


7 Step Traffic Impact Analysis
Lawrence Police Headquarters
Proposed Zoning Category Change
Overland Drive & Congressional Drive
CITY OF LAWRENCE
January 21, 2019

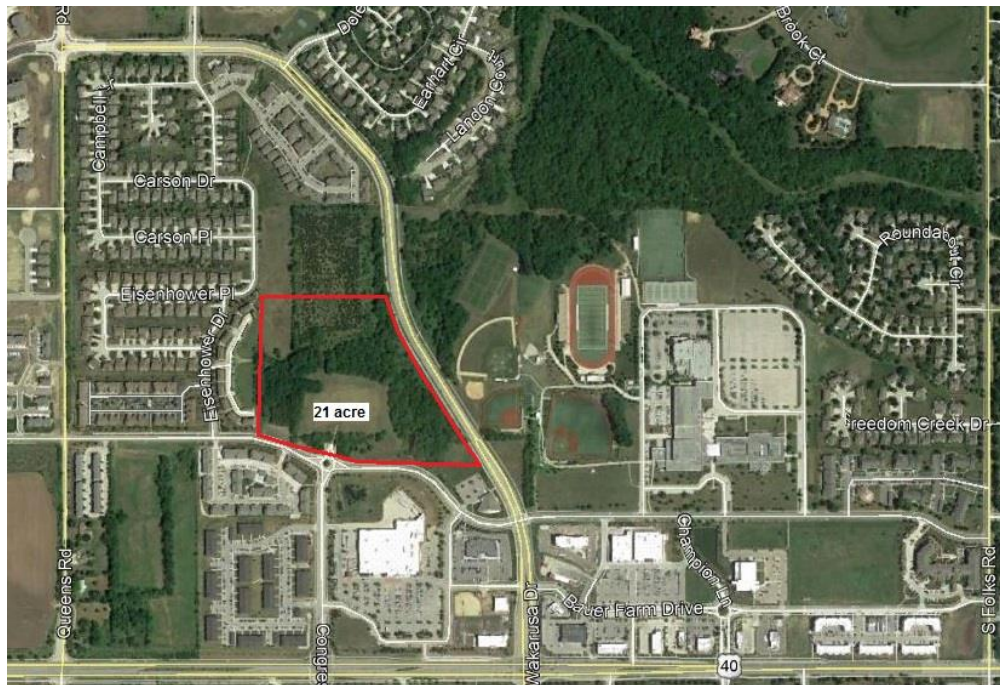
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	January 21, 2019 (Date) <i>Cheryl Lynn Bornheimer Kelley</i> _____ Cheryl Lynn Bornheimer Kelley My license renewal date is April 30, 2020.
	Pages or sheets covered by this seal: Engineer's Report titled: Lawrence Police Headquarter TIS

Introduction

This 7 step Traffic Impact Analysis has been prepared for the support of the proposed Lawrence Kansas Police Headquarters. The study has been prepared in accordance with the City of Lawrence's Traffic Impact Study Guidelines. The zoning of the proposed 21-acre site will be changed from OS (open space) to GPI (general public and institutional use). This site will consist of a new police headquarters with a separate garage and two parking lots (public parking and employee parking). The existing parcel is 29 acres, it will be parceled out into two parcels, with the remainder 8-acre parcel to remain OS zoning.

