



JAMES J. BENES AND ASSOCIATES, INC.

950 Warrenville Road ▪ Suite 101 ▪ Lisle, Illinois ▪ 60532

Tel. (630) 719-7570 ▪ Fax (630) 719-7589

MEMORANDUM

Date: May 28, 2019

To: Zhanna Badasyan
Management Analyst
Village of Glenview

DRAFT

From: Thomas Adomshick, P.E., PTOE
President

Re: West Lake Avenue Intersection Sight Lines
Glenview, Illinois
Job No. 1394.149

Last year some Cambridge development residents expressed concerns about sight lines for drivers turning from Poppy Lane onto West Lake Avenue. The specific concern was that parked vehicles reduced the visibility of approaching vehicles on West Lake Avenue, making it uncomfortable to turn onto West Lake. In response to this concern, James J. Benes and Associates, Inc. (JJB) staff checked the intersection for conformance with Illinois Vehicle Code (IVC) parking setback requirements standards. All existing parking setbacks on the north side of West Lake Avenue at Poppy Lane comply with the IVC in the study area.

A public meeting was held in December 2018 to present potential modifications to parking limits on the north side of West Lake Avenue at Poppy Lane, and to solicit feedback from area residents. Several attendees supported extending parking restrictions near the intersection in order to address their concerns that sight lines are limited. However, not all residents supported this request due to concerns about a loss of parking. Some residences along West Lake have limited off street parking consisting of two in-garage spaces, and a loss of on-street parking was viewed as a negative impact for those residences.

The Village requested a comprehensive parking study of street intersections between Patriot Boulevard and Lehigh Avenue since the same concerns may arise at the other street intersections in this section of West Lake Avenue. This study includes a review of existing conditions and impacts to parking supply if parking setbacks are increased at the neighborhood street intersections with West Lake Avenue. Vehicular speed data was collected along the study section to identify current traffic speeds.

Existing Conditions

West Lake Avenue is a two-lane, two-way collector street. It abuts the Cambridge residential neighborhood to the north, and Gallery Park to the south. The posted speed limit is 25 miles per hour. This area was designed as a neo-traditional dense urban development. The North Glen commuter rail station and a mixed use commercial development are just east of this study section. Separate parallel parking lanes are provided on both sides of the street as an amenity to area residents, to visitors to Gallery Park and potentially to patrons of commercial uses at West Lake and Lehigh Avenue.

Vehicular Speeds

Speed data was collected on West Lake along the study was collected in March 2019 on a weekday when schools were in session, and during fair weather conditions. The following was observed:

1. The average travel speed was in the low 30's. The 85th percentile speed (the speed at or below which 85 percent of the vehicles were recorded) averaged in the mid to upper 30's.
2. Collected data shows an unusually wide distribution of vehicular speeds with about 10% traveling under 25 mph, and about 30% traveling each within the 25 and 30mph, 30 mph to 35 mph, and over 35 mph ranges.
3. Speeds on the approaches to the signalized intersections at each end of the study section tended to be higher. This could be due to gradual acceleration along the corridor, a lack of "friction" from on-street parking on the approach to the signals, or drivers increasing their speeds to catch a green light before it changes to red.
4. The westbound traffic speed between Lilly Lane and Sundrop Drive was lower than the rest of the corridor. There are no parking lanes on either side of the street for much of this block and curbs are adjacent to the travel lanes. The narrower paved surface width may contribute to lower speeds at this location.
5. The highest incidence of speeding vehicles occurred during the weekday morning and evening peak hour periods. West Lake Avenue provides direct access to and from the Glenview north commuter rail station.

The speed data indicates that most drivers are comfortable traveling in excess of the posted speed limit. We performed an analysis of the recommended speed limit for this section of roadway using the Federal Highway Administration speed zone tool USLimits2. The FHWA tool considers existing roadway information including number of traffic lanes, traffic volumes, character of the street and adjoining land uses, number of access points, parking and pedestrian activity, recorded speed and crash data. The computed recommended speed limit using USLimits2 is 30 mph based on the current character of the street environment. A cross check following Illinois Department of Transportation policy on establishing speed limits yielded the same result.

