

# Daybreak Parkway Couplet Project

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## Constraints

This project included technical and non-technical constraints. These constraints include: stopping sight distance, pedestrian safety, local city standards and commercial access.



## Purpose

Re-design the Daybreak Parkway Couplet in South Jordan, UT in order to reduce the 85<sup>th</sup> percentile speed from 35 mph to 25 mph by implementing various traffic calming methods.



## Data Collection and Analysis

### Speed studies

- Speeds were measured at four locations with a radar gun.
- 800 vehicle speeds were taken during three days of study.
- Average 85<sup>th</sup> percentile speed was found to be 36.2 mph.

### Volume counts

- Volume counts were taken using a Jamar counter at the intersections of Kestrel Rise Road.
- It was determined that Peak Hour and Pedestrian warrants for a signalized intersection were not met.
- The Level of Service was found to be no lower than a level C for each movement. The level of service was found using HCS+ Software.

**CURRENT**  
**SPEED**  
**36.2**

### Secondary Analysis

- Stopping sight distance was calculated and no major issues were located.
- Accident rates for the couplet were researched and compiled.

## Cost

Due to the high financial demand of the final design a cost matrix was created. This matrix shows all of the potential combinations of the four traffic calming measures used in the design and their corresponding prices.

Combination	Driver Feedback Signs	Pavement Markings	Textured Crosswalks	Road Narrowing	Cost
1	X				\$5,000
2		X			\$1,600
3			X		\$60,000
4				X	\$35,000
5	X	X			\$6,600
6	X		X		\$65,000
7	X			X	\$40,000
8		X	X		\$61,600
9		X		X	\$36,600
10			X	X	\$95,000
11	X	X	X		\$66,600
12	X	X		X	\$41,600
13	X		X	X	\$100,000
14		X	X	X	\$96,600
Recommended	X	X	X	X	\$101,600



## Textured Crosswalks

Textured crosswalks help to alert the driver that they are entering a pedestrian area and this heightened awareness will help decrease speeds and increase safety. The texture has the effect of creating a rumbling sensation which helps set this section of roadway apart. The crosswalks consist of stamped pavement 10-15 ft in width. These crosswalks will be located at the key intersections along the couplet.

## Transverse Speed Limit Pavement Markings

Transverse pavement markings are to be placed at either end of the couplet in order to set apart this couplet from the rest of Daybreak Parkway. This will help bring the change of speed limit to the driver's attention. These markings will be constructed using retro reflective tape, which research has shown to be cost effective on roads on which snowplows operate according to a study by Oregon Department of Transportation.



## Road Narrowing

Road narrowing increases the drivers' perception of their speed relative to their surroundings. At the Kestrel Rise road intersections, road narrowing will help signal to drivers that slower speeds are required through the couplet. This method has been shown to reduce speeds up to 5 mph.



## Driver Feedback Sign

Driver feedback signs are an active way of encouraging speeding drivers to slow down by displaying the vehicles current speed. In this case they are placed about 400ft before Kestrel Rise road so that drivers will have adequate time to slow down before entering the most developed regions of the Daybreak Parkway couplet. This method has been found to reduce speeds anywhere from 5-9 mph.

# Final Design

