

# I-40 Exit 102 in Acoma, NM

## CSS Case Study



Replacement interstate interchange in rural NM utilizing a public-private partnership with a tribal entity.....

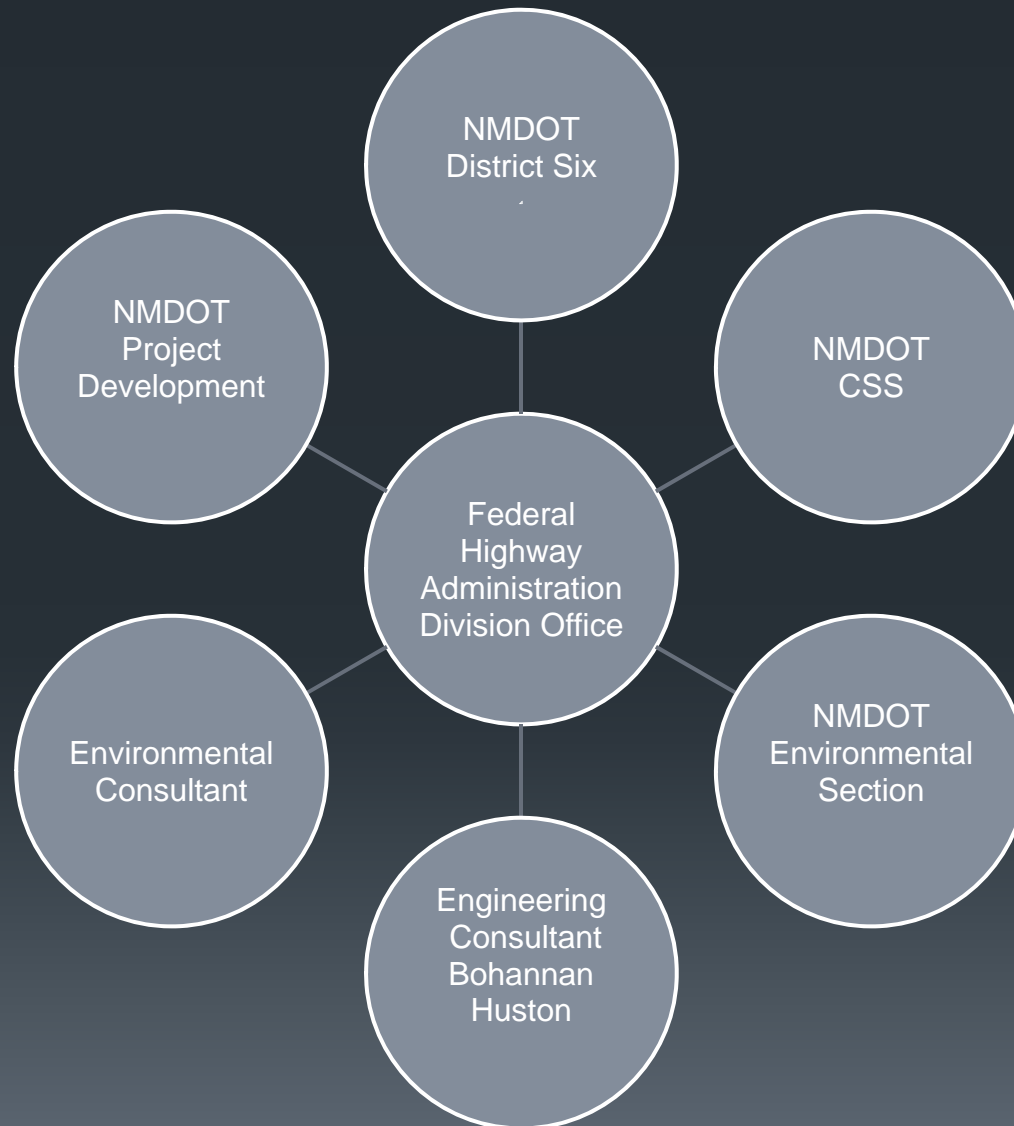




## Project Purpose and Need...

- Correct physical deficiencies at the interchange
- Reduce traffic congestion based on existing and projected traffic demand
- Improve safety conditions and access while balancing these efforts equally with the concerns and desires of local communities.
- Recognize land use and planning activities that were currently planned or desired in the future on lands adjacent to the interchange

