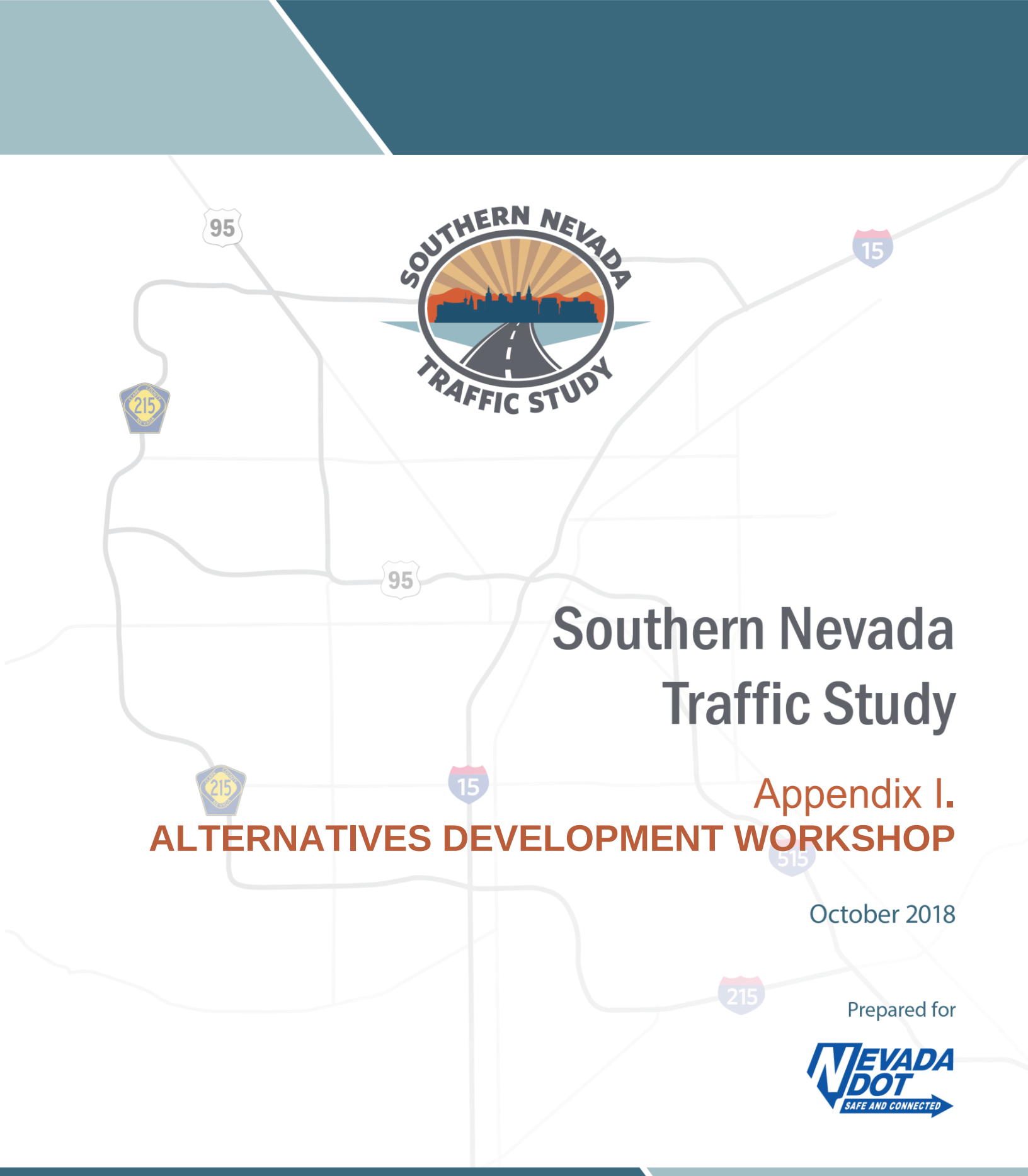

Southern Nevada Traffic Study

Appendix I.
ALTERNATIVES DEVELOPMENT WORKSHOP

October 2018

Prepared for

NEVADA DOT
SAFE AND CONNECTED

Prepared by HDR

I-215/I-515 System Interchange • Round 1

IDEAS

15. I-515/I-215 System Interchange – Remove the local movements (blue lines) from the freeway movements
21. I-215/I-515 Modified Dogbone

EVALUATION OF IDEAS

Taking into consideration the constraints and controlling decisions, the team discussed each idea and documented the advantages and disadvantages for that location. Each idea was then carefully evaluated with the assembled team of subject matter experts reaching consensus on the overall rating of the idea (zero through three).

The rating values are shown below:

3	**Moved to Further Evaluation and Modeling**	Advanced as Recommendation
2	**Design Consideration**	Maybe Combined with Other Ideas
1	**Major Value Degradation**	Dropped from Future Consideration
0	**Fatal Flaw** (unacceptable impact or doesn't meet the project purpose and need)	Dropped from Future Consideration

- ● More Desirable
- ○ Average
- ◉ Less Desirable

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

I-215/I-515 System Interchange • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
15	I-515/I-215 System Interchange – Remove the local movements (blue lines) from the freeway movements	• Separates local from freeway movement within the system interchange	• ROW impacts • May have some other impacts • Visual impacts • Potential impacts to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
21	I-215/I-515 Modified Dogbone	• Separates local from freeway movement within the system interchange • Utilizes existing structures • Limits sideswipe and head on conflict points	• ROW impacts • May have some other impacts • Potential floodplain impacts • Visual impacts • Additional infrastructure to maintain • Driver expectation

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-215/I-515 System Interchange • Round 2

IDEAS

15. I-515/I-215 System Interchange – Remove the local movements (blue lines) from the freeway movements
21. I-215/I-515 Modified Dogbone
88. I-212/I-215 Free Flow (Cadillac Version)
95. I-215/I-515 Modified Rotary

Ideas Screened Out During: **Round 1**	N/A
Ideas Added	88, 95

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
15	I-515/I-215 System Interchange – Remove the local movements (blue lines) from the freeway movements	• Separates local from freeway movement within the system interchange	• ROW impacts • May have some other impacts • Visual impacts • Potential impacts to off-street bike trail

Mainline Operations 3 Local Operations 3

Rating 2

Justification/Comments/Disposition:
Idea #15 is a design consideration that was implemented as a part of Idea #21 and added Idea #95.

Round 2 Screening

#	Description	Advantages	Disadvantages
21	I-215/I-515 Modified Dogbone	• Separates local from freeway movement within the system interchange • Utilizes existing structures	• ROW impacts • May have some other impacts • Potential drainage impacts • Visual impacts • Additional infrastructure to maintain • Driver expectation

Mainline Operations: 1 Local Operations: 1

Safety: No relevant information found to determine safety benefits for this alternative. Further detailed investigation is required to estimate potential outcome.

Rating 1

Justification/Comments/Disposition:
The heavy I-215 eastbound through traffic to Lake Mead did not allow for ramps/side streets to yield into the dogbone. The congestion formed by this alternative impacted Lake Mead as well as both I-215 and I-515 corridors.

Round 2 Screening

#	Description	Advantages	Disadvantages
88	I-215/I-515 Free Flow: 2 lane system ramps, braided I-215 eastbound to I-515 southbound & I-215 eastbound to I-515 northbound	• Improves SB to WB, EB to NB, and EB to SB to two lanes each • Minimal improvements that maintain connectivity	• ROW impacts • Additional infrastructure to maintain

Mainline Operations: 3 Local Operations: 3

Rating 3

Justification/Comments/Disposition:
Analyzed as a part of Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
95	I-215/I-515 Modified Rotary: Remove the local movements from the freeway movements into a signalize rotary configuration	• Improves SB to WB and EB to NB ramps to two lanes each • Separates local movements from freeway, improves access	• Local operation at Lake Mead and Eastgate • Driver expectation • Signing

Mainline Operations: 3 Local Operations: 3

Rating 3

Justification/Comments/Disposition:
Analyzed as a part of Corridor Alternative 2.

I-215/I-515 System Interchange • Round 3

IDEAS

88. I-212/I-215 Free Flow (Cadillac Version)
95. I-215/I-515 Modified Rotary

Ideas Screened Out During: **Round 2** 15, 21

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
88	I-215/I-515 Free Flow: 2 lane system ramps, braided I-215 eastbound to I-515 southbound & I-215 eastbound to I-515 northbound	• Improves SB to WB, EB to NB, and EB to SB to two lanes each • Minimal improvements that maintain connectivity	• ROW impacts • Additional infrastructure to maintain
Maintainability 3	Construction Impacts 1	Environmental Impacts 5	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
95	I-215/I-515 Modified Rotary: Remove the local movements from the freeway movements into a signalize rotary configuration	• Improves SB to WB and EB to NB ramps to two lanes each	• Local operation at Lake Mead and Eastgate • Driver expectation • Signing • ROW impacts
Maintainability 3	Construction Impacts 1	Environmental Impacts 6	

✓ **Preferred Alternative**

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 1

IDEAS

1. Widen to add an Express Lane the entire corridor (Russell to Windmill)
2. Restrict weaving to the right most lanes
3. Add 1 GP lane from Durango to Jones (both directions)
4. Add 1 GP lane from Decatur to Russell (both directions)
5. Add 1 GP lane from Russell to Durango (both directions)
6. Braid all ramps between I-15 and Decatur
7. Auxiliary between Town Center and Flamingo
8. No left turns at ramp terminals, utilize Texas turns between or at interchanges with braided ramps
9. Braid all ramps at every interchange
10. Braid the eastbound off-ramp to Decatur with the eastbound off-ramp to I-15
11. Two lane reversible HOV lanes on CC 215
12. Shutdown all frontage roads
13. Shutdown every other ramp to increase traffic on frontage roads
14. Close every other CD Road
15. Modify the frontage roads and convert select interchanges to DDI's along with braiding ramps
16. Move the weave from the freeway to the CD Road
17. Flip the ramps from Diamond to X configuration
18. Ramp metering
19. ITS Solutions for travel time and route decision
20. Use the inside shoulder for HOV
21. Hard Running Shoulders during peak hours
22. Active Traffic Management (i.e. Variable Speed Zones)
23. Combine full interchanges into partial interchanges
24. Use 2-lane off-ramps to assist in providing lane balance

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
1	Widen to add an Express Lane the entire corridor (Russell to Windmill)	• Provide for longer trips • Isolates a lane from the weaving • May provide for better travel times	• May be underutilized • Public perception

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◉	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may be combined with another idea or may warrant additional analysis in a future study. However, it does not directly meet the purpose and need for this study as most traffic is going from CC 215 to I-15 and not passing directly through the interchange area to Windmill.

