



# **2014 BUSINESS PLAN CAPITAL COST ESTIMATE UPDATE**

October 3<sup>rd</sup> 2013

# 2014 BUSINESS PLAN ESTIMATE

## SUMMARY COSTS BY PHASE

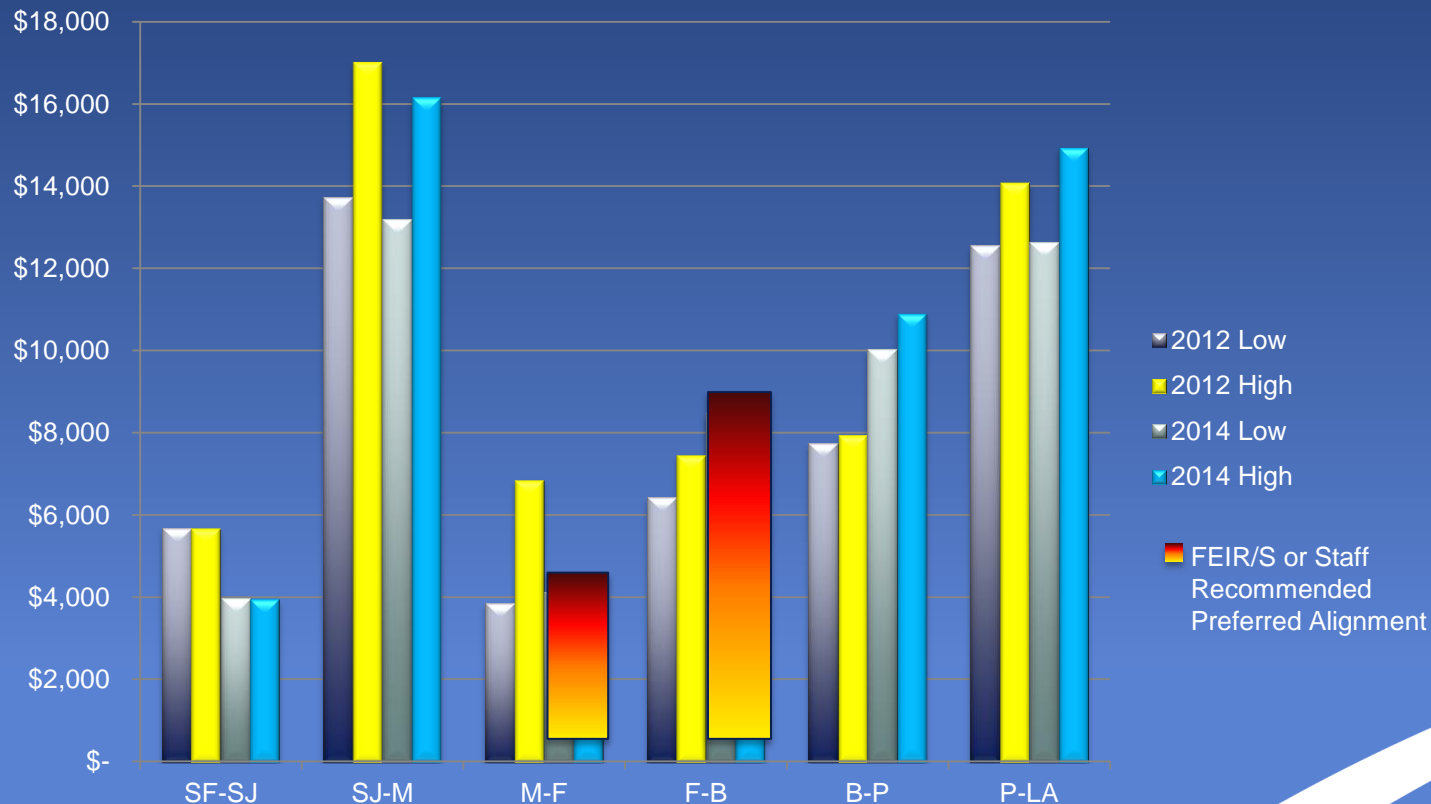
- High and Low Costs (millions, 2012 \$\$)

PHASE	2012 Low		2012 High		2014 Low		2014 High	
FCS	\$	5,444	\$	5,444	\$	5,672	\$	5,672
IOS	\$	27,344	\$	31,923	\$	35,754	\$	38,236
B2B	\$	42,042	\$	49,904	\$	49,984	\$	55,439
PH 1	\$	54,371	\$	63,441	\$	56,942	\$	63,091

- Phase I Low Cost increased \$2.6 billion or 4.7%
- Phase I High Cost decreased \$0.3 billion or 0.5%

# 2014 BUSINESS PLAN ESTIMATE SUMMARY COSTS BY SECTION

- High and Low Costs (millions, 2012 \$\$)



# 2014 BUSINESS PLAN ESTIMATE

## DESIGN DEVELOPMENT STAGE

Environmental Section	Design Stage 2012 BP	Design Stage 2014 BP
San Francisco to San Jose	5% Design	5% Design
San Jose to Merced	Draft 15% Design	Draft 15% Design
Merced to Fresno	Final 15% Design	15% - PE4P Design
Fresno to Bakersfield	Final 15% Design	15% - PE4P Design
Bakersfield to Palmdale	5% Design	5% - Draft 15% Design
Palmdale to Los Angeles	5% Design	5% Design

# 2014 BUSINESS PLAN ESTIMATE

## ALIGNMENT ALTERNATIVES

Environmental Section	Low Cost Alignment Alternative	High Cost Alignment Alternative
San Francisco to San Jose	Blended Operation	Blended Operation
San Jose to Merced	East of UPRR /Pacheco Pass SR152/Henry Miller Avenue 24	US101 trench/Pacheco Pass/Henry Miller Avenue 21
Merced to Fresno	Hybrid/Avenue 24 Alternative	Hybrid/Avenue 24 Alternative
Fresno to Bakersfield	Hanford East/Wasco- Shafter/Bakersfield Hybrid elevated alignment	Hanford East/Wasco- Shafter/Bakersfield Hybrid elevated alignment
Bakersfield to Palmdale	Oak Creek Alignment*	Tehachapi Alignment
Palmdale to Los Angeles	SR14West/Santa Clarita South/elevated LAUS approach	SR14East/Santa Clarita North/tunnel LAUS approach

\*Low cost alignment was developed as a derivative of the high cost option reflecting potential cost saving measures being implemented in the Oak Creek alignment alternative currently under study.

