City of Arts & Innovation

Mobility & Infrastructure Committee Memorandum

TO: **MOBILITY & INFRASTRUCTURE COMMITTEE** **DATE: AUGUST 10, 2023**

FROM: **PUBLIC WORKS DEPARTMENT** **WARDS: ALL**

SUBJECT: **NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM – PROPOSED REVISIONS**

ISSUES:

Review of proposed revisions to the Neighborhood Traffic Management Program (NTMP) including: 1) reinstatement of the use of speed humps as a local street secondary mitigation measure option under the NTMP with modifications to the "Traffic Conditions" qualifying criteria; and 2) establishment of a Temporary Art Crosswalk and Pavement Mural Pilot Program as a local street secondary mitigation measure option under the NTMP.

RECOMMENDATIONS:

That the Mobility & Infrastructure Committee review and provide recommendation to the City Council regarding proposed revisions to the Neighborhood Traffic Management Program (NTMP) including:

1. Reinstatement of the use of speed humps as a local street secondary mitigation measure option under the Neighborhood Traffic Management Program with modifications to the "Traffic Conditions" qualifying criteria; and

2. Establishment of a new Temporary Art Crosswalk and Pavement Mural Pilot Program as a local street secondary mitigation measure option under the Neighborhood Traffic Management Program.

BACKGROUND:

The Neighborhood Traffic Management Program (NTMP) was designed to provide general guidelines for the assessment of traffic issues on local, collector, and arterial roadways throughout the City as well as outline various traffic mitigation measures which may serve as suitable solutions to demonstrated traffic issues.

On May 8, 2008, the Transportation Committee (currently known as the Mobility and Infrastructure Committee) reviewed proposed comprehensive revisions to the NTMP. The Committee voted unanimously to direct Public Works Department staff to integrate recommended additional revisions into the NTMP and present the revised proposal to the Committee for reconsideration.

On August 14, 2008, the Committee reviewed the expanded NTMP proposed revisions and voted unanimously to approve the proposed revisions with a stipulation that an appeal process for neighborhoods speed humps which did not meet established criteria be incorporated into the program.

On September 9, 2008, City Council approved the final proposed revisions to the NTMP.

In 2011, the Public Works Department suspended the practice of utilizing speed humps to mitigate speeding concerns. In 2014, the Public Works Director formally discontinued the placement of new speed humps.

On July 1, 2020, the Transportation Board (Board), with eight members present, reviewed proposed removal of speed humps from the NTMP. The Board members present voted unanimously to recommend the proposed revisions to the NTMP.

On July 9, 2020, the Mobility and Infrastructure Committee (Committee) reviewed this matter with all three members present. The Committee voted 2 to 1 (2 in support and 1 in opposition) to recommend the proposed NTMP revisions.

On December 13, 2022, the City Council reviewed proposed revisions to the NTMP. Following discussion, City Council voted 6 to 1 (6 in support and 1 in opposition) to refer the proposals back to the Mobility and Infrastructure Committee.

DISCUSSION:

The Neighborhood Traffic Management Program (NTMP) is a critical component of the array of tools utilized by the Public Works Traffic Engineering Division to evaluate public traffic concerns and implement mitigation or other measures where appropriate to improve traffic safety and/or operations to address issues and concerns. Traffic Engineering Division staff collaboratively work with residents to enhance safety throughout our neighborhoods by identifying issues, performing analysis, determining plausible solutions, and implementing the most appropriate mitigation or traffic calming measures. The NTMP process takes a comprehensive approach to implementing traffic mitigation measures by considering the potential impacts to adjoining streets and/or nearby communities to ensure that traffic problems are not shifted from one street to another. The Public Works Department previously installed speed humps under the NTMP until 2011 when use of speed humps was suspended after the last speed hump project was implemented. Utilization of speed humps was officially stopped in 2014 at the direction of the Public Works Director.

