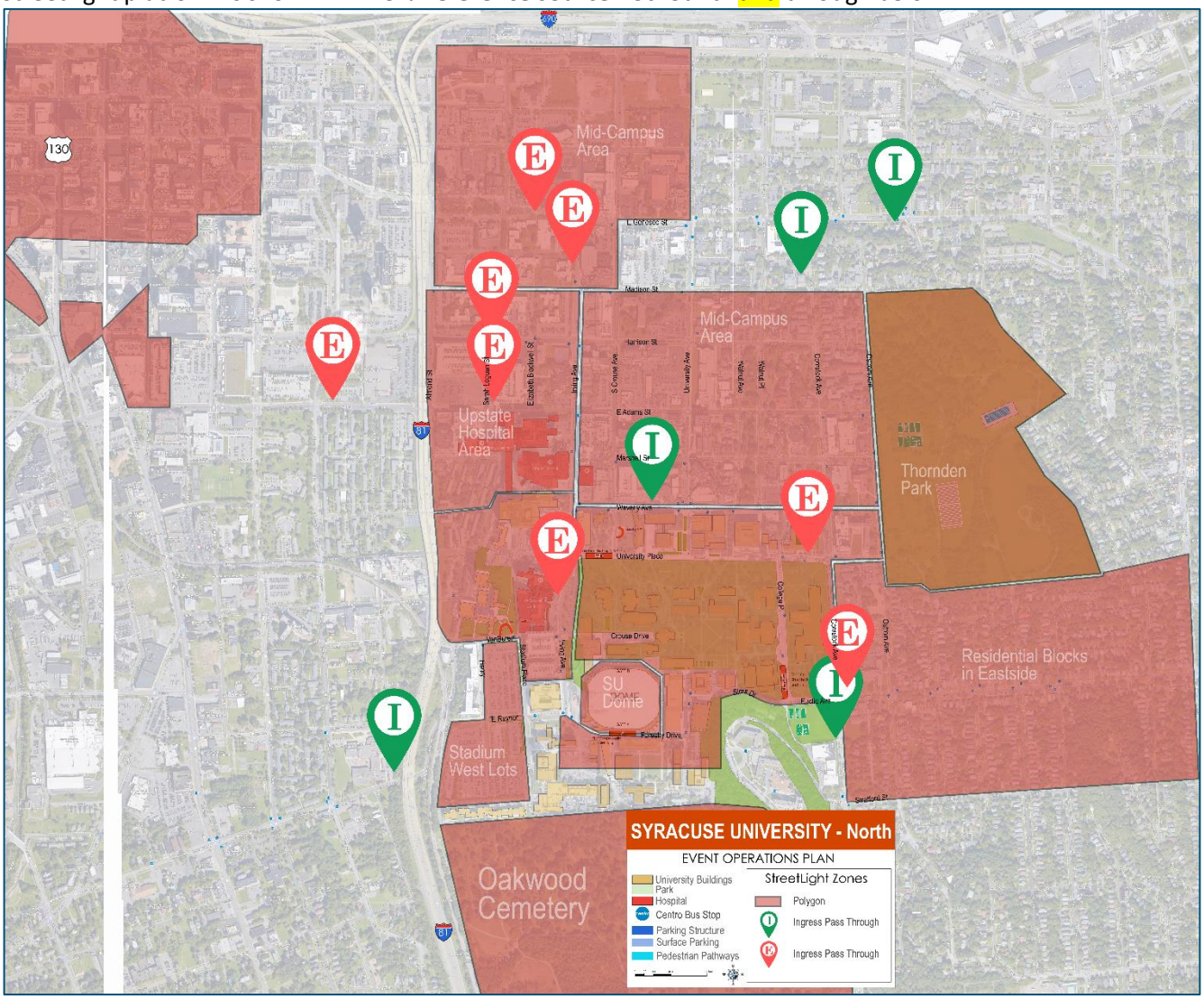


Figure 66 - Streetlight Data Zones – North Campus

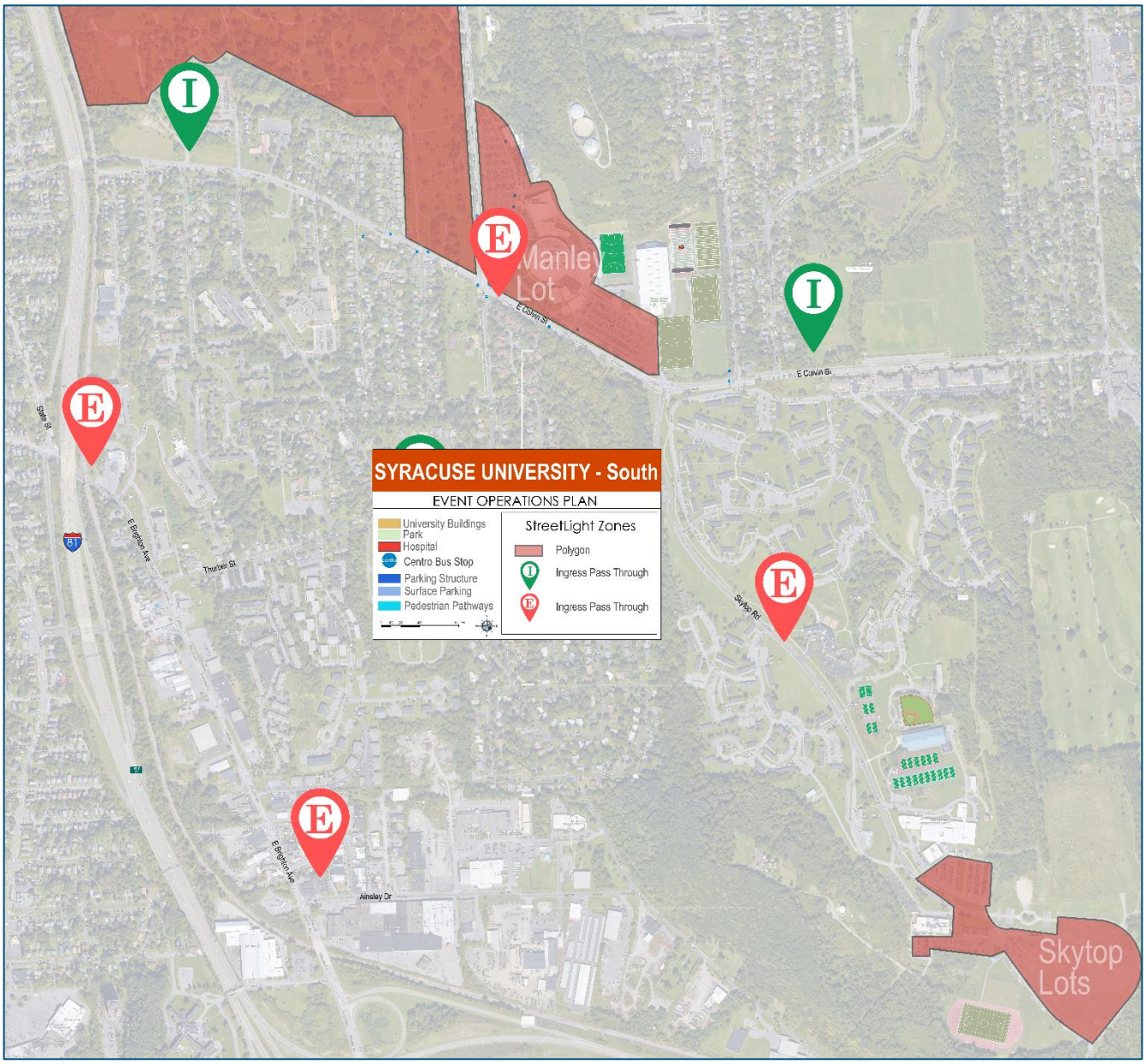


Figure 67 – Streetlight Zones – South Campus

The available analyses in StreetLight Data platform are:

- Zone Activity – This is an indication of the total demand, by mode, at a specific location. This type of analysis is typically used to provide calibration data to available traffic counts.
- Origin-Destination – This provides an estimate of the demand between zones – either pass-through or origin-destination.
- Top Routes – demonstrate the routes travelers take to specific zones, or between zones.
- Pre-Set Geography – this type of analysis allows for the analysis of traveler origins and destinations for specific zones, typically at the Census block level

The data can be used to estimate the demand on specific event and non-event days at designated locations near the Syracuse University Campus.

Using a combination of the aforementioned analysis types, the StreetLight platform helps the project team understand:

- The demand at specific locations on game days
- The travel speeds on event and non-event days
- The relative demand in parking areas on event and non-event days
- The routes travelers take to specific destinations
- The mix of travelers from local origins, and those who traveled from outside the region for events
- The relative demand on exit and entry ramps from highway locations
- The mix of site-generated and background traffic on the roadways in the Study Area.

Figure 68: StreetLight Data Showing total daily volumes

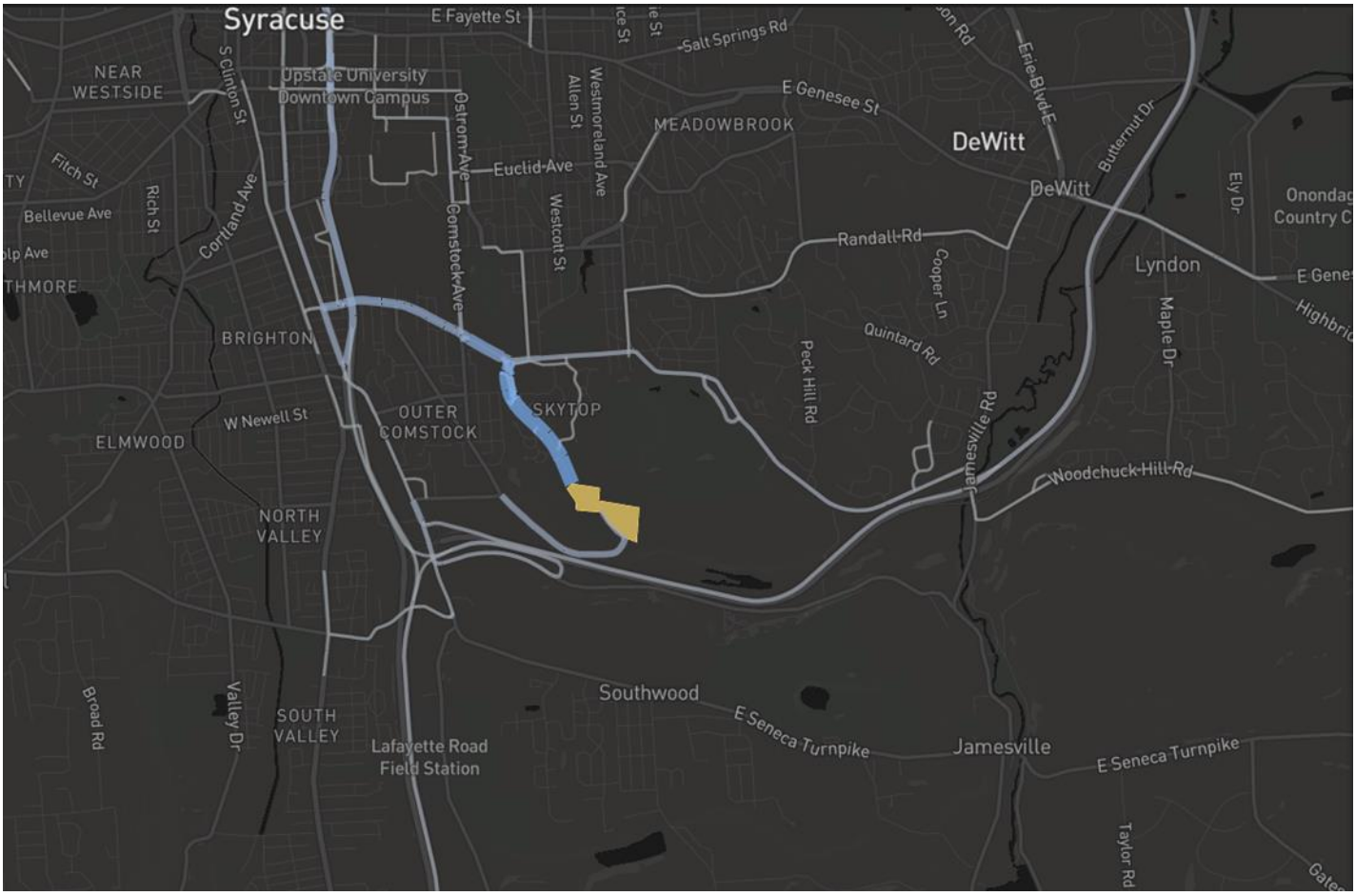


Figure 69: Streetlight showing the routes travelers used to specific destinations on event days

APPENDIX C: Calibration

1 Non-event day Profiles and Calibration

When working with location-based data, it is important to compare travel demand estimates to actual traffic counts. This section describes the process to calibrate LBD data for non-event day traffic conditions as it provides a basis for comparison against other official sources.

For the purposes of this comparison, location-based data estimates from Streetlight were compared with actual NYSDOT count data at a number of locations in the area. The comparison locations included a mix of road types, from signalized arterial, to limited access interstate highways, to provide a basis for comparison for several different roadway functional classes and range of traffic volumes. The NYSDOT count locations are locations on roads that have permanent counting stations. Comparable locations in the LBD data are identified as so-called "pass-through" zones that are roadways and not potential destinations where device movements only passes though.

2 Calibration Methodology

The NYSDOT count data represents an average weekday condition. To provide a comparable Streetlight estimate, a zone activity analysis of average weekday (Monday-Friday) data for all of 2019 was used from the Streetlight platform. This allowed for analysis of a full year of data from a pre-COVID condition, taking into account any seasonal variations to arrive at an average weekday condition for the entire calendar year. The calibration locations are shown in **Error! Reference source not found.** and **Error! Reference source not found.**.

