



Construction Management at Risk (CMAR) and Bridge Construction

BENEFITS AND VALUE ADDED



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Construction Management
at Risk (CMAR) and Bridge
Construction

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Welcome and Introductions

PROJECT TEAM



- ADOT



Kimley-Horn
and Associates, Inc.

- Kimley-Horn and Associates



- Sundt Construction

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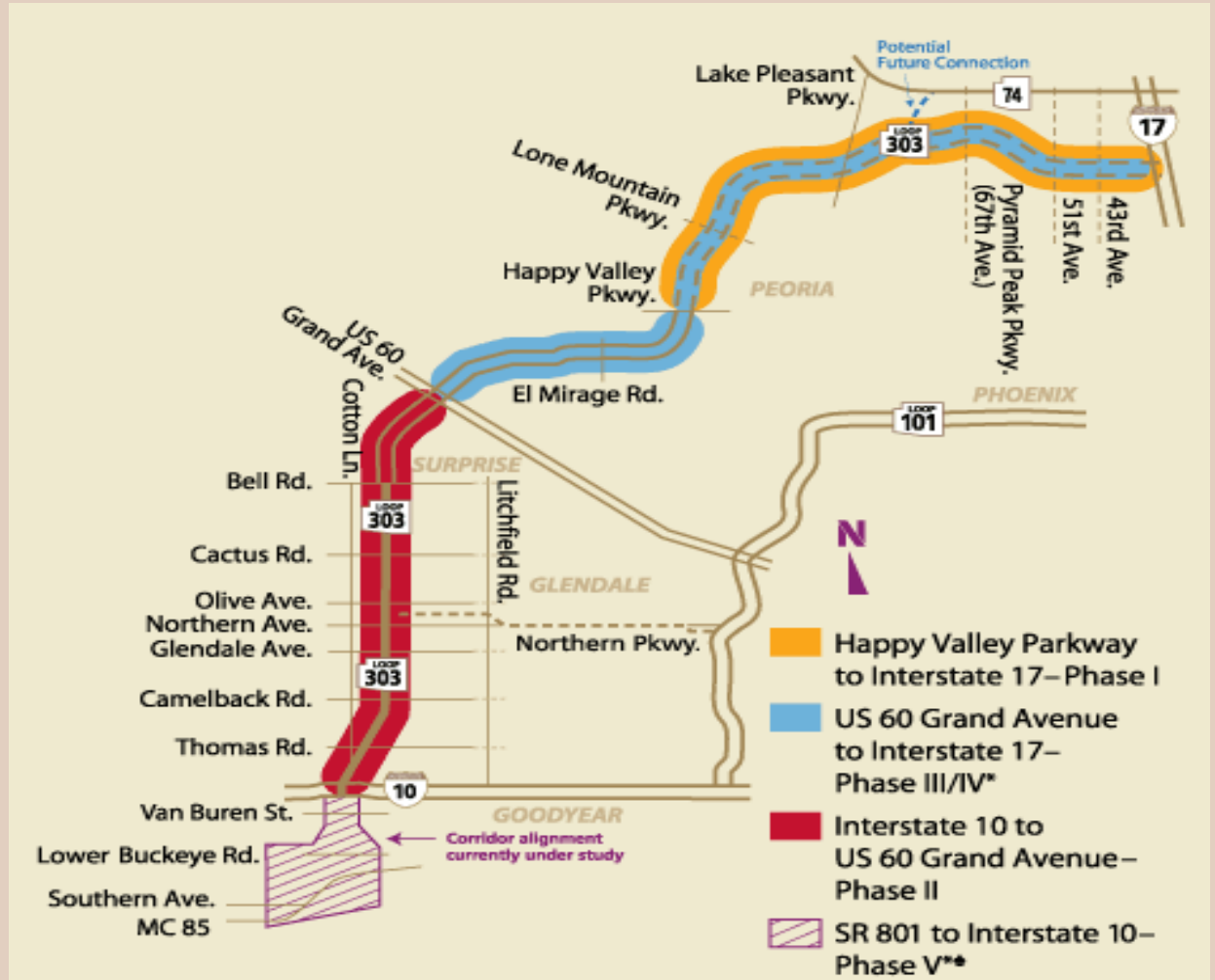


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Location of Project



Regional Transportation Plan Phases

Phase I	2006 -2010	Phase IV	2021-2025	* Project pending outcome of environmental process.
Phase II	2011-2015	Phase V	2026-2031	** Corridor alignment currently under study.
Phase III	2016-2020			

