LEE'S SUMMIT
MISSOURI

DEVELOPMENT REVIEW FORM
TRANSPORTATION IMPACT

DATE:	January 3, 2022	**CONDUCTED BY:**	Brad Cooley, PE
SUBMITTAL DATE:	December 6, 2021	**PHONE:**	816.969.1800
APPLICATION #:	2021428	**EMAIL:**	Brad.Cooley@cityofls.net
PROJECT NAME:	LEE'S SUMMIT PROCESSING FACILITY	**PROJECT TYPE:**	Prel Dev Plan (PDP)

SURROUNDING ENVIRONMENT *(Streets, Developments)*

The proposed development is located along the east side of SE Hamblen Road, south of SE Bailey Road approximately 1 mile (and north of SE Thompson Drive less than 1/4 mile) adjacent to the closed landfill on City property. The development is located on-site of an existing landfill/solid waste, PDA and HHW, operations facility. The surrounding area consists of other industrial land uses to the west, south and north. Several large lot/agricultural properties with dwellings reside more than a 1/2 mile towards the east with a nearby elementary school to the north of these residents along SE Ranson Road. The nearest single-family subdivision is located to the north about 1/2 mile at its closest proximity. Neither the subdivision, residential properties nor school have access to SE Hamblen Road. There is a rail corridor along the west side of SE Hamblen Road near the project that crosses SE Hamblen Road between the project and SE Thompson Drive.

ALLOWABLE ACCESS

The proposed development is designed to be accessed through a proposed drive, north of the existing drive, near the northern property line. The existing drive to the transfer station is currently a shared-use drive, allowing access to the landfill but will be removed with this project. The landfill is proposed to be accessed through the project site. The proposed drive location is located at a point far enough north that if the landfill property was to redevelop, a second point of access along Hamblen would be granted in conformance with the Access Management Code (AMC).

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

The majority of the traffic to the existing facility is primarily coming to and departing from the site along Hamblen Road to Bailey Road and either M-291 or US50. The proposed development is expected to experience similar traffic trends as the existing site.

SE Hamblen Road is an undivided, north-south, two-lane minor arterial roadway with a 40-mph speed limit south of SE Bailey Road. The speed limit changes to 35 mph south of the at-grade rail road crossing (north of SE Thompson Drive). The typical section of this roadway south of SE Bailey Road is not curbed and does not have an enclosed storm drainage system with turf shoulders, but otherwise exhibits the City's interim road standard. Some turn lanes exist along SE Hamblen Road, particularly left-turn lanes are available at the intersection of SE Bailey Road and at the driveway that serves the proposed development. SE Hamblen Road continues north of SE Bailey Road, offset towards the west approximately 1/4 mile. The intersections of SE Hamblen Road with SE Bailey Road are traffic signal controlled with turn lanes or will be prior to the proposed development construction in association with on-going public improvements for a new middle school located along Bailey Road to the East. This section of SE Hamblen Road north of SE Bailey Road is an undivided minor arterial with mostly an urban design (e.g. curb and gutter), a 35-mph

speed limit and various turn lanes at driveways and intersections. It has a through lane in each direction until the intersection at SE Oldham Parkway, a traffic signal-controlled intersection just south of US 50 Highway where additional through lanes are provided towards US 50 Highway. US 50 Highway is a MoDOT facility with grade separated and traffic signal-controlled interchange at SE Hamblen Road/M-291 Highway. Interchange improvements are planned. The project is located approximately 1.7 miles from this highway junction along SE Hamblen Road towards the north-northwest.

SE Thompson Drive is the nearest public street that intersects SE Hamblen Road near the project. It is generally an undivided, east-west, wide two-lane commercial/industrial collector roadway with a 35-mph speed limit. This urban designed roadway (e.g. curb and gutter) extends between SE Hamblen Road to M-291 Highway, a MoDOT facility. M-291 Highway is less than 1.5 miles from SE Hamblen Road along SE Thompson Drive and less than 2 miles from the project west. The "T" intersection at SE Hamblen Road is controlled by a stop sign on SE Thompson Drive. SE Thompson Drive is traffic signal controlled at the intersection of M-291 Highway.

