2018 CALIFORNIA STATE RAIL PLAN

• Published: September 2018

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RAIL CONNECTIVITY VISION

Novato – Suisun Alignment
PURPOSE OF REPORT

• Examine the technical feasibility of implementing passenger rail service between Novato and Suisun City

• Document the existing physical condition of the corridor

• Propose limited infrastructure options, and their corresponding operating characteristics

• Identify potential infrastructure and environmental challenges

• Prepare schedule and cost estimates
CORRIDOR OWNERSHIP AND OPERATIONS

- **SMART**: Novato to Napa River (American Canyon)
  - *Freight Operator: Northwestern Pacific Railroad*

- **Union Pacific Railroad (UPRR)**: American Canyon (Napa River) to Suisun
  - *Freight Operator: California Northern Railroad*
IS A PASSENGER RAIL LINE FEASIBLE?

YES!
STUDY OPTIONS

1. Rapid Deployment – Basic Service
2. Higher Level of Service
STUDY OPTIONS

- Transportation infrastructure which can be built upon for decades to come....

- Both Options have “scalability” to increase service with the addition of vehicles

- Investing not just in an option but in transportation connectivity in Northern California
OPTION 1 - DESCRIPTION

Utilizing the existing operating freight railroad...

What are the minimum infrastructure improvements needed to allow passenger rail service?
OPTION 1 - SERVICE SCENARIO

- Start with minimum service;
  - Two morning round trips per day
  - Two evening round trips per day
  - Total round trips per day: 4 (8 one-way trips per day)

- Daily capacity for the 8 trips is approximately 2100 passengers (based upon assumed length of trains)
The Federal Railroad Administration regulates allowable speed based on quality or “Class” of track:

- **Class 1**: 15 MPH maximum (for passenger trains)
- **Class 2**: 30 MPH maximum
- **Class 3**: 60 MPH maximum
- **Class 4**: 80 MPH maximum

Higher classes of track have more stringent geometric tolerances and require more robust infrastructure.
OPTION 1 - INFRASTRUCTURE

- Maximum speed: 60 MPH (Class 3 track)
- Maximize re-use of existing infrastructure
- Stay within existing rail embankment/prism
- Replace Black Point bridge over the Petaluma River with used bridge
- Replace 28 existing timber bridges
OPTION 1 – RAILROAD SIGNALS

» Three types of signal systems:
  – Grade crossing signals
  – Wayside signals
  – Positive Train Control (PTC)

» PTC is a required safety overlay working with wayside signals.
  – The PTC system must be compatible with UPRR system
  – New fiber optic, wayside interface, back office, and on-board systems are required
OPTION 1- INFRASTRUCTURE

» New signals and train control/PTC
» Three new intermediate stations
» Two passing Sidings
» Shared maintenance facility
» Shared or contracted corridor maintenance
» Shared corridor with freight
» New connections to SMART and Capitol Corridor
OPTION 1 - INFRASTRUCTURE

Two Moveable Bridges:
» Black Point Swing Span
» Napa River Vertical Lift

Other Bridges:
» Replace 28 existing timber bridges
BLACK POINT BRIDGE OPTIONS

- Constructed in 1911
- Repairing the bridge is not a viable option
- **Option 1:** Assumes repurposing a used bridge (budget $40 M)
- **Option 2:** New bridge (budget $100 M)
NAPA RIVER VERTICAL LIFT BRIDGE

- Would only require minor upgrades
- Constructed in 1979
- Excellent Condition
OPTION 1 - VEHICLE ASSUMPTIONS

**Pre-Owned** locomotives & coach cars

The minimum required fleet would be:

» Three (3) *pre-owned* locomotives (one spare)

» Six (6) *pre-owned* high platform coaches (includes two spares)

» Three (3) *pre-owned* Cab coaches (includes one spare)
STATION OPPORTUNITIES

- Schellville Area
- Napa / American Canyon Area
- Shared with Existing CCJPA Suisun-Fairfield Station
- Hwy 121/37 Area
- Shared with Existing SMART Novato-Hamilton Station
NOVATO-HAMILTON STATION CONCEPT

- New Novato-Suisun Station Platform
- New Novato-Suisun Trackway
- Existing Novato-Hamilton Station Platform
SUISUN/FAIRFIELD STATION CONCEPT

- New Novato to Suisun Station Platform
- Regional Bus Platform
- Existing Fairfield-Suisun Capitol Corridor Station Platforms
- New Novato to Suisun Trackway
OPTION 1 - ENVIRONMENTAL

- For Option 1, by staying within the railroad envelope, and because it is already an operating railroad, it is assumed that an appropriate level of environmental/permitting review will be conducted.

