STIMMEL ENGINEERING
William P. Stimmel, P.E., P.P., PTOE

Traffic Impact Analysis

for

Amaral Properties, LLC

291 Riverside Avenue - Block 4, Lot 48

Township of Lyndhurst, Bergen County, New Jersey

William P. Stimmel, P.E., P.P., PTOE
NJ PE Lic. #45161

March 20, 2023

Township of Lyndhurst – Zoning Board
253 Stuyvesant Avenue
Lyndhurst, NJ 07071

Re: Proposed 15-Unit Apartment Building
291 Riverside Avenue – Block 4, Lot 48
Township of Lyndhurst, Bergen County, New Jersey

Honorable Board Members:

Stimmel Engineering ("SE") has prepared this report to address traffic impacts associated with the development of the referenced site. Specifically, this report will determine existing traffic volumes at the closest intersection, project background traffic growth as well as traffic associated with the site development, and will provide an analysis of existing and future traffic volumes. Site access, site circulation and parking will also be discussed.

Development Proposal

The subject property is located at the northwest corner of the intersection of Riverside Avenue with Valley Brook Avenue, Park Avenue and the Bergen County Park Driveway, as shown on the attached **Figure 1**. The site consists of Block 4, Lot 48 as referenced from the Township of Lyndhurst tax maps.

The site is currently occupied by a used car storage lot and operates in conjunction with the used car dealership ("Amaral Auto Sales") at 295 Park Avenue, across Riverside Avenue from the site. The site has one full-movement driveway along southbound Riverside Avenue. The lot is covered entirely with asphalt pavement and surrounded by a chain link fence which is gated and locked outside of business hours. Sufficient space is available to store approximately 50 vehicles on the premises.

The applicant proposes to remove all existing structures on the subject property and construct a new three-story building which will house a total of fifteen (15) residential apartments. The ground floor will be used for common/mechanical space and parking, while the two upper floors will provide a total of fourteen (14) one-bedroom units and one (1) three-bedroom unit.

Access to the site will be provided via one full-movement driveway along southbound Riverside Avenue. A total of twenty-eight (28) parking spaces will be provided in the ground floor parking area, including two (2) ADA compliant accessible parking spaces and four (4) EV charging spaces or "make-ready" spaces.

Existing Roadway Network

Riverside Avenue, also known as County Route 507, is an urban principal arterial roadway under the jurisdiction of Bergen County. One lane is provided for each direction of travel in the northbound and southbound directions in the vicinity of the site. Parking is prohibited along both sides of Riverside Avenue in the vicinity of the site. The posted speed limit is 35 miles per hour.

Park Avenue, also known as County Route 30, is an urban minor collector roadway under the jurisdiction of Bergen County. One lane is provided for each direction of travel in the northbound and southbound directions in the vicinity of the site. Park Avenue reaches its southerly terminus as it intersects Riverside Avenue from the northeast. Parking is permitted along both sides of Park Avenue with typical restrictions for street cleaning. The posted speed limit is 35 miles per hour.

Valley Brook Avenue is an urban minor collector roadway under the jurisdiction of the Township of Lyndhurst. One lane is provided for each direction of travel in the eastbound and westbound directions in the vicinity of the site. Valley Brook Avenue reaches its westerly terminus as it intersects Riverside Avenue from the east. Parking is permitted along both sides of Valley Brook Avenue. The speed limit is 25 miles per hour.

The intersection of Riverside Avenue with Park Avenue and Valley Brook Avenue is a five-leg intersection which is controlled by a traffic signal. The northbound and southbound Riverside Avenue approaches to the intersection operate concurrently, while the Valley Brook Avenue and Park Avenue approaches to the intersection each operate under separate phases.

The northbound Valley Brook Avenue approach to the intersection provides a shared left-turn/through lane and a right turn only lane. The southbound Riverside Avenue, southbound Park Avenue and westbound Valley Brook Avenue approaches to the intersection each provide one lane for all turning and through movements. The County Park driveway leg of the intersection is one-way and has one receiving lane. A separate yield-controlled right turn channel is provided along westbound Valley Brook Avenue, leading to northbound Park Avenue.

Existing Traffic Volumes

In order to establish existing traffic volumes at the study intersections, manual turning movement counts were conducted at the study intersection on Thursday, March 16, 2023 from 7:00 a.m. until 9:00 a.m. and again from 4:00 p.m. until 6:00 p.m. These time periods were selected to capture the concurrent peaks of street traffic and site-generated traffic. The one hour morning peak volume was found to occur between 7:30 a.m. and 8:30 a.m. and the one hour evening peak volume was found to occur between 5:00 p.m. and 6:00 p.m.

