

TO: Traffic and Transportation Advisory Commission

FROM: Jim Mashiko, Senior Engineer

DATE: July 26, 2023

**SUBJECT: Hillcrest Drive at Rancho Road (E) Pedestrian Crosswalk
Warning System Upgrade (INFORMATION ITEM)**

RECOMMENDATION:

Receive report and provide comments.

BACKGROUND:

The existing pedestrian warning system at Colina Middle School was built in 2006 and includes advance warning beacons, overhead mast arm warning beacons, pedestrian warning signs and LEDs embedded within, “In Ground Warning Lights” (IGWL) at the intersection to alert traffic of pedestrian activity when the system is activated. A City crossing guard supplements the warning system during school’s peak arrival and dismissal periods.

The City is planning to upgrade the existing pedestrian and school crosswalk warning system at the intersection of Hillcrest Drive at Rancho Road (East) during the upcoming Fiscal Year 2023-24 (Attachment #1 Vicinity and Location Maps). A full traffic signal system is not warranted at this intersection, however; in order to better facilitate pedestrian crossings at the intersection, the City has designed some upgrades to the existing pedestrian crossing system to incorporate the latest technologies for pedestrian warning systems.

City staff is proposing the installation of one of the newer technologies available for crosswalk safety known as “Rectangular Rapid Flashing Beacons” (RRFBs). RRFBs are the City’s preferred tool to achieve higher yield rates by drivers due to the brightness intensity of amber lights and rapid flash pattern of the warning lights that are displayed at the marked crossing location. Attachment #2 shows one of the City’s existing RRFB systems along Thousand Oaks Boulevard.

There are five RRFB crosswalks along Thousand Oaks Boulevard, located at the following intersections:

- Thousand Oaks Boulevard at Boardwalk Avenue
- Thousand Oaks Boulevard at Clay Court

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- Thousand Oaks Boulevard at Oak Lane
- Thousand Oaks Boulevard at Oakview Drive
- Thousand Oaks Boulevard at Live Oak Street

The new warning system upgrades (see Attachment #3) for the Colina Middle School crosswalk will include:

- 8 new RRFBs (four eastbound & four westbound)
- 8 new Fluorescent Yellow-Green Pedestrian Symbol Signs (four eastbound & four westbound)
- New Pedestrian push buttons featuring audio feedback (recorded message/instructions)
- New Controller and Cabinet

The total project is estimated to cost \$60,000.

DISCUSSION:

There are currently a total of 25 electronic pedestrian crosswalk warning locations citywide. Some of those crossings have been installed over 20 years ago and it's the City's goal to upgrade them to current technologies and engineering practices/standards.

Staff believes that use of RRFBs, proposed for the project location, are expected to achieve higher rates of desired driver behavior compared to use of the dated circular warning beacons and IGWLs currently in place. In addition, the RRFBs tend to be more durable than their counterparts, resulting in lower maintenance costs and longer lifespan.

At the June 28, 2023 Traffic and Transportation Advisory Commission meeting, a PowerPoint presentation on this crosswalk upgrade will be presented that details the proposed enhancements, followed by a question-and-answer period.

