

# Owl Canyon Corridor Project Overview and Summary

December 22, 2008

The Owl Canyon corridor (generally the connection between the I-25 / Larimer County Road 70 interchange and the US 287 / Larimer County Road 72 intersection) is one of only two east-west roadway connections from north of the Fort Collins urban area to the State of Wyoming. Several miles of roadway are non-paved despite traffic volumes (including both cars and trucks) that are in some areas more than three times above the County's paving threshold. This surface deficiency and several other factors are contributing to maintenance, function, air quality and safety concerns.

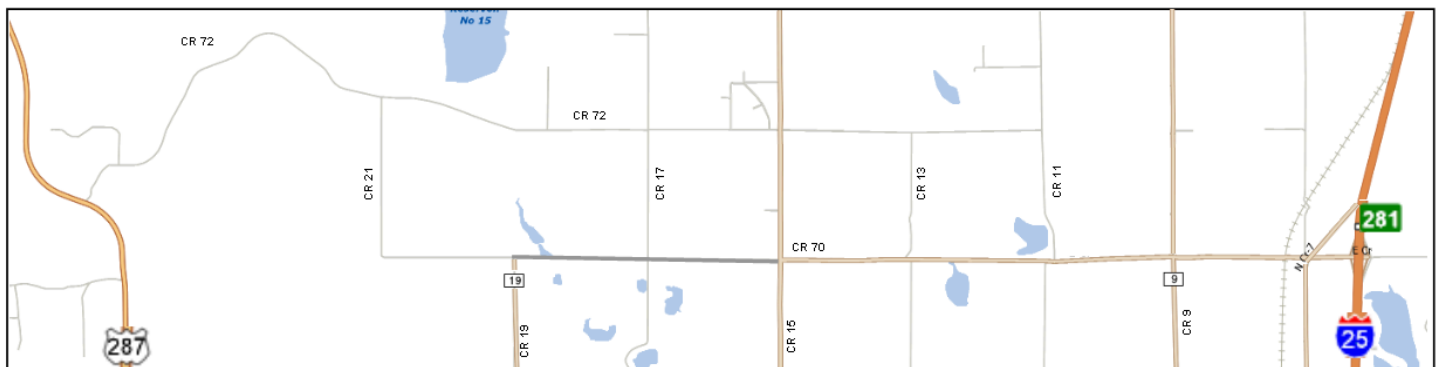
During 2007, the Board of County Commissioners and engineering staff concurred that the current conditions cannot continue indefinitely, and that some improvements will be needed in the corridor. Although no construction funding has been identified, the Board of County Commissioners indicated that uncertainty about route location and the unknown scope of necessary improvements should be addressed. Therefore, in the Fall of 2007, the engineering staff outlined the Owl Canyon Corridor Project to be completed within 12 months using existing staff.

The project included corridor planning and conceptual design intended to identify a specific alignment for road surfacing, function, and safety improvements to accommodate both the existing and likely future traffic using these County Roads. The project included significant public outreach and citizen input.

Larimer County's Owl Canyon Corridor Project is neither a "truck bypass study" nor a continuation of any other previous effort. We recognize that both car and truck traffic currently utilize the corridor, many of which have local origins and destinations, and some that utilize the corridor as a regional connection. The premise of the project is that **someday** there will likely be a paved roadway in this corridor, and this effort provides the means to plan accordingly.

## Project Area

Generally, the project area is bordered by I-25 on the east, US 287 on the west, CR 70 on the south, and CR 72 on the north.



Owl Canyon Corridor Area

## Previous Studies in the Region

Over the past 20 years or more, a number of planning level studies have been completed in the region by various entities other than Larimer County. The previous work generally focused on locating a "truck bypass" for the City of Fort Collins, and typically sought to identify (from a broad planning level) a 'bypass' route somewhere between Vine Drive in Fort Collins and Larimer County Road 80. None of these studies resulted in a consensus of alignment, support from CDOT, approval by Larimer County, or identification/design of specific improvements.

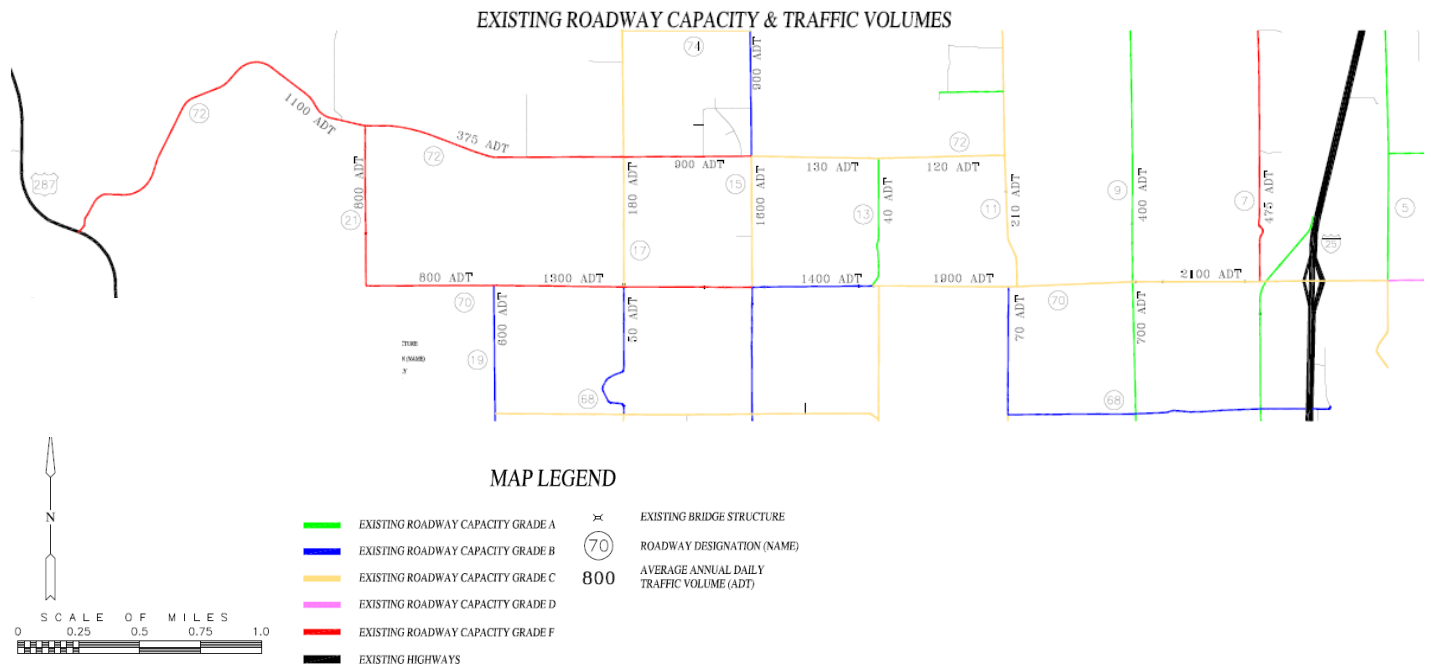
Larimer County's Owl Canyon Corridor Project is unrelated to any of the previous efforts. Our focus was to address existing county-level needs.

