



T K E E N G I N E E R I N G , I N C .

TKE Project: 168-34

July 9, 2025

Ms. Kathy Raasch
Director of Development Services/Capital Projects
CITY OF NEEDLES
817 3rd Street
Needles, CA 92363

Subject: School Zone Analysis for Needles High School

Dear Ms. Raasch:

TKE Engineering, Inc. (TKE) has completed an analysis for the school zone at Needles High School. Due to proximity, included in the analysis are the adjacent schools, Needles Middle School and Vista Colorado Elementary School located along Washington Street.

An on-site field review was performed to observe current operational conditions on May 13, 2025 for this location. Outsourced traffic data was collected by Counts Unlimited on May 22, 2025 to determine directional speeds on Washington Street.

Washington Street

Washington Street is a minor roadway with one lane in each direction, on-street residential parking, and existing street lights. The school zone is posted for 25 miles per hour (M.P.H.) when school children are present. The 24-hour directional speed survey indicates that the 85th percentile speed on Washington Street is 29 M.P.H.

The intersection of Washington Street and Bailey Avenue is an all-way stop with a marked crosswalk on the east leg. The intersection of Washington Street and Orange Avenue has a marked crosswalk on the east leg which is uncontrolled. Each of these two intersections have crossing guards in the a.m. & p.m. peak school hours. An additional uncontrolled crosswalk on Washington Street and Park Avenue does not have a guard; however, there are minimal crossings.

There is a parent and staff parking lot located on the north side of the intersection of Washington Street and Bailey Avenue with an exit driveway forming the fourth leg of Bailey Avenue. As such, a Stop Sign is proposed on the signing/stripping plan for said driveway.

School Zone Analysis

The school zone is active at 7:45 a.m., with crossing guards in place at that time. The elementary and middle schools at Washington Street and Bailey Avenue have a loop driveway with directional traffic entering at the intersection and exiting the loop on Bailey Avenue, south of Washington Street. Vehicle queueing occurs predominately along Washington Street for afternoon dismissal.

The high school parking lot is located at the back of the facility off Park Avenue and Highland Avenue. High school Period 1 begins at 7:30 a.m. and Period 2 begins at 8:50 a.m.; with dismissal times at 1:50 p.m. and 2:55 p.m., respectively. The high school had 293 students in the 24/25 school year; of which, approximately 75 students appear to be walkers, exiting the front of the school on Washington Street. Many of these students walk to the lower-level schools to pick-up siblings.

Intersection of Washington Street & Orange Avenue

The uncontrolled crosswalk on Washington Street at Orange Avenue serves approximately 25 walking students assisted by a school crossing guard. Sight distance to this crosswalk is adequate and approach speeds are generally within posted limits. Installation of red curb at this and all intersections is proposed to enhance sight distance and provide adherence to Assembly Bill 413, which prohibits parking within 20' of the vehicle approach side to any marked or unmarked crosswalk. In some cases, the red curb is existing and/or extended and proposed to be refreshed on the signing/stripping plan.

Dismissal queues along the north side of Washington Street (all grade levels) begin to form at 2:00 pm. and incrementally extend beyond this uncontrolled crosswalk; however, parents do not block the intersection and generally keep the crosswalk clear. Red curb installation is proposed to extended beyond the approach to ensure compliance.

Washington Street & Park Avenue

The uncontrolled crosswalk on Washington Street at Park Avenue serves very few walking students. Sight distance to this crosswalk is adequate and approach speeds are generally within posted limits. Red curb installation on vehicle approach is proposed, while also minimizing restrictions for on street parking demand as much as possible.

Recommendations

Overall vehicular speeds in the school zone were found to be appropriate for the conditions; pedestrian activity was observed to be low relative to the high concentration and mix of school facilities within a short distance. The school zone is well organized by school district staff and operates very well and cohesively. Consistent with the CA Manual on Uniform Traffic Control Devices (MUTCD), updated school zone signing and striping is proposed.

