



# 2019

## BRIDGE CONDITION REPORT

City, County, Railroad  
and Private Bridges



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## INTRODUCTION

Bridges are an essential part of Cincinnati's transportation network, linking roadways and communities. Timely maintenance is critically important for the safety and welfare of the traveling public. The Department of Transportation and Engineering (DOT) is the city agency primarily responsible for inspecting, maintaining, and improving the transportation system within the City of Cincinnati. The Bridge Program (BP) is the specific program within DOT charged with the responsibility of maintaining the bridges within this transportation system. This report is the annual update to City Council informing Council of the condition of the bridges in Cincinnati and DOT's efforts to maintain Cincinnati's bridge infrastructure.

**In conformance with state law, every bridge in Cincinnati is inspected on an annual basis.** The Ohio Revised Code 5501.47 defines a bridge as "Any structure, of 10 feet or more clear span, or 10 feet or more in diameter on, above, or below a highway...". Within the City limits there are about 450 structures which meet these criteria and are therefore classified as bridges. Of these 450 bridges, 235, (which include the 2 pedestrian/trail bridges not over highways at Hutton Street & Wasson Way over Ault Park), are inspected by DOT Bridge Program personnel, as well as 4 additional bridges outside of the City limits that were purchased by the City as part of the Wasson Way acquisition. These inspections are performed in accordance with the guidelines specified in the ODOT Bridge Inspection Manual. The remaining bridges, which are part of the Interstate and State Highway Systems are inspected by ODOT. As the City has no inspection or major maintenance responsibility for these bridges, they are not included in this report.

### The objectives of DOT's Bridge Inspection Program are to:

1. Provide a current information base on the condition of bridges within Cincinnati so that maintenance, repair, and replacement projects can be programmed efficiently.
2. Ensure that the structures continue to satisfy present service and safety requirements.
3. Determine the need for establishing or revisiting weight restrictions on bridges.
4. Determine and locate the extent of any structural weakness or damage so that appropriate corrective actions can be taken to ensure public safety.
5. Satisfy state and federal regulations.

Following the completion of each annual bridge inspection cycle, this report is issued by DOT to inform City Council of the condition of the bridges in Cincinnati which are specifically inspected by DOT personnel. This report also functions as an annual update to inform City Council on how the funds allocated to the Bridge Program are being utilized.



Historic picture of the Western Hills Viaduct

**Based upon maintenance responsibility, the 239 DOTE-inspected bridges are divided into the following eight categories:**

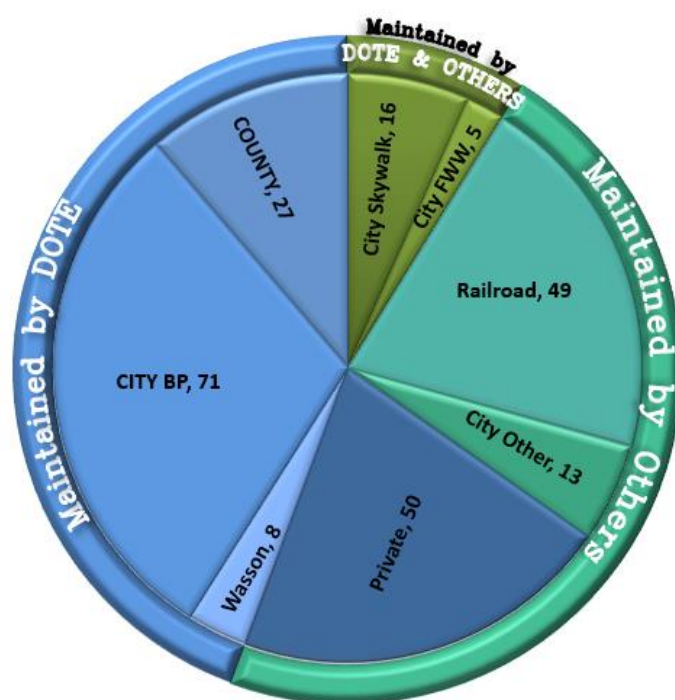
- 1. City (Bridge Program) Bridges • 71 bridges:** Vehicular and pedestrian bridges owned by the City and maintained by DOTE with designated bridge program funds, 18 of which are pedestrian only structures. The current count of 71 bridges is an increase of 4 compared to last year due to the addition of the Kebler Street, Grand Avenue, Quebec Road, and Van Hart Street Bridges over Lick Run. (See page 9 for details).
- 2. County Bridges • 27 bridges:** Vehicular bridges within City limits that support improved roads which are of general and public utility running into or through Cincinnati. The current count of 27 is an increase of 1 compared to last year due to the addition of the Harrison Avenue Bridge over Lick Run. By contractual agreement with Hamilton County, DOTE maintains these bridges. Hamilton County funds the work performed on these bridges with the Municipal Road Fund.
- 3. Wasson Way Bridges • 8 bridges:** Acquired by the City from Norfolk Southern in September 2016 to carry a future trail and possible light rail facilities. The trail including the bridges are being developed and maintained with designated DOTE Wasson Way funds.
- 4. Fort Washington Way Bridges • 5 bridges:** Bridges over Ft. Washington Way constructed with the Ft. Washington Way reconstruction project. DOTE shares maintenance responsibility for these bridges with ODOT.
- 5. City (Skywalk) Bridges • 16 bridges:** Central Business District pedestrian bridges on the skywalk system owned by the City. The Department of Public Services and property owners adjacent to the bridges maintain these structures. Generally, DOTE is responsible for the major rehabilitation of these bridges.
- 6. City (Other) Bridges • 13 bridges:** Unique City owned structures located on, over, or under a roadway that technically qualify as bridges. Various City agencies including Parking Facilities, Stormwater

Management Utility and the Park Board maintain these bridges.

- 7. Railroad Bridges • 49 bridges:** Railroad bridges that cross over public roadways. CSXT, GWRR, Norfolk-Southern, and SORTA own and maintain these bridges.
- 8. Private Bridges • 50 bridges:** Privately owned, mostly pedestrian and utility bridges that cross over public roadways. The applicable private owners maintain these bridges.

Throughout the remainder of this report, most of the discussion will be focused on the 71 City (BP) bridges, the 27 County bridges and the 8 Wasson Way bridges as DOTE is responsible for maintaining these 105 bridges.

The individual 2019 bridge inspection reports for all 239 bridges under the City's inspection responsibility are included in Appendix B of this annual report. The bridge inspection reports are grouped in the order listed above (#1 through #8). Within each group, the individual bridge inspection reports are arranged alphabetically by bridge name.





## BRIDGE PROGRAM FUNCTION AND PERFORMANCE MEASURES

The goal of the Bridge Program is to preserve the structural integrity of all bridges that DOTE maintains so that they remain safe for the traveling public. DOTE established the following performance measures to track its progress in accomplishing this objective.

### 1. Performance Measure:

Bridge Program personnel will annually inspect, or will cause to be inspected by a consultant, all bridges on, over, or under public roadways within the City of Cincinnati (excluding bridges inspected by ODOT and ODOT assigned consultants) and submit this annual bridge condition report, in compliance with the Ohio Revised Code, Section 723.54.

*Progress: During the 2019 bridge inspection cycle, all such 239 bridges were inspected. The results of those inspections are compiled in this report.*

### 2. Performance Measure:

Bridge Program personnel will develop plans, request funding, schedule, and manage bridge maintenance,

repair, and replacement work, so as to maintain a Weighted Average Bridge Rating of 6 or better for bridges maintained by the DOTE Bridge Program (BP). A rating of 6 represents a “Satisfactory” condition, which indicates that all primary structural elements are sound but may show some minor deterioration.

*Progress: As identified in this report, the present Weighted Average Bridge Rating for City (BP) bridges is 6.91.*

### 3. Performance Measure:

Bridge Program personnel will develop plans, request funding, schedule, and manage bridge maintenance, repair, and replacement work so that no less than 95% of City (BP) bridges are open with no load restrictions.

*Progress: As identified in this report, 97% of all City (BP) bridges are open with no load restrictions, the only two City BP bridges with posted restrictions are Stillwell Rd over Amberly Creek and the Brighton Approach Bridge over Central Parkway. Restrictions for Emergency Vehicles are not included as outlined in the following pages.*



Routine Inspection of the bridges over Fort Washington Way

## BRIDGE LOAD RATINGS, POSTING AND OVERLOADS

### BACKGROUND

In accordance with the National Bridge Inspection Standards (NBIS), all bridges on public roads must be load rated for all legal vehicles and, if necessary, posted with a weight restriction. In recent years, the trucking industry has introduced closely-spaced, multi-axle single unit trucks, referred to as special hauling vehicles or SHVs. Examples include dump trucks, construction vehicles, solid waste trucks and other hauling trucks. The SHVs typically have 4 to 7 axles. In addition to SHV's the FHWA recognized that Emergency Vehicles (EV's) such as fire trucks have tended to become larger and heavier. These 2 or 3 axle vehicles violate typical axle weight limits, but have become more and more common in many fire departments, including the City of Cincinnati.

