

Lime Kiln Road at Sink Creek

Public Meeting
Thursday, July 1, 2010
Travis Elementary School



Welcome & Introduction

- Project Sponsor & Funding

- Hays County Road Bond Program



- Project Team

- K Friese & Associates, Inc. – Roadway, Drainage, Water Quality
- PE Structural Consultants, Inc. – Bridge
- Cox | McLain Environmental Consulting, Inc. – Environmental



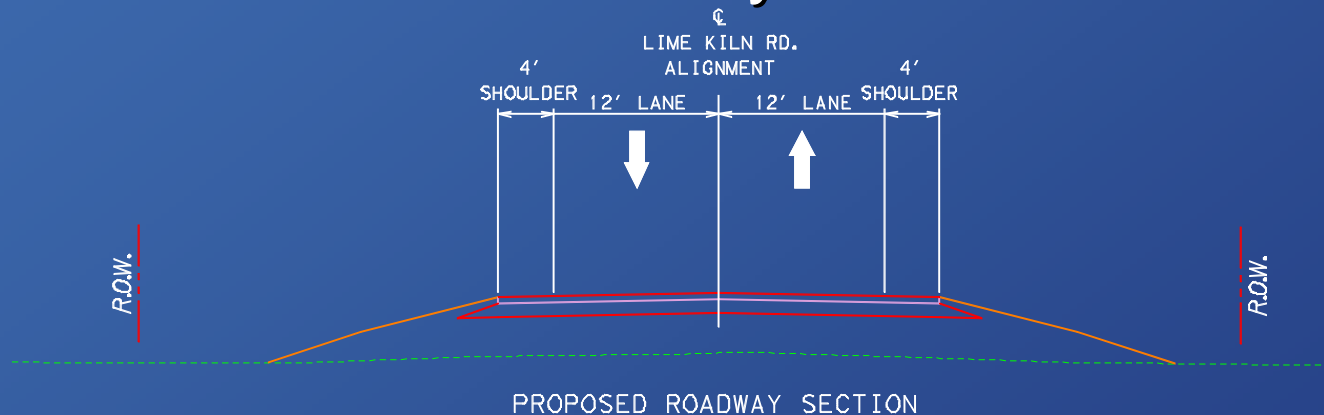
Purpose & Need

- Sink Creek Floods!
- Only access to neighborhoods along Lime Kiln & Hilliard Roads.
- Improve Access
- Improve Safety



Design Parameters

- Two-lane Roadway with 4' shoulders
 - Total width of 32 feet
 - No additional roadway lanes



- Reduce frequency of roadway closures
- Preserve or enhance the environment



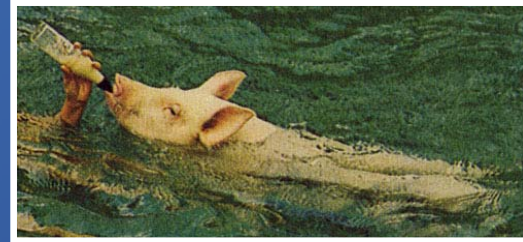
Project Considerations

- Construction Cost
- ROW Cost / Property Impacts
- Floodplain Impacts



Project Considerations

■ Aquarena Springs



■ Threatened & Endangered Aquatic Species

- Texas Blind Salamander,
- San Marcos Salamander,
- San Marcos Gambusia,
- Fountain Darter



Photos Credits: Texas Parks & Wildlife, Texas State Edwards Aquifer Research and Data Center

