WALKER CONSULTANTS

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December 1, 2025

Kurt Hagen
Senior Vice President
Triple Five Worldwide
Via Email

Re: *Parking Demand Analysis Update*
Mall of America (MOA)
Bloomington, MN
Walker Project 21-005146.20

Dear Kurt:

Walker Consultants (Walker) is pleased to be able to assist MOA with an updated analysis of the parking demand of Mall of America (MOA). We have reviewed and compared data for roughly the top 100 hours for 2019 (pre-pandemic), November 2021 through October 2022, calendar years 2023 and 2024, and 2025 through November 15. The purpose of this update is to evaluate the parking demand with the supply in various periods throughout the year with the proposed use of the roof level of the East deck as airport Park N Ride.

The standard of the industry for parking demand for a shopping center is the 20th highest hour of the year. Traditionally, it has been the second or third highest hour on the Saturday that is 7 to 10 days before Christmas. The following summarizes the 20th highest hours:

20th Highest Hr	Date	Demand	Change from 2019
2019 CY	August 10	14,778	
2021-2022	November 20 (2021)	12,335	-16.5%
2023 CY	December 26	12,636	-14.5%
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2025 CY (estimated)	TBD but likely March	~12,700	-14.1%

As we don't have December yet, but do have Black Friday 2025 and hours through the end of November, we looked at the December hours in the top 20 in 2023 and 2024, and think it likely that 2025 will be around 12,700 in the 20th highest hour and thus marginally higher than either 2023 or 2024.

As discussed in the attached report, the August 20th percentile day in 2019 was due to a rare combination of activity on that date. The 1-2% decline in occupied GLA since 2019 does not account for the overall decline in parking demand of ~14% since the pandemic. Therefore, we reviewed data provided by MOA to find any anomalies or information that would indicate specific influences on the changes in parking demand and particularly seasonality of the demand.

It is noted that Sears was closed in March 2019, but likely was performing below typical GLA that previous winter/spring. It thus was closed on Black Friday 2019. MOA and Sears remain in litigation over the lease and therefore the space remains vacant.

As seen in the table below, the average demand across the year declined 18.5% from 2019 to the 2021-2 low point, which particularly reflected the omicron variant Covid virus in December 2021. 2023 showed a recovery of about 5.6% from 2021-2022, but remained 14% below 2019 demand. 2024 actually declined slightly from 2023 and the average demand from January through October of 2025 has dropped even lower, at 2.4% down from the same period in 2024, and was 20% down from 2019. However it appears that both the 20th highest hour and Black Friday are higher than 2023 or 2024, with Black Friday being 0.3% over that day in 2019. This appears to have be driven by weather reports of a storm on Saturday and Sunday, as there was markedly reduced demand of less than 10,000 and 9000 spaces, respectively. People clearly chose to come out on Black Friday rather than the following days.

Average of peak days*	2019	2021-2	Change from 2019	2023	Change from 2019	2024	Change from 2019	2025 YTD	Change from 2019
Jan-Oct	14,786	11,822	-20.0%	12,484	-15.6%	12,129	-18.0%	11,843	-19.9%
Nov-Xmas	14,190	11,854	-16.5%	12,424	-12.4%	12,238	-13.8%		
Post Xmas	14,044	11,068	-21.2%	12,574	-10.5%	12,001	-14.5%		
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Black Friday	15,161	13,835	-8.7%	14,771	-2.6%	14,483	-4.5%	15,211	0.3%
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Date of 20th Highest	10-Aug	20-Nov		26-Dec		24-Feb		March?	

