



LOSSAN

Coastal Rail Corridor

San Diego Segment

Los Angeles • San Diego • San Luis Obispo



Building Today. Boarding Tomorrow.

Update for CMMA

January 2018

KeepSanDiegoMoving.com



1. Program Summary
2. Projects Status
3. SB1 funding – proposed projects
4. Completed Projects and Lessons Learned
5. LOSSAN Design Criteria

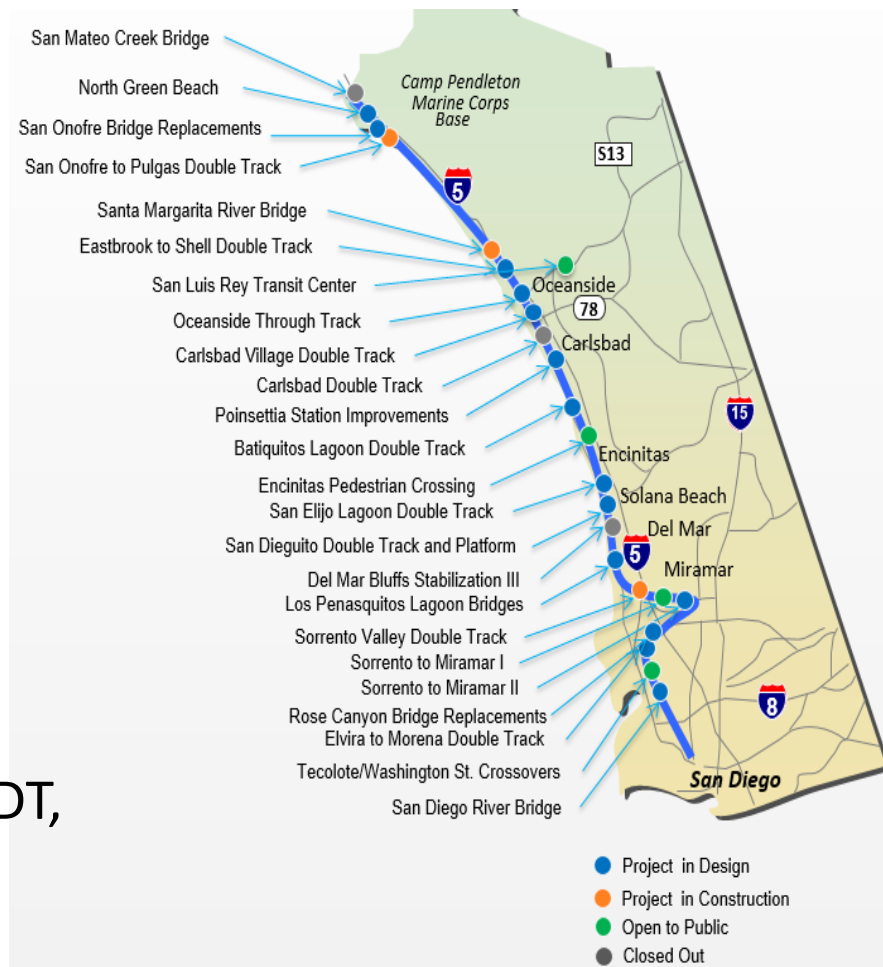
LOSSAN Program Summary

Funding:

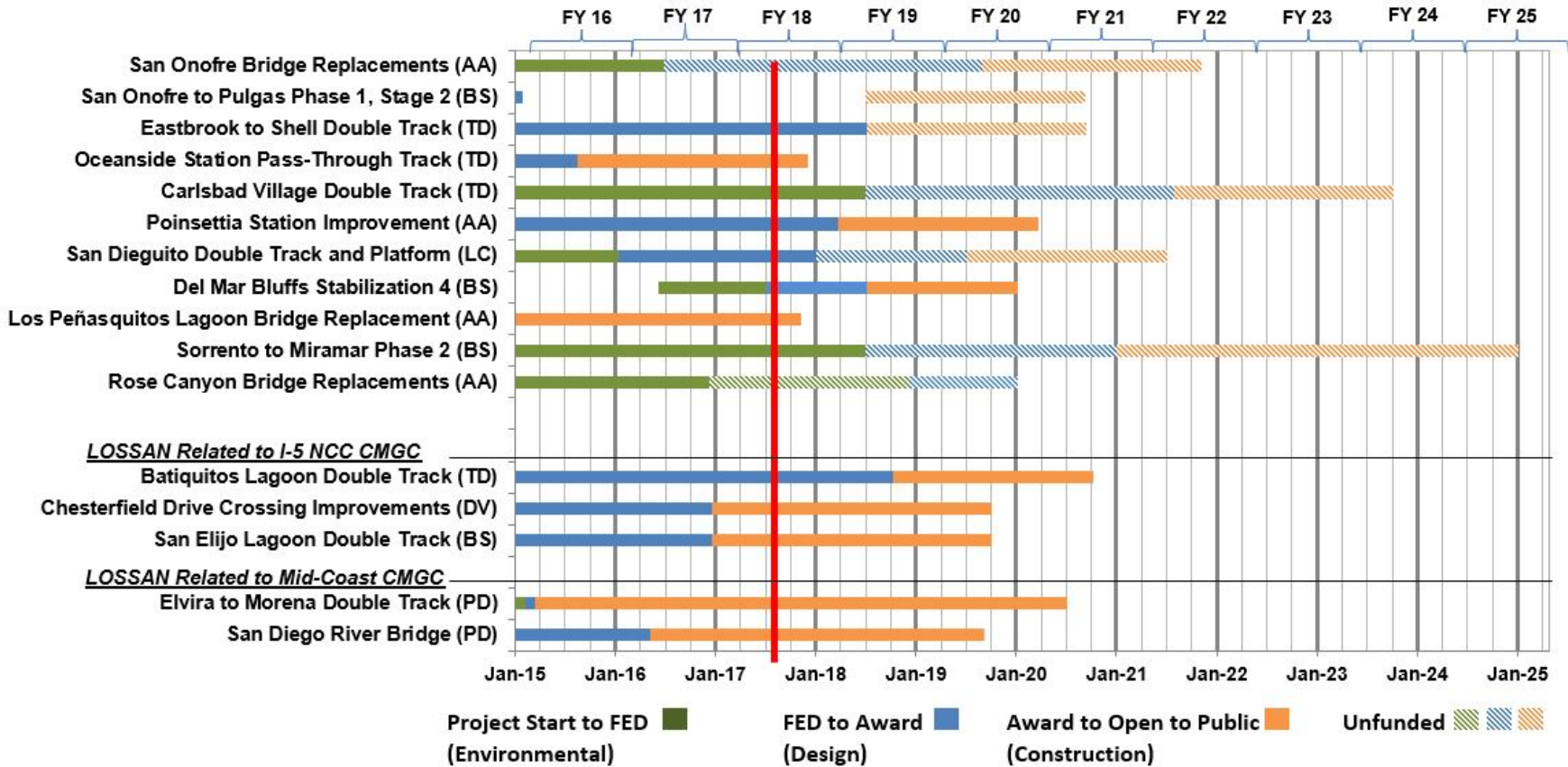
- Available funds: \$716M
- 2009 through 2025

