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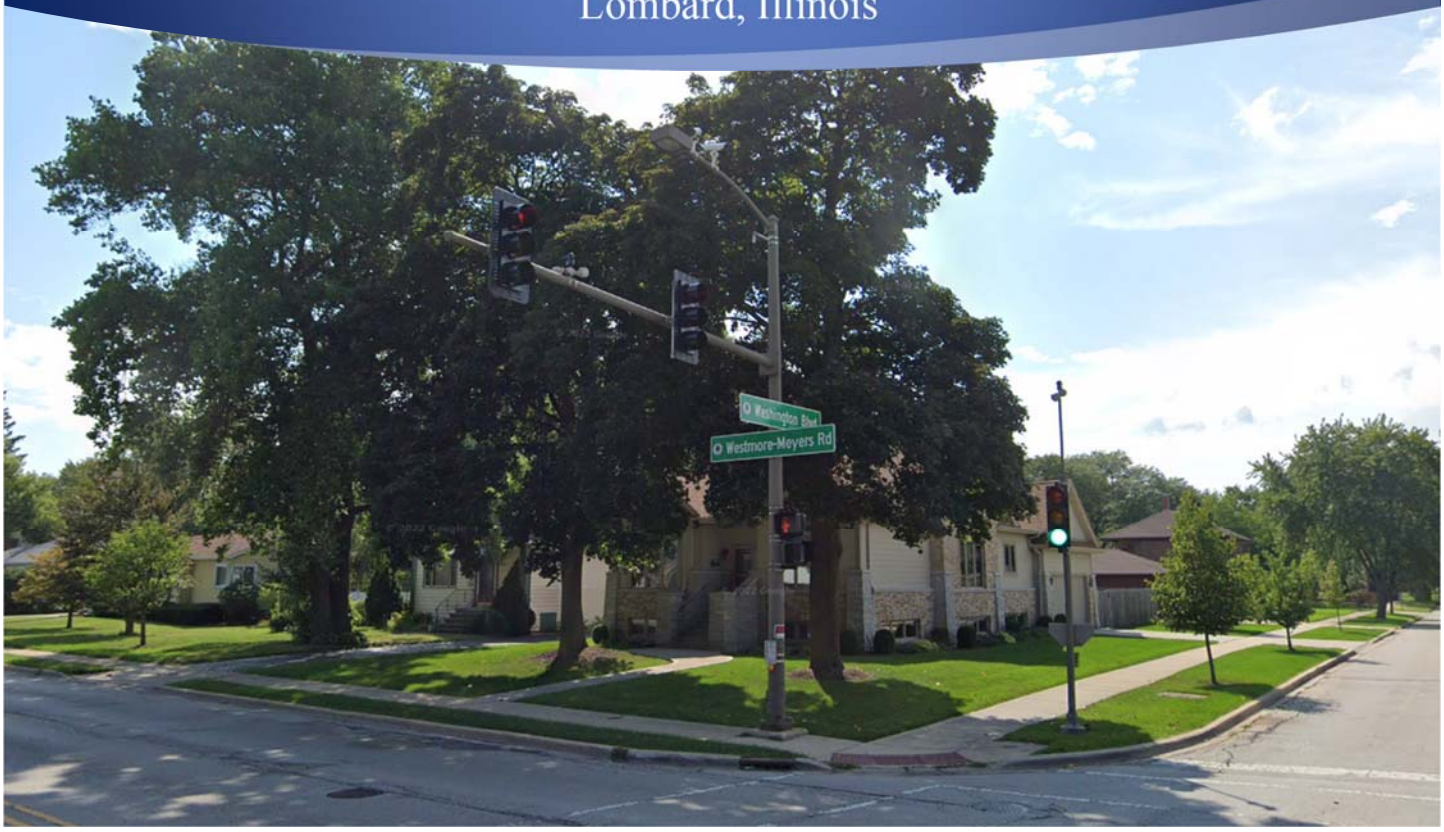
Traffic Safety Evaluation
Westmore-Meyers Road with Washington Boulevard

Lombard, Illinois



Prepared For:

VILLAGE OF LOMBARD • IL
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1869

KLOA
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April 24, 2023

I. Executive Summary

This report summarizes the results of a traffic safety evaluation conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the intersection of Westmore-Meyers Road with Washington Boulevard in Lombard, Illinois. The objectives of the study were to:

- Establish existing vehicular traffic conditions and document the crash history at the intersection.
- Determine the best measures for enhancing safety at the intersection while still maintaining adequate traffic flow on both roadways.
- Assess the benefits and impacts of various operational improvements at the intersection and evaluate the effect the preferred alternative will have on traffic conditions in the area.