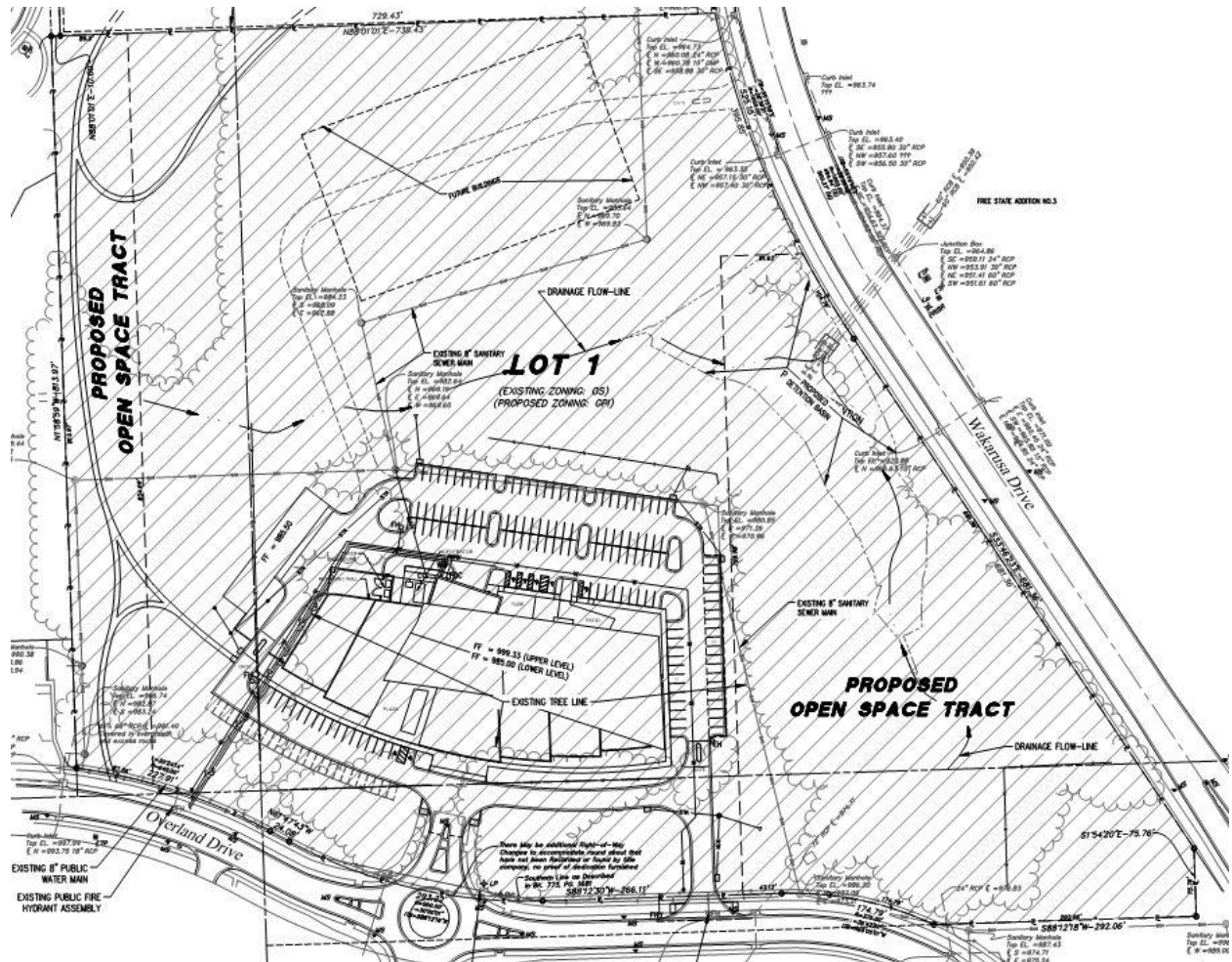
The changes in the traffic generated by the changing in the zoning category revealed that a full traffic study could be warranted in the future depending on the proposed size of the facility. A proposed Open Space Tract was dedicated on the east side of the parcel to retain existing trees and a "park feel". While standard trip generation rates are provided by documents such as the ITE Trip Generation, these documents do not provide standard rates for police stations. Therefore, it was necessary to estimate daily, and peak hour trip generation based on a "person-trip" analysis for time periods. This person-trip analysis consists of estimating the anticipated number of one-way person trips by time of day, then factoring by travel mode and vehicular occupancy to forecast the number of vehicle-trips. The number of one-way person trips was estimated by interviewing the City of Lawrence Police Department shift manager and reviewing staff schedules. The resulting analysis yielded an AM peak hour estimate of 48 vehicles per hour (vph) while the PM peak hour would yield 71 vph. Since the maximum volume of site generated traffic during the peak hour, 71 vph, is less than 100 vph, this 7 Step Analysis would satisfy the City of Lawrence's Development Code. The new access driveway will connect to the existing northerly quadrant of the roundabout located on Overland Drive and Congressional Drive. The analysis of the proposed development does not indicate that there would be any appreciable change in traffic volumes as a result of this project.



