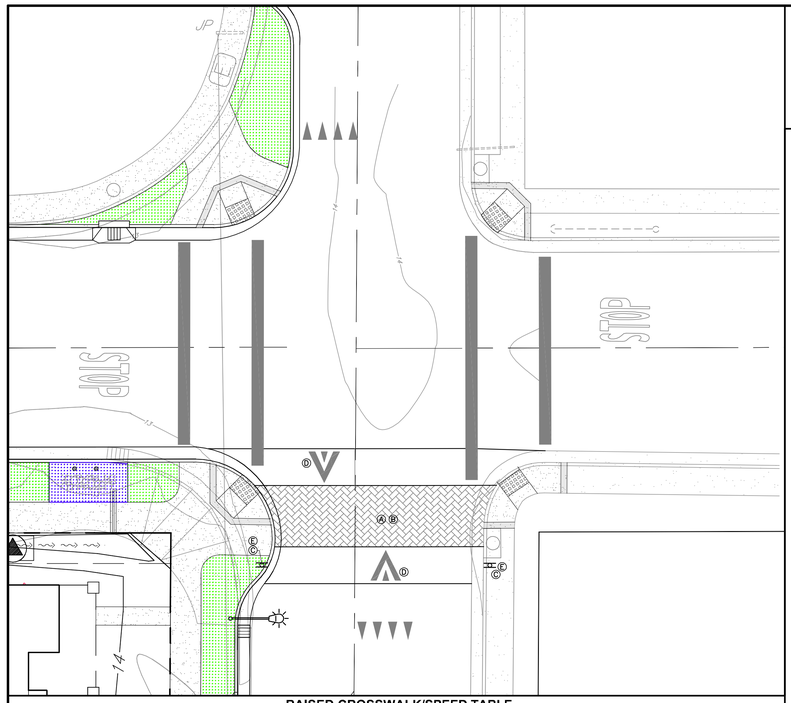


RAISED CROSSWALK/SPEED TABLE
SCALE: 1"=10'

KEYNOTES

(A) SPEED TABLE, SEE FACT SHEET AND DETAIL THIS SHEET.
(B) OPTIONAL PATTERNED PAVEMENT.
(C) RECTANGULAR RAPID FLASHING BEACONS. SEE DETAIL THIS SHEET.
(D) CHEVRON STRIPING TO WARN OF ONCOMING TRAFFIC OF GRADE TRANSITION.
(E) SPEED TABLE SIGN WITH DIRECTIONAL ARROW.

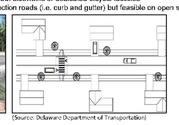
Traffic Calming Fact Sheets
May 2018 Update

Speed Table/Raised Crosswalks

Description:
- Long, raised speed humps with a flat section in the middle and ramps on the ends; sometimes constructed with brick or other textured materials on the flat section
- If placed at a pedestrian crossing, it is referred to as a raised crosswalk
- If placed only in one direction on a road, it is called an offset speed table

Applications:
- Appropriate for local and collector streets; mid-block or at intersections, with/without crosswalks
- Can be used on a one-lane one-way or two-lane two-way street
- Not appropriate for roads with 85th percentile speeds of 45 mph or more
- Typically long enough for the entire wheelbase of a passenger car to rest on top or within limits of ramps
- Work well in combination with textured crosswalks, curb extensions, and curb radius reductions
- Can be applied both with and without sidewalks or dedicated bicycle facilities
- Typically installed along closed-section roads (i.e. curb and gutter) but feasible on open section


(Source: Google Maps, Boulder, Colorado)


(Source: Delaware Department of Transportation)

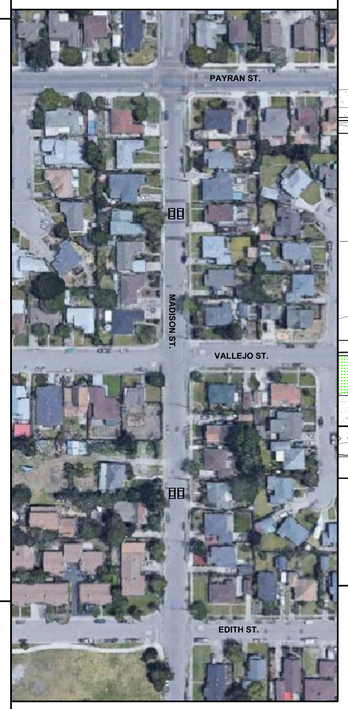
ITE/FHWA Traffic Calming EPrimer: https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