## Existing Conditions

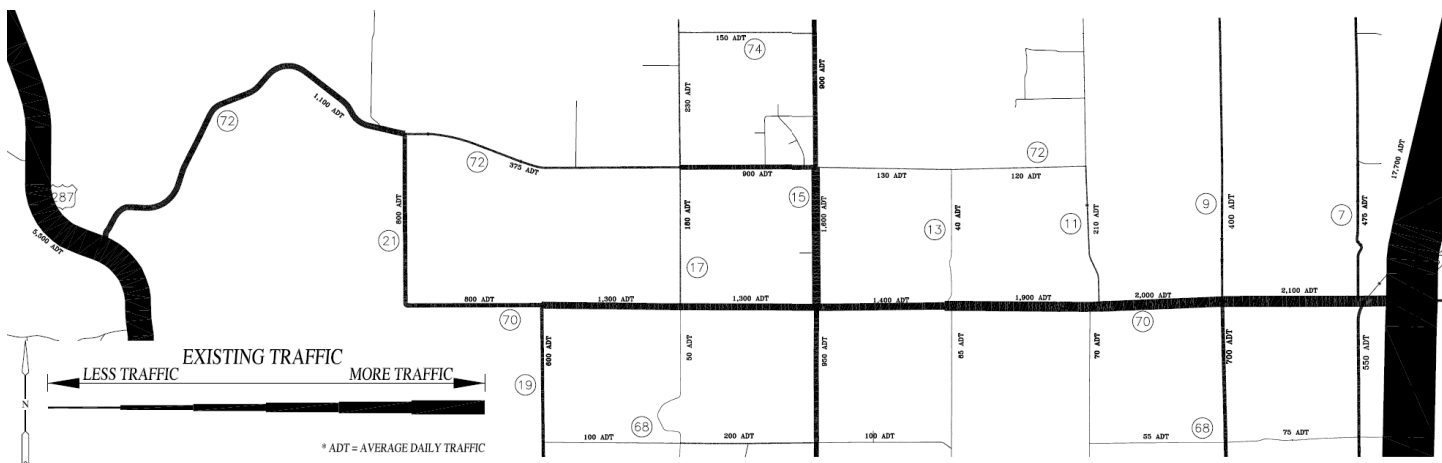
### Traffic Volumes

Existing daily traffic volumes are as high as 2,100 vehicles per day along CR 70 just west of I-25 and as low as 120 vehicles per day along CR 72 west of CR 11.

CR 72 between US 287 and CR 21 sees more than 1,000 vehicles per day (on a gravel surface). The graphic below indicates both the current daily volumes, as well as the capacity of each section of roadway.



The thickness of the roadway lines in the next graphic represents the relative volume of existing traffic on each road. It helps to identify existing travel patterns.

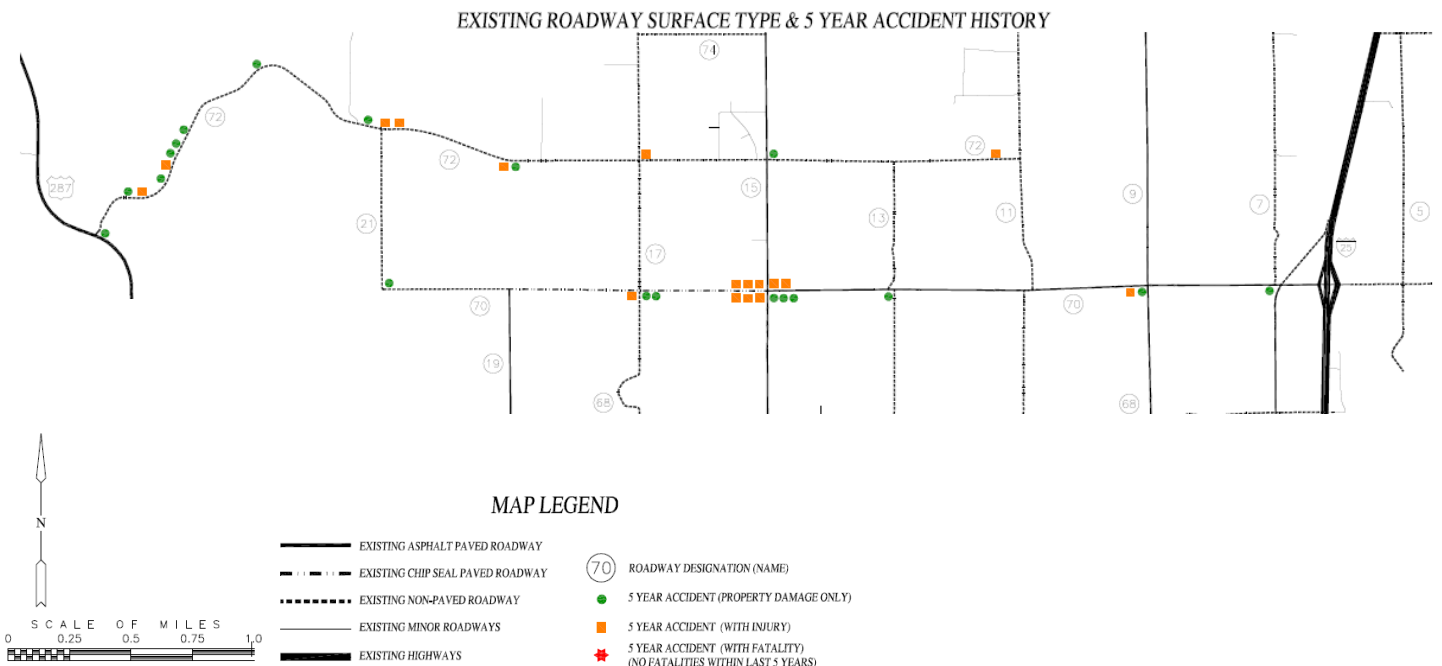


**Roadway Geometrics and Speed Limits**

All of the roadways in the project area are two-lane roads (one lane in each direction). Roadway width is generally 24 feet for travel lanes and shoulder width varies from between 1 and 6 feet. Speed limits in the project area range from 40 mph to 55 mph.

