

MEMORANDUM

To: Caren LoBrutto, Larry Boudreau
From: Tom Johnson
cc:
Date: September 21, 2021
Re: Bellefield 2021 Master Plan Trip Generation
Job #: 81235.02

The 2021 Build-out Master Plan removes a significant amount of retail space and office space and adds a substantial number of residential units. A memo dated January 14, 2021 estimated the total number of weekday AM and PM peak hour trips for the 2021 Build-out Master Plan. It is noted that the estimates did not include trips for the Event Barn and the Amphitheater. It was assumed that events at those venues would be held outside the traditional weekday AM and PM peak hours.

This memo adjusts the previous trip estimates to include an event at both the Event Barn and the Amphitheater during the weekday PM peak hour. Table 1 presents the comparison of trip generation estimates from the 2007 Master Plan, the 2017 Master Plan, and the 2021 Master Plan. This table shows that the total trips at build-out for the 2021 Master Plan are about 60 – 100 trips less than the previous Master Plans in the AM peak hour and about 270 trips less than the previous Master Plans in the PM peak hour. Therefore, roadway improvements originally identified continue to be valid and no further improvements are needed.

Table 1: Trip Generation Comparison¹
St. Andrews PUD Build-out

Project Component	AM Total Trips			PM Total Trips		
	2007	2017	2021	2007	2017	2021
Clustered Res. Dev. (2007 & 2017)						
50 Single Family Homes	38	38	--	51	50	--
178 Townhouse Units	78	78	--	92	92	--
Clustered Res. Dev. (2021)						
105 Single Family/Cottages/Patio Homes	--	--	78	--	--	104
150 Townhouse Units	--	--	69	--	--	84
NW Corner Parcel (2007 & 2017)						
50,000 SF Commercial	52	48	--	188	186	--
25,000 SF Office	39	39	--	37	37	--
NW Corner Parcel (2021)						
50,000 SF Commercial	--	--	47	--	--	191
8,000 SF High-Turnover/Sit-Down Restaurant	--	--	80	--	--	78
25,000 SF Office	--	--	29	--	--	29
Village Center (2007 & 2017)						
330 Condominiums	145	145	--	172	172	--
340,000 SF Commercial	350	326	--	1,278	1,261	--
185,000 Office	287	289	--	275	276	--
240 Room Hotel	135	127	--	141	144	--
130,000 SF CIA Building	185	185	--	180	180	--
Village Center (2021) ²						
589 Condos/Apartments/Lofts	--	--	271	--	--	330
142,000 SF Commercial	--	--	133	--	--	541
332 Room Hotel/Villas	--	--	156	--	--	199
115,000 SF CIA Building/Ag Center	--	--	164	--	--	159
5,000 SF Quality Restaurant	--	--	4	--	--	39
18,000 SF of High-Turnover/Sit-Down Restaurants	--	--	180	--	--	177
Friday Afternoon Events ³						
Event Barn Wedding	--	--	--	--	--	104
Amphitheater Entertainment	--	--	--	--	--	102
Project Total	1,309	1,275	1,211	2,414	2,398	2,137

Notes:

1. Trip estimates based on *Trip Generation Manual*: 2007 (7th Edition); 2017 (9th Edition); 2021 (10th Edition).
2. Master Plan also includes community building space that is considered an internal use and would not have external trips during the morning and afternoon weekday periods.
3. Event trip generation assumptions and estimates provided on Page 3.

³Event Trip Generation

The Institute of Transportation Engineers (ITE) provides traffic and transportation professionals with a source document as a guide for estimating vehicle trips for many land uses and building types. This document, *Trip Generation Manual*, is updated periodically and details trip rates developed for the peak hours of average Weekdays and Saturdays.

