



LEE'S SUMMIT
MISSOURI

DEVELOPMENT REVIEW FORM
TRANSPORTATION IMPACT

DATE: July 13, 2021
SUBMITTAL DATE: June 18, 2021
APPLICATION #: PL2021182
PROJECT NAME: RANSON LANDING

CONDUCTED BY: Brad Cooley, PE
PHONE: 816.969.1800
EMAIL: Brad.Cooley@cityofls.net
PROJECT TYPE: Rezoning

SURROUNDING ENVIRONMENT (*Streets, Developments*)

The proposed development is located on the southeast quadrant of US50 Highway at Todd George Parkway/Ranson Road Interchange, more specifically east of the SE Ranson Road and SE Oldham Parkway intersection. The property is surrounded by commercial development to the west and north (across US50 Highway) and single family residential to the south. The Princeton senior living development is currently under construction directly east of the proposed development property. The development proposes a mix of commercial and residential land uses built over multiple phases including; several commercial buildings, 25 - 4-unit residential buildings, a contractor's garage with storage and office space, and a gas station.

ALLOWABLE ACCESS

Access to the site will directly be from Oldham Parkway, where four driveways to the mixed-use center are proposed. All four proposed drives are planned to be spaced ±500 feet from the previous, with Driveway 1 approximately 500 feet east of Ranson Road. Driveway 1 will be the primary access to the proposed gas station on the west side of development, as well as the residential properties on the southern end and a couple of the commercial properties located in the center of the plan. Driveway 2 will serve as the primary access to the commercial development and provide a secondary access point supplementing Driveway 1. Driveway 3 and Driveway 4 will be the primary access to the proposed storage units on the east end of the proposed development. Oldham Parkway intersects Ranson Road/Route RA and Ranson Road has an adjacent interchange at US50 Highway.

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

Ranson Road/Route RA is a north-south MoDOT facility from US50 Highway to the southern driveway at James A. Reed Wildlife Conservation Area. It has a grade separated diamond interchange at US50 Highway approximately 1/2-mile north of Bailey Road with traffic signal control on the highway ramps. Ranson Road/Route RA continues north of US50 Highway as Todd George Parkway; a four-lane City major arterial. Otherwise, south of US50 Highway Ranson Road/Route RA is generally a two-lane, undivided, 40 mph/45 mph, minor arterial. Ranson Road continues south of James A. Reed Wildlife Conservation Area into Greenwood with shared ownership between the City and County. Multiple turn lanes exist at the intersections of Ranson Road/Route RA/Todd George Parkway with US50 Highway, Blue Parkway (North Highway Frontage Road), Oldham Parkway (South Highway Frontage Road), and several residential street intersections. The interchange at US50 Highway, including Blue Parkway and Oldham Parkway are traffic signal controlled. The intersection of Bailey Road at Ranson Road/Route RA is a "T" configuration with Baily Road currently stop controlled. A traffic signal at this intersection is forthcoming in association with the middle school project and recently approved subdivision at

the Southwest corner of the intersection. All other intersections along the corridor are also one-way or two-way stop controlled; Ranson Road/Route RA with assigned right-of-way. Ranson Road/Route RA is also an identified link in the City's Greenway Master Plan and Bicycle Transportation Plan. There already exists a trail network along Ranson Road/Route RA/Todd George Parkway in compliance with these master plans. The trail will be extended south of Bailey Road in association with aforementioned approved developments.

Oldham Parkway is an east-west MoDOT facility east of Ranson Road and an outer road to US50 Highway. Oldham Parkway is a two-lane roadway with earthen shoulders. Oldham Parkway extends east to a point approximately 2,000 feet west of Blackwell Road where the roadway is terminated. There are future plans and existing right-of-way to connect Oldham Parkway between Ranson Road and Blackwell Road as the adjacent land development creates such demand.

All aforementioned roadways directly impacted by the proposed development are built to urban standards with exception of Ranson Road/Route RA and Oldham Parkway. There are sections of Ranson Road with urban standards north of Bailey Road and interim standard without shoulders particularly south of Bailey Road. There are also improved urban sections of Oldham Parkway adjacent to the recent senior living development and an expected improvement to the remainder of Oldham Parkway consistent with the build-out of Blue Parkway as development activity occurs. Ranson Road/Route RA and Oldham Parkway are currently MoDOT facilities and the City's Unimproved Road Policy is not applicable to MoDOT rights-of-ways. However, the road improvements; particularly Oldham Parkway should be expected in association with development to urban standards as was done along Blue Parkway in consideration of MoDOT's requests for City to eventually take ownership of the corridor.

Sight distance is adequate all the aforementioned street intersections.

ACCESS MANAGEMENT CODE COMPLIANCE?

YES

No

All intersection spacing, turn lanes and other applicable criteria required by the Access Management Code have been satisfied and/or will be compliant as shown on the PDP. Access to both Ranson and Oldham satisfy the requirements as set forth.

