TO: James L. App, City Manager

FROM: Ronald Whisenand, Community Development Director

SUBJECT: Highway 101 Median Barrier Project Recommendations

DATE: June 2, 2009

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Needs: Consider and provide recommendations to SLOCOG and Caltrans on a proposed
               Highway 101 median project

Facts: 1. Caltrans is proposing to install a concrete median barrier on State Route 101
                   from the City's southerly Spring Street off ramp north to Highway 46 East.
                   The project, which is being initiated by Caltrans' Traffic Safety Division, is
                   proposed to provide Caltrans worker safety and prevent cross median traffic
                   collisions.

               2. Presently, beyond the mature oleanders there are no measures to prevent cross
                   median traffic collisions, such as use of a Caltrans standard metal "Thrie
                   beam" barrier. Worker safety during periodic cleaning and pruning is
                   provided through Caltrans lane closures.

               3. The proposal involves removing the existing vegetation (with the exception of
                   three existing oak trees) installing single and dual concrete barriers (to prevent
                   cross-over accidents), additional paving to eliminate the need for mowing (up
                   to 16' from the travel lane), and replacement plants that at maturity won't
                   extend beyond the limits of the concrete barriers.

               4. There is no Caltrans policy or statewide program that mandates use of
                   concrete barriers in areas with planted medians in excess of 45 feet. Thrie
                   beam barriers, as were recently installed between Atascadero and Santa
                   Margarita are considered an acceptable standard. Landscaped medians with
                   hardy and showy species such as oleander are common within the California
                   highway system, especially in semi rural settings.

Analysis &
Conclusion: The City supports worker safety and appreciates Caltrans' recent 101 landscape
               project that improves the character and quality of our community. However, the
               removal of existing vegetation, additional paving, and long stretches of concrete
               barrier will have a significant visual impact on the City. State Route 101 was
               recently evaluated as part of our Gateway Design Standards and plays an

1

important "entryway" role getting citizens and visitors into town. The barrier project would negatively affect this "entryway" corridor.

The median presently contains a healthy supply of trees, screening shrubs, and low grasses. Unlike asphalt and concrete highways common in urban areas of the State, this colorful mix of landscaping and grassy shoulders is more appropriate in our semi-rural environment. The addition of a Thrie beam barrier to the existing landscaped median would be sufficient to add safety to the corridor while maintaining community character.

Caltrans is proposing to mitigate visual impacts with the use of colored and/or stamped concrete, and replacement plantings of smaller species in approximately 40% of the median (limited to those straight stretches of State Route 101). Initially City staff had suggested that if maintenance of the oleander was an issue, that Caltrans could replant the median with trees such as oaks. This alternative was rejected. While travel lanes are 45-60 feet apart and would support trees with a healthy canopy in that distance, Caltrans' preference (not policy) is to limit the canopy to the 12 foot area between concrete barriers. In addition, they will not permit trees or any planting along stretches with a single barrier (approximately 60% of the project area).

While worker safety and cross-over accidents are a legitimate concern, it is important to note that Caltrans was unable to supply the City with any records of worker injuries, or cross-over accidents along this stretch of State Route 101. When maintenance, including barrier repair, mowing, and landscape pruning is needed, Caltrans crews will temporarily close the left lane to provide needed safety. This practice appears to provide adequate safety and avoid significant traffic delays.

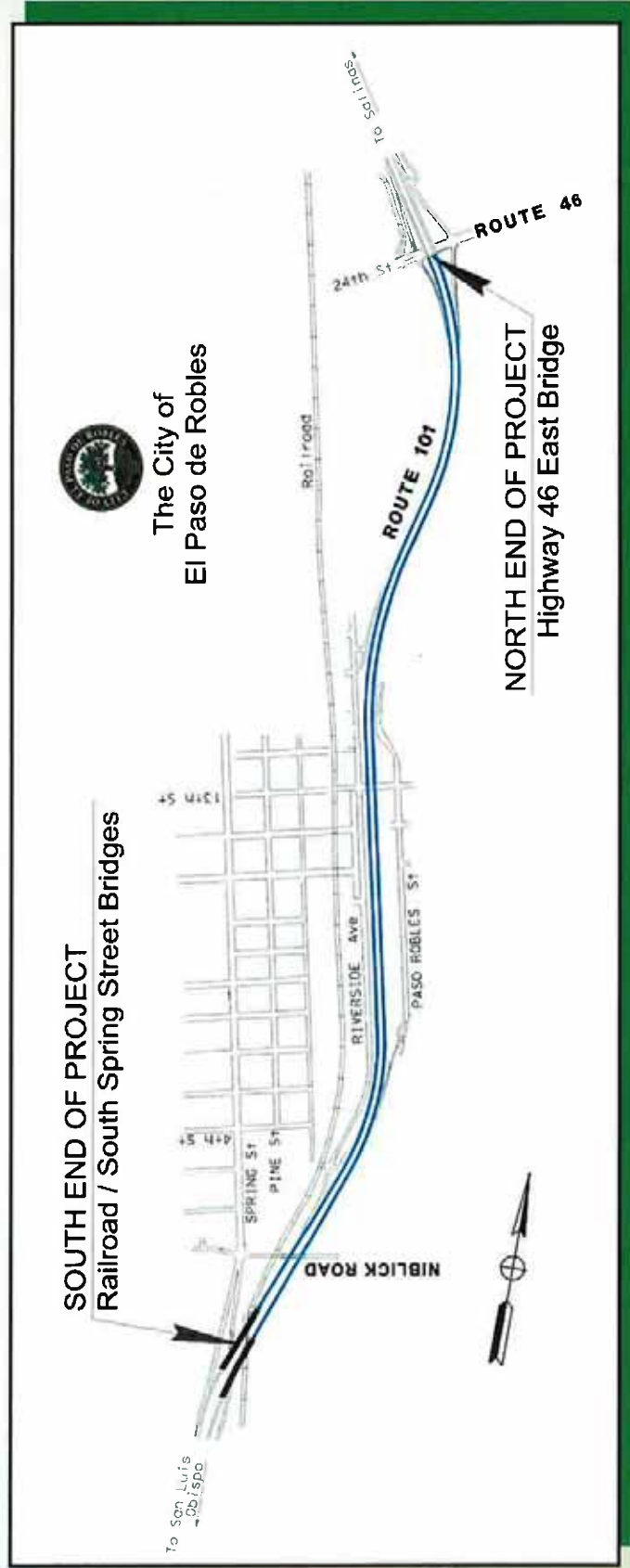| Options: | a. | Request Caltrans to retain and maintain the existing landscape treatment (oleanders and existing trees) and install Thrie beam barriers to prevent cross-over accidents, w/o additional median paving. |
| | b. | Agree to Caltrans proposal for landscape removal, concrete barrier, and added pavement along with Council preference for concrete treatment being provided; or |
| | c. | Amend, modify or reject the foregoing options. |