To determine current vehicular conditions within the study area, KLOA, Inc. received peak period traffic counts that were previously conducted for the Village of Lombard during the weekday morning, weekday midday, and weekday evening peak periods and received crash data from the Village of Lombard for the past seven years (2016 to 2022) at the intersection of Westmore-Meyers Road with Washington Boulevard.

KLOA, Inc. evaluated the following potential improvements:

1. Provision of a lead phase for either the northbound or southbound approach. This improvement is similar to the existing conditions on Westmore-Meyers Road at Jackson Street and Maple Street.
2. Prohibition of left-turn movements during the peak periods.
3. Converting Washington Boulevard (west leg) to one-way eastbound traffic.
4. The restriping of Westmore-Meyers Road to provide exclusive left-turn lanes with zero offset on both approaches.

Ultimately, it was determined that Alternative 4 (restriping of Westmore-Meyers Road to provide exclusive left-turn lanes) was the preferred alternative to carry forward as it offered the greatest benefits.

Based on the analyses and evaluation of the alternative improvements for the intersection of Westmore-Meyers Road with Washington Boulevard, the following was determined:

- The primary cause of crashes at the intersection of Westmore-Meyers Road with Washington Boulevard is the lack of exclusive left-turn lanes at the intersection.

- The restriping of Westmore-Meyers Road allows the Village to provide exclusive left-turn lanes without widening the existing roadway.

- The restriping of Westmore-Meyers Road at Washington Boulevard provides the following benefits:

    - It will allow for exclusive left-turn lanes to be provided at the intersection.

    - The preferred alternative provides a significant operational benefit with a limited impact to the progression of through traffic at the intersection.

    - The existing traffic volumes along Westmore-Meyers Road at Washington Boulevard are a good candidate for restriping and will not result in a significant change in overall operation of through traffic at the study intersection.

    - The exclusive left-turn lanes will be able to be designed with adequate storage and taper lengths based on the Illinois Department of Transportation (IDOT) *Bureau of Design and Environment* (BDE) Manual.

    - Based on information published in the *Highway Safety Manual*, 1st Edition, the provision of exclusive left-turn lanes has been shown to reduce the number of crashes occurring at a signalized intersection by approximately 20 percent.

    - The improvement does not call for any time of day turning restrictions or the modification of any existing roadway travel orientations.

- The restriping improvement can be applied to the entire Westmore-Meyers Road corridor without needing to provide any signed turning prohibitions or one-way roadway conversions at other intersections along the corridor.

- The restriping provides an opportunity to install pedestrian refuge islands, which reduce the number of travel lanes needed to be crossed by pedestrians. A potential location for a pedestrian refuge island includes the intersection of Westmore-Meyers Road with the Illinois Prairie Path.

- With the proposed restriping of Westmore-Meyers Road, the intersections along the studied corridor will continue to operate at acceptable levels of service.

- This improvement will enhance the safety and flow of traffic along the corridor, including at the existing residential driveways, while maintaining the existing infrastructure and regional flow of traffic within the area.

- The proposed improvement would not preclude the Westmore-Meyers Road corridor between St. Charles Road and Wilson Avenue from being a future candidate for a full road diet.

1. Introduction

This report summarizes the results of a traffic safety evaluation conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the intersection of Westmore-Meyers Road with Washington Boulevard in Lombard, Illinois. The purpose of this study was to determine the best measures for improving safety at the intersection while still maintaining adequate traffic flow on both roadways. **Figure 1** shows the location of the intersection in relation to the area roadway system.

