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June 11, 2015

Campus Advantage
110 Wild Basin Road, Suite 365
Austin, Texas 78746
Attn: Mr. Ronnie Macejewski

RE: Proposed State Street Triangle Campus Advantage Redevelopment, City of Ithaca, NY
Transportation Assessment

Dear Mr. Macejewski:

We have completed an assessment of the existing transportation network adjacent to the proposed State Street Triangle Campus Advantage Redevelopment situated on the southeast corner of Aurora Street/M.L.K. Jr. Street in the City of Ithaca, New York. This report also describes the potential trip generation as a result of the proposed residential component of the project. Outlined below are the results of our study.

Existing Conditions

The study area consists of seven existing intersections: M.L.K. Jr. Street at Green Street, Seneca Way, and Aurora Street; Seneca Street at Aurora Street, Tioga Street, and Cayuga Street; and Green Street/Cayuga Street. The site location is depicted in **Figure 1** – Site Location and Study Area (all figures are included at the end of this letter).

The highway network within the study area is comprised of State arterials, City collectors and local streets. Operation of the highway network within the study area is based largely upon two one-way pair roadways. East/West Green Street and East/West Seneca Street (also known as NYS Route 79) complement each other to create the east-west one-way pair system. East/West Green Street is one-way eastbound between Fulton Street and East State Street; East/West Seneca Street is one-way westbound between East State and North Meadow Street. NYS Route 79 (Green and Seneca Streets), the major east-west corridor through the City, is functionally classified as an urban minor arterial highway. In addition to carrying traffic through the City, these arterials serve properties and businesses through the Central Business District (CBD) and border the Ithaca Commons on the north and south.

The other one-way pair is comprised of North/South Aurora Street northbound between Court and State Streets and North/South Cayuga Street southbound between Seneca Street and Green Street. Cayuga Street is a two-way roadway between Seneca Street and Court Street. Both roadways are under the jurisdiction of the City of Ithaca. Annual Average Daily Traffic (AADT) on North Aurora Street was approximately 5,764 vehicles per day (vpd) in 2011, according to the most recent data collected by the New York State Department of Transportation (NYSDOT). The AADT along Cayuga Street was approximately 8,492 vpd in 2009 according to the most recent data collected by the NYSDOT.

Martin Luther King Junior Street (aka E. State Street) between North/South Aurora Street and Seneca Way West is a two-lane roadway with motorists travelling in an east/west direction. The AADT on State

Street was approximately 7,702 vpd in 2010, according to the most recent data collected by the NYSDOT. On-street metered parking exists on both sides of the roadway between North/South Aurora Street and Seneca Way.

Tioga Street is functionally classified as an urban collector roadway, under the jurisdiction of the City of Ithaca in the study area. The highway is oriented in a north/south direction and consists of two travel lanes in each direction. The AADT on Tioga Street was approximately 1,859 vpd in 2011, according to the most recent data collected by the NYSDOT.

The lane geometry at the study intersections and the AADT are depicted in **Figure 2**.

Vehicular and pedestrian traffic count data recorded on Wednesday, October 1, 2014 (all study area intersections, except for Tioga Street) and Thursday, December 4, 2014 at the Tioga Street/East Seneca Street intersection were obtained and reviewed. Traffic counts were conducted between 7:00-9:00 AM for the weekday morning peak hour and between 4:00-6:00 PM for the weekday evening peak hour. The collective data indicates that during these periods, the peak hours of traffic at the study intersections are generally 8:00-9:00 AM and 4:30-5:30 PM.

All count data was collected on typical weekdays while local colleges, universities, and public schools were in session. All traffic volumes were reviewed to confirm accuracy and relative balance of the collective traffic counts. During the October traffic counts, a detour route was in place due to roadway work being performed along Clinton Street impacting the traffic volumes interacting with the study area intersections. In order to adjust for the effects of the detour, historical (2006 to 2011) traffic volumes at the study area intersections were reviewed to determine the likely changes resulting from the detour. Recent May 2015 peak hour intersection counts (taken with all schools in session) at MLK Street/S.Aurora and Seneca Street/N. Aurora intersections were used to verify and adjust if needed, the study network volumes for greater accuracy. The final and adjusted existing weekday AM and PM peak hour volumes are reflected in **Figure 3**.

