



Public Works Department

Multimodal Division

18th Floor-City Hall
414 E. 12th Street
Kansas City, Missouri 64106

816-513-2791

Inter-Departmental Communication

DATE: April 22nd, 2024
TO: Jason Waldron, Transportation Director
Angie Laurie, Associate Transportation Director
FROM: Monica Kearney, Traffic Engineer
Bailey Waters, Chief Mobility Officer
Bobby Evans, Lead Transportation Planner
SUBJECT: 2024 Speed Humps Project Selection Methodology

Background

The goal of the 2024 Citywide Speed Hump Project is to construct 100 speed humps, in roughly 50 locations, throughout the city of Kansas City, Missouri. Using traffic calming requests from the City's 311 system, staff analyzed potential speed hump locations considering site suitability and effectiveness, equity, and citywide distribution. Previous requests that had been elevated for staff analysis and were deemed suitable candidates were given top priority alongside those scored for this analysis. Analyzing speed hump requests at this scale – over 200 locations - required the use of alternative methods from what is detailed in the Traffic Operations and Engineering Manual. This technical memo illustrates the selection methodology, criteria, and the resulting speed hump locations list.

Selection Methodology

Using 311 traffic calming requests from 2021 to 2023 staff first examined each location for suitability of implementation according to the applicable criteria laid out in the Traffic Engineering and Operations Manual using ArcGIS Pro geographic information systems software. The first level of analysis examined locations meeting two suitability criteria, roadway slope and presence of curbs. These criteria show if a site has the correct topography and complementary infrastructure necessary to support safe and effective speed humps.

Next, staff used speed hump requests summed at the council district level to determine how to distribute installations throughout the city based on perceived need. Within the council districts, staff chose a set of selection criteria to support an equitable, needs based installation program – each additional analysis criteria added until the set of 200 request locations was reduced to 50 locations.

Suitability Criteria

- Slope of roadway less than 8%

- Using data in the city’s roadway centerline GIS file, locations with a slope of more than 8% were eliminated
- Presence of Curbs
 - Using data in the city’s GIS file of curbs, any potential speed hump location without pre-existing curbs was eliminated

Council District Distribution

Given a set number of speed humps allocated for this project, a perfectly equal distribution among council districts with differing safety outlooks and speed hump request volumes would not be fair or equal. With a goal to meet the needs of each council district, staff landed on the following distribution formula.

Step 1: Calculate the share of speed hump requests.

Table 1 below shows the share of speed hump requests, after suitability criteria vetting, for each council district. One-third (30%) of the 200 vetted speed hump requests come from the 3rd council district, for example. The next step is to use this distribution of speed hump requests to guide where speed humps be constructed.

Council District	Speed Hump Requests	Share of Requests > Share to be Built	Speed Humps to be Built
1	11	6%	3
2	16	8%	4
3	59	30%	15
4	39	20%	10
5	46	23%	12
6	29	15%	7
Totals	200	--	50

Table 1 Speed Hump Requests Per Council District, 2021-2023

Step 2: Scale requests per district to implementation.

Using the share of requests per council district, staff applied the ratio to the total number of speed humps set for implementation (50). Note, that while 100 speed humps will be constructed, best practice is to implement speed humps in pairs – so 100 speed humps will result in 50 speed hump sites. Table 2 below shows the distribution of speed humps to be built based on the share of speed hump requests from 311 data.

Selection Criteria Within Council Districts

With the unsuitable sites eliminated and the distribution among council districts settled, the next step was to determine which speed hump locations to select within each council district. Staff used the following criteria to score speed hump candidates: DOT Equitable Transportation Community, Duplicate Request, Proximity to High Injury Network, Proximity to KCPS School. Each will be explained in detail below.

DOT ETC – 1 Point

As part of the Justice 40 initiative, the Department of Transportation Equitable Transportation Community (DOT ETC) designation is a tool to understand how a community is experiencing disadvantage and identify project locations. Using 2020 census data, DOT ETC indexes five component demographic elements: Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability.

Speed hump sites located in a DOT ETC were given top priority at this stage in this analysis.

Duplicate Requests – 1 Point

Staff used speed hump request from unique addresses located within a block of one another as a way to determine urgent need. Locations meeting this criteria, after passing through the previously stated steps, were summed as a single speed hump site and given priority.