Round 1 Screening

#	Description	Advantages	Disadvantages
2	Restrict weaving to the right most lanes	• Provide for longer trips • Isolates a lane from the weaving • May provide for better travel times	• May be underutilized • Low driver compliance

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	○	○	○

Rating 1

Justification/Comments/Disposition:
Dropped from further consideration. This will likely have little impact on mainline traffic improvements.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	Add 1 GP lane from Durango to Jones (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◉	○	◉

Rating 3

Justification/Comments/Disposition:
Doesn't fix weaving issues. However, due to future traffic volumes, an additional lane in this segment may be necessary. Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
4	Add 1 GP lane from Decatur to Russell (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◉	○	◉

Rating 3

Justification/Comments/Disposition:
Doesn't fix weaving issues. However, due to future traffic volumes, an additional lane in this segment may be necessary. Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
5	Add 1 GP lane from Russell to Durango (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◉	○	◉

Rating 3

Justification/Comments/Disposition:
Doesn't fix weaving issues. However, due to future traffic volumes, an additional lane in this segment may be necessary. Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
6	Braid all ramps between I-15 and Decatur	• Eliminates weaving	• I-15 SB would not be able to get to Decatur • EB Decatur would not be able to get to I-15 SB • Potential floodplain impacts • Potential Desert Tortoise habitat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	◉

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
7	Auxiliary Lane between Town Center and Flamingo	• Improves operations	• Creates a weaving movement • Potential ROW impacts • Potential impacts to off-street bike trail adjacent to south side of 215 • Sec 106: 215 crosses historic Old Spanish Trail in this area - likely impacts to historic resource

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	⊙	○	⊙

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may be combined with other ideas or used in a future study, however it is outside the SNTS corridor alternatives study area.

Round 1 Screening

#	Description	Advantages	Disadvantages
8	No left turns at ramp terminals, utilize Texas turns between or at interchanges with braided ramps	• Eliminates all weaving • Makes all ramp terminals 2-phase by relocating the left turns	• Driver expectation • Could impact access • Visual impacts • ROW impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	⊙	⊙	⊙

Rating 2/3

Justification/Comments/Disposition:
During the Round 1 screening this was listed as a 3 for further evaluation and modeling. However, it was adjusted rating to 2 upon further review because this option impacts the interchange terminals more than the mainline operations.

Round 1 Screening

#	Description	Advantages	Disadvantages
9	Braid all ramps at every interchange	• Eliminates all weaving	• Could impact access • Visual impacts • ROW impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	⊙	⊙	⊙

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
10	Braid the westbound I-215 to Decatur and the northbound I-15 to Decatur traffic with the southbound I-15 to CC 215	• Eliminates the weave between the system I/C and Decatur	• Potential floodplain impacts • Potential Desert Tortoise habitat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	⊙	⊙	⊙

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
11	Two lane reversible HOV on CC 215	• Adds more lanes in the peak hour direction	• Increased maintainability • Potential ROW impacts • Likely EJ impacts • Likely floodplain and drainage impacts • Likely impacts to off-street bike trail along Durango Dr. that is crossed by 215

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	⊙	⊙	⊙

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may warrant additional analysis for future study. However, at this time, it was determined that it would not have a significant impact on relieving mainline congestion through this corridor.

Round 1 Screening

#	Description	Advantages	Disadvantages
12	Shutdown all frontage roads	• Provides space for mainline widening	• Eliminates access • Potential reduced existing noise impacts to EJ communities along frontage roads • Likely access impacts for EJ communities

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
⊙	⊙	●	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may warrant additional analysis for future study. However, at this time, it was determined that it would not have a significant impact on relieving mainline congestion through this corridor.

Round 1 Screening

#	Description	Advantages	Disadvantages
13	Shutdown every other ramp to increase traffic on frontage roads		

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts

Justification/Comments/Disposition:
Same as Idea #23, so the criteria ranking is located under Idea #23 and not repeated here.

Round 1 Screening

#	Description	Advantages	Disadvantages
14	Modify the frontage roads and convert select interchanges to DDI's along with braiding ramps	• Improves ramp terminal operations	• No improvement to mainline • Impacts to properties along the frontage roads • May degrade adjacent intersections

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	◎

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration. However, for the purposes of the SNTS project, interchange analysis is only being analyzed at a high level to serve demand to/from mainline. This solution may be used for future studies but was not carried further in the SNTS study.

Round 1 Screening

#	Description	Advantages	Disadvantages
15	Move the weave from the freeway to new CD Road	• Improves mainline operation (through traffic)	• Local weaving • Stormwater drainage

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	◎	◎	◎	◎

Rating 1

Justification/Comments/Disposition:
CD Road (2 express with 3 aux – barrier separated).
Eliminated from consideration due to overall impacts and lack of substantial advantages.

Round 1 Screening

#	Description	Advantages	Disadvantages
16	Remove access to CC 215 at Jones and/or Decatur	• Modifies the location of the weaving	• Could impact operations at I-15 • Stakeholder opposition • Business access

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◎	●	◎	◎

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration, however, was not carried forward for further analysis as part of SNTS as it eliminated access points.

Round 1 Screening

#	Description	Advantages	Disadvantages
17	Flip the ramps from diamond to X configuration	• Increases the length of the weaving sections • Adds capacity to the frontage roads • Encourages growth along frontage roads • Although occurs in areas with floodplains and Desert Tortoise habitat, impacts to those resources not anticipated	• Reduces local operations (ramp terminals)

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	◎	○	◎	●

Rating 2

Justification/Comments/Disposition:
Idea was rated 3 but adjusted to 2 because increased weave length is minimal if done at every interchange. If combined with Alt #23 (similar to other national X configurations) local through movement at ramp terminals will be unable to adequately handle the volumes.

Round 1 Screening

#	Description	Advantages	Disadvantages
18	Ramp metering	• No notable environmental impacts • Reduces ramp impact to mainline	• Ramp meter flushes can degrade mainline performance

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◎	◎	○	●

Rating 2

Justification/Comments/Disposition:
Idea was rated 3 but adjusted to 2 after further study. This was determined to be a design consideration that may warrant additional analysis in a future study or may be combined with other ideas.

Round 1 Screening

#	Description	Advantages	Disadvantages
19	ITS Solutions for travel time and route decision	• Better road and network utilization	• More infrastructure to operate and maintain

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may be combined with other alternatives but was not anticipated to have a significant impact on the mainline operations.

Round 1 Screening

#	Description	Advantages	Disadvantages
20	Use the inside shoulder for HOV (no shoulders)	• Adds capacity minimal widening	• Minor widening • No inside shoulder • Enforcement

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	○	◉	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may be combined with other alternatives but was not anticipated to have a significant impact on the mainline operations.

Round 1 Screening

#	Description	Advantages	Disadvantages
21	Hard Running Shoulders during peak hours	• Increases capacity	• Minor widening • No inside shoulder • Enforcement

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may warrant additional analysis for further study.

Round 1 Screening

#	Description	Advantages	Disadvantages
22	Active Traffic Management (i.e. Variable Speed Zones)	• May assist in better lane assignment and utilization	• Requires enforcement

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◉	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may warrant additional analysis for further study.

#	Description	Advantages	Disadvantages
23	Convert full interchanges into partial interchanges	• Reduces weaving • Although occurs in areas with floodplains and Desert Tortoise habitat, impacts to those resources not anticipated	• Modifies access points • Concentrates traffic

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	◉	○	◉	●

Rating 2

Justification/Comments/Disposition:
Idea was rated 3 but adjusted to 2 because through movements are too high for the ramp terminals to adequately handle.

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
24	Use 2-lane off-ramps to assist in providing lane balance	• Provides lane balance • No notable environmental concerns • Minimal effort to gain benefit	• Does not fix weaving issue

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	○	○	●

Rating 3

Justification/Comments/Disposition:
Changes weave type which may improve freeway operations. Moved to further evaluation and modeling.

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 2

IDEAS

3. Add 1 GP lane from Durango to Jones (both directions)
4. Add 1 GP lane from Decatur to Russell (both directions)
5. Add 1 GP lane from Russell to Durango (both directions)
6. Braid all ramps between I-15 and Decatur
10. Braid the eastbound off-ramp to Decatur with the eastbound off-ramp to I-15
24. Use 2-lane off-ramps to assist in providing lane balance
90. Braid all ramps between Sunset and Russell NB/WB, Durango and Buffalo SB/EB, Buffalo and Rainbow EB and WB, Rainbow and Jones EB and WB, Jones and Decatur EB and WB
91. Braided ramp between Sunset and Russell NB/WB
92. Braided ramp between Durango and Buffalo SB/EB
93. Braided ramp between Buffalo and Rainbow EB and WB
94. Braided ramp between Rainbow and Jones EB and WB
95. Braided ramp between Jones and Decatur EB and WB

Ideas Screened Out During: **Round 1**	1, 2, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23
Ideas Added	90, 91, 92,93, 94, 95

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
3	Add 1 GP lane from Durango to Jones (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations: N/A Local Operations: N/A Safety: There is an expected benefit of a 25% decrease in crashes when an additional lane for an urban freeway is installed by reducing lane and shoulder width (CMF ID 8334). Additional GP lane can improve traffic flow through the area. Therefore, adding a GP lane improves the safety.