The study intersections were observed during all three peak intervals to assess current traffic operations. Signal timing information was collected to determine peak hour phasing plans and phase durations during each interval.

Proposed Development

The proposed State Street Triangle Campus Advantage development is a mixed use residential, retail, and restaurant project located in the heart of downtown Ithaca. Its location is at the eastern gateway to Ithaca Commons. The proposed development provides approximately 230 apartment units (600 bedrooms) geared towards the student demographic, a 2,113 square foot (SF) restaurant, 10,674 SF of retail space divided between five separate spaces, a 1,551 SF fitness area, 4,056 SF of an amenity space, and 1,374 SF of leasing space. A retail trash/loading area (5,318 SF) is proposed in the central courtyard. It is assumed that the residential demographic will be serviced by alternate modes of transportation via the Tompkins Consolidated Area Transit and supplemented by walking, biking, and carshare.

The volume of traffic generated by a site is dependent on the intended land use and size of the development. Trip generation is an estimate of the number of trips generated by a specific building or land use. These trips represent the volume of traffic entering and exiting the development. The Institute of Transportation Engineers (ITE) Trip Generation, 9th Edition manual is used as a reference for this information. The trip rate for the peak hour of the generator may or may not coincide in time or volume with the trip rate for the peak hour of adjacent street traffic. Volumes generated during the peak hour of

adjacent street traffic, in this case, the weekday AM and PM peaks, represent a more critical volume when analyzing the capacity of the system; those intervals will provide the basis of this analysis.

According to the Institute of Transportation Engineers (ITE), the following steps are recommended when determining trip generation for proposed land uses:

- i. Check for the availability of local trip generation rates for comparable uses.
- ii. If local trip data for similar developments are not available and time and funding permit, conduct trip generation studies at sites with characteristics similar to those of the proposed development.

Trip generation data for the residential component is based on trip generation rates developed as part of the Collegetown Terrace Apartment project. These rates were calculated based on manual traffic counts of similar residential uses at Quarry Street and Valentine Place.

Because of the walkable, bikeable, and transit-friendly nature of the Ithaca CBD in regards to the proposed commercial uses (retail, restaurant), it is assumed that trips generated by the proposed land uses will utilize a combination of off-site parking spaces including the Green Street Garage, Seneca Garage, and on-street parking spaces. Additionally, these storefronts will be patronized by the residents living in the units above.

Table I shows the site generated trips for the residential component during the weekday AM and weekday PM peak hours for the proposed site. Also included in Table I are trip reduction calculations. It is expected that the residential demographic will be serviced by TCAT, as well as having the ability to travel to their destination via walking and bicycling. The TCAT 2013 Yearbook was reviewed to determine the percentage of total TCAT fares that are attributed to Cornell riders. Approximately 71.4 percent of fares are Cornell related followed by 11.7 percent cash fares, 10.3 percent TCAT passes, and the remaining associated with Ithaca College, TC3 students, government, and other. Using this information, a conservative 50 percent transit rate has been applied to the trip generation calculations.

An analysis was undertaken of the most recent 2012 American Community Survey (ACS) 5-year Estimates produced by the United States Census Bureau. The most recent data shows that over 42 percent of the population walks to work within the City. Within the City, 10.1 percent of people use public transportation, 8.9 percent carpool, and 2.2 percent bike to work. Finally, 7.5 percent of the City’s population is reported to telecommute. Therefore, this study assumes a 15 percent reduction in vehicle trips as it related to pedestrian and bicycle travel modes using the site. An estimated 5 percent reduction is applied due to carpooling. Residents will also be able to access carshare. All trip generation calculations are included in the attachments of this letter.

