



**CITY OF NORCO  
CITY COUNCIL SPECIAL MEETING AGENDA**

**Wednesday, September 21, 2016  
City Council Chambers, 2820 Clark Avenue, Norco, CA 92860**

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**CALL TO ORDER:** 4:00 p.m.

**ROLL CALL:** Kevin Bash, Mayor  
Greg Newton, Mayor Pro Tem  
Robin Grundmeyer, Council Member  
Berwin Hanna, Council Member  
Ted Hoffman, Council Member

**PLEDGE OF ALLEGIANCE:** Mayor Pro Tem Greg Newton

**CITY COUNCIL BUSINESS ITEMS AS FOLLOWS:**

1. **DISCUSSION / ACTION ITEMS:**

A. **Presentation of Retiree Healthcare Plan Actuary Results (Finance Officer)**

*Staff will present information on the City's retiree healthcare benefits including benefits provided, contribution requirements, funding progress and accounting requirements.*

B. **Presentation of Pension Liabilities Actuary Results. (Finance Officer)**

*Staff will present information on the value of City's pension liabilities and new accounting requirements for these liabilities.*

C. **Proposed Speed Hump Policy Review (Director of Public Works)**

*Staff has developed a draft Speed Hump Policy to provide a documented written process by which residents may make a formal request to the City for consideration to install speed humps/tables in their particular residential street.*

**Recommended Action: Council direction regarding implementation of Speed Hump Policy to be managed by the Public Works Department.**

**ADJOURNMENT**

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*In compliance with the Americans with Disabilities Act, any person with a disability who requires a modification or accommodation in order to participate in this meeting, please contact the City Clerk's office, (951) 270-5623, at least 48 hours prior to the meeting to make reasonable arrangements to ensure accessibility. Staff reports are on file in the City Clerk's Office. Any writings or documents provided to a majority of the City Council regarding any item on this agenda will be available for public inspection at the City Clerk's Counter in City Hall located at 2870 Clark Avenue during normal business hours. This meeting is recorded.*



**BARTEL**  
ASSOCIATES, LLC

## CITY OF NORCO

### **RETIREE HEALTHCARE PLAN**

June 30, 2015 GASB 45 Actuarial Valuation

### **CALPERS PENSION PLAN**

June 30, 2015 GASB 68 Actuarial Valuation

**JOHN E. BARTEL**  
**BARTEL ASSOCIATES, LLC**  
September 21, 2016

## AGENDA

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## BENEFIT SUMMARY

<ul style="list-style-type: none"> <li>■ Eligibility</li> </ul>	<ul style="list-style-type: none"> <li>■ Service or disability retire directly from the City under CalPERS</li> </ul>												
<ul style="list-style-type: none"> <li>■ Medical Benefit</li> </ul>	<ul style="list-style-type: none"> <li>■ City pays PEMHCA medical premiums for retirees and dependents subject to caps and vesting schedule which vary by hire date:</li> </ul>												
	<p>Hired &lt; 9/1/2004</p>	<p>Hired ≥ 9/1/2004</p>											
	<ul style="list-style-type: none"> <li>■ 100% of full premium up to \$1,250/month</li> <li>■ Employees offered choice to opt-in to vesting schedule</li> </ul>	<ul style="list-style-type: none"> <li>■ Maximum of:                             <ul style="list-style-type: none"> <li>• % of full premium</li> <li>• % of State 100/90 contribution</li> </ul> </li> <li>■ Not more than 100% premium</li> <li>■ % is based on PERS service (min 5 years with City):                             <table style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">PERS Service</th> <th style="text-align: left; border-bottom: 1px solid black;">% of Premium</th> </tr> </thead> <tbody> <tr> <td>&lt; 10</td> <td>0%</td> </tr> <tr> <td>10</td> <td>50%</td> </tr> <tr> <td>11</td> <td>55%</td> </tr> <tr> <td style="text-align: center;">↓</td> <td style="text-align: center;">↓</td> </tr> <tr> <td>≥ 20</td> <td>100%</td> </tr> </tbody> </table> </li> <li>■ 100% for Disability retirement</li> </ul>	PERS Service	% of Premium	< 10	0%	10	50%	11	55%	↓	↓	≥ 20
PERS Service	% of Premium												
< 10	0%												
10	50%												
11	55%												
↓	↓												
≥ 20	100%												
<ul style="list-style-type: none"> <li>■ Surviving Spouse Benefit</li> </ul>	<ul style="list-style-type: none"> <li>■ Same benefit continues to surviving spouse if retiree elects CalPERS survivor annuity</li> </ul>												



