

MEMORANDUM

To: Mr. Dan Manis, P.E.
Village Engineer
Village of Wilmette

From: Peter Lemmon, P.E., PTOE

Date: March 14, 2023

RE: Proposed Residential Development – Traffic Evaluation
1306-1318 Wilmette Avenue
Wilmette, Illinois

INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) was engaged by the Village of Wilmette to prepare a traffic evaluation related to a proposed residential development at 1306-1318 Wilmette Avenue in Wilmette, Illinois. The subject site location and the surrounding area are illustrated in **Exhibit 1**. The development proposal includes 14 attached single-family homes with garage access for six units via the adjacent public alley and garage access for eight units being provided internal to the site with a full-access driveway via Wilmette Avenue (approximately 200 feet west of Park Avenue) and an exit-only driveway via the rear public alley. Each residential unit includes garage parking for two vehicles. The driveways for the internally-accessed units can each accommodate guest parking for up to two vehicles.

This memorandum summarizes transportation characteristics associated with the proposed residential development and of the surrounding street system; outlines a review of the proposed site plan relative to access, circulation, and prevailing traffic conditions in the surrounding area; and highlights key findings and recommendations, as needed.



EXISTING CONDITIONS

Land Uses

The subject site is comprised of four previous residential addresses (1306, 1310, 1314, and 1318 Wilmette Avenue). As recently as 2018, four residential homes occupied the subject site, each with a garage or open parking accessible via the rear public alley. The property at 1306 maintains a residential driveway on Wilmette Avenue along the east side of the property. Since 2018, the structures at 1314 and 1318 Wilmette Avenue have been demolished. Residential homes (largely single-family homes, but some may include multiple rental units) are located along Wilmette Avenue west of Park Avenue. The Wilmette Public Library is located immediately east of Park Avenue along with St. John's Evangelical Lutheran Church and several low-rise commercial buildings with ground-floor businesses, including Millen Ace Hardware.

Attached and detached residential homes comprise the neighborhoods to the north, south, and west. Also, west of the site is McKenzie Elementary School, located on Prairie Avenue north of Wilmette Avenue.

Surrounding Street Network

The subject site is primarily served by Wilmette Avenue with secondary access available via a rear public alley. The nearest cross street is Park Avenue, located approximately 100 feet east of the site. A general description of each street is highlighted below.

Wilmette Avenue is a two-way street generally oriented in the east-west direction with one travel lane in each direction. On-street parking is generally allowed in the area; however, parking is prohibited 7:00-9:00 AM on weekdays and overnights (2:00-5:00 AM). At its signalized intersection with Park Avenue, Wilmette Avenue provides separate left-turn lanes in each direction along with a shared through/right-turn lane. Eastbound right-turns from Wilmette Avenue to southbound Park Avenue are prohibited 7:00-9:00 AM on weekdays to avoid cut-through traffic in the neighborhood bypassing the downstream traffic signal at Wilmette Avenue/Green Bay Road. Wilmette Avenue maintains a statutory speed limit of 25 mph with a posted 20 mph school zone speed limit from the subject site to the west. Adjacent to the site, Wilmette Avenue is under Village of Wilmette jurisdiction.

Park Avenue is a two-way north-south street located approximately 100 feet east of the site with generally one-travel lane in each direction and on-street parking allowed on some segments with varying duration and time-of-day restrictions. In the vicinity of its intersection with Wilmette Avenue, 30-minute parking is permitted on the east of the street in front of the library but prohibited on the west side of the street. Just south of Wilmette Avenue, parking is prohibited on both sides of the street with varying restrictions in place further south of the intersection. At its signalized intersection with Wilmette Avenue, the northbound approach of Park Avenue provides a single lane for all movements while the southbound approach offers a shared through/left-turn lane and a separate right-turn lane. Park Avenue is under Village of Wilmette jurisdiction with a statutory 25 mph speed limit.

