Agenda

Sacramento Suburban Water District

Facilities and Operations Committee

3701 Marconi Avenue, Suite 100
Sacramento, CA 95821

Wednesday, July 15, 2020
2:00 p.m.

In accordance with the California Department of Public Health's and the Governor's Executive Orders N-29-20 and N-33-20, the District's boardroom is closed and this meeting will take place solely by videoconference and teleconference. The public is invited to listen, observe, and provide comments during the meeting by either method provided for below. The Chairperson will call for public comment on each agenda item at the appropriate time and all votes will be taken by roll call.

For members of the public interested in viewing and having the ability to comment at the public meeting via Zoom, an internet enabled computer equipped with a microphone and speaker or a mobile device with a data plan is required. Use of a webcam is optional. You also may call in to the meeting using teleconference without video. Please use the following login information for videoconferencing or teleconferencing:

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Where appropriate or deemed necessary, the Committee may take action on any item listed on the agenda, including items listed as information items. Public documents relating to any open session item listed on this agenda that are distributed to all or a majority of the members of the Board of Directors less than 72 hours before the meeting are available for public inspection in the customer service area of the District's Administrative Office at the address listed above.

The public may address the Committee concerning an agenda item either before or during the Committee's consideration of that agenda item. Persons who wish to comment on either agenda or non-agenda items should fill out a Comment Card and give it to the General Manager. The

Chairperson will call for comments at the appropriate time. Comments will be subject to reasonable time limits (3 minutes).

In compliance with the Americans with Disabilities Act, if you have a disability, and you need a disability-related modification or accommodation to participate in this meeting, then please contact Sacramento Suburban Water District Human Resources at 916.679.3972. Requests must be made as early as possible, and at least one full business day before the start of the meeting.

Call to Order

Roll Call

Announcements

Public Comment
This is an opportunity for the public to comment on non-agenda items within the subject matter jurisdiction of the Committee. Comments are limited to 3 minutes.

Consent Items
The committee will be asked to approve all Consent Items at one time without discussion. Consent Items are expected to be routine and non-controversial. If any member of the Committee, staff or interested person requests that an item be removed from the Consent Items, it will be considered with the action items.

1. Minutes of the February 13, 2020, Facilities and Operations Committee Meeting
   Recommendation: Approve subject minutes.

Items for Discussion and/or Action

2. Fleet Main Asset Management Plan
   Recommendation: Review the draft Fleet Main Asset Management Plan and provide direction as appropriate or recommend the item move to the full Board as a consent item with Committees recommendation of approval.

3. Transmission Main Asset Management Plan
   Recommendation: Review the draft Transmission Main Asset Management Plan and provide direction as appropriate or recommend the item move to the full Board as a consent item with Committees recommendation of approval.

Adjournment

* *

Upcoming Meetings:

Monday, July 20, 2020, at 6:00 p.m., Regular Board Meeting
Tuesday, August 11, 2020, at 4:00 p.m., Employee Benefits Ad Hoc Committee Meeting

* *

I certify that the foregoing agenda for the July 15, 2020 meeting of the Sacramento Suburban Water District Facilities and Operations Committee was posted by July 10, 2020 in a publicly-accessible location at the Sacramento Suburban Water District office, 3701 Marconi Avenue, Suite 100, Sacramento, California, and was made available to the public during normal business hours.

_____

Dan York
General Manager/Secretary
Sacramento Suburban Water District

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Agenda Item: 1

Minutes

Sacramento Suburban Water District
Facilities and Operations Committee
Thursday, February 13, 2020

Call to Order
Chair Jones called the meeting to order at 1:00 p.m.

Pledge of Allegiance
Chair Jones led the Pledge of Allegiance.

Roll Call

Directors Present:	Dave Jones and Kathleen McPherson.
Directors Absent:	None.
Staff Present:	General Manager Dan York, Assistant General Manager Mike Huot, Amy Bullock, Matt Underwood, David Morrow, Dana Dean, and Jim Arenz.

Public Present: William Eubanks.

Announcements
General Manager Dan York (GM York) announced that General Manager Paul Helliker (GM Helliker) and Tony Barela (Mr. Barela) from San Juan Water District (SJWD) were in the audience. GM York also announced David Gordon (Mr. Gordon) and Brian Hensley (Mr. Hensley) from Citrus Heights Water District (CHWD) were in the audience as well.

Public Comment
None.

Consent Items

1. **Minutes of the September 13, 2018, Facilities and Operations Committee Meeting**

   Chair Jones moved to approve Consent Item 1; Director McPherson seconded the motion. The motion passed by unanimous vote.

AYES:	Jones and McPherson	ABSTAINED:	
NOES:		RECUSED:	
ABSENT:			

Items for Discussion and/or Action

2. **Antelope Pump-Back Booster Pump Station Operations Agreement**
   Assistant General Manager, Mike Huot (AGM Huot) presented the staff report.

   Chair Jones inquired if this makes it easier to collect revenues if the District wants to send water to Rio Linda or Elverta, giving the District more stability in that situation.

GM York stated if there is a pipeline extended out, then it helps the standard asset.

Director McPherson inquired if staff is adding language in the Policy to clarify what the pipeline is intended to do.

AGM Huot stated that staff is updating the language that highlights that it can be used for conjunctive use while meeting regulatory compliance needs and water banking as well.

Director McPherson inquired if a word in the language can be changed from assist to enhance.

AGM Huot agreed the word assist can change to enhance and that the change in the language is more pointed and still achieves the same goal.

Director McPherson inquired if there is any data on how much water is going one way verses another way on any given year.

Matt Underwood (Mr. Underwood) stated that all of the District's surface water in the north surface area comes through the C-Bar-C meter and there are years of data.

Public comment from GM Helliker from SJWD. GM Helliker stated that the original intent was three purposes, (1) was to provide for dry year operations, (2) to provide for operations in case of a shortage of water supply from the Bureau of Reclamation, and (3) for or any operational shut offs. GM Helliker further noted that Director McPherson's suggestion on changing the word to enhance sounded fine and that this item will go before the SJWD Board at the next regular Board meeting.

The Committee moved to recommend the item move to the full Board as a consent item with Committees full recommendation of approval.

3. Memorandum of Understanding – San Juan Water District Hinkle Reservoir Relining Project

Dana Dean (Mr. Dean) presented the staff report.

Chair Jones inquired if the District will be ready to proceed this year with the project.

Public comment from Mr. Barela from SJWD stated that there is a chance that the project may need to be pushed out a year due to the operational plan and how to operate the system with the reservoir offline. With the reservoir offline it requires installing two, one million temporary reservoir tanks.

Chair Jones inquired if the District can move forward with the project in a dry year.

Mr. Barela stated that the project can happen in a dry year and will be in coordination with Sacramento Suburban Water District (SSWD) as well as other Districts. Mr. Barela further noted that he wanted to give credit to Mr. Underwood and Mr. Dean for being very helpful working with SJWD's team.

Chair Jones inquired if the District will need more manpower to make this happen.

Mr. Underwood stated that he does not foresee the project affecting operations.

Director McPherson inquired if District customers would be affected with the reservoir going offline.

Mr. Underwood stated that if all goes well the customers won't be affected or even know the reservoir is off line.

GM York noted that SJWD staff, SSWD staff, as well as HDR staff did a great job in preparation of this project.

GM Helliker stated that the model will be kept up to date and appreciates the partnership on the project.

The Committee moved to recommend the item move to the full Board as a consent item with Committee's full recommendation of approval.

Adjournment
Chair Jones adjourned the meeting at 1:24 p.m.

Dan York
General Manager/Secretary
Sacramento Suburban Water District

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Facilities and Operations Committee

Agenda Item: 2

Date: July 7, 2020

Subject: Fleet Asset Management Plan

Staff Contact: James Arenz, Senior Project Manager

Recommended Committee Action:
Receive the draft Fleet Asset Management Plan and recommend the full Board adopt the plan at the August 15, 2020, regular Board meeting.

Background:
A draft *Fleet Asset Management Plan* (Plan) was presented to the Facilities & Operation Committee of the Board of Directors on April 27, 2017. After some discussion, the Committee chair recommended the item not be taken to the full Board for consideration and the plan was never adopted. The draft plan presented did not address the management of District equipment, only the management of the District's fleet of vehicles. The new Plan addresses both vehicles and portable equipment (e.g., trailers, generators, specialty tools, etc.).

Discussion:
The Plan provides for a modern, high quality, and cost effective fleet maintained to industry standards, as an in-house resource and integral part of SSWD's operations. It sets forth a strategy to assist in balancing vehicle and equipment replacement costs year after year to avoid under-funding of fleet replacement, which can cause large replacement backlogs to develop. The Plan also provides the District with a more modern and reliable fleet of vehicles and inventory of equipment that should reduce costs related to repairs and lost productivity as a result of downtime.

Vehicle Asset Management
The vehicle asset management portion of the Plan is adaptive and perpetual in that it uses a Vehicle Replacement Plan (VRP). The VRP is a methodology that uses vehicle age and mileage, for vehicles with a Gross Vehicle Weight Rating (GVWR) of 1 ton and less, to determine when a vehicle should be replaced. The VRP methodology is consistent with vehicle replacement methodologies of three other local jurisdictions that staff researched: Sacramento Municipal Utilities District, City of Sacramento, and the County of Sacramento. The VRP methodology is incorporated in the updated Disposing of Surplus District Real Property, Vehicles, and Large

Equipment and Other Personal Property Policy, which is scheduled to be approved at the next Board meeting on August 17, 2020. Vehicles with a GVWR greater than 1 ton (such as leak trucks and dump trucks) have highly specialized beds and equipment, do not accumulate mileage as quickly, and are costlier to replace. As such, the replacement cycle for these vehicles will likely be longer than 10 years, and so will be assessed on a case-by-case basis. The purpose of the VRP is to identify long-term replacement spending needs and associated budgetary requirements and to communicate these to the Board.

Using the VRP, the Operations Department will annually update a Fleet Replacement Plan to project annual vehicle acquisition and Maintenance and Repair (M&R) costs, as well as an estimated replacement year for each vehicle for the next ten years. A vehicle that meets VRP replacement criteria, but is in usable condition, may be retained provided that an assessment indicates that the vehicle can be operated safely and excessive M&R costs or substantial reduction in resale value is not expected.

The current Plan includes a 10-year cost projection of the annual vehicle acquisition and M&R costs based on an estimated replacement year for all District vehicles with a GVWR rating of 1 ton and less. Since there is a current backlog of vehicles that exceed the VRP replacement criteria, the estimated vehicle replacement year for vehicles exceeding 10 years in age was determined by each vehicle's current M&R costs.

Equipment Management

In order to achieve an appropriate return on investment for District equipment, staff developed the Condition Assessment (CA) Criteria, and the Equipment Repair Cost Criteria (ERCC). The CA Criteria helps determine whether a piece of equipment meets current operational standards, and the ERCC helps determine whether a piece of equipment should be repaired or replaced.

Summary

The Plan is a tool to establish processes to assess fleet efficiency to assist staff in selecting a suitable time to replace particular vehicles, groups of vehicles, and equipment items and to identify long-term replacement spending needs and associated budgetary requirements for the District's vehicles and inventory of equipment. The Plan does not represent a financial commitment by the Board, but provides a prioritization for the replacement of vehicles and equipment for future planning.

The operational objectives SSWD plans to achieve with this Plan are:

- Achieving an economically advantageous life cycle cost for vehicles and equipment.
- Providing and seeking emerging safety features in the acquisition of new items, while ensuring the Fleet is maintained at a safe and functional standard.
- Seeking reductions in the emissions from fuels.
- Meeting functional requirements of District operations.
- Limiting exposure to fuel availability and price risks.

Fiscal Impact:

As stated in the Plan, the Plan does not represent a financial commitment by the Board. The Plan will be used as a planning tool during annual budget discussions with the Board.

The Plan projects a capital need of approximately $1.4 million over the next 10 years (2020 dollars).

Strategic Plan Alignment:

Goal B: Optimize Operational and Organizational Efficiencies

District customers benefit from staff using the Plan as a tool to manage the District Fleet, while taking into account costs, safety, and reliability.

Attachment:

1. Fleet Asset Management Plan

Attachment 1

SACRAMENTO SUBURBAN WATER DISTRICT

FLEET
ASSET MANAGEMENT PLAN

Sacramento Suburban Water District
3701 Marconi Avenue, Suite 100, Sacramento, California 95821
(916) 972-7171
sswd.org

FLEET ASSET MANAGEMENT PLAN

Adopted by the Board of Directors: [Month] 2020

Approved by:

General Manager: _____
Dan York

Reviewed by:

Assistant General Manager: Mike Huot, P.E.
Operations Manager: Matt Underwood

Prepared by:

Engineering Manager: Dana Dean, P.E.
Senior Project Manager: Jim Arenz

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Fleet	Includes the entire inventory of District owned vehicles and equipment
Vehicle	Fleet items that are registered with the California Department of Motor Vehicles to legally operate on public roadways
Equipment	All other Fleet items with a value greater than the minimum capitalized asset value of $5,000 (e.g., vacuum trailers, backhoes, excavators, large equipment trailers, etc.) and items that generally require maintenance and can be repaired

Section 1

EXECUTIVE SUMMARY

Sacramento Suburban Water District (SSWD) exists to provide services to its community. Some of these services are provided with the use of Vehicles and Equipment (Fleet) acquired through direct purchase. SSWD's goal in managing its Fleet is to provide service in a cost effective manner for present and future customers.

This Fleet Asset Management Plan (Plan) provides for a modern, high quality, and cost effective Fleet that is an integral part of SSWD's operations to be maintained to industry standards, and managed in-house. The main purpose of this Plan is to establish processes to assess Fleet efficiency and assist staff in selecting a suitable time to replace particular vehicles, groups of vehicles, and equipment items. The Plan does not represent a financial commitment by the Board. Rather, the Plan is a tool for communication between the Board and staff to prioritize the replacement of its Fleet in a manner that controls life cycle costs while maintaining a high level of service for our customers.

SSWD plans to operate and maintain the Fleet to achieve the following operational objectives.

- Economically advantageous life cycle cost.
- Provide and actively seek emerging safety features in the acquisition of new items, while ensuring the Fleet is maintained at a safe and functional standard.
- Seek reductions in the emissions from fuels.
- Meet the functional requirements of District operations.
- Limit exposure to fuel availability and price risks.

These objectives are in alignment with the Strategic Objectives found in SSWD's 2019 Strategic Plan, Goal B: Optimize Operational and Organizational Efficiencies

- Develop an annual Capital Improvement Program that is prioritized based on risk, condition assessment, capital assets, and aligned with approved budget.

- Update Operations & Maintenance Programs and enhance technology that focuses on Prioritized, Predictive, and Preventive Maintenance.
- Optimize Equipment and Assets (e.g., create collective purchasing agreements and annual asset purchasing plans).

The actions resulting from this Plan are:

- The development of a Vehicle Replacement Plan to determine the appropriate time to replace vehicles; and
- A Condition Assessment and Equipment Repair Cost criteria to determine the appropriate time to replace equipment.

INTRODUCTION

This Fleet Asset Management Plan (Plan) consists of planning, organizing, and controlling the utilization of the District's fleet to help the District meet its goals. The Operations Manager is charged with making decisions to develop short- and long-term goals; evaluate fleet efficiency; identify positive and negative trends that affect fleet operations; manage the fleet acquisition, replacement, and disposal processes; manage day to day fleet operations; budget funds assigned to the fleet; oversee day to day repair, preventive maintenance, and warranty processes; and assure that fleet operations comply with local, state, and federal regulations.

The main purpose of this Plan is to establish processes to assess fleet efficiency. Using these processes, the Operations Manager decides when particular vehicles, groups of vehicles, or pieces of equipment are in need of replacement.

A decision on when to repair or replace a vehicle or equipment should be based on adequate knowledge of both costs to maintain and repair the existing vehicle and equipment and costs to replace it with a new item. Staff developed the decision points in this Plan to reflect best practices at the District, as well as those of local agencies including City, County, water purveyors, and an energy provider, to serve as guidelines for management of the Fleet.

Section 2

VEHICLE ASSET MANAGEMENT

2.1 Fleet Vehicle Composition and Needs Assessment

Fleet Vehicle Composition and Needs Assessment — The Operations Manager will assess the current fleet to determine the vehicle needs of the District. An electronic inventory must be maintained with sufficient facts about each vehicle. The data should include key factors, such as:

- Number of vehicles, type, age, and condition
- Monthly mileage for each vehicle
- Fleet's average cost per mile for each fiscal year
- Fleet's average fuel economy for each fiscal year

In determining the District's vehicle needs, the Operations Manager will consider the following, at a minimum:

- The number of each vehicle type needed to meet the District's needs
- The fuel economy rating for all planned vehicle acquisitions
- The number of each vehicle type required to meet environmental goals – a key factor is the number of Alternative Fuel Vehicles desired

2.1.1 Alternative Fuel Vehicles

The District has adopted policy PL – Adm 005, *Environmental Sustainability Policy*, which established sustainability as a guiding principle for daily operations and a framework for business decisions. Included in this policy is the Board's acceptance of responsibility to support a sustainable community by reducing energy consumption and air pollution and the use of alternative energy sources. In accordance with this policy, the District will consider options to reduce petroleum-based fuel usage when possible.

The District's petroleum-based fuel usage reduction strategy will include the following components:

- Increase fuel economy by selecting more fuel-efficient vehicles
- Increase the number of Alternative Fuel Vehicles where practical
- Perform preventive maintenance at regular intervals so vehicles operate at greater efficiency
- Maintain vehicle tire inflation at proper pressures for fuel economy
- Right-size each vehicle to meet the specific District need
- Assess vehicle weight to ensure they are not overloaded
- Provide driver training to promote safety and reduce fuel-wasting behaviors

When choosing Alternative Fuel Vehicles, the District will consider:

- Fuel Characteristics — The unique qualities of the fuel type the vehicle utilizes
- Cost — Operating costs in terms of fuel and maintenance expenses and long-term fuel availability and cost
- Performance — Miles per gallon or Kilowatt per hour/100 miles, ability to start in cold temperatures, and acceleration and braking
- Refueling Availability — Location of refueling or recharging facilities, time required to fill a vehicle's tank or recharge its batteries, and method of refueling

2.2 Vehicle Justification

Requests for new vehicles will be submitted by Department managers with justification identifying the specific need with sufficient detail to assess the need. The District will analyze the following information for each proposed vehicle:

- Vehicle Type
- Vehicle Size
- Vehicle “Right Sizing”
- Special Equipment
- Vehicle Use: number of hours per day
- Vehicle Use: number of calendar days per year

2.3 Vehicle Acquisition

The District has applied standards for the acquisition process for new or replacement vehicles, which are intended to:

- Simplify the procurement process
- Improve acquisition cost and availability
- Provide a practical degree of standardization within the District's fleet

Once the need for a new or replacement vehicle has been determined and funding has been approved by the District's Board of Directors (Board), the District’s Facilities & Fleet Specialist begins the acquisition process by developing specifications that define the technical attributes, configuration, and functional capabilities of the vehicle to be acquired.

The methods set forth to acquire vehicles can affect cost, availability, and vendor responsiveness to the District's needs. Acquisition of a vehicle is generally conducted through the State of California Purchasing Program (Program) unless the same vehicle can be obtained

at better pricing outside of the Program. Acquisition through the Program generally provides leveraged buying power to obtain better cost and availability.

Upon delivery of a vehicle, the District's Facilities & Fleet Specialist is required to thoroughly inspect the vehicle to ensure that it complies with the order specifications. Critical parts lists, service manuals, and user and mechanic training services will be included in the purchase specifications for specialized vehicles and equipment for which operating and maintenance requirements are not self-evident.

The District must never install accessory equipment on vehicles merely for the personal convenience or comfort of a vehicle operator; however, improvements to operator ergonomics and safety will be considered. The purpose of accessory equipment added to vehicles shall be to increase the utility so the vehicle can better serve the intended purpose. Factors for basing selection of accessory equipment will include overall safety, efficiency, economy, and suitability of the vehicle for its purpose.

2.4 Vehicle Replacement

In order to achieve a reasonable return on investment in the District's vehicle fleet, a Vehicle Replacement Plan (VRP) was developed that utilizes a methodology of replacing vehicles, with a Gross Vehicle Weight Rating (GVWR) of 1 ton and less, when they are in operation for 10 years or 100k miles have been travelled. However, vehicles with a GVWR greater than 1 ton, such as leak trucks and dump trucks, have highly specialized beds and equipment, do not accumulate mileage as quickly, and are more costly to replace. As such, the replacement cycle for these vehicles will likely be longer than 10 years, and will be assessed on a case-by-case basis.

This methodology is based on research into vehicle replacement methodologies of three other local jurisdictions that we consider a proxy for the region: Sacramento Municipal Utility District (SMUD), City of Sacramento, and County of Sacramento. SMUD relies on the American Public Works Association point system; the City of Sacramento uses an internally-developed point

system; and the County of Sacramento replaces vehicles when they reach 10 to 12 years of age or 100k to 120k miles have been travelled. After reviewing these methods, SSWD will implement a plan to replace vehicles at 10 years of age or 100k miles travelled, which is consistent with regional practice.

Utilizing the VRP, the District will annually update a Fleet Replacement Plan to project annual vehicle acquisition and Maintenance and Repair (M&R) costs, as well as an estimated replacement year for each vehicle for the next ten years. The purpose of the VRP is to identify long-term replacement spending needs and associated budgetary requirements and to communicate these to the Board. If this is not done annually it could lead to under-funding of fleet replacement, which can cause large replacement backlogs to develop.

A vehicle that meets VRP replacement criteria, but is in usable condition, may be retained provided that an assessment indicates that the vehicle can be operated safely and excessive M&R costs or substantial reduction in resale value is not expected. If a vehicle has been worn or damaged beyond economical repair, the District may replace the vehicle prior to its meeting a VRP criterion.

An initial 10-year projection of the annual vehicle acquisition and M&R costs for 2021-2030 is shown in Table 1, and graphically represented in Chart 1.

Table 1. Projected Annual Vehicle Acquisition and M&R Costs

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Vehicle Acquisition	$142K	$110K	$140K	$78K	$100K	$64K	$113K	$163K	$150K	$152K
M & R	$25K	$22K	$19K	$16K	$14K	$14K	$14K	$14K	$14K	$14K

Chart 1.
Projected Annual Vehicle Acquisition and M&R Costs

Table 2 shows the estimated year of replacement for all District vehicles with a GVWR rating of 1 ton and less. Chart 2 on the following page shows the estimated number of vehicles scheduled for replacement annually from 2021 through 2030.

Table 2. Estimated Vehicle Replacement Year

Vehicle No.	Fuel Type	Vehicle Year	Vehicle Model	Mileage (Dec. 2019)	Replacement Year	Age* (Years)
9	Gas	2001	Tundra	110,930	2021	20
42	Gas	2002	Tundra	108,845	2021	19
50	Gas	2007	F-250	76,567	2021	14
57	Gas	2008	F-250	66,575	2021	13
52	Gas	2008	F-150	80,388	2022	14
53	Gas	2008	F-150	73,240	2022	14
60	Gas	2010	F-250	77,552	2022	12
58	Hyb.	2009	Escape	83,412	2023	14
62	Gas	2012	F-350	69,640	2023	11
63	Gas	2011	E-350	52,723	2023	12
59	Gas	2010	F-150	41,334	2024	14
61	Gas	2011	F-250	41,589	2024	13
64	Diesel	2014	F-350	34,694	2025	11
65	Gas	2014	F-250	58,876	2025	11
67	Gas	2016	F-150	52,327	2026	10
68	Gas	2016	F-150	24,829	2026	10
69	Gas	2017	F-250	19,854	2027	10
70	Gas	2017	Transit	16,578	2027	10
72	Gas	2017	Silverado	8,754	2027	10
75	Gas	2018	F-250	13,313	2028	10
76	Gas	2018	F-250	12,498	2028	10
77	Gas	2018	F-250	9,885	2028	10
79	Gas	2018	Colorado	4,800	2028	10
80	Gas	2019	F-150	2,605	2029	10
81	Gas	2019	F-150	2,148	2029	10
83	Hyb.	2019	RAV4	374	2029	10
87	Gas	2019	F-350	1,091	2029	10
82	Elect.	2019	Bolt	0	2030	11
84	Hyb.	2019	RAV4	66	2030	11
85	Gas	2019	F-250	0	2030	11
86	Gas	2019	F-250	0	2030	11

*Age of vehicle at estimated year of replacement.

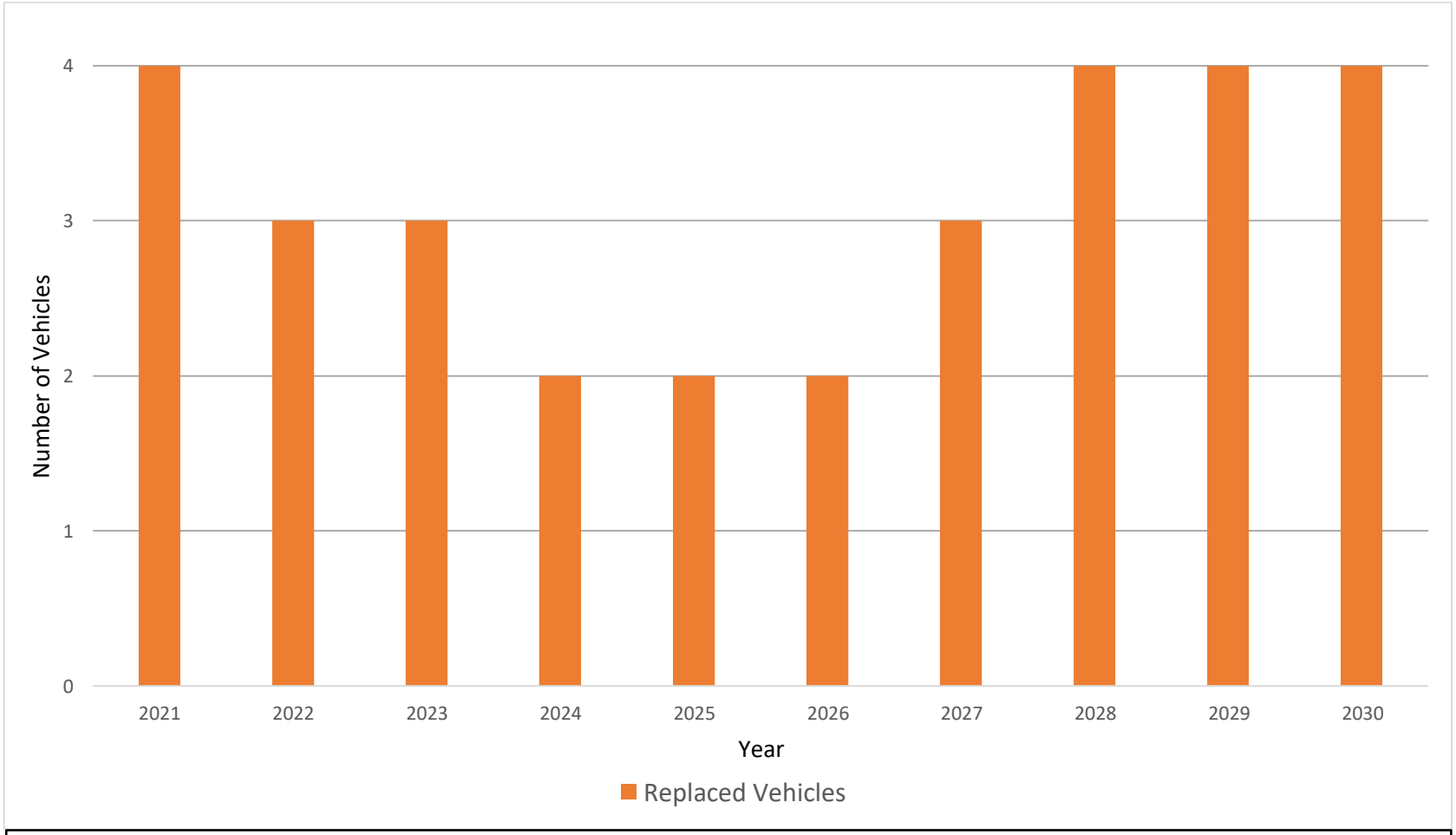

Chart 2.
Estimated Number of Vehicles Replaced by Year

Section 3

EQUIPMENT ASSET MANAGEMENT

3.1 Fleet Equipment Composition and Needs Assessment

In determining the District's equipment needs, staff will consider the following, at a minimum:

- The type and size of equipment needed to safely and efficiently perform specific tasks
- The number of each equipment type needed to meet the District's operational needs
- If powered, the fuel or energy source required to operate the equipment safely throughout a normal work shift

In addition, staff will assess the current fleet to determine the equipment needs of the District. An electronic inventory must be maintained with sufficient descriptive facts about each piece of equipment. The data should include key factors, such as:

- Number of each equipment type, age, and condition
- Total hours of operation, if applicable
- Average cost of operation and maintenance for each fiscal year

3.2 Equipment Justification

Requests for new equipment will be submitted to the Operations Manager. Requests should include justification identifying the specific need in sufficient detail to determine the need for the equipment.

