Rail Strategy Study

ALAMEDA
County Transportation
Commission

ACTAC
October 9, 2017

Agenda Overview

1. Overview of rail system issues and growth scenarios
2. Capacity and operations analysis and improvement options
3. Grade crossing improvements and prioritization

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Alameda County Rail System Pressure Points

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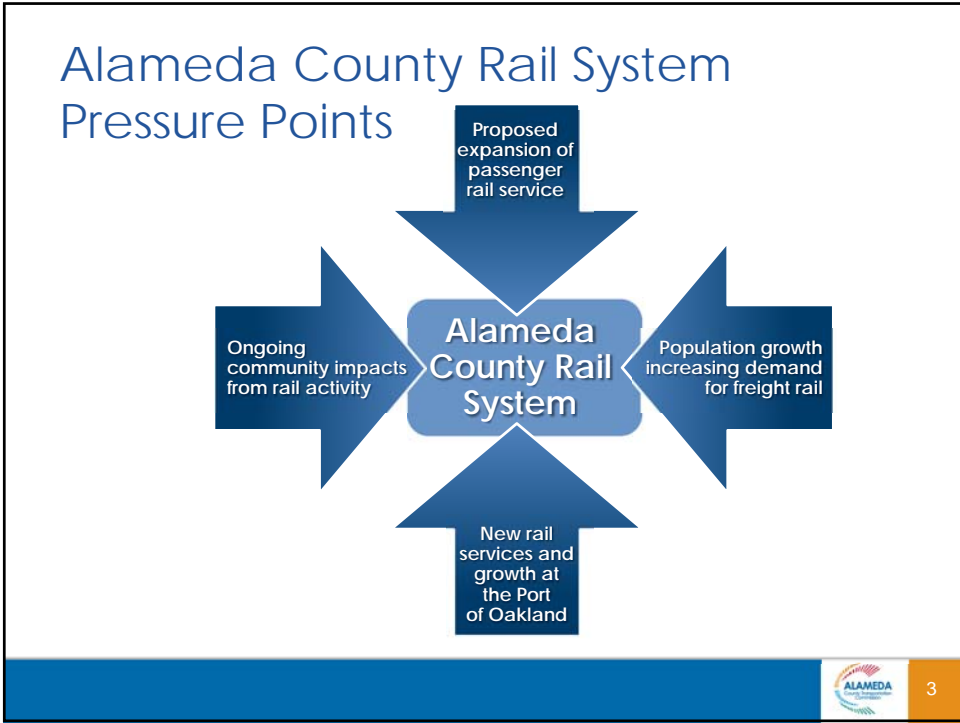
California Freight Rail Growth Markets

California freight rail volumes are projected to more than double between 2013 and 2040.

182% increase to the North to 3 million tons in 2040

121% increase to the Midwest and Northeast to 112 million tons in 2040

140% increase to the Southwest and Southeast to 76 million tons in 2040

Port of Oakland Top Commodities (2014)

Top 5 Exports	Top 5 Imports
Wood pulp	Furniture
Fruits and nuts	Packaging
Meats and fish	Glass products
Beverages, spirits, and vinegar	Non-electrical machinery
Grains and seeds	Electrical machinery

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Bay Area Freight Rail Network
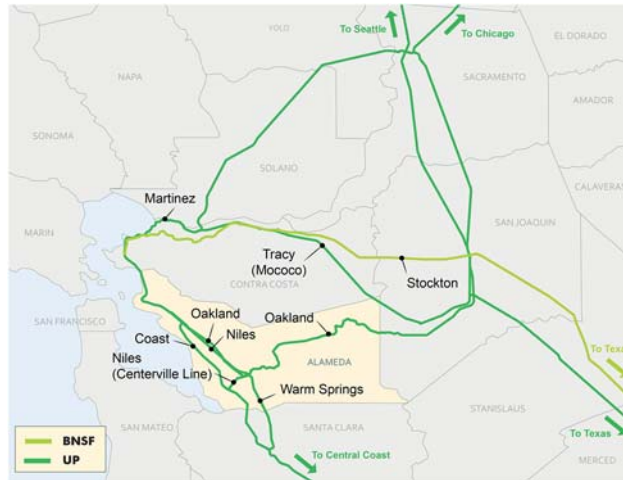
- Circuitous routes for freight due to lack of connections
- Redundant parallel track has value and provides opportunity
- Much shared track could be reduced with targeted improvements