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.

Round 2 Screening

#	Description	Advantages	Disadvantages
4	Add 1 GP lane from Decatur to Russell (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations: N/A Local Operations: N/A Safety: There is an expected benefit of a 25% decrease in crashes when an additional lane for an urban freeway is installed by reducing lane and shoulder width (CMF ID 8334). Additional GP lane can improve traffic flow through the area. Therefore, adding a GP lane improves the safety.

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.

Round 2 Screening

#	Description	Advantages	Disadvantages
5	Add 1 GP lane from Russell to Durango (both directions)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential air quality conformity impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations: N/A Local Operations: N/A Safety: There is an expected benefit of a 25% decrease in crashes when an additional lane for an urban freeway is installed by reducing lane and shoulder width (CMF ID 8334). Additional GP lane can improve traffic flow through the area. Therefore, adding a GP lane improves the safety.

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.

Round 2 Screening

#	Description	Advantages	Disadvantages
6	Braid all the ramps between I-15 and Decatur	• Eliminates weaving	• I-15 SB would not be able to get to Decatur • EB Decatur would not be able to get to I-15 SB • Potential floodplain impacts • Potential Desert Tortoise habitat impacts

Mainline Operations: 8 | Local Operations: 3 | Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 2

Justification/Comments/Disposition:
This Idea (full braiding) did not provide enough advantages compared to disadvantages and was not part of the Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
10	Braid the westbound I-215 to Decatur and the northbound I-15 to Decatur traffic with the southbound I-15 to CC 215	• Eliminates the weave between the system I/C and Decatur • Separates high conflict movements	• Potential floodplain impacts • Potential Desert Tortoise habitat impacts

Mainline Operations: 7 | Local Operations: 4 | Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
24	Use 2-lane off-ramps to assist in providing lane balance	• Provides lane balance when combined with upstream lane add options • No notable environmental concerns • Minimal effort to gain large benefit	• Does not fix weave issue • If stand alone, does not directly add mainline capacity or benefit (when built as a lane add near the off ramp)

Mainline Operations: 4 | Local Operations: 5 | Safety: If a two-lane off ramp is used instead of a one-lane off ramp, there can be a 29% decrease in crashes (CMF ID 3040).

Rating 2

Justification/Comments/Disposition:
Two lane off-ramps by themselves do not solve the weaving issue at these locations.
They require additional lane add options to provide advantages.

Round 2 Screening

#	Description	Advantages	Disadvantages
90	Braid ramps between Sunset and Russell NB/WB, Durango and Buffalo SB/EB, Buffalo and Rainbow EB and WB, Rainbow and Jones EB and WB, Jones and Decatur EB and WB	• Eliminates all weaving	• Could impact access • Visual impacts • ROW impacts • Potential floodplain impacts • Potential Desert Tortoise habitat impacts • Impacts to off-street bike trail along Durango

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:**
Idea used in Corridor Alternative 1. See ideas #91 - #95.

Round 2 Screening

#	Description	Advantages	Disadvantages
91	Braided ramp between Sunset and Russell NB/WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost • Potential floodplain and drainage impacts

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:**
Idea used in Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
92	Braided ramp between Durango and Buffalo SB/EB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost • Potential EJ impacts • Potential drainage impacts • Potential impacts to off-street bike trail along Durango that is crossed by 215 • Potential Desert Tortoise impacts

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:**
Idea used in Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
93	Braided ramp between Buffalo and Rainbow EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost • Potential EJ impacts • Potential floodplain and drainage impacts • Potential Desert Tortoise impacts

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:** Idea used in Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
94	Braided ramp between Rainbow and Jones EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost • Potential EJ impacts • Potential floodplain and drainage impacts • Potential Desert Tortoise impacts

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:** Idea used in Corridor Alternative 1.

Round 2 Screening

#	Description	Advantages	Disadvantages
95	Braided ramp between Jones and Decatur EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost • Potential EJ impacts • Potential floodplain and drainage impacts • Potential Desert Tortoise impacts

Mainline Operations 10 Local Operations 5 Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3 **Justification/Comments/Disposition:** Idea used in Corridor Alternative 1.

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 3

IDEAS

10. Braid the eastbound off-ramp to Decatur with the eastbound off-ramp to I-15
90. Braid all ramps between Sunset and Russell NB/WB, Durango and Buffalo SB/EB, Buffalo and Rainbow EB and WB, Rainbow and Jones EB and WB, Jones and Decatur EB and WB
91. Braided ramp between Sunset and Russell NB/WB
92. Braided ramp between Durango and Buffalo SB/EB
93. Braided ramp between Buffalo and Rainbow EB and WB
94. Braided ramp between Rainbow and Jones EB and WB
95. Braided ramp between Jones and Decatur EB and WB

Ideas Screened Out During: **Round 2** 3, 4, 5, 6, 24

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
10	Braid the westbound I-215 to Decatur and the northbound I-15 to Decatur traffic with the southbound I-15 to CC 215	• Eliminates the weave between the system I/C and Decatur	• Potential floodplain impacts • Potential Desert Tortoise habitat impacts
	Maintainability 3	Construction Impacts 3	Environmental Impacts 3

✓ **Preferred Alternative**

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
90	Braid ramps between Sunset and Russell NB/WB, Durango and Buffalo SB/EB, Buffalo and Rainbow EB and WB, Rainbow and Jones EB and WB, Jones and Decatur EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 2	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
91	Braided ramp between Sunset and Russell NB/WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 4	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
92	Braided ramp between Durango and Buffalo SB/EB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 3	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
93	Braided ramp between Buffalo and Rainbow EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 3	

✓ **Preferred Alternative**

CC 215 from Russell Road to the I-15/I-215 System Interchange • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
94	Braided ramp between Rainbow and Jones EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 3	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
95	Braided ramp between Jones and Decatur EB and WB	• Separate the entering/exiting traffic • Eliminate queues on entrance ramps by decreasing weaving • Improves safety	• Increased construction cost
Maintainability 3	Construction Impacts 3	Environmental Impacts 3	

✓ **Preferred Alternative**

Summerlin Parkway from CC 215 to US 95 • Round 1

IDEAS

1. Add a GP lane from US 95 to CC 215
2. Add HOV lane from Rampart to CC 215
3. Eastbound Summerlin to Rainbow braid with Buffalo on-ramp
4. Eliminate Buffalo eastbound on-ramp (use Westcliff to Rainbow)
5. Braid SB US 95 to Summerlin with Buffalo off-ramp
6. Convert Buffalo to a diamond with a braided ramp in the eastbound direction
7. Hybrid traffic circle within the system to system/Rainbow interchange to replace the single point.
8. Westbound Summerlin to southbound CC 215 flyover
9. Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)
10. CC 215 - Braid the off ramp to Far Hills with the Summerlin on-ramp
11. Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound
12. Separate the system to system movements from the local movements at CC 215 & Summerlin
13. Ramp metering
14. ITS Solutions for travel time and route decision
15. Active Traffic Management (i.e. Variable Speed Zones)

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Summerlin Parkway from CC 215 to US 95 • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
1	Add additional GP lane from US 95 to CC 215	• Increases capacity	• Potential air quality conformity impacts • ROW impacts • Potential noise impacts • Potential park/rec impacts • Potential impacts to on and off-street bike trails • Potential Desert Tortoise habitat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	◉

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
2	Add HOV lane from Rampart to CC 215	• Increases capacity	• Requires complete reconstruction of the entire interchange, and adding HOVs to a service interchange will require right of way for the intersection spacings needed

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◉	◉	◉	◉

Rating 1

Justification/Comments/Disposition:
Dropped from further consideration. HOV demand need to be analyzed for exclusive HOV lane. In addition, capacity is increased by adding an additional lane to Base Build.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	Eastbound Summerlin to Rainbow braid with Buffalo on-ramp	• Eliminates weave	• Could impact access • Visual impacts • ROW impacts • Potential park/rec impacts • Potential impacts to off-street bike trail • May require replacement of the Buffalo bridge

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	◉

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Summerlin Parkway from CC 215 to US 95 • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
4	Eliminate Buffalo eastbound on-ramp (use Westcliff to Rainbow)	• Eliminates weave	• Degradation to local operations

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◎	◎	◎	●

Rating 1

Justification/Comments/Disposition:
Local operations will be deteriorated along with safety impacts. Removing an access to Buffalo arterial will add to public opposition. Hence, dropped from further consideration.

Round 1 Screening

#	Description	Advantages	Disadvantages
5	Braid SB US 95 to Summerlin with Buffalo off-ramp	• Eliminates weave	• Could impact access • Visual impacts • ROW impacts • May require replacement of Buffalo Structure

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
6	Convert Buffalo to a diamond interchange with a braided ramp in the eastbound direction	• Increase capacity on freeway upstream of ramp	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail • Potential park/rec impacts • Left turn delays for NBL in diamond

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◎	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
7	Hybrid traffic circle within the system to system/ Rainbow interchange to replace the single point	• Possible enhanced traffic flow	• Requires major reconfiguration of the interchange • Significant traffic in all directions on Rainbow may not operate well in peak hour • High percentage of large vehicles and trucks cause friction

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	◎	◎	◎	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration that may warrant additional analysis for further study. It is also in a Mesoscopic portion of the corridor for which SNTS project is not to analyze alternatives. See Jacobs Meso Area for additional information.