3.3 Equipment Acquisition

Once the need for new or replacement equipment has been determined and funding has been approved by the Board, the District's Facilities & Fleet Specialist begins the acquisition process with developing equipment specifications defining the technical attributes, configuration, and functional capabilities of the equipment to be acquired.

Proper management of equipment acquisitions ensures procedures are in place for equipment review upon delivery to ensure that the equipment received complies with the order specifications. Critical parts lists, service manuals, and user or mechanic training services will be included in the purchase specifications for specialized equipment for which operating and maintenance requirements are not self-evident.

3.4 Equipment Replacement

In order to achieve an appropriate return on investment for District equipment, staff developed the Condition Assessment (CA) Criteria, described in Section 3.5, and the Equipment Repair Cost Criteria (ERCC), described in Section 3.6. The CA Criteria helps determine whether a piece of equipment meets current operational standards, and the ERCC helps determine whether a piece of equipment should be repaired or replaced based on a comparison of the estimated repair cost and the actual replacement cost.

3.5 Condition Assessment Criteria

A condition assessment (CA) will be performed after every service cycle or before any necessary repair. The CA will utilize the following criteria to determine if the equipment meets current standards:

- Safety
    - Does the equipment meet current safety standards?
        - No – If equipment cannot be economically brought up to current safety standards, then replace
        - Yes – Continue with CA
    - Are current models safer to operate than the existing model?
        - Yes – Evaluate further and consider replacement
        - No – Continue with CA
- Age:
    - Is the equipment compatible with current technology?
        - No – Evaluate further and consider replacement

        - Yes – Continue with CA
    - Are current models more efficient to operate?
        - Yes – Evaluate further and consider replacement
        - No – Continue with CA

- Serviceability & Repair:
    - Can the equipment be serviced and repaired by local distributors or repair shops?
        - No – Evaluate further and consider replacement
        - Yes – Continue with CA
- Condition:
    - Does the condition make it significantly less efficient to operate?
        - Yes – Evaluate further and consider replacement
        - No – Complete CA

3.6 Equipment Repair Cost Criteria

The Equipment Repair Cost Criteria (ERCC), outlined below in Table 3, will be utilized to assist in determining whether a piece of equipment is either repaired or replaced. This methodology is based on District best practices over nearly two decades. Research into equipment repair/replacement methodologies of three other local jurisdictions that we consider a proxy for the region (SMUD, City of Sacramento, and County of Sacramento) revealed that none has a methodology in place, but all practice a similar approach to that presented here. In all cases the Operations Manager has overall discretion in decisions of repair versus replacement.

Table 3. ERCC

Repair Cost Relative to Replacement Cost	Anticipated Action
< 50%	Repair
50% - 70%	Case-by-Case Assessment
> 70%	Replace

Section 4

OPERATIONS AND RISK MANAGEMENT

The Operations Manager will maintain a procedure(s) to ensure the District's fleet is maintained and serviced at regular intervals, per the manufacturer's recommendations, and operated safely and efficiently by staff who have received appropriate training.

4.1 Fleet Maintenance

A sound Preventive Maintenance Program is essential to reducing total fleet expenditures. Vehicles and equipment will be properly maintained to ensure the District is better able to control maintenance expenses. A sound maintenance program positively affects District cost performance through:

- Reduced downtime
- Reduced operational costs
- Reduced frequency of accidents
- Increased probability of fulfilling mission and work assignments
- Increased resale value

4.2 Fleet Disposal

The District has adopted policy PL – Adm 003, *Disposing of District Real Property, Vehicles and Large Equipment and Other Personal Property Policy*, which defines the guidelines for disposing of District real property, vehicles, and large equipment and other personal property. Once it has been determined that a vehicle or piece of equipment requires replacement, it will be classified as surplus and disposed of in accordance with PL – Adm 003.

Back to Agenda

Facilities and Operations Committee

Agenda Item: 3

Date: July 6, 2020

Subject: Transmission Main Asset Management Plan

Staff Contact: David Espinoza, P.E., Senior Engineer

Recommended Committee Action:

Receive the draft Transmission Main Asset Management Plan and recommend to the full Board adopting the plan at the August 17, 2020, regular Board meeting.

Background:

The Sacramento Suburban Water District (District) Board of Directors adopted the first Transmission Main Asset Management Plan on July 18, 2011. This Plan updates the 2011 version and includes an expanded and updated Condition Assessment (CA) strategy.

Discussion:

The District has a responsibility to provide its customers with a reliable and safe water transmission system. The Plan sets forth a strategy to assess transmission mains by evaluating certain system characteristics (e.g., age, leaks, material type, size). The strategy is based on a ranking matrix derived from the indirect method of CA, which identifies areas with the greatest need for direct method CA. Evaluation by the direct method may result in reprioritization of segments – higher or lower; and identification of segments for rehabilitation or replacement.

The Plan is adaptive and perpetual in that all transmission main segments are ranked in order of priority for evaluation and potential rehabilitation or replacement. As such, the Plan is expected to be updated every 4 to 6 years and incorporate advances in technology, analysis techniques, and new system data used in CAs. Updates are anticipated to result in a change to ranking of segments (a reprioritization of focus).

The Plan does not represent a financial commitment by the Board. Rather, the Plan is a tool for communication between the Board and staff to prioritize transmission main segments in need of rehabilitation or replacement. And it is a planning tool for use during annual Capital Improvement Program (CIP) budget discussions with the Board.

The purpose and goals of the Plan are to:

- Continue providing a reliable and safe water transmission system.
- Ensure sufficient return on capital investment in transmission mains.
- Prioritize the need for rehabilitation or replacement of transmission mains based on CA.
- Provide a perpetual assessment and monitoring tool that is adaptable to new and evolving technologies, management practices, and District needs.
- Inform the District's long term CIP.

Fiscal Impact:

As stated in the Plan, the Plan does not represent a financial commitment by the Board. The Plan will be used as a planning tool during annual CIP budget discussions with the Board.

The Plan projects a capital need of approximately $2.1 million over the next 15 years (2020 dollars).

Additionally, the new CA element in the Plan is expected to result in immediate and continuing costs to the transmission main CIP program through the activities of the direct method (e.g., contractor work, laboratory testing, etc.). These costs will be reflected in annual CIP budgets prepared for the Board.

Strategic Plan Alignment:

Goal A: Provide a High Quality Reliable Water Supply by Ensuring It Is Sustainable, Clean, and Safe

Goal B: Optimize Operational and Organizational Efficiencies

Goal D: Maintain Excellent Customer Service

The updated Plan benefits District customers as it is an additional tool to be used by staff to prioritize allocation of District funds to continue achieving acceptable return on investments in infrastructure.

Attachment:

1. Transmission Main Asset Management Plan

TRANSMISSION MAIN ASSET MANAGEMENT PLAN

SACRAMENTO SUBURBAN WATER DISTRICT

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Sacramento Suburban Water District
3701 Marconi Avenue, Suite 100, Sacramento, California 95821
(916) 972-7171
sswd.org

TRANSMISSION MAIN ASSET MANAGEMENT PLAN

Adopted by the Board of Directors: July 2011
Updated: June 2020

Approved By:

General Manager: _____
Dan York

Reviewed By:

Assistant General Manager: Mike Huot, P.E.

Prepared By:

Engineering Manager: Dana Dean, P.E.
Senior Engineer: David Espinoza, P.E.
Assistant Engineer: Mitchell McCarthy, E.I.T.

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AC	Asbestos Cement
ARSW	ATP, Reservoir, Single, Well Site
ASCE	American Society of Civil Engineers
AWWA	American Water Works Association
CC	Concrete Cylinder
CI	Cast Iron
CIP	Capital Improvement Program
COF	Consequence of Failure
COF_i	Consequence of Failure by Transmission Main Segement "i"
CY	Calendar Year
$\sum$COF Criteria $Score_i$	Sum of all the COF Criteria Scores per Transmission Main Segement "i"
DI	Ductile Iron
GIS	Geographic Information System
In.	Inch
In.-dia.	Inch in diameter of pipe
LF	Linear Foot/Feet
LOF	Likelihood of Failure
LOF_i	Likelihood of Failure by Transmission Main Segement "i"
$\sum$LOF Criteria $Score_i$	Sum of all the LOF Criteria Scores per Transmission Main Segement "i"
Max($\sum$COF Criteria Score)	Maximum COF score possible
Max($\sum$LOF Criteria Score)	Maximum LOF score possible
MLS	Mortar Lined Steel
PVC	Polyvinyl Chloride
ROF	Risk of Failure
ROF_i	Risk of Failure by Transmission Main Segment "I"
SSWD	Sacramento Suburban Water District
UNK	Unknown
WSMP	2017 Water System Master Plan
$	Cost in Dollars
$/in.	Cost per inch in diameter

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Section 1
INTRODUCTION

The Transmission Main Asset Management Plan (Plan) provides a strategy for the assessment, monitoring, rehabilitation, and replacement of transmission mains and is intended to be used as a tool for ongoing communication between *Sacramento Suburban Water District's* (SSWD's) staff and the Board of Directors (Board) to prioritize transmission main projects. Furthermore, it is to be used as a planning tool during Capital Improvement Program (CIP) budget discussions with the Board. The Plan does not represent a financial commitment by the Board. Rather, the Plan is a tool for communication between the Board and staff to prioritize transmission main segments in need of rehabilitation or replacement.

1.1 Goals

The Plan will facilitate implementing two goals detailed in SSWD's 2019 Strategic Plan. These are shown below with their respective strategic objectives.

Goal A

Provide a High Quality Reliable Water Supply by Ensuring it is Sustainable, Clean, and Safe.

Strategic Objective

- Maintain or replace aging infrastructure based on condition assessment and planning documents to ensure equipment sustains its lifespan and is replaced at the optimal time.

Goal B

Optimize Operational and Organizational Efficiencies.

Strategic Objective

- Develop an annual Capital Improvement Program that is developed and prioritized based on risk, condition assessment, capital assets, and aligned with approved budget.

These two goals "… serve as a high-level roadmap for how we will achieve our mission and define actions that are needed in the near-, mid-, and long-term" (Sacramento Suburban Water District, 2019).

1.2 Purpose

- Ensure a reliable transmission main system.
- Document SSWD's existing transmission mains by size, material, and age.
- Provide a plan for a transmission main condition assessment and monitoring program.
- A program that will assess transmission mains for their remaining useful life.
- Prioritize transmission main segment replacements based on objective criteria according to greatest need.
- Provide a perpetual transmission main program that is adaptable to new information, evolving technologies, management practices, and SSWD needs.
- Provide direction for future Plan revisions.
- Coordinate with SSWD's long-term CIP.

For the purpose of this Plan, transmission mains are defined as pipelines 16-inches and larger in diameter and intended to transport water from a source (i.e., well, treatment plant, supply source, etc.) to the distribution main system, and ultimately providing service to customers. This Plan does not include distribution mains; these are addressed in the Distribution Main Asset Management Plan.

Section 2

BACKGROUND

2.1 Overview of Transmission Main

SSWD has a responsibility to provide its customers with a reliable transmission main system. The Plan sets forth a strategy to assess transmission mains and produce a prioritization list. The Plan is based on a ranking matrix derived from various criteria that identifies transmission main segments in greatest need of condition assessment or rehabilitation and replacement.

2.2 Plan History and Updates

The Board adopted a *Water Transmission Main Asset Management Plan* on July 18, 2011. It was anticipated that the Plan would be amended periodically as it was recognized that new information would be made available that might influence the ranking of the transmission mains and alter priorities for assessment and monitoring.

Two distinct changes have been added to this 2020 plan. These changes are shown below and described in more detail in later sections:

- Categorizing the transmission mains as individual segments (valve-to-valve, material change, and size change); and
- Addition of a detailed Indirect Method evaluation for condition assessment;

Segments enable smaller, more manageable, sections of transmission main to be evaluated, adding flexibility to future project budgets and planning. The Indirect Method calculates and categorizes transmission mains that pose the greatest risk. These mains are then further evaluated with the Direct Method of condition assessment. The current transmission main system is shown in Figure 1 (Page 2-5).

2.3 Transmission System Status Summary

The system contains approximately 55 miles of transmission mains, which are defined as pipelines 16-inches in diameter and larger. Additionally, "Source Mains" are included as a subset of transmission main (and included in the Plan) and are typically smaller than 16-inches in diameter.

Active transmission mains range in size from 16- to 48-inches in diameter and comprise 95% of all transmission pipeline (source mains account for 5%). Source mains are typically relatively short (typically no more than two hundred feet in length) segments of pipe that initiate at the source (such as a groundwater well, reservoir, or treatment facility) and tie in to the transmission main system or distribution main system.

The majority of metallic transmission mains include catholic protection testing stations, which provides the capability to monitor these pipes for corrosion. The ability to monitor these metallic transmission mains provides a tool to monitor pipeline condition (degradation).

Consistent with industry standard, the estimated useful life of transmission mains installed prior to 1985 is 70 years, and for mains installed in 1985 and later it is 90 years. While useful life estimates are useful as a baseline reference, actual useful life often depends on many factors, including the pipe material, soil conditions, water quality, construction methods and quality, and several other factors.

2.4 Transmission Main Installation History

Transmission mains in the system date back to the 1940's with cast iron (CI) pipe being the oldest. Through the 1950's, 60's, and 70's mortar lined steel (MLS) was exclusively installed. In the 1980's asbestos cement (AC), polyvinyl chloride (PVC), and ductile iron (DI) pipe was installed. Since then, cement mortar lined and coated steel (CMLCS), concrete cylinder (CC), ductile iron (DI), and polyvinyl chloride (PVC) pipe have been installed.

The majority (57%, or 30 miles) of transmission mains were installed between 2000 and 2010. Less than one mile (less than 1%) of transmission mains have been installed since 2010, as shown on Table 1 (Page 2-3).

Table 1. Transmission Main Installation History

Period [years]	Total Length [miles]	Average Length [miles/year]	System Contribution [%]
1940 – 1979	3.8	0.10	5.7
1980 – 1989	7.3	0.72	13.8
1990 – 1999	12.5	1.3	22.9
2000 – 2009	30.5	3.1	57.0
2010 – 2019	**0.6**	**0.06**	**0.6**

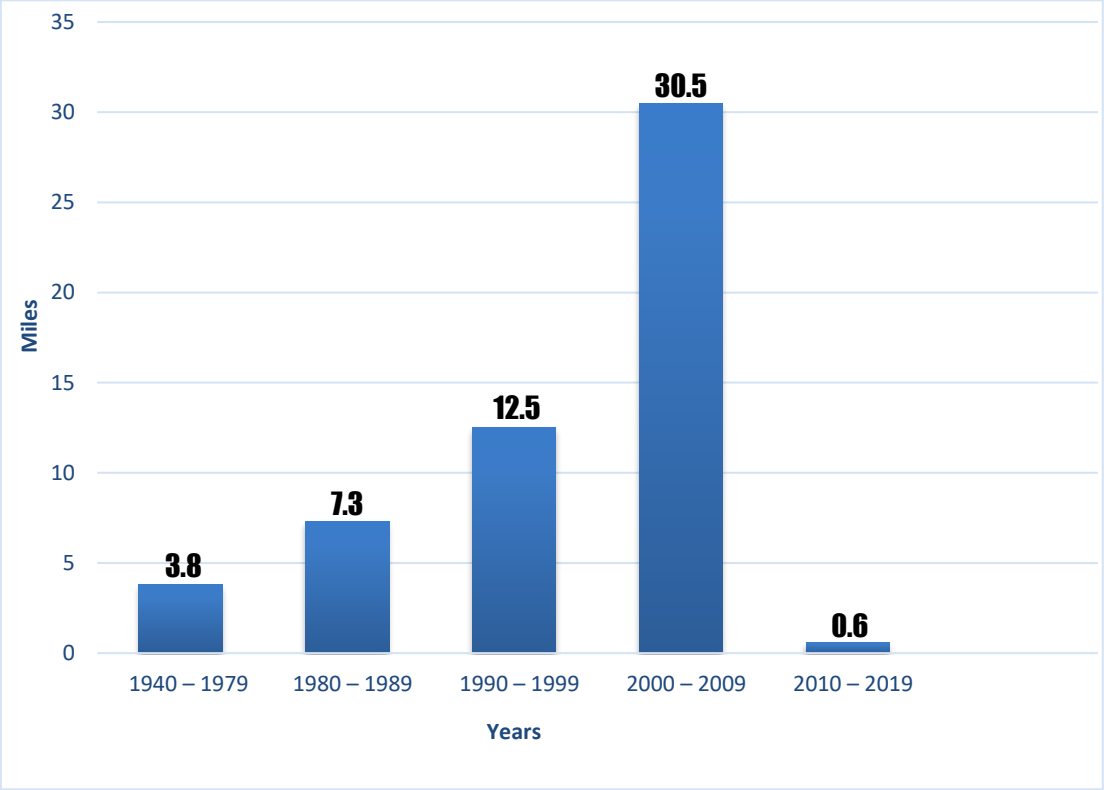


Chart 1. Total Length of Main Installed by Historical Period

2.5 Active Transmission Main Inventory

There is approximately 55 miles of active transmission main in the system. A breakdown by pipe material is presented in Table 2 and Chart 2 (Page 2-4), quantifying the total length and system contribution for each material type.

Table 2. Quantity of Transmission Main by Material Type

Material Type	Total Length [miles]	System Contribution [%]
Cement Mortar Lined & Coated Steel (CMLCS)	26.71	48.9
Ductile Iron (DI)	15.41	28.2
Concrete Cylinder (CC)	7.59	13.9
Mortar Lined Steel (MLS)	2.78	5.1
Asbestos Cement (AC)	1.36	2.5
Polyvinyl Chloride (PVC)	0.71	1.3
Cast Iron (CI)	0.03	< 0.1
Total	**54.6**	**100**

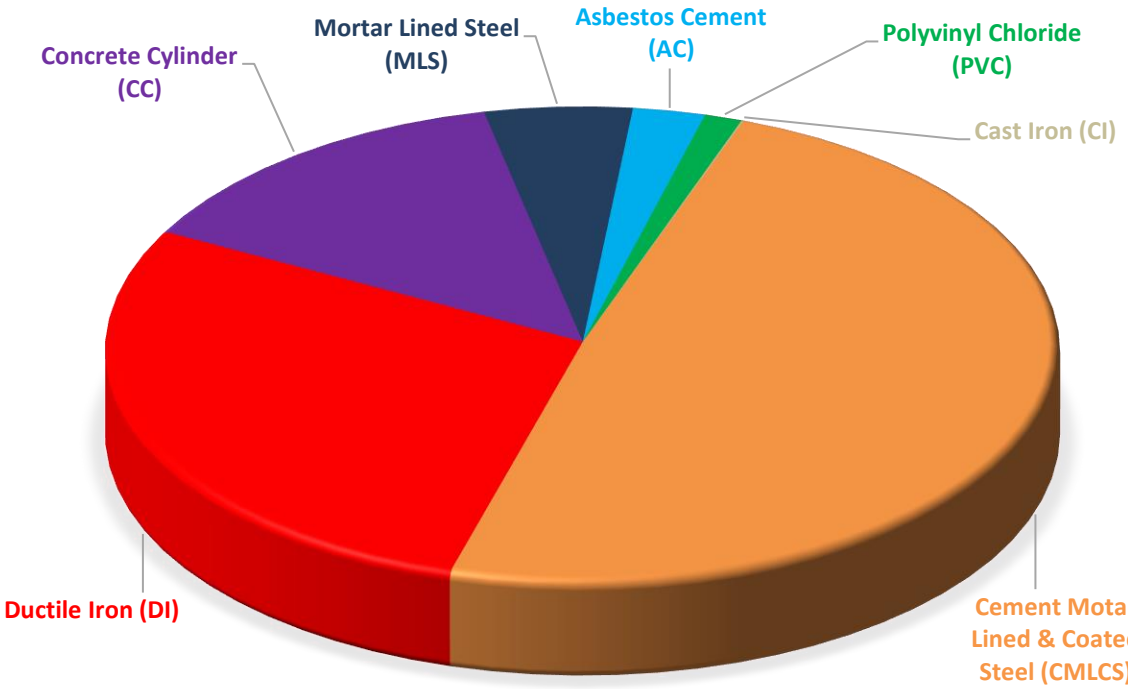
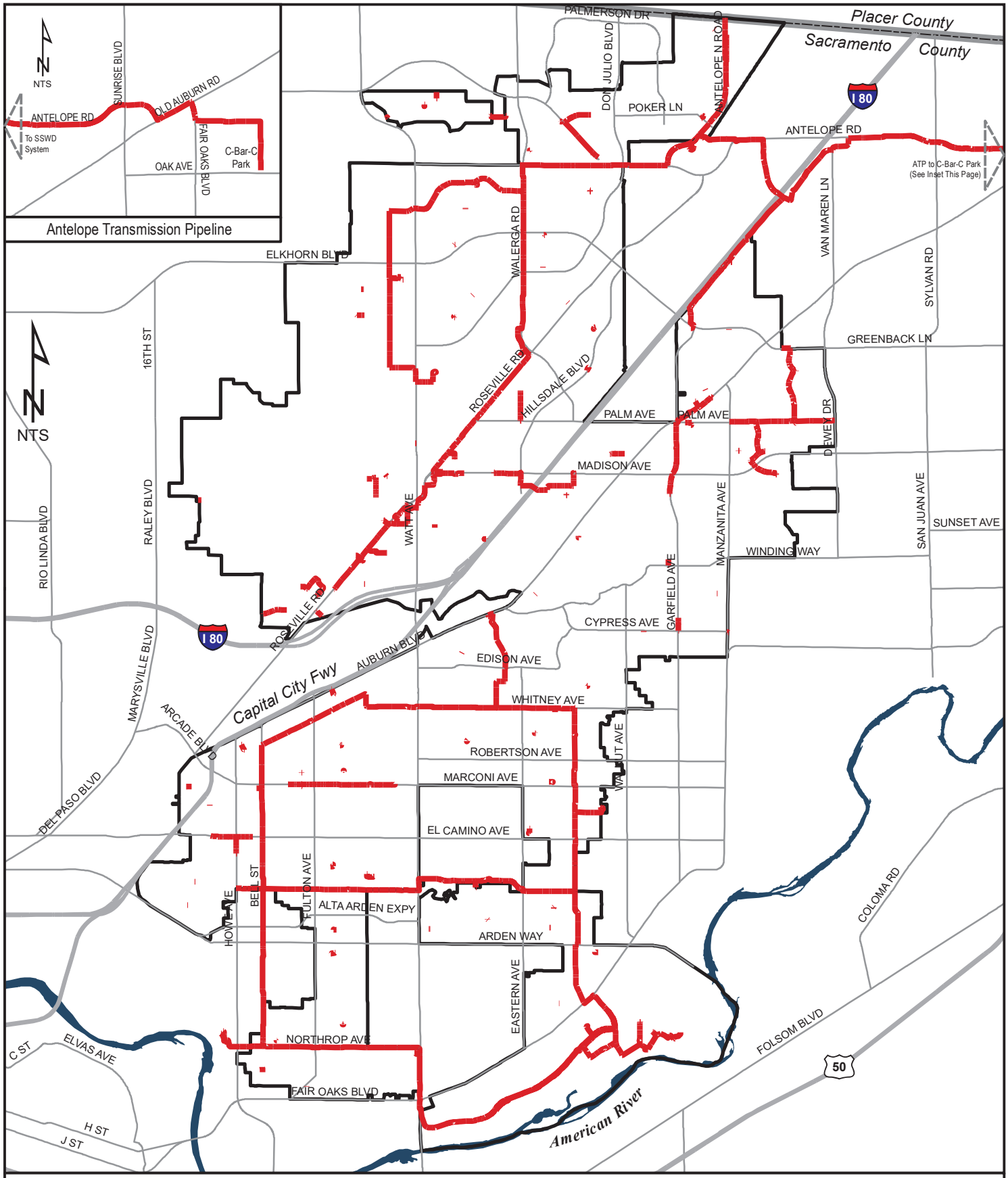


Chart 2. System Contribution of Transmission Main by Material Type



Legend

Transmission Main

SACRAMENTO SUBURBAN WATER DISTRICT

Transmission Main Asset Management Plan
June 2020

Figure 1

Transmission Main

All

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Section 3

TRANSMISSION MAIN REPLACEMENT COSTS

The Water System Master Plan (WSMP) provides estimated costs to replace transmission main. The "raw" costs identified in the WSMP have been escalated from April 2017 to May 2020 for this Plan. This was performed by using the *Engineering News-Record's* (ENR's) Construction Costs Index for this interval of 7%. Table 3 (Page 3-1) shows both the WSMP's "final" costs and the escalated 2020 costs for transmission main replacement.

Table 3. Transmission Main Replacement Cost Estimates

Pipe Diameter [in.]	2017 WSMP			2020 Plan		
	$/inch-dia/LF	$/LF	$ millions/mile	$/inch-dia/LF	$/LF	$ millions/mile
16	26	412	2.2	28	448	2.4
18	26	464	2.4	28	504	2.7
20	26	515	2.7	28	560	2.9
24	23	544	2.9	24	576	3.0
30	23	680	3.6	24	720	3.8
36	23	816	4.3	24	864	4.6
48	23	1,088	5.7	24	1152	6.1

The estimated unit replacement cost for transmission mains installed in 2020, ranges between $2.4 million per mile for 16-inch pipe to $6.1 million per mile for 48-inch pipe (the largest in the system). These costs include both "soft costs" (such as fees, environmental review, engineering services) and "hard costs" (such as materials, construction, construction management, inspection, and testing).

Table 4 (Page 3-3) presents the estimated replacement costs assuming transmission mains reach their estimated useful life of 70 years and 90 years for mains installed pre-1985 and 1985 and later, respectively. The replacement costs have been "rolled-up" into decades for both the table

and chart (i.e., decade 2020 reflects the total replacement cost from 2020-2029, etc.). A breakdown of Table 4's (Page 3-3) cost by material is presented in Chart 3 (Page 3-3). Specifically, transmission main replacement costs over the next fifteen years (present value) is estimated to be $2.1 million and consists of approximately 0.9 mile of pipeline.

