



## ***Project Need and Purpose***



### **Project Need**

- Traffic congestion approaching Loop 101/I-10 interchange
- Arterial street traffic congestion within the project area
- Traffic weaving contributes to congestion and crashes
- High crash rates within the study area
- No current direct HOV connection between Loop 101 and I-10 to the east
- Limited access to neighborhoods and large distribution centers south of I-10



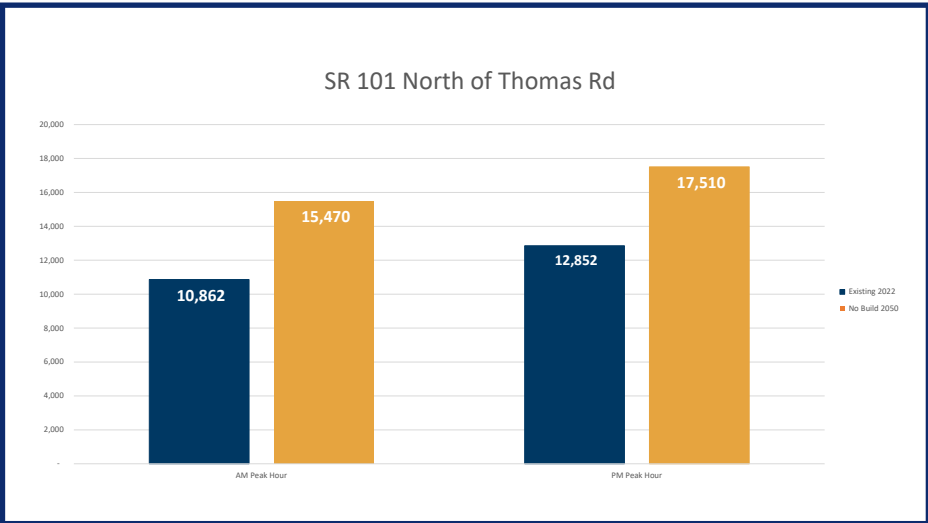
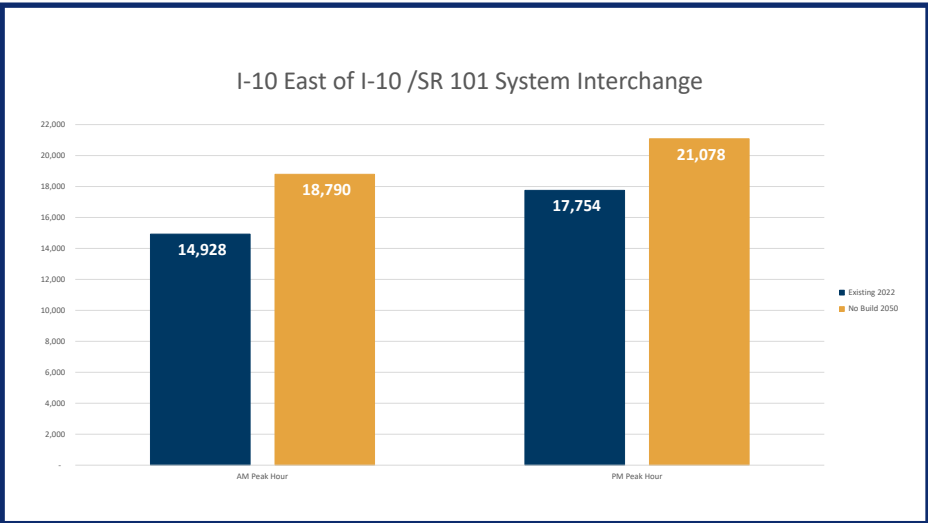
### **Project Purpose**

- Mitigate weaving movements for HOV traffic along Loop 101 and I-10 east of the system interchange
- Improve safety by minimizing traffic conflict points
- Improve traffic operations on I-10 and Loop 101
- Improve operations at traffic interchanges and surface streets
- Accommodate future widening projects along mainline and adjacent roadway
- Provide opportunities for incident management