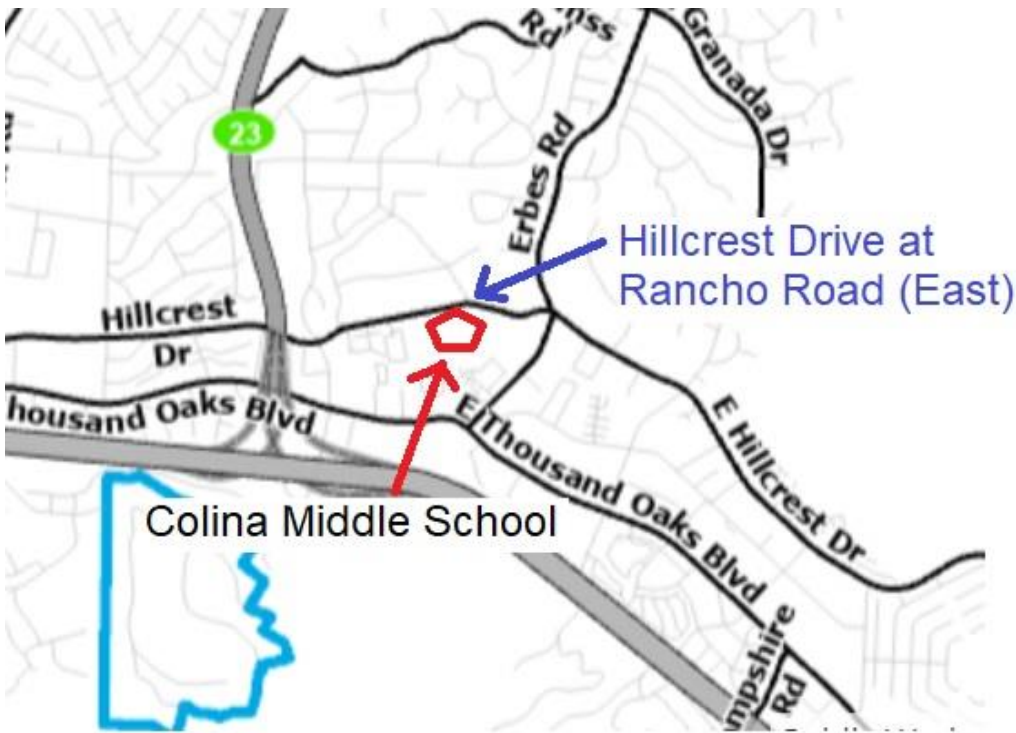
Prepared by: Robert Sweeting Associate Engineer

Attachments:

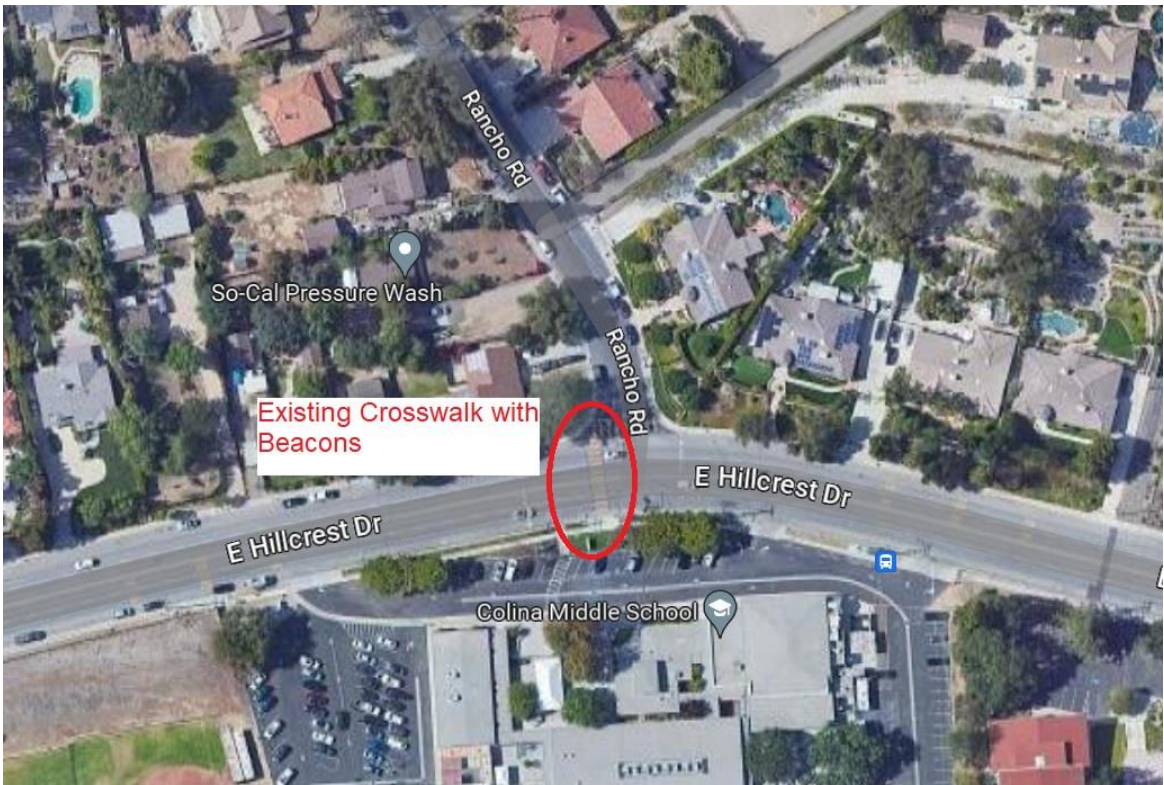
- Attachment #1 – Vicinity and Location Map
- Attachment #2 – RRFBs at Thousand Oaks Boulevard Crosswalk
- Attachment #3 – DRAFT Intersection Drawings