Table 4. Transmission Main Replacement Cost by Decade

Decade	Cost, $ millions (2020 Dollars)
2010	0.1
2020	0.4
2030	5.9
2040	1.6
2050	1.0
2060	0.0
2070	16.4
2080	62.2
2090	101.1
2100	1.5

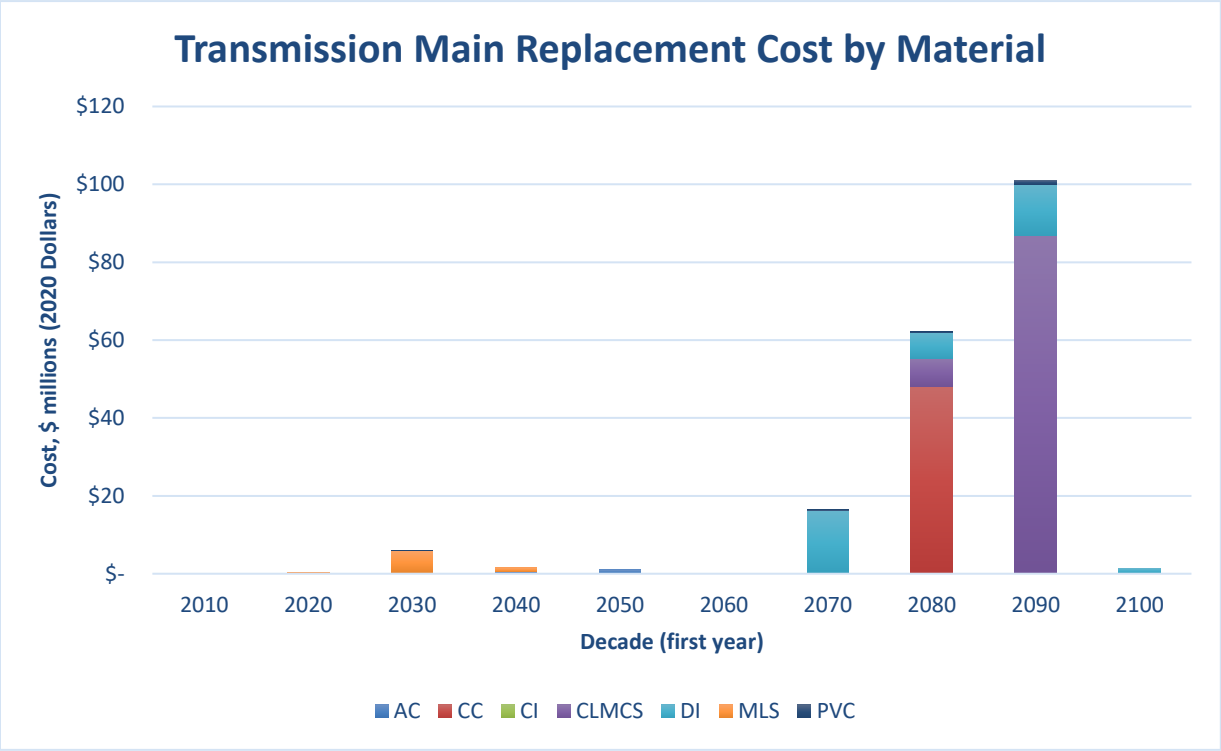

Chart 3. Transmission Main Replacement Cost by Material

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Section 4

CONDITION ASSESSMENT

A Condition Assessment (CA) is an important component of an asset management plan, and is essential to prioritizing the planning for monitoring, rehabilitation, and replacement of transmission mains to sustain both an acceptable return on investment and reliable service for customers. The condition assessment includes two major components: the Indirect Method and Direct Method. These components are the framework of the condition assessment and are used to perform a risk assessment of each transmission main segment to prioritize future effort on transmission main infrastructure rehabilitation and replacement.

The *American Society of Civil Engineers Task Committee on Water Pipeline Condition Assessment* elaborates on the condition assessment process:

> Current assessment tools…will rarely clearly define the remaining pipeline service life. Therefore, the managers of a condition assessment program should not be surprised if the results do not clearly define the exact condition of each asset but, instead, compare asset condition to other assets to gauge the level of deterioration and remaining life. (American Society of Civil Engineers, 2017)

INDIRECT METHOD

This method can be summarized as data analysis. Analyzing collected data with certain industry standard tools has facilitated agencies to prioritize infrastructure in need of rehabilitation or replacement. The Plan utilizes technical information and standards from professional and industry entities, such as *American Society of Civil Engineers* (ASCE) and *American Water Works Association* (AWWA), which provide best practice assessment tools such as: the risk assessment evaluation used in this Plan and current state-of-the-art field investigation technologies. The transmission main system is divided and analyzed in segments that are defined in the Plan as a pipe that is uniform in both size and material and can be isolated from other segments by valves.

As stated by the *Water Research Foundation*, "Utilities should evaluate each risk to an asset and prioritize projects to lessen that risk" (Water Research Foundation, 2016). The Indirect Method is used to conduct the risk assessment and is composed of the following elements:

- Consequence of Failure (COF);
- Likelihood of Failure (LOF); and
- Risk of Failure (ROF)

As discussed in Section 4.1 below, both size and material of pipe carry a different ranking score necessitating segment differentiation. Additionally, defining segments using valves provides flexibility to analyze smaller lengths of pipe. This is beneficial in that segments are ranked with a higher level of accuracy by differentiating when crossings, service connections, age, etc., change across a pipe with uniform size and material. This approach has resulted in a total of 486 segments within the transmission main system.

DIRECT METHOD

This method can be summarized as field investigations. Following the Indirect Method analysis, the Direct Method is used to verify or adjust ranking prioritization outcomes of the Indirect Method. Direct Method activities are completed for segments identified as high risk through the Indirect Method to assess transmission main segment condition. This provides verification or adjustment to the Indirect Method's risk assessment prioritizations. The Indirect Method's high risk segments will be analyzed using one or more of the following:

- Visual inspection;
- Laboratory strength testing;
- Material chemical testing;
- Wall thickness measurement; and
- Future technologies.

4.1 Indirect Method

The indirect method is the data analysis portion of the risk assessment and is performed first (prior to the direct method). The data analysis is used to calculate the ROF for each transmission main segment by using historical SSWD and industry data and correlating the results to "performance standards" (Slaven, 2017).

Two industry-standard categories for the risk calculation are LOF and COF. The categories capture specific liabilities within their respective attributes. The categories and sub-criteria used to calculate the ROF for each transmission main segment are presented in Chart 4 (Page 4-4). The ROF calculation is shown in Equation 1 in Appendix N.

The American Society of Civil Engineers (ASCE) state that after multiplying together the LOF and COF scores of each transmission main segment the results are "a relative ranking of the pipe segments" (American Society of Civil Engineers, 2017), rather than the maximum possible value. ASCE further states that, due to the difficulty of calculating a remaining service life of a pipeline, "… many methodologies focus solely on a ranking analysis approach in which the relative condition of each pipeline is compared, a recommendation of required remedial action is determined, and a prioritization of action is suggested" (American Society of Civil Engineers, 2017). For this Plan, the relative analysis of the transmission main segments are in response to the WSMP recommendation of segment prioritization in order for segment replacements to be prioritized based on a risk-based analysis that identifies those segments with the highest risk.

The approach taken by this Plan follows the ASCE approach in that the resultant ranking (ROF) is used to prioritize high risk transmission main segments for further evaluation through the direct method, described later in the Condition Assessment.

The Risk of Failure Score Chart is shown in Chart 5 (Page 4-33).

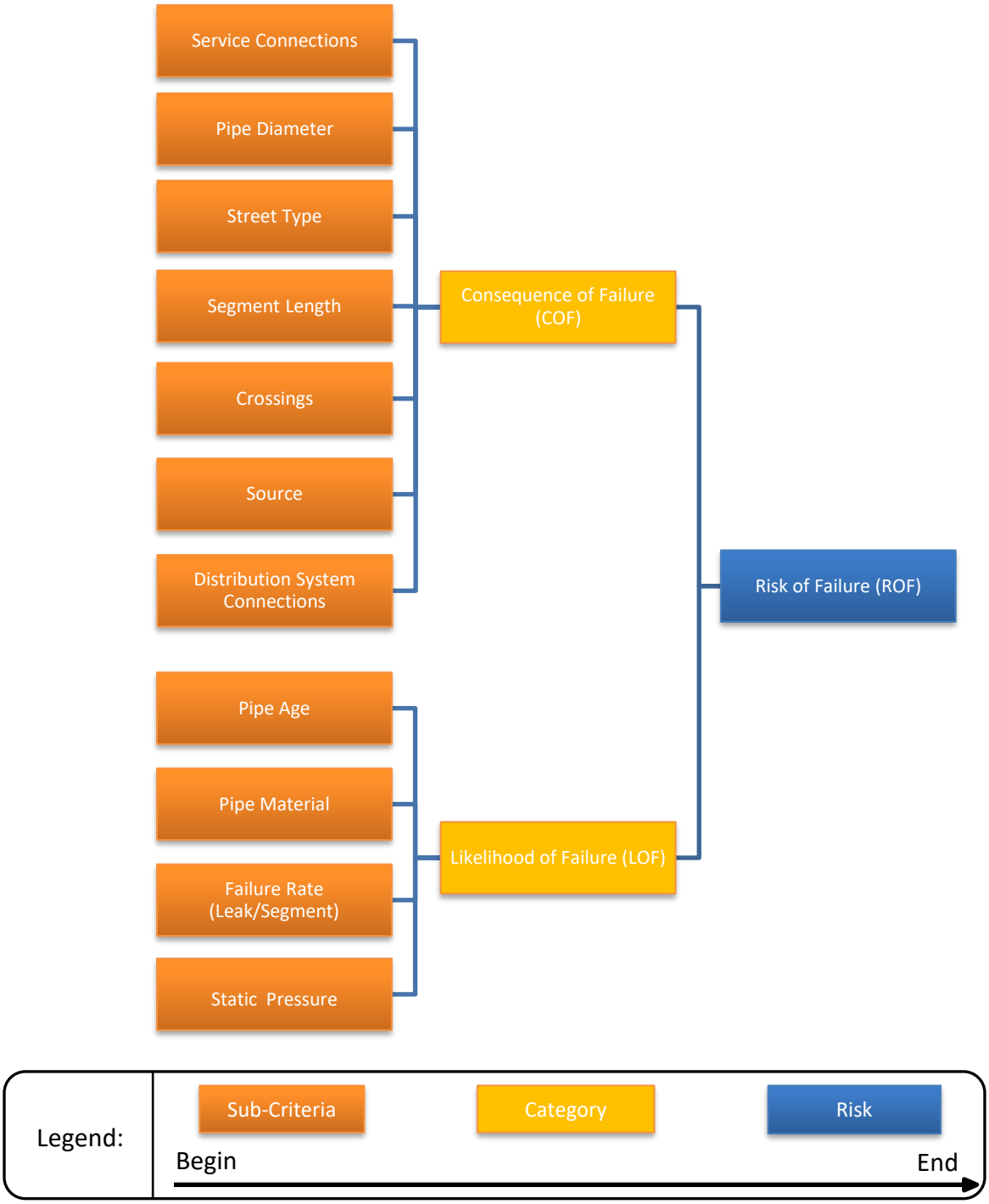


Chart 4. Risk of Failure Flowchart

4.1.1 Consequence of Failure (COF)

The first category in the ROF analysis is COF. COF assesses and aggregates 7 sub-criteria:

- Service Connections;
- Pipe Diameter;
- Street Type;
- Segment Length;
- Crossings;
- Source; and
- Distribution Connections.

These 7 sub-criteria have been determined to pose a significant liability from a pipe failure. This is observed as the "Triple Bottom Line" (Slaven, 2017):

- Economic – capital and operating costs;
- Environmental – cost of environmental degradation or impacts; and
- Social – cost of community impacts.

These sub-criteria are evaluated for each transmission main segment to calculate the highest financial and physical impact from a transmission main failure.

Three of the above sub-criteria (Service Connection, Pipe Diameter, and Street Type) were assigned double-weighted scoring, representing a significantly higher consequence of pipe failure.

Once each sub-criteria is scored, it is then normalized using a mathematical technique called Feature Scaling (Aksoy & Haralick, 2000). This sets the range maximum value to 1, which corresponds to the worst rating in each category; and sets the range minimum value to 0, which corresponds to the best rating in each category. This is used so that all values are standardized with a value between 0 and 1 conforming to industry standard techniques. The COF is calculated using Equation 3 in Appendix N.

The subsequent sections discuss the purpose, scoring criteria, and scoring calculation for the 7 sub-criteria.

4.1.1.1 Service Connection

Purpose

The service connection criterion is intended to quantify the consequence a failure would have on water availability to the affected customers. For example, if a transmission main fails and is shut down, any services on that transmission main segment would be temporarily unable to deliver water to customers.

Scoring

The Service Connection scoring is established by assigning a transmission main segment with more than 3 service connections a score of 5. If transmission mains have between 1 and 3 service connections, it received a score of 3. If transmission mains have no service connections, it received a score of 1. The Service Connection and corresponding Service Connection Score can be seen in Table 5 (Page 4-7). Results are shown in Appendix C.

Table 5. Service Connection Score

Service Connections	Score
> 3	5
≤ 1 ≤ 3	3
0	1

4.1.1.2 Pipe Diameter

Purpose

The Pipe Diameter criterion is used to classify transmission main segments by pipe diameter. Larger diameter mains have the ability to cause substantially greater damage by way of having the ability to flow a larger amount of water.

Scoring

Pipe Diameter scoring specifies the pipe diameter of each transmission main segment. The Pipe Diameter scoring starts by assigning transmission main segments sized 16-inch or lower a score of 1 and then ends with the 36- and 48-inch transmission main segments receiving a score of 5, as shown in Table 6 (Page 4-8). Results are shown in Appendix D.

Table 6. Pipe Diameter Score

Pipe Diameter [in.]	Score
36, 48	5
30	4
24	3
20, 18	2
≤ 16	1

4.1.1.3 Street Type

Purpose

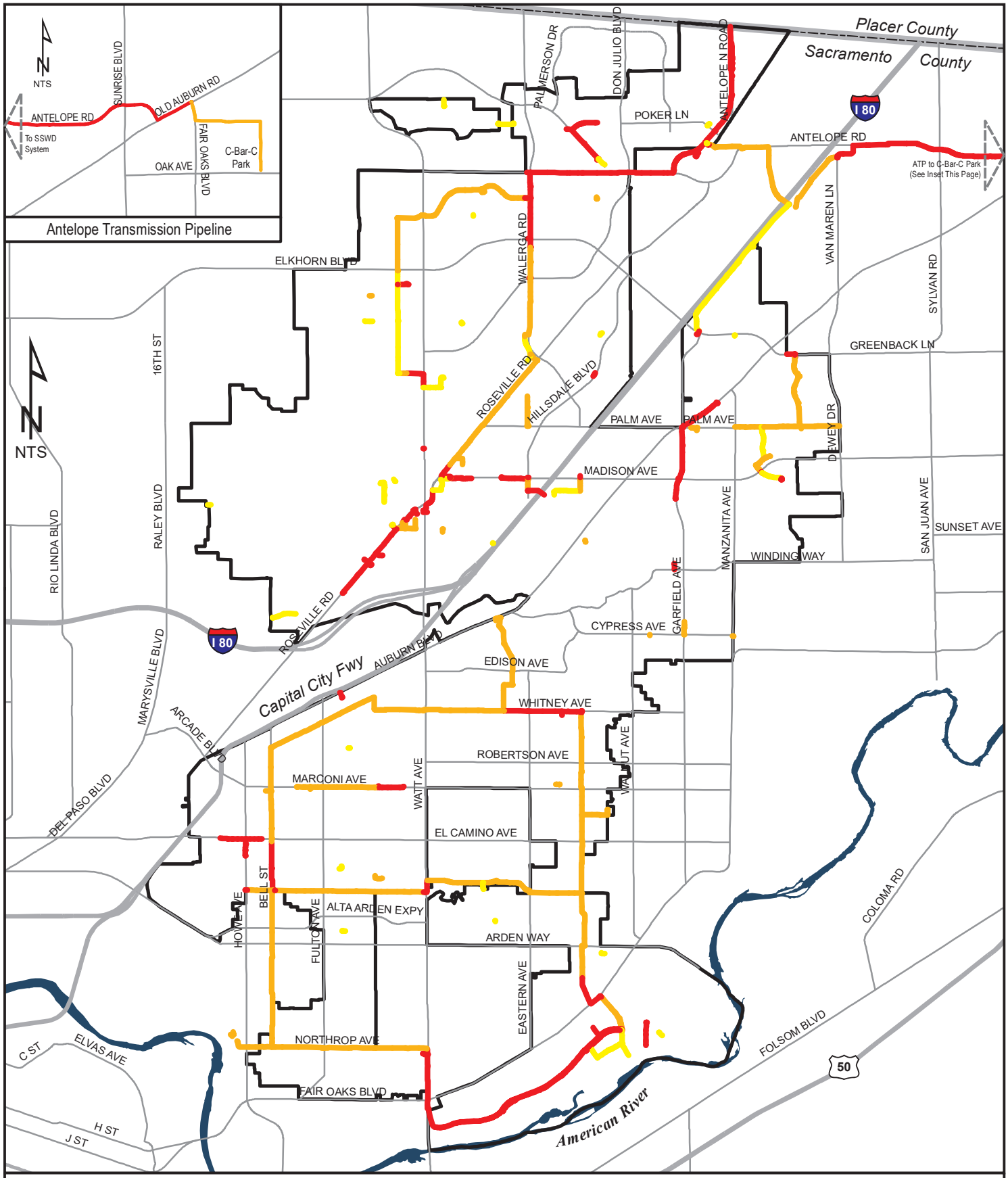
The Street Type criterion is used to estimate the financial impact of a transmission main segment failure within a county or city designated street. A segment failure within an arterial street has a greater liability than a failure in a residential street.

Scoring

The Street Type scoring is established by importing the Sacramento County (includes Cities) street designation into GIS and overlaying it against the location of the transmission main segments. Transmission main segments within an arterial street received a score of 5, those within a collector street received a score of 4, those within a residential street received a score of 3, and all others not in a designated street, assigned N/A, received a score of 1, as shown in Table 7 (Page 4-9) and Figure 2 (Page 4-10). Results are shown in Appendix E.

Table 7. Street Type Score

Street Type	Score
Arterial	5
Collector	4
Residential	3
N/A	1



Legend

- Arterial
- Collector
- Residential

SACRAMENTO SUBURBAN WATER DISTRICT

Transmission Main Asset Management Plan
June 2020

Figure 2

Transmission Main

By Street Type

4.1.1.4 Segment Length

Purpose

The Segment Length criterion is used to account for the length of a transmission main segment. Longer segments tend to cause a higher consequence of failure. A transmission main segment is considered to pose less risk when the length is shorter, with fewer customers impacted by the break and repair work.

Scoring

The Segment Length score was determined based on the calculated length within the GIS. A segment length greater than 2,000-ft received a score of 5, segments that are between 500- and 2,000-ft received a score of 3, and any segment less than or equal to 500-ft received a score of 1. Scoring for segment length is shown in Table 8 (Page 4-11). Results are shown in Appendix F.

Table 8. Segment Length Score

Segment Length (ft)	Score
> 2000	5
> 500 ≤ 2000	3
≤ 500	1

4.1.1.5 Crossings

Purpose

The Crossings criterion is used to estimate the consequence of a transmission main segment break at a creek, highway, or railroad crossing. Such failures have potential to result in a higher liability and cost to repair. A transmission main segment break that discharges water into a creek may result in environmental impacts and fines by regulatory agencies (e.g., Sacramento County Environmental Management, Division of Drinking Water, etc.), and a break under a highway or railroad, which has potential to cause major transportation issues, is a much greater liability.

Scoring

The Crossings scoring was determined by assigning any transmission main segment that crosses a creek (Yes-CC), highway (Yes-HW), or railroad (Yes-RR) a score of 5. Segments that do not contain a crossing received a score of 1. Crossings Score is listed in Table 9 (Page 4-12). Results are shown in Appendix G.

Table 9. Crossings Score

Crossing	Score
Yes-CC, - HW , and - RR	5
No	1

4.1.1.6 Source

Purpose

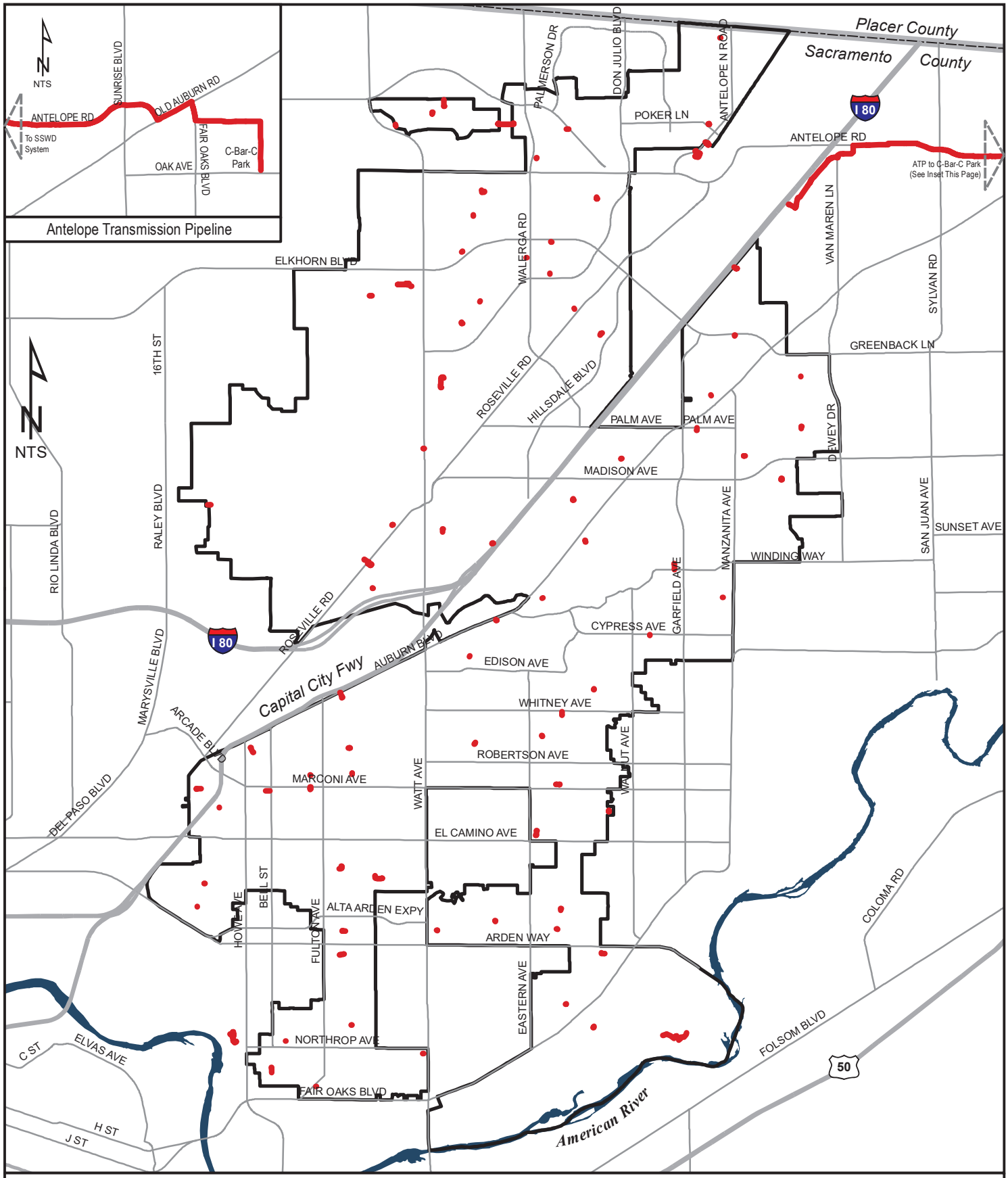
The Source criterion is used to account for segments that supply water to the distribution system from a water source (e.g., Antelope Transmission Pipeline (ATP), Reservoir, Single, Well Site). The risk of these pipelines failing would prevent supplying water from those sources, which limits the available sources and possibly causing a water supply shortage. A Single Source is described as serving a large area served by only one water supply.

Scoring

The Source score was calculated by assigning any transmission main segments that provide water to the distribution system with a score of 5. These source segments are classified as ARSW (ATP-Reservoir-Single-Well Site) in the data tables. All other transmission main segments received a score of 1. The score breakdown is listed in Table 10 (Page 4-13) and can be seen in Figure 3 (Page 4-14). Results are shown in Appendix H.

Table 10. Source Score

Source	Score
ATP, Single, Reservoir, Well Site	5
N/A	1



Legend

Source Main
(ATP, Single, Well Site, or Reservoir)

SACRAMENTO SUBURBAN WATER DISTRICT

Transmission Main Asset Management Plan
June 2020

Figure 3

Transmission Main By Source

4.1.1.7 Distribution Connections

Purpose

The Distribution Connections criterion is used to account for all distribution connections that are tied into a transmission main segment. A transmission main segment is considered desirable when there are fewer distribution main connections on a segment so that a failure can be isolated quickly and with fewer customers impacted by the break and repair work.

Scoring

The Distribution Connections score was calculated by counting the number of distribution connections in a transmission main segment. Distribution connections into a transmission main segment greater than 3 received a score of 5, those with 2 or 3 distribution connections received a score of 3, and those with 1 or no distribution connections received a score of 1. Scoring is shown in Table 11 (Page 4-15). Results are shown in Appendix I.

Table 11. Distribution Connections Score

Distribution Connections	Score
> 3	5
> 1 ≤ 3	3
≤ 1	1

4.1.2 Likelihood of Failure (LOF)

The second category in the ROF analysis is LOF. LOF assesses and aggregates 4 sub-criteria:

- Pipe Age;
- Pipe Material;
- Failure Rate; and
- Static Pressure.

These four sub-criteria are shown as industry standards, which will provide the most accurate categorization of the quality of pipes for each transmission main segment. The data is evaluated for each transmission main segment as to how the sub-criteria contributes to the probability of a pipe failure.

Two of the above sub-criteria (Pipe Age and Pipe Material) receive a doubled score, representing a higher probability of the pipe failing. Once each sub-criteria is scored, it is then normalized using a mathematical technique called Feature Scaling (Aksoy & Haralick, 2000). This sets the range maximum value to 1, which corresponds to the worst rating in each category; and sets the range minimum value to 0, which corresponds to the best rating in each category. This is used so that all values are standardized with a value between 0 and 1 conforming the industry standard techniques. The LOF is calculated using Equation 2 in Appendix N.

The subsequent sections discuss the purpose, scoring criteria, and scoring calculation(s) for each of the four sub-criteria.