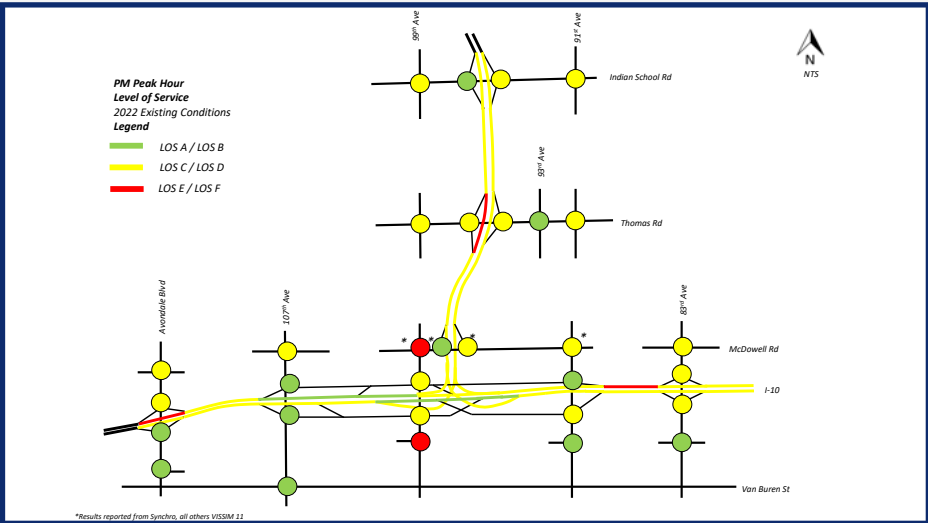
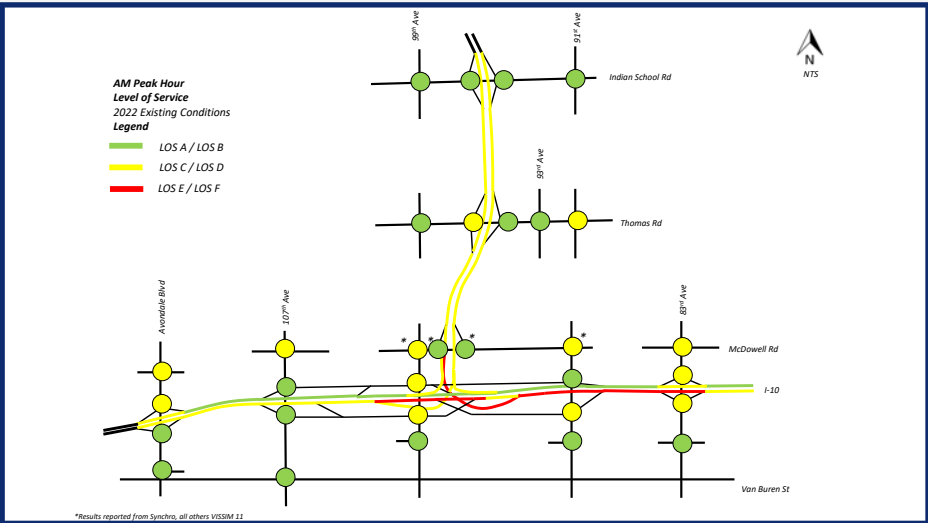