These SHVs and EV's are now considered legal under current federal and state criteria, but it was found that the effect of these vehicles could be cause for overloading in service bridges beyond acceptable standards.

In order to comply with the new FHWA policies, the Ohio Department of Transportation (ODOT) has established a systematic progression by which bridges are to be re-rated. Bridges that are either currently posted or have a rating factor less than 1.0 have been given priority. A rating factor of 1.0 indicates that the bridge is able to safely support all legal loads but with little to no reserve for additional capacity. Bridges with rating factors between 1.0 and 1.30 were a second priority and had to be rated by the end of 2019. The next deadline for load ratings applies to bridges with rating factors less than 1.38. These bridges must be load rated for SHV before the end of 2020. There are no such bridges in the City inventory. For bridges with rating factors greater than 1.38, ODOT conducted a study of a set of bridges within this group and determined that these bridges will not require re-rating nor posting for SHVs.

If the results of the load rating indicate the need for bridge postings, two types of signs are now required: one for Emergency vehicles only and one for all other vehicles. A

bridge that is posted for non-emergency vehicles does not need additional posting for Emergency vehicles. The latest version of load posting signs in Ohio are shown below.

Generally, load postings are a result of either new loads (SHV's or EV's) on bridges that were designed for different load configurations, a result of reduced load carrying capacity due to deterioration of the bridge, or a combination of both.



Current Load posting signs for bridges in Ohio.

Left: Posting for commercial vehicles

Below: Posting for Emergency vehicles





## Cincinnati Posting and Overload

There are a total of 92 bridges in Cincinnati for which DOTE is responsible for the updated load rating to account for the SHV and EV vehicles. Through continued efforts by DOTE, all Federal and State requirements for updated load ratings have been met to date. There are 21 structures where load ratings for SHV's and/or EV's have not yet been completed because of their high previous load rating factors for commercial vehicles. Per law these load ratings only need to be completed when a normal re-rating is warranted, including changes in structural condition and other loadings.

The addition of SHV's and required ratings have resulted in several recent bridge postings not only in Cincinnati, but throughout Ohio, and nationwide. Out of the 92 bridges for which DOTE has load rating responsibility, there are currently 7 bridges with active load restrictions:

Four City (BP) bridges have load restrictions, the Brighton Street Approach Bridge over Central Parkway and the Stillwell Rd Bridge over Amberley Creek both have posted restrictions for commercial vehicles. Additionally, the Spring Lawn Ave Bridge over Ludlow Run and the Park Ave Bridge over Kemper Lane were load posted for EV in 2019 as a result of newly required EV ratings.

The only City (Other) bridge with load restrictions for commercial vehicles is the Martin Drive Coal Room in Eden Park. The signage for this structure was installed in 2019.

There are two County bridges with load restrictions for legal loads: The East Fork Rd Bridge over the Duck Creek

has been posted since 1993 due its condition. The Western Hills Viaduct was load posted in spring 2020 due to a combination of new legal loads and capacity reductions due to the condition of the structure.

Given the systematic progression of load ratings from worst rated bridges to best rated bridges that was established by ODOT, it is not likely that there will be many additional load postings for current legal loads.

In concert with the increased legal loads, the transportation industry is continuing to push the limits of oversize and overweight vehicles. DOTE's bridge section reviews all permit applications for transports that exceed the legal load and dimension limits. The review of such permits is necessary to minimize the risk of overloading or damage by oversize or overweight vehicles.

During the 2019 calendar year, the structures section reviewed more than 600 permits for oversize or overweight transports.



Above: Truck ignoring vertical clearance restrictions at Madison Rd near Kenwood



Left: 2016 Permit oversize transport. 470,000 lb. crossing the Mitchell Ave. Bridge over the Mill Creek

## BRIDGE CONDITIONS

In accordance with the ODOT Bridge Design Manual, all bridges inspected by DOTE are assigned a condition rating using a 0 to 9 scale, as summarized in the table below. The individual bridge ratings for all 71 City (BP) bridges, all 27 County bridges, and all 8 Wasson Way bridges are

shown on [pages 10, 12 and 13](#) respectively. A summary of the bridge ratings for all 239 inspected bridges is shown in tabular form on [page 14](#).

## EXPLANATION OF RATING SYSTEM

Rating	Description
9 • <i>Excellent</i>	
8 • <i>Very Good</i>	No problems noted.
7 • <i>Good</i>	Some minor problems.
6 • <i>Satisfactory</i>	Structural elements show some minor deterioration.
5 • <i>Fair</i>	All primary members are sound, but have minor section loss, etc.
4 • <i>Poor</i>	Advance section loss, etc.
3 • <i>Serious</i>	Loss of section has seriously affected primary members, local failures possible.
2 • <i>Critical</i>	Advance deterioration of primary members. Unless closely monitored, bridge closure possible.
1 • <i>Imminent Failure</i>	Major deterioration, bridge is closed.
0 • <i>Failed</i>	Out of service, beyond corrective action.



## WEIGHTED AVERAGE BRIDGE RATING

In addition to assigning each bridge an individual condition rating, DOTE also uses a Weighted Average Bridge Rating to monitor the performance and communicate the effectiveness of the Bridge Program. The Weighted Average Bridge Rating is an adjusted average of all individual bridge condition ratings that accounts for the importance of the bridge as determined by its size. The weighted average is calculated using a size multiplication factor (SMF) between 1 and 5 as shown below.

The SMF for individual City and County bridges are listed in the tables on [pages 10 and 12](#).

Size Multiplication Factor SMF	Deck Area (ft <sup>2</sup> )	Number of City BP Bridges	Number of County Bridges
1	Under 5,000	39	9
2	5,000–10,000	4	11
3	10,001–20,000	11	2
4	20,001–40,000	13	2
5	Over 40,000	4	3



DOTe has been using the Weighted Average Bridge Rating for over a quarter century and has found it to be an effective tool to stress the importance of larger viaducts while not ignoring the conditions of smaller structures. The Weighted Average Bridge Rating for both City (BP) bridges and County bridges from 1987 to 2019 is shown in graphical form at the bottom of [page 14](#).

The current Weighted Average Bridge Rating for City (BP) bridges is **6.91**. The current Weighted Average Bridge Rating for County bridges within the City limits is **6.50**.

The average bridge rating for the newly acquired Wasson Way bridges is shown on [page 13](#) and is just the straight average as some of these bridges do not have bridge decks and therefore a weighted average by deck size would not be appropriate.