Design/Installation Issues:
- ITE recommended practice – "Guidelines for the Design and Application of Speed Humps"
- Most common height is between 3 and 4 inches (reported as high as 6 inches)
- Ramps are typically 6 feet long (reported up to 10 feet long) and are either parabolic or linear
- Careful design is needed for drainage
- Posted speed typically 30 mph or less

Potential Impacts:
- No impact on non-emergency access
- Speeds reductions typically less than for speed humps (typical traversing speeds between 25 and 27 miles per hour)
- Speeds typically decline approximately 0.5 to 1 mph midway between tables for each 100 feet beyond the 200-foot approach and exit points of consecutive speed tables
- Average traffic volumes diversions of 20 percent when a series of speed tables are implemented
- Average crash rate reduction of 45 percent on treated streets
- Increase pedestrian visibility and likelihood of driver yield compliance
- Generally not appropriate for BRT bus routes

Emergency Response Issues:
- Typically preferred by fire departments over speed humps, but not appropriate for primary emergency vehicle routes; typically less than 3 seconds of delay per table for fire trucks

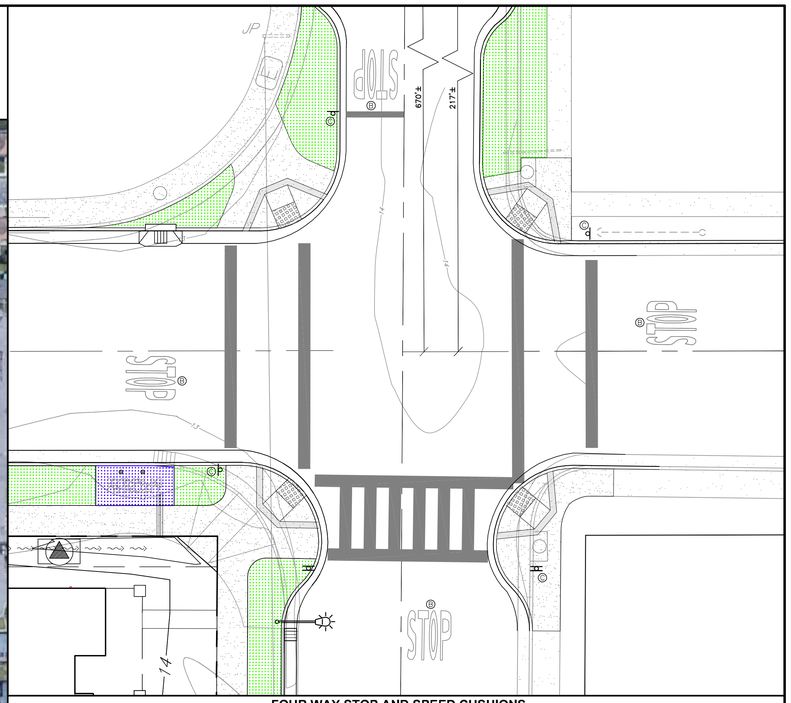
Typical Cost (2017 dollars):
- Cost ranges between $2,500 and $8,000 for asphalt tables; higher for brickwork, stamped asphalt, concrete ramps, and other enhancements sometimes used at pedestrian crossings



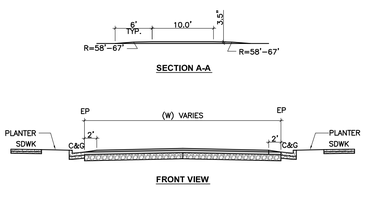
AERIAL VIEW OF SPEED CUSHION LOCATIONS

KEYNOTES

(A) SPEED CUSHION, SEE FACT SHEET.
(B) STOP BAR & SYMBOL.
(C) STOP SIGN.

