



LEE'S SUMMIT MISSOURI

DEVELOPMENT REVIEW FORM TRANSPORTATION IMPACT

DATE: June 6, 2018
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SUBMITTAL DATE: May 22, 2018
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PROJECT NAME: COBEY CREEK
PROJECT TYPE: Prel Dev Plan (PDP)

SURROUNDING ENVIRONMENT (*Streets, Developments*)

The proposed mixed-use (commercial and residential) development is located along the north side M-150 Highway, west of Doc Henry Road. The surrounding property is undeveloped or large lot agricultural.

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 reviewed by MoDOT and its conditions for approval are restated in the staff recommendations. Access was fully considered from Doc Henry Road as well, but could not be permitted from the adjacent jurisdiction/owner. Since access to Doc Henry Road was denied and is located outside the City limits of Lee's Summit, the development proposes to extend right-of-way to the property limit and a public street towards Doc Henry Road to the extent within control for a potential future connection.

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. Doc Henry Road is a two-lane undivided residential collector with a 35 mph speed limit situated on the city limits of Lee's Summit and Greenwood with mixed conditions of ownership and public access. Doc Henry Road south of M-150 Highway is generally unimproved with the east half in Greenwood and west half in Lee's Summit. Doc Henry Road south of M-150 Highway is a public street in public right-of-way with access to several residential properties and subdivisions. Doc Henry Road north of M-150 Highway has been improved, but dead-ends, and does not currently provide access to any developed property. The portion of Doc Henry Road north of M-150 Highway is not located within public right-of-way, but entirely located on property owned by the City of Greenwood. For all intents and purposes, Doc Henry Road north of M-150 Highway is a private driveway constructed to public street standards. The intersection of Doc Henry Road and M-150 Highway has two-way stop control; M-150 has the right-of-way. 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.

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	6624	3312	3312
A.M. Peak Hour	390	173	217
P.M. Peak Hour	504	284	220

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 Hg Consult, Inc., dated March 30, 2018. This study considered AM and PM Peak Hour traffic operations along M-150 Highway at the intersections of Doc Henry Road, East Outer Road, M-291 Highway Northbound Ramp, M-291 Highway Southbound Ramp, and any driveways or streets accessing the proposed development. Analysis scenarios were completed for existing conditions, Phase 1 Development and Full Build conditions. MoDOT was included in the review of the traffic impact study and development plan. Their comments and recommendations are reflected in the staff report and recommendations for approval. 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 with the following exceptions: the northbound movement at the intersection of Doc Henry Road and M-150 Highway and the southbound movement at the proposed "Secondary Entrance" and M-150 Highway. The "Main Entrance" is noted as "Road A" and the "Secondary Entrance" is noted as "Road E" on the preliminary development plan, both subject to identification/renaming on the final development plans. The "Secondary Entrance" is located between the "Main Entrance" and Doc Henry Road along M-150 Highway. This "Secondary Entrance" would be full access in Phase 1, then median restricted to right-in/right-out for the Full Build scenario when the "Main Entrance" is available. The "Main Entrance" would be constructed after Phase 1. MoDOT was in agreement with this phased access management plan proposed by the development along M-150 Highway.

The northbound movement along Doc Henry Road at M-150 Highway, which is stop controlled, has an existing LOS E and LOS F during the AM and PM Peak Hours, respectively. The northbound delay worsens to 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.

The southbound movement at "Secondary Entrance" along M-150 Highway is stop controlled. In consideration of full access, this movement, particularly the southbound left-turn, projects a LOS D and LOS F during the AM and PM Peak Hours, respectively, for Phase 1. This intersection would be limited to right-in/right-out whenever the "Main Entrance" associated with the Full Build scenario is provided. The limited access condition mitigates the inadequate LOS.

The "Main Entrance" along M-150 Highway warrants traffic signal control for Full Build. 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 "Main Entrance" and M-150 Highway.

In addition to traffic signal control and median construction along M-150 Highway, several turn lanes at each proposed intersection are recommended with MoDOT concurrence. The development would also donate additional right-of-way along M-150 Highway for future highway widening.

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. "Secondary Entrance" at M-150 Highway shall be full access until such time as "Main Entrance" is constructed, at which time the "Secondary Entrance" shall be limited to right-in/right-out with median construction along M-150 Highway.
2. "Main Entrance" shall be required for any development after Phase 1 and shall be traffic signal controlled.
3. Westbound right-turn lane along M-150 Highway at "Secondary Entrance"
4. Westbound right-turn lane along M-150 Highway at "Main Entrance"
5. Eastbound left-turn lane along M-150 Highway at "Secondary Entrance" (Phase 1 Only); replaced with Median at "Secondary Entrance" (After Phase 1)
6. Eastbound left-turn lane along M-150 Highway at "Main Entrance"

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. The project includes a 10' wide

shared use path along the north side of M-150 Highway in compliance with regional trail and bikeway plans.

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. Widen M-150 Highway along its entire north side west of Doc Henry Road to the west property line of the development and extended west as necessary for proper transitions as generally depicted on the preliminary development plan and in accommodation of other turn lane improvement conditions.
2. Construct a 150-foot westbound right-turn lane into the "Secondary Entrance" along M-150 Highway, plus taper, at such time as "Secondary Entrance" is constructed.
3. Construct a 200-foot eastbound left-turn lane into the "Secondary Entrance" along M-150 Highway, plus taper, at such time as "Secondary Entrance" is constructed.
4. Construct a raised median along M-150 Highway to limit access at the "Secondary Entrance" to right-in/right-out along M-150 Highway, replacing the eastbound left-turn lane, at such time as "Main Entrance" is constructed.
5. Construct a 200-foot westbound right-turn lane into the "Main Entrance" along M-150 Highway, plus taper, at such time as "Main Entrance" is constructed.
6. Construct a 200-foot eastbound left-turn lane into the "Main Entrance" along M-150 Highway, plus taper, at such time as "Main Entrance" is constructed.
7. Construct a permanent traffic signal at the intersection of "Main Entrance" and M-150 Highway, at such time as "Main Entrance" is constructed.
8. Construct a 10' wide shared use path along M-150 Highway adjacent to the proposed development.
9. Dedicate right-of-way along M-150 Highway to MoDOT as depicted on the preliminary development plan (or as may be required by MoDOT) for future widening of M-150 Highway.

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.