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Project Design – Bell Road

- **Existing Conditions**



ADOT



**Bell Road – Existing
Conditions**

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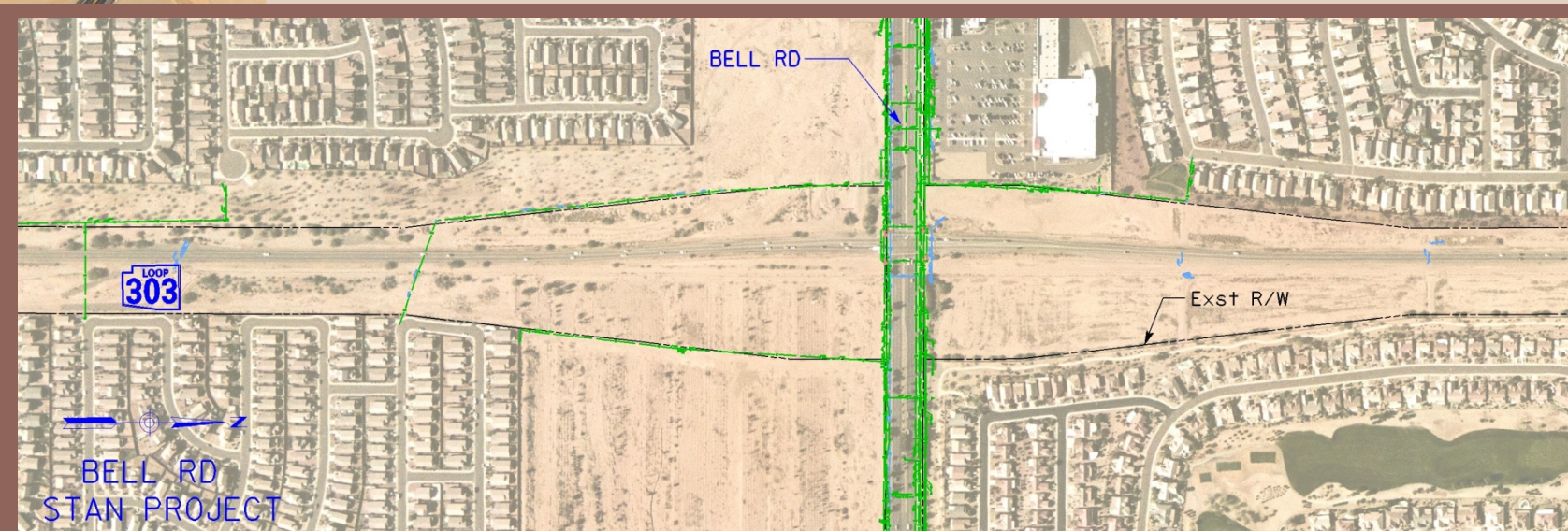
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Project Design – Bell Road

- **Utilities**

- Irrigation (Interim)
- Water (Interim)

- Gas (Interim)
- Power
- Communication



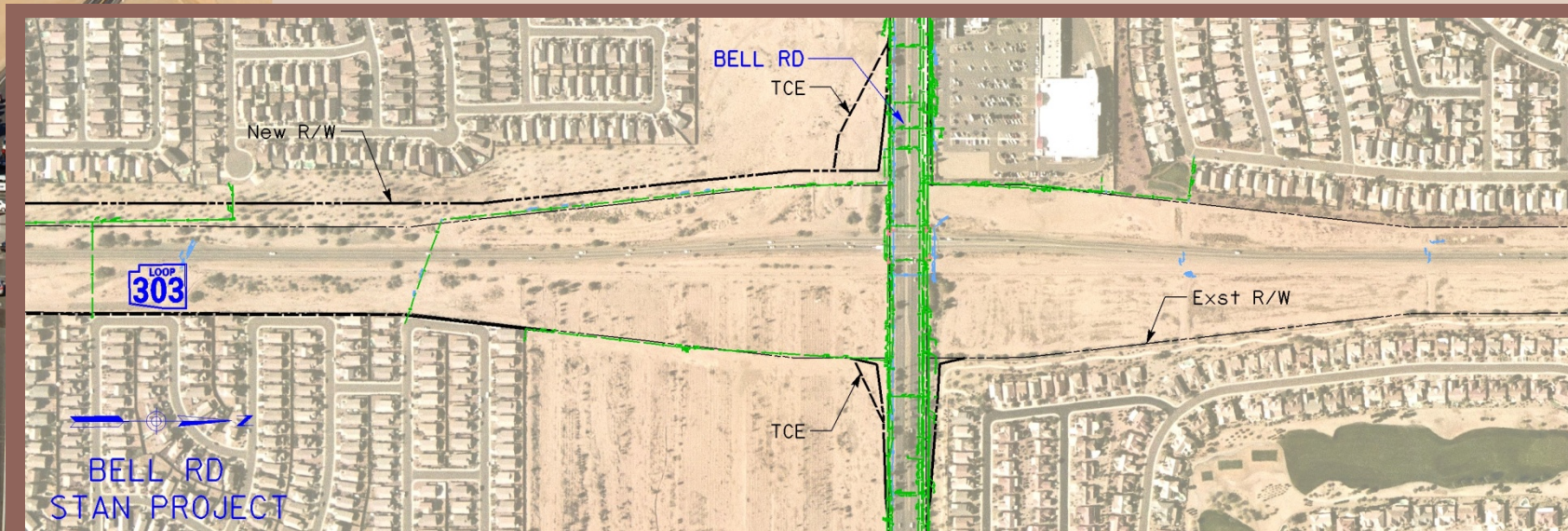
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Project Design – Bell Road

