

**SSMP
ELEMENT 4 – O & M Program
APPENDIX 4.6**

Manhole Inspection Program

2011 - 2020 MANHOLE ASSESSMENT CONDITION PROGRAM (MACP)
ANNUAL INSPECTION SCHEDULE

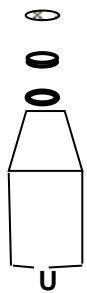
| Year | # Manholes | Cleaning Areas |
|-------------|-------------------|--|
| 2011 | 585 | C1a - C1i, C2a - C2g |
| 2012 | 549 | C3a - C3e, C4a - C4j, D1a - D1f |
| 2013 | 507 | D2a - D2l, D3a - D3f, D4a, D4b, D4c |
| 2014 | 583 | D4d - D4l, E1a, E1b, E2a - E2d, E2k |
| 2015 | 499 | E2e - E2j, E3a - E3m |
| 2016 | 546 | E4a - E4e, E4g - E4r |
| 2017 | 594 | E4f, E4s, E4t, E4u, A1a - A1i, A2a - A2h |
| 2018 | 545 | A2i, A2j, A3a - A3i, A4a - A4d |
| 2019 | 552 | A4e, A4f, B1a, B1b, B2a - B2f, B3a - B3g |
| 2020 | 465 | B4a - B4p |



City of San Mateo
MANHOLE INSPECTION FORM

| | | | |
|-----------------------------------|--|-----------------------------------|--|
| 12. MH#/Struct ID: | | 8. Date: | |
| 41. Project: | | 9. Time: | |
| 34. Sheet #: N/A | | 37. Weather Code: | |
| 6. PO#: N/A | | 4. Drainage Area: Known | |
| 33. Tape/Media #: N/A | | 34. Purpose of Survey: G | |
| 2. System Owner: San Mateo CS | | 51. Video Name: N/A | |
| 36. Pre-Cleaning: N | | 37. Date Cleaned: 00000000 | |
| 3. Survey Customer: San Mateo CS | | I. Surveyor's Name: | |
| 31. Year Installed: Known | | 1a Certification #: N/A | |
| 32. Year Rehabilitated: Z | | 10. MH Street Name & #: | |
| 10a. City: San Mateo | | 11. Further Location Details: | |
| 20. Use: SS | | 35. Criticality Rating: TBD | |
| 43. Northing (Y): Verified | | 40. MH Surface Type: | |
| 44. Easting (X): Verified | | 38. MH Location Code: | |
| 45. Elevation (Z): Not Verified | | 41. I&I Potential: | |
| 46. Coordinate System: NAD83CAIII | | 42. Access Point Type: | |
| 47. Accuracy of GPS Code: N/A | | 48. Inspection Status: | |
| Subject to Dirt or Debris? Y N | | Steps Present? Y N | |
| 49. Evidence of Surcharge? Y N | | 13. Outgoing Rim to Invert: ft | |
| 39. Additional Information: | | 14. Outgoing Grade to Invert: ft | |
| (Or Sketch if different than map) | | 15. Rim to Grade: ft | |
| | | Cover Type / Lid Diameter: in. | |
| | | # of Holes in Lid/Hole Dia. Code: | |
| | | Cover/Frame Fit: | |
| | | Barrel Diameter: in. | |
| | | Rodents: | |
| Initial Gas Detector Levels | | O2: H2S: LEL: CO: | |

PHYSICAL DATA



| | Material Condition | Comments: |
|----------------|--------------------|--|
| Lid | | |
| Frame | | |
| Grade Rings | | <input type="checkbox"/> solid <input type="checkbox"/> adjustable |
| Cone | | <input type="checkbox"/> Flat-top <input type="checkbox"/> Concentric <input type="checkbox"/> Eccentric Lined? Y N |
| Barrel/Wall | | Lined? Y N |
| Bench/Shelf | | Lined? Y N |
| Channel/Trough | | <input type="checkbox"/> Pipe <input type="checkbox"/> Formed <input type="checkbox"/> Precast <input type="checkbox"/> Insert |

