

ACCEPTED for FILE Engineering Review

06/14/2023 8:32:01 AM

Jeff Rice - EPC Engineering

EPC Department of Public Works

LSC TRANSPORTATION CONSULTANTS, INC. 2504 East Pikes Peak Avenue, Suite 304 Colorado Springs, CO 80909 (719) 633-2868 FAX (719) 633-5430

E-mail: lsc@lsctrans.com

Website: http://www.lsctrans.com

Mayberry Filing No. 3 Traffic Technical Memorandum PCD File No. SF2219

(LSC #S224210) October 21, 2022

Traffic Engineer's Statement

This traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.



Developer's Statement

I, the Developer, have read and wi	Il comply with all commitments	made on my behalf within this report
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6/5/23
Date



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E-mail: <u>lsc@lsctrans.com</u>

Website: http://www.lsctrans.com

October 21, 2022

John Mick Mayberry Communities 3296 Divine Heights #208 Colorado Springs, CO 80922

RE: Mayberry Filing No. 3

Traffic Technical Memorandum

El Paso County, CO PCD File No. SF221 LSC #S224210

Dear Mr. Mick:

LSC Transportation Consultants, Inc. has prepared this traffic technical memorandum for the Mayberry Filing No. 3 residential development. The site is located generally south of State Highway (SH) 94 and west of Log Road in the Ellicott area of El Paso County, Colorado. LSC recently prepared a traffic impact study (TIS) for the PUD dated February 17, 2022, which included trips by the currently-proposed filing. This memorandum is intended as a site-specific, final plat traffic report.

Important Note: This current Filing No. 3 was previously referred to as "Filing No. 4" in recent TIS reports.

RECENT TRAFFIC REPORTS

- The traffic impacts of this subdivision filing were addressed within the *Mayberry Phase 1 PUD Amendment Transportation Memorandum* dated February 17, 2022 (EPC PCD File No.: PUDSP219). This document referenced the study prepared for the 2020 rezone.
- Traffic analysis of this subdivision filing was included in the June 2020 TIS report entitled Ellicott Town Center Filing 2 [and 3] Traffic Impact Study March 31, 2020* (*Note: Minor Revision June 2, 2020).
- This current plat submittal for Filing No. 3 is in conformance with the plan upon which the February 2022 study was based. The number of lots has not changed, nor has the proposed internal street network, access points, or proposed functional classifications of streets.
- Note: this current Filing No. 3 was previously referred to as "Filing No. 4" in recent TIS reports for the PUD/Preliminary Plan Amendment and the Rezone TIS Report.

LAND USE AND ACCESS

Filing No. 3 includes 142 lots for single family homes. Access to Highway 94 for this filing will be at New Log Road (full movement) and Springs Road (right-in/right-out) via the interim street connections internal to the Mayberry development.

The Filing No. 3 plat is consistent with the Phase 1 PUD/Preliminary Plan Amendment studied in the February 2022 TIS. A copy of that TIS is attached for reference. Note: this current Filing No. 3 was previously referred to as "Filing No. 4" in recent TIS reports for the PUD/Preliminary Plan Amendment and the June 2020 Rezone TIS Report. A copy of the subdivision plat, sheet 3 (the overall layout sheet) is attached for reference.

TRIP GENERATION

Filing No. 3 includes 142 lots for single-family homes. Neither the ITE Land Use code nor the number of dwelling units has changed from the above-referenced prior TIS reports.

Estimates of the vehicle trips projected to be generated by Filing 3 have been made using the nationally published trip-generation rates from Trip Generation, 11th Edition, 2021 by the Institute of Transportation Engineers (ITE). Table 1 (attached) presents the Filing 3 trip generation estimate.

Based on ITE rates, Filing No. 3 is expected to generate about 1,336 vehicle trips on the average weekday (one half entering and one half exiting in a 24-hour period) following expansion. During the morning peak hour, 25 vehicles are projected to enter the site and 72 are projected to exit. Approximately 84 vehicles would enter and 50 vehicles would exit the site during the evening peak.

Table 1 also presents the estimated "cumulative" trip-generation through the current Filing 3 development. This cumulative trip-generation estimate includes trips estimated for the previously approved Filings 1 and 2 plus the currently-proposed Filing No. 3.

TRAFFIC IMPACT ANALYSIS AND ROADWAY IMPROVEMENTS

Overall

Please refer to the *Mayberry Phase 1 PUD Amendment Transportation Memorandum* dated February 17, 2022, which references (and identifies some specific updates to) the **June 2020** TIS report entitled *Ellicott Town Center Filing 2 Traffic Impact Study March 31, 2020* (*Note: Minor Revision June 2, 2020).* The El Paso County reference numbers are PCD File Nos. CS192 and SF 1910. These documents addressed the impacts and improvements associated with this filing, as well as all of "Mayberry Phase 1." **Table 12a**, which address El Paso County road improvements, has been updated with the new plat filing numbers and is attached to this report.

Page 3

Also, regarding CDOT improvements, please refer to the separate "Mayberry Filing No. 3 CDOT Access Permit Memo" included with this submittal. This memo has been prepared to accompany the CDOT access permit application for Filing 3 and is essentially an "addendum" to the **June 2020** TIS report entitled *Ellicott Town Center Filings 2 and 3 Traffic Impact Study March 31, 2020** (*Note: Minor Revision June 2, 2020). That report addressed the traffic impacts of Mayberry Phase 1 (Filings 1 through 4). As part of this CDOT memo, Improvements Table 12 has been updated/revised and a copy of that table has been attached to this report.

New Log Road Phasing

Following with review of the PUD/Preliminary Plan TIS, the PCD Engineering Manager requested that the phasing of the one-way, New Log Road couplet south of SH 94 be addressed in this report.

The ultimate northbound-only portion of the one-way couplet has been and is proposed for interim use for **both** directions of travel and the separate, southbound-only portion of the couplet would be constructed later as future development occurs.

The trips on New Log Road would not exceed 3,000 vehicles per day (vpd) ADT with the buildout of Filings 1, 2, and 3. Given the northbound "half couplet" would have a similar cross section to an Urban Local roadway, and the design ADT of an Urban Local is 3,000 ADT, staff has indicated this volume as an approximate trigger for construction and use of the southbound lanes of the couplet. As shown in Table 1 the total trip generation for Filings 1-3 (including trips projected to use Springs Road instead of New Log Road) would be below 3,000 ADT.

SUBDIVISION STREET CLASSIFICATIONS

Please refer to the *Mayberry Phase 1 PUD Amendment Transportation Memorandum* dated February 17, 2022, which contains a "Street Classifications" section and an associated exhibit.

ROADWAY IMPROVEMENT FEE PROGRAM

This project will be required to participate in the El Paso County Road Improvement Fee Program. Mayberry Filing 3 will join the ten-mil PID. The ten-mil PID building permit fee portion associated with this option is \$1,221 per single-family dwelling unit. The total building permit fee would be \$172,382 for the 142 dwelling units. Note: This is based on the current rate, which is subject to change. El Paso County updates this rate periodically.

DEVIATIONS

Please refer to the *Mayberry Phase 1 PUD Amendment Transportation Memorandum* dated February 17, 2022, which contains an "Approved Deviations" section.

An additional deviation (PUD Modification) was submitted with the PUD, which modifies the corner clearance across lots on the inside of and adjacent to ninety-degree "knuckles."

ROUNDABOUT ANALYSIS & DESIGN

A modern roundabout with a 120-foot inscribed circle diameter is proposed as the traffic control for the intersection of Mayberry Drive/Springs Road. Exhibits containing roundabout technical analysis are attached, along with a roundabout parameters table.

The horizontal layout, analysis, and roundabout report have been completed using the criteria contained in the Wisconsin DOT roundabout design manual (as required by El Paso County). The attached exhibits and roundabout parameters table contain all the details for the currently-proposed roundabout. The inscribed circle diameter is 120-feet and the design vehicle is a WB-50 truck (per the *ECM*). However, the roundabout has also been designed to accommodate a larger WB-67 truck. The roundabout will also accommodate the standard county snowplow vehicle. The design accommodates pedestrians. Please refer to the attached roundabout parameters table and exhibits for details. Also, please refer to the roundabout design report, which is included with the CD submittal.

CDOT ACCESS PERMITS

The CDOT access permits for New Log Road and Springs Road public street connections (access points) to SH 94 are 218053 and 218054. Both permits have been finalized. These permits were issued for Filings 1 and 2. A new "change of use" access-permit application is being submitted for Filing No. 3. This application has been submitted to CDOT, along with the **addendum memo** to the June 2020 TIS report, which addressed the impacts of the Phase 1 development, including the currently-proposed Filing No. 3. Please refer to the "Filing No. 3 CDOT Access Permits Memo," which is a separate document included with this submittal.

