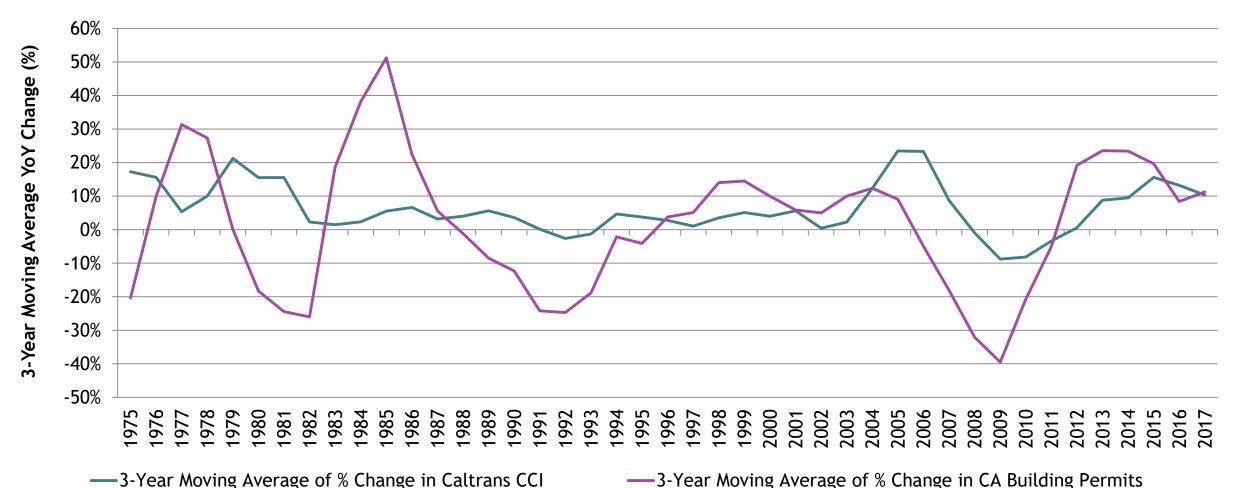
## Measure M2 Next 10 Plan: Market Conditions Key Indicators Analysis and Forecast

Orange County Business Council September 10, 2018

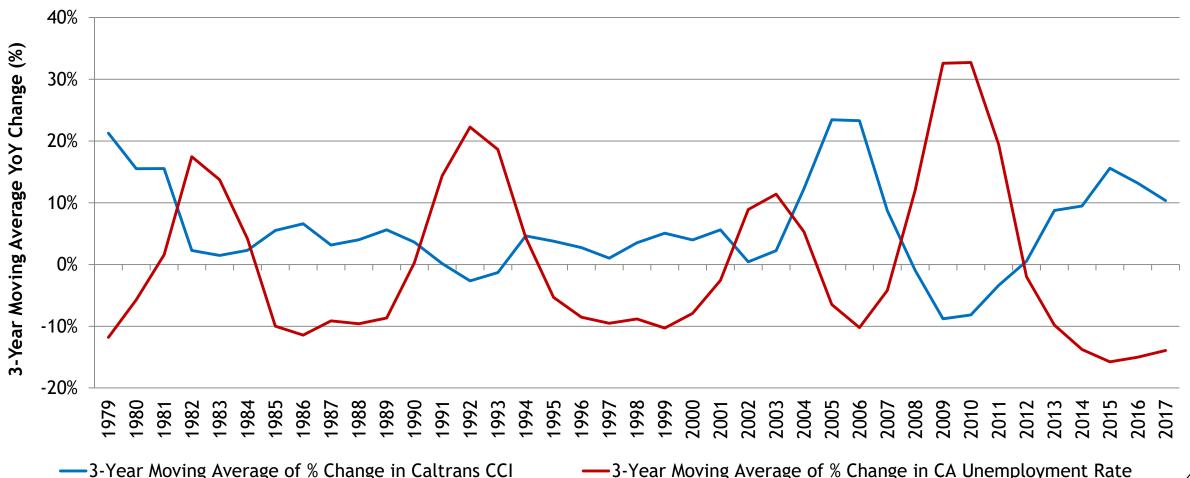
### Orange County Transportation Infrastructure Construction Cost Pressure Index Model Components

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

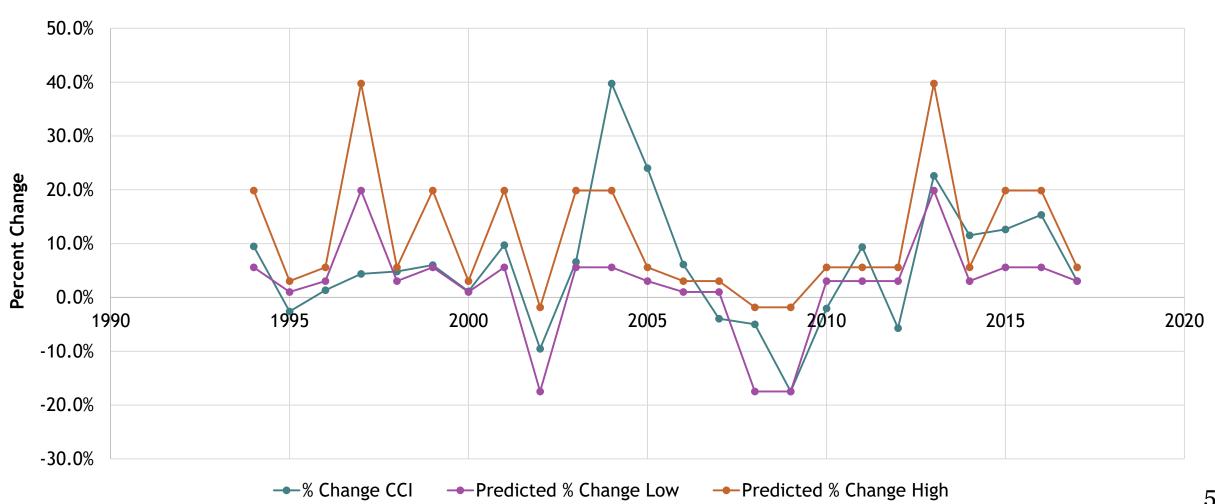
# 3-Year Moving Average of Year-Over-Year Percent Change in Caltrans CCI and Building Permits



