



TO: David Mindel
Mindel Scott

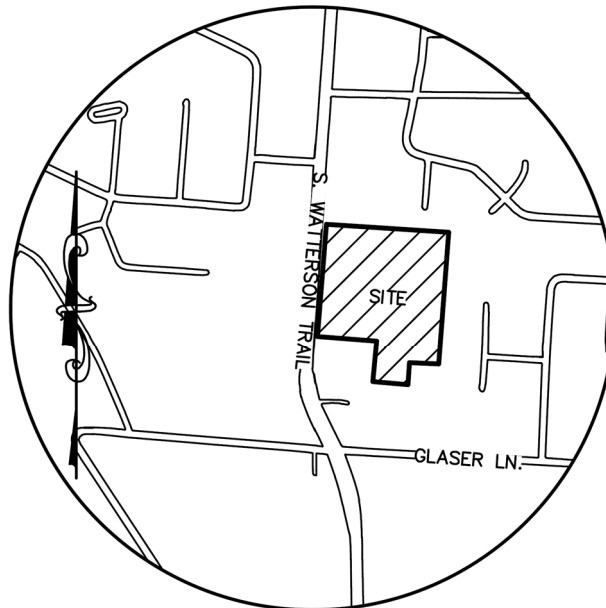
FROM: Adam Kirk
Adam Kirk Engineering
137 McClelland Springs Drive
Georgetown, KY 40324

DATE: July 26, 2023

RE: Watterson Gardens Trip Generation and Distribution

The purpose of this letter is to provide an estimate of trip generation for an 86 unit multifamily development consisting of owner occupied townhomes on Watterson Trail in Louisville, Jefferson County, KY. The subject property is located at 7009 S. Watterson Trail at the northeast quadrant of S. Watterson and Glaser Lane as shown in Figure 1. The proposed development plan for the parcel is provided in Attachment A. One access point onto S. Watterson Trail is proposed with the development.

Figure 1: Study Area



LOCATION MAP
NO SCALE

Trip Generation was conducted in accordance with the ITE Trip Generation Web Based App, 11th edition, based on ITE Land Use Code 220: Multifamily Housing (Low Rise). **Table 1** summarizes the trip generation and **Attachment B** contains output from the ITE Trip Generation Manual. No reductions for pass-by trips or internal trip capture trips were made.

Table 1: Trip Generation

ITE Land Use	Land Use Code	Independent Variable	Var.	AM Peak Hour			PM Peak Hour		
				Total	Entry	Exit	Total	Entry	Exit
Multifamily	220	86	units	50	12	38	58	36	22

Trip distribution was performed using screen line analysis of the area based on the average daily traffic of surrounding roadways. The screen line used for this distribution is shown in Figure 2, and Table 2 summarizes the distribution. Based on this analysis 39% of traffic is distributed north towards KY 1747 and 61% of traffic was assigned to the south towards Beullah Church Road.