SE Bailey Road is an undivided, east-west, two-lane minor arterial roadway with a 35-mph speed limit. There are no residential properties addressed from SE Bailey Road and no residential properties have direct access to SE Bailey Road. It has an urban section with curb and gutter, wide lanes, sidewalks, etc. SE Bailey Road extends from SE Ranson Road/Missouri Route RA (east of SE Hamblen Road) to M-291 Highway (west of SE Hamblen Road). SE Bailey Road continues west of M-291 Highway across Lee's Summit as SW Persels Road, a minor arterial. Both SE Ranson Road and M-291 Highway are MoDOT facilities. The intersections with SE Bailey Road will be traffic signal controlled in association with the aforementioned middle school improvements. SE Bailey Road is stop controlled at the "T" intersection with SE Ranson Road. SE Bailey Road is also traffic signal controlled at the intersection with M-291 Highway. The SE Bailey Road connection has a grade separated bridge over the rail corridor between SE M-291 Highway and SE Hamblen Road. M-291 Highway via SE Bailey Road is about 1.9 miles from the project west-northwest.

SE Ranson Road is a state (MoDOT) owned and maintained roadway south of US 50 Highway most closely classified as a major arterial crossing the City of Lee's Summit north to south; north of US 50 Highway SE Ranson Road is Todd George Parkway (a City owned and maintained facility). This 2-lane roadway south of US 50 Highway has various turn lanes at intersections and a 45-mph speed limit. Although a shouldered roadway (no curb and gutter), generally there are sidewalks along both sides of the road (a wide shared-use path along the east side and sidewalk along the west side). US 50 Highway is a MoDOT facility with a grade separated and traffic signal-controlled interchange at SE Ranson Road/SE Todd George Parkway and signal controlled outer roads. The project is located approximately 2.5 miles from this highway junction along SE Ranson Road towards the north-northeast.

The referenced street functional classifications are defined in the City's adopted Thoroughfare Master Plan. All of the roadways have been evaluated in consideration of use anticipated by the development (i.e. vehicle/truck). Based on a pavement evaluation of roadway design, the City Engineer has determined the aforementioned roadways and bridges were designed to carry the weight of truck traffic. The intersections of the aforementioned roads were also designed with turning radii that accommodates truck traffic. These assertions of roadway design and construct are supported by current and past truck traffic experience. Sight distance at the subject intersections is adequate.

Other modal plans affecting this area include the Greenway Master Plan and Bicycle Transportation Plan. A non-motorized greenway (shared-use path) was planned and constructed along SE Ranson Road/Todd George Parkway. This greenway is planned to continue on SE Ranson Road south of SE Bailey Road. A bike route is planned along SE Ranson Road/Todd George Parkway, on SE Thompson Drive and on SE Bailey Road from SE Hamblen Road to M-291 Highway. The greenway along SE Ranson Road/Todd George Parkway serves the planned bike route accommodation. The wide lanes and/or marked shoulders/bike lanes on SE Thompson Drive and on SE Bailey Road, respectively, provide accommodation for cyclists and a shared-use path has been constructed along SE Bailey west of SE Hamblen Road with additional shared-use path under construction or planned east of Hamblen Road to Ranson Road. SE Hamblen Road north of SE Thompson Drive is not a roadway with planned greenways or bike routes.

ACCESS MANAGEMENT CODE COMPLIANCE? YES ☒ NO ☐

All intersection spacing, turn lanes and other applicable criteria required by the Access Management Code have been satisfied as shown on the development plans.