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## PARTICIPANT STATISTICS

### Participant Statistics by Misc/Safety - June 30, 2015

	Misc	Safety	Total
<ul style="list-style-type: none"> <li>■ Actives                             <ul style="list-style-type: none"> <li>• Count (42 with vesting schedule)</li> <li>• Average age</li> <li>• Average City service</li> <li>• Average CalPERS service</li> <li>• Average Salary</li> <li>• Total Salary (000's)</li> </ul> </li> </ul>	<p>54</p> <p>48.0</p> <p>9.2</p> <p>10.2</p> <p>\$47,918</p> <p>\$2,588</p>	<p>0</p> <p>n/a</p> <p>n/a</p> <p>n/a</p> <p>n/a</p> <p>n/a</p>	<p>54</p> <p>48.0</p> <p>9.2</p> <p>10.2</p> <p>\$47,918</p> <p>\$2,588</p>
<ul style="list-style-type: none"> <li>■ Deferred Vested (with Cal Fire)                             <ul style="list-style-type: none"> <li>• Count</li> <li>• Average Age</li> </ul> </li> </ul>	<p>0</p> <p>n/a</p>	<p>5</p> <p>50.7</p>	<p>5</p> <p>50.7</p>
<ul style="list-style-type: none"> <li>■ Retirees                             <ul style="list-style-type: none"> <li>• Count</li> <li>• Average age</li> <li>• Average retirement age                                     <ul style="list-style-type: none"> <li>➢ Service retirement</li> <li>➢ Disability</li> </ul> </li> </ul> </li> </ul>	<p>66</p> <p>68.0</p> <p>58.1</p> <p>48.0</p>	<p>17</p> <p>62.5</p> <p>57.2</p> <p>47.1</p>	<p>83</p> <p>66.9</p> <p>58.0</p> <p>47.3</p>



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## WHAT IS GASB 45?

- **OPEB: (Other than pension Post Employment Benefits)**
- **Historically accounted for as Pay-As-You-Go**
  - Generally ignored until employees retire
  - Pay \$1 / Account for \$1
- **GASB Statement No. 45 - Issued June 2004**
  - Requires agencies recognize OPEB costs over active service of employees rather than on a pay-as-you-go basis
  - “Annual Required Contribution” – how much should be set aside
  - Accrue difference between
    - Annual Required Contribution
    - Actual payments
  - City implemented GASB 45 for 2008/09 Fiscal Year
  - City is currently pre-funding with CalPERS CERBT



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## FUNDING POLICY

- Pre-funding with CalPERS CERBT Fund #1 since 2008/09
- City has been phasing into full ARC funding:

Fiscal Year	City Contribution
2008/09	PayGo + \$1.9 million
2009/10 through 2013/14	PayGo + 50% x (ARC – PayGo)
2014/15 through 2018/19	PayGo + 75% x (ARC – PayGo)
2019/20+	100% of ARC



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## FUNDING POLICY

■ Historical expected versus actual contributions in excess of PayGo

Fiscal Year	Expected	Actual
■ 2008/09	\$1,900,000	\$1,900,000
■ 2009/10	493,500	75,220
■ 2010/11	372,500	450,500
■ 2011/12	363,500	150,645
■ 2012/13	317,000	300,000
■ 2013/14	353,000	400,000
■ 2014/15	158,250	400,000
■ 2015/16	131,250	400,000

■ The City has recently been contributing more than the Annual Required Contribution



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## PLAN ASSETS

(Amounts in 000's)