A speed limit consistent with driver expectations of what is appropriate for a given section of road does provide some safety benefits. When speed limits align with driver expectations, the majority of drivers will drive at similar speeds. This makes it easier to judge when there is a sufficient gap to proceed for drivers to turn and for pedestrians to cross.

Based on casual observations of parking usage on multiple occasions, the occupancy of the parking lanes is generally low during weekdays. The low occupancy results in sections of the street with a wide paved cross section of two travel lanes bordered by lightly used parking lanes. Narrower lanes and dense on-street parking provides a more constricted feeling, reducing driver comfort which helps to reduce vehicular speeds.

Intersection Sight Distance vs. Parking

Existing marked parking limits were field measured at the aforementioned intersecting streets. It was confirmed that the existing marked parking restrictions along the north side meet or exceed the minimum required parking setbacks established in the Illinois Vehicle Code (IVC).

The provision of stopping sight distance can be used to provide longer sight lines at an intersection. Stopping sight distance ("SSD") is the distance traveled by a vehicle necessary for a driver to perceive a stationary object on the road, react (apply brakes) and bring the vehicle to a stop before colliding with the object or person. The SSD is directly related to vehicular speed. For this analysis, we reviewed the parking impacts of providing SSD for vehicular speeds of 30 and for 35 mph. The following table summarizes the parking supply as currently marked to the parking supply if the parking limits were modified to provide 30 mph and 35 mph stopping sight distance.

Block	Existing Parking	Parking for 30 mph SSD	30 mph Net Loss vs Existing	Parking for 35 mph SSD	35 mph Net Loss vs Existing
Patriot to Mint	5	2	-3	1	-4
Mint to Butterfly	9	2	-7	1	-8
Butterfly to Goldenrod	9	4	-5	1	-8
Goldenrod to Poppy	20	18	-2	18	-2
Poppy to Sundrop	8	4	-4	2	-6
Sundrop to Lily	2	0	-2	0	-2
Total	53	30	-23	23	-30

Providing 30 mph stopping sight distance to at the intersections significantly reduces the amount of on-street parking on the north side of West Lake Avenue. Attached exhibits of current and 30 mph SSD for on-street parking demonstrates the impacts of increasing sight lines. Application of 35 mph stopping sight distance has more severe parking impacts.

Crash History

Last year the Glenview Police Department researched crash records on West Lake Avenue going back 14 years to 2004, about the time when the developments along Lehigh were complete and occupied. No records of crashes were found during that period at any of the five intersections in the study section. During the December public meeting some residents recalled crashes having occurred on this section of West Lake Avenue.

The Glenview Police Department updated their review of crash records to extend to the present. Crash records for the past five years were reviewed again in order to verify if any crash reports were previously omitted. This latest review identified a total of three recorded crashes over the past five years, two of which were overlooked in the initial crash report search, and one which occurred after the original record search period, but before the public meeting.

The three recorded crashes are summarized below, none of which involved a turn from a side street to West Lake Avenue. All three crashes occurred in the vicinity of Mint Lane.

1. Year 2013 – The driver of a vehicle turning left onto Mint Lane did not see a parked vehicle on Mint Lane and sideswiped it.

2. Year 2016 – A vehicle beginning to leave a parking space on West Lake near Mint backed into a vehicle parked behind it.
3. Year 2018 – A rear end crash occurred on West Lake at Mint. A narrative of the crash was not provided in the report. However, the data on the crash report form indicated both involved vehicles were traveling eastbound on West Lake Avenue. The lead vehicle was slowing down when it was rear ended by the following vehicle. There were no injuries and both vehicles were able to drive away.

Although no records were found, it is possible that there have been some unreported crashes during the period leading up to 2013. We expect that any additional crashes that may have occurred probably were minor collisions with no injuries; otherwise one would expect that the crash would have been reported and records would exist.