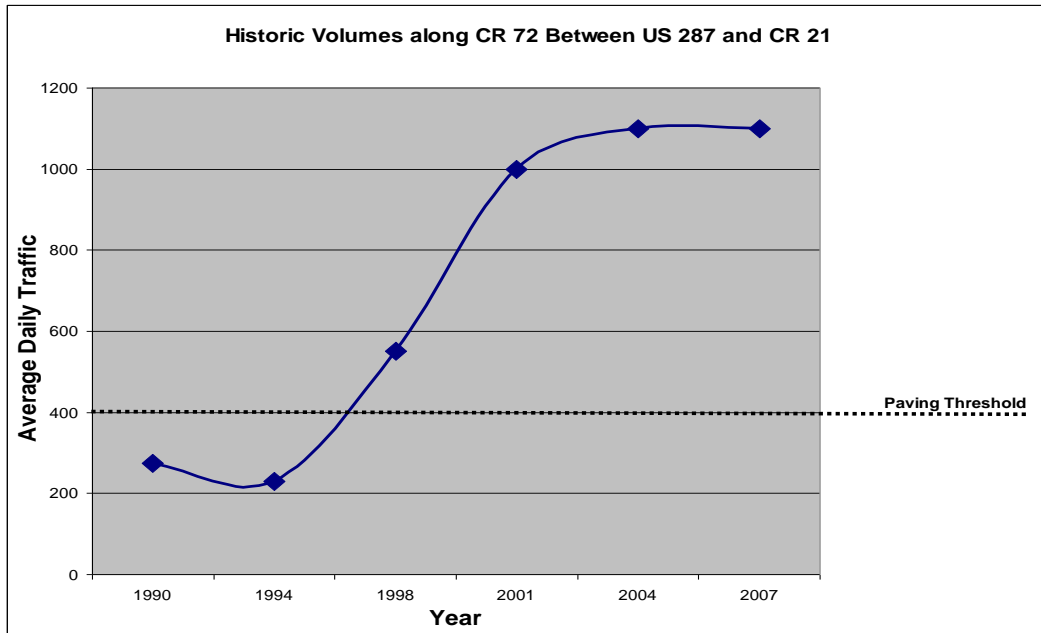
**Roadway Safety**

The traffic accident map below graphically shows all vehicular crashes within the project area for the past five years. Both location and severity is indicated. There have been no fatal accidents in the project area within the past five years. Specific areas of concern include the intersection of CR 15 / CR 70, and non-paved section in the western end of the corridor.



Traffic Growth

Traffic volume growth in the corridor has typically increased 3-4 fold in the past ten years but growth has leveled off in the past few years and is now averaging approximately 3% per year (average when compared to other county roads).

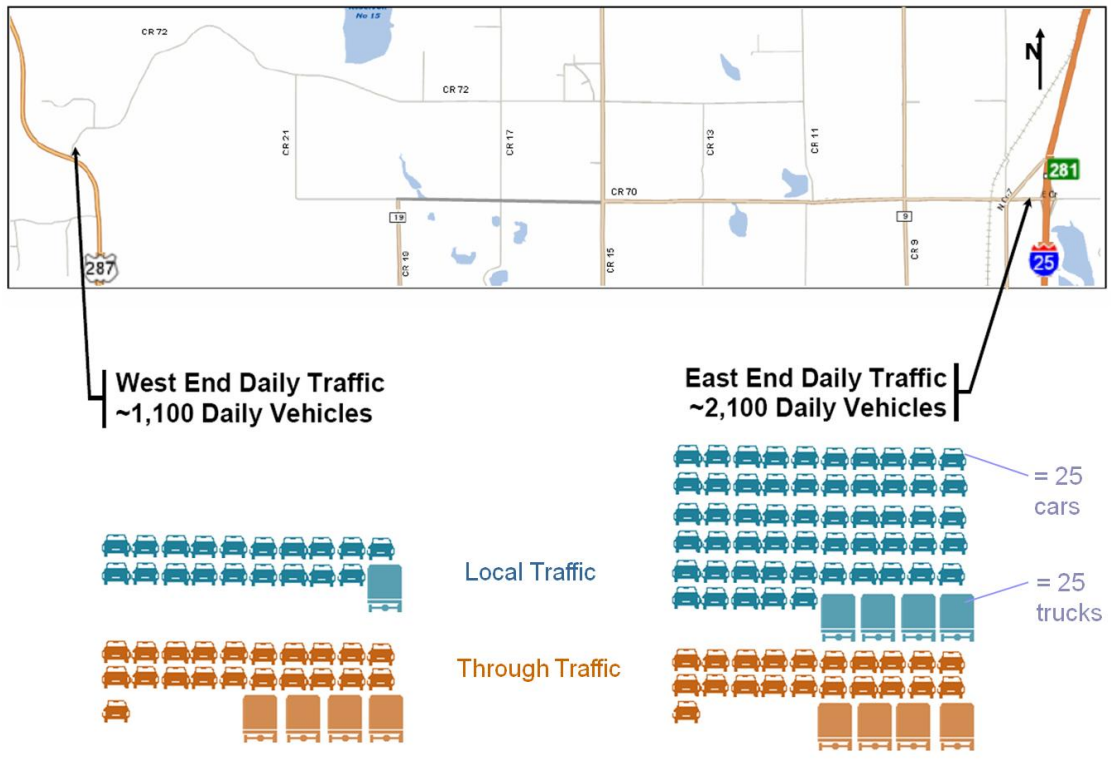


Truck Traffic

A typical county road carries between 2 and 4% trucks. In the Owl Canyon project area, truck percentages average about 10% trucks.

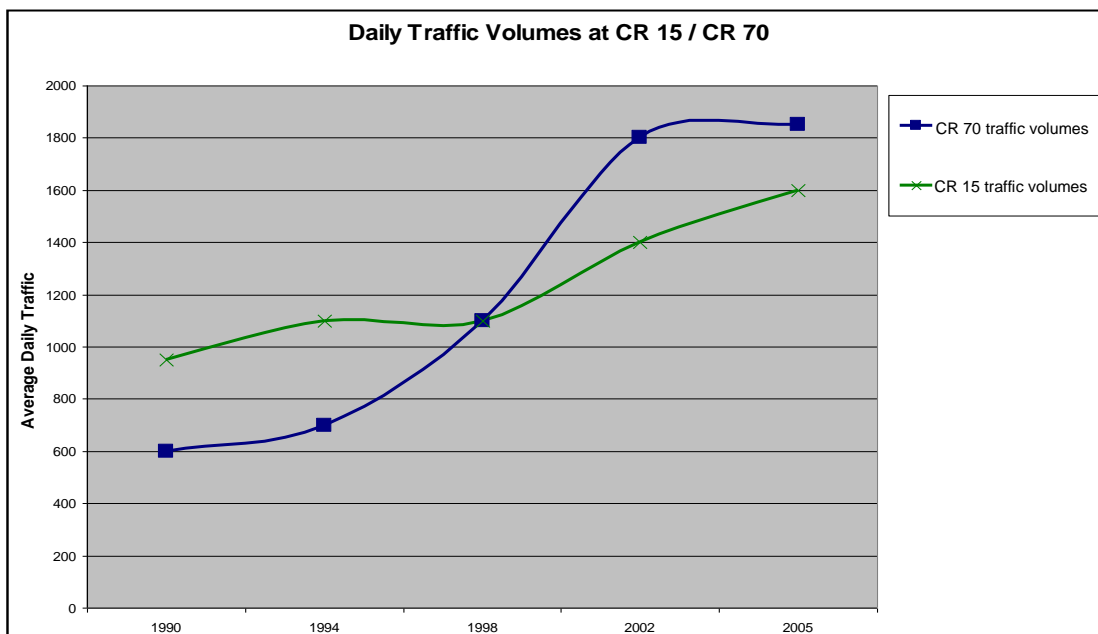
Along CR 70, this equates to more than 100 semis per day west of CR 15 and more than 175 semis per day east of CR 15.

