



# LEE'S SUMMIT

## MISSOURI

### DEVELOPMENT REVIEW FORM

### TRANSPORTATION IMPACT

**DATE:** November 7, 2019      **CONDUCTED BY:** Michael K Park, PE, PTOE  
**SUBMITTAL DATE:** October 15, 2019      **PHONE:** 816.969.1800  
**APPLICATION #:** PL2019307      **EMAIL:** Michael.Park@cityofls.net  
**PROJECT NAME:** OSAGE      **PROJECT TYPE:** Prel Dev Plan (PDP)

#### **SURROUNDING ENVIRONMENT** (*Streets, Developments*)

The proposed residential subdivision is located at the southwest corner of M-150 Highway and Pryor Road. The surrounding area consists of single-family subdivision to the northeast and southeast with the remaining property near the site described as large lot or rural residential and agricultural property.

#### **ALLOWABLE ACCESS**

The proposed development will be primarily accessed from Pryor Road and M-150 Highway through a proposed network of new residential streets. The proposed street intersection with M-150 Highway, Clayton Place, will be limited to right-in/right-out traffic by an existing raised median along M-150 Highway. The proposed street intersection with Pryor Road, Osage Drive, will be full access. Individual lot access within the subdivision will be from the proposed residential streets, not from surrounding arterials and highway. The proposed residential streets will have two lanes and a 25 mph speed limit. The proposed street intersections will have adequate sight distance.

#### **EXISTING STREET CHARACTERISTICS** (*Lanes, Speed limits, Sight Distance, Medians*)

Pryor Road is a two lane undivided major arterial with a 45 mph speed limit currently constructed to interim road standards with turf shoulders south of M-150 Highway to County Line Road and paved shoulders north of M-150 Highway to Longview Road. Future improvements to Pryor Road north of M-150 Highway included in the Capital Improvement Program will provide for a four-lane urban road section with turn lanes, sidewalks, trails, lighting, etc. consistent with the typical section of Pryor Road north of Longview Road. Additional improvements to Pryor Road south of M-150 Highway to County Line Road are proposed in association with the approved Stoney Creek development. Those approved improvements will provide turn lanes at its street intersections with Pryor Road and paved shoulders the length of Pryor Road may be constructed at the City's option since at the time of development approval only grass shoulders were required by the Unimproved Road Policy. M-150 Highway is a four-lane median divided highway owned and maintained by MoDOT. The intersection of Pryor Road at M-150 Highway is traffic signal controlled. There are no existing sight distance concerns in the area of the proposed development.

**ACCESS MANAGEMENT CODE COMPLIANCE?**      YES       NO

All intersection spacing, turn lanes and other applicable criteria required by the Access Management Code and MoDOT Access Management Guide have been satisfied and/or will be

compliant as shown on the development plan and/or considering stipulated conditions of approval.

**TRIP GENERATION**

<b>Time Period</b>	<b>Total</b>	<b>In</b>	<b>Out</b>
Weekday	1,432	716	716
A.M. Peak Hour	102	25	77
P.M. Peak Hour	129	82	47

**TRANSPORTATION IMPACT STUDY REQUIRED?**      Yes       No

The proposed development requires a traffic impact study in compliance with the Access Management Code because the traffic impact to the surrounding street system likely exceeds 100 trips during the peak hour. A traffic impact study was prepared by Olsson, dated October 17, 2018, for the Allera residential development of similar scope, layout and land use at the same location. The proposed development is less dense than the previously studied Allera project. A memorandum dated September 12, 2019, prepared by Olsson, compares the proposed development to the Allera development for purposes of validating the prior traffic study as a conservative assessment and its continued applicability of conclusions and recommendations to the proposed development plan. The following information is in reference to the 2018 traffic study and generally summarizes the expected traffic impact of the proposed development.

The traffic impact study provides an assessment of existing conditions and developed conditions during the morning and evening peak hours of adjacent street traffic. The study analyzed traffic operations at the intersection of M-150 Highway and Pryor Road, as well as proposed intersections along M-150 Highway and Pryor Road. Since M-150 Highway is a state owned facility, MoDOT also reviewed the traffic impact study and applied state standards regarding access management and operations to its recommendations for approval in association with the development.

The traffic impact study indicates adequate traffic operations currently exist at the study intersection(s). An existing level of service (LOS) D is reported at the intersection of Pryor Road and M-150 Highway during the morning peak hour and LOS C during the evening peak hour. Level of Service is an industry accepted standard of measure for traffic operational performance that is represented with a grade range from A-F, A the best and F the worst. The City of Lee's Summit has an established LOS Policy to evaluate adequate traffic conditions. The City has a LOS C goal for traffic signal controlled intersections and LOS D for stop controlled movements. However, the subject intersection is under MoDOT control. MoDOT has a lower level of service acceptance than the City, at LOS D or LOS E.

The traffic impact study concludes adequate traffic operations will be maintained at the study intersections in consideration of the proposed development. Several traffic improvements in association with the proposed development were reviewed in the study to mitigate operational impacts, maintain acceptable levels of service and/or comply with access management criteria established by each jurisdiction that governs intersection spacing, turn lane requirements, etc. along public roadways for traffic operations and public safety. The traffic study recommendations are summarized below:

- Construct an eastbound right-turn lane with storage length of 150 feet plus taper at the proposed access along M-150 Highway.
- Construct a northbound left-turn lane with storage length of 150 feet plus taper at the intersection of Pryor Road and M-150 Highway.