- **Right-of-Way**
 - New Acquisition
 - Temporary Construction Easements



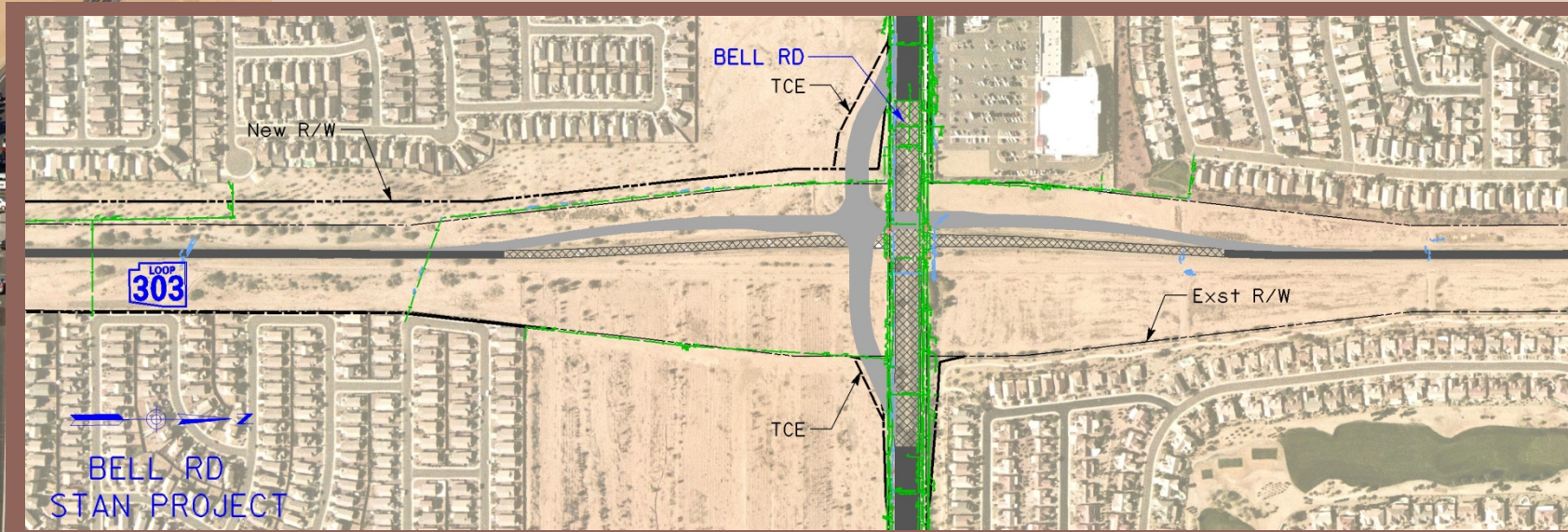
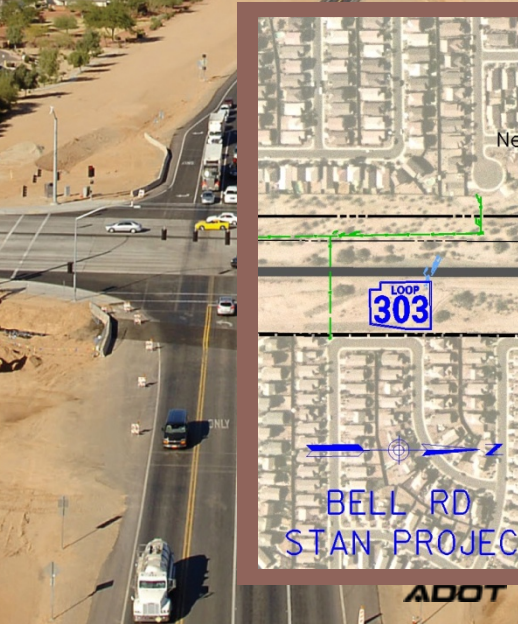
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Project Design – Bell Road