# Project Study Team.....



## The CSS Process.....

- Identify all key stakeholders;
- Gather issues from stakeholders;
- Evaluate existing conditions;
- Conduct initial public involvement meeting;
- Summarize issues from project Team, stakeholders, and public input;
- Employ stakeholders to distill issues into common categories;
- Use stakeholder workshop to determine top issues;
- Use issues identified in the workshop to develop the project purpose and need
- Establish factors for an evaluation matrix;
- Brainstorm the alternatives based on purpose and need;
- Evaluate the alternatives using the matrix;
- Determine top alternative for further evaluation; and

# Stakeholder Concerns.....

## Stakeholder Issues :

- Is a new interchange needed?
- What can be done to make interchange safer?
- Congested areas are present under bridge and eastbound on-ramp.
- Existing data does not appear to show what is actually going on at interchange in terms of traffic volume and accidents.
- Exit 102 is located in the 100-year floodplain.
- During construction, minimal disruption to emergency management services should occur.
- Need to put in drainage lagoons to prevent well contamination from storm water runoff that contains contaminants.
- Provide an efficient method of distributing Study information.
- Establish locations where study information will be made available to the public for review and comment.
- How can local communities benefit from the Study.
- Consider promoting increased use of north casino parking lot to reduce crowding at south parking lot.
- Expecting increased revenues and growth of business enterprises.
- We have additional data and information that could be used in the process.
- We would like to manage pedestrian traffic through the use of landscapes and berms.
- Eastbound on-ramp requires improvement because of grade.
- Are bright lights causing accidents?
- Land is valuable to the land grant.
- Have the most effective use of available land with minimal impact; limit the purchase of right-of-way. Use the existing median for roadway expansion, if possible.
- How can local communities benefit from the Study?
- Need to improve ability of emergency responders to get to incidents in local communities.