15 Active Projects:

- 2 near/at completion (OTC, LPB)
- 6 funded through construction (PSI, SELDT, CDGC, ELMO & SDRB)
- 1 shovel ready (SOP2)
- 1 at 90% design (BLDT)
- 5 funded through PE & ED (EBS, CVDT, SDDT, SM2)

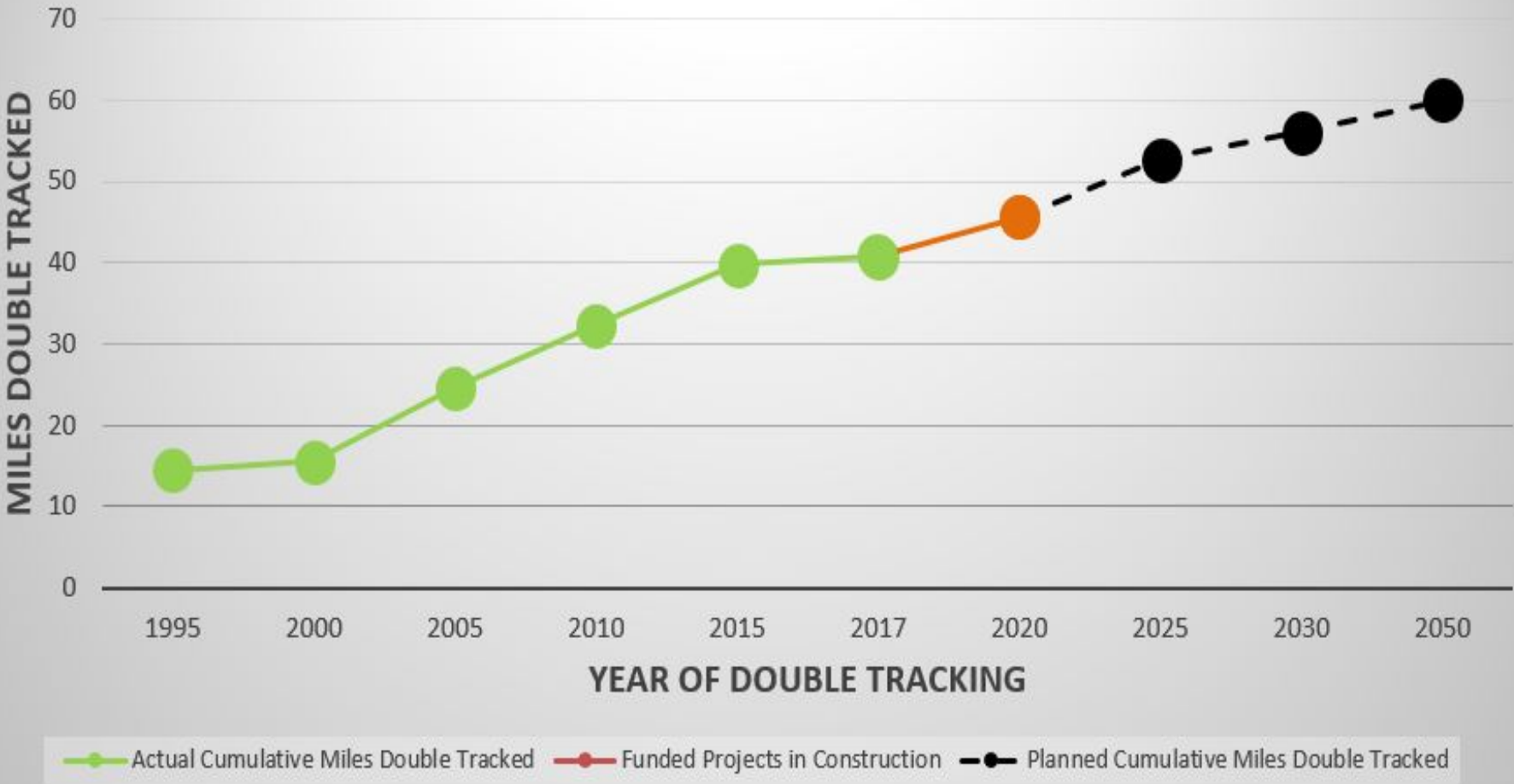


LOSSAN Schedule



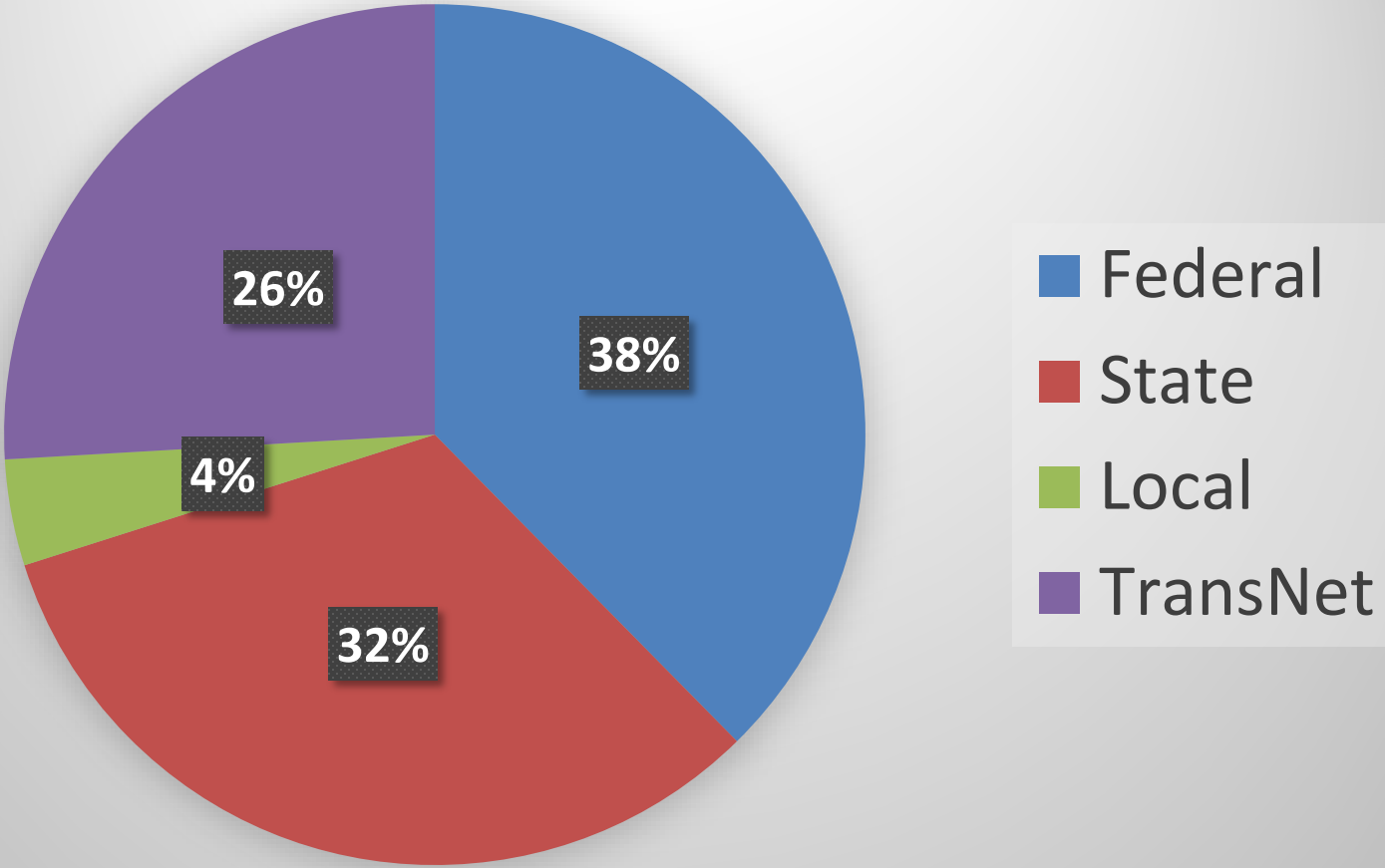
LOSSAN Double Track

LOSSAN Cumulative Miles Double Tracked in San Diego County





LOSSAN Corridor Funding Sources in San Diego County



Project Status

San Onofre Pulgas Double Track 2



Project is shovel ready. Applying for STIP funds 3/2018 with potential construction start mid 2019



Improvements:

- Add 1.5 miles passing track
- Two new bridges; at Las Pulgas Road and Las Flores Creek

Project Budget:

- \$30 million for construction

Status:

- Shovel ready
- Construction start after Red beach bridge replaced by NAVFAC
- Construction funding request 2018
- Construction could start mid 2019



Oceanside Station Improvements



Improvements:

- Added third platform
- Level boarding
- New Crossovers

Project Budget:

\$28.1m million

Status:

- Construction began 03/2016
- Open to Public 11/ 2017



Level boarding