The number of lots (142) in Filing 3 is the same number as studied in the June 2020 comprehensive TIS report for the commercial rezone submitted to and accepted by CDOT. The Filing No. 3 site circulation and connections to Highway 94 also remain consistent with the 2020 study. The primary change is that Filing No. 3 is being developed ahead of the commercial Filing No. 4 (previously called Filing No. 3 in that 2020 TIS report). The addendum memo addresses this change in development order.

Note: The Improvements Table in the February 2022 PUD TIS report references these approved access permits for all CDOT-facility improvements. This improvements table (Table 12 – CDOT Improvements) has been updated as requested by County staff. Note: Table 12a, which addresses El Paso County road improvements, has also been updated (and is also attached). Table 12 (attached) has been updated with the new plat numbers and contains revisions to address the

Mayberry Filing No. 3

improvements associated with this current Filing No. 3, as Filing 3 is proceeding ahead of commercial Filing No. 4.

CDOT has indicated that a new access permit application(s) and accompanying "memo" will be required to process the access permit(s) for the Filing No. 3 development. CDOT acknowledged that this Filing 3 was included in the 2020 TIS report as a basis for the current access permits inplace for New Log Road and Springs Road connections to SH 94. This plat is in conformance with the 2020 TIS report. Phasing of access permits was anticipated. Updates to these permits, in the form of a change-of-use permit(s), to include the 142 lots in this subdivision filing, should not be problematic or difficult as the permits addressed phasing of highway improvements for all of Phase 1, including this filing.

* * * * *

Please contact me if you have any questions regarding this report.

Respectfully Submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: Jeffrey C. Hodsdon, P.E. Principal

JCH:jas

Enclosures: Table 1

Roundabout Design Parameters Table and Roundabout Design Exhibits

Revised versions of Tables 12 and 12a from Ellicott Town Center Fil 1-4 PUD

Amendment Transportation Memo (2-17-2022)

Filing No. 3 Plat, Sheet 3

Table 1: Trip Generation Estimate

Mayberry Filing Nos. 1 - 3

ITE				Trip Generation Rates ²				Total Trips Generated					
		Quantity Units ¹		Average	A.M.		P.M.		Average	A.M.		P.M.	
Code	Description	_		Weekday	In	Out	In	Out	Weekday	ln	Out	In	Out
Currei	ntly Proposed												
	lo. 3 (142 Lots)												
210	Single Family Detached Housing	142	DU	9.41	0.18	0.51	0.59	0.35	1,336	25	72	84	50
	ously Approved												
Filing No	lo. 1 (98 Lots)												
210	Single Family Detached Housing	98	DU	9.41	0.18	0.51	0.59	0.35	922	18	50	58	34
Filing N	los. 2 and 2A (First 3 Non-Residential L	<u>.ots)</u>											
110	General Light Industrial	30.0	KSF	4.96	0.62	0.08	0.08	0.55	146	19	3	3	17
Total (of Filings 1-3								2,404	62	125	145	101
¹ DU=dv	welling units; KSF = 1,000 square feet												
² Source	² Source: "Trip Generation, 11th Edition, 2021" by the Institute of Transportation Engineers (ITE)												
Source:	: LSC Transportation Consultants, Inc	- August 2	022										

Additional Attachments

Design Parameters Table and Roundabout Design Exhibits



PCD File No. SF2219 Mayberry Filing No. 3 (LSC#224210)

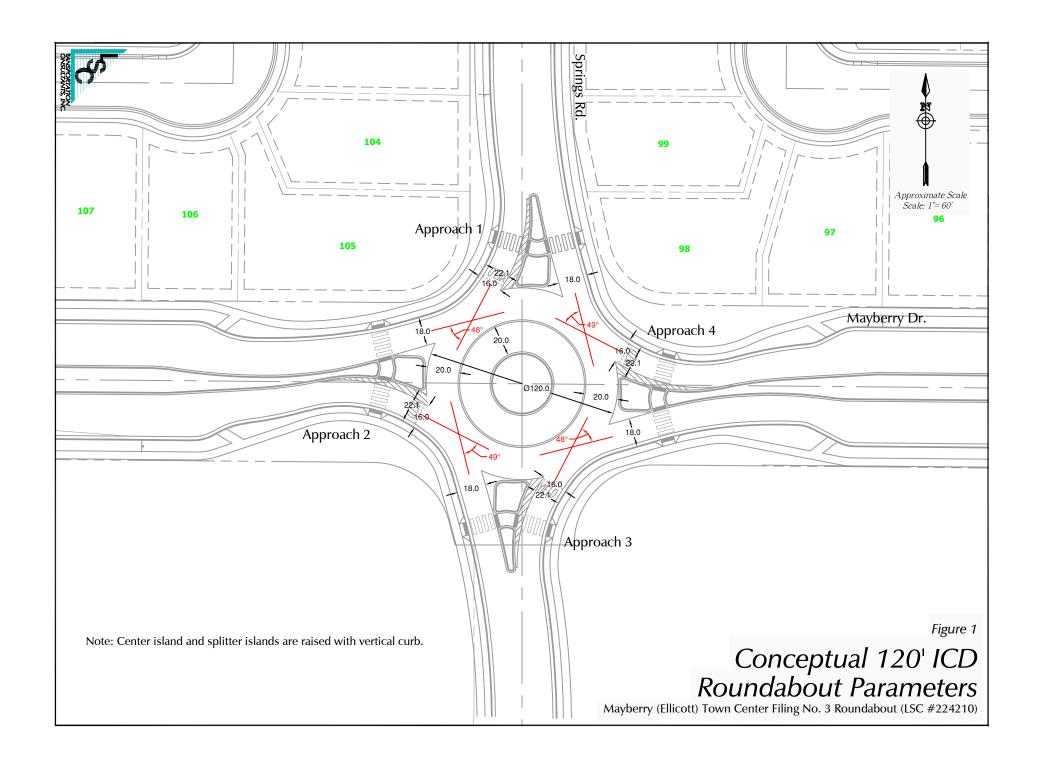
Mayberry Drive & Springs Road Roundabout County: El Paso

