MEMORANDUM

Date: **July 11, 2024**
To: **City Council**
From: **Charles Gillette, P.E., Public Works Dir/City Engineer**
Re: **Speed Cushion Proposal at Snow Canyon Parkway Roundabout (Horse Roundabout)**

Council member Barton and Scott have requested that Ivins City Department of Public Works develop a proposal for City Council consideration to install speed cushions prior to the cross-walks at the horse sculptures roundabout on Snow Canyon Parkway. This memo has been generated to start to develop the engineering and concept layout of this design.

Background

The horse sculpture roundabout on Snow Canyon Parkway was installed as a 200' diameter (measured lip of gutter to lip of gutter) circular two lane roundabout. It was built in anticipation of a major development on the south side of the Parkway which has now come to fruition with the development of the Black Desert Resort that will generate over 20,000 vehicle trips per day. This traffic load will bear mostly on the Snow Canyon Parkway which already carries 10 to 12,000 vehicles per day already.

Residents that live in the adjacent subdivision, The Reserve, are very concerned about the safety of the horse roundabout, with the current levels of traffic the roundabout feels unsafe and they experience difficulty entering and exiting their neighborhood.

The traffic study performed by Hales Engineering on May 5, 2020, indicated that the roundabout will continue to provide an "A" level of service based on the projected traffic loads with the 2025 traffic levels. Also, Horrocks looked at a 2050 analysis of the roundabout and showed that the roundabout continued to perform at a "A/B" level of service.

However, there is still a sense that some measures need to be taken to improve safety at the roundabout based on the concerns of the residents of The Reserve.

Pedestrian Concerns

Right now, this intersection has almost no pedestrian traffic since Black Desert Resort only has a few facilities open that are mostly patronized by motor vehicles, however, when the resort starts to receive guests that are staying overnight, there is an anticipation of increased pedestrian traffic.

Also, in general, the City has been considering ways to improve pedestrian safety at the roundabouts with an interest of experimenting with the installation of a type of speed hump called a speed table such that the flat part of the speed table would provide a crossing for pedestrians.

Whether it is speed cushions or speed tables or something else, it is anticipated that when the city finds a measure that is considered to be effective without creating too much

impediment to vehicle travel, that the measure might be proliferated to other roundabouts in the City.

Speed Cushions and Initial Proposed Layout

Speed Cushions are a type of speed control device that provide for some traffic calming but still allow emergency vehicles to pass through the device without compromising any time.

We are currently looking at a rubber made product in order to make the installation somewhat experimental. The following figure shows the dimensions of this product:

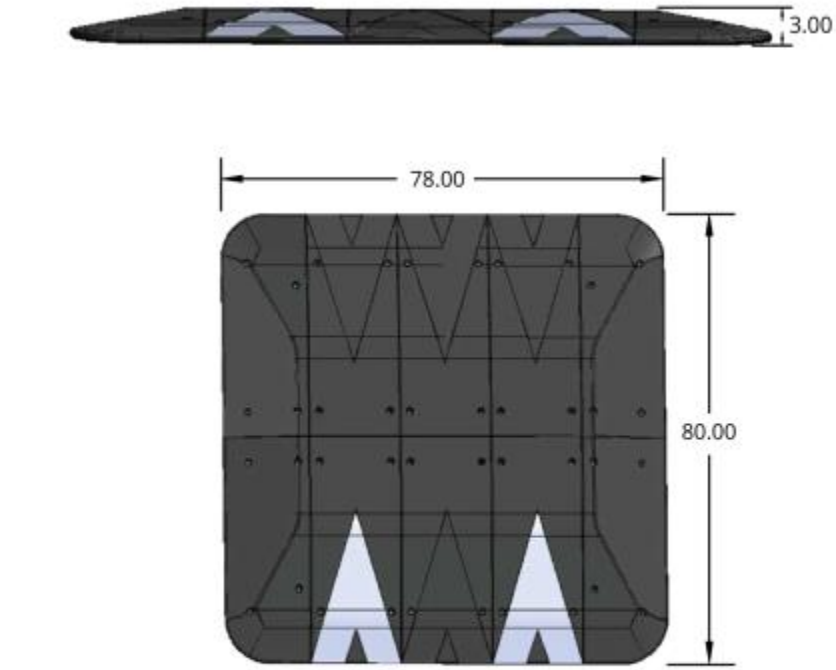


Figure 1. Rubber Form Recycled Products Speed Cushion

The installation would set one of these devices in each lane at both the entrance and exit of the roundabouts just prior to the crosswalks. The following is a simple diagram of how the equipment may be laid out.