However, this manual does not provide trip generation data for an event facility. Therefore, the estimated number of vehicle trips generated by the proposed action have been established for the following scenarios and assumptions:

A. Event 1 (Event Barn): 250-person Friday wedding event (late afternoon @ 5:30 p.m.) with 20 event staff

Assumptions:

1. All Attendees arrive in one-hour period before 5:30 p.m.
2. 25% of attendees are local Bellefield residents = 62 persons internal, 188 persons external
3. External vehicle occupancy rate of 2.0 persons/vehicle = 94 vehicles entering in peak arrival period (See note a. below)
4. 10 Staff arrive in same period with 1.0 persons per vehicle = 10 vehicles entering in peak arrival period
5. 10 Staff arrive earlier than peak event = 0 vehicles entering in peak arrival period
6. Total vehicles = 104 entering in peak
7. Vehicles will enter site at St. Andrews Road, Route 9 full access, and Route 9 right-in/right-out access

B. Event 2 (Amphitheater): 250-person early Friday evening entertainment event with 40 event staff

Assumptions:

1. All Attendees arrive in one-hour period between before 6 p.m.
2. 50% of attendees are local Bellefield residents = 125 persons internal, 125 persons external
3. External vehicle occupancy rate of 2.0 persons/vehicle = 62 vehicles entering in peak arrival period (See note a. below)
4. All Staff arrive in same period with 1.0 persons per vehicle = 40 vehicles entering in peak arrival period
5. Total vehicles = 102 entering in peak
6. Vehicles will enter site at Route 9 full access

Combined events equate to 206 vehicles (trips) entering in the afternoon peak period. Exiting trips will occur after the afternoon peak period.

Note:

- a. Average vehicle occupancy for social/recreational trip purpose = 2.21 persons/vehicle from 2009 National Household Travel Survey (NHTS) and 2.10 persons/vehicle from 2017 NHTS.

Proposed Inn at Bellefield Traffic Impact Assessment

Town of Hyde Park
Dutchess County, New York



Prepared for:

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June 21, 2017

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Proposed Inn at Bellefield Traffic Impact Assessment

Town of Hyde Park
Dutchess County, New York

Chazen Project #: 81235.02



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1.0 EXECUTIVE SUMMARY

This Traffic Impact Assessment has been prepared to evaluate the potential traffic impacts of the proposed *Inn at Bellefield* project, which includes construction of a 104,683 square foot (SF), five-story Hotel with 133 guest rooms near the corner of Route 9 and West Dorsey Lane on a 4.27 acre development parcel, which is part of the 2007-approved St. Andrews PUD.

The Hotel is Sub-Phase 1-A of the larger *St. Andrews PUD* project that was approved in 2007. The Town of Hyde Park Town Board approved the *St. Andrews at Historic Hyde Park Planned Unit Development* (St. Andrews PUD) in 2007. The project was the subject of an Environmental Impact Statement that was accepted as complete in December 2005, and the Town Board adopted a SEQR Findings Statement on August 29, 2007. This PUD encompasses 339.57 acres of land in the southeast quadrant of the intersection of US Route 9 and St. Andrews Road. The parcel is identified on the Town of Hyde Park official tax map as parcel 133200-6163-01-131849. The SEQR Draft EIS and Final EIS (dated August 2007) analyzed and evaluated the environmental impacts associated with the overall development of the St. Andrews PUD.

The Applicant and current property owner, T-Rex Hyde Park Owner LLC, is now submitting an application for Final Development Plan approval (subdivision and site plan) to the Planning Board for the first subphase of the project (Sub-Phase 1-A), in accordance with Section 108-7.3.E and 108-7.4.B of the Zoning regulations and Section I of the Comprehensive Development Plan for the St. Andrews Property. The Hotel is proposed to begin construction this year, 2017.

Five intersections on Route 9 and Route 9G were reviewed and analyzed from the perspective of potential traffic impact. Traffic volumes at the five locations were documented with new turning movement counts during the AM and PM weekday peak periods of roadway activity. The counts were collected on May 9, 10, and 11, 2017 and were collected while the Culinary Institute of America (CIA) was in session.

The analysis shows that the proposed project, the *Inn at Bellefield* Hotel (Sub-Phase 1-A) would have minimal impacts to the adjacent roadway network. The Hotel will generate less trips than the retail and office components of the original PUD that it is replacing. Access to the site will be opposite the CIA North Drive on Route 9. The geometry of the intersection will be built as stipulated in *St. Andrews PUD Findings Statement*: northbound right-turn lane; southbound left-turn lane; and westbound left-turn lane, shared left/through lane, and right-turn lane.