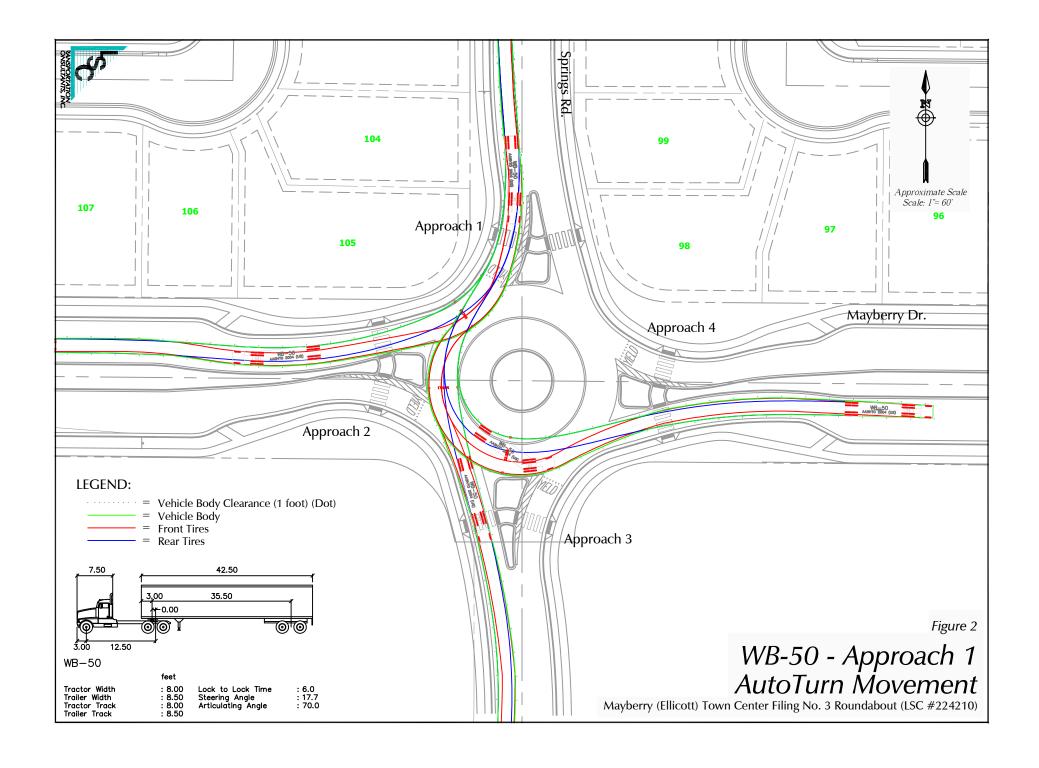
ROUNDABOUT CRITICAL DESIGN PARAMETERS

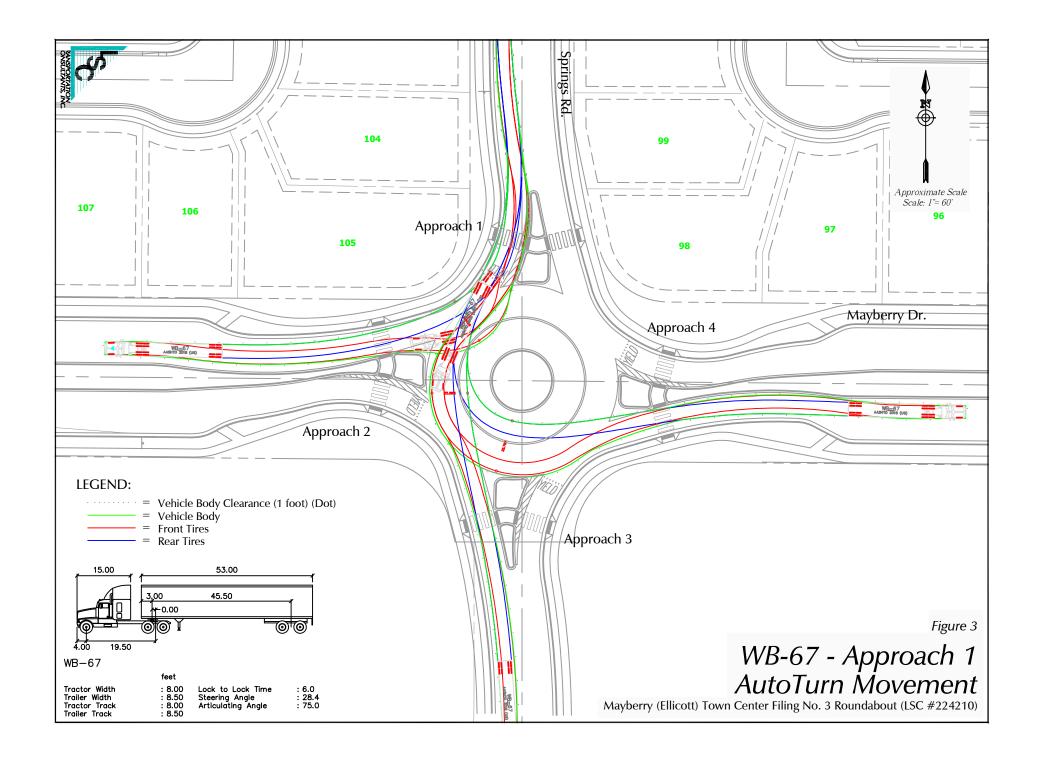
DECION DADAMETEDO		LEG 1	LEG 2	LEG 3	LEG 4	LEG 5	LEG 6
DESIGN PARAMETERS		20	0 21.0	20.0	21.0		
Approach Width, FT Entry Width, FT		22		20.0	22.1		1
Entry Angle, PHI Φ, DEG		24			24.5		
Inscribed Circle Diameter, FT		120			120.0		
Exit Width, FT		18	_				1
Circulating Roadway Width Upstream of E	Intry, FT	20			20.0		
FASTEST SPEED PATH							
R ₁ , Radius/Speed, FT/MPH		140 23	150 23	140 23	155 23		
R ₂ , Radius/Speed, FT/MPH		100 20	100 20	100 20	100 20		
R ₃ , Radius/Speed, FT/MPH		380 32	600 39	350 31	540 37		
R ₄ , Radius/Speed, FT/MPH		50 16	50 16	50 16	50 16		
R ₅ , Radius/Speed, FT/MPH		92 20	97 20	95 20	96 20		
Bypass R ₅ , Radius/Speed, FT/MPH		3Z Z0	37 20	33 20	30 20		<u> </u>
bypass N ₅ , Nadius/Speed, 1 1/Wil 11							
MINIMUM SIGHT PARAMETERS							
Approach Design Speed, MPH		30.0	35.0	35.0	35.0		
Horizontal Stopping Sight Distance, FT		221.0	257.0	257.0	257.0		
Circulating Intersection Sight Distance, F	Г/МРН		6 117 16	117 16			
Entering Intersection Sight Distance, FT/N			2 156 22		156 22		
Design Vehicle:	WB-50, W	VB-67, EPC	snowplow				
Truck Apron Width:	20'						
OSOW Accommodations:	N/A						
Circulating Roadway Cross-Slope:	2% or les	S					
Access Control:	N/A						
Parking Control: No Parking							
Bicycle & Pedestrian Accommodations: Ped ramps and sidewalks							
Designer: Matt Romero Reviewer: Chris McGranahan, P.E.	, PTOE						
SIGNATURE:					DATE:	ę	9/1/2022
NAME: Christopher S. McGrana	han, P.E., F	PTOE					

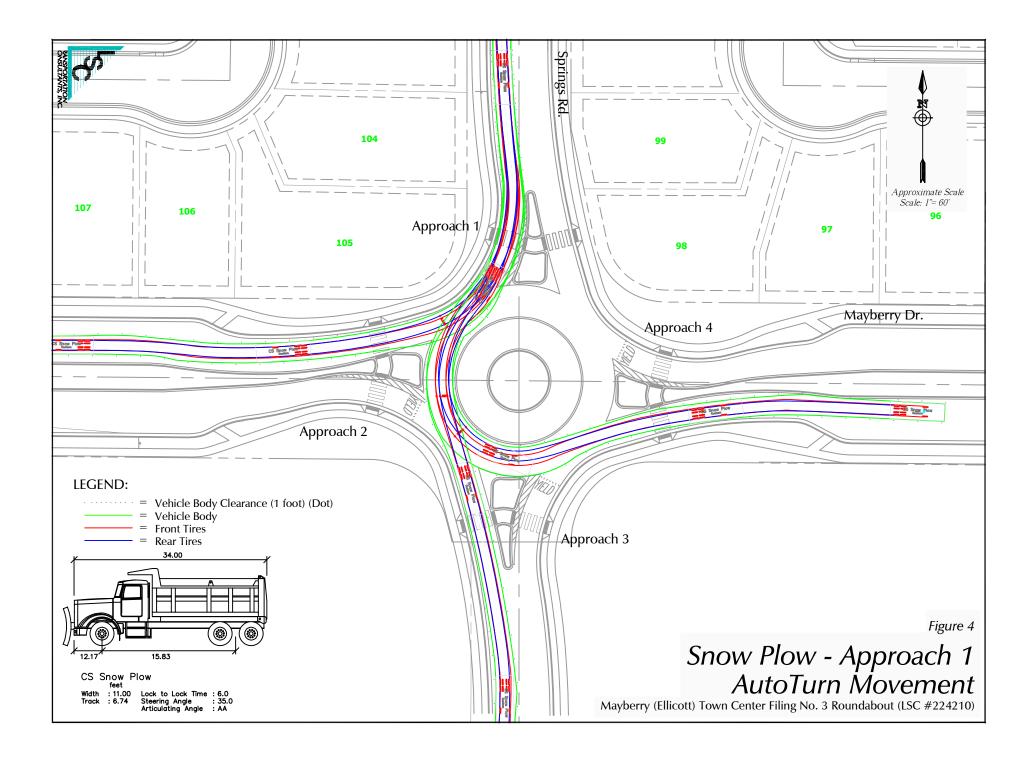
The reviewer's signature on this document indicates that the design has been reviewed and is in general compliance with good roundabout principals. The critical design elements have been addressed. The project design engineer in responsible charge of final plan