TRIP GENERATION

Time Period	Total	In	Out
Weekday	230	115	115
A.M. Peak Hour	23	13	10
P.M. Peak Hour	32	14	18

Based on existing trip generation from the current site and operation; and information provided by the owner, a traffic memo was prepared for the project to assess the traffic impact(s). The existing operation experiences around 180 vehicle trips on a typical weekday. This includes; light vehicles, heavy-duty vehicles, semi-trucks, and employee vehicles. Similarly, the proposed development expects 230 vehicles on a typical weekday, with 50 additional "heavy-duty vehicles" than the existing facility generates due to changes in proposed operation compared to the existing operation. While there is no use in the ITE Trip Generation Manual for this use, the traffic memo stated that the operators of the proposed development can schedule trucks such that it will not interfere with peak-hour traffic on the surrounding road network. Peak hour trip estimates were based on industry "rules of thumb" for typical commuter peak portions of daily traffic. The trip estimates shown in the table account for all trips; not just net new trips from the proposed development that would only be about 50 additional vehicles daily or 5-7 total new peak hour trips.

TRANSPORTATION IMPACT STUDY REQUIRED? YES ☐ NO ☒

The proposed development likely will not generate more than 100 peak hour trips; a minimum condition in the Access Management Code for Traffic Impact Studies. However, a memo of estimated trip generation and general traffic impact assessment has been provided by the applicant for reference. The estimated total new peak hour trips are negligible and would have no measurable impact on traffic level of service.

All of the roadways described above have a minimum capacity of 4,600 vehicles per day at relatively uncongested travel (level of service C). The City has adopted a desirable level of service goal C for transportation operations. SE Bailey Road, SE Hamblen Road (south of SE Bailey Road), and SE Thompson Drive all carry less than 3,500 vehicles per day according to most recently

available traffic counts. SE Ranson Road and SE Hamblen Road (north of SE Bailey Road) experience about 8,000 and 7,000 vehicles per day, respectively. Known traffic congestion occurs during commuter peak hours at the SE Ranson Road/Todd George and SE Hamblen Road/M291 North interchanges with US 50 Highway. Likewise, the stop-controlled movements at intersections along SE Bailey Road experience some delay comparable to level of service C or D during commuter peak hours, but those intersections along Bailey Road will be traffic signal controlled prior to a completed build of the proposed development with ample capacity for all movements to have acceptable level of service. Similarly, planned interchange improvements at Hamblen/M291 North junction with US50 Highway will create additional capacity for continued community growth. Normally there is no congestion outside of the daily commuter peak hours at these locations.

Based on the daily traffic counts on record, the daily volume and hourly volume varies from day-to-day throughout the week by more than the projected new trip generation of the proposed development. The trip generation shown in the table falls within the daily and hourly volume variation. The new trips projected by this development are negligible compared to existing traffic and overall minimal. Furthermore, periods of existing traffic congestion and capacity demand are typically limited to peak commute hours and the project related trip distribution is not commuter based. There is no measurable impact to commuter peak hours. Moreover, the traffic volume may have increased since the dates of data collection, particularly along Bailey Road, Ranson Road north of Bailey Road, and Hamblen Road north of Bailey Road where volumes were highest among possible routes to the highway system to/from the development. Consequently, the trip impact assessed to/from the development would be further minimized with any increase in existing traffic.

Since the hours of operation for the proposed development occur outside of commuter peak hours of traffic, the development related trips are more distributed throughout the daytime and thus distribute the traffic impact throughout the daytime more so than other types of development. The development also has numerous available routes for access. New trips generated can be assumed to disperse upon all the aforementioned roadways minimizing the traffic impact on any one particular route. Given the existing roadway and intersection capacities, time of day when new trips are generated and the distribution of those trips on multiple routes, the impact from this development to existing infrastructure and operations should not require any capacity mitigations.

LIVABLE STREETS *(Resolution 10-17)* **COMPLIANT** ☒ **EXCEPTIONS** ☐

The proposed development plan will provide required sidewalks and all elements otherwise required by ordinances and standards, including but not limited to property landscaping, lighting, parking, and ADA accessibility. No exceptions to the Livable Streets Policy adopted by Resolution 10-17 are requested.

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 development without any transportation improvement stipulations.