

# Local Agency Bridge Preservation: Building from the ground up in the City of Pittsburgh



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# Presentation Topics

- Pittsburgh's Department of Mobility and Infrastructure
- Fern Hollow Bridge Collapse, January 28, 2022
- Bridge Asset Management in the City of Pittsburgh
  - Inventory!
  - Inspect!
  - Maintain!
  - Coordinate!
- BAMP w/ WSP
  - Program!
  - Grow!
  - Improve!
- NTSB Findings

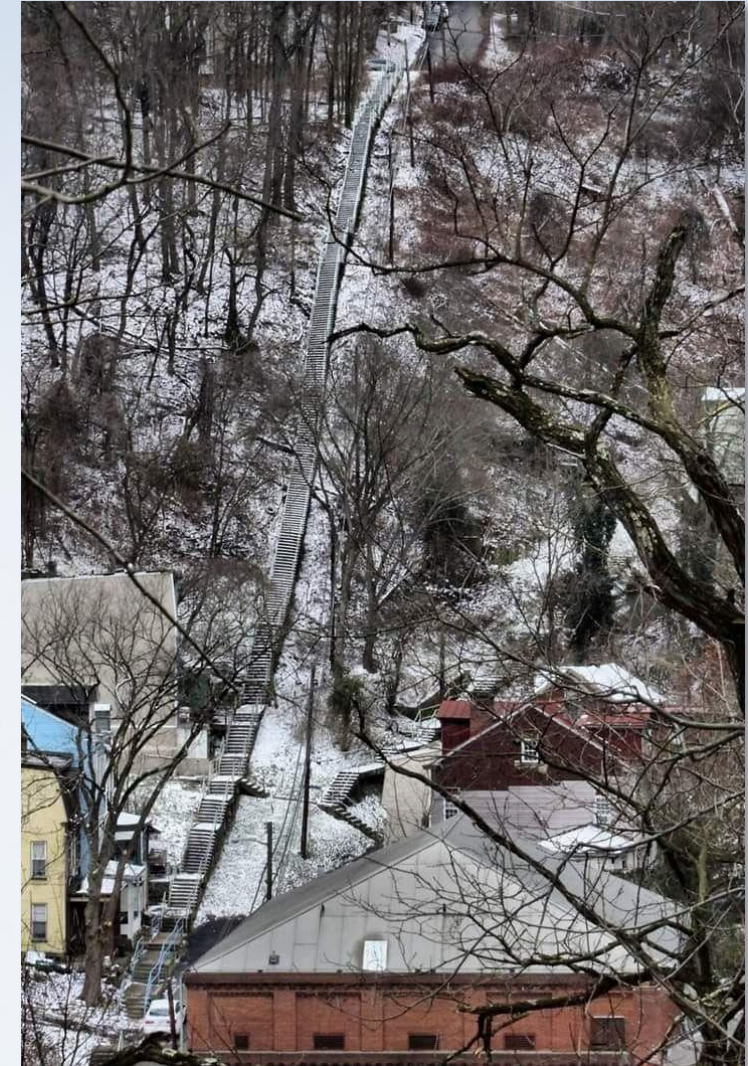
# City of Pittsburgh – Department of Mobility and Infrastructure (DOMI)

## City's Mobility Principles:

- *No one dies or is seriously injured traveling on city streets.*
- *Every household in Pittsburgh can access fresh fruits and vegetables within 20 minutes travel of home, without the requirement of a private vehicle.*
- *All trips less than 1 mile are easily and enjoyably achieved by non-vehicle travel.*
- *No household must spend more than 45% of household income to satisfy basic housing, transportation and energy needs.*
- *The design, maintenance and operation of city streets reflects the values of our community.*

## DOMI's Structure Assets:

- 143 Bridges
- Over 1,200 sets of steps (elevated & on-grade)
- Over 700 retaining walls
- 134 active landslides to monitor



*Rising Main steps in Pgh's Fineview neighborhood*

# Pittsburgh's Bridge Projects – End of 2021

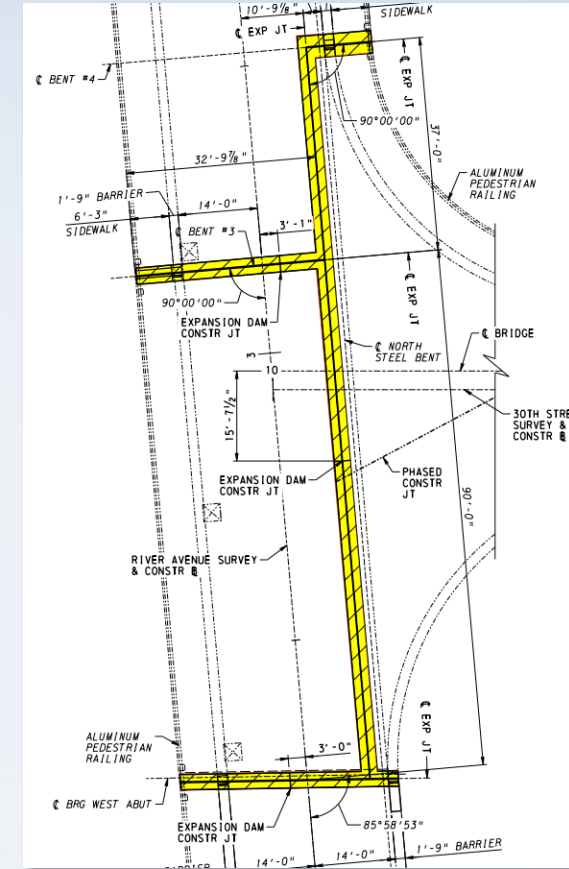
- Wrapping up one new bridge (*Frankie Pace Park – Highway Cap over I-579*)
- Two superstructure replacements (*Lowrie St & West Ohio St/Ridge Ave*)
- Final design on a two-bridge preservation package (*30th St/River Ave*)
- Preliminary engineering on five bridges (*28th St, Davis Ave, South Negley Ave, Swinburne, Charles Anderson*)
- Planning & Scoping for six bridges (*Elizabeth St, Herron Ave, Calera St, Corley St, Maple Ave, Swindell*)
- Restarted inspection program on 53 non-NBIS (short-span and pedestrian) bridges