TABLE I - SITE GENERATED RESIDENTIAL TRAFFIC VOLUMES

DESCRIPTION	AM PEAK HOUR		PM PEAK HOUR	
	ENTER	EXIT	ENTER	EXIT
State Street Triangle Campus Advantage	16	28	38	47
Transit Credit (50%)	-8	-14	-19	-24
Bicycle/Pedestrian Credit (15%)	-2	-4	-6	-7
Carpool Credit (5%)	-1	-1	-2	-2
Total Reductions	-11	-20 ¹	-27	-33
Total New Trips	5	8	11	14

Capacity Analysis

Capacity analysis is a technique used for determining a measure of effectiveness for a section of roadway and/or intersection based on the number of vehicles during a specific time period. The measure of effectiveness used for the capacity analysis is referred to as a Level of Service (LOS). Levels of Service are calculated to provide an indication of the amount of delay that a motorist experiences while traveling along a roadway or through an intersection. Since the most amount of delay to motorists usually occurs at intersections, the capacity analysis specifically focuses on intersections.

Six Levels of Service are defined for analysis purposes. They are assigned letter designations, from "A" to "F", with LOS "A" representing the best conditions and LOS "F" the worst. Suggested ranges of service capacity and an explanation of Levels of Service are included in the attachments.

The standard procedure for capacity analysis of signalized and un-signalized intersections is outlined in the Highway Capacity Manual (HCM 2010) published by the Transportation Research Board. Traffic analysis software, Synchro 8, which is based on procedures and methodologies contained in the HCM, was used to analyze operating conditions at the study area intersections. The procedure yields a Level of Service (LOS) based on the HCM as an indicator of how well intersections operate.

Existing operating conditions during the peak study periods are evaluated to determine a basis for comparison with projected future conditions. Capacity results for existing conditions are listed in **Table II**. The discussion following the table summarizes capacity conditions. All capacity analysis calculations are included in the attachments.

TABLE II – CAPACITY ANALYSIS RESULTS

Intersection	Existing Conditions	
	AM	PM
M.L.K. Jr. Street/Green Street (S)		
Eastbound – M.L.K. Jr. Street	A(4.1)	A(2.4)
Westbound – M.L.K. Jr. Street	A(0.3)	A(0.5)
Northbound – Green Street	B(16.7)	B(15.6)
Overall LOS	B(11.0)	A(8.9)
M.L.K. Jr. Street/Seneca Way West (S)		
Eastbound – M.L.K. Jr. Street	D(39.4)	D(49.3)
Westbound – M.L.K. Jr. Street	C(23.2)	C(30.8)
Northbound Left – Seneca Way West	C(22.4)	C(24.9)
Northbound Thru – Seneca Way West	C(23.2)	C(29.0)
Overall LOS	C(26.1)	C(32.6)
M.L.K. Jr. Street/Aurora Street (S)		
Westbound – M.L.K. Jr. Street	C(26.8)	E(69.5)
Northbound – Aurora Street	B(18.3)	B(17.8)
Overall LOS	C(21.8)	D(44.3)
East Seneca Street/North Aurora Street (S)		
Westbound Thru – East Seneca Street	B(18.1)	C(27.3)
Westbound Right – East Seneca Street	B(15.3)	B(18.7)
Northbound – North Aurora Street	A(5.7)	A(9.7)

Overall LOS	B(12.7)	C(20.3)
East Seneca Street/Tioga Street (S)		
Westbound Thru – East Seneca Street	A(7.0)	B(14.8)
Southbound Right – Tioga Street	A(4.2)	C(23.7)
Overall LOS	A(6.5)	B(16.3)
East Seneca Street/North Cayuga Street (S)		
Westbound Thru – East Seneca Street	B(10.8)	B(12.7)
Southbound – North Cayuga Street	E(62.5)	F(80.6)
Overall LOS	C(27.5)	C(30.5)
Green Street/South Cayuga Street (S)		
Eastbound Thru – Green Street	C(23.6)	C(33.9)
Northbound Right – South Cayuga Street	D(40.7)	C(23.7)
Southbound Left – South Cayuga Street	C(25.7)	B(19.0)
Southbound Thru – South Cayuga Street	C(30.3)	C(26.2)
Overall LOS	C(28.7)	C(27.7)

Notes:

- 1. A(4.1) = LOS(Delay in seconds per vehicle)

The overall levels of service operate at “C” or better at all study area conditions during both peak hours under existing conditions. The westbound approach at the Aurora Street/MLK Jr. Street intersection operates at LOS “E” during the PM peak hour. At the East Seneca Street/North Cayuga Street intersection, the southbound approach operates at LOS “E” and “F” during the AM and PM peak hours.