OVERALL RATING

| |
|--|
| <input type="checkbox"/> Good/Satisf (Inspect Annually) |
| <input type="checkbox"/> Debris/Solids Buildup in MH |
| <input type="checkbox"/> Other Maint (describe in comments) |
| <input type="checkbox"/> Needs Repair (describe in comments) |

OVERALL COMMENTS:

| |
|--|
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

*Sample Comments: Poor structural condition, Serviceable, Broken, Unsafe, Damaged, Corroded, Missing Grout Needs Raising, Needs Lowering, Misaligned, Leaking Ill-fitting, Dirty, Bad joint, Roots, Grease, Infiltration, Cracks

CITY OF SAN MATEO - MANHOLE INSPECTION CODES

34. PURPOSE OF SURVEY

| Code | Description |
|------|----------------------------|
| A | Maintenance Related |
| B | I&I Investigation |
| C | Post Rehabilitation Survey |
| D | Pre Rehabilitation Survey |
| E | Pre-Acceptance (New MH) |
| F | Routine Assessment |
| G | CIP Assessment |
| H | Resurvey for any reason |
| V | Reversal |
| Z | Not Known |

37. WEATHER

| Code | Description |
|------|-------------|
| 1 | Dry |
| 2 | Heavy Rain |
| 3 | Light Rain |
| 5 | Saturated |
| 6 | Damp |
| 7 | Very Dry |

38. MH LOCATION

| Code | Description |
|------|--------------------------|
| A | Main Urban Hwy (92, 101) |
| B | Suburban Hwy (El Camino) |
| D | ROW – all other streets |
| E | Woods |
| F | Sidewalk |
| G | Parking Lot |
| H | Alley |
| I | Ditch |
| J | Building |
| K | Creek |
| Y | Yard |
| Z | Other (note in box 39) |

40. MH SURFACE TYPE

| Code | Description |
|------|-------------------|
| AS | Asphalt Street |
| CO | Concrete Pavement |
| CC | Concrete Collar |
| GD | Grass or Dirt |
| GR | Gravel |
| ZZ | Other |

41. POTENTIAL FOR RUNOFF DURING STORM

| Code | Description |
|------|---|
| N | None (MH will only receive direct rainfall) |
| S | Sheeting (Rain falling may drain over the MH) |
| P | Ponding (MH is at a low point where water may collect during heavy rains) |
| I | Inundated (Covered by water 1 foot or more during storms) |

47. ACCURACY OF GPS

| Code | Description |
|------|-------------------------------------|
| M | Sub-meter: w/in one meter (3 feet) |
| N | Nearest Meter: > or = 1 meter |
| L | Survey Level: ~5cm overall accuracy |

42. ACCESS POINT TYPE

| Code | Description |
|------|--|
| AMH | Manhole |
| AWA | Wastewater Access |
| AOC | Other Special Chamber |
| AM | Flow Meter Structure (not a MH with a flow meter attached) |
| AWW | Wet Well |
| AJB | Junction Box |
| ACOP | Property Cleanout |
| ACOM | Cleanout on a Mainline |
| ACOH | House Cleanout |
| ACB | Catch Basin |

48. INSPECTION STATUS

| Code | Description |
|------|--|
| SI | Surface Inspection |
| DI | Descent Inspection (entered MH) |
| RI | Remote inspection (use camera) |
| NF | Structure Not Found |
| NO | Not Opened – Cover could not be removed |
| SD | Surcharged or Debris – Structure not completed inspected b/c of debris or high water |
| NI | Could not inspect b/c of traffic |
| NA | Could not inspect b/c unable to gain access |
| BM | Structure located but not excavated or raised yet - marked but no inspection. |