Figure 2: Screen Line Analysis and ADTs

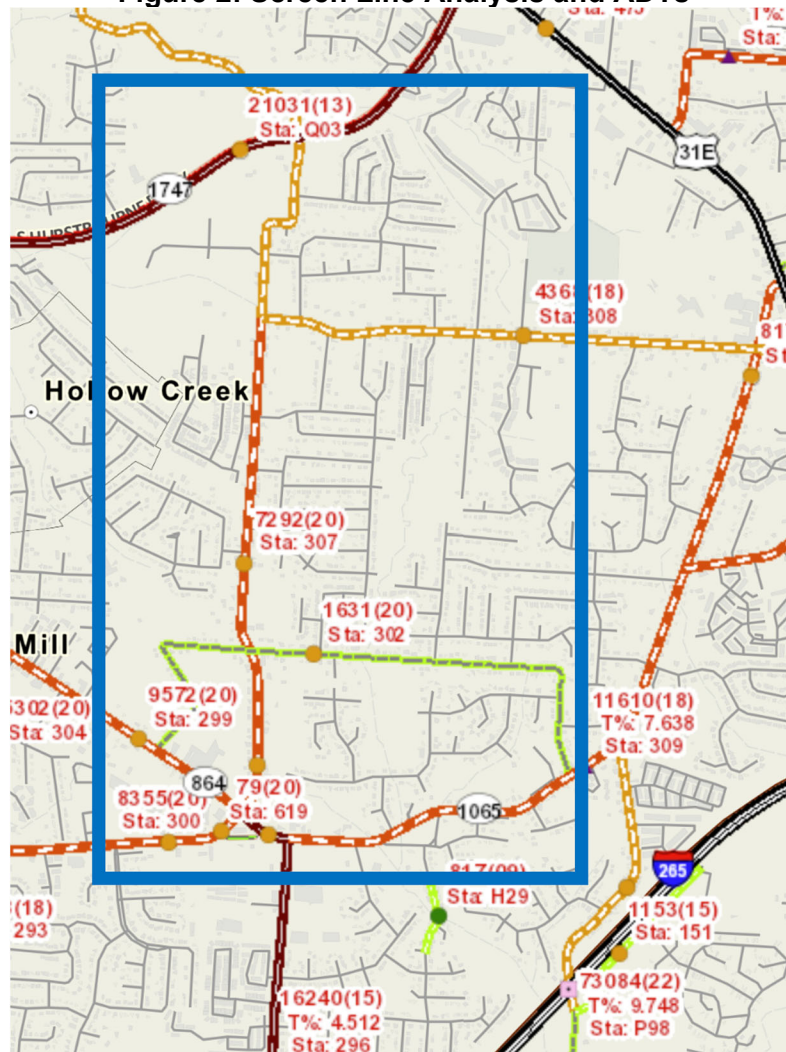
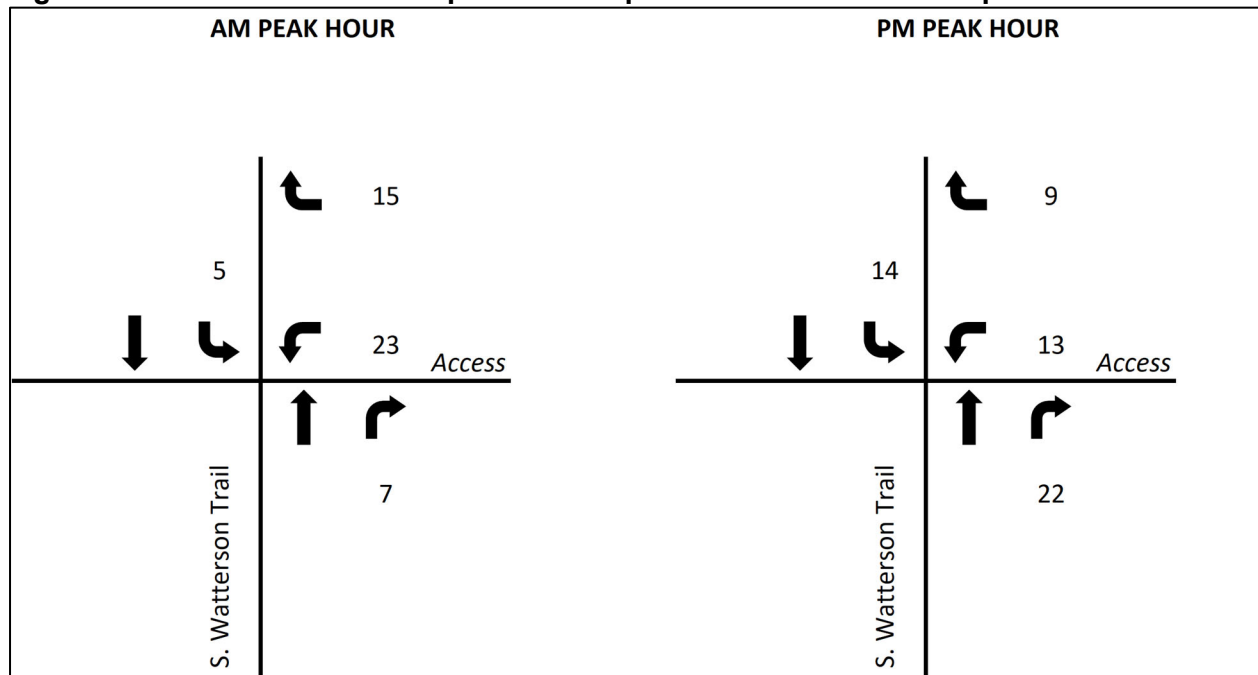


Table 2: Trip Distribution

Direction	Count Station ID	Roadway	ADT	Percent	Directional Distribution
To North	Q03	KY 1747	21,031	32%	39%
	308	Fern Creek	4,368	7%	
To South	299	KY 864	9,572	15%	61%
	300	KY 1065	8,355	13%	
	619	KY 1065	22,536	34%	

Figure 3 shows the AM and PM peak hour trips based on these assumptions.



ATTACHMENT A: Development Plan

M:\400\WATTERSON TRAIL TOWNHOMES\DWG\PLAN\140001.PEPLAN-2023-06-14.dwg, 6/14/2023 3:52:49 PM, kltarao01, 1:1

GENERAL NOTES:

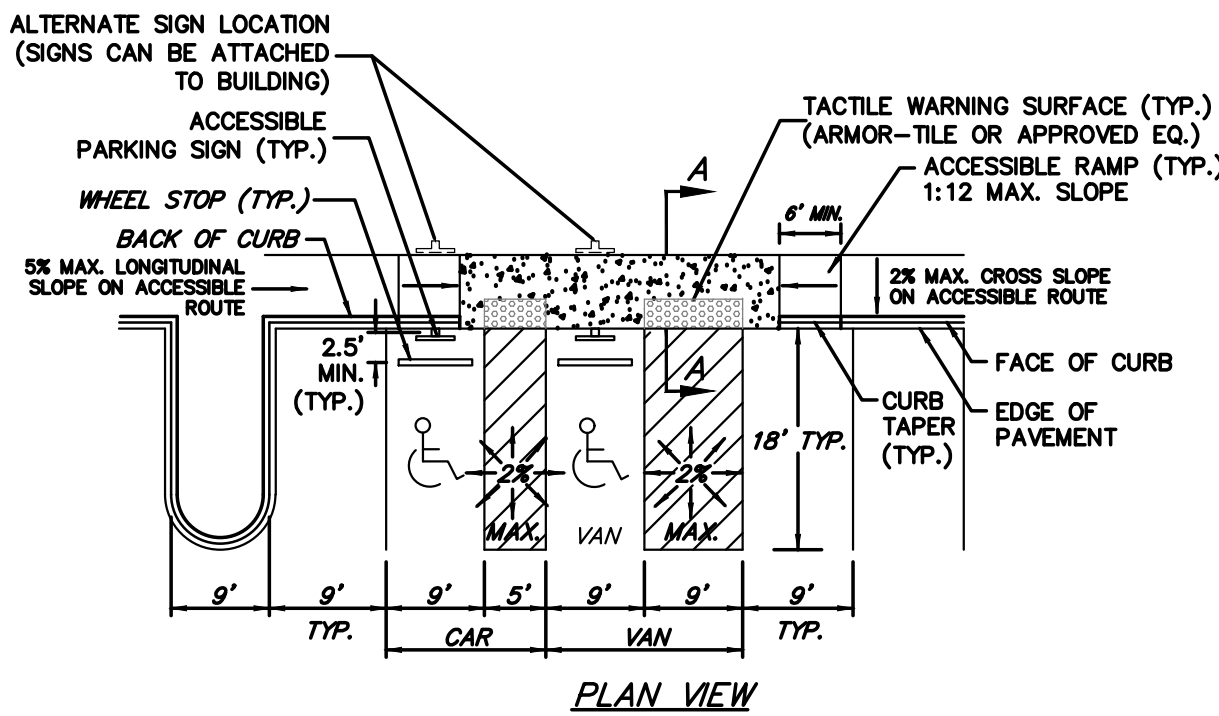
1. DOMESTIC WATER SUPPLY:
SUBJECT SITE CAN BE SERVED BY THE LOUISVILLE WATER COMPANY. THE NECESSARY WATER SYSTEM IMPROVEMENTS REQUIRED TO SERVICE THE DEVELOPMENT SHALL BE AT THE OWNER/DEVELOPER'S EXPENSE.
2. TREE PRESERVATION:
A TREE PRESERVATION PLAN SHALL BE PROVIDED TO THE PLANNING COMMISSION'S STAFF LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES ON THE SITE.
3. PROTECTION OF TREES TO BE PRESERVED:
CONSTRUCTION FENCING SHALL BE ERECTED PRIOR TO ANY GRADING OR CONSTRUCTION ACTIVITIES. PREVENTING COMPACTION OF ROOT SYSTEMS OF TREES TO BE PRESERVED. THE FENCING SHALL ENCLOSE THE AREA BENEATH THE DRIP LINE OF THE TREE CANOPY AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IS COMPLETE. NO PARKING, MATERIAL STORAGE OR CONSTRUCTION ACTIVITIES SHALL BE PERMITTED WITHIN THE FENCED AREA.
4. A LANDSCAPE AND TREE CANOPY PLAN PER CHAPTER 10 OF THE LDC SHALL BE PROVIDED AS REQUIRED PRIOR TO ISSUANCE OF BUILDING PERMIT.
5. THE DEVELOPMENT LIES IN THE FERN CREEK FIRE DISTRICT.
6. IF PROPOSED, SIGNATURE ENTRANCE WALLS SHALL BE SUBMITTED TO AND APPROVED BY THE PLANNING STAFF PRIOR TO CONSTRUCTION PLAN APPROVAL AND THEY SHALL MEET THE REQUIREMENTS OF CHAPTER 4.4.3 OF THE LDC.
7. ALL LUMINAIRES SHALL BE AIMED, DIRECTED OR FOCUSED SUCH AS TO NOT CAUSE DIRECT LIGHT FROM THE LUMINAIRE TO BE DIRECTED TOWARDS RESIDENTIAL USES OR PROJECTED OPEN SPACES (IE. CONSERVATION EASEMENTS, GREENWAYS OR PARKWAYS) ON ADJACENT OR NEARBY PARCELS, OR TO CREATE GLARE PERCEPTIBLE ON PUBLIC STREETS AND RIGHT-OF-WAYS PER CHAPTER 4.1.3. OF THE LDC.
8. ALL DUMPSTER PADS, TRANSFORMERS, AC UNITS, GENERATOR PADS TO BE SCREENED PER CHAPTER 10 OF THE LDC.
9. BUILDING ARCHITECTURE TO COMPLY WITH CHAPTER 5.6 OF THE LDC.
10. ALL INTERIOR SIDEWALKS THAT ABUT PARKING TO BE FIVE (5) FEET WIDE MINIMUM.
11. MITIGATION MEASURES FOR DUST CONTROL SHALL BE IN PLACE DURING CONSTRUCTION TO PREVENT FUGITIVE EMISSIONS REACHING EXISTING ROADS AND NEIGHBORHOODS.
12. ALL EXISTING STRUCTURES AND EXISTING ENTRANCES SHALL BE REMOVED, EXCEPT AS NOTED ON THE PLAN.
13. IN ACCORDANCE WITH CHAPTER 4.9 OF THE LDC, A KARST SURVEY WAS PERFORMED BY KELLY JONES ON JULY 26, 2021 AS PART OF CASE #14ZONE1040. NO KARST TOPOGRAPHY WAS FOUND. A REVIEW OF PUBLISHED GEOLOGIC INFORMATION FROM THE KY GEOLOGICAL SURVEY CONTAINED NO INDICATION OF SINKHOLES ON THE SUBJECT PROPERTY.
14. STREET TREES TO BE PROVIDED IN ALL ADJACENT RIGHT-OF-WAY. FINAL LOCATION AND TYPE TO BE SHOWN ON APPROVED LANDSCAPE PLAN.