Poinsettia Station Improvements

Improvements:

- New pedestrian undercrossing
- Add inter-track fence

Status:

- Low Bid was \$19.3m
- Award January 2018 to FSSW and H&H
- Construction scheduled for 2018/2019
- CM Team being chosen



Poinsettia Station Underpass



Poinsettia Station Access Ramp



Batiquitos Double Track

Improvements:

- Add 0.75 mile of double track
- 1 bridge replacement

Project Estimate

- \$61.4 million

Status:

- At 90% design
- Permitting
- Complete CMGC negotiation
- Secure all construction funding



Batiquitos Double Track



Geotech drilling at new bridge site

San Elijo Lagoon Double Track

Improvements:

- Add 1.5 miles of double track
- New Crossovers at Cardiff
- Replace wooden trestle bridge - 1944

Project budget:

- \$72 million

Status:

- Construction began Jan. 2017
- Construction 50% complete
- Completion by mid 2019



San Elijo Lagoon Double Track



San Elijo Ave Retaining Wall



San Elijo Lagoon Undercrossing



NCC Community Enhancement for Solana Beach



Chesterfield Drive Grade Crossing

Improvements:

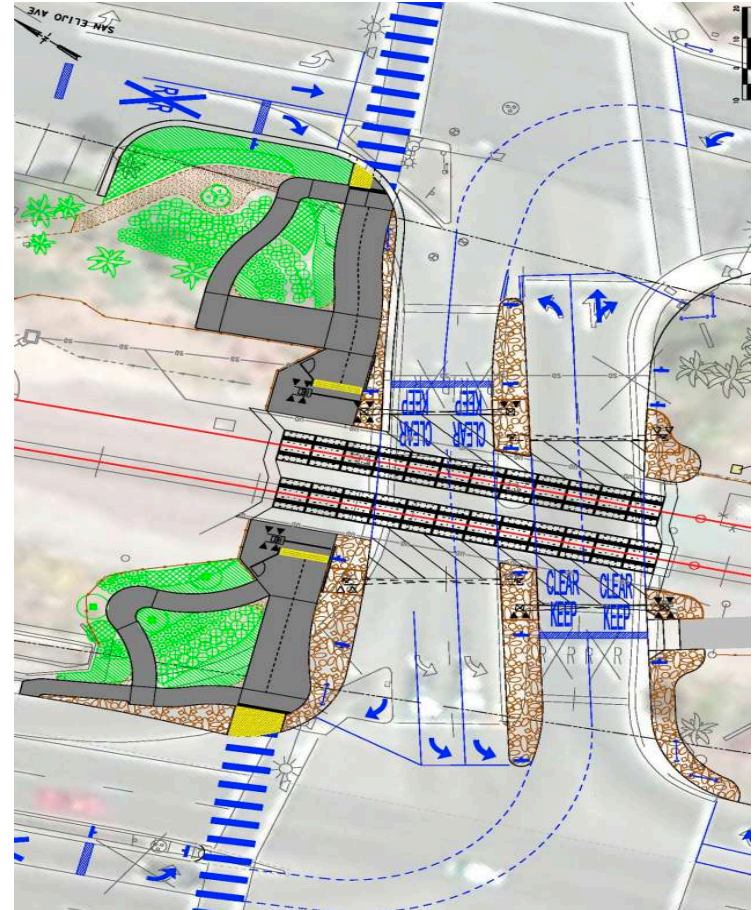
- Double Track Crossing
- Add ADA accessible side walk
- Quiet Zone by City

