

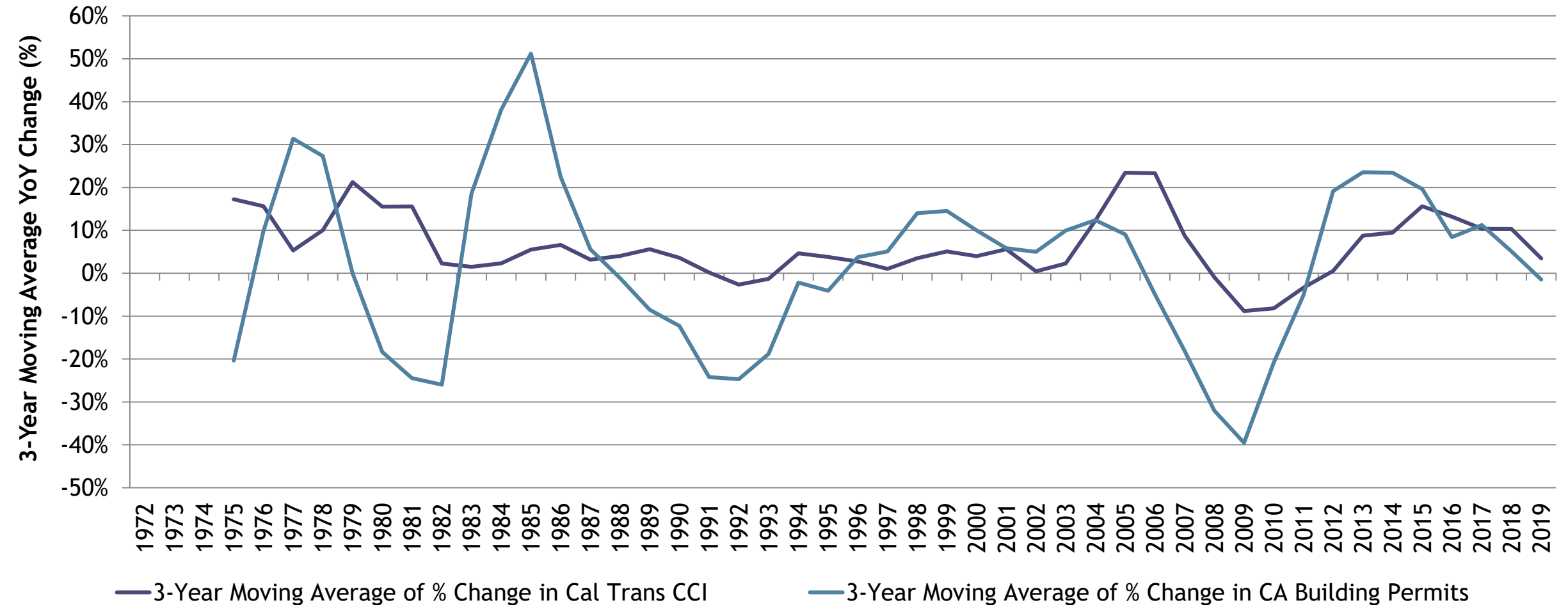
Measure M2 Next 10 Plan: Market Conditions Key Indicators Analysis and Forecast

Orange County Transportation Infrastructure
Construction Cost Index, Fall Update 2019
Orange County Business Council

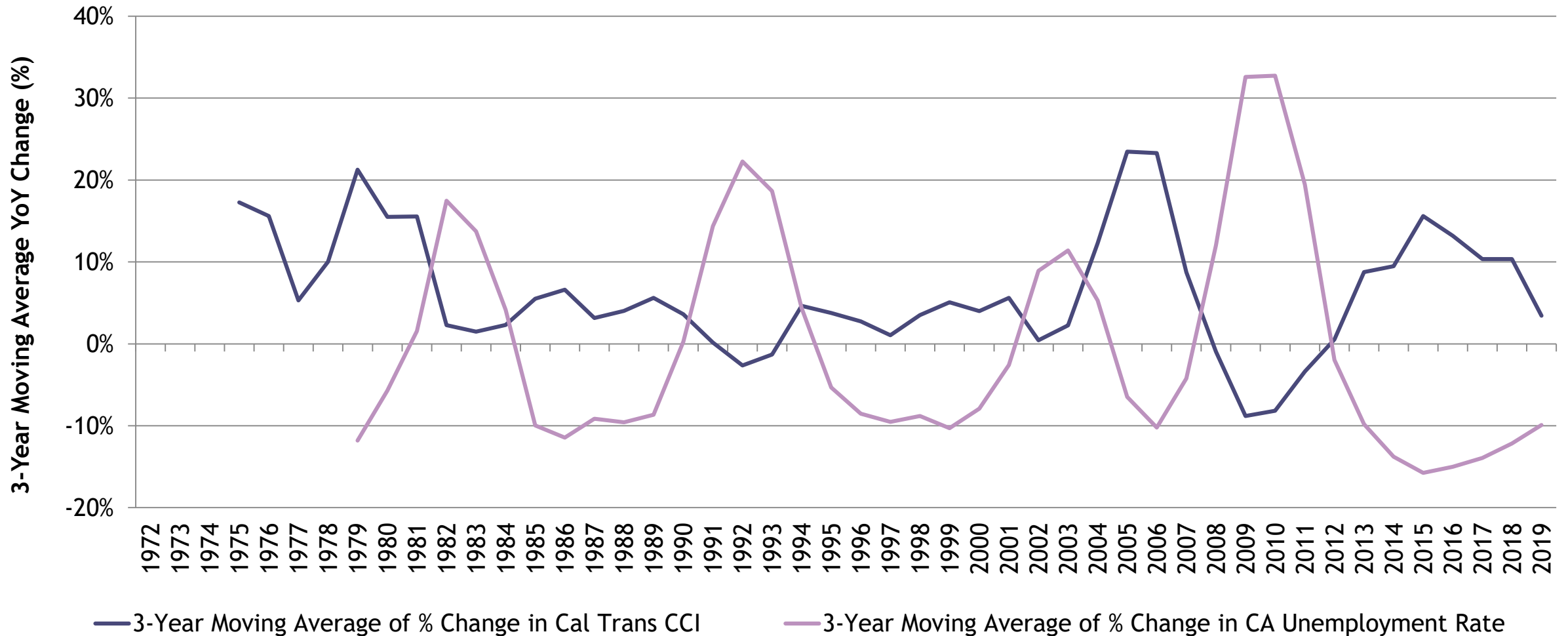
Orange County Transportation Infrastructure CCI Model Components