Colina Middle School Crosswalk

Vicinity Map



Location Map



Colina Middle School Crosswalk

Example RRFBs: Thousand Oaks Boulevard Crosswalks

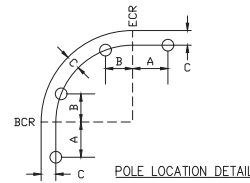


POLE						SCHEDULE										
No.	TYPE	HGT.	SIG. M.A.	LUM. M.A.	LUM. HPS	SIGNAL MOUNTING			PED. PUSH BUTTON	NON-ILLUM. SNS MESSAGE (DBL. FACED)			POLE LOCATION			REMARK
						M.A.	VEH.	PED.		PHASE	ARROW	QUAD.	A	B	C	
④	1B	15'	-	-	-	-	-	-	-	-	-	-	AS SHOWN	3'		②
④	17-3-161**	30'	20**	12'	200W	-	-	-	←	W	-	-	AS SHOWN	4'		** ②
④	17-3-161**	30'	20**	12'	200W	-	-	-	-	-	-	-	-	10'	7'	** ②
④	PPB POST	4'-10"	-	-	-	-	-	-	←	E	-	-	AS SHOWN	7'		
④	1B	15'	-	-	-	-	-	-	-	-	-	-	AS SHOWN	5.5'		②

* INSTALL CITY FURNISHED LIGHTGUARD PUSH BUTTON P/N: LGS-PB4.
 ** CITY FURNISHED TYPE 17 WITH 20' MAST ARM.

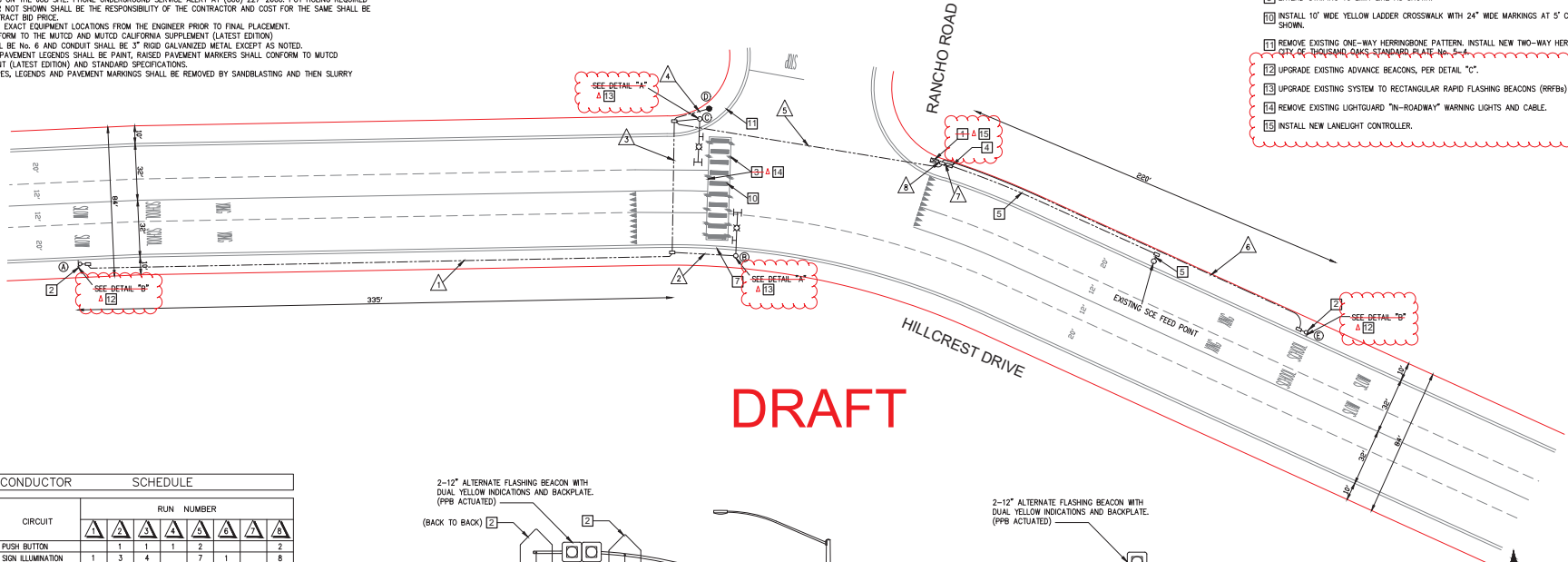
GENERAL NOTES:

- TRAFFIC SIGNAL AND LIGHTING SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS, STANDARD PLANS (LATEST EDITION), MUTCD AND MUTCD CALIFORNIA SUPPLEMENT (LATEST EDITION) AND THE SPECIAL PROVISIONS.
- LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND VERIFY ALL CONDITIONS ON THE JOB SITE. PHONE UNDERGROUND SERVICE ALERT AT (800) 227-2600. POT HOLING REQUIRED FOR UTILITIES SHOWN OR NOT SHOWN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND COST FOR THE SAME SHALL BE INCLUDED IN THE CONTRACT BID PRICE.
- OBTAIN APPROVAL FOR EXACT EQUIPMENT LOCATIONS FROM THE ENGINEER PRIOR TO FINAL PLACEMENT.
- ALL SIGNS SHALL CONFORM TO THE MUTCD AND MUTCD CALIFORNIA SUPPLEMENT (LATEST EDITION).
- ALL PULL BOXES SHALL BE NO. 6 AND CONDUIT SHALL BE 3" RIGID GALVANIZED METAL EXCEPT AS NOTED.
- TRAFFIC STRIPES AND PAVEMENT LEGENDS SHALL BE PAINT, RAISED PAVEMENT MARKERS SHALL CONFORM TO MUTCD CALIFORNIA SUPPLEMENT (LATEST EDITION) AND STANDARD SPECIFICATIONS.
- ALL CONFLICTING STRIPES, LEGENDS AND PAVEMENT MARKINGS SHALL BE REMOVED BY SANDBLASTING AND THEN SLURRY SEALED.



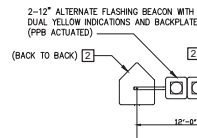
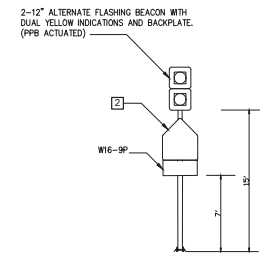
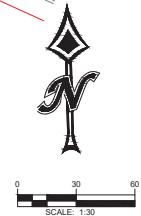
CONSTRUCTION NOTES:

- INSTALL CITY FURNISHED LIGHTGUARD, CONTROLLER AND ENCLOSURE, CONTRACTOR TO INSTALL ON TYPE 1-B POST OUT TO 4' HEIGHT.
- INSTALL CITY FURNISHED LIGHTGUARD LED ACTIVE PED CROSSING SIGN (36" S1-1 YELLOW-GREEN PED XING).
- INSTALL CITY FURNISHED LIGHTGUARD "N-ROADWAY" WARNING LIGHTS AND CABLE.
- INSTALL 1B V TYPE II-B SERVICE EQUIPMENT ENCLOSURE WITH:
 1-100 A, 240 V, 3P MAIN CIRCUIT BREAKER
 1-15 A, 120 V, 1P CIRCUIT BREAKER FOR SIGNAL
 1-30 A, 240 V, 2P CIRCUIT BREAKER FOR SAFETY LIGHTING (UNMETERED)
 1-15A, 120 V, 1P CIRCUIT BREAKER FOR SIGN ILLUMINATION CONTROL
 1-15 A, 120 V, 1P CIRCUIT BREAKER FOR P.E. CONTROL
 POSITION ENCLOSURE WITH P.E. WINDOW FACING NORTH.
- INSTALL 3" CONDUIT TO SIZE FEED POINT, SIZE TO INSTALL CONDUCTORS, COORDINATE WITH SOE SERVICE PLANNER TONY MALLORD AT (805) 494-7016, 48 HRS. PRIOR TO START OF WORK.
- REMOVE TRAFFIC SIGN(S) AND/OR POST AS SHOWN. ALL SIGNS TO BE RETURNED TO CITY MSC ON RANCHO CONEJO BLVD.
- INSTALL CURB ACCESS RAMP PER CITY OF THOUSAND OAKS STANDARD PLATE No. 5-2.
- REMOVE CONFLICTING STRIPING AS SHOWN.
- EXTEND STRIPING TO LIMIT LINE AS SHOWN.
- INSTALL 10' WIDE YELLOW LADDER CROSSWALK WITH 24" WIDE MARKINGS AT 5' CENTER TO CENTER AS SHOWN.
- REMOVE EXISTING ONE-WAY HERRINGBONE PATTERN. INSTALL NEW TWO-WAY HERRINGBONE PATTERN PER CITY OF THOUSAND OAKS STANDARD PLATE No. 5-1.
- UPGRADE EXISTING ADVANCE BEACONS, PER DETAIL "C".
- UPGRADE EXISTING SYSTEM TO RECTANGULAR RAPID FLASHING BEACONS (RRFBa) PER DETAIL "D".
- REMOVE EXISTING LIGHTGUARD "N-ROADWAY" WARNING LIGHTS AND CABLE.
- INSTALL NEW LANELIGHT CONTROLLER.



CONDUCTOR					SCHEDULE														
AWG SIZE OR AWG SIZE	CIRCUIT	RUN NUMBER																	
		1	2	3	4	5	6	7	8	9	10								
3-CONDUCTOR 3 X #18	PUSH BUTTON	1	1	1	1	2													
	SIGNAL ILLUMINATION	1	3	4		7	1	1											
	FLASHING BEACON	1	1	2		3	1	1											
	TOTAL 3-COND.	2	5	7	1	12	2	1											
	SIGNAL LIGHTING FIXTURE	2																	
#8	LUMINAIRE		2	2			2												
	SIGNAL SERVICE																		
	TOTAL #8	2	2	2			2	2	4	2									
	WARNING LIGHT CABLE																		
CONDUIT SIZE		2"	3"	3"	1"	3"	2"	3"	3"	2"	3"	3"							

CONDUCTOR SCHEDULE IS FURNISHED AS AN INSTALLATION GUIDE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE CORRECT CONDUCTORS REQUIRED FOR THE INTENDED OPERATION.

DETAIL "A"
NOT TO SCALEDETAIL "B"
NOT TO SCALE

CALL 811
AT LEAST TWO DAYS
BEFORE YOU DIG.
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

REV/SYMBOL	DESCRIPTION OF CHANGE	R.C.E.	DATE	C.T.O.	DATE	CHECKED
1	UPGRADE EXISTING FLASHING EQUIPMENT TO CURRENT STANDARD					