# 2014 BUSINESS PLAN ESTIMATE

## SIGNIFICANT ASSUMPTIONS

- Unit Price Elements reflect 25% markup for Contractor's overhead and profit;
- Allocated contingencies range from 10% to 25% per cost category;
- Unallocated contingency is assumed at 5% of construction and ROW acquisition costs;
- Soft costs assumed as % of construction costs:
  - 2% of total Construction for PE/E
  - 3% of total Construction for PM
  - 6% of total Construction for Final Design (3% for tunnels)
  - 4% of total Construction for CM
  - 0.5% of total Construction for Agency Costs
  - 6% of Systems and Electrification for Testing
- Temporary facilities and indirect costs at 4%

# 2014 BUSINESS PLAN ESTIMATE

## SIGNIFICANT INCLUSIONS

- CP1 award costs including provisional sums and approved contingency;
- SR 99 relocation costs per Caltrans agreement (\$225.9 million);
- CP1 agreements with 3<sup>rd</sup> parties (\$80 million);
- 'Sunk costs' (PM and PE/E, not including Authority's costs) from FY06/07 through FY12/13 (\$497 million);
- **Projected cost for PE/E effort going forward (\$539 million);**
- Connection to the Utility Grid costs (\$960 million);
- 'Early Projects' allowance for LA-ANA (\$519 million).

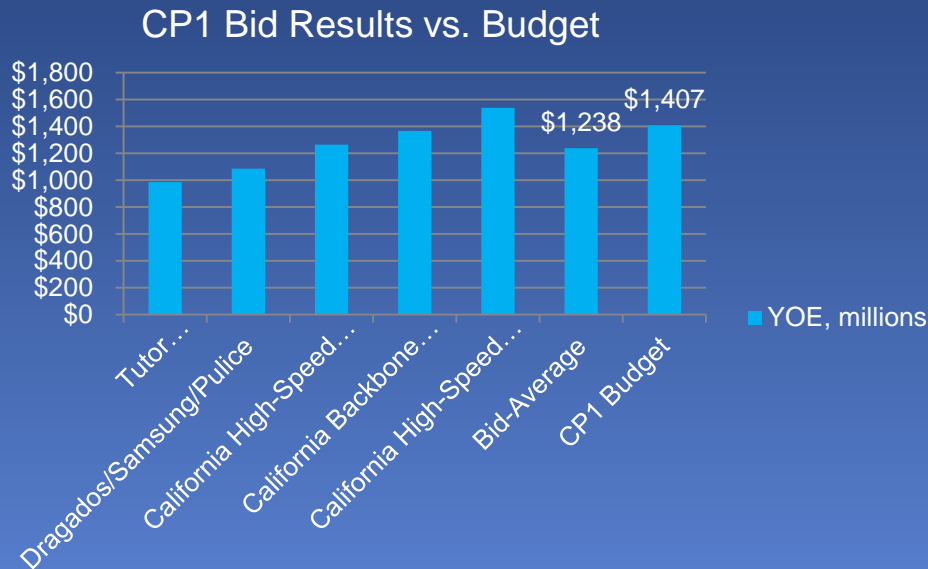
# 2014 BUSINESS PLAN ESTIMATE SIGNIFICANT EXCLUSIONS

- Escalation to Year of Expenditure;
- Overtime or accelerated schedule;
- Post-Construction Costs;
- Costs to implement interim service over FCS.



# 2014 BUSINESS PLAN ESTIMATE SIGNIFICANT ADJUSTMENTS

- Market Conditions – CP1 Bid Average Adjustment



- CP1 bid-average price is 88% of the CP1 Budget value;
- Adjustment factor of 12% was applied on the UPEs for similar project-wide scope;
- Accounts for \$2.3 billion adjustment to Phase 1 costs in 2012

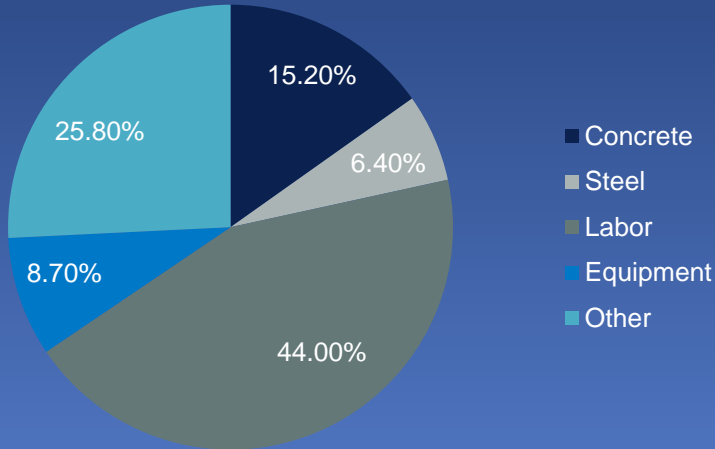
# 2014 BUSINESS PLAN ESTIMATE SIGNIFICANT ADJUSTMENTS

- Escalation to Base Year
  - Estimate is based on 2009 pricing
  - Escalation has been per ENR published CCIs:
    - Industry recognized historic escalation index
    - Based on a hypothetical assembly of:
      - 200 hour of common labor
      - 2,500 lb of structural steel
      - 1.126 tons of portland cement
      - 1,088 ft of 2x4 lumber



# 2014 BUSINESS PLAN ESTIMATE SIGNIFICANT ADJUSTMENTS

- Escalation by Component Weights\*

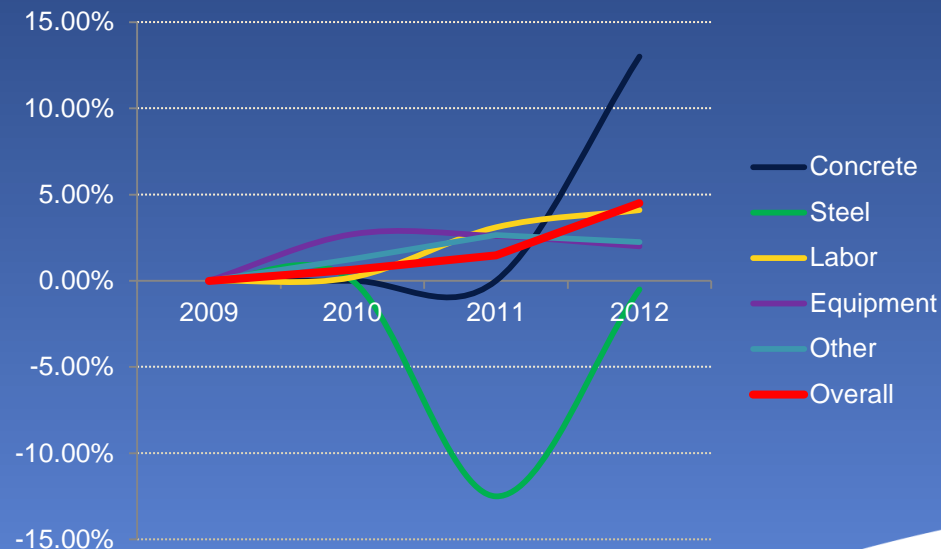


\*Based on rail transit projects nation-wide.