MSD NOTES:

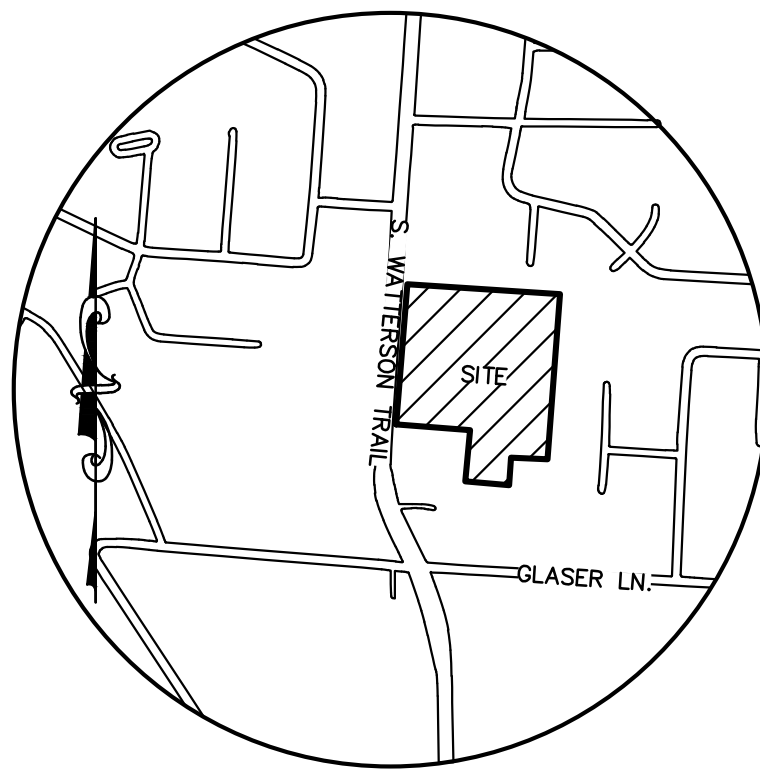
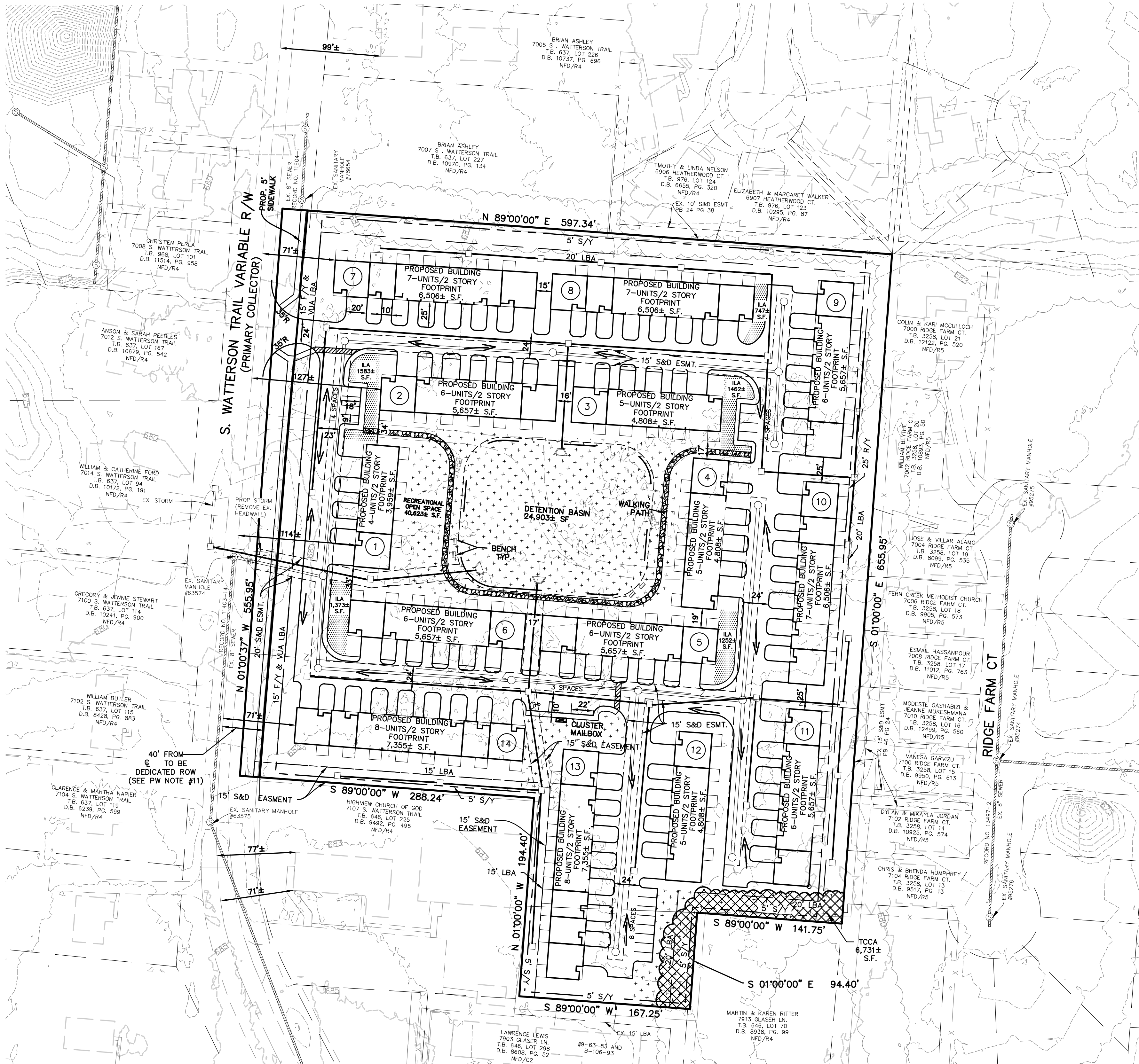
1. CONSTRUCTION PLANS & DOCUMENTS SHALL COMPLY WITH LOUISVILLE AND JEFFERSON COUNTY METROPOLITAN SEWER DISTRICT'S DESIGN MANUAL AND STANDARD SPECIFICATIONS.
2. WASTEWATER:
SANITARY SEWER WILL CONNECT TO THE CEDAR CREEK WATER QUALITY TREATMENT PLANT BY LATERAL EXTENSION AGREEMENT. SUBJECT TO FEES. SANITARY SEWER CAPACITY TO BE APPROVED BY METROPOLITAN SEWER DISTRICT.
3. DRAINAGE/STORMWATER DETENTION:
DETENTION TO BE PROVIDED ONSITE AS DEPICTED ON THE PLAN. POST-DEVELOPED PEAK FLOW WILL BE LIMITED TO PRE-DEVELOPED PEAK FLOWS FOR THE 2, 10, 25, AND 100-YEAR STORMS OR TO THE CAPACITY OF THE DOWNSIDE STREET, WHICHEVER IS MORE RESTRICTIVE. CAPACITY TO BE PROVIDED TO THE DOWNSIDE 30" PIPE. PEAK FLOWS WILL ALSO EITHER BE LIMITED TO 50% OF THE 100 YEAR STORM OR A RUNOFF VOLUME IMPACT FEE WILL BE REQUIRED WITH A CALCULATION BASED ON RFF X 1.5.
4. EROSION AND SILT CONTROL:
A SOIL AND SEDIMENTATION CONTROL PLAN SHALL BE DEVELOPED AND IMPLEMENTED IN ACCORDANCE WITH MSD AND THE USDA NATURAL RESOURCES CONSERVATION SERVICE RECOMMENDATIONS.
5. NO PORTION OF THE SUBJECT PROPERTY LIES WITHIN A FLOOD HAZARD AREA PER FEMA'S FIRM MAPPING (21111C0 098P).
6. THE FINAL DESIGN OF THIS PROJECT MUST MEET ALL MS4 WATER QUALITY REGULATIONS ESTABLISHED BY MSD. SITE LAYOUT MAY CHANGE AT DESIGN PHASE DUE TO PROPER SIZING OF GREEN BEST MANAGEMENT PRACTICES.
7. MSD DRAINAGE BOND REQUIRED PRIOR TO CONSTRUCTION PLAN APPROVAL.

