

Santa Ana Trunk Sewer

- Built in 1950s
- Exposed Aggregate
- Infiltration
- Manhole Liner Failures



Infiltration



Exposed Aggregates



Manhole Liner Failure

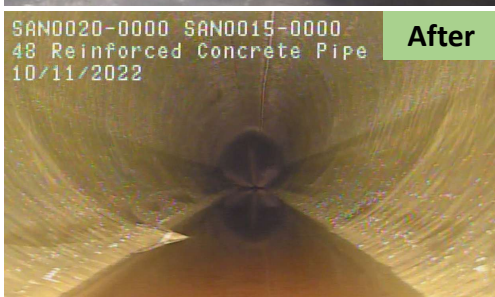
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Cured-in-Place Pipe (CIPP)



Before



After

SAN0020-0000 SAN0015-0000
48 Reinforced Concrete Pipe
10/11/2022



EXISTING PIPE

CIPP LINER

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Repair Manholes with Spray Coating



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Impacted Properties

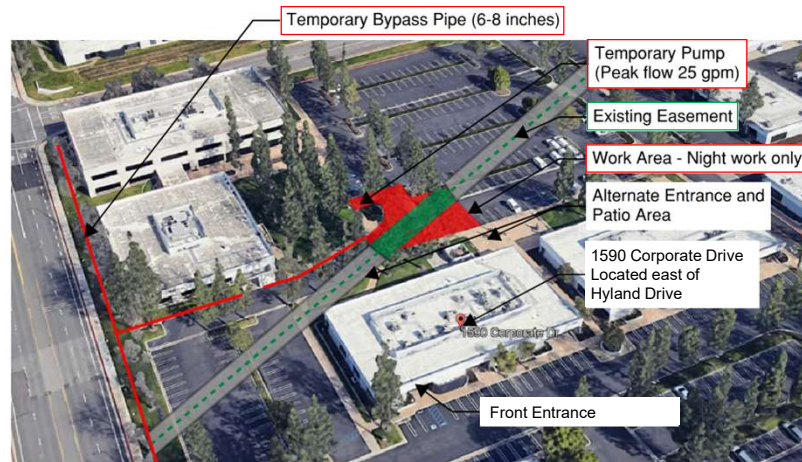


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Temporary Construction Easements

- Sewer and manholes are within OC San easement
- Requires temporary construction easements to perform work

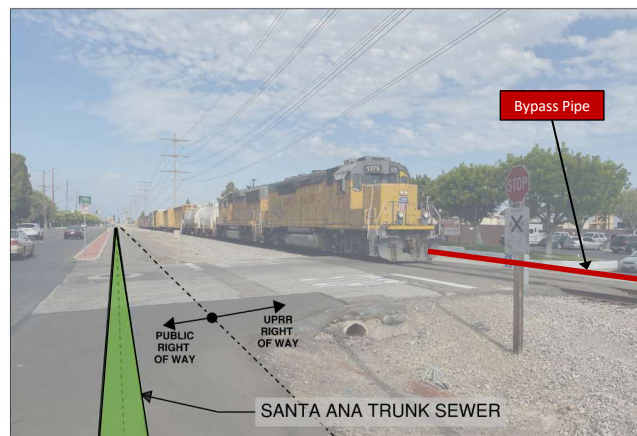


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Bypass in Union Pacific Railroad

- Bypass pipe to temporarily collect local flows
- Bypass located in Union Pacific Railroad (UPRR) right of way



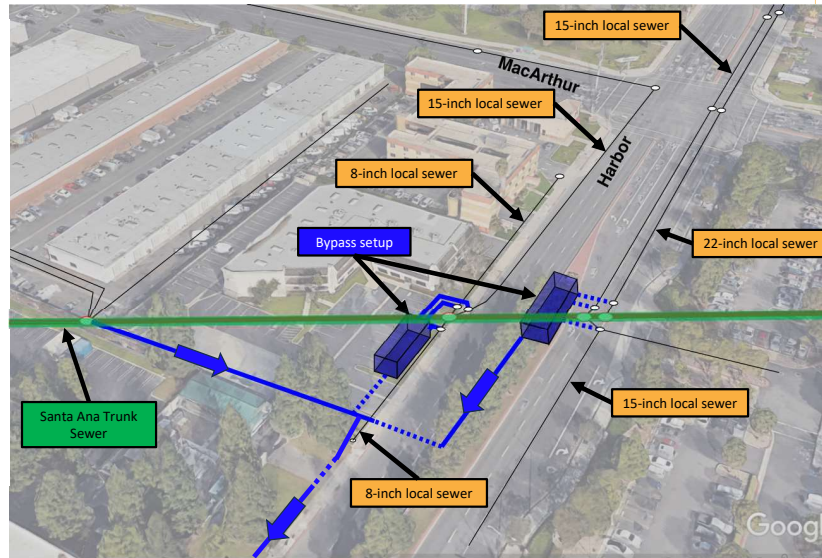
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Sewer Pipes in Busy Streets

Harbor Blvd. and MacArthur Blvd.

