

Date: December 6, 2024

To: Ryan Foley, Civil Engineer

From: Emily Bothell, Senior Associate Transportation Planner

Re: Melrose Avenue and Koser Avenue/Golfview Avenue Intersection Analysis

The City of University Heights is currently in the design phase of the Melrose Avenue Complete Streets project, which is expected to be put out to bid in December 2025. This memo provides an analysis of the current and proposed Level of Service (LOS) at the intersection of Melrose Avenue and Koser Avenue, along with a review of the preliminary concept plan.

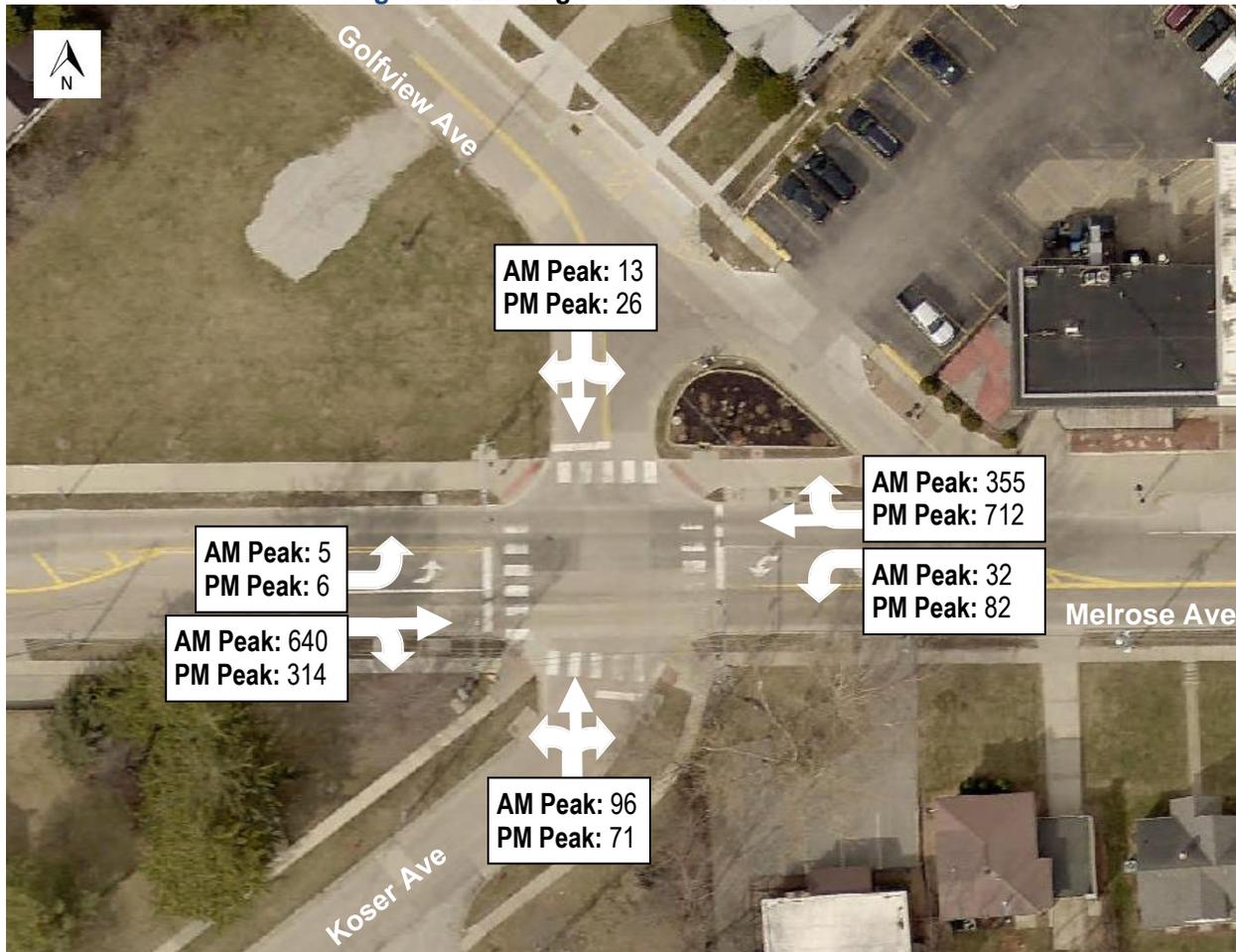
As illustrated in **Figure 1**, Melrose Avenue is a two-lane arterial street, while Koser Avenue is a two-lane local street to the south, with Golfview Avenue (two-lane local street) located to the north. Peak hour traffic counts were collected at the intersection in October 2024. **Figure 2** presents the AM and PM peak hour traffic counts for each lane.