Multi-Modal Assessment

Pedestrian Facilities

The City of Ithaca is noted for high levels of walking for daily transport (both functional and recreational). As previously noted, approximately 42 percent of residents walk to work. This figure is buoyed by the proximity of Cornell University to the CBD; however, the higher density of the city allows for more non-motorized travel between residential neighborhoods, and places of work and play. Sidewalks are present throughout the CBD and adjacent to the proposed redevelopment site. Pedestrian crosswalks and countdown signals are present at the signalized intersections, with a Leading Pedestrian Interval (LPI) in place at Aurora Street/M.L.K. Jr. Street intersection. The width of the sidewalks vary between five feet (along Seneca Way and M.L.K. Jr. Street) to ten feet (along Aurora Street) around the block on which the proposed redevelopment site is located.

The building is designed for transparency between the public realm and building frontage, specifically along M.L.K. Jr. Street. A pedestrian entrance is provided along Seneca Way. The proposed site is located less than 300 feet from The Commons.

Bicycle Facilities

Bicycle storage racks are located throughout the city. The city is expanding its bicycle infrastructure in terms of on-street bicycle lanes, shared lane markings (“sharrows”), and a proposed bicycle boulevard along Plain Street between Elmira Road to Cascadilla Street. An existing bicycle storage rack is located along M.L.K. Jr. Street. A bicycle lane runs along Green Street towards Mitchell Street providing a linkage opportunity between the proposed site and Cornell. The figure below is a



screenshot of the 2013 Ithaca Bike Map illustrating street's traffic volume rating (blue – low, yellow, medium, orange – heavy), steepness (double carrot are grades greater than 8 percent), and presence of bicycle facilities (marked bicycle lanes along Green Street/State Street).

Transit Facilities

Transit is an important mobility option for those travelling to/from destinations such as Cornell University. Tompkins Consolidated Area Transit (TCAT) has 33 bus routes, operates 22 hours a day, and services an area-wide population of over 100,000. Ridership has grown every year since 2006 and accounts for over 10% of daily commuter trips (ACS, 2012). Specifically to the proposed site, there are six transit stops located within a 1/4-mile (five-minute walk) to the site.

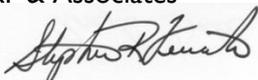
Summary

This assessment documents the existing transportation network as it relates to the proposed State Street Triangle Campus Advantage Redevelopment. Based upon the assessment, the proposed site is serviced and accessible via walking, bicycling, transit, and the personal vehicle. The proposed site is located in an area that exhibits high levels of walking for purpose or recreation. The following conclusions and recommendations are based upon the results of the analyses:

1. The proposed development is anticipated to generate 5 entering/8 exiting vehicle trips during the AM peak hour and 12 entering/14 exiting new vehicle trips during the PM peak hour.
2. Sidewalks exist around the property providing pedestrian access to the site. A bicycle lane exists along Green Street, as well as a bicycle rack along M.L.K. Jr. Street. Six transit tops are located with a 1/4-mile to the site.
3. Bicycle storage facilities should be included as a result of the proposed development of the site.

If you have any questions or are in need of additional information, please do not hesitate to contact our office.