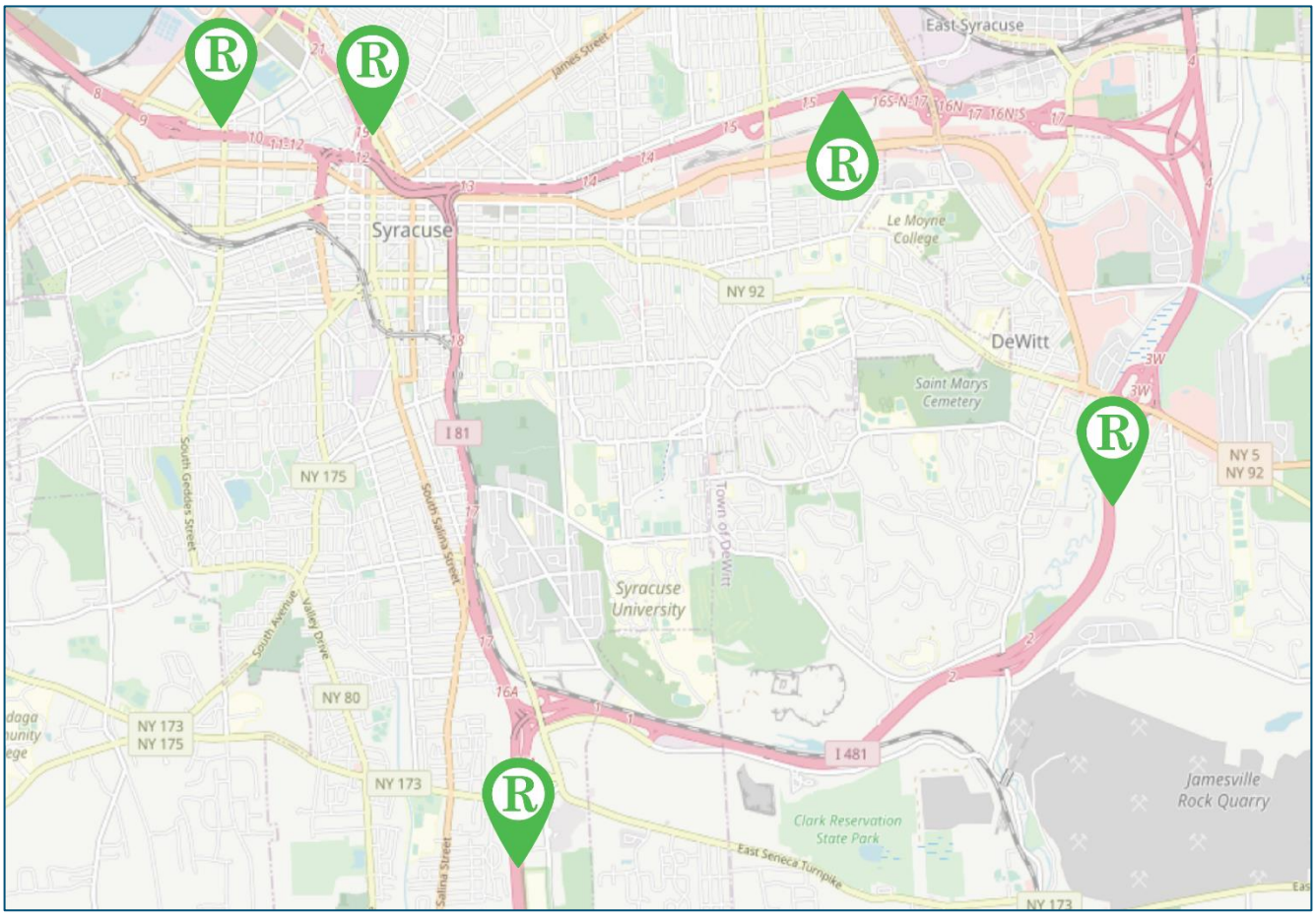


Figure 70 - Regional Calibration Locations

Figure 71 – Local Traffic Calibration Locations

3 Calibration Results

The results of the calibration show that the Streetlight estimates are a good approximation of actual travel conditions. The total average weekday daily traffic estimated by Streetlight for 2019 across 12 selected locations within the study area is within 9% of the weekday daily traffic as reported by NYSDOT across those same locations for count programs occurring between 2016 and 2019. More than half of all the individual locations are within 10% of the actual count. At the highest volume count location (I-81 north of I-690), the total volume reported by NYSDOT is some 95,000 vehicles per day, and the Streetlight estimate is within 5% of the actual observed count.

The primary outlier locations include some locations where the NYSDOT count location is far from the modeled pass-through location in the Streetlight platform. For example, the NYSDOT count location on Waverly Street is east of Comstock; whereas, the modeled location in Streetlight is near Irving Avenue, closer to the center of campus. The nature of traffic flow is very different in these two locations, so the results are not directly comparable. The reported Streetlight demand on Waverly near Irving Avenue is nearly 8,000 vehicles per direction, while the NYSDOT count on Waverly east of Comstock is around 1,000 vehicles per direction.

Another factor that may lead to these discrepancies is the way Streetlight reports the zone activity results. The platform reports all travelers, so locations with high ped and bike demand may be over-represented in the platform, especially on roads with slow-moving traffic where speed cannot be used to distinguish vehicles from pedestrians and bikes. Even with these contributing factors, if the locations where NYSDOT and Streetlight data that are reasonably close, are aggregated, the Streetlight estimate is within 3% of the actual NYSDOT count. Additionally, since all NYSDOT counts for 2016 through 2019 at the selected locations were considered for comparison to the 2019 Streetlight estimates, changes in actual traffic volumes between the count year and 2019 would impact the calculated margin of error between the Streetlight and NYSDOT counts.

A linear regression plot is another way to understand the relationship between the actual and estimated counts. **Error! Reference source not found.** shows that there is a linear relationship with a strong r-squared value of 0.95. This shows that the StreetLight data generally provides a good estimate of actual traffic conditions. There are a cluster of locations with traffic below 10,000 vehicles per day where the estimate may not be as reliable.

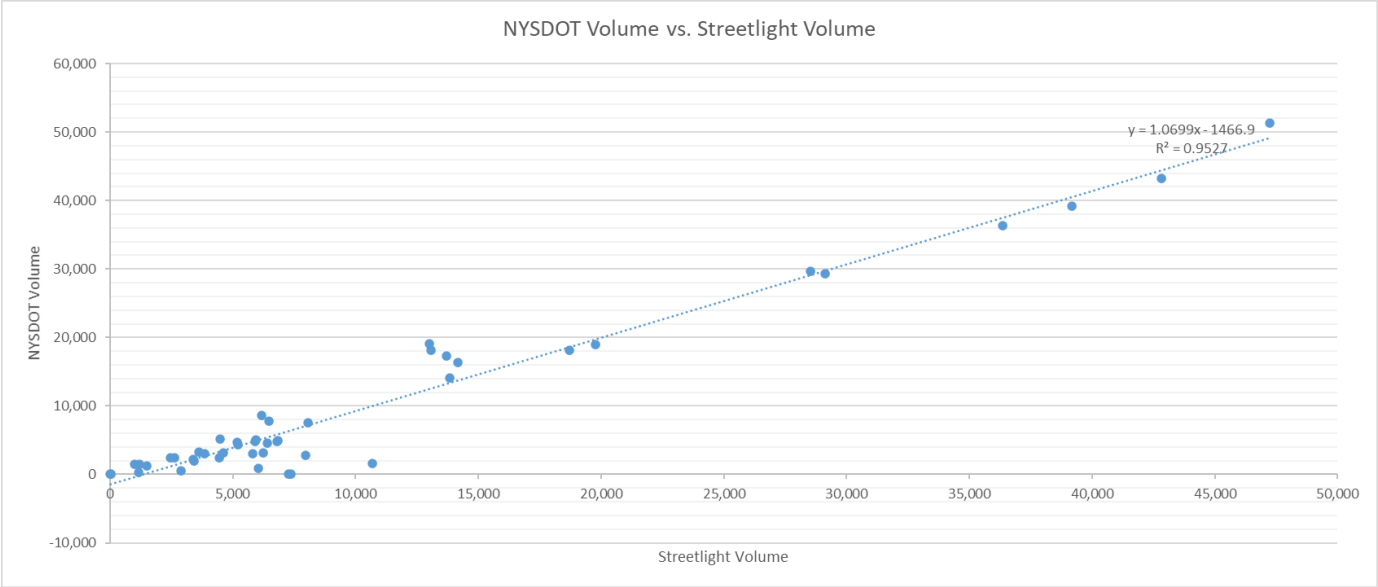


Figure 72: NYSDOT Estimates compared to StreetLight Volumes

APPENDIX D: PREVIOUS PLANNING STUDIES

1 Transportation Systems Management Plan, Syracuse University – Carrier Dome, 1980

The most recent operations plan documented by Syracuse University is the *Transportation Systems Management Plan* published in 1980. This document outlines a planned event day transportation structure and establishes agreements with other stakeholders including the Syracuse Police Department, Syracuse Fire Department, Syracuse Department of Transportation, New York State Department of Transportation, Syracuse-Onondaga County Planning Agency, and CNY Centro.
Within the University Hill Special Event Transportation Study (completed in 2000), which is discussed in the section below, there is the below summary of the 1980 Transportation Systems Management Plan:

When the Carrier Dome was opened in 1980, the Carrier Dome Transportation Systems Management (TSM) Plan was adopted, which identified control measures to address the unique aspects of the University Hill District, specifically to assist in the routing of traffic around the Dome and to transport patrons to the Dome from outlying areas.

The 1980 TSM Plan was prepared to address the movement of traffic, transit, and pedestrians for special events at the Carrier Dome for the following event scenarios:

- SU Football games with an attendance of 45,000 – 50,000 persons;
- SU Basektball games with an attendance of 20,000 persons;
- Special events (e.g., concerts/conventions) with average attendance of 30,000 persons; and
- Local events with an average attendance of 10,000 – 12,000 persons.

The Plan called for the establishment of several off-site parking areas, connected to the Dome via shuttle bus service. These included parking areas south of the Dome near Manley Field House and the Skytop Housing complex, as well as areas downtown near Montgomery and State Streets

In this Plan the taxi ("*rideshare*") pre-event drop-off was designated in front of the Heory Building. The routing to the Dome was south on Irving Avenue, left onto University Place, right onto Crouse Drive to the designated taxi area. All rideshare/taxi vehicles were instructed to leave SU property and allowed to return to the same location for pick-up to campus 30 minutes prior to the end of the event. The pick-up location was the same as the drop-off location.

In order to facilitate traffic and bus movements during events, the Plan called for maintaining restricted access along certain streets during events, including:

- Comstock Avenue, to allow for Manley/Skytop shuttles;
- Side streets connecting to Almond Street to allow for the downtown shuttle;
- Adams Street to allow for the downtown shuttle; and
- Jamesville Avenue to promote easy traffic access to the Skytop parking areas.

In addition, the Plan included provisions for a parking and access permit program for SU-owned facilities, as well as guidelines to prohibit on-street parking in various locations around the Dome. These measures were intended to prevent "hunting" for parking spaces by event patrons.

However, since 1980, a variety of actions have occurred in the district that have changed the dynamics that set the basis for the plan, including:

- Expansion of SU's main campus through the development of additional facilities (e.g., Management School, Science and Technology Center, Student Center, etc.);
- Development of hotel and entertainment establishments in the district (e.g., Sheraton University Inn and Conference Center);
- Changes in the classification of road segments in the district;
- Development of off-site private and public parking facilities that now also serve event-related activities on the Hill;
- Institution of the OnTrack rail service serving University Hill near the Carrier Dome (which has since been discontinued); and
- Construction of OnCenter, the County's regional convention center, on a site formerly occupied by downtown parking lots and ultimate discontinuation of the downtown event shuttle.

After the 1980 plan was adopted, several transportation management techniques employed to efficiently stage and move patrons to and from major events have been periodically amended. These amendments have been made incrementally to address specific problems or changes of circumstances that have occurred in the district over time. These have included but are not limited to the following:

- Shifting the focus of encouraging event motorists traveling from the north from park and ride facilities in downtown to expanded facilities south of the SU main campus;
- Changing of traffic restrictions and management procedures on roads around the campus; and
- Limited use of Stadium Place staging area for shuttle bus service in response to discontinuation of the downtown service route during SU home football games.

2 University Hill Special Event Transportation Study, February 2000

SMTC published an update to the 1980 *Transportation Systems Management Plan* discussed above called the *University Hill Special Event Transportation Study*, published in February 2000. The following stakeholders were involved in the study:

- Central New York Regional Transportation Authority (CNYRTA)
- City of Syracuse
- City of Syracuse Fire Department
- City of Syracuse Police Department
- Metropolitan Development Association
- New York State Department of Transportation (NYSDOT)
- Southeast University Neighborhood Association (SEUNA)
- Syracuse Onondaga County Planning Agency (SOCPA)
- Syracuse University
- University Hill Corporation
- Crouse Hospital
- Hutchings Psychiatric Center
- Upstate Medical University Hospital
- State University of New York (SUNY) College of Environmental Science and Forestry
- Veterans Administration Hospital

The study also solicited comments from the general public and conducted two public information meetings. The study focused on achieving five goals:

1. "Facilitate event traffic flow in the University Hill District, in order to reduce travel times, congestion, and vehicle operating costs.
2. Coordinate automobile, bus, rail, pedestrian and bicycle modes of transportation into a single, cohesive system, while improving mobility, access and safety.
3. Facilitate the use of on- and off-site parking during special event periods.
4. Make recommendations which enhance, and/or maintain environmental quality and community cohesion within the project area.
5. Facilitate and engage an effective public outreach program."

This study provided specific information useful for this existing conditions report in the following categories:

- Land use
- Traffic flow restrictions
- Centro & shuttle bus operations
- Bicycle and pedestrian facilities
- Parking locations (university, public, and private)

Additionally, the study identified issues across five categories (parking issues, neighborhood issues, pedestrian issues, signage/wayfinding issues, and transportation network issues) and proposed solutions. Three key issues identified in the study were determined to still be relevant, and the potential solution alternatives identified in the study are listed below for consideration in the development of the new strategic plan:

- General Parking Shortage (Neighborhood)
    - Increased police enforcement
    - Review current parking barricade locations
    - Program and conduct a future Parking/Access Master Plan
    - Implement a residential area parking lot program in high-demand areas
- Under-Utilization of Manley and Skytop Off-Site Lots
    - Develop a marketing campaign to improve awareness of the Manley/Skytop lots
    - Improve and enhance wayfinding to Manley/Skytop
    - Improve linkages with ticketing services
    - Conduct further studies for cost-competitiveness of off-site lots with private facilities
    - Implement a range of site amenities (signage, corralling, temporary shelter, paving)
    - Consider capital improvements to Comstock Avenue
    - Increase capacity near the Dome and eliminate Manley/Skytop as main focus
- Limited Signage on Surface Streets, I-81, I-690 and I-481
    - Develop a system of intermediate level signage on the interstate system
    - Incorporate the use of variable message signs into the interstate system
    - Locate temporary event-day signs at key turning points
    - Install a permanent wayfinding signage system specifically to direct patrons to off-site parking areas