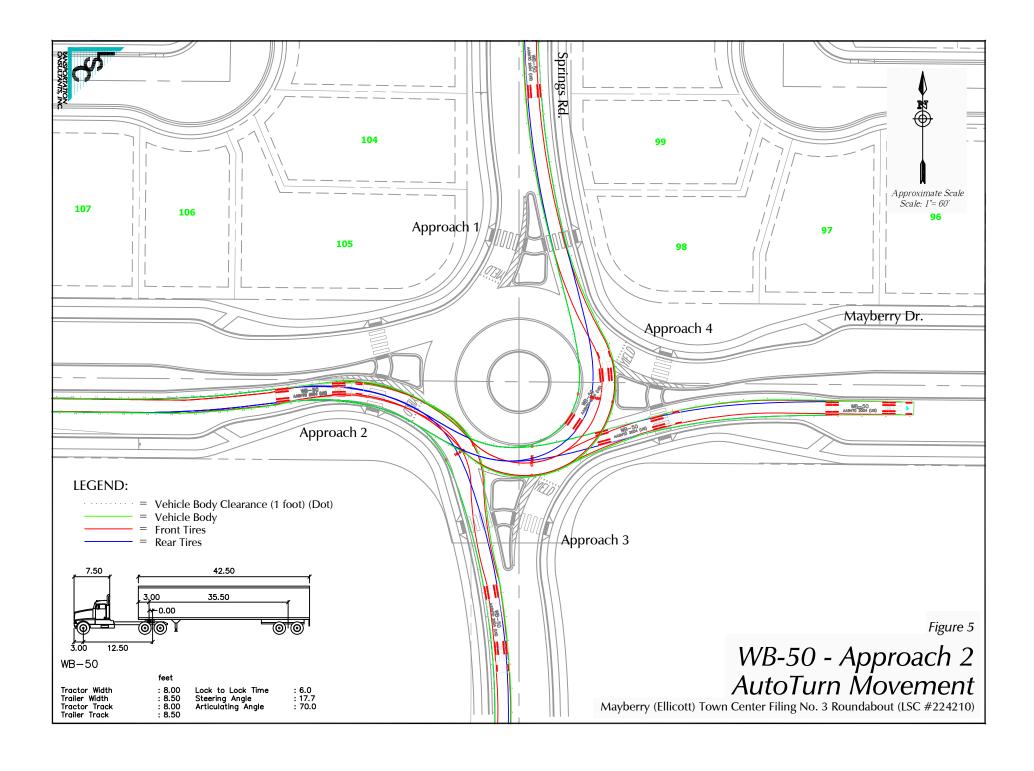
development will stamp the plans when applicable.