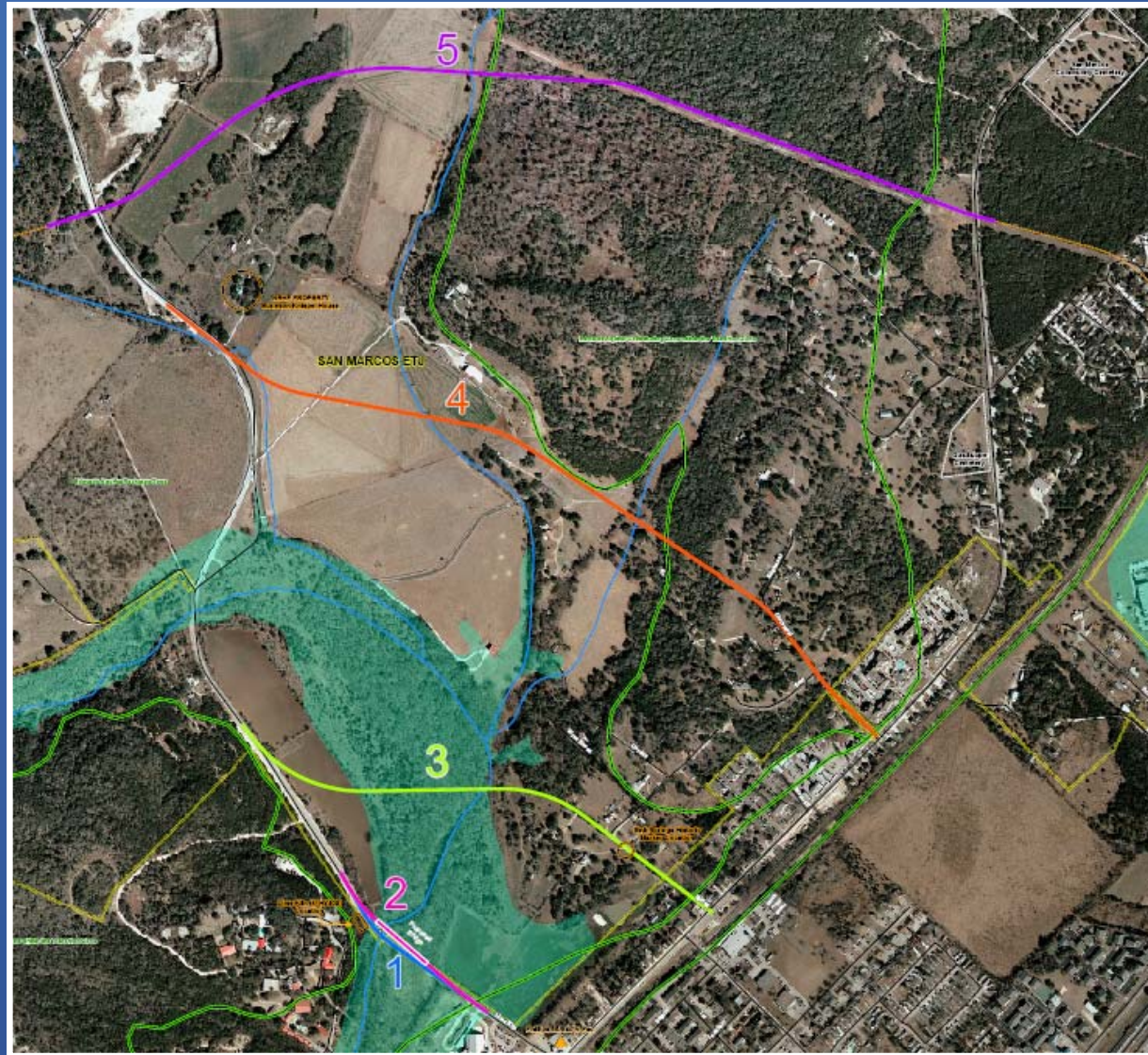


Project Considerations

- Vegetation / Bird Habitat
- Cultural Resources
- Aesthetics
- Utility Impacts
- Travel Patterns & Traffic Impacts
- Compatibility with other Plans
- Constructability



Preliminary Alternatives



Alternative #1

- New Bridge at existing low water crossing

- Concerns:

- Temporary culvert crossing
- Bridge constructability
- Sequencing /Traffic control challenges
- Water quality

- Benefits:

- Limited ROW impact
- Maintains existing travel patterns



Alternative #2

- New Bridge just north of existing low water crossing
 - Concerns:
 - ROW
 - Water Quality
 - Benefits:
 - Simplified traffic control
 - Simple construction
 - Maintains existing travel patterns