APPENDIX E: Syracuse University Parking Inventory

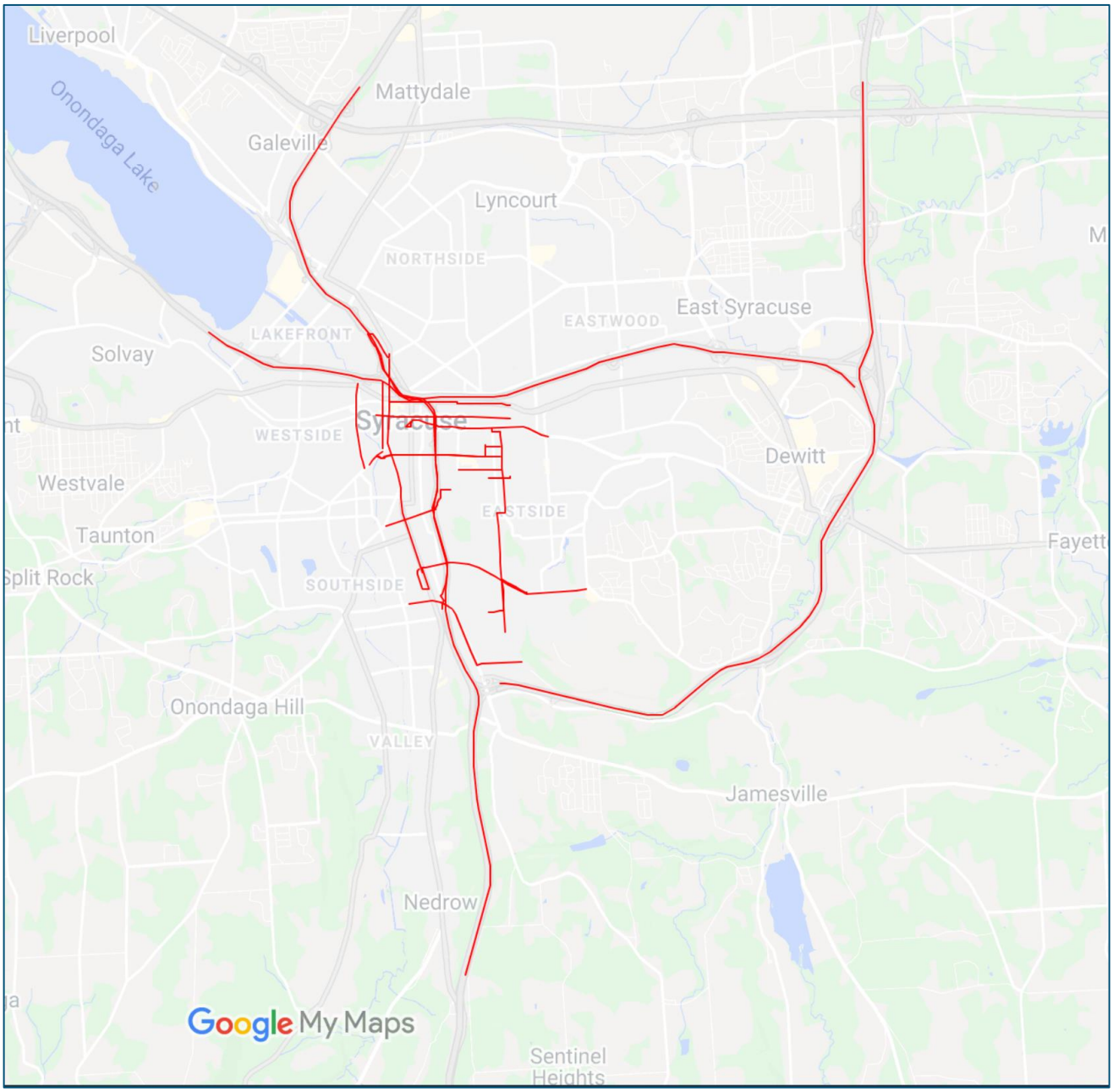
Location	# Spaces	Disabled Spaces	Total	Employee Permits	Student Permits
Adams Street Garage	393	7	400	42	225
ALL Areas	0	0	0	5	0
Arch Strip	19	2	21	19	0
Booth Garage	398	8	406	275	150
Brewster/Boland Garage	194	2	196	16	61
Brockway	20	2	22	17	0
CPDC	0	0	0	30	0
Carnegie	22	0	22	16	0
Day	146	7	153	42	24
Dome	34	0	34	39	0
Fine	213	0	213	3	158
Haft	2	0	2	1	0
Harrison	160	6	166	21	99
Haven	17	1	18	9	0
Hillside	82	0	82	91	0
Irving Garage	395	14	409	336	132
Lawrinson Garage	154	0	154	33	49
Lehman	61	3	64	68	0
Lyons	5	1	6	2	0
Manley	918	31	949	543	701
Motorcycle	50	0	50	38	14
Marion	55	3	58	65	0
Marshall Lot	46	2	48	0	0
Orange	200	0	200	1	194
Ostrom	61	0	61	54	0
Peck F/S	0	0	0	8	0
Peck S	0	0	0	0	19
PER	881	23	904	514	2
PPT	0	0	0	152	0
PTS	0	0	0	44	0
Quad 1	118	9	127	198	9
Quad 2	40	3	43	25	0
Quad 3	21	5	26	17	0
Quad 4	100	3	103	78	3
Quad 5	20	2	22	22	0
R-1	6	2	8	7	0
R-2	8	1	9	9	0
R-3	10	1	11	5	0
R-4	3	1	4	1	0
R-5	5	0	5	3	0

R-6	6	0	6	8	0
R-7	12	1	13	7	0
R-8	3	2	5	1	0
R-12	2	0	2	1	0
Sadler	53	0	53	35	25
Shaw	47	2	49	35	17
Sky Lot	160	0	160	70	302
South Campus	1254	17	1271	0	606
Stadium	487	10	497	369	100
Stage	85	4	89	95	3
Standart	459	0	459	6	398
SUP	0	0	0	14	0
SYA	0	0	0	3	0
University Avenue Garage	769	17	786	564	266
University Avenue Surface Lot	57	3	60	35	45
Walnut West	9	1	10	0	6
Washington Arms	9	1	10	0	1
Waverly	101	8	109	116	4
Women's Building North	46	2	48	36	0
Women's Building South	53	1	54	57	0
Warehouse East	36	2	38	31	1
Warehouse West	55	0	55	22	0
Totals	8560	210	8770	4307	3614

Data source: Based on information provided by SU

APPENDIX F: Field Observation Routes

This map shows the routes that were used by the team to gather the information that was used for Signage and Wayfinding Inventory



APPENDIX G: Public survey and results

Dome Traffic Management and Events Strategic Plan

The Dome Traffic Management and Events Strategic Plan is being completed by the Syracuse Metropolitan Transportation Council (SMTC) on behalf of the City of Syracuse. The SMTC is the designated Metropolitan Planning Organization (MPO) for the Syracuse Metropolitan Planning Area; please see www.smtcmpo.org for more information about the SMTC. The purpose of this project is to examine existing special events traffic management for Dome events and develop a new operations plan based on anticipated future conditions in the City of Syracuse.

Your input on this survey will help us understand current conditions and inform the development of a future operations plan for special events. You will be able to provide additional feedback about Dome event transportation on the final, open-ended question of this survey.

Please contact Meghan Vitale, SMTC Principal Transportation Planner, with questions about this study effort: mvitale@smtcmpo.org or 315-422-5716.

* 1. When was the last time you attended an event at the Dome?

- ○ 2021
- ○ 2020
- ○ 2019
- ○ 2018
- ○ 2017
- ○ 2016 or Earlier
- ○ Never

Dome Traffic Management and Events Strategic Plan

* 2. What is your affiliation or association with the Dome?

- [ ] SU Student
- [ ] SU Faculty or Staff
- [ ] Dome Employee
- [ ] Syracuse Resident
- [ ] Other (please specify)
- [ ] None of the above
- [ ] Media / Journalist
- [ ] Employed in the University Hill area

3. Please enter your home zip code (5 digits)

4. During a Dome event day, does the event influence your travel decisions?

- [ ] Yes
- [ ] No
- [ ] Not Applicable

5. If you answered "yes" to the above question, how do Dome events influence your travel decisions? (for example taking transit, when you travel, what roadways you take or avoid)

6. Please enter any comments, questions, or concerns about Dome transportation or event logistics that you may have.

7. How many events do you attend at the Dome in a typical year?

- ○ 10 or more
- ○ 5 to 9
- ○ 3 to 4
- ○ 1 to 2
- ○ I Don't Know

8. What type of events have you attended at the Dome?

- ☐ Football
- ☐ Men's Basketball
- ☐ Women's Basketball
- ☐ Concert
- ☐ Monster Jam
- ☐ Syracuse University Graduation
- ☐ Lacrosse
- ☐ Other (please specify)

9. Please enter your home zip code (5 digits)

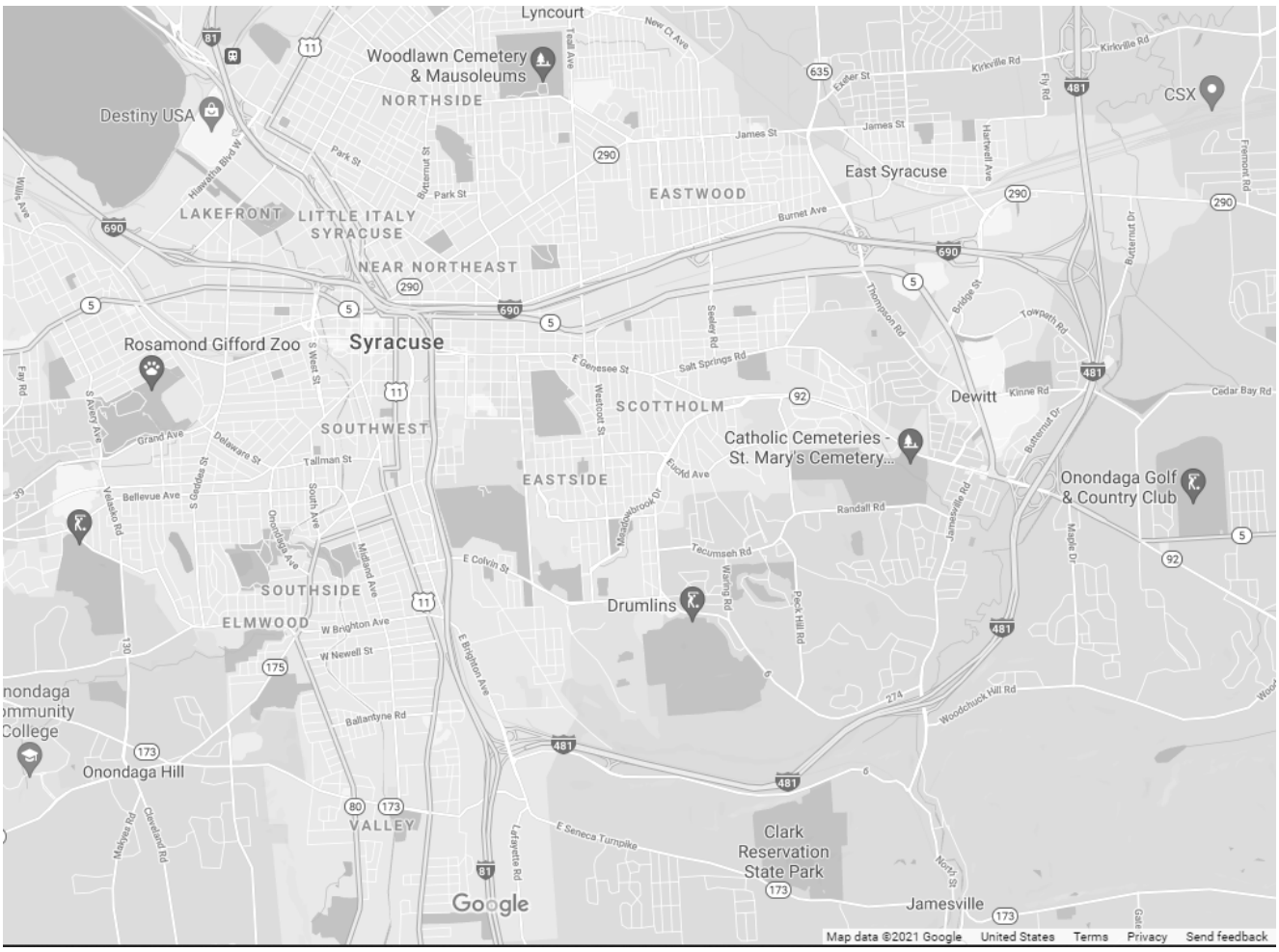
* 10. Have you ever driven, or ridden in, a personal vehicle as part or all of your trip to a Dome event?

- ○ Yes
- ○ No

11. What Interstate(s) do you typically use to drive to a Dome event, if any? A map is provided below this question for reference. Check all that apply.

- [ ] I-690 from the west
- [ ] I-690 from the east
- [ ] I-81 from the south
- [ ] I-81 from the north
- [ ] I-90 (NY State Thruway) from the east
- [ ] Other (please specify)
- [ ] I-90 (NY State Thruway) from the west
- [ ] I-481
- [ ] I don't use an interstate to drive to the Dome
- [ ] I don't know

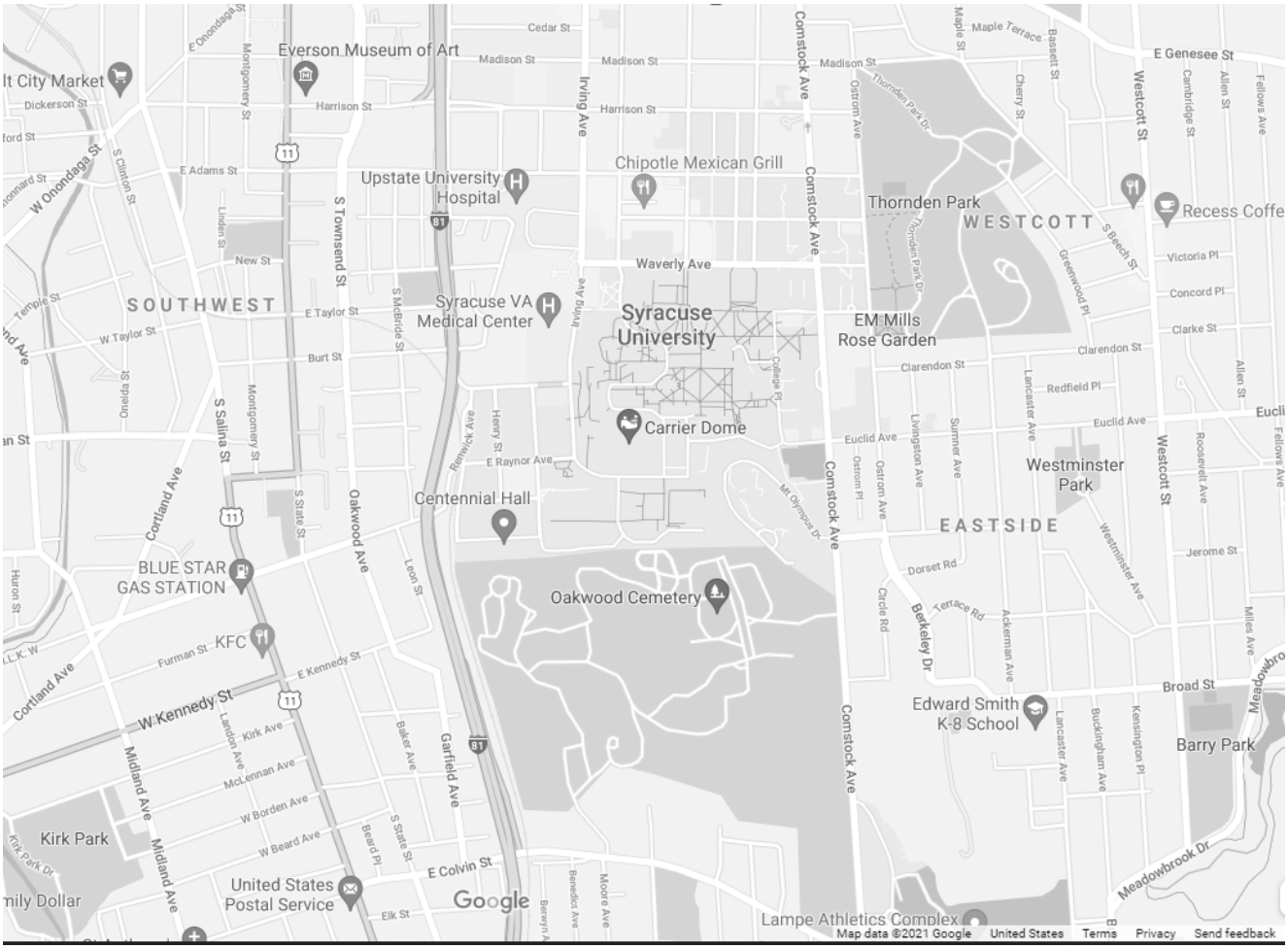
Map showing Interstates around the Dome



12. What local roadway(s) do you typically use to drive to a Dome event? A map is provided below this question for reference. Check all that apply.

