

Memorandum of Understanding

Project #

TO: Morgan Kolks, PE
CC: Bryan Williams, PE
FROM: David Meyer, PE
DATE: July 31, 2023
RE:

The following outlines the methods and assumptions to be used in the traffic analyses of the proposed West End Mixed Use – FCC North Development. The development is planned to be in the southwest quadrant of the intersection of Liberty Street and Central Parkway, just north of TQL Stadium, in downtown Cincinnati, Ohio.

The mixed-use development is currently planned to include the following:

- 30,000 SF retail space
- 33,600 SF food and beverage space
- 150 room hotel
- 12 condo units
- 92,000 SF office space
- 150 apartment units

The development is planned to be open and operational in 2026. Three conceptual site layout exhibits are included with this memorandum. The office and residential uses will have reserved parking below their building footprints that will access via Central Avenue. The hotel will have a single driveway on Central Parkway providing access to the front desk reception area including valet. The valet will have controlled access (gated) from the hotel reception area directly into the east stadium garage, but no public access will be allowed in either direction. The hotel access to Central Parkway is currently proposed as a 3/4 restricted access – left turn egress not allowed. The remaining parking will be public access for retail/food & beverage, entertainment venue, or stadium trips. The existing stadium east garage will connect to the new garage that will wrap around to Central Avenue. The existing West End garage (County garage) will continue to have connection to Central Avenue as well as John Street. Therefore, public parking can access via John Street to the West End garage, via Central Avenue to all public parking, and via the existing Central Parkway access at 15th Street to the East Stadium garage. A rideshare loop is proposed north of the hotel access that will be restricted to right-in and right-out only access. The rideshare loop will have storage for approximately five vehicles.

Study Area

Through discussions with the Cincinnati DOTE staff, the following intersections will be analyzed:

- Liberty Street at John Street
- Liberty Street at Central Avenue
- Liberty Street at Central Parkway
- Central Parkway at the proposed Hotel access

Attachment G

Traffic Study MOU

pg 2 of 4



Memorandum of Understanding

July 31, 2023

Data Collection – Weekday

Turning movement counts for a normal weekday were collected by The Kleingers Group on Tuesday, May 16th, 2023, at the three existing study intersections plus the Central Parkway intersections with 14th Street and with Ezzard Charles Drive. Typical weekday data was collected from 6:30 to 9:30 AM and from 3:30 to 6:30 PM. Traffic count data sheets are attached to this memo. The AM Peak hour was found to occur between 8:00 and 9:00 AM and the PM peak hour was found to occur between 3:45 and 4:45 PM. The AM and PM peak hour counted traffic volumes are presented in Figure A.

Data Collection – Match Day

Turning movement counts on a FC Cincinnati match day were collected by The Kleingers Group on Wednesday, May 17th, 2023, at the study intersection. Data was collected before and after an FC Cincinnati match on the 17th from 5:00 to 8:00 PM and from 9:00 PM to 12:00 AM at the study intersections. Traffic count data sheets are attached to this memo. The Pre-Match peak hour was found to occur between 6:00 and 7:00 PM and the Post-Match peak hour was found to occur between 9:15 and 10:15 PM. The Pre-Match and Post-Match peak hour counted traffic volumes are presented in Figure B.

Site Generated Trips

Trip generation for the proposed development was estimated based on data contained in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th edition. ITE's OTISS Pro program was used for baseline trip generation, and reports are attached to this memo for the weekday AM and PM peak hours. A trip generation summary table, before trips reductions, is attached to this memo.

Multi-Modal Trip Reduction

Multi-modal trip reduction was estimated for the baseline development generated trips. The modal split ratios were derived from data contained in ITE's Trip Generation Handbook, 3rd Edition Appendices B and C, and are attached to this memo. Appendix B provides person trip data for suburban areas (97% vehicular trips) and Appendix C provides person trip data for dense-urban areas (60% vehicular trips). The proposed development is assumed to lie between these two extremes. Therefore, the modal split proposed for this development are estimated to be 80% vehicular trips and 20% other trips (bus, bike, walk, transit, scooter, etc.). A trip generation summary table, after the 20% multimodal trip reductions, is attached to this memo.

Internal Capture Trip Reduction

Internal capture trip reduction was performed using the NCHRP 8-51 Internal Capture Estimation Tool, to estimate trip interaction between the various development land uses. NCHRP Internal trip reduction tables are attached to this memo. The multi-modal reduced volumes were entered into the NCHRP tables for reduction. An external trips summary table, after internal trip reductions, is attached to this memo. These trips represent the total new vehicular trips estimated to enter and exit the proposed development.