STRUCTURE MATERIALS

| Code | Description |
|------|---------------------------------|
| AC | Asbestos Concrete |
| BR | Brick |
| CAS | Cast iron |
| CMP | Corrugated Metal Pipe |
| CP | Concrete (non-reinforced) |
| CSB | Concrete Segments (bolted) |
| CSU | Concrete Segments (unbolted) |
| CT | Clay Tile |
| DIP | Ductile Iron Pipe |
| FRP | Fiberglass Reinforced |
| GRC | Glass Reinforced Cement |
| OB | Pitch Fiber (Orangeburg) |
| PE | Polyethylene |
| PP | Polypropylene |
| PSC | Plastic/Steel Composite |
| PVC | PolyVinyl Chloride |
| RCP | Reinforced Concrete |
| RPM | Reinforced Plastic (Truss Pipe) |
| SP | Steel |
| TTE | Transite |
| VCP | Vitrified Clay |
| WD | Wood |
| XXX | Not Known |
| ZZZ | Other (state in comments) |

VERMIN

| Description |
|-------------|
| Rats |
| Roaches |
| Insects |
| Racoons |
| None |

CITY OF SAN MATEO - MANHOLE INSPECTION CODES

MH COVER TYPE – Use more than one code as nec.

| Code | Description |
|------|--|
| 1 | Solid (concealed pick holes) |
| 2 | Vented (pick holes & vent holes allow rain in) |
| 3 | Gasketed (gasket present to prevent rain inflow) |
| 4 | Bolted |
| 5 | Inner Cover (a secondary lid is installed under top cover) |
| 6 | Locking (requires special tool to unlock and remove lid) |

MH COVER HOLE DIAMETER

| Code | Description |
|------|--|
| A | Less than or equal to ½ inch |
| B | Greater than ½ inch but less than or equal to 1 inch |
| C | Greater than 1 inch but less than or equal to 1.5 inches |
| D | Greater than 1.5 inches but less than or equal to 2 inches |
| E | Greater than 2 inches |

MH COVER/FRAME FIT

| Code | Description |
|------|--|
| O | Oversized (cover does not fit completely onto frame) |
| G | Good (Gap b/w cover and frame less than or equal to ¼ inch) |
| U | Undersized (Gap b/w cover and frame is more than ¼ inch) |
| R | Rocks/Wobbles (Cover unstable when standing on it. Clatters when traffic drive over) |

MH COVER, FRAME & RING CONDITION CODES– Use more than one code as nec.

| Code | Description |
|------|---|
| A | Sound – no visible structural defects |
| B | Cracked – cover cracked but still in one piece |
| C | Broken – cover broken and in loose pieces |
| D | Missing – or in the bottom of the manhole |
| E | Corroded/Pitted – So corroded it does not sit properly on frame |
| F | Bolts Missing – some or all bolts not in place |
| G | Coated (coated or has a liner) |
| H | Loose/Not Attached |
| I | Offset |