## Price Indexes:

- Steel – ENR price index
- Concrete – ENR price index
- Equipment - BLS data
- Labor – Prevailing wage agreements
- Other – Consumer Price Index

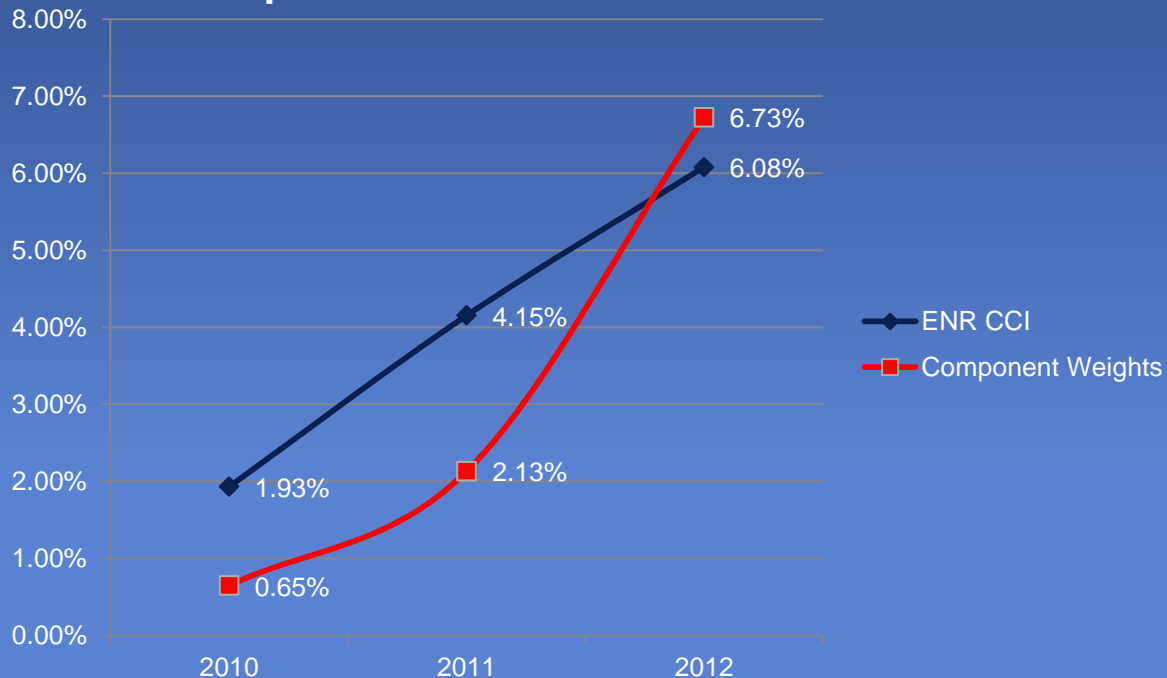
## Aggregated Escalation Factor



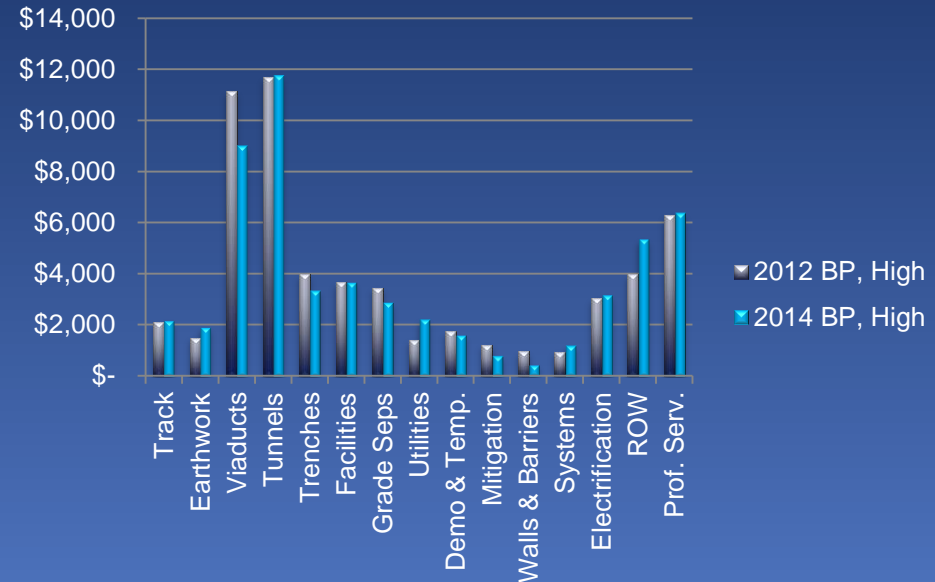
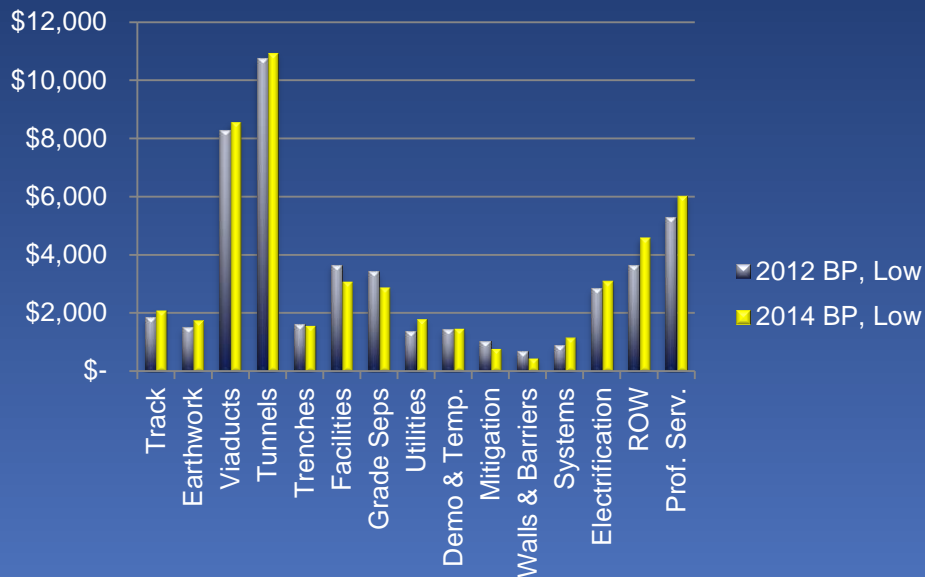
# 2014 BUSINESS PLAN ESTIMATE SIGNIFICANT ADJUSTMENTS