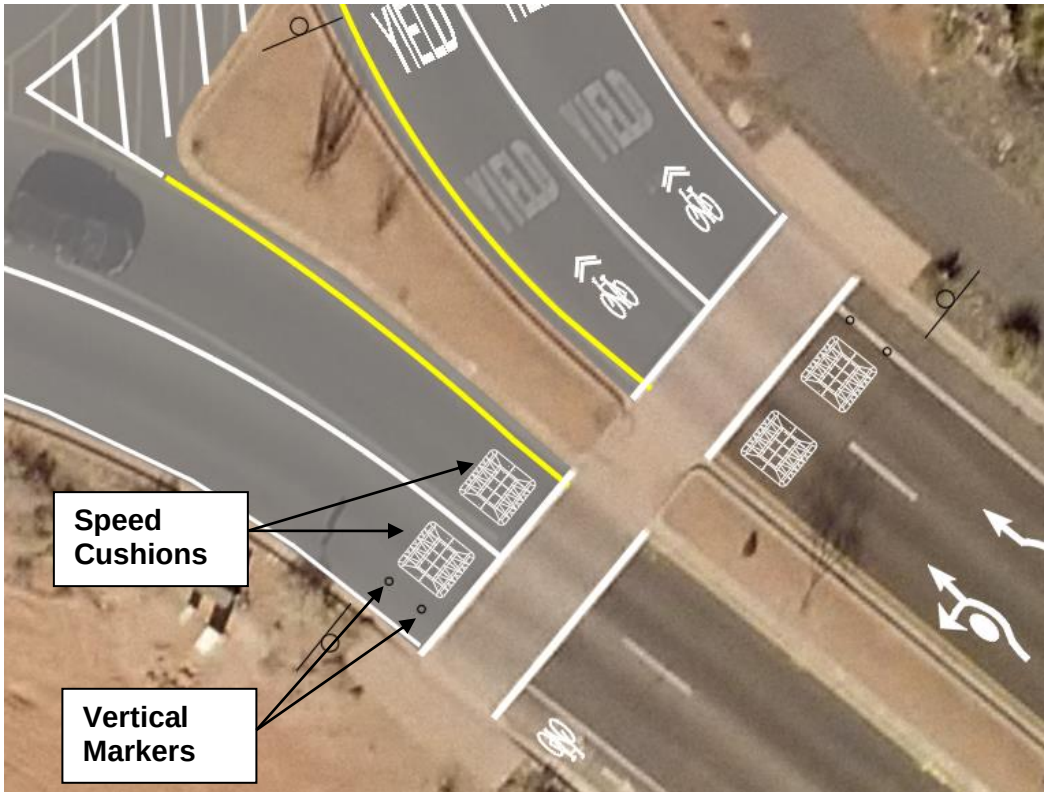


Figure 2. East Side of Horse Roundabout – Layout of Speed Cushions

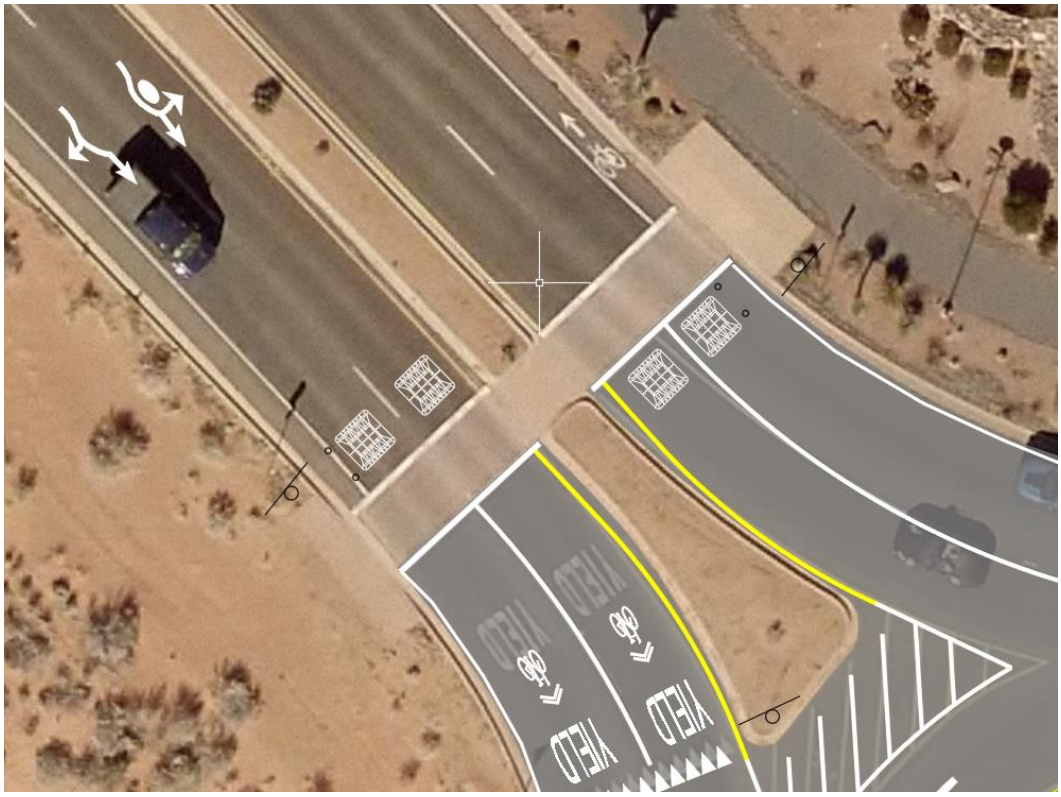


Figure 3. West Side of Horse Roundabout – Layout of Speed Cushions

You might notice that there is a need to block the potential for cars to swerve into the bike lane to avoid the speed cushion. The plan would be to block this movement with plastic markers similar to as shown in the following figure.



Figure 4. Speed Cushions Shown next to Bike Lane

As an experimental installation, it is likely that we would not install the concrete curb, but only the vertical plastic markers.

Another option to this problem is to widen the speed cushion in the right-hand lane so that it narrows the gap provided by the bike lane. This would mean that the emergency vehicles would have to remember to stay in the left lane for those times when responding to an emergency or transporting to the hospital since the in the right lane it would not be possible to avoid the speed cushion.

Signage and Striping

The 11th edition of the Manual of Uniform Traffic Control Devices (MUTCD) does not specifically address speed cushions, but it does have some requirements for speed humps which is very close to the speed cushion. This only requires that the speed hump have the white arrows to alert the drive to the speed hump location. There are no other requirements for speed humps, however it is recommended that the W17-1 Sign be used in advance of the hump with no guidance on the distance between the hump and sign.

Also a yellow advisory speed plaque (W13-1P) is recommended to be placed below the sign. We would probably use a recommended speed of 10 mph.



Figure 5. MUTCD Recommended Signage for Speed Humps – Sign W17-1

There are also some optional painting that could be provided on the pavement to provide advance warning such as shown in the following figure as well as the potential to paint "HUMP AHEAD". The problem with any of the painting options is that if we eliminate the facility in the future, removing paint is difficult and unsightly.

