

## City of Woodcreek

### **Proposal Plan for the Purchase and Placement of Semi-Permanent (Emergency Respondent Approved) Speed Cushions to Address Traffic Calming on Residential Streets**

#### **Background Information:**

- 1) Going 25 mph, it takes an average of 55ft to come to a full stop.
- 2) Results show that the average risk of severe injury for a pedestrian struck by a vehicle reaches 10% at an impact speed of 16 mph, 25% at 23 mph, 50% at 31 mph, 75% at 39 mph, and 90% at 46 mph. The average risk of death for a pedestrian reaches 10% at an impact speed of 23 mph, 25% at 32 mph, 50% at 42 mph, 75% at 50 mph, and 90% at 58 mph. Risks vary significantly by age. For example, the average risk of severe injury or death for a 70-year-old pedestrian struck by a car traveling at 25 mph is similar to the risk for a 30-year-old pedestrian struck at 35 mph.
- 3) The mortality rate is 4 times higher when struck outside of an intersection.
- 4) Speeds in Woodcreek are regularly reported to be 30-40mph and over.
- 5) It can take less than 8 seconds for the average vehicle to get up to, or over 25 mph. At that speed this is how fast they travel: 25 miles per hour = 36.7 feet per second

#### **Sources:**

- 1) <https://desimonelawoffice.com/blog/how-long-does-it-take-to-stop-a-moving-vehicle/>
- 2) <https://aaaafoundation.org/impact-speed-pedestrians-risk-severe-injury-death/>
- 3) <https://www.moneygeek.com/insurance/auto/analysis/pedestrian-chance-of-survival/#:~:text=It%20doesn't%20take%20high,somewhere%20other%20than%20an%20intersection.>
- 4) TrafficCloud reports (the City's radar sign data)
- 5) <https://www.millerandzois.com/time-speed-and-distance.html>

#### **Actions taken by Council in the past two years:**

- 1) Citizen Surveys conducted that reported traffic calming as a top priority for residents
- 2) Regular patrols by off-duty officers
- 3) Culture of Safe Driving program for education and awareness
- 4) Approved the purchase and installation of 4 new digital radar signs
- 5) Obtained quote on a traffic calming study – cost estimate \$25,000 from K.Friese

#### **Next Steps:**

- 1) Passive traffic calming measures: these are additions or changes in the roads that promote slower speeds indirectly
- 2) Consideration of additional traffic control options: these include additional signs and controls at intersections or areas of high volume

## **Consideration of Movable, Semi-permanent (emergency respondent approved) speed cushions :**

- 1) One of the MOST effective forms of passive traffic calming are speed bump, humps, cushions and tables. Installation of such devices forces drivers to slow down at regular intervals.
- 2) Speed Cushions are favored and approved of by emergency response teams
- 3) Speed Cushions are an appropriate choice for traffic calming on residential streets with speed limits of under 30mph (see graphs below from the Austin Transportation Department's Traffic Calming Toolkit under additional information at the end of the document)
- 4) K. Friese has recommended the use of movable or semi-permanent devices to save on long-terms costs in road maintenance and repairs. This also gives the City more flexibility in where such devices may be placed and the ability to change periodically so that drivers' habits remain mutable thus promoting alert, safe driving throughout the residential streets of the City of Woodcreek.

### **The Proposed Plan:**

#### **Three phases to consider:**

RED: high traffic areas that see regular speeding (strongly recommended to act immediately)

YELLOW: preferred areas to promote safety on streets that see cross-through traffic