Round 1 Screening

#	Description	Advantages	Disadvantages
8	Westbound Summerlin to southbound CC 215 flyover	• System to system movement • Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts • Conflicts with Planned SB to EB flyover • Will require RW to make geometry work • Must construct additional system interchange improvements

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
9	Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)	• Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
10	CC 215 – Braid/Slip the off ramp to Far Hills with the new Summerlin on-ramp (Idea #9)	• Eliminate weaving	• Visual impacts • Potential Desert Tortoise habitat impacts • Considerable earthwork (soil nail walls) and potential drainage reconfiguration

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
11	Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound	• Provides a free movement • Eliminates conflicts • Increases traffic flow	• Visual impacts • Potential Desert Tortoise habitat impacts • Causes a weave on the ramp connector that could impact CC215 NB and Farhills interchange (SPUI)

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	◎	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
12	Separate the system to system movements from the local movements at CC 215 & Summerlin	• Improves local and mainline operations by eliminating conflicts and increasing capacity	• Lots of infrastructure to construct • Visual impacts • Potential Desert Tortoise habitat impacts • NVE Transmission relocations • ROW impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
13	Ramp metering	▪ No notable environmental concerns	▪ May not apply to system interchange

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	◎	◎	●	○

Rating 2

Justification/Comments/Disposition:
Idea was rated 3 but adjusted to 2 after further study. This was determined to be a design consideration that may warrant additional analysis in a future study or may be combined with other ideas.

Round 1 Screening

#	Description	Advantages	Disadvantages
14	ITS Solutions for travel time and route decision	▪ Better inform and distribute drivers to less busy routes ▪ The area has a good roadway network that lends to successful operation of ATMS/ITS/etc.	▪ More equipment/infrastructure to maintain/operate

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	●	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration. Outside of scope of this project.

Round 1 Screening

#	Description	Advantages	Disadvantages
15	Active Traffic Management (i.e. Variable Speed Zones)	▪ Controls speeds and densities ▪ Promotes use of the local road network if it can support the added volumes	▪ More equipment/infrastructure to maintain/operate

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	○	○

Rating 2

Justification/Comments/Disposition:
This was determined to be a design consideration. Outside of scope of this project.

Summerlin Parkway from CC 215 to US 95 • Round 2

IDEAS

1. Add a GP lane from US 95 to CC 215
3. Eastbound Summerlin to Rainbow braid with Buffalo on-ramp
5. Braid SB US 95 to Summerlin with Buffalo off-ramp
6. Convert Buffalo to a diamond with a braided ramp in the eastbound direction
8. Westbound Summerlin to southbound CC 215 flyover
9. Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)
10. CC 215 - Braid the off ramp to Far Hills with the Summerlin on-ramp
11. Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound
12. Separate the system to system movements from the local movements at CC 215 & Summerlin
13. Ramp metering

Ideas Screened Out During: **Round 1**	2, 4, 7, 14, 15
Ideas Added	N/A

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
1	Add additional GP lane from US 95 to CC 215	• Increases capacity	• Potential air quality conformity impacts • ROW impacts • Potential noise impacts • Potential park/rec impacts • Potential impacts to on and off-street bike trails • Potential Desert Tortoise habitat impacts

Mainline Operations N/A Local Operations N/A

Rating 2

Justification/Comments/Disposition:
This is already a part of the assumed Build model.

Summerlin Parkway from CC 215 to US 95 • Round 2 *Continued*

Round 2 Screening

#	Description	Advantages	Disadvantages
3	Eastbound Summerlin to Rainbow braid with Buffalo on-ramp	• Eliminates all weaving	• Could impact access • Visual impacts • ROW impacts • Potential park/rec impacts • Potential impacts to off-street bike trail • May require replacement of the Buffalo bridge

Mainline Operations 10 Local Operations 6

Rating 3

Justification/Comments/Disposition:
Moved to further modeling as part of Corridor Alternative.

Round 2 Screening

#	Description	Advantages	Disadvantages
5	Braid SB US 95 to Summerlin with Buffalo off-ramp	• Eliminates weaving in conflicting area	• Could impact access • Visual impacts • ROW impacts • May require replacement of Buffalo Structure

Mainline Operations 6 Local Operations 5

Rating 3

Justification/Comments/Disposition:
Moved to further modeling as part of Corridor Alternative.

Round 2 Screening

#	Description	Advantages	Disadvantages
6	Convert Buffalo to a diamond interchange	• Increased capacity due to removal of upstream bottleneck at loop ramp	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail • Potential park/rec impacts • Left turn delays for NBL in diamond

Mainline Operations 6 Local Operations 3

Rating 3

Justification/Comments/Disposition:
This idea was changed to just converting to a diamond interchange for modeling purposes of the SNTS. Alternative local interchange options not part of the modeling process. Braided ramps in the eastbound direction was removed so that exclusive benefits of converting to a diamond interchange can be evaluated. Moved to further modeling as part of Corridor Alternative.

Round 2 Screening

#	Description	Advantages	Disadvantages
8	Westbound Summerlin to southbound CC 215 flyover	• System to system movement • Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts • Conflicts with planned SB to EB flyover • Will require RW/Utility relocations to make geometry work • Must construct additional system interchange improvements
Mainline Operations 8	Local Operations 6		
Rating 3	**Justification/Comments/Disposition:** Moved to further modeling as part of Corridor Alternative.		

Round 2 Screening

#	Description	Advantages	Disadvantages
9	Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)	• Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts
Mainline Operations 8	Local Operations 5		
Rating 3	**Justification/Comments/Disposition:** Moved to further modeling as part of Corridor Alternative.		

Round 2 Screening

#	Description	Advantages	Disadvantages
10	CC 215 – Braid/Slip the off ramp to Far Hills with the new Summerlin on-ramp (Idea #9)	• Eliminate weaving	• Visual impacts • Potential Desert Tortoise habitat impacts • Considerable earthwork (soil nail walls) and potential drainage reconfiguration
Mainline Operations 7	Local Operations 6		
Rating 3	**Justification/Comments/Disposition:** Moved to further modeling as part of Corridor Alternative.		

Round 2 Screening

#	Description	Advantages	Disadvantages
11	Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound	• Provides a free movement	• Visual impacts • Potential Desert Tortoise habitat impacts • Causes a weave on the ramp connector that could impact CC215 NB and Farhills interchange (SPUI)

Mainline Operations 6 Local Operations 5

Rating 3

Justification/Comments/Disposition:
Moved to further modeling as part of Corridor Alternative.

Round 2 Screening

#	Description	Advantages	Disadvantages
12	Separate the system to system movements from the local movements at CC 215 & Summerlin	• Improves local and mainline operations	• Lots of infrastructure to construct • Visual impacts • Potential Desert Tortoise habitat impacts • NVE Transmission relocations • ROW impacts

Mainline Operations 8 Local Operations 6

Rating 2

Justification/Comments/Disposition:
All system to system movements is not necessary per visual audit and benefits. Partial separation already used in build and alternatives.

Round 2 Screening

#	Description	Advantages	Disadvantages
13	Ramp metering	• No notable environmental concerns	• May not apply to system interchange

Mainline Operations N/A Local Operations N/A

Rating 2

Justification/Comments/Disposition:
Design Consideration for future projects.

Summerlin Parkway from CC 215 to US 95 • Round 3

IDEAS

3. Eastbound Summerlin to Rainbow braid with Buffalo on-ramp
5. Braid SB US 95 to Summerlin with Buffalo off-ramp
6. Convert Buffalo to a diamond with a braided ramp in the eastbound direction
8. Westbound Summerlin to southbound CC 215 flyover
9. Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)
10. CC 215 - Braid the off ramp to Far Hills with the Summerlin on-ramp
11. Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound

Ideas Screened Out During: **Round 2** 1, 12, 13

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
3	Eastbound Summerlin to Rainbow braid with Buffalo on-ramp	• Eliminates weaving	• Could impact access • Visual impacts • ROW impacts • Potential park/rec impacts • Potential impacts to off-street bike trail • May require replacement of the Buffalo bridge
Maintainability 4	Construction Impacts 3	Environmental Impacts 2	

✓ **Preferred Alternative**

Summerlin Parkway from CC 215 to US 95 • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
5	Braid SB US 95 to Summerlin with Buffalo off-ramp	• Eliminates weaving	• Could impact access • Visual impacts • ROW impacts • May require replacement of Buffalo Structure
Maintainability 4	Construction Impacts 4	Environmental Impacts 5	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
6	Convert Buffalo to a diamond interchange	• Increased capacity due to removal of upstream bottleneck at loop ramp	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail • Potential park/rec impacts • Left turn delays for NBL in diamond
Maintainability 4	Construction Impacts 4	Environmental Impacts 2	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
8	Westbound Summerlin to southbound CC 215 flyover	• System to system movement • Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts • Conflicts with Planned SB to EB flyover • Will require RW/Utility relocations to make geometry work • Must construct additional system interchange improvements
Maintainability 4	Construction Impacts 3	Environmental Impacts 3	

✓ **Preferred Alternative**

Summerlin Parkway from CC 215 to US 95 • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
9	Eastbound Summerlin to southbound CC 215 add ramp to eliminate loop connection (right turn)	• Eliminates left turn	• Visual impacts • Potential Desert Tortoise habitat impacts
	Maintainability 4	Construction Impacts 3	Environmental Impacts 3