Frankie Pace Park- Cap over a 1960's era "urban renewal" highway



West Ohio St- Replaced 117 year old pony truss



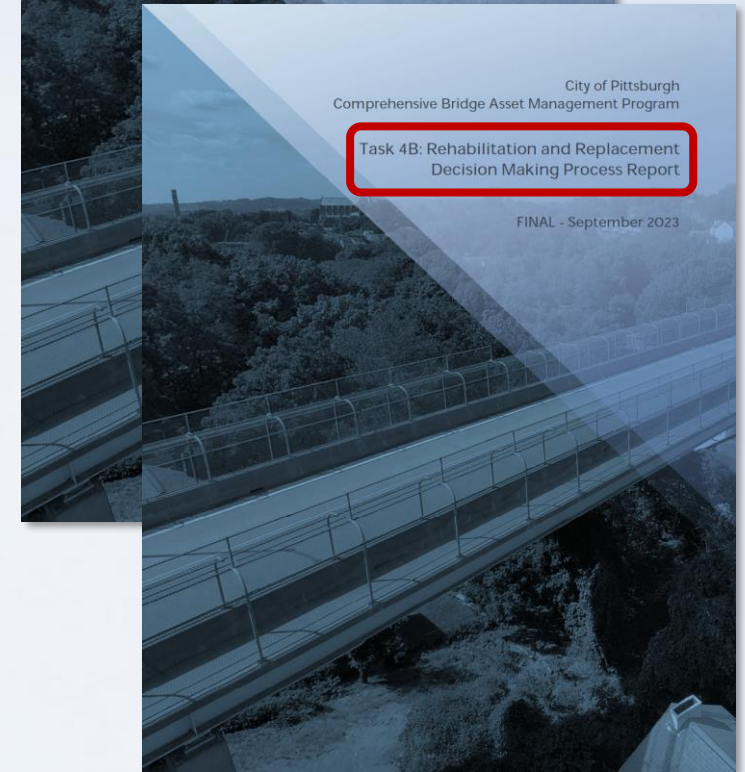
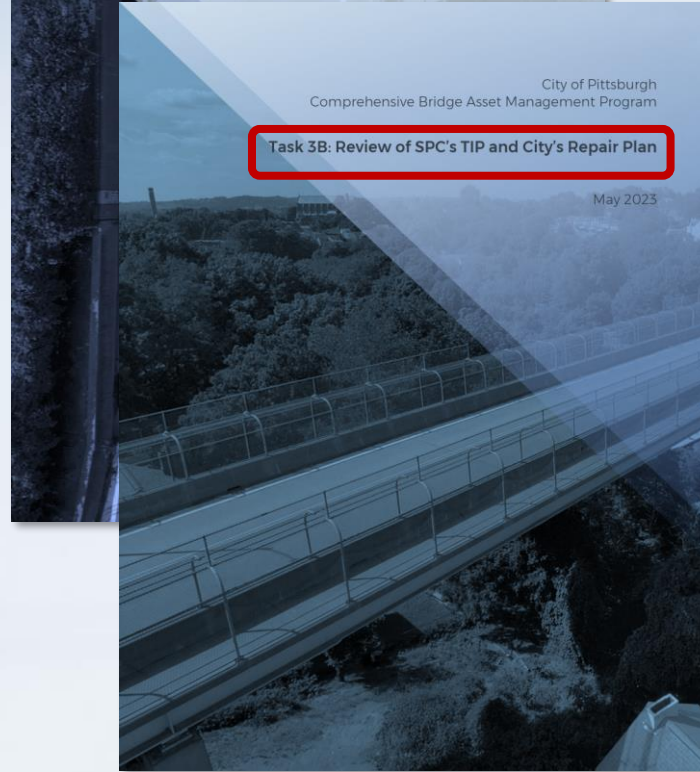
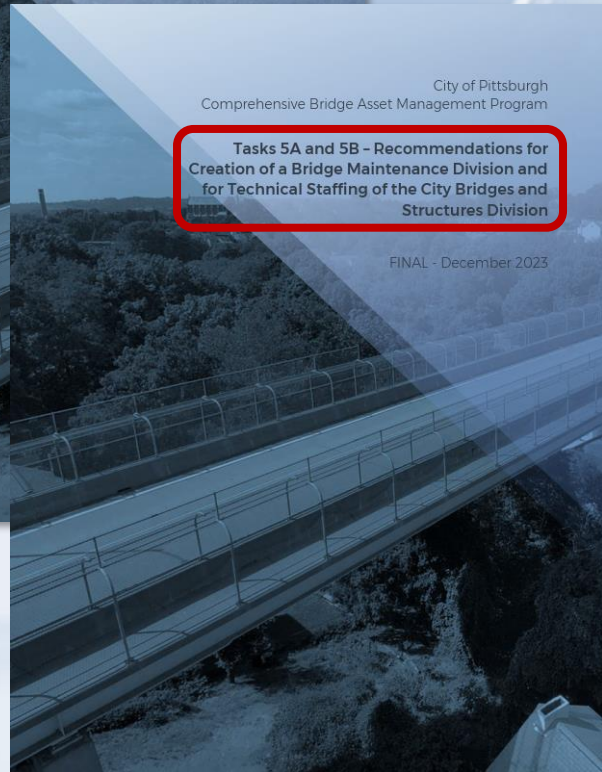
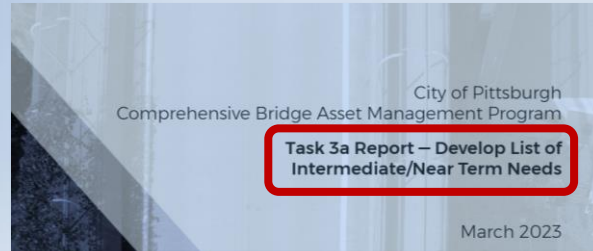
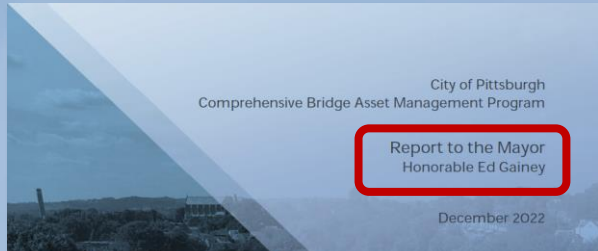
30<sup>th</sup> St & River Ave intersecting bridges- Replacement of a 209' π-shaped strip seal

# Fern Hollow Bridge Collapse

- Constructed in 1973
- Carried approximately 14,500 veh/day
- Rated in Poor condition since 2011
- Posted for 26 Tons
- Collapsed at 6:39AM on Jan 28, 2022, totaling five vehicles and injuring 10 people

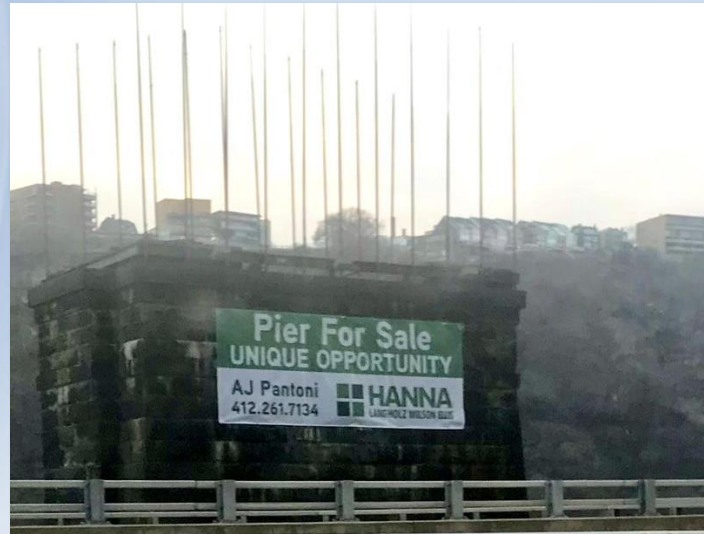


# Bridge Asset Management Program /w WSP



# Inventory!

- Spotty, outdated records
- Inadequate inspection history for non-NBIS bridges (short span and pedestrian)
- Unclear ownership records (City, state, transit, railroad, private?)
- Poor organization and access to original construction plans



*Wabash Bridge Piers – Reportedly sold between private parties for \$300k in 2023*

LOCATION : - Crossing Pittsburgh Junction Railroad and Pennsylvania Railroad tracks and crossing ravine from Bigelow Boulevard to Liberty Avenue.

DATE ERECTED: 1913- 1914

LENGTH: 1960'.

TYPE: STEEL TRUSS CANTILEVER.

DESCRIPTION: - Steel structure cantilever trusses, one concrete abutment 120'-4", ten deck plate girders 60', three truss spans @ 120', seven tower spans @ 20', two anchor arms @ 120', two cantilever arms  $\frac{1}{2}$  140', one suspended truss span  $\frac{1}{2}$  120', one concrete abutment 101'-10", 34'-0" asphalt roadway, two 7'-10" concrete sidewalks, Maximum height to curb 188'-0", City Maintenance.

ERECTED FOR: CITY OF PITTSBURGH

COST: \$ 364,607.30

BLOOMFIELD BRIDGE - PRESENT STRUCTURE.

*1960's era bridge inventory – a great resource, but outdated*



*Hot Metal Bridge – Rail to Trail conversion in 2007, first time inspection in 2022!*