- **Detours (SR 303L and Bell Road)**

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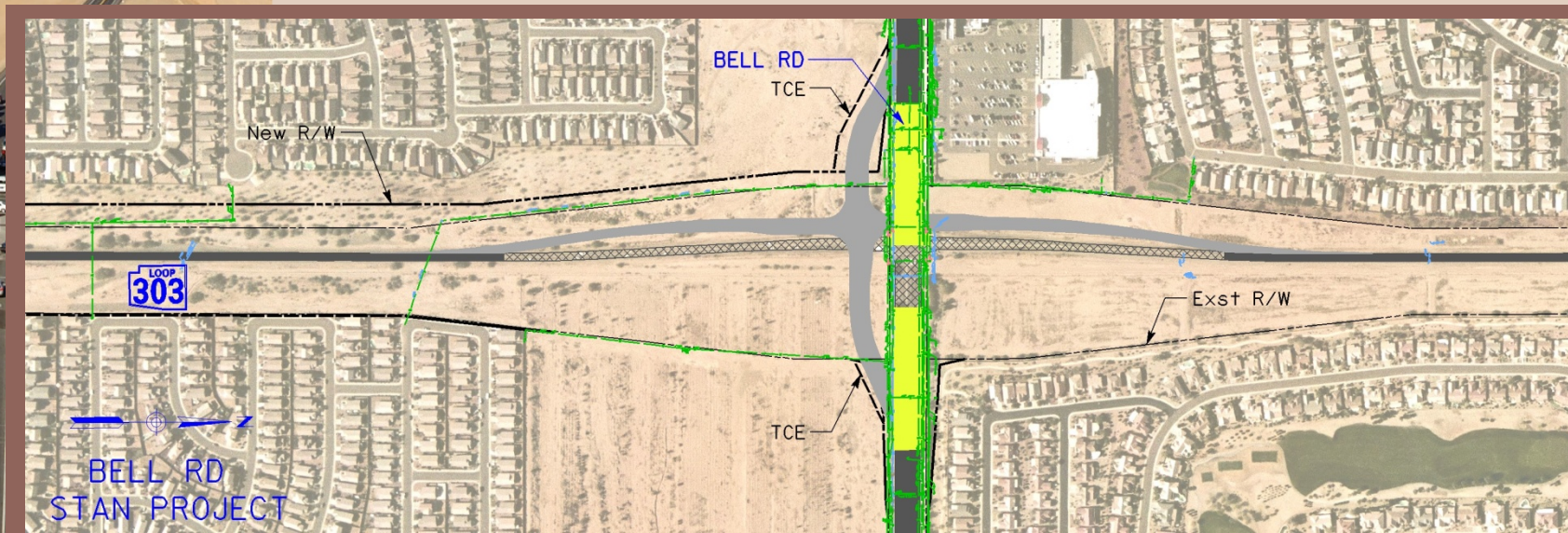


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Project Design – Bell Road

- **Proposed Improvements**
 - Bell Road – Construct crossroad within access control limits