As requested by the City Council on December 13, 2022, the Public Works Department is revisiting the matter of proposed revisions to the NTMP. Expanded use of navigation technologies (i.e., Google Maps, Waze, Apple Maps, etc.) has led to drivers using alternate routes to avoid traffic congestion, shorten drive times, and reach their destinations faster which may include shifting their path of travel from collector and arterial roadways to local roadways. A common request received by the Public Works Traffic Engineering Division is for implementation of mitigation measures aimed at reducing speeding. For example, over 120 requests for speed humps were received in 2022 alone. Residents will often request or reference speed humps when raising speeding concerns, as the City of Riverside continues to maintain the humps which were constructed prior to 2011.

History of Speed Humps in the Neighborhood Traffic Management Program (NTMP):

Speed hump basic criteria historically applied through the Neighborhood Traffic Management Program included consideration of the devices on 25 MPH local streets, having no more than two travel lanes, 24-hour traffic volumes between 500 to 2,000 vehicles, and a vertical roadway grade of less than 8%. Additional thresholds included projects allowing for placement of a minimum of two speed humps and at least 30% of total traffic exceeding the speed limit by greater than 5 MPH to demonstrate a persistent speeding concern enabling residents to petition for speed humps. Petition criteria required support from a minimum of 70% of all property owners or residents on the street where the humps were being considered and 100% of residents within 100 feet of the proposed speed hump locations. Thus, petition signatures, street layout, intersecting streets, driveways, manhole covers, etc., were factors in determining speed hump placement with consideration of applicable minimum and maximum distance standards.

After the installation of the last new permanent speed humps project in 2011, the practice of utilizing speed humps as a traffic calming measure was suspended and discontinued in March 2014 at the direction of the Public Works Director. Though a formal revision of the NTMP to exclude the use of speed humps did not occur, their use and practice was halted in response to the Public Works Director's engineering judgement.

Factors which contributed to the discontinuation of speed hump use include:

1. Potential diversion of traffic – installation of speed humps often results in speeding traffic diverting to adjacent parallel local roadways;

2. Noise – speed humps generate additional noise as a result of vehicles braking and traversing the humps;

3. Continued speeding – motorist tendency to speed in between speed humps or speed downstream of humps to make up for lost time;

4. Expense – installation costs (estimated at $9,000 per speed hump, with a minimum of two humps or minimum of $18,000 per location with many longer streets able accommodate four or more humps substantially elevating project costs) and cost of maintenance (humps cannot withstand heavy vehicles); and

5. Impacts to emergency vehicles – delays and disruption to emergency vehicle response times.

Key Considerations Regarding Speed Hump Utilization:

1. Volume of requests – nearly 100 speed hump requests were received during 2019 and over 120 requests were received in 2022 which shows a continued high public interest in speed humps which could potentially result in a high number of speed hump installations annually;

2. Cost factors – if only one-fourth of the requesting neighborhoods were to qualify for speed humps the estimated cost for 25 projects in 2019 would be between $450,000 and $900,000 and for 30 projects in 2022 would be between $540,000 and $1,080,000 per year based on projects installing between the minimum number of two humps and four humps per project location and could exceed these estimates if a higher percentage of streets

meet qualifying criteria or eligible projects involve longer street segments requiring a greater number of speed humps;

3. Escalation in the rate of requests – it is anticipated that requests would increase over time as changes in driver behavior continue, growth increases traffic volumes, and motorists seek out alternate routes impacting more local roadways and neighborhoods seek traffic calming solutions; and

4. Review of other local agency speed hump policies:

    a. The City of Corona and County of Riverside both prohibit the use of speed humps in the public right of way;
    b. The City of Anaheim's neighborhood traffic management policy has phased approaches that strongly discourage speed humps; and
    c. The Cities of Moreno Valley and Murrieta do allow for speed hump installation and use similar criteria to those previously used by the City of Riverside under the NTMP.

Alternative Mitigation Measures for Local Streets:

Alternative traffic calming measures for local streets include but are not limited to:

Initial / Primary Measures:

- Riverside Police Department spot traffic enforcement
- Deployment of the radar speed feedback trailers or Changeable Message Boards; and/or
- Posting of speed limit signs.