At the request of NYSDOT, this assessment includes an analysis to check the validity of the trip estimates and capacity analyses originally used in the *St. Andrews PUD* using the updated editions of the *Trip Generation Manual* (9th Edition) and the *2010 Highway Capacity Manual*. The editions used in the original study were the 7th Edition of the *Trip Generation Manual* and the *2000 Highway Capacity Manual*. The results show that the trip generation estimates are still valid as are the capacity results, with signal timing changes required at the Route 9 intersections.

2.0 INTRODUCTION

2.1 Project Description

The Town of Hyde Park Town Board approved the *St. Andrews at Historic Hyde Park Planned Unit Development* (St. Andrews PUD) in 2007. The project was the subject of an Environmental Impact Statement that was accepted as complete in December 2005, and the Town Board adopted a SEQR Findings Statement on August 29, 2007. On the same date, the Board approved a Concept Plan depicting the general configuration of land uses for the site. The Board also established land use, bulk, and other regulations for the PUD (referred to as a Comprehensive Development Plan) in granting the approval. This PUD encompasses 339.57 acres of land in the southeast quadrant of the intersection of US Route 9 and St. Andrews Road. The parcel is identified on the Town of Hyde Park official tax map as parcel 133200-6163-01-131849. The approved Concept Plan included a mixture of residential and commercial uses throughout the western portion of the site, and a conservation easement for the eastern portion of the site. The SEQR Draft EIS and Final EIS (dated August 2007) analyzed and evaluated the environmental impacts associated with the overall development of the St. Andrews PUD.

The Applicant and current property owner, T-Rex Hyde Park Owner LLC, is now submitting an application for Final Development Plan approval (subdivision and site plan) to the Planning Board for the first sub-phase of the project (Sub-Phase 1-A), in accordance with Section 108-7.3.E and 108-7.4.B of the Zoning regulations and Section I of the Comprehensive Development Plan for the St. Andrews Property. Individual site plans and subdivision plans are subject to review and approval by the Planning Board. The phasing plan presented in the DEIS recognized that within the two “general” phases of development of the project, there would be a to-be-determined number of subphases, based upon market conditions and construction approaches, and that these subphases would be further defined during site and subdivision plan approval.

The *Inn at Bellefield (“Hotel”) Final Development Plan* includes a subdivision of the 339.57 acre parcel to create a new 4.27 acre development parcel for the hotel, and the construction of a 104,683 square foot (SF), five-story Hotel with 133 guest rooms on the new parcel, near the corner of Route 9 and West Dorsey Lane. This area of the overall St. Andrews PUD site is in the heart of the “Mixed-Use Core,” in the area designated as Zone 3, Block G on the approved Concept Plan, which was intended for the early stages of development. The proposed project is a refinement of the conceptual uses previously approved for a portion of Block G, as approved in the 2007 Concept Plan, which was 92,500 SF of commercial space (46,250 SF of retail and 46,250 SF of office). The applicant proposes to replace this portion of the retail and office space in Block G with the proposed Hotel. The Final Development Plan for the Hotel project area is provided in Appendix A.

Sub-Phase 1-A also includes construction of the two approved site accesses on Route 9: one of which is across from the Culinary Institute of America (CIA), an internal road to the Hotel; and the approved emergency access from West Dorsey Lane.

Figure 1 shows the site location.



<p>THE <i>Chazen</i> COMPANIES[®] <i>Proud to be Employee Owned</i></p>	<p>Bellefield – St. Andrews US Route 9 Hyde Park, New York</p>	<p>Project Site Location Map</p>
<p>Project #: 81235.02</p>	<p>Date: June 2017</p>	<p>Figure: #1</p>

2.2 Study Methodology

For the purposes of determining potential traffic flow impact for the proposed Hotel project, this study reviews and compares existing traffic conditions to anticipated traffic conditions upon completion of the proposed hotel project, Sub-Phase 1-A. This study also confirms the previous build-out condition for the *St. Andrews PUD* project through a check of the trip generation estimates and capacity analyses.

Five existing intersections were reviewed and analyzed for the weekday morning and evening commuter peak periods. The noted intersections are as follows.

