



*Cooper Landing Bypass
Wildlife Bridge*

Project No.: STP-F-021-2(15)/Z530140000

Presented By Arkenstone Group

Who we are?

- Arkenstone Group
 - Korbyn Milani - Project Manager
 - Danielle Perkins - Design Engineer
 - Ryan Harris - Project Engineer
 - Jordan Clark - Project Engineer
- Mentors:
 - Professional:
 - Chris Post, PE
 - Kristina Busch, PE
 - Faculty
 - Scott Hamel, PE
- Client: Lounsbury & Associates
 - Joe Taylor, PE,
 - David Gamez, PE



Overview

- Purpose and need
- Scope
- Alternatives
- Preferred Alternative - Cost Estimate
- Design Considerations/Criteria
- Methodology
- Proposed vs Actual Cost



PURPOSE



PROJECT LOCATION



Mitigate the large number of wildlife collisions within the project corridor

COOPER LANDING BYPASS

MP55

STERLING

MP54

STERLING HIGHWAY

SPORTSMAN'S
LANDING

MP53

ANCHORAGE

WHY?



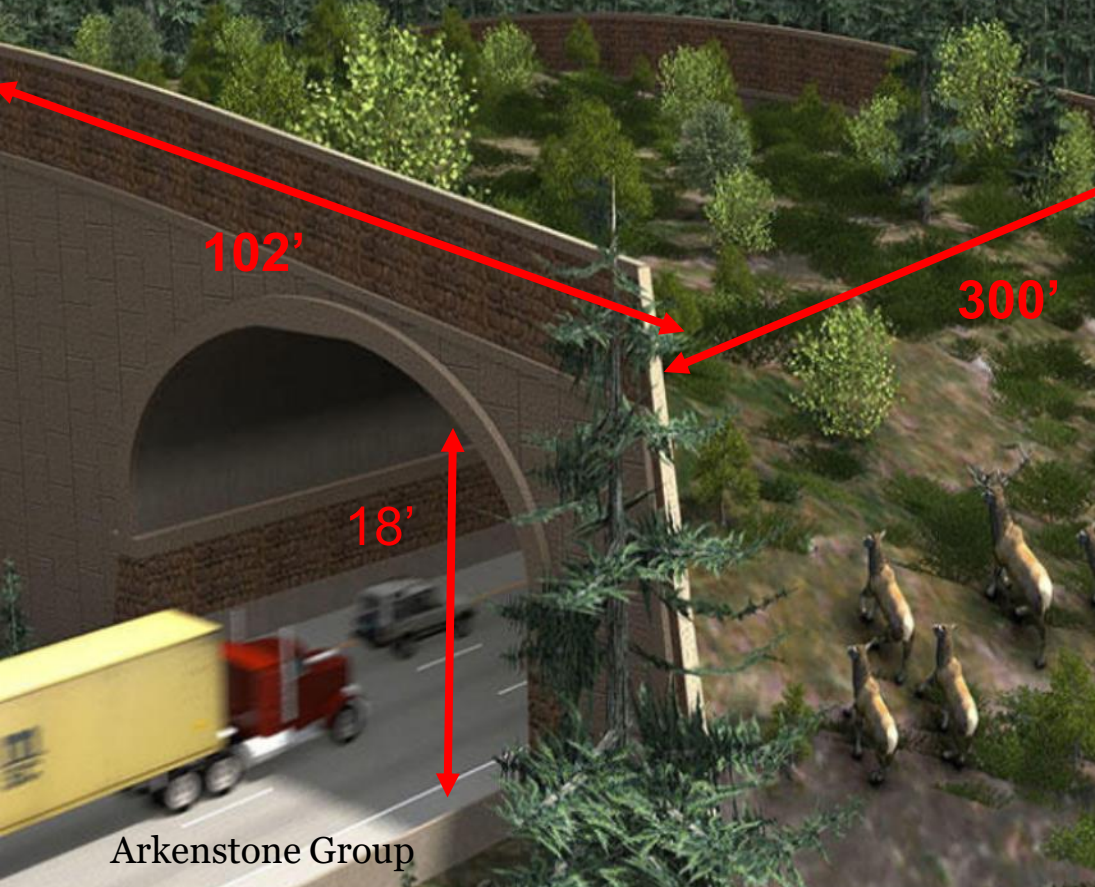
- **More than 200 million large mammal-vehicle collisions take place each year in the US**
- **211 human fatalities/year**
- **More than \$1.6 billion in property damage annually**



Scope

- 35% Complete Project Report
 - 10% Complete Plan Set
 - Design Study Report
 - Cost Estimate
 - Design Poster

