



# LEE'S SUMMIT MISSOURI

## DEVELOPMENT REVIEW FORM TRANSPORTATION IMPACT

<b>DATE:</b>	October 12, 2022	<b>CONDUCTED BY:</b>	Brad Cooley, PE, RSP1
<b>SUBMITTAL DATE:</b>	October 4, 2022	<b>PHONE:</b>	816.969.1800
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<b>PROJECT NAME:</b>	SUMMIT ORCHARDS WEST	<b>PROJECT TYPE:</b>	Prel Dev Plan (PDP)

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

The proposed preliminary development plan is bound by Chipman Road to the south, Ward Road to the east and Outerview Road to the west (private road). The surrounding area includes mixed-use developments to the northeast of the Ward and Tudor Road intersection (i.e. Summit Place and Missouri Innovation Campus) and the existing Summit Technology Campus to the west. There are industrial buildings and residential properties south of Chipman Road.

### **ALLOWABLE ACCESS**

The subject development is split into a few phases and separate uses. The first phase is split into Phase 1A and 1B. The property located in the middle of the development is planned multifamily (1A). The southmost property is planned as restaurant(s) (1B). The north most property is planned industrial/commercial (Phase 2). The proposed development has planned several new access points; five along Ward Road and two on Outerview Drive (private street). The southmost access point along Ward (Entrance B) is proposed approximately 450' north of Chipman and will be a three-quarter access (LIRIRO). The second access point (Entrance D at the Donovan intersection) is approximately 550' north of the first and will be full access. The third is approximately (Entrance E) 450' north of the second and is restricted (RIRO). The fourth point (Entrance F at the Tudor intersection) is approximately 400' north of the third and is signal controlled. The fifth and northmost access point (Entrance G) on Ward is approximately 500' north of the fourth and 550' south of Outerview Road and will also be restricted access (RIRO).

The two access points along Outerview Road (Entrance A and C) are 200' and 600' north of Chipman.

Phase 1A will be accessed by the second and third access point along Ward, the second access point on Outerview, and will provide cross access with Phase 1B. Phase 1B will be accessed by the southmost access point on Ward, the southmost access point on Outerview, and will also share cross access with Phase 1A. Phase 2 is planned to be accessed by the two north drive locations on Ward.

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

Ward Road is a four-lane median divided major arterial between Chipman Road and Blue Parkway with a 35-mph speed limit. Ward Road has several median breaks with multiple turn lanes. Tudor Road is a four-lane median divided arterial with a 35-mph speed limit between Douglas Street and Ward Road with an overpass of the railroad. The intersection of Tudor Road and Ward Road is

traffic signal controlled with turn lanes. Chipman Road is a four-lane median divided major arterial with a 45-mph speed limit. The intersection of Chipman Road and Ward Road is traffic signal controlled with multiple turn lanes in each direction. Donovan Road is a two-lane undivided residential street that also provides some access to industrial property south of Chipman Road. Donovan Road has a 25-mph speed limit the intersection of Donovan Road and Chipman Road is signal controlled with turn lanes.

**ACCESS MANAGEMENT CODE COMPLIANCE?**

Yes

No

The development plan and/or staff recommendations includes required turn lanes at several intersections along Ward Road. The AMC requires left-turn lanes at all intersections along an arterial and right-turn lanes when the projected volume meets the required turns per hour. For this development, the AMC requires that each left-turn lane be constructed 200' plus taper and any required right-turn lane be constructed 150' plus taper.

The proposed development has included left- and right-turn lanes at each intersection, as required by the AMC. The northbound left-turn lane at Entrance B has been requested to be constructed short of the requirement, with a length of 130' plus taper. The proposed modification has been reviewed by staff and supported by the City Traffic Engineer. Due to site restrictions, alternative routes, and anticipated queue lengths, staff believes the shortened turn-lane will provide adequate storage for the anticipated turning queues. All other spacing conditions, driveway throat lengths, sight distance, connectivity and site circulation required by the Access Management Code have been satisfied too.

**TRIP GENERATION**

Time Period	Total	In	Out
Weekday	8,137	4069	4068
A.M. Peak Hour	699	327	372
P.M. Peak Hour	593	321	272

The trip generation above represents full development. A more detailed description of trip generation and land use based on development phases and consideration of pass-by trips (trips going to and from the development that already exist on adjacent roads for service type business) is included in the applicant's traffic impact study.

**TRANSPORTATION IMPACT STUDY REQUIRED?**

Yes

No

The proposed development will likely generate more than 100 vehicle trips to the surrounding street system during any given peak hour. A traffic impact study was completed by McCurdy Engineers, dated September 2022. The traffic study analyzed the impact of the proposed development during the AM and PM commuter peak hours at the intersections along Ward Road from Chipman Road to Outerview Rd and along Chipman Road, Donovan Road and Tudor Road.

The traffic study assesses existing conditions and considers the impact of the proposed development in multiple phases of construction. The existing conditions includes projected trips to/from the surrounding existing development(s) as well as any approved but unbuilt development that could affect the study area. The traffic study assumes multiple phases of construction; the apartments Phase 1A, the restaurant(s) in Phase 1B, and the remaining commercial/industrial uses in Phase 2. City staff has conducted analysis and recommendations

based on the traffic study and preliminary development phasing of construction in consideration of approved developments and associated development activity.