Berkshire Lane Culvert: Deck Area: 1767 SF, SMF = 1

Western Hills Viaduct: Deck Area: 221,920 SF, SMF = 5

## 2019 CITY (BP) INDIVIDUAL BRIDGE RATINGS

Bridge	Structural File No.	Deck Area (sq. ft.)	SMF	Year Built	Last Rehabbed	Inspection Ratings		
						2018	→	2019
Aaron Raines Street over RR (Burns Street Ramp)	3160270	3,321	1	2009	2009	7	→	7
Beekman Street Pedestrian Overhead at Elmore	3160068	1,035	1	1970	1970	7	→	7
Bramble Avenue Bridge over Little Duck Creek	3160556	2,565	1	1931	1989	7	→	7
Brighton Approach Bridge	3101533	3,520	1	1925	1925	4	→	4
Celestial Street Pedestrian Bridge over Columbia Parkway	3103455	1,320	1	1938	1958	6	→	6
Central Incinerator Approach Bridge over Mill Creek	3160610	9,019	2	1953	1953	5	→	5
Central Parkway over Rapid Transit Tubes S. of Hoppel Street	3199924	18,711	3	1924	1924	6	→	5
Central Parkway over Rapid Transit Tubes - Walnut to Draper	3199937	422,280	5	1922	1922	5	→	5
Coliseum Pedestrian Bridge from Taylor Southgate Bridge	3199928	1,000	1	1995	1995	6	→	6
Coliseum Pedestrian Bridge over Taylor Southgate Bridge	3101355	11,300	3	1975	1975	7	→	7
Coliseum/Stadium Plaza Overhead over Broadway (Platform A)	3101940	38,525	4	1975	1975	7	→	6
Dalton Avenue under C.U.T. Approach Drive	3160017	25,248	4	1931	1931	7	→	7
Dana Avenue Pedestrian Bridge North of Madison Road	3161455	3,468	1	1973	1973	7	→	7
Dreman Avenue Bridge over West Fork Channel	3160432	3,693	1	1999	1999	8	→	8
Duck Creek Rd Extension over Deerfield Creek	3161945	3,000	1	2017	2017	8	→	8
Elm Street Cable Stayed Pedestrian Bridge over FWW - East Side	3166179	2,845	1	2000	2000	8	→	8
Elm Street Cable Stayed Pedestrian Bridge over FWW - West Side	3106063	2,845	1	2000	2000	8	→	8
Elm Street over Pete Rose Way and Parking Lots	3161978	36,960	4	2000	2000	7	→	7
Elmhurst Street Pedestrian Bridge over Torrence Parkway	3162494	1,155	1	1950	1950	5	→	5
Erie Avenue Bridge over Duck Creek	3160882	4,136	1	1900	1980	7	→	7
Erie Avenue Bridge over Wasson Way	3160602	1,955	1	2001	2001	6	→	6
Erie Avenue Bridge over Red Bank Road	3160998	12,800	3	1943	1980	7	→	7
Erie Avenue Bridge over SORTA	3160939	12,800	3	1943	1980	7	→	7
Este Avenue Extension Culvert at Ridgewood Arsenal	3161412	2,250	1	1990	1990	7	→	7
Freedom Way Center over Parking Garage between Race and Rosa Parks Street	3165337	34,604	4	2011	2011	8	→	8
Freedom Way East over Parking Garage between Walnut and Main Streets	3165396	34,869	4	2011	2011	8	→	8
Freedom Way West over Parking Garage between Elm and Race	3165280	24,450	4	2011	2011	8	→	8
Gest Street Bridge over CIND Railroad	3161277	2,195	1	1919	1999	7	→	7
Gest Street Bridge over Mill Creek	3161749	4,373	1	1997	1997	8	→	8
Gest Street Ramp E. of Linn Street	3161358	3,049	1	1963	1992	6	→	6
Gest Street Ramp W. of Linn Street	3161366	3,049	1	1963	1992	6	→	6
Gilbert Ave. Pedestrian Overhead S of Court Street	3100774	807	1	1970	1970	7	→	7
Grand Ave over Lick Run	3160003	3,273	1	2019	2019			8
Hutton Avenue Pedestrian Bridge over SORTA	3199920	1,150	1	1930	1930	5	→	5
Ida Street Viaduct over Wareham	3160076	14,356	3	1931	2015	8	→	8
Joe Nuxhall (Main Street) Bridge over Parking Garage	3161900	27,730	4	2004	2004	8	→	8
Kebler Street over Lick Run	3160004	1,761	1	2019	2019			8
Kennedy Connector Bridge over Duck Creek	3162958	11,031	3	2013	2013	8	→	8
Kennedy Connector Bridge over SORTA/IORY	3163008	23,432	4	2013	2013	8	→	8
Kenton Street Bridge over Florence	3160130	13,275	3	1998	1998	7	→	7
Lincoln Avenue Bridge over Open Land	3161838	16,500	3	1953	1953	7	→	7
Madison Road Pedestrian Bridge East of CSX	3161935	773	1	1959	1982	5	→	5
Madison Road Pedestrian Bridge West of CSX	3161889	774	1	1959	1982	5	→	5
Main Street Cable Stayed Pedestrian Bridge over FWW - East Side	3106462	2,845	1	2000	2000	7	→	7
Main Street Cable Stayed Pedestrian Bridge over FWW - West Side	3106403	2,845	1	2000	2000	8	→	8
Marian Spencer Lane over Parking Garage (Walnut)	3162877	22,185	4	2004	2004	8	→	7
Mehring Way Pedestrian Overhead Bridge to Coliseum	3101371	13,262	3	1975	1975	6	→	6
Mitchell Avenue Bridge over Mill Creek	3160440	14,347	3	1959	1959	6	→	6
Monastery Street Bridge over Open Land	3161404	11,324	3	1984	1984	5	→	5
Park Avenue Bridge over Kemper	3160777	30,680	4	1917	1939	6	→	6
Powers Street Bridge over West Fork Channel	3160904	4,799	1	2001	2001	8	→	8
Quebec Rd over Lick Run	3160006	2,397	1	2019	2019			8
Race Street Bridge over Pete Rose Way and Parking Lots	3162036	52,629	5	2000	2000	8	→	8
Railroad (Abandoned) over I-71 North of Elsinore	3106748	5,440	2	1970	1970	6	→	6
Roe Street Bridge over Little Duck Creek	3161005	1,692	1	1930	2002	7	→	7
Vine Street Bridge over Parking Garage (Rosa Parks)	3161781	22,214	4	2003	2003	8	→	8
Rosslyn Drive Bridge over Duck Creek	3162338	2,820	1	1943	1943	7	→	7
Second Street Connector from Clay Wade Bailey (Ramp D)	3160661	25,617	4	2001	2001	8	→	8
Second Street over Transit Center - East End	3160866	61,812	5	2001	2001	5	→	5
Second Street over Transit Center - Elm to Main Streets	3160696	178,641	5	2001	2001	8	→	8
Second Street over Transit Center - West Approach	3160688	27,302	4	2001	2001	8	→	8
Settle Street Bridge over Little Duck Creek	3161188	1,888	1	1996	1996	7	→	7
Sixth Street Expressway Pedestrian Bridge West of Harriet	3102831	1,251	1	1965	1965	7	→	6
Sonoma Court Culvert	3162753	1,474	1	2004	2004	8	→	8
Southside Avenue over Conrail/CSX	3161528	5,263	2	1992	1992	8	→	8
Spring Lawn Avenue Bridge over Branch of Ludlow Run	3161285	434	1	1925	1925	5	→	5
Stillwell Road Bridge over Amberly Creek (N. of Summit)	3161331	840	1	1954	1954	5	→	5
Van Hart Street over Lick Run	3160005	1,710	1	2019	2019			8
Victory Parkway Pedestrian Overhead South of I-71	3161374	2,090	1	1972	1972	6	→	6
West Eighth Street Bridge over Fairbanks Avenue	3162702	8,568	2	1955	1955	7	→	7
West Eighth Street Bridge over Woodlawn Avenue	3162656	4,704	1	1955	1955	6	→	6
		Total Deck Area (sq. ft.)						Average Weighted Rating
		1,358,275				6.97	→	6.91



## CHANGES IN AVERAGE BRIDGE CONDITIONS OVER THE PAST YEAR – CITY BRIDGE PROGRAM

The change in Weighted Average Bridge Rating for City (BP) Bridges that occurred over the past year (from 6.97 in 2018 to 6.91 in 2019) was the cumulative result of the following 8 changes:

1. The condition rating of the **Central Parkway over Rapid Transit Tubes S. of Hopple Street, SFN 3199924** was reduced from 6 (satisfactory condition) to 5 (fair condition), due to the condition of the tunnel floor and pier columns.
2. The condition rating of the **Coliseum/Stadium Plaza Overhead over Broadway (Platform A), SFN 3101940** was reduced from 7 (good condition) to 6 (satisfactory condition), due to the condition of the substructure.
3. The **Grand Avenue Bridge over Lick Run, SFN 3160003** was added to the inventory with a condition rating of 8 (very good condition). The construction of the Bridge was not completed as of the writing of this report, even though it is already open to limited traffic.
4. The **Kebler Street Bridge over Lick Run, SFN 3160004** was added to the inventory with a condition rating of 8 (very good condition). The construction of the Bridge was not completed as of the writing of this report, even though it is already open to limited traffic.
5. The condition rating of the **Marian Spencer Bridge over Parking Garage (Walnut Street), SFN 31602877** was reduced from 8 (very good condition) to a rating of 7 (good condition) due to the condition of the superstructure.
6. The **Quebec Rd Bridge over Lick Run, SFN 3160006** was added to the inventory with a condition rating of 8 (very good condition). The construction of the Bridge was not completed as of the writing of this report, even though it is already open to limited traffic.
7. The condition of the **Sixth Street Expressway Pedestrian overpass West of Harriet, SFN 3102831** was reduced from 7 (good condition) to 6 (satisfactory condition), due to the condition of the superstructure.
8. The **Van Hart Street Bridge over Lick Run, SFN 3160005** was added to the inventory with a condition rating of 8 (very good condition). The construction of the Bridge was not completed as of the writing of this report, even though it is already open to limited traffic.



