



**AGENDA
VILLAGE OF GLENCOE
PLAN COMMISSION**

Village Hall Council Chambers
675 Village Court
Wednesday, June 26, 2019 – 7:30 p.m.

1. CALL TO ORDER AND ROLL CALL

*Bruce Huvad, Chairman, Public-at-Large Representative
Barbara Miller, Vice-Chairman, Village Board Representative
Georgia Mihalopoulos, Public-at-Large Representative
Dev Mukherjee, School District 35 Representative
Dudley Onderdonk, Glencoe Park District Representative
John Satter, Zoning Board of Appeals Representative
Laura Solon, Glencoe Public Library Representative
James Thompson, Public-at-Large Representative
Greg Turner, Public-at-Large Representative
Peter Van Vechten, Historic Preservation Commission Representative*

2. CONSIDERATION OF THE MAY 29, 2019 PLAN COMMISSION MEETING MINUTES

3. PUBLIC COMMENT

Individuals interested in addressing the Plan Commission on non-agenda items may do so during this time.

4. REVIEW AND DISCUSSION OF THE PRELIMINARY PLAT OF SUBDIVISION FOR THE HOOVER ESTATES SUBDIVISION (1801 GREEN BAY ROAD)

5. ADJOURN

The Village of Glencoe is subject to the requirements of the Americans with Disabilities Act of 1990. Individuals with disabilities who plan to attend this meeting and who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of the meeting or the facilities, are requested to contact the Village of Glencoe at least 72 hours in advance of the meeting at (847) 835-4114, or the Illinois Relay Center at (800) 526-0844, to allow the Village of Glencoe to make reasonable accommodations for those persons.



**MINUTES
VILLAGE OF GLENCOE
PLAN COMMISSION**

Village Hall Conference Room
675 Village Court
Wednesday, May 29, 2019 – 7:30 p.m.

1. CALL TO ORDER

The May 29, 2019 meeting of the Plan Commission was called to order at 7:30 p.m. in the Village Hall Council Chambers.

2. ROLL CALL

The following Commissioners were present:

Bruce Huvad, Chairman, Public-At-Large Representative
Barbara Miller, Vice-Chairman, Village Board Representative
Georgia Mihalopoulos, Public-At-Large Represent
Dudley Onderdonk, Glencoe Park District Representative
Laura Solon, Glencoe Public Library Representative
James Thompson, Public-At-Large Representative
Peter Van Vechten, Historic Preservation Commission Representative

The following Commissioners were absent:

Dev Mukherjee, School District #35 Representative
John Satter, Zoning Board of Appeals Representative
Greg Turner, Public-At-Large Representative

The following were also present:

David Mau, Public Works Director
Nathan Parch, Community Development Administrator
Lee Brown, Village Planner

3. CONSIDER THE MARCH 27, 2019 PLAN COMMISSION MEETING MINUTES

The minutes from the March 27, 2019 Plan Commission meeting were approved.

4. PUBLIC COMMENT

There were no comments from the public.

5. PLAN COMMISSIONER TRAINING/REFRESHER

Being the first meeting of the Plan Commission following the appointment of five new members, Mr. Brown and staff provided an overview of the following topics:

- A brief history and structure of the Glencoe Plan Commission
- The role of the Commission in Village governance
- The responsibilities of a Commissioner
- The role of Chair, Commissioner and staff
- Important elements of running an effective public meeting
- The dangers of Ex Parte communications
- The Plan Commission Statement of Ethics
- A Model Public Meeting Process
- The Village Subdivision Ordinance, including the Subdivision Review General Standards and Design Standards
- Tree Preservation
- Natural Resources and Environmental Protection

6. STANDING COMMITTEE REPORTS

Commissioner Onderdonk reported on progress and direction of several capital projects planned and/or being considered by the Glencoe Park District, including the establishment of a dog park site selection committee and the final work and planned grand opening of Woodlawn Park. Commissioner Onderdonk also invited members of the Commission to attend a planned discussion and walking tour of downtown Glencoe for the Municipal Design Review Network run by the Chaddick Institute of DePaul University on July 18.

7. SCHEDULE NEXT MEETINGS OF THE PLAN COMMISSION

The next Plan Commission meeting is scheduled for Wednesday, June 26, 2019 at 7:30 p.m., which will likely to include a review of the proposed Hoover Estates Subdivision request.

8. ADJOURNMENT

The meeting was adjourned at 9:40 P.M.

Respectfully submitted,

Lee Brown, FAICP
Village Planner



MEMORANDUM

June 20, 2019

TO: Bruce Huvad, Chair; Glencoe Plan Commission Members
FROM: Lee M. Brown, FAICP, Village Planner
SUBJECT: Hoover Estate Subdivision

Request

This is a request from the applicant, Glencoe Developers, LLC, for approval of a preliminary plat of subdivision of the 12.1 acre "Hoover Estate" at 1801 Green Bay Road. The subdivision would result in the creation of 29 lots, each consistent with the existing RB Single Family Zoning District, with supporting public right of way and roadway. The request is considered under the Glencoe Subdivision Code.

In connection with staff review, we have examined or requested from the applicant the following submissions:

- (a) Site Plan, including depiction of street right-of-way
- (b) Narrative Statement
- (c) Survey
- (d) Civil engineering plans (preliminary), including
 - Grading and Storm Water Management Plan
 - Utility Plan
- (e) Tree Survey and Preservation Plan
- (f) Traffic Engineering Report
- (g) Typical building footprints

Completeness of Application

At this time, for purposes of representing the completion of the application for preliminary plat approval, the applicant has submitted a completed certificate of notice. However, as material changes are made to the application, after commencement of the public meeting to consider the plat, the filing of each new item will restart the filing date of the plat for purposes of any statutory review period.

History of site

The subject property, having been the estate of H. Earl Hoover and most recently his now deceased widow, Miriam Hoover, currently includes three buildings: the principal residence, a horse stable that had been converted to an accessory residence for staff, a garage and storage/gardening structure, and the entrance monuments and gate. If the subdivision is approved as proposed, the existing buildings would be removed.

The property held by the Hoover family had, at one time been larger than the subject 12.1 acres. Portions of the "Turnbull Woods" Forest Preserve, the nine lot subdivision including eight homes on Northwood

Drive and one lot facing Green Bay road, and the other home site at 1799 Green Bay Road (surrounded on three sides by the subject property) had at one time been held by the Hoovers. That nine lot subdivision was developed based in part on a preliminary plat for the entire property which anticipated a loop road through the large estate; the preliminary plat was reviewed by the Plan Commission in 1954. The right-of-way for the Northwood Drive extends to the property-line which separates that subdivision from the subject property, to allow for a possible extension of Northwood Drive through the subject property.

With the exception of the split-off of the residence at 1799 Green Bay Road (which we believe was originally the kennels for the Hoovers), the subject property has remained the same since the early 1960s when the homes on Northwood Drive were constructed.

Pre-Application Review

After the passing of Mrs. Hoover in the spring of 2018, the property was sold by the heirs to a development group. That development group had presented its initial concepts to the Village Staff, and after several modifications, and a Pre-Application Conference, presented the proposed development to the Committee of the Whole (COW) of the Board of Trustees on April 16, 2019. As the Plan Commission may understand, this is an atypical step in the process, and was granted to the petitioners given the importance and magnitude of the subject property. The Village Board provided high-level feedback, recognizing that the subdivision plan was still in early iterations. Points of interest and concern raised by the Board included: traffic interactions with Green Bay Road; stormwater management; impacts of the development on neighboring properties; the expected housing types and styles; potential preservation options for existing structures; and, the desired inclusion of sustainable infrastructure for necessary public improvements. Taking the feedback they received from the COW, the petitioners subsequently submitted the current proposed Preliminary Subdivision Plat, and now seek the Plan Commission Recommendation and Village Board Approval.

STAFF ANALYSIS OF SUBDIVISION DESIGN STANDARDS (Article III of Glencoe Subdivision Code)

Zoning

All of proposed lots meet or exceed the minimum zoning standards.

The site is zoned RB single-family residential. The lot requirements of this zone include:

- Minimum Lot Area: 13,000 square feet
- Minimum Average Lot Width: 80 feet
- Minimum Lot Depth 125 feet
- Frontage on a public right-of-way

Access and Circulation

The proposed preliminary plat anticipates the dedication of a public road with one point of access at the southeast area of the property, approximately opposite the intersection of Westley Road and Green Bay Road.

There are two main issues to consider concerning access and circulation:

- Design and safety of access point on Green Bay Road.
- Fact that the access road is a “no outlet” road – it is not technically described as a cul-de-sac, since it does not end in a circular terminus, and is not addressed by the subdivision code’s “maximum

length of cul-de-sac” of 300’. It is, however, a “no outlet” road as no road or pedestrian access to Northwood Drive or to any other public or private roads is provided. A waiver is requested to allow this configuration rather than make a connection to Northwood Drive

With respect to the first access and circulation item, the access point across from Westley Road is addressed in the traffic study conducted on behalf of the developer by KLOA, and is exhibit 6 from the petitioner. Traffic volumes within the site and entering and exiting the site at the proposed intersection are found in that study to be accommodated without adding capacity to existing roadways.

Separate from traffic volume, the proposed intersection with Green Bay Road does require attention. Westley Road intersects with Green Bay at approximately a 45-degree angle, just south of where Green Bay both narrows and bends. Westley Road widens significantly at the intersection in order to accommodate an alignment of vehicles closer to a 90-degree intersection, but it none-the-less presents a less than optimal view of northbound and southbound traffic for the driver on Westley Road attempting to enter Green Bay Road. This issue clearly predates the proposed subdivision improvements but would be significantly more complicated by traffic entering or exiting the Hoover subdivision at this same location. In traffic, the less complicated the better. As such, the Village will seek to assure that the alignment poses no vehicle to vehicle misalignments or conflicts with the existing or potential Westley Road intersection improvements. A prior study prepared by the Active Transportation Alliance in 2018 has identified roadway improvements at the Westley Road intersection that would improve both driver, pedestrian and bicyclist safety (“Westley Improvements”). In the main, these include reorienting Westley Road (on the west side go Green Bay) to form a more perpendicular intersection – and ideally, in the context of the applicant’ request, being located opposite the intersection improvements at Green Bay Road for the proposed subdivision.

The developer and their engineer have been conscious of the issues related to the alignment of the road access point. The home at 1799 Green Bay Road, which this subdivision will surround, has a sweeping southern lot line (albeit designed with an earlier plan in mind) that allows for a graceful curving entry into the subdivision that will remain as the northern edge of the right of way access. . No adjustment to that lot line is presented with this plat, since the developers do not own nor control that lot. The recommendations from the traffic engineer, KLOA, related to the choice of alignment of the road within that wide right-of way, based in part (a) on the desire to save as many of the heritage trees as possible and (b) by shifting the alignment south within he right of way, to obtain the greatest site distance for safety reasons. Site distance, in this instance, means that cars traveling south on Green Bay will have the most time to react to a car turning onto Green Bay from the subdivision access road. The result of this alignment decision is a very wide right-of-way width at the mouth of the entry to the subdivision.

Village staff has suggested revisions to the combined Westley Road/Hoover Estates Road/Green Bay Road intersection that would incorporate the Westley Improvements. KLOA has reviewed these suggestions but stopped short of incorporating them for the applicant’s proposal. KOLA has included their evaluation of sight/stopping distance, turning radius and traffic signs as an addendum to their report, included in the application packet. The alignment of the intersection does not alter the right-of-way, or lot boundaries. Any recommendation for approval of the preliminary plat, if made by the Plan Commission, should be conditioned on the satisfaction of the Director of Public Works and Director of Public Safety that the

alignment and configuration of the resulting roadway and intersection is consistent with the Village Engineering Standards and Specifications Manual.

With respect to the second access and circulation item, the Public Works Director and Public Safety Director have indicated that the “no-outlet” condition is not a public safety concern.

All but one of the new lots would either front on the subdivision road (from the access point on Green Bay for approximately 900 feet, there is a curvilinear street that then becomes an internal loop road). The exception is the one lot (Lot 1) that has direct frontage and access to Green Bay Road, at the approximate location of the existing Hoover Estate driveway and gates.

The developer’s decision to serve the property with a road having no other outlet will likely be a defining element of the subdivision and of the Plan Commission’s recommendation to the Village Board. The subdivision ordinance as a general rule favors the extension of existing roads to make sense of the street grid and promote better circulation. In this case, that would have suggested a street design through the proposed subdivision that linked into Northwood Drive. Paragraph 1.6 (b) 10 of the subdivision chapter of Village code, for example, reads:

“The subdivision will extend, or does not inhibit the extension of, the existing village street system and recognizes the interconnection of adjacent neighborhoods.”

The developer has offered as reasoning and justification for their design to staff that they did not wish to allow traffic from their subdivision to adversely impact the residents of the homes along Northwood Drive. As mentioned in the Pre-Application Section above, the developer, having decided to propose the no outlet road, then worked with staff to arrange the roadway and houses in a manner to save some of the more important heritage trees on the site. The factors favoring the desirability of linking the roadway should be balanced against the overall benefits of the site plan, with the various trade-offs that new development of any large, previously wooded site, will entail.

Without extending the Northwood Drive right-of-way, utilities must still be extended through allowing watermain, and potentially storm or sanitary sewer main to interconnect through Northwood Drive. An easement between lot 28 and lot 29 of the preliminary plat would accommodate these utility connections. Staff proposes that such an easement should also accommodate a pedestrian connection between the sidewalk within the Hoover subdivision and the existing sidewalk along the north side of Northwood Drive. This may also serve as an emergency access route.

Accordingly, the developer is requesting a variation from the planning standard in the subdivision code that favors extending the street system.

Subdivision Street Standards

The subdivision code specifies that the width of dedicated right-of-way for neighborhood streets should be 66’, a requirement from which the applicant seeks a waiver and reduction in most places to 40’. With the exception of the wide ROW at the mouth of the subdivision, the ROW for the remainder of the subdivision is 40’ wide with a 10’ wide public easement on either side of that right-of-way.

The roadway within the ROW (even at the 40' reduced width) will still be 27' wide from back of curb to back of curb. That 27' dimension, which amounts to 24' of pavement with curb and gutter, is a common dimension for two lanes of traffic and one-side vehicle parking. This road width is consistent with the Subdivision Ordinance. Staff's view is that reduced ROW does not have a negative effect on access and circulation in this instance.

The Village's subdivision standards require a 66' wide publicly dedicated ROW for all neighborhood streets to accommodate the roadways, parkway, sidewalks and utilities. Since the subdivision will also have with a 10' wide public easement on either side of the right-of-way, staff has no concern in this instance with fitting in the required public improvements.

Reducing the ROW, in the context of this subdivision proposal, would affect the "look and feel" of the neighborhood due to the reduced distance between homes facing one another across the main subdivision road. The effect of reducing ROW can improve the ability to adjust the location of where homes are sited and therefore resulting in a greater potential preservation of trees. The reason for this is because that reduced ROW line becomes the front lot line of the subdivided lots, from which lot depth and building setbacks are measured.

If the subdivision ordinance's 66' ROW width standard is imposed, the basic layout of this subdivision could not be accomplished. The developer's intent in requesting the 40' wide ROW is two-fold: maximize the number of lots meeting the Village's zoning requirements; and, minimize the number of heritage trees that would be lost due to the placement of roads, sidewalks, utilities, and ultimately homes. By reducing the right-of-way and constructing sidewalks on only one side of the street, the subdivision yields 29 lots for homesites, and allows for the creation of Outlot A as a conservancy area (0.47-acres) located within the circular road-loop. The applicant is proposing that Outlot A remain open and natural. If it is owned by homeowner's association, the Village would require, as part of a final development agreement, that it be restricted by deed covenant on the property to prevent its use as a home site along with a maintenance plan to preserve and protect its heritage trees.

Accordingly, the applicant has requested a variance of the subdivision design standards for the reduced ROW.

The Board of Trustees may issue a variation to the provisions of the subdivision code. The Plan Commission is asked to make a recommendation on both the variation from the 66' ROW standard and the policy of extending the existing road system. In applying for a variation from the provisions of this chapter, the applicant shall demonstrate in writing that each of the following criteria is satisfied:

- 1) The requested variation is in keeping with the overall purpose and intent of this chapter;
- 2) The grant of the requested variation will not impair the public health, safety or general welfare and will not contravene the goals of the comprehensive plan nor the intent of this chapter;
- 3) The grant of the variation will not adversely impact adjacent properties; and
- 4) The situation of the applicant is not of a general or recurring nature for similarly situated properties within the village or within its jurisdiction.

Tree Preservation

The Hoover Estate is a unique environment. Though much of the grace and grandeur of the original formal gardens, lawns, Japanese garden and other landscape features has faded for lack of maintenance, the tree canopy delivered by some 493 trees exceeding 8" in caliper, including 271 Heritage trees, and countless other smaller trees on the site is still impressive. The petition includes a well-documented inventory, Exhibit 5 of the petition, and mapping of these resources, including for each tree its species, form, quality, and caliper size.

Staff's assessment of the preliminary plat is that the developer is and has been very conscious of the trees and has made a serious effort at minimizing the impact of the road and sidewalk. Some significant trees would be lost. In advance of the Pre-application conference, the developer shared an early draft of the subdivision plat. Staff provided a response that suggested a means of saving the most significant cluster of heritage trees located in the north central portion of the site. The proposed subdivision layout reflects these suggestions by including a large portion of them within the proposed conservancy area in Outlot A. Staff is also working with the developer and traffic engineer to evaluate two alternative subdivision road entry configurations that may save several additional Heritage trees.

Tree preservation is an important subset of the subdivision's goal for protecting natural resources and the environment. *"The existing landscape shall be preserved in its natural state by minimizing the removal or destruction of existing trees and other natural features on the property, so that the resulting development shall be in keeping with the general appearance of the surrounding area and will not adversely affect the ecology of the area."*

The subdivision ordinance devotes a section to the issue stating, in part: *"The comprehensive plan ordinance recognizes that trees and mature landscaping, as well as the ecology of the community, are important characteristics of the village and should be preserved and protected. In furtherance thereof, the village enacted tree preservation regulations in article III of chapter 34 of the Glencoe village code. All subdivisions shall comply with the village's tree preservation regulations in article III of chapter 34...."* The subdivision of land and subsequent development of homes presents three likely threats to trees: the location of roads, sidewalks, and public utilities; the placement of buildings and driveways and site improvements on private property; and the impact of vehicles and equipment during the process of grading for storm water management, and construction of roads and utilities and homes.

The tree preservation ordinance requires the compensation for the loss of healthy trees exceeding eight inches in caliper. The petition indicates that of the 271 Heritage trees that are not dead, diseased or hazardous, 37 will be lost to the location of roads, sidewalks and public improvements (and will require compensation in the form of additional trees or financial compensation to the Village.) The Plan Commission must also recognize that this does not consider the loss of trees that will accompany the construction of homes. Each building permit application for individual lots must be accompanied by a tree survey and tree protection and compensation plan based on the number and size of trees that would be lost due to the construction of a specific home on that lot.

The perimeter of the Hoover Estate is "wooded", primarily with buckthorn and other invasives, though some quality trees also exist in this area. Though invasive, even buckthorn presents a natural buffer and screening. Contrary to the subdivision ordinance's stated preference for tree preservation, the removal of buckthorn can be supported. As a condition of the approval of a preliminary plat, the Commission and

Village Board may require the submission of a plan for uniform fencing or landscape screening (or a combination thereof) along the property periphery to compensate for the loss of the natural buffering that currently exists on the site.

Storm Water Management

Storm water management is another important element of the design of subdivisions. While the preliminary plan is required to show, generally, where and how storm water will be held, stored, and released, the detailed engineering is not prepared or reviewed until the final subdivision plat review (which does not occur until after Village Board approval of the Preliminary Plat). The subdivision sets the following standard for grading of the site:

- 1) The subdivision shall be developed in strict accordance with all applicable laws, statutes, ordinances, codes and regulations related to grading and storm water retention, detention and drainage, including without limitation §§ 9-82 and 9-83 of the village code, as well as in strict accordance with the grading plans and profiles approved as part of the approved engineering plans.
- 2) No grade change shall be permitted that would:
 - a) Modify storm water drainage on the subject property or an adjacent lot;
 - b) Adversely impact the capacity or operation of the village's storm water system; or
 - c) Affect the structural stability of an adjacent lot, unless the village engineer, in his or her sole determination, approves in writing an alternative means that will adequately provide for the collection and diversion of storm water.
- 3) No grading plan shall be approved that, in the village engineer's determination, poses potential adverse impacts to the environment including, without limitation, significant change to the rate of storm water run-off, rate or volume of sedimentation, or location of discharge. In addition, no grading plan shall be approved that, in the village engineer's determination, fails to provide adequate setback from any ravine or bluff.

Approval Process

The approval of a subdivision is a multi-step process in which the Plan Commission is asked to review and make a recommendation on a preliminary plat of subdivision, followed by Village Board review and approval, followed by a review of the final plat of subdivision by the Plan Commission and the Village Board. The Plan Commission's recommendation (based on the Findings described below) is to approve, approve with conditions, or deny the request for subdivision.

Given the size, history, and prominence of the property, and the distinct change from current conditions as an estate residence, we have attempted to anticipate the questions raised by the preliminary plat of subdivision or the project, but the questions raised at the public meeting might lead to other inquiries which are still in keeping with the purposes of the subdivision code.

This is a unique property with natural and cultural significance. The Village Staff believes that the developer has taken this into account and has presented a credible and respectful petition for subdivision. Staff also believes that the subdivision ordinance and the process for review and approval is capable of protecting public health, safety and welfare, while accommodating the best interests of both the property owners and the surrounding community.

Subdivision Standards for Approval

The Plan Commission's review must address each of the 12 subdivision standards for approval. We should note that the standards do not include a requirement for historic preservation, which is a subject dealt with by the Village Board and Historical Preservation Committee. That said, the Plan Commission is well aware of the history of the site, some of which is included at the end of this memo.

On the following page 12 standards are listed to which the Commission must address its findings. On separate following pages, the staff presents language [*in brackets and italics*] suggestive of how a positive finding may be stated if the Plan Commission finds in favor of the requested subdivision. These are only suggestive and may not reflect the Commission's recommendation.

STANDARDS FOR APPROVAL:

- (1) The subdivision is consistent with the zoning code.
- (2) The subdivision will not create a nonconforming building, nonconforming use or nonconforming lot, nor will the subdivision create, increase or extend any existing nonconformity.
- (3) The subdivision will accommodate development on a lot that will comply with required setbacks and will not result in the substantial loss of existing trees or the significant alteration of the existing topography on the lot.
- (4) The subdivision will not substantially modify or threaten the integrity of natural resources, including without limitation existing steep slopes, floodplains, wetlands, mature trees or the use of public open spaces.
- (5) The proposed development of the subdivision will not result in an increase in the storm water release rate from the subdivision.
- (6) The subdivision will be served by adequate sewer or water service, electric service, natural gas and other public or private utilities available within the village.
- (7) The subdivision will dedicate easements or rights-of-way necessary to provide for current and future extension of public utilities and services.
- (8) The existing public street system, and any proposed extension of that system, is sufficient to meet the projected traffic demand that will be created by the subdivision.
- (9) The design of the proposed street improvements meets minimum village standards and does not exceed village standards in a manner that threatens the health, safety or welfare, such as by inducing excessive speed of travel or modifying traffic patterns in a manner inconsistent with street design capabilities or by unnecessarily displacing pervious open spaces.
- (10) The subdivision will extend, or does not inhibit the extension of, the existing village street system and recognizes the interconnection of adjacent neighborhoods.