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National Freight Rail Network

- Rail in Alameda County is a small part of national freight rail networks
- Railroads make routing decisions based on national markets

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Rail Subdivisions and Rail Junctions

- Most freight rail uses Martinez, Coast, and Oakland subdivisions between Port and Central Valley
- Newark Junction used by traffic moving on Coast Subdivision

Legend:
- Martinez
- Niles
- Oakland
- Coast
- Warm Springs
- Canyon (excursion only)
- Tracy

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Daily Freight and Passenger Train Volumes (2016)

Legend:
- Martinez
- Niles
- Oakland
- Coast
- Warm Springs

Segments with Most Trains

Subdivision	Location	Pax Trains	Freight Trains	Total Trains
Martinez	North of Port	42-44	18	60-62
Niles	South of Port	16	16	32
Niles (Centerville)	Fremont	22	11	33
Coast	South of Centerville	24	6	30
Oakland	East of Niles Junction	8	11	19

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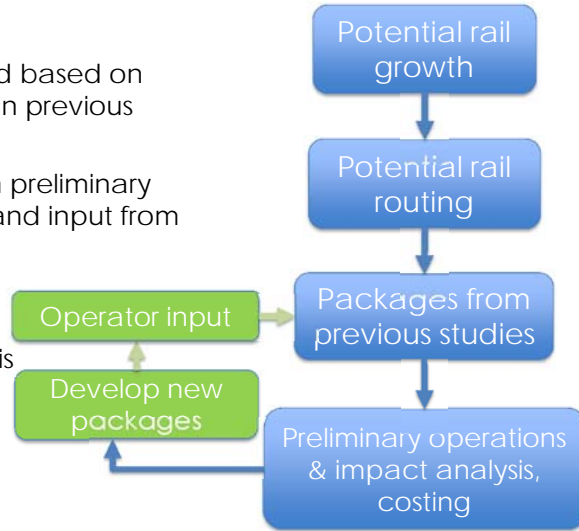
ACE and Capitol Corridor
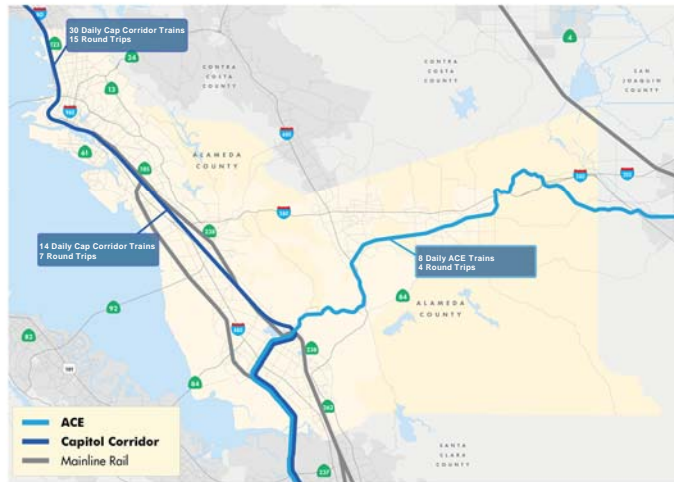
- Capital Corridor Vision Plan identifies market potential in Oakland to San Jose route
- Significant investments required by UP for Capitol Corridor and ACE to increase service levels
- Capacity constraint concerns on shared Centerville line and through Niles Canyon

