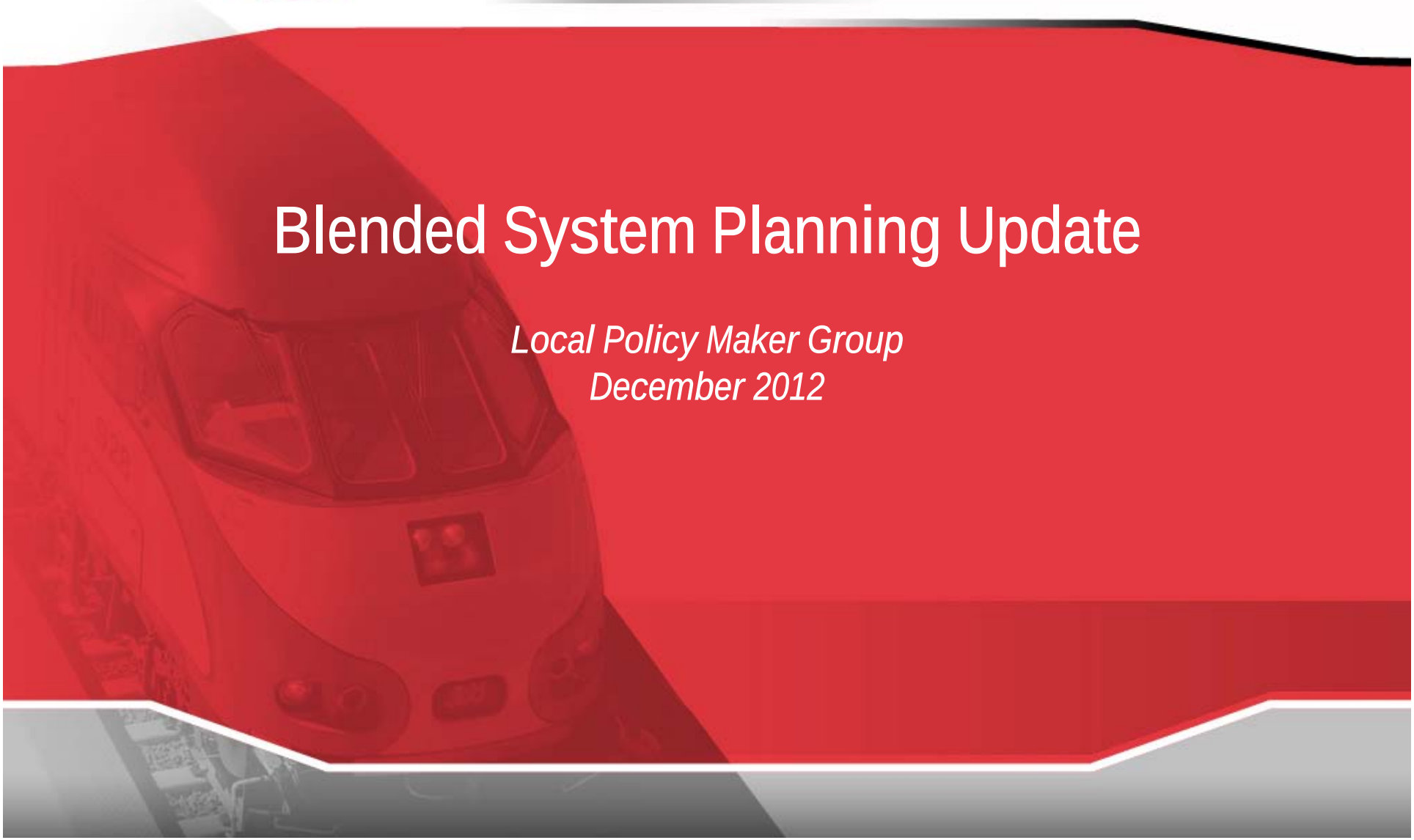