- (11) The subdivision will provide appropriate access and turning movements for vehicles, and the proposed access is not so large so as to be inconsistent with the character of the neighborhood surrounding the subdivision.
- (12) The development of the subdivision can be accomplished in a manner that does not unduly disrupt or damage public services or facilities.

STAFF SUGGESTED FINDINGS

- (1) The subdivision is consistent with the zoning code.
[As presented, no variations to the RB zoning standards are necessary or requested.]
- (2) The subdivision will not create a nonconforming building, nonconforming use or nonconforming lot, nor will the subdivision create, increase or extend any existing nonconformity.
[Unless one or more of the existing buildings are left on the site, without adjustments to proposed lot lines, no non-conforming buildings or uses will be created.]
- (3) The subdivision will accommodate development on a lot that will comply with required setbacks and will not result in the substantial loss of existing trees or the significant alteration of the existing topography on the lot.
[The proposed lots are of a size and layout that homes which meet the zoning ordinance setback standards can be constructed on each lot in the subdivision. The Petitioner has been asked to prepare graphics to depict how example building footprints of homes they intend to offer may fit on the lots. It is anticipated that at least 14% of the Heritage trees and 23% of the non-Heritage trees over 8" in caliper will be lost to roadway and sidewalks. Other Heritage and Non-Heritage trees may be lost when homes are built on the lots. Any such losses (Heritage or non-Heritage) must be compensated in accordance with the tree preservation ordinance. The petitioner has shown reasonable care in selection of road alignment to minimize the impact on trees. Had the Northwood Drive been extended through the subject site, as had been shown in the 1954 preliminary plat, many more trees would have been lost to the roadway. No significant alternation of the existing topography is anticipated.]
- (4) The subdivision will not substantially modify or threaten the integrity of natural resources, including without limitation existing steep slopes, floodplains, wetlands, mature trees or the use of public open spaces.
[There is no evidence of the presence of steep slopes or floodplains and whether or not the Outlot Park is dedicated to the public or simply held by the property owner association, it will have no impact on the capacity or utility of any public park or forest preserve. The subdivision will comply with all of the most stringent storm water requirements that have been adopted since the last significant subdivision approval some 18 years ago. The subdivision will impact mature trees, but it is unlikely to threaten the integrity or character of the trees or natural resources within the neighboring properties or the adjacent Forest Preserve.]
- (5) The proposed development of the subdivision will not result in an increase in the storm water release rate from the subdivision.
[The Final Subdivision review will require compliance with the Village's storm water release rate regulations and all other applicable storm water and grading regulations.]
- (6) The subdivision will be served by adequate sewer or water service, electric service, natural gas and other public or private utilities available within the village.
[The subdivision includes easements adequate to serve each lot with all public and private utilities. Final Engineering plans will detail where utility easements, and potentially sidewalk placement will need to deviate around trees. A determination of the need for special service area or other designations to assure the funding and maintenance of storm water improvements will be evaluated.]

- (7) The subdivision will dedicate easements or rights-of-way necessary to provide for current and future extension of public utilities and services.
[The subdivision will provide easements for the connection and maintenance of water and sewer utilities through Northwood Drive, and to convey storm water to existing storm water sewers on Carol Lane.]
- (8) The existing public street system, and any proposed extension of that system, is sufficient to meet the projected traffic demand that will be created by the subdivision.
[The KLOA report indicates adequate capacity to support the additional traffic volumes and peak traffic movements generated by the subdivision. Modifications to road speed limits on Green Bay Road are necessary to assure adequate sight distances at the intersection with the subdivision road ingress/egress point. Additional modifications to the alignment, striping and traffic signage at the Westley Road intersection may also be necessary.]
- (9) The design of the proposed street improvements meets minimum village standards and does not exceed village standards in a manner that threatens the health, safety or welfare, such as by inducing excessive speed of travel or modifying traffic patterns in a manner inconsistent with street design capabilities or by unnecessarily displacing pervious open spaces.
[Subdivision street improvements will meet village standards, and any alterations to the intersection, signage or other existing conditions related to the subdivision will not threaten the health, safety or welfare of the community.]
- (10)The subdivision will extend, or does not inhibit the extension of, the existing village street system and recognizes the interconnection of adjacent neighborhoods.
[The subdivision will prevent the extension of Northwood Drive, and the developer seeks a variation to this provision. The developer seeks to minimize the loss of mature trees and the potential introduction of through-traffic on Northwood Drive with the proposed street configuration. If the Plan Commission finds this in the best interest of the properties on Northwood Drive and the subject property, the Commission may recommend that the Village Board issue a variation to this provision of the subdivision code.]
- (11)The subdivision will provide appropriate access and turning movements for vehicles, and the proposed access is not so large so as to be inconsistent with the character of the neighborhood surrounding the subdivision.
[The subdivision will provide one lane inbound and one lane outbound, potentially split by a landscaped median, consistent with the character of the surrounding neighborhoods.]
- (12)The development of the subdivision can be accomplished in a manner that does not unduly disrupt or damage public services or facilities.
[The self-contained aspect of this relatively large subdivision will allow construction activity and service connections to be made without unduly disrupting, overloading or damaging existing public services or facilities.]

Note on Historic Structures

The Village considers many buildings, landmarks and sites, particularly those designed by well-known architects and landscape architects, as an important element of its cultural and historic resources. The Comprehensive Plan speaks to the importance of protecting these resources, and the Village established an Historic Preservation Ordinance in 1990. The designation of a home or property is principally driven by a property owner seeking the potential for property tax benefits, or a personal desire to protect the integrity of historic property. In March 2019, the Village Board considered a recommendation from the Village's Historic Preservation Commission to establish Honorary Landmark Designation for the Structures Located at 1801 Green Bay Road, the Hoover Estate. The owner/petitioner for this subdivision did not support the recommendation, and the Village Board chose not to approve of the designation at that time.

As envisioned with this preliminary plat, the developer intends to demolish the three structures on the site, but has indicated a willingness to consider ways to preserve some components of the estate. Two structures are slated for demolition: 1) The garage/garden storage building is not well maintained and does not appear to have significant historic or architectural value; 2) The principal residence straddles 4 of the proposed lots. That, along with the developer's assertion that the construction of the principal residence with its multiple additions and modifications would likely make it prohibitively expensive to move, and very difficult to repurpose in another way in its current location, are likely to result in demolition of that structure as well.

However, in meetings with the Historic Preservation Commission, Village Board and with staff, the petitioner has indicated some interest in preserving elements of the original estate, including the main gates, as well as the possibility of relocating the stables to another site. The stable structure straddles two lots which could be purchased and combined to accommodate the building without moving it. Relocating the stable would be expensive and complex due to its construction, but there remains an interest and a willingness to continue a dialogue with the Village about how to do so. The only parcel within the proposed subdivision that could accommodate the relocation of the primary residence, or the Stables (but not both) would be Lot 1, which fronts and would have direct access to Green Bay Road.

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2. Concept Plan
3. The Preliminary Plat of Subdivision.
4. Preliminary Engineering Plans.
5. The Tree Survey.
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Written Narrative and Description of the Proposed Subdivision of
1801 Green Bay Road

Existing Conditions: The property located at 1801 Green Bay Road is approximately 12.1 acres of land that has been utilized as a family estate. The property contains three structures, comprised of approximately 15,000 sf of residential space, plus parking for 8 cars, and a stable for 6 horses. There are a total of approximately 17 bedrooms, several kitchens, and various living spaces split up among three principal buildings. The remainder of the property is a combination of manicured landscaping and natural wooded areas and some architectural features such as an entry gate and a gazebo.

Proposed Development: The property is proposed to be subdivided into 29 lots conforming to the existing RB zoning, with a minimum size of 13,000 sf and a minimum lot width of 80 ft. The homes to be built are proposed to range in size from approximately 2,600 sf to 4,000 sf., based upon the homes selected by the individual buyers from options we will provide to them. The homes are proposed to be offered with a homeowner's association organized to maintain certain common elements and some aspects of the landscaping of the individual homes. According to our understanding of the zoning code, we are seeking no variations from the zoning code.

A list of the proposed lot sizes follows:

Plan 9E	Plan 9E
Lot #	Lot Area
1	27,965
2	17,527
3	14,994
4	15,889
5	13,022
6	13,926
7	13,404
8	14,384
9	13,286
10	18,293
11	13,215
12	13,086
13	13,130
14	13,113
15	13,069
16	16,831
17	17,943
18	13,074
19	13,011
20	13,402
21	13,959
22	13,512

23	14,977
24	14,901
25	13,314
26	13,214
27	15,995
28	16,966
29	13,812
Total	433,214
Average	14,938
Median	13,812
Minimum	13,011

The homes will be served by a newly constructed public road that forms a ring around a newly created, public open space. This space will be approximately 21,000 sf. and preserve many mature and desirable trees. This public space will be maintained by the homeowner association we will create as part of this development.

Conformance with Village Standards for Subdivision:

1. The subdivision is consistent with the zoning code.

To the best of our knowledge, the proposed subdivision is in conformance with the Village's zoning code.

2. The subdivision will not create a nonconforming building, nonconforming use, or nonconforming lot, nor will the subdivision create, increase, or extend any existing nonconformity.

To the best of our knowledge, the proposed subdivision will not create nor maintain any nonconforming conditions

3. The subdivision will accommodate development on a lot that will comply with required setbacks and will not result in the substantial loss of existing trees or significant alteration of the existing topography on the lot.

The proposed lots will all allow for conforming structures to be placed upon them.

Regarding the existing trees: We conducted a tree inventory of all the trees on the property classifying them per the Village of Glencoe Tree Ordinance. There are 493 trees on the subject property greater than 8" in diameter as measured 54" above the ground (DBH). The subdivision planning process looked very closely at the large diameter "Heritage" trees in excellent condition and avoided them as much as possible. There are 271 Heritage trees on the subject property that are not dead, diseased or hazardous of which the proposed plan requires only 37 of those trees to be removed, thereby saving over 86% of the Heritage trees. The plan specifies the

removal of 114 of the 126 trees classified in the ordinance as "Removable" due to the species (undesirable or invasive) or condition. The proposed plan also requires 22 additional undesignated trees to be removed for the construction of the road, sidewalk and subdivision utilities including storm water management.

Trees	Heritage	%	Non-Heritage	%	Subtotal	%	Removable	Totals
to be Removed	37	14%	22	23%	59	16%	114	173
to be Saved	234	86%	74	77%	308	84%	12	320
Total	271		96		367		126	493

Regarding the topography: The topography will be minimally altered internally to accommodate a new public road, with specific attention given to reduce potential flooding and preserve existing trees.

- The subdivision will not substantially modify or threaten the integrity of natural resources, including without limitation existing steep slopes, floodplains, wetlands, mature trees, or the use of public open spaces.

The proposed subdivision will not substantially modify or threaten the integrity of natural resources, including without limitation existing steep slopes, floodplains, or wetlands.

Regarding mature trees: Please see our response to #3 above.

Regarding the open public space: there currently is no public open space on this property. Our proposed plan will create approximately 21,000 s.f. of new public open space that will be privately maintained.

- The proposed development of the subdivision will not result in an increase on the storm water release rate from the subdivision.

The subdivision storm water management system will be designed in conformance with the Village and County Storm water requirements, and will not result in an increase in the storm water release rate. A storm water detention system is proposed based on a CN factor of 83, resulting in 2.5 Acre-Feet of proposed new storm water storage on the subject property.

- The subdivision will be served by adequate sewer or water service, electrical service, natural gas, and other public or private utilities within the Village.

There are adequate public utilities in the right of way of Green Bay Road. There is also the possibility of connecting to the public sewer systems on Carol Lane.

7. The subdivision will dedicate easements or rights-of-way necessary to provide for current and future extension of public utilities and services.

Rights-of-way and easements will be provided to the extent required.

8. The existing public street system, and any proposed extension of that system, is sufficient to meet the projected traffic demand that will be created by the subdivision.

Per our enclosed traffic study prepared by KLOA, Inc, the existing public street system, and any proposed extension of that system, is sufficient to meet the projected traffic demand that will be created by the subdivision.

9. The design of the proposed street improvements meets minimum village standards and does not exceed village standards in a manner that threatens the health, safety, or welfare, such as by inducing excessive speed of travel or modifying traffic patterns in a manner inconsistent with street design capabilities or by unnecessarily displacing pervious open spaces.

Per our enclosed traffic study prepared by KLOA, Inc, and review by Village staff, the design of the proposed street improvements meets minimum village standards and does not exceed village standards in a manner that threatens the health, safety, or welfare, such as by inducing excessive speed of travel or modifying traffic patterns in a manner inconsistent with street design capabilities or by unnecessarily displacing pervious open spaces.

10. The subdivision will extend, or does not inhibit the extension of, the existing Village street system and recognizes the interconnection of adjacent neighborhoods.

The subdivision extends the Village street system, specifically by aligning Westley Road with our proposed entry to the subdivision.

11. The subdivision will provide appropriate access and turning movements for vehicles, and the proposed access is not so large so as to be inconsistent with the character of the neighborhood surrounding the subdivision.

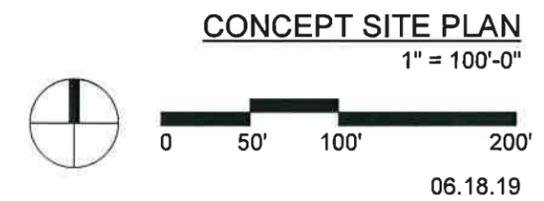
The proposed development will accommodate appropriate access and vehicular movements and will be consistent with surround neighborhoods.

12. The development of the subdivision can be accomplished in a manner that does not unduly disrupt or damage public services or facilities.

We anticipate no undue disruption of public services due to the development of this property, other than any disruption associated with industry standard utility connections and road extensions/improvements.



1801 GREEN BAY ROAD, GLENCOE, IL

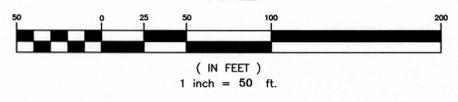
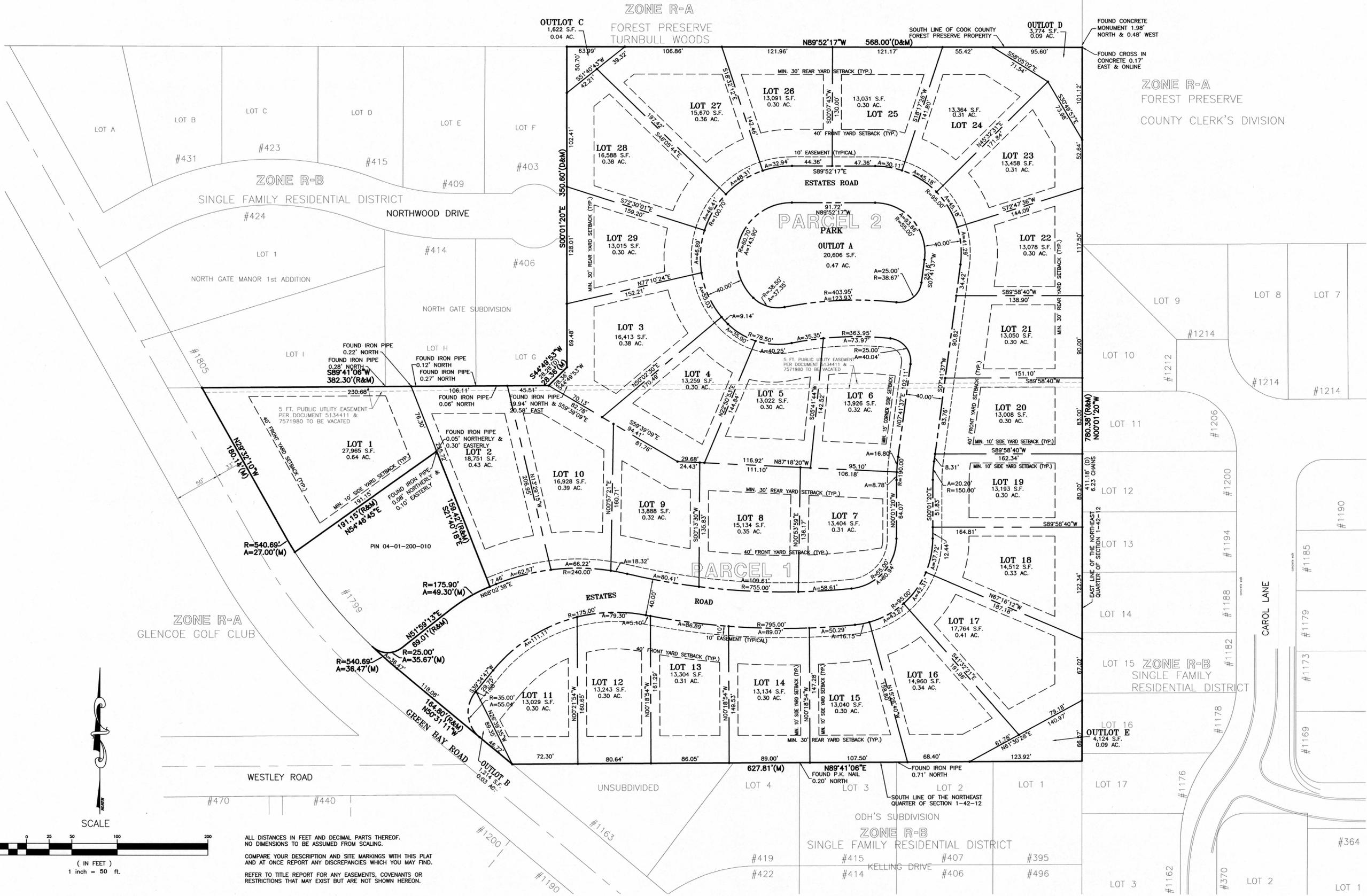


PRELIMINARY PLAT OF SUBDIVISION 1801 GREEN BAY ROAD SUBDIVISION

OF

PARCEL 1:
THAT PART OF THE SOUTH 6 CHAINS AND 23 LINKS OF THE NORTHEAST QUARTER OF SECTION 1, TOWNSHIP 42 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, WHICH LIES EAST OF THE CENTER LINE OF THE GREEN BAY ROAD (EXCEPTING THAT PORTION AS BEING MORE PARTICULARLY DESCRIBED IN DEED RECORDED AUGUST 22, 2016 AS DOCUMENT NUMBER 1623529020), ALSO THAT PART OF THE NORTHEAST QUARTER OF SECTION 1, TOWNSHIP 42 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, BOUNDED AND DESCRIBED AS FOLLOWS: COMMENCING AT THE INTERSECTION OF THE EAST LINE OF SAID NORTHEAST QUARTER WITH THE NORTH LINE OF THE SOUTH 6.23 CHAINS OF SAID NORTHEAST QUARTER; RUNNING THENCE NORTH ON SAID EAST LINE 3 FEET; THENCE WESTERLY, PARALLEL WITH THE NORTH LINE OF SAID SOUTH 6.23 CHAINS, TO THE CENTER LINE OF GREEN BAY ROAD; THENCE SOUTHEASTERLY, ALONG THE CENTER LINE OF GREEN BAY ROAD, TO THE NORTH LINE OF SAID SOUTH 6.23 CHAINS; THENCE EASTERLY, ALONG THE NORTH LINE OF SAID SOUTH 6.23 CHAINS TO THE PLACE OF BEGINNING, ALL IN COOK COUNTY, ILLINOIS.

PARCEL 2:
THAT PART OF THE NORTHEAST QUARTER OF SECTION 1, TOWNSHIP 42 NORTH, RANGE 12 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE EAST LINE OF SAID NORTHEAST QUARTER, 414.18 FEET NORTH OF THE SOUTHEAST CORNER OF SAID NORTHEAST QUARTER; THENCE NORTH, ALONG THE EAST LINE OF SAID NORTHEAST QUARTER, 366.2 FEET TO THE SOUTH LINE OF THE PROPERTY OF THE FOREST PRESERVE OF COOK COUNTY; THENCE WEST, ALONG THE SOUTH LINE OF THE SAID FOREST PRESERVE OF COOK COUNTY, 568 FEET; THENCE SOUTH, ALONG A LINE 568 FEET WEST OF AND PARALLEL WITH THE SAID EAST LINE OF THE NORTHEAST QUARTER, 350.6 FEET; THENCE SOUTHWESTERLY, ALONG A STRAIGHT LINE, 28.28 FEET TO A POINT ON A LINE 414.18 FEET NORTH OF AND PARALLEL WITH THE SOUTH LINE OF SAID NORTHEAST QUARTER AND 588 FEET WEST OF THE EAST LINE OF SAID NORTHEAST QUARTER; THENCE EAST, ALONG SAID LINE 414.18 FEET NORTH OF THE SOUTH LINE OF SAID NORTHEAST QUARTER, 588 FEET TO THE PLACE OF BEGINNING, IN COOK COUNTY, ILLINOIS.



ALL DISTANCES IN FEET AND DECIMAL PARTS THEREOF.
NO DIMENSIONS TO BE ASSUMED FROM SCALING.
COMPARE YOUR DESCRIPTION AND SITE MARKINGS WITH THIS PLAT
AND AT ONCE REPORT ANY DISCREPANCIES WHICH YOU MAY FIND.
REFER TO TITLE REPORT FOR ANY EASEMENTS, COVENANTS OR
RESTRICTIONS THAT MAY EXIST BUT ARE NOT SHOWN HEREON.