A **Public Alley** runs along the north side of the subject site as it extends between Park Avenue on the east and 17th Street on the west. The public alley is a typical alley providing access to the adjacent residential properties for garages, exterior parking spaces, and trash collection. The alley ROW is 20 feet wide in the site vicinity with encroachment of trees and landscaping in some areas.

Transportation Conditions

Kimley-Horn visited the site area to observe prevailing traffic conditions along Wilmette Avenue and the surrounding streets to document typical traffic conditions. A general summary of typical traffic conditions in the area is outlined below:

- Throughout most of the day, traffic conditions along Wilmette Avenue can be generally characterized as good and traffic at the Wilmette Avenue/Park Avenue intersection does not experience issues related to capacity or congestion.
- West of the site at the Wilmette Avenue/Prairie Avenue-Oak Circle intersection, students cross Wilmette Avenue to/from McKenzie Elementary School during weekday mornings and afternoons. They are supported by a crossing guard along with Rectangular Rapid Flashing Beacons (RRFBs). These two measures alert and reinforce the need to stop for pedestrians in the crosswalk. When crossings occur, vehicle queues typically reach a couple vehicles, but quickly subside once the pedestrians clear the crossing.
- East of the site, the Wilmette Avenue intersection at Green Bay Road does experience operational challenges during peak periods resulting from temporary closures of the at-grade railroad crossing immediately east of Green Bay Road. These issues are most prevalent in the weekday morning and evening peak hours as the Metra train schedule includes more frequent service than during off-peak hours and on weekends.
- Residual impacts from railroad crossing closures are more apparent with southbound trains compared to northbound trains as the crossing gate is down longer at Wilmette Avenue for southbound trains while the train is in the station to the north. For northbound trains, the gate is raised after the train passes and pulls into the station often with limited queue impacts observed along Wilmette Avenue.
- During the weekday peak hours, observations of eastbound vehicle queuing along Wilmette Avenue indicated that the observed eastbound queue (extending west from Green Bay Road) ranged from 5 to 30 vehicles. Queues of 7-12 vehicles were common.
- The maximum queue coincided with a southbound train closure of the railroad crossing. 18 vehicles queued between Green Bay Road and Park Avenue. The back-of-queue reached up to 12 vehicles west of Park Avenue (essentially to Oak Circle-Prairie Avenue) while vehicles downstream were already starting to proceed through the Wilmette Avenue/Green Bay Road intersection.
- After the trains passed, the eastbound queue reduced to 18 vehicles (just east of Park Avenue) during the first traffic signal cycle, 13 vehicles the next cycle, and all vehicles clearing in the third cycle.

- Not all railroad crossing closures experience the maximum queue condition as some queued only to or just past Park Avenue. Recovery to normal conditions occurred within 1-3 signal cycles.
- During the periods of extended queuing to or through Park Avenue, the turns and north-south traffic on Park Avenue functioned well as extended vehicle queues were observed leaving the intersection clear from being blocked and pedestrians continued to cross normally.

It should be noted that the most recent observations summarized above reflect conditions in early 2022. Metra train schedules are continuing to build ridership and eventually are likely to add more frequent service. As such, impacts from intermittent railroad crossing closures may become more frequent, but based on past observations and experience with queuing along Wilmette Avenue during weekday peak periods, the extent of queuing is generally consistent with pre-COVID conditions.

PROPOSED PLAN

Development Plan

The proposed plan includes 14 attached single-family units with access proposed on Wilmette Avenue at the middle of the site (approximately 200 feet west of Park Avenue, measured centerline to centerline). A secondary exit-only driveway is also planned via the rear public alley. The southern eight units along the internal access road, each including a two-car garage with a driveway apron that could be used by guests. The northern six units each include a detached two-car garage accessing the public alley to the north. A copy of the proposed site plan is attached at the end of this document for reference.

Trip Generation

The proposed site's location is within a convenient walking distance of downtown Wilmette with its mix of restaurants, local retailers, civic uses and public spaces, and the Wilmette Metra Station. This location makes walking a desirable transportation mode choice for many trips, including daily commute trips via Metra that are generally focused during typical morning and evening peak hours.