1. Route 9 at St. Andrews Road
2. Route 9 at CIA North Drive
3. Route 9 at West Dorsey Lane
4. Route 9G at St. Andrews Road
5. Route 9G at West/East Dorsey Lane

The operating conditions at these intersections (existing and proposed) have been reviewed and analyzed and recommendations made as necessary to accommodate the activity associated with the project. For the purposes of this traffic assessment, 2018 will be considered the “Build” year for the Sub-Phase 1-A Hotel project. For project build-out, the “Build” year will be updated from 2012 to 2027.

3.0 EXISTING CONDITIONS

3.1 Roadways and Intersections

3.1.1 Roadways

The following local roadways form the immediate travel system to and from the proposed project:

Route 9 is a north-south multi-lane divided highway along the site frontage with three signalized intersections at St. Andrews Road, CIA North Drive, and West Dorsey Lane. The posted speed limit is 45 mph. Route 9 is also Bike Route 9.

Route 9G is a two-lane north-south highway to the east of the project site with two signalized intersections at St. Andrews Road and West/East Dorsey Lane. The posted speed limit is 40 mph.

St. Andrews Road (CR 40A) is a two-lane east-west roadway that connects Route 9 and Route 9G. There is no posted speed limit on this road.

West Dorsey Lane is a two-lane east-west roadway that also connects Route 9 and Route 9G and continues east of Route 9G as East Dorsey Lane (CR 40). The posted speed limit is 30 mph.

3.1.2 Intersections

The intersections previously noted are discussed below and are under the control of NYSDOT:

Route 9 at St. Andrews Road is a three-way signalized intersection. The northbound Route 9 approach consists of one through lane and a separate right-turn lane, and the southbound approach consists of one through lane and a separate left-turn lane. The westbound approach from St. Andrews Road consists of two left-turn lanes and a separate right-turn lane. There are no pedestrian crosswalks, pedestrian push buttons, or pedestrian Walk/Don't Walk indications at this intersection. A bus stop is located at this intersection for midday northbound stops serviced by Route C of Dutchess County LOOP.

Route 9 at CIA North Driveway is a three-way signalized intersection. The northbound Route 9 approach consists of two through lanes and a separate left-turn lane, and the southbound approach consists of two through lanes without a separate right-turn lane. There is a pedestrian crosswalk across the north leg of the intersection without pedestrian push buttons or pedestrian Walk/Don't Walk indications. The driveway to the proposed Hotel will form the fourth leg to this intersection.

Route 9 at West Dorsey Lane is a four-way signalized intersection. The northbound Route 9 approach consists of two through lanes and separate left-turn lane, and the southbound approach consists of two through lanes and a separate left-turn lane. The westbound approach from West Dorsey Lane consists of a separate left-turn lane and shared lane for through/right-turn movements. The west leg of the intersection, CIA South Drive, is one-way away from the intersection. There are pedestrian crosswalks across the south and east legs with pedestrian push buttons and pedestrian Walk/Don't Walk indications. A bus stop is located at this intersection for daily service by Route C of Dutchess County LOOP.

Route 9G at St. Andrews Road is a three-way signalized intersection. The northbound Route 9G approach consists of one through lane and a separate left-turn lane, and the southbound approach consists of one through lane and a separate right-turn lane under yield control. The eastbound approach from St. Andrews Road consists of separate left- and right-turn lanes. There are no pedestrian crosswalks, pedestrian push buttons, or pedestrian Walk/Don't Walk indications at this intersection. A bus stop is located at this intersection for midday northbound stops serviced by Route C of Dutchess County LOOP.

Route 9G at West/East Dorsey Lane is a four-way signalized intersection. The northbound and southbound Route 9G approaches consist of one shared through/right-turn lane and separate left-turn lanes. The eastbound and westbound approaches consist of a single lane. There are no pedestrian crosswalks, pedestrian push buttons, or pedestrian Walk/Don't Walk indications at this intersection. A bus stop is located at this intersection for daily service by Route C of Dutchess County LOOP.