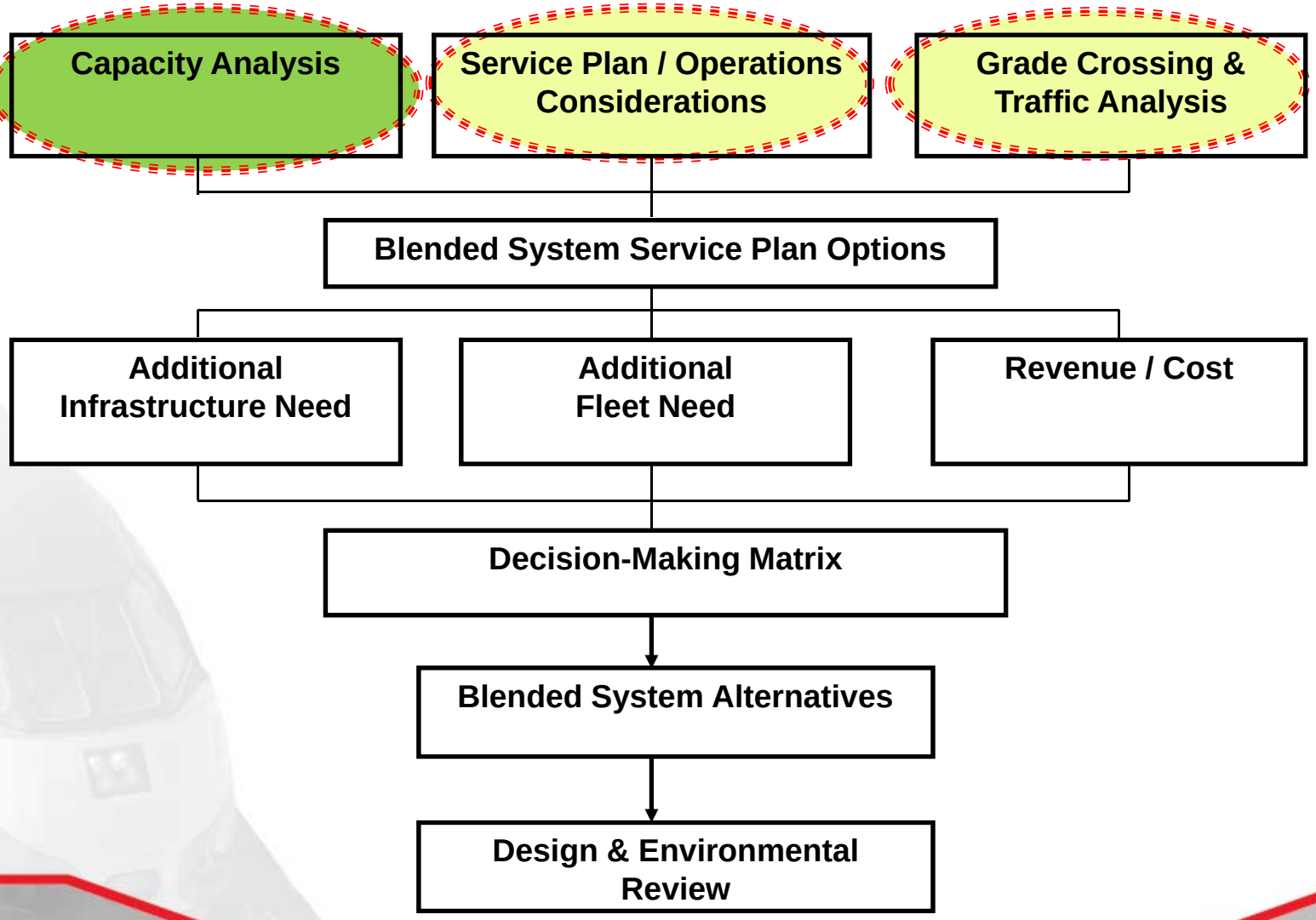
Blended System Planning Update

