



## Transportation Advisory Board Report

**Date:** November 17, 2009  
**To:** Transportation Advisory Board  
**From:** Renate Ehm, Senior Transportation Engineer  
**Subject:** Reduced Speed School Zones  
City-wide

### **Purpose and Recommendation**

This informational report describes the evolution of reduced speed school zones in Mesa and the traffic controls used to identify them.

### **Background**

At the September 15, 2009, Transportation Advisory Board meeting, the Board heard an informational report on flashing yellow lights in reduced speed school zones. In light of the many questions asked by the Board at the meeting, staff felt it would be helpful to provide the Board with a more detailed description of past actions and current directions.

### **Discussion**

#### Present Situation

Reduced speed school zones lower the speed limit to 35 mph during certain hours of the day when school is in session. Outside of these hours, the speed limit is 40 mph or 45 mph.

Mesa has 14 reduced speed school zones as shown in Figure 1. Of these sites, four have flashers, one has flashers and driver speed feedback signs and speed enforcement cameras, and nine sites have static signs. Over the next few months, these latter nine sites will receive yellow flashing lights so that all 14 reduced speed school zones will operate with 35 mph speed limits when the yellow lights are flashing. Two sites will also receive speed enforcement cameras.

#### The Beginning

Past attempts to establish full-time 35 mph speed limits on arterial streets adjacent to schools were met with resistance and complaints from the public. Citizens felt that the 35 mph speed limits were unreasonably low for those arterial streets. That experience led to the compromise of only reducing the speed limit during certain hours of the school day. Mesa was the first valley city to implement reduced speed

school zones. Other cities followed suit.

The first reduced speed school zones were installed in late 1987. Signs displayed the following message:

SCHOOL  
35 MPH  
7:30 AM – 4:00 PM  
SCHOOL DAYS  
40 (or 45) MPH  
OTHER TIMES

Initially, only high schools were treated in this way because of the large number of inexperienced drivers in the vicinity of high schools. Lower speeds would allow more time for drivers to perceive a hazard and react to avoid a collision.

Over the years, exceptions were made for non high school sites. Parents and school officials argued for lower speed limits as a way to reduce the potential for vehicle-pedestrian crashes. Similar to high school drivers, they pointed out that some junior high aged pedestrians exhibit unsafe and illegal walking habits that increase their chances of being struck by a vehicle. Lower traffic speeds would allow more time for drivers to react to the unexpected appearance of pedestrians in the streets.

### Program Expansion

In response to the increasing number of requests and exceptions granted for reduced speed school zones, the policy was changed in 2000 so that all public schools adjacent to arterial streets with speed limits of 40 mph or more were automatically considered for reduced speed school zones.

At the same time, flashing yellow lights were recommended for installation to improve driver compliance with the lower speed limit, and to tailor the hours during which the 35 mph speed limits were in effect for each school.

The first sets of flashing yellow lights were installed in 2001 next to Porter Elementary (on Lindsay Road south of Southern Avenue) and Longfellow Elementary (on Broadway Road west of Gilbert Road). When the lights flashed, the speed limit was 35 mph. The hours during which the 35 mph speed limit was in effect were set to match those times when significant activity was present. For these schools, that was for one hour in the morning, one hour at lunch, and one-half hour in the afternoon.

Before and after speed data was collected at the Porter Elementary and Longfellow Elementary sites. At the Longfellow Elementary site, it was not possible to separate the effect of the flashers from the effect of the 15 mph school crosswalk zone. Hence, the data was not useful. At the Porter Elementary site, the 85<sup>th</sup> percentile

speed decreased by 8 mph from 52.1 mph to 44.3 mph. Very few students cross Lindsay Road and little school activity is visible to passing motorists which might explain why the 85<sup>th</sup> percentile speed remains relatively high despite the presence of the flashers.

By 2002, budget woes halted further flasher installations.