# Inventory! (New and Improved)

CITY OF PITTSBURGH - BRIDGE INVENTORY AS OF 9/1/2024

| Active | BRID  | BMS Number        | CR | City Name (Facility)                                 | Featured Intersection            | Feature Cross Category | Ovr   | Condition | Length (ft) | Deck Area (sq ft) | Number Span | Material                 | Structure Type         | Year Built | Posting Status        | Weight Limit Single | Weight Limit Combination | Deck Condition   | Superstructure Condition | Substructure Condition | Culvert Condition | Inspection Control       | Last Inspected | Next Inspect | Inspection Frequency | Load Rating D |
|--------|-------|-------------------|----|--|----------------------------------|------------------------|-------|-----------|-------------|-------------------|-------------|--------------------------|------------------------|------------|-----------------------|---------------------|--------------------------|------------------|--------------------------|------------------------|-------------------|--------------------------|----------------|--------------|----------------------|---------------|
| Y      | 2392  | 02 7301 0000 3001 | 1  | Alexander St   | Saw Mill Run                     | Water                  | C     | Fair      | 42          | 498               | 1           | Steel                    | Girder w/ thru         | 1924       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04684 - Markosky        | 6/25/2024      | 6/25/2028    | 24                   | 8/19/2010     |
| Y      | 54600 | 02 7301 0000 3031 | 3  | Frankie Mae Pace Park (The Cap)                      | -1579                            | Highway                | Split | Good      | 265         | 59095             | 3           | Prestressed Concrete     | Box Beam               | 2021       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            | 8 - Very Good          | 8 - Very Good     | E04654 - Larson          | 1/28/2024      | 1/28/2028    | 24                   | 3/9/2022      |
| Y      | 2364  | 02 7301 0000 3008 | 6  | Charles Anderson Bridge ( Blvd of the Allies)        | CSX RR & Junction Hollow Trail   | Railroad               | C     | Good      | 780         | 45240             | 3           | Steel                    | Truss - deck           | 1938       | CLOSED TO ALL TRAFFIC | 0                   | N/A                      | 5 - Fair         | 8 - Imminent Failure     | 4 - Poor               | N - N/A           | E04654 - Larson          | 10/22/2022     | 10/22/2024   | 24                   | 1/31/2023     |
| Y      | 2365  | 02 7301 0000 3009 | 6  | Ansonia Pl (CLOSED, STILL IN USE)                    | Saw Mill Run                     | Water                  | C     | Good      | 36          | 1068              | 1           | Concrete encased steel   | I-beams                | 1928       | CLOSED TO ALL TRAFFIC | 8                   | N/A                      | 3 - Serious      | 4 - Poor                 | 5 - Fair               | N - N/A           | E04654 - Markosky        | 6/5/2024       | 6/5/2028     | 24                   | 10/16/2023    |
| Y      | 2366  | 02 7301 0000 3007 | 7  | Bajo St (off Becks Run Rd)                           | Tributary to Beck's Run          | Water                  | C     | Good      | 18          | 270               | 1           | Steel                    | Multibeam              | 1929       | POSTED FOR LOAD       | 10                  | N/A                      | 5 - Fair         | 4 - Poor                 | 5 - Fair               | N - N/A           | ITQ - Tri-State          | 9/1/2023       | 9/1/2024     | 12                   | 11/1/2023     |
| Y      | 1230  | 02 7301 0000 3008 | 8  | Baum Blvd  | NS RR & PAT East Busway          | Railroad               | C     | Fair      | 370         | 22200             | 3           | Steel                    | I-welded beams         | 1948       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 7 - Good                 | 5 - Fair               | N - N/A           | E04654 - Larson          | 5/31/2023      | 5/31/2028    | 24                   | 5/13/2005     |
| Y      | 2397  | 02 7301 0000 3009 | 9  | Bigelow Blvd Underpass                               | Below Bloomfield Bridge Ramp F   | Highway                | C     | Fair      | 27          | 1528              | 1           | Concrete (cast in place) | Frame culvert          | 1989       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 6 - Satisfactory       | 6 - Satisfactory  | E04684 - Gannett Fleming | 9/9/2022       | 9/9/2024     | 24                   | 6/18/2008     |
| Y      | 2398  | 02 7301 0000 3010 | 10 | Bloomfield Bridge                                    | NS RR & CSX RR & PAT East Busway | Railroad               | C     | Fair      | 1641        | 104328            | 9           | Steel                    | I-welded beams         | 1989       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 5 - Fair               | N - N/A           | E04654 - Larson          | 4/24/2024      | 10/24/2024   | 8                    | 4/4/2005      |
| Y      | 89463 | 02 7301 0000 3175 | 13 | Mon Wharf Switchback Pedestrian Bridge               | Hillside                         | Other                  | C     | Good      | 658         | 8672              | 7           | Steel                    | I-beams                | 2018       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 7 - Good                 | 7 - Good               | N - N/A           | ITQ - Tri-State          | 2/14/2023      | 2/14/2025    | 24                   | 10/7/2018     |
| Y      | 2399  | 02 7301 0000 3014 | 14 | Calera St #1   | Streets Run                      | Water                  | C     | Good      | 32          | 558               | 1           | Steel                    | I-beams                | 1931       | POSTED FOR LOAD       | 12                  | N/A                      | 6 - Satisfactory | 3 - Serious              | 4 - Poor               | N - N/A           | E04654 - Larson          | 11/1/2024      | 7/11/2024    | 8                    | 3/19/2018     |
| Y      | 46000 | 02 7301 0000 3015 | 15 | Calera St #2   | Tributary to Streets Run         | Water                  | C     | Good      | 20          | 300               | 1           | Concrete, Steel          | Slab (solid)           | 1931       | POSTED FOR LOAD       | 12                  | N/A                      | 4 - Poor         | 4 - Poor                 | 4 - Poor               | N - N/A           | ITQ - Tri-State          | 3/28/2024      | 9/28/2024    | 8                    | 6/12/2023     |
| Y      | 53484 | 02 7301 0000 3152 | 16 | Carmanan Rd (at Banksville Rd) (NEW #)               | Tributary to Saw Mill Run        | Water                  | C     | Good      | 16          | 1152              | 1           | Concrete                 | Pre-Cast Box Culvert   | 2019       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            | 8 - Very Good          | 8 - Very Good     | ITQ - Tri-State          | 12/15/2021     | 12/15/2026   | 48                   | Needad        |
| Y      | 2401  | 02 7301 0000 3018 | 18 | Corlias St Tunnel                                    | Below PAT West Busway & NS RR    | Railroad               | C     | Fair      | 461         | N/A               | N/A         | Concrete                 | Concrete Arch          | 1914       | N/A                   | N/A                 | N - N/A                  | N - N/A          | N - N/A                  | 5 - Fair               | E04654 - Larson   | 4/10/2024                | 4/27/2026      | 13           | N/A                  |               |
| Y      | 2472  | 02 7301 0000 6001 | 19 | Centre Ave   | NS RR & PAT East Busway          | Railroad               | Split | Fair      | 223         | 13380             | 3           | Weathering Steel         | Girder                 | 1979       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 6 - Satisfactory       | 6 - Satisfactory  | E04654 - Markosky        | 5/4/2024       | 6/4/2026     | 24                   | 5/25/2008     |
| Y      | 2402  | 02 7301 0000 3020 | 20 | Charters Ave   | PAT West Busway                  | Highway                | C     | Fair      | 91          | 5480              | 3           | Steel                    | I-beams                | 1928       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 5 - Fair         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04654 - Markosky        | 10/30/2023     | 10/30/2026   | 24                   | 1/17/2024     |
| Y      | 2403  | 02 7301 0000 3021 | 21 | West Carson St                                       | Charters Creek                   | Water                  | Split | Poor      | 144         | 6702              | 1           | Steel                    | Truss - thru           | 1928       | POSTED FOR LOAD       | 30                  | 40                       | 5 - Fair         | 5 - Fair                 | 4 - Poor               | 7 - Good          | E04654 - Markosky        | 2/13/2024      | 8/13/2024    | 6                    | 12/14/2023    |
| Y      | 2404  | 02 7301 0000 3022 | 22 | Columbus Ave   | NS RR                            | Railroad               | Split | Fair      | 237         | 11850             | 3           | Steel                    | Truss - thru           | 1907       | POSTED FOR LOAD       | 31                  | 33                       | 7 - Good         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04684 - Markosky        | 7/27/2023      | 7/27/2024    | 12                   | 10/12/2018    |
| Y      | 2405  | 02 7301 0000 3023 | 23 | Crane Ave  | Saw Mill Run                     | Water                  | C     | Fair      | 72          | 1008              | 2           | Steel                    | Arch culvert           | 1983       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | N - N/A          | N - N/A                  | N - N/A                | 6 - Satisfactory  | E04684 - Markosky        | 10/23/2023     | 10/24/2025   | 24                   | 10/12/2005    |
| Y      | 2406  | 02 7301 0000 3024 | 24 | Davis Ave Bridge (DEMOED- TO BE REBUILT)             | Woods Run Ave                    | Street                 | C     | N/A       | N/A         | N/A               | N/A         | N/A                      | N/A                    | N/A        | N/A                   | N/A                 | N/A                      | N - N/A          | N - N/A                  | N - N/A                | N - N/A           | N/A                      | N/A            | N/A          | N/A                  | N/A           |
| Y      | 69467 | 02 7301 0000 3187 | 25 | Lake Elizabeth Pedestrian Bridge #1 (East)           | Lake Elizabeth                   | Water                  | C     | Fair      | 52          | 520               | 3           | Concrete                 | Concrete Arch          | 1958       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 8 - Very Good          | N - N/A           | ITQ - Tri-State          | 10/21/2022     | 10/21/2024   | 24                   | 5/12/2023     |
| Y      | 89468 | 02 7301 0000 3188 | 26 | Lake Elizabeth Pedestrian Bridge #2 (West)           | Lake Elizabeth                   | Water                  | C     | Fair      | 52          | 520               | 3           | Concrete                 | Concrete Arch          | 1958       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 5 - Fair                 | 8 - Very Good          | N - N/A           | ITQ - Tri-State          | 10/21/2022     | 10/21/2024   | 24                   | 5/12/2023     |
| Y      | 2407  | 02 7301 0000 3027 | 27 | East St  | Tributary to Beck's Run          | Water                  | C     | Fair      | 28          | 325               | 1           | Steel                    | I-beams                | 1952       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 5 - Fair               | N - N/A           | E04684 - Markosky        | 7/24/2023      | 7/24/2025    | 24                   | 7/12/2005     |
| Y      | 2408  | 02 7301 0000 3028 | 28 | Edgemoor Ave   | Saw Mill Run                     | Water                  | C     | Good      | 37          | 1184              | 1           | Steel                    | I-beams                | 1914       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            | 7 - Good               | N - N/A           | E04654 - Markosky        | 6/5/2024       | 6/5/2026     | 24                   | 6/20/2008     |
| Y      | 2409  | 02 7301 0000 3029 | 29 | Elizabeth St   | CSX RR & Gloster St              | Railroad               | C     | Good      | 115         | 4370              | 2           | Weathering Steel         | I-beams                | 1985       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 4 - Poor         | 5 - Fair                 | 4 - Poor               | N - N/A           | E04654 - Larson          | 6/27/2024      | 12/27/2024   | 6                    | 12/9/2004     |
| Y      | 49081 | 02 7301 0000 3030 | 30 | Englewood Pedestrian Bridge (Englert St)             | Saw Mill Run                     | Water                  | C     | Good      | 100         | 900               | 1           | Steel                    | Truss - thru           | 2001       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 7 - Good                 | 7 - Good               | N - N/A           | ITQ - Tri-State          | 11/29/2023     | 11/29/2026   | 24                   | 3/27/2023     |
| Y      | 2470  | 02 7301 0000 3831 | 31 | E Liberty Blvd (NB)                                  | Pedestrian Walkway               | Other                  | C     | Fair      | 52          | 1914              | 1           | Prestressed Concrete     | Box beam - (spread)    | 1988       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 5 - Fair         | 6 - Satisfactory         | 5 - Fair               | N - N/A           | E04654 - Larson          | 8/29/2023      | 8/29/2025    | 24                   | 10/24/2023    |
| Y      | 2471  | 02 7301 0000 3831 | 31 | E Liberty Blvd (SB)                                  | Pedestrian Walkway               | Other                  | C     | Good      | 52          | 1914              | 1           | Prestressed Concrete     | Box beam - (spread)    | 1988       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 4 - Poor               | N - N/A           | E04654 - Markosky        | 8/23/2023      | 8/23/2025    | 24                   | 12/15/2023    |
| Y      | 89513 | 02 7301 0000 3037 | 33 | Fern Hollow Bridge (Forbes Ave) (New #)              | Nine Mile Run & Fern Hollow      | Water                  | C     | Good      | 460         | 20240             | 3           | Prestressed Concrete     | Bulb-tee               | 2022       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            | 8 - Very Good          | N - N/A           | E04654 - Larson          | 2/23/2023      | 2/23/2025    | 24                   | 6/30/2022     |
| Y      | 2411  | 02 7301 0000 3034 | 34 | Forbes Ave   | CSX RR & Bounding St             | Railroad               | C     | Fair      | 159         | 8604              | 1           | Steel                    | I-welded beams         | 1986       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 5 - Fair         | 7 - Good                 | 7 - Good               | N - N/A           | E04684 - Gannett Fleming | 9/28/2023      | 9/28/2025    | 24                   | 8/12/2005     |
| Y      | 2412  | 02 7301 0000 3035 | 35 | Fort Pitt Blvd over Mon Wharf (Commonwealth to Wood) | Mon Wharf Parking Lot            | Highway                | C     | Fair      | 1823        | 85407             | 30          | Prestressed Concrete     | I-beams                | 2002       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 7 - Good                 | 6 - Satisfactory       | N - N/A           | E04654 - Larson          | 11/30/2022     | 11/30/2024   | 24                   | 1/28/2005     |
| Y      | 2413  | 02 7301 0000 3036 | 36 | Frantum St (Ensign Ave)                              | Saw Mill Run                     | Water                  | C     | Fair      | 63          | 2003              | 1           | Steel                    | I-welded beams         | 1981       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 6 - Satisfactory         | 6 - Satisfactory       | N - N/A           | E04684 - Markosky        | 4/10/2023      | 4/10/2025    | 24                   | 4/21/2005     |
| Y      | 69469 | 02 7301 0000 3189 | 37 | Fritz St Pedestrian Bridge at Brosville              | Knowlville Incline Overlook Park | Other                  | C     | Good      | 50          | 785               | 1           | Steel                    | Girder - thru          | 1921       | CLOSED TO ALL TRAFFIC | 0                   | N/A                      | 6 - Satisfactory | 4 - Poor                 | 6 - Satisfactory       | N - N/A           | ITQ - Tri-State          | 5/29/2024      | 11/30/2024   | 8                    | 4/25/2023     |
| Y      | 2414  | 02 7301 0000 3038 | 38 | Conley St (Ganges Way)                               | Streets Run                      | Water                  | C     | Good      | 43          | 602               | 1           | Concrete (cast in place) | Other                  | 1951       | POSTED FOR LOAD       | 30                  | N/A                      | 4 - Poor         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04684 - Markosky        | 8/12/2022      | 8/12/2024    | 24                   | 11/13/2023    |
| Y      | 54406 | 02 7301 0000 3832 | 39 | Greenfield Bridge (Greenfield Ave) (NEW #)           | I-376 Fairway East               | Highway                | C     | Good      | 458         | 25178             | 3           | Steel                    | Arch deck - open       | 2017       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            | 9 - Excellent          | N - N/A           | E04654 - Larson          | 10/21/2023     | 10/21/2025   | 24                   | 8/3/2017      |
| Y      | 2416  | 02 7301 0000 3040 | 40 | Heron Ave  | NS RR & CSX RR & PAT East Busway | Railroad               | C     | Good      | 754         | 34584             | 7           | Weathering Steel         | Girder                 | 1980       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Fair         | 4 - Poor                 | 4 - Poor               | N - N/A           | E04654 - Larson          | 4/30/2024      | 10/30/2024   | 8                    | 7/3/2023      |
| Y      | 2417  | 02 7301 0000 3041 | 41 | 30th St Bridge (Herr's Island)                       | Allegheny River Back Channel     | Water                  | C     | Fair      | 282         | 10718             | 3           | Steel                    | I-welded beams         | 1988       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 5 - Fair         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04654 - CDM Smith       | 11/9/2022      | 11/9/2024    | 24                   | 11/9/2024     |
| Y      | 2418  | 02 7301 0000 3043 | 43 | Hill Rd (One Wild Place)                             | Zoo Walkway                      | Other                  | C     | Fair      | 49          | 2597              | 1           | Masonry                  | Arch deck - closed     | 1930       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 6 - Satisfactory         | 6 - Satisfactory       | N - N/A           | E04654 - Markosky        | 4/19/2023      | 4/19/2025    | 24                   | 4/18/2005     |
| Y      | 89551 | 02 7301 0000 3045 | 45 | Herr's Island Railroad (Pedestrian) Bridge           | Allegheny River Back Channel     | Water                  | C     | Good      | 493         | 9880              | 14          | Steel                    | Truss - thru           | 1903       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 6 - Satisfactory | 5 - Fair                 | 4 - Poor               | N - N/A           | ITQ - Tri-State          | 12/15/2023     | 12/15/2024   | 12                   | 4/28/2023     |
| Y      | 89564 | 02 7301 0000 3173 | 46 | Milvate Trail Pedestrian Bridge                      | Allegheny River Back Channel     | Water                  | C     | Good      | 1274        | 17838             | 91          | Precast Concrete         | Cast In Place Concrete | 2010       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 7 - Good         | 7 - Good                 | 7 - Good               | N - N/A           | BAMS - Azalea            | 11/15/2022     | 11/15/2024   | 24                   | 10/28/2024    |
| Y      | 2419  | 02 7301 0000 3047 | 47 | Larimer Ave  | Washington Blvd (Rt 8)           | Highway                | C     | Good      | 548         | 25208             | 8           | Concrete (cast in place) | Arch deck - open       | 1912       | POSTED FOR LOAD       | 38                  | 40                       | 4 - Poor         | 4 - Poor                 | 4 - Poor               | N - N/A           | E04654 - Larson          | 2/21/2024      | 8/21/2024    | 6                    | 3/27/2012     |
| Y      | 2420  | 02 7301 0000 3048 | 48 | Lincoln Ave  | Washington Blvd (Rt 8)           | Highway                | C     | Fair      | 300         | 14540             | 2           | Masonry                  | Arch deck - closed     | 1905       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 5 - Fair         | 5 - Fair                 | 5 - Fair               | N - N/A           | E04654 - Larson          | 3/7/2023       | 3/7/2025     | 24                   | 4/24/2023     |
| Y      | 49084 | 02 7301 0000 3049 | 49 | Lowie St Pedestrian Bridge                           | Saw Mill Run                     | Water                  | C     | Good      | 43          | 802               | 1           | Steel                    | Girder - thru          | 1908       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 4 - Poor         | 4 - Poor                 | 4 - Poor               | 6 - Satisfactory  | ITQ - Baker              | 10/25/2022     | 10/25/2024   | 24                   | 1/11/1991     |
| Y      | 2421  | 02 7301 0000 3050 | 50 | Lowrie St  | Rialto St                        | Street                 | C     | Good      | 49          | 1960              | 1           | Prestressed Concrete     | Box beam - adj         | 1900       | OPEN, NO RESTRICTION  | N/A                 | N/A                      | 8 - Very Good    | 8 - Very Good            |                        |                   |                          |                |              |                      |               |