The School Zone Signing and Striping plans (work order) encompasses several roadways in addition to high school site adjacent roads, Washington Street and Bailey Avenue, providing compliance with current CA MUTCD guidance and in response to discussions and concerns with several school staff members during our site review.

Additionally, all existing school signs are proposed to be removed, salvaged, and replaced with updated signs. The School Assembly C sign, which establishes speeds of 25 M.P.H., are

also proposed to be left in place on these residential roadways with directional speeds slightly higher than this limit.

Section 22358.4 of the California Vehicle Code (CVC) authorizes the local authority to reduce the prima facie speed of 25 M.P.H. in a school zone, by ordinance or resolution, upon the results of an engineering and traffic survey making this determination. Currently, declaring a prima facie speed of 20 M.P.H. or 15 M.P.H. is not recommended.

TKE is pleased to submit this analysis and School Zone Signing and Striping plans to the City for consideration. Please let us know if we can provide any further assist regarding implementation of the proposed installation work order.

Sincerely,



Terry Renner, P.E., P.L.S., Q.S.D.
Senior Vice President

Attachments: Directional Speed Survey: Washington Street
School Zone Signing and Striping Plans (Installation Work Order)

**Directional Speed Survey
Washington Street**

Counts Unlimited, Inc.

City of Needles
Washington Street
B/ Park Avenue - Bailey Street
24 Hour Directional Speed Survey

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

NDL001
Site Code: 219-25566

Eastbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
05/22/25	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
04:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
05:00	0	0	7	2	3	0	0	0	0	0	0	0	0	0	12
06:00	3	2	1	6	2	1	0	0	0	0	0	0	0	0	15
07:00	4	18	27	17	2	0	0	0	0	0	0	0	0	0	68
08:00	1	2	12	14	6	0	0	0	0	0	0	0	0	0	35
09:00	1	3	12	10	1	0	0	0	0	0	0	0	0	0	27
10:00	0	4	9	9	3	0	0	0	0	0	0	0	0	0	25
11:00	1	3	4	4	4	0	0	0	0	0	0	0	0	0	16
12 PM	6	4	24	11	1	1	0	0	0	0	0	0	0	0	47
13:00	3	4	18	8	5	0	0	0	0	0	0	0	0	0	38
14:00	12	16	27	15	4	0	0	0	0	0	0	0	0	0	74
15:00	2	5	20	9	3	0	0	0	0	0	0	0	0	0	39
16:00	1	1	11	10	13	0	0	0	0	0	0	0	0	0	36
17:00	0	0	7	6	14	4	0	0	0	0	0	0	0	0	31
18:00	1	1	4	12	7	1	0	0	0	0	0	0	0	0	26
19:00	1	5	8	8	6	0	0	0	0	0	0	0	0	0	28
20:00	0	0	3	5	0	0	0	0	0	0	0	0	0	0	8
21:00	0	0	3	3	3	1	0	0	0	0	0	0	0	0	10
22:00	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
23:00	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Total	37	69	198	156	79	8	0	0	0	0	0	0	0	0	547

Daily
15th Percentile : 18 MPH
50th Percentile : 24 MPH
85th Percentile : 30 MPH
95th Percentile : 33 MPH

Statistics
Mean Speed(Average) : 24 MPH
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 354
Percent in Pace : 64.7%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%

Counts Unlimited, Inc.

City of Needles
Washington Street
B/ Park Avenue - Bailey Street
24 Hour Directional Speed Survey

