

# FACILITIES MAINTENANCE MANAGEMENT

## Roofing - life cycle cost analysis

Projected Inflation Per Year

3.50% unless noted below

| AREA | DESCRIPTION                     | Yr Completed | SqFt   | Est Total Replacement Cost Based on Yr 2020 | Life Cycle (yrs) | Est Annual Replacement Cost | Est              | Est              | Est              | Est              | Est              | Est              |
|------|---------------------------------|--------------|--------|---|------------------|-----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|      |                                 |              |        |   |                  |                             | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost |
|      |                                 |              |        |   |                  |                             | 2022             | 2023             | 2024             | 2025             | 2026             | 2027             |
| 1    | K Wing                          | 2012         | 12,928 | \$229,472                                   | 20               | \$11,474                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 1    | G Wing                          | 2012         | 29,049 | \$515,620                                   | 20               | \$25,781                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 1    | M Wing                          | 2012         | 13,725 | \$243,619                                   | 20               | \$12,181                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 1    | Z Wing - Garage                 | 2012         | 11,282 | \$200,256                                   | 20               | \$10,013                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 1    | Z Wing - Garage                 | 2012         | 864    | \$15,336                                    | 20               | \$767                       | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 2    | C Wing - Mechanical Room        | 2012         | 485    | \$8,609                                     | 20               | \$430                       | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 3    | H/J Hall                        | 2005         | 15,999 | \$283,982                                   | 20               | \$14,199                    | \$0              | \$0              | \$0              | \$0              | \$337,282        | \$0              |
| 3    | H Wing                          | 2005         | 7,742  | \$137,421                                   | 20               | \$6,871                     | \$0              | \$0              | \$0              | \$0              | \$163,212        | \$0              |
| 3    | J Wing                          | 2005         | 16,798 | \$298,165                                   | 20               | \$14,908                    | \$0              | \$0              | \$0              | \$0              | \$354,126        | \$0              |
| 4    | P Wing - Pool                   | 2003         | 25,674 | \$455,714                                   | 20               | \$22,786                    | \$0              | \$0              | \$505,258        | \$0              | \$0              | \$0              |
| 4    | P Wing Hall                     | 2003         | 1,376  | \$24,424                                    | 20               | \$1,221                     | \$0              | \$0              | \$27,079         | \$0              | \$0              | \$0              |
| 4    | P Wing - Gym                    | 2003         | 9,548  | \$169,477                                   | 20               | \$8,474                     | \$0              | \$0              | \$187,902        | \$0              | \$0              | \$0              |
| 4    | P Wing East                     | 2003         | 5,520  | \$97,980                                    | 20               | \$4,899                     | \$0              | \$0              | \$108,632        | \$0              | \$0              | \$0              |
| 4    | P Wing North                    | 2003         | 1,137  | \$20,182                                    | 20               | \$1,009                     | \$0              | \$0              | \$22,376         | \$0              | \$0              | \$0              |
| 4    | P Wing West                     | 2003         | 5,520  | \$97,980                                    | 20               | \$4,899                     | \$0              | \$0              | \$108,632        | \$0              | \$0              | \$0              |
| 5    | N Wing Court Elevator           | 2003         | 453    | \$8,041                                     | 20               | \$402                       | \$0              | \$0              | \$8,915          | \$0              | \$0              | \$0              |
| 5    | N Wing - Pioneer Gym            | 2003         | 31,074 | \$551,564                                   | 20               | \$27,578                    | \$0              | \$0              | \$611,528        | \$0              | \$0              | \$0              |
| 5    | N Wing Hall                     | 2003         | 28,657 | \$508,662                                   | 20               | \$25,433                    | \$0              | \$0              | \$563,962        | \$0              | \$0              | \$0              |
| 6    | B Walkway                       | 2007         | 846    | \$15,017                                    | 20               | \$751                       | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | C Wing                          | 2007         | 5,926  | \$105,187                                   | 20               | \$5,259                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | D Wing Hall                     | 2007         | 7,375  | \$130,906                                   | 20               | \$6,545                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | G Wing                          | 2007         | 4,647  | \$82,484                                    | 20               | \$4,124                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | B Wing & Hall                   | 2007         | 14,571 | \$258,635                                   | 20               | \$12,932                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | B Wing West                     | 2007         | 11,108 | \$197,167                                   | 20               | \$9,858                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | B Wing                          | 2007         | 3,895  | \$69,136                                    | 20               | \$3,457                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | D/E Connector/East              | 2007         | 1,019  | \$18,087                                    | 20               | \$904                       | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | C/D Connector/East              | 2007         | 858    | \$15,230                                    | 20               | \$761                       | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 6    | C/D Wing Main Hall              | 2007         | 4,036  | \$71,639                                    | 20               | \$3,582                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 7    | L Wing                          | 2003         | 19,441 | \$345,078                                   | 20               | \$17,254                    | \$0              | \$0              | \$382,594        | \$0              | \$0              | \$0              |
| 7    | L & M Wing Addition - Tech Area | 2003         | 56,299 | \$999,307                                   | 20               | \$49,965                    | \$0              | \$0              | \$1,107,950      | \$0              | \$0              | \$0              |
| 7    | S Wing - Fine Arts Bldg         | 2003         | 27,572 | \$489,403                                   | 20               | \$24,470                    | \$0              | \$0              | \$542,610        | \$0              | \$0              | \$0              |
| 8    | L Wing - Process Training       | 2001         | 4,794  | \$85,094                                    | 20               | \$4,255                     | \$88,072         | \$0              | \$0              | \$0              | \$0              | \$0              |
| 9    | E Wing                          | 2009         | 19,237 | \$341,457                                   | 20               | \$17,073                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 9    | C Wing High Bay Orig Bldg       | 2009         | 2,619  | \$46,487                                    | 20               | \$2,324                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 9    | D Wing High Bay                 | 2009         | 3,180  | \$56,445                                    | 20               | \$2,822                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 9    | D Wing                          | 2009         | 13,899 | \$246,707                                   | 20               | \$12,335                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 9    | C Wing High Bay SLTF            | 2009         | 1,617  | \$28,702                                    | 20               | \$1,435                     | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 12   | C Wing West                     | 1999         | 10,409 | \$184,760                                   | 20               | \$9,238                     | \$191,226        | \$0              | \$0              | \$0              | \$0              | \$0              |
| 14   | F Wing                          | 2020         | 30,967 | \$549,664                                   | 20               | \$27,483                    | \$0              | \$0              | \$0              | \$0              | \$0              | \$0              |
| 17   | C/D/E Connector/West            | 1999         | 19,466 | \$345,522                                   | 20               | \$17,276                    | \$357,615        | \$0              | \$0              | \$0              | \$0              | \$0              |
| 17   | D Wing Penthouse                | 1999         | 1,431  | \$25,400                                    | 20               | \$1,270                     | \$26,289         | \$0              | \$0              | \$0              | \$0              | \$0              |
| 17   | C/D Corridor Connector/West     | 1999         | 2,399  | \$42,582                                    | 20               | \$2,129                     | \$44,073         | \$0              | \$0              | \$0              | \$0              | \$0              |
| 17   | Library                         | 1999         | 46,131 | \$818,825                                   | 20               | \$40,941                    | \$847,484        | \$0              | \$0              | \$0              | \$0              | \$0              |