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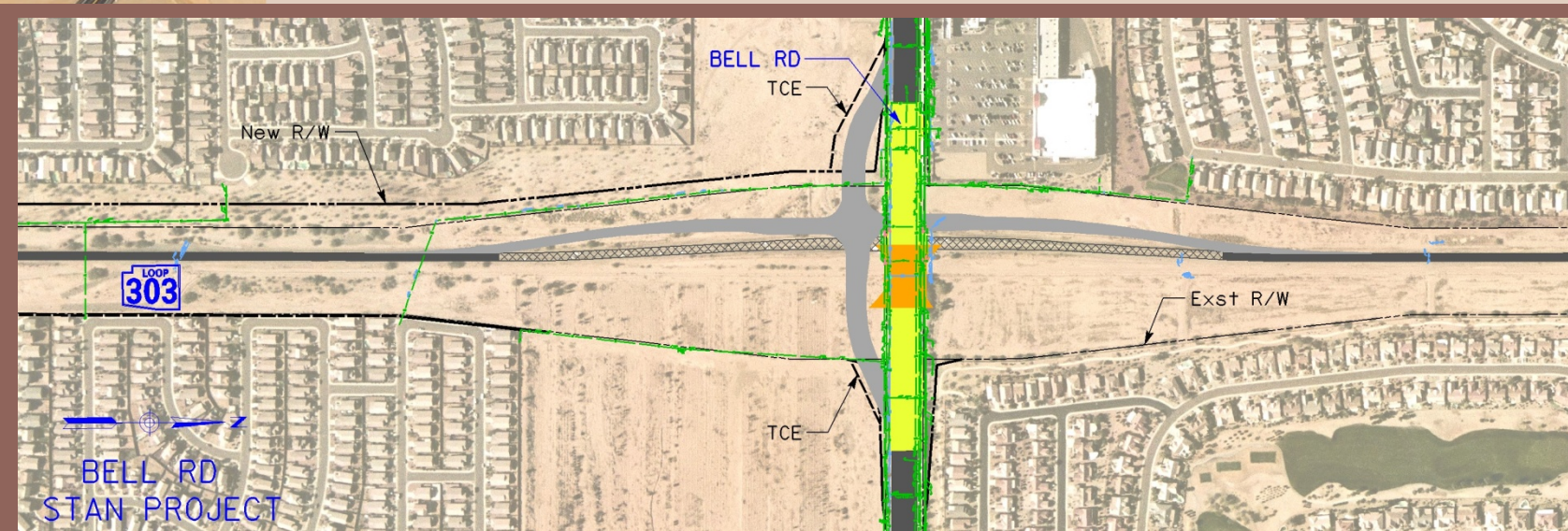