- [ ] Erie Boulevard
- [ ] Genesee Street
- [ ] Colvin Street
- [ ] Comstock Avenue
- [ ] Westcott Street
- [ ] Other (please specify)
- [ ] Euclid Avenue
- [ ] Martin Luther King East
- [ ] Van Buren Street
- [ ] I don't know

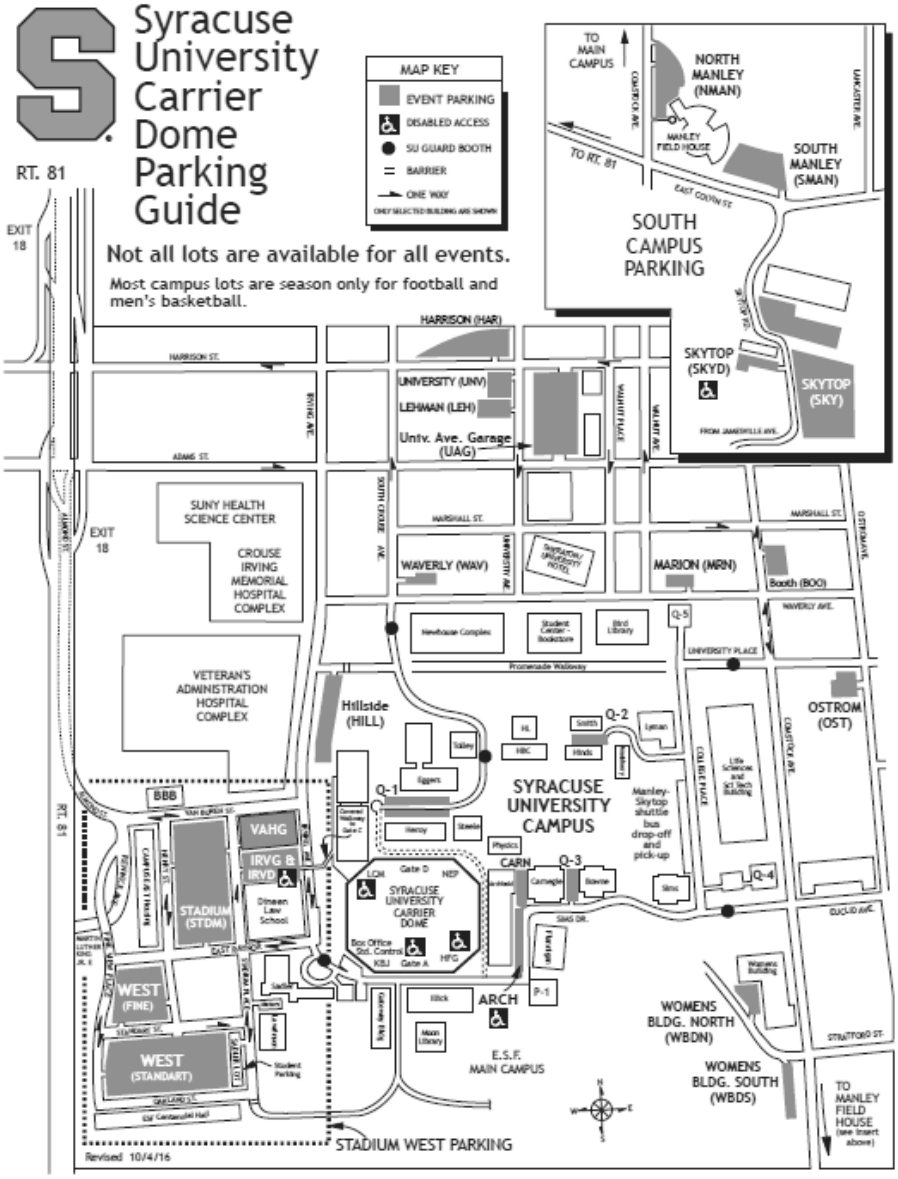
Map showing local streets around the Dome



13. Where do you typically park your vehicle when attending an event at the Dome? A map of SU parking facilities is provided below this question for reference.

- [ ] Skytop
- [ ] Stadium West
- [ ] Manley Lots
- [ ] Other campus parking lot
- [ ] VA Hospital Garage
- [ ] Other (please specify)
- [ ] Irving Garage
- [ ] On street parking
- [ ] Thornden Park
- [ ] Oakwood Cemetery

SU Parking Map



14. How do you typically pay for parking?

- [ ] Cash
- [ ] Parking Permit/Pass (Pre-Paid)
- [ ] Credit Card
- [ ] Free Parking
- [ ] Other (please specify)

15. What mode(s) of travel have you used as part or all of your trip to a Dome event?

- [ ] Centro Bus (not including shuttles from parking lots or other locations)
- [ ] Tour Bus
- [ ] Rideshare - Uber
- [ ] Rideshare - Lyft
- [ ] Rideshare - Other Taxi
- [ ] ZipCar
- [ ] Bike
- [ ] Walk
- [ ] None (only used a personal vehicle)
- [ ] Other (please specify)

16. Have you used a shuttle to make some or all of your trip to the Dome?

- [ ] Shuttle Bus from SU Parking Lot
- [ ] Shuttle Bus from another location on SU Campus
- [ ] I have not used a Shuttle Bus
- [ ] Shuttle Bus from another location (please specify)

17. If you have not taken a shuttle bus, or don't use it frequently, what about a shuttle bus program would make it more attractive to you as an option? For example, where would you want it to pick up?

* 18. Have you participated in any pre-event activities before the start of a Dome event?

- [ ] No
- [ ] Private events
- [ ] SU hosted event on-campus
- [ ] Tailgate
- [ ] Dined at a local restaurant or bar within walking distance of the Dome
- [ ] Other (please specify)

19. On event day, when do you typically arrive at your pre-event activity that you specified in the previous question?

- ○ At the start of the Dome event
- ○ 1 hour before the Dome event
- ○ 2 hours before the Dome event
- ○ 3 hours before the Dome event
- ○ More than 3 hours before the Dome event
- ○ After the start of the Dome event
- ○ Other (please specify)

20. On event day, when do you typically arrive at the Dome event?

- ○ At the start of the event
- ○ 1 hour before the event
- ○ 2 hours before the event
- ○ 3 hours before the event
- ○ More than 3 hours before the event
- ○ After the start of the event
- ○ Other (please specify)

21. On your last trip to the Dome, how many people did you travel with?

- ○ None; I traveled alone
- ○ 1 to 2
- ○ 2 to 5
- ○ More than 5

22. On event day, when do you typically leave the Dome event?

- ○ Before the end of the event
- ○ At the end of the event
- ○ 0-30 minutes after the end of the event
- ○ 30-60 minutes after the end of the event
- ○ 60-90 minutes after the end of the event
- ○ 90-120 minutes after the end of the event
- ○ More than 2 hours after the end of the event
- ○ Other (please specify)

* 23. Have you participated in any other activities during or after the Dome event?

- [ ] No
- [ ] Private events
- [ ] SU hosted event on-campus
- [ ] Tailgate
- [ ] Dined at a local restaurant or bar within walking distance of the Dome
- [ ] Other (please specify)

24. On event day, when do you typically leave your post-event activity that you specified in the previous question?

- ○ Before the end of the Dome event
- ○ At the end of the Dome event
- ○ 0-30 minutes after the end of the Dome event
- ○ 30-60 minutes after the end of the Dome event
- ○ 60-90 minutes after the end of the Dome event
- ○ 90-120 minutes after the end of the Dome event
- ○ More than 2 hours after the end of the Dome event
- ○ Other (please specify)

25. What is your overall assessment of the experience of ARRIVING at a Dome event?

- ○ Easy
- ○ Neither easy nor difficult
- ○ Difficult

26. What is your overall assessment of the experience of LEAVING a Dome event?

- ○ Easy
- ○ Neither easy nor difficult
- ○ Difficult

27. What do you LIKE about your TRAVEL experience at the Dome?

- ☐ Parking Location
- ☐ Shuttles
- ☐ Parking Price
- ☐ Finding my way / knowing what roads to use
- ☐ Transit Options
- ☐ Police Direction

Please add any other things you like about your travel experience to the Dome or elaborate on your answers above.

28. What do you DISLIKE about your TRAVEL experience at the Dome?

- ☐ Parking Location
- ☐ Shuttles
- ☐ Parking Price
- ☐ Finding my way / knowing what roads to use
- ☐ Transit Options
- ☐ Police Direction

Please add any other things you dislike about your travel experience to the Dome or elaborate on your answers above.

29. Other than an event attendee, do you have any other affiliation with the Dome?

- [ ] SU Student
- [ ] Syracuse Resident
- [ ] SU Faculty or Staff
- [ ] Media / Journalist
- [ ] Dome Employee
- [ ] Employed in the University Hill area
- [ ] Other (please specify)
- [ ] None of the above

30. During a Dome event day if you are NOT an attendee, does a Dome event influence your travel decisions?

- [ ] Yes
- [ ] No
- [ ] Not Applicable

31. If you answered "yes" to the above question, how do Dome events influence your travel decisions? (for example taking transit, when you travel, what roadways you take or avoid)

32. Please enter any comments, questions, or concerns about Dome transportation or event logistics that you may have.

P1

- Q1 — Skip logic
  - A1. 2021 — TOP OF PAGE 3
  - A2. 2020 — TOP OF PAGE 3
  - A3. 2019 — TOP OF PAGE 3
  - A4. 2018 — TOP OF PAGE 3
  - A5. 2017 — TOP OF PAGE 3
  - A6. 2016 or Earlier — TOP OF PAGE 3
  - A7. Never — TOP OF PAGE 2

P2

- Q2 — Skip logic
  - A1. None of the above — END OF SURVEY
  - A2. SU Student — END OF SURVEY
  - A3. SU Faculty or Staff — END OF SURVEY
  - A4. Dome Employee — END OF SURVEY
  - A5. Syracuse Resident — END OF SURVEY
  - A6. Media / Journalist — END OF SURVEY
  - A7. Employed in the University Hill area — END OF SURVEY
  - A8. Other (please specify) — END OF SURVEY
- Q3 — No logic
- Q4 — No logic
- Q5 — No logic
- Q6 — No logic

P3

- Q7 — No logic
- Q8 — No logic
- Q9 — No logic
- Q10 — Skip logic
  - A1. Yes — TOP OF PAGE 4
  - A2. No — TOP OF PAGE 5

P4

- Q11 — No logic
- Image — No logic
- Q12 — No logic
- Image — No logic
- Q13 — No logic
- Image — No logic
- Q14 — No logic

P5

- Q15 — No logic
- Q16 — No logic
- Q17 — No logic
- Q18 — Skip logic
  - A1. No — TOP OF PAGE 7
  - A2. Private events
  - A3. SU hosted event on-campus
  - A4. Tailgate
  - A5. Dined at a local restaurant or bar within walking distance of the Dome
  - A6. Other (please specify)

P6

- Q19 — No logic

P7

- Q20 — No logic
- Q21 — No logic
- Q22 — No logic
- Q23 — Skip logic
  - A1. No — TOP OF PAGE 9
  - A2. Private events
  - A3. SU hosted event on-campus
  - A4. Tailgate
  - A5. Dined at a local restaurant or bar within walking distance of the Dome
  - A6. Other (please specify)

P8

- Q24 — No logic

P9

- Q25 — No logic
- Q26 — No logic
- Q27 — No logic
- Q28 — No logic

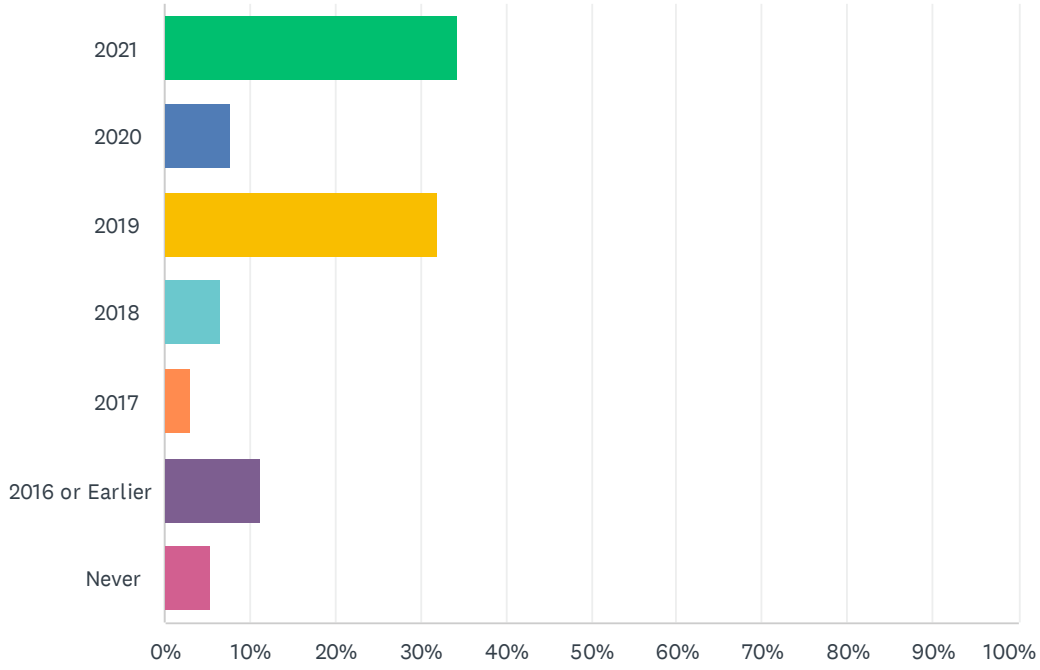
P10

- Q29 — No logic
- Q30 — No logic
- Q31 — No logic
- Q32 — No logic

You have reached the end of the survey.

Q1 When was the last time you attended an event at the Dome?

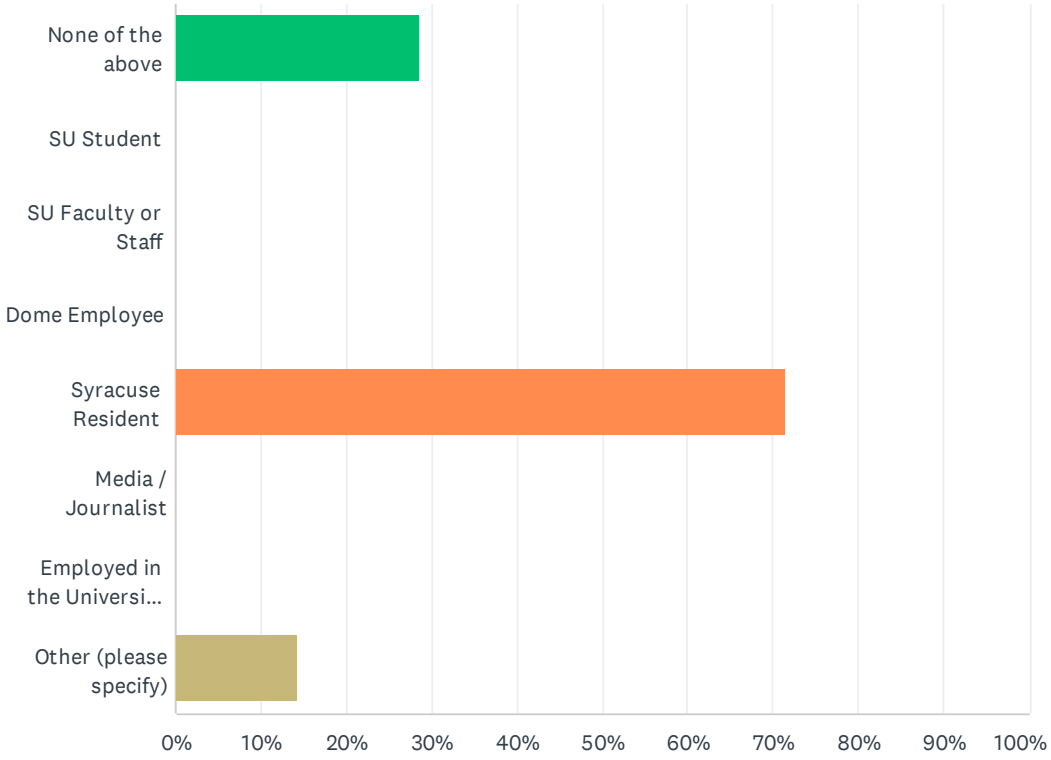
Answered: 169 Skipped: 0



ANSWER CHOICES	RESPONSES	
2021	34.32%	58
2020	7.69%	13
2019	31.95%	54
2018	6.51%	11
2017	2.96%	5
2016 or Earlier	11.24%	19
Never	5.33%	9
TOTAL		169

Q2 What is your affiliation or association with the Dome?

