



LEE'S SUMMIT MISSOURI

DEVELOPMENT REVIEW FORM TRANSPORTATION IMPACT

DATE:	May 25, 2023	CONDUCTED BY:	Susan Barry, PE, PTOE
SUBMITTAL DATE:	May 2, 2023	PHONE:	816-969-1800
APPLICATION #:	PL2023011	EMAIL:	Susan.Barry@cityofls.net
PROJECT NAME:	DISCOVERY PARK - ZONE 1	PROJECT TYPE:	Prel Dev Plan (PDP)

SURROUNDING ENVIRONMENT (*Streets, Developments*)

The subject development is generally located in the area northwest of the intersection of I-470 and Douglas Street. The development is divided into five zones, with zones 1 and 5 located northwest of the intersection of Colbern Road and Douglas Road and zones 2, 3, and 4 located between Colbern Road and I-470 between Main Street and Douglas Street. Zone 1 is bound by Colbern Road to the south, Douglas Road to the east, and undeveloped agricultural-zoned property to the north and west. The subject property also abuts Unity Village to the west, which is mainly undeveloped.

ALLOWABLE ACCESS

The proposed development is planned to be accessed from both Colbern Road and Douglas Road. On Colbern, there will be a right-in right-out access at Drive 4 located approximately 650' west of Douglas and a full access at Drive 5 located approximately 1,260' west of Douglas, slightly under the recommended minimum spacing of 1,320 feet. Drive 5 is located along the western edge of the property line for the north property (Phase 1) and will line up with the access point on the south side of Colbern Road (Phase 2). On Douglas, there will be full access at Drive 3 located approximately 960' north of Colbern.

Two additional full access points were approved in a previously approved Preliminary Development Plan for ARIA, approved August 15, 2019. (PL2019075)

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

NE Colbern Road is an east-west Major Arterial with a 45-mph speed limit. To the east of Douglas Street, Colbern has four lanes with a raised median in some locations and to the west it has two lanes. There is currently a CIP project on Colbern Road to widen to four lanes plus a median from Douglas to Missouri Route 350. This project also includes improvements to the intersection of Colbern and Douglas, including an extended eastbound left turn lane, an eastbound right turn lane, and a southbound left turn lane. Two through lanes will be provided northbound through the intersection with a transition to a three-lane section about 900 feet north of Colbern.

Douglas Street is a north-south Major Arterial with a three-lane section north of Colbern with a speed limit of 45 mph. South of Colbern is a four-lane section with numerous turn lanes through the I-470 interchange area. The interchange is owned and maintained by MoDOT.

ACCESS MANAGEMENT CODE COMPLIANCE?

Yes ☒

No ☐

Douglas Road and Colbern Road are defined according to the City Council adopted Unimproved Road Policy as built to interim road and unimproved road standards, respectively. Based on the Unimproved Road Policy, development including the land uses proposed on the preliminary development plan, are not permitted on interim roads or unimproved roads. Improvement of Douglas Road and Colbern Road to meet the policy defined urban standard (e.g. curbs, sidewalks, typical lane widths, etc.) are required for any non-residential (exclusive of single family) development regardless of traffic volume or impact. Since the City-planned improvements to Colbern Road have been awarded and will begin construction later this summer, development will not be required to make improvements to Colbern Road. Douglas Road will be required to be improved to an urban standard as part of this development. The previously approved ARIA PDP required similar improvements to be made to Douglas from the south property line to the north City Limits on both sides.

The preliminary development plan and Traffic Impact Study include all required turn lanes in compliance with the Access Management Code. The turn lanes shall be constructed prior to each associated phase of development.

All Driveways and intersections associated with these development plans are properly separated. The internal site circulation, driveway throat depths, sight distance, connectivity and queue storages required by the Access management Code have also been satisfied.

TRIP GENERATION

Time Period	Total	In	Out
Weekday	11,682	5,841	5,841
A.M. Peak Hour	746	283	463
P.M. Peak Hour	817	498	319

The trip generation above was estimated by using the ITE Trip Generation Manual, 11th edition. Codes 220/221 - Multifamily - Mid-Rise Housing (1,094 units), 215 - Single-Family Housing (16 units), 492 - Health/Fitness Club (6,500 sf), 822 - Strip Retail Plaza (19,000 sf), 710 - General Office Building (13,800 sf), 932 - Sit-Down Restaurant (22,700 sf), 311 - Hotel (219 Rooms).