2

The City of El Paso de Robles Highway 101 Median Barrier Project

June 2, 2009

Paso Robles Median Barrier Project

An important safety improvement for the community, the highway traveler and worker that will:

- Place new architecturally treated concrete barrier in the median
- Pave portions of the median
- Remove and replant trees and shrubs in the median

The City of
El Paso de Robles

SOUTH END OF PROJECT
Railroad / South Spring Street Bridges

NORTH END OF PROJECT
Highway 46 East Bridge

ROUTE 46

ROUTE 101

To Salinas

24th St

13th St

4th St

SPRING St

PINE St

RIVERSIDE Ave

PASO ROBLES St

NIBLICK ROAD

Railroad

To San Luis Obispo

June 2, 2009

Caltrans & Median Barriers =

SAFETY

- Safety Program
- Median Barrier
- Worker/Motorist Safety

Safety Program – Objectives and Duties

- *Reduce collisions,* save lives, reduce injuries and minimize property damage

- *Legal responsibility* to identify ways to make the highway safer for the public and state workforce

- *Monitor and investigate safety* of the State Highway system and state workforce

- *Identify improvements* that will reduce collision potential and worker exposure

- *Initiate Safety improvements/projects* that are cost effective and reduce worker exposure

June 2, 2009

Collision Surveillance/Monitoring

- Caltrans monitors collisions & identifies high collision concentration locations

- Caltrans is required to investigate specified locations

- Not all concentrations imply a highway deficiency

- Collision concentrations are interpreted by traffic engineers trained in the field of Accident Surveillance

Safety Program SHOPP Funding

- Safety Improvement Projects are based on collision history and/or warrants to reduce the number and/or severity of collisions

- All projects will consider worker exposure

- The scope of median barrier projects should only include the cost of constructing the median barrier and associated mitigation cost

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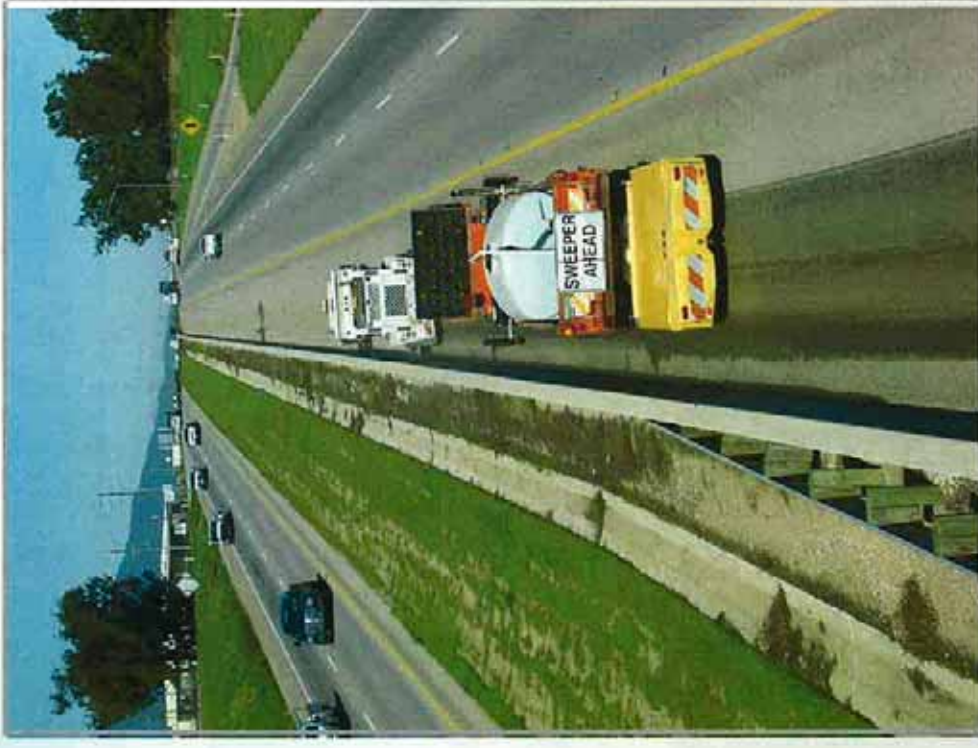
Paso Robles (Highway 101) Median Barrier

- 4-lane freeway

- Traffic volumes 37,000-44,000 vehicles per day (2007 estimate)

- Warrant: Median Barrier "Volume/Median Width"