### A Special Case

In late 2005, a student from Rhodes Junior High was killed on his way home after school around 5:00 pm. The driver ran a red light on Baseline Road at Longmore and struck the student crossing Longmore on a green light. This tragedy generated significant public interest in the traffic speeds and traffic controls adjacent to this and other schools.

A comprehensive review of traffic controls in reduced speed school zones was undertaken that included a review of policies, practices, and experiences in neighboring cities. Traffic speeds were measured in several reduced speed school zones, and traffic conditions reviewed at Rhodes Junior High. Staff's report and numerous residents were heard by both the Transportation Advisory Board and City Council. The outcome was a decision to extend the time when the 35 mph speed limit was in effect, add flashing yellow lights, and install driver speed feedback signs at Rhodes Junior High. Due to pressure to address the concerns at Rhodes, these devices were installed simultaneously. By March 2006, both the flashing yellow lights and driver speed feedback signs were operating.

Over the years, speed data was routinely collected at Rhodes Junior High to assess the impact that the changes to the traffic controls had on driver speeds. Although effective (85<sup>th</sup> percentile speed dropped from 46.6 mph to 40.8 mph), it was not possible to separate the impact that the flashing yellow lights had from the impact of the driver speed feedback signs.

In May 2008, fixed speed enforcement cameras were installed at Rhodes Junior High. The 85<sup>th</sup> percentile speed subsequently decreased from 40.8 mph to 36.8 mph.

### Current Direction

In 2007, the flashers at both Porter and Longfellow Elementary were changed to operate from 7:30 am until 4:00 pm on school days. This made Mesa's flasher operations consistent with flasher operations in the City of Chandler and in the Town of Gilbert.

Because it was thought that flashers alone could be just as effective as driver speed

feedback signs, the effect of flashers only was determined through the installation of flashers at two reduced speed school zone sites in 2008: at Fremont Junior High/Red Mountain High School (on Brown Road east of Power Road), and at Brimhall Junior High (on Southern Avenue west of Higley Road). Mesa Public Schools supported the project and paid for one-half of the construction costs. The 85<sup>th</sup> percentile speeds were reduced by 3-5 mph resulting in an 85<sup>th</sup> percentile speed during school hours of between 35-40 mph.

Due to the positive results and feedback received over the recent flasher installations, flashing yellow lights will be added to the remaining nine reduced speed school zones this fiscal year. Driver speed feedback signs were not considered further for reduced speed school zones given their cost<sup>1</sup> and the likelihood that additional reductions in speed would be small. In addition, Mesa Police were considering installing more fixed speed enforcement camera sites in these school zones.

Mesa and Gilbert's School Districts support the flasher project and have agreed to pay for one-half of the construction costs.

Fixed speed enforcement cameras will soon be installed in two more reduced speed school zones: at Fremont Junior High (on Power Road south of Brown Road), and at Brimhall Junior High (on Southern Avenue west of Higley Road). This presents an opportunity to further assess the impact that the addition of speed enforcement cameras has on driver speeds in reduced speed school zones.

Mesa Police intend to redeploy underperforming photo enforcement cameras and are considering moving those cameras to more reduced speed school zones.