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
10	CC 215 – Braid/Slip the off ramp to Far Hills with the new Summerlin on-ramp (Idea #9)	• Eliminate weaving	• Visual impacts • Potential Desert Tortoise habitat impacts • Considerable earthwork (soil nail walls) and potential drainage reconfiguration
	Maintainability 3	Construction Impacts 3	Environmental Impacts 3

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
11	Slip ramp to allow northbound Far Hills traffic to enter CC 215 northbound	• Provides a free movement	• Visual impacts • Potential Desert Tortoise habitat impacts • Causes a weave on the ramp connector that could impact CC215 NB and Farhills interchange (SPUI)
	Maintainability 4	Construction Impacts 4	Environmental Impacts 3

✓ **Preferred Alternative**

I-515 from the US 95/I-515 System Interchange to Eastern • Round 1

IDEAS

1. Addition of GP or HOV lane from south of Charleston to MLK with direct access to Maryland Parkway
2. NB CD Road from LVB to I-15
3. SB – Braid ramps between I-15 and LVB and reconfigure CCB ramps as system ramps

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Round 1 Screening

#	Description	Advantages	Disadvantages
1	Add either GP/HOV lane both directions from south of Charleston to MLK with a direct access to Maryland Parkway	• Increase in capacity • Relieves some weaving	• Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential air quality conformity impacts • Potential hazmat impacts • Requires Viaduct reconstruction and potential ROW

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
If a HOV is determined not to be needed then no direct access to Maryland Parkway. Moved to further evaluation and modeling.

I-515 from the US 95/I-515 System Interchange to Eastern • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
2	Add a northbound I-515 CD Road from Las Vegas Blvd to I 15 to eliminate the weave just prior to System I/C	• Congestion reduction • Relives major weaving issue • Less traffic on I-515 due to CD	• Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential air quality conformity impacts • Potential hazmat impacts • May require ROW

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	In the southbound direction braid ramps between I-15 and Las Vegas Blvd and reconfigure Casino Center Blvd ramps as system ramps	• Relives major weaving issue • Direct access to Downtown from I-15 • Improves traffic flow	• Reduces Downtown access from I-515 • Requires ROW acquisition • No redundancy of indecent at LVB access • Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential hazmat impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-515 from the US 95/I-515 System Interchange to Eastern • Round 2

IDEAS

1. Addition of GP or HOV lane from south of Charleston to MLK with direct access to Maryland Parkway
2. NB CD Road from LVB to I-15
3. SB – Braid ramps between I-15 and LVB and reconfigure CCB ramps as system ramps

Ideas Screened Out During: **Round 1**	N/A
Ideas Added	N/A

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
1	Add either GP/HOV lane both directions from south of Charleston to MLK with a direct access to Maryland Parkway	• Increase in capacity • Relieves some weaving • Removes conflict of movements	• Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential air quality conformity impacts • Potential hazmat impacts • Requires Viaduct reconstruction and potential ROW

Mainline Operations 6 Local Operations 6

Safety: There is an expected benefit of a 25% decrease in crashes when an additional lane for an urban freeway is installed by reducing lane and shoulder width (CMF ID 8334). Additional GP lane can improve traffic flow through the area. Therefore, adding a GP lane improves the safety.

Rating 3

Justification/Comments/Disposition:
If a HOV is determined not to be needed then no direct access to Maryland Parkway. Moved to further evaluation and modeling.

I-515 from the US 95/I-515 System Interchange to Eastern • Round 2 *Continued*

Round 2 Screening

#	Description	Advantages	Disadvantages
2	Add a northbound I-515 CD Road from Las Vegas Blvd to I 15 to eliminate the weave just prior to System I/C	• Congestion reduction • Relives major weaving issue on I-515 • Less traffic on I-515 due to CD	• Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential air quality conformity impacts • Potential hazmat impacts • May require ROW

Mainline Operations 9 Local Operations 9

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 2 Screening

#	Description	Advantages	Disadvantages
3	In the southbound direction braid ramps between I 15 and Las Vegas Blvd and reconfigure Casino Center Blvd ramps as system ramps	• Relives major weaving issue • Direct access to Downtown from I-15 • Improves traffic flow	• Reduces Downtown access from I-515 • Requires ROW acquisition • No redundancy of indecent at LVB access • Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potentialhaz mat impacts

Mainline Operations 8 Local Operations 5

Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-515 from the US 95/I-515 System Interchange to Eastern • Round 3

IDEAS

2. NB CD Road from LVB to I-15
3. SB – Braid ramps between I-15 and LVB and reconfigure CCB ramps as system ramps

Ideas Screened Out During: **Round 2** 1

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
2	Add a northbound I-515 CD Road from Las Vegas Blvd to I 15 to eliminate the weave just prior to System I/C	• Congestion reduction • Relives major weaving issue • Less traffic on I-515 due to CD	• Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential air quality conformity impacts • Potential hazmat impacts • May require ROW
Maintainability 3	Construction Impacts 2	Environmental Impacts 2	

✓ **Preferred Alternative**

I-515 from the US 95/I-515 System Interchange to Eastern • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
3	In the southbound direction braid ramps between I 15 and Las Vegas Blvd and reconfigure Casino Center Blvd ramps as system ramps	• Relives major weaving issue • Direct access to Downtown from I-15 • Improves traffic flow	• Reduces Downtown access from I-515 • Requires ROW acquisition • No redundancy of indecent at LVB access • Potential EJ impacts • Potential impacts to on-street and off-street bike trails • Potential historic resource/Section 4(f) impacts • Potential hazmat impacts
Maintainability 4	Construction Impacts 2	Environmental Impacts 2	

✓ **Preferred Alternative**

I-515 from Eastern Ave to the US 95/I-515 System Interchange • Round 1

IDEAS

1. Add auxiliary lanes between Tropicana and Russell
2. Add auxiliary lanes between Lake Mead to Horizon
16. Ramp Metering

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Round 1 Screening

#	Description	Advantages	Disadvantages
1	I-515 - Add auxiliary lanes between Tropicana and Russell	• Improves Operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates an 8,000ft weaving movement • Potential noise impacts • Potential EJ impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-515 from Eastern Ave to US 95/I-515 System Interchange • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
2	I-515 - Add auxiliary lanes between Lake Mead to Horizon	• Improves operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates an 6,000ft weaving movement

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	●

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
16	Ramp Metering	• No notable environmental concerns	• Can cause queuing that may affect interchange

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	○	●

Rating 2

Justification/Comments/Disposition:
Idea was rated 3 but adjusted to 2 after further study. This was determined to be a design consideration that may warrant additional analysis in a future study or may be combined with other ideas.

I-515 from Eastern Ave to the US 95/I-515 System Interchange • Round 2

IDEAS

1. Add auxiliary lanes between Tropicana and Russell
2. Add auxiliary lanes between Lake Mead to Horizon
16. Ramp Metering
22. Add auxiliary lanes between Auto Show and Russell plus 2 lane Auto Show NB on-ramp
23. Join Flamingo SB on-ramps plus braid with Tropicana dual off-ramp

Ideas Screened Out During: **Round 1**	N/A
Ideas Added	22, 23

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
1	I-515 - Add auxiliary lanes between Tropicana and Russell	• Improves Operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates an 8,000ft weaving movement • Potential noise impacts • Potential EJ impacts

Mainline Operations 10 Local Operations 5

Safety: Adding an auxiliary lane may reduce crashes by 21% (CMF ID 7440).

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
2	I-515 - Add auxiliary lanes between Lake Mead to Horizon	• Improves operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates an 6,000ft weaving movement

Mainline Operations: N/A Local Operations: N/A

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.

Round 2 Screening

#	Description	Advantages	Disadvantages
16	I-515 - Add auxiliary lanes between Lake Mead to Horizon	• No notable environmental concerns	• Negative local system impacts • Maintenance of system

Mainline Operations: N/A Local Operations: N/A

Rating 2

Justification/Comments/Disposition:
Design consideration for future projects. Not considered as part of SNTS B/C analysis.

Round 2 Screening

#	Description	Advantages	Disadvantages
22	Add auxiliary lanes between Auto Show and Russell plus 2 lane Auto Show NB on-ramp	• Removal of bottle neck along I-515 • Minimal addition of pavement and striping • Improved flow on congested movements	• Without 2 lane on-ramps, traffic would back into Auto Show • Ramp closures • Potential EJ impacts • Potential drainage feature impacts • Potential noise impacts

Mainline Operations: 10 Local Operations: 5

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
23	Join Flamingo SB on-ramps plus braid with Tropicana dual off-ramp	• Removal of bottle neck along southbound I-515 • Separation of conflicting movements	• Without removal of weave, traffic could backup to Boulder and Flamingo • Cost of new bridge and wall maintenance • Ramp closures • If ROW is required, potential impacts to EJ and off-street bike trail along I-515
Mainline Operations 10	Local Operations 8		
Rating 3	**Justification/Comments/Disposition:** Idea used in Corridor Alternative 1 and Corridor Alternative 2.		