4.1.2.1 Pipe Age

Purpose

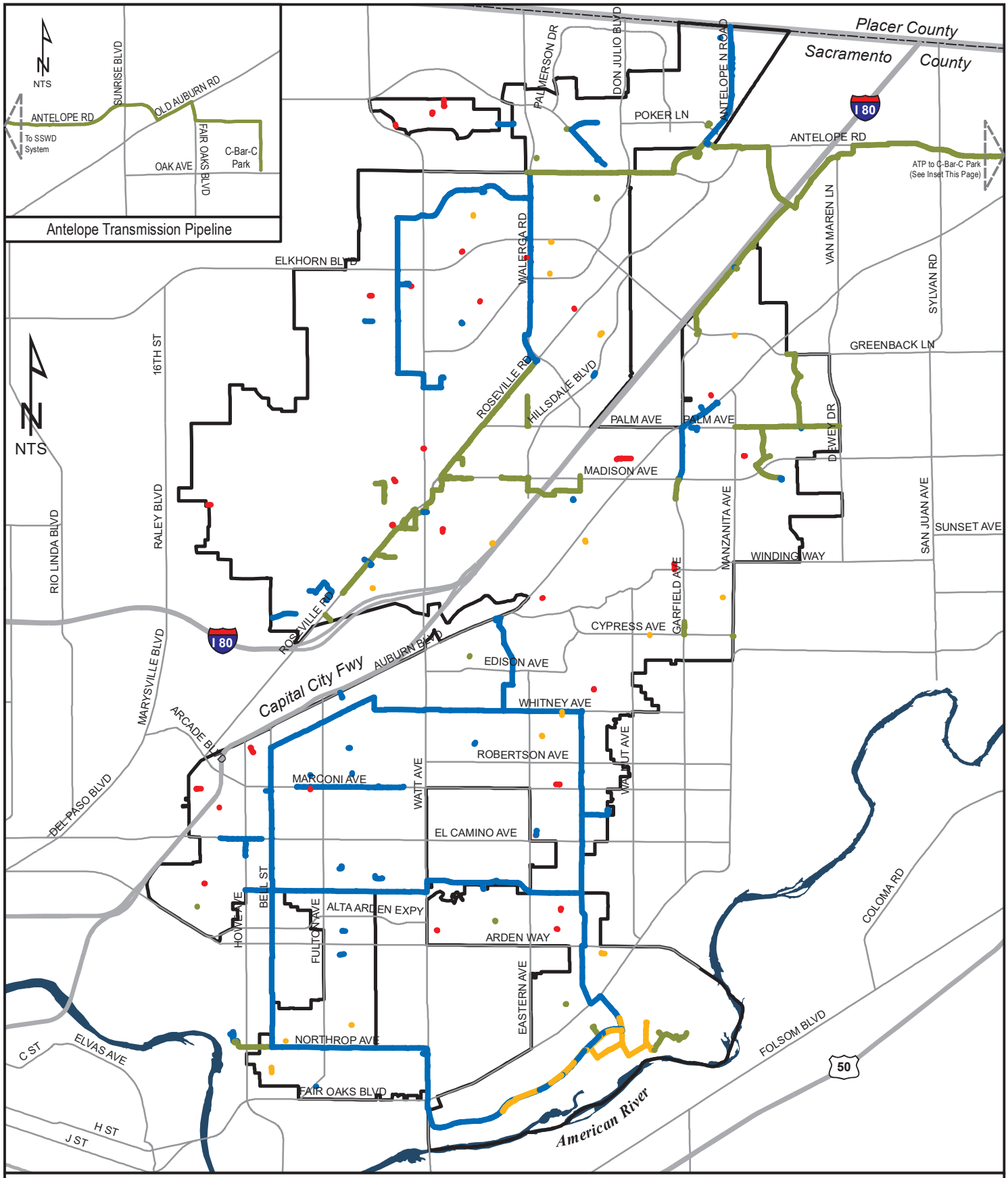
The Pipe Age is indicative of potential failure since older pipe is generally more likely to experience an age-related failure from general deterioration of the pipe material. As a pipe ages, coatings or protective materials degrade, causing the pipe to be more vulnerable to environmental factors; and in the case of AC, the chemical composition of the pipe material degrades and weakens.

Scoring

Pipe Age scoring uses the age of each transmission main segment. The Pipe Age Increment Scale was developed based on all pipe material types' assumed useful life of approximately 80-100 years. Scoring details are shown in Table 12 (Page 4-17) and the age by transmission main segment are shown in Figure 4 (Page 4-18). Results are shown in Appendix J.

Table 12. Pipe Age Score

Pipe Age [years]	Score
> 80	5
> 60 ≤ 80	4
> 40 ≤ 60	3
> 20 ≤ 40	2
≤ 20	1



Legend

- 61 - 80 Years
- 41 - 60 Years
- 21 - 40 Years
- 0 - 20 Years

SACRAMENTO SUBURBAN WATER DISTRICT

Transmission Main Asset Management Plan
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Figure 4

Transmission Main Age By Segment

4.1.2.2 Pipe Material

Purpose

Pipe Material is one of the best indicators of transmission main reliability. There has been a variety of material types of transmission mains installed.

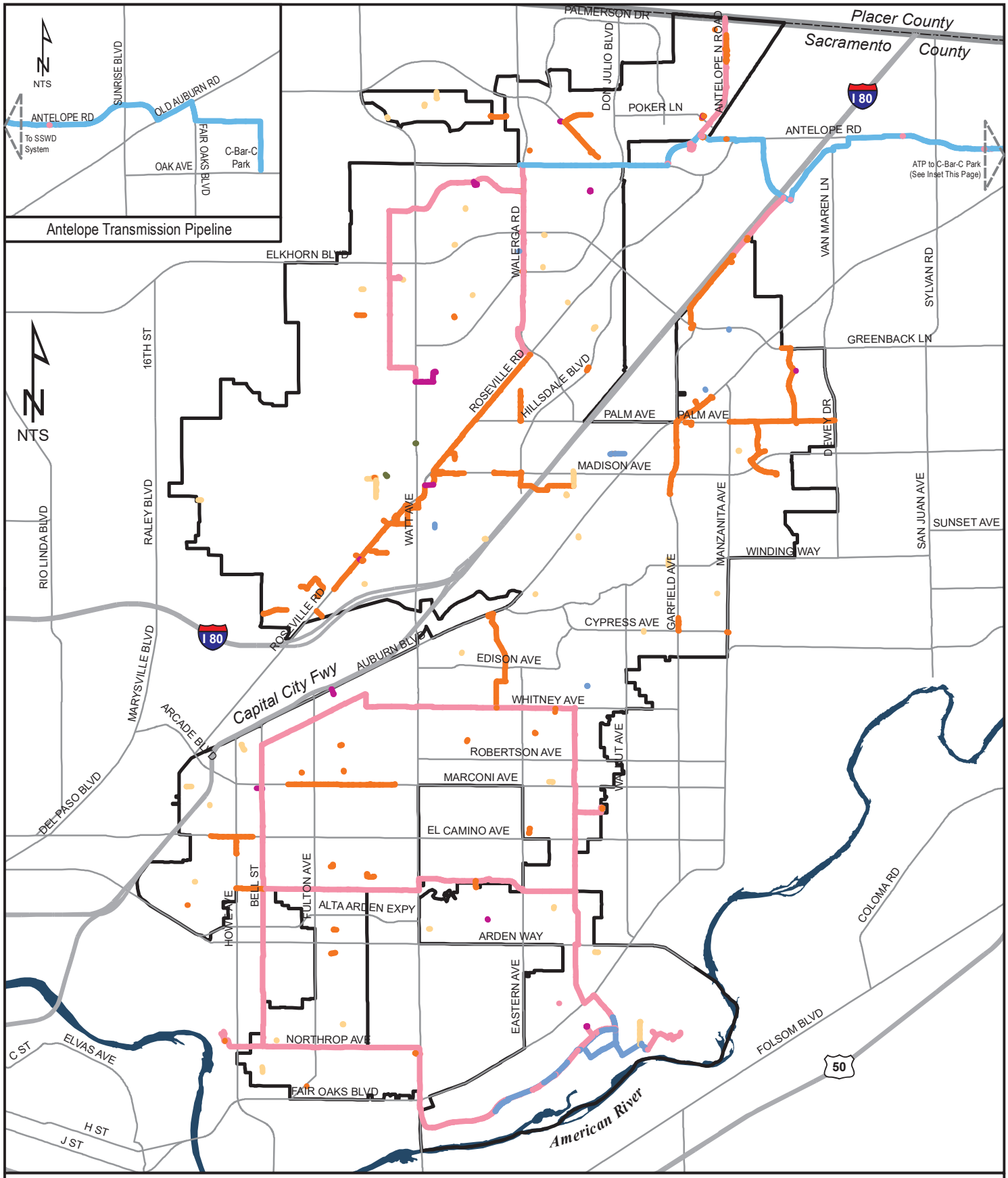
Scoring

Pipe Material score is given to each transmission main segment based on the pipe material types shown below in Table 13 (Page 4-19). The Pipe Material score was determined from discussions with our operations staff and industry knowledge.

The Pipe Material score results for each transmission main segment are shown in Appendix K. Figure 5A (Page 4-20) shows the various Pipe Material used within SSWD, while Figures 5B – 5H (Pages 4-20 through 4-27) isolate AC, CC, CI, CMLCS, DI, MLS, and PVC pipe, respectively.

Table 13. Pipe Material Score

Pipe Material	Score
CI, MLS	5
AC	4
PVC	3
DI	2
CC, CMLCS	1



Legend

- AC
- CC
- CI
- CMLCS
- DI
- MLS
- PVC

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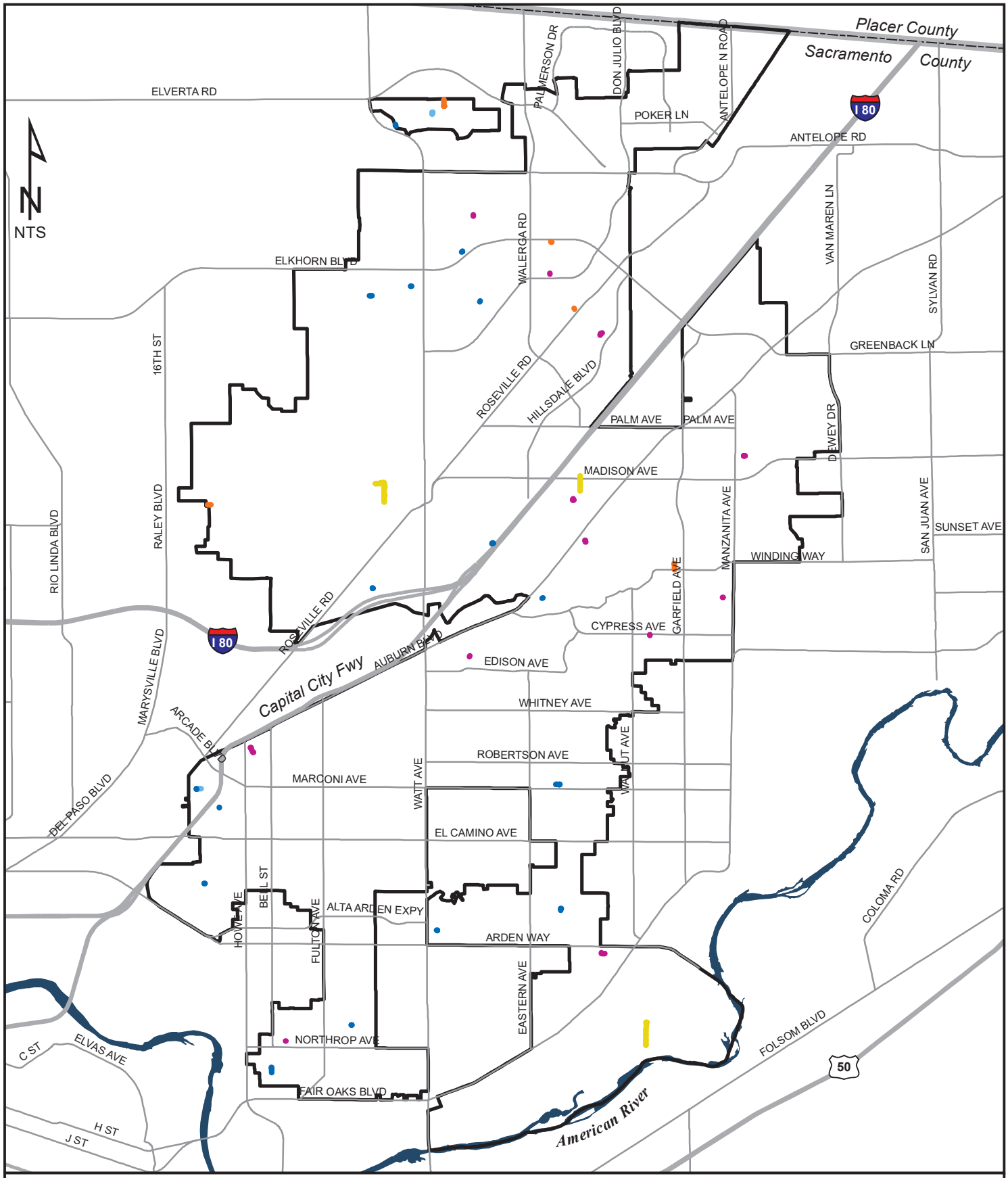
Figure 5A

Transmission Main

By Material - All



Legend

- 6"
- 8"
- 10"
- 12"
- 16"

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Transmission Main Asset Management Plan
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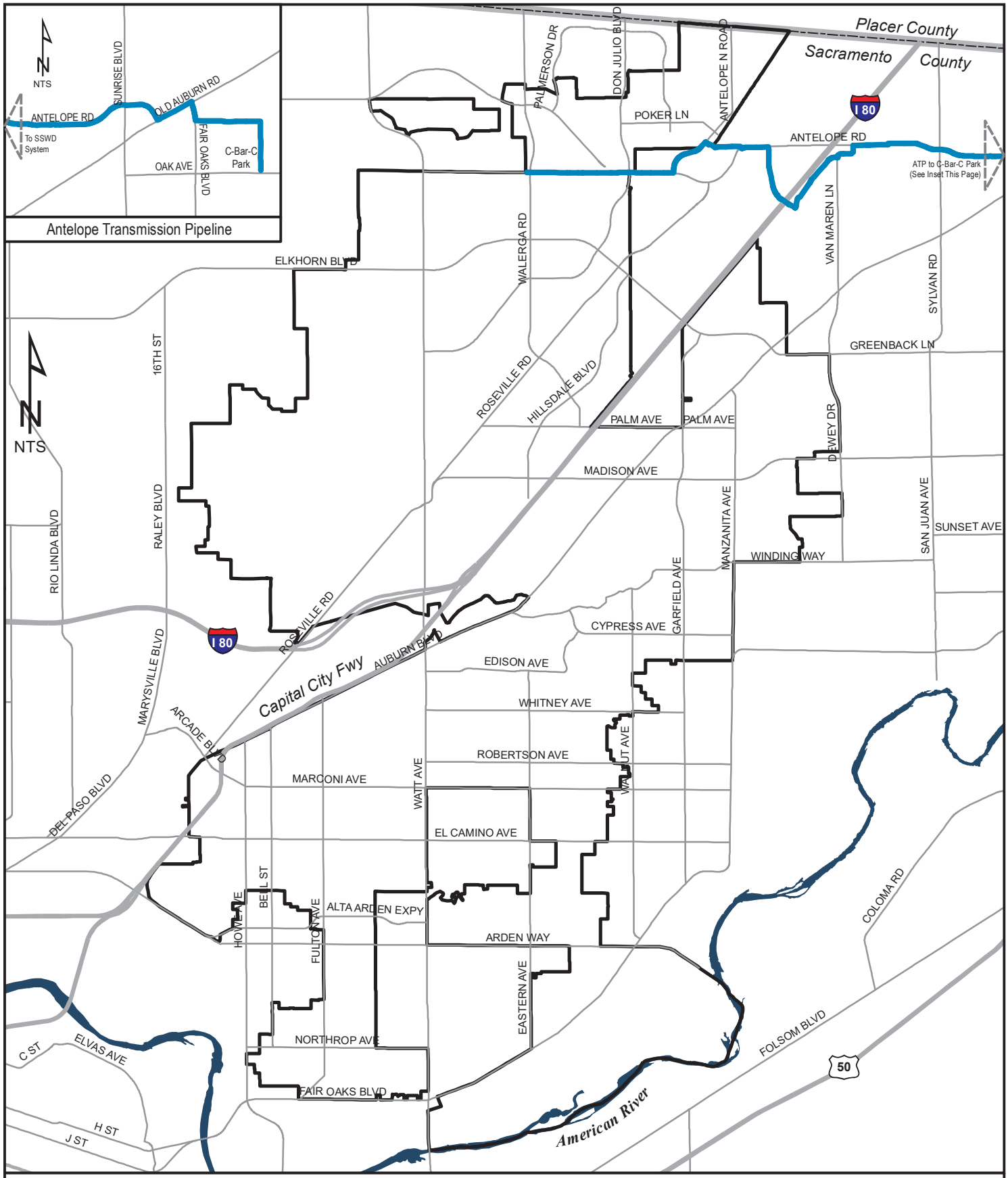
Figure 5B

Transmission Main
By Material - AC



Legend

48"

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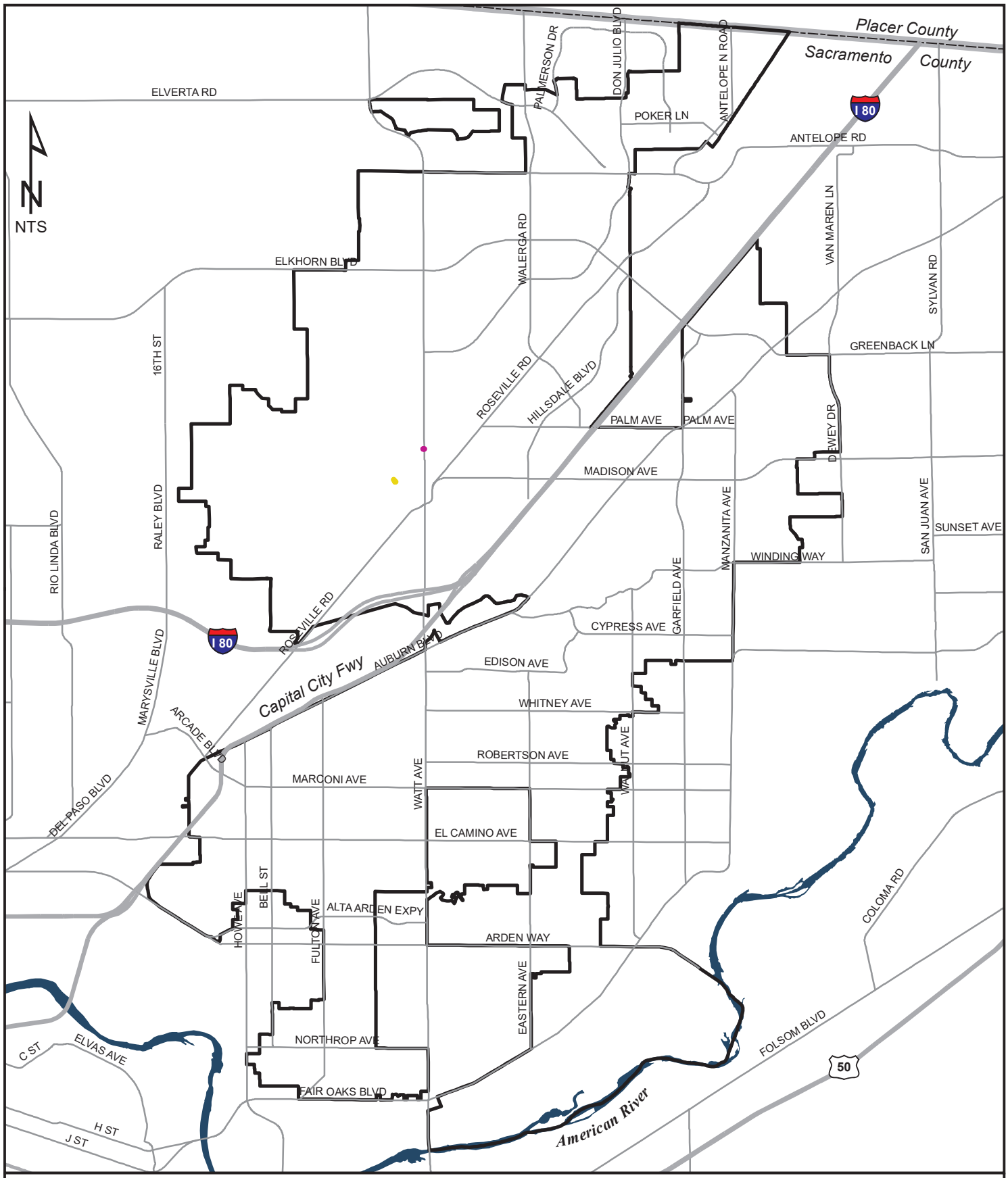
Figure 5C

Transmission Main

By Material - CC



Legend

- 10"
- 16"

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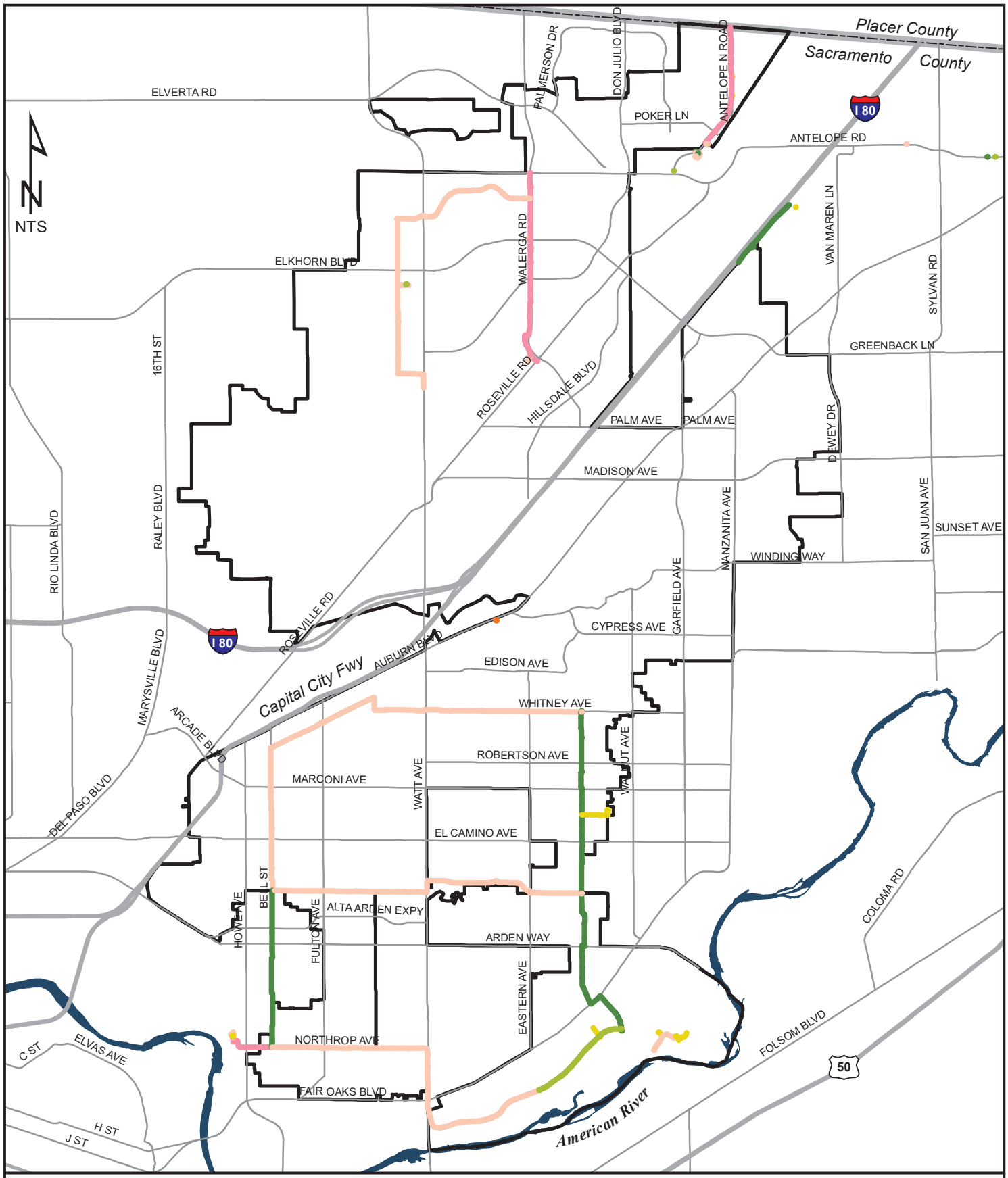
Figure 5D

Transmission Main

By Material - CI



Legend

- 10"
- 12"
- 16"
- 18"
- 24"
- 30"
- 36"

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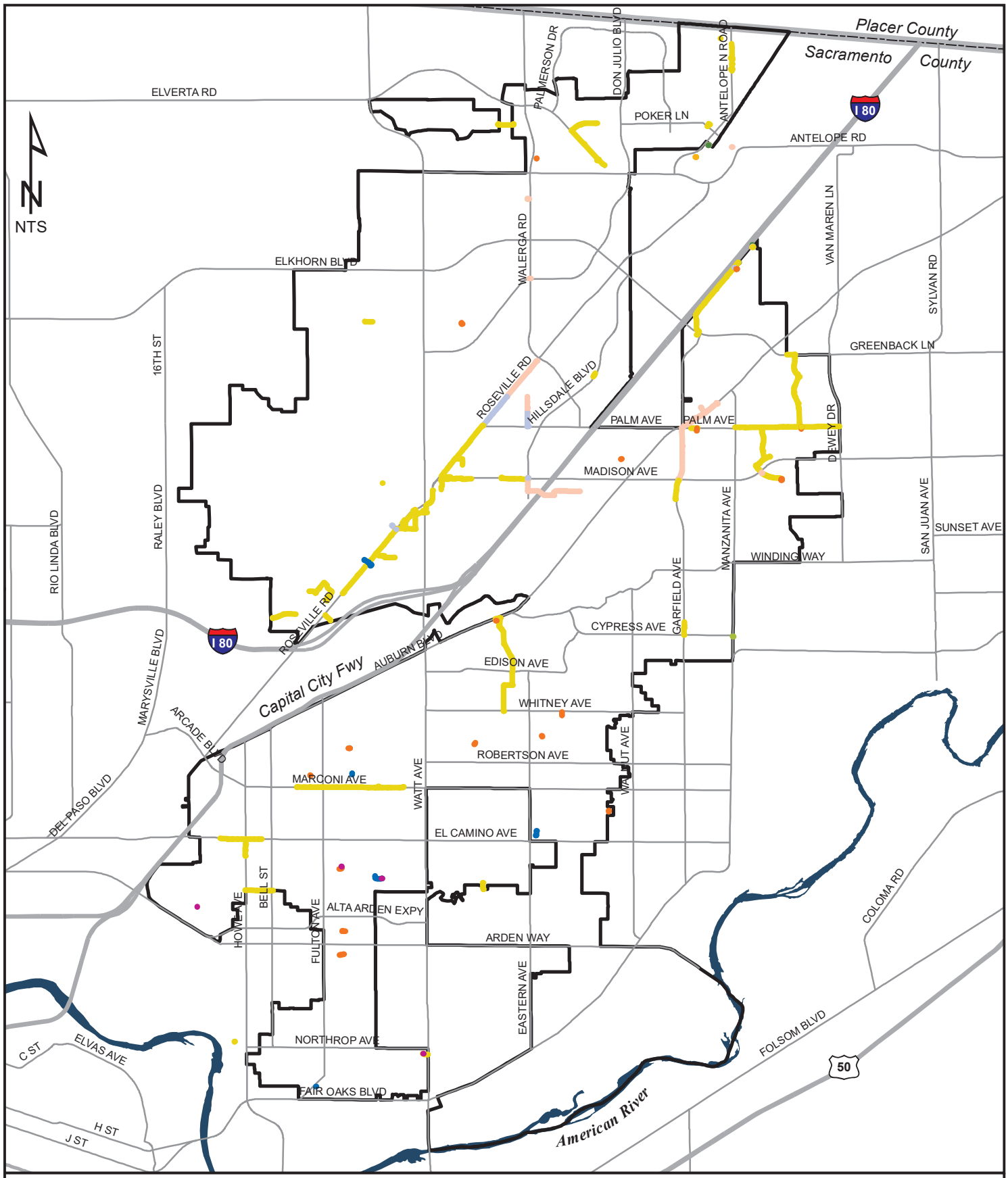
Figure 5E