# Existing and Future Traffic Conditions

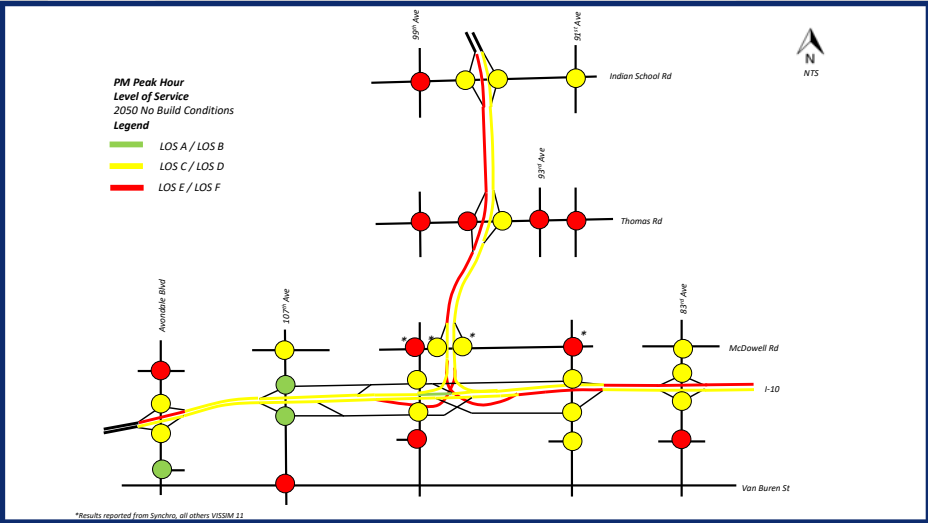
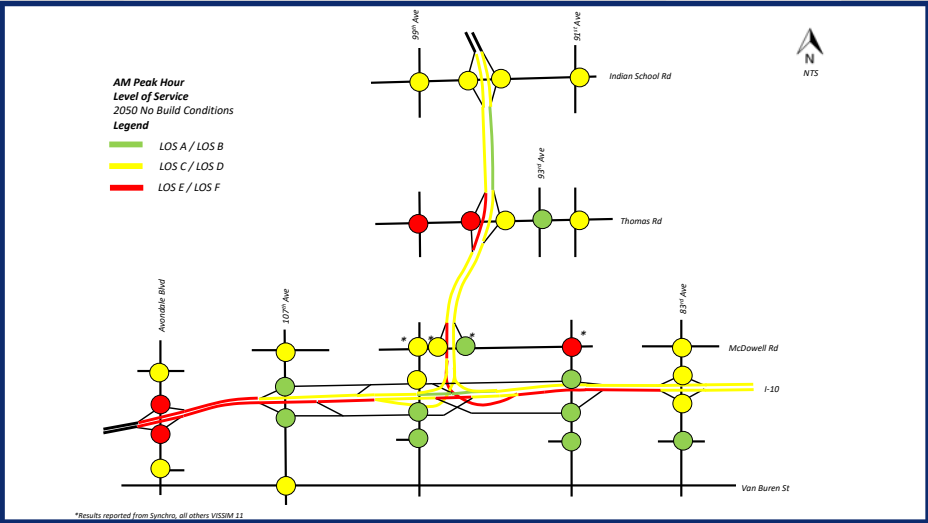
## 2022 Traffic Volumes