Aerial View of City of Lawrence Police Headquarters Site

Step 1: Specific Development Plan and Land Uses

The proposed site is planned to host the new City of Lawrence Police Headquarters. The site will have two structures, the main facility and a separate garage. The public parking lot provides 19 parking spaces, with two of those dedicated to handicap parking and with the potential of an additional 26 future public parking spaces. The gated employee parking area contains 137 parking spaces with 5 dedicated handicap parking stalls. Majority of the parking within the gate will be dedicated for storage on City owned vehicles. The site will include new curb, new landscaping, ADA accessibility, and gated entrances for employees. Below is an image of the site's layout. To the west of the site is Camson Properties, which houses executive Villas and townhomes. To the southwest of the site is also Camson Properties with townhomes and apartments. Directly south of the site is Walmart Supercenter. To the southeast of the site is Family Centered Medicine, a medical walk-in facility. To the east of the site is Free State High School. To the north of the site is the existing open space which is own by the City of Lawrence.



Proposed City of Lawrence Police Headquarters

Step 2: Land Uses Shown in Horizon 2020 for the Proposed Development

As shown in Horizon 2020, The Comprehensive Plan for Lawrence and Unincorporated Douglas County Amendment 10-19-2018, the zoning category for the site will change from OS to GPI. This area is within the incorporated city limits. The flood map for the selected area is number 20045C0156E, effective on 9/2/2015, showed that the site was located outside of the 500-year flood zone.

Step 3: Functional Classification of the Public Streets Bordering the Site

As shown in Transportation 2040 developed by the Metropolitan Transportation Plan of Lawrence and Douglas County, the functional classification of the surrounding streets are as follows:

- Overland Drive – Major Collector (access)
 - Speed Limit of 35 mph
- Congressional Drive – Major Collector (access)
 - Speed Limit of 35 mph
- Wakarusa Drive – Principal Arterial (no access)
 - Speed Limit of 45 mph

There are no known programmed improvements or future planned improvements for any of the roadways listed above in the region directly surrounding the City of Lawrence Police Headquarters development site.

Step 4: Allowable Access to the Development

All traffic headed to the site will arrive and depart from either Overland Drive or Congressional Drive. The site is assumed to have an even split of arrivals and departures from both roadways, as there is an equal distance from two major principal arterial routes. It is noted that majority of traffic on Overland Drive is assumed to use the east access and the all traffic from Congressional Drive will utilize the roundabout access at the intersection of the two roadways.

Congressional Drive has dedicated bike lanes, while Overland Drive is dedicated as a shared use path for bike use. The City of Lawrence Bus Route 6, Downtown to Sports Pavilion Lawrence, includes Overland Drive and already provides access to the site.

Step 5: Current Public Street Characteristics Adjacent to the Site

The two roadways adjacent to the site are Overland Drive and Congressional Drive. Overland Drive is a two-lane roadway with one thru lane in each direction with a posted speed limit of 35 mph. It is 31 ft wide between the edges of the pavement, has a curb and gutter system, sidewalk on the south side and a trail system on the north, and is designated as a shared-use path for bicycles. Congressional Drive is a three-lane roadway with one thru lane in each direction, a two-way left-turn lane, and bike lanes for each direction with a non-posted speed limit of 35 mph. It is 48 ft wide between the edges of pavement, has a curb and gutter system, and has sidewalks on both sides of the street. The intersection of Overland Drive and Congressional Drive is a single lane roundabout and is approximately 1,200 feet away from both major principal arterials of W 6th Street to the south and Wakarusa Drive to the east. The existing roundabout does not have any sight obstructions and utilizes center splitter islands to split entering and exiting traffic. The intersections will also be used as one of the two accesses to the proposed site. Pedestrian crosswalks are already installed at the existing intersection.

Step 6: Proposed Access Compared with AASHTO Criteria

One new access driveway is being proposed on Overland Drive with the main access utilizing the north quadrant of the existing roundabout at the intersection of Overland Drive and Congressional Drive. The proposed new access to the site will meet AASHTO criteria and the City of Lawrence Access Management Guidelines. The distance between the proposed access point and the intersection of Overland Drive and Congressional Drive is approximately 300 ft, exceeding the 250 ft minimum requirement from the City. The driveway width will be 26 ft and the throat length will exceed 50ft which also meets the requirements of Access Management Guidelines. The access point is not likely to require a left-turn or right-turn auxiliary lane. There are no sight obstructions or sight distance issues at the driveway.