Project Budget:

- \$6.1 million

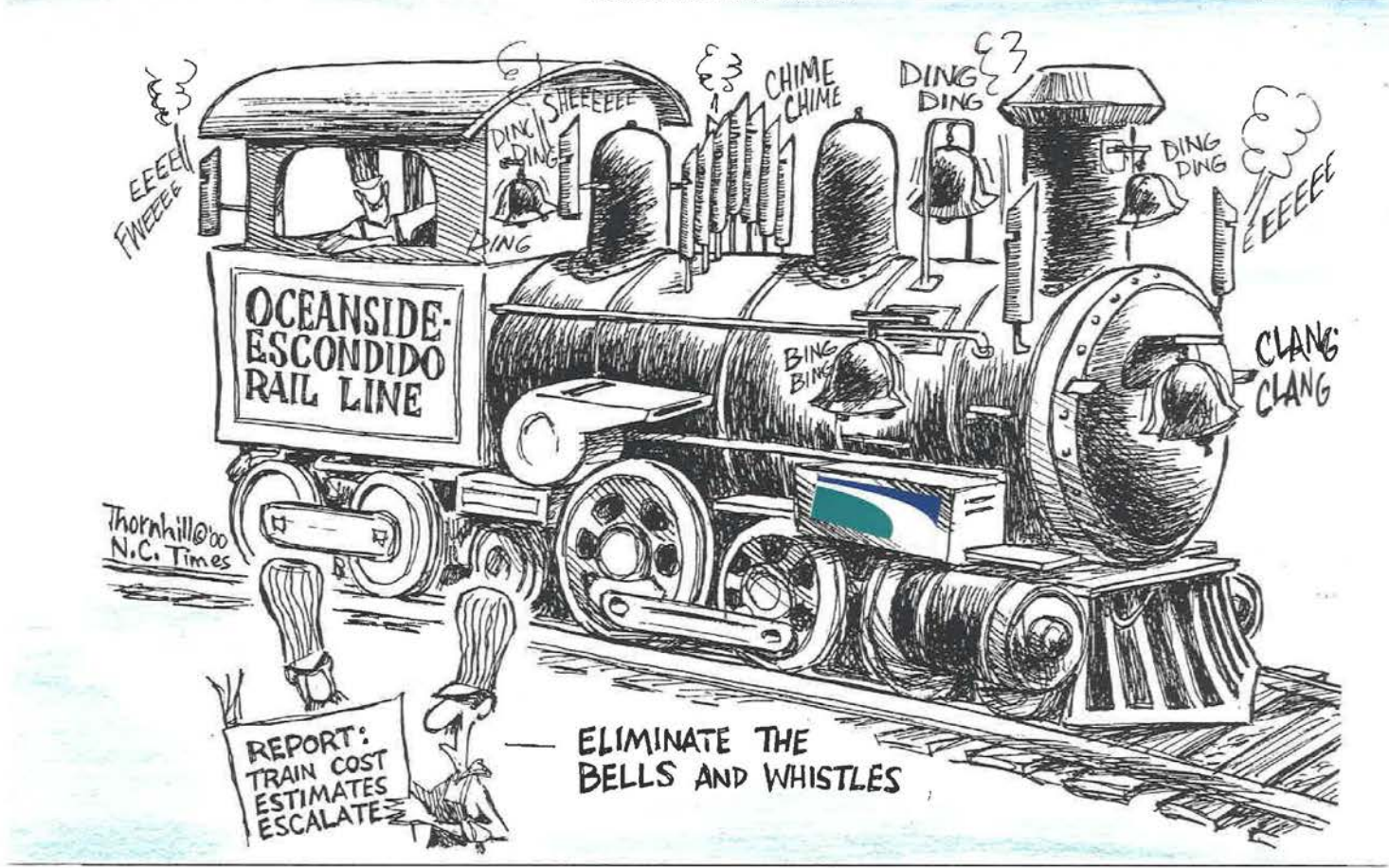
Status:

- Construction began Jan. 2017
- Completion by end 2018



Quiet Zone at Chesterfield

Thornhill's view





Improvements:

- Repair drainage structures
- Piling for slope stability
- Repair retaining walls

Project Budget:

- \$3 million

Status:

- PE & Env. Clearance
- Construction late 2018
- Completion by end 2019



Los Peñasquitos Lagoon Bridges Project Map



Los Peñasquitos Lagoon Bridge Replacement Project

CONSTRUCTION NOTICE



Rail Bridge Construction to Begin January 2015

In January, construction is scheduled to begin on a project to replace four aging wooden trestle bridges that cross the Los Peñasquitos Lagoon. The project is part of a larger effort to improve rail infrastructure along the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor. The rail bridges included in this project were first built in the 1920s and 1930s and have aged beyond the average operating life of 75 years. Replacement of the bridges will reduce maintenance costs and provide more efficient passenger and freight service. Construction is expected to last approximately 12-18 months.



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Improvements:

- Replaced four wooden trestle bridges with modern concrete bridges

Project Cost:

- \$30.6 million to date

Status:

- Construction start 2014
- Completed construction in early 2018
- Contractor: Skanska
- Claims mediation in progress





Los Peñasquitos Lagoon Bridges



ELMO Double Track in Rose Canyon

Improvements:

- Add 5.8 miles of double track
- Replace 4 new bridges

Project Budget:

- \$192 million

Status:

- Construction began Jan. 2017
- Construction 48% Completed
- Completion by mid 2020





ELMO Double Track – Balboa Ave Bridge



San Diego River Bridge and Tecolote to Friar Double Track

Improvements:

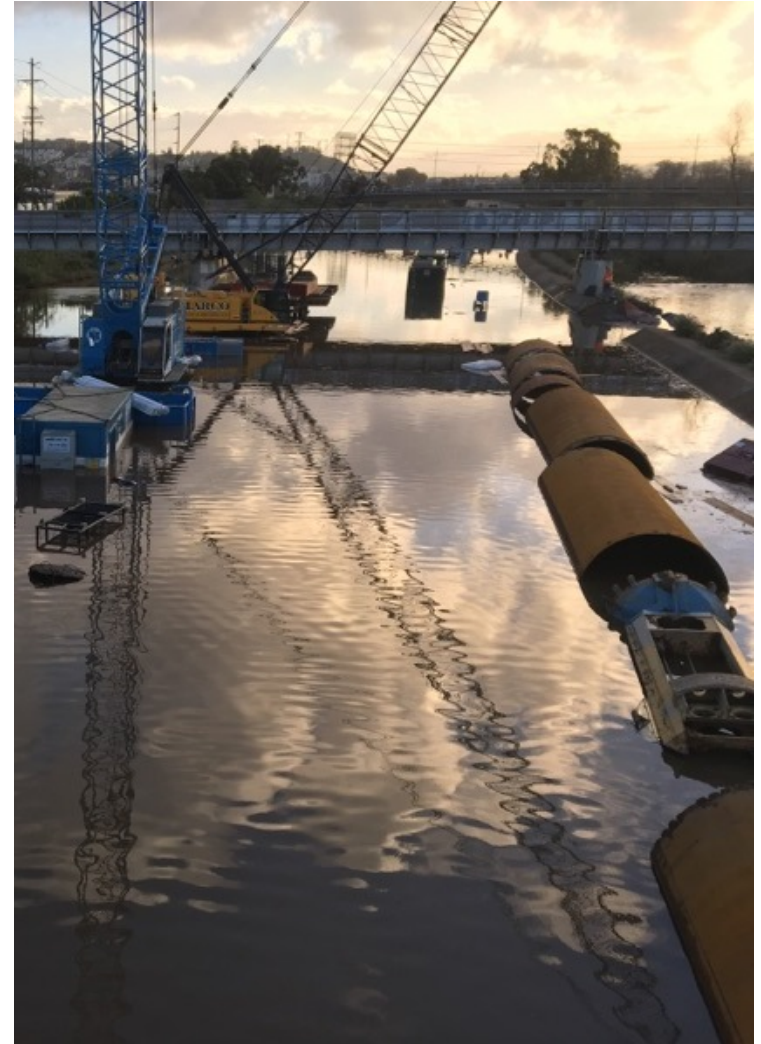
- Add 0.9 mile of double track
- Replace San Diego River Bridge

Project Estimate:

- \$93.4 million

Status:

- Construction began 9/2016
- 48% Completed
- Completion in mid 2020



San Diego River Bridge



SB1 Major Projects

SB 1 Proposed Projects



Priority 1 Major Projects	Request
Batiquitos Lagoon Double Track	\$55.9m
San Dieguito Lagoon Double Track and Fairgrounds Platform	\$187.0m
Sorrento to Miramar Phase 2 Double Track	\$117.1m
Signal Respacing and Optimization Project	\$16.9m
Total First Priority 1 projects	\$376.9m

SB 1 Proposed Projects



Priority 2 Projects	Request
San Onofre Bridge Replacements and Turnout	\$47.0
Eastbrook to Shell Double Track	\$73.9
Carlsbad Village Trenching PE ED	\$10.0
Sub total second priority projects	\$130.9

Completed Projects & Lessons Learned



Completed Projects since 2009



Project	Opened to Public	Cost
Oceanside Transit Center	November 2017	\$28.1 million
Sorrento Valley Double Track	May 2015	\$32.6 million
San Onofre Pulgas Double Track	May 2015	\$37.1 million
Sorrento to Miramar Phase 1	March 2014	\$44.0 million
Santa Margarita River Bridge	March 2014	\$42.5 million
San Mateo Creek Bridge	February 2012	\$6.6 million
Del Mar Bluffs 3	March 2012	\$4.8 million
Santa Fe Pedestrian Underpass	February 2013	\$5.9 million
Tecolote/Washington Crossovers	October 2013	\$10.6 million

Some Lessons learned



We need to manage change effectively

- Natural Disasters (Fires, floods & earthquakes)
- Regulations change (Level Boarding)
- Birds can stop projects (LPB, trestles)
- Unforeseen Utilities
- Differing site conditions
- Temporary support work in tidal areas susceptible to marine borers
- CMGC and the market fluctuates

Do Better Planning

- Communications outreach during construction is vital to successful delivery of projects in urban areas
- Plan for adequate access
- Plan Utilities relocations early

TEAMWORK in vital

Santa Margarita River Rail Bridge 223



Santa Margarita River Bridge



Marine borer damage to temporary support work staging Br 223



We work in environmentally sensitive areas



- Gnatcatcher nest and Bobcats



Ridgeways rails everywhere



Sorrento Valley Double Track



Cobbles Damaged Piles

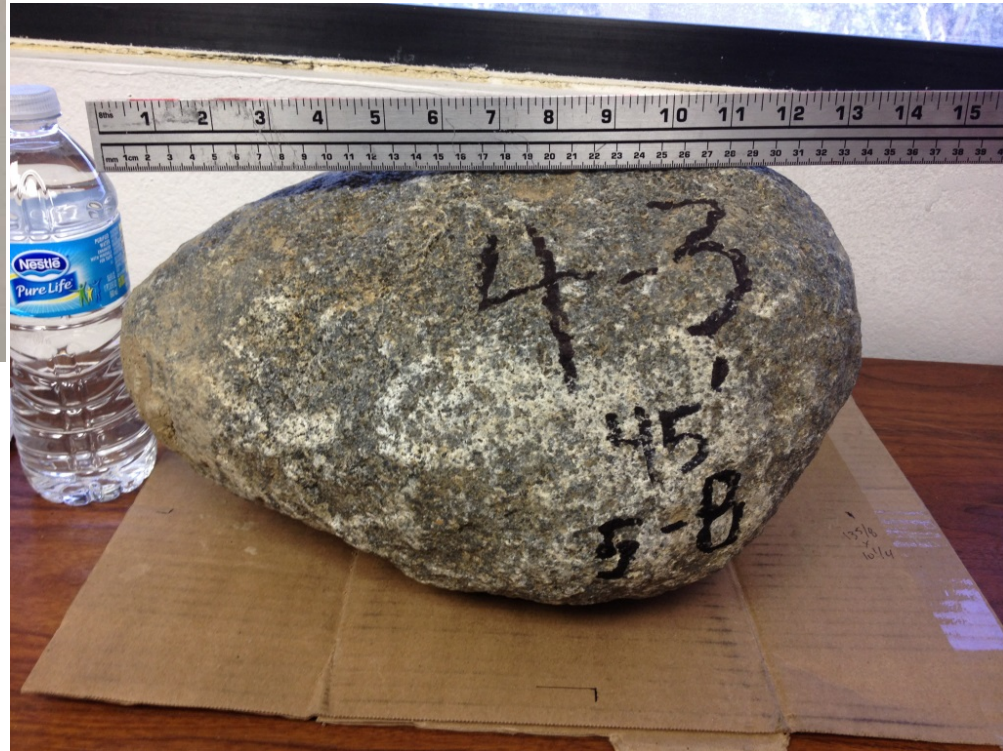


Borehole logs indicated cobbles



Is it a cobble or a boulder?