*Demand over 11,000 spaces

It is impossible to project if, much less when, parking demand (specifically the 20th highest hour) might fully recover to 2019 levels, especially in the spring break and summer periods, which are driven by family entertainment demand. Based on extensive data from another major regional mall, as well as anecdotal reports, E-commerce growth was accelerated by the pandemic but has continued to grow slowly since, causing a decline in parking demand at typical malls except for the 20th highest hour, 7 to 10 days before Christmas, when it becomes expensive to ship orders in time for the holidays. Given that the January to October declines are greater than in the holiday shopping season, and the relatively strong counts on Black Friday, we suspect that family entertainment activity has declined more than retail shopping. This benefits the ability to operate the Park and Ride throughout the year. An outlier to that hypothesis was the relatively strong post-Christmas demand (which combines retail with family entertainment) in 2023.

Conversely, recent patron intercept surveys show that the percent of patrons driving and parking has increased from 75% to 84%, which we believe is due to:

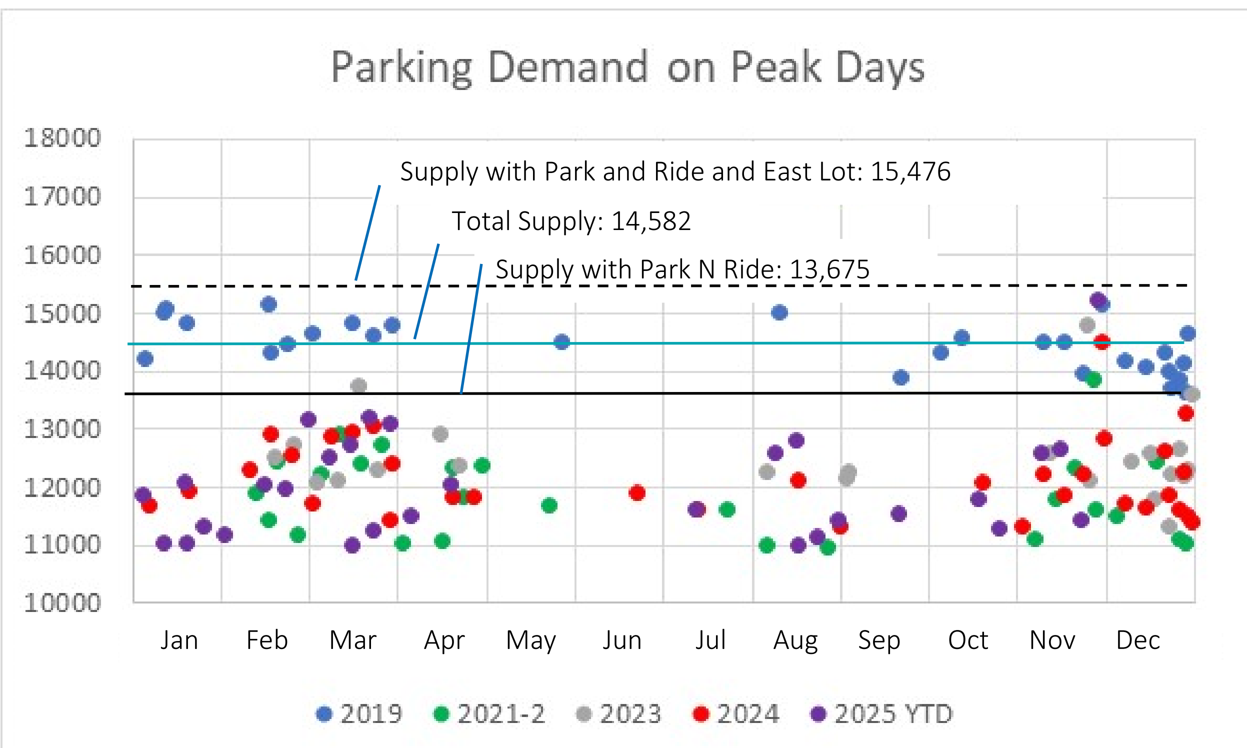
1) Reduced use of public transit. The MOA light rail station ridership declined 50% from 2019 to 2020, and only recovered to 60% in 2021. While similar data by station was not readily available on the internet for more recent years, there was a general pattern of year-over-year increases through 2024. However the ridership in the first two quarters in June 2025 has reduced 7% overall, with a 15% reduction in the Blue Line ridership, a key service to MOA. This is despite efforts to efforts to improve service in the Bloomington area in 2024, and reduced and simplified fares starting January 1 2025.
2) Significantly reduced use of Transportation Network Companies (TNCs, including Uber and Lyft) partially due to the pandemic after-effects, but also due to higher prices as the companies attempt to be profitable. The reduced use of TNCs should elevate parking demand today, but it could cause it to decline in the future if/when autonomous vehicles aka robotaxis allow the cost of TNC rides to be drastically reduced. The latest projections indicate that robotaxis will not be widely available in the Minneapolis