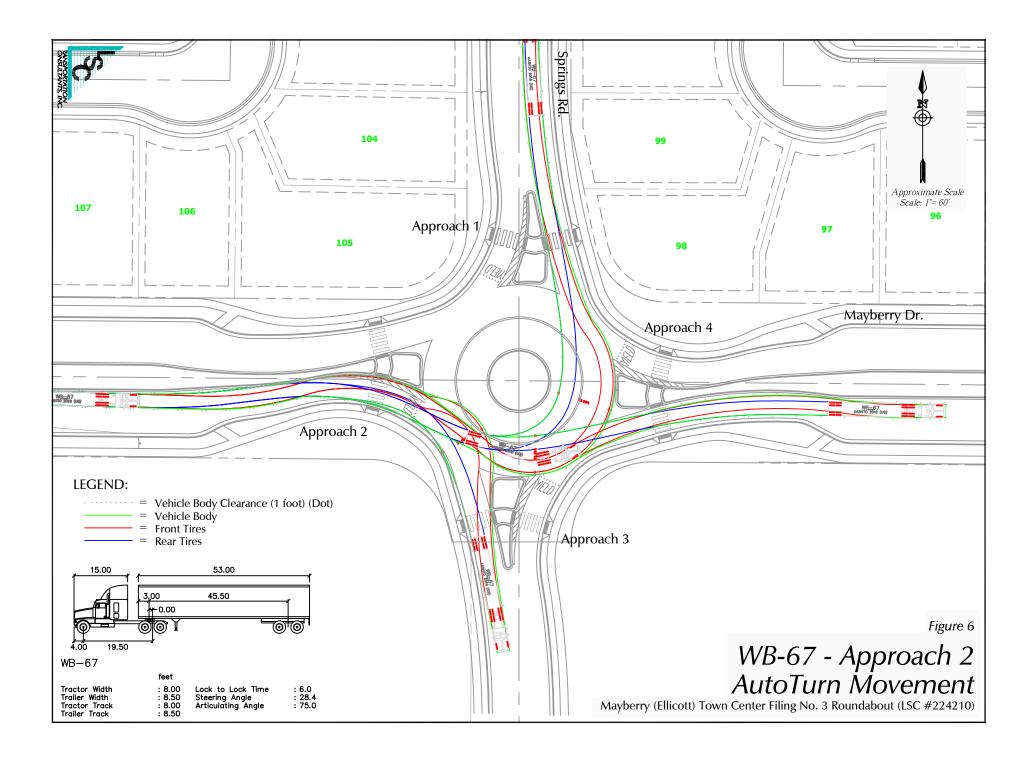


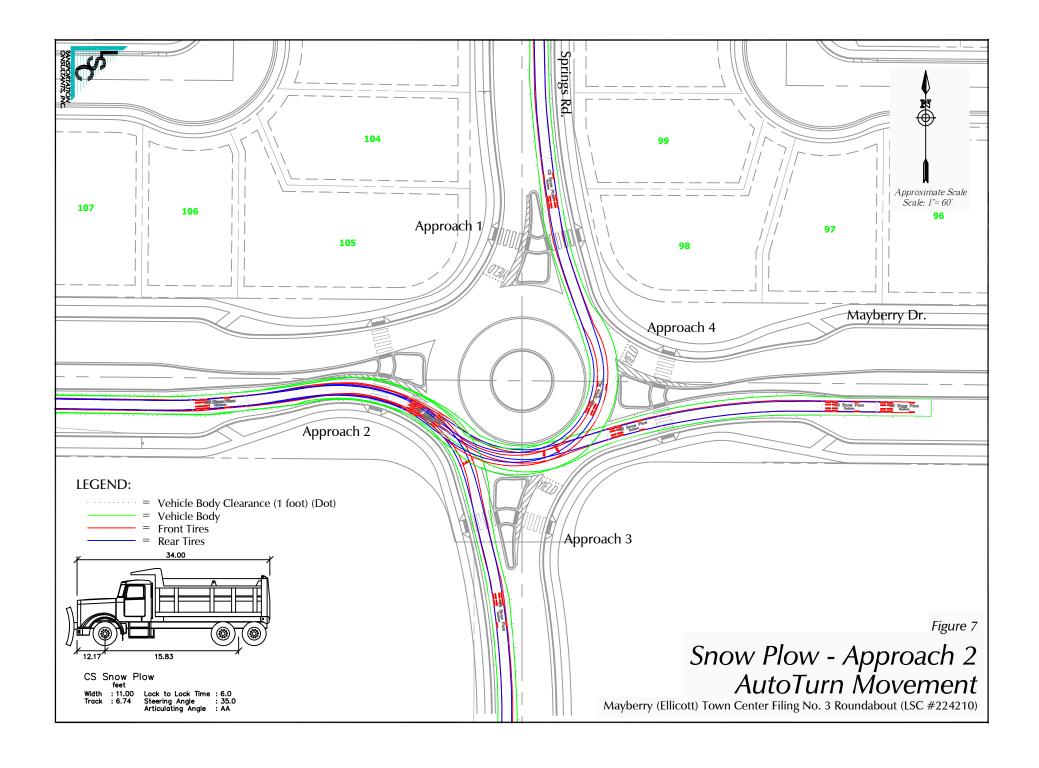


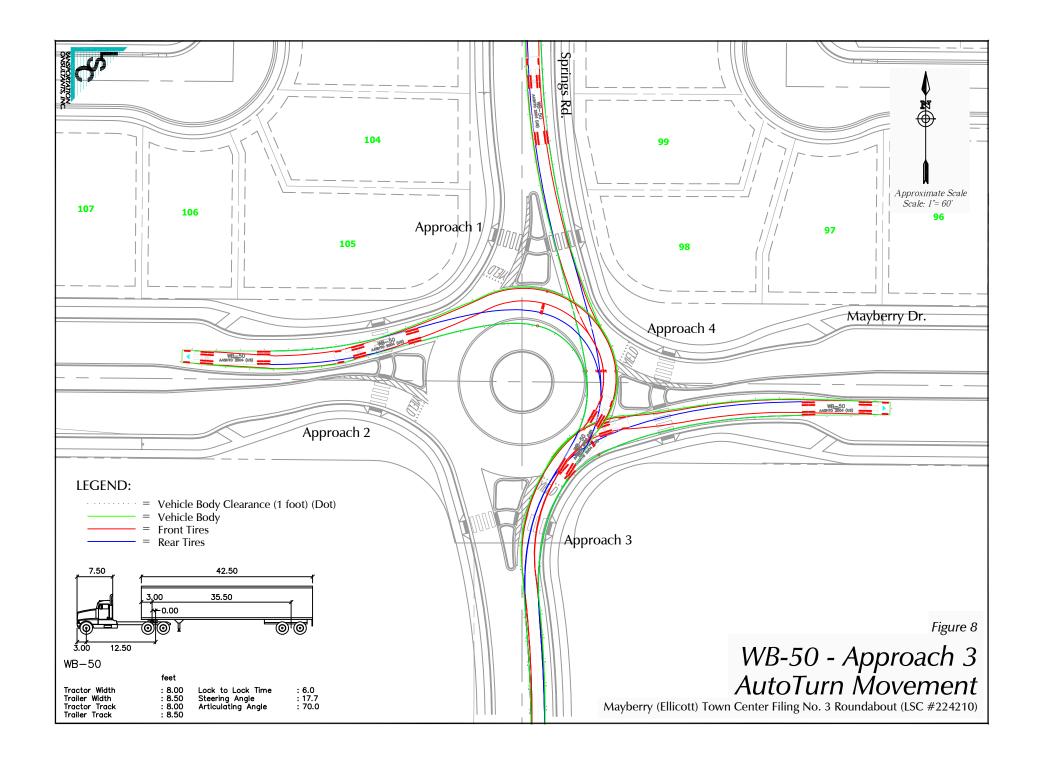


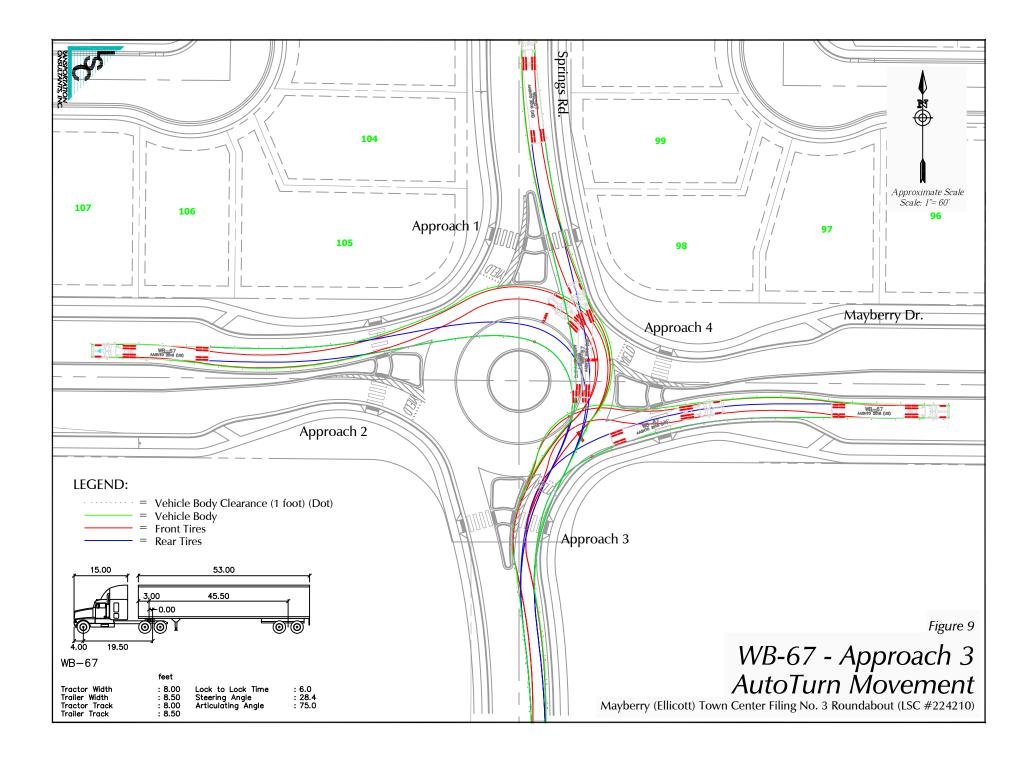


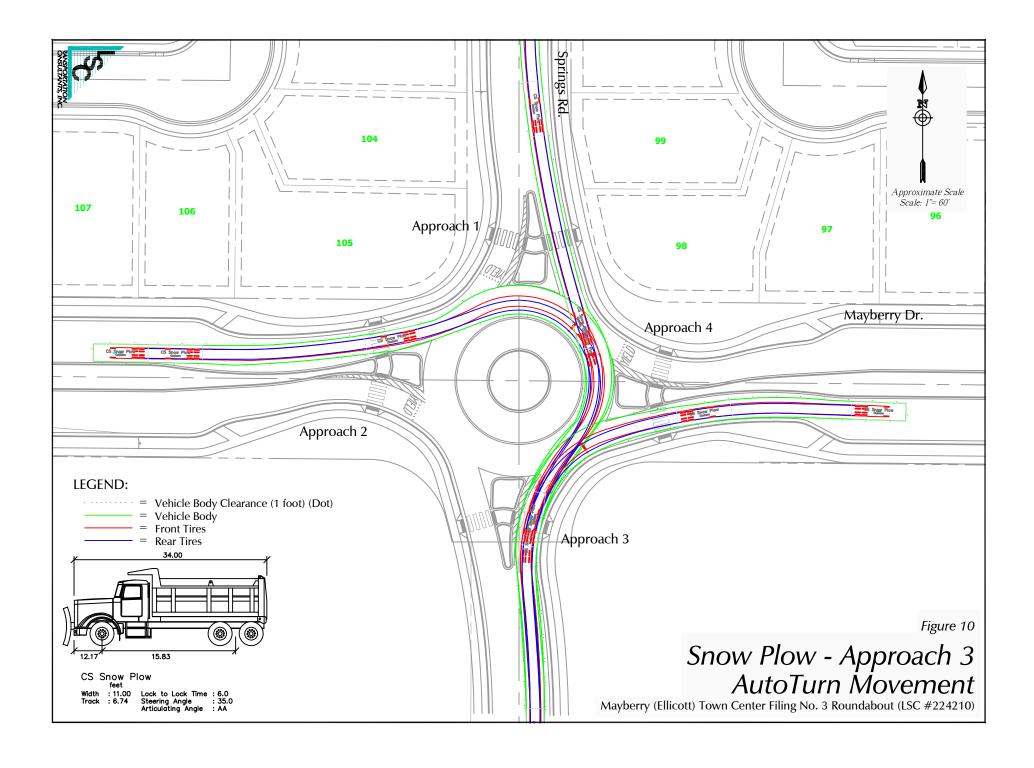


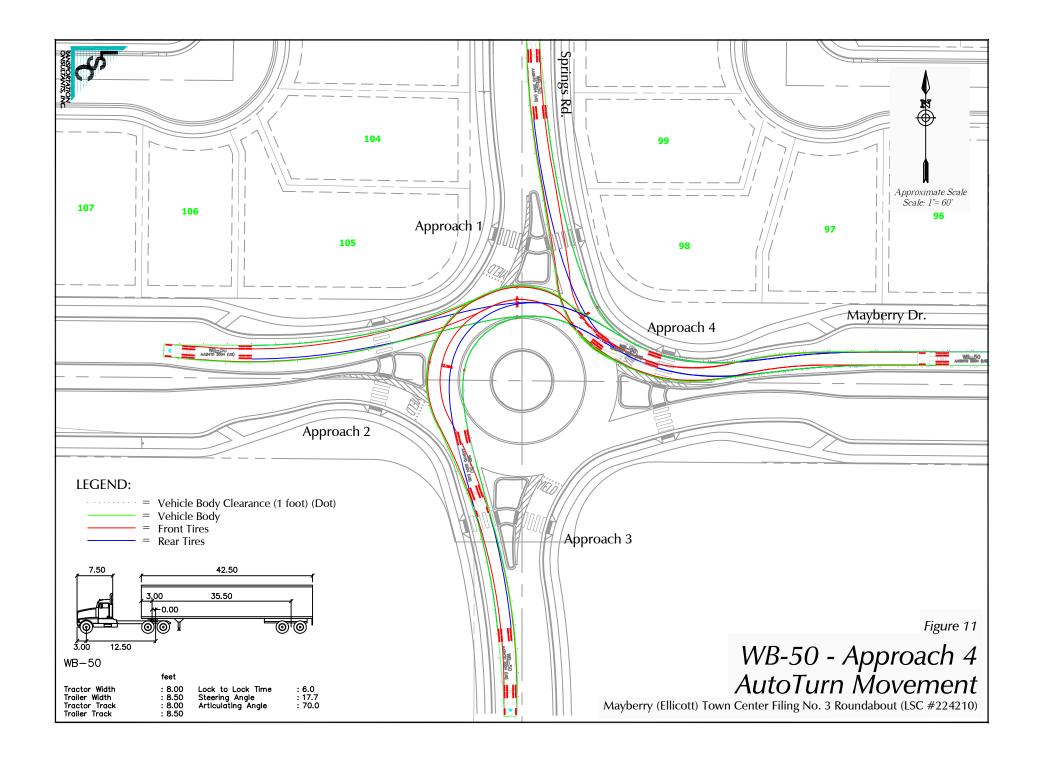