# Stakeholder workshops....

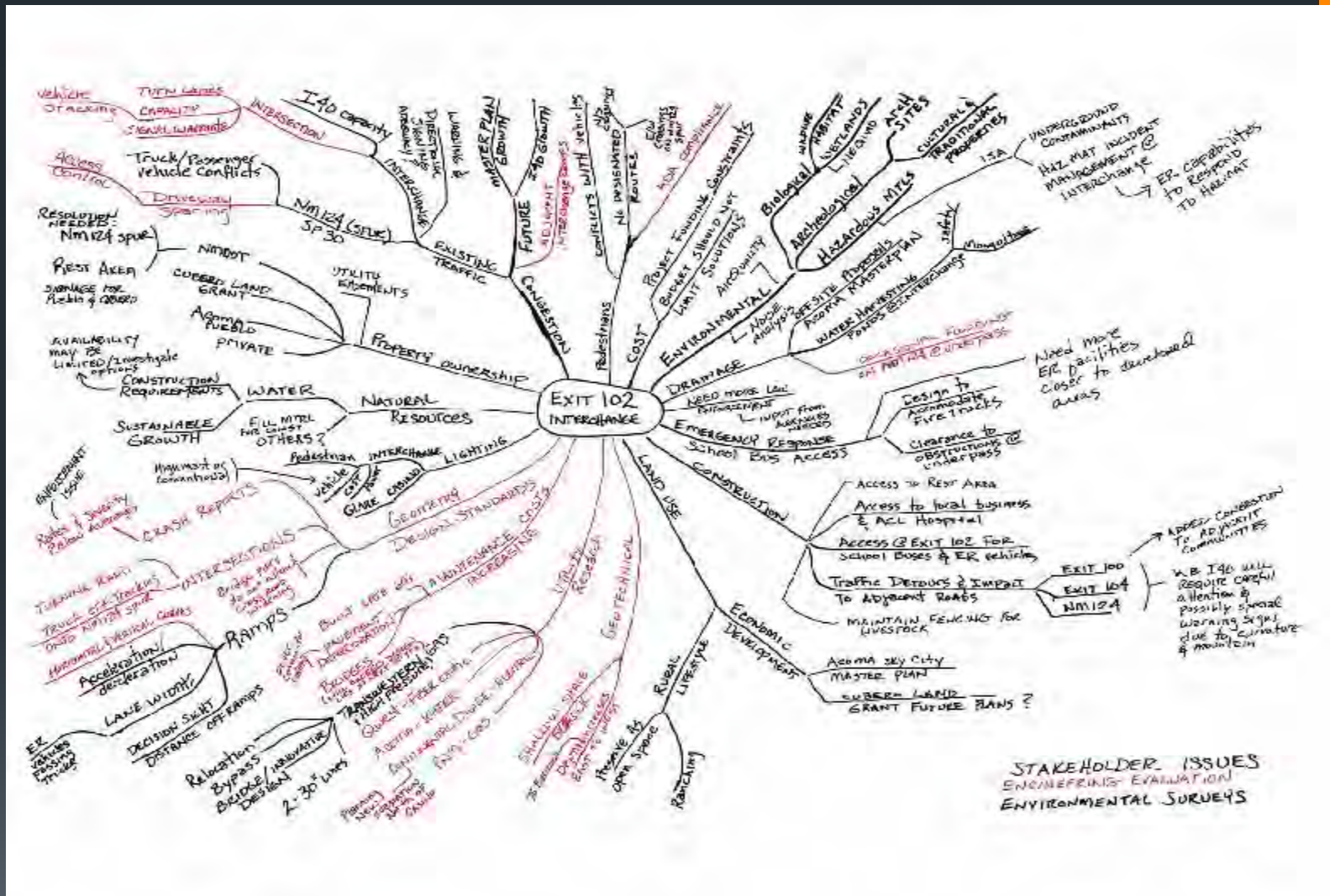


# More workshops.....





# Brainstorming the Issues.....



# Evaluating alternatives...



## Issue Preferences Identified and Ranked by Stakeholders

Issue	Rank	Votes
<b>Land Preservation/Rural Lifestyle</b> – Alternate intersection configurations may have impacts to adjacent lands. Land is a valuable commodity that is viewed as a resource that should be protected, preserved, and not heavily developed because it would result in a drastic change in the rural setting.	1	9
<b>Drainage Management</b> – Consider alternate ways to mitigate drainage flows before reaching the interchange to minimize impacts at the interchange and allow sizing of smaller drainage structures.	2	8
<b>Local Business/ACL Hospital Access During Construction</b> – Different interchange alternates may result in varying degrees of impact for business driveways north of the interchange as well as to the hospital.	3	5
<b>Pipeline Coordination/Innovative Design Concepts</b> – This issue relates to the existence of the 30-inch high pressure gas line in the study area, located immediately north of the I-40 right-of-way fence. The presence of this line may limit certain configurations from being considered, therefore innovative design techniques or options for line relocation or bypassing during construction may need to be considered.	3	5
<b>Construction Detours and Impact to Adjacent Interchanges and Roads (US 66)</b> – Different interchange alternates may result in varying degrees of impact to adjacent interchanges and roads during construction (increased traffic).	4	4
<b>Casino Lighting Glare/Safety</b> – This issue relates to the glare from casino marquee lighting and concern that it may negatively impact driver safety at the interchange.	4	4
<b>NM 23 Congestion Management</b> – This issue relates to the overall condition and ability to provide for traffic flow now and in the future specifically along SP 30 and NM 23 through and north of the interchange.	4	4
<b>Long-term Emergency Response and School Bus Access through the Interchange</b> – Alternative interchange configurations may have differing degrees of ability to provide for adequate and safe passage of emergency response and school bus travel through the interchange.	4	4