Proximity to High Injury Network

The High Injury Network is an analysis of corridors with the greatest number of crashes resulting in death or serious injury used to identify areas of greatest need for traffic safety projects. Using the assumption that neighborhood streets near High Injury Network streets could feasibly be of higher need, staff scored speed hump request locations within one-quarter mile of the High Injury Network corridors as follows:

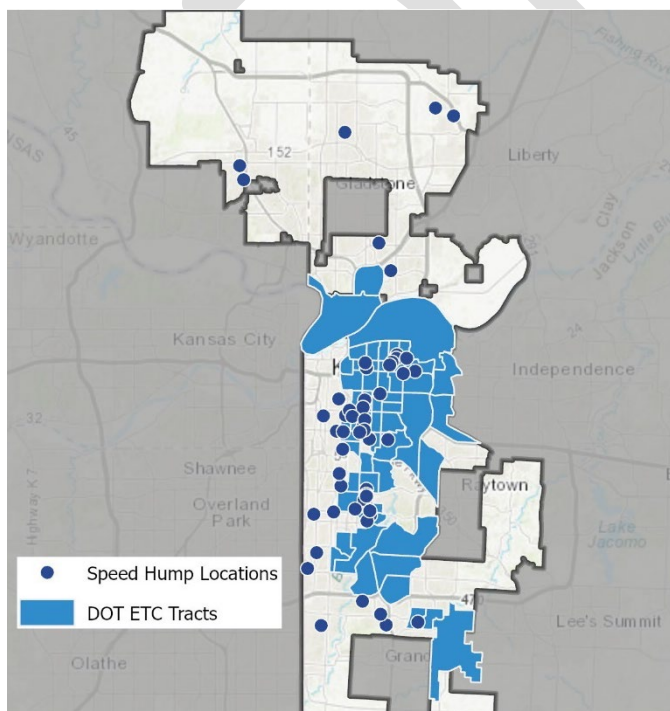
- Top: 2.5 points
- High: 2 Points
- Medium: 1.5 Points
- Moderate: 1 Point

Proximity to KCPS Schools

Ensuring safe vehicle speeds on streets near schools is a common request in both 311 data and community priority made clear during community engagement. Staff chose the speed hump locations, among those remaining, that were closest to KCPS schools to reduce the number of requests down to 50.

Final Selections

After tallying the scores using the above criteria, the highest scoring speed hump locations were chosen for implementation.



Speed Hump Locations, by Council District

Council District 1 - 3 Locations

	Address
1	8004 NE 106th Pl
2	1605 NE 94th St
3	9407 N Lydia Ave

Council District 2 – 4 Locations

	Address
1	5236 N Askew Ave
2	7618 N Avalon St
3	4500 NE Sunnybrook Ln
4	8247 N Stoddard Ave

Council District 3 – 15 Locations

	Address
1	3046 Highland Ave
2	1334 E 33rd St
3	3812 South Benton Ave
4	3416 South Benton Ave
5	2629 Chestnut Ave
6	3630 Chestnut Ave
7	4000 E 24th St
8	3919 Tracy Ave
9	3917 Wabash Ave
10	2810 E 11th St
11	2639 E 7th St
12	4137 College Ave
13	4701 E 40th Ter
14	2623 E 29th St
15	3304 Michigan Ave

Council District 4 – 10 Locations

	Address
1	1107 Newton Ave
2	1239 Topping Ave
3	2600 Campbell St
4	320 Colorado Ave
5	3331 Wyandotte St
6	3917 Charlotte St
7	437 Denver Ave
8	441 White Ave
9	4617 E 8th St
10	4812 E 6th St

Council District 5 – 12 Locations

	Address
1	3606 E 72nd St
2	7308 Ruskin Way
3	5609 College Ave
4	7019 Askew Ave
5	6332 College Ave
6	6631 College Ave
7	6601 Bellefontaine Ave
8	1312 E 61st St
9	2402 E 70th St
10	5544 Forest Ave
11	11409 Colorado
12	3511 E 70th St

Council District 6 – 7 Locations

	Address
1	720 E 71st Ter
2	11003 Elmwood Dr
3	7240 Pennsylvania Ave
4	8711 Hiawatha Rd
5	9407 Madison Ave
6	3317 E 105th Ter
7	4830 Westwood Rd