- Economic Trends - State-level building permits and unemployment rate (Census and California Employment Development Department)
- Material Costs - Construction Aggregate, PCC Pavement, PCC Structural Concrete, Structural Steel and Bar Steel (Caltrans)
- Labor Costs - Localized construction wages of NAICS defined sectors provided by Bureau of Labor Statistics
- Economic Conditions - Tight economy in 2002-2005 and slack economy in 2007-2011

3-Year Moving Average of Year-Over-Year Percent Change in Caltrans CCI and Building Permits



3-Year Moving Average of Year-Over-Year Percent Change in Caltrans CCI and CA Unemployment Rates



Forecast and Range of Orange County Transportation Infrastructure Cost Increases by Index Value

- 2020 - Forecasted Index Value: 3
- 2021 - Forecasted Index Value: 3
- 2022 - Forecasted Index Value: 3

Range of Cost Fluctuations by Index Score			
Index	Low	Medium	High
0	-17%	-9.5%	-2%
1	-2%	-0.5%	1%
2	1%	1.5%	2%
3	2%	4%	6%
4	6%	8.5%	11%
5	11%	25.5%	40%

Cost Pressures Are Mixed

- Statewide building permit issuance has slowed
- Slowing decrease in California unemployment rates
- Increasing Orange County construction labor costs
- Material cost shifts mixed, rising slightly less than 2016-2018

Year-over-Year Changes in California Building Permits, California Unemployment Rate, and Orange County Construction Labor Costs, 2016-2019

Year	California Building Permits	% change year-on-year	California Unemployment Rate	% change year-on-year	OC Construction Labor Costs (average annual wage)	% change year-on-year
2016	102,350	4.2%	5.5%	-11.6%	\$67,179	3.8%
2017	114,780	12.1%	4.8%	-12.9%	\$71,474	6.4%
2018	113,502	-1.1%	4.2%	-12.1%	\$74,669	4.5%
2019*	96,067	-15.4%	4.0%	-4.8%	\$78,313	4.9%

* 2019 values projected from year-on-year changes in quarterly data, 2018 to 2019.

OCBC Infrastructure Construction Cost Forecast

- Systematic Risks - more predictable and therefore in model
 - Construction/building environment
 - State's economy influencing demand and cost
 - Direct measures of labor and materials cost

OCBC Orange County Transportation ICCI Score, 2020-2022		
Year	Index Score	Range of Cost Fluctuation
2020	3	2%-6%
2021	3	2%-6%
2022	3	2%-6%

- Idiosyncratic Risks - not predictable and therefore not in model
 - Tariffs and associated effects on cost of materials, from changing trade policy
 - Regulatory requirements/changes creating additional hurdles to the bidding process

Orange County's Construction Workforce: Labor Market Flows

Occupation (SOC Code)	Over/Under Supply in Orange County 2017*	Over/Under Supply in Orange County 2018*	Over/Under Supply in Orange County 2019*
Engineers (17-2000)	102	150	116
Civil Engineers (17-2051)	-130	-178	-181
Construction and Extraction Occupations (47-0000)	-10,799	-11,413	-11,572
First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)	-443	-688	-647
Construction Trades Workers (47-2000)	-9,136	-9,310	-10,012
Construction Laborers (47-2060)	-1,944	-2,093	-2,172
Construction Equipment Operators (47-2070)	-392	-380	-408
Other Construction and Related Workers (47-4000)	-421	-397	-419

*Undersupply is indicated by negative number, over supply is indicated by positive number

SOC - Standard Occupational Classification

Questions