Secondary Measures (if Initial / Primary Measures are unsuccessful):

- Centerline striping / Raised reflective markers (RPM's);
- Curve warning or Chevron signs;
- Stop signs;
- Truck or turn prohibition signs;
- Street narrowing by striping; and/or
- Speed feedback signs (typically grant or project funded).

Additional Measures not reflected in the NTMP which may be considered in some instances (if Secondary Measures are unsuccessful):

- Flashing LED Edge lit Stop Signs (primarily grant funded);
- Flashing LED lit Curve warning or Chevron signs (primarily grant funded);
- Speed limit pavement legend; and/or
- Neighborhood traffic circles (grant funded or project funded).

A matrix to determine the potential effectiveness in reducing speeds for several of the engineering speed management countermeasures shown above is provided here:

Link: Engineering Speed Management Countermeasures | FHWA (dot.gov)

As shown, the observed reduction in speeds for the following alternative traffic calming measures are:

1. Speed limit pavement legend: 1-3 MPH reduction
2. Radar speed feedback trailers: 1-7 MPH reduction

3. Speed feedback signs: 1-7 MPH reduction
4. Traffic circles: 4 MPH reduction

Cost estimates based on 2021 data for a sampling of the above referenced alternative measures are attached for comparative purposes (Attachment 3).

The Federal Highway Administration (FHWA) offers an excellent resource for information and visual images of various types of traffic calming measures on their website which can be accessed via the following hyperlink: https://safety.fhwa.dot.gov/speedmgt/traffic_calm.cfm

Proposed Revisions to the NTMP – Proposed Reinstatement of Speed Hump Use with Criteria Modifications:

Due to the potential impacts of speed humps along with their high cost of installation and maintenance, reinstatement of the use of permanent speed humps as a secondary mitigation measure for eligible local streets requires careful consideration. Pursuant to the City Council's direction, and due to:

- Ongoing receipt of resident requests for consideration of speed humps as a traffic calming measure,
- Increased cut-through traffic as the result of elevated use of navigation tools which direct motorists to alternative routes including local, residential streets to bypass traffic congestion on larger collector and arterial roadways or freeways to reach their destinations,
- Changes in driver behaviors (increases in distracted and non-compliant drivers), and
- Speed hump effectiveness at reducing travel speeds if proper placement is achieved

it is recommended that the use of speed humps as a local roadway secondary mitigation measure option under the NTMP be reinstated with modifications to the "Traffic Conditions" component of the qualifying criteria. FHWA matrix data for various alternative traffic calming measures and their potential effectiveness in reducing speeds (discussed above for alternative measures) also showed the observed reduction in speeds with the use of speed humps within the range of 5-13 MPH.

Proposed modifications to the "Traffic Conditions" component of the qualifying criteria for speed humps would enable Public Works to restore use of speed humps as a secondary traffic mitigation measure option for local roadways and manage related costs by focusing speed humps use on 25 MPH local streets which are shown to be experiencing both higher traffic volumes and significant speeding. Historic records show that in prior peak project years 61 speed humps were installed in 2005, 56 were installed in 2002, and 45 were installed in 2001 under the previous qualifying criteria as the threshold for project implementation. As construction and materials costs have significantly increased over the years, budget constraints would not support this level of speed humps project funding, thus modification of qualifying criteria is recommended to enable use of speed humps where traffic speeds and volumes demonstrate the most needed roadway locations. The remaining "Roadway Characteristics" and "Petition" qualifying criteria for speed humps would remain unchanged.