I-515 from Eastern Ave to the US 95/I-515 System Interchange • Round 3

IDEAS

1. Add auxiliary lanes between Tropicana and Russell
22. Add auxiliary lanes between Auto Show and Russell plus 2 lane Auto Show NB on-ramp
23. Join Flamingo SB on-ramps plus braid with Tropicana dual off-ramp

Ideas Screened Out During: **Round 2** 2, 16

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
1	I-515 - Add auxiliary lanes between Tropicana and Russell	• Improves Operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates an 8,000ft weaving movement • Potential noise impacts • Potential EJ impacts

Maintainability 5 Construction Impacts 6 Environmental Impacts 5

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
22	Add auxilary lanes between Auto Show and Russell plus 2 lane Auto Show NB on-ramp	• Removal of bottle neck along I-515 • Minimal addition of pavement and striping	• Without 2 lane on-ramps, traffic would back into Auto Show • Ramp closures

Maintainability 4 Construction Impacts 4 Environmental Impacts 4

✓ **Preferred Alternative**

I-515 from Eastern Ave to US 95/I-515 System Interchange • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
23	Join Flamingo SB on-ramps plus braid with Tropicana dual off-ramp	• Removal of bottle neck along southbound I-515	• Without removal of weave, traffic could backup to Boulder and Flamingo • Cost of new bridge and wall maintenance • Ramp closures
	Maintainability 3	Construction Impacts 3	Environmental Impacts 4

✓ **Preferred Alternative**

I-215 from Windmill to the I-515/I-215 System Interchange • Round 1

IDEAS

3. Add auxiliary lanes between Windmill and Eastern
4. Increase off-ramp to 2-lanes for eastbound at Eastern
5. Convert Eastern to a DDI
6. Add auxiliary lanes between Eastern and Pecos
7. Jacobs freeway concept from Pecos to the west
8. Use 2-lane off-ramps to assist in providing lane balance
9. Incorporate a collector distributor from Eastern to Green Valley
10. Add a GP Lane from Pecos to I-515 (Jacobs Concept)
11. No left turns at ramp terminals, utilize Texas turns between or at interchanges with braided ramps
12. Braid all ramps at every interchange
13. Convert Pecos to a Turbine interchange
14. Convert Gibson to an Inverted diamond
17. ITS Solutions for travel time and route decision
18. Active Traffic Management (i.e. Variable Speed Zones)
19. Combine full interchanges into partial interchanges
20. Convert Gibson into a DDI

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	Add auxiliary lanes between Windmill and Eastern	• Improves operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates a 5,500ft weaving movement • Potential noise impacts • Potential impact to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
4	Increase off-ramp to 2-lanes for eastbound at Eastern	• Improves Operation • No notable environmental concerns • Minor impact during construction	• More demand can get into the Eastern interchange, signal timing and interchange improvements needed

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◎	●

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
5	Convert Eastern to a DDI	• Improves local operations	• May reduce operations on I-215 by increasing volume • Serene Avenue and Eastern intersection issues (proximity) could be greatly exacerbated by a DDI • May require substantial reconfiguration of Eastern or a through movement flyover in the SB direction at Serene • Potential ROW impacts • Potential EJ impacts • Potential drainage and floodplain impacts • Potential impacts to off-street bike trail along Eastern and I-215 • Potential visual impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
◎	●	○	◎	◎

Rating 2

Justification/Comments/Disposition:
Design consideration.

Round 1 Screening

#	Description	Advantages	Disadvantages
6	Add auxiliary lanes between Eastern and Pecos	• Improves Operations • Improved air quality from reduced congestion	• Creates a weaving movement • Potential impacts to off-street bike trail • Potential visual impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
7	"Jacobs" freeway concept from Pecos to the west	• Improves Operation • Improved air quality from reduced congestion	• Potential noise impacts • Potential air quality conformity impacts • Potential impacts to off-street bike trail • Potential visual impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◉	◉

Rating 1

Justification/Comments/Disposition:
Dropped from further consideration. Combined with Idea #10.

Round 1 Screening

#	Description	Advantages	Disadvantages
8	Use 2-lane off-ramps to assist in providing lane balance	• Provides lane balance • No notable environmental concerns • Minimal construction impacts to accomplish	• More demand can get into the interchanges, signal timing and interchange improvements needed

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	○	◉	○

Rating 3

Justification/Comments/Disposition:
Changes weave type. Moved to further evaluation and modeling. Only effective is used with other ideas.

Round 1 Screening

#	Description	Advantages	Disadvantages
9	Incorporate a collector distributor from Eastern to Green Valley	• Eliminates weave • Improved air quality from reduced congestion	• ROW impacts • Potential impacts to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	⊙	⊙	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
10	Add a GP Lane from Pecos to I-515 (Jacobs Concept)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential impacts to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	⊙	○	⊙

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling. Combined with Idea #7.

Round 1 Screening

#	Description	Advantages	Disadvantages
11	No left turns at ramp terminals, utilize Texas turns between or at interchanges with braided ramps	• Eliminates all weaving • Makes all ramp terminals 2-phase by relocating the left turns	• Driver expectation • Could impact access • Visual impacts • ROW impacts • Potential impacts to on- and off-street bike trails

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	⊙	⊙	○

Rating 1

Justification/Comments/Disposition:
Dropped from further consideration.

Round 1 Screening

#	Description	Advantages	Disadvantages
12	Braid all ramps at every interchange	• Eliminates all weaving • Improved air quality from reduced congestion	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◎	◎	◎

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling where necessary.

Round 1 Screening

#	Description	Advantages	Disadvantages
13	Convert Pecos to a Turbine interchange	• Improves local operations • Improves mainline operations • Improved air quality from reduced congestion	• Increases footprint • Potential impacts to off-street bike trail

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◎	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
14	Convert Gibson to an Inverted Diamond	• Improves local operations	• Driver expectancy • Stakeholder opposition

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◎	◎

Rating 1

Justification/Comments/Disposition:
Dropped from further consideration.

Round 1 Screening

#	Description	Advantages	Disadvantages
17	ITS Solutions for travel time and route decision	• Potential increase in traffic flow and safety with more informed drivers	• Infrastructure cost and maintenance

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	◎	◎	●

Rating 2

Justification/Comments/Disposition:
Design Consideration. Outside the scope of this project.

Round 1 Screening

#	Description	Advantages	Disadvantages
18	Active Traffic Management (i.e. Variable Speed Zones)	• Potential for improved travel time reliability	• Installation cost and maintenance

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	○	○	◉	●

Rating 2

Justification/Comments/Disposition:
Design Consideration. Outside the scope of this project.

Round 1 Screening

#	Description	Advantages	Disadvantages
19	Combine full interchanges into partial interchanges	• Reduces weaving	• Modifies access points • Concentrate traffic

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◉	◉

Rating 1

Justification/Comments/Disposition:
Too much volume. Dropped from further consideration.

Round 1 Screening

#	Description	Advantages	Disadvantages
20	Convert Gibson into a DDI	• Improves local operations • Improved air quality from reduced congestion • There's more room here than at other DDI candidates	• Visual impacts • Potential impacts to off-street bike trail • Geometrics for the crossover locations would need to fit within ROW

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	●	○	◉	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-215 from Windmill to the I-515/I-215 System Interchange • Round 2

IDEAS

3. Add auxiliary lanes between Windmill and Eastern
4. Increase off-ramp to 2-lanes for eastbound at Eastern
6. Add auxiliary lanes between Eastern and Pecos
8. Use 2-lane off-ramps to assist in providing lane balance
9. Incorporate a collector distributor from Eastern to Green Valley
10. Add a GP Lane from Pecos to I-515 (Jacobs Concept)
12. Braid all ramps at every interchange
13. Convert Pecos to a Turbine interchange
20. Convert Gibson into a DDI
25. Airport Connector to SB I-215 dual on-ramp

Ideas Screened Out During: **Round 1**	5, 7, 11, 14, 17, 18, 19
Ideas Added	25

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
3	Add auxiliary lanes between Windmill and Eastern	• Improves Operations • No new ROW anticipated • Improved air quality from reduced congestion	• Creates a 5,500ft weaving movement • Potential noise impacts • Potential impact to off-street bike trail

Mainline Operations 10 Local Operations 10 Safety: Adding an auxiliary lane may reduce crashes by 21% (CMF ID 7440).

Rating 3 **Justification/Comments/Disposition:**
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
4	Increase off-ramp to 2-lanes for eastbound at Eastern	• Improves Operation • No notable environmental concerns • Minor impact during construction	• More demand can get into the Eastern interchange, signal timing and interchange improvements needed

Mainline Operations: 10 | Local Operations: 3 | Safety: If a two-lane off ramp is used instead of a one-lane off ramp, there can be a 29% decrease in crashes (CMF ID 3040).

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
6	Add auxiliary lanes between Eastern and Pecos	• Improves Operation • Improved air quality from reduced congestion	• Creates a weaving movement • Potential impacts to off-street bike trail • Potential visual impacts

Mainline Operations: 10 | Local Operations: 10 | Safety: Adding an auxiliary lane may reduce crashes by 21% (CMF ID 7440).

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
8	Use 2-lane off-ramps to assist in providing lane balance. Necessary I-215 WB to Pecos and I-215 WB to Green Valley	• Provides lane balance • No notable environmental concerns • Minimal construction impacts to accomplish	• If stand alone, does not directly add mainline capacity or benefit (when built as a lane add near the off ramp)

Mainline Operations: 5 | Local Operations: 3 | Safety: If a two-lane off ramp is used instead of a one-lane off ramp, there can be a 29% decrease in crashes (CMF ID 3040).

Rating 2

Justification/Comments/Disposition:
Two lane off-ramps by themselves do not solve the weaving issue at these locations.
They require additional lane add options to provide advantages.

Round 2 Screening

#	Description	Advantages	Disadvantages
9	Incorporate a collector distributor from Eastern to Green Valley	• Eliminates weaving • Improved air quality from reduced congestion	• ROW impacts • Potential impacts to off-street bike trail

Mainline Operations: N/A | Local Operations: N/A | Safety: No CMF value found for incorporating a collector distributor (C-D) road. C-D roads improve safety by reducing freeway mainline merging and lane changes.