Alternative #3

- New bridge, roadway connection to Spring Street

- Concerns:

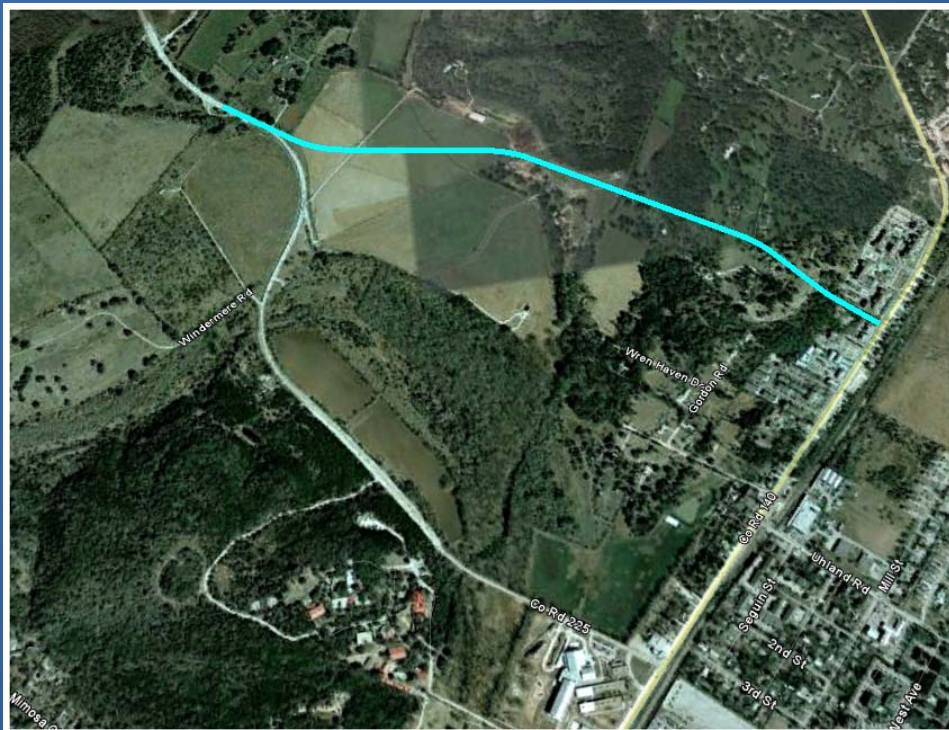
- 3900 LF new roadway & bridge
- Significant new ROW
- Water quality
- Property impacts to Spring Street
- Changed travel patterns
- Intersection problems at Post Road (very close to Uhland Road)
- Rattlesnake Cave

- Benefits:



Alternative #4

- New roadway connection to Claremont Street



- Concerns:

- 6200 LF new roadway
- Significant new ROW
- Property impacts to Claremont Street
- Changed travel patterns

- Benefits:

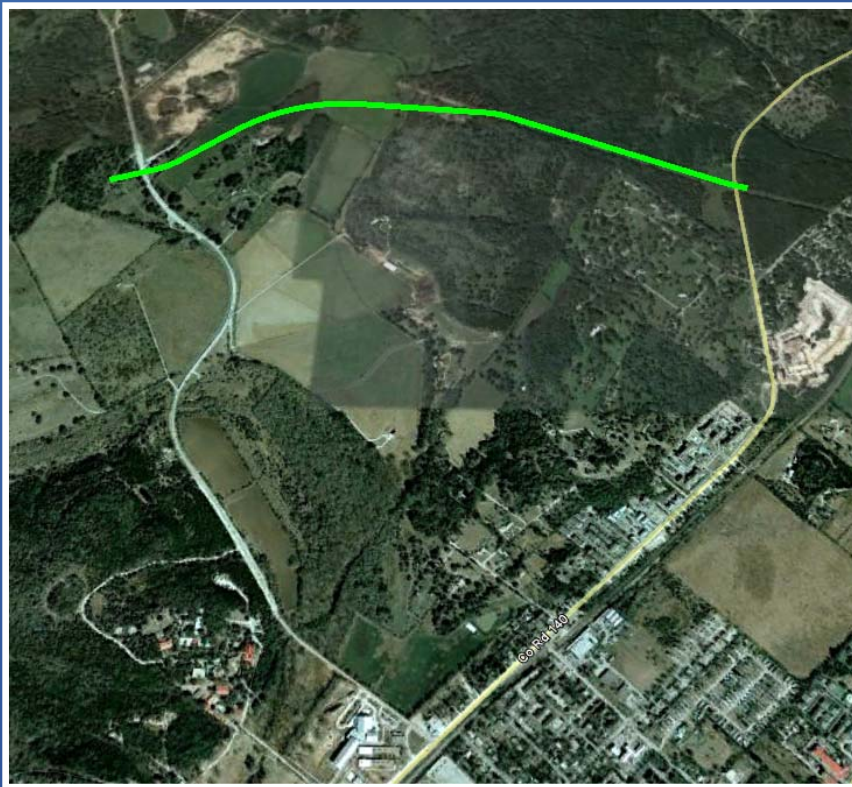
- Outside 100-year floodplain
- No bridge
- Bypasses 2nd Sink Creek Crossing



Alternative #5

■ New roadway connection to Post Road

- Follows City of San Marcos "Craddock Extension" corridor between Lime Kiln & Post Road



■ Concerns:

- 7400 LF new Roadway
- Significant new ROW
- Changed travel patterns

■ Benefits:

- Outside 100-year floodplain
- No bridge
- Bypasses 2nd Sink Creek Crossing



Evaluation Process

■ Evaluation Matrix

■ Constraints table

Evaluation Matrix (Blank Template)

Instructions:
 Mark ">" if you think the **Green** consideration (vertical) is **more important** than the **Blue** (horizontal)
 Mark "<" if you think the **Green** consideration (vertical) is **less important** than the **Blue** (horizontal)
 Mark "!" if you think the **Green** consideration (vertical) and the **Blue** (horizontal) are **equally important**
 Mark "x" if you think the **Green** consideration (vertical) and the **Blue** (horizontal) are **equally NOT important**

| | Construction Costs | ROW Cost | Ease of ROW acquisition | Floodplain Impacts | Environmental: Water Quality / T&E Aquatic Species (Salamander) | Environmental: Vegetation / T&E Bird Habitat (Warbler) | Environmental: Cultural Resources/Archaeology | Environmental: Residential/Commercial Property Impacts | Environmental: Parks/Recreational Resources | Aesthetics | Utility Impacts | Permanent Travel Patterns & Traffic Impacts | Compatibility with City Transportation Plans | Constructability (Temporary Traffic/Access Issues) | WT FACTOR |
|---|--------------------|----------|-------------------------|--------------------|---|--|---|--|---|------------|-----------------|---|--|--|-----------|
| Construction Costs | | | | | | | | | | | | | | | 0.0% |
| ROW Cost | | | | | | | | | | | | | | | 0.0% |
| Ease of ROW acquisition | | | | | | | | | | | | | | | 0.0% |
| Floodplain Impacts | | | | | | | | | | | | | | | 0.0% |
| Environmental: Water Quality / T&E Aquatic Species (Salamander) | | | | | | | | | | | | | | | 0.0% |
| Environmental: Vegetation / T&E Bird Habitat (Warbler) | | | | | | | | | | | | | | | 0.0% |
| Environmental: Cultural Resources/Archaeology | | | | | | | | | | | | | | | 0.0% |
| Environmental: Residential/Commercial Property Impacts | | | | | | | | | | | | | | | 0.0% |
| Environmental: Parks/Recreational Resources | | | | | | | | | | | | | | | 0.0% |
| Aesthetics | | | | | | | | | | | | | | | 0.0% |
| Utility Impacts | | | | | | | | | | | | | | | 0.0% |
| Permanent Travel Patterns & Traffic Impacts | | | | | | | | | | | | | | | 0.0% |
| Compatibility with City Transportation Plans | | | | | | | | | | | | | | | 0.0% |
| Constructability (Temporary Traffic/Access Issues) | | | | | | | | | | | | | | | 0.0% |