	2013/14	2014/15	Projected 2015/16
■ <b>Market Value of Assets - MVA (BOY)</b>	\$4,745	\$6,017	\$6,393
• Employer Contribution	400	400	400
• Benefit Payment	(0)	(0)	(0)
• Administrative Expenses	(7)	(6)	(5)
• Investment Return	<u>879</u>	<u>(17)</u>	<u>21</u>
■ <b>Market Value of Assets - MVA (EOY)</b>	\$6,017	\$6,393	\$6,809
■ <b>Approximate MVA Annual Return</b>	18.4%	(0.4%)	0.2%
■ <b>Actuarial Value of Assets - AVA (EOY)</b>	\$5,148	\$6,050	\$6,873
■ <b>Approximate AVA Annual Return</b>	11.3%	8.9%	7.0%



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## DEFINITION OF TERMS

### ■ Actuarial Accrued Liability (AAL)

- Liability for benefits “earned” for past service using actuarial assumptions

### ■ Normal Cost (NC)

- Value of benefits “earned” during the current year

### ■ Annual Required Contribution (ARC)

- Normal Cost, plus
- Amortization of unfunded AAL (UAAL)

### ■ Net OPEB Obligation (NOO)

- Historical difference between ARC and actual contributions

### ■ Cash PayGo

- Cash payments for retiree benefits



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## VALUATION RESULTS

### Actuarial Obligations

(Amounts in 000's)

Actuarial Obligations	June 30, 2013 Valuation	June 30, 2015 Valuation
■ Present Value of Benefits	\$17,311	\$20,566
■ Actuarial Accrued Liability		
• Actives	\$ 3,368	\$ 4,136
• Deferred Vested	2,277	1,586
• Retirees	<u>9,556</u>	<u>12,615</u>
• Total	15,201	18,337
■ Actuarial Value of Assets	<u>(4,265)</u>	<u>(6,050)</u>
■ Unfunded AAL	10,936	12,287
■ Funded %	28.1%	33.0%



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## VALUATION RESULTS

### Annual Required Contribution (ARC)

(Amounts in 000's)

Annual Required Contribution	June 30, 2013 Valuation		June 30, 2015 Valuation	
	2014/15	2015/16	2016/17	2017/18
■ <b>ARC - \$</b>				
● Normal Cost	\$ 328	\$ 339	\$ 342	\$ 353
● UAAL Amortization	<u>612</u>	<u>633</u>	<u>822</u>	<u>848</u>
● ARC	940	972	1,164	1,201
■ <b>Projected Payroll</b>	2,888	2,982	2,759	2,849
■ <b>ARC - %</b>				
● Normal Cost	11.4%	11.4%	12.4%	12.4%
● UAAL Amortization	<u>21.2%</u>	<u>21.2%</u>	<u>29.8%</u>	<u>29.8%</u>
● ARC	32.6%	32.6%	42.2%	42.2%
■ <b>Pay-As-You Go Cost</b>	\$729	\$797	\$1,000	\$1,058
■ <b>ARC - PayGo</b>	211	175	164	143
■ <b>Actual Contribution<sup>1</sup></b>	400	400		

<sup>1</sup> In excess of PayGo



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## NEW OPEB ACCOUNTING STANDARD

- GASB 75 approved by GASB June 2, 2015:
  - Replaces GASB 45
  - Effective for 2017/18 fiscal year
- Fundamental changes:
  - Delinks contributions and accounting
    - GASB 45 based Net OPEB Obligation on difference between expected and actual contributions
  - Unfunded liability recognition drives expense
- Unfunded liability on balance sheet



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## NEW PENSION ACCOUNTING STANDARD

- GASB 68 - issued June 2012:
  - Replaces GASB 27
  - Effective for 2014/15 fiscal year
- Fundamental changes:
  - Delinks contributions and accounting
  - GASB 27 based Net Pension Obligation on difference between expected and actual contributions
  - Unfunded liability recognition drives expense



## NEW PENSION ACCOUNTING STANDARD

- Unfunded liability (Net Pension Liability) on balance sheet:

(Amounts in \$000's)	Fiscal Year Ending	
	6/30/2015	6/30/2016
Measurement Date	6/30/2014	6/30/2015
Total Pension Liability (TPL)	\$54,417	\$55,670
Fiduciary Net Position (FNP)	<u>43,142</u>	<u>41,784</u>
Net Pension Liability (NPL)	11,275	13,886
Miscellaneous NPL	7,742	9,357
Safety NPL	3,533	4,529