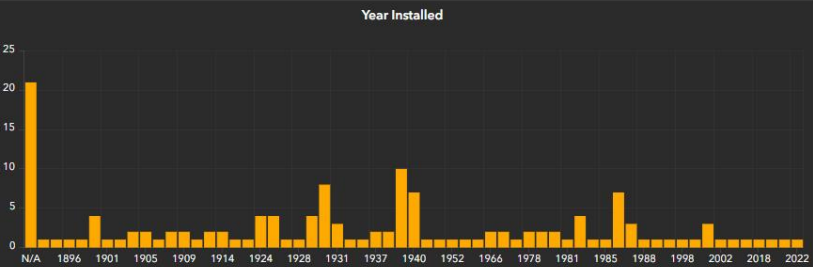


# Bridges

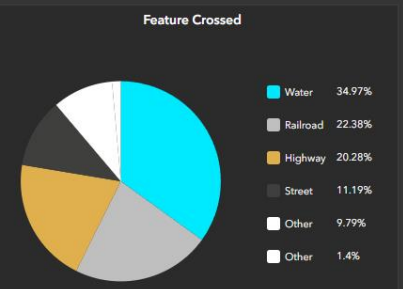
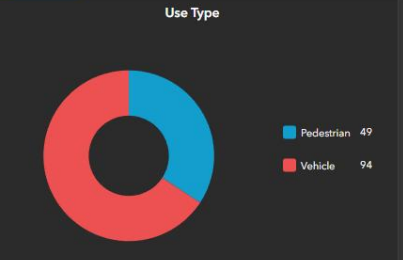