DATE 3/22/23
BA DESIGNED
DATE 3/22/23
BA DRAFTED BY
DATE

APPROVED PER THOUSAND OAKS MUNICIPAL CODE SECTION 3-10.303
CITY ENGINEER
DATE

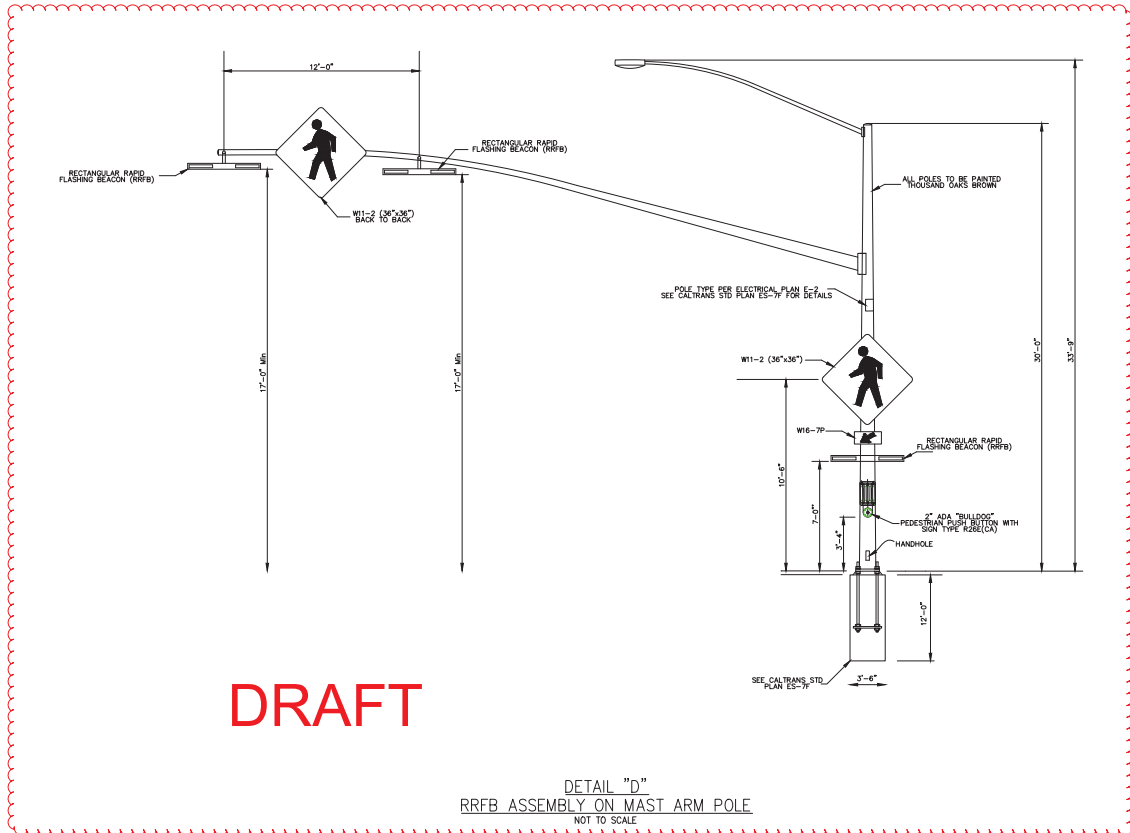
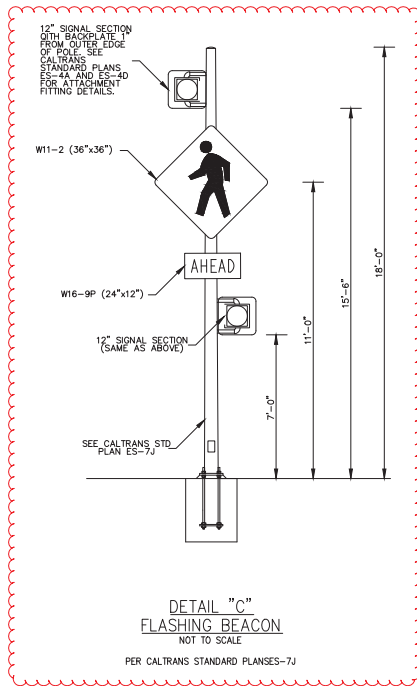
CITY OF THOUSAND OAKS
PROJECT ENGINEER
DATE
ENGINEERING DIVISION MANAGER
DATE

CITY OF THOUSAND OAKS

MARKED CROSSWALK ENHANCEMENT
HILLCREST DRIVE AT RANCHO ROAD (E)

CITY OF THOUSAND OAKS DWG. 06-27A

SHEET 3 OF 4



DRAFT