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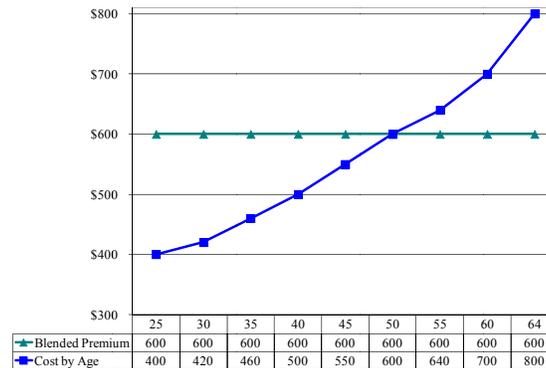
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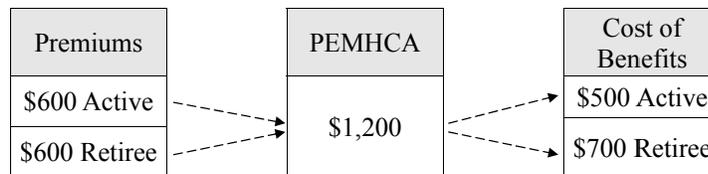
## ADDITIONAL INFORMATION

### Implied Subsidy

- For PEMHCA, employer cost for allowing retirees to participate at active rates.
  - General trend:



- Sample assuming one active employee age 40 and one retiree age 60:



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## ADDITIONAL INFORMATION

### Implied Subsidy (continued)

- GASB 45 defers to actuarial standards of practice.
- Actuarial Standards of Practice No. 6<sup>2</sup> (ASOP 6) allowed community rated plans to value liability using premiums, resulting in no implied subsidy in the past.
- In May 2014, Actuarial Standards Board released revised ASOP 6:
  - Requires implied subsidy valued for community rated plans such as PEMHCA.
  - Timing: effective with all valuations on or after March 31, 2015 with earlier implementation encouraged
- The 6/30/15 valuation includes the PEMHCA implied subsidy.
- Impact of including implied subsidy in 6/30/15 valuation (\$000's):

	Cash Subsidy	Implied Subsidy	Total
■ June 30, 2015 AAL	\$15,892	\$2,445	\$18,337
■ 2016/17 ARC - \$	\$948	\$216	\$1,164
■ 2016/17 ARC - %	34.4%	7.8%	42.2%

<sup>2</sup> "Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions".



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## ADDITIONAL INFORMATION

Actuarial Methods & Assumptions	
■ Cost Method	■ Entry Age Normal
■ UAAL Amortization	■ Level percent of payroll amortization: <ul style="list-style-type: none"> <li>● 6/30/08 UAAL – 30-year fixed period (22 years remaining)</li> <li>● Gains/Losses - 15-year fixed periods</li> </ul>
■ Discount Rate	■ 7.25%
■ Inflation	■ 3.00%
■ Payroll Increases	■ Aggregate increase – 3.25%, used to amortize UAAL
■ Demographic	■ CalPERS 1997-2011 Experience Study (Mortality, Retirement, Termination, Disability) ■ Post-retirement mortality projected fully generational with MP-14, modified to converge to ultimate improvement rates in 2022
■ Retirement Age	■ CalPERS Misc Classic – 2.7%@55 – Expected Retirement Age ≈ 58 ■ CalPERS Misc PEPPRA – 2.0%@62 – Expected Retirement Age ≈ 61
■ Healthcare Trend	■ Actual 2015 and 2016 PEMHCA premiums used ■ Initial increase in 2017 of 7.0% (non-Medicare) and 7.2% (Medicare) grading down to 5.0% ultimate rate over 4 years
■ Dollar Cap Increase	■ 0% for 2 years, then increase by 3% per year
■ ACA Excise Tax	■ 2% load on retiree cash medical premium subsidy



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## ADDITIONAL INFORMATION

### Actuarial Gain/Loss Analysis

(Amounts in 000's)

