

Technical Memorandum

To:

From:

Date: Month Day, Year

Re: Tier I Transportation Analysis – XYZ Senior Housing Redevelopment

A redevelopment is proposed for the vacant building on the north side of A Street in Springfield, Missouri. The proposed development includes:

- 64 Senior Housing Apartment Units, consisting of two bedrooms per unit.

This technical memorandum presents a Tier I Transportation Analysis of the proposed redevelopment, building on an earlier preliminary transportation assessment, dated Month Day, Year, and following the process of the Ozarks Transportation Organization Transportation Impact Study policy. That initial assessment is attached to this memorandum for reference. The proposed redevelopment site plan, also attached and dated Month Day, Year, represents an update with several improvements from the original presented and analyzed.

Summary of Results

Based on the analysis presented in this memorandum, the following action is recommended:

- Reconstruct the sidewalk connections at the access driveway to the ADA standards.
- Grant a parking variance to the City code requirements.
- Raise the canopy of the two existing trees along the property line to the east of the driveway to ensure the vegetation will not impact sight lines.

Beyond these items, the proposed redevelopment is not expected to impact operations on the surrounding transportation system.

Study Area

Table 1 shows the primary characteristics of the key roadway corridor adjacent to the proposed site. Based on the limited traffic expected during the peak hours, discussed in the next section, the study area is limited to this road only.

Table 1 – Study Corridor Characteristics

Name	Designation	Classification ¹	Speed Limit	Daily Traffic Volume	Lanes	Fixed Route Transit	Ped/Bicycle Facilities
A Street	-	Collector	30 mph	3,500 veh/day	2 undivided	No	Both Sides

¹ Ozarks Transportation Organization Major Thoroughfare Plan

Estimated Traffic and Parking Generation

The proposed redevelopment matches the existing zoning for the site and, as shown in the attached site plan, includes 64 residential units. This amount is an increase of four from the initial assessment. Similarly, the proposed parking for the site has increased to provide 74 stalls in the underground garage (50 single spaces and 12 tandem spaces). These changes arose from discussions with staff regarding the initial submittal and subsequent adjustments to the design.

Trip generation for the proposed development was established using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition*. As a residential development, the trips generated are expected to be new without pass-by, internal, or other sub-categories. In addition, no reductions have been applied for multi-modal facilities. Table 2 shows the resulting new trips based on the ITE information.

Table 2 – ITE Trip Generation – New Trips

Land Use Code – Source	Description & Size	Daily		AM Peak Hour		PM Peak Hour	
		In	Out	In	Out	In	Out
ITE - 252	Senior Housing Attached – 64 Units	119	119	5	8	9	8

Parking generation for the proposed development was also established using ITE data contained in the *Parking Generation, 4th Edition*. Table 3 presents the expected peak parking demand for the proposed redevelopment.

Table 3 – ITE Parking Generation – Peak Parking Demand

Land Use Code – Source	Description & Size	Peak Parking Demand (Occupied Stalls)		Peak Parking Time	
		Weekday	Weekend	Weekday	Weekend
ITE – 252	Senior Housing Attached – 64 Units	38	-	22:00 – 05:00	-

For the Senior Housing land use, ITE does not have the peak parking demand for a weekend. Based on other residential land use types, the peak parking demand on weekends is similar or slightly less than the weekday demand. The proposed development's site plan currently includes 50 single stalls and 12 tandem stalls for a total of 74 parking spaces. This proposed amount of parking is more than sufficient for the expected demand.

City code requires two parking spaces for every two-bedroom dwelling units. A reduction of one percent per every ten units above 50 can be applied to this project. With 64 two-bedroom units, the proposed development would require 127 parking spaces based on City code. The proposed supply falls short of this requirement.

Sight Distance

Using the AASHTO time-based methodology for sight distance evaluation, the existing driveway connection to A Street was examined. With level terrain, a minimum of a 7.5-second gap in traffic is necessary to safely complete left or right turning movements from the stop condition on the driveway. This time is acceptable for any vehicle speed, which accounts for an 85th percentile speed on A Street higher than the posted speed limit. With a minimum of ten time-surveys in each direction, the average

gap recorded was 10.3 seconds to the west and 9.4 seconds to the east. No recorded time was under the minimum 7.5 seconds. Based on this evaluation, the sight distance is acceptable.

Two trees along the property line to the east of the driveway represent a potential obstacle to sight distance. While not impacting the sight lines today, the canopy should be raised (or specific limbs trimmed, to ensure no issues in the future.

The proposed landscaping plan did not reveal new obstacles to the sight lines at the driveway.