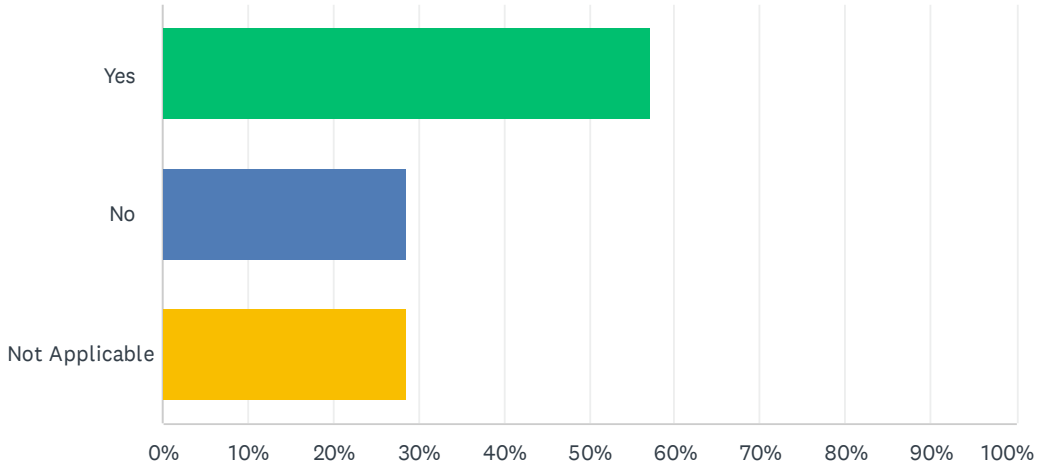
Answered: 7 Skipped: 162



ANSWER CHOICES	RESPONSES	
None of the above	28.57%	2
SU Student	0.00%	0
SU Faculty or Staff	0.00%	0
Dome Employee	0.00%	0
Syracuse Resident	71.43%	5
Media / Journalist	0.00%	0
Employed in the University Hill area	0.00%	0
Other (please specify)	14.29%	1
Total Respondents: 7		

Q4 During a Dome event day, does the event influence your travel decisions?

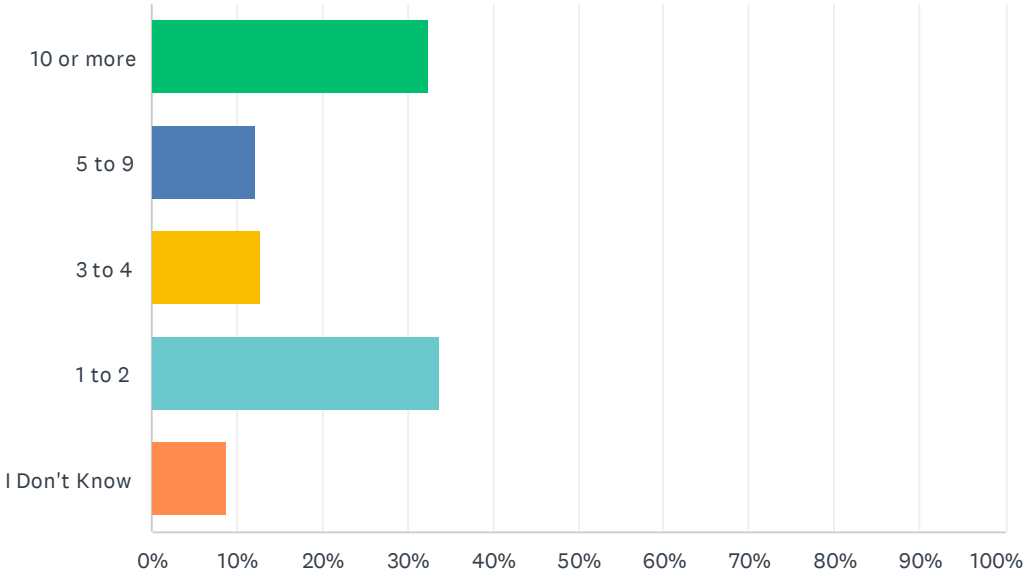
Answered: 7 Skipped: 162



ANSWER CHOICES	RESPONSES	
Yes	57.14%	4
No	28.57%	2
Not Applicable	28.57%	2
Total Respondents: 7		

Q7 How many events do you attend at the Dome in a typical year?

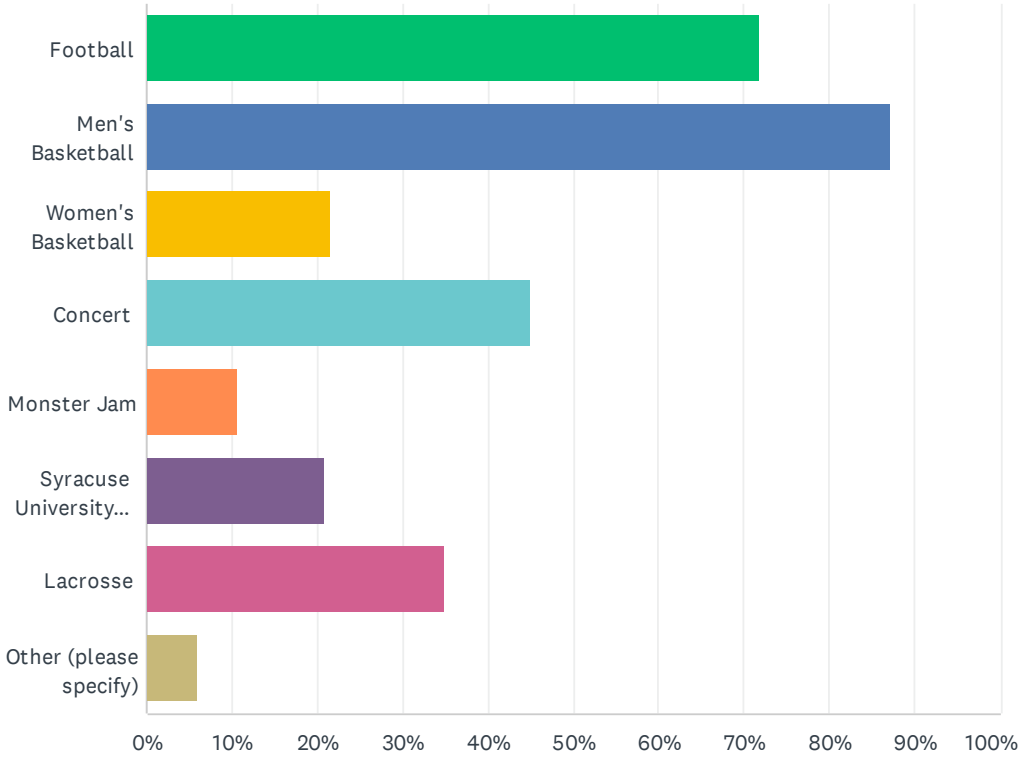
Answered: 148 Skipped: 21



ANSWER CHOICES	RESPONSES	
10 or more	32.43%	48
5 to 9	12.16%	18
3 to 4	12.84%	19
1 to 2	33.78%	50
I Don't Know	8.78%	13
TOTAL		148

Q8 What type of events have you attended at the Dome?

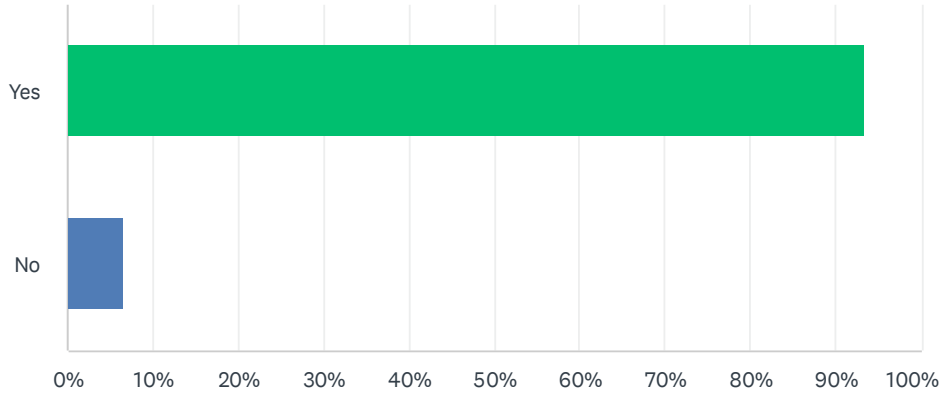
Answered: 149 Skipped: 20



ANSWER CHOICES	RESPONSES	
Football	71.81%	107
Men's Basketball	87.25%	130
Women's Basketball	21.48%	32
Concert	44.97%	67
Monster Jam	10.74%	16
Syracuse University Graduation	20.81%	31
Lacrosse	34.90%	52
Other (please specify)	6.04%	9
Total Respondents: 149		

Q10 Have you ever driven, or ridden in, a personal vehicle as part or all of your trip to a Dome event?

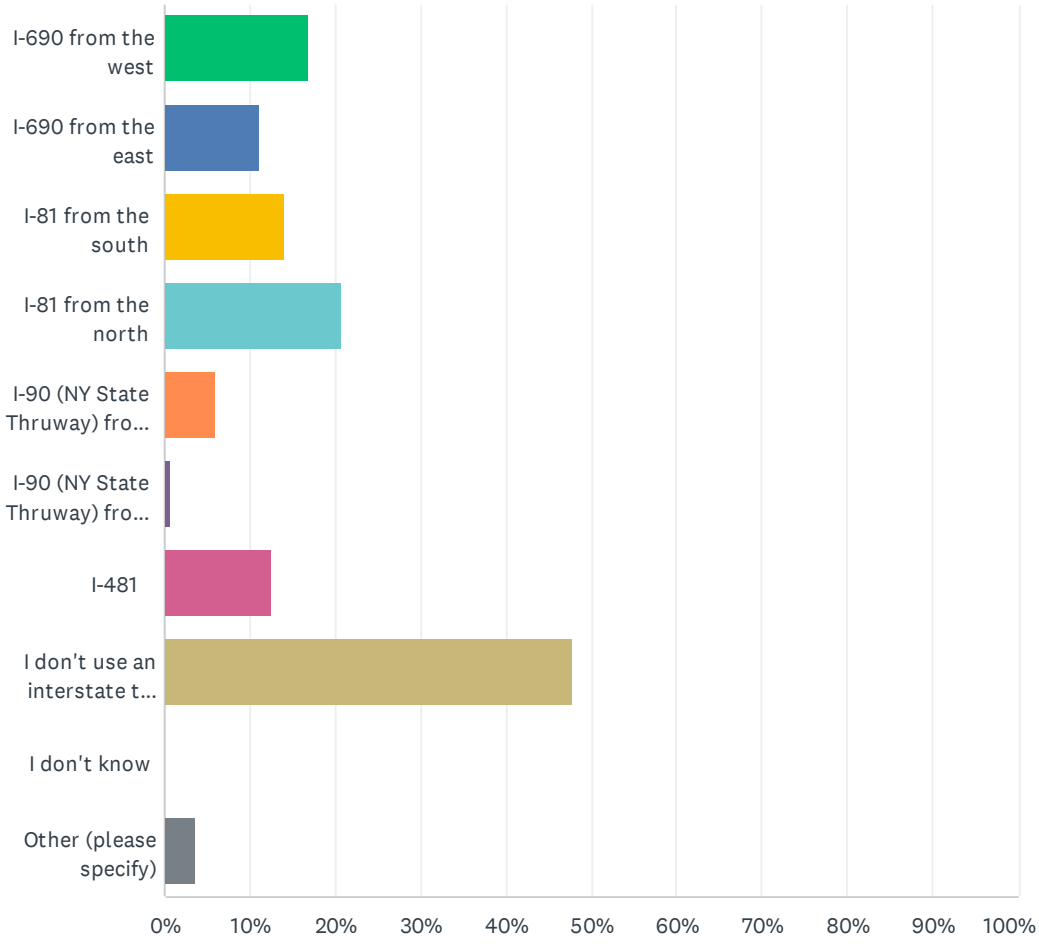
Answered: 150 Skipped: 19



ANSWER CHOICES	RESPONSES	
Yes	93.33%	140
No	6.67%	10
TOTAL		150

Q11 What Interstate(s) do you typically use to drive to a Dome event, if any? A map is provided below this question for reference. Check all that apply.

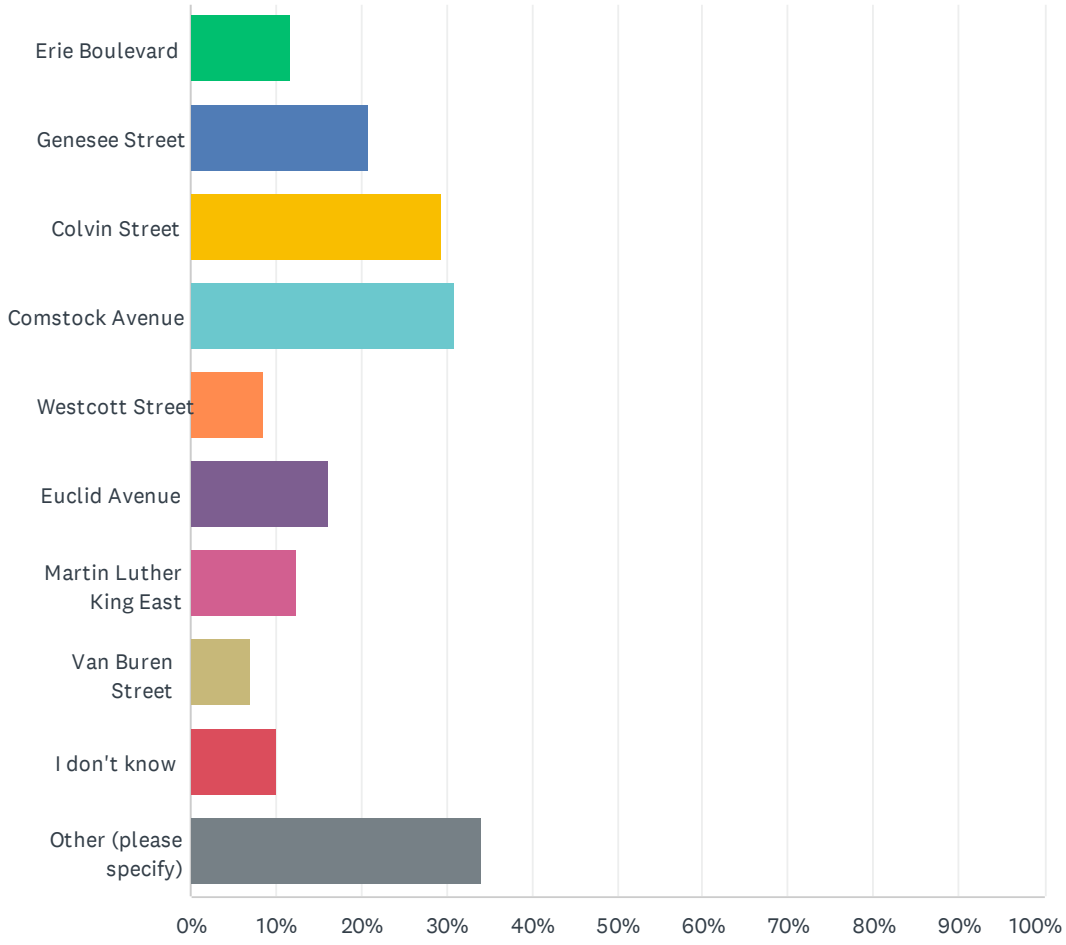
Answered: 136 Skipped: 33



ANSWER CHOICES	RESPONSES	
I-690 from the west	16.91%	23
I-690 from the east	11.03%	15
I-81 from the south	13.97%	19
I-81 from the north	20.59%	28
I-90 (NY State Thruway) from the east	5.88%	8
I-90 (NY State Thruway) from the west	0.74%	1
I-481	12.50%	17
I don't use an interstate to drive to the Dome	47.79%	65
I don't know	0.00%	0
Other (please specify)	3.68%	5
Total Respondents: 136		

Q12 What local roadway(s) do you typically use to drive to a Dome event? A map is provided below this question for reference. Check all that apply.