Prescribed method of drive and relief drill.



SELDT part of Build NCC



SELDT CMGC Price Negotiation

SELDT CMGC Cost Estimates



Contract
SELDT &
CDGC
\$50.5M
12/2016

SELDT potential savings

Potential cost savings ideas proposed by contractor at ROM stage;

1. One Project Efficiency – Highway & Rail Project
2. Earth Cut on Highway to fill on Rail embankment
3. Allow an access road thru the lagoon
4. Construct Bridge 240.4 in single phase
5. Br 240.4 replace temporary trestle with earth berm

Resulted in \$8.2m negotiated savings to rail project

Caltrans Construction Cost Index – Boom and bust cycles



1. Railway Berm - rock foundation across the lagoon

- Designer required a minimum of 2 ft thick rock
- Contractor originally priced item assuming 4ft

We assumed risk during negotiation and paid for additional rock at unit rates.

2. Additional Geotech for Bridge Piling

Agreed to do additional boreholes once work berm constructed over the lagoon inlet channel.

They showed that the south end of the bridge would require significantly longer piles due to softer soil conditions.

LOSSAN Design Criteria



LOSSAN Design Criteria and Service Life Guide



1. LOSSAN Design Criteria now on SANDAG's website;

www.sandag.org/Publications/EngineeringandConstruction

2. Service Life Design Guide

Looked back 100 years to see what we could learn

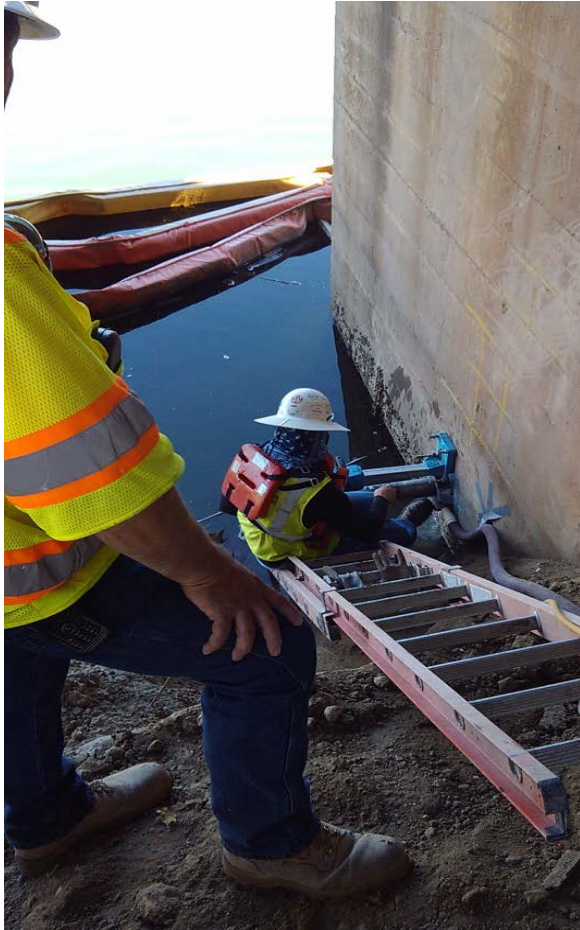
- Measuring chloride contamination in old structures
- Tidal, coastal and inland exposures zones
- Carbonation and Alkali Silica Reaction

Looked forward 100 years to see what is needed

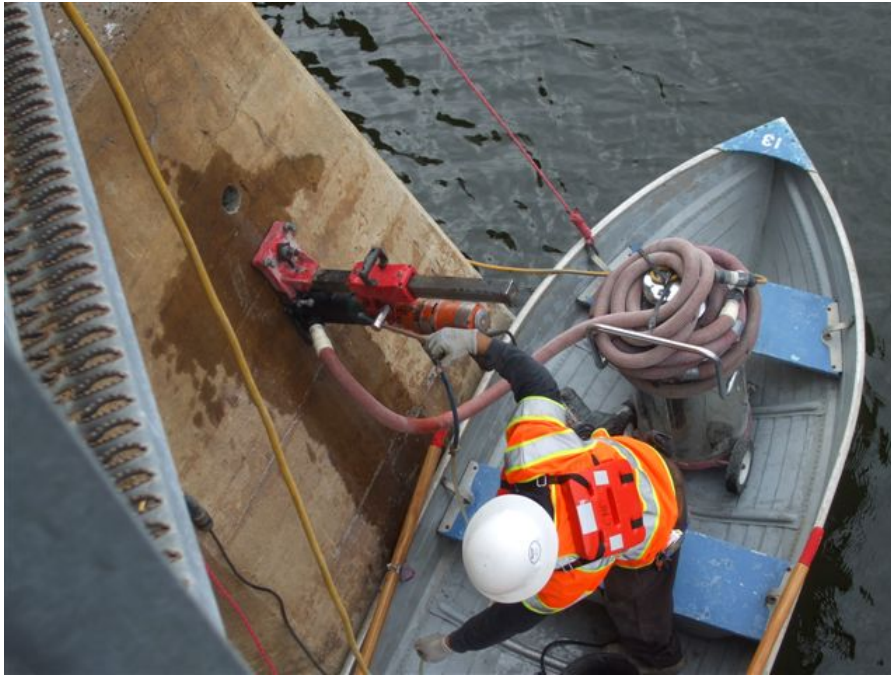
- Service Life Modelling using STADIUM®
- Mix Design for 100 year service life
- May save hundreds of millions dollars for future generations