Van Hart Street Bridge over Lick Run

## 2019 COUNTY INDIVIDUAL BRIDGE RATINGS

Bridge	Structural File Number	Deck Area (sq. ft.)	SMF	Year Built / Reconst.	Last Rehabbed	Inspection Ratings		
						2018	→	2019
Anthony Wayne Avenue Bridge over Mill Creek	3136388	6,452	2	1992		8	→	8
Beekman Street Bridge over West Fork Channel	3136426	3,256	1	1912	1995	7	→	7
Berkshire Lane Culvert 400' North of Beechmont	3136450	1,767	1	1986		7	→	7
Center Hill Avenue Bridge over Mill Creek	3136469	6,702	2	2014		8	→	8
Clifton Avenue Bridge over Mill Creek	3136353	8,729	2	1935	2010	8	→	8
East Fork Avenue Bridge over Little Duck Creek	3136574	1,512	1	1952		5	→	5
Eighth Street Over Railroads, W. of Eighth Street Viaduct	3136639	7,110	2	2008		7	→	7
Eighth Street Viaduct over Evans Street, Mill Creek, Etc.	3136582	190,610	5	1929	2008	6	→	6
Galbraith Road Bridge over Anthony Wayne and Conrail	3136612	20,808	4	1949		5	→	5
Harrison Ave over Lick Run	3136338	9,833	2	2019				8
Hopple Street Viaduct over Mill Creek, Railroad & Spring Grove Avenue	3136337	115,560	5	1916	1986	6	→	6
Kennedy Avenue Bridge over IORY	3136671	9,723	2	1933		4	→	4
Madison Road Bridge over Duck Creek E. of Ridge Road	3136728	2,352	1	1929	1992	7	→	7
Marburg Avenue Bridge over former RR	3130003	5,104	2	2017		9	→	9
North Bend Road Bridge over Kirby Road	3136795	6,776	2	1951		5	→	5
North Bend Road Bridge over Mill Creek	3137139	8,404	2	1995		8	→	8
Plainville Road Arch over Little Duck Creek	3136817	1,188	1	1915		6	→	6
Red Bank Expressway Culvert at Deerfield Channel N. of Duck Creek Rd	3136841	3,570	1	1969		6	→	6
Red Bank Expressway Culvert At Deerfield Channel S. of Madison Rd.	3136868	28,000	4	1970		7	→	7
Seymour Avenue Bridge over Mill Creek	3136922	8,326	2	1994		8	→	8
Spring Grove Avenue Bridge over Mill Creek E. of Kings Run	3137074	13,448	3	1993		7	→	7
Spring Grove Avenue Bridge over Mill Creek South of Colerain	3137031	17,365	3	1970		7	→	7
West Fork Road Bridge over Tributary of West Fork Channel	3137155	2,755	1	2000		8	→	8
West Fork Road Bridge over West Fork Channel - 2nd W. of Montana	3137147	3,143	1	2000		8	→	8
West Fork Road Bridge over West Fork Channel at Montana	3137090	3,476	1	1928	1991	6	→	6
Western Hills Viaduct	3137082	221,920	5	1931	1978	4	→	4
Wooster Road Bridge over Duck Creek	3137112	5,816	2	1961		7	→	7
		<i>Total Deck Area (sq. ft.)</i>						<i>Average Weighted Rating</i>
		713,705				6.45	→	6.50

## CHANGES IN AVERAGE BRIDGE CONDITIONS OVER THE PAST YEAR – COUNTY

The weighted average rating of County bridges increased from 6.45 in 2018 to 6.50 in 2019 due to the addition of the **Harrison Ave Bridge over Lick Run, SFN 3136338** to the inventory with an inventory rating of 8 (very good condition). The construction of the Bridge is not completed as of the writing of this report, but opened to limited traffic.



Construction of the Harrison Ave Bridge over Lick Run

## WASSON WAY

### 2019 WASSON WAY INDIVIDUAL BRIDGE RATINGS

Bridge	Structural File Number	Bridge Length (ft.)	Year Built / Reconst.	Last Rehabbed	Inspection Ratings		
					2018	→	2019
Wasson Way Culvert over Little Duck Creek <sup>1,2</sup>	3199930	40	1940		6	→	5
Wasson Way over Ault Park <sup>2</sup>	3199931	225	1924		3	→	3
Wasson Way over Columbia Parkway <sup>1</sup>	3103846	129	1962	2013	8	→	8
Wasson Way over Grovedale Place	3161073	54	1929	2018	8	→	8
Wasson Way over I-71	3114759	267	1972	*	7	→	7
Wasson Way over Ramp from SB I-71	3114740	106	1973	*	7	→	7
Wasson Way over Red Bank Rd <sup>1</sup>	3140032	430	1914	1924	4	→	4
Wasson Way over Wooster Rd <sup>1</sup>	3140024	79	1895	1924	2	→	2
					Average Rating		
					5.63	→	5.50

<sup>1</sup> Outside of Cincinnati City Limits

<sup>2</sup> Not over a highway

\* 2019 Inspection and Rating based on condition before completion of the 2019 rehab

In 2016, the City purchased a 4.1 mile long former railroad corridor from Norfolk Southern to create a mixed use trail. As part of this acquisition, eight structures formerly owned by the railroad became City property, with four of these bridges located outside of the City limits in Fairfax.

The Change in average rating for the Wasson Way Bridges that occurred over the past year from 5.63 to 5.50 is due to the reduction of the condition rating for the **Wasson Way Culvert over Little Duck Creek, SFN 3199930** from a condition of 6 (Satisfactory condition ) to 5 (Fair condition) due to the condition of the east most culvert.

Two of the Wasson Way Bridges, over I-71 and the Ramp from SB I-71 were transformed to bike trail bridges in 2019. The 2019 inspections of these bridges were completed prior to the construction, and the condition of the bridges after rehabilitation will be reflected in the 2020 bridge inspection report.



Wasson Way over I-71 during rehabilitation



### 2019 INDIVIDUAL BRIDGE RATINGS SUMMARY

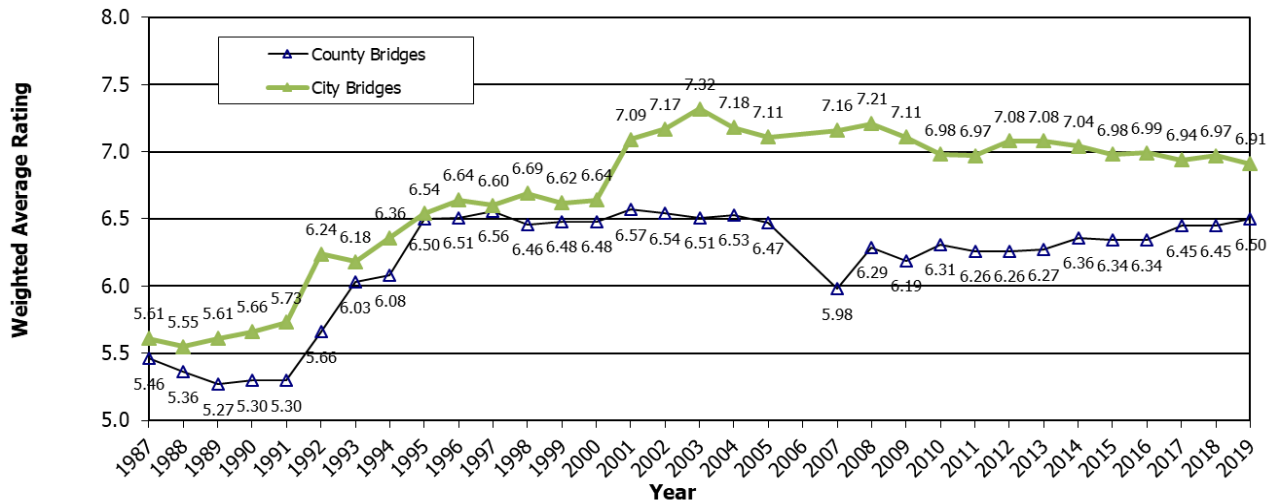
Number of Bridges: 2018 → 2019

	City (BP)	County	Wasson	FWW	City Skywalk	City Other	Railroad	Private	TOTAL
9 • Excellent	0 → 0	1 → 1	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 1	1 → 2
8 • Very Good	22 → 25	7 → 8	2 → 2	5 → 5	4 → 3	0 → 0	1 → 1	9 → 11	50 → 55
7 • Good	22 → 21	8 → 8	2 → 2	0 → 0	8 → 9	6 → 5	7 → 8	15 → 12	68 → 65
6 • Satisfactory	12 → 13	5 → 5	1 → 0	0 → 0	2 → 2	7 → 6	16 → 15	13 → 11	56 → 52
5 • Fair	10 → 11	3 → 3	0 → 1	0 → 0	2 → 2	0 → 2	3 → 3	8 → 8	26 → 30
4 • Poor	1 → 1	2 → 2	1 → 1	0 → 0	0 → 0	0 → 0	9 → 8	4 → 5	17 → 17
3 • Serious	0 → 0	0 → 0	1 → 1	0 → 0	0 → 0	0 → 0	12 → 13	2 → 2	15 → 16
2 • Critical	0 → 0	0 → 0	1 → 1	0 → 0	0 → 0	0 → 0	1 → 1	0 → 0	2 → 2
1 • Imminent Failure	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0
0 • Failed	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0	0 → 0
<b>Total</b>	<b>67 → 71</b>	<b>26 → 27</b>	<b>8 → 8</b>	<b>5 → 5</b>	<b>16 → 16</b>	<b>13 → 13</b>	<b>49 → 49</b>	<b>51 → 50</b>	<b>235 → 239</b>

Explanation of changes in bridge inventory numbers:

- CITY (BP):* Addition of the newly constructed Lick Run Bridges at Grand, Kebler, Quebec and Van Hart
- County:* Addition of the newly constructed Lick Run Bridge at Harrison Ave
- Private:* Removal of the pedestrian bridges at Straight Street and Stratford Ave, and the addition of the new pedestrian bridge over Piedmont Ave.