metro area for a few more years. Waymo is currently testing AVs in Minneapolis to assure that there is adequate safety for driverless operations, particularly in snow conditions.

Thus, it remains a period of uncertainty for parking demand analysis. We think it unlikely that the levels of parking demand seen in 2019 in the 20th highest hour will be achieved for at least several more years. As demand has trended down from 2023 to 2024 to 2025, it is an ideal time to provide the Park n Ride service to MSP.

The current supply of parking is 14,582 spaces. There has been some loss of spaces to the transit center renovation that was completed in 2020 compared to earlier studies. The overall total does not include the East Lot, which was only used on Black Friday in 2023 and with less than 200 cars parked. In 2025, the East Lot was nearly filled on Black Friday. The roof level of the East Deck with 907 spaces will be used for the Park N Ride program, which will reduce the MOA supply to 13,675 spaces, but with the East Lot the capacity is 15,476.

We evaluated demand in several ways to make sense of the demand changes. However the key conclusion relative to use of the roof of the East deck for Park n Ride is shown in the graph below, which shows the peak hour demand on days where the parking demand exceeded ~11,000 spaces in at least one hour of the day. There was one spring break day and one Christmas break day where the supply with Park N Ride was exceeded in 2023 as well as Black Friday in both 2023, 2024 and 2025. Given that these are one day peaks, they could be easily accommodated by opening the East Lot, which has 1,801 spaces, bringing the total with Park N Ride to 15,476 spaces. That avoids having to close Park N Ride to new reservations multiple days in advance of a single peak day.



It is therefore our opinion that the Park n Ride can be operated in all months of the year for the foreseeable future. If the trend in fall of 2026 is higher than 2025, then MOA may have to stop taking reservations a week to 10 days before Black Friday.

If you should have any additional questions, please do not hesitate to call or email.

Sincerely,

WALKER CONSULTANTS

Mary S. Smith

Mary S Smith
Senior Vice President

Parking Demand

MOA has observed that pedestrian traffic and parking demand has declined from pre-pandemic levels. We have updated our review of data provided by MOA to find any anomalies or information that would indicate specific influences on the changes in parking demand.

MOA provided data from the occupancy monitoring system in the parking ramps for the top 100 hours in 2019, over 500 hours in 2021-2, over 2900 hours for 2023, over 1400 hours in 2024, and 1991 hours from January through November 30, 2025. It is noted that a single space parking guidance system like the Park Assist system installed in most of MOA parking is far more accurate than prior occupancy counting systems available at MOA, as it monitors each stall individually and typically self-corrects when a miscounted stall turns over. With counts based on traffic on ramps, errors do not correct and accumulate throughout the day: if a car is miscounted driving up a ramp, but then is counted driving down, the error is never corrected until the system is recalibrated overnight.

The Park Assist system indicates 11,415 spaces, including the Sears lot but not PO East which currently is used for employee parking. However, there are 2,058 spaces in the North Lot/Ramp and 1109 in the hotel lots, giving a total of 14,582 spaces available.