<b>Emergency Vehicle and School Bus Access During Construction</b> – Different interchange alternates may provide different access scenarios during construction. Emergency response and bus vehicle sizes must be considered with every alternate.	5	3
<b>Economic Development</b> – Alternate interchange configurations may facilitate varying degrees of economic development for lands surrounding the interchange. Some interchange options may maximize this potential more than others.	5	3
<b>Water and Natural Resources</b> – Concern was raised regarding additional development within the area and the need to ensure stable long-term water supplies to nearby communities.	5	3
<b>Interchange Congestion Management</b> – This issue relates to the overall condition and ability to provide for traffic flow now and in the future within the interchange area, but not specific to NM 23, which is addressed under <i>NM 23 Congestion Management</i> .	5	3
<b>Pedestrian Accessibility/Designated Routes</b> – This issue relates to the location of pedestrian travel ways through the interchange and north of the interchange. Concern was expressed regarding the number of conflicts that currently exist between pedestrians and trucks in the casino and rest areas.	5	3
<b>Ramp Operations/Safety</b> – This issue encompasses concerns expressed regarding the operation of Exit 102 on/off ramps and includes ramp lengths, ramp widths, connections with the interstate, and vertical grades associated with the ramps.	6	2
<b>Cost</b> – This issue relates to the fact that the cost of the project may limit the solutions that are to be considered.	6	2
<b>Street Lighting (NM 23) and Intersections for Pedestrian Safety</b> – This issue is directly focused on providing lighting along NM 23 north of I-40 in the casino area to better illuminate pedestrians.	7	1
<b>Interchange Lighting for Vehicle Safety</b> – This issue relates to the concerns expressed for providing interchange lighting to enhance vehicle safety by providing good visibility of the ramps, I-40, and intersections where driver decisions are made.	8	0