10/27/2014

Coring Bridge Piers



Coring Bridge Piers

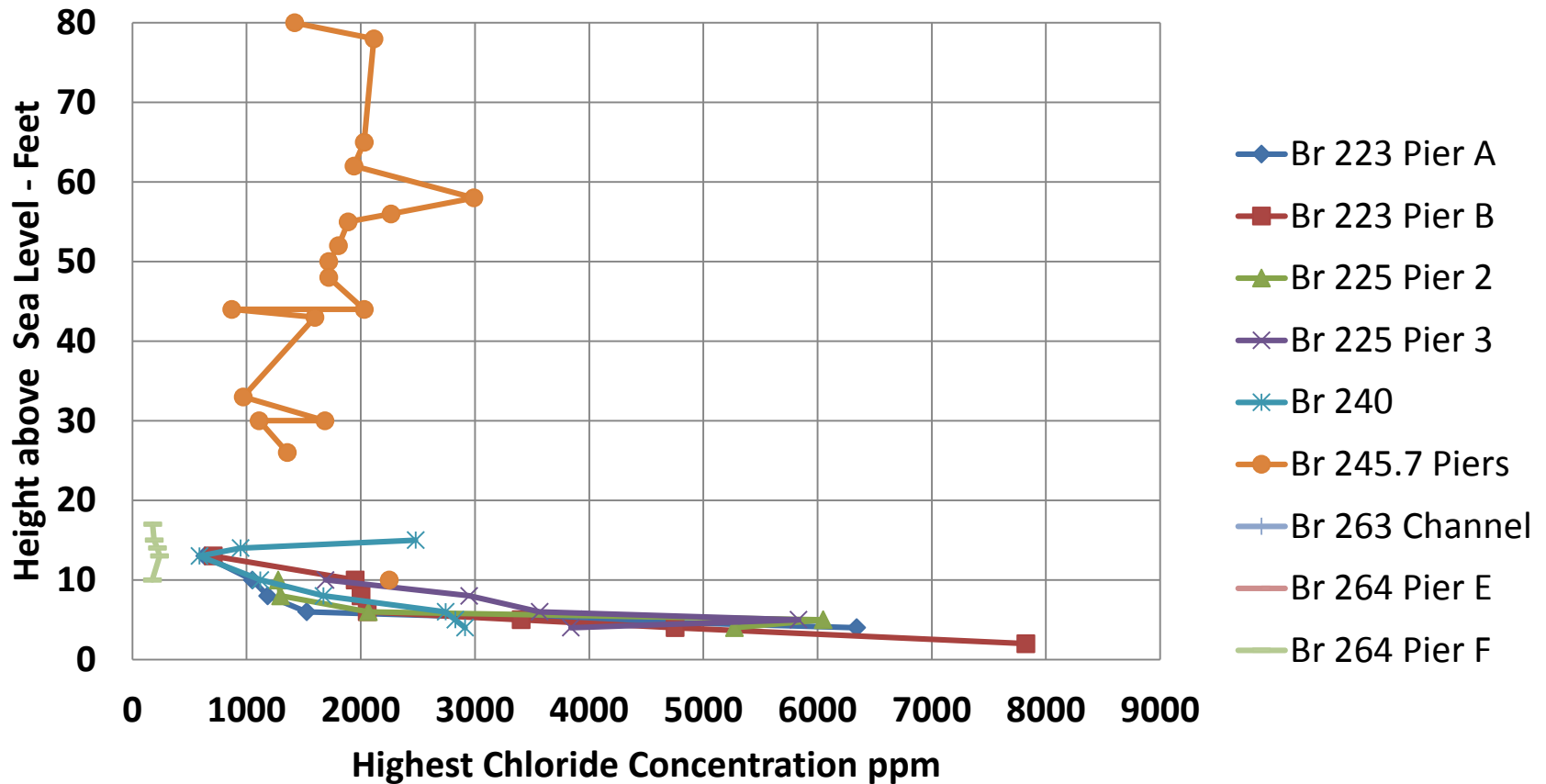


Cores provide valuable data on the amount of chloride ingress in the piers which were constructed in 1916