Local Policy Maker Group
December 2012



Blended System Planning Process



Study Organization

- Key Consultants
  - LTK Engineering
  - CDM Smith
- Outreach / Input
  - Local Policy Maker Group (LPMG)
  - City/County Staff Coordination Group (CSCG)
  - Peninsula Working Group (9-Party MOU Signatories)
  - Cities/Counties as requested
  - Other stakeholder venues as requested

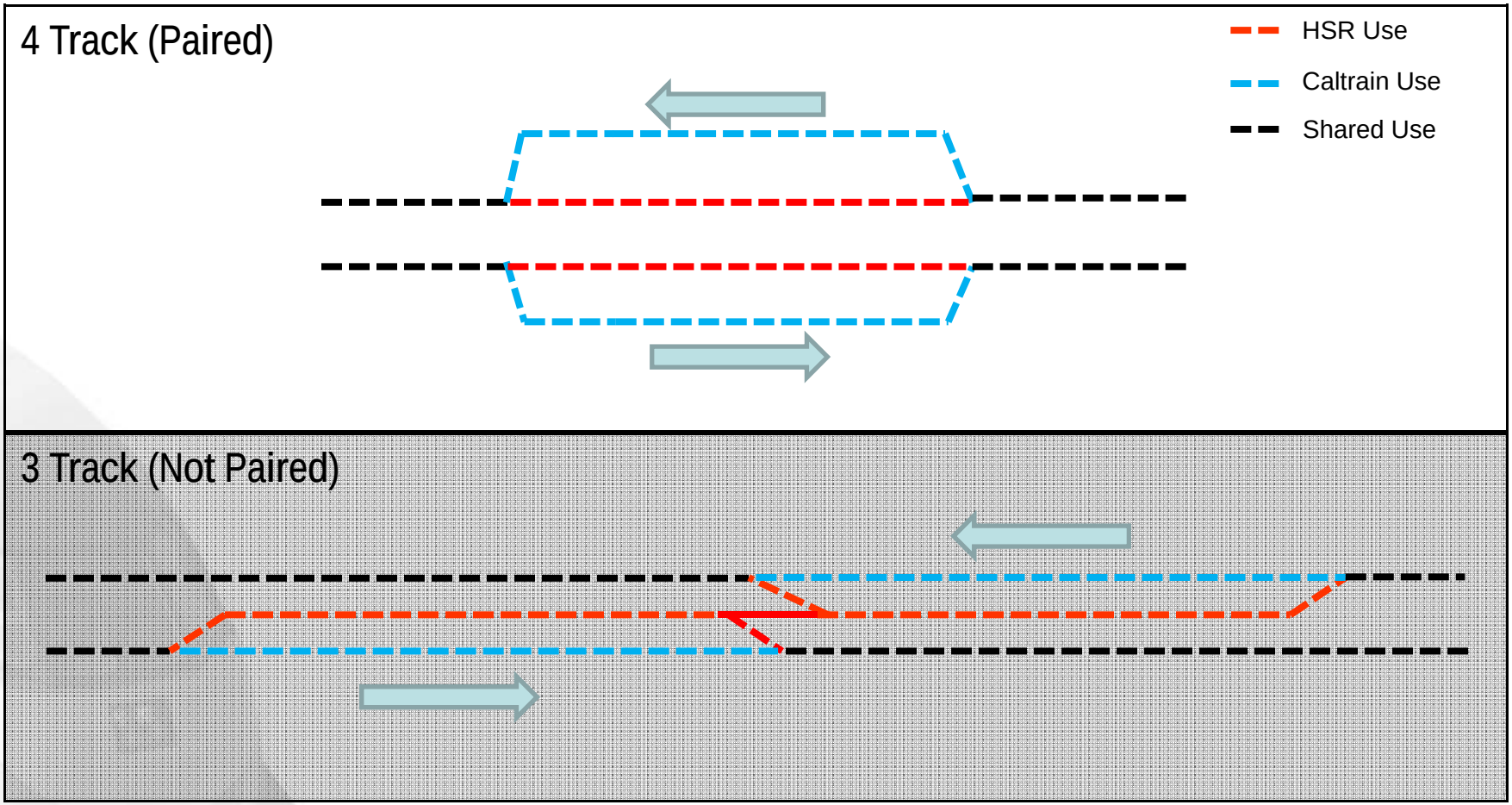
Service / Operations Considerations

Purpose

- Requested by stakeholders
- Consider service / operations variables not included in capacity analysis
- Inform definition of “Blended Service Plan Options”

Passing Tracks
Preliminary Findings

Tested Configurations



Analyzed Options

Analyzed Locations	Approximate Locations
North – 4 Track	Bayshore to Millbrae
Middle – 4 Track Long	Hayward Park to Redwood City
Middle - 4 Track Short	Hayward Park to Whipple Ave.
Middle - 3 Track	Hayward Park to California Ave.
South – 4 Track	San Antonio to Lawrence

Key Findings

- 3 - 5 station stops needed to pass
- Higher ridership stations preferred
- Middle options better performance