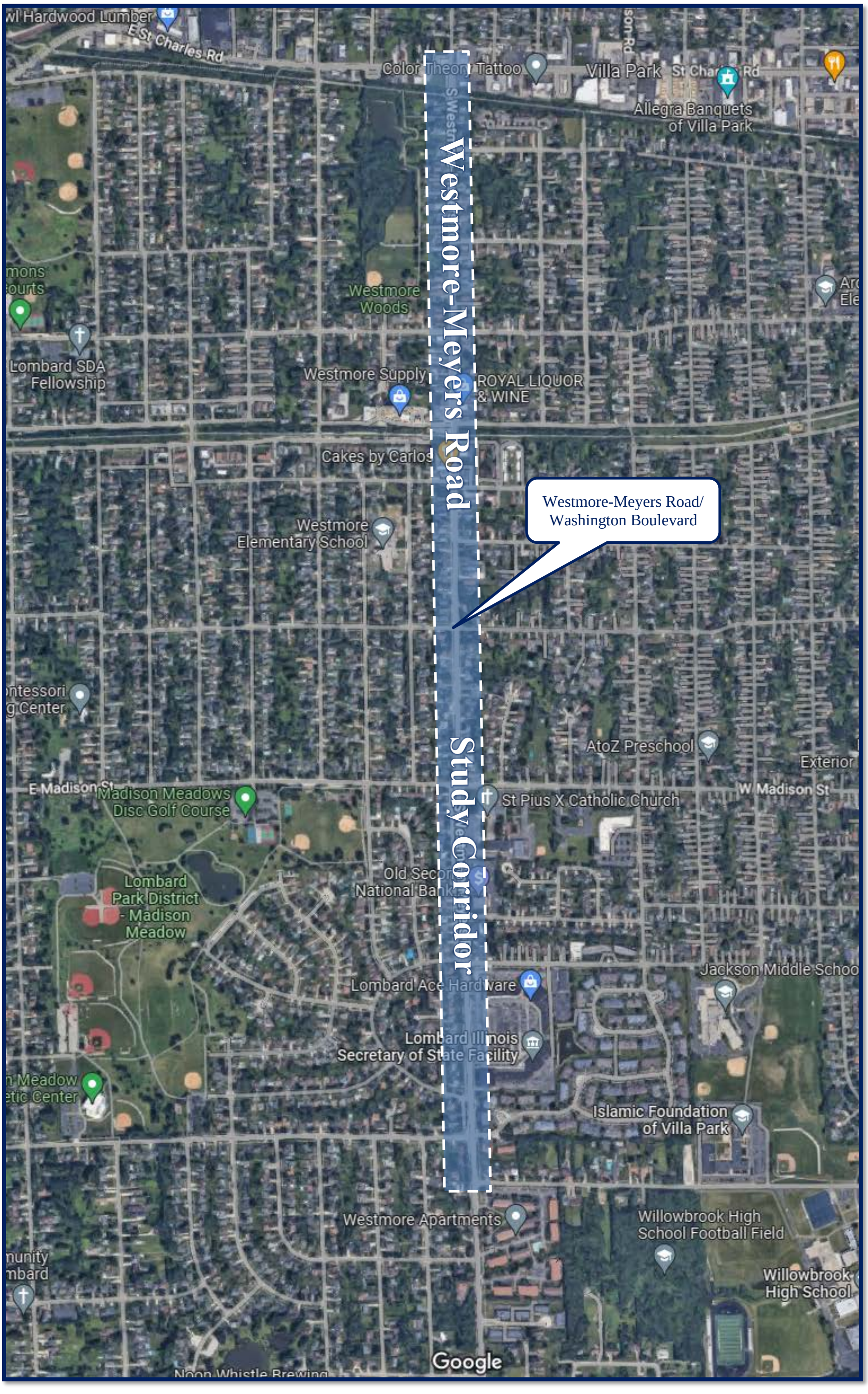
The sections of this report present the following:

- A description of the existing roadway characteristics
- Review of the existing traffic count data
- A summary and evaluation of the crash data for the intersection
- Future traffic conditions including background growth.
- Traffic analyses for the weekday morning, midday, and evening peak hours
- Recommendations with respect to adequacy of each of the study intersections, specifically the operations of the left-turn movements

Traffic capacity analyses were conducted for the weekday morning, midday, 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. Future Conditions - The future projected traffic volumes include the existing traffic volumes increased by a regional growth factor to project Year 2043 traffic volumes.



Aerial View of Study Intersection **Figure 1**

2. Existing Roadway Conditions and Crash Data

Transportation conditions in the site area were inventoried to obtain a database for projecting future conditions. Three general components of existing conditions were considered: the geographical location of the intersections, the characteristics of the roadways and traffic control devices in the area, and the traffic volumes on the roadways.

Existing Roadway and Intersection Characteristics

The characteristics of the existing intersections within the study area are described below and illustrated in **Figure 2**.