# 143

Length **42,180 ft**  
7.99 mi



Installed Replaced

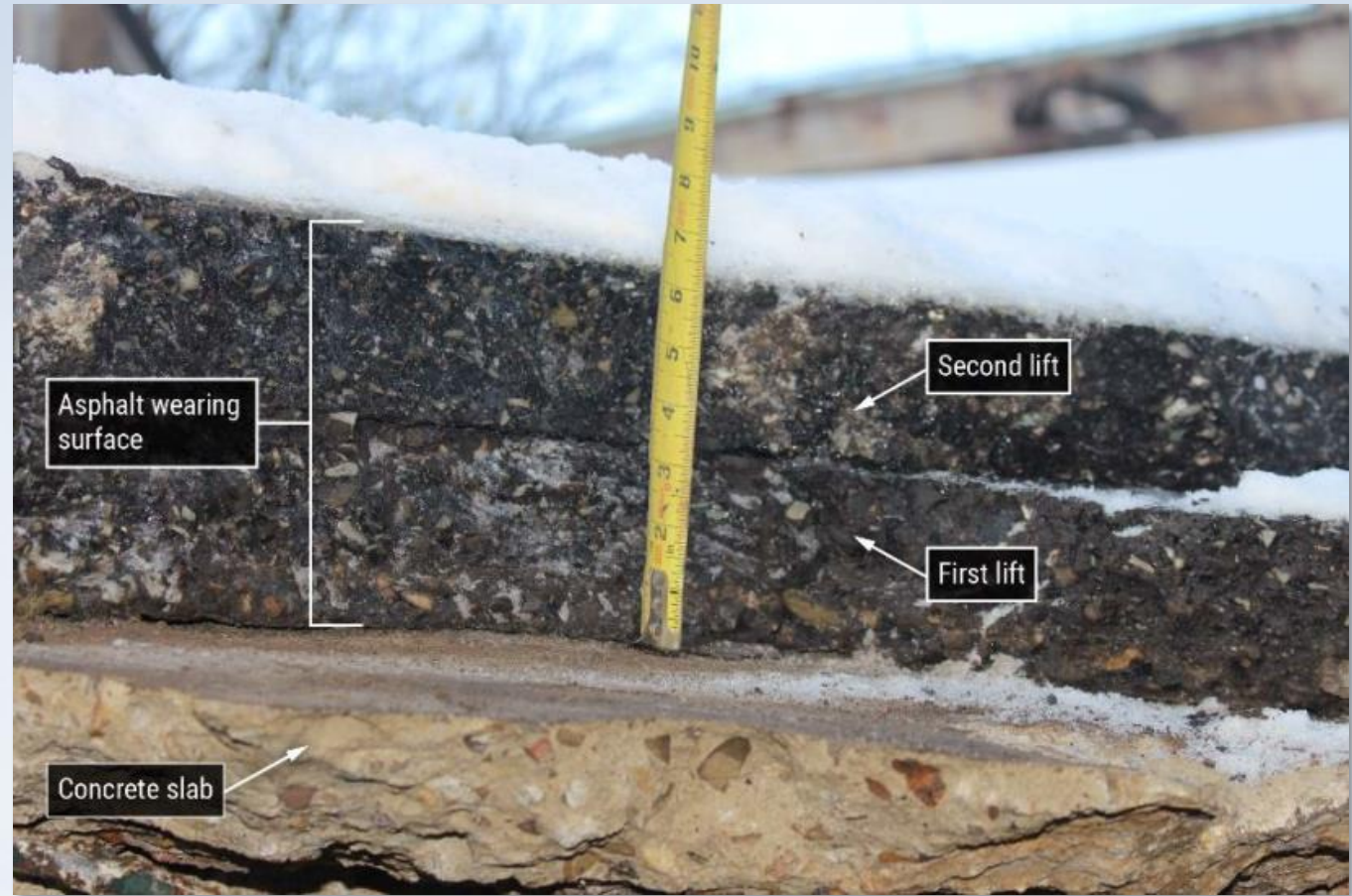


| Bridge ID | Name   |
|-----------|--|
| BR-001    | Alexander Street Bridge                        |
| BR-003    | Frankie Mae Pace Park (The Cap)                |
| BR-005    | Charles Anderson Bridge (Blvd of the Allies)   |
| BR-006    | Ansonia Place Bridge                           |
| BR-007    | Bajo Street Bridge Off Becks Run Rd            |
| BR-008    | Baum Boulevard Bridge                          |
| BR-009    | Bigelow Boulevard Underpass                    |
| BR-010    | Bloomfield Bridge                              |
| BR-013    | Mon Wharf Switchback Pedestrian Bridge         |
| BR-014    | Calera Street Bridge 1                         |
| BR-015    | Calera Street Bridge 2                         |
| BR-016    | Carnahan Road at Banksville Rd                 |
| BR-018    | Corliss Street Tunnel                          |
| BR-019    | Centre Avenue Bridge                           |
| BR-021    | West Carson Street Bridge over Chartiers Creek |
| BR-022    | Columbus Avenue Bridge                         |



# Inspect!

- Good Condition – 29 (20%)
- Fair Condition – 77 (55%)
- Poor Condition – 36 (25%)
  - Pennsylvania – 13%
  - Nationally – 6.8%



*Fern Hollow Bridge asphalt overlay (NTSB HIR 24-02)*

# Inspect (and Analyze)!

- New load ratings on file for 58 bridges since start of 2022:
  - Resulted in four (4) closures:
    - *Charles Anderson Bridge, Parking Lot Bridge, North Ave, Fritz St*
  - Emergency repairs at four (4) locations:
    - *Calera St #1, Parking Lot Bridge, Shaler St, Upper McArdle Roadway*
  - Reduced postings at seven (7) locations:
    - *Corley St, West Carson St, Swinburne Bridge, South Negley Ave, Shaler St, Panther Hollow Overpass, Alexander St*
- Load Posted – 16
- Closed - 7



*Charles Anderson Bridge, Gusset L5N (Drone flight, 2023)*

# Maintain!

- In-House or On-Call...
- 43 Work Orders since October 2022:
  - Expansion joint repairs and reseals on 21 bridges
    - Strip seals or compression seals, some EMSeals
    - Due to condition, maintenance on modular dams and tooth dams is deferred
  - 28 high priority WO's for repairs on 22 bridges
    - Undermined bearings, delamination or other loose material hazards, holes through sidewalks and exposed deck rebar, downspout repairs, stringer and girder plating
  - Washed 25 bridges in 2022, 31 in 2023, and 45 scheduled for this fall
    - Primarily focusing on flushing gutters, scuppers, joints, beam seats