The existing traffic volumes for the weekday morning and weekday evening peak hours are shown on the attached **Figure 2.**

Analysis of Existing Traffic Volumes

Existing Traffic Volumes at the study intersections are typically analyzed utilizing Highway Capacity Software ("HCS"), which is based on methodologies contained in the Highway Capacity Manual. This software evaluates the operational efficiency of individual movements, approaches and for the intersection as a whole, based on average delay in seconds per vehicle. This average delay translates to a letter grade on an "A" through "F" scale, with "A" representing the best conditions and "F" being the worst. These letter grades are referred to as Levels of Service.

Movements at the Riverside Avenue approaches to the study intersection operate at Level of Service "B" during both peak hours. Movements at the Valley Brook Avenue and Park Avenue approaches were found to operate at Level of Service "D" or better during the morning and evening peak hours. Existing Levels of

Service are shown the attached **Figure 3.**

Site Generated Traffic Volumes

Site generated traffic volumes have been projected based on data presented by the Institute of Transportation Engineers ("ITE") in the publication Trip Generation, 11th Edition, as well as on data published by the New Jersey Department of Transportation.

The table below provides trip generation projections for the proposed apartments based on ITE Land Use 220 – "Multifamily Housing (Low-Rise)" with 15 residential units as the independent variable.

15 Apartments	Enter	Exit	Total
Morning Peak Hour	3	7	10
Evening Peak Hour	7	5	12

Site generated traffic was distributed to the surrounding roadway network based on an analysis of existing travel patterns and on the proposed driveway location. The projected site-generated traffic volumes are shown on attached **Figure 4.** Per the above table, the site is expected to add approximately twelve (12) trips to the surrounding roadway network during the critical peak hour. This is the equivalent of one trip every five minutes at the busiest times of day.

Future Traffic Volumes

To account for background traffic growth in the area as well as other developments in Lyndhurst, existing traffic volumes were increased by an annual 1.5% growth rate over a one year build-out period, to develop the future "No-Build" traffic volumes. The 1.5% growth rate was selected based on data published by NJDOT for principal arterial roadways in Bergen County.

The future "No-Build" traffic volumes are shown on attached **Figure 5.** Site-generated traffic volumes were added to the "No-Build" traffic volumes to develop the future "Build" traffic volumes, which are shown on attached **Figure 6.**

Analysis of Future Traffic Volumes

Future "No-Build" and "Build" traffic volumes were analyzed using HCS. Results of these analyses are shown on the attached **Figures 7 and 8** for the "No-Build" and "Build" traffic volumes, respectively.

The southbound Park Avenue approach to the intersection changes from Level of Service "D" to "E" during the evening peak hour when comparing existing conditions to "No-Build" conditions.

There are no other Level of Service Changes at the study intersection during the morning or evening peak hours when comparing existing to "No-Build" to "Build" conditions.

Note that movements at the site driveway are projected to operate at Level of Service "B" or better during both peak hours under "Build" conditions.

Parking Supply

The site plan prepared by AWZ Engineering indicates that a total of 28 parking spaces are to be provided on site.

The New Jersey Residential Site Improvement Standards ("RSIS") govern parking requirements for purely residential developments within the State of New Jersey. RSIS requires 1.8 parking spaces per unit for one-bedroom apartments and 2.1 parking spaces for three-bedroom apartments, inclusive of visitor parking.

Based on the RSIS standards, a total of 27.3 parking spaces are required[1], however the applicant proposes to install four EV Charging or "make-ready" spaces, allowing for a maximum 10% credit against the parking requirement. With this 10% reduction, the parking requirement for the proposed development is 25 parking spaces.

The total of 28 parking spaces provided satisfies the RSIS requirement.

Site Circulation

The ADA parking spaces measure no less than 8 feet wide by 18 feet long with an 8 foot wide striped aisle in compliance with Federal requirements.

All other on-site parking spaces measure 9 feet by 18 feet, in accordance with RSIS standards.

The two-way circulation aisles throughout the parking area measure 24 feet wide, which complies with accepted engineering standards.

The proposed site provides adequate maneuvering area for the passenger vehicles expected to access the site.