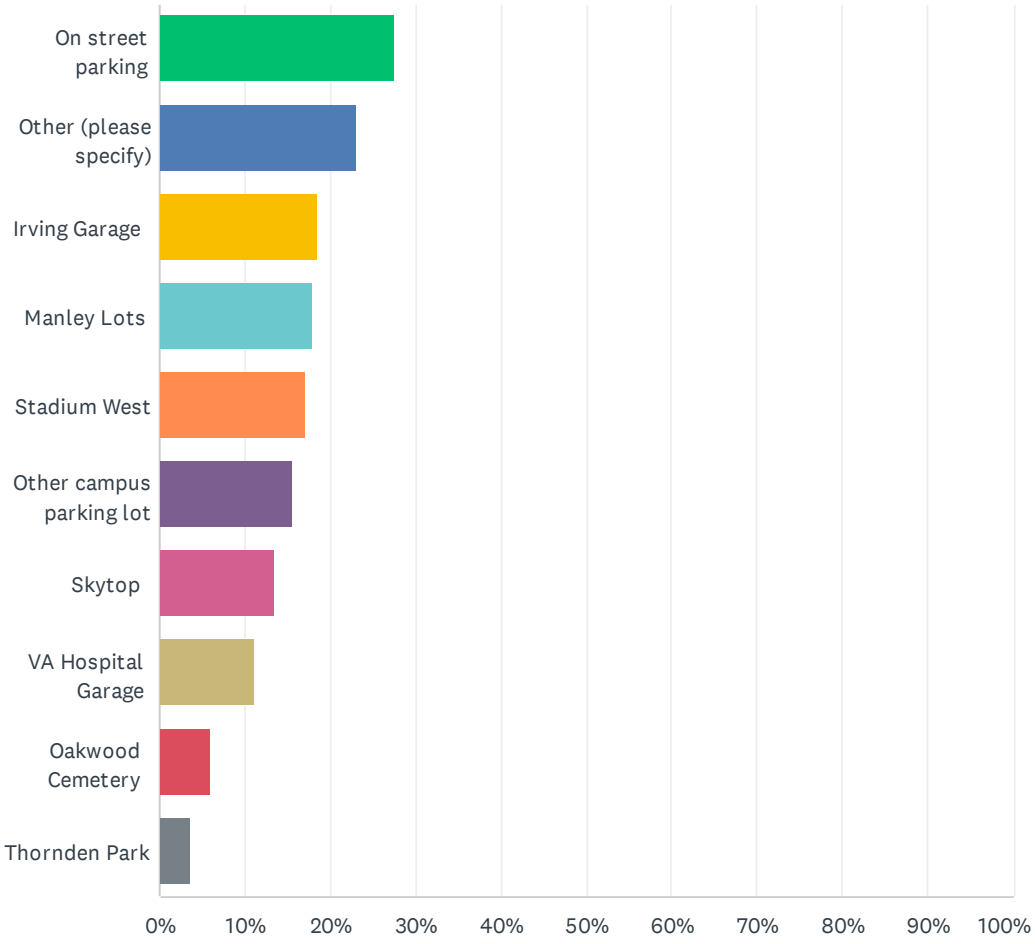
Answered: 129 Skipped: 40



ANSWER CHOICES	RESPONSES	
Erie Boulevard	11.63%	15
Genesee Street	20.93%	27
Colvin Street	29.46%	38
Comstock Avenue	31.01%	40
Westcott Street	8.53%	11
Euclid Avenue	16.28%	21
Martin Luther King East	12.40%	16
Van Buren Street	6.98%	9
I don't know	10.08%	13
Other (please specify)	34.11%	44
Total Respondents: 129		

Q13 Where do you typically park your vehicle when attending an event at the Dome? A map of SU parking facilities is provided below this question for reference.

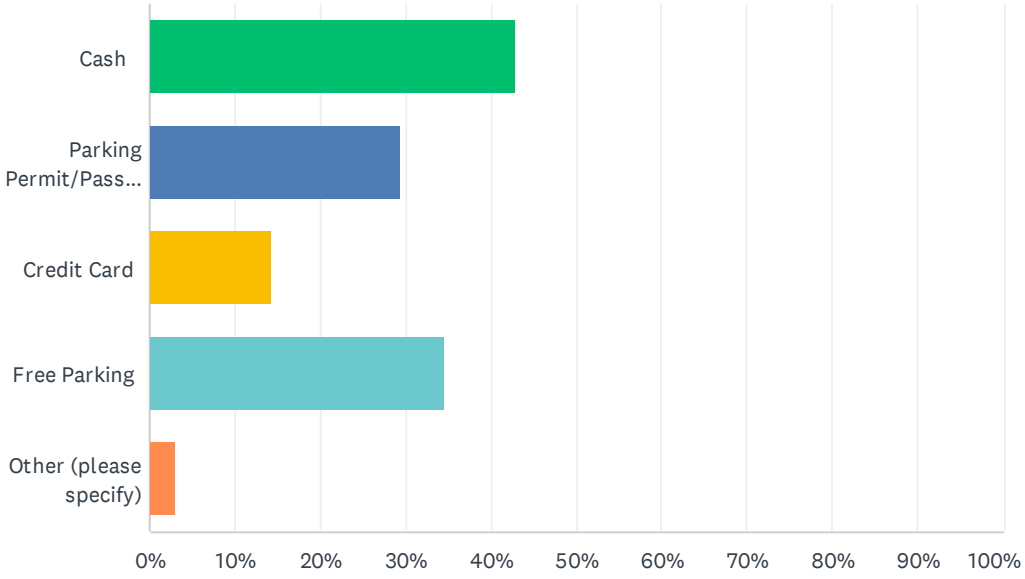
Answered: 134 Skipped: 35



ANSWER CHOICES	RESPONSES	
On street parking	27.61%	37
Other (please specify)	23.13%	31
Irving Garage	18.66%	25
Manley Lots	17.91%	24
Stadium West	17.16%	23
Other campus parking lot	15.67%	21
Skytop	13.43%	18
VA Hospital Garage	11.19%	15
Oakwood Cemetery	5.97%	8
Thornden Park	3.73%	5
Total Respondents: 134		

Q14 How do you typically pay for parking?

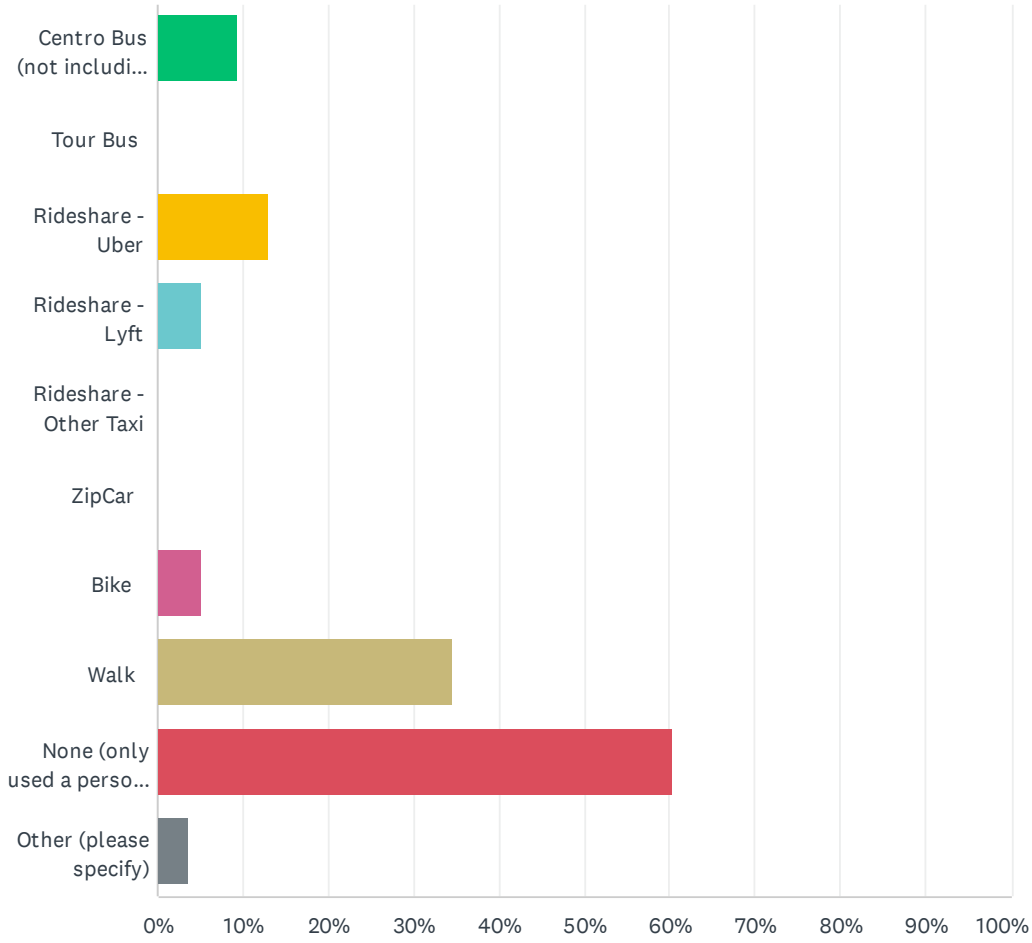
Answered: 133 Skipped: 36



ANSWER CHOICES	RESPONSES	
Cash	42.86%	57
Parking Permit/Pass (Pre-Paid)	29.32%	39
Credit Card	14.29%	19
Free Parking	34.59%	46
Other (please specify)	3.01%	4
Total Respondents: 133		

Q15 What mode(s) of travel have you used as part or all of your trip to a Dome event?

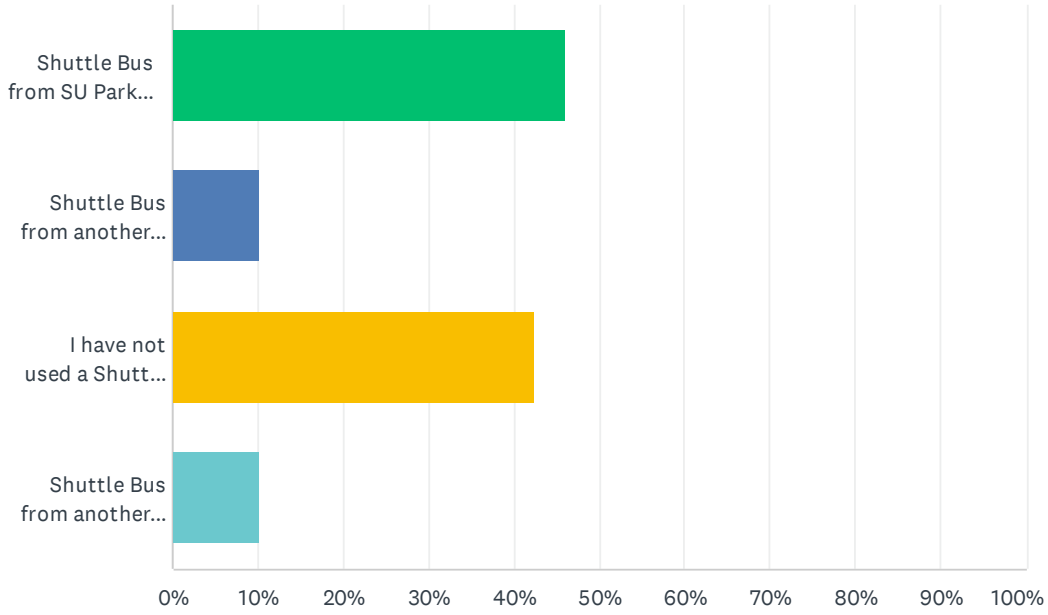
Answered: 139 Skipped: 30



ANSWER CHOICES	RESPONSES	
Centro Bus (not including shuttles from parking lots or other locations)	9.35%	13
Tour Bus	0.00%	0
Rideshare - Uber	12.95%	18
Rideshare - Lyft	5.04%	7
Rideshare - Other Taxi	0.00%	0
ZipCar	0.00%	0
Bike	5.04%	7
Walk	34.53%	48
None (only used a personal vehicle)	60.43%	84
Other (please specify)	3.60%	5
Total Respondents: 139		

Q16 Have you used a shuttle to make some or all of your trip to the Dome?

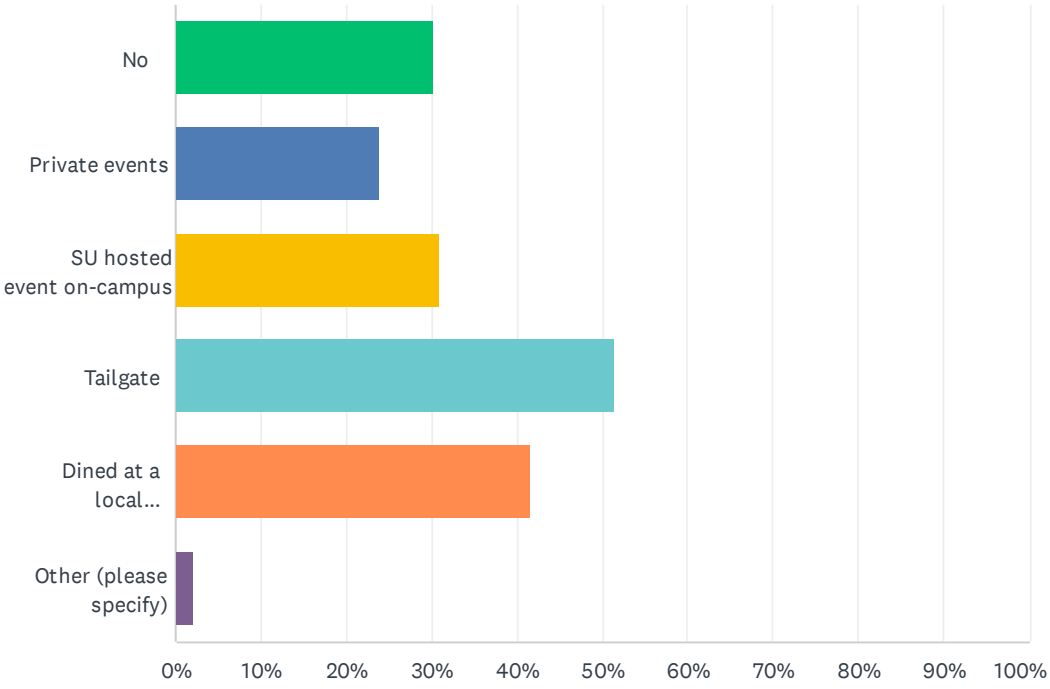
Answered: 137 Skipped: 32



ANSWER CHOICES	RESPONSES	
Shuttle Bus from SU Parking Lot	45.99%	63
Shuttle Bus from another location on SU Campus	10.22%	14
I have not used a Shuttle Bus	42.34%	58
Shuttle Bus from another location (please specify)	10.22%	14
Total Respondents: 137		

Q18 Have you participated in any pre-event activities before the start of a Dome event?