The amount of vehicles traveling through the corridor without making a local stop (i.e. 'cut through' traffic) was studied during the summer of 2008 using a time stamp and license plate / vehicle description study at either end of the corridor. The graphic below depicts the amount of traffic that has a local origin or destination, and the amount of vehicles that are traveling through the corridor without making a stop.



Intersection of CR 15 / CR 70

The graph below shows how traffic volume characteristics have changed at the intersection of CR 15 / 70. Before 1998, there was more traffic on CR 15. In the past 10 years, the volumes on CR 70 have grown such that they are now higher than the volumes along CR 15. Due to the change in traffic patterns, the high speeds, and accident history, the County implemented a 4-way stop at this intersection in March 2008.



Overall Roadway Function

The adequacy of roadway function is related to all of the above items. While there are no specific congestion issues such as those seen in more urban areas, concerns for this corridor include the following:

- Gravel roads carrying traffic volumes in excess of 1,000 vehicles per day when the county standard threshold for paving is 400 per day. This creates maintenance, air quality, and potential safety issues,
- Higher speed, higher volumes, higher truck percentages roadways with limited shoulder widths, or other geometric characteristics that do not meet current standards, and
- A lack of proper geometrics and/or auxiliary turn lanes or other improvements at major intersections.

Maintenance Costs

Shown below are maintenance costs for typical mainline County roads (paved and non-paved) as well as gravel roads in the Owl Canyon corridor with volumes significantly above the paving threshold.

Maintenance Cost / Mile / Year

Average mainline County road	
Gravel surface (< 400 daily vehicles)	\$ 9,450
Paved surface (400 -14,000 daily vehicles)	\$ 6,500
Owl Canyon corridor	
Gravel surface (> 800 daily vehicles)	\$ 29,300

**Future Conditions**

Traffic Volumes

In order to determine what an improved roadway would look like in this area, anticipated future traffic volumes needed to be determined. Predicting future traffic volumes is an inexact science and can be done in the following ways:

- A review of existing and potential area land use and its related traffic generation,
- Review of travel demand modeling computer programs maintained by the area planning organizations,
- Application of standard industry accepted growth rates,
- Extrapolation from past growth, and/or
- Estimation of any additional traffic likely to utilize an improved road.

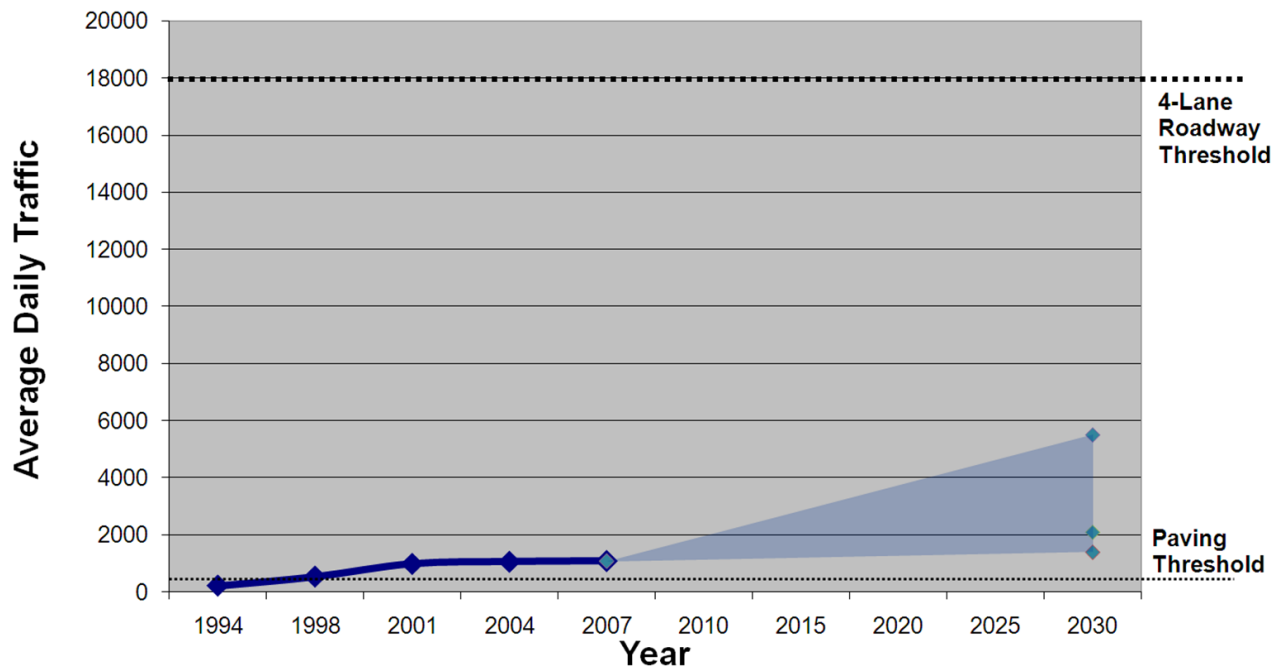
The graphic on the next page shows results of various growth trajectories when applied to existing volumes in the corridor. Application of either standard or historic growth rates both provide results of a 20-year long term volume as high as 4,200 vehicles per day (closest to I-25). The travel demand model shows 20 year volumes close to I-25 at 3,500 vehicles per day. Application of the unusually high growth rate seen during the late 1990s over a full 20 years shows a potential volume as high as almost 6,000 vehicles per day. Additional traffic due to an improved roadway could also be several hundred vehicles per day.

Therefore, as the County plans for an eventual improved roadway in the corridor, using a conservative estimate, it should be able to accommodate a potential long term volume as high as 6,000 vehicles per day.

Future Roadway Components

A typical threshold between a two lane and four-lane facility is between 15,000 and 20,000 vehicles per day. The estimated future traffic, regardless of method used, does **NOT** necessitate a four lane facility. The roadway cross section below shows the ultimate cross section being used for the project.

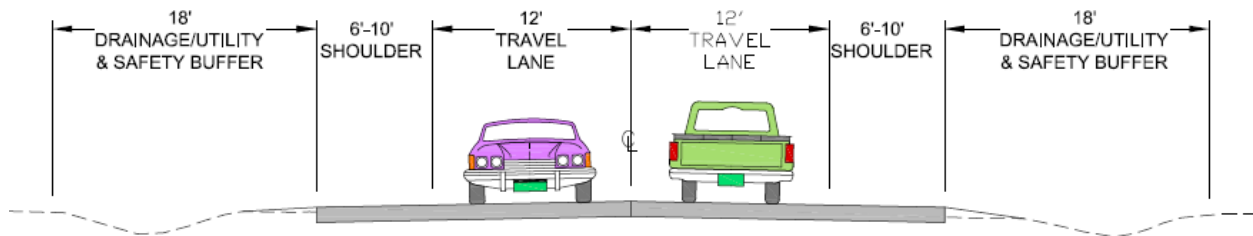
**Potential Future Volumes along CR 72 Between US 287 and CR 21**



An improved, paved, roadway in the Owl Canyon Corridor is expected to include these general components:

- One travel lane in each direction;
- Paved shoulders;
- Needed drainage facilities

**2 LANE ROADWAY**



NOTE:  
ADDITIONAL TURN LANES MAY BE NECESSARY AT MAJOR INTESECTIONS.