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Issues – Capacity and Speed Constraints, Connectivity
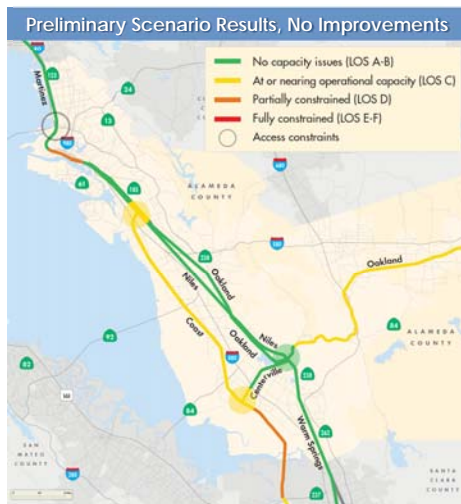

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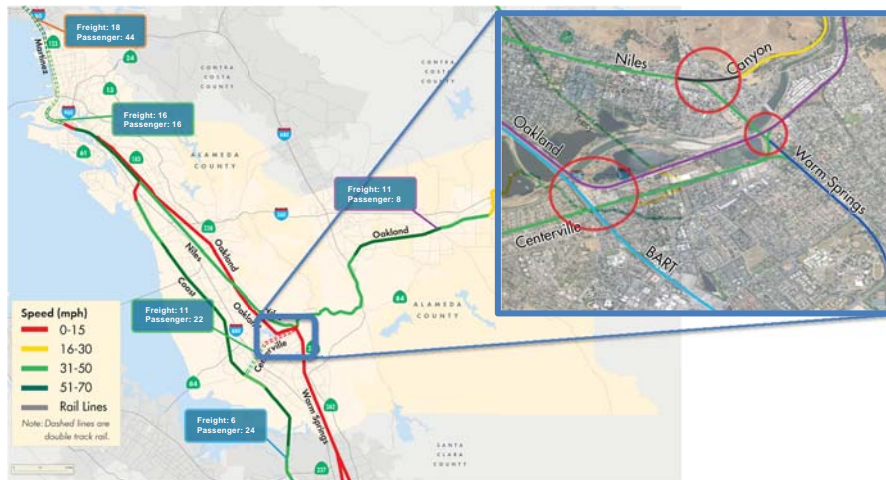
Package Development and Analysis

- Packages analyzed based on projects identified in previous studies
- Adjusted based on preliminary capacity analysis and input from rail operators
- More refined capacity and operational analysis will need to be done by UP
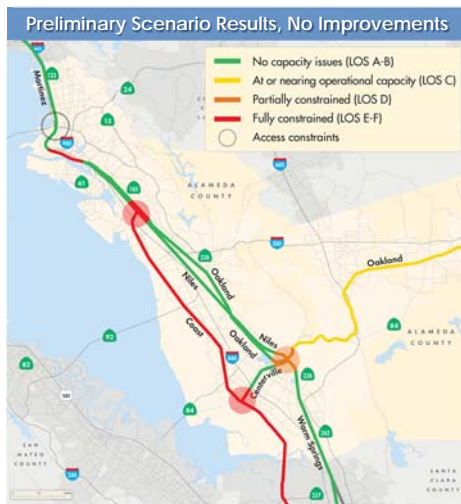
Potential rail growth → Potential rail routing → Packages from previous studies ← Operator input; Develop new packages → Preliminary operations & impact analysis, costing

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Overview of Growth Scenarios

Scenario ID#	2035 Growth Scenarios and Key Assumptions	
	Freight Trains	Passenger Trains
1	**Moderate** • Historical 2% growth • Maintain 23% rail share at Port	**None** • Same service as 2016
2	**High** • Higher Port growth consistent with Oakland Army Base EIR • 40% rail share at Port	**Moderate** • Add 4 daily Capitol Corridor Oakland - San Jose roundtrips for a total of 11 (22 daily trains) • Add 2 daily ACE roundtrips for a total of 6 (12 daily trains) based on ACE*forward* project EIR
3	**High** • Higher Port growth consistent with Oakland Army Base EIR • 40% rail share at Port	**High** • Based on Capitol Corridor Vision Plan Phase 1, add 8 daily Oakland – San Jose roundtrips for a total of 15 (30 daily trains) • Based on ACE*forward* programmatic EIR, add 6 round trips for a total of 10 (20 daily trains).

