



# LEE'S SUMMIT MISSOURI

## DEVELOPMENT REVIEW FORM TRANSPORTATION IMPACT

**DATE:** April 7, 2023      **CONDUCTED BY:** Brad Cooley, PE  
**SUBMITTAL DATE:** October 4, 2022      **PHONE:** 816.969.1800  
**APPLICATION #:** PL2022314      **EMAIL:** Brad.Cooley@cityofls.net  
**PROJECT NAME:** ARBORWALK WEST TIA      **PROJECT TYPE:** Prel Dev Plan (PDP)

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

The proposed development is generally located in the northeast quadrant of MO 150 and SW Pryor Road. The property is bound by Arboridge Dr. to the east, Holy Spirit Catholic Church to the west with the Church's driveway to the north, and MO 150 to the south. The subject development is directly south of the Arborwalk housing development and west of the Raintree Village senior living facilities. The existing and all adjacent property is zoned PMIX, north of MO 150. South of MO 150, there is a mix of commercial, agriculture, and residential zoning.

### **ALLOWABLE ACCESS**

The proposed development has planned to construct three new access points to the development; one from MO 150 approximately 350 feet west of Arboridge Drive, one along Arboridge Drive approximately 400 feet north of MO 150, and one off of the church's driveway approximately 110 feet west of Arboridge Drive.

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

MO-150 is a four-lane median-separated highway that generally runs east/west with a posted speed limit of 35-mph. This section of MO-150 is constructed with sidewalk on both sides with the exception of a small gap across MO-150 from the development.

SW Arborwalk Boulevard and SW Arboridge Dr. are both a two-lane undivided commercial collector with a 25-mph speed limit. Both stretches of roadway do not have any sidewalk accommodations but will provide sidewalk along the subject property with this development.

**ACCESS MANAGEMENT CODE COMPLIANCE?**      YES       NO

The proposed development has proposed three new access points that do not comply with the City's Access Management Code (AMC). The AMC provides guidance for access spacing in relation to street classification. In addition to spacing between access drives, the AMC provides guidance for upstream and downstream intersection functional area. The intersection functional area sets a distance prior to and following a signalized intersection to keep the intersection itself from becoming congested. Additional analysis is required for turn lane warrants and lengths, per volume and road classification.

The MO 150 access point is located approximately 350' west of Arboridge Dr. and will be a shared right-in-right-out (RIRO) driveway. Per MoDOT's EPG, this access point meets; spacing requirements, driveway width, turn radius, and throat length. The volume expected to utilize this access point does require a right-turn lane, 120' plus 100' taper.

The south access point is planned as a full-access shared drive, approximately 400' north of MO 150. The volume expected to utilize this access point does require a left-turn lane, 150' plus taper. The AMC requires that the taper shall not encroach the intersection functional area and shall be sufficiently separated from the intersection. A full turn lane and taper cannot be constructed to comply with the City's AMC. However, staff believes a shortened taper can be constructed with no safety concerns to the adjacent street. The minimum curb radii shall be widened to comply with commercial collector standards (min. 35').

The north access point will utilize the existing church access drive, which is an existing full-access point on Arboridge Dr., approximately 180' north of the proposed south drive. The volume expected to use the drive does warrant a left-turn lane, 150' plus taper. The proposed connection point to the church's drive provides an approximate throat length of 110' along the church's drive but only provides a 36' throat length on-site. The width of the drive is 24' and does not meet the AMC but does match the drive of the church.

**TRIP GENERATION**

Time Period	Total	In	Out
Weekday	3834	1917	1917
A.M. Peak Hour	387	199	188
P.M. Peak Hour	390	193	197

The trip generation above was estimated by using the ITE Trip Generation Manual, 11th edition. Uses are; Day Care Center (10,000 SF), Quick Lubrication Vehicle Shop (6 positions) and Convenience Store/Gas Station VFP 9-15 (4,575 SF).

**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 traffic impact study in the Access Management Code. A traffic impact study was prepared by Priority Engineers, Inc., dated February 22, 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; MO 150 and Arboridge Drive, MO 150 and the proposed RIRO access, Arboridge Drive and the south access, Arboridge Drive and the church's drive, and the access point from the church's drive. The TIS evaluated; existing conditions, approved conditions, proposed conditions and a future condition.

The traffic study looked at each intersection for compliance with the City's AMC and MoDOT's EPG 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 improvements would be required;

1. A westbound right-turn lane on MO 150 at the proposed RIRO entrance be constructed with a 120' plus 100' taper in compliance with MoDOT's EPG.

2. A northbound left-turn lane be constructed along Arboridge Drive at the south entrance and the existing church drive. The turn lanes shall be 150' plus taper but shall not conflict with spacing requirements or intersection functional area.

3. A traffic signal be installed at the intersection of MO 150 and Arboridge Drive in compliance with MoDOT's EPG.

4. Geometric modification to SW Arboridge Drive associated with the construction of the south entrance. The modifications are necessary to install turn lanes while maintaining required street radii per classification.

5. Extend throat length for north access point to meet City's AMC.

6. Expand the south drive's curb radii to meet the City's AMC.

The traffic study has been submitted to and accepted by MoDOT. The City will require that the final proposed improvements to MoDOT right-of-way be review and accepted the state.

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

**COMPLIANT**

**EXCEPTIONS**

The proposed development 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, landscaping, parking, 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. A westbound right-turn lane on MO 150 at the proposed RIRO entrance be constructed with a 120' plus 100' taper in compliance with MoDOT's EPG.

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