The table below provides a comparison of previous and proposed speed hump qualifying criteria:

SPEED HUMP QUALIFYING CRITERIA			
	Roadway Characteristics	*Traffic Conditions*	*Petition Signature Requirements*
Previous & Proposed (Unchanged)	➢ Local Street ➢ 25 MPH Speed Limit ➢ 2 Travel Lanes ➢ Grade less than 8%		➢ Minimum 70% of all owners / residents in support; **and** ➢ 100% within 100 feet of proposed speed hump locations
Previous		➢ 500 Minimum 24-Hr. Traffic Volume ➢ 1,999 Maximum 24-Hr. Traffic Volume ➢ Minimum 30% of Total Traffic Exceeds Speed Limit by More Than 5 MPH	
Proposed		➢ 750 Minimum 24-Hr. Traffic Volume ➢ 1,999 Maximum 24-Hr. Traffic Volume ➢ Combined 85th% Speed of 37 MPH or greater	

The proposed modifications to the speed hump qualifying criteria will both ensure that utilization of speed humps is targeted to local 25 MPH streets experiencing both higher traffic volumes and substantially elevated traffic speeds and aid in reducing potential annual project costs.

Options for speed hump project installation include use of City of Riverside Streets Division staff for construction, sign fabrication and installation, and installation of markings and legends with total estimated costs per hump of $9,000. An alternative to installation utilizing City of Riverside crews is the scheduling of installation of speed humps as part of an upcoming or future Capital Improvement Project (CIP) which may defer installation costs until roadway paving is scheduled to occur and result in minor cost savings as the result of installation as part of a larger scale CIP project, however, this practice could create issues due to the passing of time with regard to changes in residents along a project street versus when the qualifying speed hump petition is signed.

Funding constraints can be resolved by annually setting aside a pre-determined amount of funds for speed humps and utilize the funding for speed hump construction until all the funds have been exhausted for that fiscal year. The potential number of speed humps would be limited by fund availability and the remaining approved speed hump requests would then be deferred to future funding cycles.

Proposed Revisions to the NTMP – New Temporary Art Crosswalk & Pavement Mural Pilot Program:

As a key element of the City of Riverside's vision is "to inspire everyone through meaningful arts and cultural experiences," potential use of art crosswalks and pavement murals to beautify and better define pedestrian and bicyclist spaces while increasing motorist visibility of the areas in an effort to improve safety would both align with the City of Riverside's artistic and roadway safety goals. To examine the potential benefits, impacts, and costs of art crosswalk and pavement mural improvements, the Public Works Department is proposing a revision to the Neighborhood Traffic Management Program (NTMP) to establish a Temporary Art Crosswalk and Pavement Mural Pilot Program as a secondary mitigation measure option for local roadways. The proposed pilot program would involve selection of locations for temporary art crosswalk and pavement mural improvement projects, selection of artists and designs, community outreach, post-implementation evaluations of the project sites to assess enhancements in the areas of beautification and pedestrian and bicyclist safety associated with the improvements to determine effectiveness, and examination of the longevity of the materials and artwork.

Public art adds value to the cultural, aesthetic, and economic vitality of our communities, and many residents may only experience art within public spaces. Riverside is home to exceptional artistic talent and public art affords opportunities for artists to showcase their gift which cultivates an environment for creative individuals to thrive. Public art within neighborhoods or highly visited locations can be an investment in placemaking which is measured by the livability and quality of life but can also engender community pride. The Public Works Department services nearly 400 traffic signals Citywide and each signal is supported by a signal controller/equipment housed in a signal cabinet. Most traffic signal cabinets are located near the intersection and are visible to motorists, bicyclists, and pedestrians and are excellent locations for public art. The proposed pilot project would expand the City's use of artwork for beautification and cultural enhancement to create greater visual enjoyment, a more vibrant and broader cultural experience, stimulate conversations and creativeness, and promote art appreciation, while also adding an important new element of augmented safety. Six traffic signal cabinets along Riverwalk Parkway are scheduled to have artwork painted on the cabinets as part of a previously approved pilot program.

Promoting alternative modes of transportation including walking and cycling is also a focal point for the City's Public Works Department and enhancing pedestrian and cyclist safety is essential for elevating active transportation within our city. Art crosswalks bring greater attention and awareness to the defined crossing area, may shorten the crossing distance or crossing time, may aid in reducing traffic speeds, may create a more comfortable pedestrian and/or cyclist environment, may improve motorist yield compliance, and most importantly may aid in reducing pedestrian and/or cyclist involved collisions. The selected designs utilized may include artistic enhancement of existing marked crosswalks to bring heightened awareness to the crossings, extension of space for walkers and cyclists by including painted curb bulb-outs to shorten the crossing distance, and/or murals at the center of the intersection to elevate driver awareness and slow traffic through the intersection.