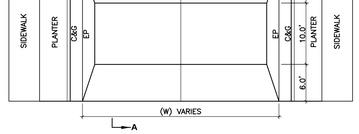


FOUR WAY STOP AND SPEED CUSHIONS
SCALE: 1"=10'



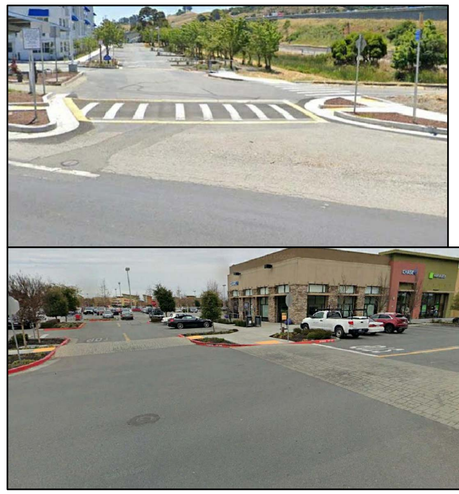
SECTION A-A

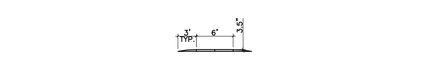
FRONT VIEW



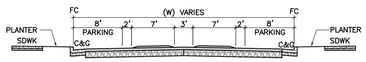
PLAN VIEW

SPEED TABLE DETAIL
N.T.S.

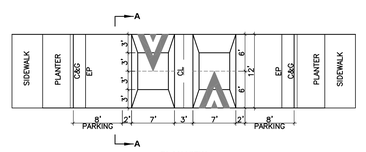




SECTION A-A



FRONT VIEW



PLAN VIEW

SPEED CUSHION DETAIL
N.T.S.

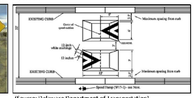
Traffic Calming Fact Sheets
May 2018 Update

Speed Cushion

Description:
- Two or more raised areas placed laterally across a roadway with gaps between raised areas
- Height and length similar to a speed hump; spacing of gaps allow emergency vehicles to pass through at higher speeds
- Often placed in a series (typically spaced 250 to 500 feet apart)
- Sometimes called speed lump, speed slot, and speed pillow

Applications:
- Appropriate on local and collector streets
- Appropriate at mid-block locations only
- Not appropriate on grades greater than 8 percent


(Source: James Barrera, Horrocks, New Mexico)


(Source: Delaware Department of Transportation)

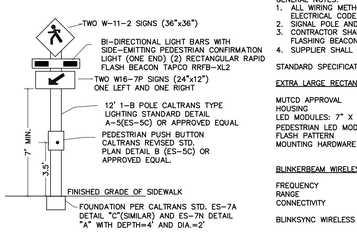
ITE/FHWA Traffic Calming EPrimer: https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

Design/Installation Issues:
- Two or more cushions at each location
- Typically 12 to 14 feet in length and 7 feet in width
- Cushion heights range between 3 and 4 inches, with trend toward 3 - 3 ½ inches maximum
- Speed cushion shapes include parabolic, circular, and sinusoidal
- Material can be asphalt or rubber
- Often have associated signing (advance-warning sign before first cushion at each cushion)
- Typically have pavement markings (zigzag, shark's tooth, chevron, zebra)
- Some have speed advisories

Potential Impacts:
- Limited-to-no impact on non-emergency access
- Speeds determined by height and spacing; speed reductions between cushions have been observed averaging 20 and 25 percent
- Speeds typically increase by 0.5 mph midway between cushions for each 100 feet of separation
- Studies indicate that average traffic volumes have reduced by 20 percent depending on alternative routes available
- Average collision rates have been reduced by 13 percent on treated streets

Emergency Response Issues:
- Speed cushions have minimal impact on emergency response times, with less than a 1 second delay experienced by most emergency vehicles

Typical Cost (2017 dollars):
- Cost ranges between $3,000 and $4,000 for a set of rubber cushions



(TO BE HARD WIRED)