Actuarial Gains & Losses	AAL	(AVA)	UAAL
■ 6/30/13 Actual	\$15,201	\$ (4,265)	\$10,936
■ 6/30/16 Expected	16,579	(6,122)	10,457
■ Experience (Gains)/Losses	(596)	(751)	(1,347)
■ Assumption Changes	458		458
■ Implied Subsidy	<u>2,539</u>	-	<u>2,539</u>
■ Total (Gains)/Losses	2,401	(751)	1,650
■ 6/30/2016 Actual	18,980	(6,873)	12,107



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## CITY OF NORCO STAFF REPORT

TO: Honorable Mayor and Members of the City Council

FROM: Andy Okoro, City Manager 

FROM: Chad Blais, Director of Public Works 

DATE: September 21, 2016

SUBJECT: Proposed Speed Hump Policy Review

RECOMMENDATION: Provide direction regarding the implementation of "Speed Hump Policy" to be managed by the Public Works Department.

**SUMMARY:** Staff has developed a draft "Speed Hump Policy" to provide a documented written process by which residents may make a formal request to the City for consideration to install speed humps/tables in their particular residential street. Staff is seeking City Council direction as to whether a "Speed Hump Policy" should be implemented.

**BACKGROUND:** The City Council has requested staff feedback regarding the feasibility and appropriateness of using speed humps/tables as traffic calming measures in residential streets. The City of Norco currently does not have an adopted policy of how or when speed humps may be implemented. Therefore, staff has conducted a review of current State and Federal traffic regulations governing the use of speed humps/tables and existing speed hump policies implemented by other agencies. The following draft "Speed Hump Policy" has been developed to provide a formal written process by which residents may make a formal request to the City for consideration to install speed humps/tables in their particular residential street (see attachment).

Staff is also providing the City Council with a copy of a memo dated February 2006 from former Fire Chief Jack Frye to City Engineer Dominic Milano that outlines the former Norco Fire Department's opinions and concerns regarding the use of speed humps as a traffic calming measure. This draft policy has been reviewed by the Norco's contract Police and Fire Departments and no additional changes were recommended on the draft policy itself. However, both Riverside County Sheriff and Cal Fire staff recommended against the City approving the use of speed humps/tables and expressed significant concerns regarding the impacts of speed humps/tables would have on emergency response times and wear and tear on vehicles.

On August 22, 2016, Public Works staff presented the draft "Speed Hump Policy" to the Streets, Trails and Utilities Commission (STUC) for consideration and feedback. The

Speed Hump/Table Policy Review

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STUC recommended the draft policy be forwarded to the City Council for consideration and approval.

Staff is seeking City Council feedback and approval or denial for the proposed "Speed Hump Policy".

FISCAL IMPACT: None

STRATEGIC PLAN IMPACT: This item is consistent and supports Strategic Direction #5 – Public Safety in the goal to "improve the quality of life by enhancing public safety services".

Attachments: Draft Speed Hump Policy  
Memorandum from former Fire Chief Jack Frye

**CITY OF NORCO  
SPEED HUMP/TABLE  
POLICY AND PROCEDURES**

Speed humps are pavement undulations installed along a roadway for the purpose of regulating traffic speed. There is a significant difference between speed humps/tables and speed bumps, which are devices commonly used in shopping center parking lots. A speed bump is an abrupt pavement feature, three or four inches high and only one to three feet in width at the base (measured in the direction of vehicle travel). A speed hump/table, on the other hand, is approximately three inches in height, but much gentler in configuration, with a width of at least 12 feet at the base. Speed humps/tables properly designed and placed in appropriate locations control speed without the "jarring" effect of speed bumps.

**PURPOSE**

To establish a policy regarding speed humps/tables and develop a procedure for their evaluation for acceptability for installation and approval process.

**POLICY**

In order to provide consistency in responding to residents request to install speed humps/tables on residential local roads, a Policy to document the procedural process must be established. Speed humps/tables will only be installed upon approval of the City Council, after a public hearing and in conformance with the standard design in effect at the time of installation. Installation of speed humps/tables shall only be considered after other measures including but not limited to increased signing or enforcement have been implemented without measurable success. Speeds humps/tables are still considered experimental roadway features. Therefore, additions, alterations, or removals of any or all speed humps may occur at any time. This approach is consistent with the Institute of Transportation Engineers (ITE) – "Guidelines for the Design and Application of Speed Humps and Speed Tables" and "Traffic Calming: State of the Practice".