## 2022 Existing Level of Service



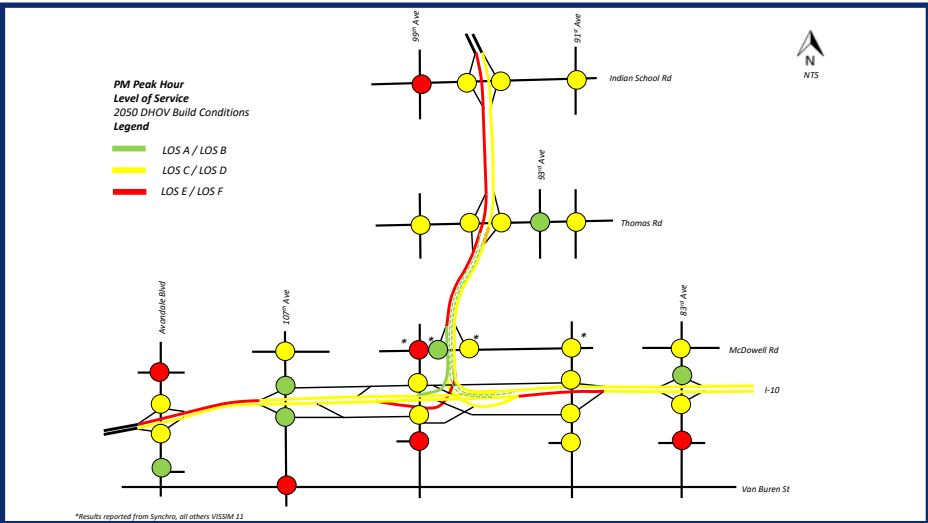
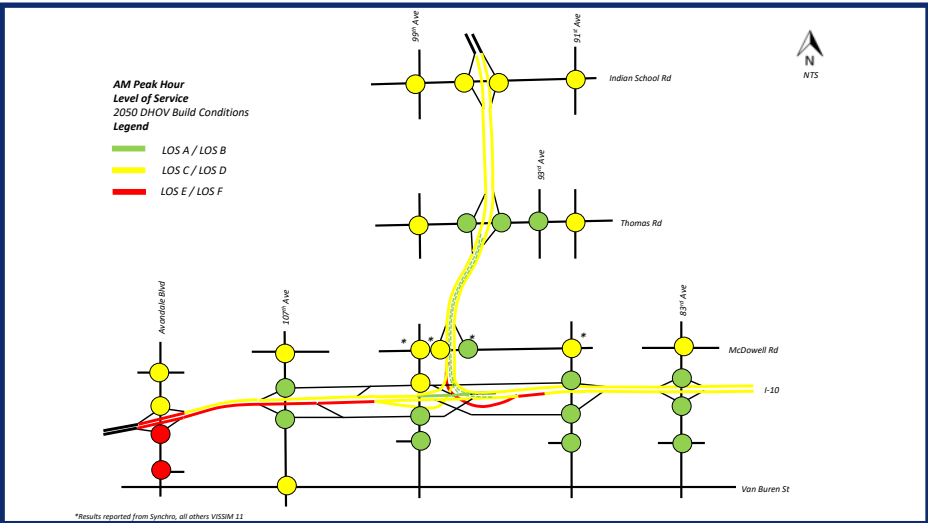
## 2050 No-Build Level of Service



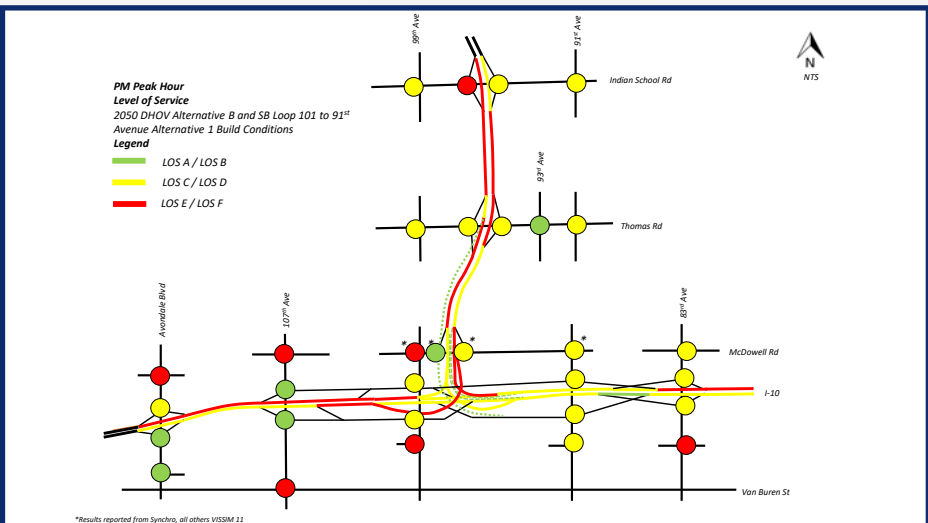
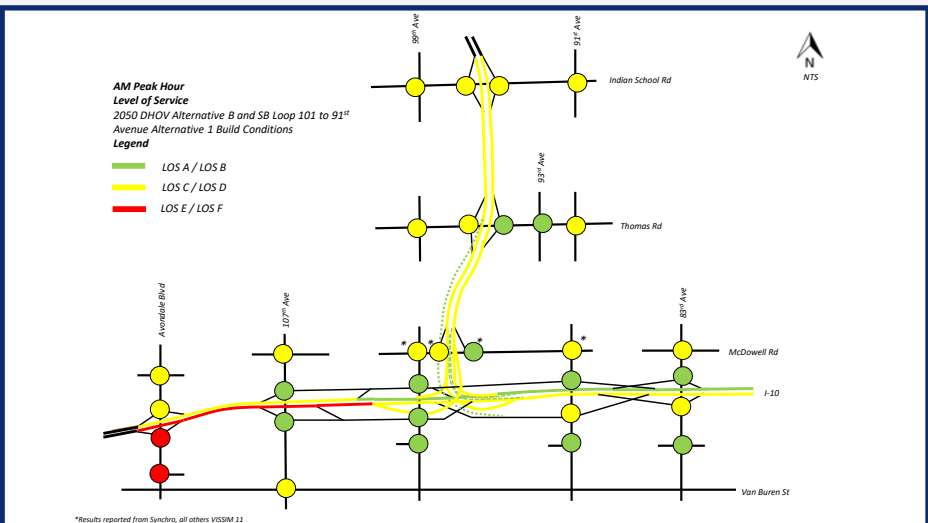


