Clark-Cowlitz FIRE RESCUE	Fire Code Standard Traffic Calming Devices	
	Date: 01-07-2021	Number: 5-5

Traffic Calming

In cooperation with the City, the Fire Marshal may approve the use of traffic calming devices on Public and Private streets on a case-by-case basis. The priority is to provide safe and rapid emergency service delivery, so the primary option is not to install any devices that slow emergency response, unless deemed necessary by the city.

Speed Humps

There are three types of speed humps that have been adopted for use by Clark-Cowlitz Fire Rescue:

14-FOOT SPEED HUMP: Limited to use on streets classified as Local Service. (Figure A)

22-FOOT SPEED HUMP: Also known as speed tables. For use on streets classified as Neighborhood Collectors. Twenty-two-foot speed humps may also be used on higher volume or higher speed Local Service Streets. (Figure B)

SPEED CUSHIONS: For use on streets that are designated as Major or Secondary Emergency Response Streets. Speed cushions may be designed with three sections or four sections (Figures C and D). The first allows emergency responders to bypass the hump by traveling over the centerline, while the second allows emergency responders to bypass the hump by staying within lane lines. Three-section speed cushions should be installed along straight sections of roadway, while four-section speed cushions should be installed along curved sections of roadway. Four-section speed cushions should also be used on high-volume roadways. Speed cushions should be a minimum of 50 feet from median islands.