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Project Design – Bell Road

- **SPUI Bridge**
 - Bridge and retaining wall segments



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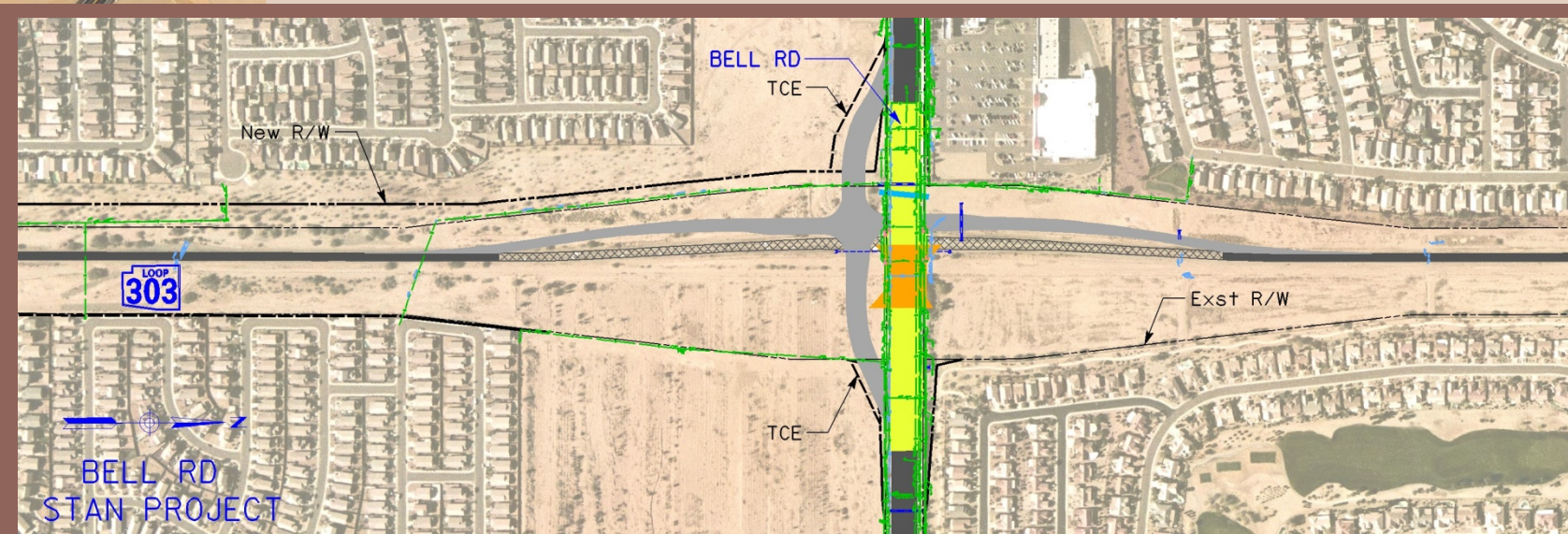
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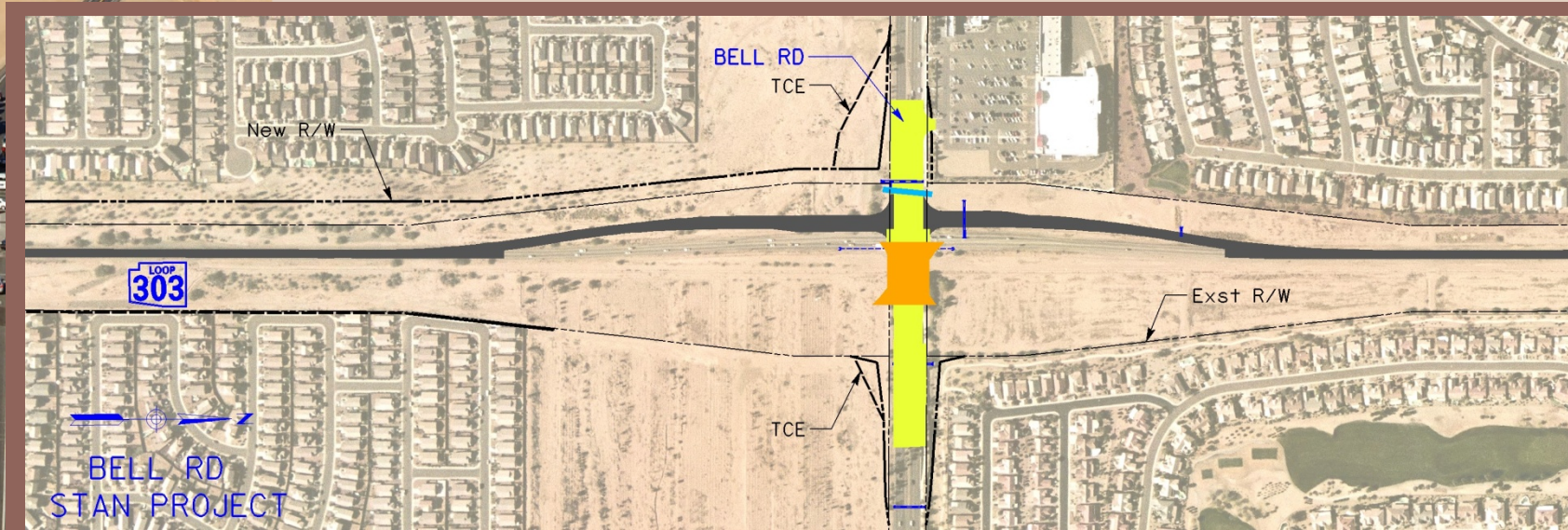
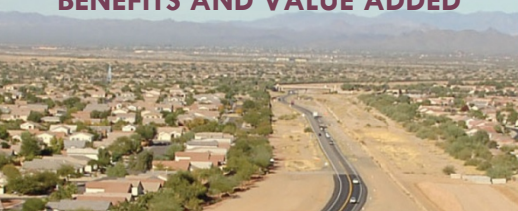


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Project Design – Bell Road

- Interim Operation Prior to SR 303L Construction



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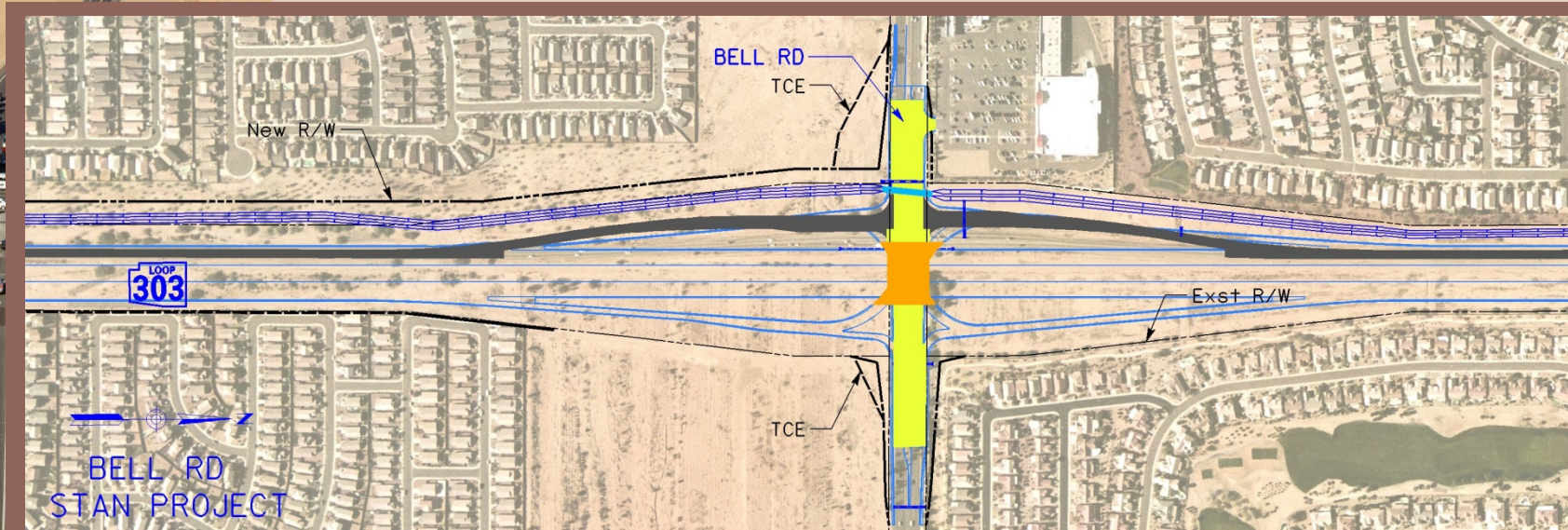