# Existing and Future Traffic Conditions

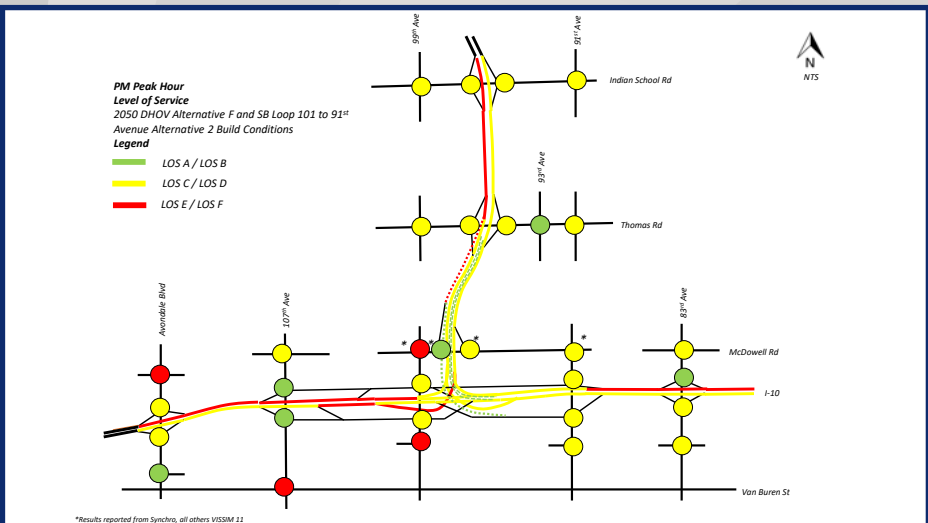
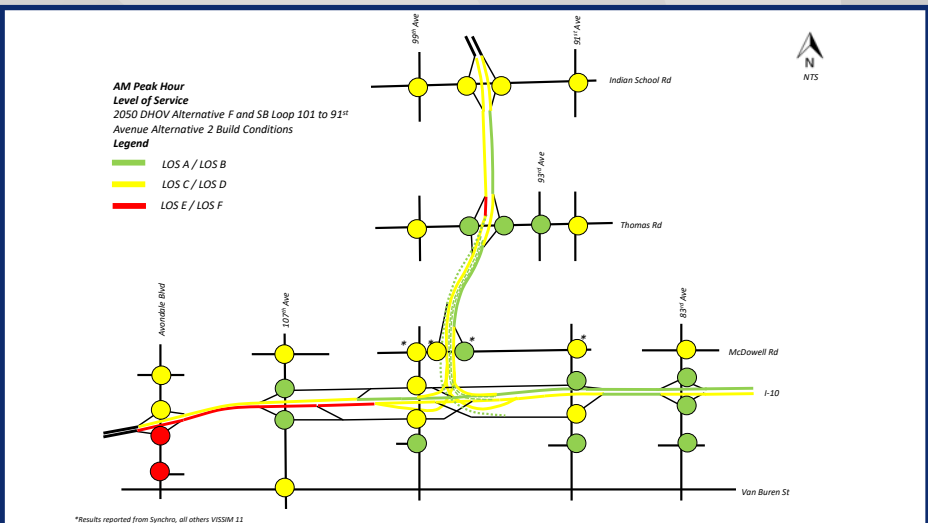
## 2050 DHOV Build Conditions