PUBLIC WORKS NOTES:

1. RIGHT-OF-WAY DEDICATION BY DEED OR MINOR PLAT MUST BE RECORDED PRIOR TO SITE CONSTRUCTION APPROVAL BY PUBLIC WORKS OR WITH ASSOCIATED RECORD PLAT AS REQUIRED BY METRO PUBLIC WORKS.
2. ALL ROADWAY AND ENTRANCE INTERSECTIONS SHALL MEET THE REQUIREMENTS FOR LANDING AREAS AS SET BY METRO PUBLIC WORKS.
3. VERGE AREA WITH PUBLIC RIGHT-OF-WAY TO BE PROVIDED PER METRO PUBLIC WORKS.
4. COMPATIBLE UTILITY LINES (ELECTRIC, PHONE, CABLE) SHALL BE PLACED IN A COMMON TRENCH UNLESS OTHERWISE REQUIRED BY APPROPRIATE AGENCIES.
5. STREET TREES SHALL BE PLANTED IN A MANNER THAT DOES NOT AFFECT PUBLIC SAFETY AND MAINTAINS PROPER SIGHT DISTANCE. FINAL LOCATION WILL BE DETERMINED DURING CONSTRUCTION APPROVAL PROCESS.
6. AN ENCROACHMENT PERMIT AND BOND MAY BE REQUIRED BY METRO PUBLIC WORKS FOR ROADWAY REPAIRS ON ALL SURROUNDING ACCESS ROADS TO THE SITE DUE TO DAMAGES CAUSED BY CONSTRUCTION TRAFFIC ACTIVITIES.
7. ALL STREET NAME SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REQUIREMENTS AND BE INSTALLED PRIOR TO CONSTRUCTION OF THE FIRST RESIDENCE OR BUILDING ON THE STREET AND SHALL BE IN PLACE PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY.
8. THE MINIMUM GRADE OF ALL STREETS SHALL BE ONE (1%) PERCENT AND A MAXIMUM GRADE OF TEN (10%) PERCENT.
9. THE DEVELOPER IS RESPONSIBLE FOR ANY UTILITY RELOCATION ON THE PROPERTY.
10. ALL SIDEWALK RAMPS SHALL CONFORM TO A.D.A. STANDARD SPECIFICATION, THE "SPECIAL NOTE FOR DETECTABLE WARNING FOR SIDEWALK RAMPS" PER KTC STANDARD DRAWING FOR SIDEWALKS AND PER "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION.
11. AS PART OF SITE CONSTRUCTION, THE AREA BETWEEN THE PROPOSED SIDEWALK AND THE EXISTING PAVEMENT SHALL BE GRADED TO FACILITATE THE FUTURE WIDENING OF S. WATTERSON TRAIL.

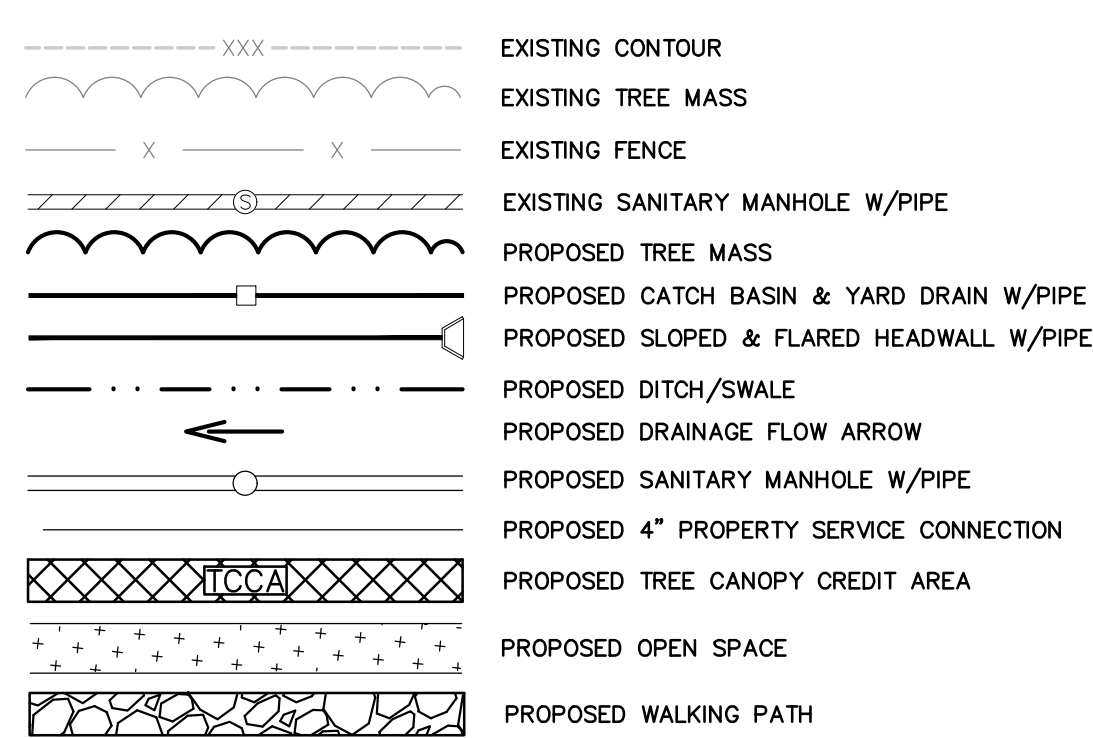


TYPICAL ACCESSIBLE PARKING SPACES
NO SCALE



LOCATION MAP
NO SCALE

LEGEND



SITE DATA:

FORM DISTRICT	NEIGHBORHOOD
EXISTING ZONING	R5
PROPOSED ZONING	R-5A
EXISTING LAND USE	VACANT
PROPOSED LAND USE	MULTI-FAMILY TOWNHOMES
GROSS LAND AREA	8.37± AC.
NET LAND AREA	8.18± AC.
NO. OF DWELLING UNITS	86 UNITS
BUILDING HEIGHT (MAX. ALLOWED 35')	30'
DENSITY (MAX. ALLOWED 12.01)	10.51 D.U./AC.
OPEN SPACE REQUIRED	53,448 S.F. (15%)
OPEN SPACE PROVIDED	54,259± S.F.
REC. OPEN SPACE REQUIRED	26,724 S.F. (7.5%)
REC. OPEN SPACE PROVIDED	40,623± S.F.
PARKING REQUIRED	
MIN. 1 SPACES/DU	85 SPACES
MAX. 2 SPACES/DU (NIC ACCESSIBLE SP.)	170 SPACES
PARKING PROVIDED	135 SPACES
DRIVEWAY SP.	114 SPACES
SURFACE SP. (INCL. 1 ACCESSIBLE SP.)	19 SPACES
TOTAL	134 SPACES
PARKING AREA RATIO	1.6 SP./UNIT

DIMENSIONAL STANDARDS:

MINIMAL LOT AREA	6,000 S.F.
MINIMUM LOT WIDTH	50'
FRONT/STREET SETBACK	15'
GARAGE FACING STREET SETBACK	25'
SIDE YARD	5'
REAR YARD	25'
MAXIMUM BUILDING HEIGHT	35'

TREE CANOPY DATA:

GROSS SITE AREA	364,411± S.F.
LAND USE	MULTI-FAMILY
EXISTING TREE CANOPY	20,291± S.F. (6%)
EXISTING TREE CANOPY TO BE PRESERVED	6,731± S.F. (2%)
TOTAL TREE CANOPY REQUIRED	127,544± S.F. (35%)
TOTAL TREE CANOPY TO BE PLANTED	120,813± S.F. (33%)
TOTAL TREE CANOPY TO BE PROVIDED	127,544± S.F. (35%)

*TREE CANOPY DEPICTED ON PLAN PER MSD LOGIC MAPPING, AERIAL PHOTO OR FIELD SURVEY. TREE CANOPY CALCULATIONS BASED UPON TREE AREAS SHOWN.

IMPERVIOUS AREA:

EXISTING IMPERVIOUS AREA	0 S.F.
PROPOSED IMPERVIOUS AREA	187,620± S.F.
TOTAL	187,620± S.F.

LANDSCAPE DATA:

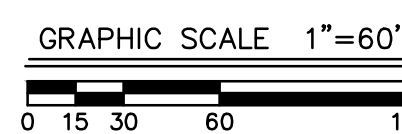
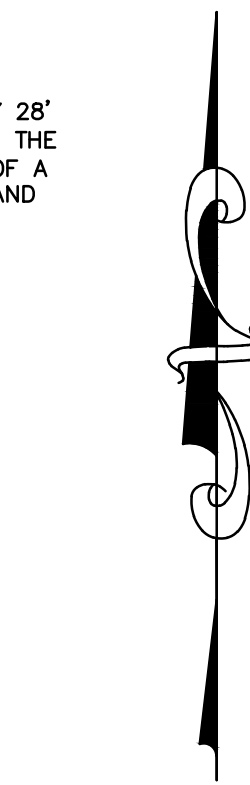
V.U.A.	83,814± S.F.
I.L.A. REQUIRED (7.5% X V.U.A.)	6,271 S.F.
I.L.A. PROVIDED	6,417± S.F.

DETENTION CALCULATIONS:

2.9/12 (0.69-0.25) (8.37AC)x1.5 = 1.34 AC-FT
BASIN DEPTH = 2.34 FT

VARIANCE REQUEST:

1. A VARIANCE OF 5.112.B. OF THE LDC IS REQUESTED TO INCREASE THE ESTABLISHED BUILDING SETBACK RANGE BY APPROXIMATELY 28' TO ALLOW A MAXIMUM SETBACK OF 87' FROM THE FRONT PROPERTY LINE (FOR THE PROVISION OF A LANDSCAPE BUFFER AREA, FRONTAGE ROAD AND DRIVEWAYS).



DETAILED DISTRICT DEVELOPMENT PLAN WATTERSON GARDENS TOWNHOMES

7009 S. WATTERSON TRAIL,
7909 & 7913 R. GLASER LN.
LOUISVILLE, KY 40291
TAX BLOCK 646, LOT 50, 128, & 131
DEED BOOK 10634, PAGE 511

Revisions	DATE	BY	REVISION
06/02/23	PER AGENCY COMMENTS		
06/14/23	ADD PW NOTE #11		

Vertical Scale: N/A

Horizontal Scale: 1"=60'