Hays County - Lime Kiln Road - Alternatives Analysis (CMC 6-30-2010)

| | Alt. 1 (1,500' total length) | Alt. 2 (1,488' total length) | Alt. 3 (3,877' total length) | Alt. 4 (6,228' total length) | Alt. 5 (7,400' total length) |
|--|--|--|--|--|--|
| Linear ft. of floodplain | 1,071' | 1,062' | 964' | 0 | 0 |
| # stream/creek crossings | 1 | 1 | 1 | 4 | 1 |
| Vegetation/Wildlife Habitat (linear ft. of vegetated areas crossed) | 0 woodland; 0 grassland | 750 woodland; 0 grassland | 1,380 woodland; 942 grassland | 580 woodland; 5,108 grassland | 4,023 woodland; 3,231 grassland |
| Threatened & Endangered Species Occurrences (from TEND data) | None within ROW, downstream from Rattlesnake Cave (which has known occurrence of federally listed endangered Texas blind salamander); 1,703 feet from Spring Lake (Spring Lake and San Marcos River are critical habitat for federally listed endangered species: Texas blind salamander, Fourtan darter, San Marcos salamander, San Marcos gambusia, Texas wild rice) | None within ROW, downstream from Rattlesnake Cave (which has known occurrence of federally listed endangered Texas blind salamander); 1,702 feet from Spring Lake (Spring Lake and San Marcos River are critical habitat for federally listed endangered species: Texas blind salamander, Fourtan darter, San Marcos salamander, San Marcos gambusia, Texas wild rice) | None within ROW, within occurrence polygon for federally endangered Texas blind salamander, known from Rattlesnake Cave (ROW is 113 feet downstream of the cave) | None within ROW, ROW is 1,900 feet upstream of Rattlesnake Cave | None within ROW, ROW is 5,107 feet upstream of Rattlesnake Cave (which has known occurrence of federally listed endangered Texas blind salamander) |
| Distance to Spring Lake (feet) | 1,703 | 1,792 | 2,950 | 5,830 | 8,360 |
| Edwards Aquifer Recharge Zone (EARZ)/Edwards Aquifer Contributing Zone within the Transition Zone (EACZT)/Edwards Aquifer Transition Zone (EATZ) (linear feet). Note that hydrogeologic survey would be needed for any alternative to determine whether there are any karst features within the ROW. | EARZ = 1,385' EATZ = 115' EACZT = 0 | EARZ = 1,371' EATZ = 117' EACZT = 0 | EARZ = 3,690' EATZ = 189' EACZT = 0 | EARZ = 4,115' EATZ = 30' EACZT = 2,093' | EARZ = 3,543' EATZ = 548' EACZT = 5,310' |
| Cultural Resources (Proximity to known sites, status) *Mapped locations in the THCA/ARL Atlas are approximate | Approx. 0-100' ft from 41HY109, the Belgen Cabell Line Kin. Listed on NHP. In addition to a survey for unknown resources, evaluation of the project's potential impacts to 41HY109 would be required. From both archaeological and historic-structure perspectives. The latter would include visual and other indirect impacts. | Approx. 0-100' ft from 41HY109, the Belgen Cabell Line Kin. Listed on NHP. In addition to a survey for unknown resources, evaluation of the project's potential impacts to 41HY109 would be required. From both archaeological and historic-structure perspectives. The latter would include visual and other indirect impacts. | Approx. 0-250' ft from 41HY311 (Rattlesnake Cave), a prehistoric site with possible NRHP/PSAL potential due to its setting. Evaluation of 41HY311 would likely be required, in addition to a survey for currently unknown resources. Sink Springs Historical Marker is located west of Post Road on County Road 141 (adjacent to this alignment) | Approx. 1,900' ft from 41HY311 (Rattlesnake Cave), a prehistoric site with possible NRHP/PSAL potential due to its setting. Evaluation of 41HY311 would likely be required, in addition to a survey for currently unknown resources. | Shown in the THCA Atlas as approx. 0-300' ft from Recorded TX Historic Landmark (RTHL) - Burleson Home. There is a separate National Register listing for the Burleson-Krispel House, shown as approx. 500-1000' ft from the alternative. These are likely for the same structure, despite the variation in location. Depending on distances and viewsheds, a new location roadway has the potential to cause impacts to this NRHP property (even if only visual in nature). Alt. 5 also passes between the San Marcos Blanco and Guadalupe Cemeteries, approximately 500-1000' ft from each. Alt. 5 crosses very high-probability areas that will require arch. survey. |
| Potential Residential/Commercial Displacements (#) | None. | None. | 2 at Spring and Post | 1 on Claremont | None. |
| Parks/Recreational Resources (Names, whether or not impacted, ARI or RCI considerations). NOTE: ARI does not apply unless there is federal funding | None known. | None known. | None known. | None known. | None known. |
| Potential Hazardous Materials (Recorded sites nearby) | Phillips 66/ Sac-N-Pac - LUST (1501 Post Rd, corner of Post Rd and Lime Kiln Rd); no ROW needed from the property | Phillips 66/ Sac-N-Pac - LUST (1501 Post Rd, corner of Post Rd and Lime Kiln Rd); no ROW needed from the property | No concerns | No concerns | No concerns |
| Access/Community Cohesion (Temporary or permanent changes in travel patterns) | Temporary impacts during construction including detours; improved local crossing of Sink Creek during flood events (particularly related to travel to/from Travis Elementary) | Temporary impacts during construction including detours; improved local crossing of Sink Creek during flood events (particularly related to travel to/from Travis Elementary) | Some ranch property along Lime Kiln Road bisected; change in character along Spring Street | Ranch property and flag lots bisected; possible future impact to local character along Claremont; provides route alternative not affected by flood events | Ranch property and some cropland bisected; parallels utility easement for much of the length; possible future correction to proposed Caddick Expansion; provides improvements to transportation system as well as providing route alternative not affected by flood events |