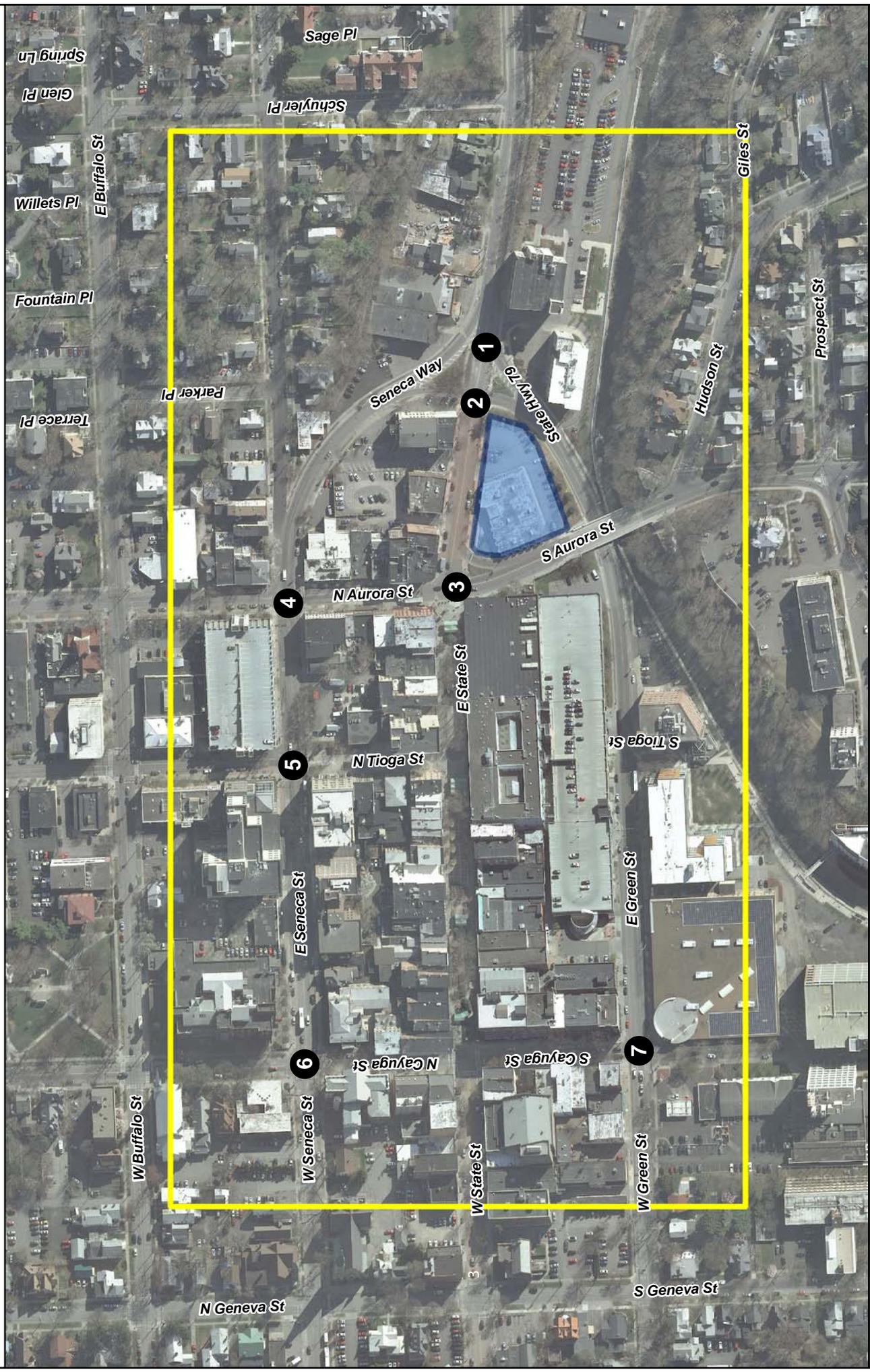
Sincerely,
SRF & Associates



Stephen R. Ferranti, P.E., PTOE
Principal

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FIGURE 1 - SITE LOCATION AND STUDY AREA