An additional 1,801 spaces in the East Lot are available on peak days. In 2019, East Lot spaces were regularly used; in November 2021 they were only significantly used for parking on Black Friday, and then only for a peak hour demand of about 468 spaces. In 2023, the peak hour parking in the East Lot was estimated at about 197 spaces on Black Friday, the only day it was opened. In 2025 the East Lot was considered to be full most of the day.

MOA (with Walker's concurrence) then added an effective supply factor of 5% to the occupied spaces in every hour to quantify parking "demand." It is noted that both *Parking Requirements for Shopping Centers (1999)*[1] and *Shared Parking* 3rd Edition (2020)[2] recommend that the design day ratio be the 20th highest hour WITHOUT an added effective supply factor, as part of the selection of the 20th highest hour for the ratio. The calculation of "parking demand" based on 20th highest hour occupancy is thus conservative.

The leasing of the mall GLA at key points is as follows:

- 2019 Occupied Small Shop GLA is 1,625,115 which equates to 84.3%. If the majors are included (including Sears as of March 2019), the Occupied GLA is 2,593,230 which equates to 89.55%. After Sears closed the occupied GLA for the remainder of the year was 2,413,320, or 83.33%
- 2022 Occupied Small Shop GLA is 1,615,067 which equates to 83.55%. If the majors are included, but excluding Sears, the Occupied GLA is 2,403182 which equates to 82.99%.
- March 2024 Occupied Small Shop GLA is 1,588,888 which equates to 81.74%. If the majors are included (Excluding Sears), the Occupied GLA is 2,379,099 which equates to 81.70%.

[1] The Urban Land Institute and the International Council of Shopping Centers, *Parking Requirements for Shopping Centers* 2nd ed. Washington DC: ULI, 1999.
[2] Smith, Mary S. *Shared Parking,* 3rd ed. Washington DC: The Urban Land Institute, ICSC, and National Parking Association, 2020.

These numbers do not include Temporary tenants, which adds about 3% to each of the percentages. In any event, 1-2% reduction in occupancy does not explain the 10-15% reduction in parking demand as documented herein. MOA reports that there is not a significant change in the mix of tenants, such as food and beverage or family entertainment versus retail.

The standard of the industry for parking demand for a shopping center is the 20th highest hour of the year. Traditionally, it has been the second or third highest hour on the Saturday that is 7 to 10 days before Christmas. The following summarizes the 20th highest hours:

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There are some known trends in retailing. In recent years the demand on the traditional busiest day, Black Friday (the day after Thanksgiving) has been somewhat moderated due to spreading out of the sales that used to drive Black Friday traffic. However, it typically remains the busiest hour of the year, with additional spikes on the day after Christmas; it is just a lower peak. Another well-discussed factor is ecommerce which has been shown to reduce in-person shopping at malls in November through mid-December. However, based on some extensive work documenting demand at another more traditional but very large mall, we believe that the design hour (20th highest) for typical malls is likely still the same day and hour (the second or third busiest hour on the Saturday that is 7 to 10 days before Christmas), and with the same demand ratio (spaces per sq ft GLA), due to there being strong, late in-person shopping after it is deemed too expensive to ship purchases via ecommerce. Click and collect services have also helped maintain foot traffic at malls. While the pickup moved to curbside during the pandemic, the convenience of knowing the item is available at that store will continue to drive traffic into the stores. These factors thus have moderated the peak hours to be not such a high spike on Black Friday and other peak days, while not affecting the design hour, on which parking demand ratios and recommended parking supply are based.

Conversely, pre-pandemic there was higher usage of TNCs (Transportation Network Company) like Uber and Lyft then there is today. This is partially due to the pandemic but also due to the higher prices charged in the quest of profitability for these firms. Thus, reduced use of TNCs would tend to have increased parking demand, particularly at malls that have significant tourist visitation. Further, transit usage for metro-area patrons and employees was sharply reduced by the pandemic, and while growing year over year, has not returned to pre-Covid levels. A patron intercept survey in January of 2024 indicated that "driving" has increased from 75% pre-Covid to 84% in 2024. Conversely, Metro has reported that transit ridership in through June 2025 is 7% down compared to the same months in 2024, with the Blue Line (a key service to MOA) being down 15%. The overall trend in ridership is shown on the following page.