Design Criteria



- ❖ 18' Vertical Clearance
- ❖ 102' Span
- ❖ 300' Bridge Width
- ❖ 60 mph Design Speed

Design Alternatives



Alternative One -
Conventional Bridge

Pros- Readily sourced, large spans, overhead clearance

Cons- Not aesthetically pleasing, high cost

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Alternative Two - Steel Under Truss Bridge

Pros- Quick assembly, no span restrictions, economical

Cons- High maintenance, not aesthetically pleasing



Alternative Three - Bulb Tee Bridge

Pros- Common in Alaska, parts are more available

Cons- Not aesthetically pleasing, widens width of total road

Preferred Alternative: Buried Arch



Chosen on the criteria of:

- Seismic Response
- Aesthetics
- Low Maintenance
- Quick assembly time



Cost Analysis

An aerial photograph of a highway project in a mountainous region. The road features a bridge with a green roof and a tunnel. A red semi-truck is driving through the tunnel. The surrounding landscape is lush with green forests and mountains in the background under a cloudy sky.

Bridge Cost - \$15.3M

25% Contingency Fee - \$4M

11% Mobilization and Demobilization - \$2M

15% Construction Engineering – 3.6M

15% Design Engineering – 3.7M

Project Total - \$30M



Methodology



PROJECT LOCATION

COOPER LANDING BYPASS

MP54

STERLING HIGHWAY

MP55

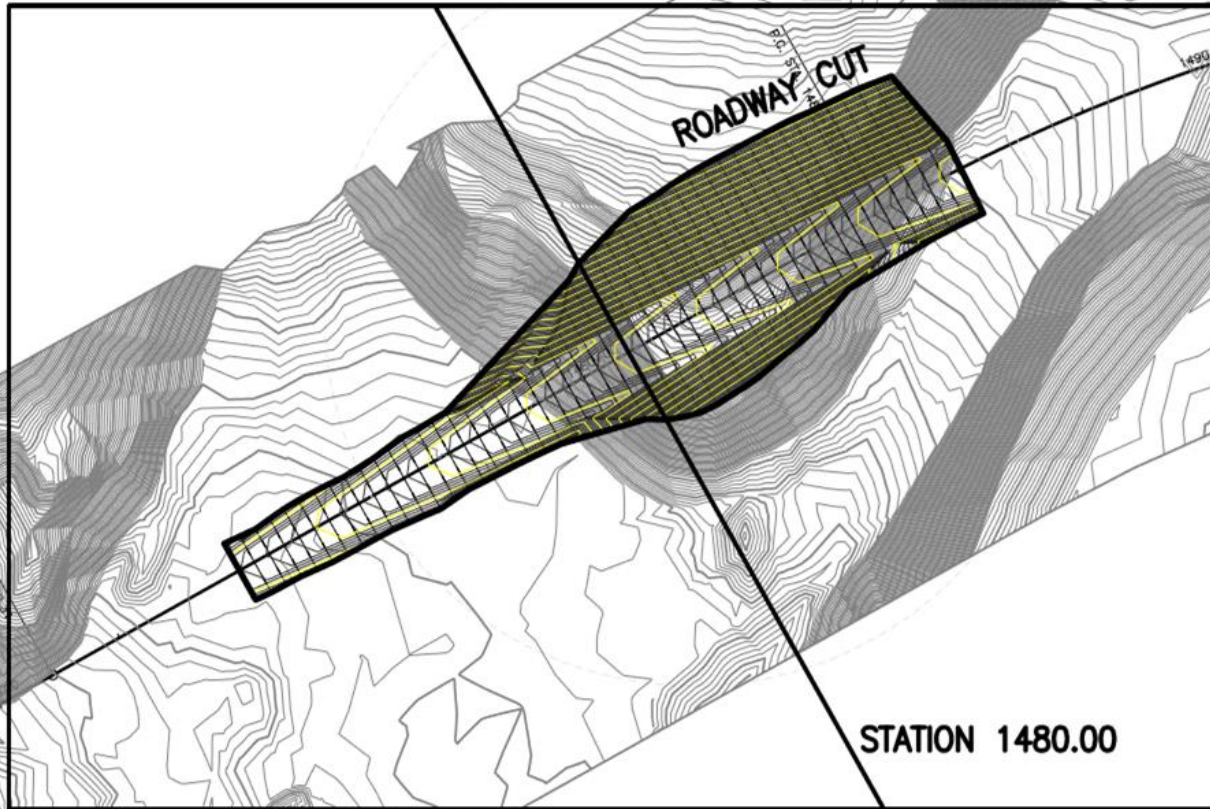