Rating 0

Justification/Comments/Disposition:
Based on comments from Steering Committee, this Idea was not analyzed.

Round 2 Screening

#	Description	Advantages	Disadvantages
10	Add a GP Lane from Pecos to I-515 (Jacobs Concept)	• Increases capacity • Adds continuity between adjacent sections	• Doesn't address weaving • Increases speed differential • Potential impacts to off-street bike trail

Mainline Operations: N/A Local Operations: N/A

Safety: There is an expected benefit of a 25% decrease in crashes when an additional lane for an urban freeway is installed by reducing lane and shoulder width (CMF ID 8334).

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.

Round 2 Screening

#	Description	Advantages	Disadvantages
12	Braid all ramps at every interchange – Only ramps braided were between Green Valley and Pecos on I-215 as well as between Stephanie and Valle Verde (both directions)	• Eliminates all weaving • Improved air quality from reduced congestion	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail

Mainline Operations: 10 Local Operations: 5

Safety: Braided ramps separate the entering/exiting traffic and can eliminate queues on entrance ramps by decreasing weaving. Therefore, braided ramp systems are expected to improve safety for drivers. Studies of a San Antonio highway showed that separating drivers reduced crash frequencies by 30 percent.

Rating 3

Justification/Comments/Disposition:
Idea used in Corridor Alternative 1 and Corridor Alternative 2.

Round 2 Screening

#	Description	Advantages	Disadvantages
13	Convert Pecos to a Turbine interchange	• Improves local operations • Improves mainline operations • Improved air quality from reduced congestion	• Increases footprint • Potential impacts to off-street bike trail

Mainline Operations: N/A Local Operations: N/A

Safety: No relevant information found to determine safety benefits for this alternative. Further detailed investigation is required to estimate potential outcome.

Rating 2

Justification/Comments/Disposition:
For the purposes of the SNTS, interchange analysis is only being analyzed and at a high level only to serve demand to/from mainline. Alternative results will not be included in B/C analysis.

Round 2 Screening

#	Description	Advantages	Disadvantages
20	Convert Gibson into a DDI	• Improves local operations • Improved air quality from reduced congestion • There's more room here than at other DDI candidates	• Visual impacts • Potential impacts to off-street bike trail • Geometrics for the crossover locations would need to fit within ROW

Mainline Operations: N/A Local Operations: N/A Safety: There is an expected benefit of a 37% decrease in crashes a diamond interchange is converted to diverging to diverging diamond interchange (CMF ID 3855).

Rating 2

Justification/Comments/Disposition:
For the purposes of the SNTS, interchange analysis is only being analyzed at a high level only to serve demand to/from mainline.
This solution may be used in future analysis to mitigate traffic issues along the arterial at Gibson. Results will not be included in B/C analysis.

Round 2 Screening

#	Description	Advantages	Disadvantages
25	Airport Connector to SB I-215 dual on-ramp	• Removes queue into airport/warm springs • Adds minimal pavement	• Will require widening I-215 • Impact mainline and ramp traffic

Mainline Operations: N/A Local Operations: N/A

Rating 2

Justification/Comments/Disposition:
This Idea is already a part of the assumed 2040 Build network.
It is also in a Mesoscopic portion of the corridor for which the SNTS project is not to analyze alternatives.

I-215 from Windmill to the I-515/I-215 System Interchange • Round 3

IDEAS

3. Add auxiliary lanes between Windmill and Eastern
4. Increase off-ramp to 2-lanes for eastbound at Eastern
6. Add auxiliary lanes between Eastern and Pecod
12. Braid all ramps at every interchange

Ideas Screened Out During: Round 2 8, 9, 10, 13, 20, 25

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
3	Add auxiliary lanes between Windmill and Eastern	• Improves Operations • No new ROW anticipated • Improved air quality from reduced congestion • Increase in capacity	• Creates a 5,500ft weaving movement • Potential noise impacts • Potential impact to off-street bike trail
Maintainability 4	Construction Impacts 3	Environmental Impacts 5	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
4	Increase off-ramp to 2-lanes for eastbound at Eastern	• Improves Operation • No notable environmental concerns • Minor impact during construction	• More demand can get into the Eastern interchange, signal timing and interchange improvements needed
Maintainability 5	Construction Impacts 5	Environmental Impacts 10	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
6	Add auxiliary lanes between Eastern and Pecos	• Improves Operations • Improved air quality from reduced congestion	• Creates a weaving movement • Potential impacts to off-street bike trail • Potential visual impacts
Maintainability 4	Construction Impacts 4	Environmental Impacts 5	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
12	Braid all ramps at every interchange – Only ramps braided were between Green Valley and Pecos on I-215 as well as between Stephanie and Valle Verde (both directions)	• Eliminates weaving • Improved air quality from reduced congestion	• Could impact access • Visual impacts • ROW impacts • Potential impacts to off-street bike trail
Maintainability 4	Construction Impacts 4	Environmental Impacts 3	

✓ **Preferred Alternative**

I-15/I-215 System Interchange • Round 1

IDEAS

1. Construct the CC-215/I-15 HOV flyovers (CC-215 EB to I-15 NB and I-15 SB to CC-215 WB)
2. Widen the CC-215 EB to I-15 NB ramp from one to two lanes
3. Widen the I-15 NB/Las Vegas Boulevard to CC-215 WB ramp from one to two lanes
4. Early exit to Decatur from I-215 prior to the System Interchange

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Round 1 Screening

#	Description	Advantages	Disadvantages
1	Construct the HOV direct connects East/North and West/North	• Delays the need for improvements on the I-15 CD roads and some ramps at the I-15/I-215/CC-215 interchange • Recommended for implementation in the Southern Nevada HOV Plan Update	• Potential ROW impacts • Not necessarily the "best" option geometrically without reconfiguring the entire I-15/I-215 interchange

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◉	◉	○

Rating 2

Justification/Comments/Disposition:
Suggest changing the rating from 3 to 2 because this idea is part of the proposed Long-Term HOV System (from the Southern Nevada HOV Plan Update) and will be implemented. Therefore, no further investigation is required.

Round 1 Screening

#	Description	Advantages	Disadvantages
2	Widen the CC-215 EB to I-15 NB ramp from one to two lanes	• Adds capacity to the existing ramp and reduces congestion • No notable environmental concerns	• Slow speed dual lane exit may increase crashes • Low speed ramps have reduced capacity compared to high speed ramps

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	●

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	Widen the I-15 NB/Las Vegas Boulevard merge to CC-215 WB ramp from one to two lanes	• Adds capacity to the ramp and reduces congestion • No notable environmental concerns	• May not be effective if this idea is implemented without any improvements to CC-215 WB • Potential ROW impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◉	◉	●

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.
Needs to be coordinated with CC-215 geometry (to be implemented together with the CC-215 WB Decatur off-ramp braid).

Round 1 Screening

#	Description	Advantages	Disadvantages
4	Early exit to Decatur from I-215 prior to the System Interchange	• Reduce weave between I-15 ramps and Decatur	• Exit signing may conflict with system interchange signs

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	◉	◉	◉

Rating 2

Justification/Comments/Disposition:
Design Consideration.

I-15/I-215 System Interchange • Round 2

IDEAS

2. Widen the CC-215 EB to I-15 NB ramp from one to two lanes
3. Widen the I-15 NB/Las Vegas Boulevard to CC-215 WB ramp from one to two lanes
45. Widen the CC-215 EB to I-15 NB ramp from one to two lanes and Widen the I-15 NB/Las Vegas Boulevard to CC-215 WB ramp from one to two lanes (including braiding of the CC-215 WB Decatur Boulevard off-ramp and the I-15 on-ramp to CC-215 WB)

Ideas Screened Out During: **Round 1**	1, 4
Ideas Added	45

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	**10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
2	Widen the CC-215 EB to I-15 NB ramp from one to two lanes	• Adds capacity to the existing ramp and reduces congestion • No notable environmental concerns	• Slow speed dual lane exit may increase crashes • Low speed ramps have reduced capacity compared to high speed ramps

Mainline Operations 6 Local Operations 6

Safety: If a two-lane off ramp is used instead of a one-lane off ramp, there can be a 29% decrease in crashes (CMF ID 3040).

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 2 Screening

#	Description	Advantages	Disadvantages
3	Widen the I-15 NB/Las Vegas Boulevard merge to CC-215 WB ramp from one to two lanes	• Adds capacity to the ramp and reduces congestion • No notable environmental concerns	• May not be effective if this idea is implemented without any improvements to CC-215 WB • Potential ROW impacts

Mainline Operations 9 Local Operations 8

Safety: Substantial improvements on the boulevard will improve safety and mobility.

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling. Needs to be coordinated with CC-215 geometry (to be implemented together with the CC-215 WB Decatur off-ramp braid).

Round 2 Screening

#	Description	Advantages	Disadvantages
45	Widen the CC-215 EB to I-15 NB ramp from one to two lanes and Widen the I-15 NB/Las Vegas Boulevard to CC-215 WB ramp from one to two lanes (including braiding of the CC-215 WB Decatur Boulevard off-ramp and the I-15 on-ramp to CC-215 WB)	• Eliminates weave of critical movements • Increases roadway capacity	• Potential EJ impacts • Potential desert tortoise impacts (at Decatur) • Potential ROW impacts
Mainline Operations 9	Local Operations 8		
Rating 3	**Justification/Comments/Disposition:** See Ideas #2 and #3.		