Transmission Main

By Material - CMLCS



Legend

- 6"
- 8"
- 10"
- 12"
- 14"
- 16"
- 18"
- 20"
- 24"
- 30"

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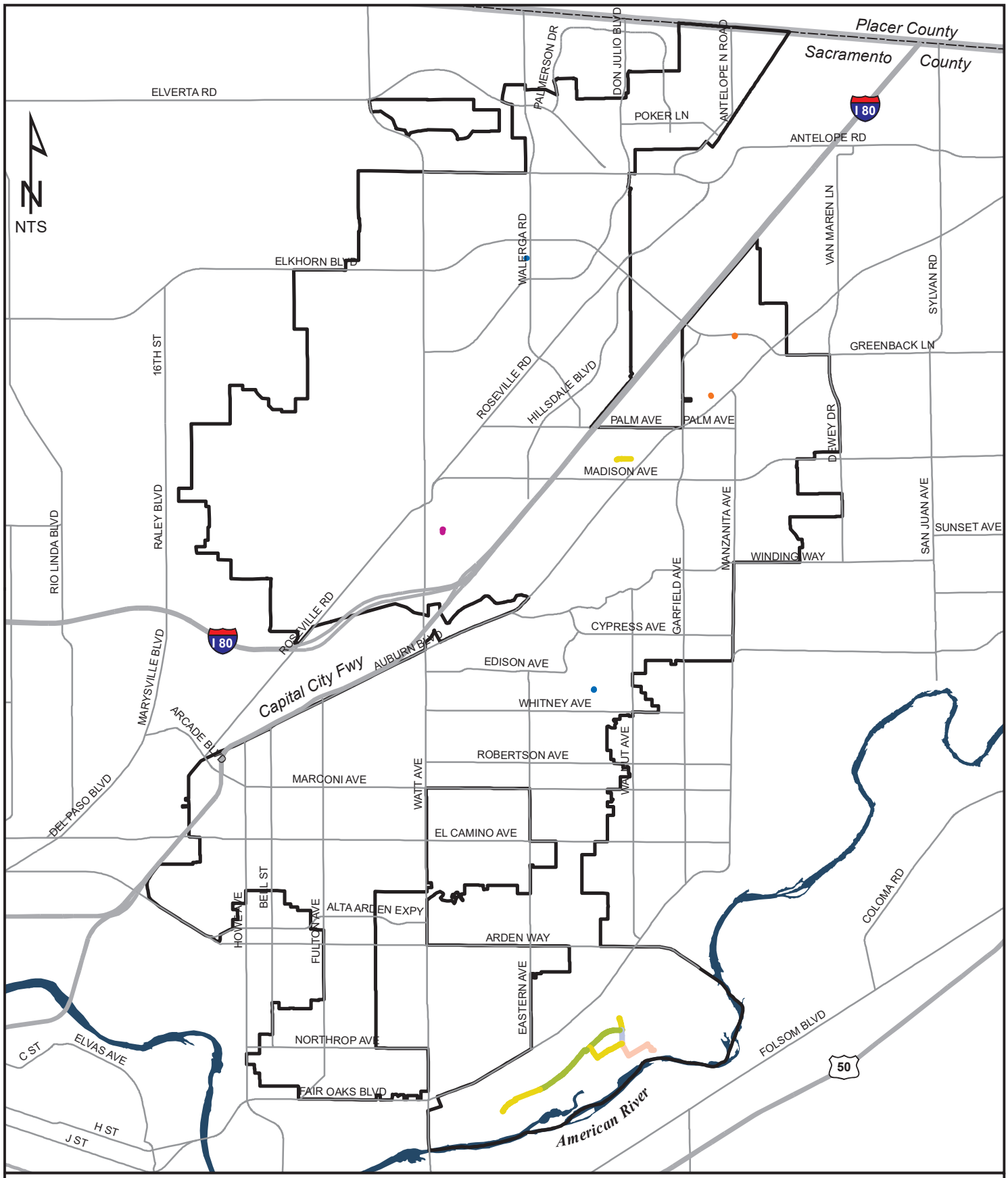
Figure 5F

Transmission Main

By Material - DI



Legend

- 8"
- 10"
- 12"
- 16"
- 18"
- 20"
- 24"

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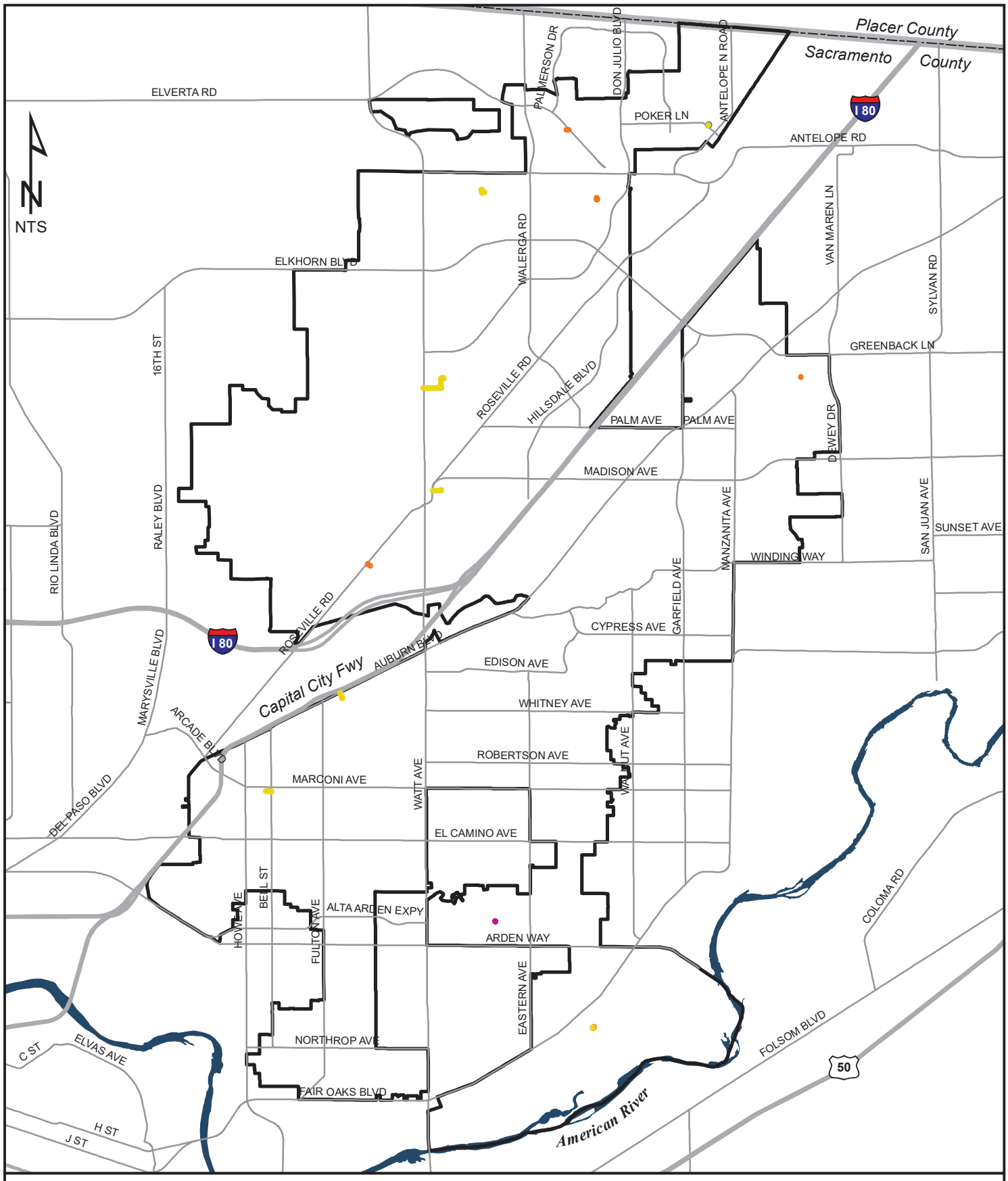
Figure 5G

Transmission Main

By Material - MLS



Legend

- 8"
- 10"
- 12"
- 16"

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Figure 5H

Transmission Main

By Material - PVC

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4.1.2.3 Failure Rate

Purpose

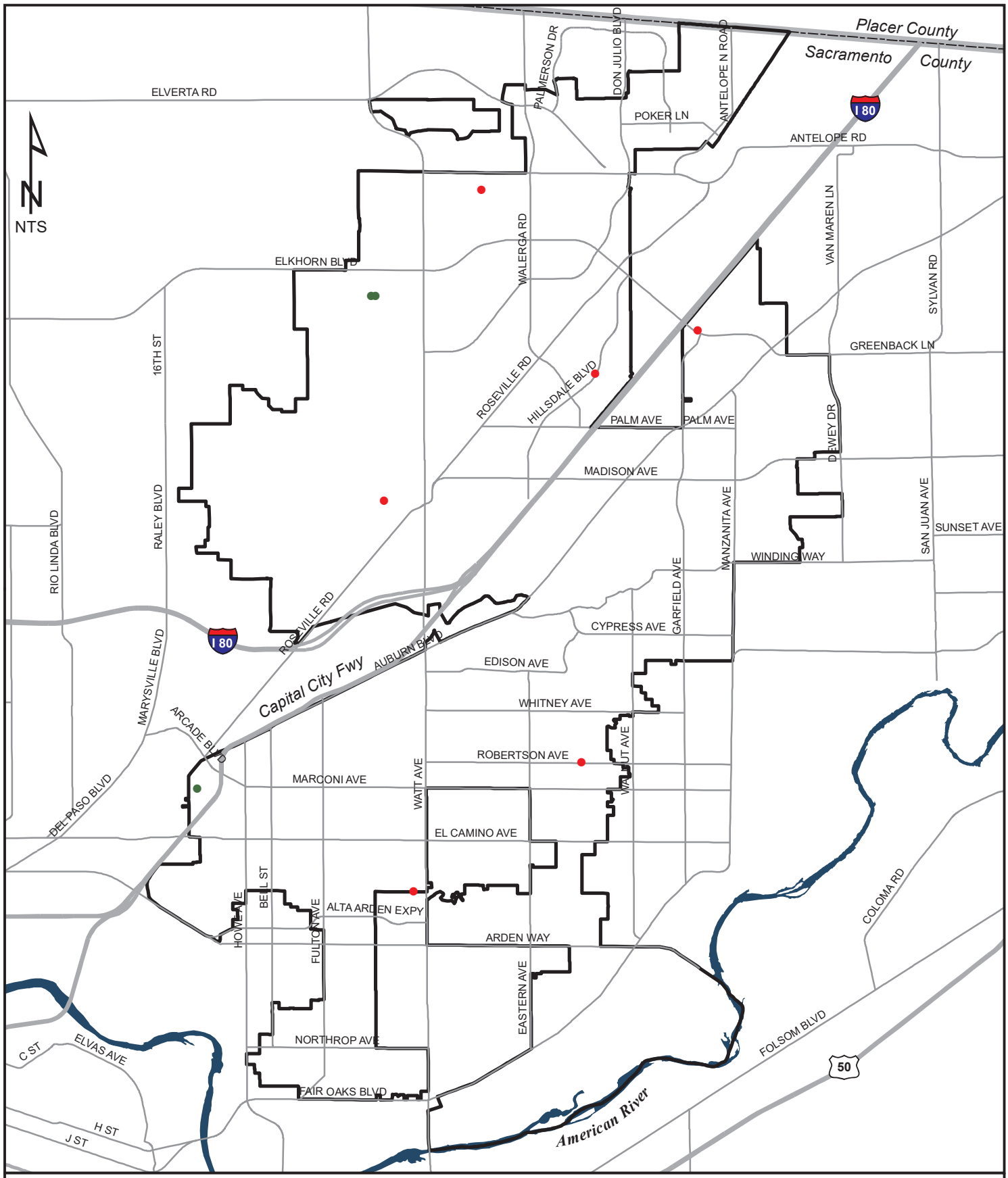
Leaks on active transmission mains are shown in Figure 6 (Page 4-30). There are very few leaks on the transmission main system.

Scoring

Failure Rate scoring was calculated by taking total transmission main leaks per transmission main segment and scored using Table 14 (Page 4-29). Results are shown in Appendix L

Table 14. Failure Rate Score

Failure Rate [leaks/segment]	Score
> 3	5
≥ 1 ≤ 3	3
< 1	1



Legend

- Leaks - Transmission Main
- Leaks - Source Main

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Figure 6

Transmission Main

Failure Rate

4.1.2.4 Static Pressure

Purpose

Transmission mains with higher static pressures are more prone to damage. As noted in a water main break comprehensive study performed by Utah State University, "… some utilities have reduced operating pressures to reduce leakage rates. Pressure control and reduction is a common methodology to both reduce water leaks and reduce water main breaks" (Utah State University - Burried Structures Laboratory, 2018). Although most transmission mains were designed with an intended static pressure, older source mains were not and should be scored accordingly.

Scoring

Static Pressure scoring examines the SCADA system. The transmission main segments are then assigned a pressure reading from the nearest SCADA data point. Segments with a pressure greater than 80-psi received a score of 5 while those with a pressure between 60- and 80-psi received a score of 3 and those with a pressure less than 60-psi received a score of 1. Scoring details are shown in Table 15 (Page 4-31). Results are shown in Appendix M.

Table 15. Static Pressure Score

Static Pressure	Score
> 80	5
> 60 ≤ 80	3
≤ 60	1

4.1.3 Risk of Failure (ROF)

The ROF equation, Equation 1 in Appendix N, calculates each transmission main segment's risk by multiplying the LOF by the COF (Brown and Caldwell, 2017). The ROF score is then ranked by highest to lowest, presenting the highest risk segments.

4.2 Direct Method

After the completion of the Indirect Method and all transmission main segments have received a Risk of Failure Score, the highest ranking transmission main segments that score within the High ROF range, shown in Chart 5 (Page 4-33), will be examined further with field investigations (i.e., Direct Method).

The Direct Method will verify or adjust the Indirect Method's prioritization of the transmission main segments but it should be considered on a cost and results driven basis.

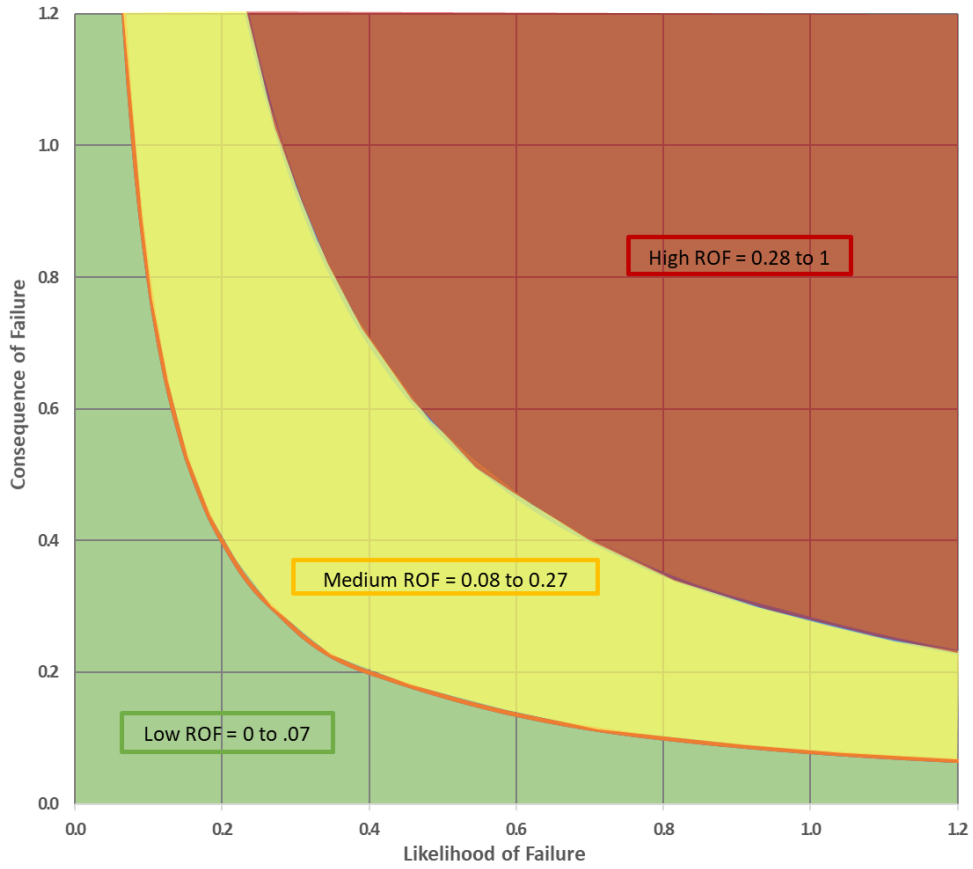


Chart 5. Risk of Failure (ROF)

High ROF segments will be evaluated using one or more of the following field investigation methods of the direct method:

- Visual inspection;
- Laboratory strength testing;
- Material chemical testing; and
- Wall thickness measurement.

4.2.1 Visual Inspection

The condition of transmission mains may be analyzed through visual inspection by either internal video or internal and external visual observation.

Traditional visual inspection technologies include a Closed Circuit Television (CCTV) survey that requires a complete shutdown to isolate a pipeline. These surveys are considered intrusive due to customers and hydrants temporarily being taken out of service.

Potential non-destructive visual inspection technologies that could be utilized include the use of a swimming remotely operated vehicle with sensors and mini cameras. Vendors are beginning to offer the use of these technologies in new and innovative ways. SSWD will continue to research and explore new technologies as they evolve. A brief description of some vendors utilizing these technologies in innovative ways are described below.

4.2.1.1 JD7 Investigator

This technology performs up to 1,000-meter (3,280 feet) surveys at a time using a High Definition CCTV coupled with a hydrophone and high-powered sonde for precise leakage and acoustic surveys. The combination of the CCTV and hydrophone allows up to double the distance surveyed a day compared to traditional leak detection methods.

4.2.1.2 SAHARA

This technology uses a method composed of a tethered system with acoustic leak detection and inline video. The monitoring tool is pulled by the flow of water and checks internal pipe wall conditions and pipeline features by sweeping across the pipe walls with the onboard sensors.

4.2.2 Laboratory Strength Testing and Material Chemical Testing

Laboratory strength testing can give an understanding on the relative strength of a pipe material. Compression and tensile testing can be used to estimate the remaining useful life of a pipe. Material chemical testing is an industry standard procedure when assessing the degradation of AC pipe. It has the ability to show the approximate calcium leached from the outer wall. Calcium leaching has proven to make AC pipe "water logged" causing it to become brittle. If the original design criterion is known, the remaining useful life of an AC pipe can be estimated based on the amount of calcium that has leached from the pipe walls.

4.2.3 Wall Thickness Measurement

Utilizing technology to calculate or measure wall thickness of an in service or removed section of pipe is another way to assess the remaining useful life of a pipeline.

4.2.3.1 Acoustic Monitoring (Echologics)

This technology is most effective on AC pipe and can provide an indication of average wall thickness between two transmitter locations. This method provides measurements, which can detect widespread wall loss.

4.2.3.2 X-Ray (TEAM Industrial)

This method requires that a section of metallic pipe be removed for examination. This technology can provide a wall thickness profile of a metallic pipe section. Knowing the original thickness, one can estimate the remaining useful life of the pipe material based on the decay rate. The X-Ray testing method can provide reliable wall thickness data for metallic pipes.

Implementing destructive wall thickness testing methods can be expensive. However, the ability to calculate an estimate for pipeline decay may help determine the remaining useful life of those pipes.

4.2.3.3 Future Technologies

SSWD will continue to research and utilize appropriate technologies when opportunities arise.

4.3 Material Condition Evaluation

As verified in Section 4.1 and 4.2, the condition of the pipe material degrades with time from external factors (i.e. corrosion effects from water and/or soils). Newer pipe materials installed to modern standards are generally much less susceptible to corrosion. Pipe Materials such as AC and MLS have proven to be the most problematic for SSWD.

The field investigations and data analysis support the scores detailed for sub-criteria Pipe Material and Pipe Age. The scores are detailed in Table 13 (Page 4-19). As appropriate, future investigations and analyses should be done to support the Failure Rate data gathered.

4.3.1 Cathodic Protection

There are approximately 400 test stations on the District's CMLSC, CCP, and MLS Pipelines. According to a recent cathodic protection survey performed by Legion Solutions & Services (Legion), "None of the transmission pipelines were installed with sacrificial anode or impressed current cathodic protection system for external corrosion protection" (Legion Solutions & Services, 2020). Cathodic protection systems are typically recommended to be designed and installed on transmission pipelines due to the high importance and function within a water system. Additionally during the 2020 survey done by Legion, it was documented that "Although the [Transmission] pipelines do not have a corrosion protection system, the [CLMCS], CCP and MLS pipelines were reportedly electrically continuous and contain test stations at regular intervals to monitor the corrosion activity of the pipelines" (Legion Solutions & Services, 2020). The 2020 Discovery Survey completed by Legion, establishes a benchmark understanding of the condition the metallic transmission pipelines (other than DI) within SSWD's system. SSWD shall continue to monitor the condition of the metallic transmission pipelines through surveys, with the intent to monitor the corrosion activity in the pipelines.

4.3.2 Pipe Material

Cast Iron (CI)

The District has less than 200-feet of CI pipe in its Transmission Main system. It was installed in the 1940's within the boundaries of McClellan Business Park at two water sources (Tank 216 and Well MC-10).

Mortar Lined Steel (MLS)

MLS pipe is considered the highest risk pipe material in SSWD based on the institutional knowledge of our Operations Department. Therefore, MLS pipe ranks highest on the "Pipe Material" category. A known failure point on the MLS pipe are the welded service taps.

From the article *Buried No Longer: Confronting America's Water Infrastructure Challenge* (American Water Works Association, 2012), it is estimated that MLS pipe has a service life between 75 and 95 years but, as described in the WSMP, transmission mains installed prior to 1985 have an estimated 70-year service life. Based on the installation year of the District's MLS pipe, the anticipated service life is near 70 years.

Asbestos Cement (AC)

AC was the next least reliable material based on SSWD's history. It is documented that AC pipe examined is losing wall thickness from both interior and exterior wall surfaces due to major loss of calcium (JDH Corrosion Consultants, Inc., 2014). Another cause of failure of AC pipe is expansive soils, which can lead to swelling and shrinkage of the soil that generates bending stresses in pipes (East Bay Municipal Utility District, 2012). Expansive soils are present in SSWD but have a very irregular distribution (United States Department of Agriculture, 1993).

Useful life of AC pipe in the Western United States is considered 75 years (American Water Works Association, 2012). This correlates well with a useful life of 80 years in SSWD's Water System Master Plan (Brown and Caldwell, 2017).

Polyvinyl Chloride (PVC)

PVC pipe is not commonly installed in the District's Transmission Main system and only makes up approximately 3,500-feet. Although PVC pipe is lighter and corrosive resistant, according to *Buried No Longer: Confronting America's Water Infrastructure Challenge* (American Water Works Association, 2012), PVC pipe has an estimated useful life of only 70 years.

Ductile Iron (DI)

DI pipe is one the District's most reliable pipe materials due to its high strength, durability, and corrosion resistance properties. It is estimated that that DI has a design life expectancy of "at least 105 years" (Ductile Iron Pipe Research Association, 2016). Although DI is the Districts standard pipe material for 16-inch and smaller water mains, the cost of DI increases exponentially above 16-inch diameter, making other pipe materials (CC and CLMCS) more cost effective.

Concrete Cylinder (CC)

One top rated pipe material used in SSWD's transmission system is CC. Per AWWA C303 standard, this pipe has "a welded steel cylinder with steel joint rights welded to the ends… Continuous reinforcing bar[s are] then helically wound, under measured tension, around the line cylinder; and a mortar coating not less than ¾-inch thick measure from the outside of the reinforcing bars is placed using high-velocity impaction" (American Water Works Association, 2017). The design engineer that installed SSWD's CC Pipe estimates a useful life of between 75 – 90 years.

Cement Mortar Lined and Coated Steel (CLMCS)

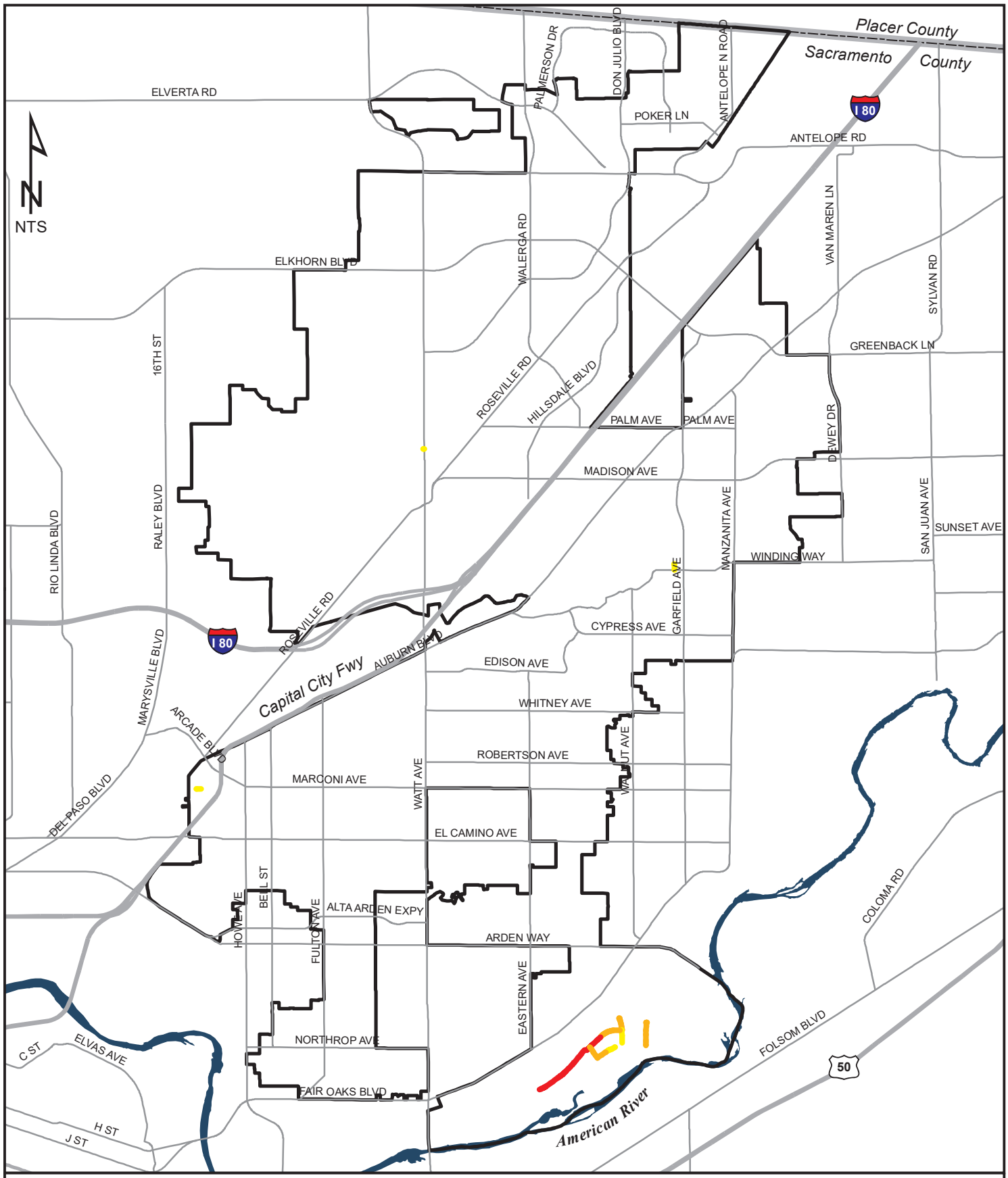
Another top rated pipe material with in SSWD is CLMCS. CLMCS is a "butt-joint welded straight-seam or spiral-seam steel pipe" (American Water Works Association, 2017). This pipe is then protected utilizing American Water Works Association C205 – Cement-Mortar Protective Lining and Coating for Steel Water Pipe – 4 Inch and Larger – shop applied. As noted in the WSMP, transmission mains installed after 1985 have an estimated 90-year service life. Since this pipe is steel, it is susceptible to corrosion and should be monitored as described in Section 4.3.1.