# Alternative evaluation as per criteria.....



# Interchange as built.....



*Image courtesy of Bohannon Huston, Inc.*

# Elevation concept...

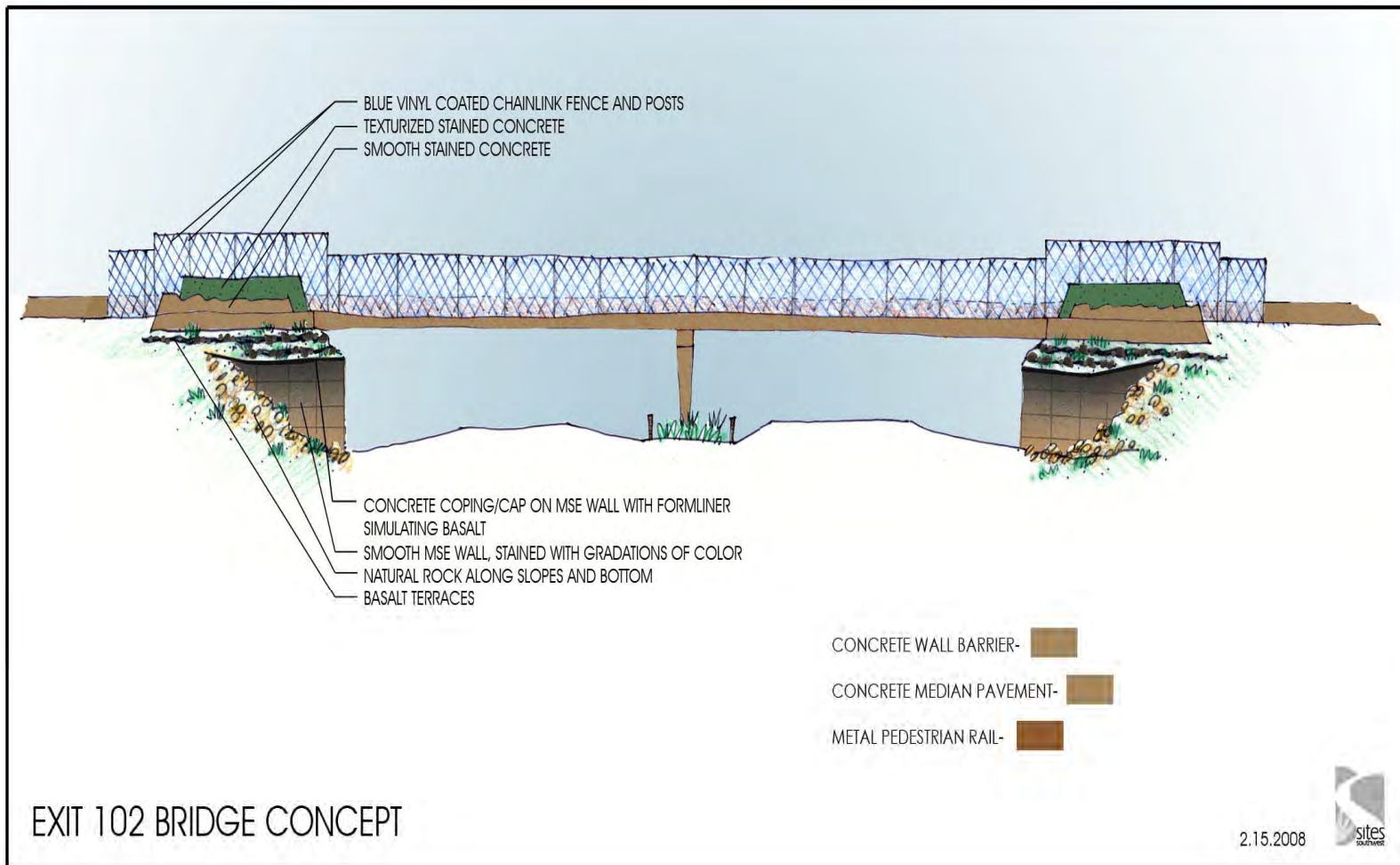


Image courtesy of Sites Southwest


Bridge relates color-wise to nearby mesas.....




*Image courtesy of Sites Southwest*

# Roundabout landscape treatment.....


**FORMAL LANDSCAPE PLANTS**




ONE SEED JUNIPER




PINON PINE




GAMBEL OAK




MOUNTAIN MAHOGANY




DEER GRASS



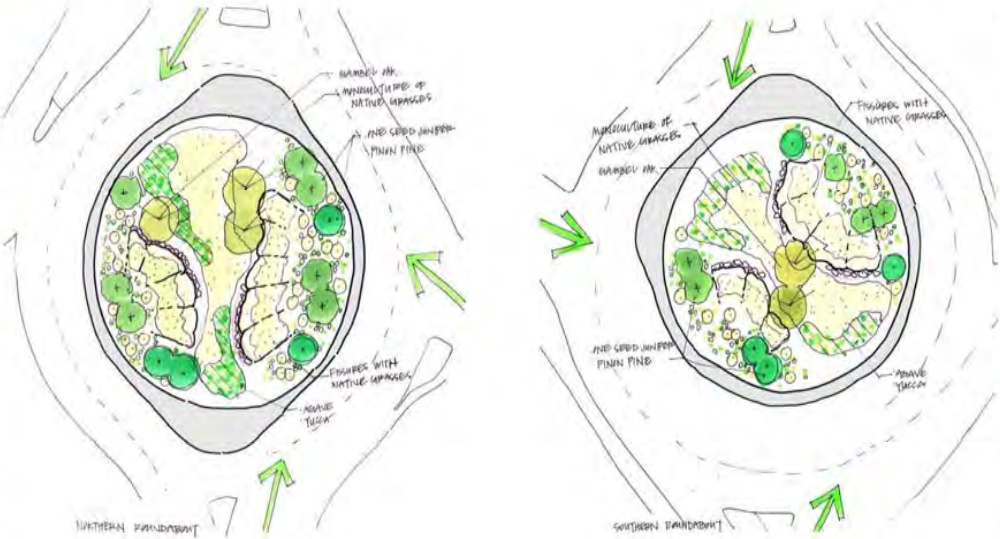
AGAVE



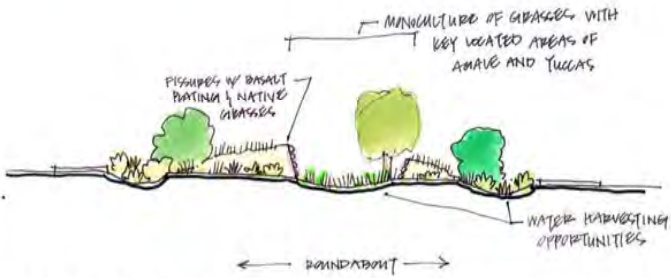
YUCCA



MORMON TEA



NORTHERN ROUNDABOUT      SOUTHERN ROUNDABOUT



MANICULTURE OF GRASSES WITH KEY LOCATED AREAS OF AGAVE AND YUCCA

FISSEDES BY BASALT PATINA & NATIVE GRASSES

WATER HARVESTING OPPORTUNITIES

ROUNDABOUT


**INTERSTATE 40, EXIT 102 INTERCHANGE: LANDSCAPE CONCEPTS & BRIDGE AESTHETICS** 11.29.2007 

Image courtesy of Sites Southwest