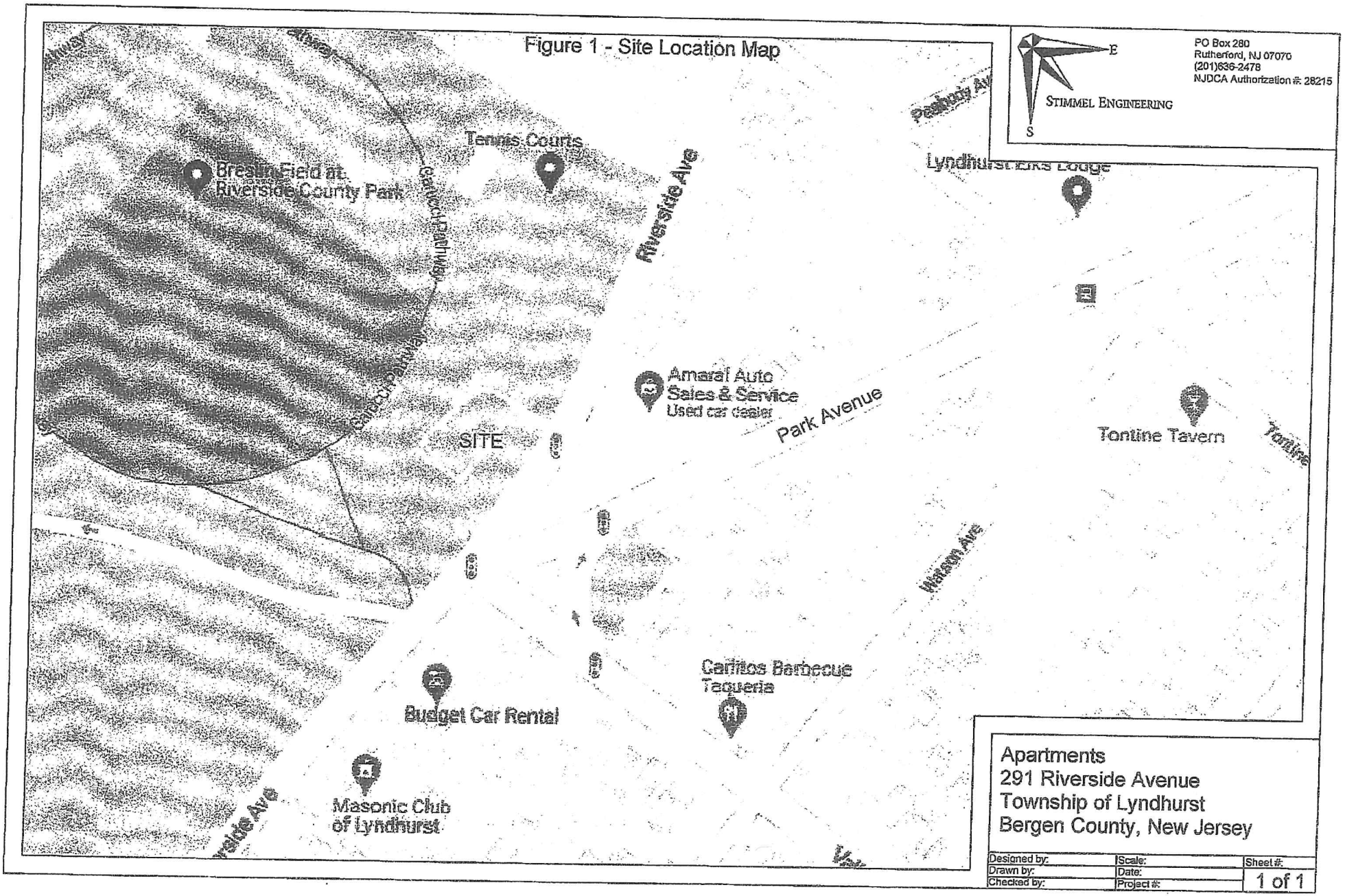
Note that Riverside Avenue is a County Roadway, therefore the proposed driveway design is ultimately subject to review and approval by Bergen County.

Conclusion

The proposed development will have little or no impact on traffic safety or operational efficiency along the surrounding roadway network. Adequate parking is provided on site to meet the anticipated demand. Adequate maneuvering and circulation areas are provided on-site for typical users. Based on the above analysis, the proposed development will not have an adverse impact on traffic operations.

[1] (14 units x 1.8 parking spaces/unit) + (1 unit x 2.1 parking spaces/unit)

Figure 1 - Site Location Map



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Apartments
291 Riverside Avenue
Township of Lyndhurst
Bergen County, New Jersey

Designed by:	Scale:	Sheet #:
Drawn by:	Date:	1 of 1
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Figure 2
Existing Traffic Volumes
Weekday Morning (Weekday Evening) Peak Hours