IG CONSULTING, INC.
CONSULTING CIVIL ENGINEERS & LAND SURVEYORS
300 MARQUARDT DRIVE WHEELING, ILLINOIS 60090 PH. (847) 215-1133 | FAX (847) 215-1177
1129 MAIN STREET UNION GROVE, WISCONSIN 53182 PH. (262) 878-8200 | ig@igconsulting.net

PREPARED FOR: GLENCOE DEVELOPERS LLC
FIELD CREW: D.J.J.
FIELD WORK: 2018
DRAFTED BY: S.R.M.
CHECKED BY:
SCALE: 1"=50'
DATE: 06/20/18
REVISED: 06/29/18
PREPARED: 06/29/18

**PRELIMINARY PLAT OF SUBDIVISION
1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS**

PROJECT NUMBER
18557

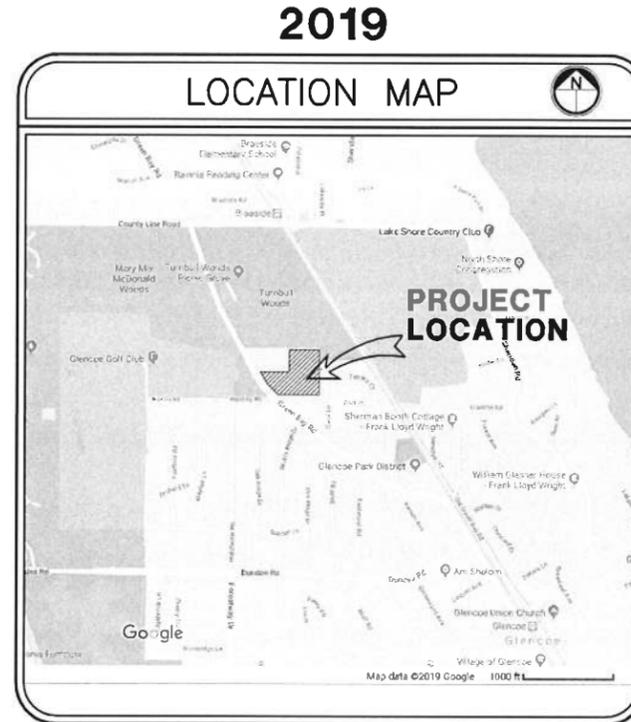
1801 GREEN BAY ROAD SUBDIVISION

1801 GREEN BAY ROAD

GLENCOE, ILLINOIS

LEGEND	
EXISTING	PROPOSED

THE CONTRACTOR MUST CALL J.U.L.I.E FOR THE LOCATION AND STAKING OF EXISTING UNDERGROUND UTILITIES (GAS, ELECTRIC, TELEPHONE, ETC.) AT 1-800-892-0123 48 HOURS PRIOR TO DIGGING.



SECTION 1, TOWNSHIP 42 N, RANGE 12 E

NOTE:
EXISTING WATER, SANITARY SEWER AND STORM SEWER INFORMATION IS BASED ON RECORDS PROVIDED BY THE MUNICIPALITY AND SURVEY DATA DETERMINED BY IG CONSULTING, INC. CONTRACTOR MUST VERIFY LOCATIONS, DEPTHS, MATERIALS AND POTENTIAL CONFLICTS PRIOR TO BIDDING AND CONSTRUCTING THE PROPOSED IMPROVEMENTS. SUCH VERIFICATION SHALL ALSO INCLUDE FACILITIES OWNED AND OPERATED BY VARIOUS UTILITY COMPANIES. ENGINEER MAKES NO REPRESENTATION AS TO THE ACCURACY OR EXISTENCE OF PLAN INFORMATION PROVIDED BY OTHERS.

INDEX

- 1 - COVER SHEET
- 2 - EXISTING CONDITIONS
- 3 - GEOMETRIC PLAN
- 4 - DEVELOPMENT PLAN

ALL ROADWAY CONSTRUCTION SHALL CONFORM TO THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND ALL AMENDMENTS THERETO AS ADOPTED BY THE STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION (I.D.O.T.).

STORM SEWER, SANITARY SEWER AND WATER MAIN CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST ISSUE, AND THE VILLAGE OF GLENCOE SUBDIVISION AND ENGINEERING GUIDE, INCLUDING THE LATEST CONSTRUCTION DETAILS, WHICHEVER IS MORE STRINGENT.

SITE BENCHMARK:
NORTHEAST BONNET BOLT OF FIRE HYDRANT AT THE
NORTHEASTERLY CORNER OF #1799 GREENBAY ROAD
ELEVATION = 690.27 NAVD 88 (GE01D12B)

PRELIMINARY ENGINEERING

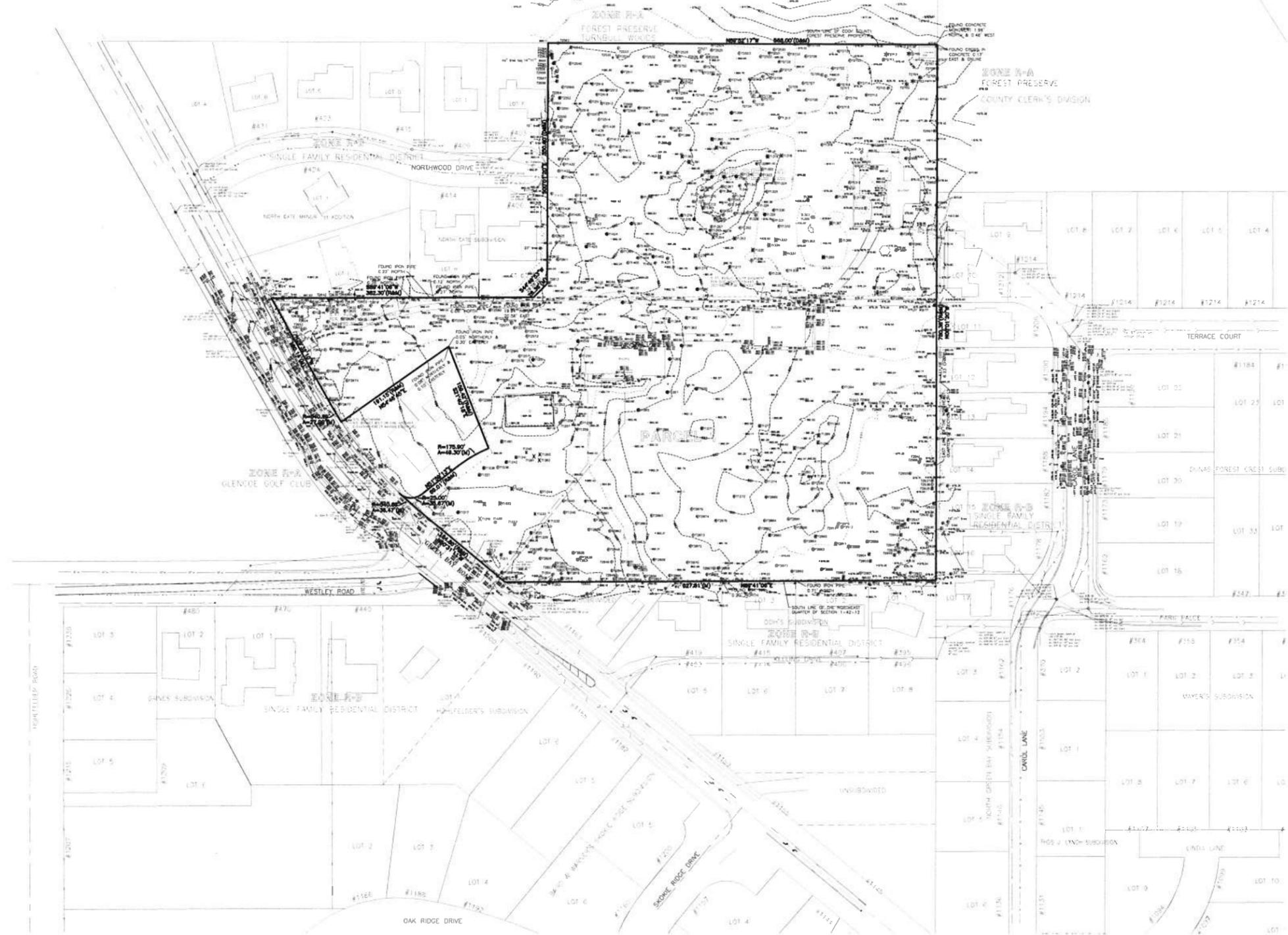
REVISIONS		
DATE	DESCRIPTION	DRAWN BY / S.R.M.
09/03/19	VILLAGE REVIEW	

IG CONSULTING, INC.
e-mail: ig@igconsulting.net
INFRACON & GEACOM
CONSULTING CIVIL ENGINEERS & LAND SURVEYORS
300 MARGUARDT DRIVE WHEELING, ILLINOIS 60090 PH. (847) 215-1133 FAX (847) 215-1177
DESIGN: K.C.L. DRAFTING: S.R.M. DATE: 05/06/19
SCALE: NONE
COVER SHEET

1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS

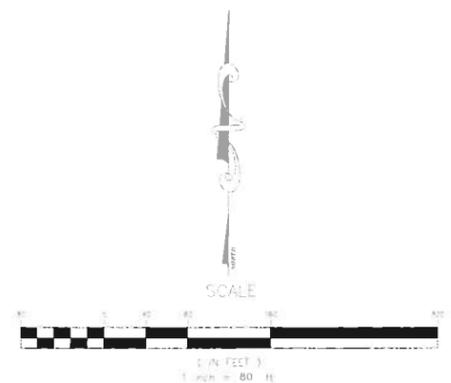
PROJECT No.
18557
1 of 4

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TREE LEGEND

- EXISTING TREE
- HIGH VALUE TREE
- TREE TO BE REMOVED DUE TO TREE CONDITION
- TREE TO BE REMOVED FOR ROAD PURPOSES
- TREE TO BE REMOVED FOR UTILITY CONSTRUCTION



EXISTING CONDITIONS

DATE	DESCRIPTION	DRAWN BY
06/05/19	VILLAGE REVIEW	S.R.M.

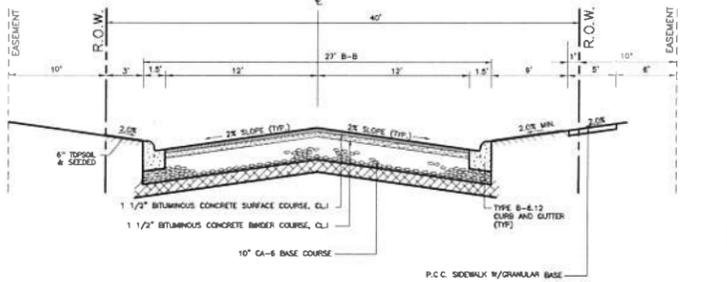
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 e-mail: ig@igconsulting.net

EXISTING CONDITIONS DESIGN: K.C.L. DRAFTING: S.R.M.
 SCALE: 1"=80' DATE: 04/15/19

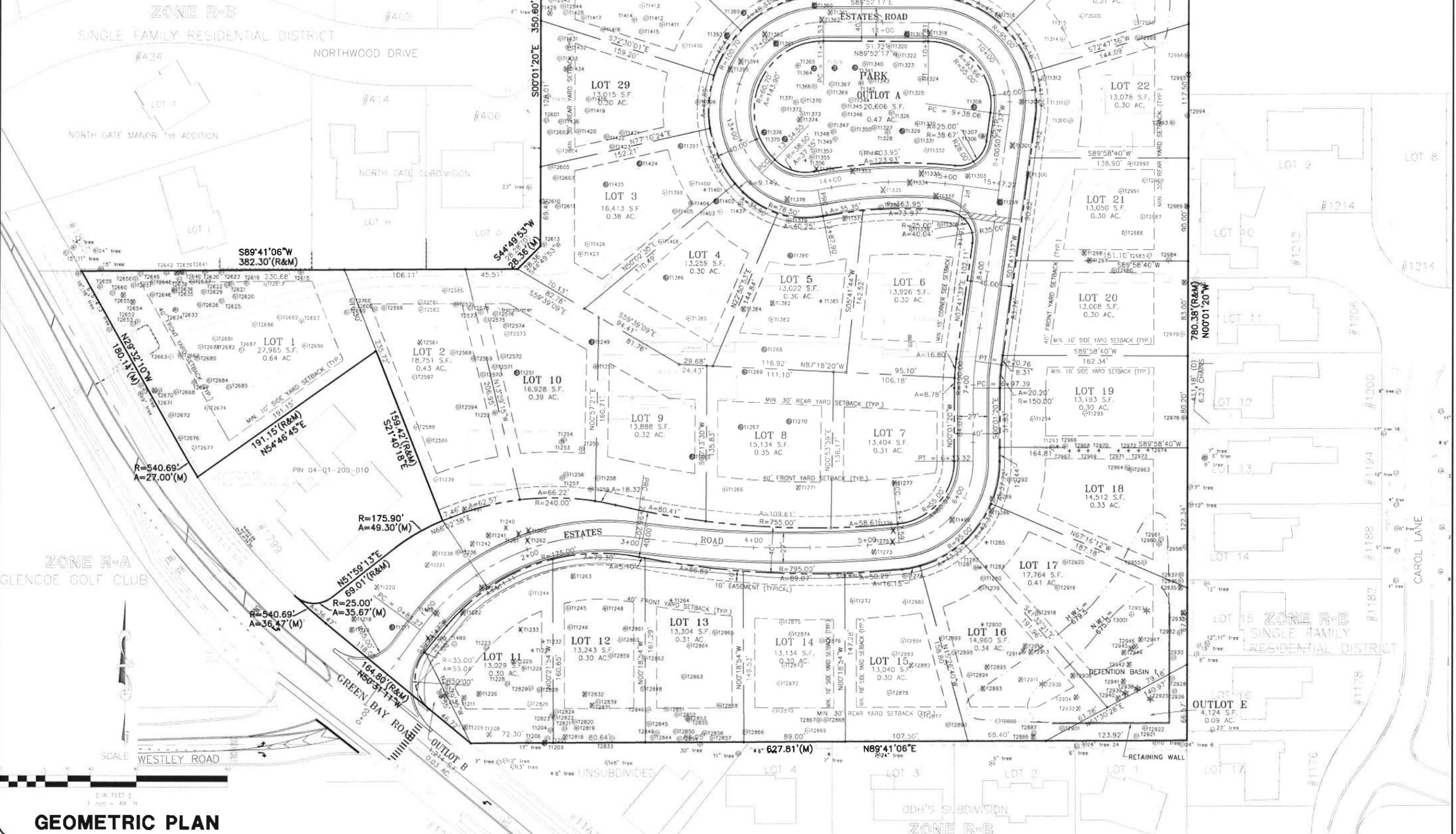
1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS

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FIRM NO. 184-001130



TYPICAL STREET CROSS-SECTION
N.T.S.



GEOMETRIC PLAN

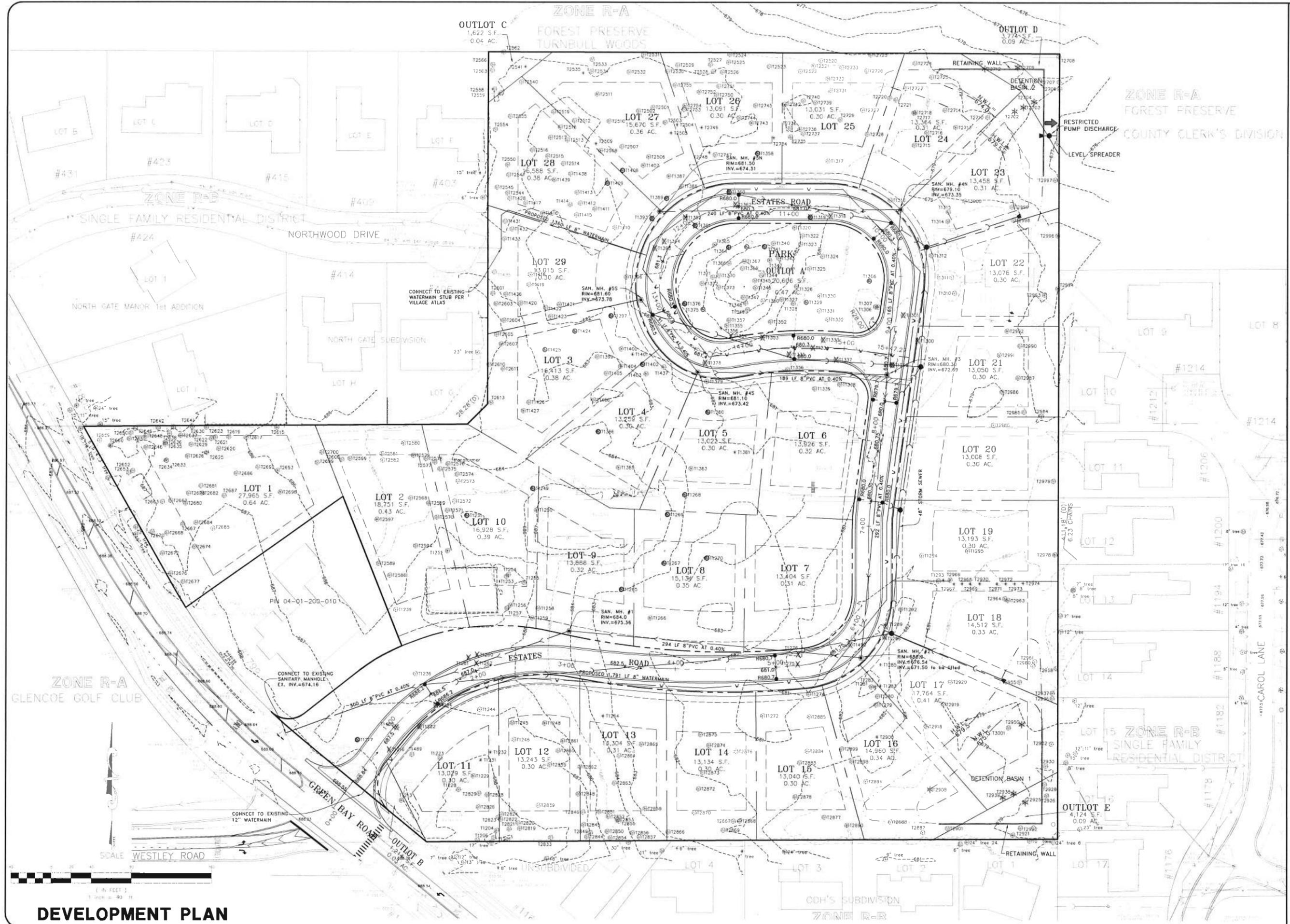
DATE	DESCRIPTION	BY	SR.M.
06/07/19	VILLAGE REVIEW		

ig CONSULTING, INC.
 INFRACON & GECON
 CONSULTING CIVIL ENGINEERS, PLANNERS & LAND SURVEYORS
 300 MARQUARDT DRIVE WHEELING, ILLINOIS 60090 PH. (847) 215-1133 FAX (847) 215-1177
 E-MAIL: ig@gecon.com

DESIGN: K.C.L.
 DRAFTING: S.R.M.
 DATE: 05/06/2019
 SCALE: 1"=40'
 FIRM NO. 184-001330

1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS

PROJECT No.
18557



DEVELOPMENT PLAN

REVISIONS	
DATE	DESCRIPTION
06/09/19	VILLAGE REVIEW
	S.R.M.

IG CONSULTING, INC.
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 300 MARQUARDT DRIVE WHEELING, ILLINOIS 60090 PH. (847) 215-1133 FAX (847) 215-1177
 DESIGN: K.C.L. DRAFTING: S.R.M. DATE: 05/06/2019
 DEVELOPMENT PLAN SCALE: 1"=40'

1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS

PROJECT No. 18557
 4 of 4

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TREE INVENTORY
05-09-19
IG #18557

Tag No.	Size (")	Common Name	Village Code classification	Cond	Form	Action Code	Heritage Size Inches	Heritage Inches Removed	Heritage Poor Condition Size Inches	Heritage Poor Condition Inches Removed	Non-Heritage Size Inches	Non-Heritage Inches Removed	Removable (Invasive) Size inches	Removable (Invasive) Inches Removed	Notes
1201	18	Black Locust		3	2						18				
1203	18	Ash	R	6	6	X							18	18	Topped at 10'
1204	17	Black Locust		2	2						17				
1206	9	Black Locust		2	3						9				
1208	18	Shagbark Hickory	HR	4	4	X			18	18					Trunk Rot
1209	20	Siberian Elm		4	3	X					20	20			Encroaching onto nearby tree
1211	8	Ash	R	6	6	X							8	8	Dead
1212	9	Ash	R	6	6	X							9	9	Dead
1213	12	American Elm	H	2	3		12								
1216	13	Eastern White Pine	H	2	2	R	13	13							
1217	30	White Oak	H	1	1		30								
1218	14	Ash	R	6	6	X							14	14	Dead
1219	13	Buckthorn	R	3	3	X							13	13	Multi stem trunk: 7,6
1220	8	Buckthorn	R	4	3	X							8	8	Trunk Rot
1221	10	Ash	R	6	6	X							10	10	Dead
1222	29	White Oak	H	2	3	R	29	29							
1223	27	White Oak	H	2	2		27								Trunk rot, basal rot
1225	15	Linden	HR	5	3	X			15	15					Trunk rot, basal rot
1226	9	Buckthorn	R	3	3	X							9	9	
1228	15	Black Locust		2	2						15				
1229	12	Black Locust		2	2						12				
1231	14	Eastern White Pine	H	2	2		14								
1232	17	Eastern White Pine	H	3	3		17								
1233	10	Eastern White Pine	H	3	4	X	10	10							Lean
1234	9	Shagbark Hickory	H	2	2	R	9	9							
1236	17	Shagbark Hickory	H	2	3		17								
1238	18	Buckthorn	R	3	3	X							18	18	Multi stem trunk: 18" at base
1239	31	White Oak	H	3	2		31								
1240	16	Eastern White Pine	HR	3	5	X			16	16					Lean > 40°
1241	25	Ash	R	6	6	X							25	25	Topped at 15' dead
1242	20	Northern Red Oak	HR	4	4	X			20	20					Multi stem trunk: 10,10 Dead
1244	16	Black Locust		2	2						16				
1245	15	Black Locust		3	3						15				
1246	13	American Elm	H	3	3		13								
1248	8	Shagbark Hickory	H	1	2		8								
1249	21	Shagbark Hickory	H	1	1		21								
1250	12	Dogwood		2	2						12				Multi stem trunk: 6,6
1251	31	White Oak	H	1	1		31								
1252	38	White Oak	H	2	2		38								
1253	22	White Oak	H	2	2		22								
1254	23	White Oak	H	2	3		23								
1255	30	Northern Red Oak	H	1	3		30								
1256	20	White Oak	H	2	2		20								
1257	19	White Oak	H	2	2		19								
1258	26	White Oak	H	2	2		26								
1259	31	White Oak	H	2	2		31								
1260	18	Red Pine		2	2	R					18	18			
1261	16	Red Pine		2	3	R					16	16			
1262	17	Eastern White Pine	H	3	3	R	17	17							
1263	37	Burr Oak	HR	3	3	X			37	37					Trunk Rot
1264	8	Fir		3	3						8				
1265	21	Shagbark Hickory	H	1	1		21								
1266	44	Swamp White Oak	H	3	2		44								Old lightning strike
1267	22	Shagbark Hickory	H	1	1		22								
1268	18	Shagbark Hickory	H	1	1		18								
1269	18	Shagbark Hickory	H	1	1		18								
1270	40	Swamp White Oak	H	1	1		40								
1271	38	White Oak	HR	3	2	X			38	38					Fruiting bodies along root zone
1272	15	White Poplar	R	2	3								15		
1273	39	Swamp White Oak	HR	4	3	X			39	39					Basal rot
1274	34	White Poplar	R	2	3								34		
1275	17	Eastern White Pine	H	2	3	R	17	17							
1276	21	Eastern White Pine	H	2	2	R	21	21							
1277	25	Crabapple		3	3	X					25	25			Multi stem trunk: 10,9,6
1279	14	Dead/Dying	R	6	6	X							14	14	
1280	13	Dead/Dying	R	6	6	X							13	13	
1281	14	Sugar Maple	H	2	3		14								
1282	11	Eastern Red Cedar		3	3						11				
1283	11	Eastern Red Cedar		3	3						11				
1285	16	Eastern Red Cedar		3	3						16				Multi stem trunk: 6,9
1286	12	Sugar Maple	H	2	3	R	12	12							
1289	14	Sugar Maple	H	2	2	R	14	14							
1292	32	White Oak	H	5	3		32								
1293	16	Norway Spruce		2	3						16				
1294	20	Shagbark Hickory	H	2	2		20								
1295	24	Shagbark Hickory	H	2	2		24								
1297	18	Buckthorn	R	3	3	X							18	18	Multi stem trunk: 18" at base
1298	10	Buckthorn	R	3	3	X							10	10	
1299	31	White Oak	H	1	2	R	31	31							
1300	31	Northern Red Oak	H	2	2	R	31	31							
1301	25	Sugar Maple	H	2	2	R	25	25							
1303	10	Sugar Maple	H	2	4	X	10	10							Trunk Damage
1305	11	Sugar Maple	H	3	3		11								
1307	54	American Elm	H	2	3		54								Multi stem trunk: 20,19,15 Included Bark
1308	26	Swamp White Oak	H	1	1		26								
1309	25	Sugar Maple	H	3	3	X	25	25							Multi stem trunk: 25" at base
1310	18	Shagbark Hickory	H	2	3		18								
1311	23	White Oak	H	2	2		23								
1312	11	Sugar Maple	H	3	3		11								
1314	10	Sugar Maple	H	3	4		10								
1315	9	Sugar Maple	H	3	4		9								
1316	33	Swamp White Oak	H	2	2		33								
1317	18	White Oak	H	2	2		18								
1318	21	White Oak	H	2	3	R	21	21							
1319	23	White Oak	H	1	1	R	23	23							
1320	19	Swamp White Oak	H	2	2		19								
1322	8	Northern Red Oak	H	2	3		8								
1323	15	White Oak	H	2	1		15								
1324	19	Northern Red Oak	H	2	3		19								
1325	15	White Oak	H	2	3		15								
1326	10	Northern Red Oak	H	3	2		10								
1327	9	Northern Red Oak	H	1	1		9								
1328	10	Northern Red Oak	H	2	3		10								
1329	28	Swamp White Oak	H	1	1		28								