Preferred Alternative

- Alternative #2 - New Bridge just north of existing low water crossing
 - Highest Overall Rank
 - Lowest Construction Cost

| Design Considerations | Matrix Wt Factor | Alternatives Weighted Factors | | | | |
|---|---------------------|-------------------------------|--------|--------|--------|--------|
| | | 1 | 2 | 3 | 4 | 5 |
| Construction Costs | 9.1% | 1.70 | 2.44 | 0.00 | 1.93 | 1.51 |
| ROW Cost | 6.2% | 5.00 | 4.69 | 2.98 | 0.00 | 2.04 |
| Ease of ROW acquisition | 2.7% | 5.00 | 4.00 | 0.00 | 1.00 | 2.00 |
| Floodplain Impacts | 9.3% | 2.00 | 3.00 | 3.00 | 4.00 | 4.00 |
| Environmental: Water Quality / T&E Aquatic Species (Salamander) | 12.0% | 3.00 | 4.00 | 0.00 | 1.00 | 4.00 |
| Environmental: Vegetation/T&E Bird Habitat (Warbler) | 9.7% | 4.00 | 4.00 | 2.00 | 2.00 | 2.00 |
| Environmental: Cultural Resources/Archeology | 8.7% | 3.00 | 3.00 | 0.00 | 1.00 | 3.00 |
| Environmental: Residential/Commercial Property Impacts | 7.0% | 4.00 | 3.00 | 1.00 | 1.00 | 2.00 |
| Environmental: Parks/Recreational Resources | 6.3% | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Aesthetics | 5.6% | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Utility Impacts | 3.1% | 3.01 | 3.78 | 0.00 | 0.00 | 5.00 |
| Permanent Travel Patterns & Traffic Impacts | 7.6% | 4.00 | 4.00 | 1.67 | 1.67 | 3.67 |
| Compatibility with City Transportation Plans | 6.8% | 5.00 | 5.00 | 1.00 | 1.00 | 4.00 |
| Constructability (Temporary Traffic/Access Issues) | 5.8% | 1.20 | 3.20 | 1.80 | 2.00 | 3.80 |
| Alternative Score | | 3.30 | 3.61 | 1.45 | 1.78 | 3.11 |
| Alternatives Analysis Rank | | 2 | 1 | 5 | 4 | 3 |
| Approximate Construction Cost (\$ Millions) | | \$ 1.5 | \$ 1.2 | \$ 2.3 | \$ 1.4 | \$ 1.6 |