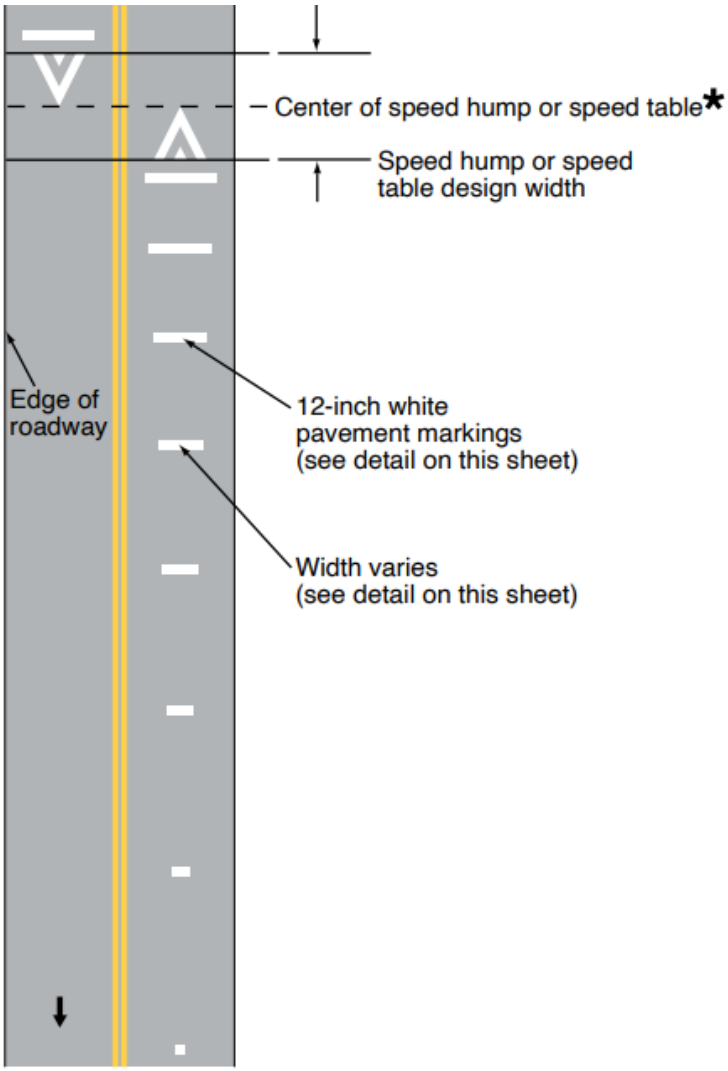


Figure 6. Taken from MUTCD 11th Edition Figure 3B-28 Advance Warning Markings for Speed Humps or Speed Tables

Costs

We have received a quote from Rubber Form dated May 17, 2024, which is valid at least until the end of July, for the installation of the speed cushions for the amount of $6,841. This makes the cost of each cushion $855. This unit price could vary depending on the number of speed cushions that are purchased.

Installation of the cushions themselves should be straightforward and simple and could be installed by City staff. We would expect to install four signs at cost of $200 per sign plus labor costs that would be absorbed by City staff.

The painting options could range from $0 (no paint) to approximately $2500.

Advantages

The Public Works Department has created this list of advantages and disadvantages of the speed cushions as compared to both a "Do Nothing" alternative and the "Speed Table" alternative. The list may not be comprehensive, but is an initial compilation of thoughts on this subject, any input to make this list more comprehensive would be appreciated.

Speed Cushion Advantages as compared to "Do Nothing":

- Potential to calm and slow traffic prior to entering the roundabout while emergency vehicles would not be slowed down.
- Help alert drivers to the presence of the roundabout which could reduce single car accidents that often occur at the roundabouts.
- Help alert drivers and slow them down so that pedestrians at the crosswalk can more easily and safely cross.

Speed Cushion Disadvantages as compared to "Do Nothing":

- Cost, although the cost is fairly minimal.
- Could create noise issues.
- Nuisance to most road users.
- The rubber product only lasts about 7 to 10 years and then would require replacement.
- Additional maintenance to monitor and repair if needed.
- Adding more signage for the facility increases sign clutter at the roundabout that is already a sign cluttered environment.

Speed Cushion Advantages as compared to Speed Tables/Raised Crosswalks:

- Less expensive
- Easily done as an experiment that could be easily removed.
- Product could be moved to another location if it is not working in the original location.

Speed Cushion Disadvantages as compared to Speed Tables/Raised Crosswalks:

- Motorcycles can easily avoid.
- Wider vehicles that are not emergency vehicles can move through without reducing speed.
- Since speed tables slow down all traffic, it might provide more effective traffic calming for the roundabout and pedestrian traffic.

Other Considerations:

There are other options other than just speed cushions and speed tables/humps to help calm traffic in this situation. A list of some of these options is given below:

- Pedestrian activated signal beacon. (Rapid flashing or standard beacon)
- Pedestrian activated HAWK symbol (provides a red light that requires cars to stop rather than just an amber flashing beacon.)

- Post lower speed limit through the roundabout. Perhaps 20 mph or lower.
- Post speed feedback signs that provide the vehicles with their actual speed.
- Higher visibility striping and messaging on the pavement and/or signage.

These might be considered in the future.