- Median Width is 46 feet in this area
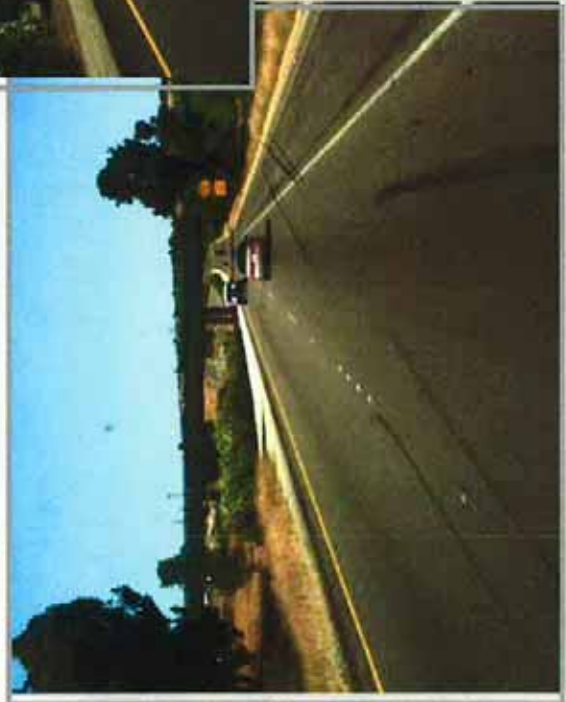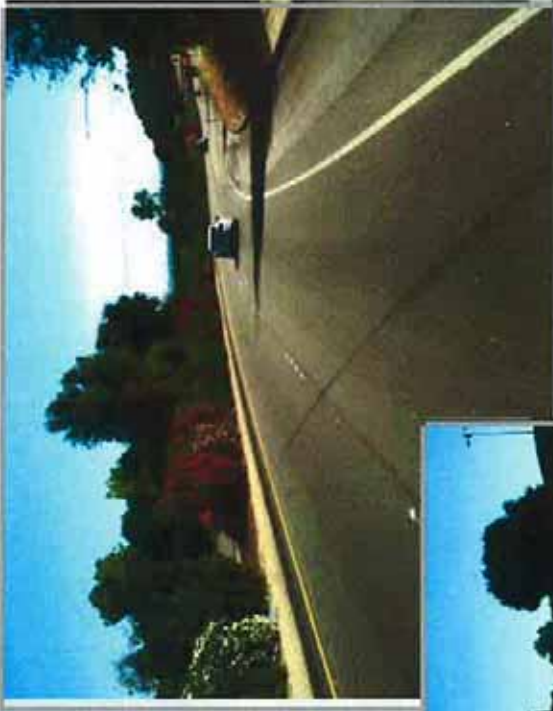
Paso Robles Median Barrier

Three-year Collision Pattern

- Over 28% of reported traffic collisions located *beyond shoulder drivers left* "primary", another 12.5% "others" (16 primary plus 7 others)

- In 7 collisions "object struck" was identified as Oleanders/bushes

- 5 collisions resulted in overturned vehicles

- In 2 collisions errant vehicles went through landscaping and into opposing lanes of traffic

- Increasing potential for cross-median collisions as traffic volumes increase; hence volume-width warrant

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Cross-Median Errant Vehicles

- Cross-median collisions severely impact unsuspecting motorists

- Errant Vehicles can also impact those working in the median or along the shoulder

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Worker Safety: Statewide Maintenance Inventory

The California Department of Transportation manages:

- More than 50,000 miles of highway and freeway lanes
  - 12,312 bridges

And inspects an additional

- 12,076 local bridges
  - 350,000 acres of right-of-way (property)

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Worker Safety – Statewide Maintenance Inventory

The maintenance of safety devices has become increasingly difficult as the miles of roadway have increased, as well as traffic volumes increasing, limiting maintenance "windows" for repair work to occur

Per capita, maintenance resources have been reduced over the past 20 years

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Worker Safety – Division of Maintenance

1972 through 2008

- 70 workers killed on-duty

- Of those 70, 52 were in Maintenance Crews

- 36 of 52 workers killed were on-foot

- 63% of all injuries involve Maintenance workers

- Vulnerability increases with more vehicle traffic and median exposure

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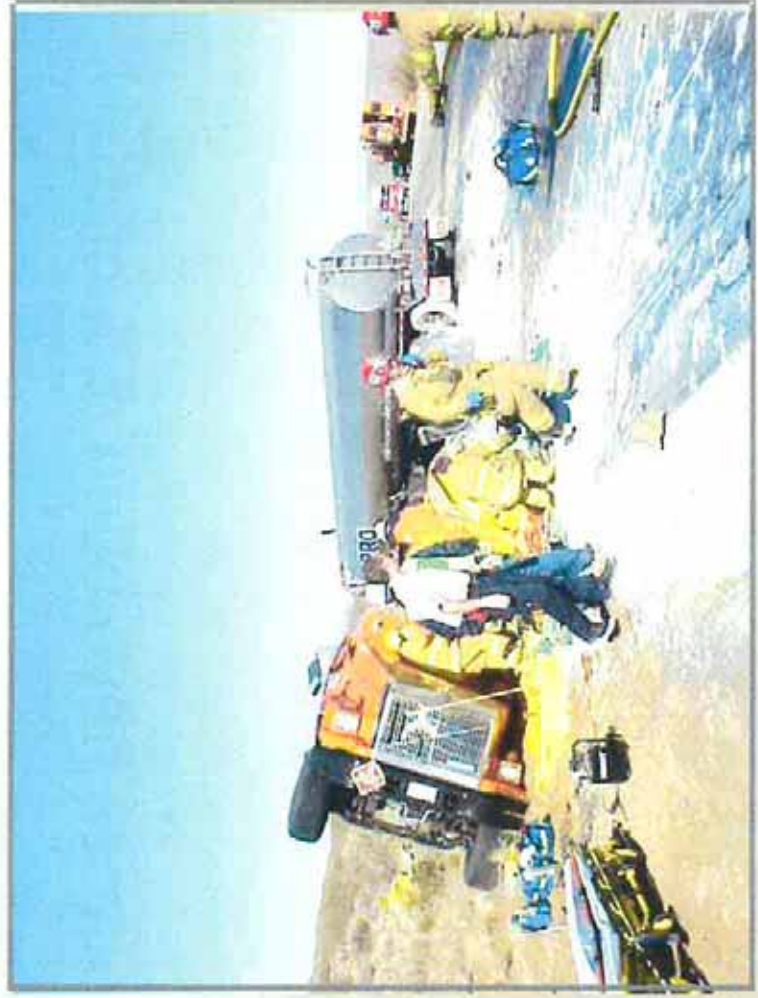
Worker Safety – Division of Maintenance