## 2050 Build Level of Service (DHOV Alternative B & Southbound Loop 101 to 91st Avenue Alternative 1)



## 2050 Build Level of Service (DHOV Alternative F & Southbound Loop 101 to 91st Avenue Alternative 2\*)



\* Southbound Loop 101 to 91st Avenue Alternative 3 would operate at a similar Level of Service



# Direct High Occupancy Vehicle (DHOV) Ramp Alternatives

From Loop 101 to/from I-10 to the East

## Alternative A



- Advantages**
- Does not require removal and relocation of existing system ramps
  - Lower potential noise impacts
  - Minimal utility and/or right-of-way impacts
- Challenges**
- DHOV Ramp would add a fourth level to the system interchange (the highest level)
  - Very high construction cost
  - Loop 101 DHOV ramp bridge construction would require long-term lane closures
  - Provides minimal room for future maintenance of DHOV ramp bridge
  - Minimal Loop 101 width for maintenance access in median
  - Lower design and operating speeds for DHOV traffic

➤➤➤➤ **Recommendation: Eliminate**

## Alternative B



- Advantages**
- Accommodates all traffic movements during construction
  - Moderate construction cost relative to other alternatives
  - Traffic entering from Thomas Road may be able to use DHOV lanes, but multiple lane changes would be required (neutral)
- Challenges**
- Requires removal of the existing eastbound I-10 to northbound Loop 101 ramp bridge, and construction of a new bridge
  - Demolition of the existing bridge and construction of the new bridge would be over both directions of I-10 traffic
  - New eastbound I-10 to northbound Loop 101 ramp is shifted slightly closer to commercial centers
  - Slightly higher utility and/or right-of-way impacts
  - Lower design and operating speeds for DHOV traffic

➤➤➤➤ **Recommendation: Advance for Public and Agency Comment**

## Alternative C



- Advantages**
- Traffic entering from Thomas Road may be able to use DHOV lanes, but multiple lane changes would be required (neutral)
- Challenges**
- High construction cost
  - Requires removal of the existing and construction of a new southbound Loop 101 to westbound I-10 ramp bridge
  - Requires complex multi-phased traffic shifts during construction
  - Requires complex removal and reconstruction of an existing ramp bridge pier (column)
  - New Loop 101 to westbound I-10 ramp is shifted closer to commercial centers
  - Higher right-of-way impacts
  - Lower design and operating speeds for DHOV traffic

➤➤➤➤ **Recommendation: Eliminate**



# Direct High Occupancy Vehicle (DHOV) Ramp Alternatives

*From Loop 101 to/from I-10 to the East*

## Alternative D



- Advantages**
- Simple traffic control during construction
  - Provides more room for future maintenance of the DHOV ramp bridge
  - Minimal utility and/or right-of-way impacts
  - Most construction is away from I-10 and Loop 101 traffic
  - Slightly higher design and operating speeds for DHOV traffic