Several cities within the Southern California region have participated in prior Southern California Association of Government (SCAG) Go Human Grants which included demonstration or pilot projects involving pavement murals and/or art crosswalks components, some of which included the Cities of Rancho Cucamonga, Pasadena, Azusa, and Imperial. Additionally, the City of Long Beach participated in a prior Bloomberg Philanthropies Asphalt Art Initiative Grant which involved similar mural and art crosswalk improvements. Sample images of some of these projects can be seen in Attachment 4. We have reached out to each of the above agencies to determine how

project sites were selected, community input and feedback received, the results of any effectiveness analyses, determinations regarding maintenance of the projects, and any plans for continued application of the pavement murals and/or art crosswalks.

Thus far we have only received a response from the City of Rancho Cucamonga who shared the following information regarding their experiences with their pavement mural project:

- The initial project was funded through a 2018 SCAG Go Human Mini-Grant;
- The project installed a temporary pavement mural within the intersection of Baker Avenue, and E. 9th Street;
- The selected intersection services as a school crossing point for Los Amigos Elementary School students and parents;
- The project was the culmination of collaborative efforts by the City of Rancho Cucamonga, Los Amigos Elementary School, area residents, community partners, and a local graphic artist;
- The chosen design was chalked out within the intersection by the artist and subsequently students, residents, and community members were invited to participate in the actual painting of the pavement mural;
- Participant taking part in the mural painting process promoted a strong sense of community involvement and pride;
- The initial pavement mural was intended as a temporary project due to the understanding that the artwork and materials were subject to fading and deterioration due to weather and vehicular traffic;
- However, in 2021 a 2nd SCAG grant was awarded to a non-profit partner of the City of Rancho Cucamonga, Music Changing Lives, which included repainting of the pavement mural and adding art to the sidewalks as well as roadway striping aimed at lowering traffic speeds along 9th Street between Grove and Vineyard.

The City of Riverside proposed pilot project location criteria would focus on sites with the following:

- Existing marked pedestrian crosswalks and ADA ramps;
- Existing street lighting at or in close proximity to the crossings;
- Higher levels of pedestrian crossing activity;
- On routes to schools, libraries, or other key cultural or Downtown locations; and/or
- Recent collision histories reflecting pedestrian or cyclist involved collisions.

The proposed Temporary Art Crosswalk and Pavement Mural Pilot Program would also promote community engagement and involvement by allowing the immediate community to participate in selection of potential project locations, artwork motifs, and/or project designs and configurations. Public Works Department would conduct public outreach to obtain input from the potentially impacted communities to gauge community support and review community feedback during the pilot project. Goals and metrics for each project would be developed to allow for post-installation assessment to determine effectiveness, longevity of the materials, and maintenance costs and this information along with public input will aid in assessing potential retention and maintenance of the improvements and formulation of recommendations regarding continuation and/or expansion of the temporary pilot program.

The Public Works Department has identified a potential grant opportunity through Bloomberg Philanthropies Asphalt Art Initiative and applied to seek funding for a test project in collaboration with the Riverside Downtown Partnership (RDP) and the Riverside Unified Health Systems-Public

Health (RUHS-PH). This grant opportunity allows the Public Works Department to apply (as a primary applicant or project partner) for grant funding not to exceed $25,000 for a temporary Art Crosswalk or Pavement Mural project or projects. Funding applied for may include estimated costs for project maintenance or removal due to the temporary nature and longevity of art materials used as well as costs for project data collection. The grant opportunity does not require matching City funds and if a grant application is approved project construction would occur in 2024. This would provide the Public Works Department with an excellent opportunity to solicit funding from the Bloomberg Philanthropies Asphalt Art Initiative to implement a trial project that would enable assessment of material durability and longevity, any realized safety benefits, and public input regarding the project which would aid in modeling a successful future Temporary Art Crosswalk & Pavement Mural Pilot Project as part of the NTMP.