Source: https://www.metrotransit.org/performance

Rather than Black Friday, the top two busiest hours in 2019 were on August 31, which combined back to school shopping with a last chance to visit the entertainment venues before school activities become the family focus. Further there was a major charity event that day, the JDRF Walk, which caused an unusual peak. MOA personnel also noted that Labor Day was particularly late in 2019 which further contributed to that busy day.

The next two busiest hours (3rd and 4th overall) were then on Black Friday with additional hours on that day being the 9th, 10th and 15th busiest hours, for a total of 5 Black Friday hours in the top 20. In 2021-2, the top five busiest hours were Black Friday with other hours falling as the 11th and 17th busiest hours for a total of 7 Black Friday hours in the top 20. In 2023, the top six busiest hours were on Black Friday, followed by two hours on March 18, during spring break and five hours on December 30. In 2024, the top five hours were on Black Friday, followed by 2 hours in the period between Christmas and New Years, and then five hours in February and March. In 2025, we do not yet have December data, and if 3 to 7 hours may fall in the top 20, it will likely reduce top 20 hours in March.

op 20 hrs	Jan/MLK	Feb Pres	Mar/Apr	Back to School	Nov	Black Friday	Dec Pre Xmas	Xmas Break	Total Hrs
2019	6	3	2	5	0	4	0	0	20
2021-2	0	1	8	0	1	7	3	0	20
2023	0	1	6	0	0	6	0	7	20
2024	0	3	6	0	2	5	1	3	20
2025*	0	0	11	2	1	6			20
Days with Top 20 hrs									
2019	3	1	1	2	0	1	0	0	8
2021-2	0	1	4	0	1	1	1	0	8
2023	0	1	2	0	0	1	0	2	6
2024	0	2	3	0	1	1	1	1	9
2025*	0	0	4	1	1	1	NA	NA	7

* Data through 11/30 2025

Mall of America is entirely a different type of "mall", due to the entertainment components. Clearly, in 2019, the family entertainment components drove the busiest days, without any peak shopping hours (other than Black Friday) generating any hours in the top 20. In 2021-2 however, there were 10 November/ December (pre Christmas) hours, versus only 4 (and all on Black Friday) in 2019. ML King weekend and back to school generated no peak hours in 2021-2, 2023 or 2014. However spring break was quite strong in 2022 perhaps as a "release" of pent up activity as Covid began to wane. In 2023, Spring Break and Black Friday were strong with 5 and 4 peak hours respectively and the Christmas break was stronger than in the other two years.

We were surprised that there was not higher demand in the Christmas to New Years period in 2019 and 2021, when entertainment venues are typically strong. 12/30 had three peak hours in 2023 and 12/26 had one. While the COVID omicron variant was known to begun to depress demand late December in 2021 it was not thought to be a factor earlier in the holiday shopping season. The highest post-Christmas hour in 2019 was December 29 at the 27th busiest, with 4 hours on 4 days in the top 92 hours. Those hours were consistently pretty busy across the week with a range of 13,600 to 14,600 spaces. In 2021-2 the busiest hour during the post-Christmas week was the 69th highest hour at 11,519 spaces on the day after Christmas, with additional hours on that day ranking 87th and 89th. We thus conclude that the demand post-Christmas in 2021 was somewhat depressed due to omicron. In 2023, the day after Christmas had one hour that was the 18th highest, and three hours on 12/30 that were the 9th through 11th highest hours. This seems to confirm that the omicron virus did depress demand in late December 2021.