TREE INVENTORY
05-09-19
IG #18557

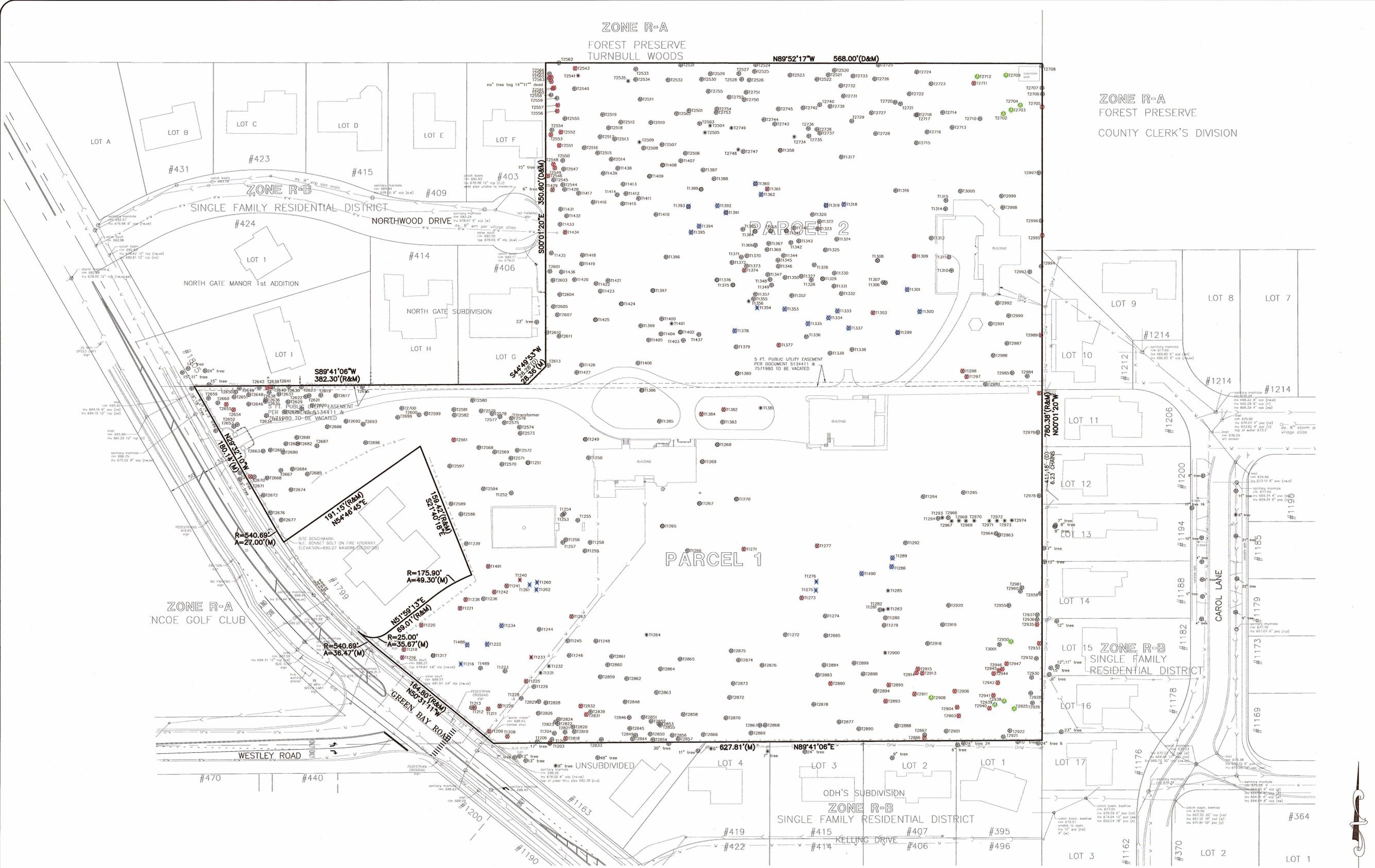
Tag No.	Size (")	Common Name	Village Code classification	Cond	Form	Action Code	Heritage Size Inches	Heritage Inches Removed	Heritage Poor Condition Size Inches	Heritage Poor Condition Inches Removed	Non-Heritage Size Inches	Non-Heritage Inches Removed	Removable (Invasive) Size Inches	Removable (Invasive) Inches Removed	Notes
1330	9	American Elm	H	3	3		9								
1331	21	Swamp White Oak	H	2	2		21								
1332	28	Swamp White Oak	H	2	2		28								
1333	13	Swamp White Oak	H	4	5	R	13	13							
1334	31	Swamp White Oak	H	4	2	R	31	31							
1335	41	Swamp White Oak	H	2	2	R	41	41							
1336	14	Swamp White Oak	H	2	3		14								
1337	29	Swamp White Oak	H	2	2	R	29	29							
1338	22	Swamp White Oak	H	2	3		22								
1339	41	Swamp White Oak	H	2	3		41								
1340	18	White Oak	H	2	3		18								
1341	22	White Oak	H	1	2		22								
1342	17	White Oak	H	2	2		17								
1343	22	White Oak	H	2	3		22								
1344	10	Northern Red Oak	H	3	3		10								
1345	8	Northern Red Oak	H	3	3		8								
1346	10	Northern Red Oak	H	3	3		10								
1347	13	Northern Red Oak	H	3	3		13								
1348	17	Northern Red Oak	H	3	3		17								
1349	14	Northern Red Oak	H	2	3		14								
1350	13	Northern Red Oak	H	3	3		13								
1352	16	Shagbark Hickory	H	2	3		16								
1353	12	Swamp White Oak	H	2	4	R	12	12							
1354	22	Norway Spruce	H	2	3	R					22	22			Multi stem trunk: 12,10
1355	16	Northern Red Oak	H	3	3		16								
1356	13	Norway Spruce	H	2	2						13				
1357	12	Northern Red Oak	H	3	3		12								
1358	15	Pin Oak	H	2	1		15								
1360	29	Swamp White Oak	H	1	1	R	29	29							
1361	25	Swamp White Oak	HR	5	3	X			25	25					Trunk split, trunk rot
1362	21	Swamp White Oak	H	2	3	R	21	21							
1364	24	White Oak	H	1	1		24								
1365	10	Black Locust	H	3	4						10				
1366	11	Swamp White Oak	H	2	3		11								
1367	16	White Oak	H	2	2		16								
1368	14	Swamp White Oak	H	1	1		14								
1369	12	Northern Red Oak	H	2	3		12								
1370	9	Northern Red Oak	H	2	3		9								
1371	15	Northern Red Oak	H	2	3		15								
1372	9	Northern Red Oak	H	2	3		9								
1373	8	Northern Red Oak	H	2	3		8								
1374	10	Black Cherry	H	4	5	X					10	10			Lean, basal rot
1375	24	White Oak	H	1	1		24								
1376	29	Swamp White Oak	H	2	1		29								
1377	19	Sugar Maple	HR	2	4	X			19	19					Lean, girdled roots
1378	16	Northern Red Oak	H	2	2	R	16	16							
1379	9	Sugar Maple	H	2	2		9								
1380	30	White Oak	H	1	2		30								
1381	21	Eastern White Pine	H	2	3		21								
1382	17	Shagbark Hickory	H	2	3	X	17	17							Trunk Damage
1383	24	Shagbark Hickory	H	2	3		24								
1384	26	Norway Maple	H	4	5	X					26	26			Trunk Rot
1385	43	White Oak	H	2	3		43								
1386	28	White Oak	H	1	1		28								
1387	10	Northern Red Oak	H	2	3		10								
1388	21	White Oak	H	2	2		21								
1389	18	White Oak	H	1	1		18								
1391	23	Swamp White Oak	H	1	1	R	23	23							
1392	22	White Oak	H	2	3	R	22	22							
1393	13	White Oak	H	1	1	R	13	13							
1394	33	Northern Red Oak	H	3	2	R	33	33							
1395	17	White Oak	H	3	3	R	17	17							
1396	26	Northern Red Oak	H	2	2		26								
1397	27	White Oak	H	1	2		27								
1399	28	White Oak	H	2	2		28								
1400	20	White Oak	H	2	2		20								
1401	10	Eastern White Pine	H	2	2		10								
1402	18	White Oak	H	1	1		18								
1403	22	White Oak	H	2	3		22								
1404	21	White Oak	H	2	2		21								
1405	21	White Oak	H	2	3		21								
1406	28	White Oak	H	3	3		28								
1407	25	Swamp White Oak	H	2	2		25								
1408	15	White Oak	H	1	1		15								
1409	21	White Oak	H	1	1		21								
1410	25	Northern Red Oak	H	2	3		25								
1411	16	White Oak	H	2	2		16								
1412	13	White Oak	H	3	3		13								
1413	19	White Oak	H	2	2		19								
1414	19	White Oak	H	2	2		19								
1415	15	White Oak	H	2	3		15								
1416	26	White Oak	H	2	2		26								
1417	13	Norway Maple	H	3	3						13				Multi stem trunk: 8,5
1418	17	White Oak	H	3	3		17								
1419	17	White Oak	H	2	2		17								
1420	17	White Oak	H	2	3		17								
1421	18	Catalpa	H	3	3		18								
1422	14	Northern Red Oak	H	2	3		14								
1423	16	Northern Red Oak	H	2	3		16								
1424	23	Norway Maple	H	1	1						23				
1425	35	Swamp White Oak	H	2	1		35								
1426	31	Swamp White Oak	H	2	2		31								
1427	30	Swamp White Oak	H	2	2		30								
1428	26	Swamp White Oak	H	2	3		26								
1429	27	Swamp White Oak	HR	5	3	X			27	27					Trunk Rot
1431	15	Swamp White Oak	H	3	3		15								
1432	25	Swamp White Oak	H	2	2		25								
1433	26	Swamp White Oak	H	2	3		26								
1436	10	Norway Maple	H	3	3						10				
1437	21	White Oak	H	2	2		21								
1438	17	White Oak	H	2	2		17								
1439	17	White Oak	H	2	2		17								
1488	19	White Oak	H	2	2	R	19	19							
1489	9	Eastern White Pine	H	2	2		9								

TREE INVENTORY
05-09-19
IG #18557

Tag No.	Size (")	Common Name	Village Code classification	Cond	Form	Action Code	Heritage Size Inches	Heritage Inches Removed	Heritage Poor Condition Size Inches	Heritage Poor Condition Inches Removed	Non-Heritage Size Inches	Non-Heritage Inches Removed	Removable (Invasive) Size Inches	Removable (Invasive) Inches Removed	Notes
1490	17	Shagbark Hickory	H	2	2	R	17	17							
2501	15	White Oak	H	2	2		15								
2502	26	White Oak	HR	5	3	X			26	26					Trunk Rot
2503	11	Northern Red Oak	H	3	3		11								
2504	14	Black Spruce		1	2						14				
2505	18	Black Spruce		1	1						18				
2506	26	White Oak	H	2	2		26								
2507	14	White Oak	H	2	2		14								
2508	8	Northern Red Oak	H	3	2		8								
2509	8	Norway Spruce		2	2						8				
2510	29	White Oak	H	2	2		29								
2511	22	White Oak	H	2	3		22								
2512	22	White Oak	H	2	2		22								
2513	13	Swamp White Oak	H	3	3		13								
2514	20	White Oak	H	2	2		20								
2515	19	White Oak	H	2	2		19								
2517	24	White Oak	H	2	3		24								
2519	10	Northern Red Oak	H	3	3		10								
2520	14	Northern Red Oak	H	2	2		14								
2522	16	Northern Red Oak	H	2	2		16								
2522	14	Northern Red Oak	H	3	3		14								
2523	19	White Oak	H	3	2		19								
2524	16	White Oak	H	3	3		16								
2525	8	Northern Red Oak	H	3	3		8								
2526	15	White Oak	H	3	3		15								
2528	8	Northern Red Oak	H	2	3		8								
2529	18	White Oak	H	2	3		18								
2532	22	White Oak	H	2	3		22								
2533	19	Northern Red Oak	H	3	3		19								
2535	18	Black Spruce		1	1						18				
2536	20	White Oak	H	2	2		20								
2537	12	Northern Red Oak	H	2	3		12								
2538	23	White Oak	H	2	2		23								
2539	18	White Oak	H	3	3		18								
2540	11	Northern Red Oak	H	2	3		11								
2541	14	Black Spruce		2	1						14				
2542	9	Dead/Dying	R	6	6	X						9	9		
2543	8	Dead	R	6	6	X						8	8		High risk tree, overhanging adjacent back yard
2545	10	American Elm	H	3	3		10								
2549	11	Dead	R	6	6	X						11	11		High Risk Tree, Leaning over adjacent front yard
2550	17	Northern Red Oak	H	3	3		17								
2551	8	Dead	R	6	6	X						8	8		
2553	10	Dead	R	6	6	X						10	10		
2554	9	Buckthorn	R	3	3	X						9	9		
2556	12	Dead	R	6	6	X						12	12		
2557	8	Dead	R	6	6	X						8	8		
2558	10	American Elm	H	3	2		10								
2560	11	Dead	R	6	6	X						11	11		
2561	12	Dead	R	6	6	X						12	12		
2562	18	American Elm	H	4	4		18								Growing into fence
2563	8	Buckthorn	R	3	3	X						8	8		
2564	10	Dead/Dying	R	6	6	X						10	10		
2565	11	Dead/Dying	R	6	6	X						11	11		
2567	18	Shagbark Hickory	H	2	3		18								
2569	8	Shagbark Hickory	H	1	1		8								
2570	13	Norway Maple		3	3						13				
2571	11	Norway Maple		3	3						11				
2573	18	Norway Maple		3	3						18				Multi stem trunk: 10,8
2574	9	Norway Maple		3	3						9				
2576	10	Norway Maple		3	3						10				
2577	24	Swamp White Oak	H	2	2		24								
2578	21	Swamp White Oak	H	2	2		21								
2580	29	Swamp White Oak	H	2	2		29								
2581	11	Black Locust		3	4						11				
2582	8	Black Locust		3	3						8				
2586	8	Buckthorn	R	4	4	X						8	8		
2589	8	Dead/Dying	R	6	6	X						8	8		
2593	8	Buckthorn	R	3	3	X						8	8		
2594	11	Buckthorn	R	5	5	X						11	11		Trunk Rot
2597	32	White Oak	H	2	1		32								
2599	10	Buckthorn	R	4	4	X						10	10		Fallen
2600	9	Buckthorn	R	4	5	X						9	9		
2601	17	White Oak	H	2	3		17								
2603	28	White Oak	H	2	3		28								
2604	16	White Oak	H	2	3		16								
2605	28	Swamp White Oak	H	2	2		28								
2607	11	Black Locust		3	4						11				
2610	14	White Oak	H	2	2		14								
2611	23	Swamp White Oak	H	2	3		23								
2613	10	Norway Maple		2	2						10				
2614	15	Buckthorn	R	4	4	X						15	15		Multi stem trunk: 8,7
2615	8	Buckthorn	R	4	4	X						8	8		
2617	9	Buckthorn	R	3	3	X						9	9		
2619	10	Buckthorn	R	3	4	X						10	10		
2620	9	Buckthorn	R	4	3	X						9	9		
2621	10	Buckthorn	R	3	3	X						10	10		
2622	9	Buckthorn	R	4	4	X						9	9		
2623	16	Black Locust		4	3	X					16	16			Trunk Rot
2625	22	White Oak	H	2	2		22								
2626	13	Buckthorn	R	4	3	X						13	13		Multi stem trunk: 7,6
2629	8	Buckthorn	R	3	3	X						8	8		
2630	16	Black Locust		2	2						16				
2633	18	White Oak	H	2	3		18								
2634	8	Buckthorn	R	3	3	X						8	8		
2636	9	Black Locust		5	4	X					9	9			Fruiting bodies at +/- 20'
2636	9	Buckthorn	R	3	3	X						9	9		
2637	10	Buckthorn	R	3	3	X						10	10		
2638	8	Buckthorn	R	3	3	X						8	8		
2639	12	Black Locust		6	6	X					12	12			Dead, leaning against nearby tree, high risk tree
2640	12	Black Locust		6	6	X					12	12			Dead/Dying
2641	15	Black Locust		4	3	X					15	15			Fruiting Bodies on trunk at 30
2642	11	Black Locust		4	4	X					11	11			Trunk Rot
2646	20	Black Locust		2	2						20				
2648	8	Buckthorn	R	4	4	X						8	8		

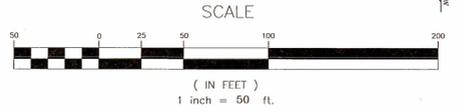
TREE INVENTORY
05-09-19
IG #18557

Tag No.	Size (")	Common Name	Village Code classification	Cond	Form	Action Code	Heritage Size Inches	Heritage Inches Removed	Heritage Poor Condition Size Inches	Heritage Poor Condition Inches Removed	Non-Heritage Size Inches	Non-Heritage Inches Removed	Removable (Invasive) Size Inches	Removable (Invasive) Inches Removed	Notes
2649	11	Buckthorn	R	4	4	X							11	11	Multi stem trunk: 6,5
2650	12	Buckthorn	R	4	4	X							12	12	Multi stem trunk: 8,4
2651	17	Black Locust		4	3							17			
2652	30	White Oak	H	2	3		30								
2653	9	Buckthorn	R	3	3	X							9	9	
2654	13	Dead	R	6	6	X							13	13	High risk tree, leaning tree over entrance
2655	13	Dead	R	6	6	X							13	13	
2659	21	Norway Maple		3	3							21			
2660	13	Black Locust		4	3							13			
2662	22	Swamp White Oak	H	2	2		22								
2663	8	Buckthorn	R	3	3	X							8	8	
2667	8	Buckthorn	R	4	4	X							8	8	
2668	9	Buckthorn	R	3	3	X							9	9	
2670	23	Swamp White Oak	H	2	2		23								
2671	11	Dead/Dying	R	6	6	X							11	11	
2672	15	Buckthorn	R	6	6	X							15	15	Multi stem trunk: 8,7 Fallen
2674	23	White Oak	H	3	3		23								
2676	22	Dead/Dying	R	6	6	X							22	22	
2677	21	Buckthorn	R	3	3	X							21	21	Multi stem trunk: 10,6,5
2678	15	White Oak	H	2	2		15								
2680	22	White Oak	H	2	2		22								
2681	9	Buckthorn	R	3	3	X							9	9	
2682	23	White Oak	H	3	2		23								
2684	13	Linden	R	2	1								13		
2685	22	White Oak	H	2	2		22								
2686	14	Norway Maple		2	2							14			
2687	24	White Oak	H	2	2		24								
2692	26	White Oak	H	2	2		26								
2693	28	White Oak	H	3	3		28								
2696	13	Buckthorn	R	3	3	X							13	13	Multi stem trunk: 7,6
2699	9	Buckthorn	R	3	3	X							9	9	
2700	11	Shagbark Hickory	H	1	1		11								
2702	18	White Oak	H	3	2	*	18	18							
2703	22	Swamp White Oak	H	3	3	*	22	22							
2704	17	White Oak	H	3	3	*	17	17							
2705	12	Dead/Dying	R	6	6	X							12	12	
2706	14	Norway Maple		3	4							14			Growing into fence
2707	11	Norway Maple		3	3							11			
2708	9	Norway Maple		3	4							9			
2709	22	Norway Maple		3	3	*						22	22		Multi stem trunk: 13,9
2710	20	White Oak	H	2	2		20								
2711	17	Dead/Dying	R	6	6	X							17	17	
2712	22	Sugar Maple	H	4	4	*	22	22							Multi stem trunk: 8,6,6
2713	22	White Oak	H	2	2		22								
2714	18	White Oak	H	2	2		18								
2715	22	White Oak	H	2	2		22								
2716	16	White Oak	H	2	2		16								
2717	8	Norway Maple		4	4	X						8	8		Encroaching onto nearby tree
2718	24	White Oak	H	2	2		24								
2720	10	Black Locust		3	3							10			
2721	16	White Oak	H	3	3		16								
2722	21	White Oak	H	2	2		21								
2723	17	White Oak	H	2	3		17								
2724	23	White Oak	H	1	1		23								
2725	9	Black Locust		3	3							9			
2726	20	White Oak	H	2	2		20								
2727	14	Black Locust		3	3							14			
2728	23	Black Locust		3	3							23			
2729	26	Swamp White Oak	H	2	3		26								
2731	20	White Oak	H	2	2		20								
2732	11	Northern Red Oak	H	3	3		11								
2733	18	White Oak	H	3	3		18								
2734	13	Norway Spruce		2	3							13			
2735	9	Northern Red Oak	H	2	3		9								
2736	20	White Oak	H	1	1		20								
2737	8	Northern Red Oak	HR	4	5	X		8	8						Leaning
2738	10	Northern Red Oak	H	3	3		10								
2739	13	Northern Red Oak	H	3	3		13								
2740	9	Northern Red Oak	H	3	3		9								
2742	22	White Oak	H	3	3		22								
2743	19	White Oak	H	2	2		19								
2744	16	White Oak	H	2	2		16								
2745	22	White Oak	H	3	2		22								
2747	16	Buckthorn	R	3	3	X							16	16	Multi stem trunk: 8,8
2748	13	Black Spruce		3	3							13			
2749	10	Norway Spruce		2	4							10			
2750	17	White Oak	H	2	2		17								
2751	17	White Oak	H	2	2		17								
2752	19	White Oak	H	2	2		19								
2753	9	Northern Red Oak	H	3	3		9								
2754	20	Northern Red Oak	H	3	3		20								
2755	30	Northern Red Oak	H	3	2		30								
2818	8	Norway Maple		3	3							8			
2819	12	Black Locust		4	4							12			
2820	10	Black Locust		4	4							10			
2822	16	Black Locust		5	4	X						16	16		Trunk Damage
2823	14	Black Locust		5	4	X						14	14		Trunk Damage
2824	18	Black Locust		5	4	X						18	18		Trunk Damage
2826	8	Black Locust		3	3							8			
2828	9	Black Locust		3	3							9			
2829	10	Black Locust		3	2							10			
2830	8	Dead/Dying	R	6	6	X							8	8	
2831	9	Dead	R	6	6	X							9	9	
2832	15	Dead/Dying	R	6	6	X							15	15	
2833	8	Norway Maple		3	3							8			
2834	11	Dead	R	6	6	X							11	11	
2836	8	Dead	R	6	6	X							8	8	
2878	28	White Oak	H	3	2		28								
2880	8	Dead	R	6	6	X							8	8	
2883	8	Shagbark Hickory	H	2	3		8								
2884	10	Norway Maple		3	4							10			
2885	28	White Poplar	R	3	3								28		
2886	13	Dead	R	6	6	X							13	13	
2887	8	Boxelder	R	4	5								8		Poor form