Transportation Analysis

Based on the most recent site plan for the proposed redevelopment, dated Month Day, Year, several categories are evaluated separately below:

- **Zoning:** The proposed land use matches the current and future zoning for the site based on the City's land use plans.
- **Access:** The redevelopment plan uses the existing single access to A Street. This driveway currently fits within the access spacing guidelines for a collector road and represents a continuation of the existing conditions. With no concerns or current issues, this access is acceptable for the proposed redevelopment.
- **Internal Movement Conflicts:** The primary location of pedestrian/vehicle conflicts exists at the access driveway intersection with A Street. The existing sidewalk crosses the driveway, and the proposed traffic represents an increase over that from the current vacant building. The expected driveway traffic as shown in the trip generation table is relatively low compared to other types of residential dwellings. No crosswalk striping is necessary for the driveway crossing due to the relatively low number of expected conflicts. However, the sidewalk is recommended for upgrade to the latest ADA standards including truncated domes and appropriate slopes and landing areas.

Pedestrians are also expected in the visitor parking area, the drop-off/pick-up loop at the front door, and the loading/unloading zone by a secondary door. These areas are locations where pedestrians are expected and where low-speed vehicle operations occur (both due to the design without a long straight-away and the nature of vehicles stopping and starting). The proposed signing and pavement markings identifying the drop-off/pick-up area and loading zone are sufficient for this conflict area.

Within the parking ramp, clear signing will be necessary to direct residents to the elevators and stairs. The site plan shows marked pedestrian walkways, which will also improve the safety in this conflict area. No additional improvements are necessary.

- **Drive-Thru Queues:** The proposed residential redevelopment does not have a drive-thru.
- **Loading/Unloading Zone:** The loading/unloading zone is located adjacent to a secondary door into the building. Turning movements of a single-unit truck, attached to this memorandum, show the movement of that vehicle entering and exiting the zone. These movements can occur without impact to other operations, including the adjacent parking maneuvers. The loading/unloading zone is also separate from the pedestrian route to the front door, removing concerns of conflicts with pedestrians.

Deliveries to the building, such as UPS or Fed Ex, are able to use the drop-off/pick-up loop for the short time needed to deliver and pick-up any packages.

- **Multi-Modal:** The proposed site plan shows a connection to the existing sidewalk on the north side of A Street. This connection is adjacent to the access driveway and the internal drop-off/pick-up loop but does not require pedestrians to cross the internal roads. A sidewalk is also provided to the secondary door by the loading/unloading zone and the visitor parking area. Sidewalks around entrances should also have adequate lighting to improve nighttime safety.

Bicycle racks and other facilities are not currently shown on the site plan and are not expected to be provided. Based on discussions with the developer, bicycle amenities are not generally desired in senior housing of this type. While ideally these amenities would be provided, the lack of adjacent exclusive bike lanes or trails would decrease their expected use. Given the characteristics around the site and of the proposed land use, no changes are recommended to this plan.

No transit options are available around the site.

- **Traffic Control Changes:** The relatively low traffic expected with the proposed site suggests little to no impact on current operations. As such, the existing side-street stop control is expected to be adequate for the site. Minor queuing of two or three vehicles may occur during the peak periods but will be internal to the site and accommodated on the access driveway. No changes are proposed nor expected to be necessary based on the trip generation.
- **Parking Supply:** The proposed parking supply, as mentioned, is a total of 74 parking spaces. City code suggests two spots for each dwelling unit with two or more bedrooms, allowing a one percent reduction for every ten dwelling units over 50. The required parking is therefore 127 parking spaces. Although the proposed supply does not satisfy the requirements based on City code, it does exceed the expected demand based on ITE data as shown in Table 3. A parking variance to the City code is recommended to be granted based on providing more than the expected peak demand.
- **Heavy Truck Circulation:** The proposed residential redevelopment will not have heavy truck traffic. Trucks using the loading/unloading zone are shown to have acceptable movements.
- **Safety:** Crash records from the City indicated two crashes within the past year at the access driveway. Further review of the crash characteristics did not reveal any trends in terms of crash type, time of day, or season. The crash rate at the driveway should continue to be monitored but does not appear to be an indication of a systematic issue.
- **Other Agency Involvement:** This proposed development is within the City and has access to a City road only. As no significant transportation issues have been identified, other agencies do not need to be involved in this development review.
- **Special Factors:** No additional transportation factors or issues were identified with the review of the site plan.

Appendix

- A. Preliminary Transportation Assessment, dated Month Day, Year
- B. Proposed Site Plan, dated Month Day, Year