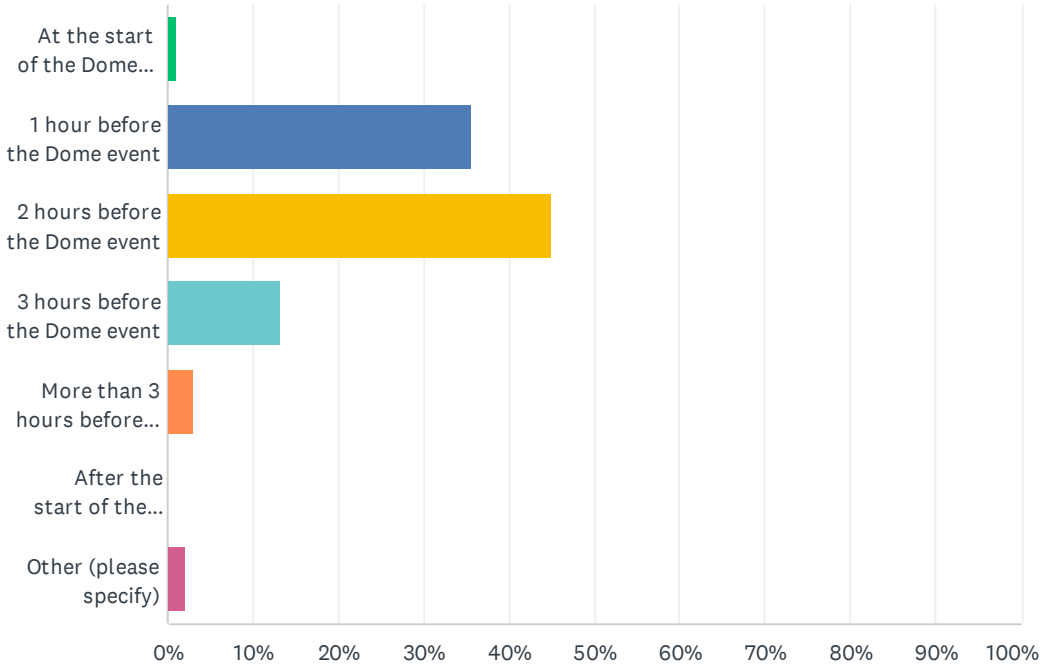
Answered: 142 Skipped: 27



ANSWER CHOICES	RESPONSES	
No	30.28%	43
Private events	23.94%	34
SU hosted event on-campus	30.99%	44
Tailgate	51.41%	73
Dined at a local restaurant or bar within walking distance of the Dome	41.55%	59
Other (please specify)	2.11%	3
Total Respondents: 142		

Q19 On event day, when do you typically arrive at your pre-event activity that you specified in the previous question?

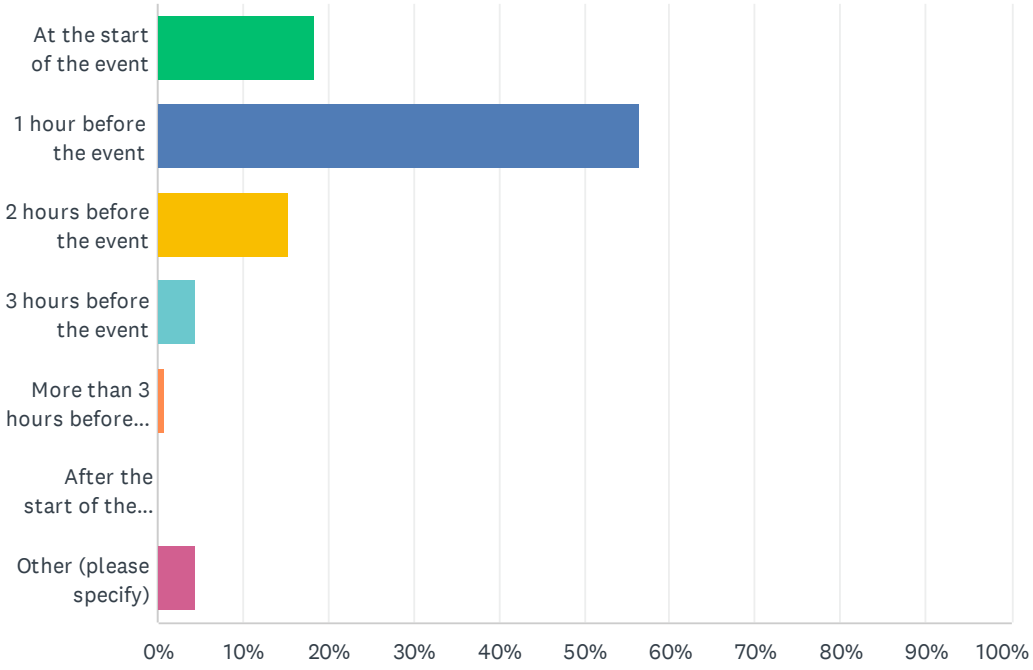
Answered: 98 Skipped: 71



ANSWER CHOICES	RESPONSES	
At the start of the Dome event	1.02%	1
1 hour before the Dome event	35.71%	35
2 hours before the Dome event	44.90%	44
3 hours before the Dome event	13.27%	13
More than 3 hours before the Dome event	3.06%	3
After the start of the Dome event	0.00%	0
Other (please specify)	2.04%	2
TOTAL		98

Q20 On event day, when do you typically arrive at the Dome event?

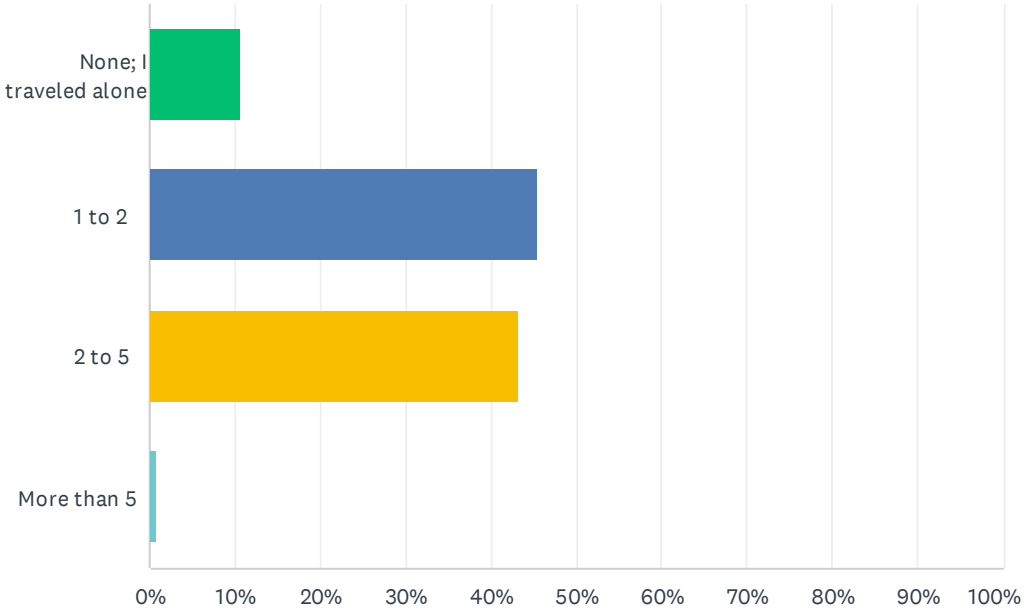
Answered: 131 Skipped: 38



ANSWER CHOICES	RESPONSES	
At the start of the event	18.32%	24
1 hour before the event	56.49%	74
2 hours before the event	15.27%	20
3 hours before the event	4.58%	6
More than 3 hours before the event	0.76%	1
After the start of the event	0.00%	0
Other (please specify)	4.58%	6
TOTAL		131

Q21 On your last trip to the Dome, how many people did you travel with?

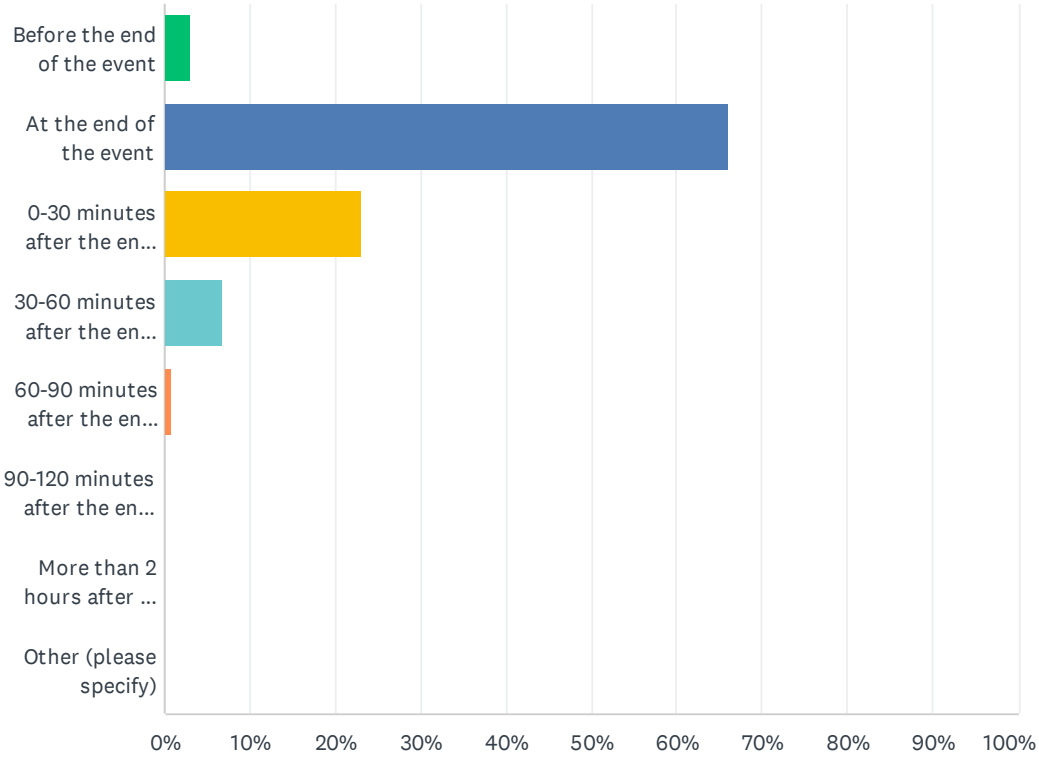
Answered: 132 Skipped: 37



ANSWER CHOICES	RESPONSES	
None; I traveled alone	10.61%	14
1 to 2	45.45%	60
2 to 5	43.18%	57
More than 5	0.76%	1
TOTAL		132

Q22 On event day, when do you typically leave the Dome event?

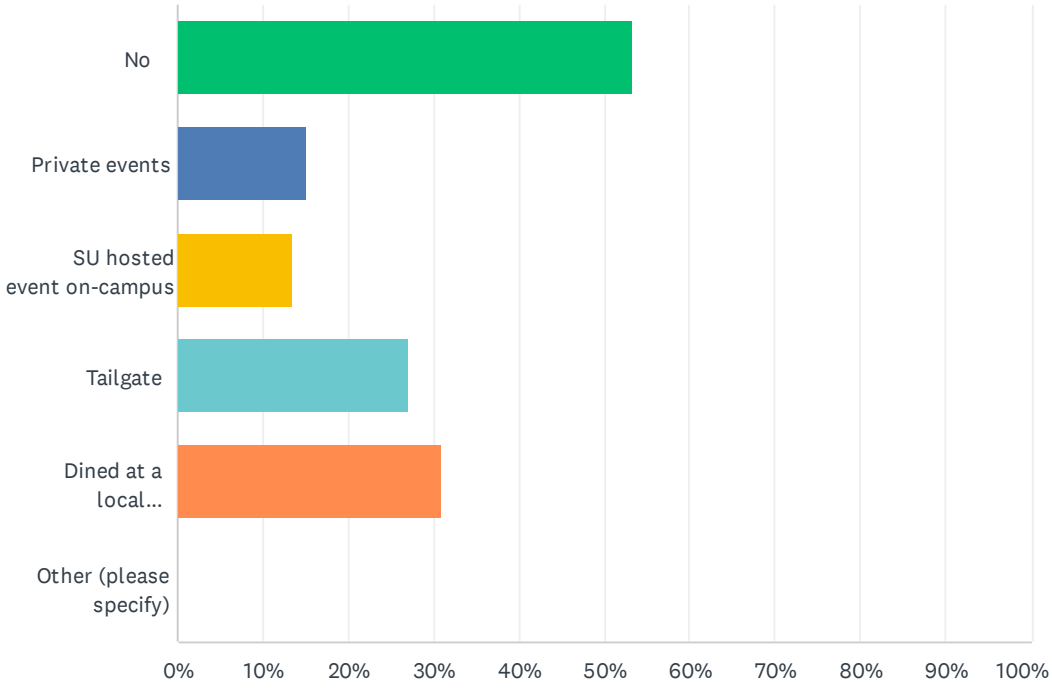
Answered: 130 Skipped: 39



ANSWER CHOICES	RESPONSES	
Before the end of the event	3.08%	4
At the end of the event	66.15%	86
0-30 minutes after the end of the event	23.08%	30
30-60 minutes after the end of the event	6.92%	9
60-90 minutes after the end of the event	0.77%	1
90-120 minutes after the end of the event	0.00%	0
More than 2 hours after the end of the event	0.00%	0
Other (please specify)	0.00%	0
TOTAL		130

Q23 Have you participated in any other activities during or after the Dome event?

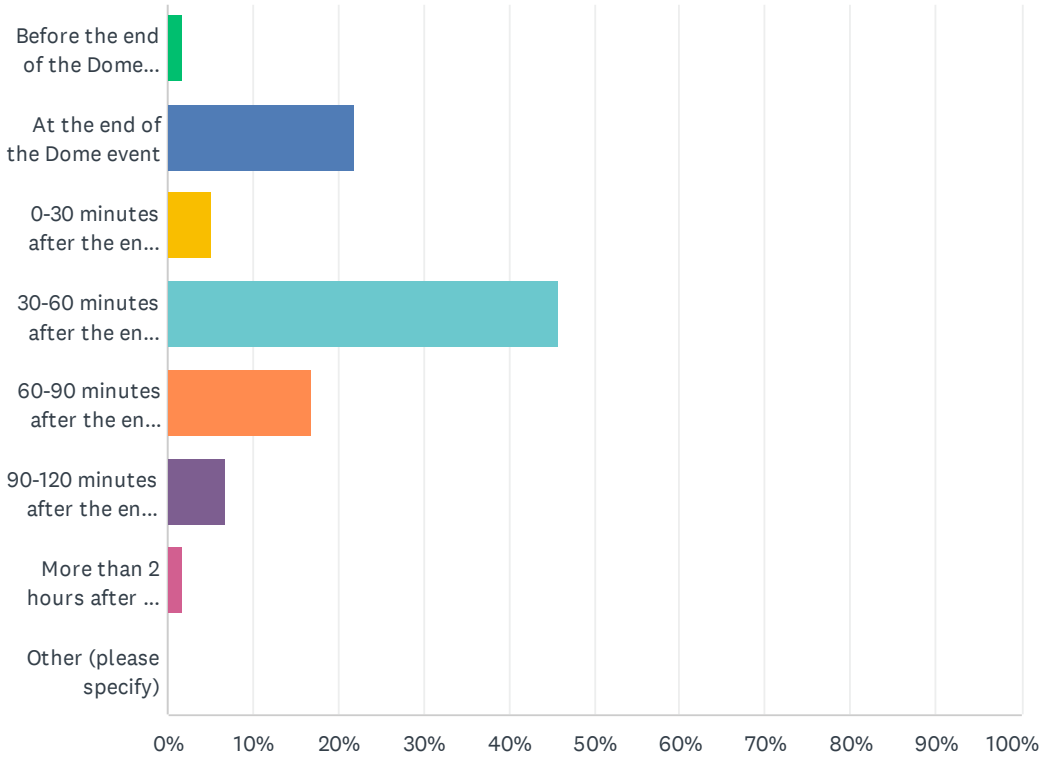
Answered: 133 Skipped: 36



ANSWER CHOICES	RESPONSES	
No	53.38%	71
Private events	15.04%	20
SU hosted event on-campus	13.53%	18
Tailgate	27.07%	36
Dined at a local restaurant or bar within walking distance of the Dome	30.83%	41
Other (please specify)	0.00%	0
Total Respondents: 133		

Q24 On event day, when do you typically leave your post-event activity that you specified in the previous question?