Findings and Conclusions

Some area residents have requested the elimination of some parking spaces on the north side of West Lake Avenue at Poppy Lane. Parking impacts to sight lines and vehicular speeds were cited as reasons for the request. Longer sight lines will increase comfort for drivers turning onto West Lake Avenue, however, removing parking will have a severe impact on north side on-street parking, and could encourage increased speeds on West Lake Avenue. The conflicting interests of those supporting increased sight lines vs. those supporting maintaining on-street parking present a dilemma.

The statutory minimum parking setbacks are currently provided along the north side of West Lake between Patriot and Lehigh. The parking impacts of increasing sight lines by applying stopping sight distance criteria is severe for most of the blocks in the study section.

Several complaints have been raised about parked vehicles on West Lake Avenue affecting sight lines for vehicles turning from Poppy Lane. The Village has received no complaints from drivers turning from the other side street intersections on this section of West Lake Avenue.

There were only three recorded crashes. All crashes occurred in the vicinity of Mint Lane. No crashes involved a vehicle turning onto West Lake Avenue. However, it was noted that the curvature of West Lake at Mint Lane only reduces sight lines vehicles turning to West Lake at this intersection compared to all of the other intersections.

Based on the collected data and our observations the following can be considered for designing the street.

Vehicular Speeds - consider the following:

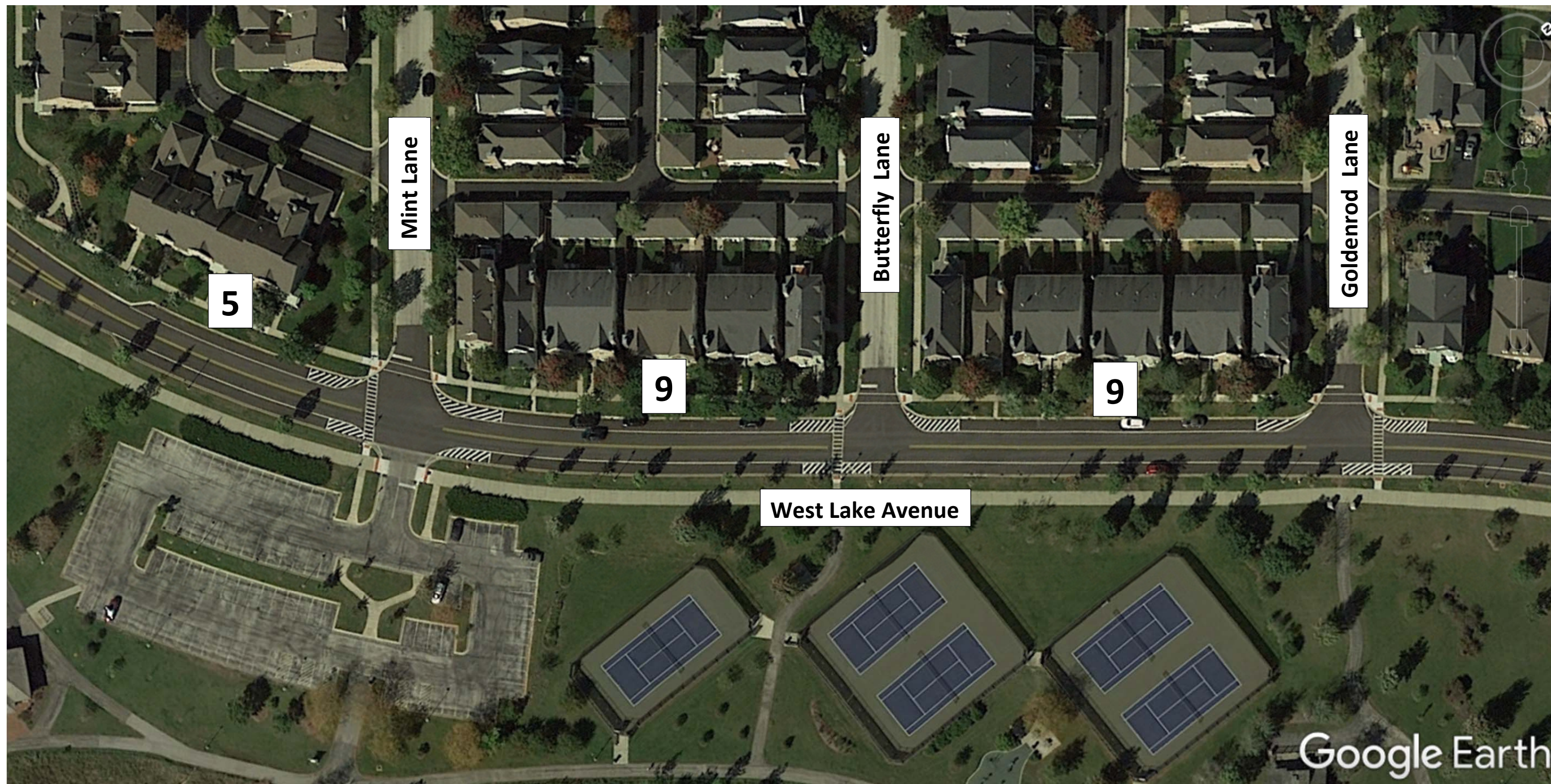
1. Increasing the speed limit to 30 mph will better align with West Lake driver expectations under existing conditions, and may result in a more uniform speeds. When vehicles travel at uniform speeds, it is easier to judge when appropriate traffic gaps are present for turns to West Lake Avenue. We recognize that an increase in the posted speed limit likely would encounter opposition.