TREE LEGEND

- EXISTING TREE
- HIGH VALUE TREE
- TREE TO BE REMOVED DUE TO TREE CONDITION
- TREE TO BE REMOVED FOR ROAD PURPOSES
- TREE TO BE REMOVED FOR UTILITY CONSTRUCTION



TREE SURVEY

ZONE R-A
FOREST PRESERVE
TURNBULL WOODS
N89°52'17"W 568.00'(D&M)

ZONE R-A
FOREST PRESERVE
COUNTY CLERK'S DIVISION

PARCEL 1

PARCEL 2

DATE	DESCRIPTION	DRAWN BY	S.R.M.
06/03/19	VILLAGE REVIEW		

IG CONSULTING, INC.
 INFRACON & GEOCOM
 CONSULTING CIVIL ENGINEERS, PLANNERS & LAND SURVEYORS
 300 MARQUART DRIVE WHEELING, ILLINOIS 60090 PH. (847) 215-1133 - FAX (847) 215-1177
 e-mail: ig@igconsulting.net

TREE SURVEY
 DESIGN: K.C.L. DRAFTING: S.R.M.
 SCALE: 1"=50' DATE: 05/06/19
 FIRM NO. 184-001330

1801 GREEN BAY ROAD SUBDIVISION
1801 GREEN BAY ROAD
GLENCOE, ILLINOIS

PROJECT No.
18557

1 of 1

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Traffic Impact Study Proposed Residential Development

Glencoe, Illinois



Prepared For:

Glencoe Development, LLC



June 20, 2018

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for a proposed residential development to be located in Glencoe, Illinois. The site, which currently contains two single-family homes, is located on the east side of Green Bay Road opposite its intersection with Westley Road. As proposed, the site will be developed with 29 single-family homes. Access to the development will be provided via a proposed access road on Green Bay Road aligned opposite Westley Road.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed development will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed development. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

- Existing roadway conditions
- A description of the proposed development
- Directional distribution of the development traffic
- Vehicle trip generation for the development
- Future traffic conditions including access to the development
- Traffic analyses for the weekday morning and weekday evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

Traffic capacity analyses were conducted for the weekday morning and evening peak hours for the following conditions:

1. Existing Conditions - Analyzes the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.
2. Projected Conditions – Analyzes the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient area growth not attributable to any particular development, and the traffic estimated to be generated by the full buildout of the proposed development.



Site Location

Figure 1



Aerial View of Site

Figure 2

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a database for projecting future conditions. The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

The site, which currently contains two single-family homes, is located on the east side of Green Bay Road opposite its intersection with Westley Road. Land uses in the area are primarily residential with single-family homes located north, east, and south of the site. The Glencoe Golf Club is located on the west side of Green Bay Road.

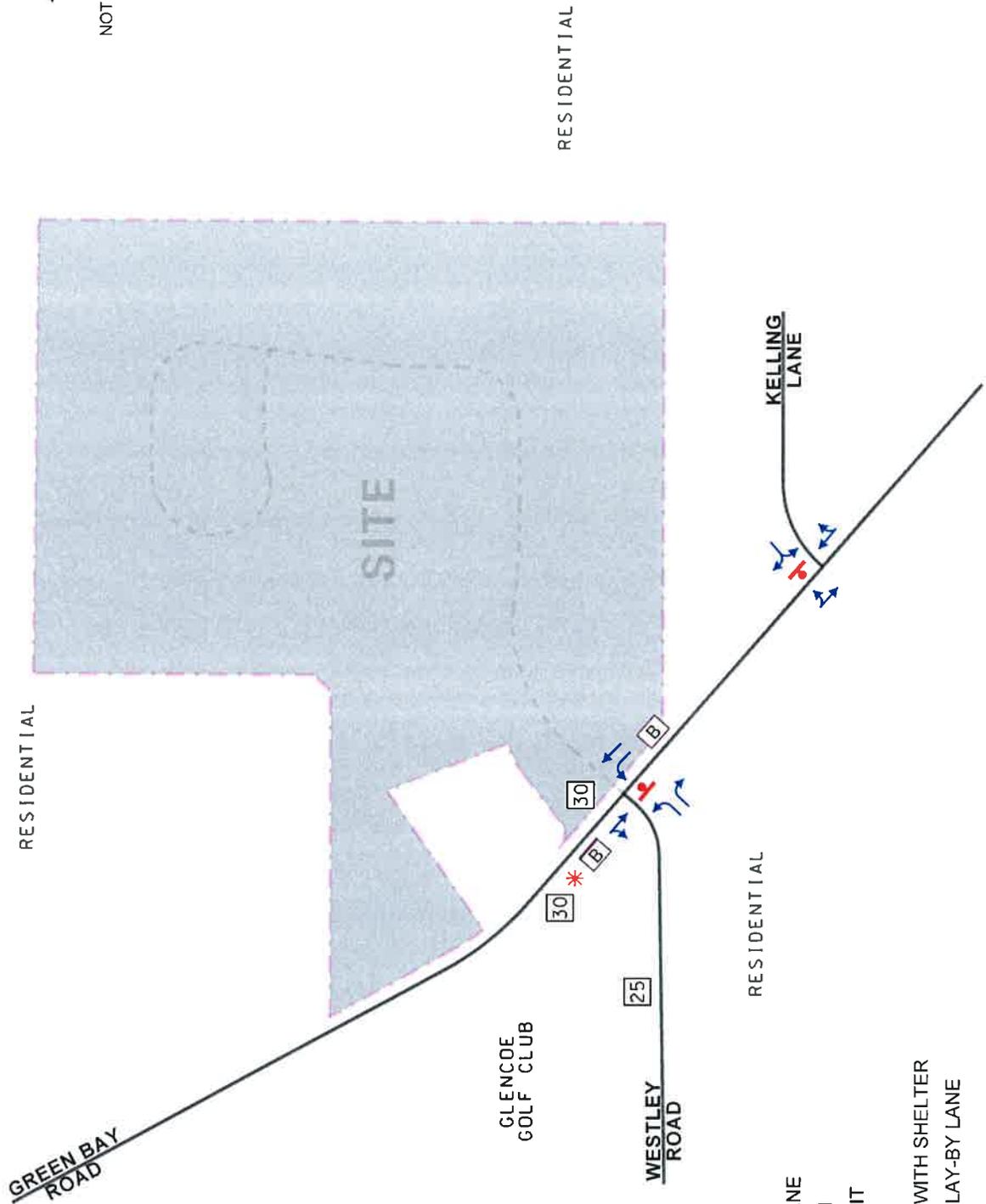
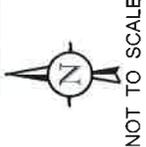
Existing Roadway System Characteristics

The characteristics of the existing roadways near the development are described below and illustrated in **Figure 3**.

Green Bay Road is generally a northwest-southeast, minor arterial roadway that has a three-lane cross-section which widens to a four-lane cross-section just north of Northwood Drive. At its unsignalized intersection with Westley Road, Green Bay Road has an exclusive left-turn lane and a through lane on the northbound approach and a combined through/right-turn lane on the southbound approach. At its unsignalized intersection with Kelling Lane, Green Bay Road has one lane in each direction. Immediately north of its intersection with Westley Road, Green Bay provides a short lay-by lane that serves Pace Bus Route 213. This lay-by lane allows buses to leave the flow of traffic when making stops at this location. Green Bay Road is under the jurisdiction of the Village of Glencoe, is not designated as a Strategic Regional Arterial (SRA) route, and has a posted speed limit of 30 mph south of Westley Road and 35 mph north of Westley Road. According to the Illinois Department of Transportation (IDOT), Green Bay Road had a 2014 Annual Average Daily Traffic (AADT) volume of 8,800 vehicles.

Westley Road is an east-west, local roadway that has one lane in each direction. At its unsignalized T-intersection with Green Bay Road, Westley Road has an exclusive left-turn lane and an exclusive right-turn lane under stop sign control. Westley Road is under the jurisdiction of the Village of Glencoe and has a posted speed limit of 25 mph.

Kelling Lane is an east-west local roadway that has one lane in each direction. At its unsignalized T-intersection with Green Bay Road, Kelling Lane has a combined left-turn/right-turn lane under stop sign control. Kelling Lane is under the jurisdiction of the Village of Glencoe.



- LEGEND**
- TRAVEL LANE
 - STOP SIGN
 - SPEED LIMIT
 - BUS STOP
 - BUS STOP WITH SHELTER
 - BUS ONLY LAY-BY LANE

Existing Roadway Characteristics

1801 Green Bay Road
 Glencoe, Illinois

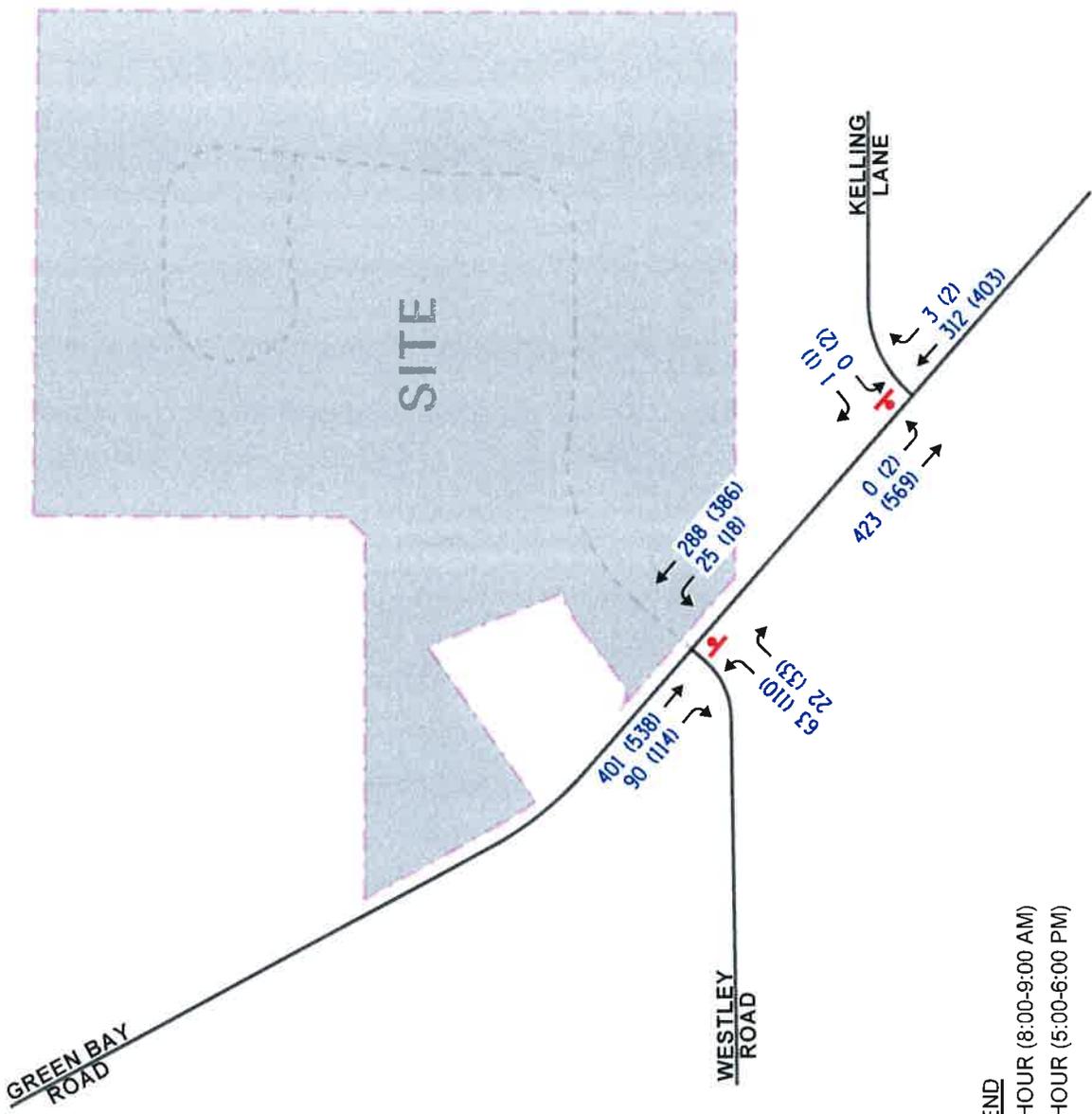
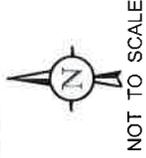
Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period traffic counts using Miovision Scout Collection Units on Tuesday, April 9, 2019 during the weekday morning (7:00 A.M. to 9:00 A.M.) and weekday evening (4:00 P.M. to 6:00 P.M.) peak periods at the intersections of Green Bay Road with Westley Road and Kelling Lane. The results of the traffic counts showed that the weekday morning peak hour of traffic occurs from 8:00 A.M. to 9:00 A.M. and the evening peak hour of traffic occurs from 5:00 P.M. to 6:00 P.M. **Figure 4** illustrates the existing peak hour traffic volumes. Copies of the traffic count summary sheets are included in the Appendix.

Crash Data

KLOA, Inc. obtained crash data¹ for the past five years (2013 to 2017) for the intersections of Green Bay Road with Westley Road and Green Bay Road with Kelling Lane. A review of the crash data revealed there were a total of three crashes at the intersection of Green Bay Road with Westley Road and no crashes at the intersection of Green Bay Road with Kelling Lane. Further, no fatalities were reported at either location during the reviewed period.

¹ IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in previous years since data prior to 2015 was physically located by bureau personnel.



LEGEND

- 00 - AM PEAK HOUR (8:00-9:00 AM)
- (00) - PM PEAK HOUR (5:00-6:00 PM)

Existing Traffic Volumes

1801 Green Bay Road
 Glencoe, Illinois

3. Traffic Characteristics of the Proposed Development

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed development, including the directional distribution and volumes of traffic that it will generate.

Proposed Site and Development Plan

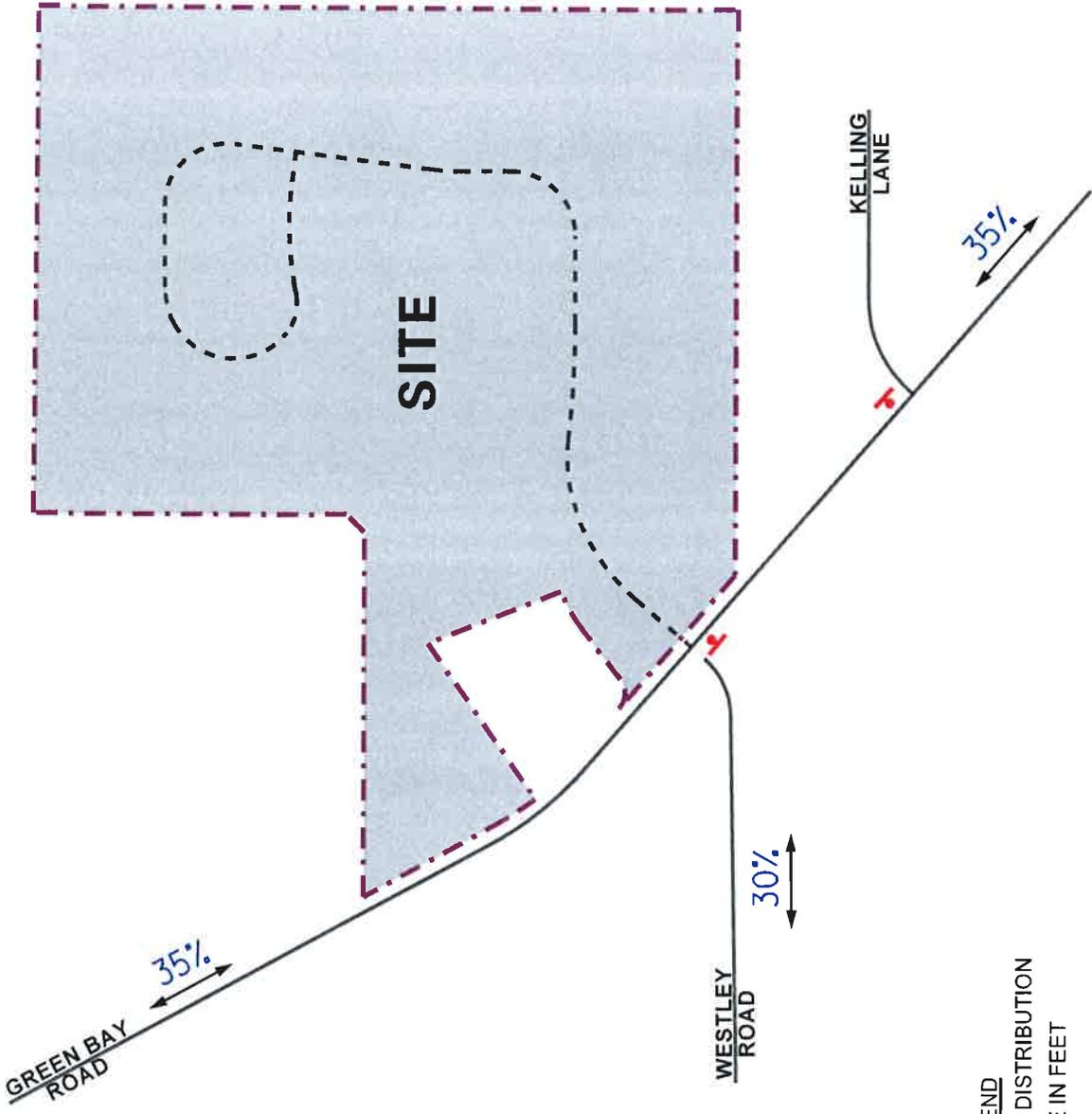
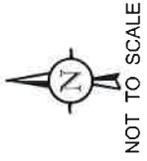
As proposed, the plans call for developing the site with 29 single-family homes. Access to the development will be provided via a proposed access road on the east side of Green Bay Road that will be aligned opposite Westley Road and will form the fourth (east) leg of the intersection. The access road will provide one inbound lane and one outbound lane with outbound movements under stop sign control. In addition, the following striping modifications should be implemented at the intersection to ensure efficient and orderly access and to minimize the impact on the roadway system:

- The median along the southbound approach of Green Bay Road should be restriped to provide an exclusive southbound-to-eastbound left-turn lane.
- The Westley Road approach should be restriped to (1) provide a shared through/left-turn lane and (2) relocate the existing left-turn lane several feet northwest so that the shared through/left-turn lane better aligns with the proposed access road and to reduce the angle at which the lane intersects Green Bay Road.

Copies of the site plan and intersection striping modifications are located in the Appendix.

Directional Distribution

The directions from which residents will approach and depart the site were estimated based on existing travel patterns, as determined from the traffic counts. **Figure 5** illustrates the directional distribution of the development-generated traffic.



LEGEND
 00% - PERCENT DISTRIBUTION
 00' - DISTANCE IN FEET

Estimated Directional Distribution

1801 Green Bay Road
 Glencoe, Illinois

Site-Generated Traffic Volumes

The number of peak hour vehicle trips estimated to be generated by the proposed development of 29 single-family homes was based on vehicle trip generation rates contained in *Trip Generation Manual*, 10th Edition, published by the Institute of Transportation Engineers (ITE). **Table 1** shows the traffic volumes estimated to be generated by the proposed development. Copies of the trip generation sheets are included in the Appendix.

Table 1
PROJECTED SITE-GENERATED TRAFFIC VOLUMES

ITE Land-Use Code	Type/Size	Weekday Morning Peak Hour			Weekday Evening Peak Hour			Daily Two- Way Trips
		In	Out	Total	In	Out	Total	
210	Single-Family Detached Housing (29 Homes)	6	19	25	20	11	31	333

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed subject development.