Approximately 50 maintenance workers are injured annually working on barrier

Barrier Injuries 2002 -2008

District	2002	2003	2004	2005	2006	2007	2008	District Totals
1	0	2	0	0	2	1	1	6
2	2	2	2	0	1	0	3	10
3	3	4	2	6	3	5	1	24
4	7	11	5	5	8	9	12	57
5	2	5	3	2	3	2	2	19
6	2	2	4	6	0	1	3	18
7	12	16	9	11	11	10	9	78
8	7	7	8	11	2	11	5	51
9	0	1	1	0	0	0	1	3
10	2	3	3	3	4	3	2	20
11	3	2	3	2	2	2	1	15
12	6	3	1	2	6	6	1	25
Yearly Totals	46	58	41	48	42	50	41	

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Worker Safety – Division of Maintenance

Maintenance Worker "Lost Time" and "Modified Time Days" due to injuries can run into hundreds of days annually, costing the state thousands of dollars.

Lost Time Days

District	2002	2003	2004	2005	2006	2007	2008	District Totals
1	196	0	0	0	0	0	4	200
2	6	11	0	0	99	0	13	129
3	26	0	64	24	0	2	0	116
4	260	5	55	0	1	24	5	
5	0	53	0	5	0	0	27	135
6	0	3	0	0	0	0	21	
7	0	33	0	1	2	5	2	43
8	4	20	0	0	0	0	17	41
9	0	0	2	0	0	0	0	2
10	8	95	0	0	1	11	0	115
11	0	0	0	0	0	0	0	1
12	1	2	0	14	0	0	0	17
Yearly Totals	501	222	123	45	103	42	89	

Modified Time Days

| District	2002	2003	2004	2005	2006	2007	2008	District Totals
1	126	0	0	0	0	0	7	133
2	4	8	6	0	74	0	116	208
3	141	14	57	6	10	11	0	239
4	122	59	4	66	120	103	51	525
5	20	63	156	0	35	53	7	334
6	12	110	10	111	0	0	35	278
7	25	264	50	12	24	39	45	459
8	2	2	7	12	4	114	0	141
9	7	5	7	0	0	0	0	19
10	0	42	9	12	0	0	0	63
11	8	0	2	4	2	12	0	28
12	25	10	7	2	8	25	4	81
Yearly Totals	492	577	315	225	277	357	265	

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To keep workers safe

The Department strives to:

- <u>Minimize</u> maintenance/repair efforts
  - Concrete rail vs. thrie-beam/metal beam guardrail
  - Increased vehicle recovery area/clear zone
  - Vehicle pull outs, infrastructure placement

Where maintenance is to occur, provide a protective environment
  - Reduce risk exposure (concrete vs metal Thrie beam)
  - Rail/attenuators between travelway and workers
  - Litter pick up on foot vs. sweeper vehicle

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Median "Hits" – with Concrete Barrier
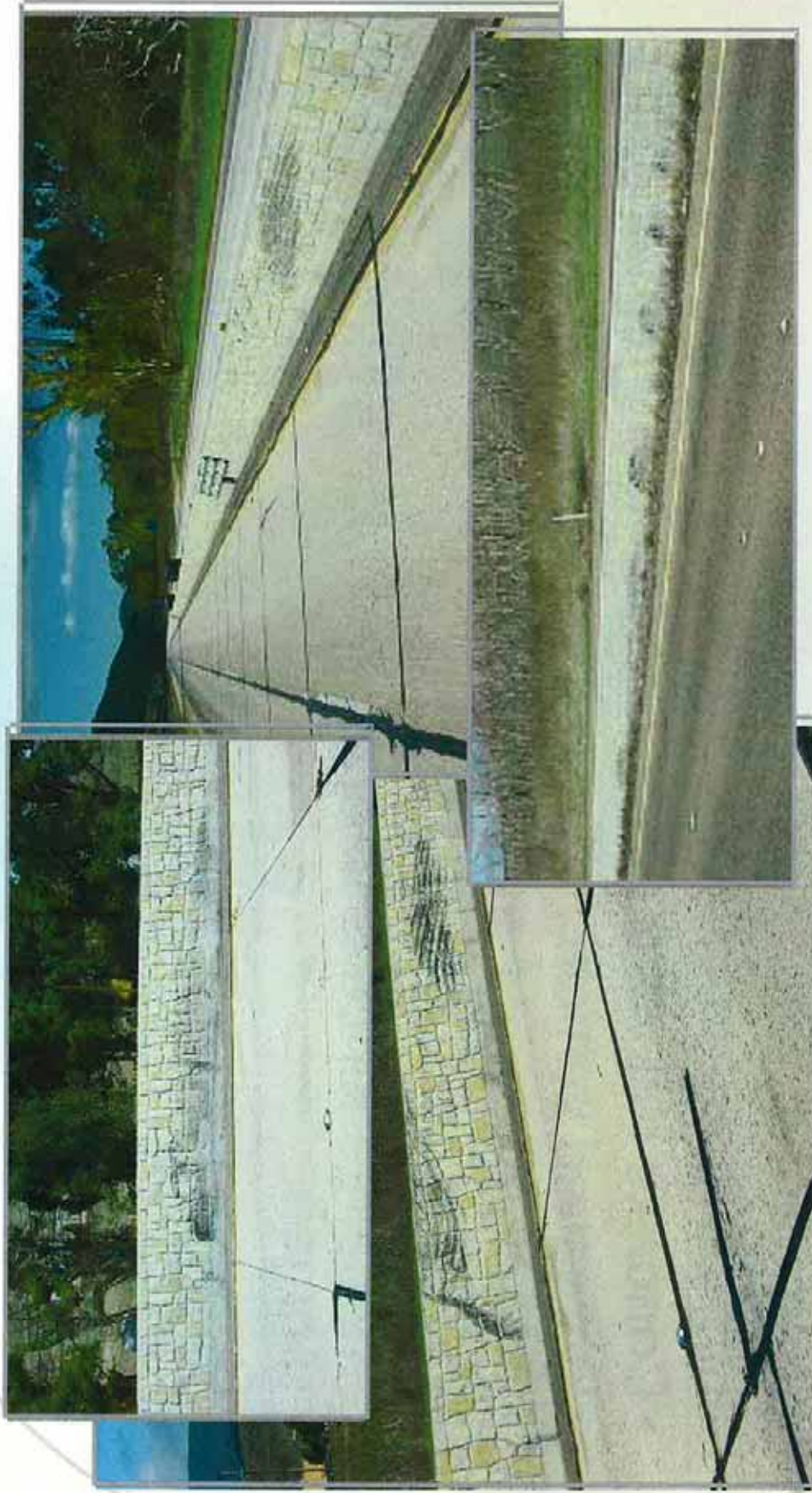
Concrete Median "hits" require little or no maintenance