Step 7: Estimate of Trips Generated by Existing and Proposed Development

The existing land is vacant with no traffic. For evaluating impacts from new land developments, traffic engineers typically utilize the Trip Generation Manual (10th Edition) published by the Institute of Transportation Engineers (ITE). The 10th Edition is the most current manual and covers a diverse assortment of commercial, residential, industrial and specialty types of land developments. While standard trip generation rates are provided by the 10th Edition, it does not provide standard rates for police stations. Therefore, it was necessary to estimate daily, and peak hour trip generation based on a “person-trip” analysis for time periods. This person-trip analysis consists of estimating the anticipated number of one-way person trips by time of day, then factoring by travel mode and vehicular occupancy to forecast the number of vehicle-trips. The number of one-way person trips was estimated by interviewing the City of Lawrence Police Department shift manager and reviewing staff schedules. Volumes are shown in the table provided below. The resulting analysis yielded an AM peak hour estimate of 48 vehicles per hour (vph) while the PM peak hour would yield 71 vph.

Lawrence Police Station Total Trips (Entering and Exiting) - Weekday Estimation												
Hour Beginning	Administration	Specialists - Detectives	Specialist - Narcotics	Resources Specialist	Animal Control	Patrol	Patrol - Early	Patrol - Mid	Patrol - Late	Utility ¹	Visitors	Total Vehicle
1:00 AM	0	0	0	0	0	0	0	2	1	0	0	3
2:00 AM	0	0	0	0	0	0	0	2	2	0	0	4
3:00 AM	0	0	0	0	0	0	0	1	10	0	0	11
4:00 AM	0	0	0	0	0	0	0	1	0	0	0	1
5:00 AM	0	1	1	0	0	0	0	1	0	0	0	3
6:00 AM	4	2	2	0	0	13	0	1	0	0	0	22
7:00 AM	12	5	5	0	0	1	0	13	0	0	0	36
8:00 AM	6	8	8	6	2	2	0	0	0	0	16	48
9:00 AM	4	6	6	0	0	1	0	0	0	2	20	39
10:00 AM	0	3	3	0	0	2	10	0	0	0	12	30
11:00 AM	0	2	2	2	0	2	1	0	0	2	8	19
12:00 PM	8	5	5	6	2	2	1	0	0	0	20	49
1:00 PM	2	2	2	2	0	1	2	0	0	0	16	27
2:00 PM	0	1	1	0	0	1	1	0	0	2	8	14
3:00 PM	0	3	3	2	0	2	1	0	0	0	12	23
4:00 PM	4	4	4	3	0	2	1	0	10	0	16	44
5:00 PM	6	10	10	6	2	13	2	0	2	0	20	71
6:00 PM	6	2	2	2	0	0	1	0	1	0	10	24
7:00 PM	0	1	1	0	0	0	1	0	1	0	0	4
8:00 PM	0	0	0	0	0	0	1	13	1	0	0	15
9:00 PM	0	0	0	0	0	0	10	1	2	0	0	13
10:00 PM	0	0	0	0	0	0	0	1	1	0	0	2
11:00 PM	0	1	1	0	0	0	0	1	1	0	0	4
12:00 AM	0	1	1	0	0	0	0	1	1	0	0	4
Total Trips	52	57	57	29	6	42	32	38	33	6	158	510

Source: Lawrence Police Department, December 2018

Note 1: Utility trips consist of a daily linen truck, daily UPS delivery, and a daily rug cleaning truck

Highlighting indicates the peak hour

These estimated volumes are relatively small and are not anticipated to significantly change the traffic patterns of the local street network. Pass-by traffic was not estimated for the assumed land use category.

Summary

The estimated generated trips for the proposed City of Lawrence Police Headquarters would be as follows: the AM peak hour yields approximately 48 vph while the PM peak hour yields 71 vph. As the maximum volume is less than 100 vph, this 7 Step Analysis satisfies the City of Lawrence’s Development Code. The analysis of the proposed development does not indicate that there would be any appreciable increase in traffic volumes as a result of the proposed change in zoning category.