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



### Predicted vs. Actual Year-on-Year Percent Change in Caltrans CCI, 1994-2017



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

2018 - Forecasted Index Value: 4

2019 - Forecasted Index Value: 3

2020 - 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%     | <b>6</b> % |  |  |  |
| 4   | 6%   | 8.5%   | 11%        |  |  |  |
| 5   | 11%  | 25.5%  | 40%        |  |  |  |

## Potential Risks to Infrastructure Construction Cost Pressure Index

- Labor Costs
  - Industry consolidation
  - Aging construction workforce
  - Weakening Housing Market

- Economic Trends
  - Increased risk of Recession
  - Weakening Economy
  - Tariffs
  - Political Uncertainty

#### Orange County's Construction Workforce: Labor Market Flows

| Occupation (SOC Code)  | Over/Under Supply in Orange County* |  |
|--|-------------------------------------|--|
| Engineers (17-2000)  | 102                                 |  |
| Civil Engineers (17-2051)  | -130                                |  |
| Construction and Extraction Occupations (47-0000)                              | -10,799                             |  |
| First-Line Supervisors of Construction Trades and Extraction Workers (47-1011) | -443                                |  |
| Construction Trades Workers (47-2000)  | -9,136                              |  |
| Construction Laborers (47-2060)  | -1,944                              |  |
| Construction Equipment Operators (47-2070)                                     | -392                                |  |
| Other Construction and Related Workers (47-4000)                               | -421                                |  |

<sup>\*</sup>Undersupply is indicated by negative number, over supply is indicated by positive number

### Commuters as a Percent of Orange County Construction Jobs

| Year | Construction and Extraction Occupations | First-Line Supervisors<br>of Construction Trades<br>and Extraction Workers | Construction Trades<br>Workers | Construction Laborers | Reinforcing Iron<br>and Rebar Workers |
|------|---|--|--------------------------------|-----------------------|---------------------------------------|
| 2001 | 12.8%                                   | 15.6%  | 12.8%                          | 9.1%                  | -0.1%                                 |
| 2002 | 12.4%                                   | 15.1%  | 12.4%                          | 9.4%                  | -0.6%                                 |
| 2003 | 14.3%                                   | 17.3%  | 14.2%                          | 12.7%                 | 2.9%                                  |
| 2004 | 16.6%                                   | 19.1%  | 16.6%                          | 14.0%                 | 3.0%                                  |
| 2005 | 18.5%                                   | 20.9%  | 18.5%                          | 16.1%                 | 5.3%                                  |
| 2006 | 19.6%                                   | 22.0%  | 19.7%                          | 16.4%                 | 6.8%                                  |
| 2007 | 25.0%                                   | 27.0%  | 25.2%                          | 21.9%                 | 16.4%                                 |
| 2008 | 20.0%                                   | 22.2%  | 20.2%                          | 16.3%                 | 10.5%                                 |
| 2009 | 19.2%                                   | 21.4%  | 19.6%                          | 16.4%                 | 8.6%                                  |
| 2010 | 19.5%                                   | 21.5%  | 19.9%                          | 17.1%                 | 6.8%                                  |
| 2011 | 19.0%                                   | 21.0%  | 19.3%                          | 15.9%                 | 8.1%                                  |
| 2012 | 20.4%                                   | 22.7%  | 20.6%                          | 17.8%                 | 11.6%                                 |
| 2013 | 20.2%                                   | 22.3%  | 20.4%                          | 17.1%                 | 12.3%                                 |
| 2014 | 20.6%                                   | 22.8%  | 20.7%                          | 17.0%                 | 13.9%                                 |
| 2015 | 20.6%                                   | 23.2%  | 20.7%                          | 17.2%                 | 14.8%                                 |
| 2016 | 21.0%                                   | 23.8%  | 21.0%                          | 18.6%                 | 14.2%                                 |
| 2017 | 21.3%                                   | 24.0%  | 21.4%                          | 19.3%                 | 14.2%                                 |

#### OCBC Infrastructure Construction Cost Forecast

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

| OCBC OC Transportation Infrastructure Construction Cost Index Score, 2018-2020 |             |                           |  |  |  |  |
|--|-------------|---------------------------|--|--|--|--|
| Year   | Index Score | Range of Cost Fluctuation |  |  |  |  |
| 2018   | 4           | 6%-11%                    |  |  |  |  |
| 2019   | 3           | 2%-6%                     |  |  |  |  |
| 2020   | 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

## Questions