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Median "Hits" – Metal Beam Barrier

Metal Beam requires lane closures to repair, which delays motorists
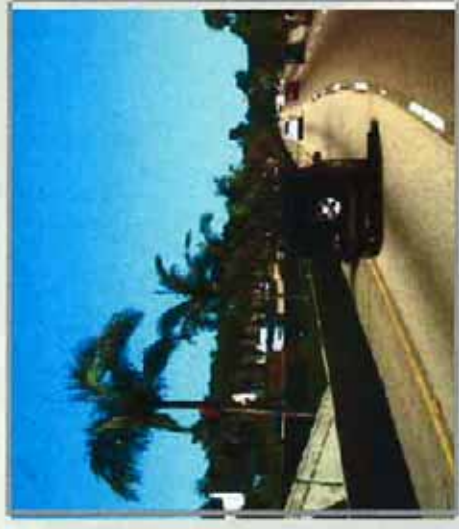
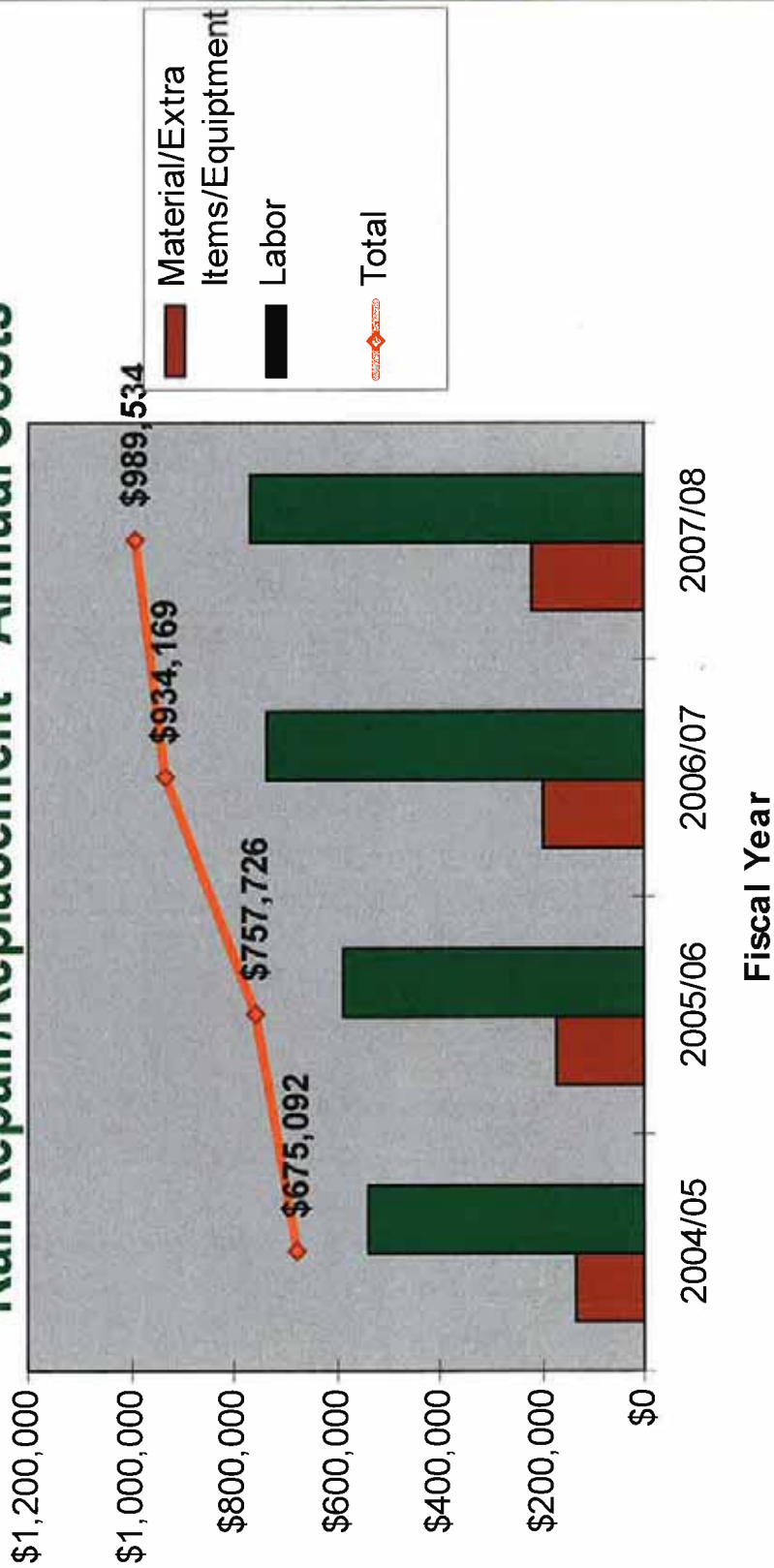June 2, 2009

Concrete Barrier

Costs more to install
- Approximately 50% more in construction costs

Much less expensive to maintain
- Over 80% less costly to maintain

Minimal maintenance exposure
- Where plantings occur, maintenance activities are within barrier

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District 5

Rail Repair/Replacement ~Annual Costs

Legend:
- Material/Extra Items/Equiptment
- Labor
- Total

Values shown: $989,534, $934,169, $757,726, $675,092

Y-axis: $1,200,000; $1,000,000; $800,000; $600,000; $400,000; $200,000; $0

X-axis (Fiscal Year): 2004/05, 2005/06, 2006/07, 2007/08

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Caltrans Experience . . . .