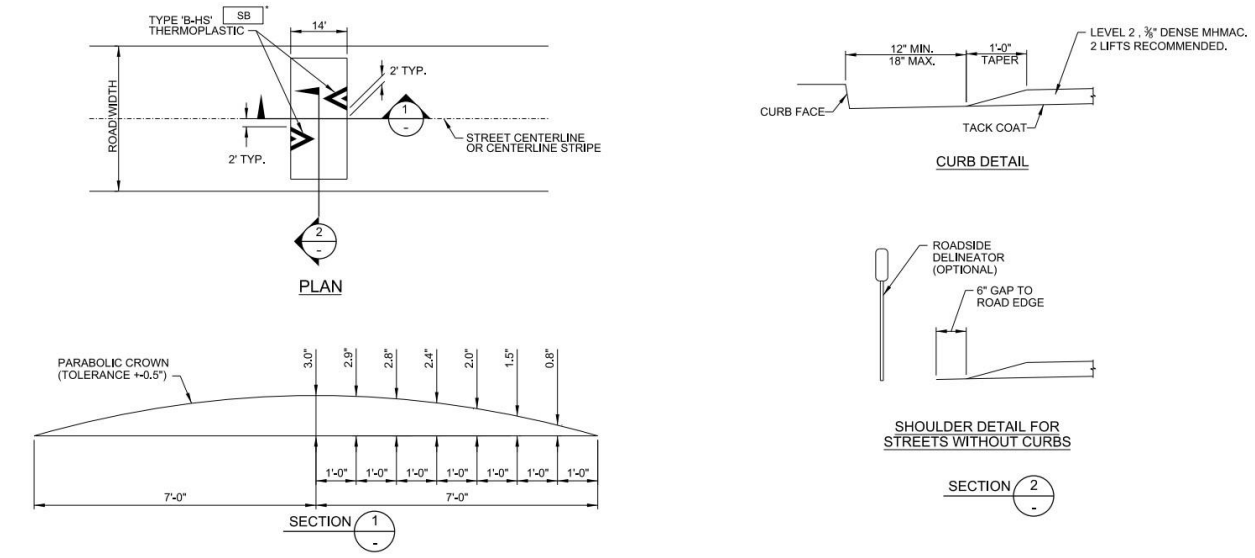

Figure A: 14 Foot Asphalt Local Speed Hump

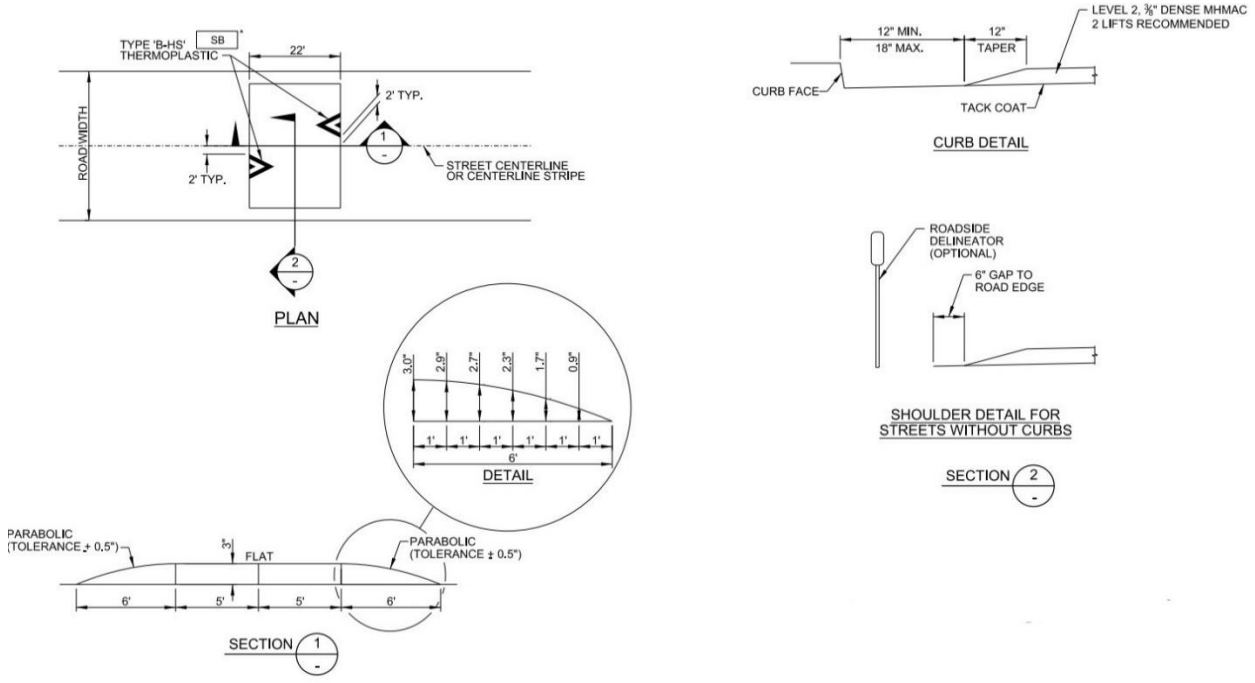

Figure B: 22 Foot Asphalt Arterial Speed Hump

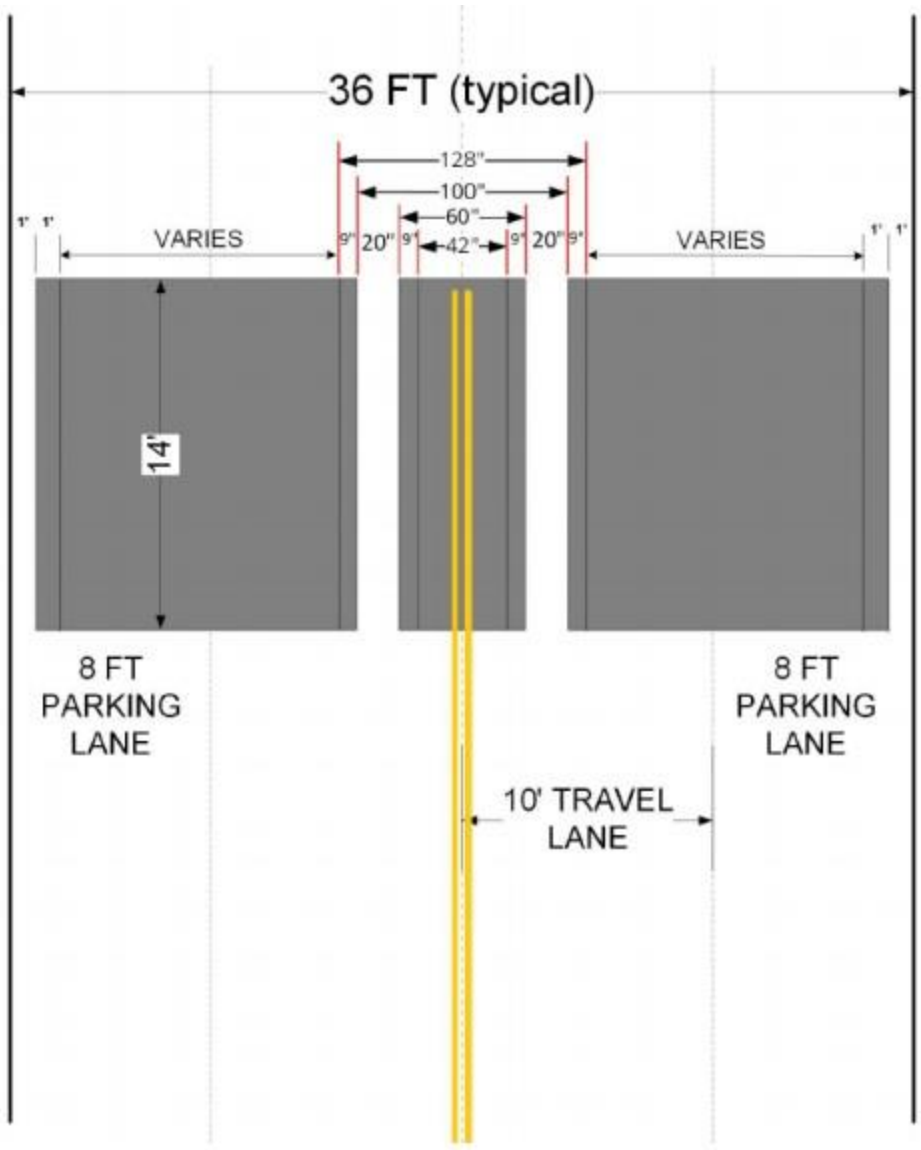

Figure C: Three Speed Cushion Layout Design

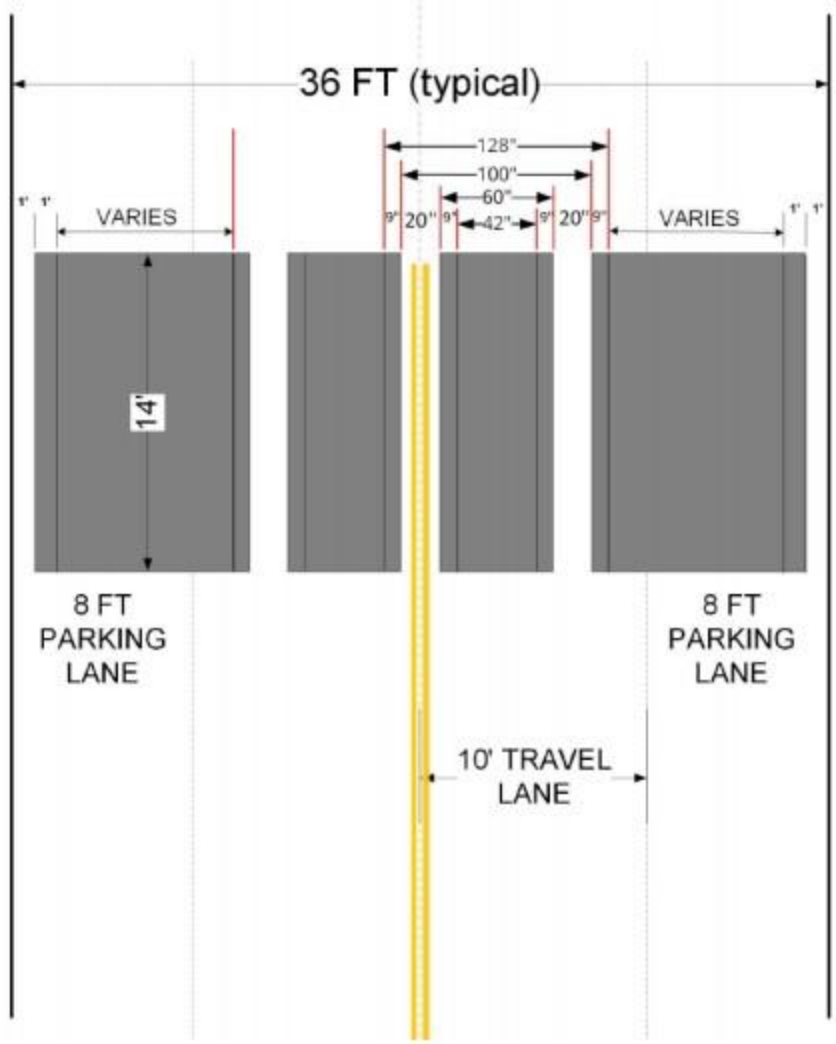

Figure D: Four Speed Cushion Layout Design

DESIGN GUIDELINES

The following are general standards and guidelines that apply to all speed hump applications. There may be situations that do not meet all criteria.

PREVAILING SPEED:

Fourteen-foot speed humps should not be placed on streets with 85th-percentile speeds exceeding 40 mph. Twenty-two-foot speed humps should not be placed on streets with 85th-percentile speeds exceeding 50 mph. The engineer shall consider phased installation of speed humps on streets with extreme speeding problems. Phased installation would place every other speed hump first and infill the remaining speed humps one to three months later.

STREET CLASSIFICATION:

Speed humps shall not be constructed on streets classified higher than Neighborhood Collector (or similar) nor should they be constructed on streets classified higher than Transit Access. Only speed cushions may be constructed on streets designated as Major or Secondary Emergency Response Streets and only after consultation with the Fire Marshal.

STREET GRADE:

Speed humps may be installed on street sections with a longitudinal grade of up to 8 percent. Installation of speed humps on street sections with a grade up to 12 percent shall be decided on a case-by-case basis and only after an engineering evaluation has ensured that such installations will not create excessive risks to traffic safety. Speed humps shall not be placed on streets with longitudinal grades in excess of 12 percent.