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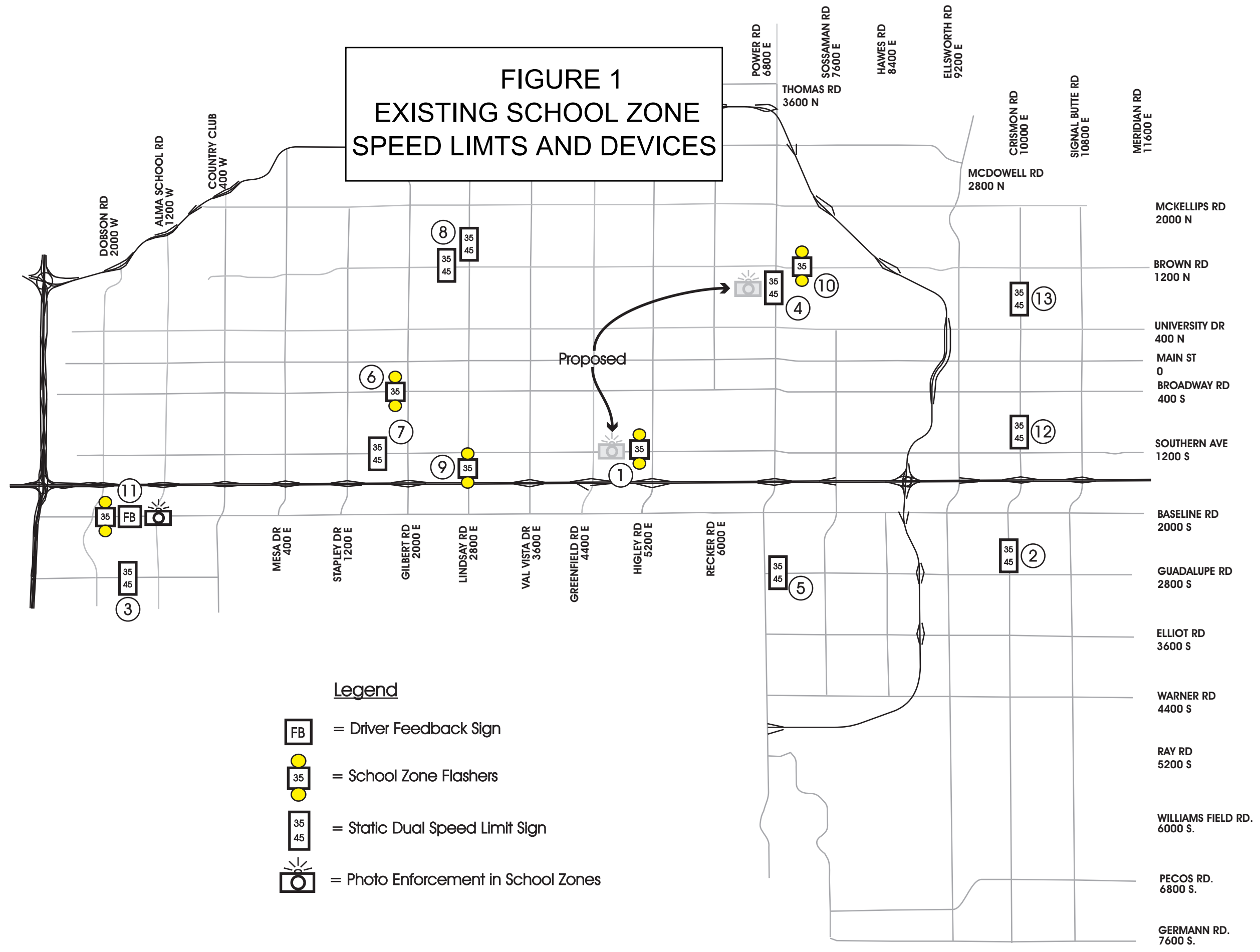
Renate Ehm, Senior Transportation Engineer

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<sup>1</sup>Material costs for a pair of solar-powered DSFS is estimated at \$20,000 and for a pair of solar-powered flashing lights is estimated at \$10,000.

**FIGURE 1  
EXISTING SCHOOL ZONE  
SPEED LIMITS AND DEVICES**

- Schools
- ① - Brimhall Jr. H.S.
  - ② - Desert Ridge H.S. (GPS)
  - ③ - Dobson H.S.
  - ④ - Fremont Jr. H.S.
  - ⑤ - Highland Jr. H.S. (GPS)
  - ⑥ - Longfellow Elem.
  - ⑦ - Mesa H.S.
  - ⑧ - Mnt. View H.S.
  - ⑨ - Porter Elem.
  - ⑩ - Red Mnt. H.S.
  - ⑪ - Rhodes Jr. H.S.
  - ⑫ - Skyline H.S.
  - ⑬ - Smith Jr. H.S.



Legend

- = Driver Feedback Sign
- = School Zone Flashers
- = Static Dual Speed Limit Sign
- = Photo Enforcement in School Zones