Westmore-Meyers Road is a north-south minor arterial that generally provides two through lanes in each direction. No exclusive turn lanes are provided at its signalized intersection with Washington Boulevard. South of Washington Boulevard, Westmore-Meyers Road is widened to provide exclusive left-turn lanes at its signalized intersections with Madison Street, Wilson Avenue, and Highridge Road. On-street parking is parking is generally not permitted along the corridor except for the portion between the Illinois Prairie Path and Division Street, where parallel parking is provided on the west side of the road. Pace Bus 313 has an unmarked northbound stop on the east side of the road south of Washington Boulevard. Westmore-Meyers Road is under the jurisdiction of the Village of Lombard, carries an Annual Average Daily Traffic (AADT) volume of 12,600 vehicles (IDOT 2021), and has a posted speed limit of 30 miles per hour.

Washington Boulevard is an east-west local roadway that generally provides one through lane in each direction. No exclusive turn lanes are provided at its signalized intersection with Westmore-Meyers Road. On-street parking is generally not permitted on the north side of the road. Pace Bus 313 has a marked westbound stop on the north side of the road east of Westmore-Meyers Road. Washington Boulevard is under the jurisdiction of the Village of Lombard and has a posted speed limit of 25 miles per hour.

Figures 3 through **6** show photos of all approaches of the intersection.

Existing Traffic Volumes

To determine current vehicle, pedestrian, and bicycle conditions within the study area, KLOA, Inc. received peak period traffic, pedestrian, and bicycle counts that were previously conducted for the Village of Lombard. The counts were conducted on Thursday April 28, 2022 from 7:00 to 9:00 A.M., from 11:00 A.M. to 1:00 P.M., and from 4:00 to 6:00 P.M. at the following six intersections:

- Westmore-Meyers Road with St. Charles Road
- Westmore-Meyers Road with Maple Street
- Westmore-Meyers Road with Washington Boulevard (Subject Intersection)
- Westmore-Meyers Road with Madison Street
- Westmore-Meyers Road with Lombard Circle/Jackson Street
- Westmore-Meyers Road with Wilson Road

It should be noted that the traffic counts were conducted when schools were in session. The results of the traffic counts indicated that the weekday morning peak hour occurs from 7:15 to 8:15 A.M., the weekday midday peak hour from 12:00 to 1:00 P.M., and the weekday evening peak hour from 4:30 to 5:30 P.M. **Figure 7** illustrates the existing peak hour vehicle traffic volumes for each intersection and the traffic count summary sheets are included in the Appendix.

Crash Data Evaluation

KLOA, Inc. obtained crash data from the Village of Lombard for the past seven years (2016 to 2022) at the intersection of Westmore-Meyers Road with Washington Boulevard. **Table 1 s**ummarizes the crash data. A review of the crash data indicated the following:

- The intersection of Westmore-Meyers Road with Washington Boulevard averaged five to six crashes per year.
- Of the 40 total crashes between 2016 and 2022, 16 crashes (40 percent) involved left-turning vehicles traveling in the northbound and southbound directions.
- For the northbound and southbound left-turn crashes, most of the drivers indicated not being able to see oncoming traffic (vision being blocked by the opposing traffic on the inside lane).
- The second most common crash type was rear end with ten crashes (25 percent).
- The third most common crash was fixed object crashes with eight crashes (20 percent).
- No fatalities were reported at this intersection.

Based on a review of the crash data reports, the following can be determined:

- The primary cause of crashes at the intersection was related to the lack of exclusive left-turn lanes on Westmore-Meyers Road.
- The existing lane configuration has a negative offset for left-turning vehicles. This means that drivers have limited visibility to see oncoming traffic.
- Since the inside travel lanes are shared left-turn/through lanes, rear end crashes are occurring when a vehicle slows down or stops in front of them to make a left turn.

Overall, the provision of an exclusive left-turn lane will help mitigate these types of crashes.

Table 1
WESTMORE-MEYERS ROAD WITH WASHINGTON BOULEVARD – CRASH SUMMARY

Year	Type of Crash								Crash Severity		
	Angle	Head On	Object	Rear End	Sideswipe	Turning	Other	Total Crashes	Property Damage Only	Injury	Fatality
2016	0	0	1	2	0	2	0	5	1	4	--
2017	0	0	1	0	0	3	0	4	4	--	--
2018	1	0	2	5	1	4	0	13	7	6	--
2019	0	0	1	1	0	2	0	4	3	1	--
2020	0	0	1	0	1	1	1	4	1	3	--
2021	0	0	0	1	2	0	0	3	2	1	--
2022	0	0	2	1	0	4	0	7	7	--	--
Total	**1**	**0**	**8**	**10**	**4**	**16**	**1**	**40**	**25**	**15**	**--**
Avg	**<1.0**	**<1.0**	**1.1**	**1.4**	**<1.0**	**2.3**	**<1.0**	**5.7**	**3.6**	**2.1**	**--**

3. Existing Traffic Conditions

Intersection capacity analyses were performed for the weekday morning, midday, and evening peak hours for the existing traffic volumes (see Figure 7) along the Westmore-Meyers Road corridor.