4.4 Transmission Main Segment Priority

As a result of the analysis, the identified transmission main segments are ranked in terms of priority for further analysis. The ranking table (Appendix A) shows the priority for transmission main segments. Information was also solicited from the Operations managers and staff regarding their experience in the maintenance of the transmission main system. In general, their experience supported the rankings shown.

The Condition Assessment component of this Plan is new. As such, the Plan is intended and expected to evolve and be refined with future Plan updates. In particular, this will allow the Plan to mature as Direct Method investigations are completed on the high-risk transmission main segments. Condition data from the Direct Method will be incorporated into the Indirect Method to improve the scoring criteria and provided an improved predictive model. Furthermore, since scores are primarily based on current institutional knowledge at this time, the expectation is that this Plan will also benefit with each revision by additional industry information, including best practices, as they become available.

Figure 7 (Page 4-41) represents the Top 15 ROF segments produced from the analysis on all transmission main segments.



Legend

- ROF Rank 1 - 5
- ROF Rank 6 - 10
- ROF Rank 11-15

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Figure 7

Transmission Main

Risk of Failure Top 15 Segments

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4.5 Funding for Transmission Main Replacement Projects

In 2019, SSWD executed a contract with *Raftelis* to prepare a "*Comprehensive Water Cost of Service Study*." Their plan reflected ten-year operating and capital program budgets from CY2019 through CY2028. As a result of this study and report, the Board adopted a series of five annual rate increases ranging from 3% to 5% per year beginning in January 2021. The rate increases included funding for SSWD's Capital Improvement Program (CIP) and was intended to continue to fund a "pay-as-you-go" method of financing ongoing capital projects. These rate increases are expected to result in a CIP budget average of approximately $15 million per year over the next five years.

However, raw material costs are unpredictable in the long-term and only moderately predictable in the short-term. They are reflective of world markets and will continue to have an impact on transmission main replacement costs. For reference, from 2010 to 2011, pipe material costs increased by approximately 35% for distribution main projects. Additional rate increases or use of reserve funds may be needed to keep up with construction inflation to maintain a similar level of spending on a pay-as-you-go basis. Recently, labor rates and material costs have increased sharply due to factors such as economic, construction activity, and State prevailing wage updates.

Projects will be completed as funding is approved by the Board. No funding mechanism has been proposed or is in place beyond the pay-as-you-go level of financing currently generated through SSWD's rates.

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Section 5

RISK MANAGEMENT

Transmission main failures contribute to “degrading water service, increasing water service disruptions, and increasing expenditures for emergency repairs” (American Water Works Association, 2012). In an effort to manage these issues, transmission main infrastructure should be replaced as near as possible to the end of its useful life to achieve acceptable return on investment. The identified top 15 transmission main segments in Section 4.4 are classified as being the highest risk. Although these mains do not appear to have reached the end of their useful life, risk mitigations are appropriate for continued, uninterrupted service to the transmission main system. The following will help mitigate the liability of these large assets.

- Corrosion monitoring
- Maintenance of appurtenances
- Inventory of spare parts

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Section 6

ADAPTIVE AND PERPETUAL PLAN

The Plan will require periodic updates (discussed in section 7 and 8) as new information and assessment methodologies are developed. Future information that could influence the ranking of transmission main segments in the Plan include but are not limited to: improved recordkeeping systems, a better understanding of pipe material's useful life, identification of new evaluation criteria, acquisition of service area, a change in land use, infrastructure failures, catastrophic events, and changes in SSWD policies. Additionally, it is anticipated that transmission main segments may need to be monitored and assessed outside of the ranking order due to unforeseen circumstances, safety concerns, or to achieve greater cost efficiencies.

It is intended that this will be a perpetual Plan in that when transmission mains are rehabilitated or replaced they will continue to be evaluated and their rank (priority) adjusted accordingly. Obviously, transmission mains segments that have been recently rehabilitated or replaced would rank lower on the priority list for assessment; and, over time, those segments will rise on the ranking list.

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Section 7

CONCLUSIONS

Below are conclusions developed from the Plan.

- This Plan provides a plan and strategy for assessing and monitoring transmission mains.
- The Plan provides a tool for communicating between the Board and staff to identify segments of highest need for transmission main monitoring and assessment.
- The Plan identifies probable costs associated with transmission main replacement; it does not prescribe funding mechanisms.
- Based on the cost identified in the 2017 Water System Master Plan and escalated using the Engineering News-Record Construction Cost Index, the estimated cost (May 2020 dollars) to replace one mile of transmission main ranges between $2.3 and 6.2 million depending on the complexity of the project and size of the pipe.
- The condition assessment is a tool that creates a ranking list (Appendix A) to identify the priority of transmission main segments in need of rehabilitation or replacement that is objective, impartial, and defensible to our customers.
- The Plan is perpetual and will be reviewed and revised periodically as additional field and other information becomes available.
- The Plan can be used to coordinate with other Agencies.

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Section 8

RECOMMENDATIONS

Based on Plan, the following recommendations are made with the goal of providing good and acceptable return on investment, and reliable, cost-effective service for our customers.

- Assess and monitor transmission main segments based on the rankings provided in the Plan.
- Continue to monitor corrosion protection utilizing existing test stations; and consider implementing any recommendations from corrosion consultants.
- Maintain appurtenances (e.g., in-line valves, air release valves, combination air release valves, and blow-offs) in accordance with industry standards.
- Inventory sufficient spare parts in order to mitigate risks from transmission main failures.
- Review Plan every 4 to 6 years and update as necessary.

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Appendix A – Ranks (Priority)

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
18-MLS-001	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	1
18-MLS-002	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	2
18-MLS-003	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	3
18-MLS-004	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	4
18-MLS-006	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	5
18-MLS-007	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	6
18-MLS-008	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	7
16-ACP-001	10	2	10	3	1	1	5	6	8	1	3	0.550	0.500	0.275	8
16-MLS-003	10	2	8	3	1	1	3	6	10	1	3	0.450	0.583	0.263	9
16-MLS-005	10	2	4	3	1	1	5	6	10	1	3	0.400	0.583	0.233	10
16-MLS-006	10	2	4	3	1	1	5	6	10	1	3	0.400	0.583	0.233	11
20-MLS-001	10	4	4	3	1	1	3	6	10	1	3	0.400	0.583	0.233	12
6-ACP-001	10	2	2	1	1	5	3	8	8	3	1	0.350	0.583	0.204	13
10-CIP-001	2	2	10	1	1	5	1	8	10	1	1	0.300	0.583	0.175	14
12-ACP-005	2	2	10	1	1	5	1	8	8	1	3	0.300	0.583	0.175	15
16-MLS-007	10	2	4	1	1	1	3	6	10	1	3	0.300	0.583	0.175	16
16-MLS-008	2	2	10	3	1	1	3	6	10	1	3	0.300	0.583	0.175	17
16-MLS-009	2	2	10	3	1	1	3	6	10	1	3	0.300	0.583	0.175	18
18-MLS-005	2	4	10	1	1	1	3	6	10	1	3	0.300	0.583	0.175	19
24-MLS-001	2	6	4	3	1	1	5	6	10	1	3	0.300	0.583	0.175	20
48-CCP-003	2	10	10	5	5	5	1	4	2	1	5	0.700	0.250	0.175	21
10-MLS-001	2	2	8	1	1	5	1	8	10	1	3	0.250	0.667	0.167	22
48-CCP-001	2	10	8	5	5	5	1	4	2	1	5	0.650	0.250	0.163	23
48-CCP-007	2	10	8	5	5	5	1	4	2	1	5	0.650	0.250	0.163	24
48-CCP-010	2	10	10	5	1	5	3	4	2	1	5	0.650	0.250	0.163	25
48-CCP-002	2	10	10	5	1	5	1	4	2	1	5	0.600	0.250	0.150	26
48-CCP-006	2	10	8	3	5	5	1	4	2	1	5	0.600	0.250	0.150	27
8-ACP-002	2	2	8	1	1	5	3	8	8	1	1	0.300	0.500	0.150	28
8-ACP-015	2	2	8	1	1	5	1	8	8	3	1	0.250	0.583	0.146	29
48-CCP-004	2	10	8	5	1	5	1	4	2	1	5	0.550	0.250	0.138	30
16-ACP-002	2	2	8	3	1	1	5	4	8	1	3	0.300	0.417	0.125	31
24-DIP-015	2	6	10	3	5	1	3	4	4	1	3	0.500	0.250	0.125	32
30-CMLCS-002	2	8	4	5	5	5	1	4	2	1	5	0.500	0.250	0.125	33
48-CCP-009	2	10	10	1	1	5	1	4	2	1	5	0.500	0.250	0.125	34
16-DIP-097	2	2	10	1	5	1	3	4	4	1	5	0.350	0.333	0.117	35
16-MLS-004	2	2	8	1	1	1	3	6	10	1	3	0.200	0.583	0.117	36
24-MLS-002	2	6	2	3	1	1	3	6	10	1	3	0.200	0.583	0.117	37
20-DIP-009	2	4	10	1	5	5	1	4	4	1	3	0.450	0.250	0.113	38
24-DIP-017	10	6	4	3	1	1	3	4	4	1	3	0.450	0.250	0.113	39
10-ACP-003	2	2	8	1	1	5	1	6	8	1	1	0.250	0.417	0.104	40

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
10-ACP-004	2	2	8	1	1	5	1	6	8	1	1	0.250	0.417	0.104	41
16-ACP-003	2	2	10	1	1	1	3	4	8	1	3	0.250	0.417	0.104	42
12-PVC-001	2	2	10	1	1	5	1	4	6	1	3	0.300	0.333	0.100	43
16-DIP-080	6	2	10	1	5	1	1	4	4	1	3	0.400	0.250	0.100	44
16-DIP-093	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	45
16-DIP-094	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	46
16-DIP-095	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	47
16-DIP-096	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	48
16-DIP-098	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	49
16-DIP-099	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	50
16-MLS-002	6	2	2	1	1	1	3	8	10	1	3	0.150	0.667	0.100	51
24-DIP-012	2	6	8	1	5	1	3	4	4	1	3	0.400	0.250	0.100	52
8-MLS-001	2	2	2	1	1	5	3	8	10	1	3	0.150	0.667	0.100	53
36-CMLCS-008	2	10	10	5	1	1	3	2	2	1	5	0.550	0.167	0.092	54
12-ACP-004	2	2	4	1	1	5	1	8	8	1	3	0.150	0.583	0.088	55
12-MLS-001	2	2	4	1	1	5	1	6	10	1	3	0.150	0.583	0.088	56
16-DIP-083	2	2	10	3	5	1	1	4	4	1	3	0.350	0.250	0.088	57
16-DIP-090	6	2	10	3	1	1	1	4	4	1	3	0.350	0.250	0.088	58
24-DIP-014	2	6	8	3	1	1	3	4	4	1	3	0.350	0.250	0.088	59
30-CMLCS-18	2	8	10	1	1	1	1	4	2	1	5	0.350	0.250	0.088	60
8-ACP-004	2	2	2	1	1	5	3	6	8	1	5	0.150	0.583	0.088	61
8-ACP-005	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	62
8-ACP-007	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	63
8-ACP-011	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	64
8-MLS-002	2	2	2	1	1	5	3	8	10	1	1	0.150	0.583	0.088	65
16-DIP-100	2	2	10	1	1	1	3	4	4	1	5	0.250	0.333	0.083	66
12-ACP-001	2	2	4	1	1	5	1	8	8	1	1	0.150	0.500	0.075	67
12-DIP-009	2	2	10	1	1	5	1	6	4	1	1	0.300	0.250	0.075	68
12-PVC-005	2	2	10	1	1	5	1	4	6	1	1	0.300	0.250	0.075	69
16-DIP-005	6	2	8	3	1	1	1	4	4	1	3	0.300	0.250	0.075	70
16-DIP-011	6	2	10	1	1	1	1	4	4	1	3	0.300	0.250	0.075	71
16-DIP-012	2	2	10	1	5	1	1	4	4	1	3	0.300	0.250	0.075	72
16-DIP-013	2	2	10	3	1	1	3	4	4	1	3	0.300	0.250	0.075	73
16-DIP-017	2	2	10	3	1	1	3	4	4	1	3	0.300	0.250	0.075	74
16-DIP-089	6	2	10	1	1	1	1	4	4	1	3	0.300	0.250	0.075	75
16-DIP-144	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	76
16-DIP-145	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	77
16-DIP-163	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	78
16-PVC-006	10	2	4	3	1	5	3	2	6	1	1	0.450	0.167	0.075	79
16-PVC-009	2	2	8	1	1	5	3	2	6	1	3	0.300	0.250	0.075	80

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
20-DIP-006	2	4	8	3	1	1	3	4	4	1	3	0.300	0.250	0.075	81
20-DIP-008	2	4	10	1	1	1	3	4	4	1	3	0.300	0.250	0.075	82
24-CMLCS-016	2	6	10	1	1	1	1	4	2	1	5	0.300	0.250	0.075	83
24-DIP-011	2	6	8	1	1	1	3	4	4	1	3	0.300	0.250	0.075	84
24-DIP-013	2	6	8	1	1	1	3	4	4	1	3	0.300	0.250	0.075	85
24-DIP-019	6	6	4	1	1	1	3	4	4	1	3	0.300	0.250	0.075	86
24-DIP-021	6	6	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	87
36-CMLCS-001	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	88
36-CMLCS-007	2	10	10	3	1	1	1	2	2	1	5	0.450	0.167	0.075	89
36-CMLCS-019	2	10	8	3	1	1	3	4	2	1	3	0.450	0.167	0.075	90
48-CCP-005	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	91
48-CCP-008	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	92
6-ACP-002	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	93
8-ACP-001	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	94
8-ACP-003	2	2	2	1	1	5	3	6	8	1	3	0.150	0.500	0.075	95
8-ACP-006	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	96
8-ACP-008	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	97
8-ACP-009	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	98
8-ACP-012	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	99
8-ACP-014	2	2	4	1	1	5	1	6	8	1	3	0.150	0.500	0.075	100
12-MLS-002	2	2	2	1	1	5	1	8	10	1	3	0.100	0.667	0.067	101
16-CIP-001	2	2	4	1	1	1	3	8	10	1	3	0.100	0.667	0.067	102
16-DIP-033	6	2	8	3	1	1	5	4	4	1	1	0.400	0.167	0.067	103
16-DIP-035	2	2	8	3	5	1	5	4	4	1	1	0.400	0.167	0.067	104
16-PVC-001	2	2	8	1	1	1	3	6	6	1	1	0.200	0.333	0.067	105
24-CMLCS-031	2	6	8	3	5	1	1	2	2	3	3	0.400	0.167	0.067	106
24-CMLCS-055	2	6	4	1	5	5	3	2	2	1	5	0.400	0.167	0.067	107
24-DIP-020	2	6	10	1	1	1	5	2	4	1	3	0.400	0.167	0.067	108
24-DIP-022	2	6	10	3	1	1	3	2	4	1	3	0.400	0.167	0.067	109
24-DIP-029	2	6	10	1	1	1	5	4	4	1	1	0.400	0.167	0.067	110
30-DIP-002	2	8	4	1	1	1	1	4	4	1	5	0.200	0.333	0.067	111
30-DIP-003	2	8	4	1	1	1	1	4	4	1	5	0.200	0.333	0.067	112
36-CMLCS-020	2	10	8	3	1	1	1	4	2	1	3	0.400	0.167	0.067	113
10-ACP-002	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	114
10-ACP-007	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	115
10-ACP-012	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	116
12-PVC-002	2	2	8	1	1	5	1	4	6	1	1	0.250	0.250	0.063	117
16-DIP-003	2	2	8	3	1	1	3	4	4	1	3	0.250	0.250	0.063	118
16-DIP-007	6	2	8	1	1	1	1	4	4	1	3	0.250	0.250	0.063	119
16-DIP-008	2	2	10	3	1	1	1	4	4	1	3	0.250	0.250	0.063	120

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-009	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	121
16-DIP-010	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	122
16-DIP-018	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	123
16-DIP-019	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	124
16-DIP-020	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	125
16-DIP-091	2	2	8	3	1	1	3	4	4	1	3	0.250	0.250	0.063	126
16-DIP-118	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	127
16-DIP-166	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	128
16-PVC-002	2	2	8	1	1	5	1	2	6	3	1	0.250	0.250	0.063	129
18-CMLCS-002	2	4	10	1	1	1	1	4	2	1	5	0.250	0.250	0.063	130
18-CMLCS-007	2	4	10	1	1	1	1	4	2	1	5	0.250	0.250	0.063	131
20-DIP-007	2	4	8	1	1	1	3	4	4	1	3	0.250	0.250	0.063	132
24-DIP-018	2	6	4	3	1	1	3	4	4	1	3	0.250	0.250	0.063	133
30-CMLCS-004	2	8	4	3	1	1	1	4	2	1	5	0.250	0.250	0.063	134
8-ACP-013	2	2	2	1	1	5	3	6	8	1	1	0.150	0.417	0.063	135
10-ACP-010	2	2	2	1	1	5	1	8	8	1	3	0.100	0.583	0.058	136
16-DIP-036	2	2	8	3	5	1	3	4	4	1	1	0.350	0.167	0.058	137
16-DIP-041	6	2	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	138
16-DIP-114	6	2	4	3	5	1	3	4	4	1	1	0.350	0.167	0.058	139
16-DIP-123	6	2	10	1	1	1	3	4	4	1	1	0.350	0.167	0.058	140
16-DIP-147	2	2	10	3	1	1	5	2	4	1	3	0.350	0.167	0.058	141
16-DIP-148	6	2	10	1	1	1	3	2	4	1	3	0.350	0.167	0.058	142
16-PVC-008	2	2	10	1	1	5	3	2	6	1	1	0.350	0.167	0.058	143
24-CMLCS-010	2	6	4	3	5	1	3	2	2	1	5	0.350	0.167	0.058	144
24-DIP-009	2	6	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	145
24-DIP-010	2	6	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	146
24-MLS-003	2	6	2	1	1	1	1	6	10	1	3	0.100	0.583	0.058	147
48-CCP-011	2	10	10	5	1	5	5	4	2	1	1	0.700	0.083	0.058	148
10-ACP-009	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	149
12-ACP-002	2	2	2	1	1	5	1	6	8	1	3	0.100	0.500	0.050	150
12-ACP-003	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	151
16-ACP-004	2	2	4	1	1	1	3	4	8	3	3	0.100	0.500	0.050	152
16-DIP-002	2	2	8	3	1	1	1	4	4	1	3	0.200	0.250	0.050	153
16-DIP-025	2	2	8	1	5	1	3	2	4	1	3	0.300	0.167	0.050	154
16-DIP-034	6	2	8	1	1	1	3	4	4	1	1	0.300	0.167	0.050	155
16-DIP-037	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	156
16-DIP-039	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	157
16-DIP-040	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	158
16-DIP-042	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	159
16-DIP-081	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	160

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-082	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	161
16-DIP-085	2	2	8	1	1	1	3	4	4	1	3	0.200	0.250	0.050	162
16-DIP-092	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	163
16-DIP-101	2	2	2	3	1	1	5	4	4	1	5	0.150	0.333	0.050	164
16-DIP-117	2	2	4	3	1	1	3	4	4	3	3	0.150	0.333	0.050	165
16-DIP-146	2	2	10	3	1	1	3	2	4	1	3	0.300	0.167	0.050	166
16-PVC-014	2	2	8	1	1	1	3	2	6	1	3	0.200	0.250	0.050	167
20-DIP-002	2	4	8	3	1	1	3	4	4	1	1	0.300	0.167	0.050	168
20-DIP-003	2	4	8	3	1	1	3	4	4	1	1	0.300	0.167	0.050	169
24-DIP-016	2	6	2	3	1	1	3	4	4	1	3	0.200	0.250	0.050	170
24-DIP-031	2	6	10	1	1	1	1	4	4	1	1	0.300	0.167	0.050	171
30-CMLCS-003	2	8	4	1	1	1	1	4	2	1	5	0.200	0.250	0.050	172
30-DIP-001	2	8	2	1	1	1	1	4	4	1	5	0.150	0.333	0.050	173
36-CMLCS-002	2	10	2	1	1	5	1	2	2	1	5	0.300	0.167	0.050	174
8-ACP-010	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	175
8-ACP-016	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	176
8-DIP-004	2	2	8	1	1	5	3	2	4	1	3	0.300	0.167	0.050	177
24-CMLCS-023	2	6	8	5	5	1	5	2	2	1	3	0.550	0.083	0.046	178
24-CMLCS-030	2	6	8	5	5	1	5	2	2	1	3	0.550	0.083	0.046	179
24-DIP-028	6	6	10	3	1	1	5	2	4	1	1	0.550	0.083	0.046	180
10-ACP-001	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	181
10-ACP-005	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	182
10-ACP-006	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	183
12-DIP-013	6	2	4	1	1	5	1	2	4	1	3	0.250	0.167	0.042	184
16-ACP-006	2	2	4	1	1	1	3	4	8	1	3	0.100	0.417	0.042	185
16-CMLCS-024	2	2	10	3	1	1	1	4	2	1	3	0.250	0.167	0.042	186
16-DIP-022	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	187
16-DIP-031	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	188
16-DIP-032	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	189
16-DIP-038	2	2	8	1	1	1	5	4	4	1	1	0.250	0.167	0.042	190
16-DIP-044	2	2	8	3	1	1	3	4	4	1	1	0.250	0.167	0.042	191
16-DIP-045	2	2	8	3	1	1	3	4	4	1	1	0.250	0.167	0.042	192
16-DIP-087	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	193
16-DIP-124	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	194
16-DIP-143	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	195
16-DIP-149	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	196
16-DIP-150	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	197
16-DIP-152	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	198
16-PVC-004	6	2	4	1	1	1	5	2	6	1	1	0.250	0.167	0.042	199
18-DIP-002	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	200

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
20-DIP-004	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	201
20-DIP-005	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	202
24-CMLCS-001	6	6	10	1	1	5	1	4	2	1	1	0.500	0.083	0.042	203
24-CMLCS-027	2	6	10	3	5	1	3	2	2	1	3	0.500	0.083	0.042	204
24-CMLCS-045	2	6	2	3	1	5	1	4	2	1	3	0.250	0.167	0.042	205
8-DIP-006	2	2	10	3	5	5	3	2	4	1	1	0.500	0.083	0.042	206
10-PVC-001	2	2	4	1	1	5	1	4	6	1	1	0.150	0.250	0.038	207
16-CMLCS-020	2	2	8	1	1	1	1	4	2	1	5	0.150	0.250	0.038	208
16-DIP-004	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	209
16-DIP-006	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	210
16-DIP-028	10	2	10	3	1	1	1	2	4	1	1	0.450	0.083	0.038	211
16-DIP-084	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	212
16-DIP-088	2	2	2	1	5	1	3	4	4	1	3	0.150	0.250	0.038	213
16-DIP-116	2	2	4	3	1	1	3	4	4	1	3	0.150	0.250	0.038	214
20-DIP-001	2	4	2	1	1	5	1	2	4	1	5	0.150	0.250	0.038	215
24-CMLCS-024	2	6	8	5	1	1	5	2	2	1	3	0.450	0.083	0.038	216
24-CMLCS-029	2	6	8	5	1	1	5	2	2	1	3	0.450	0.083	0.038	217
24-CMLCS-043	2	6	10	5	1	1	3	2	2	1	3	0.450	0.083	0.038	218
24-CMLCS-044	2	6	10	5	1	1	3	2	2	1	3	0.450	0.083	0.038	219
24-DIP-026	2	6	10	3	1	1	5	2	4	1	1	0.450	0.083	0.038	220
24-DIP-027	6	6	10	1	1	1	3	2	4	1	1	0.450	0.083	0.038	221
30-CMLCS-001	2	8	10	1	1	5	1	4	2	1	1	0.450	0.083	0.038	222
10-ACP-008	2	2	2	1	1	5	1	2	8	1	3	0.100	0.333	0.033	223
10-ACP-011	2	2	2	1	1	5	1	4	8	1	1	0.100	0.333	0.033	224
12-PVC-004	2	2	2	1	1	5	1	4	6	1	3	0.100	0.333	0.033	225
16-CMLCS-019	2	2	10	1	1	1	1	2	2	1	5	0.200	0.167	0.033	226
16-DIP-024	2	2	8	1	1	1	3	2	4	1	3	0.200	0.167	0.033	227
16-DIP-026	2	2	8	3	1	1	1	2	4	1	3	0.200	0.167	0.033	228
16-DIP-043	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	229
16-DIP-052	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	230
16-DIP-053	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	231
16-DIP-054	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	232
16-DIP-055	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	233
16-DIP-056	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	234
16-DIP-057	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	235
16-DIP-058	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	236
16-DIP-059	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	237
16-DIP-060	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	238
16-DIP-066	10	2	8	1	1	1	3	2	4	1	1	0.400	0.083	0.033	239
16-DIP-068	6	2	8	3	1	1	5	2	4	1	1	0.400	0.083	0.033	240

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-078	6	2	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	241
16-DIP-105	6	2	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	242
16-DIP-127	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	243
16-MLS-001	2	2	2	1	1	1	3	8	10	1	3	0.050	0.667	0.033	244
18-CMLCS-003	2	4	10	5	1	1	3	2	2	1	3	0.400	0.083	0.033	245
24-CMLCS-025	2	6	8	5	1	1	3	2	2	1	3	0.400	0.083	0.033	246
24-CMLCS-026	2	6	10	3	1	1	3	2	2	1	3	0.400	0.083	0.033	247
24-CMLCS-040	2	6	10	5	1	1	1	2	2	1	3	0.400	0.083	0.033	248
24-CMLCS-048	6	6	10	1	1	1	1	4	2	1	1	0.400	0.083	0.033	249
24-DIP-001	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	250
24-DIP-002	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	251
24-DIP-003	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	252
24-DIP-006	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	253
24-DIP-007	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	254
24-DIP-024	2	6	10	1	5	1	1	2	4	1	1	0.400	0.083	0.033	255
24-DIP-025	2	6	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	256
30-CMLCS-014	2	8	8	5	1	1	1	2	2	1	3	0.400	0.083	0.033	257
30-DIP-004	2	8	4	1	1	1	1	4	4	1	1	0.200	0.167	0.033	258
8-DIP-001	2	2	2	1	1	5	1	8	4	1	1	0.100	0.333	0.033	259
16-DIP-107	2	2	10	3	1	1	5	2	4	1	1	0.350	0.083	0.029	260
24-CMLCS-028	2	6	10	1	1	1	3	2	2	1	3	0.350	0.083	0.029	261
24-CMLCS-038	2	6	8	5	1	1	1	2	2	1	3	0.350	0.083	0.029	262
24-CMLCS-042	2	6	10	3	1	1	1	2	2	1	3	0.350	0.083	0.029	263
24-DIP-023	2	6	10	1	1	1	3	2	4	1	1	0.350	0.083	0.029	264
10-DIP-002	2	2	4	1	1	5	1	2	4	1	3	0.150	0.167	0.025	265
10-DIP-004	2	2	2	1	1	5	1	4	4	1	3	0.100	0.250	0.025	266
12-DIP-007	2	2	10	1	1	5	1	2	4	1	1	0.300	0.083	0.025	267
12-DIP-010	2	2	2	1	1	5	1	6	4	1	1	0.100	0.250	0.025	268
12-PVC-003	2	2	2	1	1	5	1	4	6	1	1	0.100	0.250	0.025	269
16-CMLCS-025	2	2	4	1	1	1	3	6	2	1	3	0.100	0.250	0.025	270
16-DIP-014	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	271
16-DIP-015	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	272
16-DIP-021	2	2	4	3	1	5	5	2	4	1	1	0.300	0.083	0.025	273
16-DIP-023	2	2	8	1	1	1	1	2	4	1	3	0.150	0.167	0.025	274
16-DIP-030	6	2	10	1	1	1	1	2	4	1	1	0.300	0.083	0.025	275
16-DIP-046	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	276
16-DIP-047	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	277
16-DIP-048	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	278
16-DIP-049	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	279
16-DIP-050	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	280