Development Traffic Assignment

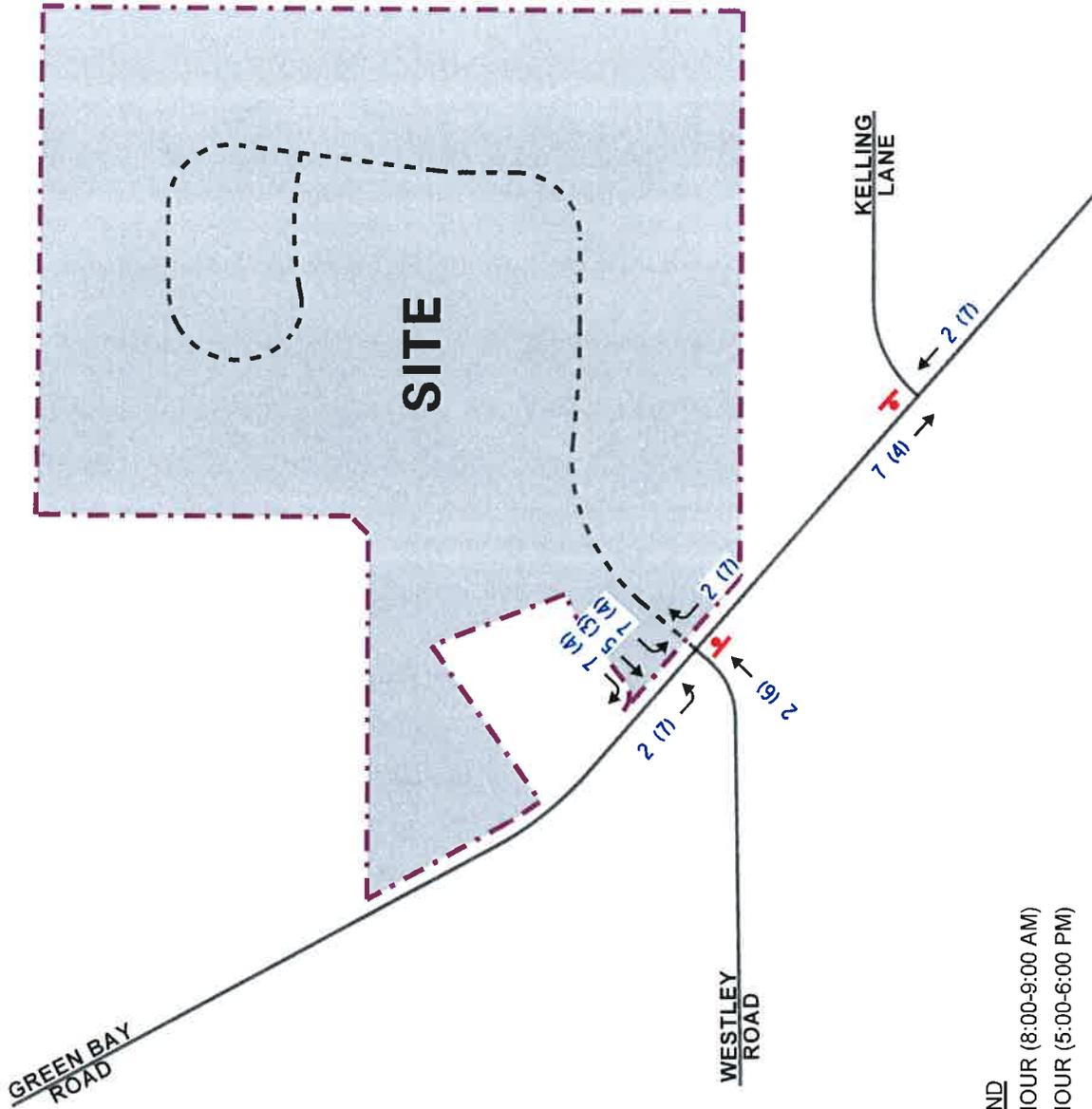
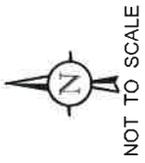
The estimated weekday morning and evening peak hour traffic volumes that will be generated by the proposed development were assigned to the roadway system in accordance with the previously described directional distribution (Figure 5). The traffic assignment for the development is illustrated in **Figure 6**.

Background Traffic Conditions

The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on ADT projections provided by the Chicago Metropolitan Agency for Planning (CMAP) in a letter dated April 8, 2019, the existing traffic volumes are projected to increase by a compound annual growth rate of 0.8 percent per year. As such, traffic volumes were increased by approximately 5.0 percent total to represent Year 2025 conditions (one-year buildout plus five years). A copy of the CMAP projections letter is included in the Appendix.

Total Projected Traffic Volumes

The development-generated traffic was added to the existing traffic volumes accounting for background growth to determine the Year 2025 total projected traffic volumes as shown in **Figure 7**.



LEGEND

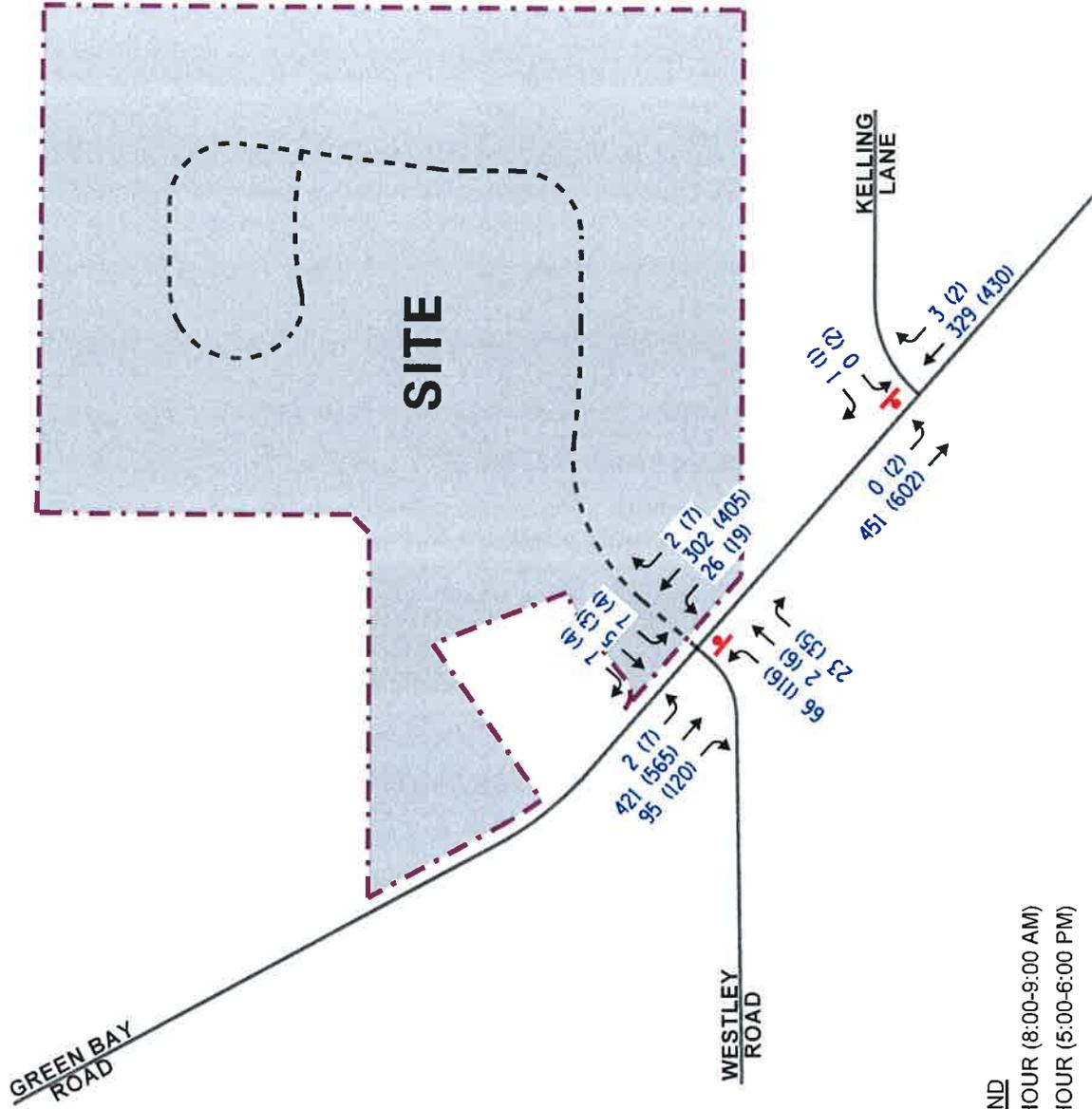
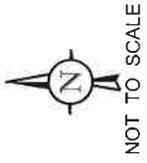
- 00 - AM PEAK HOUR (8:00-9:00 AM)
- (00) - PM PEAK HOUR (5:00-6:00 PM)

1801 Green Bay Road
Glencoe, Illinois

Estimated Site-Generated Traffic Volumes



Job No: 19-077 Figure: 6



LEGEND

- 00 - AM PEAK HOUR (8:00-9:00 AM)
- (00) - PM PEAK HOUR (5:00-6:00 PM)

1801 Green Bay Road
Glencoe, Illinois

Year 2025 Total Projected Traffic Volumes



Job No: 19-077 Figure: 7

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drives are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning and evening peak hours for the existing year (Year 2019) as well as future projected (Year 2025) traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM)*, 6th Edition and analyzed using Synchro/SimTraffic 10 software.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Summaries of the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing and Year 2025 total projected conditions are presented in **Tables 2** and **3**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 2
CAPACITY ANALYSIS RESULTS - EXISTING CONDITIONS – UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Green Bay Road with Westley Road				
• Eastbound Left Turn	C	19.9	D	34.6
• Eastbound Right Turn	B	11.5	B	13.0
• Northbound Left Turn	A	8.7	A	9.0
Green Bay Road with Kelling Lane				
• Westbound Approach	B	10.1	C	16.8
• Southbound Left Turn	--	--	A	8.2
LOS = Level of Service Delay is measured in seconds.				

Table 3
CAPACITY ANALYSIS RESULTS - TOTAL PROJECTED CONDITIONS– UNSIGNALIZED

Intersection	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay
Green Bay Road with Westley Road and Proposed Access Road				
• Eastbound Left Turn/Through	D	27.2	F	77.8
• Eastbound Right Turn	B	11.8	B	13.4
• Westbound Approach	C	17.2	C	22.4
• Northbound Left Turn	A	8.8	A	9.2
• Southbound Left Turn	A	7.9	A	8.2
Green Bay Road with Kelling Lane				
• Westbound Approach	B	10.2	C	17.8
• Southbound Left Turn	--	--	A	8.3
LOS = Level of Service Delay is measured in seconds.				

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the development-generated traffic.

Green Bay Road with Westley Road

The results of the capacity analyses indicate that the Westley Road left-turn movement currently operates at Level of Service (LOS) C during the weekday morning peak hour and at LOS D during the weekday evening peak hour and the Westley Road right-turn movement currently operates at LOS B during both peak hours. In addition, the northbound left-turn movement operates at LOS A.

Access to the development will be provided via a proposed access road on the east side of Green Bay Road that will be aligned opposite Westley Road and form the fourth (east) leg of the intersection. The access road will provide one inbound lane and one outbound lane with outbound movements under stop sign control. In addition, the following striping modifications should be implemented at the intersection to ensure efficient and orderly access and to minimize the impact on the roadway system:

- The median along the southbound approach of Green Bay Road should be restriped to provide an exclusive southbound-to-eastbound left-turn lane.
- The Westley Road approach should be restriped to (1) provide a shared through/left-turn lane and (2) relocate the existing left-turn lane several feet northwest so that the shared through/left-turn lane better aligns with the proposed access road and to reduce the angle at which the lane intersects Green Bay Road.

Under Year 2025 total projected conditions, the Westley Road shared through/left-turn movement is projected to operate at LOS D during the weekday morning peak hour and LOS F during the evening peak hour. However, this is typical and expected at unsignalized intersections where a minor road intersects an arterial such as Green Bay Road. This traffic will be able to exit Westley Road, but may experience some additional delay. Further, the Westley Road right-turn movement is projected to continue to operate at LOS B and the northbound left-turn movement is projected to continue to operate at LOS A. Outbound movements from the access road are projected to operate at LOS C during the weekday morning and weekday evening peak hours. Further, southbound left-turn movements into the development are projected to operate at LOS A. As such, this intersection has sufficient reserve capacity to accommodate the development-generated traffic and the proposed access road will adequately accommodate site-generated traffic.

Green Bay Road with Kelling Lane

The results of the capacity analyses indicate that the westbound approach currently operates at LOS B during the weekday morning peak hour and at LOS C during the weekday evening peak hour. Under future conditions, the westbound approach is projected to continue to operate at the same LOS during both peak hours with increases in delay of one second or less. Further, the southbound left-turn movement currently operates at LOS A and is projected to continue to do so under future conditions. It should be noted that site-generated traffic will increase traffic through this intersection by less than two percent. As such, this intersection has sufficient reserve capacity to accommodate the development-generated traffic and no roadway improvements are required at this intersection.

Sight Distance Analysis

Green Bay Road has a curve in the road just north of the proposed access road to the development. KLOA, Inc. conducted horizontal sight distance analyses along Green Bay Road north and south of the access road to ensure that adequate sight distance is available for vehicles turning out of the access road. Copies of the sight distance analyses are located in the Appendix. The sight distance analyses were conducted based on the location and design of the access road and per the guidelines provided in the IDOT *Bureau of Design & Environment Manual* (BDE Manual) and in *A Policy on Geometric Design of Highways and Streets* (Green Book) published by the American Association of State Highway and Transportation Officials (AASHTO). The Green Book indicates that, at a minimum, the location of a side road or access road must meet the minimum stopping sight distance requirements. It should be noted that the speed limit for southbound Green Bay Road decreases to 30 mph just north of the access road. According to the BDE Manual and the Green Book, the minimum stopping sight distance for a road with a 30 mph speed limit (35 mph design speed) is 250 feet and with a 35 mph speed limit (40 mph design speed) is 305 feet for grades less than three percent.

Per the requirements of the BDE Manual and the Green Book, the driver's eye is to be located 14.4 feet from the edge of the travel way, which represents the typical position of the driver's eye. The preliminary sight distance analysis shows that the access road has a minimum of 325 feet of horizontal sight distance looking north along Green Bay Road, which exceeds the minimum sight distance for a 30 mph posted speed limit (250 feet) and a 35 mph posted speed limit (305 feet).

A second horizontal sight distance analysis was conducted assuming the driver pulls up approximately four feet, which puts the driver's eye approximately 10 feet from the edge of pavement. Given the various obstructions at intersections, it is common for drivers to pull up closer to the travel way to obtain a better view of the major road. Under this scenario, the access road has a minimum of 360 feet of horizontal sight distance looking north along Green Bay Road, which exceeds the minimum stopping sight distance.

While the proposed location and design of the access road exceeds the minimum stopping sight distance requirements for a road with a 30 mph and 35 mph speed limit., the Village of Glencoe should consider the following measures to further enhance the operation of Green Bay Road and its intersection with the access road:

- Installing an “Intersection” warning sign on southbound Green Bay Road north of the proposed access road to provide motorists advance warning of Westley Road and the access road.
- Relocating the speed limit change from 35 to 30 mph on southbound Green Bay Road from its current location just north of Westley Road/proposed access road to further north along Green Bay Road so that the speed of motorists through the subject intersection is reduced.

6. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- Access to the site will be provided via a proposed access road on the east side of Green Bay Road that will be aligned opposite Westley Road and will form the fourth (east) leg of the intersection. The access road will provide one inbound lane and one outbound lane with outbound movements under stop sign control. In addition, the following striping modifications should be implemented at the intersection to ensure efficient and orderly access and to minimize the impact on the roadway system:
 - The median along the southbound approach of Green Bay Road should be restriped to provide an exclusive southbound-to-eastbound left-turn lane.
 - The Westley Road approach should be restriped to (1) provide a shared through/left-turn lane and (2) relocate the existing left-turn lane several feet northwest so that the shared through/left-turn lane better aligns with the proposed access road and to reduce the angle at which the lane intersects Green Bay Road.
- The results of the sight distance analyses show that the location of the access road meets the minimum stopping sight distance for a 30 mph and 35 mph posted speed limit. Nevertheless, consideration should be given to the following measures:
 - Installing an “Intersection” warning sign on southbound Green Bay Road north of the proposed access road to provide motorists advance warning of Westley Road and the access road.
 - Relocating the speed limit change from 35 to 30 mph on southbound Green Bay Road from its current location just north of Westley Road/proposed access road to further north along Green Bay Road so that the speed of motorists through the subject intersection is reduced.
- The roadway system has sufficient reserve capacity to accommodate the limited additional traffic to be generated by the development.

Appendix

Traffic Count Summary Sheets
Preliminary Site Plan
ITE Trip Generation Sheets
CMAP 2050 Projections Letter
Level of Service Criteria
Capacity Analysis Summary Sheets
Sight Distance Analysis

Traffic Count Summary Sheets



Kenig Lindgren O'Hara Aboona, Inc.
 9575 W. Higgins Rd., Suite 400
 Rosemont, Illinois, United States 60018
 (847)518-9990

Count Name: Green Bay Road and Kelling Lane
 Site Code:
 Start Date: 04/09/2019
 Page No: 1

Turning Movement Data

Start Time	Kelling Lane Westbound				Green Bay Road Northbound				Green Bay Road Southbound							
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
7:00 AM	0	0	0	0	0	0	34	0	0	34	0	0	63	0	63	97
7:15 AM	0	0	1	0	1	0	45	0	0	45	0	0	62	0	62	108
7:30 AM	0	0	0	0	0	0	68	0	0	68	0	0	80	0	80	148
7:45 AM	0	0	0	0	0	0	52	0	0	52	0	0	123	0	123	175
Hourly Total	0	0	1	0	1	0	199	0	0	199	0	0	328	0	328	528
8:00 AM	0	0	1	0	1	0	69	1	0	70	0	0	100	0	100	171
8:15 AM	0	0	0	0	0	0	85	1	0	86	0	0	100	0	100	186
8:30 AM	0	0	0	0	0	0	89	0	0	89	0	0	99	0	99	188
8:45 AM	0	0	0	0	0	0	72	1	0	73	0	0	126	0	126	199
Hourly Total	0	0	1	0	1	0	315	3	0	318	0	0	425	0	425	744
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	1	0	0	1	0	97	1	0	98	0	0	100	0	100	199
4:15 PM	0	0	1	0	1	0	97	0	0	97	0	0	105	0	105	203
4:30 PM	0	2	0	0	2	0	75	0	0	75	0	2	121	0	123	200
4:45 PM	0	0	0	0	0	0	99	1	0	100	0	0	128	0	128	228
Hourly Total	0	3	1	0	4	0	368	2	0	370	0	2	454	0	456	830
5:00 PM	0	1	0	0	1	0	99	2	0	101	0	0	134	0	134	236
5:15 PM	0	1	1	1	3	0	109	0	0	109	0	0	155	0	155	267
5:30 PM	0	0	0	0	0	0	98	0	0	98	0	1	142	0	143	241
5:45 PM	0	0	0	1	1	0	102	0	0	102	0	1	137	0	138	240
Hourly Total	0	2	1	2	5	0	408	2	0	410	0	2	569	0	571	984
Grand Total	0	5	4	2	9	0	1290	7	0	1297	0	4	1776	0	1780	3086
Approach %	0.0	55.6	44.4	-	-	0.0	99.5	0.5	-	-	0.0	0.2	99.8	-	-	-
Total %	0.0	0.2	0.1	-	0.3	0.0	41.8	0.2	-	42.0	0.0	0.1	57.6	-	57.7	-
% Lights	0	5	3	-	8	0	1241	7	-	1248	0	4	1686	-	1690	2946
% Buses	0	100.0	75.0	-	88.9	-	96.2	100.0	-	96.2	-	100.0	94.9	-	94.9	95.5
% Single-Unit Trucks	0	0.0	0.0	-	0.0	-	0.9	0.0	-	0.8	-	0.0	0.7	-	0.7	0.8
% Articulated Trucks	0	0.0	0.0	-	0.0	-	1.7	0.0	-	1.7	0	0	26	-	26	43
% Bicycles on Road	0	0.0	0.0	-	0.0	-	1.3	0.0	-	1.3	0	0	1.5	-	1.5	1.4
% Pedestrians	0	0.0	0.0	-	0.0	-	4	0	-	4	0	0	23	-	23	27
% Bicycles on Road	0	0.0	0.0	-	0.0	-	0.3	0.0	-	0.3	0	0.0	1.3	-	1.3	0.9
% Pedestrians	0	0.0	25.0	-	11.1	-	1.7	0	-	1.7	0	0	28	-	28	46
% Bicycles on Road	0	0.0	0.0	-	0.0	-	1.3	0.0	-	1.3	0	0.0	1.6	-	1.6	1.5
% Pedestrians	0	0.0	0.0	-	0.0	-	0	0	-	0	0	0	0	-	0	0
% Pedestrians	0	0.0	0.0	-	100.0	-	0	0	-	0	0	0	0	-	0	0



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	U-Turn	Left	Right	Peds.	App. Total	U-Turn	Left	Thru	Peds.	App. Total	U-Turn	Right		Peds.
7:00 AM	0	15	4	0	19	0	3	30	0	33	0	17	0	78
7:15 AM	0	12	3	0	15	0	3	43	0	46	0	58	0	78
7:30 AM	0	6	2	0	8	0	6	62	0	68	0	78	0	100
7:45 AM	0	16	4	0	20	0	3	50	0	53	0	120	0	141
Hourly Total	0	49	13	0	62	0	15	185	0	200	0	315	0	395
8:00 AM	0	13	7	0	20	0	5	64	0	69	0	90	0	116
8:15 AM	0	19	10	0	29	0	11	75	0	86	0	90	0	102
8:30 AM	0	16	2	2	18	0	5	83	2	88	0	97	21	118
8:45 AM	0	17	3	2	20	0	4	68	0	72	0	122	31	153
Hourly Total	0	65	22	4	87	0	25	290	2	315	0	399	90	489
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	0	35	8	0	43	0	3	93	0	96	0	91	23	114
4:15 PM	0	29	5	0	34	0	7	91	0	98	0	101	30	131
4:30 PM	0	29	9	1	38	0	3	72	0	75	0	113	30	143
4:45 PM	0	31	3	1	34	0	6	89	0	95	0	125	21	146
Hourly Total	0	124	25	2	149	0	19	345	0	364	0	430	104	534
5:00 PM	0	29	8	0	37	0	4	96	0	100	0	127	30	157
5:15 PM	0	25	14	0	39	0	2	109	0	111	0	144	27	171
5:30 PM	0	26	9	0	35	0	7	91	0	98	0	130	23	153
5:45 PM	0	30	4	0	34	0	5	98	0	103	0	134	34	168
Hourly Total	0	110	35	0	145	0	18	394	0	412	0	535	114	649
Grand Total	0	348	95	6	443	0	77	1214	2	1281	0	1679	388	2067
Approach %	0.0	78.6	21.4	-	-	0.0	6.0	94.0	-	-	0.0	81.2	18.8	-
Total %	0.0	9.2	2.5	-	11.7	0.0	2.0	31.9	-	34.0	0.0	44.2	10.2	54.4
Lights	0	335	90	-	425	0	75	1162	-	1237	0	1597	374	1971
% Lights	-	96.3	94.7	-	95.9	-	97.4	95.7	-	95.8	-	95.1	96.4	95.4
Buses	0	1	1	-	2	0	1	9	-	10	0	12	6	18
% Buses	-	0.3	1.1	-	0.5	-	1.3	0.7	-	0.8	-	0.7	1.5	0.9
Single-Unit Trucks	0	3	1	-	4	0	0	20	-	20	0	22	6	28
% Single-Unit Trucks	-	0.9	1.1	-	0.9	-	0.0	1.6	-	1.5	-	1.3	1.5	1.4
Articulated Trucks	0	5	0	-	5	0	0	6	-	6	0	24	1	25
% Articulated Trucks	-	1.4	0.0	-	1.1	-	0.0	0.5	-	0.5	-	1.4	0.3	1.2
Bicycles on Road	0	4	3	-	7	0	1	17	-	18	0	24	1	25
% Bicycles on Road	-	1.1	3.2	-	1.6	-	1.3	1.4	-	1.4	-	1.4	0.3	1.3
Pedestrians	-	-	-	6	100.0	-	-	-	2	-	-	-	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-

Preliminary Site Plan

ITE Trip Generation Sheets

Land Use: 210

Single-Family Detached Housing

Description

Single-family detached housing includes all single-family detached homes on individual lots. A typical site surveyed is a suburban subdivision.