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Rail Capacity Analysis Results
Base Scenario (2016)

Preliminary Scenario Results, No Improvements

- No capacity issues (LOS A-B)
- At or nearing operational capacity (LOS C)
- Partially constrained (LOS D)
- Fully constrained (LOS E-F)
- ○ Access constraints

- Key capacity and connectivity choke points
  - *Jack London Square*
  - *Elmhurst Junction*
  - *Newark Junction*
  - *Niles Junction, Niles Canyon*
  - *Coast Subdivision*
- Confirms choke points identified in previous studies

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Rail Capacity Analysis Results – Scenario 1: Moderate Freight Growth (2035)

Preliminary Scenario Results, No Improvements

- No capacity issues (LOS A-B)
- At or nearing operational capacity (LOS C)
- Partially constrained (LOS D)
- Fully constrained (LOS E-F)
- ○ Access constraints

Improvements Identified

- Grade crossing, safety and capacity improvements in Emeryville/Oakland can
  - *Improve Port access*
  - *Reduce speed constraints*
  - *Reduce impacts*
- Operational changes on southern route can accommodate moderate freight growth
- Targeted capacity improvements can eliminate Coast Subdivision and Newark Junction constraints

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Rail Capacity Analysis Results – Scenario 2: High Freight & Moderate Pax Growth (2035)

Preliminary Scenario Results, No Improvements

- No capacity issues (LOS A-B)
- At or nearing operational capacity (LOS C)
- Partially constrained (LOS D)
- Fully constrained (LOS E-F)
- Access constraints

Improvements Identified

- Safety improvements in Jack London Square could allow for increased speed, providing sufficient capacity without 3rd main track
- New Shinn connection could provide system redundancy and facilitate Dumbarton Rail or Union City ACE service
- Growth at these levels through Niles Canyon likely requires re-routing or 2nd main track
- Re-routing Capitol Corridor and freight trains
    - *Reduces train volume through Centerville*
    - *Eliminates Newark Junction constraints (with new connection at Industrial)*
    - *Improves fluidity at Niles Junction*

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Scenario 2 – Routing Alternatives

Capitol Corridor on Niles Freight on Coast (Current)
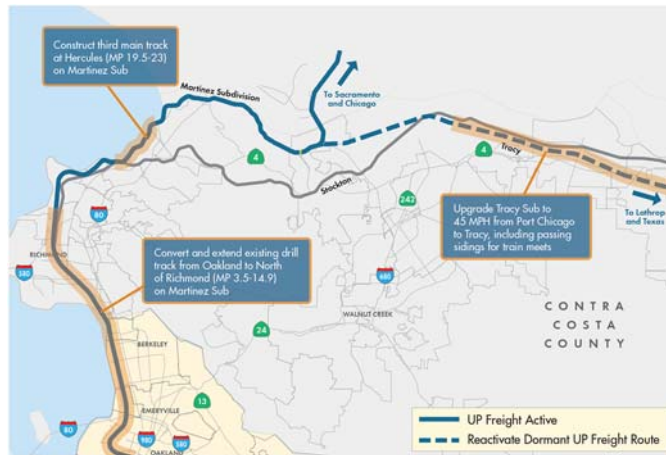

Capitol Corridor on Coast Freight on Niles (Alternative)

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Scenario 2 – Tracy Subdivision Routing Alternative

- Re-routing some freight traffic to Tracy Sub will require capacity and speed improvements on Martinez Sub

- May or may not change the need for track improvements on the Niles Sub

Note: these project concepts are preliminary

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Scenario 2 – Tracy Subdivision Routing Alternative – Train Volumes (2035)

Capitol Corridor on Coast, Freight on Niles

Capitol Corridor on Coast, Freight on Niles and Tracy (Alternative)

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Capacity Analysis Conclusions and Next Steps