- Challenges**
- Requires removal of the existing and construction of a new westbound I-10 to northbound Loop 101 ramp bridge
  - May require long-term closure of the westbound frontage road
  - High construction cost
  - Westbound I-10 to northbound Loop 101 ramp is shifted closer to commercial and residential centers

➤➤➤➤ **Recommendation: Eliminate**

## Alternative E



- Advantages**
- Provides more room for future maintenance of the DHOV ramp bridge
  - Minimal utility and/or right-of-way impacts
  - Slightly higher design and operating speeds for DHOV traffic

- Challenges**
- Highest construction cost
  - Requires long-term closure of the eastbound I-10 to northbound Loop 101 ramp
  - May require long-term closure of the westbound frontage road
  - Requires removal of the existing and construction of a new westbound I-10 to northbound Loop 101 ramp bridge

➤➤➤➤ **Recommendation: Eliminate**

## Alternative F



- Advantages**
- Does not affect any of the existing system ramps
  - Minimal traffic control requirements during construction
  - Most construction is away from I-10 and Loop 101 traffic
  - Provides more room for future maintenance of the DHOV ramp bridge
  - Minimal utility and/or right-of-way impacts
  - Highest design and operating speeds for DHOV traffic
  - Lowest construction cost

- Challenges**
- DHOV ramp is slightly closer to commercial and residential centers

➤➤➤➤ **Recommendation: Advance for Public and Agency Comment**



# Loop 101 to 91<sup>ST</sup> Avenue Alternatives

## Alternative 1



### Advantages

- Does not relocate the southbound Loop 101 to McDowell Road exit
- Slightly lower cost than Alternative 2
- Lower utility and right-of-way impact than Alternative 2

### Challenges

- Does not improve traffic operational performance on southbound Loop 101
- McDowell Road southbound exiting traffic could potentially back into the Loop 101 lanes
- High weaving movement remains between southbound traffic entering from Thomas Road and traffic exiting at McDowell Road
- Requires construction over both directions of I-10 traffic
- Very high construction cost due to the new flyover ramp bridge
- Possible noise impact due to height of the flyover bridge

»»»» **Recommendation: Eliminate**

## Alternative 2



### Advantages

- Improves traffic operational performance on southbound Loop 101
- Eliminates the weaving movement between southbound traffic entering from Thomas Road and traffic exiting at McDowell Road by braiding the ramps
- Reduces the risk of McDowell Road southbound exiting traffic backing into the Loop 101 lanes

### Challenges

- Requires construction over both directions of I-10 traffic
- Very high construction cost due to the new flyover ramp bridge
- Possible noise impact due to the height of the flyover bridge
- Slightly higher utility and right-of-way impact than Alternative 1

»»»» **Recommendation: Advance for Public and Agency Comment**

## Alternative 3



### Advantages

- Significantly lower construction cost
- Improves traffic operational performance on southbound Loop 101
- Eliminates the weaving movement between southbound traffic entering from Thomas Road and traffic exiting at McDowell Road by braiding the ramps
- Reduces the risk of McDowell Road exiting traffic backing into the Loop 101 lanes
- Eliminates the need for a new flyover ramp bridge
- Eliminates construction over I-10
- Lower future maintenance cost

### Challenges

- Adds more traffic to the existing southbound Loop 101 to eastbound I-10 ramp
- May require a short-term lane closure on the southbound Loop 101 to eastbound I-10 ramp during construction
- 91st Avenue exiting traffic could potentially back into the southbound Loop 101 to eastbound I-10 ramp in the event of an incident at the 91st Avenue ramp intersection