The projected conditions with development and roadway improvements noted above have a reported LOS the same as existing conditions. Though an increase in delay and vehicle queuing is reported, the overall LOS did not change. The traffic study did not consider trip generation from approved, unbuilt, development in the surrounding area that directly accesses Pryor Road.

Staff and MoDOT concur with the analysis and study findings, except that all access management and unimproved road policy requirements should be reasonably satisfied as noted below. The study assumed a minor arterial classification for Pryor Road south of M-150 Highway based on existing roadway conditions and traffic volume rather than the established major arterial classification assigned in the Thoroughfare Master Plan. The major arterial classification considers long-term function, planned community growth, increased volume, rights-of-ways, adjacent land use, traffic speed, and other factors. Similar developments along Pryor Road north and south of M-150 have been evaluated consistently in consideration of the major arterial classification as well. The difference in applied classification changes the access management criteria. A major arterial road has lower thresholds for certain turn lane requirements than a minor arterial. In this case, turn lanes at the proposed intersection along Pryor Road are warranted and certain turn lane capacities are greater than would be determined if Pryor Road were a lower roadway class. The turn lanes and road improvements recommended by staff to support this development are listed in the staff recommendations for approval.

The traffic study further addresses access spacing, vehicle queuing, turn lane requirements and capacities at each study intersection. The study notes limited capacity of existing turn lanes at the intersection of M-150 Highway and Pryor Road. The northbound and southbound right-turn lanes and left-turn lanes each have a storage capacity less than 50 feet and do not meet the MoDOT or City minimum recommended lengths of 200 feet and 250 feet, respectively. These are existing conditions at an off-site study intersection in which queuing analysis was done to determine any recommended improvement needs. No improvements to the southbound turn lanes were recommended in the study and the City has a planned capital project that may incorporate turn lanes of more appropriate length to address this issue in the near future. Improvements to the northbound turn lanes are recommended in the study to accommodate projected vehicle queues, but the recommended turn lane length does not meet the minimum length described by code. Since the roadway is constructed to an interim standard and vehicle queues within the turn lane and adjacent thru lane do not exceed 150 feet during a peak hour, the proposed length of 150 feet is acceptable to MoDOT at this off-site MoDOT intersection. A westbound right-turn lane is warranted based on MoDOT requirements, but not recommended in the study or by MoDOT at this time given adequate operations and consideration of impact (or lack thereof) by trips generated by the proposed development. A northbound right-turn lane would likely be constructed in association with continued development along the Pryor Road corridor, especially the east side of Pryor Road, or a future capital improvement project. Staff and MoDOT support these conclusions. No other traffic improvements are recommended in the study and all other criteria in the Access Management Code have been met.

The project would provide improvement to Pryor Road in compliance with the Unimproved Road Policy, including paved shoulders. The project would also convey rights-of-way to the City along

Pryor Road for the necessary width of Pryor Road in consideration of long-term planning identified in the Thoroughfare Master Plan.

**LIVABLE STREETS** (*Resolution 10-17*)

**COMPLIANT**

**EXCEPTIONS**

The proposed development includes all Livable Streets elements identified in the City's adopted Comprehensive Plan, associated Greenway Master Plan and Bicycle Transportation Plan attachments, and elements otherwise required by ordinances and standards, including but not limited to sidewalk, paved shoulders, street connectivity and accessibility. The project will provide for street connections to adjacent property and facilitates a surrounding network of planned residential collectors generally depicted in the Thoroughfare Master Plan. No exceptions to the Livable Streets Policy adopted by Resolution 10-17 have been proposed.

**RECOMMENDATION:**

**APPROVAL**

**DENIAL**

**N/A**

**STIPULATIONS**

*Recommendations for Approval refer only to the transportation impact and do not constitute an endorsement from City Staff.*

Staff recommends approval of the proposed development subject to the following stipulations:

1. Right-of-way shall be dedicated along the west side of Pryor Road adjacent to the proposed development, where necessary, to accommodate a minimum 100-foot right-of-way centered on the existing section for the Pryor Road corridor.
2. Pryor Road shall have an interim road section compliant with the Unimproved Road Policy that includes at least two 12-foot lanes with 6-foot paved shoulders from M-150 Highway to Napa Valley Drive. This improvement shall be substantially completed prior to the issuance of any residential building permits.
3. A 200-foot, plus taper, northbound left-turn lane along Pryor Road at Osage Drive shall be constructed. This improvement shall be substantially completed prior to the issuance of any residential building permits.
4. A 150-foot, plus taper, eastbound right-turn lane along M-150 Highway at Clayton Place shall be constructed. This improvement shall be substantially completed prior to the issuance of any residential building permits. This improvement may be modified at the discretion of MoDOT.
5. A 150-foot, plus taper, southbound right-turn lane along Pryor Road at Clayton Drive shall be constructed. This improvement shall be substantially completed prior to the issuance of any residential building permits.
6. A 150-foot, plus taper, northbound left-turn lane along Pryor Road at M-150 Highway shall be constructed. This improvement shall be substantially completed prior to the issuance of any residential building permits.