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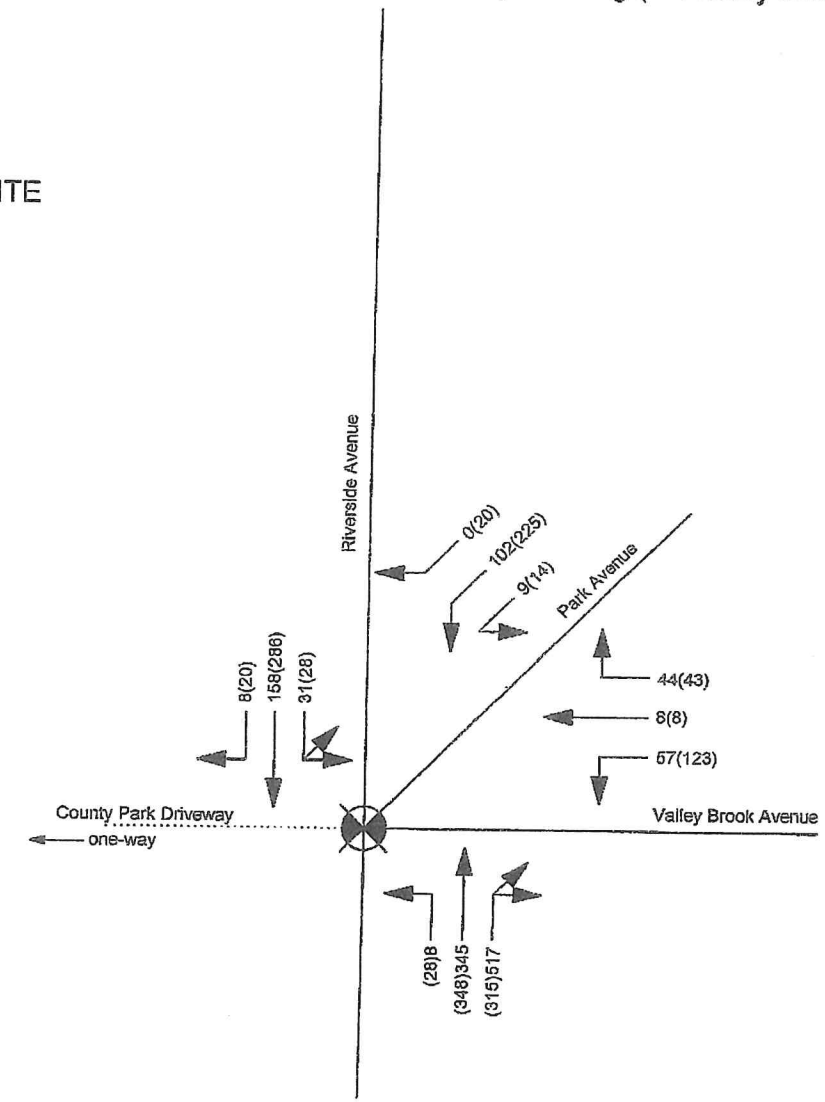

LEGEND

100(100)	Weekday AM(PM) Traffic Volume
———	Existing Roadway
.....	Existing Driveway
– – – – –	Proposed Driveway
	Existing Traffic Signal

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Figure 3
Existing Levels of Service
Weekday Morning (Weekday Evening) Peak Hours

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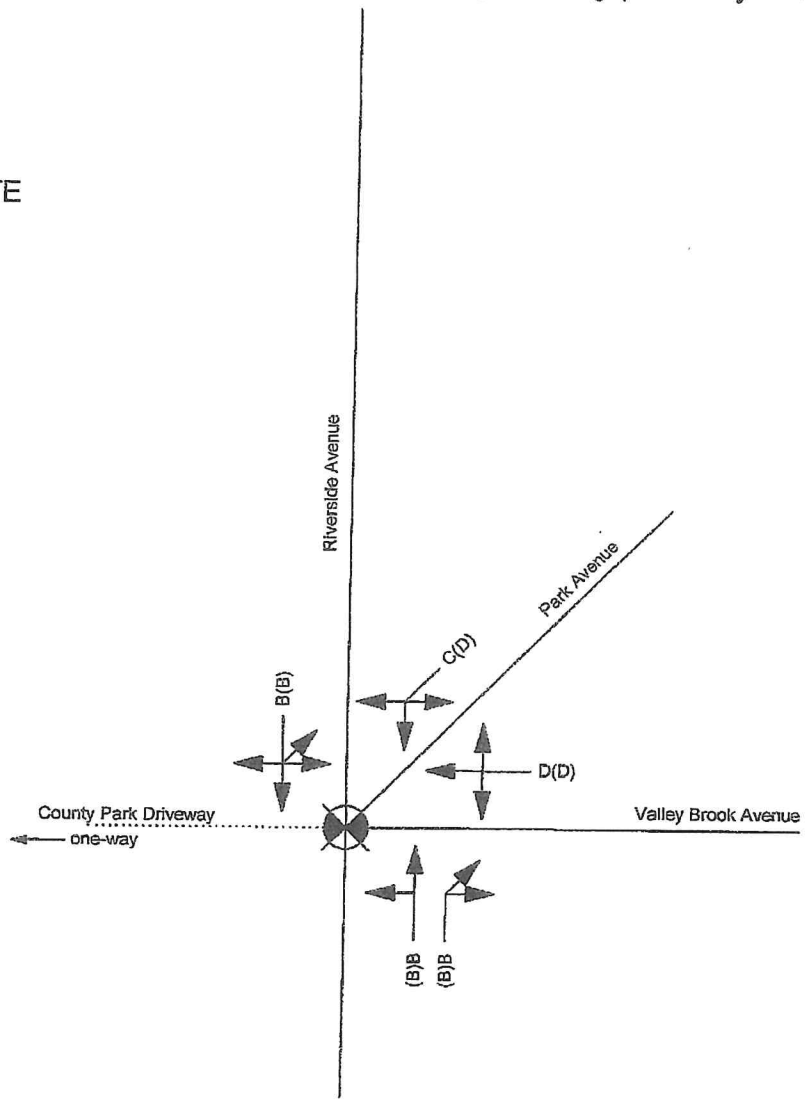
SITE