3.2 Existing Vehicular Volumes

Current traffic volumes at the study intersections were documented with manual turning movement counts conducted from 7:00 – 9:00 a.m. and from 4:00 – 6:30 p.m. on May 9, 10, and 11, 2017 and while CIA was in session. The 2017 volumes are lower than those collected for the 2007 original traffic study. The AM peak hour is generally from 7:45 – 8:45 and the PM peak hour is generally 4:45 – 5:45. To assess the most potentially critical traffic impact, the highest 60 consecutive minutes of volumes were used for each intersection throughout the roadway network. There was little pedestrian activity at all intersections counted. The 2017 AM and PM peak hour existing volumes are presented on Figure 2 and the count data is presented in Appendix B.

3.3 Crash History

The most recent three-year crash data for the Route 9 intersections along the site frontage was obtained from NYSDOT. The data covers the period of January 1, 2014 through December 31, 2016 and is presented in Appendix C. The following summarizes the crash data by intersection:

Route 9 at St. Andrews Road – 48 crashes occurred here with 38 being rear-end (19 on the northbound approach, 14 on the southbound approach, and 5 on the westbound approach.) The next most frequent type of crash was 3 crashes with animals. There was 1 pedestrian crash that occurred on St. Andrews Road. There were no fatalities, 13 personal injury, 15 property damage only, and 20 non-reportable crashes.

Route 9 at CIA North Drive – 9 crashes occurred here with the most frequent being 4 rear-end crashes. There were no pedestrian crashes. There were no fatalities, 3 personal injury, 3 property damage only, and 3 non-reportable crashes.

Route 9 at West Dorsey Lane – 26 crashes occurred here with 14 being rear-end followed by 4 left-turn and 3 right-angle crashes. There were no pedestrian crashes. There were no fatalities, 9 personal injury, 10 property damage only, and 7 non-reportable crashes.

4.0 NO-BUILD TRAFFIC FORECAST (Sub-Phase 1-A)

The No-Build volumes for Sub-Phase 1-A are those that would be anticipated in the Build year (2018) without the Hotel project being built. An annual background growth factor is applied to the Existing volumes to arrive at the No-Build volumes. Based on the manual count data and historical traffic data, volumes on Route 9 and Route 9G have decreased or remained unchanged; however, to be conservative, a general growth of 1% was applied to the 2017 volumes to obtain the 2018 No-build volumes. These are shown on Figure 3.

5.0 BUILD TRAFFIC FORECAST (Sub-Phase 1-A)

5.1 Trip Generation Analysis

The proposed 133-room Hotel is being presented to replace 46,250 SF of retail space and 46,250 SF of office space from the Approved Concept Plan of 2007. To estimate the trip generating potential of the hotel, *Trip Generation*, 9th Edition, published by the Institute of Transportation Engineers (ITE) was used. Land Use Code 312, *Business Hotel*, from *Trip Generation* is the appropriate land use to estimate the number of trips, since these figures apply to any hotel that does not include a restaurant or conference center. The estimate of trips is shown in Table 1.

Table 1: Peak Hour Generated Trips for the Proposed Hotel

Land Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Business Hotel (133 rooms)	46	31	77	49	33	82

The estimate of retail and office trips for the Approved Concept Plan was presented in the Traffic Study prepared by John Collins Engineers, P.C. Using the trip rates in that study, the estimate of trips for the 46,250 SF of retail space and 46,250 SF of office space that is to be replaced is shown in Table 2. It is noted that these trips take into account “pass-by” trips that were included in the traffic study.

Table 2: Peak Hour Generated Trips for the Approved Concept Plan

Land Use	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Retail Space (46,250 SF)	20	14	34	66	65	131
Office Space (46,250 SF)	57	8	65	11	52	63
Total New Trips	77	22	99	77	117	194

Comparing Table 1 with Table 2 shows that the 133-room Hotel intended to replace the combined space of 92,500 SF of retail and office use is expected to generate approximately 22 less trips for the weekday AM peak hour and approximately 112 less trips during the weekday PM peak hour.

5.2 Trip Distribution and Assignment

The distribution and assignment of the site generated vehicular traffic is based on those contained in the original traffic report of 2007 and is shown on Figures 4 and 5.

5.3 2018 Build Volumes

The Site Generated trips anticipated to be generated by the proposed project were added to the 2018 No-Build volumes to arrive at the anticipated 2018 Build volumes. Figure 6 shows the 2018 AM and PM peak hour build volumes for the *Inn at Bellefield* (Sub-Phase 1-A.)