Intersections will be evaluated individually to determine type of control and/or necessary turn lanes. This type and size of roadway is planned and will be designed to accommodate existing and anticipated future traffic volumes (through at least the year 2030).

## Alignment (or Route) Alternatives

The review of various alignments (or routes) for an improved roadway included two components: a segment analysis followed by a route comparison.

### Roadway Segment Analysis

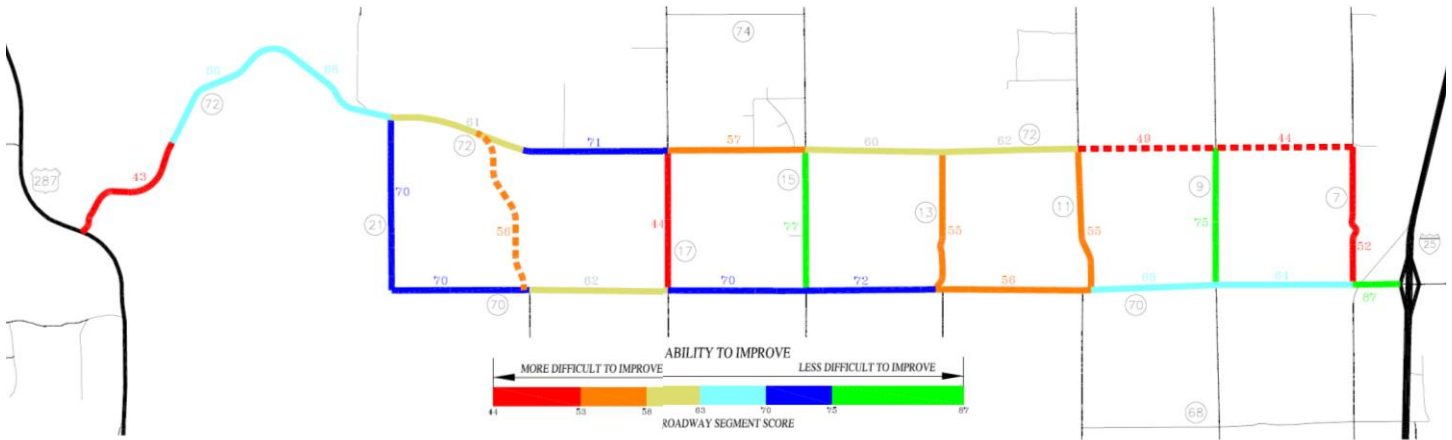
Each segment of roadway (about 1 mile) within the study area was analyzed independently for its ability to be improved. Review criteria and its relative weight to other criteria included:

Analysis Criteria	Score 1-10	Weight (importance factor)	Max Score
<b>Cost Effectiveness</b> Geometrics (i.e. curves), Paving, Bridges, and Cost for Right of Way	1-10	3.0	30
<b>Minimize Adjacent Owner Impacts</b>  # of properties along segment # of structures within 150 ft # of driveways Type of land use Landscaping (trees / fences etc)	1-10	2.5	25
<b>Safety</b> Accident History Roadside hazards Intersections Slopes from road	1-10	2.5	25
<b>Minimize Environmental Impacts</b>	1-10	1.0	10
<b>Capacity and Connectivity</b>	1-10	1.0	10
<b>TOTAL</b>		<b>10.0</b>	<b>100</b>

Road segment totals were then assigned a color and plotted on a map.

Road segment total scores are shown on a scale of 100 (the lower the score, the more difficult a section is to improve).

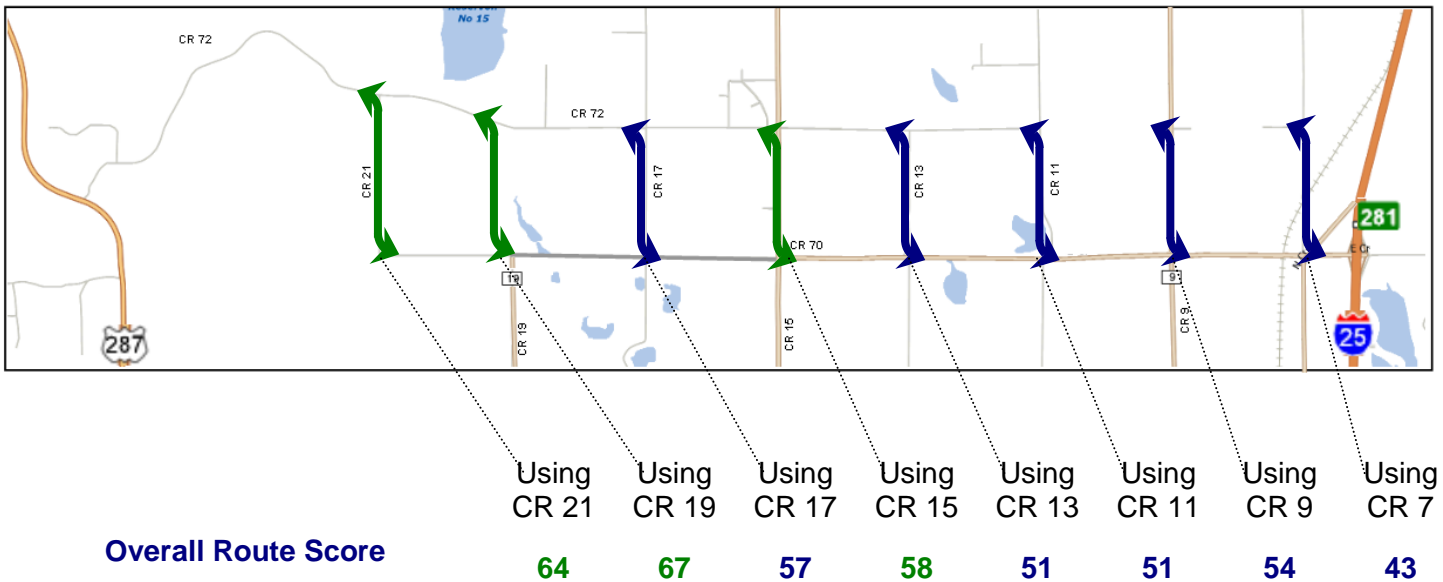




### Comparing Route Options

The road segments and their respective scores were then combined into eight (8) different route options. Options were then further reviewed for overall route specific considerations such as travel patterns and significant obstacles.

Scores for each total route are shown below.