- Initial list of core projects identified that can address key capacity choke points and improve system connectivity
  - *Discussions underway with rail operators*
- Complete project package evaluation
  - *Assess mobility, environmental, and equity considerations of different alternatives*
- Complete grade crossing toolkit and prioritization methodology

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Grade Crossing Improvements

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Grade Crossing Analysis

- Examining 136 individual crossings and 25 crossing corridors
- Factors considered for crossings analysis
  - *Safety (historical and predicted), delay, noise, air quality, fuel savings, sensitive land uses, and Communities of Concern*
- Developing toolbox matching issues with improvements
  - *Grade separations, road closures, warning device improvements, quiet zones*
- Developing preliminary design solutions at select locations
- Prioritization based on several factors
  - *Monetizing some factors, qualitatively evaluating other factors, and costs of improvements*

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Crossings with High Safety, Delay, and Noise Impacts

| Street Location (North to South)	City	Rail Subdivision	Top Ten in Incurred Safety Costs	Top Ten in Delay Costs (Prelim.)	Top Ten in Residential Noise Index	In Community of Concern
Gilman St.	Berkeley	Martinez	X		X	
Cedar St.	Berkeley	Martinez			X	
67th S.	Emeryville	Martinez			X	
66th St	Emeryville	Martinez			X	
65th St.	Emeryville	Martinez			X	
29th Ave	Oakland	Niles	X		X	X
Fruitvale Ave.	Oakland	Niles	X		X	X
37th Ave	Oakland	Niles	X		X	X
High St	Oakland	Niles	X	X	X	X
98th Ave.	Oakland	Niles		X		X
Davis St.	San Leandro	Niles	X	X		X
Washington Ave.	San Leandro	Niles	X			X
Hesperian Blvd.	San Leandro	Niles	X	X		
Tennyson Rd.	Hayward	Niles		X		
Industrial Pkwy.	Hayward	Niles		X		
Fremont Blvd.	Fremont	Niles		X		
Union City Blvd.	Union City	Coast		X		
Dyer St.	Union City	Coast		X		
Santa Rita Rd.	Pleasanton	Oakland		X		

Implementation Benefits of Corridor Approach

- Conduct similar analysis as done for individual crossings
    - *Does this change priorities?*
- Identify most cost effective combination of crossing improvements
- Recognize interactions of crossings and safety issues in between crossings
- Set stage for more effective advocacy (e.g., FAST Corridor, CREATE, Alameda Corridor East)

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Development of Crossing Corridors

Based on

Jurisdictional boundaries

Rail subdivisions

Spacing between crossings
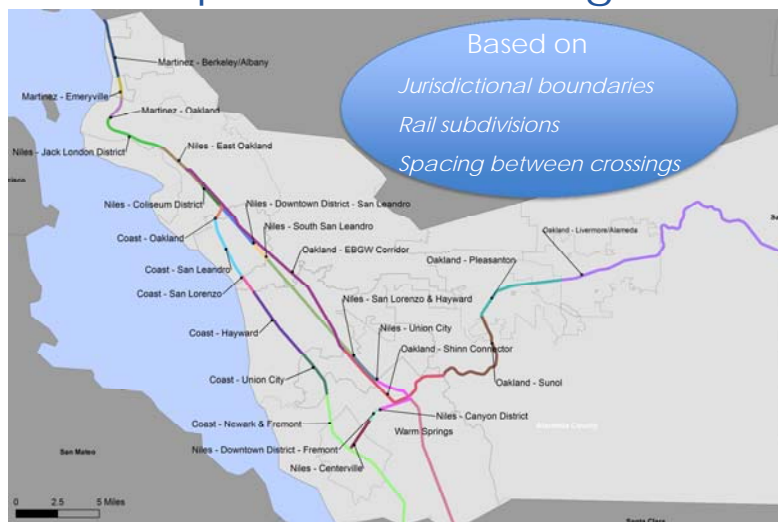
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Illustrative Crossing Corridors