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 11 software. The analysis for the traffic-signal controlled intersections were accomplished using recently implemented cycle lengths and phasings to determine the average overall vehicle delay and levels of service.

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 conditions are presented in **Tables 2** through **7**. Summary sheets for the capacity analyses are included in the Appendix.

As can be seen in Table 2, the intersection of Westmore-Meyers Road with Washington Boulevard currently operates at Level of Service (LOS) A during the weekday morning, weekday midday, and weekday evening peak hours. The northbound and southbound approaches currently operate at LOS A and the eastbound and westbound approaches operate at LOS D or better.

While these levels of service are acceptable, it should be noted that the delay for the northbound and southbound left-turn movements do not reflect the obstructed sight lines/driver hesitation when performing a left-turn movement.

As can be seen in Tables 2 through 7, these intersections overall currently operate at LOS B or better during the peak hours with all of the approaches operating at LOS D or better during the peak hours.

4. Improvement Alternatives Analysis

The following describes the impacts and benefits of several evaluated alternatives to address the existing crash history and negative left-turn offset. The possible solutions range from providing exclusive left-turn lanes to reducing or eliminating left-turn movements.

Westmore-Meyers Road Corridor Potential Improvements

In order to improve the operations/enhance safety at the intersection of Westmore-Meyers Road with Washington Street (particularly for northbound and southbound left-turn movements) and to reduce the frequency of crashes occurring at the intersection, KLOA, Inc. evaluated the following potential improvements:

1. Provision of a lead phase for either the northbound or southbound approach. This improvement is similar to the existing conditions on Westmore-Meyers Road at Jackson Street and Maple Street.

2. Prohibition of left-turn movements during the peak periods.

3. Converting Washington Boulevard (west leg) to one-way eastbound traffic.

4. The restriping of Westmore-Meyers Road to provide exclusive left-turn lanes with zero offset on both approaches.

Ultimately, it was determined that Alternative 4 (restriping of Westmore-Meyers Road to provide exclusive left-turn lanes) was the preferred alternative to carry forward as it offered the greatest benefits. The other alternatives were not selected for further analysis due to the following:

- Alternative 1 – Providing lead left-turn phases with a four-lane cross section reduces the amount of available of green time for the opposing approach, results in left-turn movements continuing to occur from the through lane, could potentially require updated traffic signal equipment and corridor re-optimization, and does not address the restricted visibility during the permissive left-turn phase.

- Alternative 2 – Prohibiting left-turn movements during the peak periods may result in increased driver confusion and expectancy that a left-turn movement should not be occurring during that time period. The increased confusion could contribute to an increased number of rear end crashes, particularly should a driver opt to ignore the signed restriction. Additionally, the left-turn movements would shift to other intersections with similar operational characteristics (such as Woodrow Avenue or Division Street), increasing operational/safety concerns at those intersections.

- Alternative 3 – Restricting the west leg of Washington Boulevard to one-way eastbound traffic will result in a regional shift in traffic, impacting the existing residential homes on Washington Boulevard on the west side of Westmore-Meyers Road. These impacts include but are not limited to:
    - An increase in left-turn traffic at the unsignalized intersection of Westmore-Meyers Road with Division Street
    - An increase in left-turn traffic at Madison Street (which has limited storage and taper length for the provided left-turn lane)
    - An increase in westbound through traffic on Madison Street

Overall, the restriping of Westmore-Meyers Road to provide exclusive left-turn lanes (Alternative 4) provides the highest benefit for the study area intersections as described in the following section.

5. Preferred Alternative

This section describes the benefits of the restriping of Westmore-Meyers Road as it relates to operational enhancements, reductions in existing crash history, and implementation at other intersections along the Westmore-Meyers Road corridor.

Westmore-Meyers Road – Recommended Improvement

Overall, the restriping of Westmore-Meyers Road to provide exclusive left-turn lanes provides the highest benefit for the study area intersections, as well as the entire Westmore-Meyers Road corridor, due to the following:

- It will allow for exclusive left-turn lanes to be provided at the intersection.
- The alternative provides a significant operational benefit with a limited impact to the progression of through traffic through the intersection. As discussed in the following section, the existing traffic volumes along Westmore-Meyers Road are a good candidate for restriping and will not result in a significant change in overall operation at the study intersection.
- The exclusive left-turn lanes will be able to be designed with adequate storage and taper lengths based on the Illinois Department of Transportation (IDOT) *Bureau of Design and Environment (BDE)* Manual.
- As discussed in the following section, the provision of exclusive left-turn lanes will reduce the number of crashes occurring at the intersection based on data collected at other intersections with a similar operational improvement.
- The improvement does not call for time of day turning restrictions or the modification of any existing roadway travel orientations.

