

# **Traffic impact from converting existing high-vacancy office building to multi-family residential within residential district in Old North Knoxville in Knoxville, Tennessee**

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## **Overview and motivation**

This report provides stakeholders with results of assumption-based scenarios for the redevelopment of the 1927 Lintz Realty Company building at 428 E Scott in Old North Knoxville. The development group of Lintz Lofts, LLC proposes to acquire the building, rent for approximately 8 months as office spaces before construction to redevelop into subdivided multi-family dwelling units (condos) for resale.

This report utilizes standard industry assumptions to measure trip generation rates (peak counts per hour) applied to the three use scenarios.

## **Current use, short term use and long term use**

The current use of the Lintz Building is grandfathered office space with a warehouse of approximately 11,000 gross square feet (5,500 square feet building footprint) on city lot of approximately 18,000 square feet.

There is a current request to the Metropolitan Planning Commission to convert it from current zoning (R1-A residential) to RP-1 (residential planned development) to accommodate conversion to multi-family. The MPC staff recommend rezoning and justification is provided in Appendix A.

The building consists of approximately 7,000 square feet subdivided space which 1,473 square feet (21%) is currently occupied by three tenants (five leasees). Approximately 4,000 square feet is common area. The current gross floor area used is 5,473 square feet.

In a short term scenario, the building is leased up to 100% of the space as office tenants. This equates to 11,000 square feet of gross floor area. In a long term scenario, the building is subdivided and owned by 16 separate owners.

## **Measuring trip generation rates by uses**

According to the Institute of Transportation Engineers, common trip generation rates<sup>1</sup> by relevant office use are included in Table 1. The existing tenants (current use) are a chiropractor, licensed social worker, and health coaches. These are most closely related to medical office building in use. Previous building users have included home health companies, property maintenance companies, architects, lawyers, and food service delivery. For this reason, I've included general office building use in a general urban/suburban context and dense multiuse urban context.

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<sup>1</sup> Trip Generation Manual 10<sup>th</sup> Edition, <http://www.ci.troutdale.or.us/publicworks/documents/itelanduselist.pdf>.

Based upon Table 1, the trips per gross floor area are highest for medical office building at 3.46 trips per hour per 1,000 gross floor area. Lower estimates are general office building are general office use and business park use. The average of these is 1.45 trips per 1,000 square feet of gross floor area.

Table 1: Trip generation rates by relevant office types

Office use	Unit of measure	Trips per unit
710 General office building (General urban/suburban)	1,000 SF Gross Floor Area	1.15
710 General office building (Dense multiuse urban)	1,000 SF Gross Floor Area	0.87
720 Medical office building	1,000 SF Gross Floor Area	3.46
770 Business park	1,000 SF Gross Floor Area	0.42

Residential uses are measured in the Trip Generation Manual not by square footage but by number of dwelling units. Four examples relevant to this situation are provided in Table 2.

Table 2: Trip generation rates by relevant multi-family types

Residential use	Unit of measure	Trips per unit
220 Multifamily housing (low rise)	dwelling units	0.56
221 Multifamily dwelling unit (mid-rise) (General urban/suburban)	dwelling units	0.44
221 Multifamily dwelling unit (mid-rise) (Dense multi-use urban)	dwelling units	0.18
270 Residential planned unit development	dwelling units	0.69

The highest trip generation rate is residential planned unit development at 0.69 trips per hour. Other types are multifamily low rise and mid rise housing in general urban/suburban and dense multi-use urban contexts. The average trip per unit is 0.4675 trips per unit per hour (peak).

### Scenario results for the Lintz Building for three scenarios

The trip generation rates are applied to gross square foot area for a current use (high vacancy), short term use (no vacancy office), and long term use (multifamily residential). The assumptions for office use follow from previous sections. For a long term use, it is assumed that the building is subdivided and occupied across 16 dwelling units.

Table 3 below shows the application of the trip generation assumptions to the values from the three scenarios. For each scenario, four peak trips per hour estimates are generated. A fifth value is the average of these four estimates for convenience in comparison.

Office	Current area (1000 sq ft)	Peak Trips per hour	Short Term area (1000 sq ft)	Peak Trips per hour	Long Term (1000 sq ft)	Peak Trips per hour
710 General office building	5.473	6.29	11	12.65	n/a	n/a
710 General office building	5.473	4.76	11	9.57	n/a	n/a
720 Medical office building	5.473	18.94	11	38.06	n/a	n/a
770 Business park	5.473	2.30	11	4.62	n/a	n/a
	Average	8.07	Average	16.225		
Residential	Current area (1000 sq ft)	Peak Trips per hour	Short Term area (1000 sq ft)	Peak Trips per hour	Dwelling units	Peak Trips per hour
220 Multifamily housing (low rise)	n/a		n/a		16	8.96
221 Multifamily dwelling unit (mid-rise)	n/a		n/a		16	7.04

221 Multifamily dwelling unit (mid-rise)	n/a	n/a	16	2.88
270 Residential planned unit development	n/a	n/a	16	11.04
			<b>Average</b>	<b>7.48</b>

A comparison of the average trips generated per hour (peak) of the three scenarios is below in Figure 1.