- Escalation Index – ENR vs. Component Weights
  - Reflects an escalation approach targeting linear rail construction
  - Founded on published cost indexes in California and nationally
  - Accounts for \$370-\$410 million increase to Phase 1 costs in 2012 dollars.

Compound Escalation Rates



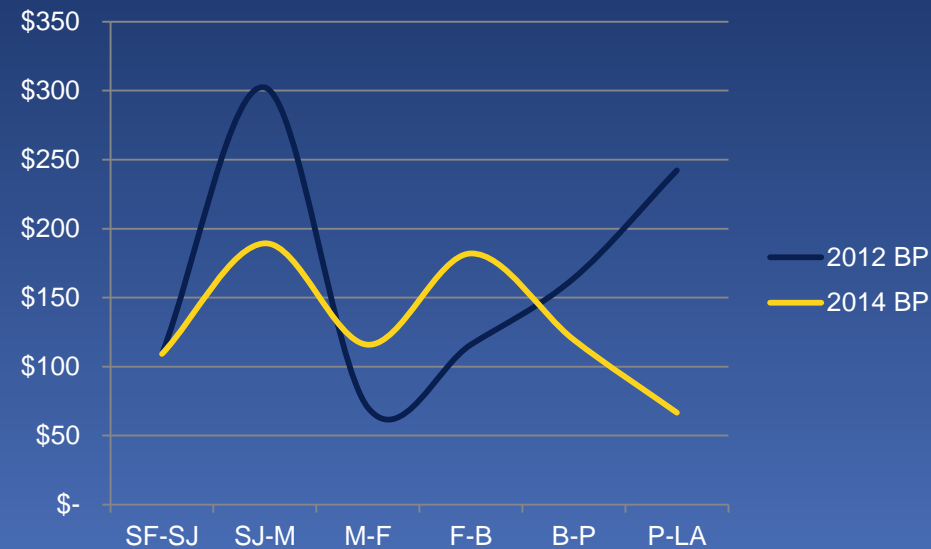
# 2014 BUSINESS PLAN ESTIMATE COMPARISON TO 2012 BY CATEGORY



Env. Section	2012 Low		2012 High		2014 Low		2014 High	
<b>SF-SJ</b>	\$	5,686	\$	5,686	\$	3,977	\$	3,977
<b>SJ-M</b>	\$	13,733	\$	17,017	\$	13,195	\$	16,168
<b>M-F</b>	\$	3,863	\$	6,859	\$	4,110	\$	4,110
<b>F-B</b>	\$	6,425	\$	7,460	\$	8,479	\$	8,479
<b>B-P</b>	\$	7,733	\$	7,953	\$	10,023	\$	10,906
<b>P-LA</b>	\$	12,557	\$	14,092	\$	12,645	\$	14,937

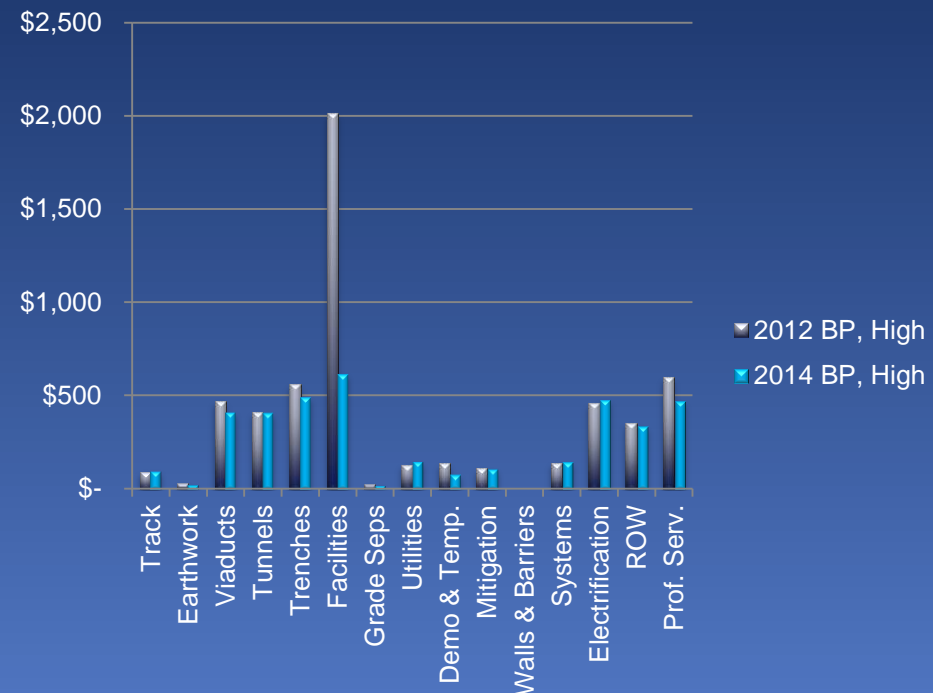
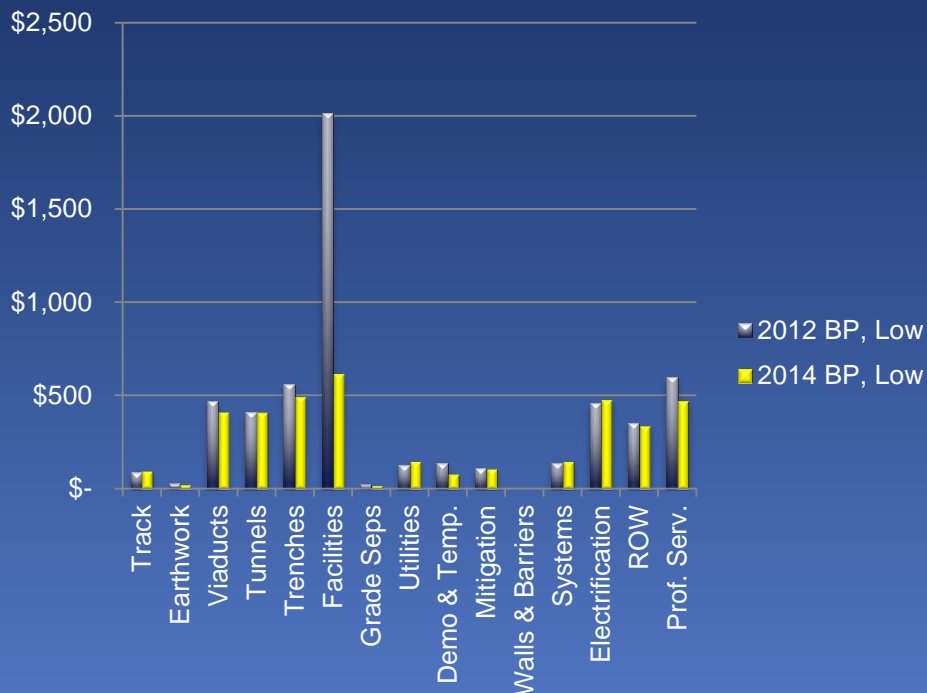
# 2014 BUSINESS PLAN ESTIMATE PROGRAM-WIDE UPDATES