*Elizabeth St Bridge, before...*



*Elizabeth St Bridge, after!*

# Maintain!



*Old Fern Hollow Bridge (September 2021)*



*New Fern Hollow Bridge (August 2024)*

# Maintain!

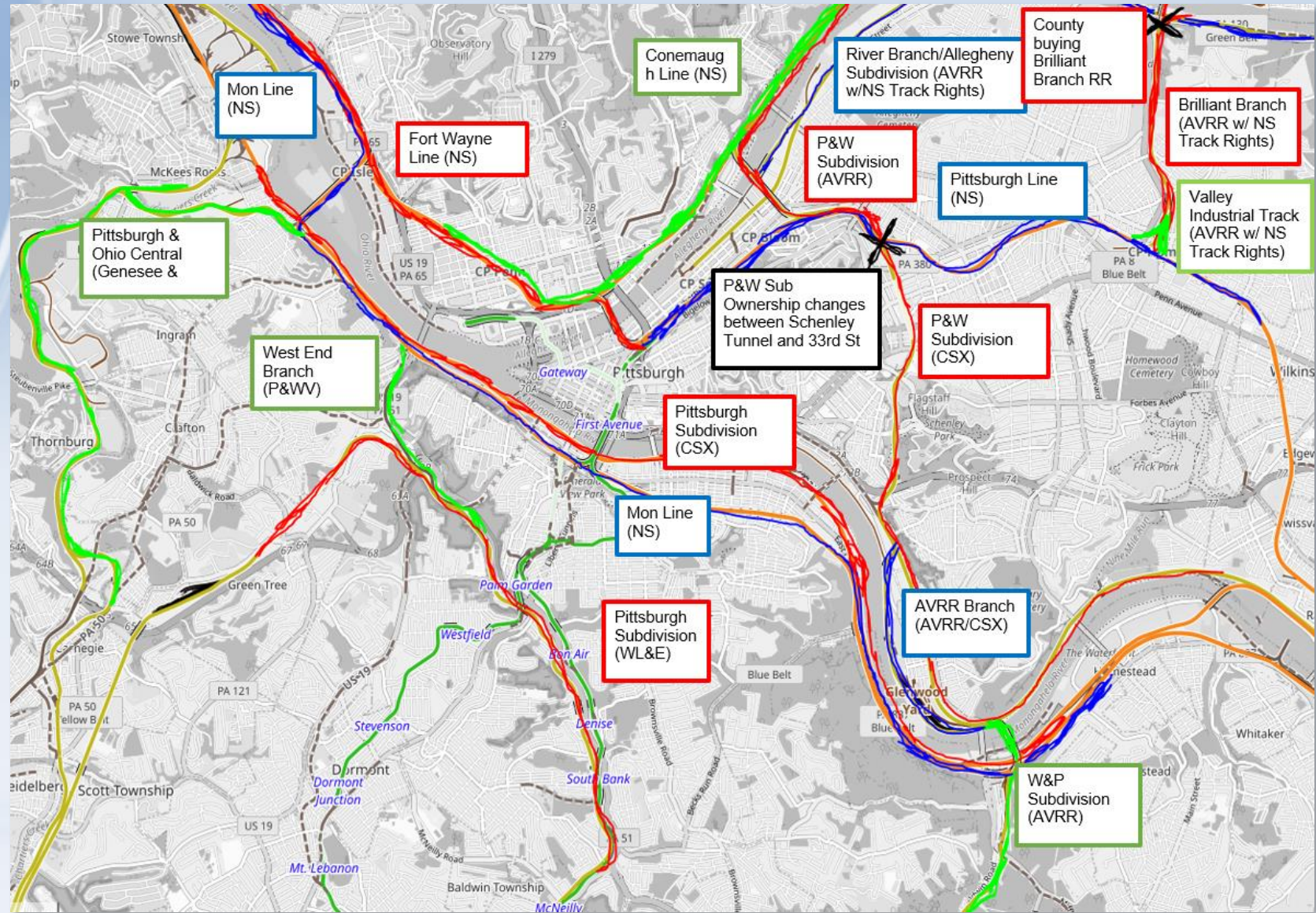
| Tasks by Year |            |                       |  |
|---------------|------------|-----------------------|--|
| Year          | Number     | Cost                  |  |
| 2018          | 2          | \$ 215,435.40         |  |
| 2019          | 5          | \$ 786,364.51         |  |
| 2020          | 1          | \$ 192,511.50         |  |
| 2021          | 0          | \$ -                  |  |
| 2022          | 32         | \$ 222,715.24         |  |
| 2023          | 52         | \$1,774,773.28        |  |
| 2024          | 77         | \$ 736,465.65         |  |
| <b>Total</b>  | <b>169</b> | <b>\$3,928,265.58</b> |  |

| Tasks by Type               |        |                |  |
|-----------------------------|--------|----------------|--|
| Type                        | Number | Cost           |  |
| Clean/Flush                 | 83     | \$ 230,601.19  |  |
| Deck Joints                 | 26     | \$1,219,675.00 |  |
| Deck                        | 21     | \$ 918,859.22  |  |
| Maintenance                 | 7      | \$ 289,467.42  |  |
| Abutment - Wing - Pier, etc | 7      | \$ 189,207.50  |  |
| Railing                     | 4      | \$ 2,933.20    |  |
| Deck Drain                  | 5      | \$ 21,867.04   |  |
| Bearings                    | 3      | \$ 242,094.59  |  |
| Steel                       | 3      | \$ 460,692.74  |  |
| Culvert                     | 1      | \$ 7,532.80    |  |
| Painting                    | 1      | \$ 47,975.86   |  |

| Line Item  | Item Name  | Unit of Measure | Total Count | Total Average | 220016 Average | 220016 Count | 220017 Average | 220017 Count |        |    |     |     |     |   |       |     |     |
|------------|--|-----------------|-------------|---------------|----------------|--------------|----------------|--------------|--------|----|-----|-----|-----|---|-------|-----|-----|
| 4901-0001  | Minor Maintenance and Protection of Traffic During Construction, Modified                        | Day             | 17          | 5.2           |                | 0            | 5.2            | 17           |        |    |     |     |     |   |       |     |     |
| 4608-0001  | Mobilization (4608-0012, others for 260016?)   | PDA             | 16          | LS            | LS             | 13           | 0.1            | 3            |        |    |     |     |     |   |       |     |     |
| 4901-0002  | Major Maintenance and Protection of Traffic During Construction, Modified (4901-0001 for 220016) | Day             | 14          | LS            | LS             | 11           | 3              | 3            |        |    |     |     |     |   |       |     |     |
| 5008-0001  | Preformed Neoprene Compression Joint Seal, Movement Varies, Modified                             | LF              | 13          | 145           | 154.2          | 9            | 124.3          | 4            |        |    |     |     |     |   |       |     |     |
| 9108-0008  | 3/4 Ton Pickup Truck   | Hour            | 12          | 30.3          |                | 0            | 30.3           | 12           | 46     |    | 4   |     | 32  | 4 | 50    | 112 | 56  |
| 9001-0030  | Laborer - Regular Time   | Hour            | 12          | 93.3          |                | 0            | 93.3           | 12           | 94     |    | 8   |     | 128 |   | 221.5 | 384 | 164 |
| 9001-0031  | Foreman - Regular Time   | Hour            | 11          | 26.5          |                | 0            | 26.5           | 11           | 8      |    |     |     | 32  |   | 56    | 116 | 28  |
| 9901-0101  | Flagger - Regular Time (9001-0035?)  | Hour            | 11          | 55.1          |                | 0            | 55.1           | 11           |        |    |     | 4   |     | 6 |       | 160 | 6   |
| 9090-9001  | Repair Deteriorated Concrete, As Directed < 50 CF  | CF              | 8           | 18.1          |                | 0            | 18.1           | 8            |        | 15 | 2.5 | 4.5 |     |   |       |     |     |
| 9108-0002  | Miscellaneous Power Tools  | Hour            | 7           | 37.4          |                | 0            | 37.4           | 7            | 16     |    | 4   |     | 32  |   | 50    | 104 | 52  |
| 9108-0003  | 5000-Watt Generator with Small Hand Tools  | Hour            | 7           | 41.4          |                | 0            | 41.4           | 7            | 16     |    | 4   |     | 32  |   | 50    | 104 | 52  |
| 9001-0032  | Carpenter - Regular Time   | Hour            | 7           | 62.6          |                | 0            | 62.6           | 7            | 32     |    |     |     |     |   |       | 264 | 94  |
| 9018-0050  | Removal of Portion of Existing Bridge Or Retaining Wall  | CF              | 5           | 7.9           |                |              | 7.9            | 5            |        |    |     |     | 5   | 6 |       |     | 5   |
| 9108-0014  | 60' Vertical Reach Manlift   | Hour            | 5           | 14.6          |                | 0            | 14.6           | 5            |        |    |     | 8   | 48  |   |       |     | 5   |
| Addl Equip | Tool Truck/Van   | Hour            | 5           | 54            |                | 0            | 54             | 5            | 24     |    |     |     | 32  |   | 50    | 104 | 60  |
| 9108-0007  | Single Axle Dump Truck, 5 Cy Capacity (w/o Driver)   | Hour            | 4           | 10            |                | 0            | 10             | 4            | 8      |    |     |     |     |   |       |     | 22  |
| Addl Serv  | Portable Restroom  | EA              | 3           | 1.3           |                | 0            | 1.3            | 3            | 1      |    |     |     |     | 1 | 2     |     |     |
| 9001-0036  | Operator - Regular Time  | Hour            | 3           | 15.8          |                | 0            | 15.8           | 3            | 38.5   |    |     |     |     |   |       | 4   | 5   |
| 9001-0030  | Laborer - Premium Time   | Hour            | 3           | 16.7          |                | 0            | 16.7           | 3            | 0.5    |    |     |     |     |   | 30.5  | 19  |     |
| 9108-0015  | 80' Vertical Reach Manlift   | Hour            | 3           | 20            |                | 0            | 20             | 3            |        |    |     |     |     | 4 | 40    |     |     |
| 9108-0001  | Compressor, 100-300 C.F.M. With Minimum 300' Airhose, 3/4" And Minimum of Two Pavement Breakers  | Hour            | 3           | 24.7          |                | 0            | 24.7           | 3            |        |    |     |     |     |   | 50    |     | 16  |
| 1040-0004  | Concrete Bridge Deck Repair, Type 3, < 50 SF   | SF              | 3           | 194.9         |                | 0            | 194.9          | 3            |        |    |     |     |     |   |       |     |     |
| 9901-0001  | Maintenance and Protection of Traffic During Construction, Detour less than 2 miles (1/2 mile?)  | EA              | 3           | LS            | LS             | 1            | 1              | 2            |        | 1  |     |     |     |   |       |     |     |
| Addl Mat   | Steel Plates   | LS              | 3           | LS            |                | 0            | LS             | 3            | 1 (LS) |    |     |     |     |   |       |     | 1   |