### Weighted Average Bridge Ratings



## PROJECT STATUS OF BRIDGES RATED IN POOR OR WORSE CONDITION

### Condition Rating = 2 (Critical)

There are two bridges with a condition rating of 2. One of these is maintained by DOTE as part of the City's Wasson Way inventory, and the other is owned and maintained by SORTA.

The first is the *Wasson Way over Wooster Road* bridge for which the stringers have advanced deterioration affecting the loadpath. While the bridge is unsafe to carry live loads, it poses no danger to traffic below, provided it is not loaded, and the bridge is closed and fenced off to all traffic.

The second one is the *Lancaster pedestrian tunnel under SORTA*. The cracked walls and heaved floors are a concern for the overall stability of the tunnel. Since it no longer serves a purpose it should be filled in or removed. The condition of the tunnel was brought to the attention of the owner (SORTA) and rail operator (I&O), and access through the tunnel has been closed off by DOTE in 2019.

### Condition Rating = 3 (Serious)

Sixteen bridges have a condition rating of 3. Thirteen of these bridges are owned and maintained by railroads and two by private owners. The conditions of these bridges have been called to the attention of their respective owners.

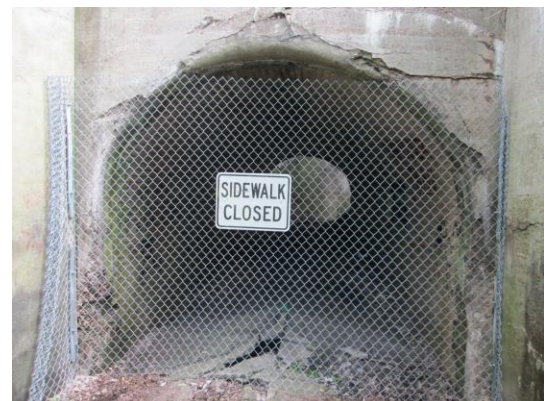
The only City-owned bridge with a condition rating of 3 is the *Wasson Way Bridge over Ault Park* which is part of the City's Wasson Way inventory. It has extensive widespread age-related deterioration, particularly to the substructure units and it will need to undergo substantial repairs to allow for future use. The bridge is currently closed to all traffic.

### Condition Rating = 4 (Poor)

Seventeen bridges are rated a 4. Eight are owned and maintained by railroads and five by private owners. The conditions of these bridges have been called to the attention of their respective owners.

The remaining four bridges in "poor" condition are maintained by DOTE: one Wasson Way Bridge, two County Bridges and one City BP structure, as follows:

- *Wasson Way Bridge over Red Bank Road*: The condition of the substructure units, namely the concrete pier caps and west abutment, govern the rating of this bridge. Extensive repairs will be necessary before the bridge can be put into service. The bridge is currently closed to all traffic.
- *Kennedy Avenue Bridge over IORY (County Bridge)*: Outside federal funding has been secured for the replacement of the Kennedy Avenue Bridge. The project was recently bid and construction began in April 2020.
- *Western Hills Viaduct (County Bridge)*: Planning and design work is continuing for the replacement of the Western Hills Viaduct. A full discussion of the Western Hills Viaduct can be found on [page 21](#) of this report.
- *Brighton Approach Bridge over Central Parkway (City BP Bridge)*: This bridge was transferred from ODOT's bridge inventory to the City in 2018. Prior to the bridge transfer, ODOT had initiated a study to repair, replace or remove this load restricted structure. DOTE is continuing to advance the project to remove, repair, or replace the bridge with input and involvement from the community. A portion of the necessary funds have been secured in the form of a \$2M federal grant.



Blocked off Lancaster Street Pedestrian Tunnel under SORTA

## INVESTMENT IN OUR BRIDGE INFRASTRUCTURE

### CITY (BP) BRIDGES

Maintenance, repair, and replacement of City (BP) bridges is funded with both City operating and capital funds. These funds are leveraged, when possible, with state and federal funds.

DOTe's goals are to maintain a weighted average bridge rating of 6, "Satisfactory" condition, or better and to have at least 95% of City (BP) bridges open without load restrictions. The Smale Infrastructure Commission Report recommended an annual investment of \$2,000,000 to maintain this portion of the city's bridge infrastructure. This recommendation was in 1988 dollars to maintain a deck area of approximately 1,000,000 square feet. Since 1988, the bridge program has been maintaining a steadily increasing bridge deck area which at this time is over 1,358,000 square feet and has an estimated replacement value of \$750,000,000. The current 2020 Operating and Capital funding levels for City (BP) bridges are \$69,430 and \$541,000 respectively. The funding for 2021 is \$0, and \$569,000, respectively.

The current level of City funding alone is insufficient to achieve the program goals and a reliance on outside

funding has been and will continue to be necessary. DOTe aggressively pursues outside funding sources to maintain Cincinnati's public infrastructure. Successful leveraging of outside funds is imperative to maintaining and improving the condition of Cincinnati's bridges. However, even with successful leveraging of outside funds, it is becoming increasingly difficult to keep up the steadily increasing capital maintenance needs, and at some point the replacement value may be too great to overcome.

The following table indicates the level of outside funding that the City has obtained over the past 27 years for the City Bridge Program. Due to a 2007 change in State law (H.B. 67 07-03-2007 affecting ORC 5501.49 and ORC 5591.02) that removed bridges over state routes from the local inventory, many of the below listed bridges are no longer in the City's bridge inventory.

The data show that leveraged funding for remaining City owned bridges (bridges not on State Routes) is less likely to be awarded and typically requires more local matching funds.

**1993-PRESENT LEVERAGED FUNDING SUMMARY  
CITY (BP) BRIDGE PROGRAM**

Year	Bridge Name	Contract Bid Cost	% Fed	% State	% SCIP	% Local	Leveraged	Local
1993	Sixth Street Expressway (2 bridges) ★	\$1,555,990	75%	25%			\$1,555,990	\$0
1996	Gest Street over the Mill Creek	\$839,550			80%	20%	\$671,640	\$167,910
1997	Kenton Street over Florence	\$1,589,170			80%	20%	\$1,271,336	\$317,834
1998	Dreman Ave. Bridge over West Fork Channel	\$1,887,370			70%	30%	\$1,321,159	\$566,211
1998	Gest Street over CIND Railroad	\$552,000			55%	45%	\$303,600	\$248,400
2000	Erie Avenue Bridge over N & W Railroad	\$731,620			68%	32%	\$498,968	\$232,652
2003	Martin Drive Ramp over Columbia Parkway (Bridge Work Only) ★	\$162,333		100%		0%	\$162,333	\$0
2003	Celestial Street Pedestrian Bridge (Bridge Work Only)	\$172,727		57%		43%	\$98,477	\$74,250
2003	Roadway and Aesthetic Improvements with Columbia Parkway Bridge Project ★	\$2,201,695		81%		19%	\$1,781,337	\$420,358
2006	Freeman Avenue over 6 <sup>th</sup> Street Expressway with 6 <sup>th</sup> Street Expressway ★	\$103,702		100%		0%	\$103,702	\$0
2007	Waldvogel Real Estate Purchase of Hilltop Property ★	\$5,000,000	84%			16%	\$4,196,786	\$803,214
2008	Burns Street Ramp – Replacement	\$1,205,224			17%	83%	\$204,888	\$1,000,336
2010	Waldvogel Railroad Relocation (Const. Contract) ★	\$6,012,400	84%			16%	\$5,035,000	\$977,400
2010	Waldvogel Real Estate Reimbursement 1 ★	\$2,974,387	80%			20%	\$2,379,510	\$594,877
2011	Waldvogel Real Estate Reimbursement 2 ★	\$1,419,698	80%			20%	\$1,135,758	\$283,940
2011	Waldvogel Reconstruction (Const. Contract) ★	\$37,632,522	78%	1%	14%	7%	\$35,111,294	\$2,521,228
2013	Waldvogel Real Estate Reimbursement 3 ★	\$634,261	80%			20%	\$507,409	\$126,852
2019	Brighton Approach Bridge Rehab/Repalcement	TBD	95%			5%	\$2,000,000	\$105,263
<b>Total Costs</b>		<b>\$64,674,649</b>					<b>\$58,339,187</b>	<b>\$8,440,725</b>

★ Bridges moved from the City Inventory to ODOT Inventory \$57,696,988 ★ \$51,969,119 \$5,727,869 ★  
 Bridges remaining in the City Inventory \$6,977,661 \$6,370,068 \$2,712,856



## COUNTY BRIDGES

By contractual agreement with Hamilton County, the City of Cincinnati receives \$1,000,000 annually from the Hamilton County Municipal Road Fund to inspect and maintain bridges that support improved roads which are of general and public utility running into or through Cincinnati. This funding level has remained constant since the initiation of the agreement in the late 1970's. As with City (BP) Bridges, this funding alone is insufficient to achieve the program goals and a reliance on outside funding has been and will continue to be necessary.