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Project Design – Bell Road

- Interim Operation Prior to SR 303L Construction
- Future SR 303L and Traffic Interchange Improvement



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WHY CMAR?

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Why CMAR?

- Allows selection of contractor (CMAR) based on qualifications early on in the project development process
- Once selected, the CMAR becomes collaborative member of project team
- As contract documents near completion, the CMAR and Department negotiate a Guaranteed Maximum Price (GMP)

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Why the 303L project was a good CMAR candidate

Source: Steve Beasley & Mohammad Zaid - ADOT

- ADOT just given authority by Legislature to pursue alternate delivery projects and were directed to find at least one project via CMAR
- First ADOT CMAR Project in Phoenix Metro – 2nd for ADOT Statewide
- Project at 30% design stage — perfect timing

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Why this project was a good candidate

- R/W was going to take a long time
- Utility relocations will not be ready for Design-Bid-Build
- Significant traffic control issues, particularly at Bell Road

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Why this project was a good candidate

- City of Surprise and developers concerned over lack of progress on SR 303L—CMAR Method demonstrated ADOT's commitment to the corridor
- CMAR would help minimize and mitigate impacts to neighboring communities, particularly at Bell Road

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Why this project was a good candidate

- Completing project on time was critical to clear the way for mainline L303 project, which follows this project.
- Substantial Completion of STAN (State Transportation Acceleration Needs) project on March 2011
- Next project scheduled to start this summer

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CMAR DESIGNER'S PERSPECTIVE

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CMAR Eliminated Guess Work For Construction Phasing

- Helped plan for future construction phasing – saved ADOT \$500,000
- Eliminated two cross road detours
- Provided accurate construction contract time

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CMAR Process Helps Make Sound Decisions to Maintain Project Within Budget

- Reviewed quantities – accurate cost estimate
- Instant feedback on project elements/cost – made good decision on scope to keep within budget

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CMAR Process Resulted in Expedient Utility Relocation Plans



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- Contractor participated in monthly utility and progress meetings during design
- Expedited coordination through relationships with utility companies
- Helped in construction phasing of utilities – When and Where
- Utility phasing fit contractor's construction operations
- Use of BIM identified many conflicts

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CMAR Process Makes Working On The Project More Enjoyable

- Relationship emphasized cooperation – we are on the same team with one goal
- Focus on providing client with superior service
- Focus on solving problems rather than finding who to blame
- Made project and work environment enjoyable
- Best project ever worked on!!!!

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Team's VE for Bell Road Intersection

- Reduce the Depth of the Bell Road Superstructure – a conservative estimate of a one-foot reduction in depth should be analyzed by the Design Team.
 - Resulted in Cost Savings of \$250,000
- Construct Retaining Walls Adjacent to Abutment Suppose to be part of future project helped excavate mainline Loop 303 to final grade under bridge

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Team's VE for Bell Road Intersection

- Utility Bridge added prior to 95% submittal to facilitate the irrigation pipe over the freeway vs underneath with siphon
- Shift the Bell Road Detour to the South –bridge construction would be facilitated by a revised detour alignment and the shoring requirement would be reduced.