While it is expected that some commute trips generated by the proposed residential units will occur on foot or bicycle given the site's location, a conservative approach to evaluating potential traffic impacts would be assuming no reduction from industry-standard trip generation estimates. Thus, trip generation data published in the Institute of Transportation Engineers (ITE) manual titled *Trip Generation, 11th Edition* was referenced to estimate the volume of trips that may reasonably be expected to be generated by the proposed 14 residential units during weekday peak hours.

Trip Generation data generally represents, and is derived from, data collected in largely auto-oriented areas that exhibit few, if any, non-auto modes of transportation (such as transit, walking, and biking). As noted above, despite the site's convenient location for walking, biking, and transit (primarily Metra, but potentially Pace Bus as well), no reductions are assumed to consider a worst-case projection.

The proposed development plan includes 14 residential units. The site has previously been occupied by at least seven residential units (included multiple rental units). As a result, the proposed plan represents a net addition of 7 residential units on the site.

A summary of the estimated trip generation data associated with the proposed use is presented in **Table 1** with the resulting site traffic projections for the net addition of 7 residential units presented in **Table 2**.

Table 1. Trip Generation Data

Land Use	Unit	Weekday		
		Daily	AM Peak Hour	PM Peak Hour
Single-Family Attached Housing (ITE LUC 215) ¹	dwelling unit	T = 7.2(X) 50% in / 50% out	T = 0.48(X) 31% in / 69% out	T = 0.57(X) 57% in / 43% out

¹ Based on data published in the Institute of Transportation Engineers *Trip Generation, 11th Edition* for the identified Land Use Code (LUC).

Table 2. Trip Generation Estimate

Land Use	Unit	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Single-Family Attached Residential	14 units	101	2	5	7	5	3	8
- Previous Units on Site	-7 units	-44	-1	-2	-3	-2	-3	-5
Net Additional Trips	7 units	57	1	3	4	3	-	3

As summarized in Table 2, the proposed 14-unit residential development, without any reductions to account for potential trips by foot, bicycle, or transit, is estimated to generate 101 daily trips (a combination of entries and exits) and between 7 and 8 trips during the weekday morning and evening peak hours. When considering the site has been occupied by at least seven residential units, the net additional volume of traffic expected to be generated by the site is even less.

PLAN EVALUATION

Traffic Impact

As presented in Table 2, the proposed development is expected to generate 101 daily trips with 7 and 8 total trips during the weekday morning and evening peak hours, respectively. In the morning, this estimate includes 5 trips exiting the site while 5 trips are expected to enter the site during the evening peak hour to reflect the typical commute patterns during peak hours.

In general, traffic conditions in the site vicinity along Wilmette Avenue are characterized as good. Extended eastbound queuing from the east as a result of railroad crossing closures at times extends

across the site frontage before subsiding after a couple traffic signal cycles. This occurs primarily during weekday morning and evening peak hours when traffic volumes and train frequency is highest.

Traffic conditions in the area also include elevated activity coinciding with morning arrival and afternoon dismissal at McKenzie Elementary School east of the site on Prairie Avenue. This includes a mix of increased pedestrian and vehicular traffic just before school starts and leading up to/just after dismissal in the afternoon.

While the intermittent impacts of railroad crossing closures are visible along the southern frontage of the subject site and neighborhood traffic activity is elevated when school starts and lets out, the level of additional traffic associated with a 14-unit residential development is low and not at a level that is expected to cause a significant impact on traffic conditions in the area. To put the peak hour projections in context, on average, the 8 total trips during the evening peak hour represents one vehicle either entering or exiting the site every 7.5 minutes. This does not consider that the site has previously been occupied by at least four residential units with a lower net traffic impact nor does it account for any residents not commuting by car and using the nearby Wilmette Metra station for their daily commute.

Thus, from a traffic impact perspective, the proposed 14-unit residential development is expected to generate low traffic volumes and have minimal impact on traffic conditions in the area.