We then did a deeper dive into the top ~92 hours (only those hours were provided for 2019) which comprise all hours over 11,000 spaces. The purpose was to try to understand if there was a marked difference in the demand and patterns of shopping versus family entertainment in the last year, as life returned closer to normal. In 2021-2, there were no peak hours in January, and October/Fall break time periods, while there were fewer days but more busy hours in November and December 2021. You will note that the busiest hour on Black Friday of 2021 is roughly equal to the slowest "peak days" in December 2019, and about 8.7% less than Black Friday in 2019. Black Friday of 2023 was even higher at only 2.5% less than 2019. The other peak days in November/ December 2021 are more consistent with the reductions in February 2022 with the outlier August 30 charity event in 2019 being clearly represented. 2023 did have a higher peak in March and more busy days in April and during Christmas break, as previously discussed. The 2024 Spring days are typically higher than either 2022 or 2023, albeit not back to 2019.

The following summarizes the data by season.

Average of peak days*	**2019**	**2021-2**	**Change from 2019**	**2023**	**Change from 2019**	**2024**	**Change from 2019**	**2025 YTD**	**Change from 2019**
Jan-Oct	14,786	11,822	-20.0%	12,484	-15.6%	12,129	-18.0%	11,843	-19.9%
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*Demand over 11,000 spaces

In sum, there were fewer busy days in the 2021-2 and 2023, with more busy hours on each of those days. The peak demand on those days was also significantly below the peak demand in 2019. Further there were noticeably more busy days in December pre and post Christmas, with significantly higher demand, in 2019 than in 2021, but that 2023 returned to busier days in those periods, albeit lower than 2019 figures. Thus we conclude that while the magnitude of the reductions in demand is similar across the year, there clearly was significant reduction in retail busy hours and days in December 2021. We then calculated that the top hours in January through October declined 20% in 2022, the top hours in November through Christmas declined 16.5%, and the top hours between Christmas and New Years declined 21.2% from 2019 to 2021-2. In 2023, the top hours in January through October declined 15.6% from 2019, the top hours in November through Christmas declined 12.4%, and the top hours between Christmas and New Years declined 10.5%, much less than the decline in 2022. In 2025 the top hours January through October further declined from 2023 to 2024 to 2025.

However, Black Friday 2025 jumped back up to nearly the same peak hour as 2019, which we believe was driven by weather and may not be reached next year. Weather reports anticipated snow storms beginning the day after and continuing through the weekend. The next two weekend days had demand below 10,000 spaces on 11/29 and below 9000 on 11/30. In 2024, the day after Black Friday had demand of 12,820 spaces, and Sunday demand approached 10,000 spaces. We expect variations resulting from weather (which may affect individual days especially November through spring) and also variations due to timing of holidays, which tends to drive demand of the entertainment/family components, but also can result in fewer shopping days between Thanksgiving and Christmas.

As previously noted the peak day in 2019 was August 31, on which MOA hosted a charity event, significantly increasing parking demand to nearly 17,300 spaces. That type of day requires special parking planning and should almost be discarded from analysis of parking demand, just as the Super Bowl should not be considered in the demand of an NFL football stadium.