- Environmental Mitigation
  - Based on scope definition in M-F section;
  - Adjusted for level of development;
  - Adjusted for relation to grade.
- ROW Acquisition



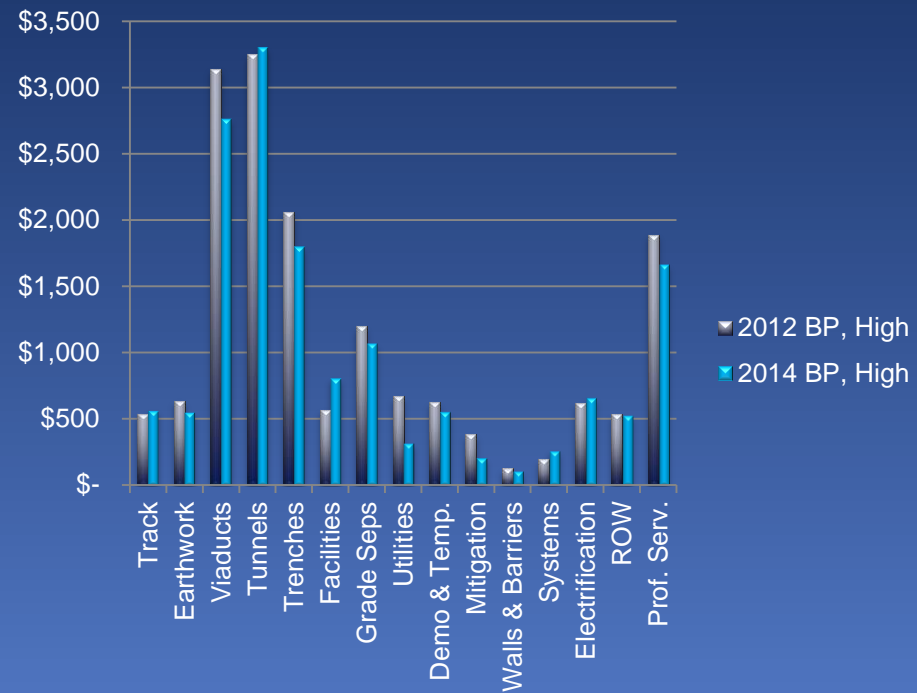
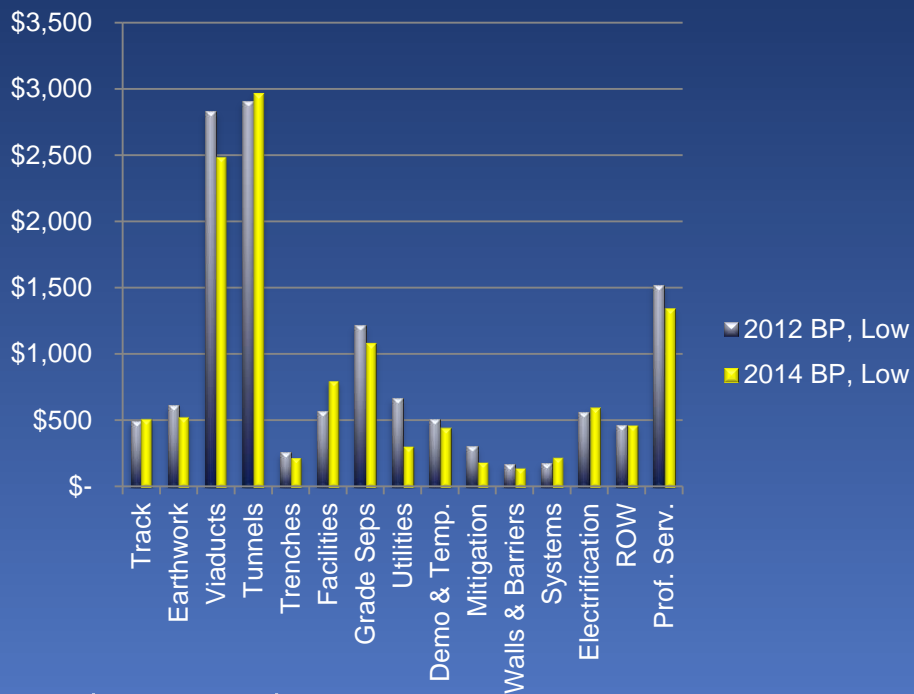
Section	ROW Cost Update	Contingency
SF-SJ	June, 2011	20%
SJ-M	June, 2011	10%
M-F	April, 2013	25%
F-B	August, 2012	10%
B-P	June, 2013	10%
P-LA	April, 2013	25%

