## F0475 SR 101L/I-10 TI DCR

## **Evaluation Criteria, Performance Measures, and Screening Matrix**

**DHOV ALTERNATIVES** 

Date: 4/11/2023

| Criteria                      | Performance Measure  | Alternative A   | Alternative B   | Alternative C  | Alternative D   | Alternative E   | Alternative F   |
|-------------------------------|--|---|---|--|---|---|---|
| Total Project Cost            | Baseline of MAG recommended alternative (Alternative B).   | Increased Cost  | Moderate Cost   | Increased Cost   | Increased Cost  | Highest Cost  | Lowest Cost   |
| Constructability              | Baseline of standard construction activities. Are there elements that require special equipment? | · Minimal space for work zone along SR 101.   | Complex construction for new Ramp E-N bridge.     Construction over 99th Avenue.  | <ul> <li>Construction phasing is not complex.</li> <li>Ramp SW construction is offline.</li> <li>DHOV center pier conflict at McDowell may not be possible due to existing foundation.</li> </ul>  | Construction phasing is not complex.     Ramp W-N and DHOV construction is offline.   | Complex construction phasing to tie into Ramp E-N.     Ramp E-N match point reduces options for DHOV alignment.   | Construction phaseing is not complex.     Avoids impacts on existing system ramps.                      |
| Maintenance of Traffic        | Baseline of typical traffic control versus extended closures.                                    | · Complex shift of SR 101 mainline to create workzone.  | Demolition over I-10.     Requires 99th Avenue entrance ramp closure.     Short closures to switch over Ramp E-N.   | Short-term closures required due to multiple phases<br>of construction sequencing and traffic control for<br>Ramp S-E and S-W.   | - Construction occurs mainly offline.   | · Construction of Ramp E-N requires ramp closure.   | Construction occurs mainly offline.     Does not impact existing system ramps.                          |
| Structures                    | Level of complexity of structures  | DHOV bridge construction in narrow SR 101 median limits bridge type and DHOV profile.     Large columns required for SR 101 with flared tops. Post-tensioned pier caps required and will need additional depth below a dapped configuration.     Curvature may restrict precast span lengths.     Numerous DHOV straddle bents over I-10. | Ramp E-N foundations, straddle bents, and superstructure will be impacted by small work zones between live traffic lanes. Curvature of ramps may restrict precast span lengths. Numerous DHOV straddle bents over I-10. Pier placement on McDowell limited due to existing foundations. | The need for short ramp closures will impact structure design of Ramp S-W at 99th Avenue (first two spans). Structural special detail needed to replace existing Ramp E-N pier with straddle bent. Numerous DHOV straddle bents over I-10. Pier placement on McDowell limited due to existing foundations. | DHOV may require a special foundation at McDowell center pier.     Numerous DHOV straddle bents over I-10.     Minimal structural special issues anticipated. | Ramp E-N modification requires complex structure design and construction techniques.  Numerous DHOV straddle bents over I-10.  Pier placement on McDowell limited due to existing foundations.  Reconstruction of Ramp E-N structure requires complex structure design and construction techniques. | Numerous DHOV straddle bents over I-10. Pier placement on McDowell limited due to existing foundations. |
| Right-of-Way                  | Baseline of no new right-of-way or TCE required for construction.                                | · No new right-of-way anticipated.  | New right-of-way and TCE required for relocation of 99th Avenue entrance ramp.  | · New right-of-way required from Parcel 102-53-004J.<br>Approximately 12,000 square feet.  | · No new right-of-way anticipated.  | · No new right-of-way anticipated.  | · No new right-of-way anticipated.  |
| Drainage                      | Level of complexity of onsite drainage.  | · SR 101 narrow median restricted space for underground drainage. · Culvert north of McDowell impacts bridge.   | New drainage system required for Ramp E-N.     No major issues anticipated.     Culvert north of McDowell impacts bridge.   | Retrofit required for Ramps S-E and SW drainage.     No major issues anticipated.     Culvert north of McDowell impacts bridge.  | New drainage system required for Ramp W-N.     No major issues anticipated.     Culvert north of McDowell impacts bridge.                                     | New drainage system required for Ramp W-N.     No major issues anticipated.     Culvert north of McDowell impacts bridge.   | No major issues anticipated.     Culvert north of McDowell impacts bridge.                              |
| Utilities                     | Level of utility relocations.  | · No known utility impact.  | · No known utility impact.  | · No known utility impact.   | · No known utility impact.  | · No known utility impact.  | · No known utility impact.  |
| Environmental Considerations  | Potential environmental impacts (noise, air, etc).   | · Minimal noise impact.<br>· Minimal air quality impact.  | New Ramp E-N shifts closer to commercial centers. Increased noise impact.     Minimal air quality impact.   | · Minimal noise impact.<br>· Minimal air quality impact.   | New Ramp W-N shifted closer to hotels (minimal). Increased noise impact.     Minimal air quality impact.  | New Ramp W-N shifted closer to hotels (minimal). Increased noise impact.     Minimal air quality impact.  | DHOV shifted closer to hotels (minimal). Increased noise impact.     Minimal air quality impact.        |
| Maintenance/Access            | Cost and complexity of future maintenance.   | · Minimal space in SR101 median for DHOV inspection and maintenance.  | No maintenance impacts.     Increased service life for Ramp E-N.  | · No maintenance impacts.<br>· Increased service life for Ramp S-W.  | No maintenance impacts.     Increased service life for Ramp W-N.  | · No maintenance impacts.<br>· Increased service life for Ramp W-N.   | · Improved maintenance access for DHOV.   |
| Meets ADOT RDG                | Grades whether design meets<br>ADOT design criteria or would<br>require a design exception.      | No impact on existing system ramps. DHOV design speed = 39 mph (southbound), 43 mph (northbound).   | New Ramp E-N improved design speed = 39 mph. DHOV design speed = 39 mph (southbound), 43 mph (northbound).  | · Modify existing Ramp S-E, no design speed improvement. · Ramp S-W design speed = 44 mph. · DHOV design speed = 40 mph (southbound), 44 mph (northbound)  | New Ramp W-N improved design speed = 47 mph     DHOV design speed = 42 mph (southbound), 46 mph (northbound)  | New Ramp W-N improved design speed = 47 mph. DHOV design speed = 42 mph (southbound), 46 mph (northbound). Modify existing Ramp E-N, no design speed improvement.   | No impact on existing system ramps. DHOV design speed = 46 mph (southbound), 50 mph (northbound)        |
| DHOV Access                   | Baseline: Can Thomas Road traffic access DHOV?   | · Thomas Road entry ramp traffic cannot access DHOV.  | · Provides access opportunity from Thomas Road.   | · Provides access opportunity from Thomas Road.  | · Thomas Road entrance ramp traffic can access DHOV, would have to prevent access through use of barrier. Not desirable.                                      | ·Thomas entrance ramp traffic can access DHOV,<br>would have to prevent access through use of barrier.<br>Not desirable.  | · Thomas entrance ramp traffic cannot access DHOV.  |
| Local Agency Support          | Feedback received from local agencies.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.  |
| Public Acceptance             | Feedback received from public information meeting.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.  |
| EMS/Police/Fire Access        | Feedback received from meeting with emergency personnel.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.   | · No preference indicated.  | · No preference indicated.  | · No preference indicated.  |
| Adjacent Project Coordination | SR 101L future GPL compatibility,<br>91st Avenue combatibility.                                  | · No known impacts.   | · No known impacts.   | · No known impacts.  | · No known impacts.   | · No known impacts.   | - No known impacts.   |