GENERAL NOTES:
1. ALL WIRING METHODS AND EQUIPMENT CONSTRUCTION SHALL CONFORM TO THE CURRRENT EDITION OF THE NATIONAL ELECTRICAL CODE, CALIFORNIA STANDARD SPECIFICATIONS, AND THE STANDARD PLANS.
2. SIGNAL POLE AND FOUNDATION SHALL BE CONSTRUCTED PER CALTRANS SPECIFICATIONS.
3. CONTRACTOR SHALL CONSTRUCT A COMPLETELY OPERATIONAL HARD WIRED PEDESTRIAN CROSSWALK – RECTANGULAR RAPID-FLASHING BEACONS (RRFB XL2) TAPCO SYSTEM.
4. SUPPLIER SHALL ASSIST CITY IN PROGRAMMING AT DEVELOPER'S EXPENSE.

STANDARD SPECIFICATIONS:

EXTRA LARGE RECTANGULAR RAPID FLASH BEACON RRFB-XL

MUTCD APPROVAL	INTERIM FHWA APPROVAL MEMORANDUM (1A-11)
HOUSING	POWDER COATED ALUMINUM
LED MODULES: 7" X 3"	2 ARRAYS OF 8 AMBER LEDS, SAE, J595 CERTIFIED
PEDESTRIAN LED MODULE: 1 ½"X1 ½"	SIDE-MOUNTED, FLASH CONCURRENT WITH VEHICLE LEDS
FLASH PATTERN	MUTCD SPECIFIED 2-4...1
MOUNTING HARDWARE	STAINLESS STEEL U-BOLTS FOR 4" TO 4 1/2" O.D. POLE

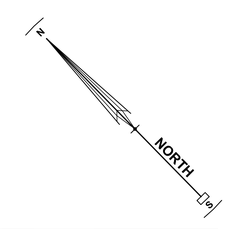
BLINKERBEAM WIRELESS COMMUNICATION SYSTEM

FREQUENCY	900 MHZ FHSS
RANGE	FOR SYSTEM SEPARATION OVER 900', A SITE SURVEY IS RECOMMENDED
CONNECTIVITY	CROSSWALK AND OPTIONAL ADVANCE LEDS FLASH CONCURRENTLY
BLINKSYNC WIRELESS SYNCHRONIZED ACTIVATION	INDIVIDUAL UNITS IN ONE SYSTEM FLASH IN SYNCHRONIZED PATTERNS (AVOIDS LIGHT NOISE OF SYSTEM OPERATION). IDEAL FOR MULTIPLE ASSEMBLIES IN THE SAME DIRECTION.
FLASHING PUSH-BUTTON ACTIVATION*	ADA PUSHBUTTON, TYPICAL (<120 MILLISECOND)
	CONTROLLER & CABINET SHALL BE THE VENTED ALUMINUM CONTROL CABINET ASSEMBLY BY TAPCO© DWG. NO. 2TE-444.

MUTCD APPROVED RECTANGULAR RAPID FLASHING BEACON DETAIL

(WITH CONROLLER AND PUSH BUTTON. TWO REQUIRED)

(N.T.S.)



GRAPHIC SCALE

REGISTERED PROFESSIONAL ENGINEER
STEVEN J. LAFRANCHI
No. 49302
CIVIL
STATE OF CALIFORNIA

REVISIONS	BY

TRAFFIC CALMING EXHIBIT

RIVERBEND
529 MADISON STREET APN 007-041-006
PETALUMA CALIFORNIA

STEVEN J. LAFRANCHI & ASSOCIATES, INC.
CIVIL ENGINEERS – LAND SURVEYORS
LAND PLANNERS – LANDSCAPE ARCHITECTS
PETALUMA THEATRE SQUARE
140 SECOND STREET, SUITE 312
PETALUMA, CALIFORNIA 94952
(707) 762-3122 FAX (707) 782-3239

DATE:	
SCALE:	1"=10'
DESIGN:	SJL, ADF
DRAWN:	CRK HSM AC
CHECK:	SJL
JOB:	RIVERBEND
JOB No:	182043

SHEET **EX-1**
OF 1 SHEETS

J:\JOS Riverbend Crossing LLC\Dwg\Exhibits\182043 Ex-1 Traffic Calming Exhibit.rev1.dwg, 10/8/2020 9:56:06 AM, Chris