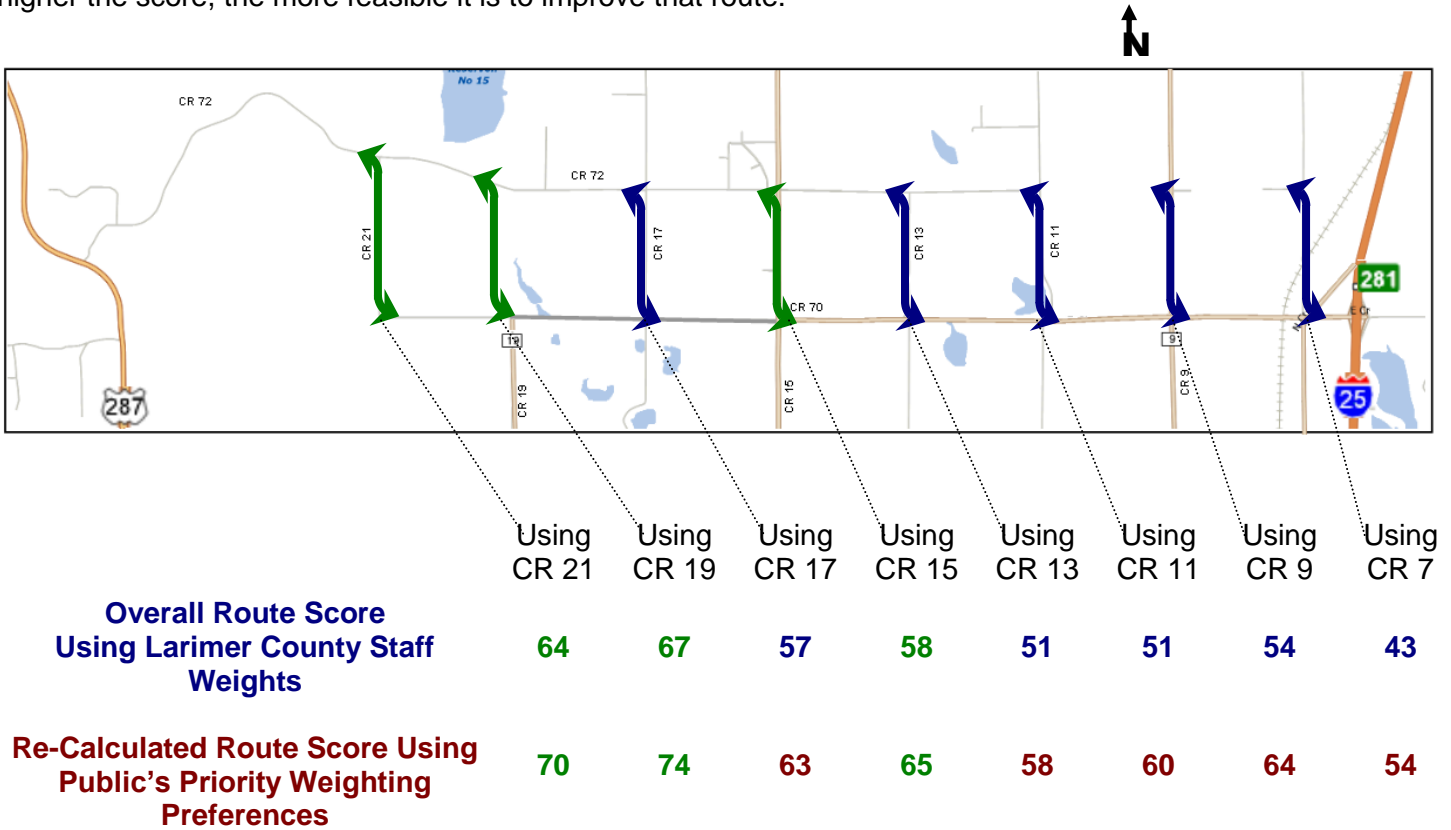
The higher the score, the more feasible it is to improve that route. The three routes with the highest scores are shown in **green**.

What If Different Priorities Were Used For Scoring Criteria?

The scoring system required the various criteria (adjacent owner impacts, cost, safety, environmental considerations) to be 'weighted' or given importance factors. The initial alignment comparison was completed using standard priorities used in engineering projects. Because these priorities are subjective, staff welcomed public input on the priorities. At the first open house, attendees were asked to provide their input on the relative importance of the various criteria. Using that input, the analysis was re-completed using the weighting system identified by the public.

Analysis Criteria	Importance Factors (Weights)	
	Larimer County Staff	Public / Citizen
Cost	3.0	.5
Adjacent Owner Impacts	2.5	3.6
Safety	2.5	2.7
Environmental	1.0	2.2
Connectivity, Capacity	1.0	1.0
<b>TOTAL</b>	<b>10.0</b>	<b>10.0</b>

Total route scores using a criteria weighting system based on the public input are shown below **in brown**. The higher the score, the more feasible it is to improve that route.

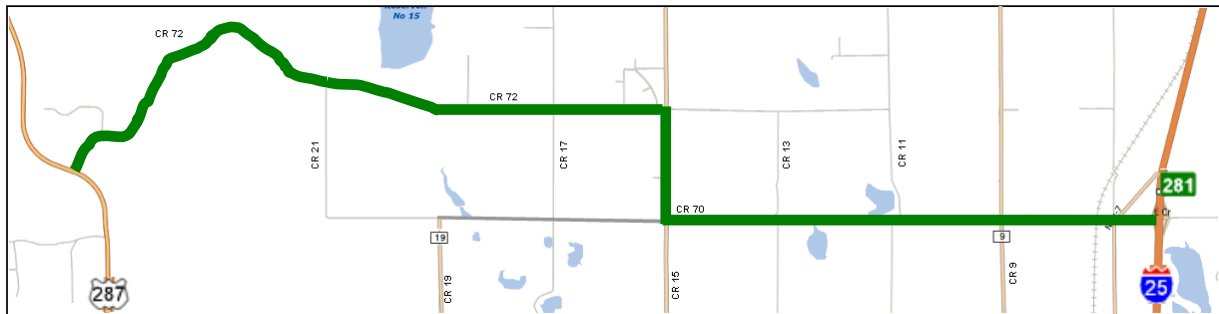


The three routes with the highest scores (shown in **green**) are the same regardless of which weighting system is applied.

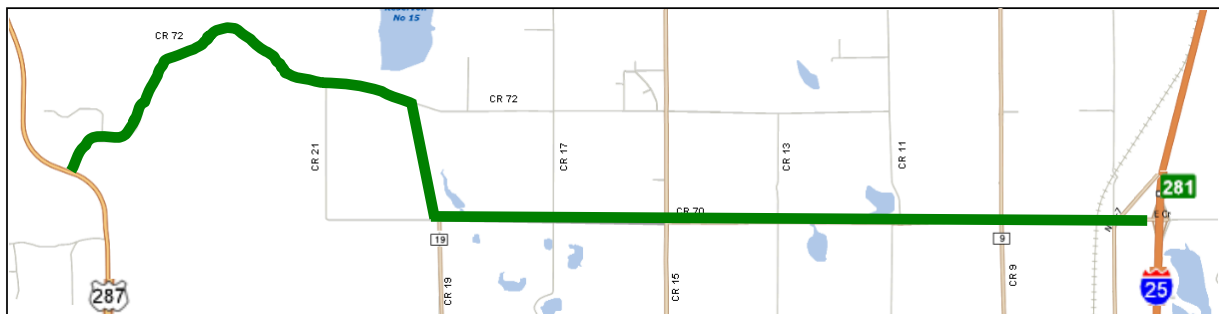
### Final Short List of Alternatives

Based upon the segment and route scoring, the following three routes were then studied further to determine the final recommended alignment.