- RV driver dosed off
- Caltrans crew repairing guardrail
- Caltrans worker jumped to safety at the last minute

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Caltrans Experience....

Worker Safety – Litter Pick Up

Workers on foot
- litter pick up in wide median
- little to protect from errant vehicle

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Work Zone Incident – Sweeping
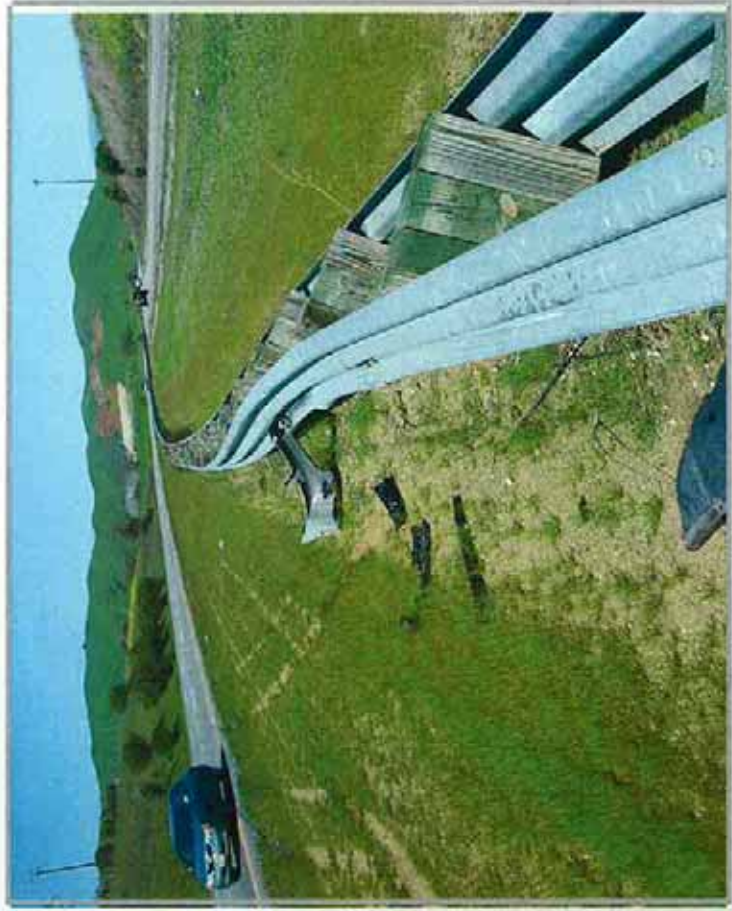
- Sweeper truck vs. errant vehicle
- Caltrans sweeper struck while sweeping shoulder
- Worker has better chance for safety in vehicle than on foot

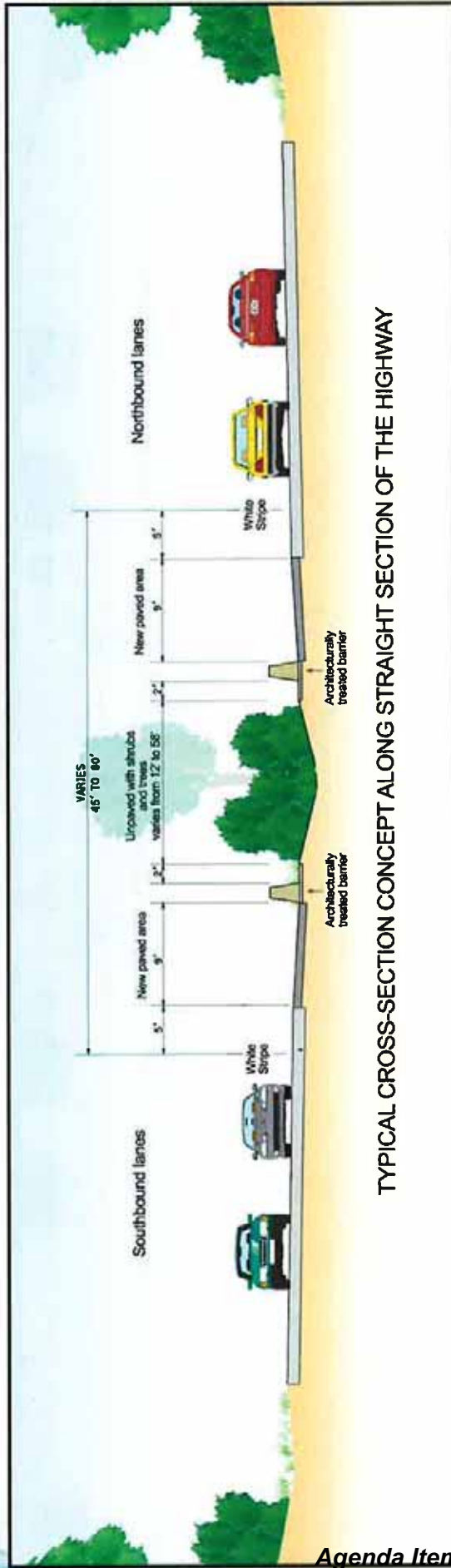# In Conclusion

Concrete Median Barriers =
Safety

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Paso Robles Median Barrier Project

Project Cross-section

- Median configuration along straight sections of the highway

Southbound lanes

Northbound lanes

White Stripe

New paved area

5'