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-064	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	281
16-DIP-070	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	282
16-DIP-071	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	283
16-DIP-073	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	284
16-DIP-075	2	2	10	1	5	1	1	2	4	1	1	0.300	0.083	0.025	285
16-DIP-104	2	2	10	3	1	1	3	2	4	1	1	0.300	0.083	0.025	286
16-DIP-106	2	2	10	3	1	1	3	2	4	1	1	0.300	0.083	0.025	287
16-DIP-111	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	288
16-DIP-112	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	289
16-DIP-113	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	290
16-DIP-131	2	2	8	1	5	1	3	2	4	1	1	0.300	0.083	0.025	291
16-DIP-153	2	2	2	1	1	5	1	4	4	1	3	0.100	0.250	0.025	292
16-DIP-159	6	2	4	1	1	1	1	2	4	1	3	0.150	0.167	0.025	293
16-DIP-167	2	2	10	1	1	1	5	2	4	1	1	0.300	0.083	0.025	294
16-PVC-003	2	2	4	1	1	1	5	2	6	1	1	0.150	0.167	0.025	295
16-PVC-013	2	2	8	1	1	1	1	2	6	1	1	0.150	0.167	0.025	296
18-CMLCS-004	2	4	10	3	1	1	1	2	2	1	3	0.300	0.083	0.025	297
24-CMLCS-039	2	6	10	1	1	1	1	2	2	1	3	0.300	0.083	0.025	298
24-CMLCS-041	2	6	10	1	1	1	1	2	2	1	3	0.300	0.083	0.025	299
24-CMLCS-046	2	6	2	3	1	1	1	4	2	1	3	0.150	0.167	0.025	300
24-DIP-005	2	6	10	1	1	1	1	2	4	1	1	0.300	0.083	0.025	301
24-DIP-008	2	6	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	302
30-CMLCS-013	2	8	8	1	1	1	1	2	2	1	3	0.300	0.083	0.025	303
36-CMLCS-023	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	304
36-CMLCS-024	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	305
36-CMLCS-025	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	306
36-CMLCS-026	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	307
8-DIP-003	2	2	2	1	1	5	3	2	4	1	3	0.150	0.167	0.025	308
8-PVC-001	2	2	2	1	1	5	1	4	6	1	1	0.100	0.250	0.025	309
12-DIP-004	2	2	8	1	1	5	1	2	4	1	1	0.250	0.083	0.021	310
12-DIP-005	2	2	8	1	1	5	1	2	4	1	1	0.250	0.083	0.021	311
16-ACP-005	2	2	4	1	1	1	1	4	8	1	3	0.050	0.417	0.021	312
16-DIP-029	2	2	10	3	1	1	1	2	4	1	1	0.250	0.083	0.021	313
16-DIP-076	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	314
16-DIP-077	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	315
16-DIP-079	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	316
16-DIP-132	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	317
16-DIP-134	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	318
16-DIP-135	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	319
16-DIP-137	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	320

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-142	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	321
24-CMLCS-002	2	6	2	3	1	5	1	4	2	1	1	0.250	0.083	0.021	322
24-DIP-004	2	6	8	1	1	1	1	2	4	1	1	0.250	0.083	0.021	323
10-CMLCS-002	2	2	2	1	1	5	1	2	2	1	5	0.100	0.167	0.017	324
10-DIP-001	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	325
10-DIP-003	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	326
12-DIP-001	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	327
12-DIP-002	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	328
12-DIP-006	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	329
12-DIP-015	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	330
14-DIP-001	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	331
14-DIP-002	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	332
14-DIP-003	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	333
14-DIP-004	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	334
14-DIP-005	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	335
16-CMLCS-011	2	2	2	1	1	5	1	2	2	1	5	0.100	0.167	0.017	336
16-CMLCS-012	2	2	2	1	1	5	1	4	2	1	3	0.100	0.167	0.017	337
16-CMLCS-014	2	2	2	1	1	5	1	4	2	1	3	0.100	0.167	0.017	338
16-DIP-027	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	339
16-DIP-051	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	340
16-DIP-062	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	341
16-DIP-065	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	342
16-DIP-067	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	343
16-DIP-069	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	344
16-DIP-072	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	345
16-DIP-074	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	346
16-DIP-103	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	347
16-DIP-109	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	348
16-DIP-119	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	349
16-DIP-120	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	350
16-DIP-121	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	351
16-DIP-122	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	352
16-DIP-126	2	2	2	1	1	1	3	4	4	1	5	0.050	0.333	0.017	353
16-DIP-129	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	354
16-DIP-136	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	355
16-DIP-139	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	356
16-DIP-140	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	357
16-DIP-141	2	2	8	3	1	1	1	2	4	1	1	0.200	0.083	0.017	358
16-DIP-160	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	359
16-DIP-161	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	360

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-162	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	361
16-DIP-168	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	362
16-PVC-005	2	2	4	1	1	1	3	2	6	1	1	0.100	0.167	0.017	363
16-PVC-007	2	2	4	1	1	1	1	4	6	1	3	0.050	0.333	0.017	364
18-DIP-001	2	4	2	1	1	1	1	4	4	1	5	0.050	0.333	0.017	365
24-CMLCS-008	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	366
24-CMLCS-009	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	367
24-CMLCS-047	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	368
36-CMLCS-021	2	10	2	1	1	1	1	2	2	1	3	0.200	0.083	0.017	369
36-CMLCS-022	2	10	2	1	1	1	1	2	2	1	3	0.200	0.083	0.017	370
12-DIP-003	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	371
12-DIP-014	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	372
12-DIP-016	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	373
16-CMLCS-013	2	2	2	3	1	5	1	4	2	1	1	0.150	0.083	0.013	374
16-DIP-016	2	2	4	1	1	1	1	4	4	1	3	0.050	0.250	0.013	375
16-DIP-086	2	2	2	3	1	1	1	4	4	1	3	0.050	0.250	0.013	376
16-DIP-115	2	2	4	1	1	1	1	4	4	1	3	0.050	0.250	0.013	377
16-DIP-125	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	378
16-DIP-128	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	379
16-DIP-133	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	380
16-DIP-138	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	381
8-CMLCS-002	2	2	2	1	1	5	3	4	2	1	1	0.150	0.083	0.013	382
8-DIP-002	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	383
8-DIP-005	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	384
10-CMLCS-001	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	385
12-DIP-008	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	386
12-DIP-011	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	387
12-DIP-012	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	388
12-DIP-017	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	389
16-CMLCS-001	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	390
16-CMLCS-002	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	391
16-CMLCS-003	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	392
16-CMLCS-004	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	393
16-CMLCS-005	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	394
16-CMLCS-006	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	395
16-CMLCS-007	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	396
16-CMLCS-009	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	397
16-CMLCS-010	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	398
16-CMLCS-015	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	399
16-DIP-108	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	400

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-110	2	2	4	1	1	1	1	4	4	1	1	0.050	0.167	0.008	401
16-DIP-151	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	402
16-DIP-154	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	403
16-DIP-155	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	404
16-DIP-157	2	2	2	3	1	1	1	2	4	1	3	0.050	0.167	0.008	405
16-DIP-158	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	406
16-DIP-164	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	407
16-DIP-165	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	408
24-DIP-030	2	6	2	1	1	1	1	2	4	1	1	0.100	0.083	0.008	409
6-DIP-001	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	410
8-CMLCS-001	2	2	2	1	1	5	1	4	2	1	1	0.100	0.083	0.008	411
12-CMLCS-001	2	2	2	1	1	5	1	2	2	1	1	0.100	0.000	0.000	412
16-ACP-007	2	2	2	1	1	1	1	4	8	1	3	0.000	0.417	0.000	413
16-CMLCS-008	2	2	8	3	1	1	3	2	2	1	1	0.250	0.000	0.000	414
16-CMLCS-016	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	415
16-CMLCS-017	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	416
16-CMLCS-018	2	2	2	1	1	1	1	2	2	1	5	0.000	0.167	0.000	417
16-CMLCS-021	2	2	8	3	1	1	3	2	2	1	1	0.250	0.000	0.000	418
16-CMLCS-022	2	2	2	1	1	1	1	2	2	1	1	0.000	0.000	0.000	419
16-CMLCS-023	2	2	8	1	1	1	3	2	2	1	1	0.200	0.000	0.000	420
16-CMLCS-026	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	421
16-CMLCS-027	2	2	8	1	1	1	3	2	2	1	1	0.200	0.000	0.000	422
16-DIP-001	2	2	2	1	1	1	1	4	4	1	3	0.000	0.250	0.000	423
16-DIP-061	2	2	2	1	1	1	1	4	4	1	1	0.000	0.167	0.000	424
16-DIP-130	2	2	2	1	1	1	1	4	4	1	5	0.000	0.333	0.000	425
16-DIP-156	2	2	2	1	1	1	1	2	4	1	3	0.000	0.167	0.000	426
16-PVC-010	2	2	2	1	1	1	1	4	6	1	3	0.000	0.333	0.000	427
16-PVC-011	2	2	2	1	1	1	1	4	6	1	1	0.000	0.250	0.000	428
16-PVC-012	2	2	2	1	1	1	1	4	6	1	3	0.000	0.333	0.000	429
18-CMLCS-001	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	430
18-CMLCS-005	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	431
18-CMLCS-006	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	432
18-CMLCS-008	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	433
24-CMLCS-003	2	6	10	1	1	1	1	2	2	1	1	0.300	0.000	0.000	434
24-CMLCS-004	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	435
24-CMLCS-005	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	436
24-CMLCS-006	2	6	8	5	5	1	5	2	2	1	1	0.550	0.000	0.000	437
24-CMLCS-007	2	6	4	3	1	1	1	2	2	1	1	0.200	0.000	0.000	438
24-CMLCS-011	2	6	4	5	5	1	5	2	2	1	1	0.450	0.000	0.000	439
24-CMLCS-012	2	6	8	1	1	1	1	2	2	1	1	0.250	0.000	0.000	440

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
24-CMLCS-013	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	441
24-CMLCS-014	2	6	10	1	1	1	1	2	2	1	1	0.300	0.000	0.000	442
24-CMLCS-015	2	6	4	1	1	1	3	2	2	1	1	0.200	0.000	0.000	443
24-CMLCS-017	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	444
24-CMLCS-018	2	6	10	5	1	1	5	2	2	1	1	0.500	0.000	0.000	445
24-CMLCS-019	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	446
24-CMLCS-020	2	6	8	3	1	1	3	2	2	1	1	0.350	0.000	0.000	447
24-CMLCS-021	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	448
24-CMLCS-022	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	449
24-CMLCS-032	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	450
24-CMLCS-033	2	6	8	5	5	1	3	2	2	1	1	0.500	0.000	0.000	451
24-CMLCS-034	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	452
24-CMLCS-035	2	6	8	1	1	1	1	2	2	1	1	0.250	0.000	0.000	453
24-CMLCS-036	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	454
24-CMLCS-037	2	6	8	5	5	1	3	2	2	1	1	0.500	0.000	0.000	455
24-CMLCS-049	6	6	10	1	1	5	1	2	2	1	1	0.500	0.000	0.000	456
24-CMLCS-050	2	6	10	1	1	5	1	2	2	1	1	0.400	0.000	0.000	457
24-CMLCS-051	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	458
24-CMLCS-052	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	459
24-CMLCS-053	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	460
24-CMLCS-054	2	6	8	1	5	5	5	2	2	1	1	0.550	0.000	0.000	461
30-CMLCS-005	2	8	10	1	1	1	3	2	2	1	1	0.400	0.000	0.000	462
30-CMLCS-006	2	8	8	5	5	1	3	2	2	1	1	0.550	0.000	0.000	463
30-CMLCS-007	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	464
30-CMLCS-008	2	8	8	5	5	1	3	2	2	1	1	0.550	0.000	0.000	465
30-CMLCS-009	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	466
30-CMLCS-010	2	8	8	3	1	1	3	2	2	1	1	0.400	0.000	0.000	467
30-CMLCS-011	2	8	10	5	1	1	3	2	2	1	1	0.500	0.000	0.000	468
30-CMLCS-012	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	469
30-CMLCS-015	2	8	8	5	1	1	1	2	2	1	1	0.400	0.000	0.000	470
30-CMLCS-016	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	471
30-CMLCS-017	2	8	8	1	5	1	1	2	2	1	1	0.400	0.000	0.000	472
36-CMLCS-003	2	10	10	1	1	1	3	2	2	1	1	0.450	0.000	0.000	473
36-CMLCS-004	2	10	10	1	5	1	3	2	2	1	1	0.550	0.000	0.000	474
36-CMLCS-005	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	475
36-CMLCS-006	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	476
36-CMLCS-009	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	477
36-CMLCS-010	2	10	10	3	1	1	1	2	2	1	1	0.450	0.000	0.000	478
36-CMLCS-011	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	479
36-CMLCS-012	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	480

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
36-CMLCS-013	2	10	8	3	1	1	1	2	2	1	1	0.400	0.000	0.000	481
36-CMLCS-014	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	482
36-CMLCS-015	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	483
36-CMLCS-016	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	484
36-CMLCS-017	2	10	4	3	1	1	1	2	2	1	1	0.300	0.000	0.000	485
36-CMLCS-018	2	10	8	1	5	1	1	2	2	1	1	0.450	0.000	0.000	486

Appendix B – Ranks (T-Main Segment)

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
10-ACP-001	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	181
10-ACP-002	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	114
10-ACP-003	2	2	8	1	1	5	1	6	8	1	1	0.250	0.417	0.104	40
10-ACP-004	2	2	8	1	1	5	1	6	8	1	1	0.250	0.417	0.104	41
10-ACP-005	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	182
10-ACP-006	2	2	2	1	1	5	1	6	8	1	1	0.100	0.417	0.042	183
10-ACP-007	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	115
10-ACP-008	2	2	2	1	1	5	1	2	8	1	3	0.100	0.333	0.033	223
10-ACP-009	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	149
10-ACP-010	2	2	2	1	1	5	1	8	8	1	3	0.100	0.583	0.058	136
10-ACP-011	2	2	2	1	1	5	1	4	8	1	1	0.100	0.333	0.033	224
10-ACP-012	2	2	4	1	1	5	1	6	8	1	1	0.150	0.417	0.063	116
10-CIP-001	2	2	10	1	1	5	1	8	10	1	1	0.300	0.583	0.175	14
10-CMLCS-001	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	385
10-CMLCS-002	2	2	2	1	1	5	1	2	2	1	5	0.100	0.167	0.017	324
10-DIP-001	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	325
10-DIP-002	2	2	4	1	1	5	1	2	4	1	3	0.150	0.167	0.025	265
10-DIP-003	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	326
10-DIP-004	2	2	2	1	1	5	1	4	4	1	3	0.100	0.250	0.025	266
10-MLS-001	2	2	8	1	1	5	1	8	10	1	3	0.250	0.667	0.167	22
10-PVC-001	2	2	4	1	1	5	1	4	6	1	1	0.150	0.250	0.038	207
12-ACP-001	2	2	4	1	1	5	1	8	8	1	1	0.150	0.500	0.075	67
12-ACP-002	2	2	2	1	1	5	1	6	8	1	3	0.100	0.500	0.050	150
12-ACP-003	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	151
12-ACP-004	2	2	4	1	1	5	1	8	8	1	3	0.150	0.583	0.088	55
12-ACP-005	2	2	10	1	1	5	1	8	8	1	3	0.300	0.583	0.175	15
12-CMLCS-001	2	2	2	1	1	5	1	2	2	1	1	0.100	0.000	0.000	412
12-DIP-001	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	327
12-DIP-002	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	328
12-DIP-003	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	371
12-DIP-004	2	2	8	1	1	5	1	2	4	1	1	0.250	0.083	0.021	310
12-DIP-005	2	2	8	1	1	5	1	2	4	1	1	0.250	0.083	0.021	311
12-DIP-006	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	329
12-DIP-007	2	2	10	1	1	5	1	2	4	1	1	0.300	0.083	0.025	267
12-DIP-008	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	386
12-DIP-009	2	2	10	1	1	5	1	6	4	1	1	0.300	0.250	0.075	68
12-DIP-010	2	2	2	1	1	5	1	6	4	1	1	0.100	0.250	0.025	268
12-DIP-011	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	387
12-DIP-012	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	388
12-DIP-013	6	2	4	1	1	5	1	2	4	1	3	0.250	0.167	0.042	184
12-DIP-014	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	372
12-DIP-015	2	2	2	1	1	5	1	2	4	1	3	0.100	0.167	0.017	330

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
12-DIP-016	2	2	4	1	1	5	1	2	4	1	1	0.150	0.083	0.013	373
12-DIP-017	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	389
12-MLS-001	2	2	4	1	1	5	1	6	10	1	3	0.150	0.583	0.088	56
12-MLS-002	2	2	2	1	1	5	1	8	10	1	3	0.100	0.667	0.067	101
12-PVC-001	2	2	10	1	1	5	1	4	6	1	3	0.300	0.333	0.100	43
12-PVC-002	2	2	8	1	1	5	1	4	6	1	1	0.250	0.250	0.063	117
12-PVC-003	2	2	2	1	1	5	1	4	6	1	1	0.100	0.250	0.025	269
12-PVC-004	2	2	2	1	1	5	1	4	6	1	3	0.100	0.333	0.033	225
12-PVC-005	2	2	10	1	1	5	1	4	6	1	1	0.300	0.250	0.075	69
14-DIP-001	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	331
14-DIP-002	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	332
14-DIP-003	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	333
14-DIP-004	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	334
14-DIP-005	2	2	2	1	1	5	1	4	4	1	1	0.100	0.167	0.017	335
16-ACP-001	10	2	10	3	1	1	5	6	8	1	3	0.550	0.500	0.275	8
16-ACP-002	2	2	8	3	1	1	5	4	8	1	3	0.300	0.417	0.125	31
16-ACP-003	2	2	10	1	1	1	3	4	8	1	3	0.250	0.417	0.104	42
16-ACP-004	2	2	4	1	1	1	3	4	8	3	3	0.100	0.500	0.050	152
16-ACP-005	2	2	4	1	1	1	1	4	8	1	3	0.050	0.417	0.021	312
16-ACP-006	2	2	4	1	1	1	3	4	8	1	3	0.100	0.417	0.042	185
16-ACP-007	2	2	2	1	1	1	1	4	8	1	3	0.000	0.417	0.000	413
16-CIP-001	2	2	4	1	1	1	3	8	10	1	3	0.100	0.667	0.067	102
16-CMLCS-001	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	390
16-CMLCS-002	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	391
16-CMLCS-003	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	392
16-CMLCS-004	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	393
16-CMLCS-005	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	394
16-CMLCS-006	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	395
16-CMLCS-007	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	396
16-CMLCS-008	2	2	8	3	1	1	3	2	2	1	1	0.250	0.000	0.000	414
16-CMLCS-009	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	397
16-CMLCS-010	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	398
16-CMLCS-011	2	2	2	1	1	5	1	2	2	1	5	0.100	0.167	0.017	336
16-CMLCS-012	2	2	2	1	1	5	1	4	2	1	3	0.100	0.167	0.017	337
16-CMLCS-013	2	2	2	3	1	5	1	4	2	1	1	0.150	0.083	0.013	374
16-CMLCS-014	2	2	2	1	1	5	1	4	2	1	3	0.100	0.167	0.017	338
16-CMLCS-015	2	2	2	1	1	5	1	2	2	1	3	0.100	0.083	0.008	399
16-CMLCS-016	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	415
16-CMLCS-017	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	416
16-CMLCS-018	2	2	2	1	1	1	1	2	2	1	5	0.000	0.167	0.000	417
16-CMLCS-019	2	2	10	1	1	1	1	2	2	1	5	0.200	0.167	0.033	226
16-CMLCS-020	2	2	8	1	1	1	1	4	2	1	5	0.150	0.250	0.038	208

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-CMLCS-021	2	2	8	3	1	1	3	2	2	1	1	0.250	0.000	0.000	418
16-CMLCS-022	2	2	2	1	1	1	1	2	2	1	1	0.000	0.000	0.000	419
16-CMLCS-023	2	2	8	1	1	1	3	2	2	1	1	0.200	0.000	0.000	420
16-CMLCS-024	2	2	10	3	1	1	1	4	2	1	3	0.250	0.167	0.042	186
16-CMLCS-025	2	2	4	1	1	1	3	6	2	1	3	0.100	0.250	0.025	270
16-CMLCS-026	2	2	10	1	1	1	1	2	2	1	1	0.200	0.000	0.000	421
16-CMLCS-027	2	2	8	1	1	1	3	2	2	1	1	0.200	0.000	0.000	422
16-DIP-001	2	2	2	1	1	1	1	4	4	1	3	0.000	0.250	0.000	423
16-DIP-002	2	2	8	3	1	1	1	4	4	1	3	0.200	0.250	0.050	153
16-DIP-003	2	2	8	3	1	1	3	4	4	1	3	0.250	0.250	0.063	118
16-DIP-004	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	209
16-DIP-005	6	2	8	3	1	1	1	4	4	1	3	0.300	0.250	0.075	70
16-DIP-006	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	210
16-DIP-007	6	2	8	1	1	1	1	4	4	1	3	0.250	0.250	0.063	119
16-DIP-008	2	2	10	3	1	1	1	4	4	1	3	0.250	0.250	0.063	120
16-DIP-009	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	121
16-DIP-010	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	122
16-DIP-011	6	2	10	1	1	1	1	4	4	1	3	0.300	0.250	0.075	71
16-DIP-012	2	2	10	1	5	1	1	4	4	1	3	0.300	0.250	0.075	72
16-DIP-013	2	2	10	3	1	1	3	4	4	1	3	0.300	0.250	0.075	73
16-DIP-014	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	271
16-DIP-015	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	272
16-DIP-016	2	2	4	1	1	1	1	4	4	1	3	0.050	0.250	0.013	375
16-DIP-017	2	2	10	3	1	1	3	4	4	1	3	0.300	0.250	0.075	74
16-DIP-018	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	123
16-DIP-019	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	124
16-DIP-020	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	125
16-DIP-021	2	2	4	3	1	5	5	2	4	1	1	0.300	0.083	0.025	273
16-DIP-022	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	187
16-DIP-023	2	2	8	1	1	1	1	2	4	1	3	0.150	0.167	0.025	274
16-DIP-024	2	2	8	1	1	1	3	2	4	1	3	0.200	0.167	0.033	227
16-DIP-025	2	2	8	1	5	1	3	2	4	1	3	0.300	0.167	0.050	154
16-DIP-026	2	2	8	3	1	1	1	2	4	1	3	0.200	0.167	0.033	228
16-DIP-027	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	339
16-DIP-028	10	2	10	3	1	1	1	2	4	1	1	0.450	0.083	0.038	211
16-DIP-029	2	2	10	3	1	1	1	2	4	1	1	0.250	0.083	0.021	313
16-DIP-030	6	2	10	1	1	1	1	2	4	1	1	0.300	0.083	0.025	275
16-DIP-031	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	188
16-DIP-032	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	189
16-DIP-033	6	2	8	3	1	1	5	4	4	1	1	0.400	0.167	0.067	103
16-DIP-034	6	2	8	1	1	1	3	4	4	1	1	0.300	0.167	0.050	155
16-DIP-035	2	2	8	3	5	1	5	4	4	1	1	0.400	0.167	0.067	104

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-036	2	2	8	3	5	1	3	4	4	1	1	0.350	0.167	0.058	137
16-DIP-037	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	156
16-DIP-038	2	2	8	1	1	1	5	4	4	1	1	0.250	0.167	0.042	190
16-DIP-039	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	157
16-DIP-040	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	158
16-DIP-041	6	2	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	138
16-DIP-042	2	2	8	3	1	1	5	4	4	1	1	0.300	0.167	0.050	159
16-DIP-043	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	229
16-DIP-044	2	2	8	3	1	1	3	4	4	1	1	0.250	0.167	0.042	191
16-DIP-045	2	2	8	3	1	1	3	4	4	1	1	0.250	0.167	0.042	192
16-DIP-046	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	276
16-DIP-047	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	277
16-DIP-048	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	278
16-DIP-049	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	279
16-DIP-050	2	2	4	1	1	1	3	4	4	1	3	0.100	0.250	0.025	280
16-DIP-051	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	340
16-DIP-052	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	230
16-DIP-053	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	231
16-DIP-054	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	232
16-DIP-055	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	233
16-DIP-056	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	234
16-DIP-057	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	235
16-DIP-058	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	236
16-DIP-059	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	237
16-DIP-060	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	238
16-DIP-061	2	2	2	1	1	1	1	4	4	1	1	0.000	0.167	0.000	424
16-DIP-062	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	341
16-DIP-064	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	281
16-DIP-065	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	342
16-DIP-066	10	2	8	1	1	1	3	2	4	1	1	0.400	0.083	0.033	239
16-DIP-067	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	343
16-DIP-068	6	2	8	3	1	1	5	2	4	1	1	0.400	0.083	0.033	240
16-DIP-069	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	344
16-DIP-070	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	282
16-DIP-071	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	283
16-DIP-072	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	345
16-DIP-073	6	2	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	284
16-DIP-074	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	346
16-DIP-075	2	2	10	1	5	1	1	2	4	1	1	0.300	0.083	0.025	285
16-DIP-076	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	314
16-DIP-077	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	315
16-DIP-078	6	2	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	241