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

NDL001
Site Code: 219-25566

Westbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
05/22/25	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	1	4	1	0	0	0	0	0	0	0	0	0	6
05:00	0	2	3	3	1	0	0	0	0	0	0	0	0	0	9
06:00	3	3	3	7	1	0	0	0	0	0	0	0	0	0	17
07:00	31	58	44	12	2	0	0	0	0	0	0	0	0	0	147
08:00	4	10	24	16	3	1	0	0	0	0	0	0	0	0	58
09:00	2	3	13	4	6	0	0	0	0	0	0	0	0	0	28
10:00	1	7	12	7	0	0	0	0	0	0	0	0	0	0	27
11:00	2	4	17	10	1	0	0	0	0	0	0	0	0	0	34
12 PM	21	24	14	6	0	0	0	0	0	0	0	0	0	0	65
13:00	5	11	17	8	3	0	0	0	0	0	0	0	0	0	44
14:00	33	21	14	8	2	0	0	0	0	0	0	0	0	0	78
15:00	13	10	11	9	1	0	0	0	0	0	0	0	0	0	44
16:00	0	4	8	10	5	0	0	0	0	0	0	0	0	0	27
17:00	3	5	14	12	2	0	1	0	0	0	0	0	0	0	37
18:00	1	4	9	3	2	0	0	0	0	0	0	0	0	0	19
19:00	3	7	13	7	3	0	0	0	0	0	0	0	0	0	33
20:00	0	3	11	3	3	1	0	0	0	0	0	0	0	0	21
21:00	0	2	3	3	3	0	0	1	0	0	0	0	0	0	12
22:00	0	1	2	2	1	1	0	0	0	0	0	0	0	0	7
23:00	0	1	2	3	2	0	0	0	0	0	0	0	0	0	8
Total	122	180	240	137	42	3	1	1	0	0	0	0	0	0	726

Daily
15th Percentile : 13 MPH
50th Percentile : 21 MPH
85th Percentile : 27 MPH
95th Percentile : 31 MPH

Statistics
Mean Speed(Average) : 21 MPH
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 420
Percent in Pace : 57.9%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%

Counts Unlimited, Inc.

City of Needles
Washington Street
B/ Park Avenue - Bailey Street
24 Hour Directional Speed Survey
Eastbound, Westbound

PO Box 1178
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Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
05/22/25	0	0	3	1	0	0	0	0	0	0	0	0	0	0	4
01:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
04:00	0	0	1	6	1	0	0	0	0	0	0	0	0	0	8
05:00	0	2	10	5	4	0	0	0	0	0	0	0	0	0	21
06:00	6	5	4	13	3	1	0	0	0	0	0	0	0	0	32
07:00	35	76	71	29	4	0	0	0	0	0	0	0	0	0	215
08:00	5	12	36	30	9	1	0	0	0	0	0	0	0	0	93
09:00	3	6	25	14	7	0	0	0	0	0	0	0	0	0	55
10:00	1	11	21	16	3	0	0	0	0	0	0	0	0	0	52
11:00	3	7	21	14	5	0	0	0	0	0	0	0	0	0	50
12 PM	27	28	38	17	1	1	0	0	0	0	0	0	0	0	112
13:00	8	15	35	16	8	0	0	0	0	0	0	0	0	0	82
14:00	45	37	41	23	6	0	0	0	0	0	0	0	0	0	152
15:00	15	15	31	18	4	0	0	0	0	0	0	0	0	0	83
16:00	1	5	19	20	18	0	0	0	0	0	0	0	0	0	63
17:00	3	5	21	18	16	4	1	0	0	0	0	0	0	0	68
18:00	2	5	13	15	9	1	0	0	0	0	0	0	0	0	45
19:00	4	12	21	15	9	0	0	0	0	0	0	0	0	0	61
20:00	0	3	14	8	3	1	0	0	0	0	0	0	0	0	29
21:00	0	2	6	6	6	1	0	1	0	0	0	0	0	0	22
22:00	0	1	2	3	2	1	0	0	0	0	0	0	0	0	9
23:00	1	1	2	5	2	0	0	0	0	0	0	0	0	0	11
Total	159	249	438	293	121	11	1	1	0	0	0	0	0	0	1273

Daily
15th Percentile : 15 MPH
50th Percentile : 22 MPH
85th Percentile : 29 MPH
95th Percentile : 32 MPH

Statistics
Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 21-30 MPH
Number in Pace : 731
Percent in Pace : 57.4%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%