- Manholes receive flow from local sewers
- Bypass setup in median required
- Night and weekend work



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Residential Bypass

- Noise mitigation
- Duration restrictions
- Sequencing constraints
- Parking impacts



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Bid Results

Engineer's Estimate \$33,359,000

Bidder	Amount of Bid
Steve P. Rados, Inc.	\$44,787,000

- Single bid received
- Difference \$11,428,000
- Need \$9,600,000

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Major Cost Differences

Item	Cost Difference (millions)
CIPP Lining	\$2.4
Traffic Control	\$1.5
Indirect Staffing and Overhead	\$3.4
General and Administrative	\$2.2
Dewatering, Traffic Signal	\$1.7
Subtotal	\$11.2

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Rados Explanation

CIPP (\$2.4M)

- 2 dry seasons (bypass and traffic)
- 21 standard shots
- 4 wet-out (water cure)
- Shipped from Mississippi

Traffic Control (\$1.5M)

- More setups and breakdowns
- Lower production
- 3 FTEs to setup
- Changeable message signs

Indirect (\$3.4M)

- More staff needed
- Day and night work

General and Administrative (\$2.2M)

- Higher risk
- Higher profit margin

Dewatering/Traffic Signal (\$1.7M)

- Recent dewatering experience
- Temp traffic signal
- Signal conduit

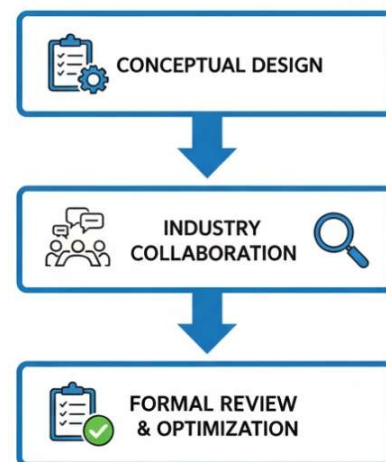
Revised Engineer's Estimate \$41.1M (8% lower)

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Design Activities

- Considered other rehab methods
 - UV CIPP, slip lining, spiral wound
- Industry review of CIPP Spec
- Review by industry experts
- Formal constructability review
- Value engineering

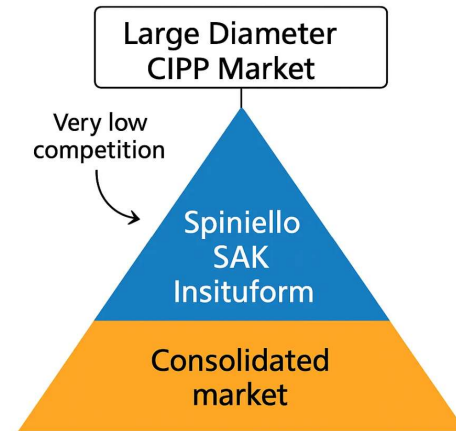


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What Did We Learn?

- Very low competition in large diameter CIPP
- Even lower when adding long CIPP shots
- LA San has a much larger CIPP program

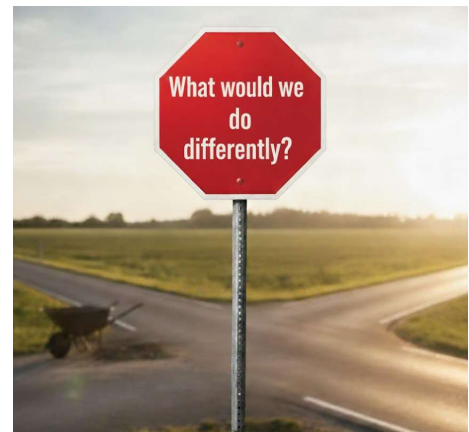


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What Would We Do Differently?

- Need competition
- Outreach to Contractors
 - Industry review during PDR
 - Targeted reviews during design
- Time jobs with LA San
- Do in-person pre-bid meeting
- Add unit cost bid items
- Third party estimate



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Recommendation

Recommend to the Board of Directors to:

- A. Receive and file Bid Tabulation and Recommendation for Santa Ana Trunk Sewer Rehabilitation, Project No. 1-23;
- B. Approve a project budget increase of \$9,600,000 for Santa Ana Trunk Sewer Rehabilitation, Project No. 1-23, for a new total project budget of \$65,400,000;
- C. Award a Construction Contract Agreement to Steve P. Rados, Inc., for Santa Ana Trunk Sewer Rehabilitation, Project No. 1-23, for a total amount not to exceed \$44,787,000; and
- D. Approve a contingency of \$4,478,700 (10%).

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Questions?

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