LEGEND

A(A)	Weekday AM(PM) Levels of Service
———	Existing Roadway
.....	Existing Driveway
– – – –	Proposed Driveway
	Existing Traffic Signal

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Figure 4
Site-Generated Traffic Volumes
Weekday Morning (Weekday Evening) Peak Hours

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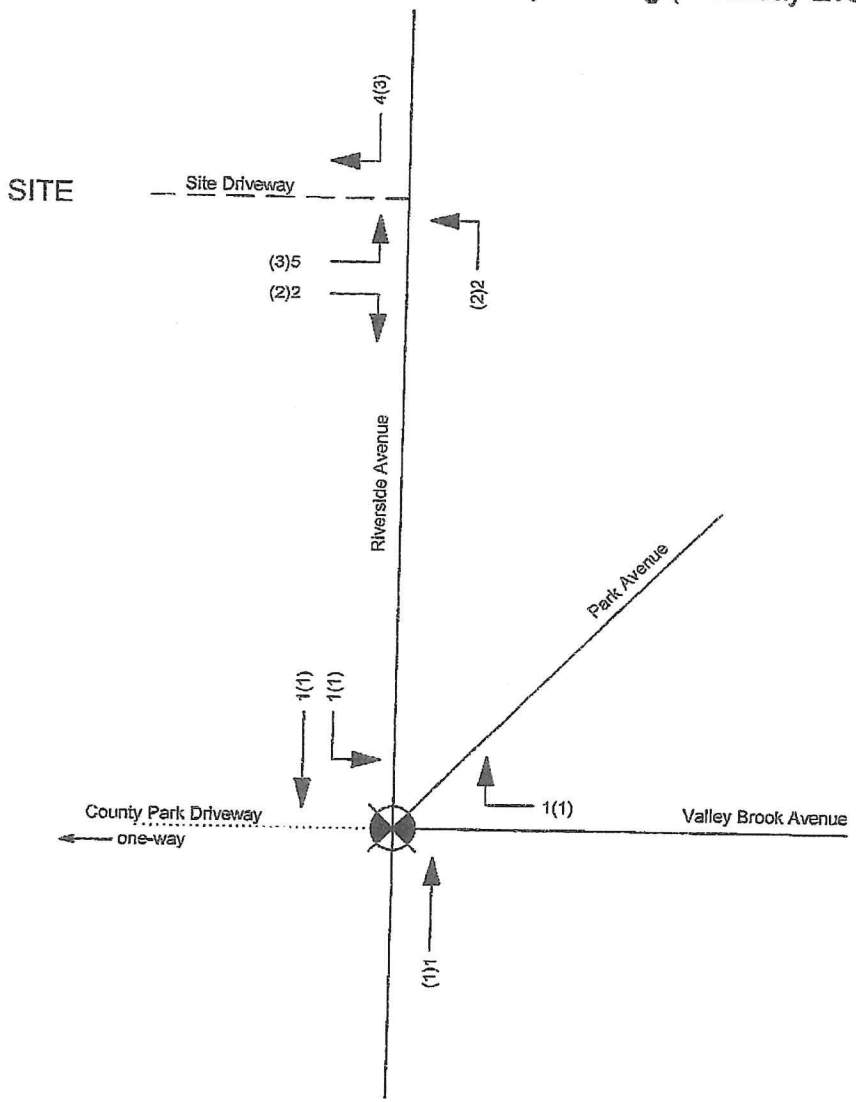