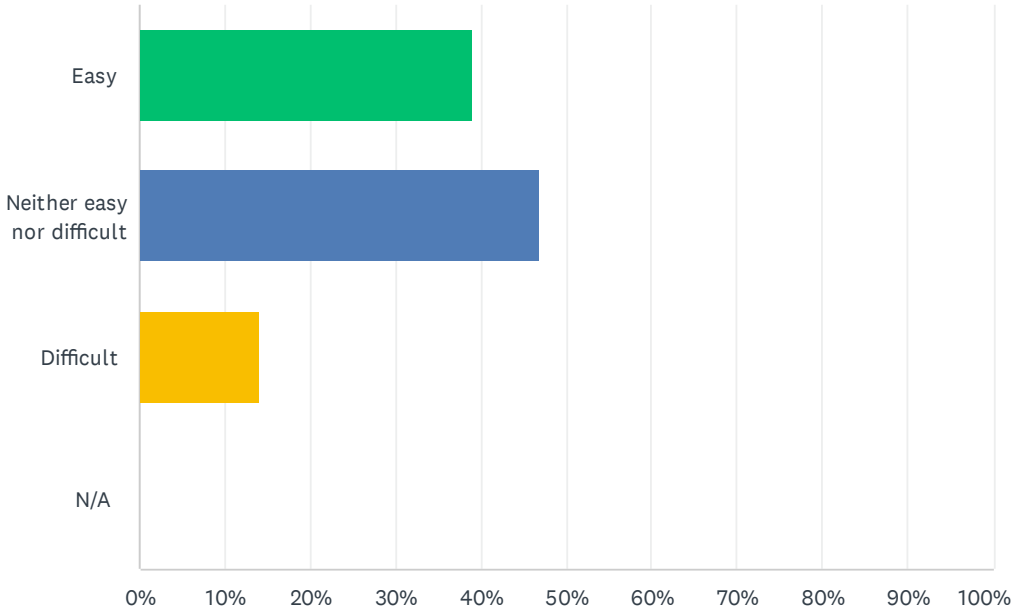
Answered: 59 Skipped: 110



ANSWER CHOICES	RESPONSES	
Before the end of the Dome event	1.69%	1
At the end of the Dome event	22.03%	13
0-30 minutes after the end of the Dome event	5.08%	3
30-60 minutes after the end of the Dome event	45.76%	27
60-90 minutes after the end of the Dome event	16.95%	10
90-120 minutes after the end of the Dome event	6.78%	4
More than 2 hours after the end of the Dome event	1.69%	1
Other (please specify)	0.00%	0
TOTAL		59

Q25 What is your overall assessment of the experience of ARRIVING at a Dome event?

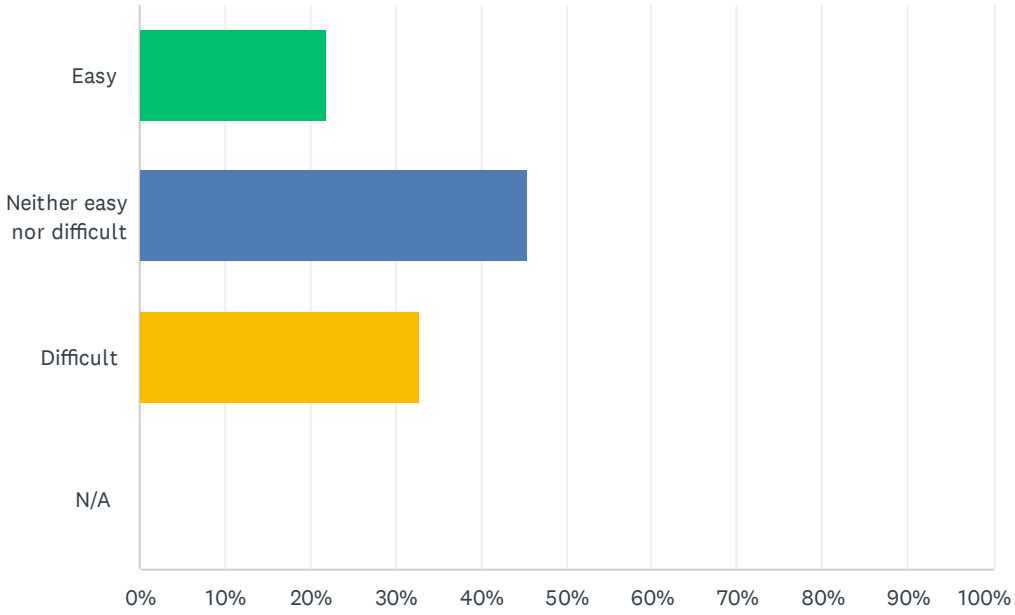
Answered: 128 Skipped: 41



ANSWER CHOICES	RESPONSES	
Easy	39.06%	50
Neither easy nor difficult	46.88%	60
Difficult	14.06%	18
N/A	0.00%	0
TOTAL		128

Q26 What is your overall assessment of the experience of LEAVING a Dome event?

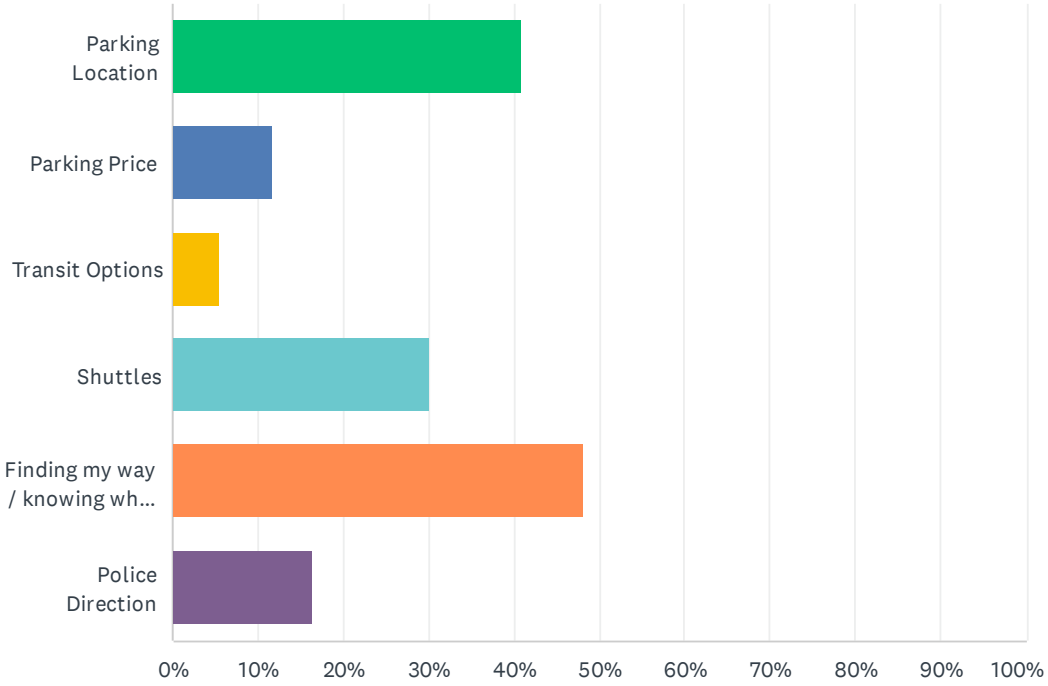
Answered: 128 Skipped: 41



ANSWER CHOICES	RESPONSES	
Easy	21.88%	28
Neither easy nor difficult	45.31%	58
Difficult	32.81%	42
N/A	0.00%	0
TOTAL		128

Q27 What do you LIKE about your TRAVEL experience at the Dome?

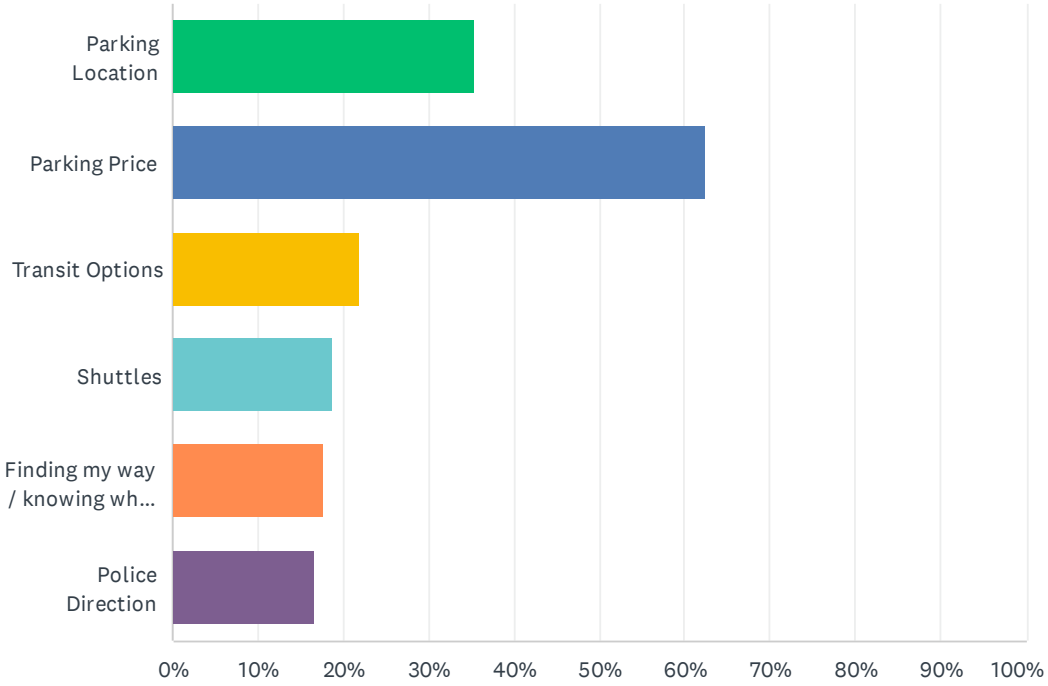
Answered: 110 Skipped: 59



ANSWER CHOICES	RESPONSES	
Parking Location	40.91%	45
Parking Price	11.82%	13
Transit Options	5.45%	6
Shuttles	30.00%	33
Finding my way / knowing what roads to use	48.18%	53
Police Direction	16.36%	18
Total Respondents: 110		

Q28 What do you DISLIKE about your TRAVEL experience at the Dome?

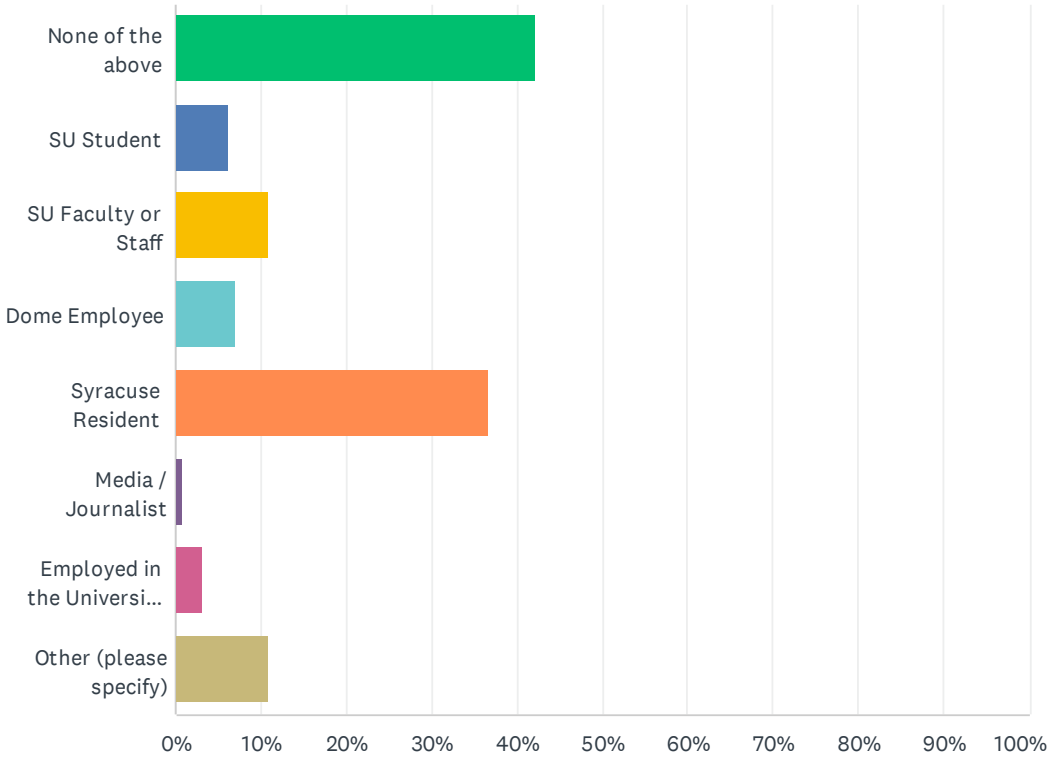
Answered: 96 Skipped: 73



ANSWER CHOICES	RESPONSES	
Parking Location	35.42%	34
Parking Price	62.50%	60
Transit Options	21.88%	21
Shuttles	18.75%	18
Finding my way / knowing what roads to use	17.71%	17
Police Direction	16.67%	16
Total Respondents: 96		

Q29 Other than an event attendee, do you have any other affiliation with the Dome?

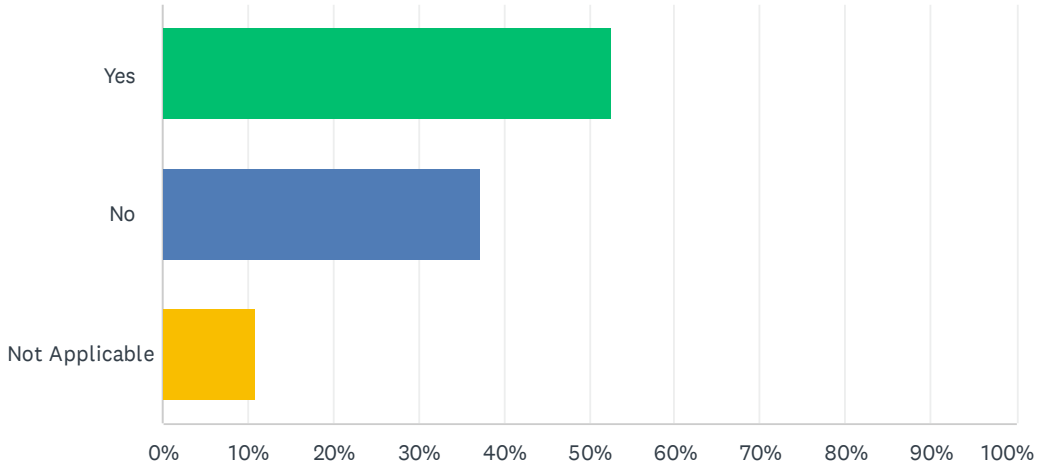
Answered: 128 Skipped: 41



ANSWER CHOICES	RESPONSES	
None of the above	42.19%	54
SU Student	6.25%	8
SU Faculty or Staff	10.94%	14
Dome Employee	7.03%	9
Syracuse Resident	36.72%	47
Media / Journalist	0.78%	1
Employed in the University Hill area	3.13%	4
Other (please specify)	10.94%	14
Total Respondents: 128		

Q30 During a Dome event day if you are NOT an attendee, does a Dome event influence your travel decisions?

Answered: 129 Skipped: 40



ANSWER CHOICES	RESPONSES	
Yes	52.71%	68
No	37.21%	48
Not Applicable	10.85%	14
Total Respondents: 129		