**School Zone Signing and Striping Plans
(Installation Work Order)**

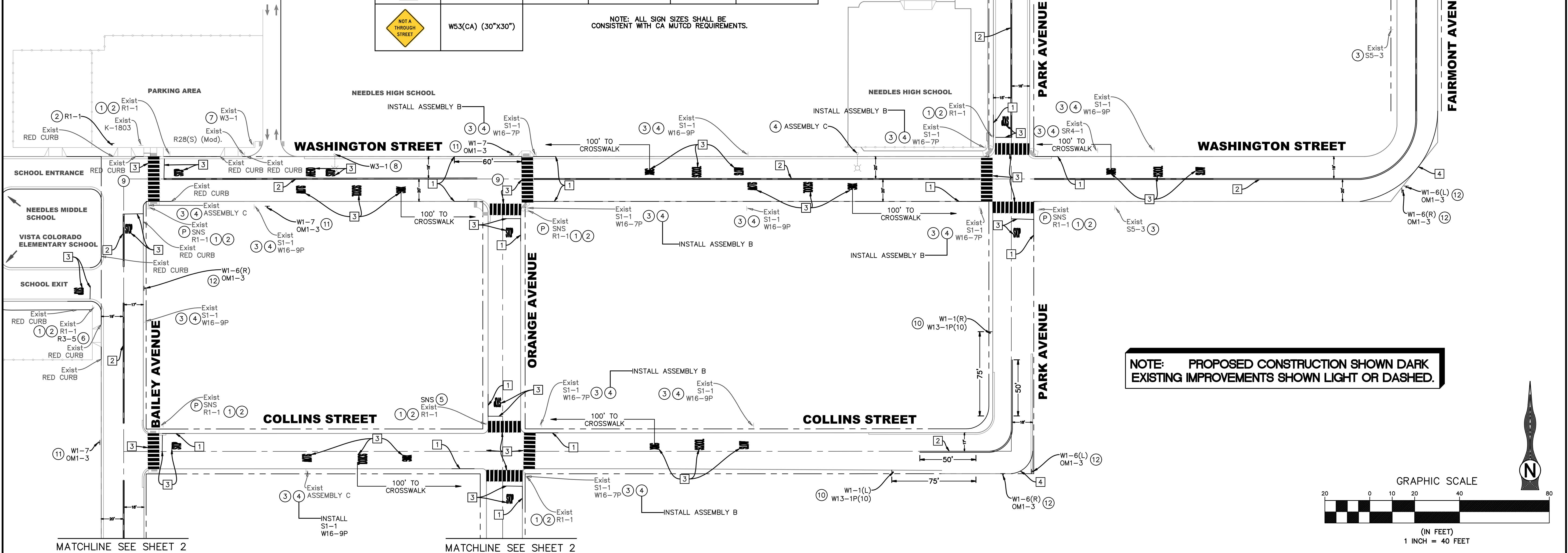
STRIPING CONSTRUCTION NOTES:

- 1 INSTALL 20 FEET OF RED CURB, AS OTHERWISE INDICATED, OR UNTIL FIRST DRIVEWAY
- 2 REPAINT EXISTING DETAIL 22 (DOUBLE YELLOW LINE) PER CALTRANS STANDARD PLANS A20A
- 3 REPAINT EXISTING PAVEMENT MARKINGS: LADDER-STYLE CROSSWALKS, LIMIT LINES, STOP MARKINGS, YELLOW SCHOOL PAVEMENT MARKINGS, AS SHOWN
- 4 INSTALL NEW DETAIL 27B (EDGE LINE) PER CALTRANS STANDARD PLANS A20B
- 5 INSTALL DETAIL 22 (DOUBLE YELLOW LINE) PER CALTRANS STANDARD PLANS A20A
- SB SANDBLAST EXISTING CONFLICTING STRIPING