- Range of Environmental Documentation Cost:
  
  $10M to $15M depending on level of requirements
# SCHEDULE—OPTION 1

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
<th>YEAR 4</th>
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<td>Design</td>
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<td>Construction</td>
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<td>Testing/Start-Up</td>
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<td>Revenue Operation</td>
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## CAPITAL COST – OPTION 1

### OPTION 1 CONCEPTUAL CAPITAL COST SUMMARY

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<th>COST CATEGORY</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Track &amp; Signal Construction</td>
<td>$332M</td>
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<tr>
<td>Sitework, Structures, &amp; Maintenance Facility</td>
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<td>Environmental Mitigation, Site Restoration, &amp; Station ROW</td>
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<td>Mobilization, Bonds, &amp; Insurance</td>
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<td>Rail Vehicles</td>
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<td>Project Development, Support, and Start-up</td>
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Low Range of Conceptual Costs (-7% of Total)                                $780M

High Range of Conceptual Costs (+7% of Total)                                $898M

(Totals may vary slightly due to rounding)
OPTION 2 - DESCRIPTION

Option 2:

What infrastructure improvements would be required to allow for a *higher* level of service, compared to Option 1?
OPTION 2 - SERVICE SCENARIO

- Five morning round trips per day
- Five evening round trips per day
- Total round trips per day: 10 (20 one-way trips)
- Daily capacity: approximately 5400 passengers (based upon assumed length of trains)
OPTION 2 - INFRASTRUCTURE

» Maximum speed: 79 MPH
» Reconstruct existing infrastructure
» Replace Black Point Bridge
» Replace 28 existing timber bridges
» Four Passing Sidings
» New signals & train control/PTC
OPTION 2 INFRASTRUCTURE ASSUMPTIONS

» Three intermediate stations
» New maintenance facility
» Four passing sidings
» Shared corridor with freight
» New connections: SMART & Capitol Corridor
OPTION 2 VEHICLE ASSUMPTIONS

New locomotives and new coach cars or Diesel Multiple Units (DMU’s)

» Six (6) new Tier 4 compliant locomotives, includes one spare
» Twelve (12) new high platform coaches, includes two spares
» Six (6) new Cab coaches, includes one spare

OR...

» Twelve (12) new DMU’s, includes two spares
OPTION 2 STATIONS

- Same end stations as Option 1
- Three or more intermediate stations
OPTION 2 - ENVIRONMENTAL

- Option 2 would likely require a more extensive environmental review because it will have greater impacts.
- Range of Environmental Documentation Cost:
  - $20M to $25M depending on level of requirements
## SCHEDULE—OPTION 2

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**COST – OPTION 2**

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<tr>
<td><strong>High Range of Conceptual Costs (+7% of Total)</strong></td>
<td><strong>$1.30B</strong></td>
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(Totals may vary slightly due to rounding)
CONCEPTUAL RUNNING TIMES

- **Option 1:** 75 mins – 90 mins
- **Option 2:** 60 mins – 75 mins
ALTERNATE VEHICLE TECHNOLOGY

- Hydrogen Fuel Cell
- Battery
- Electric Multiple Unit
## COMPARISON

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<tr>
<th>Item</th>
<th>Option 1</th>
<th>Option 2</th>
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<tbody>
<tr>
<td>Start of Service</td>
<td>4 years from funding available</td>
<td>6 years from funding available</td>
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<tr>
<td>Service frequency</td>
<td>3-car trains; 4 Round Trips/day</td>
<td>3-car trains; 10 Round Trips/day</td>
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<tr>
<td>Stations</td>
<td>2 end; 3 along corridor</td>
<td>2 end; 3 or more along corridor</td>
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<tr>
<td>Max Speed</td>
<td>60 MPH</td>
<td>79 MPH</td>
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<tr>
<td>Travel Time</td>
<td>75-90 minutes (Conceptual)</td>
<td>60-75 minutes</td>
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<td>(Conceptual)</td>
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<td>Daily Capacity</td>
<td>2100 total seats available</td>
<td>5400 total seats available</td>
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<td>Operating costs</td>
<td>Lower</td>
<td>Higher</td>
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<tr>
<td>Maintenance costs</td>
<td>Relatively high compared to Option 2</td>
<td>Significantly lower than Option 1</td>
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NEXT STEPS

» Evaluate Operating Plan

» Refine Project Scope

» Explore Station locations in cooperation with stakeholders: Solano, Napa, Sonoma, and Marin transportation agencies and affected cities/counties

» Investigate shared track/corridor opportunities with track owners

» Prepare Environmental Report & Preliminary Engineering
Connect with us:
www.SonomaMarinTrain.org
www.BeTrackSMART.org

Customer Service:
CustomerService@SonomaMarinTrain.org
(415) 455-2000