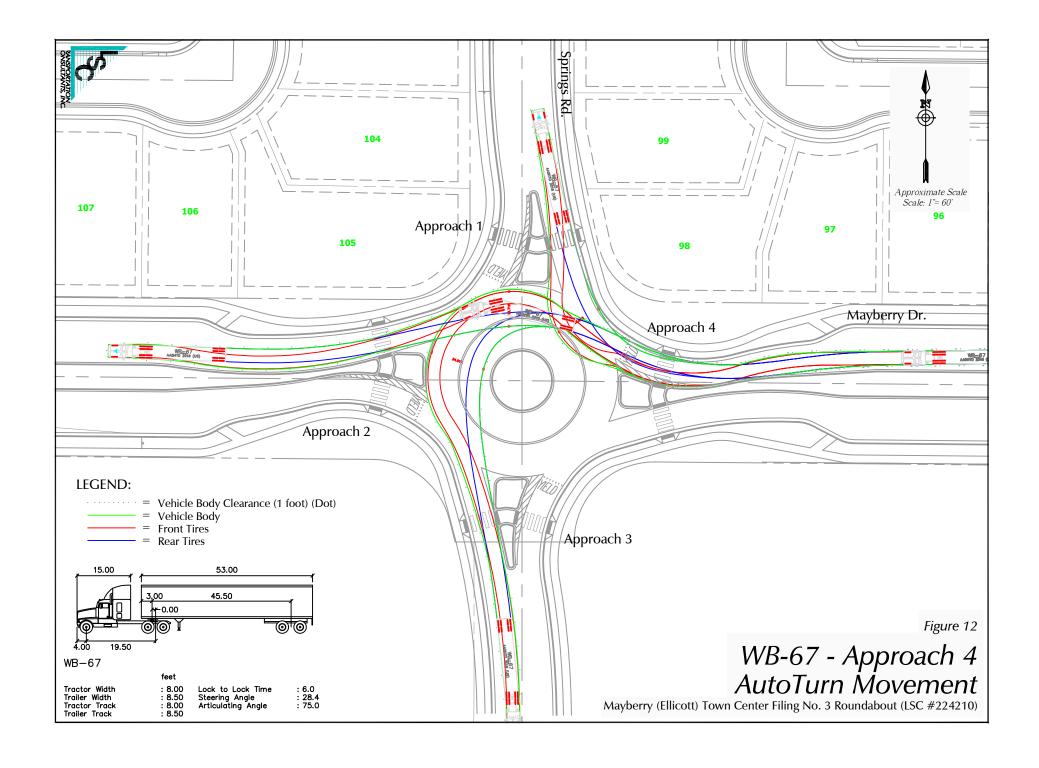


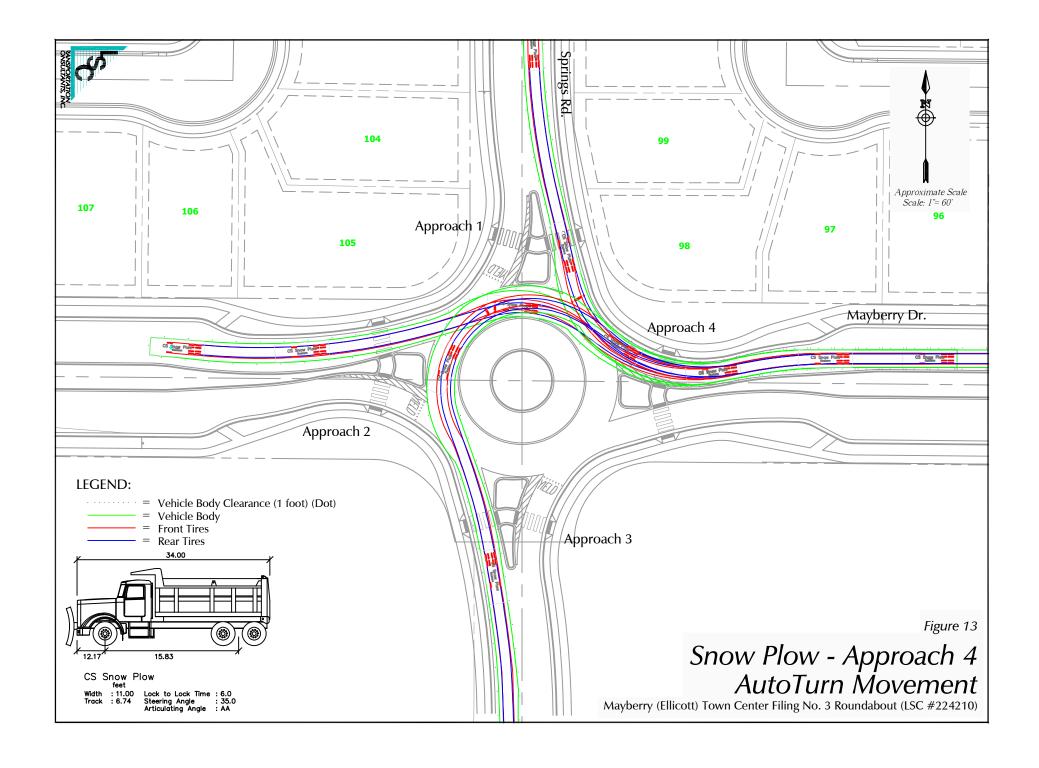


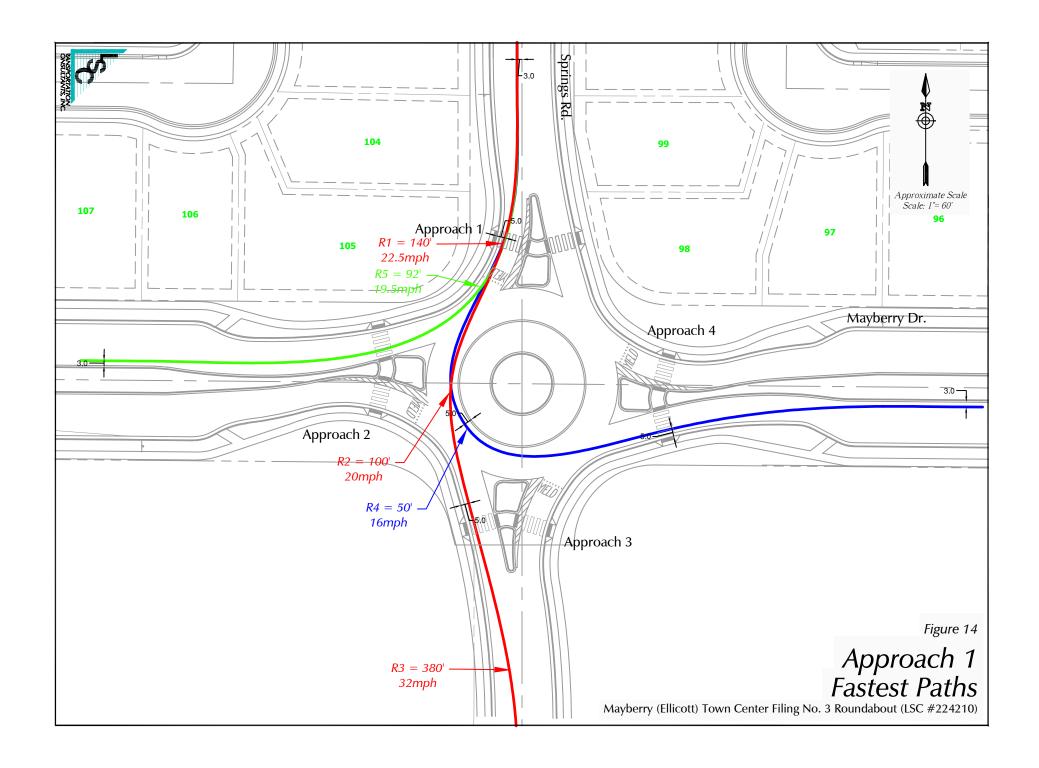


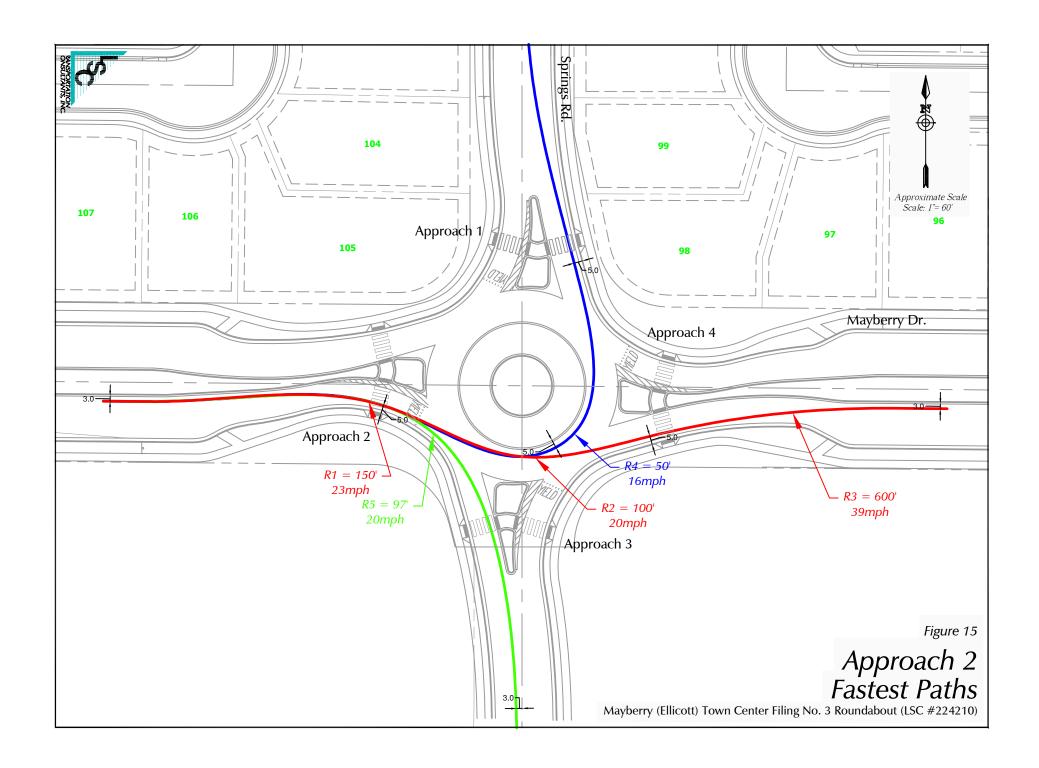


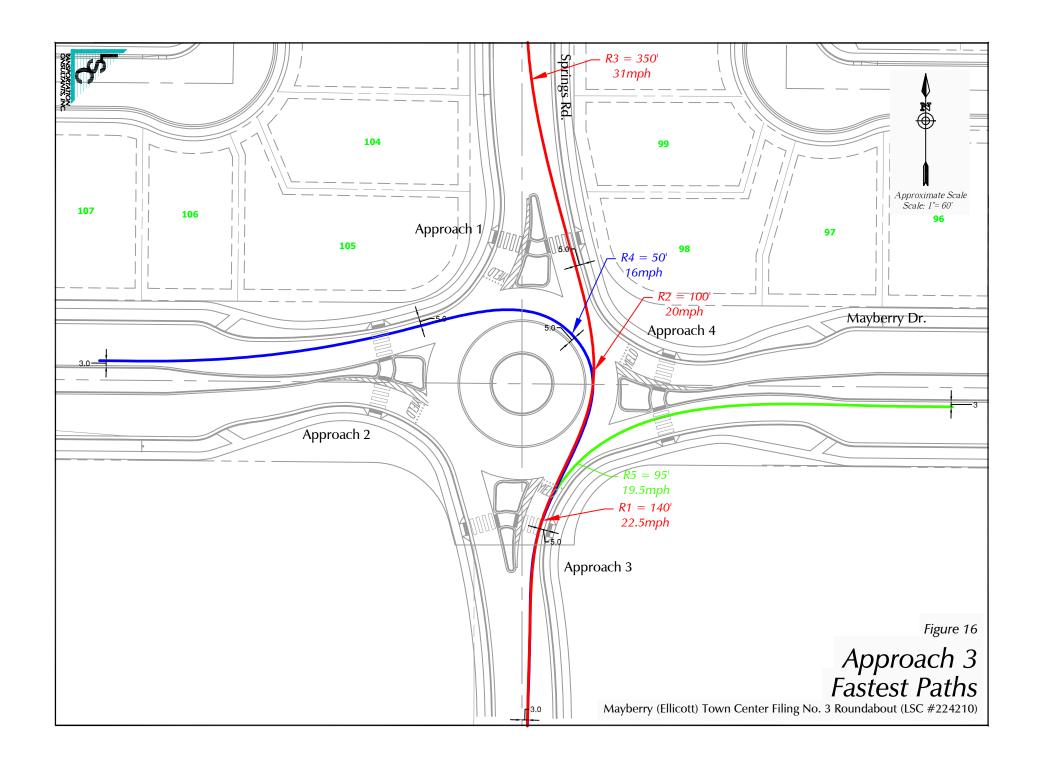