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Team's VE for Bell Road Intersection

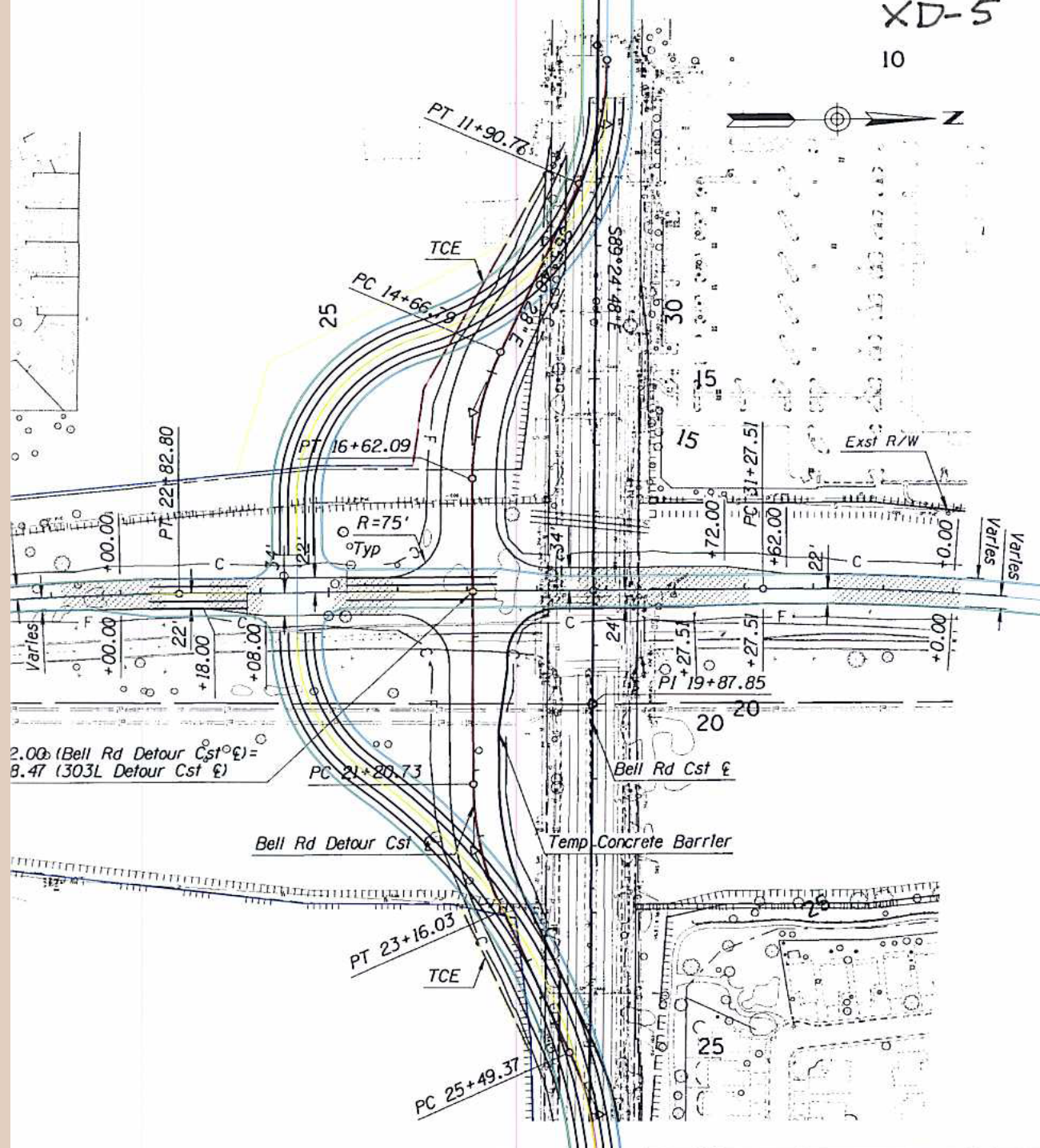
- The current alignment limits the ability to excavate for the proposed bridge and will require extensive shoring to protect the detour. Shifting the detour to the south would enhance the constructability of the project and reduce cost.

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CMAR CONTRACTOR'S PERSPECTIVE

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Pre-Construction

- Early Involvement
- Detour Removals
- Quantity Comparison & Agreement
- Allowances on Utility Work

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Bell Road Intersection - 2009

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Bell Road Intersection - 2011

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CMAR Benefits

- Department took advantage of the contractor's expertise during the design phase of the project
- Identified cost and time saving methods - VE benefits went directly to ADOT
- Fostered a cooperative owner-designer-contractor effort
- Provided a quality project achieving timely completion
- Completed within the budget



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QUESTIONS