Additional Data

The number of vehicles and residents had a high correlation with average weekday vehicle trip ends. The use of these variables was limited, however, because the number of vehicles and residents was often difficult to obtain or predict. The number of dwelling units was generally used as the independent variable of choice because it was usually readily available, easy to project, and had a high correlation with average weekday vehicle trip ends.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Single-family detached units had the highest trip generation rate per dwelling unit of all residential uses because they were the largest units in size and had more residents and more vehicles per unit than other residential land uses; they were generally located farther away from shopping centers, employment areas, and other trip attractors than other residential land uses; and they generally had fewer alternative modes of transportation available because they were typically not as concentrated as other residential land uses.

Time-of-day distribution data for this land use are presented in Appendix A. For the six general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:00 and 5:00 p.m., respectively. For the two sites with Saturday data, the overall highest vehicle volume was counted between 3:00 and 4:00 p.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 10:15 and 11:15 a.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, Connecticut, Delaware, Illinois, Indiana, Maryland, Minnesota, Montana, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Vermont, and Virginia.

Source Numbers

100, 105, 114, 126, 157, 167, 177, 197, 207, 211, 217, 267, 275, 293, 300, 319, 320, 356, 357, 367, 384, 387, 407, 435, 522, 550, 552, 579, 598, 601, 603, 614, 637, 711, 716, 720, 728, 735, 868, 903, 925, 936

Single-Family Detached Housing (210)

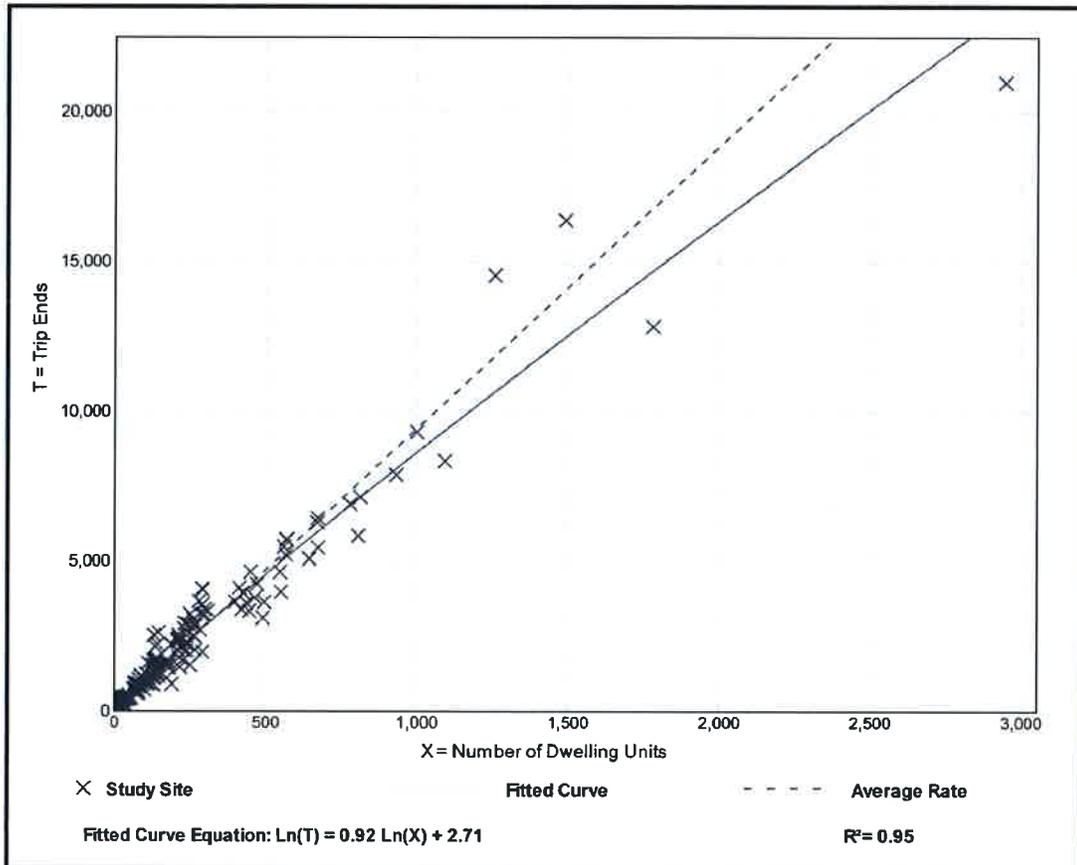
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
 Number of Studies: 159
 Avg. Num. of Dwelling Units: 264
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.44	4.81 - 19.39	2.10

Data Plot and Equation



Single-Family Detached Housing (210)

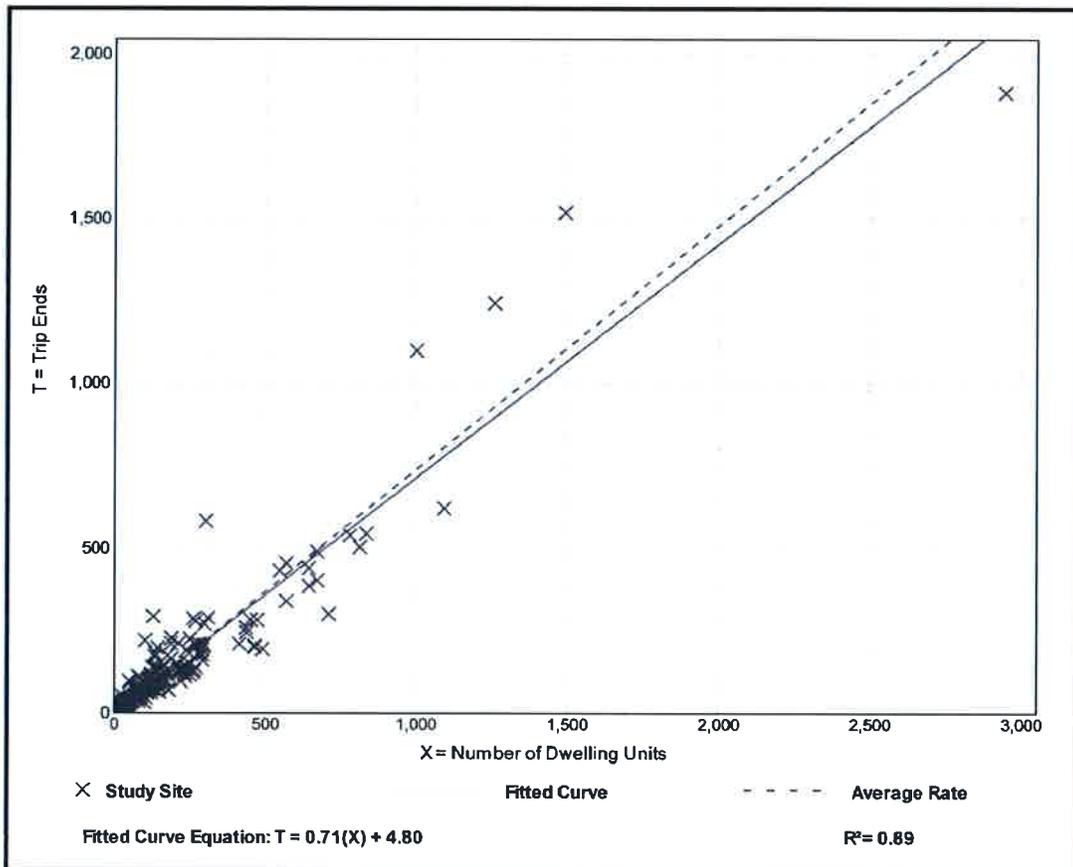
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban
 Number of Studies: 173
 Avg. Num. of Dwelling Units: 219
 Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.74	0.33 - 2.27	0.27

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 190

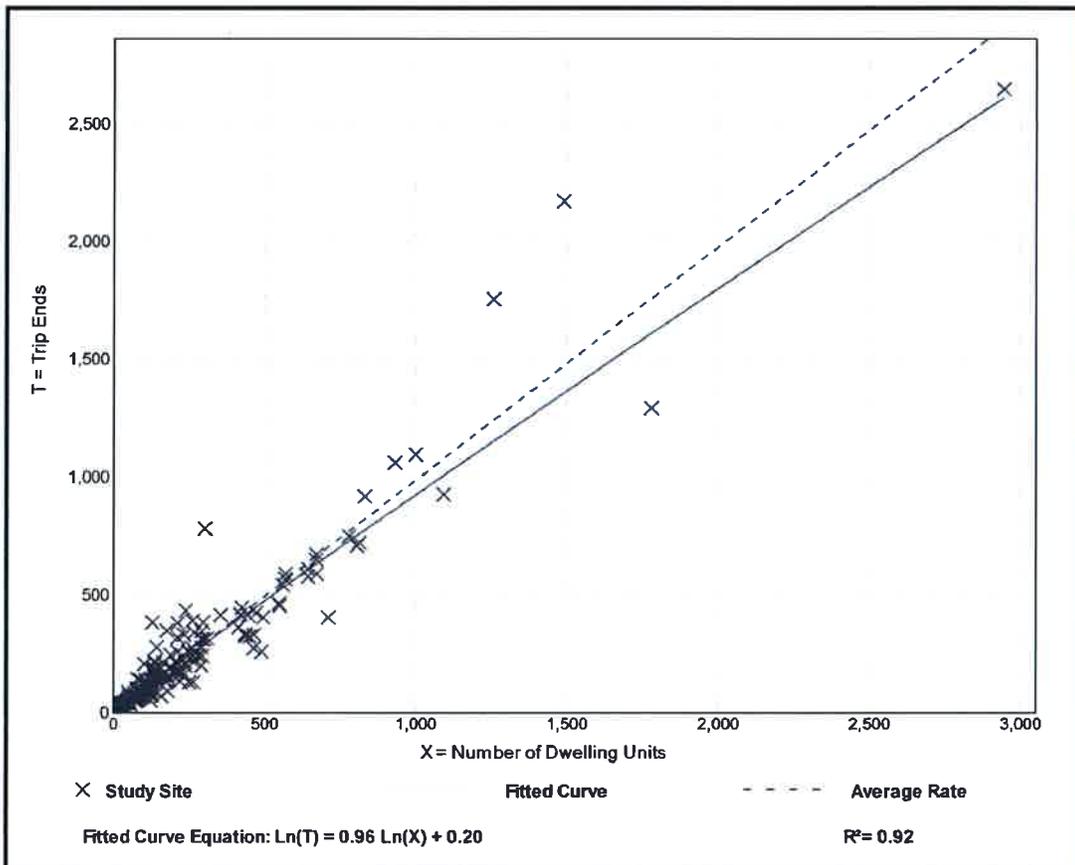
Avg. Num. of Dwelling Units: 242

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.44 - 2.98	0.31

Data Plot and Equation



CMAP 2050 Projections Letter



Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

April 8, 2019

Andrew Bowen
Consultant
Kenig, Lindgren, O'Hara and Aboona, Inc.
9575 West Higgins Road
Suite 400
Rosemont, IL 60018

Subject: Green Bay Road @ Westly Road
IDOT

Dear Mr. Bowen:

In response to a request made on your behalf and dated April 5, 2019, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current Volume	Year 2050 ADT
Green Bay Rd, @ Westly Rd	8,800	11,900

Traffic projections are developed using existing ADT data provided in the request letter and the results from the March 2019 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Quigley (IDOT)
S:\AdminGroups\ResearchAnalysis\2019_ForecastsTraffic\Glencoe\ck-56-19\ck-56-19.docx

Level of Service Criteria

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0
Unsignalized Intersections		
Level of Service	Average Total Delay (SEC/VEH)	
A	0 - 10	
B	> 10 - 15	
C	> 15 - 25	
D	> 25 - 35	
E	> 35 - 50	
F	> 50	

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Sheets
Existing Weekday Morning Peak Hour Conditions

HCM 6th TWSC
1: Green Bay Road & Westly Road

04/19/2019

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations	↖	↖	↖		↖	↖
Traffic Vol, veh/h	63	22	401	90	25	288
Future Vol, veh/h	63	22	401	90	25	288
Conflicting Peds, #/hr	0	2	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	105	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	5	0	6	5	4	4
Mvmt Flow	69	24	441	99	27	316

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	865	497	0	0	544
Stage 1	495	-	-	-	-
Stage 2	370	-	-	-	-
Critical Hdwy	6.45	6.2	-	-	4.14
Critical Hdwy Stg 1	5.45	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-
Follow-up Hdwy	3.545	3.3	-	-	2.236
Pot Cap-1 Maneuver	320	577	-	-	1015
Stage 1	606	-	-	-	-
Stage 2	692	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	310	574	-	-	1011
Mov Cap-2 Maneuver	310	-	-	-	-
Stage 1	587	-	-	-	-
Stage 2	692	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	17.7	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	EBLn2	SET	SER
Capacity (veh/h)	1011	-	310	574	-	-
HCM Lane V/C Ratio	0.027	-	0.223	0.042	-	-
HCM Control Delay (s)	8.7	-	19.9	11.5	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	0.1	-	-

HCM 6th TWSC
2: Green Bay Road & Kelling Lane

04/19/2019

Intersection

Int Delay, s/veh	0					
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations	Y			↑	↑	
Traffic Vol, veh/h	0	1	0	423	312	3
Future Vol, veh/h	0	1	0	423	312	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	4	0
Mvmt Flow	0	1	0	450	332	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	784	334	335	0	-	0
Stage 1	334	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	365	712	1236	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	365	712	1236	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	647	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	NWRWBLn1	SEL	SET
Capacity (veh/h)	-	-	712	1236
HCM Lane V/C Ratio	-	-	0.001	-
HCM Control Delay (s)	-	-	10.1	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Capacity Analysis Summary Sheets
Existing Weekday Evening Peak Hour Conditions

HCM 6th TWSC
1: Green Bay Road & Westly Road

04/19/2019

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Vol, veh/h	110	33	538	114	18	386
Future Vol, veh/h	110	33	538	114	18	386
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	105	0	-	-	120	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	1	0	0	2
Mvmt Flow	117	35	572	121	19	411

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1082	633	0	0	693	0
Stage 1	633	-	-	-	-	-
Stage 2	449	-	-	-	-	-
Critical Hdwy	6.43	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	240	483	-	-	912	-
Stage 1	527	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	235	483	-	-	912	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	516	-	-	-	-	-
Stage 2	641	-	-	-	-	-

Approach	EB	SE	NW
HCM Control Delay, s	29.6	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NWL	NWT	EBLn1	EBLn2	SET	SER
Capacity (veh/h)	912	-	235	483	-	-
HCM Lane V/C Ratio	0.021	-	0.498	0.073	-	-
HCM Control Delay (s)	9	-	34.6	13	-	-
HCM Lane LOS	A	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	2.5	0.2	-	-

HCM 6th TWSC
2: Green Bay Road & Kelling Lane

04/19/2019

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations	W			E	E	
Traffic Vol, veh/h	2	1	2	569	403	2
Future Vol, veh/h	2	1	2	569	403	2
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	1	2	618	438	2

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1063	441	442	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	249	621	1129	-	-	-
Stage 1	653	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	247	620	1127	-	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	538	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s	16.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NWT	NWR	WBLn1	SEL	SET
Capacity (veh/h)	-	-	309	1127	-
HCM Lane V/C Ratio	-	-	0.011	0.002	-
HCM Control Delay (s)	-	-	16.8	8.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Capacity Analysis Summary Sheets
Projected Weekday Morning Peak Hour Conditions

HCM 6th TWSC
1: Green Bay Road & Westly Road

04/19/2019

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕	↕		↕			↕		↕	↕	
Traffic Vol, veh/h	66	2	23	7	5	7	2	421	95	26	302	2
Future Vol, veh/h	66	2	23	7	5	7	2	421	95	26	302	2
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	4	4	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	5	0	0	0	0	0	0	6	5	4	4	0
Mvmt Flow	73	2	25	8	5	8	2	463	104	29	332	2

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	921	915	521	926	966	333	334	0	0	571	0	0
Stage 1	523	523	-	391	391	-	-	-	-	-	-	-
Stage 2	398	392	-	535	575	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.545	4	3.3	3.5	4	3.3	2.2	-	-	2.236	-	-
Pot Cap-1 Maneuver	248	275	559	251	257	713	1237	-	-	992	-	-
Stage 1	532	534	-	637	611	-	-	-	-	-	-	-
Stage 2	622	610	-	533	506	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	235	265	556	232	248	713	1237	-	-	988	-	-
Mov Cap-2 Maneuver	235	265	-	232	248	-	-	-	-	-	-	-
Stage 1	529	531	-	636	593	-	-	-	-	-	-	-
Stage 2	592	592	-	505	503	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	23.3	17.2	0	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	EBLn2	WBLn1	SEL	SET	SER
Capacity (veh/h)	988	-	-	236	556	316	1237	-	-
HCM Lane V/C Ratio	0.029	-	-	0.317	0.045	0.066	0.002	-	-
HCM Control Delay (s)	8.8	-	-	27.2	11.8	17.2	7.9	-	-
HCM Lane LOS	A	-	-	D	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.3	0.1	0.2	0	-	-

HCM 6th TWSC
2: Green Bay Road & Kelling Lane

04/19/2019

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	SEL	SET	NWT	NWR
Lane Configurations	W			W	W	
Traffic Vol, veh/h	0	1	0	451	329	3
Future Vol, veh/h	0	1	0	451	329	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	4	4	0
Mvmt Flow	0	1	0	480	350	3

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	832	352	353	0	-	0
Stage 1	352	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	342	696	1217	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	627	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	696	1217	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	627	-	-	-	-	-

Approach	WB	SE	NW
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NWT	NWRWBLn1	SEL	SET
Capacity (veh/h)	-	-	696	1217
HCM Lane V/C Ratio	-	-	0.002	-
HCM Control Delay (s)	-	-	10.2	0
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

Capacity Analysis Summary Sheets
Projected Weekday Evening Peak Hour Conditions

HCM 6th TWSC
1: Green Bay Road & Westly Road

04/19/2019

Intersection												
Int Delay, s/veh	8.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕	↕		↕			↕		↕	↕	
Traffic Vol, veh/h	116	6	35	4	3	4	7	565	120	19	405	7
Future Vol, veh/h	116	6	35	4	3	4	7	565	120	19	405	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	105	-	0	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	3	0	0	0	0	2	0	1	0	0	2	0
Mvmt Flow	123	6	37	4	3	4	7	601	128	20	431	7

Major/Minor	Minor1		Minor2		Major1		Major2					
Conflicting Flow All	1157	1157	665	1176	1218	435	438	0	0	729	0	0
Stage 1	679	679	-	475	475	-	-	-	-	-	-	-
Stage 2	478	478	-	701	743	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.1	6.5	6.22	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4	3.3	3.5	4	3.318	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	173	198	464	170	182	621	1133	-	-	884	-	-
Stage 1	440	454	-	574	561	-	-	-	-	-	-	-
Stage 2	566	559	-	433	425	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	165	191	464	149	176	621	1133	-	-	884	-	-
Mov Cap-2 Maneuver	165	191	-	149	176	-	-	-	-	-	-	-
Stage 1	435	449	-	568	548	-	-	-	-	-	-	-
Stage 2	546	546	-	388	420	-	-	-	-	-	-	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	63.4	22.4	0.1	0.4
HCM LOS	F	C		

Minor Lane/Major Mvmt	NWL	NWT	NWR	EBLn1	EBLn2	WBLn1	SEL	SET	SER
Capacity (veh/h)	884	-	-	166	464	219	1133	-	-
HCM Lane V/C Ratio	0.023	-	-	0.782	0.08	0.053	0.007	-	-
HCM Control Delay (s)	9.2	-	-	77.8	13.4	22.4	8.2	0	-
HCM Lane LOS	A	-	-	F	B	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	5.1	0.3	0.2	0	-	-

HCM 6th TWSC
 2: Green Bay Road & Kelling Lane

04/19/2019

Intersection

Int Delay, s/veh 0.1

Movement WBL WBR SEL SET NWT NWR

Lane Configurations	Y			4	4	
Traffic Vol, veh/h	2	1	2	602	430	2
Future Vol, veh/h	2	1	2	602	430	2
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	1	2	654	467	2

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	1128	470	471	0	-	0
Stage 1	470	-	-	-	-	-
Stage 2	658	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	228	598	1101	-	-	-
Stage 1	633	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	226	597	1099	-	-	-
Mov Cap-2 Maneuver	226	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	518	-	-	-	-	-