Vertical Limits of Chlorides 80 ft high in bridge structures



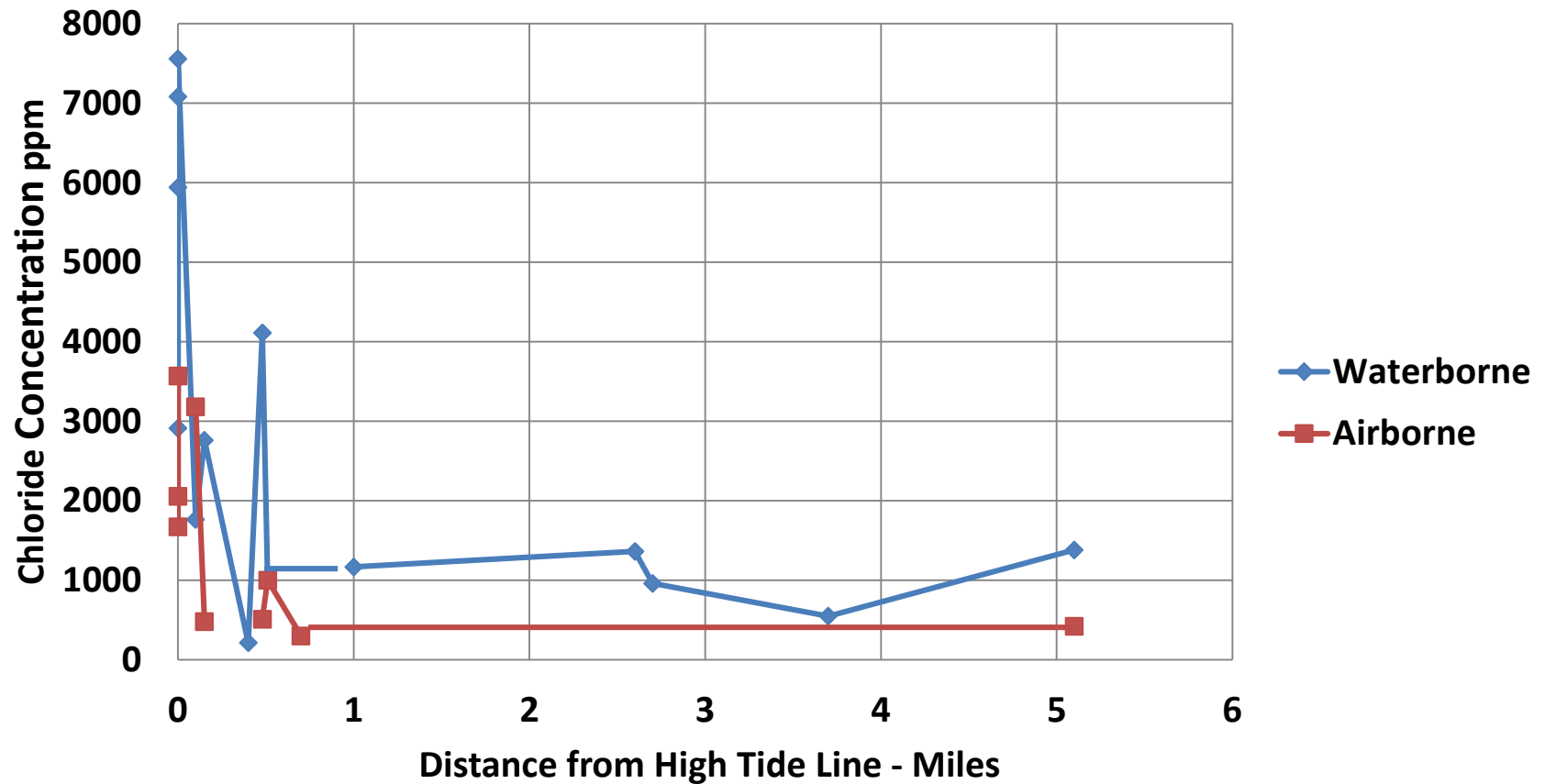
Acid Soluble Chlorides to ASTM C1152



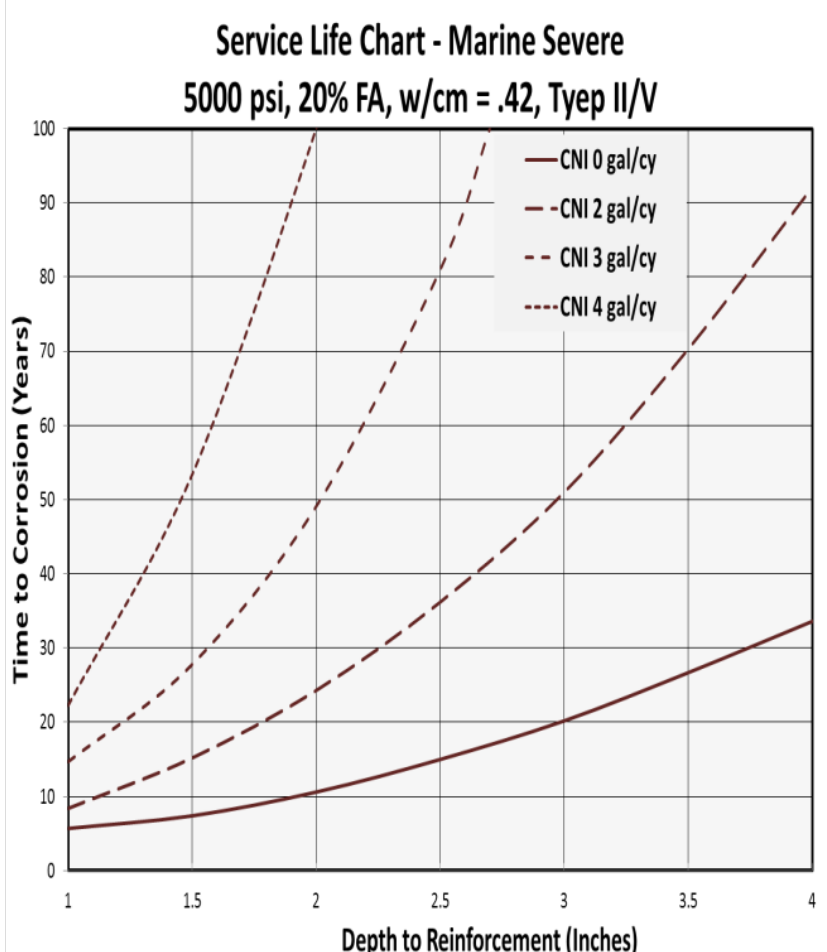
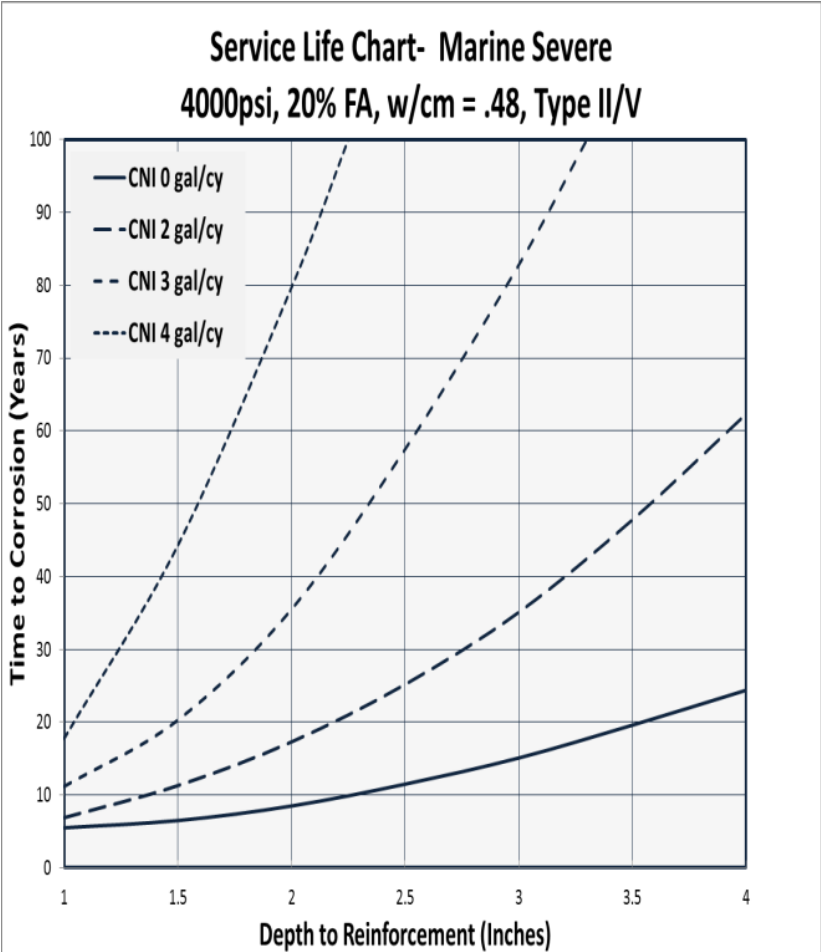
Horizontal Limits of Chlorides Up to 5 miles from the Coastline



Acid Soluble Chlorides to ASTM C1152



Severe Exposure – Seawater Mix and Cover Guide





Conclusion



- Team work is essential
- Adopt a project first approach
- Stay flexible – put yourself in the other persons shoes
- Negotiate agreements
- Use Dispute Resolution process & mediation
- Never give up until the project is completed

- Find time to read books on projects



QUESTIONS

Project Info: KeepSanDiegoMoving.com/LOSSAN

Design Criteria and Service Life Guide:
www.sandag.org/Publications/EngineeringandConstruction

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