**GUIDELINES**

A written "application" for a speed hump/table must be submitted by the residents of the impacted street. The application must be accompanied by the required supporting signatures of property owners (not renters) as outlined in the application package and the required fee as indicated on the application form. The written "application" for speed humps/tables will be considered for internal review by staff only if all the following conditions are met:

- The speed limit on the street must have a maximum posted speed limit of 25 miles per hour established in accordance with State law or City Council action.
- The street must have no more than two traffic lanes and a paved width of 36 feet or less.
- The street segment on which speed humps are proposed must be at least 1/4 mile long (1,320 feet) and must be a residential street (no collectors or arterials).

- Submit signatures from at least 85 percent of the homeowners living on the street where the proposed speed hump/table will be installed.
- Payment of \$500 fee for review of the proposed application. Please note that if any of the above conditions are not met the fee will be returned to the applicant.

### **Staff Review - Considerations and Requirements**

Upon receiving a valid application for speed hump/table, Public Works staff will begin a review process to determine if the proposed location for the speed hump/table meets specific conditions and criteria to be installed properly and without negatively impacting public safety. Public Works staff will be responsible for determining the appropriate location to install each speed hump/table. The following items must be present or will automatically be rejected:

- The street segment must have 13 or more buildings fronting on one side of the street or 16 or more buildings fronting on both sides of the street, within a distance of 1/4 mile. Buildings must be located within 75 feet of the street curb face or edge of pavement and they must face and gain access from the street, to be considered as "fronting on the street".
- Buildings, as used above, include separate dwelling houses, churches, apartment buildings, or multiple dwelling houses.
- The street must generally have a longitudinal grade of 5% or less, although grades exceeding 5% may be acceptable for relatively short distances of a roadway segment. Maximum street grade of 5% is necessary to reduce braking distance over the speed hump/table.
- A speed study will be conducted by to verify the following:
  - Survey must show that more than 85% of the motorists exceed the 25 mph speed limit by 5 mph or greater.
  - Survey must show minimum daily traffic of 2,000 vehicles per day but no more than 4,000 vehicles per day.

The following are additional criteria that Public Works staff will consider in regards to determining the appropriate placement of any speed hump/table:

- No speed hump/table shall be installed in front of driveways, over manholes, utility valves or vaults, or adjacent to fire hydrants.
- Speed hump/table shall not be installed in horizontal or vertical curves or where there is limited visibility of the speed hump or speed table.
- Speed hump/table shall not be installed within 300 feet of a traffic signal, stop sign, or yield sign, or within 75 feet of an uncontrolled intersection.
- The proposed placement of any speed hump/table must be agreed to "in writing" by said property owner where the proposed speed hump/table abuts the property.

- Installation of speed hump/table will not adversely impact adjacent neighborhood streets, thereby shifting the problem rather than solving it.
- Speed humps/table shall not increase noise levels due to vehicle braking, tires, and engines.
- Presents a potential hazard to pedestrians and equestrians on streets where there are no curbs or trail fencing to keep drivers from going around the speed hump/table.
- Would the installation of a speed hump/table create undue traffic congestion in/or near a school zone.

Note - If Public Works staff is unable to identify an appropriate location for the installation of the requested speed hump/table, then the application will be rejected for cause and the review process stopped.

### **Public Safety Review**

If Public Works staff is able to make a positive recommendation for the proposed speed hump/table (including an acceptable location is available to place each speed hump/table), a staff report shall be prepared and submitted to the Norco Fire Department and Police Department for review and their individual recommendation for denial or approval.

### **City Council Final Review**

At a scheduled public hearing, Public Works staff will submit the staff report and recommendations from Police and Fire Departments to the City Council for consideration. Interested parties will be provided an opportunity to provide input to City Council.