Figure 1: Melrose Ave and Koser Ave Intersection



Melrose Avenue carries a majority of entering traffic at the intersection with 1,032 entering vehicles during the AM peak hour and 1,114 during the PM peak hour. On Koser Avenue, 96 vehicles enter the intersection during the AM peak hour whereas 71 enter during the PM peak hour. Golfview Avenue has the lowest entering volumes with 13 vehicles during the AM peak hour and 26 during the PM peak hour. Any vehicles using the westbound right-turn slip lane were also counted for use in forecasting 2050 westbound right-turning traffic.

Figure 2: Existing Peak Hour Traffic Counts



Existing Conditions

Existing intersection capacity under signalized conditions was analyzed using signalized capacity methods outlined in the latest edition of the *Highway Capacity Manual* (HCM) and using *Synchro 11* software. By using HCM methods, control delay is calculated as seconds of delay per vehicle and a corresponding level of service (LOS) is also shown. Level of service describes operating conditions based on several factors including speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. **Table 1** exhibits LOS with its control delay ranges at signalized intersections. A LOS A represents the best operating conditions (free-flow movement), and LOS F represents the worst conditions, i.e. extreme congestion and stop-and-go conditions.

Table 1: Level of Service Criteria

Level of Service	Average Control Delay (s/veh)
A	<10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

The intersection currently experiences minimal delays during both AM and PM peak hours, with an overall delay of less than 10 seconds per vehicle (LOS A). During the AM peak hour, the northbound movement has the highest delay, averaging 10.3 seconds per vehicle. In the PM peak

hour, the southbound movement experiences the most significant delay, averaging 23.9 seconds per vehicle. Although the southbound movement has the greatest delay during the PM peak hour, it affects 2% of total traffic at the intersection (26 vehicles).