TRIP GENERATION

Time Period	Total	In	Out
Weekday	7102	3551	3551
A.M. Peak Hour	434	231	204
P.M. Peak Hour	415	210	205

The trip generation information provided above was a sum of the following proposed uses; Super Convenience Market/Gas Station (ITE Code 960), Mini-Warehouse (ITE Code 151), Small Office Building (ITE Code 712), and Multi-Family Housing Low-Rise (ITE Code 220).

TRANSPORTATION IMPACT STUDY REQUIRED?

YES

No

The proposed development will likely generate more than 100 peak hour trips along the adjacent street network during a weekday peak hour, meeting the minimum requirement for a traffic impact study in the Access Management Code.

A traffic impact study was completed for the preliminary development plan by TransSystems, dated May 2021. The study considered the traffic impact of the proposed commercial and residential development; a gas station with 14 fueling stations, several self-storage units in various buildings consisting of approximately 82,000 sf., a contractor's garage with 14,500 sf. of storage and 4,500 sf. of office space, 25-4-unit residential buildings, and several additional commercial buildings totaling approximately 35,000 sf. The City and MoDOT have completed a review of the traffic study and concur with the study findings and recommendations.

The traffic study evaluated several scenarios associated with the subject property aligned to the anticipated phasing of construction. The following analysis scenarios were included in the study: existing plus approved development conditions, existing plus approved development conditions plus Phase 1 development conditions, existing plus approved development conditions plus Phase 1&2 development conditions, existing plus approved plus full development conditions. Existing plus approved development conditions considered active development in the general vicinity (i.e. Princeton Retirement Living, Culver's along Oldham Road, Lee's Summit Middle School #4, and Bailey Farms Subdivision), as well as any improvements conditioned upon those developments approved. Intersections analyzed with this report were; Todd George Parkway and Blue Parkway, Ranson Road/Todd George Parkway at US-50 Highway, Ranson Road at Oldham Parkway, and 11th street at Ranson Road.

Intersection analysis compares proposed development conditions to existing conditions and all operations based on City and MoDOT established performance goals for measuring adequate infrastructure. The City has adopted a level of service (LOS) standard "C" for overall traffic signal operations; where individual traffic movements may be at LOS D or worse. Level of Service for stop controlled movements should be at least "D", but LOS E and LOS F may be acceptable. MoDOT has a similar performance standard, but LOS D is an acceptable benchmark for signal operations on their system. These performance goals, or minimum conditions of adequate infrastructure, help to identify public improvement needs associated with development for safer and efficient travel. Level of Service is an industry accepted standard measure of traffic performance based on experienced or calculated delay and driver/user comfort rated on a scale from A to F, where A represents the best and F the worst. Other improvement needs may be identified based on vehicle queuing and minimum code criteria, guidelines and standards that address transportation operations and safety (e.g. turn lanes, sight distance, intersection spacing, alignment, etc.).

An assessment of existing plus approved plus Phases 1-3 proposed development conditions indicate acceptable levels of service for all studied intersections except for certain movements and intersections as noted below:

- Blue Parkway at Todd George, LOS D - A.M. Peak Hour
- Westbound ramp on US-50 at Ranson Road, LOS D - A.M. Peak Hour
- Eastbound Left-Turn on 11th St. at Ranson Road, LOS F - A.M. and P.M. Peak Hour
- Westbound Left-Turn on 11th at Ranson Road, LOS E & F - A.M. and P.M. Peak Hour

Additionally, an assessment of existing plus approved plus Full (Phase 1-4) proposed development conditions indicate acceptable levels of service for all studied intersections except for the intersections and individual movements as noted below:

- Blue Parkway at Todd George, LOS D - A.M. and P.M. Peak Hour
- Eastbound Left-Turn on 11th St. at Ranson Road, LOS F - A.M. and P.M. Peak Hour

Estimated trips generated by the proposed development were projected onto existing conditions and analyzed. For both scenarios of phased development, no new traffic signals were recommended. However, various turn lanes are recommended in the traffic study. Where turn lanes and signals were assumed based on the conditions of approved development nearby, it would also be assumed if those approved projects do not proceed accordingly prior to this development that this development would share those same requirements for adequate LOS.

All LOS is acceptable following Phase 1-3 development except the intersection of Todd George and Blue Parkway, the intersection of US-50 and Ranson Road, and the intersection of Ranson Road and 11th Street eastbound left-turn. Those recommended turn lanes in support of the proposed partial build development include:

- Westbound right-turn lane on Ranson at Oldham with a minimum storage length of 150 feet plus appropriate taper.
- Westbound left-turn lane on Ranson at Oldham with a minimum storage length of 150 feet plus appropriate taper.
- Widen the south leg of the intersection to include a northbound left-turn lane on Ranson at Oldham with a minimum storage length of 200 feet plus appropriate taper. This improvement will result in a center two-way left-turn lane on Ranson Road between 11th street and Oldham Parkway.
- Lengthen the northbound right-turn/through lane on Ranson at Oldham to provide a minimum storage length of 200 feet plus appropriate taper.
- Eastbound right-turn lane on Oldham at Driveway 1 with a minimum storage length of 200 feet plus appropriate taper.

All LOS is acceptable post Full (Phase 1-4) development except the intersection of Todd George and Blue Parkway, and the intersection of Ranson Road and 11th Street eastbound left-turn.