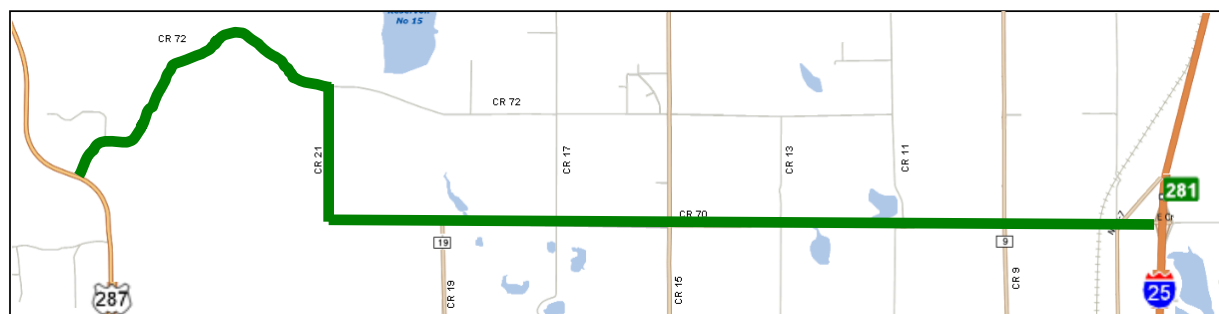
#### Using CR 15



#### Using an Extension of CR 19



#### Using CR 21



## Detailed Analysis of Three Short-List Routes

A more detailed review of various criteria was completed for the three remaining short list of alignments. A summary of that information that compares the three routes is shown below.



Criteria	Using CR 21	Using CR 19	Using CR 15
Length in miles	11.43	~11.25	11.17
# Segments	12	12	12
Capacity			
# Segments currently paved	5	5	6
# Segments currently chip sealed	2	2	0
# Segments currently gravel	5	4	6
# Segments over existing capacity	7	5	4
Total daily traffic (sum of all segments)	17,100	16,674 *	16,150
Adjacent Owner Impacts			
# of Access Points (Driveways)	81	73	82
# Properties Abutting	88	91	101
# Buildings w/in 150 ft	21	21	24
# Buildings w/in 90 ft			
Main Residences	5	5	4
Outbuildings	8	8	10
Environmental			
Wetlands	CR 70 between 19-17	CR 70 between 19-17	none **
Threatened / Endangered Species	none	none	none
Existing Road Right of Way	10 miles of 60 ft 1 mile of 80 ft	9 miles of 60 ft 1 mile of 80 ft 1 mile of 0 ft	10 miles of 60 ft 1 mile of 70 ft
Structures along Alignment			
Box or Bridge	12	11	9
# to be ultimately re-built	11	11	9
Unique Significant Issues	Alignment at CR 70/21 (‘Weaver corner’)	New Roadway  Realign intersection at CR 70 / CR 19	Neighborhood along CR 72 west of CR 15 Lack of travel mobility from CR 19 to the west
Unique Benefits		1 mile less of road to maintain	
Public Preference	8%	71%	17%
Cost	\$15,610,000	\$15,840,000	\$ 15,435,000 \$2,620,000
Add eventual paving of CR 70 between CR 19 and CR 15 due to regional needs			
<b>TOTAL COST</b>	<b>\$15,610,000</b>	<b>\$15,840,000</b>	<b>\$18,055,000</b>

\* With relocated traffic from CR 21

\*\* With eventual paving needs, this would be similar to other alternatives

LEGEND How Results Compare To Other Routes  
better neutral worse

The table shows the detailed information. The shading indicated particular criteria in which one alternative is significantly better (green shading) or significantly worse (light orange or darker orange) than the other alternatives.

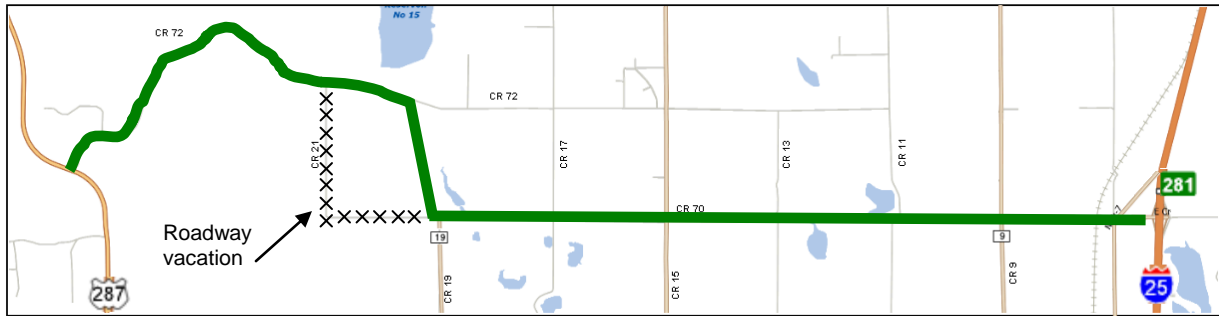
Overall, the alignment utilizing CR 15 has several more orange shadings than the other two alignments, specifically in the area of adjacent owner impacts. The CR 15 alignment will also require the eventual paving of CR 70 between CR 19 and CR 15 to accommodate regional travel. The ultimate cost for the CR 15 alignment is about 15% higher than the other two options.

The CR 19 and CR 21 alignments are similar, with a significantly greater preference for the CR 19 alternative amongst the citizens.

### Alignment Recommendation

Based upon the above analysis, the Larimer County Public Works Division, (including Engineering and Road and Bridge Department) recommended the following alignment for an eventual improved, paved roadway in the corridor.

**Recommended alignment for an improved roadway would utilize an extension of CR 19**



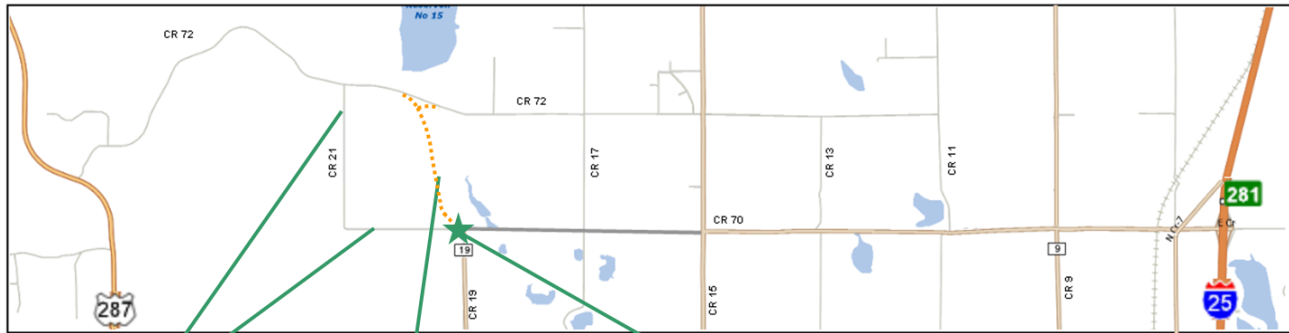
### Improvement Phasing

One of the goals of the Owl Canyon Corridor Project was to identify not just an alignment for a paved roadway, but also determine a preliminary sequence of improvements that emphasizes safety and reflects the needs in the entire corridor. Shown below are some examples of phasing concepts.