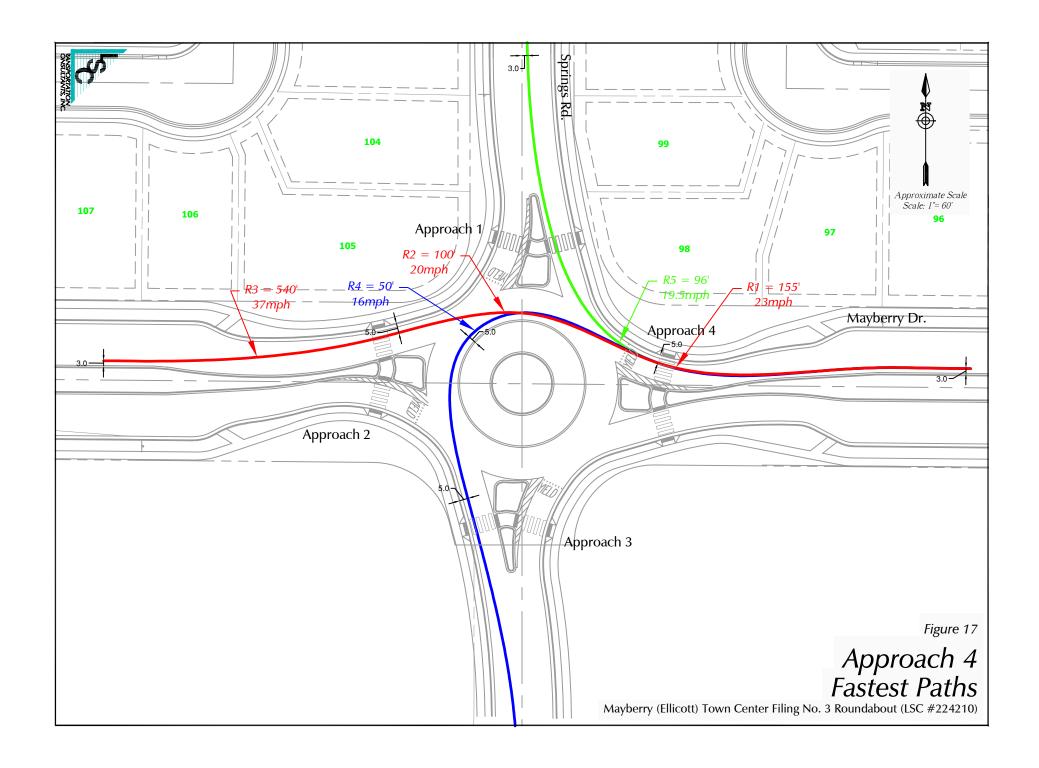


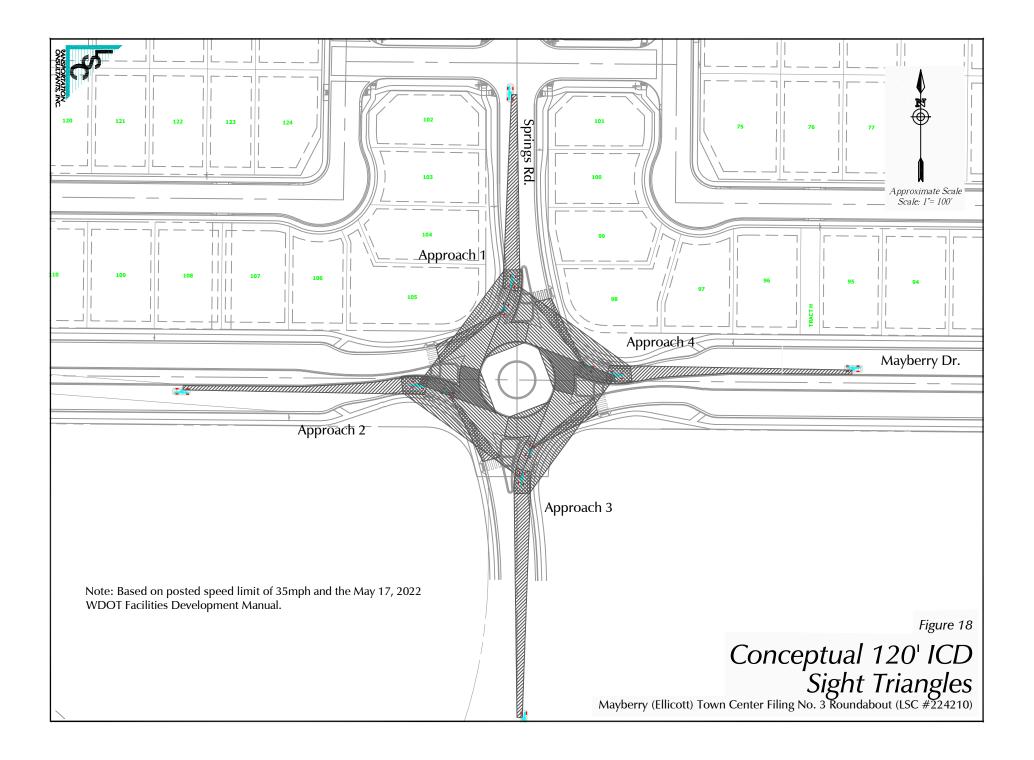












Additional Attachments

Revised versions of Tables 12 and 12a from *Ellicott Town Center Fil 1-4 PUD Amendment Transportation Memo (2-17-2022)*