PROXIMITY TO CURVE:

Prior to placing speed humps on a curved roadway, an engineering evaluation should be conducted to ensure that the speed hump installation, in conjunction with the posted speed of the curve, would accommodate safe vehicle passage. Speed humps shall not be placed on horizontal curves with radii less than 100 feet. Special attention shall be paid to the placement of speed humps on crest vertical curves.

UNIMPROVED STREETS:

Speed humps may be installed on paved streets without curbs that are maintained by the city, unless otherwise prohibited by these guidelines. After construction on streets without curbs, the engineer may consider the installation of roadside delineators to deter a confirmed problem with driver circumnavigation of a speed hump.

TRAVEL LANES:

Speed humps shall not be placed on streets with more than two through-travel lanes. Turn lanes, bike lanes and parking lanes shall not be counted as through-travel lanes.

SPACING:

Speed humps shall be installed in a series (minimum of two) and spaced according to an evaluation of traffic data as well as the physical street section. Speed humps spaced more than 600 feet apart have significantly less effect on driver speeds, though street grade restrictions per the section above on Street Grade may necessitate such lengthy spacing. The standard spacing for speed humps is 280 to 320 feet apart, with closer spacing chosen for more severe speeding problems. Fourteen-foot speed humps at standard spacing will typically reduce the average 85th-percentile vehicle speed along the length of the project street to 25 mph. Twenty-two-foot speed humps at standard spacing will typically reduce the average 85th-percentile vehicle speed along the length of the project street to 28 to 32 mph. Average 85th-percentile vehicle speeds at speed humps will usually be less than the speeds between the speed humps. Speed humps are typically placed 150 feet to 200 feet away from the intersecting streets that define the boundaries of the project but should be no closer than 100 feet to any boundary street. For intersecting streets internal to the project boundaries, speed humps are placed a sufficient distance

away such that turning vehicles will cross the speed hump squarely, without any skew. When STOP signs exist internal to a project street segment, speed humps are typically placed 200 feet from the STOP sign.

DESIGN:

The size or length of a speed hump is measured along the centerline of the street. Both 14-foot and 22-foot speed humps are constructed to a maximum height of 3 inches above the existing street surface (+/- 0.5 inch) in accordance with Figures C and D. Speed humps shall normally be constructed across an entire street width, leaving 12 to 18 inches adjacent to the curb clear for drainage. Speed humps are normally constructed to within 6 inches of the edge of the pavement on streets without curbs. All speed humps shall have tapered edges adjacent to the curb or edge of pavement. Edge tapers shall be 12 inches wide. Speed cushions have the same dimensions as a standard 14-foot speed hump, except that gaps in the humps are provided at the width of the fire truck wheelbase so emergency vehicles can traverse the humps with minimal impact.

PAVEMENT MARKINGS:

Each speed hump shall be marked with the speed hump marking in accordance with City standards. Markings may be rolled in on traditional speed humps but are burned down on speed cushions to conform to gaps in the humps. Existing double yellow centerlines and bike lanes may be installed on top of any speed hump that covers those markings.

SIGNAGE:

(HUMP) signs shall be installed at each end of the project street segment, typically 100 feet, but not less than 75 feet, in advance of the first speed hump approached by people driving. When speed humps are placed on a crest vertical curve, consideration shall be given to placement of a supplemental W2600 sign for the direction of travel in which visibility of the speed hump is obscured. Unless otherwise stated, all roadside signs for speed humps shall be placed a minimum of 8 feet above the local surface as measured to the bottom of the lowest sign.

DRIVEWAYS:

Speed hump locations shall be chosen to maintain driveway access, with the minimum clearance from a residential driveway throat being 5 feet and the minimum clearance from a commercial driveway throat being 20 feet.

PARKING:

Parking removal is not required at speed humps.

BUS STOPS AND BUS ZONES:

Speed humps shall be placed away from transit vehicle stops. This helps to ensure that passengers will not be transitioning between standing and sitting when the bus traverses a speed hump, minimizing the potential for passenger injury. To the greatest extent possible, speed humps should be located so that transit vehicles are not traversing them at an angle.

UTILITIES:

Speed humps should not be placed closer than 20 feet to underground utility access points. Under constrained circumstances, 5-foot spacing may be justified. Speed humps should be located to avoid placement over water, sewer and natural gas service connections, as well as water valves, gas valves or other utility valves. Before initiating a speed hump project, local utility companies shall review the proposed project street for pending utility construction. All pending utility work that involves street resurfacing shall be completed, and the street resurfaced, before construction of permanent speed humps.

CONSTRUCTION TOLERANCES:

Permanent speed humps must be constructed per the appropriate standard plan to within a tolerance of +/- 0.5 inch in height.