# 2014 BUSINESS PLAN ESTIMATE SAN FRANCISCO – SAN JOSE



- \$1,710 million reduction:
  - Reduction in Transbay allowance to \$500 million
  - Transfer of TSMF to SJ-M section
  - Reductions in viaducts and walls due to CP1 adjustment

# 2014 BUSINESS PLAN ESTIMATE SAN JOSE - MERCED



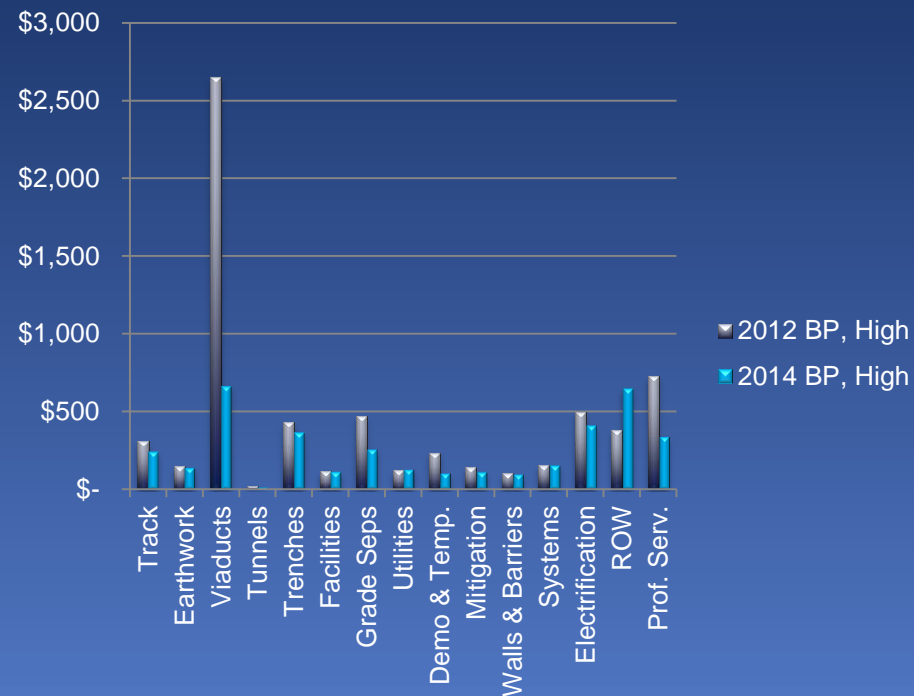
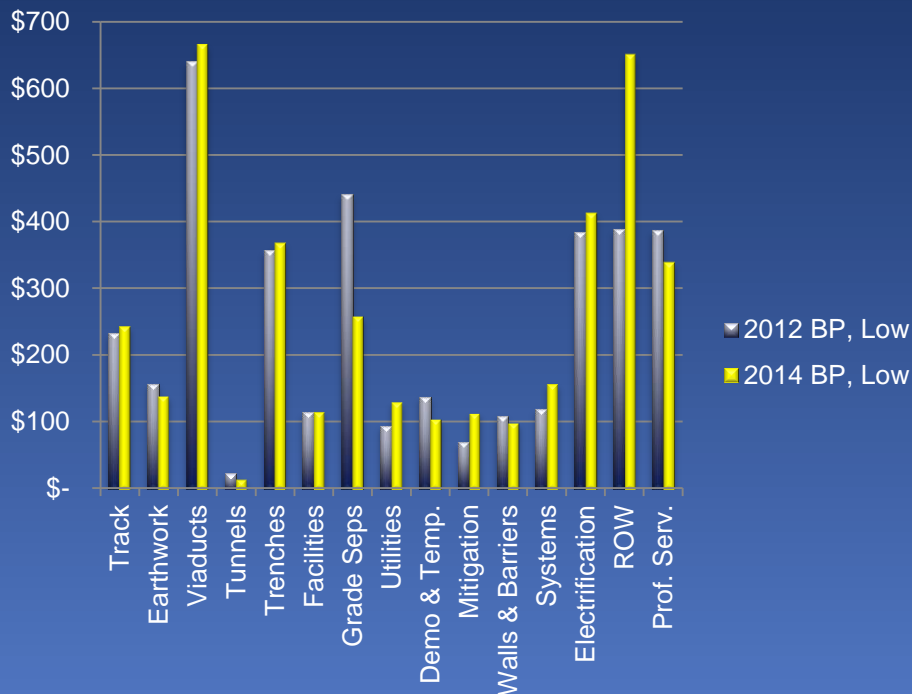
- \$540 - \$850 million reduction:

- Reduction in viaducts due to CP1 adjustment
- Reduction in grade separations due to CP1 adjustment
- Reduction in utility relocations
- Reduction in mitigation due to tunneling
- Added Sunk Costs and PE/E allowance