Most importantly, this improvement can be applied to the entire Westmore-Meyers Road corridor, such as at Jackson Street and Maple Street which currently do not provide exclusive left-turn lanes, and these intersections would see the same benefits as the intersection of Westmore-Meyers Road with Washington Street. Overall, this improvement will enhance the safety and flow of traffic along the corridor, including at the existing residential driveways (via the provision of a center two-way left-turn lane), while maintaining the existing infrastructure and regional flow of traffic within the area.

Additionally, the restriping provides an opportunity to install pedestrian refuge islands, which reduce the number of travel lanes needed to be crossed by pedestrians. Potential locations for a pedestrian refuge island include the intersection of Westmore-Meyers Road with the Illinois Prairie Path.

Westmore-Meyers Road Restriping – Crash Modification Factors

To estimate the potential crash reduction with the provision of left-turn lanes, KLOA, Inc. reviewed data published in the *Highway Safety Manual*, 1st Edition (HSM) published by the American Association of State Highway and Transportation Officials (AASHTO). This manual summarizes crash modification factors associated with various roadway and intersection improvements, including the provision of exclusive left-turn lanes and protected/permissive left-turn phases.

A crash modification factor is a crash reduction ratio derived by collecting crash data at a location before and after an improvement is implemented. Many states and jurisdictions have developed reference lists of crash modification factors to help determine an appropriate treatment for improvement plans. Crash modification factors are used to estimate the potential change in expected crash frequency or crash severity (plus or minus a standard error) due to the implementing of an improvement/action. It should be noted that the crash modification factors included in the HSM are most reliable when the standard error is 0.1 or less.

Based on information provided in the HSM, the proposed restriping improvements can result in the following decrease in average crash frequency:

- Table 14-12 in the HSM, 1st Edition indicates that the provision of a left-turn lane on both major-road approaches at a signalized intersection in an urban setting has a crash modification factor of 0.81 (estimated 19 percent crash reduction) for all types of crashes, with a crash modification factor of 0.83 (estimated 17 percent reduction in crashes) for injury crashes.

- Table 14-23 in the HSM, 1st Edition indicates that changing left-turn phasing from permissive to protected/permissive phasing has a crash modification factor of 0.84 (16 percent reduction in crashes) for left-turn injury crashes and a crash modification factor of 0.99 (estimated one percent reduction in crashes) for all crash types.

When these crash modification factors are applied to the appropriate calculations found in the HSM that are associated with the potential improvements, up to a 40 percent reduction in crashes could be realized. Additionally, up to a 20 percent reduction in injury crashes could also be realized.

Westmore-Meyers Road Restriping Plan

Based on KLOA, Inc.'s discussion with Village staff, the restriping of Westmore-Meyers Road would consist of the following:

- The restriping would occur along Westmore-Meyers Road between St. Charles Road and the access drive serving the Eastgate Shopping Center located 700 feet north of Wilson Avenue.

- The two northbound travel lanes will be maintained along the entirety of the corridor.

- The southbound travel lanes will be modified to provide a single southbound travel lane and a dedicated lane to accommodate left-turn movements (in both the northbound and southbound directions) at key intersections and a center two-way left-turn lane at all other locations.

- An exclusive southbound right-turn lane will be provided at the intersection of Westmore-Meyers Road with Madison Street.

If this concept is carried forward into design, the corridor could also offer center refuge islands within the middle of the roadway to allow pedestrians an area to wait in the roadway while vehicles traverse the corridor, such as at the intersection of Westmore-Meyers Road with the Illinois Prairie Path.

Figures 8 and **9** illustrate the preliminary geometric plan for the interim road diet. It should be noted that all turn lane storage and taper lengths are based on the criteria outlined in the IDOT BDE Manual.

Costs of Improvements

Based on our discussions with staff, in order to implement the recommended restriping and traffic signal timings improvements, it is anticipated that the minimum work required would be the removal and replacement of traffic signal equipment located in the northeast corners of the intersections of Westmore-Meyers Road with Washington Boulevard, Jackson Street, and Maple Street and to update the traffic signal controllers at all three intersections. The costs for these improvements would be approximately $200,000 to $250,000 total. It should be noted that this cost estimate does not include the cost associated with any work to restripe Westmore-Meyers Road.