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| AREA                           | DESCRIPTION                               | Yr Completed | SqFt    | Est Total Replacement Cost Based on Yr 2020 | Life Cycle (yrs) | Est Annual Replacement Cost | Est              | Est              | Est              | Est              | Est              | Est              |
|--------------------------------|---|--------------|---------|---|------------------|-----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                |   |              |         |   |                  |                             | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost | Replacement Cost |
|                                |   |              |         |   |                  |                             | 2022             | 2023             | 2024             | 2025             | 2026             | 2027             |
| 1M                             | Midland Center Sloped Roof Area           | 1989         | 28,120  | \$668,666                                   | 20               | \$33,433                    | \$692,069        | \$0              | \$0              | \$0              | \$0              | \$0              |
| 2M                             | Midland Center Flat Roof Area             | 1989         | 3,220   | \$45,147                                    | 20               | \$2,257                     | \$46,727         | \$0              | \$0              | \$0              | \$0              | \$0              |
| 1P                             | Planetarium - Main Area                   | 1996         | 13,163  | \$233,643                                   | 20               | \$11,682                    | \$241,821        | \$0              | \$0              | \$0              | \$0              | \$0              |
| 2P                             | Planetarium - Low Area West Wing          | 1996         | 567     | \$10,064                                    | 20               | \$503                       | \$10,416         | \$0              | \$0              | \$0              | \$0              | \$0              |
| 3P                             | Planetarium - Stair Tower                 | 1996         | 340     | \$6,035                                     | 20               | \$302                       | \$6,246          | \$0              | \$0              | \$0              | \$0              | \$0              |
| 4P                             | Planetarium - Observation Deck and Bridge | 1996         | 1,968   | \$83,191                                    | 25               | \$3,328                     | \$86,103         | \$0              | \$0              | \$0              | \$0              | \$0              |
| <b>TOTAL AREA</b>              |   |              | 578,951 |   |                  |                             |                  |                  |                  |                  |                  |                  |
| <b>TOTAL REPLACEMENT VALUE</b> |   |              |         | \$10,482,167                                |                  | \$523,276                   | \$2,638,141      | \$0              | \$4,177,439      | \$0              | \$854,620        | \$0              |

Next three years

\$6,815,580

Main Campus

\$1,554,759

\$0

\$4,177,439

\$0

\$854,620

\$0

Midland Center

\$738,796

\$0

\$0

\$0

\$0

\$0

Bay City Planetarium

\$344,587

\$0

\$0

\$0

\$0

\$0