Update for CMMA

January 2018
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 Corridor Funding Sources in San Diego County

- Federal: 38%
- State: 32%
- Local: 4%
- TransNet: 26%
Project Status
San Onofre Pulgas Double Track 2

Project is shovel ready. Applying for STIP funds 3/2018 with potential construction start mid 2019
San Onofre Pulgas Double Track 2

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
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 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

Oceanside- Escondido Rail Line

Report: Train cost estimates escalate

Eliminate the bells and whistles

Thornhill’s view

N.C. Times

Clang Clang
Del Mar Bluffs 4

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

Rail Bridge Construction to Begin January 2015

In January, construction is scheduled to begin on a project to replace four aging wooden truss 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 (LASDOL) rail corridor.

The four bridges included in this project were first built in the 1920s and 1930s and have aged beyond their 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 15-18 months.
Los Peñasquitos Lagoon Bridges Project

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
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
<table>
<thead>
<tr>
<th>Priority 1 Major Projects</th>
<th>Request</th>
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<tbody>
<tr>
<td>Batiquitos Lagoon Double Track</td>
<td>$55.9m</td>
</tr>
<tr>
<td>San Dieguito Lagoon Double Track and Fairgrounds Platform</td>
<td>$187.0m</td>
</tr>
<tr>
<td>Sorrento to Miramar Phase 2 Double Track</td>
<td>$117.1m</td>
</tr>
<tr>
<td>Signal Respacing and Optimization Project</td>
<td>$16.9m</td>
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<tr>
<td><strong>Total First Priority 1 projects</strong></td>
<td><strong>$376.9m</strong></td>
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## SB 1 Proposed Projects

<table>
<thead>
<tr>
<th>Priority 2 Projects</th>
<th>Request</th>
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<tbody>
<tr>
<td>San Onofre Bridge Replacements and Turnout</td>
<td>$47.0</td>
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<tr>
<td>Eastbrook to Shell Double Track</td>
<td>$73.9</td>
</tr>
<tr>
<td>Carlsbad Village Trenching PE ED</td>
<td>$10.0</td>
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<tr>
<td>Sub total second priority projects</td>
<td>$130.9</td>
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</table>
Completed Projects & Lessons Learned
## Completed Projects since 2009

<table>
<thead>
<tr>
<th>Project</th>
<th>Opened to Public</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oceanside Transit Center</td>
<td>November 2017</td>
<td>$28.1 million</td>
</tr>
<tr>
<td>Sorrento Valley Double Track</td>
<td>May 2015</td>
<td>$32.6 million</td>
</tr>
<tr>
<td>San Onofre Pulgas Double Track</td>
<td>May 2015</td>
<td>$37.1 million</td>
</tr>
<tr>
<td>Sorrento to Miramar Phase 1</td>
<td>March 2014</td>
<td>$44.0 million</td>
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<tr>
<td>Santa Margarita River Bridge</td>
<td>March 2014</td>
<td>$42.5 million</td>
</tr>
<tr>
<td>San Mateo Creek Bridge</td>
<td>February 2012</td>
<td>$6.6 million</td>
</tr>
<tr>
<td>Del Mar Bluffs 3</td>
<td>March 2012</td>
<td>$4.8 million</td>
</tr>
<tr>
<td>Santa Fe Pedestrian Underpass</td>
<td>February 2013</td>
<td>$5.9 million</td>
</tr>
<tr>
<td>Tecolote/Washington Crossovers</td>
<td>October 2013</td>
<td>$10.6 million</td>
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</tbody>
</table>
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 Bridge
Marine borer damage to temporary support work staging Br 223
We work in environmentally sensitive areas

- Gnatcatcher nest and Bobcats
Ridgeway’s rails everywhere
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

Public Works Plan/Transportation and Resource Enhancement Program
Implementation blueprint for a 40 year $6 billion program

North Coast Corridor Program
Highway, rail, transit, environmental protection and coastal access improvements

Highway Improvements  Coastal Rail and Transit  Environmental Protection & Coastal Access
Contract
SELDT & CDGC
$50.5M
12/2016

SELDT CMGC Cost Estimates

ROM Final (4/6/15)
OPCC1 Rev 1 (4/28/2015)
OPCC1 Rev 2 (6/26/2015)
OPCC1 Rev 3 (9/11/2015)
GMP (3/2/2016)
GMP (7/1/2016)
GMP (9/7/2016)

FSSW
HDR
ICE
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
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
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

Height above Sea Level - Feet

Highest Chloride Concentration ppm
Horizontal Limits of Chlorides
Up to 5 miles from the Coastline

Acid Soluble Chlorides to ASTM C1152

Chloride Concentration ppm vs. Distance from High Tide Line - Miles

- Waterborne
- Airborne
Severe Exposure – Seawater Mix and Cover Guide

Service Life Chart - Marine Severe
4000 psi, 20% FA, w/cm = .48, Type II/V

Service Life Chart - Marine Severe
5000 psi, 20% FA, w/cm = .42, Type II/V
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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