Legend

● Study Intersection

■ Site Location

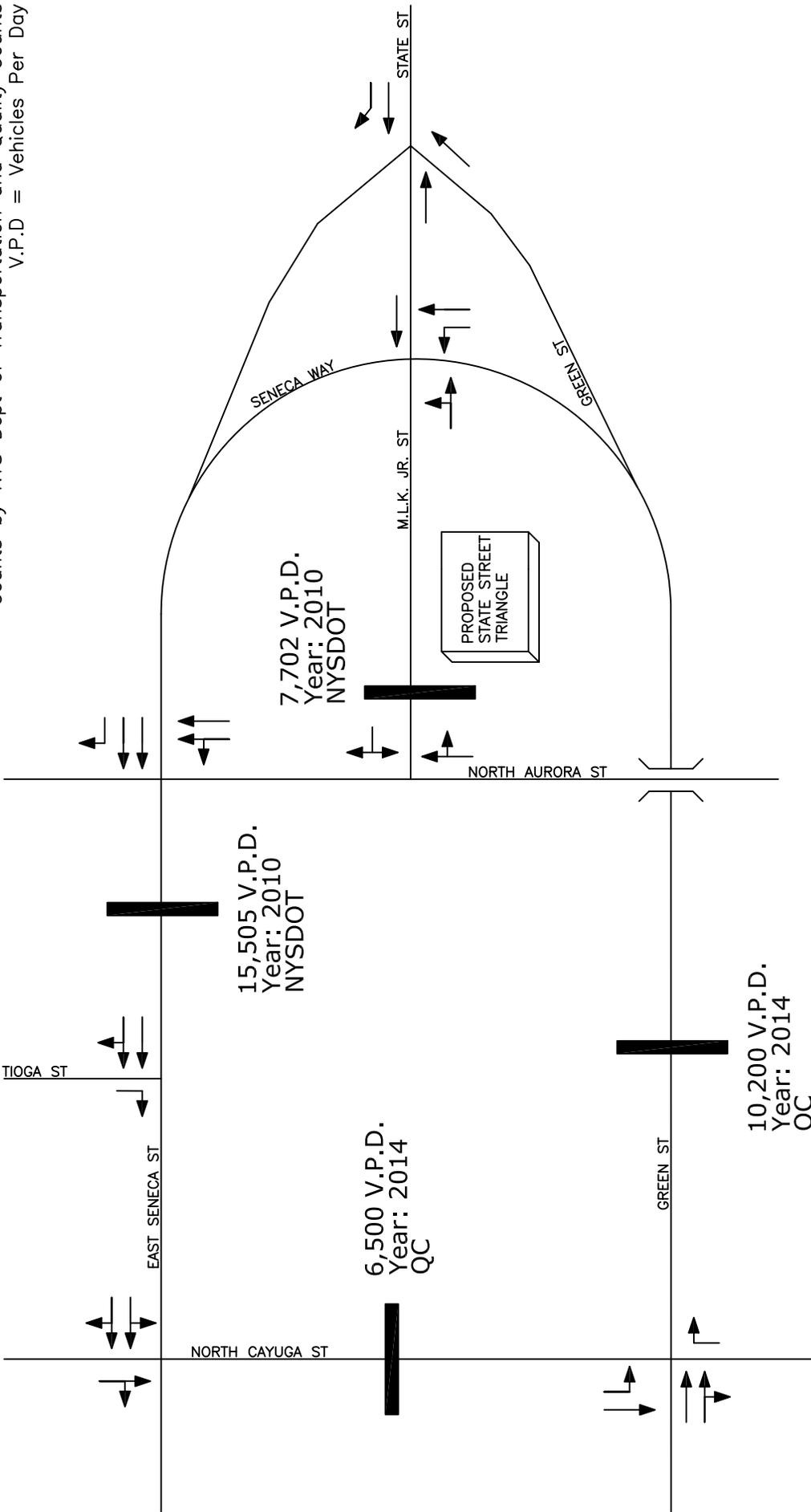
■ Study Area

PROPOSED STATE STREET TRIANGLE CAMPUS ADVANTAGE

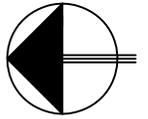
CITY OF ITHACA, NY



Note:
 Counts by NYS Dept of Transportation and Quality Counts
 V.P.D = Vehicles Per Day