# Coordinate!

- Norfolk Southern
- CSX
- Allegheny Valley
- Pittsburgh Regional Transit



# Bonus: Downsizing!

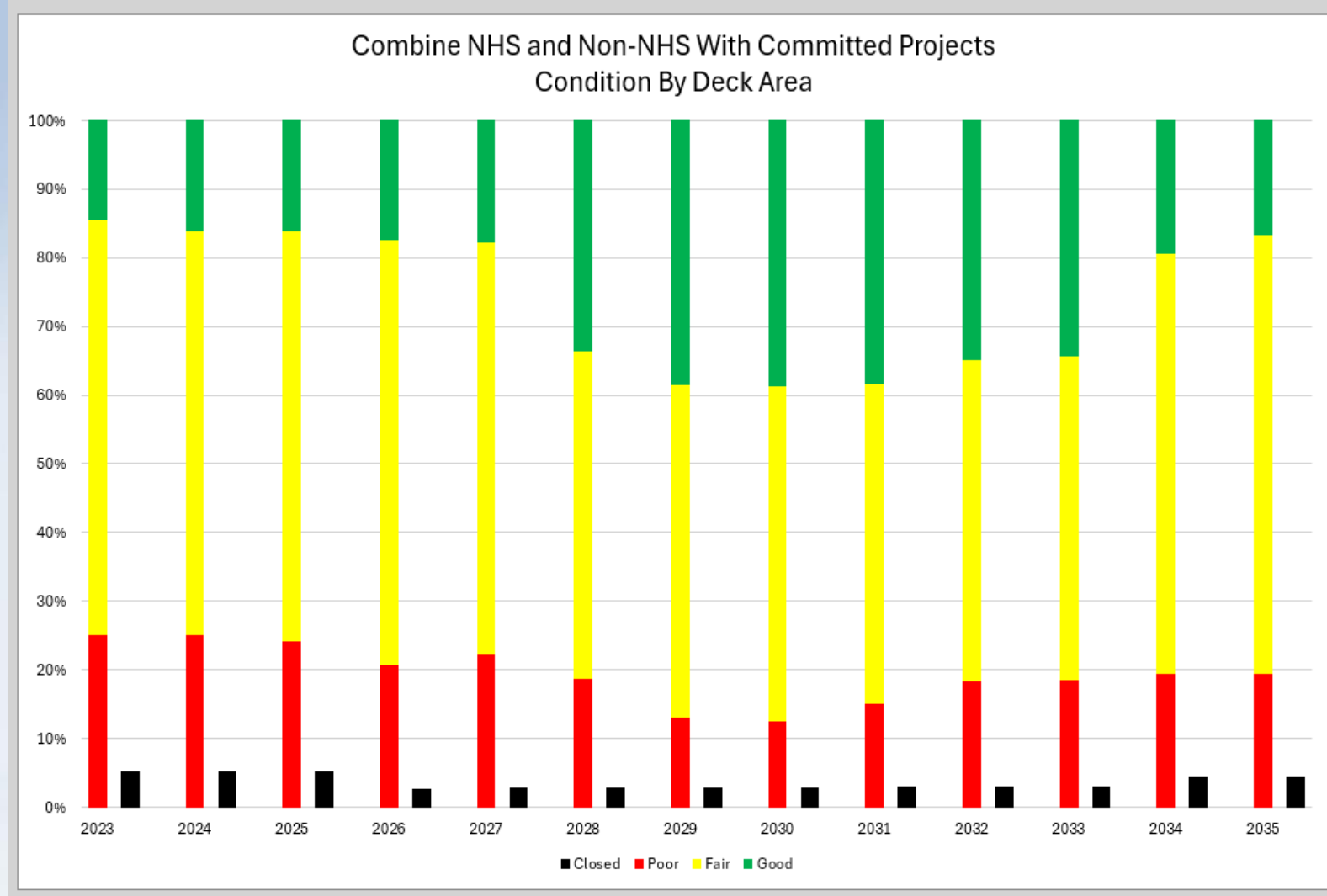


- Demolition of Pittsburgh’s “Parking Lot Bridge” (one of two)
- Formerly an undercut railroad bridge for the Pittsburgh & West Virginia Railway built in 1930
- The railroad was defunct in the 1940’s and the site turned into a privately-operated parking lot in the 1960’s
- SR 51 (~30,000 ADT) was closed for the month of August while DOMI collaborated with PennDOT on the bridge removal



# Program!

- 12 bridges in Preliminary Engineering
  - 5 are historic
- 4 bridges in scoping
  - To be designed on an Open End contract
- 2025 Preservation Line Item