»»»» **Recommendation: Advance for Public and Agency Comment**



# Other Improvements



## Location



## Recommendation

I-10 at Avondale Boulevard → Add Capacity/Turn Lane Improvements

I-10 at 107th Avenue → Add Capacity/Turn Lane Improvements

I-10 at 99th Avenue → Add Capacity/Turn Lane Improvements

I-10 at 91st Avenue → Extend Left Turn Lanes

I-10 at 83rd Avenue → Extend Left Turn Lanes

Loop 101 / McDowell Road → Add Capacity & Turn Lane Improvements

Loop 101 at Thomas Road → Add Capacity & Turn Lane Improvements

Loop 101 at Indian School Road → Signal Timing and Phasing





## Environmental Considerations



### Document potential impacts to social, economic and natural environments

- Socio-Economic (Environmental Justice/Title VI)
- Air Quality
- Land Use
- Noise
- Biology
- Parks, trails, wildlife refuges, historic properties
- Cultural Resources
- Historic Properties
- Hazardous Materials



### Document public and agency outreach



### Noise Abatement

- Initial Noise Analysis completed
- Final Noise Analysis will be available on the ADOT website once complete

*The environmental review, consultation, and other actions required by applicable Federal environmental laws for this are being, or have been, carried out by ADOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated 04/16/2019, and executed by FHWA and ADOT.*

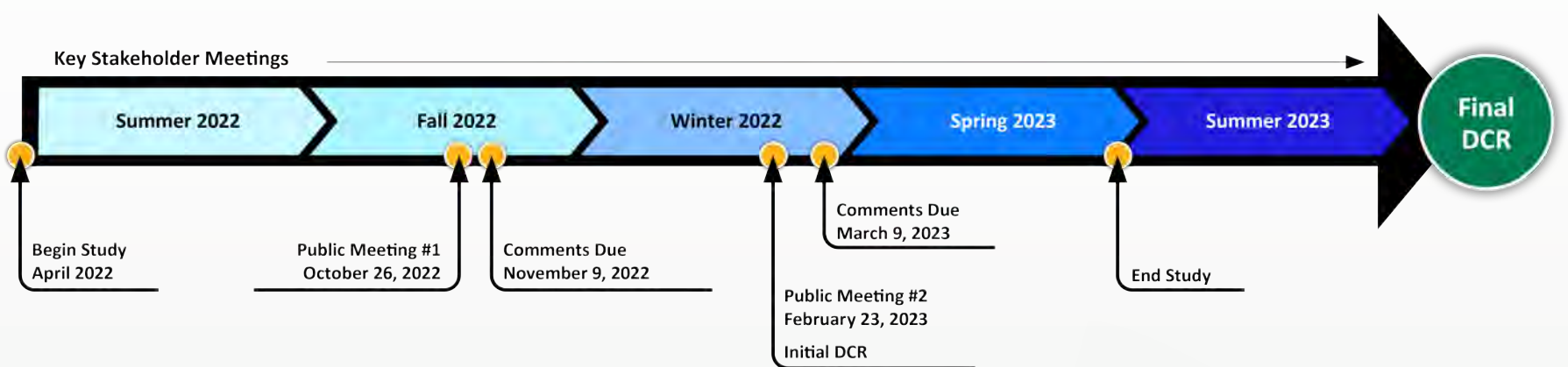


# Timeline, Funding and Programming



## Study Timeline

- Gather feedback
- Confirm recommendations
- Develop implementation plan
- Finalize Design Concept Report (DCR)



## Next Steps

- Final Design, including a public meeting
- Construction



## Funding

- Current Maricopa Association of Governments (MAG) programmed funding
  - \$194 million for construction (FY 2025)
- Loop 101/91st Avenue connection
  - \$25 million (partial funding through state appropriations)
- Initial DCR includes preliminary cost estimates; will be refined in Final DCR
- Implementation plan will determine sequence and timing of improvements
- Recommendations may be implemented as multiple projects



## *How to Comment*

Ways to provide comments **through March 9, 2023:**



**Comment Form at Tonight's Meeting**



**Online Comment Form:**

[azdot.gov/I10Loop101-CommentForm](https://azdot.gov/I10Loop101-CommentForm)



**Email:**

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