The traffic study finds all the existing intersections with exception of the intersection at Ward Road and Chipman Road are operating at acceptable levels of service. Level of service (LOS) is an industry standard performance measure from A to F similar to a school grade card with A the best and F the worst representation of vehicle delay. The City has adopted a LOS C goal. The intersection of Chipman Road and Ward Road has a peak hour level of service D, with no significant impact or changes with the proposed development. Additionally, the intersection has been identified by the applicant to provide sufficient storage for the proposed peak hour traffic. The intersection has turn lanes in each direction and exhibits delays in the existing conditions. The proposed southmost access point (LIRIRO) will require a portion on the eastmost southbound left-turn lane at this intersection to be modified in order to construct the northbound left-turn lane. However, all of the vehicle queues are expected to be contained within the modified turn lane and all other turn lanes for the peak hours at all the study intersections. There are no additional improvements or signals warranted for existing conditions at the studied intersections and roadways.

The resulting traffic operations upon completion of Phase 1 of the proposed development (restaurant(s) and apartments) show adequate level of service at all studied intersections with exception of the AM and PM Peak Hour stop controlled condition on Donovan Road at Ward Road, where the left-turn lanes (east- and westbound) are projected to be a LOS D. However, the volume is too low for traffic signal control and alternative routes for access are available during periods of congestion. Phase 1 can be split into the two subphases; 1A and 1B.

The traffic study reviewed the proposed development for turn lane requirements. In conclusion, three left-turn lanes and one right-turn lane will be required along Ward Road. The northbound left-turn lane at Entrance B is recommended to be constructed short of the required length but has been reviewed and approved by the City Traffic Engineer. The improvements recommended for Phase 1A to provide an adequate level of service and comply with the Access Management Code include:

- (1) A 200' plus taper northbound left-turn lane along Ward Road at the intersection of Donovan.

The improvements recommended for Phase 1B to provide an adequate level of service and comply with the Access Management Code include:

- (2) Restripe the southbound lanes at Ward Road and Chipman Road to a right-turn lane, a through lane, and dual left-turn lanes (minimum 170' of storage for the inner lane and 190' for the outer lane plus taper) with the appropriate signage per the MUTCD recommendations.

- (3) A 130' plus taper northbound left-turn lane along Ward Road at the southmost point of access to the subject site (Entrance B, per the TIS).

- (4) A 200' plus taper southbound right-turn lane along Ward at the second point of access to the subject site (Entrance B, per the TIS).

- (5) Provide internal site connection between Phases 1A and 1B.

Staff has reviewed the impact of Phase 2 development (which were analyzed in the traffic study as an industrial/commercial phase). Staff's review of development beyond Phase 1 was also done in consideration of projected traffic from approved development nearby, its current activity and its associated conditions of approval. Staff's considerations of approved developments attempt to capture the compounding impact of development that has been incrementally planned knowing

those approved developments will use roadway capacity assumed available for the proposed project (but may not be available) and those approved developments cannot be conditioned to perform additional mitigations. With the following improvements, all of the study intersections should have adequate level of service and manageable vehicle queues:

(6) Reconstruct the northbound U-turn lane along Ward at Tudor Road to a 200' plus taper left-turn lane. The westbound lanes must be restriped to provide a right-turn lane and a through/left-turn lane. At the time of constructing the new access point to the proposed site, the developer will be responsible for the construction of the eastbound signal mast arm with pedestrian equipment in accordance with the City's Design and Construction Manual (DCM)/MUTCD.

The aforementioned staff recommendations are consistent with the traffic study for full build of the development. The traffic study assumes some signal timing will be necessary to comply with the City's AMC and LOS policy. The signals along the Chipman corridor within the subject area are timed by Operation Green Light (OGL). OGL has been contacted regarding the proposed timing changes and have preliminarily approved the requested modifications. They believe the proposed development can be accommodated to meet the City's policy by making alterations to the timing, as necessary.

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

**COMPLIANT**

**EXCEPTIONS**

The proposed preliminary 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, 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 following conditions:

Prior to the issuance of any occupancy permit within Phase IA (Multi-family Residential) the requirement(s) below shall be substantially completed:

1. A 200' plus taper northbound left-turn lane along Ward Road at the intersection of Donovan.

Prior to the issuance of any occupancy permit within Phase IB (Restaurants) the requirement(s) below shall be substantially completed:

2. Restripe the southbound lanes at Ward Road and Chipman Road to a right-turn lane, a through lane, and dual left-turn lanes (minimum 170' of storage for the inner lane and 190' for the outer lane plus taper) with the appropriate signage per the MUTCD recommendations.
3. A 130' plus taper northbound left-turn lane along Ward Road at the southmost point of access to the subject site (Entrance B, per the TIS).

4. A 200' plus taper southbound right-turn lane along Ward at the second point of access to the subject site (Entrance B, per the TIS).

5. Provide internal site connection between Phases 1A and 1B.

Prior to the issuance of any occupancy permit within Phase 2 (Industrial/commercial) the requirement(s) below shall be substantially completed:

6. Reconstruct the northbound U-turn lane along Ward at Tudor Road to a 200' plus taper left-turn lane. The westbound lanes must be restriped to provide a right-turn lane and a through/left-turn lane. At the time of constructing the new access point to the proposed site, the developer will be responsible for the construction of the eastbound signal mast arm with pedestrian equipment in accordance with the City's Design and Construction Manual (DCM)/MUTCD.