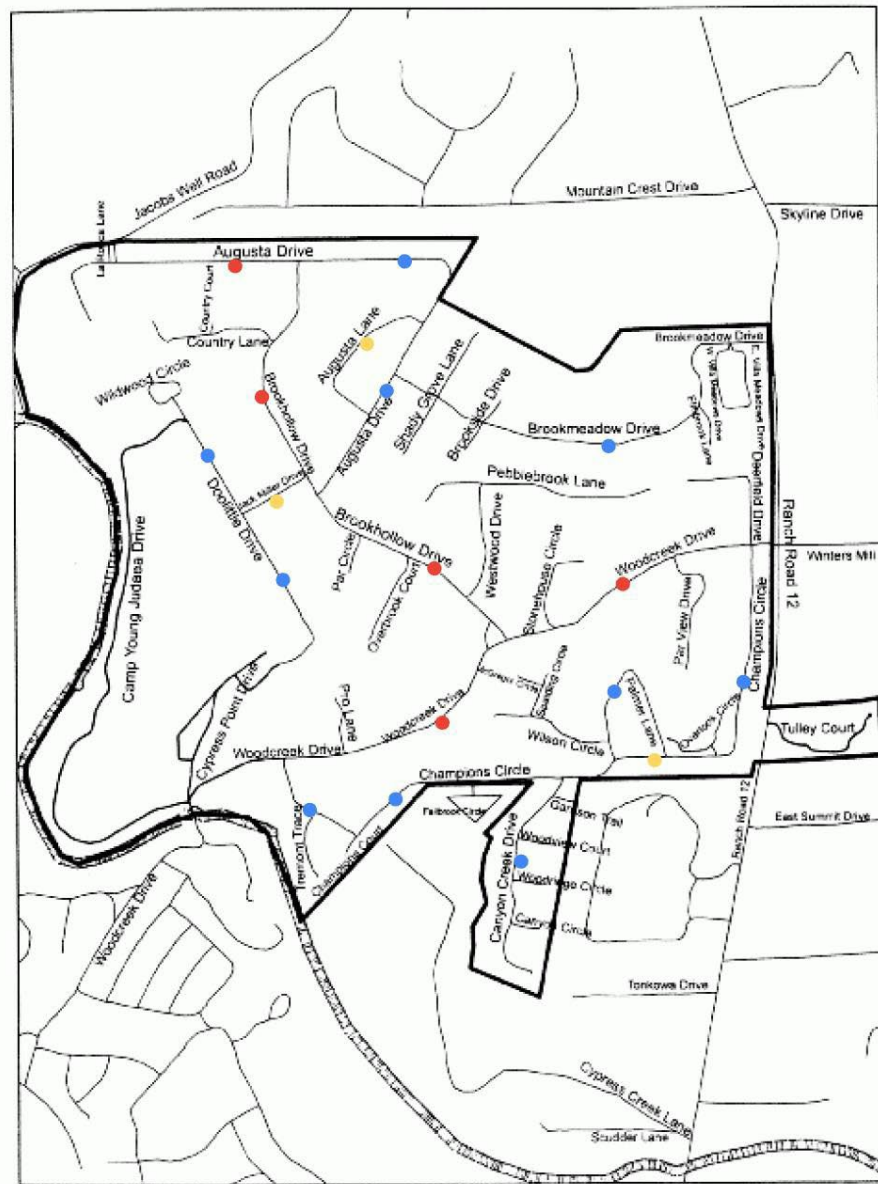
BLUE: these areas see less traffic but could benefit from additional safety measures and may have more natural land features that already slow traffic such as narrow streets, street trees, and curves.

#### **Factors taken into consideration for speed bump placement:**

- 1) Natural features
- 2) Distance from other stops and intersections
- 3) Frequency of travelers
- 4) Volume of "cut through" traffic
- 5) Regular speeding document with frequency

### Placement Map:

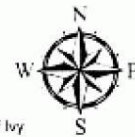
### City of Woodcreek Street Map



#### Legend

- Woodcreek City Limits
- Private Streets
- Woodcreek Streets
- Cypress Creek

0 0.25 0.5 Miles



Created 5/31/2011 by Jeff Ivy

*MAP NOTE: Exact and final locations on bumps NOT determined by this draft map. Additional on-site review and data collection is needed for setting final placement. There are 1320ft in a quarter mile. This distance of 1/4<sup>th</sup> of a mile was used in the map to space proposed bumps from other stops or land features that naturally slow speed. Other natural traffic calming land features were also considered.*

**PLAN OVERVIEW:**

- 1) Focus on what can be done now and take immediate action.

RED PHASE: Five devices purchased and installed (August Drive would be installed post roadway construction improvements)

- 2) Then, plan for the yellow and blue phases, respectively, after roadway construction has been completed in those areas.

YELLOW PHASE: An additional three devices purchased and installed on streets that see “cut-through” traffic to other areas. Some blue phase bumps may be considered, example: second speed cushion on the east side of August Drive.