Site Plan Review

Access

The proposed plan includes a single access driveway on Wilmette Avenue, located in the middle of the site. This places the proposed access at approximately the west end of the eastbound left-turn lane taper at the Wilmette Avenue/Park Avenue intersection. For most times of the day and on weekends, vehicles exiting the driveway will not experience issues turning left out onto Wilmette Avenue. However, during peak hours, eastbound queues often queue to the area of the driveway and vehicles waiting to exit the site and turning east will need to wait for an acceptable gap in traffic and reduction in queued vehicles coinciding with traffic signal cycles at the Wilmette Avenue/Park Avenue intersection. During peak queuing instances that result from railroad crossing closures, exiting vehicles headed east on Wilmette Avenue will either wait for a courtesy gap or may follow an alternate route by turning west. Exiting right turns to westbound Wilmette Avenue are not expected to be an issue based on prevailing traffic conditions.

A secondary exit-only driveway is proposed via the rear alley. For some residents, this may be chosen as an option, particularly to exit east to Park Avenue in order to utilize the traffic signal at Wilmette Avenue/Park Avenue. Given the projected traffic levels associated with a 14-unit residential development, the volume at this driveway would be low considering it would serve only exiting vehicles and almost one half of the units at the north end of the site would access the alley directly.

With respect to sight lines available at the two proposed access locations, vertical sight distance along Wilmette Avenue and the public alley are adequate as the elevations are flat. However, with respect to horizontal obstructions, care should be taken with landscaping and potential fencing along the alley (if proposed) to ensure that adequate horizontal sight distance is available.

Circulation

The alley also provides access and circulation for trash collection and deliveries. The site access plan facilitates one-way circulation for a trash collection truck to enter at Wilmette Avenue, collect trash as it circulates through the site, and exit to the public alley. Trash for the northern units would be collected directly within the alley. To keep the main internal street clear, trash receptacles should be kept on the driveway apron for each unit and not on the internal street. Delivery vehicles (e.g., FedEx, UPS, Amazon Prime) may follow a similar circulation route, but may also use a driveway to turnaround and exit onto Wilmette Avenue.

