



LEE'S SUMMIT MISSOURI DEVELOPMENT REVIEW FORM TRANSPORTATION IMPACT

DATE: October 31, 2024 **CONDUCTED BY:** Erin Ralovo, PE, PTOE
SUBMITTAL DATE: January 26, 2024 **PHONE:** 816.969.1800
APPLICATION #: PL2024025 **EMAIL:** Erin.Ralovo@cityofls.net
PROJECT NAME: OVATION **PROJECT TYPE:** Prel Dev Plan (PDP)

SURROUNDING ENVIRONMENT (*Streets, Developments*)

The proposed residential development is located along the south side M-150 Highway, west of Doc Henry Road. The surrounding property to the east and west is undeveloped or large lot agricultural. To the south of this development is the Belmont Farms residential development. To the north is Cobey Creek 2nd which has been approved but construction plans are still in review.

ALLOWABLE ACCESS

Access to the site is proposed from a network of proposed public streets accessing M-150 Highway. Access along M-150 Highway has been proposed across from the new entrance at Cobey Creek 2nd and will be subject to review and approval by MoDOT and its conditions for approval are restated in the staff recommendations.

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

M-150 Highway is a state highway owned and managed by the Missouri Department of Transportation (MoDOT). It is a two-lane, unimproved rural highway east of M-291 Highway and an improved, four-lane, median divided highway west of M-291 Highway. M-150 Highway has a posted speed limit of 45 mph. The interchange of M-150 Highway and M-291 Highway as well as the intersection of East Outer Road and M-150 Highway are traffic signal controlled with multiple turn lanes in each direction of travel. There is adequate sight distance at the existing intersections. SE Cobey Creek Drive is on the west side of the proposed phase 2 development. There is a left turn lane on M-150 at the SE Cobey Creek Dr entrance and the street is stop controlled at M-150.

ACCESS MANAGEMENT CODE COMPLIANCE? Yes No

The proposed driveway locations along proposed streets within the development and proposed street connections along M-150 Highway comply with the City's Access Management Code and MoDOT Access Management Guidelines, as applicable. Where access is proposed the required right-turn lane and left-turn lanes are shown on the proposed development plan. The overall proposed street network within the development aligns with adopted Thoroughfare Master Plan. Proposed collectors and street connections will provide planned transportation facilities in support of surrounding undeveloped property and may be extended north and south of M-150 Highway in the future.

TRIP GENERATION

Time Period	Total	In	Out
Weekday	4420	N/A	N/A
A.M. Peak Hour	287	80	207
P.M. Peak Hour	393	235	158

TRANSPORTATION IMPACT STUDY REQUIRED?

Yes

No

The proposed development will likely generate more than 100 vehicle trips during a weekday peak hour; the minimum condition for traffic impact study requirements. A traffic impact study was submitted by Kimberly Horn, dated October 2024. This study considered AM and PM Peak Hour traffic operations along M-150 Highway at the intersections of Market/Raintree Drive, NB and SB Ramps to MO 291, East Outer Road and Doc Henry Road, and any driveways or streets accessing the proposed development. Analysis scenarios were completed for Existing Conditions, Existing Plus Approved, and Existing Plus Approved Plus Development conditions. MoDOT was included in the review of the traffic impact study and development plan. Any recommendation related to M-150 Highway is subject to MoDOT approval, and may be amended or removed at their discretion through the MoDOT permitting process. MoDOT may also add conditions of approval not listed by staff in its granting permits.

Level of service (LOS) is an industry accepted standard measure of performance (e.g. delay) for traffic operations rated A-F, similar to a grade card with A the best and F the worst condition. The City Council has adopted a LOS policy in which the acceptable condition is LOS C or better. MoDOT generally accepts a LOS D or LOS E. All studied intersections in all scenarios had adequate level of service reported.

The northbound movement along Doc Henry Road at M-150 Highway, which is stop controlled, has an existing LOS C and LOS F during the AM and PM Peak Hours, respectively. The northbound delay worsens to LOS D and LOS F during both peak hours upon all phases of the proposed development. A traffic signal would mitigate this unacceptable operation when constructed. MoDOT has not requested a traffic signal warrant analysis or a signal installation in relation to this proposed development at the Doc Henry Road and M-150 Highway intersection. MoDOT previously completed a signal warrant study that confirmed one or more signal warrants, but its warranting conditions have not yet caused a recommendation, programming, or otherwise prioritization for construction by MoDOT. The proposed development does not access Doc Henry Road.

City Staff expressed concerns about lane utilization and long queues at the intersection of the East Outer Road. Discussions with staff and MODOT determined that extending the EB through lanes an additional 400 FT will provide better lane utilization and a longer merge area and may help alleviate some of the queues in this area.

The Access A/Sunset Ridge entrance along M-150 Highway was studied with and without a signal for Full Build and with the additional traffic anticipated with the Ovation development as well as Colby Creek 2nd to the north. Without a signalized control, the northbound leg of the intersection operates at an overall LOS of D. With traffic signal control, the LOS is acceptable for all traffic movements and may provide additional gaps in traffic to alleviate some delay at the nearby

intersection of Doc Henry Road. MoDOT supports the traffic signal at Access A/SE Sunset Ridge and M-150 Highway.

In addition to traffic signal control along M-150 Highway, turn lanes are recommended with MoDOT concurrence. The following improvements were depicted on the preliminary development plan, considered in the traffic impact study, and otherwise recommended in the traffic impact study to address the impact of development and comply with the Access Management Code of the City and MoDOT:

1. Access A shall be constructed and signalized.
2. Eastbound right-turn lane along M-150 Highway at Access A.
3. Westbound left-turn lane along M-150 Highway at Access A.

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 in full compliance with the Livable Streets Policy adopted by Resolution 10-17.

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 preliminary development plan subject to the following off-site improvement conditions that were reviewed by Staff and MoDOT in coordination:

1. Construct a permanent traffic signal at the intersection of Sunset Ridge/Access A and M-150 Highway and interconnect it with the traffic signal at the M-150 and East Outer Road intersection.
3. Construct a 200-foot westbound left-turn lane at Sunset Ridge/Access A along M-150 Highway, plus taper.
4. Construct a 200-foot eastbound right-turn lane at Sunset Ridge/Access A along M-150 Highway, plus taper.
5. Construct two northbound lanes exiting the site. The left lane should be designated as a two-way left-turn lane between M-150 and the first local street intersection to the south of M-150, a distance of nearly 400 feet.
6. Extend the pavement section for the two eastbound through lanes to approximately 400 feet east of the intersection before transitioning to the undivided roadway. Construct a new transition from the four-lane divided roadway to the two-lane undivided roadway after that distance. Provide signal interconnect with the East Outer Road signal and the M-291 interchange.

Improvements related to M-150 Highway may be changed, removed or additional requirements stated by MoDOT, at its discretion. The aforementioned conditions of recommendation in association with M-150 Highway were provided or supported by MoDOT.