Future 2050 Conditions

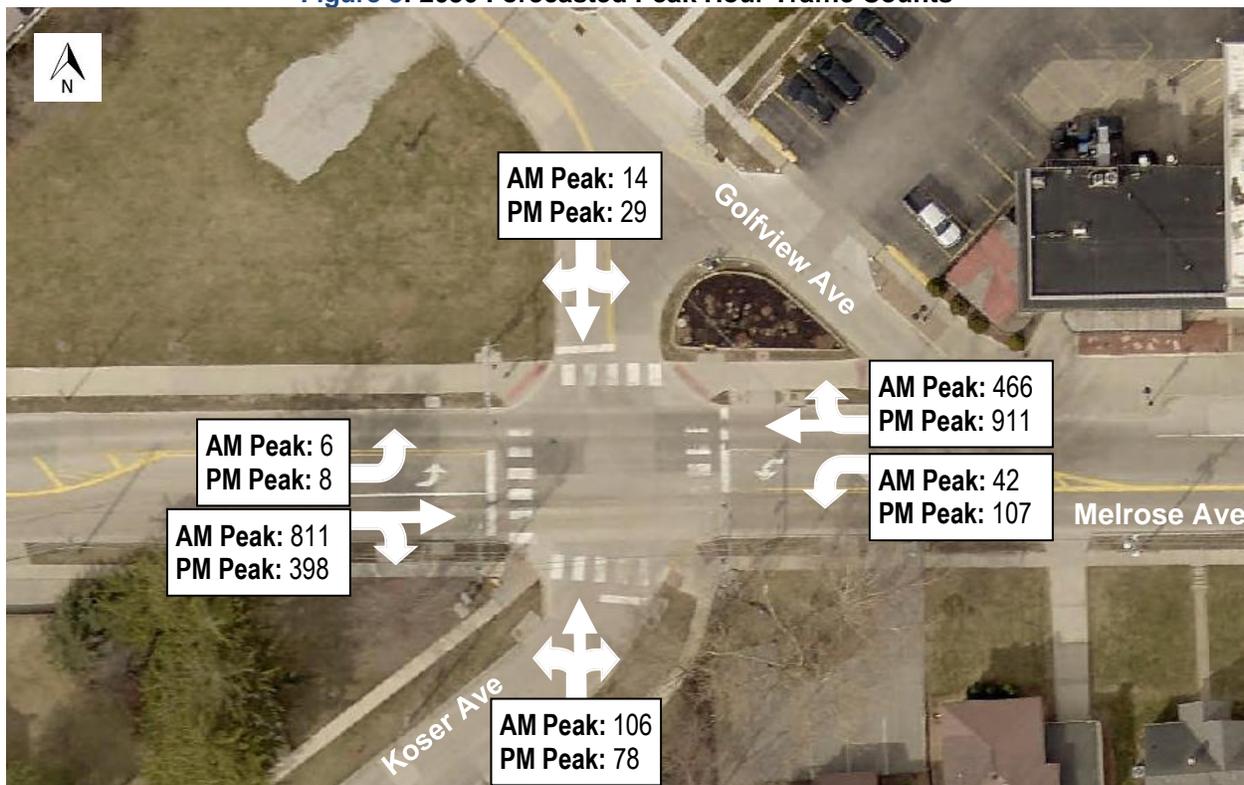
Forecasted Average Daily Traffic (ADT) volumes were derived from the MPOJC adopted 2050 Travel Demand Model. 2050 ADT was multiplied by the existing peak hour percentages to generate the peak hour traffic volumes. These peak hour volumes (**Figure 3**) were then modeled using existing signalized conditions and timings. As shown in **Table 2**, the overall intersection continues to perform well in 2050 at LOS A during both peak periods with a marginal increase in delay.

Table 2: Intersection Delay and LOS Comparison

Direction	Existing Conditions				Future Conditions			
	Control Delay (sec/veh)		LOS		Control Delay (sec/veh)		LOS	
	AM	PM	AM	PM	AM	PM	AM	PM
Melrose Avenue								
Eastbound Left	1.0	0.7	A	A	1.3	1.1	A	A
Eastbound Through/Right	3.1	1.3	A	A	7.9	1.7	A	A
Westbound Left	4.0	4.0	A	A	8.0	4.5	A	A
Westbound Through/Right	5.3	6.3	A	A	7.1	10.4	A	B
Koser Avenue*								
Northbound	10.3	14.5	B	B	10.2	14.4	B	B
Golfview Avenue*								
Southbound	8.4	23.9	A	C	9.6	24.0	A	C
Intersection	4.5	5.8	A	A	7.8	8.2	A	A

*Because the MPOJC Travel Demand Model only includes collector and arterial streets, a 1% growth rate was applied to the Golfview Avenue and Koser Avenue peak hours.