| Subdivision – Corridor Name (examples)	Total AADT (2016)	Daily Trains (2016)	Number of Incidents (Last 10 years)	Nearby Population (2016)
Martinez - Berkeley/Albany	30,486	62	7	1,790
Martinez - Emeryville	13,202	60	1	1,976
Niles - Centerville	52,554	33	1	9,007
Niles - Downtown District - Fremont	36,165	33	2	2,976
Niles - East Oakland	91,527	32	18	4,481
Niles - Coliseum District	73,690	32	6	6,055
Niles - Jack London District	37,485	32	7	3,198
Oakland - Shinn Connector	64,421	19	0	17,654
Oakland - Pleasanton	53,467	19	1	2,675
Oakland - Sunol	9,282	19	0	550

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Framework for Discussions with UP

- **Martinez Subdivision improvements and grade crossing improvements in Emeryville** – improves Port of Oakland access and reduces Emeryville grade crossing impacts

- **Jack London Square improvements** – improves safety and operations and reduces need for major track expansion

- **Industrial Parkway connection and Niles Junction improvements** – improves overall system connectivity, reduces Centerville impacts and improves operations for Capitol Corridor and UP

- **Shinn connection** – creates system redundancy, consistent with future Union City intermodal center and potential Dumbarton rail plans

- **7th Street Grade Separation Projects** – project cooperation

- **East Bay Greenway** – right of way

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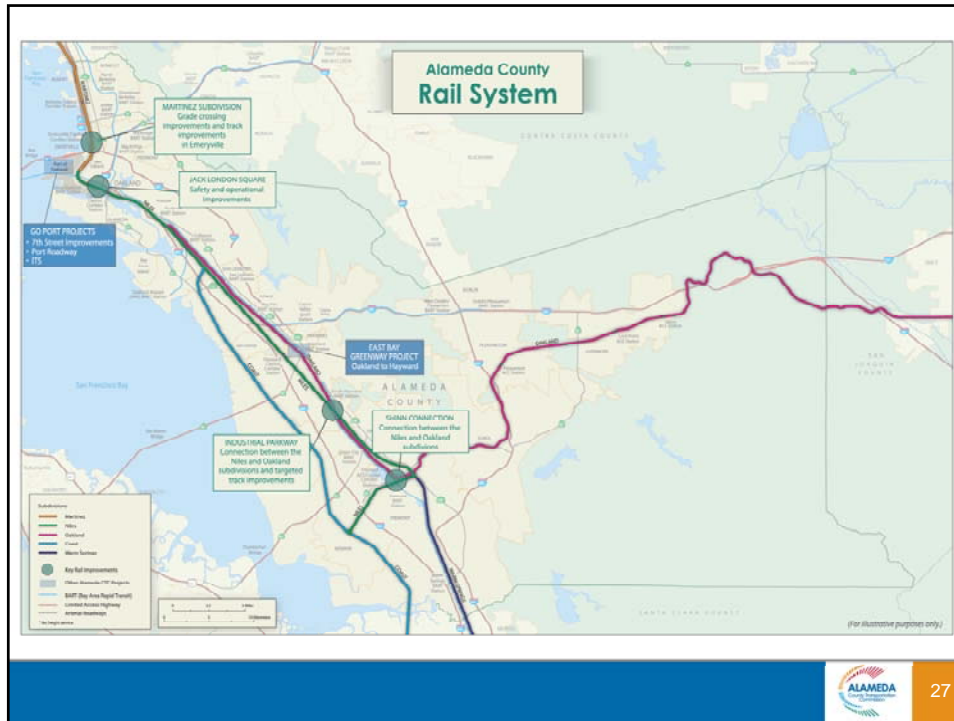
Next Steps

- Project packages
  - *Continue working with UP to analyze operations and needs*
  - *Continue working with public agency partners to refine comprehensive package of priorities*
- Grade crossing analysis
  - *Alameda CTC is forming a Working Group of interested ACTAC members*
  - *Two working group meetings:*
    - November 9 – discuss methodology
    - December 11 – discuss initial findings
  - *Return in early 2018 with update*