Other Analysis

Different Service Patterns

Evaluation	Base	Variable	Key findings
Mid-Peninsula HSR Station	➢ Millbrae	➢ Millbrae ➢ Redwood City	• Feasible • No significant operational impact
Baby Bullet Service	➢ 6 Skip Stop	➢ 4 Skip Stop ➢ 2 Baby Bullet	• Feasible • No significant operational impact • Less station service • Improved travel time
Longer Trains / Less Train Traffic	➢ 6 train/ph/pd ➢ (6 car trains)	➢ 5 train/ph/pd ➢ (8 car trains)	• Some challenges • Platform lengths insufficient • Potential lower ridership • Gate down time / local traffic TBD

Third Party Future Plans

Evaluation	Base	Variable	Key Findings
DTX to TTC	➢ North terminus 4th and King	➢ North terminus at TTC ➢ All HSR at TTC ➢ 2 Caltrain at TTC	• Feasible
Dumbarton Rail Service	➢ 6 Caltrain ➢ 4 HSR	➢ 6 Caltrain ➢ 4 HSR ➢ 1 DRS	• Feasible
Future ACE, Capitol Corridor, Amtrak Service	➢ Todays service levels	➢ Increased service levels	• No impact from Blended System • South terminal area not shared with HSR • Caltrain impacts TBD

Additional Analysis TBD

- Freight Coordination
  - Service levels
  - Hours of operation
  - Infrastructure changes
- HSR Storage/Maintenance Facility
  - Reassess location options/ size
  - Reduced number of HSR trains to be stored in the SF area

Grade Crossing and Traffic Analysis

Study Purpose & Goals

- Caltrain electrification & blended system impact on gate down time
- Gate down time impact on traffic
- Limited analysis
  - Schedule sensitivity
  - Traffic model limitations
- Inform grade crossing improvements TBD

Improvement Options

40 at-grade Crossings

Considerations

- Train Operations
- Traffic Circulation
- Safety
- Regulatory/Agency practice & guidance

Improvements

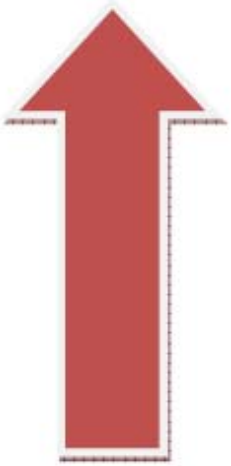
- Grade Separations
- Street Closures
- At-grade Crossing Upgrades
- IT Traffic Management
- Train Operations Management

Changed Environment

- Gate down time change not proportional to train service level increases
- Changing railroad conditions
  - Electrified Service
  - Advanced Signal System
  - EMU Performance

Key Gate Down Time Factors

Factors that Decrease Gate Down Time



More Service Increases Gate Down Time

Advanced Signal System

Double Gate Down Time Removed from Crossings near Stations

(Benefit increases with more station stops)

Multiple Trains Crossing

(Benefit increases with passing tracks)

Gate Down Times (6/0)

Gate Down Time Change Compared to Existing Conditions	Number of Intersections	AM Peak Hour Change
Reduction	28	Up to -6.5 min / 60 min
Increase	12	Up to +1.5 min / 60 min
Total	**40**	

Gate Down Times (6/2)

Gate Down Time Change Compared to Existing Conditions	Number of Intersections	AM Peak Hour Change
Reduction	10	Up to - 4.0 min / 60 min
Increase	30	Up to + 4.5 min / 60 min
Total	**40**	

Gate Down Times (6/4*)

Gate Down Time Change Compared to Existing Conditions	Number of Intersections	AM Peak Hour Change
Reduction	5	Up to - 2.5 min / 60 min
Increase	35	Up to + 8.0 min / 60 min
Total	**40**	

*6/4 Scenario assume "*Middle – 4 Track Long*" Passing Track Option

Traffic Results – Level of Service (LOS)

- *SimTraffic* Analysis at Sample Intersections
- Key Findings
  - With no gate down time change, 2035 traffic exceeds LOS F
  - With blended system, delay proportional to gate downtime changes (+/-)
  - Delay ranges (seconds per vehicle)
    - "6/0" (-30 sec. to +15 sec.)
    - "6/2" (-15 sec. to +30 sec.)
    - "6/4" (-20 sec. to +80 sec.)

Next Steps

Complete Planning Efforts

- December/January
  - Stakeholder Outreach
  - Local Policy Maker Group
  - Other public meetings as requested
- February
  - Draft Report
  - Final Report