Summary:

If the proposed revisions to the NTMP including reinstatement of the use of speed humps as a secondary mitigation measure option for local streets with modified "Traffic Conditions" qualifying criteria and establishment of a Temporary Art Crosswalk and Pavement Mural Pilot Program as a new local street secondary mitigation measure option under the NTMP are supported by the Committee, the Public Works Traffic Engineering Division will bring a presentation to the Transportation Board to initiate adoption of an ordinance to revise the NTMP to as proposed and if approved subsequently to City Council for consideration.

STRATEGIC PLAN ALIGNMENT:

The proposed revisions to the NTMP align with **Strategic Priority 2 – Community Well-Being** and **Goal 2.4** - Support programs and innovations that enhance community safety, encourage neighborhood engagement, and build public trust.

This item aligns with each of the five Cross Cutting Threads as follows:

1. **Community Trust** – Revisions to the Neighborhood Traffic Management Program (NTMP) establish Community Trust through the transparent methodology and public process set forth at multiple public meetings. The proposed NTMP revisions are based on engineering judgement, cited benefits, and public interest.

2. **Equity** – The NTMP provides safe usage of the public right of way for all roadway users including vehicles, bicycles, and pedestrians. Proposed restoration of the use of speed humps as a secondary mitigation measure option under the NTMP for local 25 MPH streets and the modified qualifying criteria apply to all eligible neighborhoods and street segments. The proposed Temporary Art Crosswalk and Pavement Mural Pilot Program involves community engagement and input regarding potential selected project sites, artwork motif and design, and ultimate traffic safety improvements for vulnerable road users.

3. **Fiscal Responsibility** – The proposed modifications to the speed humps technical qualifying criteria will aid in reducing potential annual project costs by targeting 25 MPH local streets experiencing both high traffic volumes and substantial speeding to provide a traffic calming and increase safety at the most impacted locations. Temporary pilot projects for implementing art crosswalks and/or pavement murals will allow for assessments of artwork and materials durability and longevity, public support, and safety benefits realized prior to making determinations regarding continued use, expansion, or modification of the

program.

4. **Innovation** – The proposed NTMP revision to establish a Temporary Art Crosswalk and Pavement Mural Pilot Program as secondary mitigation measure option for public roadways will allow for the innovative utilization of artwork to improve pedestrian and cyclist spaces. Art crosswalks and/or pavement murals will serve to beautify areas, enhance cultural experiences, elevate definition and enhance visibility of roadways spaces, and improve pedestrian and bicycle safety in these locations.

5. **Sustainability & Resiliency** – The proposed restoration of the use of speed humps as part of the NTMP will provide another potential traffic calming tool to reduce speeding and increase safety in residential neighborhoods. Speed humps serve as a sustainable, lasting, and physical deterrent to vehicle speeding.

FISCAL IMPACT:

The total fiscal impact is currently unknown as it would be directly related to the total number of speed humps that would be constructed throughout the City. Potential costs associated with the restoration of the use of speed humps with modifications to the qualifying criteria as a secondary mitigation measure option would vary annually depending on the number of qualifying speed humps projects constructed and project sizes. With nearly 120 speed hump requests received during 2022, if only 30 were to qualify the estimated costs could reach $500,000+ per year (based on a minimum of 2 speed humps per location and $9,000 per speed hump). Potential costs related to the addition of a new Temporary Art Crosswalk and Pavement Mural Pilot Project as a component of the NTMP are estimated to range between $10,000 to $25,000 based on size of the project, materials, artists costs, and necessary traffic control plans for implementation.

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Attachments:

1. NTMP Brochure
2. Speed Hump Drawing
3. Alternative Traffic Calming Measures – Cost Estimate Based on 2021 Data
4. Pavement Mural & Art Crosswalk Samples – Other Agencies
5. Transportation Board Meeting Minutes – July 1, 2020
6. Infrastructure & Mobility Committee Meeting Minutes – July 9, 2020
7. City Council Meeting Minutes – December 13, 2022
8. Presentation