Pass-by Type Trips

Pass-by type trips were estimated utilizing data provided in the ITE Trip Generation Manual, 11th Edition. Rates for LUC 821 (Shopping Plaza) were applied to LUC 822 (Strip Retail) and rates for LUC 932 (High-Turnover Sit-Down Restaurant) were applied to all restaurant related land uses. Pass-by trips are not anticipated for hotel, residential, office, and drinking place land uses. These vehicular trips enter and exit the proposed development but are generated from traffic that is already travelling on Liberty Street or Central Parkway.

Attachment G

Traffic Study MOU

pg 3 of 4



Memorandum of Understanding

July 31, 2023

Table A below summarizes all trip reductions performed and the resulting new trips estimated to be generated by the West End Mixed Use development.

	AM Peak			PM Peak		
	Enter	Exit	Total	Enter	Exit	Total
Trips Before Reduction	385	275	660	442	442	884
Vehicle Trips (Multi-Modal Reduction)	319	221	540	358	363	721
Total External Vehicle Trips (NCHRP)	264	166	430	220	225	445
<i>Vehicle Pass-By Trips</i>	<i>59</i>	<i>49</i>	<i>108</i>	<i>54</i>	<i>39</i>	<i>93</i>

Table A: Trip Generation Summary

Table B below summarizes the new vehicular trips estimated for the development and categorized by land use.

Land Use	ITE LUC	Size	AM Peak			PM Peak		
			Enter	Exit	Total	Enter	Exit	Total
Hotel (Total)	310	150 rooms	30	18	48	22	22	44
Residential (Total)	221	162 units	10	31	41	11	5	16
Retail (Total)	822	30K SF	16	9	25	14	22	36
<i>Retail Pass-by</i>			<i>10</i>	<i>6</i>	<i>16</i>	<i>9</i>	<i>14</i>	<i>23</i>
Office (Total)	710	92K SF	86	1	87	13	87	100
Restaurant (Total)	Varies	33.6K SF	63	58	121	106	50	156
<i>Restaurant Pass-by</i>			<i>48</i>	<i>43</i>	<i>91</i>	<i>45</i>	<i>25</i>	<i>70</i>
New Vehicle Trips			205	117	322	166	186	352

Table B: Trip Generation by Land Use

Estimated Trip Distribution

A regional trip distribution was developed based on the AM and PM peak hour traffic volumes counted at the three existing study intersections and at the Central Parkway intersection with Ezzard Charles Drive. Based on the peak hour traffic volumes, half of the regional traffic travels east and west on Liberty Street (25% to/from the west and 25% to/from the east), while 20% of traffic travels to/from the north on Central Parkway and 30% travel to/from the south. Since the vast majority of multi-modal trips are expected to travel to/from the south/southeast of the development, the distribution was adjusted to have only 20% of vehicular trips travelling to/from the south. The Liberty Street distributions percentages were adjusted to 30% in each direction because the main development access point is Central Avenue via Liberty Street. The proposed regional trip distribution percentages are presented in the attached Figure C.

ITE projected traffic volumes were distributed and assigned by land use types. Hotel related trips were all assigned to the proposed hotel access drive on Central Parkway. The arrival trips were distributed based on the regional trip percentages. Because the hotel access is restricted to right turn exit only, all exiting trips were distributed travelling southbound on Central Parkway. The proposed Hotel trips are presented in the attached Figure D.

Residential and office trips were distributed according to the regional trip distribution percentages in Figure C and were all assigned to the Central Avenue access from Liberty Street. The residential and office trip distribution percentages are presented in the attached Figure E. The estimated residential and office trips are presented in the attached Figure F.

Attachment G

Traffic Study MOU

pg 4 of 4



Memorandum of Understanding

July 31, 2023

Restaurant and retail trips were distributed according to the regional trip distribution percentages in Figure C and were assigned to three access points to the public parking facilities surrounding the development – John Street and Central Avenue from Liberty Street, and the existing garage access on Central Parkway aligned with 15th Street. The restaurant and retail trip distribution percentages are presented in the attached Figure G. The estimated restaurant and retail trips are presented in the attached Figure H.

Restaurant and retail pass-by type trips were distributed in the same manner as the restaurant and retail primary trips. Pass by trips are assigned to entering and exiting the three public parking access points, but then are removed from traffic on the major roadway (Liberty Street or central Parkway). The pass-by type trips are presented in the attached Figure I.

The summed trips from Figures D, F, H, and I represent the total development generated trips.

Analyses

Synchro and Sim Traffic capacity analyses software will be used to perform capacity analyses at the study intersections. Capacity analyses will be performed for the projected AM and PM peak hour traffic volumes for the following scenarios:

- No-Build – Counted Volumes (2023)
- Build – Counted Volumes (2023) + Site Generated Volumes

Analyses will also be performed using FCC matchday traffic volumes to verify that any proposed changes to the study intersections will operate effectively with soccer match events at the stadium.

This is intended to be a concurrence document. Please review the assumptions and proposed methodology outlined above and respond whether you concur with the approach and/or have comments.

Thank you in advance for your time and input. We greatly appreciate it.