DOTe aggressively pursues outside funding sources to maintain public infrastructure. Successful leveraging of outside funds is imperative to maintaining and improving the condition of Cincinnati's bridges.

The following table indicates the level of outside funding that DOTe has obtained over the past years for the County Bridge Program. Because of the generally higher traffic volumes on these bridges, especially when over state routes, the funds received from Hamilton County are more likely to be successfully leveraged with outside funding sources. Due to a 2007 change in State Law (H.B. 67 07-03-2007 affecting ORC 5501.49 and ORC 5591.02) many of the below bridges were moved from the County's bridge inventory to the State inventory.

As the data in the below table indicate, leveraging funds for the remaining bridges, which are not on State routes, is less likely and generally requires more local matching funds.

### 1993-PRESENT LEVERAGED FUNDING SUMMARY COUNTY BRIDGE PROGRAM

Year	Project	Contract Bid Cost	% Fed	% State	% SCIP	% Local	Leveraged	Local
1993	Columbia Parkway (2 bridges) ★	\$1,497,545	70%	30%			\$1,497,545	\$0
1993	River Road over Muddy Creek ★	\$759,740	75%	25%			\$759,740	\$0
1993	Sixth Street Expressway (10 bridges) ★	\$4,130,761	75%	25%			\$4,130,761	\$0
1993	Spring Grove over Mill Creek	\$2,065,260			80%	20%	\$1,652,208	\$413,052
1994	Seymour Avenue over Mill Creek	\$1,945,780	80%		20%		\$1,945,780	\$0
1994	Beechmont Avenue Viaduct ★	\$5,067,402	75%	25%			\$5,067,402	\$0
1995	Beekman Avenue over West Fork	\$967,222			80%	20%	\$773,778	\$193,444
1995	North Bend Road over Mill Creek	\$1,302,647	80%		20%		\$1,302,647	\$0
1993	Ludlow Avenue Viaduct ★	\$9,229,975	75%	25%			\$9,229,975	\$0
1997	Columbia Parkway Viaduct ★	\$10,900,000		100%			\$10,900,000	\$0
1999	Fort Washington Way Viaduct (3rd St. Viaduct) ★	\$27,208,420		100%			\$27,208,420	\$0
1999	West Fork Bridges over West Fork Channel	\$1,555,310			70%	30%	\$1,088,717	\$466,593
1999	River Road/Hillside Culvert at Bender ★	\$2,198,465		100%			\$2,198,465	\$0
2001	Kellogg and Salem Avenue Bridges ★	\$397,097		100%			\$397,097	\$0
2002	Western Hills Viaduct - West Plaza Repairs	\$161,296			90%	10%	\$145,166	\$16,130
2003	Columbia Parkway Bridge West of Martin Drive Ramp (Bridge Work Only) ★	\$3,599,019		100%			\$3,599,019	\$0
2004	Clay Wade Bailey Approach ★	\$1,400,000		100%			\$1,400,000	\$0
2005	Norwood Lateral over Paddock and Reading Road Bridges ★	\$396,755		100%			\$396,755	\$0
2006	6th Street Expressway Project (10 Bridges) ★	\$631,560		100%			\$631,560	\$0
2007	Columbia Parkway over Beechmont, Linwood, Heekin & Ramp to Eastern ★	\$73,830		100%			\$73,830	\$0
2008	8 <sup>th</sup> Street Viaduct and 8 <sup>th</sup> Street Bridge West of 8 <sup>th</sup> Street Viaduct	\$20,593,768	63%		17%	20%	\$16,475,014	\$4,118,754
2009	Clifton Avenue Bridge Superstructure Replacement	\$1,535,000			70%	30%	\$1,074,500	\$460,500
2010	Western Hills Viaduct - Upper Deck Rehabilitation	\$1,836,273			50%	50%	\$918,136	\$918,136
2012	Center Hill Avenue Bridge - Replacement	\$3,415,883			33%	67%	\$1,137,500	\$2,278,383
2014	Western Hills Viaduct - ROW acquisition	\$6,750,000			80%	20%	\$5,400,000	\$1,350,000
2017	Marburg Avenue Bridge Replacement	\$2,098,818	51%		49%		\$2,098,818	\$0
2017	Western Hills Viaduct - Detailed Design (TRAC)	\$6,250,000		80%		20%	\$5,000,000	\$1,250,000
2017	Western Hills Viaduct - ROW acquisition (TRAC)	\$6,250,000		80%		20%	\$5,000,000	\$1,250,000
2018	Kennedy Ave Bridge Replacement	\$2,886,000	100%				\$2,886,000	\$0
2019	Galbraith Rd Bridge Deck Replacement	\$5,730,438			48%	52%	\$2,640,000	\$2,860,000
<b>Total Costs</b>		<b>\$132,834,263</b>					<b>\$117,028,833</b>	<b>\$15,574,992</b>

★	Bridges moved from the City Inventory to ODOT Inventory	\$67,490,569	★	\$67,093,472	\$0
	Bridges remaining in the City Inventory	\$65,343,694		\$49,935,361	\$15,574,992

## 2019/2020 BRIDGE PROJECT SUMMARY

The following summarizes major activities on City (BP), County, and Wasson Way bridges that occurred in 2019 or will occur in 2020. Except as noted, DOTE staff performed plan development and construction management for these bridge projects.

### 2019/2020 CITY (BP) BRIDGE PROJECTS

**Lick Run Project** (4 City (BP) Bridges in South Fairmount)  
This MSD project created an open channel in South Fairmount. As part of the work, 4 existing streets (Quebec, Van Hart, Kebler and Grand Ave) became bridges over the future Lick Run between Westwood Ave and Queen City Ave. Construction for this MSD funded project began in late 2017. These bridges were opened to traffic and added to the inventory, but construction is still ongoing and the bridges are still under the responsibility of the contractor (Kokosing).

**2019 Sidewalk Paver and curb replacement** (FWW bridges)

In 2019, City crews replaced deteriorated sidewalk pavers and curbs of the Walnut and Vine Street Bridges over Fort Washington Way. The increasing deterioration of the 20 year old pavers was creating an ongoing tripping hazard and making the bridge decks vulnerable to deterioration which led to the decision to replace the existing concrete pavers with colored concrete as a low maintenance long term solution. The cost for paver replacement in 2019 was \$99,000 and paid out of operating and capital funds.

The project will continue with the paver replacement on the Race Street Bridge over Fort Washington Way in 2020.

**Hutton Street Ped. Bridge – Deck Membrane Application** (City (BP) Bridge in Linwood)

This project consisted of the application of a liquid applied membrane to the deck for external protection and extended service life. The membrane on this structure was applied by City crews, and the same type of membrane is planned for other City pedestrians bridge in 2020 (Celestial Street, Gilbert Ave).

**2020 Central Incinerator Approach (Mill Creek Rd) Bridge - Fracture Critical Bridge Inspection** (City (BP) Bridge in South Cumminsville)

This project consisted of performing the federally required 24-month-interval “arm’s reach” inspection of the Central Incinerator Approach (Millcreek Rd) Bridge over the Mill Creek. The inspection will be performed by a City directed consultant in May 2020 and is being funded with capital funds.

**Madison Rd Ped. Bridges – Superstructure Replacement & Repairs** (City (BP) Bridges in Oakley)

This project will consist of the superstructure replacement of one of two existing 60 year old pedestrian bridges over Madison Rd. to accommodate an Oakley community “gateway” project, and rehab work on the second structure. The project is funded primarily by a combination of TIF and other economic development funds with an estimated cost of \$1.9M.



2019 Sidewalk Paver Replacement with colored concrete, Walnut Street Bridge over Fort Washington Way.

## 2019/2020 COUNTY BRIDGE PROJECTS

### Lick Run Project (1 County Bridge in South Fairmount)

This MSD project created an open channel in South Fairmount. Harrison Ave was bridged over the Lick Run between Queen City Ave and Westwood Ave.

Construction of the Harrison Ave Bridge started in the fall of 2017. In 2019, the structure became part of the County Bridge Inventory. Construction on the Lick Run Project is still ongoing, but the bridge is partially opened to traffic.

### 2019 Western Hills Viaduct - Fracture Critical Inspection and Load Rating (County Bridge in CUF and South Fairmount)

This project consisted of performing a “hands on” inspection of every visible fracture critical member and selected fatigue-prone members within arm’s length distance on the Western Hills Viaduct. Federal regulations require this inspection to be performed every 24 months. In addition, the Viaduct’s load rating was updated to include the new federally mandated legal loads and to account for the worsening condition of the viaduct based on the inspection results. As a result the viaduct was posted for reduced legal loads in April 2020. This work was completed by a directed consultant in December 2019. The project was funded with County MRF bridge funds

### Western Hills Viaduct – Routine Maintenance (County Bridge in CUF and South Fairmount)

This project consisted of performing routine maintenance to keep the Western Hills Viaduct safe for the traveling public. It included the repair of impact attenuators and removal of loose concrete over traveled areas and select locations in the railroad yard, as well as cleaning of the drainage system. The maintenance was performed by the City’s Public Services Department.