Those additional turn lanes recommended in support of the proposed full build include:

- Westbound left-turn lane on US-50 Ramp at Todd George with a minimum storage length of 250 feet plus appropriate taper.
- Lengthen the eastbound right-turn lane on US-50 Ramp at Ranson to provide a minimum storage length of 400 feet plus appropriate taper.
- Continuous northbound right-turn lane between the US-50 Ramp and Oldham Parkway intersection.
- Northbound right-turn/through lane on Ranson Road at Oldham with a minimum storage length of 200 feet plus appropriate taper.
- Continuous southbound right-turn lane between Oldham Parkway and the eastbound ramp intersection.
- Lengthen the southbound left-turn lane by reducing the wider section of median to a width of four feet between Oldham Parkway and the eastbound ramps. This will create a continuous left-turn lane.
- Second eastbound left-turn lane on Oldham at Ranson to provide a minimum storage length of 250 feet plus appropriate taper.
- An additional through lane in both the northbound and southbound directions to continue south of Oldham Parkway through the 11th Street intersection.

Staff and MoDOT concur with the study findings and recommendations. The transportation improvements recommended in the study are consistent with and included in the Staff recommended stipulations for approval listed at the end of this report. Some of the assumed improvements included in the study in association with approved development that have not yet

been constructed are also requirements for this development where also warranted by the proposed development (e.g. traffic signal and turn lane(s) at Bailey/Ranson).

LIVABLE STREETS (*Resolution 10-17*)

COMPLIANT

EXCEPTIONS

The proposed development plan shall include 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, shared-use path, landscaping, parking, and accessibility. No exceptions to the Livable Streets Policy adopted by Resolution 10-17 are 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 rezoning and concept plan subject to a traffic impact study for each subsequent development plan (e.g. PDP) filed within the concept plan area and associated traffic impact study recommendations being constructed prior to the issuance of any commercial occupancy permit or residential building permit. As a reference, the concept plan rendered the following conditions of approval, with varied schedule based on each phase of development, in support of the rezoning and concept plan build-out:

1. Construct a westbound right-turn lane on Oldham Parkway at Ranson Road with a minimum storage length of 150 feet plus appropriate taper.
2. Construct a westbound left-turn lane on Oldham Parkway at Ranson Road with a minimum storage length of 150 feet plus appropriate taper.
3. Widen the south leg of the intersection at Ranson Road and Oldham Parkway to include a northbound left-turn lane with a minimum storage length of 200 feet plus appropriate taper.
4. Lengthen the northbound right-turn/through lane on Oldham Parkway at Ranson Road to provide a minimum storage length of 200 feet plus appropriate taper.
5. Construct an eastbound right-turn lane along Oldham Parkway at Driveway 1 with a minimum storage length of 200 feet plus appropriate taper.
6. Improve Oldham Parkway from Ranson Road to the east where urban standards exist. Improvements shall consist of an urban standard section along the south side (e.g. adjacent to the development site) with curb and gutter, sidewalk, etc. and shoulder along the north side; all consistent with the design of Blue Parkway west of Todd George Parkway.
7. Construct a second westbound left-turn lane on the US-50 westbound ramp at Todd George Parkway with a minimum storage length of 250 feet plus appropriate taper.
8. Lengthen the eastbound right-turn lane on the US-50 eastbound ramp at Ranson Road to provide a minimum storage length of 400 feet plus appropriate taper.
9. Construct a continuous northbound right-turn lane on Ranson Road between the US-50 eastbound ramp and Oldham Parkway.
10. Construct a northbound right-turn/through lane on Oldham Parkway at Ranson Road with a minimum storage length of 200 feet plus appropriate taper.
11. Construct a continuous southbound right-turn lane between Oldham Parkway and the US-50 eastbound ramp intersection.
12. Lengthen the southbound left-turn lane on Ranson Road at Oldham Parkway by reducing the wider section of median to a width of four feet between Oldham Parkway and the US-50 eastbound ramps.

13. Construct a second eastbound left-turn lane on Oldham Parkway at Ranson Road with a minimum storage length of 250 feet plus appropriate taper.
14. Construct an additional through lane on Ranson Road in both the northbound and southbound directions from Oldham Parkway through the 11th Street intersection for a consistent 4-lane section that may then merge south of 11th Street.
15. Construct traffic signal at the intersection of Bailey Road and Ranson Road.
16. Construct southbound right-turn lane on Bailey Road at Ranson Road.
17. Construct traffic signal improvements with interconnect at the intersection of Oldham parkway and Ranson Road.

Conditions of approval at the time of subsequent development within the Concept Plan area, including scope and timing, may vary depending on the traffic study recommendations.

Furthermore, any improvements within state rights-of-ways (e.g. Ranson Road/Route RA) may be waived or modified or other improvements added at the discretion of MoDOT for MoDOT's approval of permitted work. The listed recommendations applicable to MoDOT ROW are based on MoDOT's review and comment of the development plan and associated traffic impact study. Any listed condition waived or modified by MoDOT, or any new condition provided by MoDOT, shall be documented to the City in substitute for the satisfaction of these conditions.