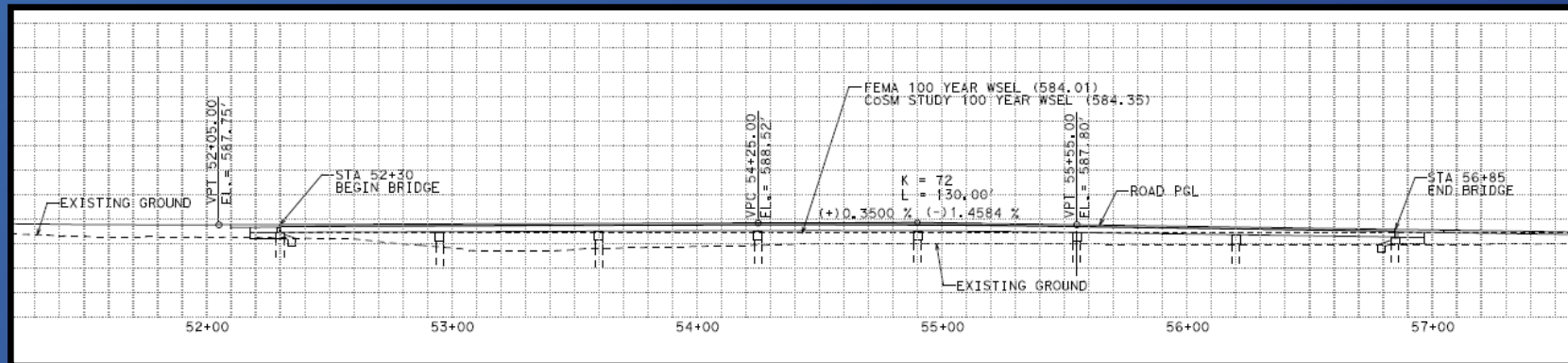


Bridge Design



Bridge Design

- 455' Long (7 – 65' spans)
- Proposed bridge is above the 100-year flood elevation
- Approach roadway (at Travis Elementary) is still inundated in the 100-year flood.
- Minimal upstream hydraulic impacts



Aerial View



Construction Sequence / Traffic Control Plan

- No construction within the stream channel.
- Full bridge construction is possible outside of existing roadway.
- Minor temporary modifications to existing traffic patterns at roadway connections.



Drainage / Water Quality

- Storm water runoff from the new bridge will NOT drain directly to Sink Creek.
- Runoff Conveyed to two Water Quality Ponds.
 - TCEQ Edwards Aquifer Protection Program (EAPP) Regulations – Best Management Practices (BMP)
 - TCEQ Optional Enhanced Measures for the Protection of Water Quality in the Edwards Aquifer



Roadway View



Context Sensitive Design

- Bike / Pedestrian Trail
 - No demolition of existing crossing required
 - Reduces disturbance to stream bed
 - Enhanced access to Lime Kiln
- Enhancements for Proposed Bridge
 - Potential for aesthetic treatments for railings and bents



Next Steps

- Acquire Permission to Survey
 - Design Survey, ROW Survey, Archeology, Geologic Assessment, USACE Assessment
 - Geotechnical Borings
- Coordination with Review Agencies and Stakeholders
- Final Design
- Funding / Construction



Open House / Exhibits

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