### **Funding**

Each speed hump/table, together with required signing and striping, is estimated to cost approximately \$1,200 to \$2,500 to install (estimate only). The cost for funding the installation of any requested/approved speed hump/table shall be the responsibility of the applicant. Public Works staff will be responsible to obtaining an installation quote from a City approved contractor and the applicant shall make full payment based on said quote prior to any work being authorized to commence. Once a speed hump/table has been installed the City will bare all future maintenance obligations.

### **Removal of Speed Humps**

Requests to have speed humps/tables removed by the residents where speed humps/tables are located will be conducted via the same application process (no application fee required). City Council shall have final approval of such a request and removal shall be paid for by said residents. City Council shall also retain the right to have any speed hump/table removed should safety issues warrant removal.



# Speed Hump Study Request

We the undersigned, representing households on the street below, request a traffic study. Depending on the outcome of the study, we may want to pursue the funding of speed humps on our street. However, our signatures on this form does not commit us to support speed humps at any time in the future.

Contact Name:	Daytime Phone: ( ) -
Address:	E-mail Address (Optional)
Neighborhood Name:	

Where should the study be conducted? Please be as specific as possible. (Example: Corona Street between 2nd and 3rd Avenues)

Note: It may not be possible to conduct the study at exactly the location listed above, but we will conduct it as near as possible.

	Signature (One per household)	Address	Phone
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

<p>After completing this form, please submit in person to: City of Norco, Public Works Dept, 2870 Clark Ave, Norco, CA 92860. <b>Don't forget to provide the appropriate number of signatures and non-refundable payment of \$500.</b> Please submit additional forms to meet the number of signatures required. Once received Public Works staff will begin the review process to determine is the implementation of speed humps/tables on the requested street are appropriate. If you have questions about the form, please call 951-270-5627.</p>	<p>For office use only Rev.9/16</p>
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## MEMORANDUM

February 16, 2006

TO: Dominic Milano, City Engineer

FROM: Jack Frye, Fire Chief

SUBJECT: Traffic Calming

In short, for the past two years every effort has been made to evaluate traffic calming from the standpoint of public safety and the effect traffic calming devices would have on the fire department's ability to deliver our service in the most appropriate manner.

Traffic calming devices started appearing on streets in America about 40 years ago and are designed to slow automobile speeds and reduce the volume of traffic. In Norco the goal is to reduce speed, volume and cut-through traffic and increase safety for our equestrian riders. The plans to accomplish this are centered on passive and active strategies.

The passive approach is less restrictive and includes the use of traffic signals, signs, markings along roadways, educational programs and campaigns and traditional policing with fines and citations for enforcement. The active approach is more restrictive in that it prevents or reduces the movement of traffic by changing the configuration of the street or by using physical barriers or devices. Some examples of street re-configurations or physical barriers include street closures, diverters, gates, cul-de-sacs, chokers or curb extensions and speed humps.

Traffic calming devices are generally categorized into either volume control or speed control devices. Volume control devices divert traffic to other routes or severely limit through traffic.

There are three sub-divisions of speed control devices identified as vertical, horizontal and narrowing devices. Vertical devices are elevated devices placed on the roadway to discourage speed. The most common type of elevated device is the speed hump. Other types of vertical devices include speed cushions and raised intersections. Speed cushions are approximately 3 inches in height and about 10 feet in length. The width varies but is designed to allow emergency vehicles to straddle the cushion, which allows for only a partial slowing during responses.

Elevated intersections encompass the entire intersection. The elevated plateau is about 4 inches high and requires a vehicle to slow when entering and exiting the platform. This device has a very negative impact on emergency response times, similar to speed humps.

Horizontal devices employ rapid course changes such as traffic circles to reduce speed. When constructed properly, no vehicle can travel through the intersection in a straight

line. When used in the middle of a block, the driver is required to make a slight change in direction to get around the circle, thus reducing speed.

Narrowing devices use a “psycho-perspective sense” of enclosing or narrowing the roadway to discourage speeding. Curb extensions to create neck downs physically reduces road width. As the roadway narrows, drivers are forced to slow their vehicles to insure adequate clearance of on-coming vehicles. Lane narrowing can be accomplished mid-block but eliminates parking in the narrowed areas and can force cyclists out into traffic lanes. Center medians are placed in the center of the street and effectively reduce traffic lane sizes. Landscaping the median strip further creates the effect of a narrow passageway.