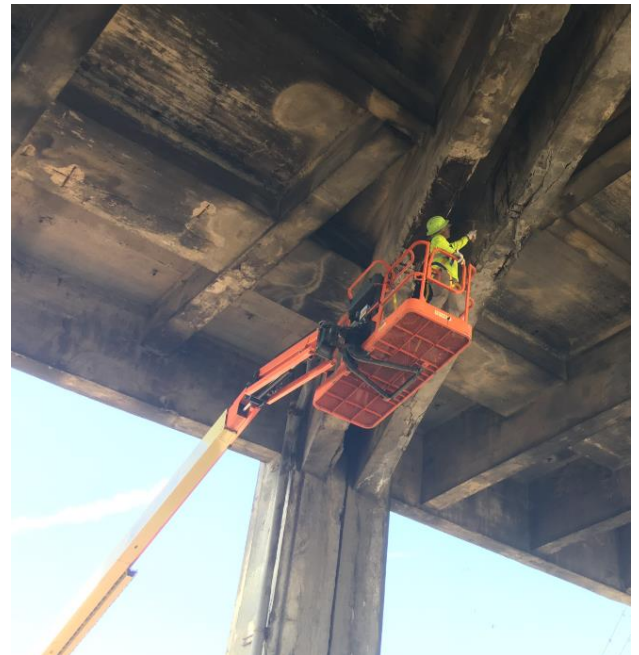
### Kennedy Ave Bridge over SORTA – Bridge Replacement

(County Bridge in Kennedy Heights)

This project will replace the existing 87 year old structure. Outside funding for 100% of the estimated cost of \$2.9M has been secured. Construction began in April 2020 and is scheduled to be completed by the end of 2020.

### Galbraith Road over Anthony Wayne – Deck Replacement (County Bridge in Hartwell)

This project will replace the deck, sidewalks and railings of the 70 year old structure. Outside funding in the amount of \$2.64M was secured to cover a portion of the total \$5.73M project. A construction contract was awarded in February 2020. The construction will be completed in two phases in order to maintain traffic on the bridge and construction is currently scheduled to be completed by mid-2022.



Removing loose concrete from the Western Hills Viaduct



## 2019/2020 WASSON WAY BRIDGE PROJECTS

The Wasson Way corridor that was acquired in late 2016 from Norfolk Southern railroad is being developed into a multi-use trail in phases as funding becomes available. More details regarding the overall project can be found on the bike program website. <http://www.cincinnati.gov/bikes/bike-projects/the-wasson-way-trail-network/> Outlined below are 2019 projects that involve bridges along the Wasson Way corridor.

### **Overpasses over I-71 and Ramp from SB I-71 - Wasson Way Phase 2A** (Wasson Way Bridges in Hyde Park and Evanston)

Phase 2A of the Wasson Way project extended the trail between Tamarack Avenue and Floral Ave, which includes the two existing railroad overpass structures over I-71 and the exit ramp from SB I-71, both of which were remodeled for trail use. The cost for the bridge portion was \$1.6M and the project was funded with a combination of Federal, State (ODNR) and local grant money. The project was completed in fall of 2019. The 2019 inspections of these bridges were completed prior to the construction, and the condition of the bridges after rehabilitation will be reflected in the 2020 bridge inspection report.



Wasson Way Bridge over I-71 - Rehabilitation

## WESTERN HILLS VIADUCT

(County Bridge in South Fairmount, Queensgate, West End, Camp Washington and CUF)

This project will replace the aging double decked viaduct with a new bridge on a new alignment. The viaduct was built in 1932 and carries 55,000 vehicles per day.

The existing viaduct is rated in poor condition (condition rating of 4). It is structurally deficient due to advanced and widespread deterioration of numerous structural members and is also functionally obsolete, meaning it does not meet current roadway geometric standards. At locations where the deterioration is at its worst, supplemental supports have been added beneath the bridge to avoid a partial closure, which would restrict traffic from the lower deck. Spalling concrete falling from the upper deck to the lower deck is a continual safety problem which is being routinely addressed by regular closures of the lower deck in order to remove loose and delaminated concrete.

Currently, the design of the new bridge is being advanced and right-of-way acquisition is under way. The total estimated cost of the project is \$335 million which includes an estimated \$16 million for maintenance to keep the existing viaduct safe and operational until such time when the new bridge is in place.

To date, over \$100 million of local and non-local funds have been secured for right-of-way acquisition, detailed design work and construction. In 2017, significant progress was made to secure the local funding match. The Hamilton County Commissioners dedicated a portion of the revenue of a \$5 license plate cost increase to the Western Hills Viaduct, and the Cincinnati City Council passed an ordinance allowing the issuance of debt to be dedicated to the Western Hills Viaduct project over the next six years. The combined total from these two sources will generate \$66 million in local match. Efforts are continuing to secure additional federal and state matching funds for the construction cost.



Removal of loose concrete from the Western Hills Viaduct as part of the biannual routine maintenance.

### City (BP) Bridges - Six Year Plan 2020 through 2025

Carry-Over <sup>1</sup> City Bridge Program Funds	New <sup>2</sup> City Bridge Program Funds	Projects by Calendar Year Funds are Encumbered	Estimated Total Cost	Projected Funding <sup>3</sup>							Estimated Remaining Funds
				Bridge Program Fund Portion		Outside Funding Portion <sup>4</sup>			Funding Shortfall		
				Amount	%	Amount	%	Secured			
\$2,006,657	\$569,000	c	<b>2020</b>								
	\$60,000	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Inspection - Contract (Fracture Critical)	\$18,226	\$18,226	100%	\$0	0%	N/A		
			Bridge Inspection - Contract (2nd St PT, Monastery)	\$425,000	\$425,000	100%	\$0	0%	N/A		
			Brighton Approach Bridge Environmental	\$60,000	\$60,000	100%	\$0	0%	N/A		
			<b>Totals</b>		<b>\$1,003,226</b>						
										\$1,632,431	
\$1,632,431	\$569,000	c	<b>2021</b>								
	\$0	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Brighton Approach Bridge Geotech	\$34,500	\$34,500	100%	\$0	0%	N/A		
			Brighton Approach Bridge Prelim & Detailed Design	\$210,000	\$210,000	100%	\$0	0%	N/A		
			2nd Street Bridge PT Tendon Repairs	\$800,000	\$160,000	20%	\$640,000	80%	No	\$640,000	
			Monastery Ave Bridge Rehabilitation	\$200,000	\$200,000	100%	\$0	0%	N/A		
			<b>Totals</b>		<b>\$1,104,500</b>						
										\$1,096,931	
\$1,096,931	\$588,000	c	<b>2022</b>								
	\$60,000	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Inspection - Contract (Fracture Critical)	\$25,000	\$25,000	100%	\$0	0%	N/A		
			Bridge Inspection - Contract (Underwater)	\$10,000	\$10,000	100%	\$0	0%	N/A		
			Brighton Approach Bridge Design & R/W	\$120,000	\$120,000	100%	\$0	0%	N/A		
			Park Avenue Bridge Rehabilitation - Phase 1 <sup>5</sup>	\$3,000,000	\$300,000	10%	\$2,700,000	90%	No	\$2,700,000	
			<b>Totals</b>		<b>\$955,000</b>						
										\$789,931	
\$789,931	\$652,000	c	<b>2023</b>								
	\$60,000	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Brighton Approach Bridge Replacement (C & CE)	\$3,425,000	\$925,000	42%	\$2,000,000	58%	Partial	\$500,000	
			<b>Totals</b>		<b>\$1,425,000</b>						
										\$76,931	
\$76,931	\$664,000	c	<b>2024</b>								
	\$60,000	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Inspection - Contract (Fracture Critical)	\$25,000	\$25,000	100%	\$0	0%	N/A		
			Park Avenue Bridge Rehabilitation - Phase 2 <sup>5</sup>	\$3,500,000	\$175,000	5%	\$3,325,000	95%	No	\$3,325,000	
			<b>Totals</b>		<b>\$700,000</b>						
										\$100,931	
\$100,931	\$600,000	c	<b>2025</b>								
	\$60,000	o	Bridge Inspection & Program Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Project Design & Management	\$200,000	\$200,000	100%	\$0	0%	N/A		
			Bridge Maintenance - TROD	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Bridge Maintenance - Contract	\$50,000	\$50,000	100%	\$0	0%	N/A		
			Elmhurst Pedestrian Bridge Replacement <sup>5</sup>	\$1,700,000	\$170,000	10%	\$1,530,000	90%	No	\$1,530,000	
			<b>Totals</b>		<b>\$670,000</b>						
										\$90,931	

**Total**                      \$ 7,165,000.00



- 1 End of previous calendar year (i.e. Dec 31)
- 2 As of the beginning of fiscal year (i.e. July 1)
- 3 Additional leveraged funds will be pursued and will be used to supplement local funds as secured.
- 4 For purposes of this table, outside funding is considered to be any funding other than City Bridge Funds.
- 5 Project is dependent on securing outside funds and is shown with only a minimal amount of local matching funds being utilized. Securing outside funding for these particular bridges will be difficult given that they are bridges which either carry low volume vehicular traffic or are bridges for pedestrian use only. Historically, these types of bridge projects do not compete well for the outside funding sources which are currently available, particularly with only a small amount of local match being applied to the project. These projects will most likely slip to the out years until additional City capital funds can be allocated to the City Bridge Program.