STERLING

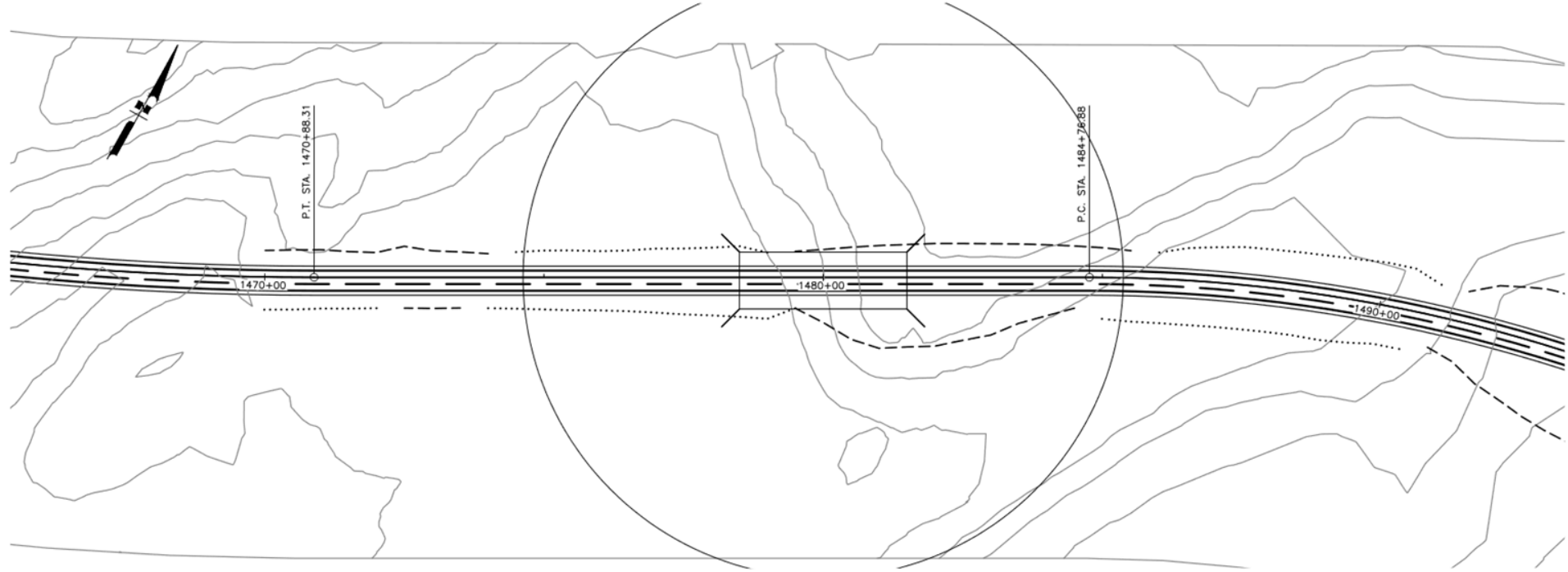
**SPORTSMAN'S
LANDING**

MP53

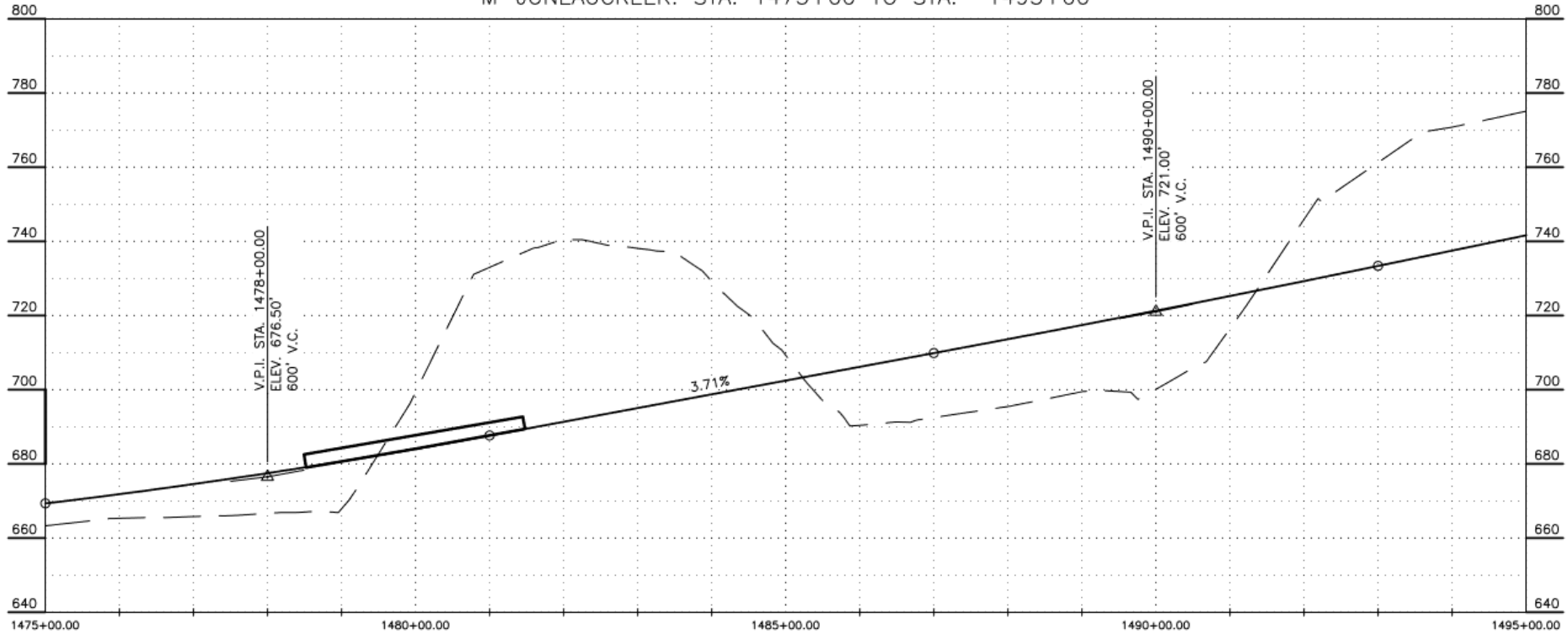
ANCHORAGE

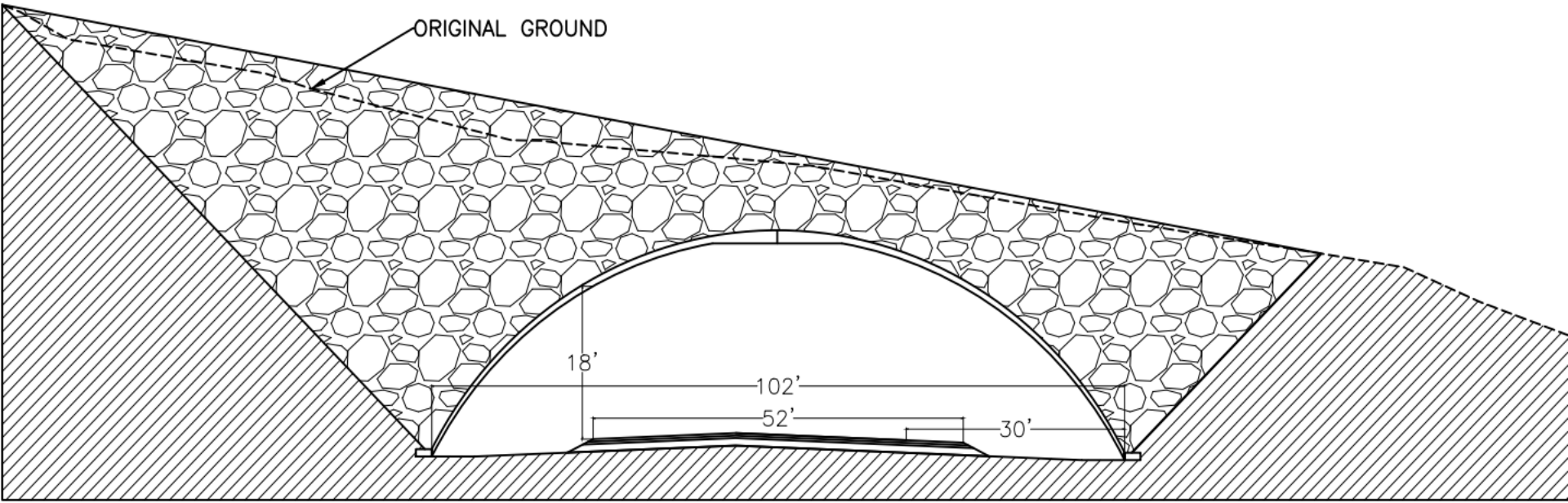
STERLING HIGHWAY WILDLIFE BYPASS BRIDGE LOCATION





M-JUNEAUCREEK: STA. 1475+00 TO STA. 1495+00





Proposed vs Actual Cost

Proposed Cost:

- 250 billable hours
- \$12,690 cost of engineers

Actual Cost:

- 210 billed hours
- \$35,000 cost of engineers

Questions?

For questions please call or email.

References

3D Rendered Arch Image - <https://www.cbsnews.com/news/california-reveals-plan-wildlife-crossing-bridge-los-angeles/>

Bulb Tee Bridge Image - <http://www.oscoconstructiongroup.com/nebt.aspx>