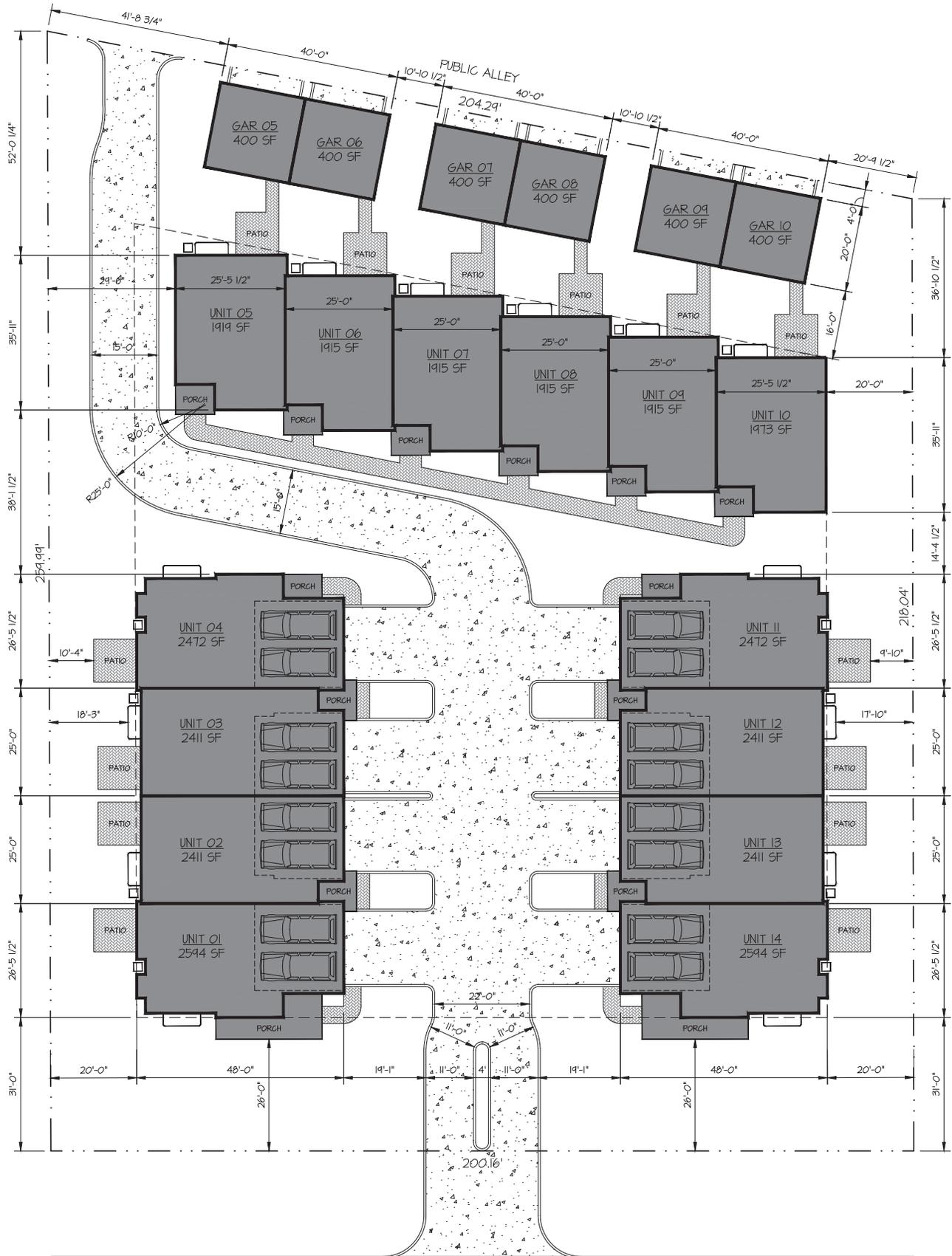
The southern units include a two-car garage with a 20-foot-long driveway apron to allow for parking of guest vehicles. The northern units include a detached two-car garage with direct alley access .

The proposed site plan includes a 4-foot-wide landscaped median with 11-foot-wide travel lanes within the Wilmette Avenue access. The median is set back to help facilitate turning maneuvers from Wilmette Avenue.

SUMMARY AND RECOMMENDATIONS

Based on Kimley-Horn's review, we offer the following key findings:

- The proposed 14-unit residential development is expected to generate a low volume of traffic (101 daily trips and up to 8 entry/exit trips during the weekday morning and evening peak hours). On average, the 8 total trips during the evening peak hour represents one vehicle either entering or exiting the site every 7.5 minutes.
- Considering that the site has been previously occupied by 7 residential units, the net volume of traffic at the site associated with the development plan is less than the 14 proposed units.
- This level of traffic activity associated with the proposed development plan will have a minimal impact on traffic conditions in the area.
- The site is well-located to take advantage of businesses and transit options located in downtown Wilmette. However, as a conservative approach to the evaluation, no reductions to account for pedestrian, transit, or bicycle commutes were assumed.
- Wilmette Avenue experiences extended queues across the site frontage, particularly with intermittent railroad crossings closures just east of Green Bay Road. During these conditions, vehicles wishing to exit to the east are expected to receive a courtesy gap on Wilmette Avenue, turn west on Wilmette Avenue and use an alternative route, or use the rear alley access and exit east to Park Avenue.
- The southern eight units provide garage parking for two vehicles with a driveway apron for guest parking. The northern six units provide a detached two-car garage directly accessing the public alley to the north.
- The two access locations allow for one-way northbound circulation from Wilmette Avenue to the rear alley for trash collection and delivery vehicles. However, some smaller delivery vehicles may choose to use a driveway apron and exit back onto Wilmette Avenue.
- "Do Not Enter" signs should be posted, facing north on both sides of the northern exit-only access driveway where it intersects with the alley.



WILMETTE AVENUE