LEGEND

100(100)	Weekday AM(PM) Traffic Volume
———	Existing Roadway
.....	Existing Driveway
– – – – –	Proposed Driveway
⊗	Existing Traffic Signal

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Figure 5
No-Build Traffic Volumes
Weekday Morning (Weekday Evening) Peak Hours

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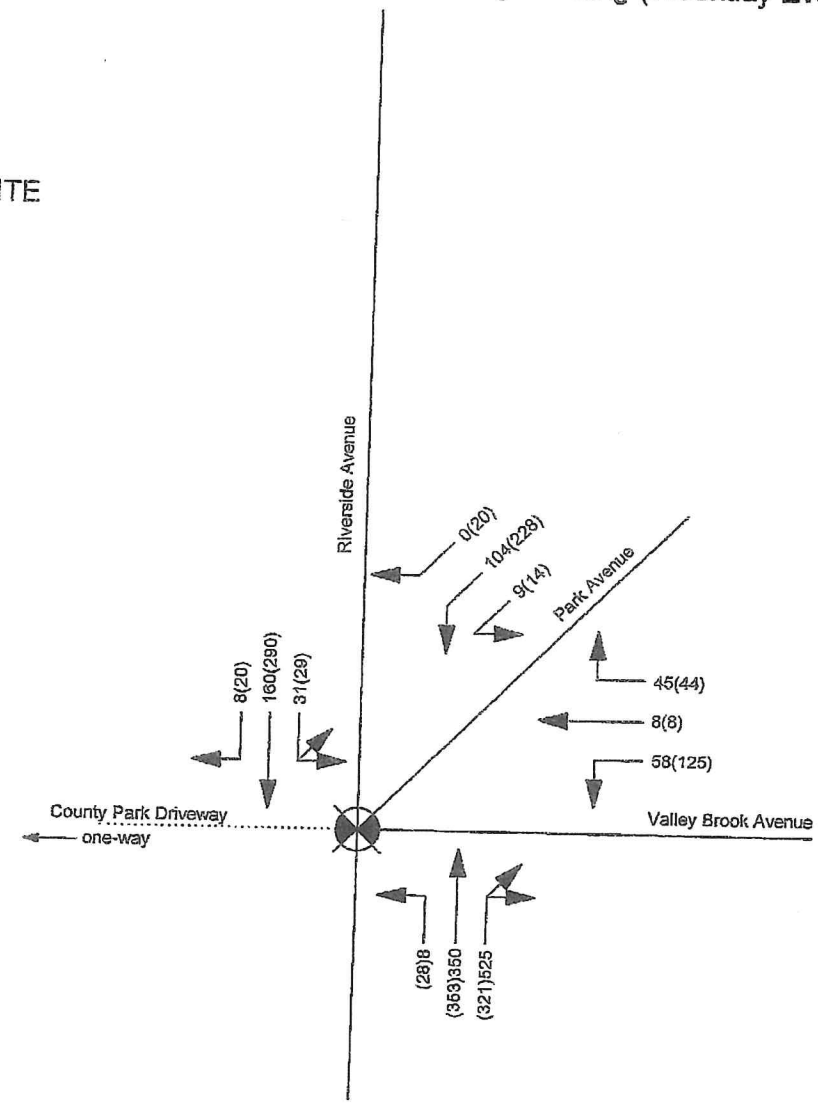

LEGEND

100(100)	Weekday AM(PM) Traffic Volume
———	Existing Roadway
.....	Existing Driveway
– – – –	Proposed Driveway
⊗	Existing Traffic Signal

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Figure 6
Build Traffic Volumes
Weekday Morning (Weekday Evening) Peak Hours