Architecturally treated barrier

2'

VARIES
45' TO 90'

Uncpaved with shrubs and trees
varies from 12' to 58'

2'

Architecturally treated barrier

New paved area

9'

White Stripe

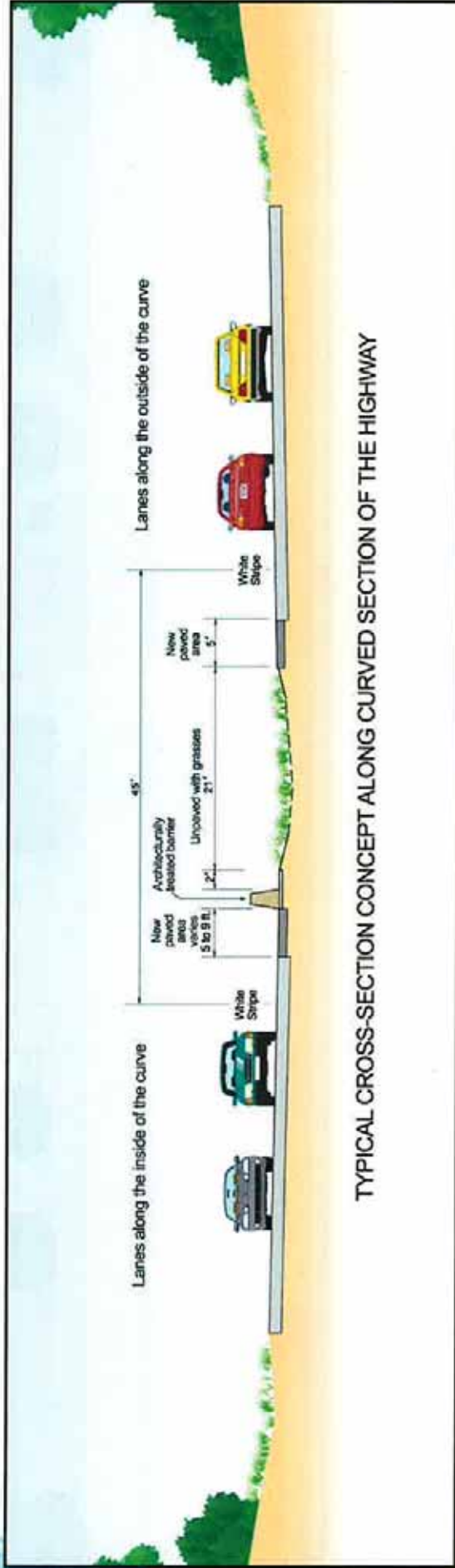5'

TYPICAL CROSS-SECTION CONCEPT ALONG STRAIGHT SECTION OF THE HIGHWAY

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Paso Robles Median Barrier Project

Project Cross-section

- Median configuration along curved sections of the highway

Lanes along the inside of the curve

Lanes along the outside of the curve

White Stripe

New paved area varies (5 to 9 ft.)

Architecturally treated barrier

45'

Unpaved with grasses 21'

New paved area 5'

2'

White Stripe

TYPICAL CROSS-SECTION CONCEPT ALONG CURVED SECTION OF THE HIGHWAY

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Paso Robles Median Barrier Project