Date: 05/1/23

Job Number: 4001

Sheet

1

of 1

CASE #23-ZONE-0063
RELATED CASE #14ZONE1040
#23-ZONEPA-0027
MSD W.M. 10434

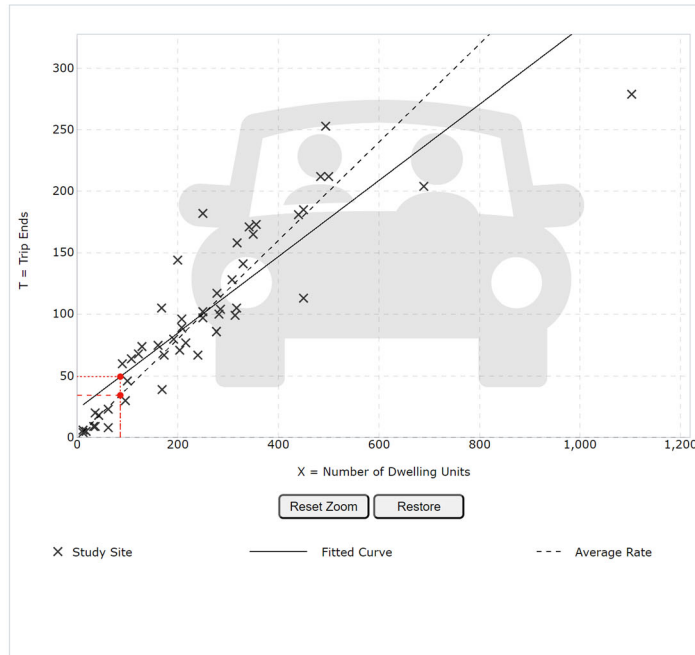
OWNER/DEVELOPER
WATTERSON GARDENS LLC
P.O. BOX 91483
LOUISVILLE, KY 40291-0483

MINDLE SCOTT
ENGINEERING > SURVEYING > PLANNING > LANDSCAPE ARCHITECTURE
5151 Jefferson Blvd. Louisville, KY 40219
502-485-1508 > MindleScott.com

ATTACHMENT A: TRIP GENERATION

Figure A1: Land Use 220 (AM Peak)

Data Plot and Equation

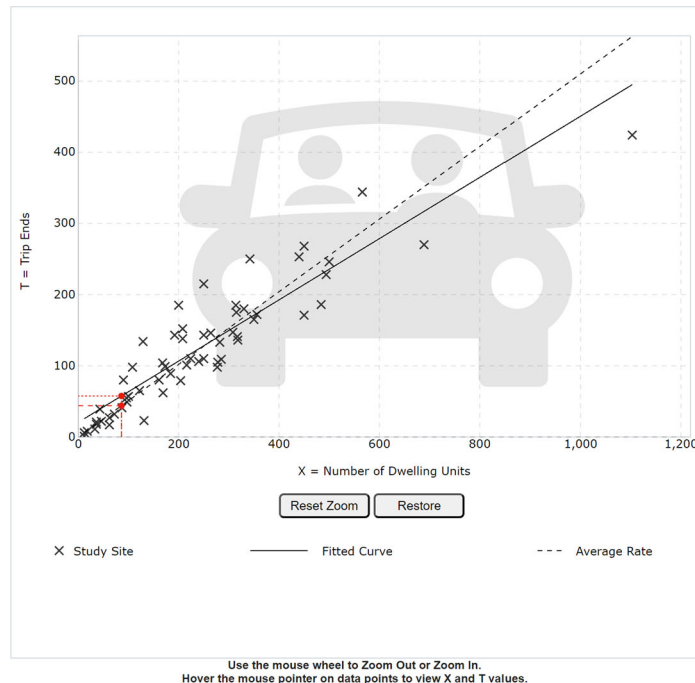


DATA STATISTICS

Land Use:	Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 7 and 9 a.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	49
Avg. Num. of Dwelling Units:	249
Average Rate:	0.40
Range of Rates:	0.13 - 0.73
Standard Deviation:	0.12
Fitted Curve Equation:	$T = 0.31(X) + 22.85$
R²:	0.79
Directional Distribution:	24% entering, 76% exiting
Calculated Trip Ends:	Average Rate: 34 (Total), 8 (Entry), 26 (Exit) Fitted Curve: 50 (Total), 12 (Entry), 38 (Exit)

Figure A2: Land Use 220 (PM Peak)

Data Plot and Equation



DATA STATISTICS

Land Use:	Multifamily Housing (Low-Rise) - Not Close to Rail Transit (220) Click for Description and Data Plots
Independent Variable:	Dwelling Units
Time Period:	Weekday Peak Hour of Adjacent Street Traffic One Hour Between 4 and 6 p.m.
Setting/Location:	General Urban/Suburban
Trip Type:	Vehicle
Number of Studies:	59
Avg. Num. of Dwelling Units:	241
Average Rate:	0.51
Range of Rates:	0.08 - 1.04
Standard Deviation:	0.15
Fitted Curve Equation:	$T = 0.43(X) + 20.55$
R²:	0.84
Directional Distribution:	63% entering, 37% exiting
Calculated Trip Ends:	Average Rate: 44 (Total), 28 (Entry), 16 (Exit) Fitted Curve: 58 (Total), 36 (Entry), 22 (Exit)