2. We recommend that selective enforcement of the speed limit be provided. The recorded speed data indicates the need for enforcement. Focus efforts on the peak hour traffic periods.
3. Consider use of permanent electronic speed boards to remind drivers of their speeds and encourage compliance.
4. When the pavement is reconstructed in the future;
 - a. Make West Lake Avenue less comfortable for drivers. Narrower pavements can lower speeds by reducing driver comfort. Curb bump-outs at the intersections and crosswalks would make the pavements narrower and reduce pedestrian exposure to vehicular traffic, reduce pedestrian crossing distance, and place pedestrians in a more visible location to drivers before stepping off the curb. We would suggest 20 foot wide pavement at the bump outs.
 - b. Investigate the feasibility of reducing the corner turning radii at the neighborhood street intersections with West Lake Avenue. The smaller radii will require slower turning speeds which can contribute to lower speeds on West Lake. A geometric analysis will be necessary to determine what radius would be to slow turns, but accommodate larger vehicles that need to access the neighborhood.

Parking Near Intersections - consider the following:

1. Remove 1 or 2 spaces each side of Poppy Lane to increase driver comfort when turning from Poppy to West Lake. On the block west of Poppy the parking supply will drop to either 18 or 19 spaces, and east of Poppy the parking would drop to 6 or 7 spaces.
2. Remove 1 or 2 spaces each side of Mint Lane to increase driver comfort and improve sight lines when turning from Mint Lane to West Lake. The Mint Lane intersection has the most limited sight lines due to the adverse street curvature at the intersection. All three vehicular crashes have occurred over the past six years occurred in the vicinity of Mint Lane.

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Existing Parking Exhibit A = 23
Exhibit B = 30
Total Existing = 53 spaces