PROJECT NO.: 35027



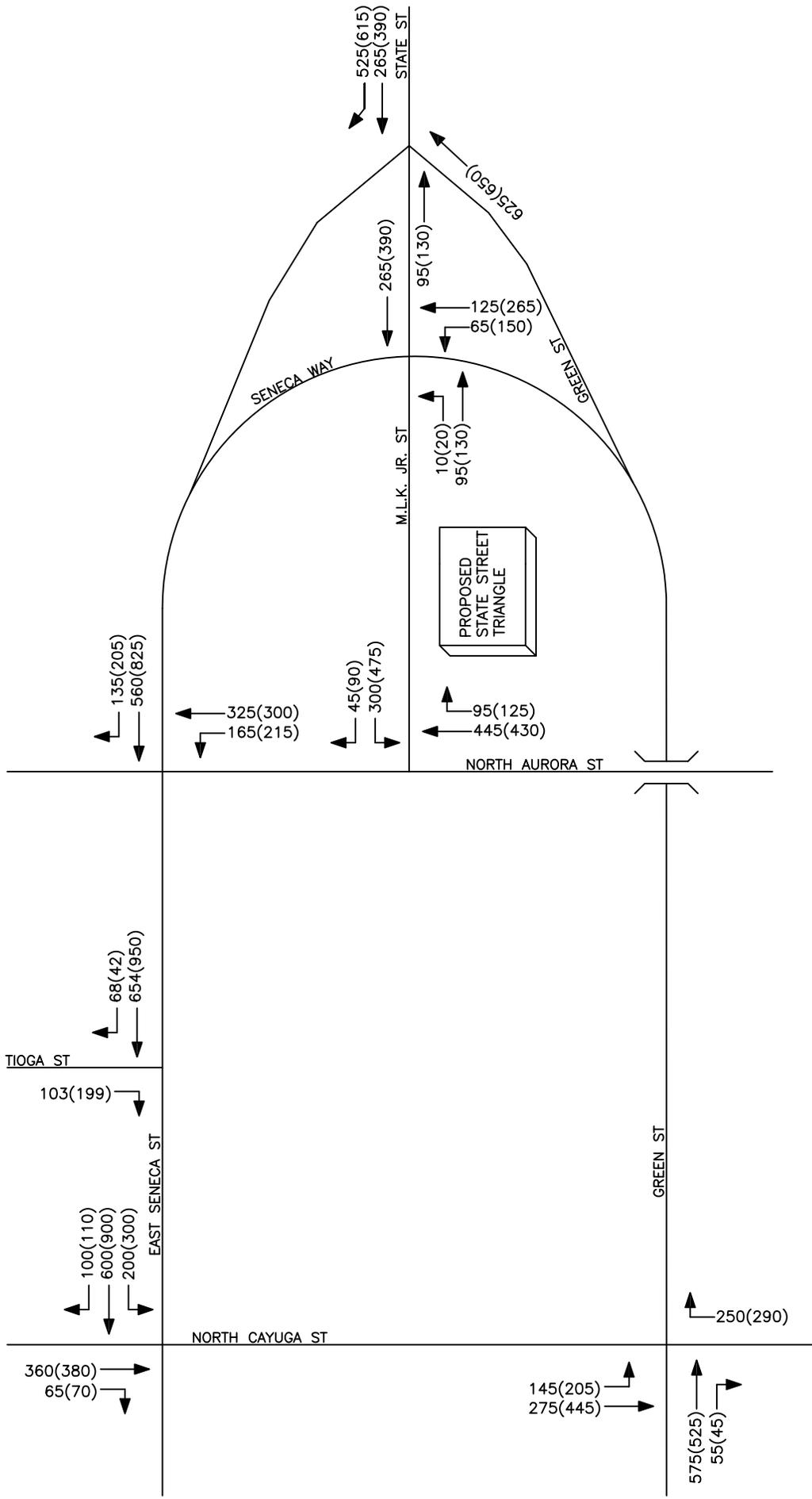
NOT TO SCALE

FIGURE 2

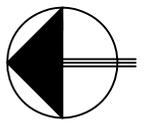
LANE GEOMETRY &
 AVERAGE DAILY TRAFFIC

PROPOSED STATE STREET TRIANGLE CAMPUS ADVANTAGE
 CITY OF ITHACA, NY

KEY



PROJECT NO.: 35027



NOT TO SCALE

FIGURE 3

PEAK HOUR VOLUMES
 2014 ADJUSTED & BALANCED EXISTING CONDITIONS
 PROPOSED STATE STREET TRIANGLE CAMPUS ADVANTAGE
 CITY OF ITHACA, NY

KEY

00(00) = AM(PM)