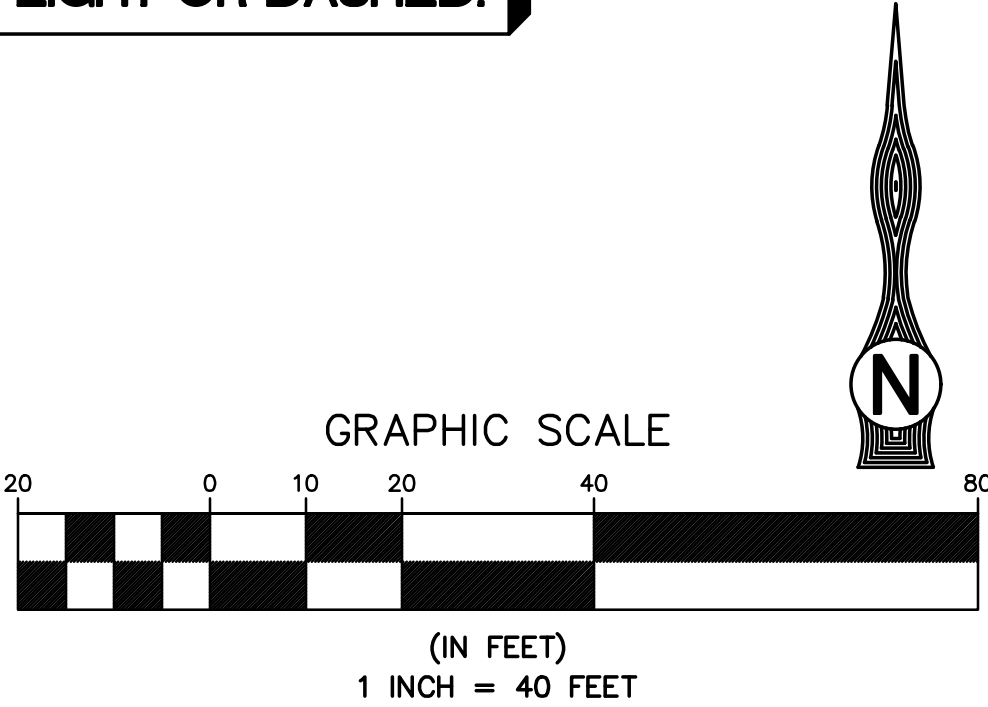
SIGNING CONSTRUCTION NOTES:

- (P) PROTECT EXISTING SIGN.
- 1 SALVAGE EXISTING SUBSTANDARD SIZE R1-1 SIGN.
 - 2 FURNISH AND INSTALL 30" R1-1 ON EXISTING POLE/POST.
 - 3 SALVAGE EXISTING OUTDATED SCHOOL ZONE SIGNS.
 - 4 FURNISH AND INSTALL NEW FLUORESCENT YELLOW-GREEN SCHOOL ZONE PER LATEST CA MUTCD.
 - 5 INSTALL STREET NAME SIGN (SNS).
 - 6 INSTALL "RIGHT TURN ONLY" R3-5, UNDER R1-1.
 - 7 SALVAGE EXISTING OUTDATED "STOP AHEAD" SIGN.
 - 8 FURNISH AND INSTALL NEW W3-1 ON EXISTING POST.
 - 9 CROSSING GUARD LOCATION.
 - 10 FURNISH AND INSTALL W1-1(L)(R) AND W13-1P(10).
 - 11 FURNISH AND INSTALL W1-7 AND OM1-3
 - 12 FURNISH AND INSTALL W1-6(L)(R) AND OM1-3

SIGN LEGEND					
SIGN	DESCRIPTION (w"x h")	SIGN	DESCRIPTION (w"x h")	SIGN	DESCRIPTION (w"x h")
	R1-1 (30"x30")		W13-1P(10) (18"x18")		W16-7P (24"x12")
	R3-5 (30"x36")		S1-1 (30"x30")		ASSEMBLY B SW24-3(CA) (30"x42")
	W1-1(L) (30"x30")		W16-9P (24"x12")		S5-3 (24"x30")
	W1-10(R) (30"x30")		ASSEMBLY C SR4-1 (24"x48")		OM1-3 (18"x18")
	K-1803 (18"x18")		W3-1 (36"x36")		W1-6(R) (48"x24")
	R28(S) (12"x18")		W1-6(L) (48"x24")		W1-7 (48"x24")
	W53(CA) (30"x30")	NOTE: ALL SIGN SIZES SHALL BE CONSISTENT WITH CA MUTCD REQUIREMENTS.			