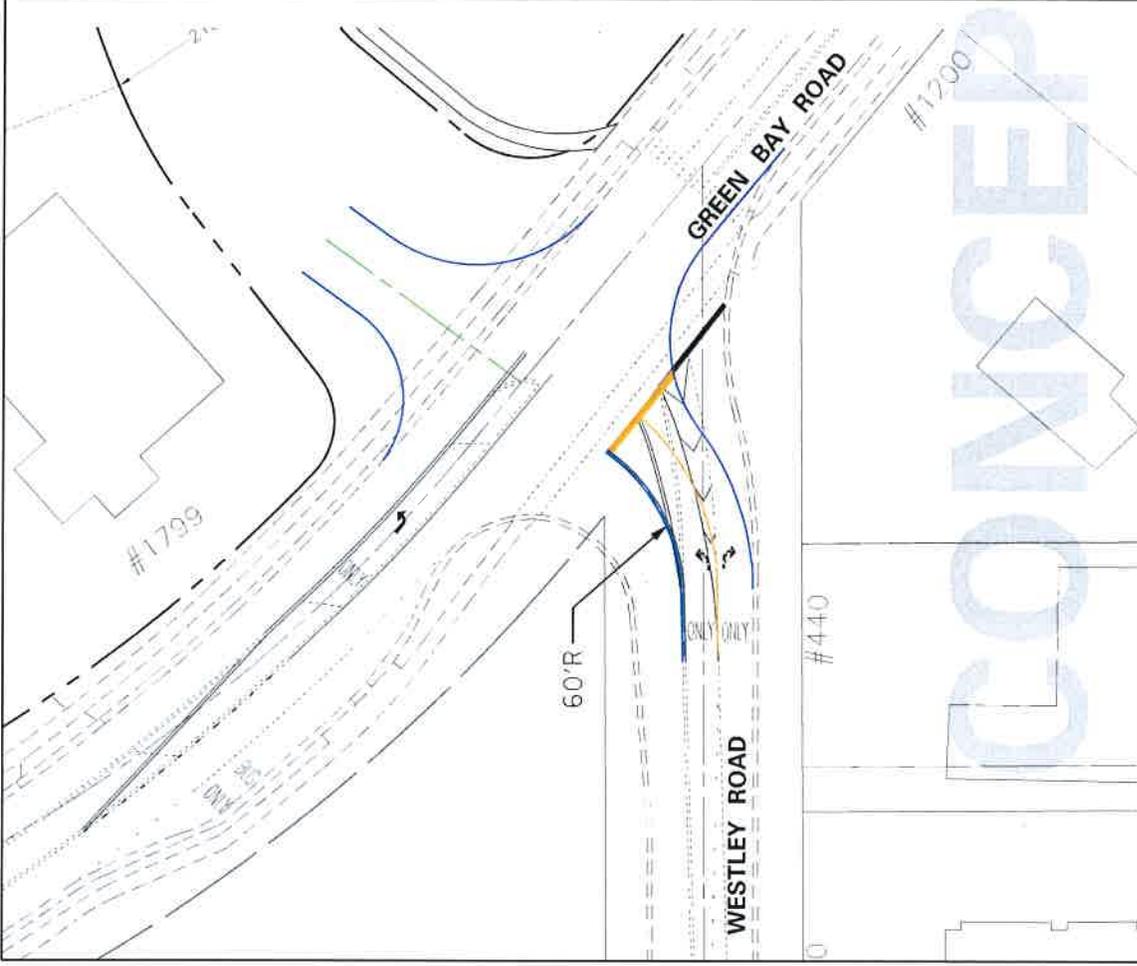
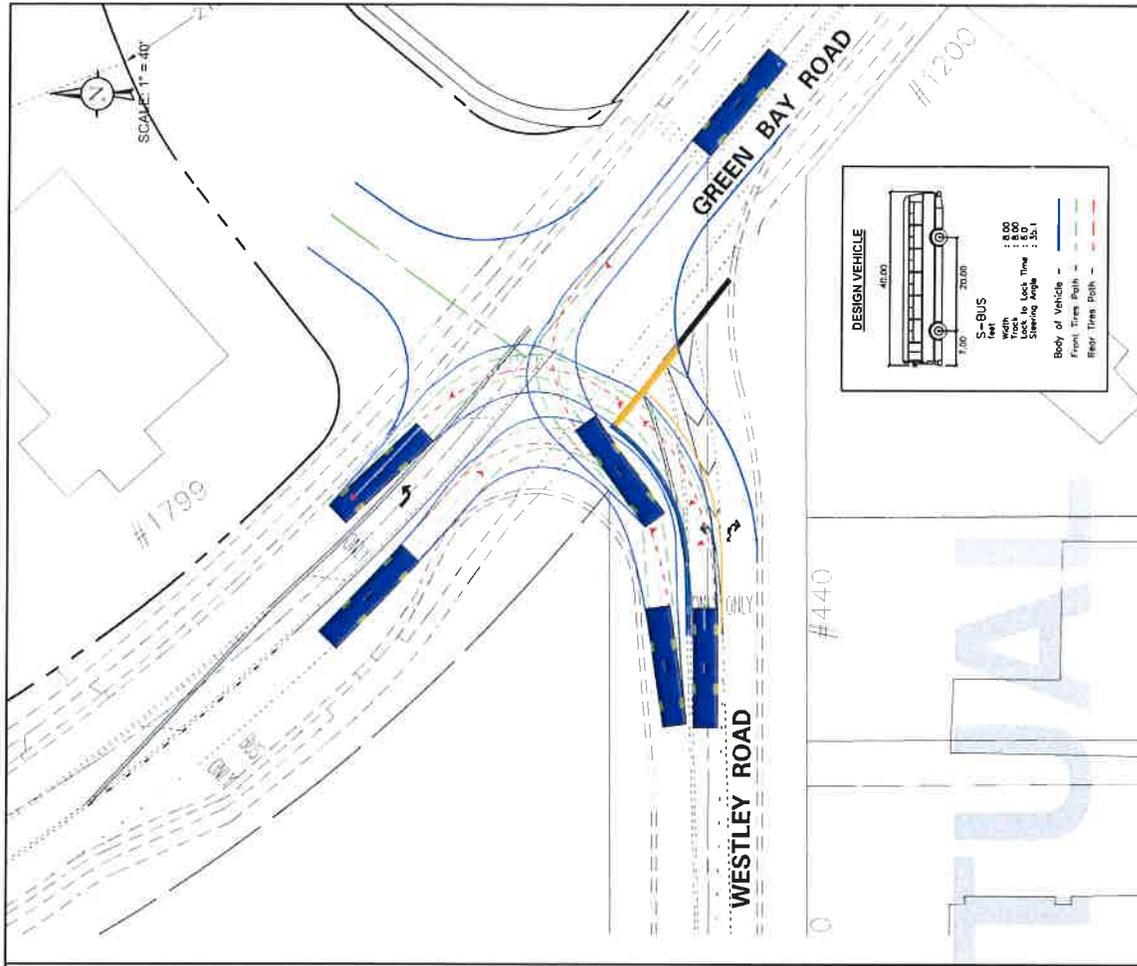
Approach WB SE NW

HCM Control Delay, s	17.8	0	0
HCM LOS	C		

Minor Lane/Major Mvmt NWT NWRWBLn1 SEL SET

Capacity (veh/h)	-	-	285	1099	-
HCM Lane V/C Ratio	-	-	0.011	0.002	-
HCM Control Delay (s)	-	-	17.8	8.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Sight Distance Analysis

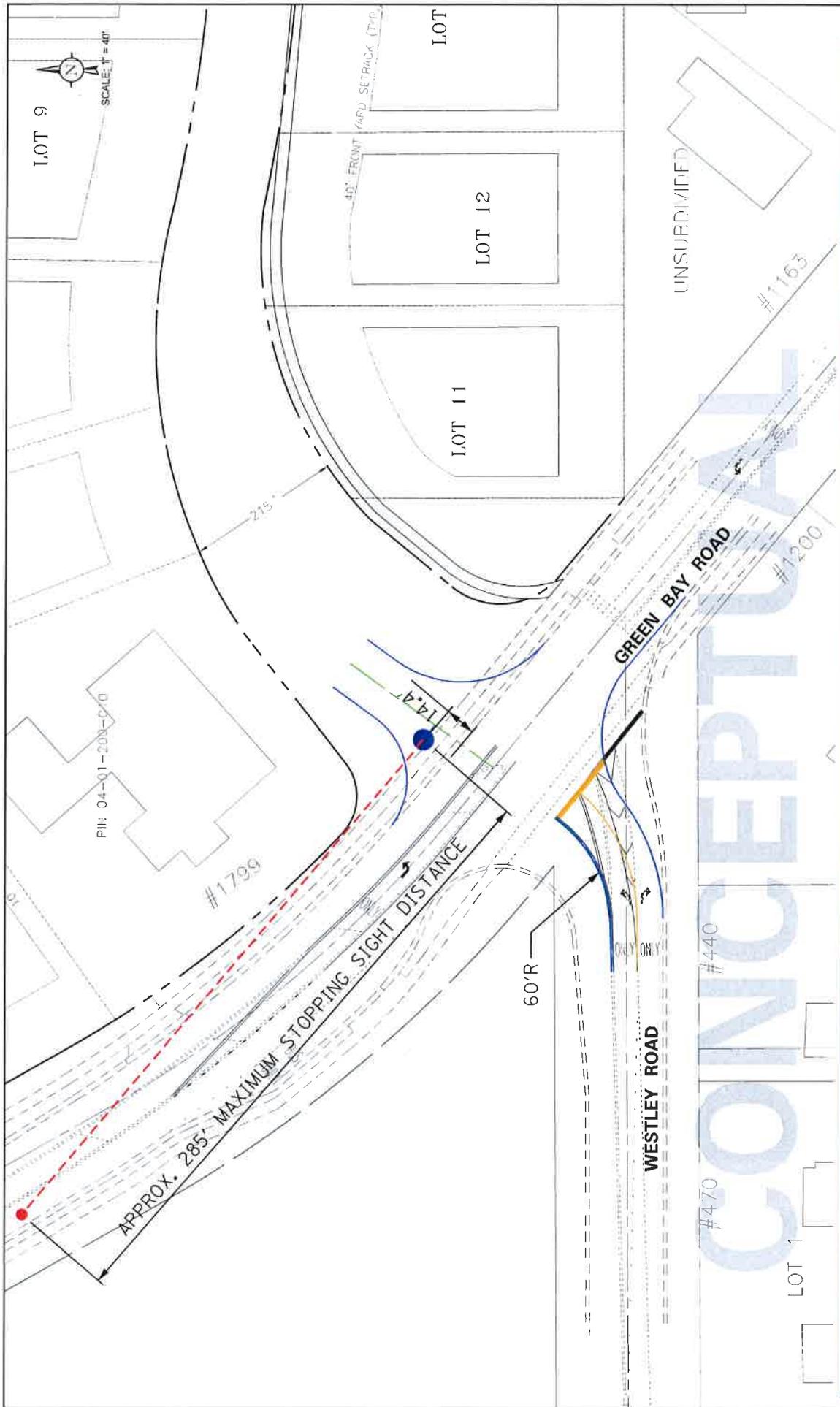


**PRELIMINARY GEOMETRICS
AND S-BUS MANEUVERS**

**1801 GREEN BAY ROAD
GLENCOE, ILLINOIS**

DRAWN: MD **CHECKED: MW**
DATE: 04/24/19 **REV: 04/17/19**
PROJECT # 19-077
FIGURE: A





**STOPPING SIGHT DISTANCE STUDY
GREEN BAY ROAD @ WESTLEY ROAD**

**1801 GREEN BAY ROAD
GLENCOE, ILLINOIS**

DRAWN: MO
DATE: 04-10-19
PROJECT # 19-077
FIGURE: B

CHECKED: MW
REV: 08-17-19



Alana Clark

From: Michael Werthmann
Sent: Tuesday, June 18, 2019 9:22 AM
To: Lee Brown; David Mau
Cc: Lorenzo DiVito; Kevin Lewis
Subject: RE: Hoover Estate Subdivision
Attachments: 19-077 Exhibit A.pdf; 19-077 Exhibit B.pdf

Gentlemen:

Per your request, we have reexamined the location and design of the access drive and the Westley Road approach and developed an alternative conceptual layout. I have attached the following exhibits for your review:

- The first exhibit shows the alternative access drive/intersection layout and the alternative access drive/intersection layout with the turning maneuvers for a school bus.
- The second exhibit shows the maximum sight distance looking north along Green Bay Road at the alternative location of the access drive.

Please note the following regarding the alternative access drive/intersection layout:

- The new location of the access drive has only 285 feet of sight distance. The minimum stopping sight distance for a 30 mph posted speed limit (35 mph design speed) is 250 feet and for a 35 mph posted speed limit (40 mph speeds limit) is 305 feet. As such, the southbound Green Bay Road speed limit in the area will need to be reduced from 35 to 30 mph.
- In order to align the Westley Road approach so that it intersects Green Bay Road perpendicularly without any widening, the Westley Road approach will need to be restriped to provide a centerline radius of approximately 60 feet. It should be noted that the 60-foot radius is tighter than what is generally required for the posted speed limit of 25 mph. However, given the location of the curve to Green Bay Road, motorist will be traveling at much lower speeds than the 25 mph speed limit as they are required to stop at Green Bay Road.

If you have any questions, please do not hesitate to contact me.

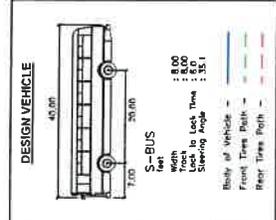
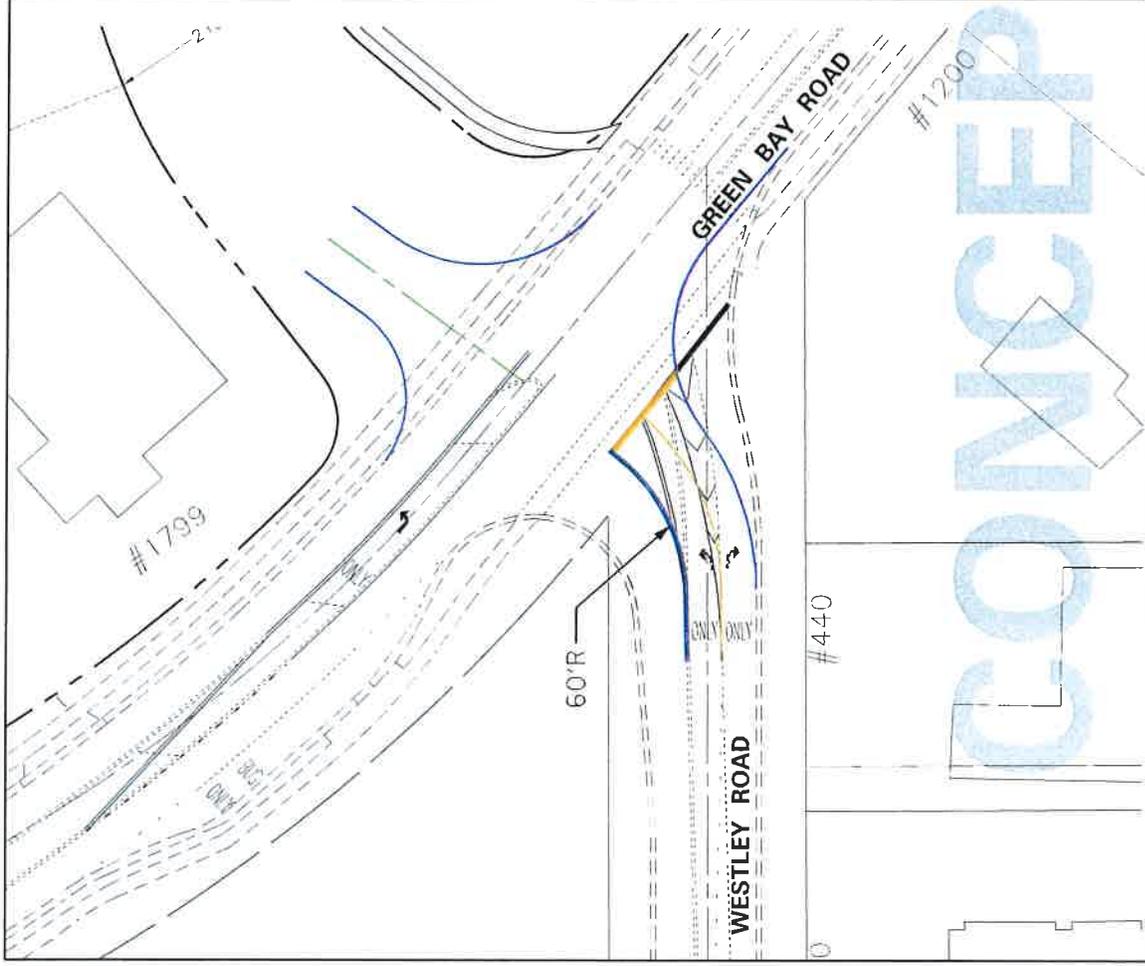
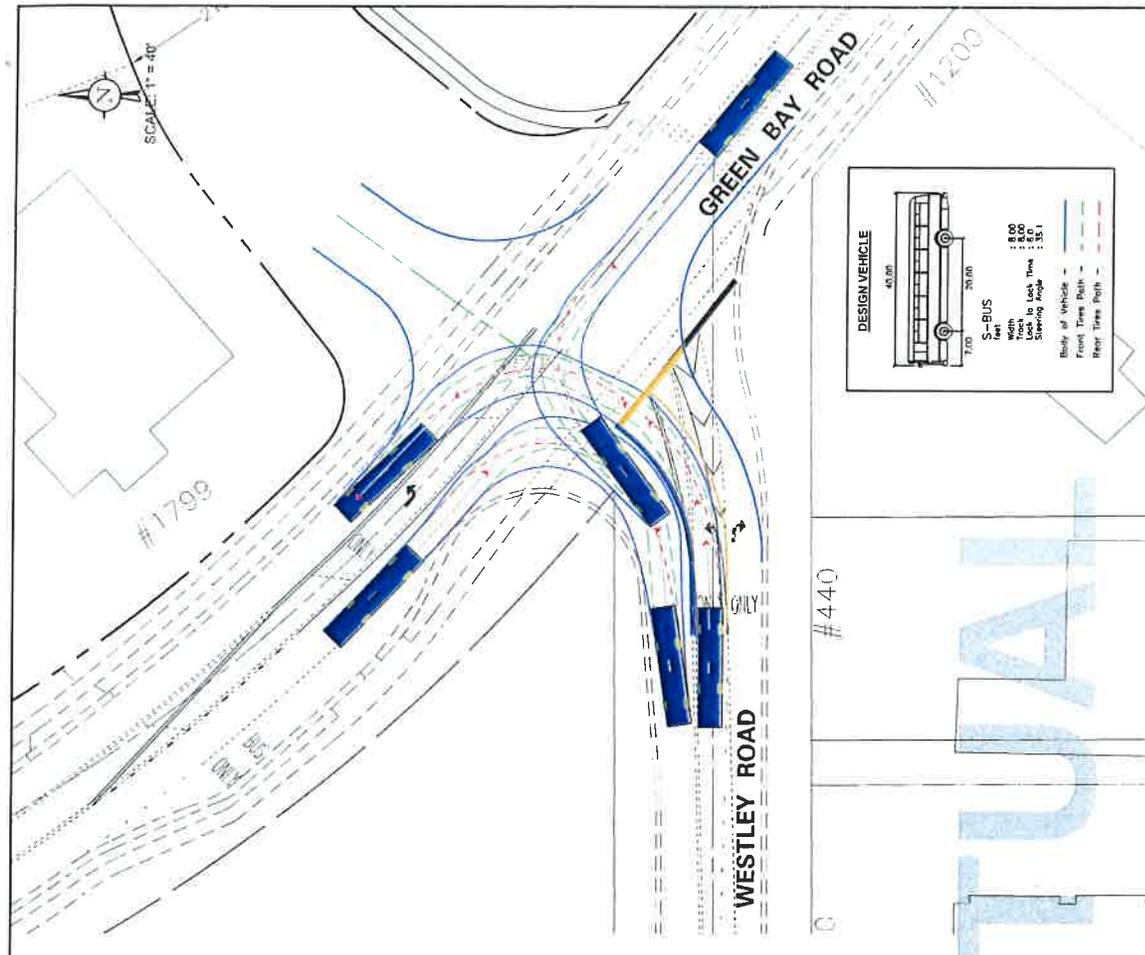
Thank you.

Michael A. Werthmann, PE, PTOE
Principal

Kenig, Lindgren, O'Hara, Aboona, Inc.

9575 West Higgins Road, Suite 400
Rosemont, IL. 60018
(847) 518-9990 office (847) 769-4370 cell
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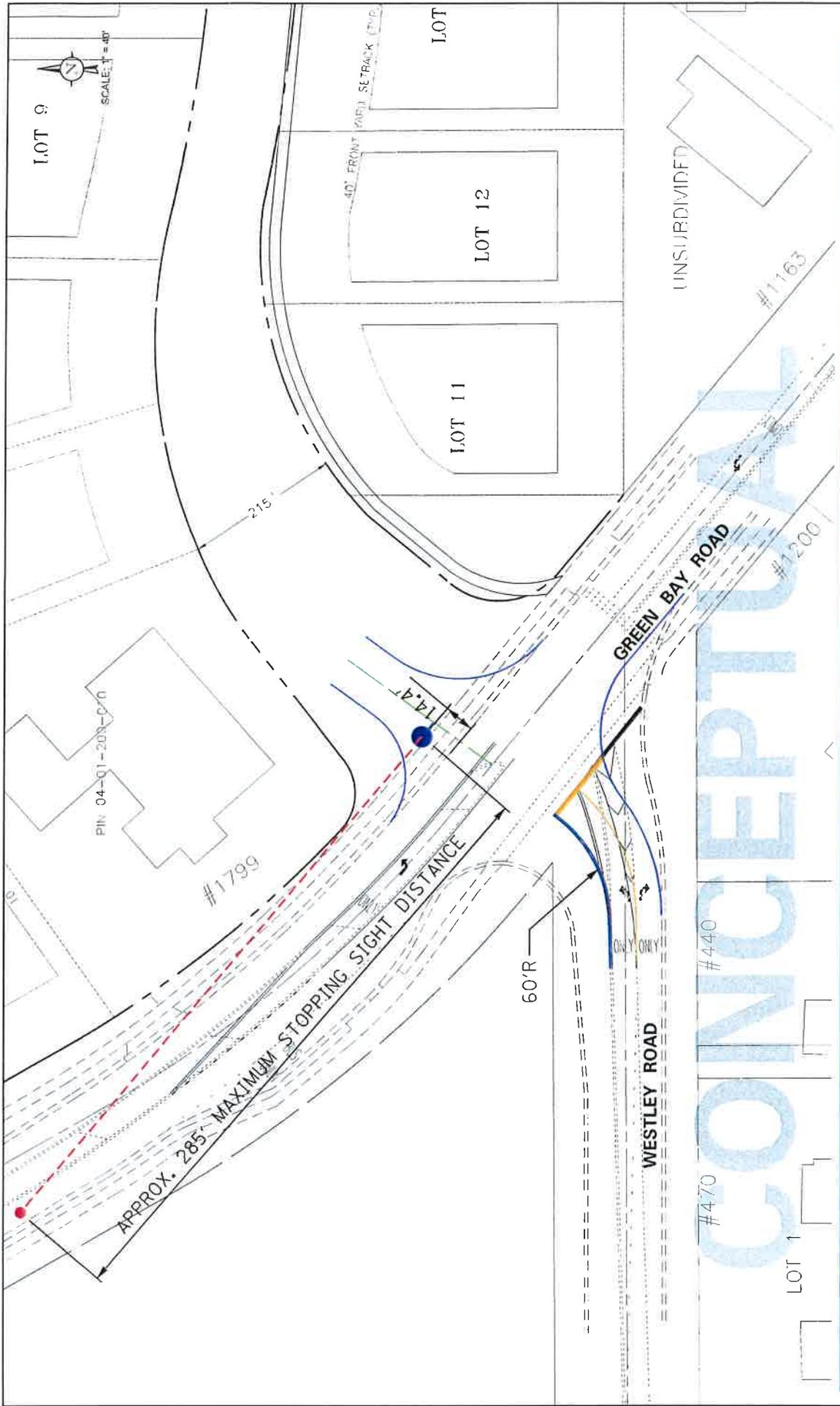
KLOAN
 Vertical Design/Of/Plans/Engineering/Inc.

DRAWN: MD CHECKED: MW
 DATE: 04-16-19 REV: 06-17-19
 PROJECT # 19-077
 FIGURE: A

**PRELIMINARY GEOMETRICS
 AND S-BUS MANEUVERS**

1801 GREEN BAY ROAD
 GLENCOE, ILLINOIS

CONCEPTUAL



DRAWN: MD
 DATE: 04-16-19
 PROJECT # 19-077
 FIGURE: B

CHECKED: MW
 REV: 06-17-19

**STOPPING SIGHT DISTANCE STUDY
 GREEN BAY ROAD @ WESTLEY ROAD**

1801 GREEN BAY ROAD
 GLENCOE, ILLINOIS

CONCEPT