However, should the full replacement of the traffic signal equipment be considered at the three previously described intersections, as well as the intersection of Westmore-Meyers Road with Madison Street, to meet all modern standards the cost would be in the range of $1,000,000 to $1,500,000. It is our understanding that this project would be eligible for STP and HSIP funding, and this could be done in conjunction with a corridor resurfacing or signal modernization project.

In summary, the minimum cost to implement the improvements would be approximately $70,000 to $80,000 per intersection. Should a full modernization be considered, the cost would be approximately $250,000 to $375,000 per intersection.

5. Analyses of Projected Conditions

The total projected traffic conditions include the existing traffic volumes, increase in background traffic due to growth, the proposed improvements to the Westmore-Meyers Road corridor, and the reassignment of traffic to the study area intersections due to the proposed improvements.

Traffic Reassignment

The provision of turn lanes along the Westmore-Meyers Road corridor is expected to result in a redistribution of traffic along the corridor. As it relates to the intersection of Westmore-Meyers Road with Washington Boulevard, it is anticipated that some drivers that currently make northbound left-turn movements at the intersection of Westmore-Meyers Road with Madison Street (which provides exclusive left-turn lanes) will now opt to turn at Washington Boulevard with the provision of an exclusive northbound left-turn lane. **Figure 10** illustrates the reassignment of existing traffic at the intersection of Westmore-Meyers Road with Washington Boulevard.

Background Traffic Volumes

To account for any additional increase in traffic due to other factors or developments not previously discussed, an ambient growth factor of approximately seven percent was also applied to the study area over a 20-year period to represent Year 2043 conditions. This growth factor was based on the Chicago Metropolitan Agency for Planning (CMAP) On To 2050 projections, in which the population and employment for the Village of Lombard are projected to increase by an annually compounded growth rate of 0.35 percent per year between Year 2015 and Year 2050.

Total Projected Traffic Volumes

The existing traffic volumes (increased by a regional growth factor) were combined with the reassignment of traffic to the intersection of Westmore-Meyers Road with Washington Boulevard due to the provision of exclusive left-turn lanes at the intersection to determine the total projected traffic volumes, shown in **Figure 11**.

Capacity Analyses

Intersection capacity analyses were performed for the weekday morning, midday, and evening peak hours for the projected traffic volumes (see Figure 11) along the Westmore-Meyers Road corridor. Summary sheets for the capacity analyses are also included in the Appendix.

Westmore-Meyers Road with Washington Boulevard Evaluation

Table 8 summarizes the capacity analysis results showing the level of service and overall intersection delay for the existing and projected conditions at the intersection of Westmore-Meyers Road and Washington Boulevard. A review of Table 8 indicates the following:

- The intersection of Westmore-Meyers Road with Washington Boulevard overall is projected to continue operating at the acceptable LOS B or better during the peak hours.

- The overall average increases in delay at the intersection are projected to be an increase of approximately three seconds or less over existing conditions except during the weekday morning peak hour.

- The Westmore-Meyers Road approaches are projected to continue operating at LOS A during the peak hours with increases in delay of approximately two seconds or less except during the weekday morning peak hour when the approaches are projected to operate at LOS B.

- The eastbound and westbound approaches are projected to operate at LOS D or better during the peak hours.

As such, the proposed restriping will have a minimal impact on the operation of this intersection as it relates to the levels of service and delays experienced on the four approaches. However, as previously indicated, the restriping improvement will improve the flow of traffic along Westmore-Meyers Road by eliminating left-turning vehicles stopped in the travel lanes and will reduce the crashes experienced along the corridor. Furthermore, it should be noted that the increases in delay are also associated with the projected increase in regional growth, as previously described.

Westmore-Meyers Road Corridor Evaluation

Tables 9 through **13** summarize the traffic analysis results showing the level of service and overall intersection delay (measured in seconds) for the existing conditions at the other intersections along the corridor.

As can be seen in Tables 9 through 13, the other intersections along the Westmore-Meyers Road corridor are projected to operate at the acceptable LOS B or better during the peak hour with all approaches operating at the acceptable LOS D or better during the peak hours.

As such, the proposed restriping of Westmore-Meyers Road to provide exclusive left-turn lanes will have a limited impact on the operations of this intersections and the intersections along the corridor are projected to continue operating at acceptable levels of service.