NOTE: PROPOSED CONSTRUCTION SHOWN DARK
EXISTING IMPROVEMENTS SHOWN LIGHT OR DASHED.



Underground Service Alert

Call: TOLL FREE
1-800
227-2600

TWO WORKING DAYS BEFORE YOU DIG

BASIS OF BEARINGS:	
BENCHMARK:	

REVISIONS				
MARK	DATE	INITIAL	DESCRIPTION	DATE

CITY OF NEEDLES

APPROVED FOR CONSTRUCTION:

STEVEN W. LEDBETTER
R.C.E. 84044 EXP. DATE 9-30-25

07/09/25
DATE



TKE ENGINEERING

TERRY M. RENNER
EXP. 9-30-26

R.C.E. No. 69984

TKE ENGINEERING, INC.
2305 CHICAGO AVENUE
RIVERSIDE, CA 92507
(951) 680-0440
(951) 680-0490 FAX

DRAWN BY:	MV
DESIGNED BY:	MV
CHECKED BY:	MP
RECOMMENDED BY:	

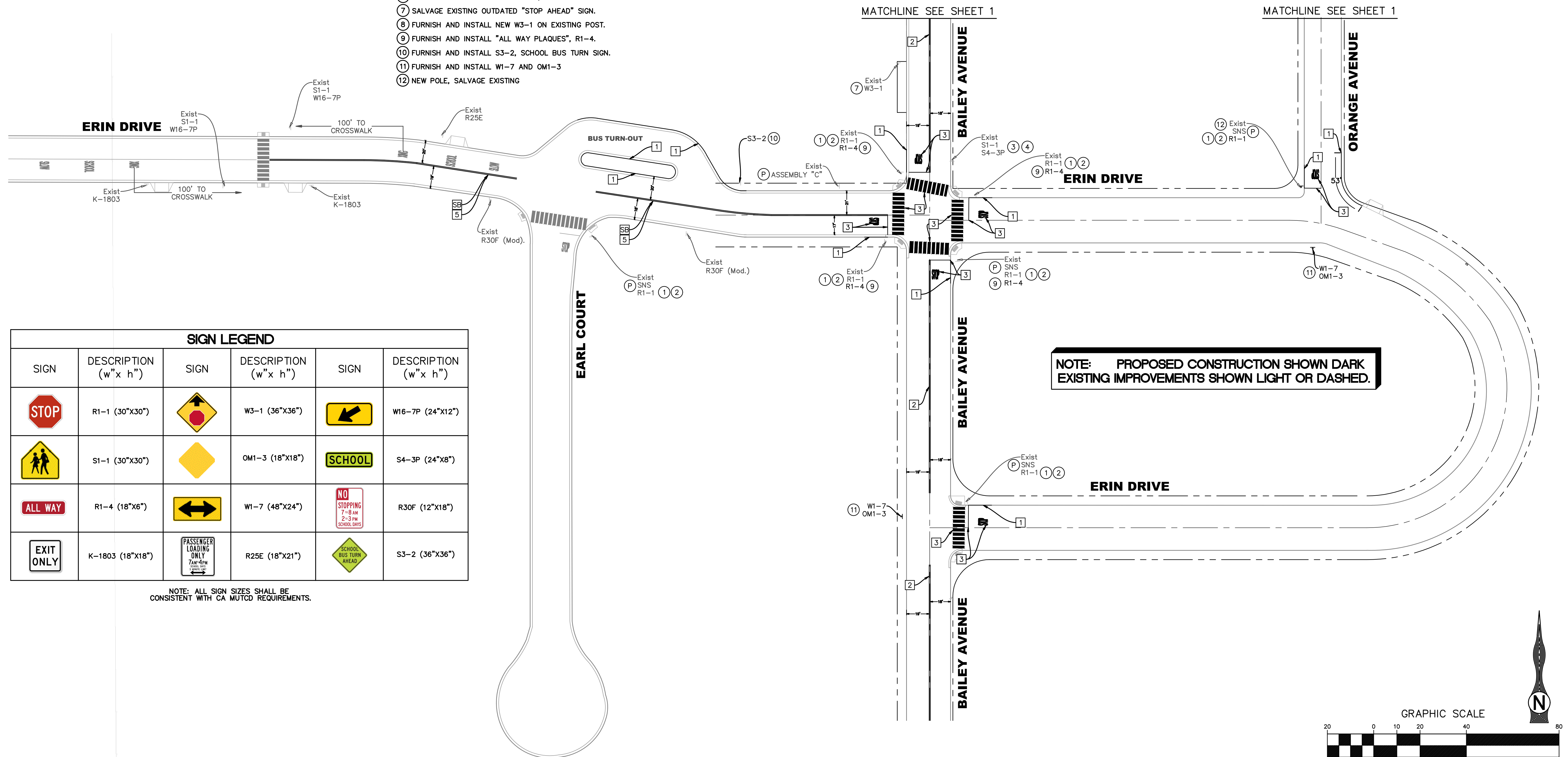
CITY OF NEEDLES








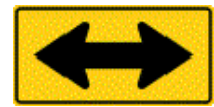


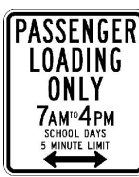

SIGNING AND STRIPING
NEEDLES HIGH SCHOOL

SHEET
1
OF
2

SIGNING CONSTRUCTION NOTES:

- (P) PROTECT EXISTING SIGN.
- (1) SALVAGE EXISTING SUBSTANDARD SIZE R1-1 SIGN.
- (2) FURNISH AND INSTALL 30" R1-1 ON EXISTING POLE/POST.