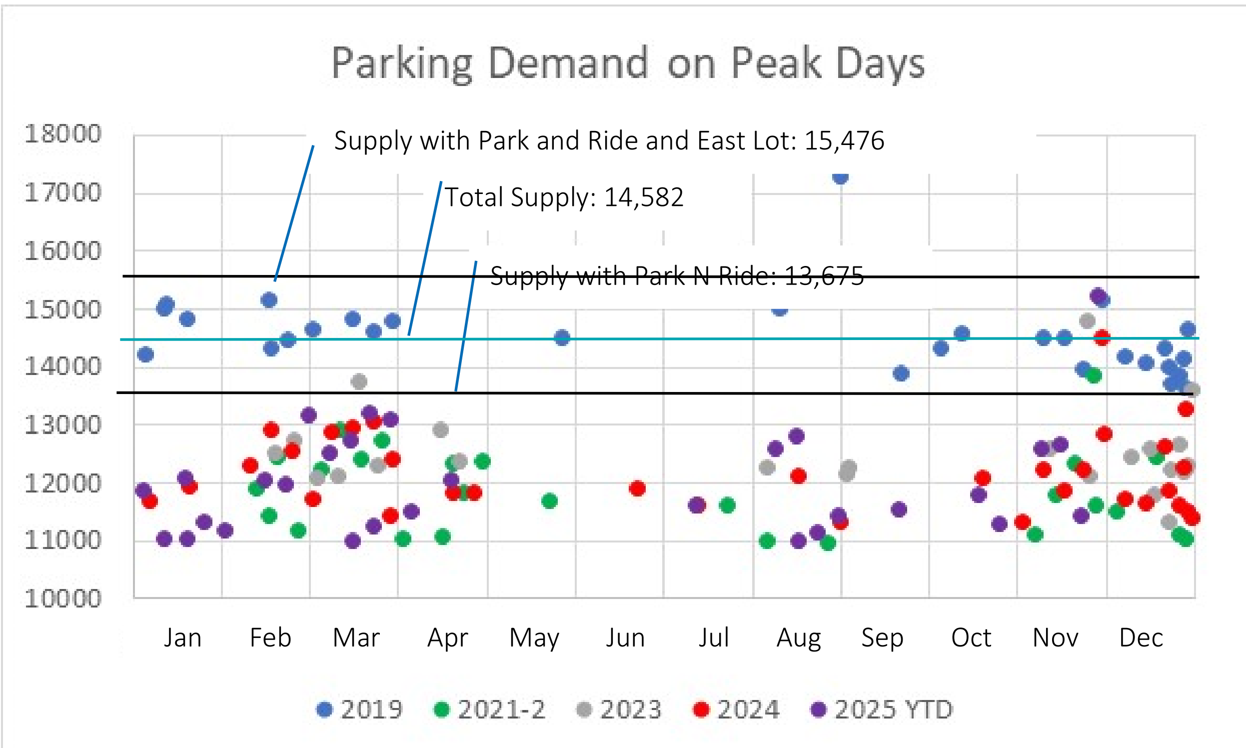
We therefore conclude that generally, the patterns in 2023 are similar than 2021-2, with slightly higher average demand, by 4 to 5% in 2023 than 2022 (ignoring the COVID impact on Christmas Break 2021). Further, clearly there has been a 10% or more greater reduction in parking demand on family entertainment peak days than peak shopping days. However the design day demand of the 20th highest hour in 2023 was <1% higher than in 2021. 2024 and 2025 typically followed the same pattern, with the exception of Black Friday 2025, which appears to have high demand due to a forecasted snow storm on the weekend.

More specifically regarding the Park N Ride plan, below we charted the highest hour on each of the days that had one or more hours over 11,000 spaces. Note that although the November/ Decem ber days in 2021 were before the Feb/Mar days in 2022, we aligned them by month for comparison. We also added lines for the overall supply in 2025, and the reduced supply with the Park n Ride on the roof of the East Deck. Remember that the demand calculations include a 5% extra cushion in demand in order to allow for effective supply factor.

Generally the following patterns were found:

- There were multiple days in 2019 where the East Lot was required, as parking demand exceeded the 14,578 supply.
- In 2020 the demand never exceeded the overall supply, but would have required the roof parking only on Black Friday.

- In 2023, the demand only exceeded the total supply on Black Friday, but only required the roof parking on two additional days, one in March and one during the Christmas break.
- In 2024, the demand only exceeded the total supply on Black Friday, but would never have required roof parking on any other day.
- In 2025, no days through November 15 would have required the roof parking.



It is therefore our opinion that the Park n Ride can be operated in all months of the year for the foreseeable future. If the trend in fall of 2026 is higher than 2025, then MOA may have to stop taking reservations a week to 10 days before Black Friday. However, we doubt that Black Friday 2026 will reach 2025 levels.