When considering traffic calming methods, it should be remembered that the very streets being considered for calming are the same streets utilized by the operators of emergency vehicles. In selecting response routes, emergency vehicle operators often categorize streets as primary response streets. In selecting primary response streets consideration is given to locations of highest demand for service and includes schools, hospitals, elder care facilities, etc. The diversity of Norco, locations of schools and the senior citizen population requires that most streets be considered as primary response streets and any traffic calming devices placed on those streets will have a dramatic effect on response times.

Another issue to be considered when evaluating the effect of speed humps on emergency vehicles is the fact that ambulance personnel are slowed on their response to the scene and on their response from the scene to the hospital. EMS personnel working on a patient also report having a more difficult time providing their service when the vehicle is slowed and jostled as it travels over speed humps.

There is also the issue of personnel injuries when emergency vehicles traverse speed humps. A firefighter in Sacramento California received a cervical spine compression injury during a response when the apparatus traversed a speed hump, which resulted in an early disability retirement.

The Fresno Fire Department recorded four on-the-job injuries all related to apparatus crossing speed humps during emergency responses. All the employees were wearing seat belts at the time of the accidents.

Along with the potential injuries to fire personnel is the documented damage to emergency vehicles. Sacramento Fire Department has recorded multiple engines with flattened or broken springs resulting from speed hump crossings. Sacramento also reports loosing the front axle of a 150 foot articulating platform weighing 72,000 pounds after crossing a speed hump. Also in Sacramento, a ladder/tiller crossed a speed hump at approximately 20 mph and the twisting to the chassis caused all the compartment doors to open, spilling all the equipment onto the street. San Diego Fire Department also reported a water tanker was broken when the tanker rolled over a speed hump.

Although most people believe there is a delay in response times for emergency vehicles required to cross speed humps, the argument remains as to just how much of a delay is experienced. In 1995, the City of Portland, Oregon conducted extensive testing and research on the subject. The test data was obtained using the same vehicles at a variety of speeds with and without speed humps.

The study showed a fire engine slowing for a speed hump while traveling at 25 mph would be delayed 2.8 seconds. The same vehicle traveling at 30 mph would lose 3.7 seconds and at 40 mph the delay was 8.5 seconds. These results represent a single speed hump.

A 1996 test conducted in Austin, Texas using fire apparatus and a total of 6 speed humps for the test produced similar results. The average 4.25 minute response was increased to 5.53 when the route traveled included 6 speed humps. However, for an ambulance with a patient on board, the same 4.25 minute response time was increased to 5.22 minutes or a 23% time increase caused by the speed humps.

Besides the tests noted, Montgomery County, Maryland, Berkeley, California and Boulder, Colorado have all conducted similar testing with relatively the same results. The combined testing by these different agencies confirmed that speed humps result in considerable delays for emergency response vehicles.

Contact was made with surrounding cities to assess their use of traffic calming devices. The City of Corona does not currently allow the use of speed humps because of their impact on response times and the wear and tear on apparatus. Although there are some humps in use the current policy is to not allow any to be installed in the city.

The City of Riverside is currently experimenting with the use of a speed hump specially designed to allow a fire apparatus to pass through the hump without having to slow. The humps are currently in limited use and are constantly being evaluated. The humps were examined and evaluated at the Riverside Training Center. They allow fire apparatus to pass through rather than over the hump, which requires a modicum of slowing during a response. One of the difficulties is that often times traffic conditions require an emergency vehicle to travel outside normal traffic lanes and this could become a problem.

One of our Battalion Chiefs lives in Redlands and that city was also surveyed. They have a speed hump policy in effect but they currently have only two speed humps in the city. They are within 100' of each other and were designed to eliminate cut-through traffic from Moreno Valley. They feel the two humps are effective in deterring traffic but they do not have any plans for installing any further devices within the city.

Traffic calming is a serious issue that must be considered from a "bigger picture" perspective. The primary consideration must be our ability to deliver emergency assistance in as timely a manner as possible.