I-15/I-215 System Interchange • Round 3

IDEAS

2. Widen the CC-215 EB to I-15 NB ramp from one to two lanes
3. Widen the I-15 NB/Las Vegas Boulevard to CC-215 WB ramp from one to two lanes

Ideas Screened Out During: **Round 2** 45

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
2	Widen the CC-215 EB to I-15 NB ramp from one to two lanes	• Adds capacity to the existing ramp and reduces congestion • No notable environmental concerns	• Slow speed dual lane exit may increase crashes without proper design • Low speed ramps have reduced capacity compared to high speed ramps
Maintainability 4	Construction Impacts 4	Environmental Impacts 10	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
3	Widen the I-15 NB/Las Vegas Boulevard merge to CC-215 WB ramp from one to two lanes	• Adds capacity to the ramp and reduces congestion • No notable environmental concerns	• May not be effective if this idea is implemented without any improvements to CC-215 WB • Potential ROW impacts
Maintainability 4	Construction Impacts 3	Environmental Impacts 10	

✓ **Preferred Alternative**

I-15 from Russell Road to Sloan • Round 1

IDEAS

1. Widen the ramp from the NB CD road to the mainline (improve from one to two lanes)
2. Widen the 2-lane sections of the I-15 NB CD road to 3 lanes
3. Extend the HOV lane (that will end near Silverado Ranch Boulevard after completion of Project Neon) south to Sloan Road (baseline adds a GP Lane (Phase 2A)
4. Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane
5. Braid the Cactus Avenue on-ramp and Silverado Ranch Boulevard off-ramp
6. Widen the 2-lane sections of the I-15 SB CD road to 3 lanes
7. Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15

ROUND 1 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.
Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.

Round 1 Screening

#	Description	Advantages	Disadvantages
1	Widen the ramp from the NB CD road to the mainline (improve from one to two lanes)	• Alleviates the existing congestion (due to the merge) on the CD road	• Lane balance issues in the absence of improvements in the "Gap" area

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
○	●	◎	◎	○

Rating 2

Justification/Comments/Disposition:
Part of the Baseline.

I-15 from Russell Road to Sloan • Round 1 *Continued*

Round 1 Screening

#	Description	Advantages	Disadvantages
2	Widen the 2-lane sections of the I-15 NB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, could result in sub-standard shoulders

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◉	○	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
3	Extend the HOV lane (that will end near Silverado Ranch Boulevard after completion of Project Neon) south to Sloan Road	• HOV lanes on I-15 (till St. Rose Parkway) was recommended for implementation in the Southern Nevada HOV Plan Update • Adds capacity to the I-15 mainline and reduces congestion	• HOV lane may not be warranted by year 2040 on I-15 near Sloan Road • Potential floodplain impacts between Silverado Ranch Blvd. and Cactus Ave. • Potential impacts to Desert Tortoise habitat

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	○	○

Rating 2

Justification/Comments/Disposition:
Suggest changing the rating from 3 to 2 because this idea is part of the proposed Long-Term HOV System (from the Southern Nevada HOV Plan Update) and will be implemented. Therefore, no further investigation is required.

Round 1 Screening

#	Description	Advantages	Disadvantages
4	Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane	• Improve the weave operations between these two ramps	• Potential floodplain impacts • Potential impacts to Desert Tortoise habitat • ROW may be required

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	○	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling. Idea is mutually exclusive of Idea #5.

Round 1 Screening

#	Description	Advantages	Disadvantages
5	Braid the Cactus Avenue on-ramp and Silverado Ranch Boulevard off-ramp	• Eliminate the weave condition between these two ramps	• Potential floodplain impacts • Potential impacts to Desert Tortoise habitat • ROW may be required

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	○	○	◉	○

Rating 2

Justification/Comments/Disposition:
Idea is mutually exclusive of Idea #4. Therefore, suggest changing the rating from 3 to 2. Idea #4 taken forward.

Round 1 Screening

#	Description	Advantages	Disadvantages
6	Widen the 2-lane sections of the I-15 SB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, could result in sub-standard shoulders (2-foot each side) • Incidents on the CD would result in at least one lane closure

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◉	○	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

Round 1 Screening

#	Description	Advantages	Disadvantages
7	Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15	• One-lane ramp does not have enough capacity to serve future demand	• Potential EJ impacts

Mainline Operations	Local Operations	Maintainability	Construction Impacts	Environmental Impacts
●	●	◉	○	○

Rating 3

Justification/Comments/Disposition:
Moved to further evaluation and modeling.

I-15 from Russell Road to Sloan • Round 2

IDEAS

2. Widen the 2-lane sections of the I-15 NB CD road to 3 lanes
4. Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane
6. Widen the 2-lane sections of the I-15 SB CD road to 3 lanes
7. Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15

Ideas Screened Out During: **Round 1**	1, 3, 5
Ideas Added	N/A

ROUND 2 CRITERIA

Mainline Operations	An assessment of traffic operations and safety on the freeway. Operational considerations include level of service relative to the 20-year traffic projections, as well as geometric considerations such as design speed, sight distance, and lane and shoulder widths.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted
Local Operations	An assessment of traffic operations and safety on the local roadway infrastructure. Operational considerations include level of service relative to the 20-year traffic projections; geometric considerations such as design speed, sight distance, lane and shoulder widths; bicycle and pedestrian operations.	 **10**. Operations Considerably Improved **5**. No Change to Operations **1**. Operations Considerably Impacted

Round 2 Screening

#	Description	Advantages	Disadvantages
2	Widen the 2-lane sections of the I-15 NB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, will result in sub-standard shoulders • Substandard shoulders will result in more barrier hits and increased maintenance
Mainline Operations 7	Local Operations 6		
Rating 3	**Justification/Comments/Disposition:** Moved to further evaluation and modeling.		

I-15 from Russell Road to Sloan • Round 2 *Continued*

Round 2 Screening

#	Description	Advantages	Disadvantages
4	Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane	• Improve the weave operations between these two ramps	• Potential floodplain impacts • Potential impacts to Desert Tortoise habitat • ROW may be required

Mainline Operations: 8 Local Operations: 7 Safety: If a two-lane off ramp is used instead of a one-lane off ramp, there can be a 29% decrease in crashes (CMF ID 3040).

Rating 3 **Justification/Comments/Disposition:**
Moved to further evaluation and modeling. Idea mutually exclusive of Idea #5.

Round 2 Screening

#	Description	Advantages	Disadvantages
6	Widen the 2-lane sections of the I-15 SB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, will result in sub-standard shoulders (2-foot each side) • Incidents on the CD would result in at least one lane closure

Mainline Operations: 7 Local Operations: 6

Rating 3 **Justification/Comments/Disposition:**
Moved to further evaluation and modeling.

Round 2 Screening

#	Description	Advantages	Disadvantages
7	Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15	• One-lane ramp does not have enough capacity to serve future demand	• Potential EJ impacts

Mainline Operations: 9 Local Operations: 7

Rating 3 **Justification/Comments/Disposition:**
Moved to further evaluation and modeling.

I-15 from Russell Road to Sloan • Round 3

IDEAS

2. Widen the 2-lane sections of the I-15 NB CD road to 3 lanes
4. Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane
6. Widen the 2-lane sections of the I-15 SB CD road to 3 lanes
7. Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15

Ideas Screened Out During: **Round 2** N/A

ROUND 3 CRITERIA

Maintainability	An assessment of the long-term maintainability of the transportation facility(s). Maintenance considerations include the overall durability, longevity and maintainability of pavements, structures and systems; ease of maintenance; accessibility and safety considerations for maintenance personnel.	**10**. Maintainability Considerably Reduced **5**. No Change in Maintainability **1**. Maintainability Considerably Increased
Construction Impacts	An assessment of the temporary impacts to the public during construction related to traffic disruptions, detours and delays; impacts to businesses and residents relative to access, visual, noise, vibration, dust and construction traffic; environmental impacts.	**10**. No Impacts **5**. Minimal Impacts **1**. Considerable Impacts
Environmental Impacts	An assessment of the permanent impacts to the environment including ecological (i.e., flora, fauna, air quality, water quality, visual, noise); socioeconomic impacts (i.e., environmental justice, business, residents); impacts to cultural, recreational and historic resources.	**10**. No/minor Impacts **5**. Minimal Impacts **1**. Potentially High Impacts

Round 3 Screening

#	Description	Advantages	Disadvantages
2	Widen the 2-lane sections of the I-15 NB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, could result in sub-standard shoulders

Maintainability 3 Construction Impacts 5 Environmental Impacts 5

✓ **Preferred Alternative**

I-15 from Russell Road to Sloan • Round 3 *Continued*

Round 3 Screening

#	Description	Advantages	Disadvantages
4	Improve the NB Silverado Ranch Boulevard off-ramp (upgrade from 1-lane to 2-lane). Second freeway lane from the outside will be a choice lane	• Improve the weave operations between these two ramps	• Potential floodplain impacts • Potential impacts to Desert Tortoise habitat • ROW may be required
Maintainability 5	Construction Impacts 5	Environmental Impacts 5	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
6	Widen the 2-lane sections of the I-15 SB CD road to 3 lanes	• Adds capacity to the CD road and reduces congestion	• If implemented without physical widening, could result in sub-standard shoulders (2-foot each side) • Incidents on the CD would result in at least one lane closure
Maintainability 3	Construction Impacts 5	Environmental Impacts 10	

✓ **Preferred Alternative**

Round 3 Screening

#	Description	Advantages	Disadvantages
7	Upgrade the northbound Silverado Ranch Boulevard on-ramp from one lane to two lanes and include an acceleration lane on I-15	• Two lane ramp can serve future demand for current overcapacity ramp	• Potential EJ impacts
Maintainability 4	Construction Impacts 5	Environmental Impacts 5	

✓ **Preferred Alternative**