- (3) SALVAGE EXISTING OUTDATED SCHOOL ZONE SIGNS.
- (4) FURNISH AND INSTALL NEW FLOURESCENT YELLOW-GREEN SCHOOL ZONE PER LATEST CA MUTCD.
- (5) INSTALL STREET NAME SIGN (SNS).
- (6) INSTALL "RIGHT TURN ONLY" R3-5, UNDER R1-1.
- (7) SALVAGE EXISTING OUTDATED "STOP AHEAD" SIGN.
- (8) FURNISH AND INSTALL NEW W3-1 ON EXISTING POST.
- (9) FURNISH AND INSTALL "ALL WAY PLAQUES", R1-4.
- (10) FURNISH AND INSTALL S3-2, SCHOOL BUS TURN SIGN.
- (11) FURNISH AND INSTALL W1-7 AND OM1-3
- (12) NEW POLE, SALVAGE EXISTING



SIGN LEGEND					
SIGN	DESCRIPTION (w"x h")	SIGN	DESCRIPTION (w"x h")	SIGN	DESCRIPTION (w"x h")
	R1-1 (30"x30")		W3-1 (36"x36")		W16-7P (24"x12")
	S1-1 (30"x30")		OM1-3 (18"x18")		S4-3P (24"x8")
	R1-4 (18"x6")		W1-7 (48"x24")		R30F (12"x18")
	K-1803 (18"x18")		R25E (18"x21")		S3-2 (36"x36")

NOTE: ALL SIGN SIZES SHALL BE
CONSISTENT WITH CA MUTCD REQUIREMENTS.

**NOTE: PROPOSED CONSTRUCTION SHOWN DARK
EXISTING IMPROVEMENTS SHOWN LIGHT OR DASHED.**