VISUAL IMPACT ASSESMENT
HIGHWAY 101 / PASO ROBLES
MEDIAN BARRIER PROJECT
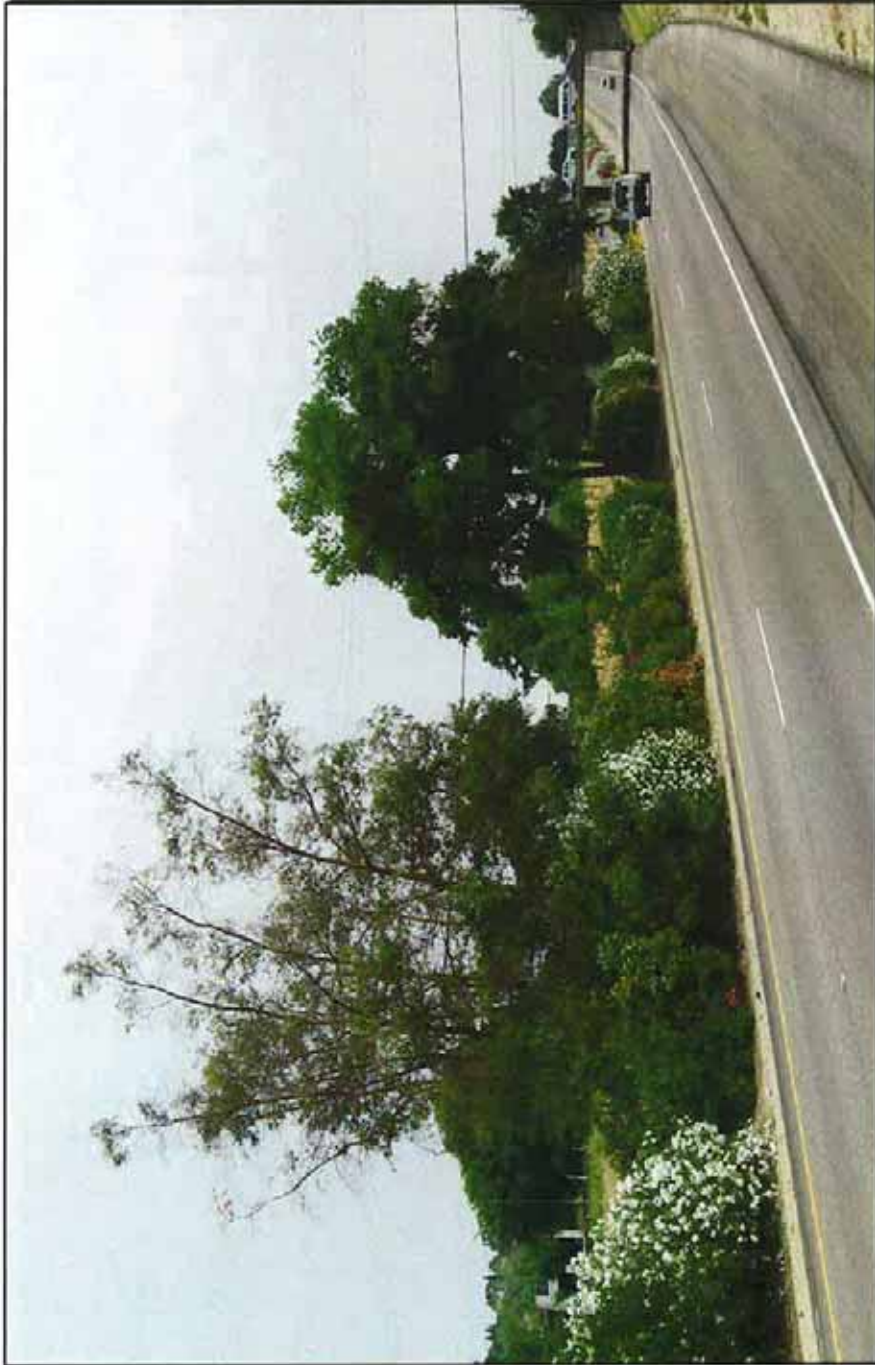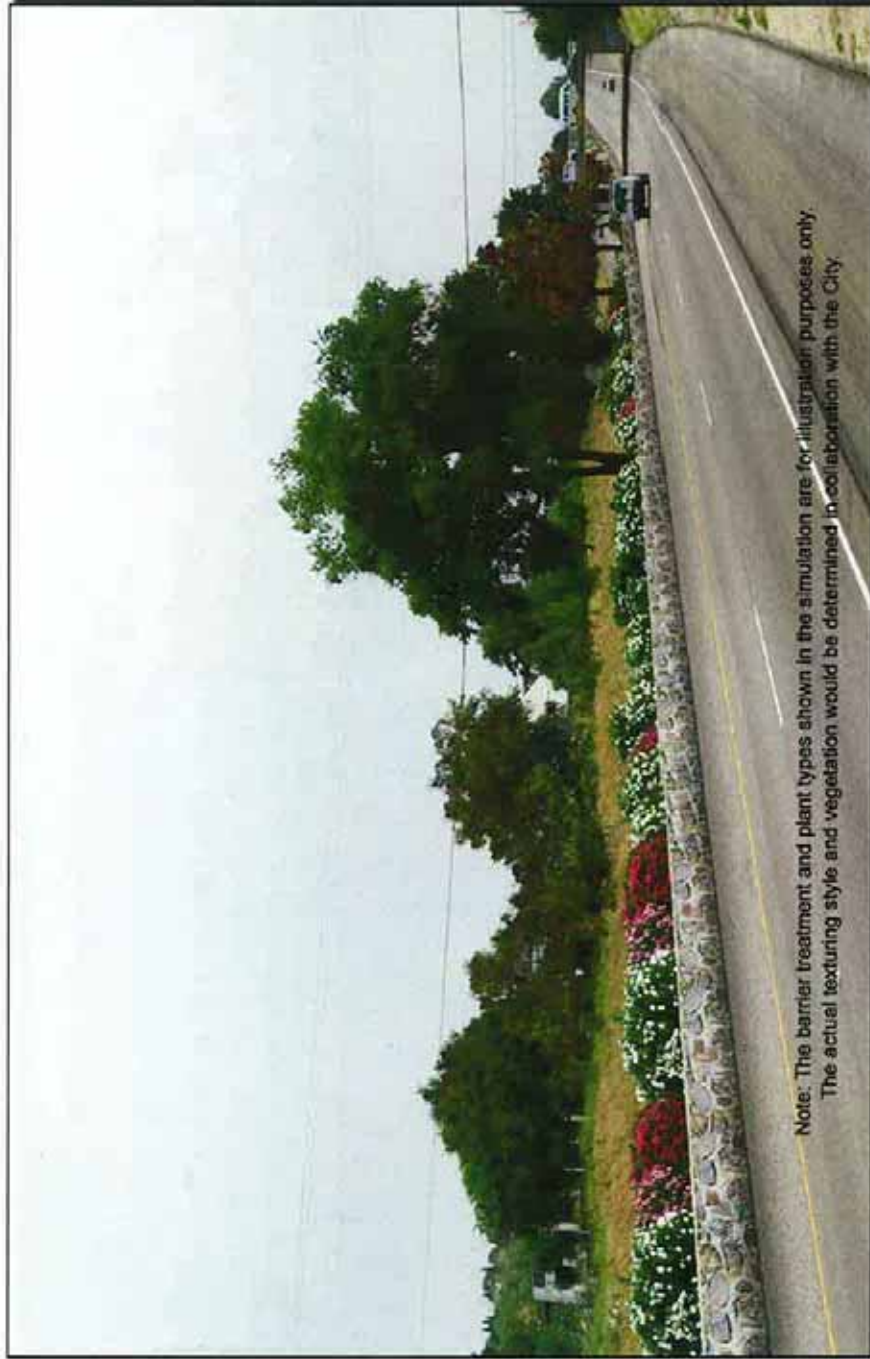
EXISTING VIEW
OBSERVER VIEWPOINT 1
From southbound Highway 101 approximately
200 feet north of the 13th Street Bridge

Figure 2

June 2, 2009

Paso Robles Median Barrier Project

Note: The barrier treatment and plant types shown in the simulation are for illustration purposes only. The actual texturing style and vegetation would be determined in collaboration with the City.

VISUAL IMPACT ASSESMENT
HIGHWAY 101 / PASO ROBLES
MEDIAN BARRIER PROJECT

VIEW OF THE PROPOSED PROJECT
OBSERVER VIEWPOINT 1
From southbound Highway 101 approximately
200 feet north of the 13th Street Bridge

Figure 3

June 2, 2009