# Grow!

## DEPARTMENT OF MOBILITY AND INFRASTRUCTURE

### ADMINISTRATIVE

BUDGETS &  
CONTRACTS

LEGAL AFFAIRS  
*(City Law Dept)*

PERFORMANCE  
MANAGEMENT

PAYROLL

### PLANNING, POLICY & PERMITTING

Assistant Director

PLANNING & POLICY

PERMITS & UTILITIES

### PROJECT DESIGN & DELIVERY

Chief Engineer

STRUCTURES

STREETS

CONSTRUCTION  
DIVISION

PAVING DIVISION

BRIDGE MAINTENANCE DIVISION  
*(Created 2024)*

### TRAFFIC OPERATIONS

Municipal Traffic Engineer

COMPLETE STREETS

SIGNAL DESIGN

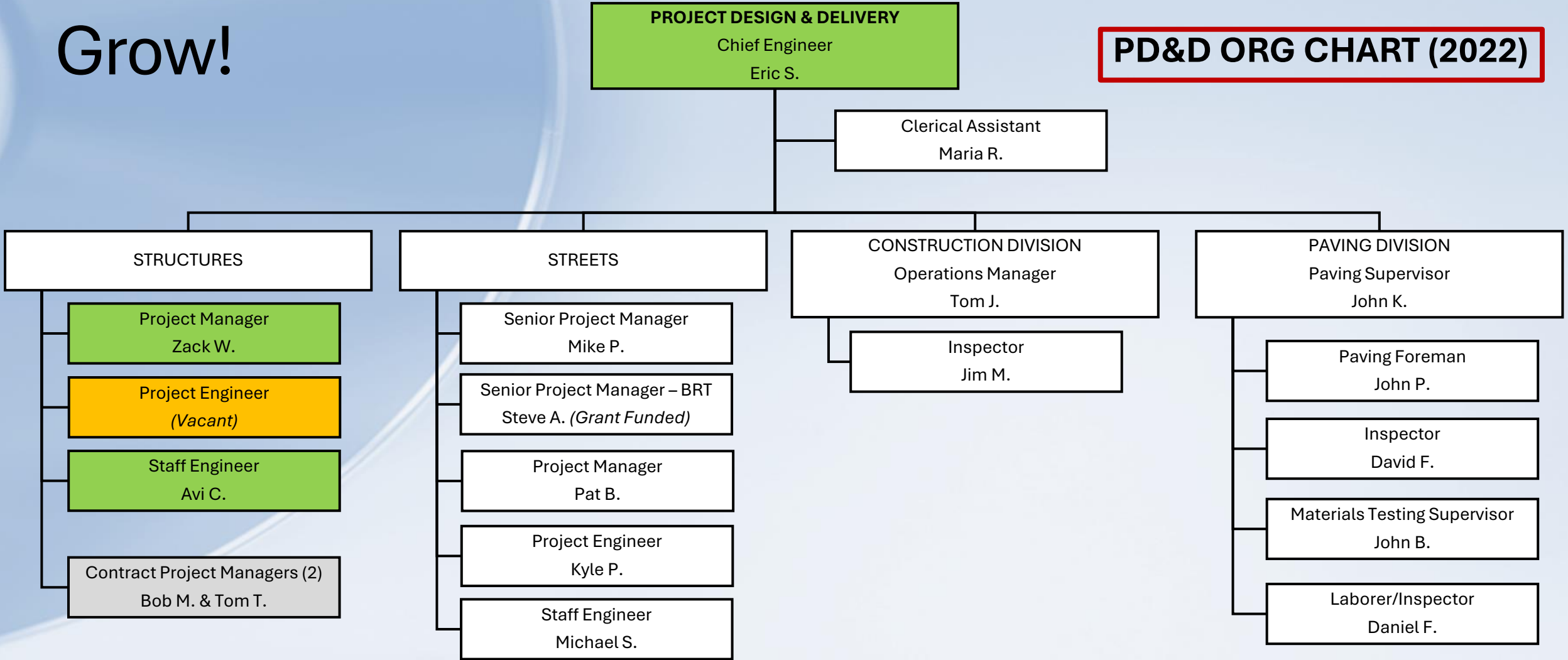
SIGN & PAINT SHOP

SIGNAL SHOP



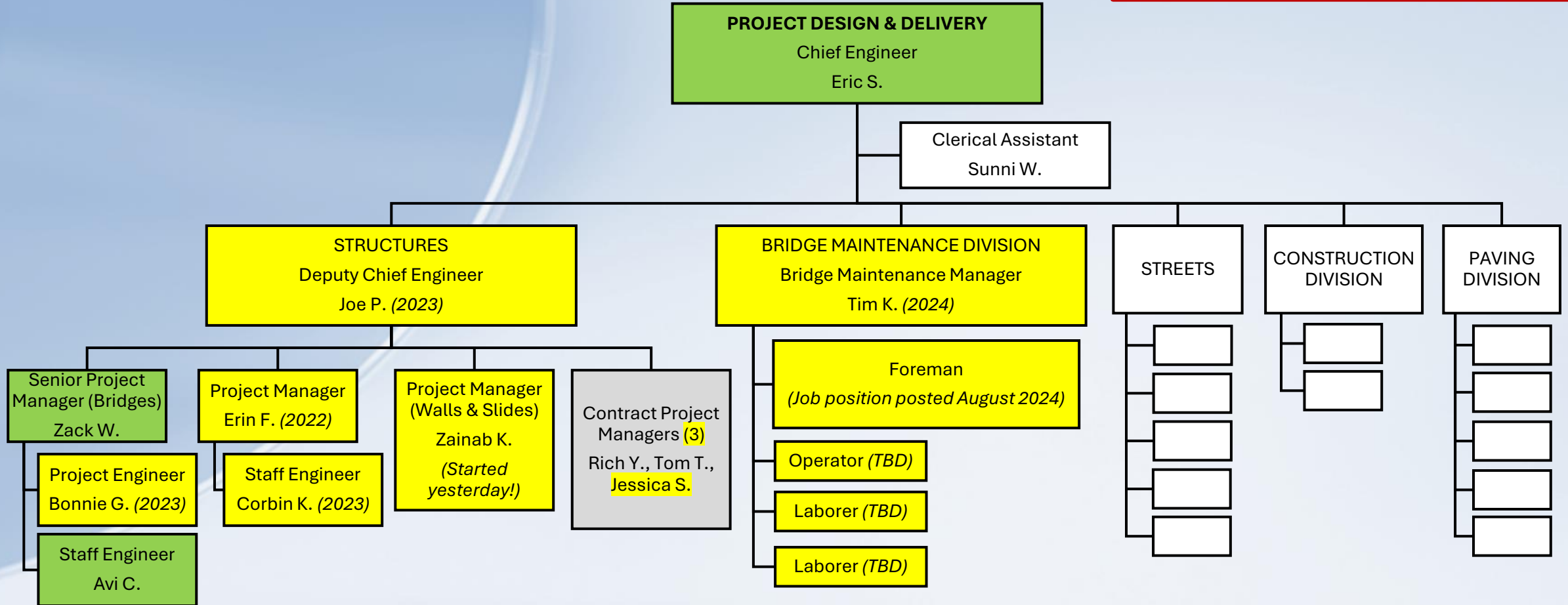
# Grow!

## PD&D ORG CHART (2022)



# Grow!

## PD&D ORG CHART (2024)



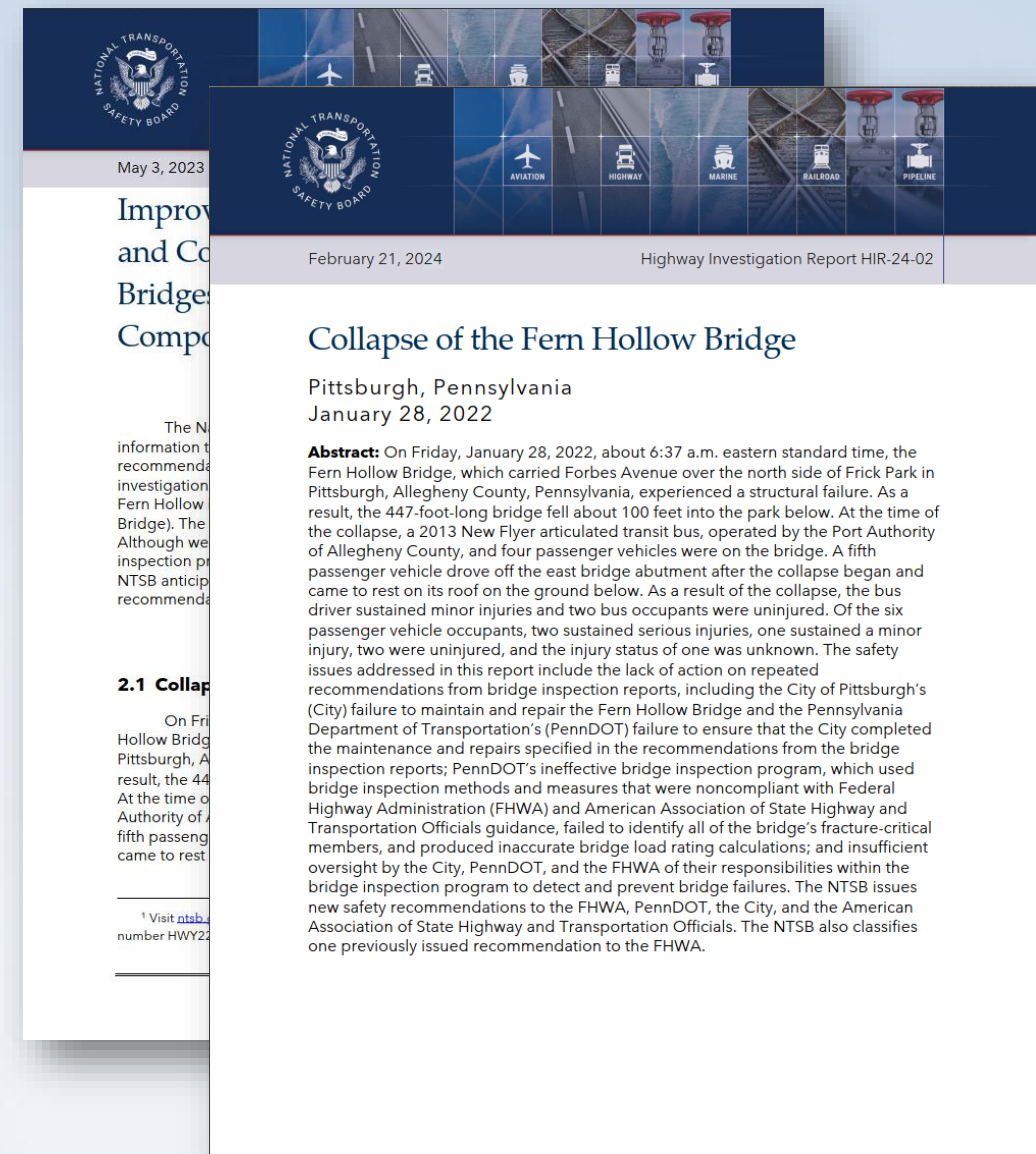
# Improve!

- Process Improvements for City projects with State and Federal funding
  - Suggest ways to get projects from planning to construction quicker
  - WSP provided 27 recommendations to the City
    - 9 design and construction contracting ideas  
(Up-To or Not-to-Exceed Contracts, Bridge Bundling, and PennDOT Open End for City projects)
    - Formal Budget Request Procedure
    - Standard Reimbursement Agreement
    - Conservative Reimbursement Agreements
    - Submission Review Procedure  
(Concurrent, and in a centralized data base like ProjectWise or SharePoint)
    - Dedicated Staffing/Training to facilitate reimbursement agreements, including hiring a Project Administrator
    - 13 Federal and State funding or grant opportunities

# NTSB Findings

- Interim Recommendation to FHWA in May 2023 regarding Uncoated Weathering Steel (HIR-23-07)
- Final Recommendations to FHWA, PennDOT, City of Pittsburgh, and AASHTO in February 2024 regarding:
  - identification of NSTMs (fracture critical members),
  - bridge inspection practices,
  - load rating guidance,
  - maintenance, monitoring of repair priorities,
  - establishing paving records,
  - establishing procedures for measuring wearing surface thickness

[nts.gov/investigations/Pages/HWY22MH003.aspx](https://www.nts.gov/investigations/Pages/HWY22MH003.aspx)



NTSB's reports HIR-23-07 and HIR-24-02

# Pittsburgh's Bridges going into 2025

- Comprehensive structures asset and condition tracking
- Meet monthly with bridge inspectors to review every recent and upcoming bridge inspection to discuss POA's
- Writing the Bid documents for the next On-Call contract based on lessons learned from 2022 contract
- Hiring In-House bridge maintenance division with equipment purchased through a competitive Grant
- Advance four projects to Final Design, progress eight through Preliminary Engineering, and scope four new bridges for Preservation projects
- Design a culvert replacement using In-House staff
- Coordinate with railroads, PRT on bridge projects
- Ride the momentum for three more bridge removals
- Charles Anderson Bridge NTP on April 29th, 2024



*Charles Anderson Bridge, built 1939*



*The new Fern Hollow Bridge (2023)*

# Thank you! Questions?

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