BLUE PHASE: recommend an additional 4-7 devices purchased for top priority locations. 10 total locations for consideration shown on the map (some of the locations for these devices will be significantly impacted by the slope of the road and other natural features which may make the ineligible for placement). These areas selected as “third tier” because they have less traffic and/or have other natural features that show traffic.

**ADDITIONAL INFORMATION ON APPROPRIATE TRAFFIC CALMING FOR RESIDENTIAL STREETS:** SOURCE:

[https://www.austintexas.gov/sites/default/files/files/Transportation/LATM/ATD%20Speed%20Management%20Toolkit\\_v21.pdf](https://www.austintexas.gov/sites/default/files/files/Transportation/LATM/ATD%20Speed%20Management%20Toolkit_v21.pdf)

**Traffic Calming Device Table**

	Roadway Characteristics	Speed Limit Compatibility	Vehicle Volumes	Considerations
<b>Type I Devices</b> Horizontal Deflection	Typically installed on roadways over 36' wide	30 - 35 mph	Typically under 10,000 vehicles a day	Horizontal deflection devices may require removal of parking opportunities. Devices such as curb extensions must take into consideration existing drainage.
<b>Type II Devices</b> Vertical Deflection	Typically installed on roadways under 36' where existing design speed of 30 mph may want to be reduced	25 - 30 mph	Typically no more than 6,000 vehicles a day	Vehicles may park adjacent to devices. Devices are designed such that drainage is not impacted. Not recommended for steep grades.
<b>Type III Devices</b> Speed Monitoring & Awareness Tools	Any	Any	Any	Informational and driver feedback signage is self-enforcing.

## TYPE2 - VERTICAL DEFLECTION DEVICES



### Raised Crosswalks & Intersections >

Raised crosswalks (sometimes also referred to as speed tables) extend fully across the street and signed for pedestrian use. Similar to speed humps, raised crosswalks are typically 3 to 6 inches high and have a flat top to allow pedestrian use. Raised crosswalks can enhance safety for people crossing the *street* by encouraging drivers to slow down as they approach the cross walk

Similar to raised crosswalks, raised intersections reinforce slow speeds and encourage drivers to yield to pedestrians at the crosswalk. Raised crosswalks and raised intersections may affect drainage.



Raised Crosswalk

### Rumble Strips >

Rumble strips are formed into the pavement surface of a roadway by placing grooves or materials into the pavement. When a driver drives on top of a rumble strip, they are alerted that they are leaving the roadway by a vibration and sound, which can cause them to slow down and correct their trajectory. The noise and vibration effect is created by the tires bouncing over the strips. Two commonly used types of rumble strips are:

- **Milled Rumble Strips**

Milled rumble strips are created by a machine that cuts a smooth groove in a roadway.

- **Raised Rumble Strips**

Raised rumble strips are created by introducing slight grade differences (1/4 to 1/2 inches high) using various materials like asphalt or plastic.



Rumble Strips

Photo from City of San Antonio

## TYPE 2 - VERTICAL DEFLECTION DEVICES



### Asphalt Speed Humps

Asphalt speed humps are raised sections of asphalt approximately 10 to 14 feet long and 3 to 4 inches high. They are typically used on low speed residential streets and are placed gutter-to-gutter across a roadway. As a driver approaches an asphalt speed hump, the device functions by forcing drivers to lower their speed in order to comfortably traverse the device. The spacing and profile of asphalt speed humps helps to prevent hard braking and accelerating patterns. Asphalt speed humps are not suitable for sharp curves or steep grades.



### Speed Cushions

Speed cushions are created by rubber or asphalt and are placed in groups of 2 or more cushions. The spacing can be offset to allow emergency vehicles to pass through with ease and are typically used on key emergency response routes. To comfortably navigate over speed cushions, a driver must reduce their speed. Rubber speed cushions can be more abrupt than asphalt speed cushions and are sometimes used when more speed control is desired.



page 7/9

### **ADDITIONAL TRAFFIC CALMING MEASURES AND STUDY FOR CONSIDERATION:**

- 1) Additional traffic calming measures may be desirable or recommended for installation throughout the City.
- 2) A future traffic calming report from the City Engineers can and should be considered to identify what additional measures to consider and where they should be installed.
- 3) Consideration of alteration of cart paths where they intersect roads should be considered to incorporate additional design features that will highlight these areas to improve safety.