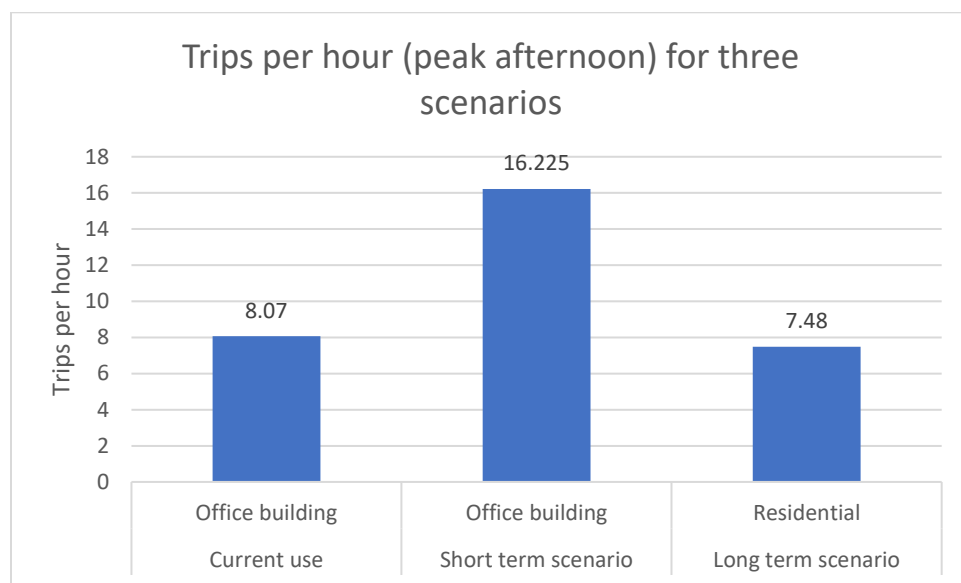


Figure 1: Trips per hour (peak afternoon 4-6:30PM) for three different scenarios

### Discussion

The impact of a change in land/building use in residential neighborhoods is a serious concern to stakeholders. In the Old North Knoxville neighborhood, zoning change impacts the context of historic homes and momentum created through decades of progress to convert single family residences from apartment/efficiency houses back to single family. This particular situation is no less important for the neighborhood to consider.

The results of this simple analysis demonstrate that the conversion of an office building to residential condominiums *can reduce peak traffic volume by 0.6 cars per hour from current levels and 8.75 cars per hour from a full-capacity scenario*. This result, however, is difficult to envision because the Lintz Building has, historically, experienced high vacancy.

In an office setting, traffic is continuous as tenants, visitors, and clients come and go throughout the day. In a residential setting, the majority of traffic occurs at peak travel times between 7-9am and 4-6:30pm. The impact of this travel activity during peak times is mitigated by the fact that the Lintz building has off-street, fenced parking accessed from the alley connecting Harvey and Cornelia Streets.

Finally, it is important to note that the results of this analysis are assumed using industry values and are not generated through actual data collected on traffic.

Appendix A: MPC staff conditions for recommendation R1-A to RP-1

From agenda package at <https://agenda.knoxmpc.org/2018/nov2018/11-F-18-RZ.pdf>

STAFF RECOMMENDATION:

RECOMMEND that City Council APPROVE RP-1 (Planned Residential District) / H-1 (Historic Overlay)

COMMENTS: REZONING REQUIREMENTS FROM ZONING ORDINANCES (must meet all of these):

1. Old North Historic District has seen reinvestment in residential buildings over the years. RP-1 zoning would allow the applicant to redevelop the buildings into multi-family housing, fostering the continued reinvestment in the neighborhood.
2. There are other multi-family dwelling units located to the west, along Scott Ave.

THE PROPOSED AMENDMENT SHALL BE CONSISTENT WITH THE INTENT AND PURPOSE OF THE APPLICABLE ZONING ORDINANCE:

1. RP-1 regulations are intended to provide optional methods of land development which encourage more imaginative solutions to environmental design problems. Reuse of the existing structures brings on a set of issues that need more imaginative solutions. Also having the Historic Overlay will ensure that redevelopment fits into the surrounding area.
2. Multi-family development within an existing set of attached buildings, meets the purpose of the ordinance.

THE PROPOSED AMENDMENT SHALL NOT ADVERSELY AFFECT ANY OTHER PART OF THE COUNTY, NOR SHALL ANY DIRECT OR INDIRECT ADVERSE EFFECTS RESULT FROM SUCH AMENDMENT:

1. The proposed zoning is compatible with surrounding development, and there should be minimal impact to the surrounding area and no adverse affect to any other part of the County.
2. Public water and sewer utilities are available in the area.
3. No other area of the County will be impacted by this rezoning request.

THE PROPOSED AMENDMENT SHALL BE CONSISTENT WITH AND NOT IN CONFLICT WITH THE GENERAL PLAN OR KNOXVILLE AND KNOX COUNTY, INCLUDING ANY OF ITS ELEMENTS, MAJOR ROAD PLAN, LAND USE PLAN, COMMUNITY FACILITIES PLAN, AND OTHERS:

1. The Central City Sector Plan proposes TDR (Traditional Neighborhood Residential) designation which permit RP-1 zoning.
2. The site is located within the Urban Growth Area (inside the City) on the Knoxville-Knox County-Farragut Growth Policy Plan map."