# 2014 BUSINESS PLAN ESTIMATE

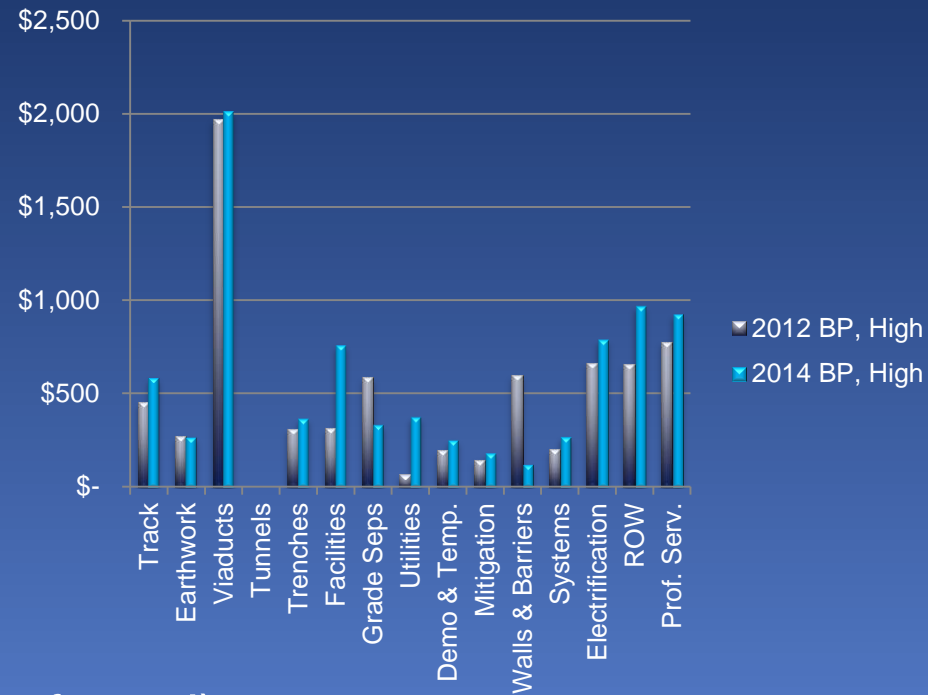
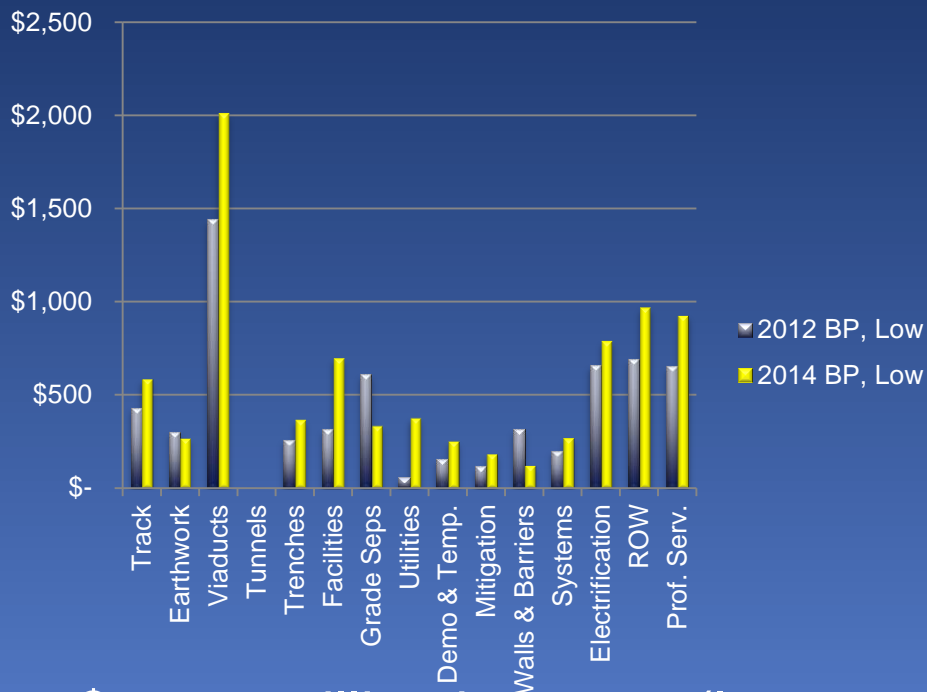
## MERCED - FRESNO



- \$250 million increase to \$2,750 million decrease:

- Increase in ROW acquisition costs
- Reductions in grade separations due to CP1 adjustment
- Significant cost reduction by adoption of Hybrid Alternative

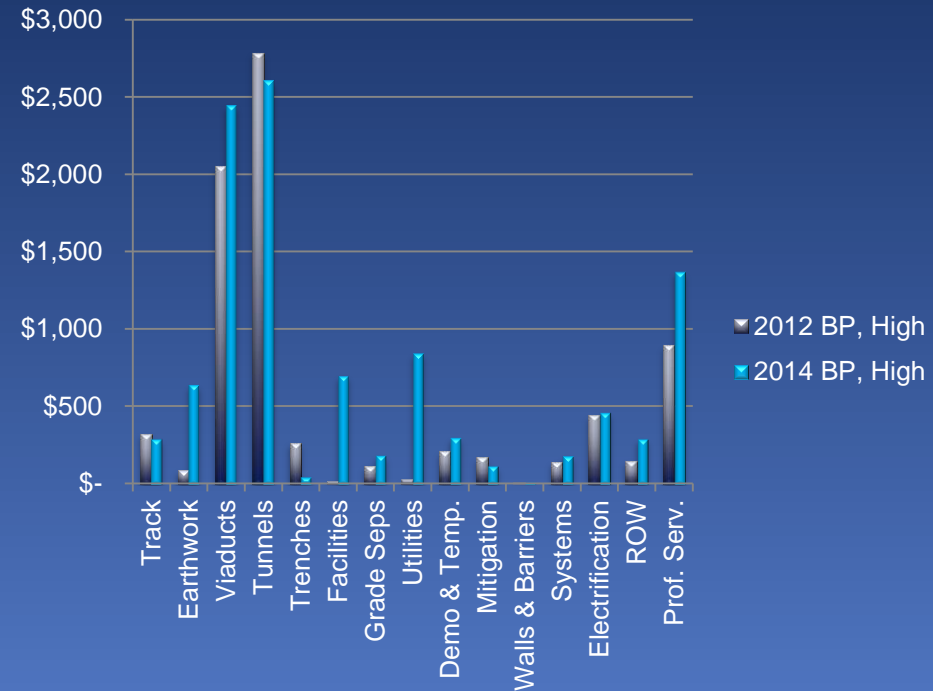
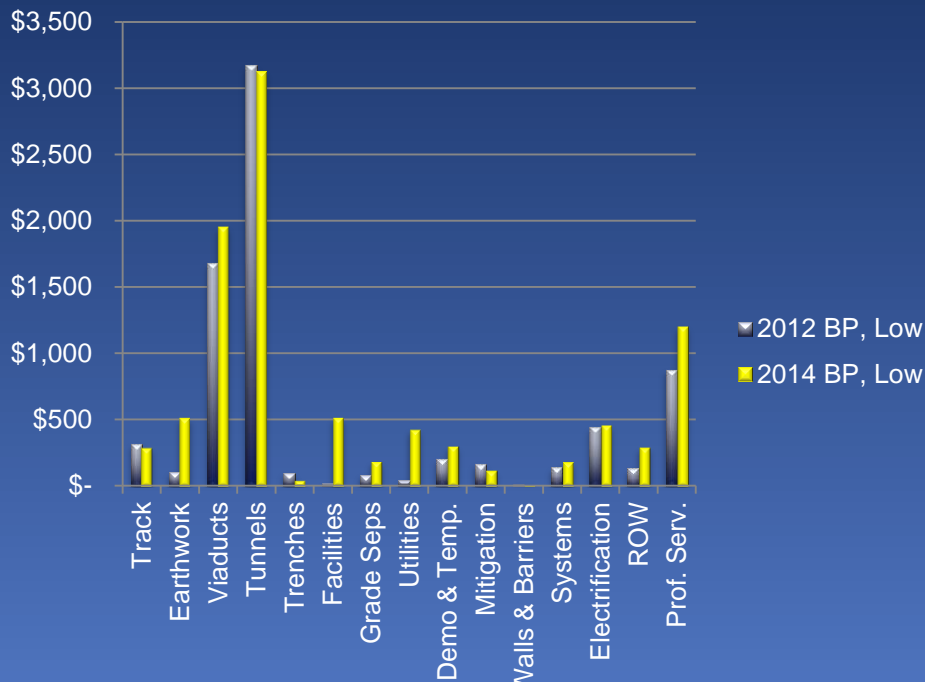
# 2014 BUSINESS PLAN ESTIMATE FRESNO - BAKERSFIELD