Figure 3: 2050 Forecasted Peak Hour Traffic Counts

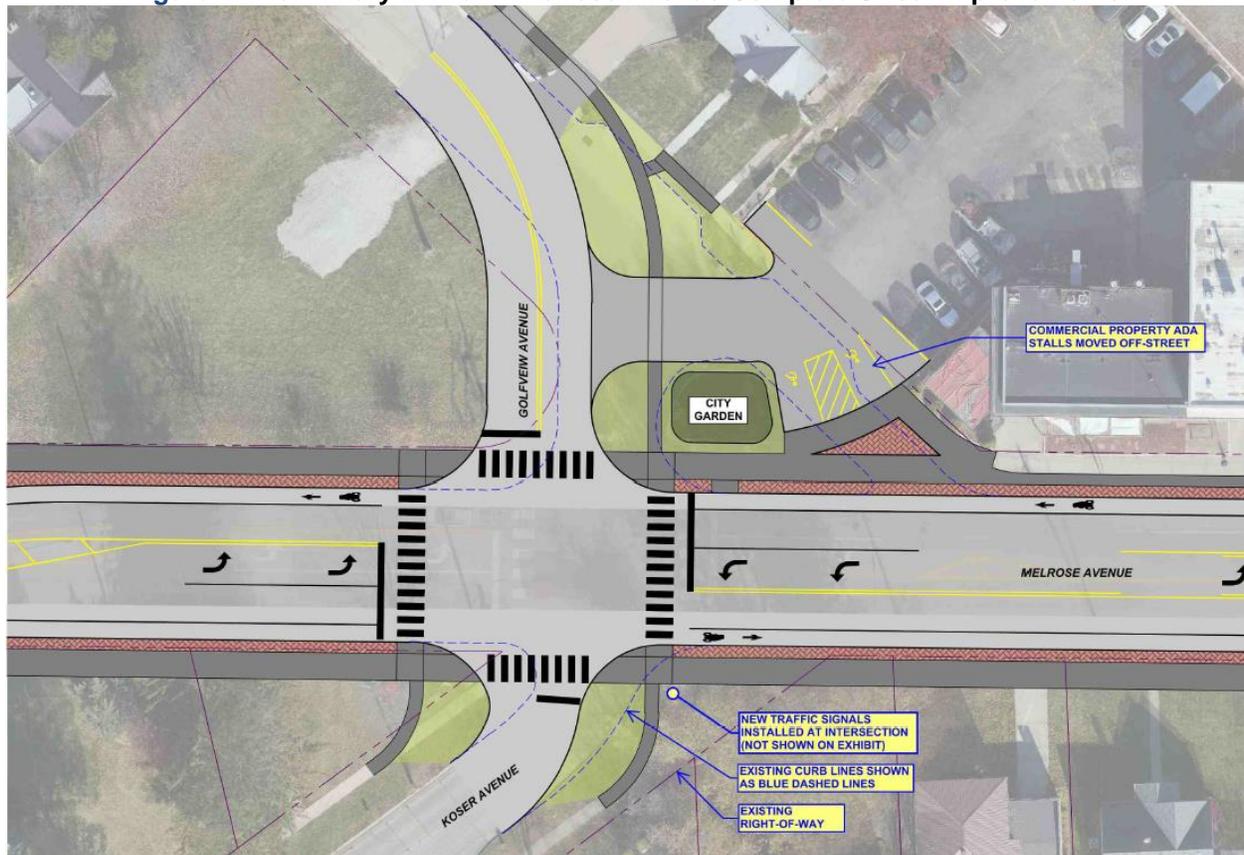


Review of Preliminary Design at Melrose Avenue and Koser Avenue

The preliminary design for the intersection of Melrose Avenue and Koser Avenue/Golfview Avenue is illustrated in **Figure 4**. The primary change to the intersection layout is the removal of the westbound right-turn slip lane located adjacent to 1000 Melrose Avenue. After reviewing the preliminary design, we find the redesign of the intersection to be positive and have compiled the following comments as requested:

1. The removal of the westbound right-turn slip lane slows motorists' turns and reduces the risk of pedestrian and bicycle collisions, and reduces the number of total pedestrian crossings.
2. The crosswalks are at right angles to the road, increasing the predictability and decreasing the distance of pedestrian crossings at the intersection.
3. Stop lines are clearly marked before the crosswalks, indicating where motorists should stop due to the high volume of pedestrians and bicyclists at the intersection.
4. Realigning the Golfview Avenue leg of the intersection across from Koser Avenue reduces the turning radius and should slow turning movements, enhancing pedestrian safety.
5. The intersection is accessible for all users: pedestrians, bicyclists, motor vehicles, and transit users.

Figure 4: Preliminary Exhibit – Melrose Avenue Complete Street Improvements



Summary

The Melrose Avenue and Koser Avenue/Golfview Avenue intersection performs well under existing conditions, with minimal delay and overall LOS A. The 2050 forecasted traffic volumes at the intersection were also reviewed and while overall intersection delay increases, it continues to perform well at LOS A.

The proposed concept at the intersection of Melrose Avenue and Koser Avenue/Golfview Avenue follows the principles of “complete streets” and may decrease the likelihood of pedestrian/bicycle collisions and motorist collisions.