	Table 1	12: CDOT Roadway Improvements	
Item #	Improvement	Timing	Responsibility
1.6		Roadway Segment Improvements	
1-6	El Paso County Improvements - Please refer to Table 12a	w Log Road/SH 94 Intersection Improvements	
7	Eastbound Right-Turn Deceleration Lane	With Filing No. 1. Construction nearing completion.	Applicant
8	Westbound Left-Turn Deceleration Lane - 525' - to	This improvement would be triggered after 65 lots are developed in Filing No. 3	Applicant
UPDATED	accommodate Filings 1,2,2A and 3.		''
w/Filing 3			
9	A left-turn acceleration lane will be required for the	With the installation of the westbound left-turn deceleration lane - Item No. 8 (after	Applicant
UPDATED	northbound to westbound movement.	65 lots are developed in Filing No. 3)	
w/Filing 3			
10	Lengthening of the above westbound left turn deceleration	Future Development*	Applicant
	lane lengthening to accommodate additional stacking for future development - length TBD with future TIS reports		
	indicate development - length 155 with rature 113 reports		
11	Eastbound Right Turn Acceleration Lane	With Future PUD development - TBD.	Applicant
		rings Road/SH 94 Intersection Improvements	
12		With access construction/Filing No. 2. Access construction nearing completion.	Applicant
13	Construct a raised right turn channelizing island between the		Applicant
	eastbound through lane on SH 94 and the eastbound right turn		
		With access construction/Filing No. 2. Access construction nearing completion.	
	left-turns at the SH 94/Springs Road intersection required with		
	construction of the access.		
14	Eastbound Right Turn Acceleration Lane	With access construction/Filing No. 2. Access construction nearing completion.	Applicant
1 Γ		con Highway/SH 94 Intersection Improvements	Applicant
15		Escrow Fair Share Amount toward future construction (See Item #19 below for details) UPDATE: This improvement has been completed by CDOT.	Applicant
16	Eastbound Left Turn Deceleration Lane	Upcoming CDOT project UPDATE: This improvement has been completed by CDOT.	To be constructed b
17	<u> </u>	Upcoming CDOT project <u>UPDATE: It appears that this improvement was omitted from the CDOT project.</u>	To be constructed b CDOT
18	Westbound Right Turn Deceleration Lane - 500' plus taper	Escrow Fair Share Amount toward future construction (See Item #19 below for details)	Applicant
19	Escrow fair share percentage of the cost of future westbound	- Filing 1 amount can be deferred and paid with Filing 2.	Applicant
	right turn and left turn deceleration lanes; estimated cost:	- Filing 2, 3, and 4 Escrows due with corresponding access permits (Notice-to-proceed	
		stage). Please refer to separate Escrow Tables 8 and 9** for details.	
	right).Please refer to separate Escrow Tables 8 and 9** for details.	UPDATE: The left-turn lanes have been completed by CDOT.	
20	Escrow fair share percentage of the cost of a future traffic	- Filing 1 amount can be deferred and paid with Filing 2.	Applicant
	signal; current signal cost are about \$500,000.Please refer to	- Filing 2, 3 and 4 Escrows due with corresponding access permits (Notice-to-proceed	
	separate Escrow Table 7** for details.	stage). Please refer to separate Escrow Table 7** for details.	
		ott Highway/SH 94 Intersection Improvements	1
21	Eastbound Right Turn Deceleration Lane and Taper	Fair Share Escrow Amount (deferred) toward future construction (See Item #22 below for details)	Applicant
22	Escrow fair share percentage of the cost of a 273-ft eastbound	- Filing 1, Filing 2 and Filing 2A amounts can be deferred and paid with either	Applicant
	right turn lane. Please refer to separate Escrow Table 11** for	- Filing 3 (or potentially Filing 4) or future filings beyond Filing 4. This would be	
	details.	determined with the Filing 3 (or potentially Filing 4) access permit application process. - Filing 4: Determination of the requirement to escrow or allow further deferrment	
		would be made with the Filing 3 (or potentially Filing 4) access permit application.	
		Please refer to separate Escrow Table 11** for details. ***	
23	Escrow fair share percentage of the cost of a future traffic	- Filing 1, Filing 2 and Filing 3 (or potentially Filing 4) amounts can be deferred and paid	Applicant
		with either Filing 3 (or potentially Filing 4) or future filings beyond Filing 4. This would	
		be determined with the Filing 3 (or potentially Filing 4) access permit application	
		process.	
		- Filing 3: Determination of the requirement to escrow or allow further deferrment would be made with the Filing 3 (or potentially Filing 4) access permit application.	
		Please refer to separate Escrow Table 10 for details.***	
		OT - Future ROW Preservation for SH 94	
24	Per CDOT: It is requested that 80-foot pavement section with 4-	-	Applicant
= -	foot shoulders on EB/WB travel lanes along the property		15 15 15 20 11 6
	frontage to Hwy 94 be preserved for future highway expansion		
	in accordance with the El Paso County 2060 Corridor		
	Preservation Plan.		
		1	I

*Prior CDOT comments from 2006 indicate that the left-turn deceleration lane should be designed to accommodate future year left-turn volume. However, the applicant would prefer to phase the lane length with development phasing.

Source: LSC Transportation Consultants, Inc. (3/31/2020) REVISIONS AUG 2020, 12/10/2021 (separated County items - see Table 12), August 31, 2022

^{**} These tables are contained in the June 2020 TIS Report for the Ellicott Town Center Rezone (Note: The access permits for Filings 1 and 2 were were prepared and issued <u>after</u> the original tables in the June 2020 TIS report).

^{***} This was from the original table in the June 2020 TIS for the commercial rezone. Filing 3 is now out in front of Filing 4 and a site specific development plan for Filing 4 is not being submitted at this time.

Table 12a

El Paso County Roadway Improvements

Revised October 2022

Item#	Improvement	Timing	Responsibility
	El Paso County Road	way Segment Improvements	
1	New Log Road (Highway 94 south into the project) construct as an Urban Minor Arterial per the PUD	With Filing No. 1: Note: Phased half-section (northbound couplet) for Filing 1 and full couplet segments beyond Filing 3 with >3,000.	Applicant
2a	Mayberry Drive (Garden Park Avenue to Springs Road) construct as a gravel, secondary access road	With Filing No. 1: Note: An interim gravel street connection (to be paved once ADT exceeds 200 vpd) will be provided with Filing No. 1	Applicant
2b	Mayberry Drive - construct half-section The limits of Filing 3 construction will be Atchison Way to Springs Road.	With Filing No. 3	Applicant
2c	Mayberry Drive - Complete Full section (IE construct the remaining half-section)	Future - To be determined w/Future PUD's beyond Phase 1	Applicant
3	Springs Road (Highway 94 south into the project) construct street with 65' ROW; design attributes to meet Urban Collector standards.	With Filing No. 1: The classification of Springs Road is: Urban Minor Collector with 65' of ROW adjacent to Filings 2 and an Urban Local with 65' of ROW south of that point adjacent to Filing No. 3. Design attributes will meet Collector standards.	Applicant
4	Cattlemen Run west of Springs Road into Filing Nos. 2 and 2A as a Local Street	With Filing Nos. 2 and 2a [For reference only - not part of the phase 1 PUD Amendment or the Filing 3 Plat application]	Applicant
5	Cattlemen Run Positive Place east of Springs Road (into future Filing No. 4 commercial development east of Springs Road) as a Local Street	With future Filing No. 4 commercial development east of Springs Road [For reference only - not part of the phase 1 PUD Amendment or the Filing 3 Plat application]	Applicant
6	Mayberry Drive & Springs Road Intersection	With Filing No. 3 Construct as a one-lane roundabout intersection	Applicant
7	Besseyi & Springs Road Intersection	With Filing No. 3. Construct as four leg, conventional, two-way, stop-sign controlled (TWSC) intersection.	Applicant

Plat Exhibit (Sheet 3)