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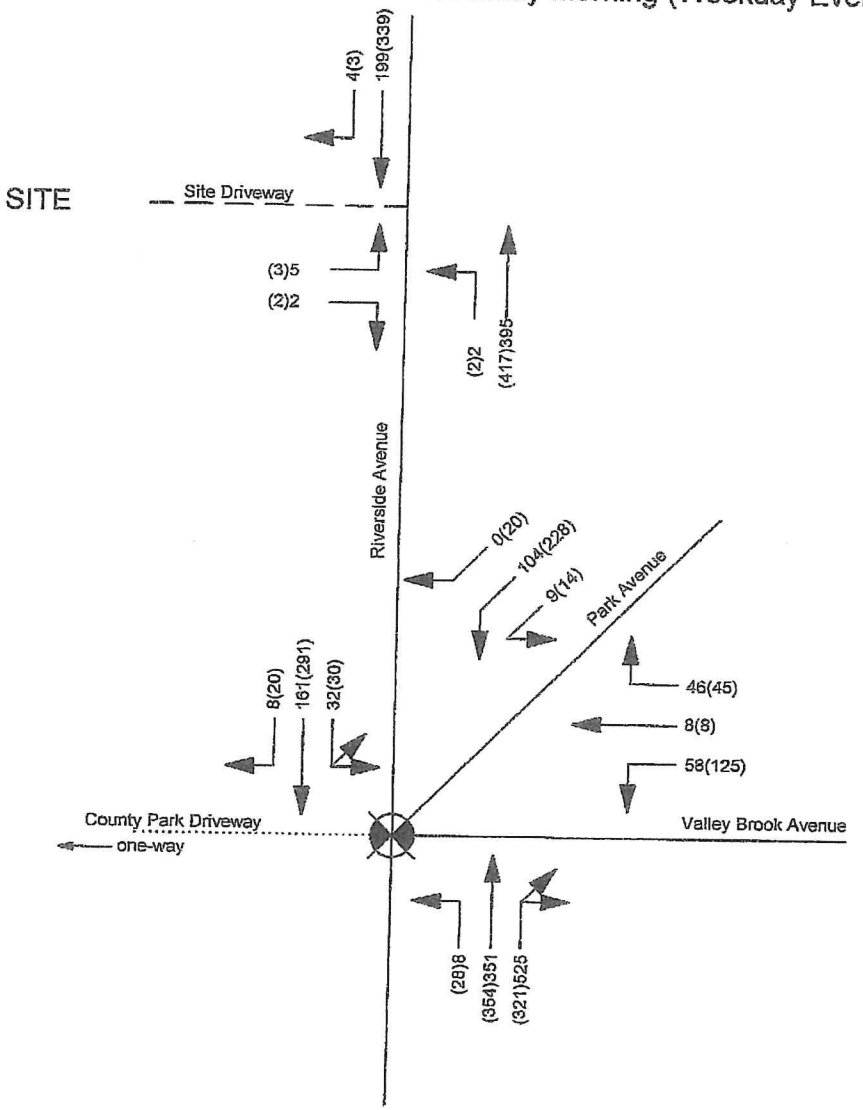

LEGEND

100(100)	Weekday AM(PM) Traffic Volume
———	Existing Roadway
.....	Existing Driveway
– – – – –	Proposed Driveway
	Existing Traffic Signal

Apartments
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Figure 7
No-Build Levels of Service
Weekday Morning (Weekday Evening) Peak Hours

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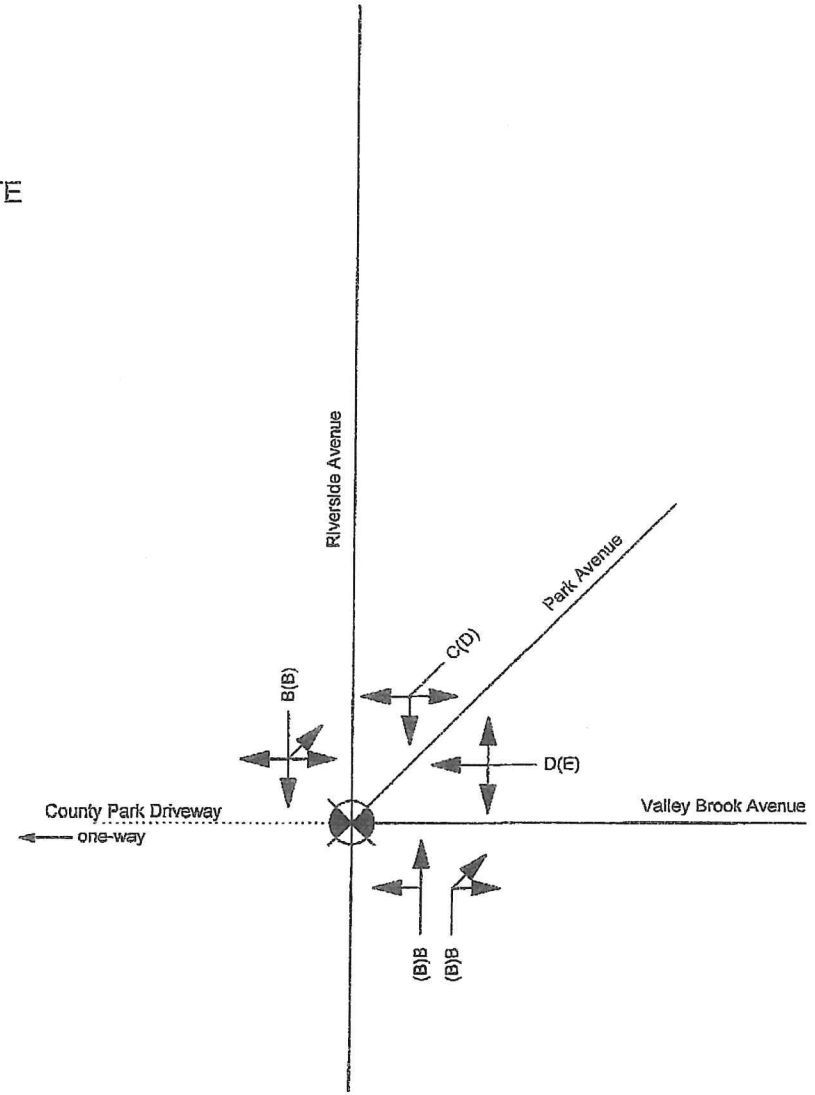