- \$2,050 million increase (low vs. preferred):

- More viaducts in through town alignments
- Allowance for taller viaducts over Kings River complex
- Added station access roadways at Hanford
- Increased Utilities and ROW acquisition costs
- Added Sunk Costs and PE/E allowance

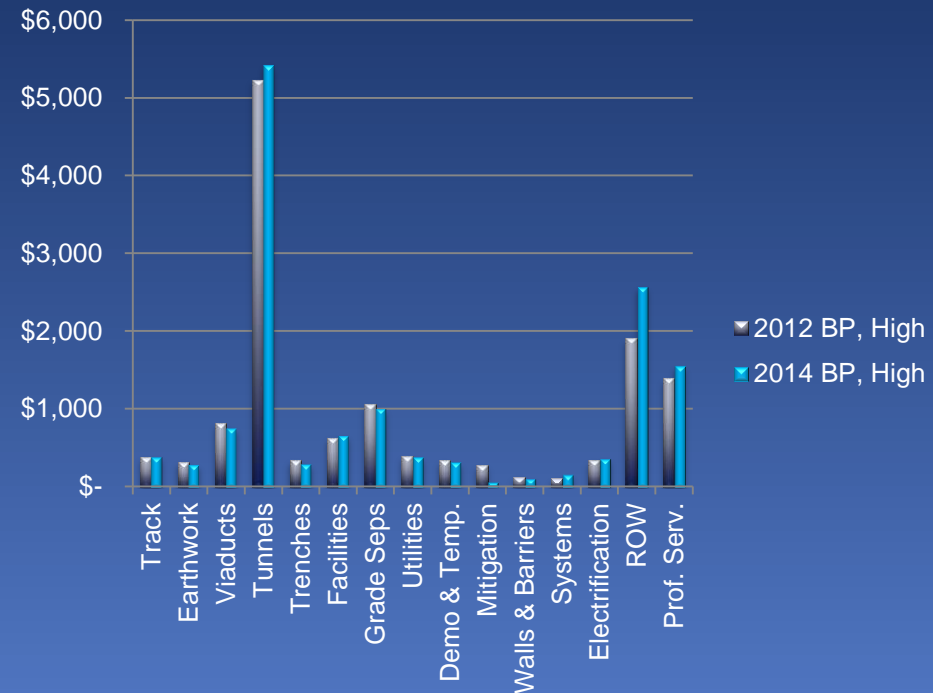
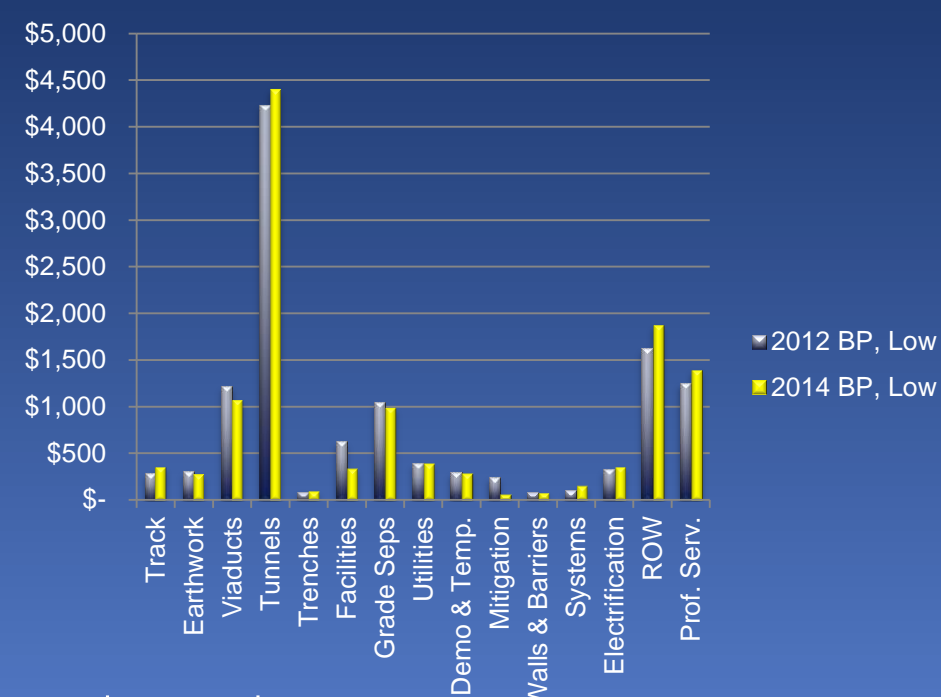
# 2014 BUSINESS PLAN ESTIMATE BAKERSFIELD - PALMDALE



- **\$2,290 - \$2,950 million increase:**

- Significant increases in cut/fill quantities
- Very tall and long span viaduct structures
- Access roadways, lateral and along alignment
- Included TSMF from P-LA section
- Increased Utilities and ROW acquisition costs
- Added Sunk Costs and PE/E allowance

# 2014 BUSINESS PLAN ESTIMATE PALMDALE – LOS ANGELES



- **\$90 - \$845 million increase:**

- Increase in tunneling costs due to unit price update
- Transfer of TSMF to B-P section
- Reduction in environmental mitigation due to tunneling
- Increased ROW acquisition costs
- Added Sunk Costs and PE/E allowance

# 2014 BUSINESS PLAN ESTIMATE FOLLOW UP ACTIONS

- Escalation to YOE – in P6 utilizing KPMG inflation rates
- Confirm limits of implementation stages – IOS terminus
- Arrange for Independent Cost Estimate (ICE)
- Implement sensitivity analyses where feasible

**THANK YOU!**

**QUESTIONS?**