5. Other Considerations

The following discusses additional traffic calming measures and Westmore-Meyers Road corridor enhancements that could be implemented with a road diet for Westmore-Meyers Road and identifies the similarities of a road diet to the proposed restriping of Westmore-Meyers Road.

Westmore-Meyers Road – Road Diet

As previously indicated, the existing daily traffic volumes (both current and historic) indicate that the Westmore-Meyers Road corridor between St. Charles Road and Wilson Avenue is a candidate for a potential road diet.

Similar to the preferred restriping alternative, as discussed in the previous section, the road diet would consist of restriping Westmore-Meyers Road to provide one travel lane in each direction with exclusive left-turn lanes at key intersections and a center two-way left-turn lane at all other locations (including at residential driveways) and would offer the same operational/safety benefits.

At 46 feet wide, the three travel lanes would utilize approximately 36 feet of pavement, and the surplus existing pavement could be utilized to provide buffer protected bicycle lanes or increased green space.

Overall, the road diet would provide a traffic calming measure for the corridor as it would allow for the provision of bump-outs/curb extensions at key intersections/locations to minimize the amount of time pedestrians spend within the vehicle travel way. These locations could include at Maple Street (near Westmore Woods Park) and at Madison Street (near St. Pius X School and Madison Meadows Park).

Furthermore, center refuge islands could be provided within the middle of the roadway to allow pedestrians a safer place to wait in the roadway while vehicles traverse the corridor. Additionally, the provision of bump-outs/curb extensions could be utilized to help better define on-street parking locations within the vicinity of commercial developments and would reduce the effective width of the roadway, thus calming traffic along the corridor.

KLOA, Inc. performed a high-level sensitivity analysis for the existing traffic volumes along the corridor, as previously discussed, which indicated that with a single travel lane in each direction, the intersections would continue to operate at adequate levels of service.

Other items that could be evaluated to determine the feasibility of a road diet along this corridor include vehicle travel time studies, existing travel speeds along the corridor, public transportation ridership along the corridor (Pace Bus Route 313), and resident/public feedback.

It should be noted that based on information published in the HSM, 1st Edition, road diets for urban arterial roadways have a crash modification of 0.71 (29 percent reduction in crashes) for all crash types.

6. Conclusion

Based on the preceding analyses and evaluation of the alternative improvements for the intersection of Westmore-Meyers Road with Washington Boulevard, the following was determined:

- The primary cause of crashes at the intersection of Westmore-Meyers Road with Washington Boulevard is a result of the lack of exclusive left-turn lanes at the intersection.

- The restriping of Westmore-Meyers Road allows the Village to provide exclusive left-turn lanes without widening the existing roadway.

- The restriping of Westmore-Meyers Road at Washington Boulevard provides the following benefits:

    - It will allow for exclusive left-turn lanes to be provided at the intersection.

    - The preferred alternative provides a significant operational benefit with a limited impact to the progression of through traffic at the intersection.

    - The existing traffic volumes along Westmore-Meyers Road at Washington Boulevard are a good candidate for restriping and will not result in a significant change in overall operation of through traffic at the study intersection.

    - The exclusive left-turn lanes will be able to be designed with adequate storage and taper lengths based on the Illinois Department of Transportation (IDOT) *Bureau of Design and Environment* (BDE) Manual.

    - Based on information published in the *Highway Safety Manual*, 1st Edition, the provision of exclusive left-turn lanes has been shown to reduce the number of crashes occurring at a signalized intersection by approximately 20 percent.

    - The improvement does not call for any time of day turning restrictions or the modification of any existing roadway travel orientations.

- The restriping improvement can be applied to the entire Westmore-Meyers Road corridor without needing to provide any signed turning prohibitions or one-way roadway conversions at other intersections along the corridor.

- The restriping provides an opportunity to install pedestrian refuge islands, which reduce the number of travel lanes needed to be crossed by pedestrians. A potential location for a pedestrian refuge island is the intersection of Westmore-Meyers Road with the Illinois Prairie Path.

- With the proposed restriping of Westmore-Meyers Road, the intersections along the studied corridor will continue to operate at acceptable levels of service.

- This improvement will enhance the safety and flow of traffic along the corridor, including at the existing residential driveways, while maintaining the existing infrastructure and regional flow of traffic within the area.

- The proposed improvement would not preclude the Westmore-Meyers Road corridor between St. Charles Road and Wilson Avenue from being a future candidate for a full road diet.