TRANSPORTATION IMPACT STUDY REQUIRED? Yes ☒ No ☐

The proposed development will likely generate more than 100 vehicle trips to the surrounding street system during a peak hour based on industry standard methods for trip generation estimates, a minimum requirement for a traffic impact study in the Access Management Code. A traffic impact study was prepared by Olsson, dated January 19, 2023. The traffic study was prepared to assess traffic impacts associated with the development and to provide public improvement recommendations or waivers requested by the development that mitigate delay and/or meet minimum standards defined by City and/or MoDOT policies.

The traffic study evaluated existing conditions and proposed development conditions of the subject development. The analysis included morning and evening commuter peak hours at the intersections of Lee's Summit Rd. and Gregory Blvd, Lee's Summit Road and Strother Road, Lee's Summit Road and 85th Street/St. Michael's High School Drive, Lee's Summit Road and Douglas Street, Douglas Street and Colbern Road, Douglas Street and I-470 Westbound Ramps, Douglas Road and I-470 Eastbound Ramps, Colbern Road and Pryor Road, Colbern Road and M-350 Southbound Ramps, Colbern Road and M-350 Northbound Ramps, Colbern Road and Main Street,

and Colbern Road and Blue Parkway. The study considered several scenarios; Existing plus Approved Development Conditions, Existing plus Phase 1 Development Conditions, Build Year 2027 plus Phases 1 and 2 Development Conditions, Build Year 2032 plus Full Build Development Conditions (Phases 1, 2, and 3), and Future Year 2040 plus Full build Development Conditions. For this PDP, we are only looking at Phase 1 recommendations. The Traffic Impact Study will be required to be updated or replaced with subsequent PDP submittal or significant changes in use.

The traffic study looked at each intersection for turn lane requirements based on classification and projected turning movements. The available space and storage lengths were reviewed in coordination with the required turn lane lengths to provide recommendations for the subject development. The study found that the following turn lane improvements would be required (including recommendations for the previously approved ARIA development):

1. Re-stripe the existing two-way left-turn lane along Douglas Road for a dedicated northbound left-turn lane with at least 200' of storage at the intersection of Drive 1.
2. Re-stripe the existing two-way left-turn lane along Douglas Road for a dedicated northbound left-turn lane with at least 200' of storage at the intersection of Drive 2.
3. Construct a 150' northbound left-turn lane and a 250' southbound right-turn lane on Douglas Street and Drive 3.
4. Construct a 150' westbound right-turn lane on Colbern Road at Drive 4.
5. Construct a 250' westbound right-turn lane and a 200' eastbound left-turn lane on Colbern Road at Drive 5.

The traffic study looked at each noted intersection to be analyzed for traffic operations and assigned a Level of Service (LOS) associated with their delay. Level of Service (LOS) is an industry accepted performance measure for traffic operations based on delay represented by the A to F lettered scale, with A the best and F the worst. City policy has established a LOS goal C for traffic signal operations and LOS D (where LOS E and F may be acceptable) for stop controlled movements. MoDOT has a similar performance standard, but LOS D is acceptable for signal operations. These LOS targets indicate acceptable operational performance or adequate operational conditions for the transportation network.

In addition to measured vehicle delay, vehicle queues were analyzed. With exception of a couple movements, all of the overall LOS meet the City's goals.

LIVABLE STREETS (Resolution 10-17)

COMPLIANT ☒

EXCEPTIONS ☐

The proposed conceptual plan 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, street connectivity and accessibility. 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 preliminary development plan subject to the conditions noted below:

1. Re-stripe the existing two-way left-turn lane along Douglas Road for a dedicated northbound left-turn lane with at least 200' of storage at the intersection of Drive 1.
2. Re-stripe the existing two-way left-turn lane along Douglas Road for a dedicated northbound left-turn lane with at least 200' of storage at the intersection of Drive 2.
3. Construct a 150' northbound left-turn lane and a 250' southbound right-turn lane on Douglas Street and Drive 3.
4. Construct a 150' westbound right-turn lane on Colbern Road at Drive 4.
5. Construct a 250' westbound right-turn lane and a 200' eastbound left-turn lane on Colbern Road at Drive 5.
6. Improve Douglas Street, from Colbern Road to the north limit of this PDP, to an urban standard, in conformance with the Unimproved Road Policy.
7. The Traffic Impact Study shall be updated (or replaced), at such time the Preliminary Development Plan is submitted for consideration of additional phases of the development.
8. MoDOT requirements for Phase 1 will need to be addressed during FDP.