#### 1 – Spot Safety Improvements - Corridor Wide



## 2 – Construct New Alignment and Intersection at CR 19

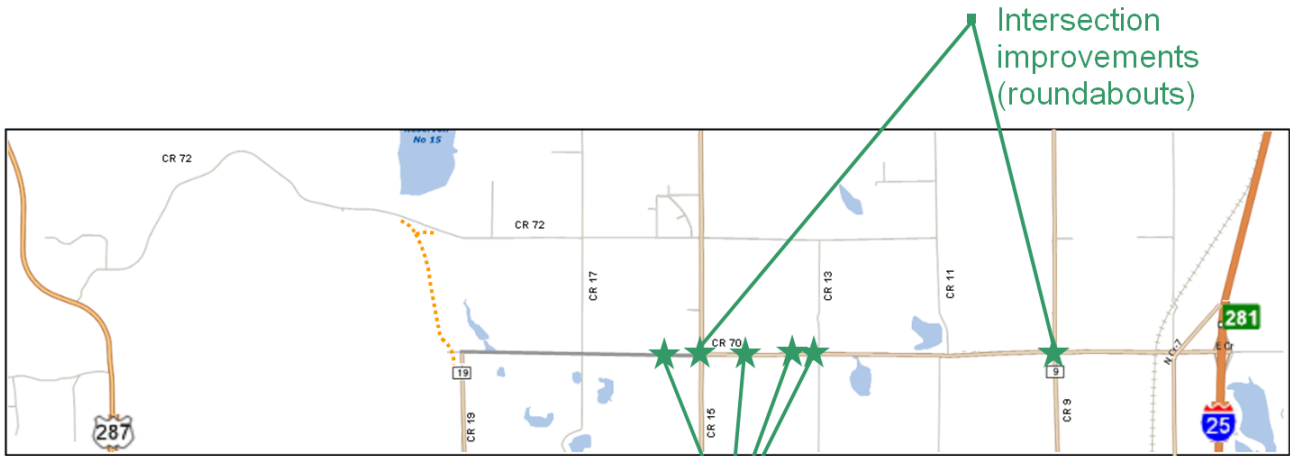


Vacate roads

Build new roadway (likely gravel)

Realign intersection to the west (roundabout)

## 3 - Miscellaneous Geometric Improvements



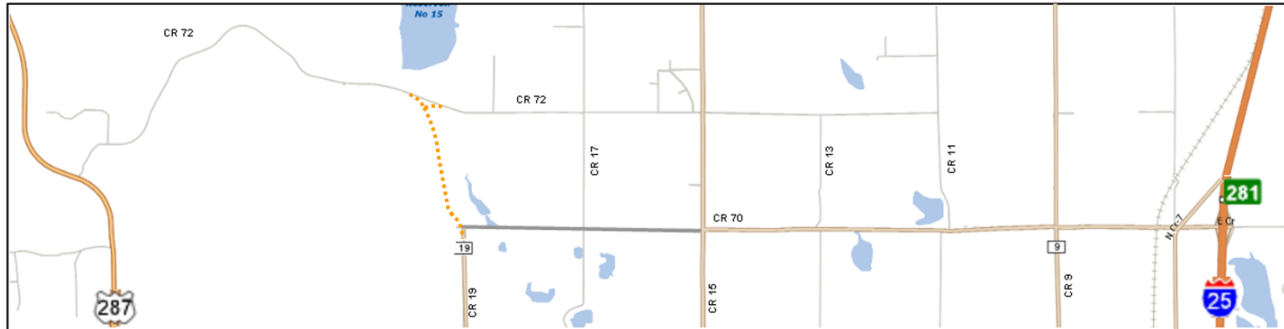
Intersection improvements (roundabouts)

Replace narrow bridges

## 4 – Paving (2-lane road)



## 5 - Ultimate Improvements As Needed In Future Years



MAY INCLUDE:

- Shoulder Widening
- Intersection Re-alignment (CR 7, 11, and 13)
- Replace Bridges

### Project Outreach and Public Input

Much of the project effort focused on public information, awareness, and input. A number of the public comments were very beneficial to staff and helped to shape both the process and conclusions. There were numerous ways for interested property owners, citizens, and roadway users to learn about the project and provide their thoughts. This included:

- Four project **newsletters** mailed to several hundred residents that provided current project details, contact information, invitations to open houses etc.
- A comprehensive **webpage** with project documents, potential alignments, selection criteria, electronic versions of any public open house material, summary information on public comments received, and the ability to submit comments. (The website received more than 1,000 hits.)
- Three public **open houses** to gather information and input on current conditions, provide details on project work and process, and solicit participation from citizens. (About 130 people attended the open houses.)
- A dedicated **email address** ([owlcanyon@larimer.org](mailto:owlcanyon@larimer.org)) for easy contact with project staff.
- **Meetings** as requested. This included three community group meetings and several individual meetings that took place in residents' home.

A brief sample of some of the valuable input is outlined below:

Much of the first open house was dedicated for staff to listen to attendees and gather input before considering options or beginning analysis. Area residents and frequent users of the corridor helped to identify existing conditions, areas of concern, safety issues, environmental aspects, etc. Residents also provided their perspective on how to weight evaluation criteria. These weightings were used in the analysis.

At the second open house residents were invited to provide feedback and/or preferences on feasibility of various alignments. Of those that responded, a vast majority preferred the CR 19 extension alignment over the

other two short listed alignments. Other input was also very valuable; for instance, an idea on additional criteria related to adjacent properties to consider for the detailed analysis was also incorporated.

At the third open house there were fruitful discussions regarding necessary safety improvements and phasing.

A full compilation of all public comments received and input provided at the open houses is available from County staff or through the engineering website. Beliefs are strongly held. Some respondents are fiercely opposed to any changes in the corridor, while others implore the County to finally pave the roadway. There are also a number of citizens who would prefer the area to be as it perhaps was some time ago, but recognize that **someday** there is likely to be a paved roadway in the corridor, and that this project was simply identifying where that roadway would be located, and the very important types of improvements that need to occur before the roadway is paved.

### Environmental Advisory Board

Project staff provided a presentation to the EAB in August 2008 as an overview of the project. The response letter is available from County staff or at the website.

## **Project Adoption and Implementation**

On Wednesday, October 15, 2008 at a public hearing the Planning Commission unanimously recommended approval of the project to the Board of County Commissioners.

On Monday, November 17, 2008, the Board of County Commissioners voted unanimously to adopt the Owl Canyon Corridor Project and its recommended alignment for an eventual paved roadway in the area.

No construction funding has been identified, but if approved, the recommended alignment and preliminary project phasing will be used to plan future improvements.