West Lake Avenue Existing Conditions

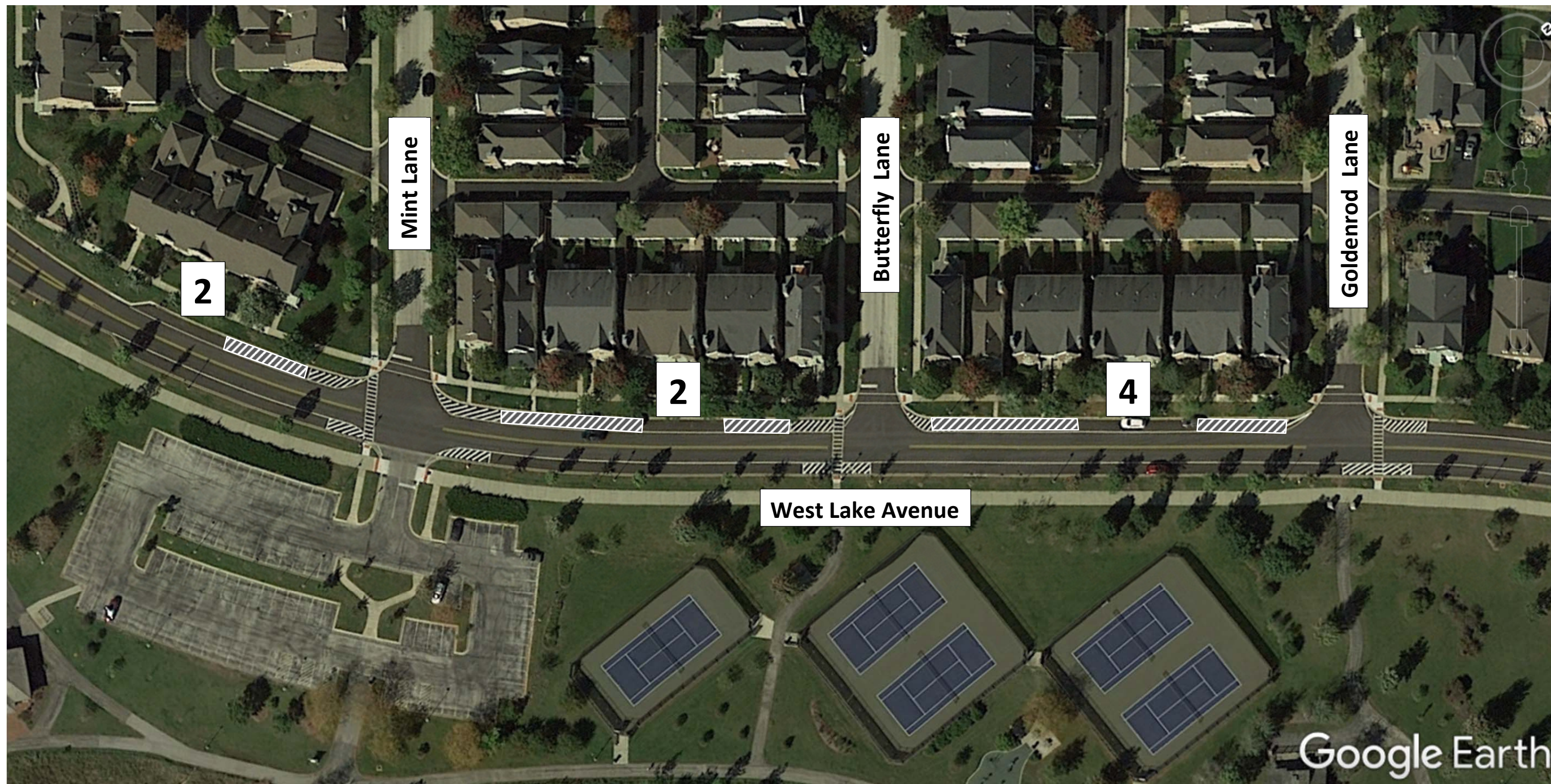
Exhibit A



Existing Parking Exhibit A = 23
Exhibit B = 30
Total Existing = 53 spaces

West Lake Avenue Existing Conditions

Exhibit B



30 mph SSD Parking Exhibit C = 8
 Exhibit D = 22
 Total = 30 spaces
 Change in Parking = 53 – 30 = Net Loss 23

West Lake Avenue
30 MPH SSD

Exhibit C



30 mph SSD Parking Exhibit C = 8
Exhibit D = 22
Total = 30 spaces
Change in Parking = 53 – 30 = Net Loss 23

West Lake Avenue
30 MPH SSD

Exhibit D