The projects are grouped by the year of expected bid. This plan is flexible and will be revised as necessary if future bridge inspections reveal unexpected changes in the condition of any bridge, if anticipated bridge funding amounts change, if unexpected leveraged funding sources become available or are withdrawn, if the timing of any bridge project requires adjustment to coordinate with other infrastructure improvement or development projects, or if City Council or the City Administration redirect priorities. The estimated project costs are preliminary and are only intended to establish basic funding needs and are not considered engineer's estimates. Bridge conditions will be continually monitored during the six-year period and the plan will be adjusted as needed to best maintain the bridge infrastructure.

The funds programmed for the City Bridge Maintenance Contracts may also be used, wholly or in part, to support other projects listed in the six-year plan whose expenses exceed the preliminary estimations listed in the six-year plan.

County Bridges - Six Year Plan  
2020 through 2025

Carry-Over <sup>1</sup> County Bridge Funds	New <sup>2</sup> County Bridge Funds	Projects by Calendar Year Funds are Encumbered	Estimated Total Cost	Projected Funding <sup>3</sup>					Funding Shortfall	Estimated Remaining Funds
				County Bridge Fund Portion		Outside Funding Portion <sup>4</sup>				
				Amount	%	Amount	%	Secured		
\$3,600,000	\$1,000,000	<b>2020</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Kennedy Avenue Bridge Replacement - Construction	\$2,886,000	\$ -	0%	\$ 2,886,000	100%	Yes <sup>7</sup>		
		Kennedy Avenue Bridge Replacement - Constr. Mgt. & Testing	\$230,000	\$ 52,000	0%	\$ 178,000	77%	Yes <sup>7</sup>		
		Kennedy Avenue Bridge Replacement - RR Force Account	\$70,000	\$ 70,000	100%		0%	N/A		
		Galbraith Road Bridge Deck Replacement - Construction	\$5,730,438	\$ 3,090,438	54%	\$ 2,640,000	46%	Yes <sup>5</sup>		
		Galbraith Road Bridge Deck Replacement - Constr. Mgt & Tes	\$175,000	\$ 175,000	100%		0%	N/A		
		Western Hills Viaduct - R/W Acquisition West Approach	\$2,900,000	\$ 580,000	20%	\$ 2,320,000	80%	Yes <sup>6</sup>		
		Western Hills Viaduct - R/W Acquisition East Approach	\$1,250,000	\$ 50,000	4%	\$ 1,200,000	96%	Yes <sup>8</sup>		
		Western Hills Viaduct - Railroad PE Review Expenses	\$65,000	\$ 65,000	100%		0%	N/A		
		Eighth Street Viaduct - West End Beam & Bearing Repair	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		<b>Total Expenses</b>		<b>\$ 4,532,438</b>						<b>\$67,562</b>
\$67,562	\$1,000,000	<b>2021</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Galbraith Road Bridge Deck Replacement - Constr. Mgt & Tes	\$200,000	\$ 200,000	100%		0%	N/A		
		Western Hills Viaduct - R/W Acquisition East Approach	\$5,000,000	\$ 200,000	4%	\$ 4,800,000	96%	Yes <sup>8</sup>		
		Western Hills Viaduct - South Trough Removal Pilot Project	\$100,000	\$ 100,000	100%	\$ -	0%	N/A		
		Western Hills Viaduct - Fracture Critical Inspection	\$75,000	\$ 75,000	100%	\$ -	0%	N/A		
		Western Hills Viaduct - Detailed Design	\$1,562,500	\$ 62,500	4%	\$ 1,500,000	96%	Yes <sup>9</sup>		
		<b>Total Expenses</b>		<b>\$ 1,037,500</b>						<b>\$30,062</b>
\$30,062	\$1,000,000	<b>2022</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		Underwater Inspections	\$25,000	\$ 25,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Galbraith Road Bridge Deck Replacement - Constr. Mgt & Tes	\$100,000	\$ 100,000	100%		0%	N/A		
		Spring Grove Ave over Mill Crk. S. of Colerain - Deck Overlay	\$350,000	\$ 210,000	60%	\$ 140,000	40%	N/A		
		Western Hills Viaduct - Detailed Design	\$1,562,500	\$ 62,500	4%	\$ 1,500,000	96%	Yes <sup>9</sup>		
		<b>Total Expenses</b>		<b>\$ 797,500</b>						<b>\$232,562</b>
\$232,562	\$1,000,000	<b>2023</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Western Hills Viaduct - Fracture Critical Inspection	\$75,000	\$ 75,000	100%	\$ -	0%	N/A		
		Seymour Ave over Mill Creek - Deck Overlay	\$250,000	\$ 150,000	60%	\$ 100,000	40%	N/A		
		Anthony Wayne over Mill Creek - Painting	\$200,000	\$ 200,000	100%	\$ -	0%	N/A		
		Western Hills Viaduct - Detailed Design	\$1,562,500	\$ 62,500	4%	\$ 1,500,000	96%	Yes <sup>9</sup>		
		<b>Total Expenses</b>		<b>\$ 887,500</b>						<b>\$345,062</b>
\$345,062	\$1,000,000	<b>2024</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		North Bend Road over Kirby - Deck Replacement	\$1,500,000	\$ 600,000	40%	\$ 900,000	60%	No	\$900,000	
		Western Hills Viaduct - Detailed Design	\$1,562,500	\$ 62,500	4%	\$ 1,500,000	96%	Yes <sup>9</sup>		
		<b>Total Expenses</b>		<b>\$ 1,062,500</b>						<b>\$282,562</b>
\$282,562	\$1,000,000	<b>2025</b>								
		Bridge Inspection & Program Management	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Project Design & Management	\$300,000	\$ 300,000	100%	\$ -	0%	N/A		
		TROD and Contract Maintenance Work	\$50,000	\$ 50,000	100%	\$ -	0%	N/A		
		Western Hills Viaduct - Fracture Critical Inspection	\$75,000	\$ 75,000	100%	\$ -	0%	N/A		
		Hopple St Viaduct Expansion Joint Replacement	\$7,000,000	\$ 700,000	10%	\$ 6,300,000	90%	No	\$6,300,000	
		<b>Total Expenses</b>		<b>\$ 1,175,000</b>						<b>\$107,562</b>
<b>Total</b>										<b>\$ 7,200,000.00</b>

- 1 End of previous calendar year (i.e. Dec 31)
- 2 Receipt of new funds occur mid calendar year.
- 3 Additional leveraged funds will be pursued and will be used to supplement local funds as secured.
- 4 For purposes of this table, outside funding is considered to be any funding other than the County Bridges Funds.
- 5 SCIP funding secured through OPWC.
- 6 STP funding secured through OKI.
- 7 Ohio Bridge Partnership Program funding secured through the County Engineer's Association of Ohio.
- 8 Outside funding is a combination of federal grants secured through TRAC, Municipal Road Funds, County Engineer Funds and City Capital Improvement Funds.
- 9 Outside funding is a combination of federal grants secured through TRAC, Municipal Road Funds, County Engineer Funds and City Capital Improvement Funds.

The projects are grouped by the year of expected bid or expenditures as is the case in right of way acquisition for the Western Hills Viaduct. This plan is flexible and will be revised as necessary if future bridge inspections reveal unexpected changes in the condition of any bridge, if anticipated bridge funding amounts change, if unexpected leveraged funding sources become available or are withdrawn, if the timing of any bridge project requires adjustment to coordinate with other infrastructure improvement or development projects, or if City Council or the City Administration redirect priorities. The estimated project costs are preliminary and are only intended to establish basic funding needs and are not considered engineer's estimates. Bridge conditions will be continually monitored during the six-year period and the plan will be adjusted as needed to best maintain the bridge infrastructure.

Replacement of the Western Hills Viaduct is a major project and construction is expected to cost approximately \$300 million. Only the portions of the project being funded through the County Bridge fund are listed in the six-year plan.

The funds programmed for the County Bridge Maintenance Contracts may also be used, wholly or in part, to support other projects listed in the six-year plan whose expenses exceed the preliminary estimates listed in the six-year plan.