



Communications and Electrical Conduit and Manholes Program

City of Milwaukee
Department of Public Works
February, 2015

Underground Communications and Electrical Conduit

Existing Conduit Facilities

- **571 miles of conduit, measured end-to-end**

9% Iron pipe (1888—1905)

19% Clay tile (1905-1930)

53% Fiber (1930—1980)

19% PVC (1980- Present)

Ducts

PVC Pipe in Clay Duct



Fiber Duct



Conduit Installation Completed – 2014

(Major Paving Projects)

- Major Projects
 - S 27th St – Howard to Union Pacific Railroad
 - S Howell Ave – College to Grange
 - W Appleton Ave – Swan to Fire House
 - W Bradley Rd – 76th St to Fire House
- WISDOT Projects –
 - Zoo Interchange Reconstruction
 - S 76th St Project- Bore under I-94, Kearney, O'Connor
 - Phase 1 project - 84thSt, O'Connor.
 - Stadium Freeway
 - Wisconsin Ave Bridge
 - Bridges over I-43
 - Lincoln Bridge
 - Maple Bridge



New Conduit Installation – 2015

(Major Street Paving Program)

- Major Paving Projects
 - Fond Du Lac Ave – N 60th Street to N 68th Street
 - Howell Avenue – Layton Avenue to Howard Avenue
- WisDOT Paving Projects
 - Stadium Freeway – Vliet Street Bridge
 - Zoo Interchange – Bluemound Bridge over I-45, Adler Street
 - Bridges over I-43 – Howard, Lapham, Greenfield
 - Lakefront Gateway – Lincoln Memorial, Clybourn, Michigan, Cass
- Streetcar Utility Relocations
- Century City Development

Conduit System Under Design – 2014/2015

(WISDOT Major Construction Project Initiatives)

- Zoo Interchange Reconstruction
- Stadium Freeway Vliet Street Bridge Replacement
- IH43/IH 94 (North/South Freeway) Bridge Replacements
- Fond du Lac Ave – N 60th St to N 68th St
- Howell Ave – S Layton Ave to S Howard Ave
- Lakefront Gateway Project
- Streetcar Project
- Century City Development
- Mill Rd – N 43rd St to N. Sydney Place
- Greenfield – S 16th to S 35th St
- Vliet St – N 12th St to N 27th St

Conduit Lease Revenue

- The City Currently Leases Conduit Space to 9 Telecommunications Companies with a 2014 Revenue of \$ 775,000.

Underground Communications and Electrical Manholes



DPW Conduit and Manholes

February, 2015

10.29.2014

Existing Manhole Facilities

7,559 Active Manholes

43% Brick Manholes (1888 – 1950)

38% Block Manholes (1950 – 1980)

19% Precast Concrete Manholes (1980 – Present)

Notes:

- Approximately 2,000 manholes exceed 75 years in age
- Block manholes fail at a faster rate; no reinforcement used during installation

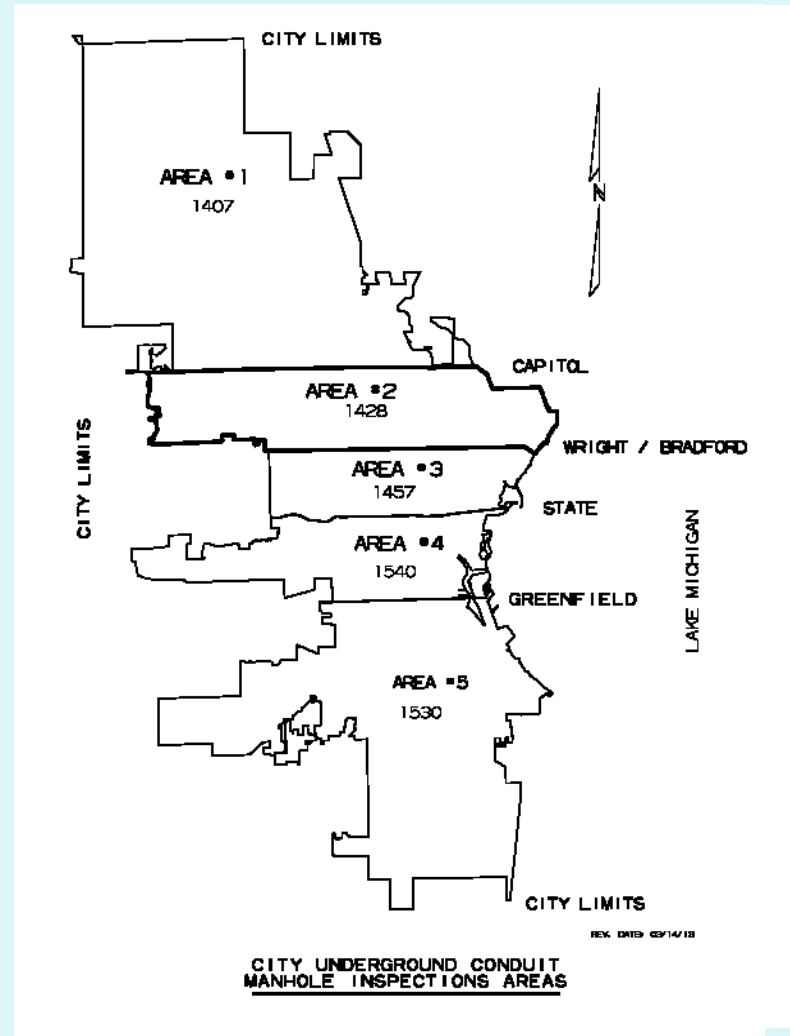
Manhole Condition Assessment

- Manhole Inspection Program Initiated in 2013
- Manholes to be inspected once every five years
- Inspections completed

Area 2 in 2013 – 1428 MHs

Area 3 in 2014 – 1457 MHs

Area 4 will be surveyed in 2015



2014 Manhole Inspections

- 1699 Manholes Contracted to be Surveyed
- 1623 Surveys Completed
 - 76 Manholes Unable to be Surveyed due to being asphalted over, unable to access, unable to locate, etc.
- Manhole Survey Results
 - 95 Manholes Need to be Replaced or Have Major Repairs
 - 57 Manholes Require Deck Roof Replacement
 - 347 Require Chimney or Corbel Repair

2014 Inspection – Deteriorated Roofs, Chimneys and Corbels



2014 Inspection – Manholes Recommended for Replacement



Manhole Repairs

- Remaining Repair and Replacement Needs based on 2013 and 2014 Inspections
 - 202 Manholes Need to be Replaced or Have Major Repairs
 - 79 Manholes Require Deck Roof Replacement
 - 585 Require Chimney or Corbel Repair
- 163 Manholes with Corbels/Chimneys Repaired and Adjusted to Grade with Paving
 - Includes 21 Manholes in Surveyed Areas

Manhole Repair and Replacement Costs

- 2014 Service Order Contracts for Manhole Repairs/Replacements
 - 5 Manholes Replaced \$163,699.00
 - 1 Major Repair \$ 11,880.00
 - 7 Chimney or Corbel Repairs \$ 27,314.42
 - 1 Manhole Abandoned \$ 7,350.00
- 163 Manholes with Korbels/Chimneys Repaired and Adjusted to Grade with 2014 Paving
 - Includes 21 Manholes in Surveyed Areas

Manhole Capital Improvement Program: Funding Levels

- Current and Prior Year Manhole Capital Program Funding Levels

—	2015	\$1,100,000
—	2014	\$750,000
—	2013	\$450,000
—	2012	\$300,000
—	2011	\$200,000