13. OUTGOING RIM TO INVERT:

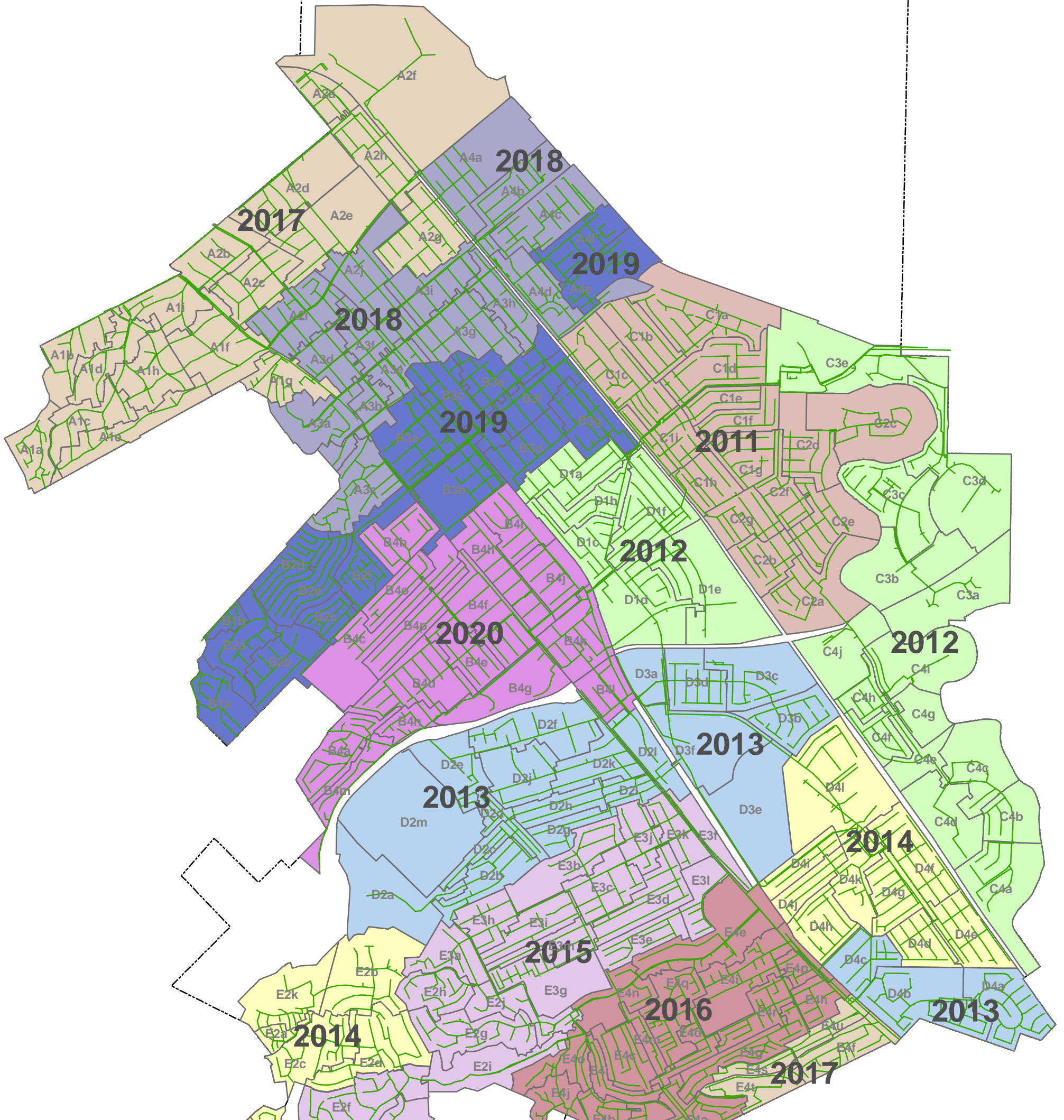
Enter in feet (to the nearest tenth of a foot) the distance between the rim level of the manhole (top of manhole lid) and the invert (bottom of channel).

14. OUTGOING GRADE TO INVERT:

Enter in feet (to the nearest tenth of a foot) the depth between the grade (ground) and the invert (bottom of channel).

CONE, WALL, BENCH, CHANNEL CONDITION CODES: Use more than one code as nec.

| Code | Description |
|------|---------------------------------------|
| A | Sound – no visible structural defects |
| B | Cracked |
| CM | Cracks Multiple |
| C | Broken |
| D | Missing |
| DB | Displaced Brick |
| DA | Deposits Attached |
| DS | Deposits Settled |
| E | Corroded/Pitted |
| F | Needs Immediate Repair |
| FC | Fracture Circumferential |
| FL | Fracture Longitudinal |
| FM | Fracture Multiple |
| G | Coated (coated or has a liner) |
| H | Loose/Not Attached |
| I | Offset |
| IS | Infiltration Stain |
| IW | Infiltration Weeper |
| IR | Infiltration Runner |
| IG | Infiltration Gusher |
| LF | Lining Failure |
| RF | Roots Fine |
| RM | Roots Medium |
| RB | Root Ball |
| | |
| WF | Weld Failure |



Citywide Manhole Inspections

| YEAR | # MH's |
|------|--------|
| 2011 | 585 |
| 2012 | 549 |
| 2013 | 507 |
| 2014 | 583 |
| 2015 | 499 |
| 2016 | 546 |
| 2017 | 594 |
| 2018 | 545 |
| 2019 | 552 |
| 2020 | 465 |