LEGEND

A(A)	Weekday AM(PM) Levels of Service
———	Existing Roadway
.....	Existing Driveway
— — —	Proposed Driveway
	Existing Traffic Signal

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Figure 8
Build Levels of Service
Weekday Morning (Weekday Evening) Peak Hours

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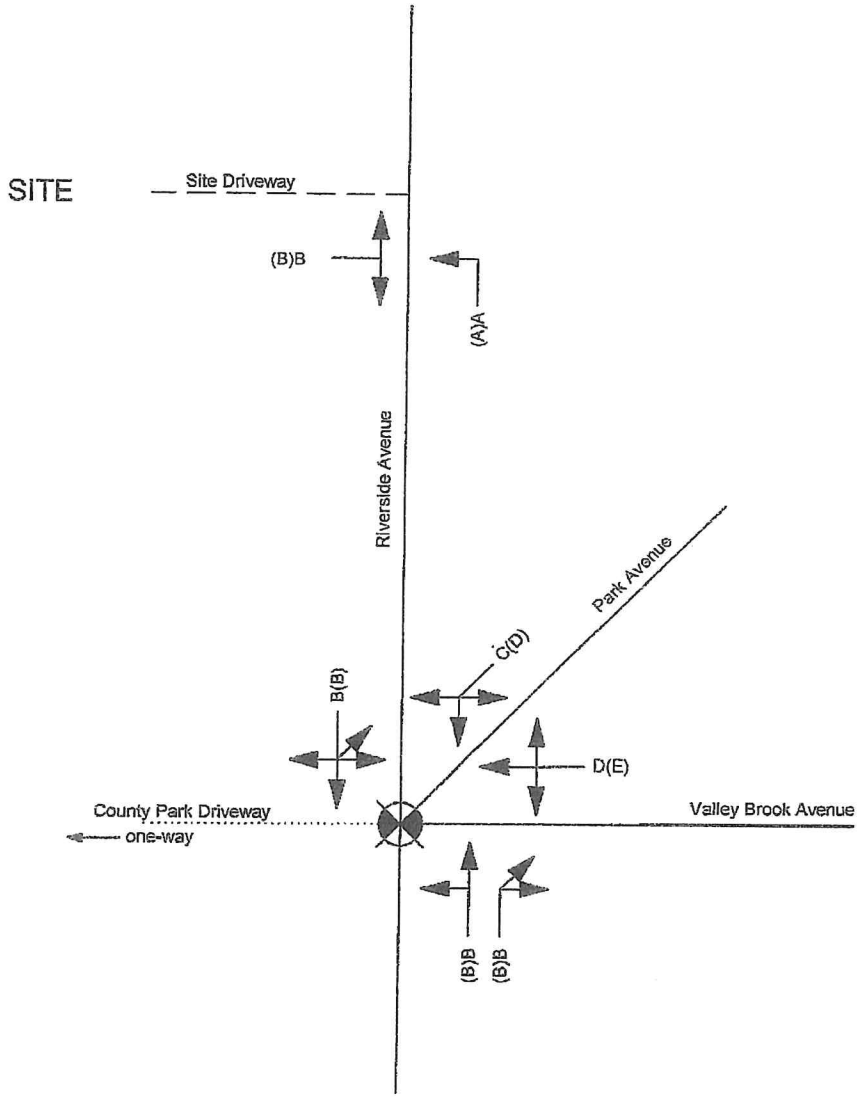

LEGEND

A(A)	Weekday AM(PM) Levels of Service
———	Existing Roadway
.....	Existing Driveway
— — —	Proposed Driveway
⊗	Existing Traffic Signal

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