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-079	2	2	10	1	1	1	3	2	4	1	1	0.250	0.083	0.021	316
16-DIP-080	6	2	10	1	5	1	1	4	4	1	3	0.400	0.250	0.100	44
16-DIP-081	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	160
16-DIP-082	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	161
16-DIP-083	2	2	10	3	5	1	1	4	4	1	3	0.350	0.250	0.088	57
16-DIP-084	2	2	8	1	1	1	1	4	4	1	3	0.150	0.250	0.038	212
16-DIP-085	2	2	8	1	1	1	3	4	4	1	3	0.200	0.250	0.050	162
16-DIP-086	2	2	2	3	1	1	1	4	4	1	3	0.050	0.250	0.013	376
16-DIP-087	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	193
16-DIP-088	2	2	2	1	5	1	3	4	4	1	3	0.150	0.250	0.038	213
16-DIP-089	6	2	10	1	1	1	1	4	4	1	3	0.300	0.250	0.075	75
16-DIP-090	6	2	10	3	1	1	1	4	4	1	3	0.350	0.250	0.088	58
16-DIP-091	2	2	8	3	1	1	3	4	4	1	3	0.250	0.250	0.063	126
16-DIP-092	2	2	10	1	1	1	1	4	4	1	3	0.200	0.250	0.050	163
16-DIP-093	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	45
16-DIP-094	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	46
16-DIP-095	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	47
16-DIP-096	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	48
16-DIP-097	2	2	10	1	5	1	3	4	4	1	5	0.350	0.333	0.117	35
16-DIP-098	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	49
16-DIP-099	2	2	10	3	1	1	3	4	4	1	5	0.300	0.333	0.100	50
16-DIP-100	2	2	10	1	1	1	3	4	4	1	5	0.250	0.333	0.083	66
16-DIP-101	2	2	2	3	1	1	5	4	4	1	5	0.150	0.333	0.050	164
16-DIP-103	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	347
16-DIP-104	2	2	10	3	1	1	3	2	4	1	1	0.300	0.083	0.025	286
16-DIP-105	6	2	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	242
16-DIP-106	2	2	10	3	1	1	3	2	4	1	1	0.300	0.083	0.025	287
16-DIP-107	2	2	10	3	1	1	5	2	4	1	1	0.350	0.083	0.029	260
16-DIP-108	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	400
16-DIP-109	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	348
16-DIP-110	2	2	4	1	1	1	1	4	4	1	1	0.050	0.167	0.008	401
16-DIP-111	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	288
16-DIP-112	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	289
16-DIP-113	2	2	4	3	1	1	3	4	4	1	1	0.150	0.167	0.025	290
16-DIP-114	6	2	4	3	5	1	3	4	4	1	1	0.350	0.167	0.058	139
16-DIP-115	2	2	4	1	1	1	1	4	4	1	3	0.050	0.250	0.013	377
16-DIP-116	2	2	4	3	1	1	3	4	4	1	3	0.150	0.250	0.038	214
16-DIP-117	2	2	4	3	1	1	3	4	4	3	3	0.150	0.333	0.050	165
16-DIP-118	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	127
16-DIP-119	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	349
16-DIP-120	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	350
16-DIP-121	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	351

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-122	2	2	4	1	1	1	3	4	4	1	1	0.100	0.167	0.017	352
16-DIP-123	6	2	10	1	1	1	3	4	4	1	1	0.350	0.167	0.058	140
16-DIP-124	2	2	10	1	1	1	3	4	4	1	1	0.250	0.167	0.042	194
16-DIP-125	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	378
16-DIP-126	2	2	2	1	1	1	3	4	4	1	5	0.050	0.333	0.017	353
16-DIP-127	2	2	8	1	1	1	3	4	4	1	1	0.200	0.167	0.033	243
16-DIP-128	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	379
16-DIP-129	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	354
16-DIP-130	2	2	2	1	1	1	1	4	4	1	5	0.000	0.333	0.000	425
16-DIP-131	2	2	8	1	5	1	3	2	4	1	1	0.300	0.083	0.025	291
16-DIP-132	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	317
16-DIP-133	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	380
16-DIP-134	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	318
16-DIP-135	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	319
16-DIP-136	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	355
16-DIP-137	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	320
16-DIP-138	2	2	8	1	1	1	1	2	4	1	1	0.150	0.083	0.013	381
16-DIP-139	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	356
16-DIP-140	2	2	8	1	1	1	3	2	4	1	1	0.200	0.083	0.017	357
16-DIP-141	2	2	8	3	1	1	1	2	4	1	1	0.200	0.083	0.017	358
16-DIP-142	2	2	8	3	1	1	3	2	4	1	1	0.250	0.083	0.021	321
16-DIP-143	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	195
16-DIP-144	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	76
16-DIP-145	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	77
16-DIP-146	2	2	10	3	1	1	3	2	4	1	3	0.300	0.167	0.050	166
16-DIP-147	2	2	10	3	1	1	5	2	4	1	3	0.350	0.167	0.058	141
16-DIP-148	6	2	10	1	1	1	3	2	4	1	3	0.350	0.167	0.058	142
16-DIP-149	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	196
16-DIP-150	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	197
16-DIP-151	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	402
16-DIP-152	2	2	10	1	1	1	3	2	4	1	3	0.250	0.167	0.042	198
16-DIP-153	2	2	2	1	1	5	1	4	4	1	3	0.100	0.250	0.025	292
16-DIP-154	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	403
16-DIP-155	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	404
16-DIP-156	2	2	2	1	1	1	1	2	4	1	3	0.000	0.167	0.000	426
16-DIP-157	2	2	2	3	1	1	1	2	4	1	3	0.050	0.167	0.008	405
16-DIP-158	2	2	2	1	1	1	3	2	4	1	3	0.050	0.167	0.008	406
16-DIP-159	6	2	4	1	1	1	1	2	4	1	3	0.150	0.167	0.025	293
16-DIP-160	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	359
16-DIP-161	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	360
16-DIP-162	2	2	4	1	1	1	3	2	4	1	3	0.100	0.167	0.017	361
16-DIP-163	10	2	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	78

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
16-DIP-164	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	407
16-DIP-165	2	2	4	1	1	1	3	2	4	1	1	0.100	0.083	0.008	408
16-DIP-166	2	2	10	1	1	1	3	4	4	1	3	0.250	0.250	0.063	128
16-DIP-167	2	2	10	1	1	1	5	2	4	1	1	0.300	0.083	0.025	294
16-DIP-168	2	2	10	1	1	1	1	2	4	1	1	0.200	0.083	0.017	362
16-MLS-001	2	2	2	1	1	1	3	8	10	1	3	0.050	0.667	0.033	244
16-MLS-002	6	2	2	1	1	1	3	8	10	1	3	0.150	0.667	0.100	51
16-MLS-003	10	2	8	3	1	1	3	6	10	1	3	0.450	0.583	0.263	9
16-MLS-004	2	2	8	1	1	1	3	6	10	1	3	0.200	0.583	0.117	36
16-MLS-005	10	2	4	3	1	1	5	6	10	1	3	0.400	0.583	0.233	10
16-MLS-006	10	2	4	3	1	1	5	6	10	1	3	0.400	0.583	0.233	11
16-MLS-007	10	2	4	1	1	1	3	6	10	1	3	0.300	0.583	0.175	16
16-MLS-008	2	2	10	3	1	1	3	6	10	1	3	0.300	0.583	0.175	17
16-MLS-009	2	2	10	3	1	1	3	6	10	1	3	0.300	0.583	0.175	18
16-PVC-001	2	2	8	1	1	1	3	6	6	1	1	0.200	0.333	0.067	105
16-PVC-002	2	2	8	1	1	5	1	2	6	3	1	0.250	0.250	0.063	129
16-PVC-003	2	2	4	1	1	1	5	2	6	1	1	0.150	0.167	0.025	295
16-PVC-004	6	2	4	1	1	1	5	2	6	1	1	0.250	0.167	0.042	199
16-PVC-005	2	2	4	1	1	1	3	2	6	1	1	0.100	0.167	0.017	363
16-PVC-006	10	2	4	3	1	5	3	2	6	1	1	0.450	0.167	0.075	79
16-PVC-007	2	2	4	1	1	1	1	4	6	1	3	0.050	0.333	0.017	364
16-PVC-008	2	2	10	1	1	5	3	2	6	1	1	0.350	0.167	0.058	143
16-PVC-009	2	2	8	1	1	5	3	2	6	1	3	0.300	0.250	0.075	80
16-PVC-010	2	2	2	1	1	1	1	4	6	1	3	0.000	0.333	0.000	427
16-PVC-011	2	2	2	1	1	1	1	4	6	1	1	0.000	0.250	0.000	428
16-PVC-012	2	2	2	1	1	1	1	4	6	1	3	0.000	0.333	0.000	429
16-PVC-013	2	2	8	1	1	1	1	2	6	1	1	0.150	0.167	0.025	296
16-PVC-014	2	2	8	1	1	1	3	2	6	1	3	0.200	0.250	0.050	167
18-CMLCS-001	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	430
18-CMLCS-002	2	4	10	1	1	1	1	4	2	1	5	0.250	0.250	0.063	130
18-CMLCS-003	2	4	10	5	1	1	3	2	2	1	3	0.400	0.083	0.033	245
18-CMLCS-004	2	4	10	3	1	1	1	2	2	1	3	0.300	0.083	0.025	297
18-CMLCS-005	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	431
18-CMLCS-006	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	432
18-CMLCS-007	2	4	10	1	1	1	1	4	2	1	5	0.250	0.250	0.063	131
18-CMLCS-008	2	4	2	1	1	5	1	2	2	1	1	0.150	0.000	0.000	433
18-DIP-001	2	4	2	1	1	1	1	4	4	1	5	0.050	0.333	0.017	365
18-DIP-002	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	200
18-MLS-001	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	1
18-MLS-002	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	2
18-MLS-003	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	3
18-MLS-004	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	4

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
18-MLS-005	2	4	10	1	1	1	3	6	10	1	3	0.300	0.583	0.175	19
18-MLS-006	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	5
18-MLS-007	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	6
18-MLS-008	10	4	10	3	1	1	3	6	10	1	3	0.550	0.583	0.321	7
20-DIP-001	2	4	2	1	1	5	1	2	4	1	5	0.150	0.250	0.038	215
20-DIP-002	2	4	8	3	1	1	3	4	4	1	1	0.300	0.167	0.050	168
20-DIP-003	2	4	8	3	1	1	3	4	4	1	1	0.300	0.167	0.050	169
20-DIP-004	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	201
20-DIP-005	2	4	8	1	1	1	3	4	4	1	1	0.250	0.167	0.042	202
20-DIP-006	2	4	8	3	1	1	3	4	4	1	3	0.300	0.250	0.075	81
20-DIP-007	2	4	8	1	1	1	3	4	4	1	3	0.250	0.250	0.063	132
20-DIP-008	2	4	10	1	1	1	3	4	4	1	3	0.300	0.250	0.075	82
20-DIP-009	2	4	10	1	5	5	1	4	4	1	3	0.450	0.250	0.113	38
20-MLS-001	10	4	4	3	1	1	3	6	10	1	3	0.400	0.583	0.233	12
24-CMLCS-001	6	6	10	1	1	5	1	4	2	1	1	0.500	0.083	0.042	203
24-CMLCS-002	2	6	2	3	1	5	1	4	2	1	1	0.250	0.083	0.021	322
24-CMLCS-003	2	6	10	1	1	1	1	2	2	1	1	0.300	0.000	0.000	434
24-CMLCS-004	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	435
24-CMLCS-005	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	436
24-CMLCS-006	2	6	8	5	5	1	5	2	2	1	1	0.550	0.000	0.000	437
24-CMLCS-007	2	6	4	3	1	1	1	2	2	1	1	0.200	0.000	0.000	438
24-CMLCS-008	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	366
24-CMLCS-009	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	367
24-CMLCS-010	2	6	4	3	5	1	3	2	2	1	5	0.350	0.167	0.058	144
24-CMLCS-011	2	6	4	5	5	1	5	2	2	1	1	0.450	0.000	0.000	439
24-CMLCS-012	2	6	8	1	1	1	1	2	2	1	1	0.250	0.000	0.000	440
24-CMLCS-013	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	441
24-CMLCS-014	2	6	10	1	1	1	1	2	2	1	1	0.300	0.000	0.000	442
24-CMLCS-015	2	6	4	1	1	1	3	2	2	1	1	0.200	0.000	0.000	443
24-CMLCS-016	2	6	10	1	1	1	1	4	2	1	5	0.300	0.250	0.075	83
24-CMLCS-017	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	444
24-CMLCS-018	2	6	10	5	1	1	5	2	2	1	1	0.500	0.000	0.000	445
24-CMLCS-019	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	446
24-CMLCS-020	2	6	8	3	1	1	3	2	2	1	1	0.350	0.000	0.000	447
24-CMLCS-021	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	448
24-CMLCS-022	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	449
24-CMLCS-023	2	6	8	5	5	1	5	2	2	1	3	0.550	0.083	0.046	178
24-CMLCS-024	2	6	8	5	1	1	5	2	2	1	3	0.450	0.083	0.038	216
24-CMLCS-025	2	6	8	5	1	1	3	2	2	1	3	0.400	0.083	0.033	246
24-CMLCS-026	2	6	10	3	1	1	3	2	2	1	3	0.400	0.083	0.033	247
24-CMLCS-027	2	6	10	3	5	1	3	2	2	1	3	0.500	0.083	0.042	204
24-CMLCS-028	2	6	10	1	1	1	3	2	2	1	3	0.350	0.083	0.029	261

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
24-CMLCS-029	2	6	8	5	1	1	5	2	2	1	3	0.450	0.083	0.038	217
24-CMLCS-030	2	6	8	5	5	1	5	2	2	1	3	0.550	0.083	0.046	179
24-CMLCS-031	2	6	8	3	5	1	1	2	2	3	3	0.400	0.167	0.067	106
24-CMLCS-032	2	6	10	3	1	1	3	2	2	1	1	0.400	0.000	0.000	450
24-CMLCS-033	2	6	8	5	5	1	3	2	2	1	1	0.500	0.000	0.000	451
24-CMLCS-034	2	6	8	5	1	1	5	2	2	1	1	0.450	0.000	0.000	452
24-CMLCS-035	2	6	8	1	1	1	1	2	2	1	1	0.250	0.000	0.000	453
24-CMLCS-036	2	6	8	5	1	1	3	2	2	1	1	0.400	0.000	0.000	454
24-CMLCS-037	2	6	8	5	5	1	3	2	2	1	1	0.500	0.000	0.000	455
24-CMLCS-038	2	6	8	5	1	1	1	2	2	1	3	0.350	0.083	0.029	262
24-CMLCS-039	2	6	10	1	1	1	1	2	2	1	3	0.300	0.083	0.025	298
24-CMLCS-040	2	6	10	5	1	1	1	2	2	1	3	0.400	0.083	0.033	248
24-CMLCS-041	2	6	10	1	1	1	1	2	2	1	3	0.300	0.083	0.025	299
24-CMLCS-042	2	6	10	3	1	1	1	2	2	1	3	0.350	0.083	0.029	263
24-CMLCS-043	2	6	10	5	1	1	3	2	2	1	3	0.450	0.083	0.038	218
24-CMLCS-044	2	6	10	5	1	1	3	2	2	1	3	0.450	0.083	0.038	219
24-CMLCS-045	2	6	2	3	1	5	1	4	2	1	3	0.250	0.167	0.042	205
24-CMLCS-046	2	6	2	3	1	1	1	4	2	1	3	0.150	0.167	0.025	300
24-CMLCS-047	2	6	2	1	1	5	1	2	2	1	3	0.200	0.083	0.017	368
24-CMLCS-048	6	6	10	1	1	1	1	4	2	1	1	0.400	0.083	0.033	249
24-CMLCS-049	6	6	10	1	1	5	1	2	2	1	1	0.500	0.000	0.000	456
24-CMLCS-050	2	6	10	1	1	5	1	2	2	1	1	0.400	0.000	0.000	457
24-CMLCS-051	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	458
24-CMLCS-052	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	459
24-CMLCS-053	2	6	8	1	1	5	5	2	2	1	1	0.450	0.000	0.000	460
24-CMLCS-054	2	6	8	1	5	5	5	2	2	1	1	0.550	0.000	0.000	461
24-CMLCS-055	2	6	4	1	5	5	3	2	2	1	5	0.400	0.167	0.067	107
24-DIP-001	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	250
24-DIP-002	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	251
24-DIP-003	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	252
24-DIP-004	2	6	8	1	1	1	1	2	4	1	1	0.250	0.083	0.021	323
24-DIP-005	2	6	10	1	1	1	1	2	4	1	1	0.300	0.083	0.025	301
24-DIP-006	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	253
24-DIP-007	2	6	2	1	1	1	1	4	4	1	5	0.100	0.333	0.033	254
24-DIP-008	2	6	8	1	1	1	3	2	4	1	1	0.300	0.083	0.025	302
24-DIP-009	2	6	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	145
24-DIP-010	2	6	8	3	1	1	3	4	4	1	1	0.350	0.167	0.058	146
24-DIP-011	2	6	8	1	1	1	3	4	4	1	3	0.300	0.250	0.075	84
24-DIP-012	2	6	8	1	5	1	3	4	4	1	3	0.400	0.250	0.100	52
24-DIP-013	2	6	8	1	1	1	3	4	4	1	3	0.300	0.250	0.075	85
24-DIP-014	2	6	8	3	1	1	3	4	4	1	3	0.350	0.250	0.088	59
24-DIP-015	2	6	10	3	5	1	3	4	4	1	3	0.500	0.250	0.125	32

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
24-DIP-016	2	6	2	3	1	1	3	4	4	1	3	0.200	0.250	0.050	170
24-DIP-017	10	6	4	3	1	1	3	4	4	1	3	0.450	0.250	0.113	39
24-DIP-018	2	6	4	3	1	1	3	4	4	1	3	0.250	0.250	0.063	133
24-DIP-019	6	6	4	1	1	1	3	4	4	1	3	0.300	0.250	0.075	86
24-DIP-020	2	6	10	1	1	1	5	2	4	1	3	0.400	0.167	0.067	108
24-DIP-021	6	6	10	1	1	1	3	2	4	1	3	0.450	0.167	0.075	87
24-DIP-022	2	6	10	3	1	1	3	2	4	1	3	0.400	0.167	0.067	109
24-DIP-023	2	6	10	1	1	1	3	2	4	1	1	0.350	0.083	0.029	264
24-DIP-024	2	6	10	1	5	1	1	2	4	1	1	0.400	0.083	0.033	255
24-DIP-025	2	6	10	3	1	1	3	2	4	1	1	0.400	0.083	0.033	256
24-DIP-026	2	6	10	3	1	1	5	2	4	1	1	0.450	0.083	0.038	220
24-DIP-027	6	6	10	1	1	1	3	2	4	1	1	0.450	0.083	0.038	221
24-DIP-028	6	6	10	3	1	1	5	2	4	1	1	0.550	0.083	0.046	180
24-DIP-029	2	6	10	1	1	1	5	4	4	1	1	0.400	0.167	0.067	110
24-DIP-030	2	6	2	1	1	1	1	2	4	1	1	0.100	0.083	0.008	409
24-DIP-031	2	6	10	1	1	1	1	4	4	1	1	0.300	0.167	0.050	171
24-MLS-001	2	6	4	3	1	1	5	6	10	1	3	0.300	0.583	0.175	20
24-MLS-002	2	6	2	3	1	1	3	6	10	1	3	0.200	0.583	0.117	37
24-MLS-003	2	6	2	1	1	1	1	6	10	1	3	0.100	0.583	0.058	147
30-CMLCS-001	2	8	10	1	1	5	1	4	2	1	1	0.450	0.083	0.038	222
30-CMLCS-002	2	8	4	5	5	5	1	4	2	1	5	0.500	0.250	0.125	33
30-CMLCS-003	2	8	4	1	1	1	1	4	2	1	5	0.200	0.250	0.050	172
30-CMLCS-004	2	8	4	3	1	1	1	4	2	1	5	0.250	0.250	0.063	134
30-CMLCS-005	2	8	10	1	1	1	3	2	2	1	1	0.400	0.000	0.000	462
30-CMLCS-006	2	8	8	5	5	1	3	2	2	1	1	0.550	0.000	0.000	463
30-CMLCS-007	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	464
30-CMLCS-008	2	8	8	5	5	1	3	2	2	1	1	0.550	0.000	0.000	465
30-CMLCS-009	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	466
30-CMLCS-010	2	8	8	3	1	1	3	2	2	1	1	0.400	0.000	0.000	467
30-CMLCS-011	2	8	10	5	1	1	3	2	2	1	1	0.500	0.000	0.000	468
30-CMLCS-012	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	469
30-CMLCS-013	2	8	8	1	1	1	1	2	2	1	3	0.300	0.083	0.025	303
30-CMLCS-014	2	8	8	5	1	1	1	2	2	1	3	0.400	0.083	0.033	257
30-CMLCS-015	2	8	8	5	1	1	1	2	2	1	1	0.400	0.000	0.000	470
30-CMLCS-016	2	8	8	5	1	1	3	2	2	1	1	0.450	0.000	0.000	471
30-CMLCS-017	2	8	8	1	5	1	1	2	2	1	1	0.400	0.000	0.000	472
30-CMLCS-18	2	8	10	1	1	1	1	4	2	1	5	0.350	0.250	0.088	60
30-DIP-001	2	8	2	1	1	1	1	4	4	1	5	0.150	0.333	0.050	173
30-DIP-002	2	8	4	1	1	1	1	4	4	1	5	0.200	0.333	0.067	111
30-DIP-003	2	8	4	1	1	1	1	4	4	1	5	0.200	0.333	0.067	112
30-DIP-004	2	8	4	1	1	1	1	4	4	1	1	0.200	0.167	0.033	258
36-CMLCS-001	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	88

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
36-CMLCS-002	2	10	2	1	1	5	1	2	2	1	5	0.300	0.167	0.050	174
36-CMLCS-003	2	10	10	1	1	1	3	2	2	1	1	0.450	0.000	0.000	473
36-CMLCS-004	2	10	10	1	5	1	3	2	2	1	1	0.550	0.000	0.000	474
36-CMLCS-005	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	475
36-CMLCS-006	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	476
36-CMLCS-007	2	10	10	3	1	1	1	2	2	1	5	0.450	0.167	0.075	89
36-CMLCS-008	2	10	10	5	1	1	3	2	2	1	5	0.550	0.167	0.092	54
36-CMLCS-009	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	477
36-CMLCS-010	2	10	10	3	1	1	1	2	2	1	1	0.450	0.000	0.000	478
36-CMLCS-011	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	479
36-CMLCS-012	2	10	10	3	1	1	3	2	2	1	1	0.500	0.000	0.000	480
36-CMLCS-013	2	10	8	3	1	1	1	2	2	1	1	0.400	0.000	0.000	481
36-CMLCS-014	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	482
36-CMLCS-015	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	483
36-CMLCS-016	2	10	8	3	1	1	3	2	2	1	1	0.450	0.000	0.000	484
36-CMLCS-017	2	10	4	3	1	1	1	2	2	1	1	0.300	0.000	0.000	485
36-CMLCS-018	2	10	8	1	5	1	1	2	2	1	1	0.450	0.000	0.000	486
36-CMLCS-019	2	10	8	3	1	1	3	4	2	1	3	0.450	0.167	0.075	90
36-CMLCS-020	2	10	8	3	1	1	1	4	2	1	3	0.400	0.167	0.067	113
36-CMLCS-021	2	10	2	1	1	1	1	2	2	1	3	0.200	0.083	0.017	369
36-CMLCS-022	2	10	2	1	1	1	1	2	2	1	3	0.200	0.083	0.017	370
36-CMLCS-023	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	304
36-CMLCS-024	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	305
36-CMLCS-025	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	306
36-CMLCS-026	2	10	2	1	1	5	1	2	2	1	3	0.300	0.083	0.025	307
48-CCP-001	2	10	8	5	5	5	1	4	2	1	5	0.650	0.250	0.163	23
48-CCP-002	2	10	10	5	1	5	1	4	2	1	5	0.600	0.250	0.150	26
48-CCP-003	2	10	10	5	5	5	1	4	2	1	5	0.700	0.250	0.175	21
48-CCP-004	2	10	8	5	1	5	1	4	2	1	5	0.550	0.250	0.138	30
48-CCP-005	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	91
48-CCP-006	2	10	8	3	5	5	1	4	2	1	5	0.600	0.250	0.150	27
48-CCP-007	2	10	8	5	5	5	1	4	2	1	5	0.650	0.250	0.163	24
48-CCP-008	2	10	2	1	1	5	1	4	2	1	5	0.300	0.250	0.075	92
48-CCP-009	2	10	10	1	1	5	1	4	2	1	5	0.500	0.250	0.125	34
48-CCP-010	2	10	10	5	1	5	3	4	2	1	5	0.650	0.250	0.163	25
48-CCP-011	2	10	10	5	1	5	5	4	2	1	1	0.700	0.083	0.058	148
6-ACP-001	10	2	2	1	1	5	3	8	8	3	1	0.350	0.583	0.204	13
6-ACP-002	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	93
6-DIP-001	2	2	2	1	1	5	1	2	4	1	1	0.100	0.083	0.008	410
8-ACP-001	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	94
8-ACP-002	2	2	8	1	1	5	3	8	8	1	1	0.300	0.500	0.150	28
8-ACP-003	2	2	2	1	1	5	3	6	8	1	3	0.150	0.500	0.075	95

Transmission Main Segments
Risk of Failure Ranking

T-Main Segment	Consequence of Failure (COF)							Likelihood of Failure (LOF)				Risk of Failure (ROF) (0-1)			Overall Rank
	Doubly Weighted (2-10)			Normally Weighted (1-5)				Doubly Weighted (2-10)		Normally Weighted (1-5)		(COF X LOF)			
	Service Connection	Pipe Diameter	Street Type	Segment Length	Crossings	Source	Distribution System Connection	Pipe Age	Pipe Material	Failure Rate (Leak/Segment)	Static Pressure	COF Score	LOF Score	ROF Score	
8-ACP-004	2	2	2	1	1	5	3	6	8	1	5	0.150	0.583	0.088	61
8-ACP-005	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	62
8-ACP-006	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	96
8-ACP-007	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	63
8-ACP-008	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	97
8-ACP-009	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	98
8-ACP-010	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	175
8-ACP-011	2	2	2	1	1	5	3	8	8	1	3	0.150	0.583	0.088	64
8-ACP-012	2	2	2	1	1	5	3	8	8	1	1	0.150	0.500	0.075	99
8-ACP-013	2	2	2	1	1	5	3	6	8	1	1	0.150	0.417	0.063	135
8-ACP-014	2	2	4	1	1	5	1	6	8	1	3	0.150	0.500	0.075	100
8-ACP-015	2	2	8	1	1	5	1	8	8	3	1	0.250	0.583	0.146	29
8-ACP-016	2	2	2	1	1	5	1	8	8	1	1	0.100	0.500	0.050	176
8-CMLCS-001	2	2	2	1	1	5	1	4	2	1	1	0.100	0.083	0.008	411
8-CMLCS-002	2	2	2	1	1	5	3	4	2	1	1	0.150	0.083	0.013	382
8-DIP-001	2	2	2	1	1	5	1	8	4	1	1	0.100	0.333	0.033	259
8-DIP-002	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	383
8-DIP-003	2	2	2	1	1	5	3	2	4	1	3	0.150	0.167	0.025	308
8-DIP-004	2	2	8	1	1	5	3	2	4	1	3	0.300	0.167	0.050	177
8-DIP-005	2	2	2	1	1	5	3	2	4	1	1	0.150	0.083	0.013	384
8-DIP-006	2	2	10	3	5	5	3	2	4	1	1	0.500	0.083	0.042	206
8-MLS-001	2	2	2	1	1	5	3	8	10	1	3	0.150	0.667	0.100	53
8-MLS-002	2	2	2	1	1	5	3	8	10	1	1	0.150	0.583	0.088	65
8-PVC-001	2	2	2	1	1	5	1	4	6	1	1	0.100	0.250	0.025	309

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Appendix C – Service Connections

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
10-ACP-001	8	0	1
10-ACP-002	8	1	1
10-ACP-003	8	1	1
10-ACP-004	8	0	1
10-ACP-005	8	0	1
10-ACP-006	8	0	1
10-ACP-007	8	0	1
10-ACP-008	8	0	1
10-ACP-009	8	0	1
10-ACP-010	8	0	1
10-ACP-011	8	0	1
10-ACP-012	8	0	1
10-CIP-001	8	0	1
10-CMLCS-001	8	0	1
10-CMLCS-002	8	0	1
10-DIP-001	8	0	1
10-DIP-002	8	0	1
10-DIP-003	8	0	1
10-DIP-004	8	0	1
10-MLS-001	8	0	1
10-PVC-001	8	0	1
12-ACP-001	8	0	1
12-ACP-002	8	0	1
12-ACP-003	8	0	1
12-ACP-004	8	0	1
12-ACP-005	8	0	1
12-CMLCS-001	8	0	1
12-DIP-001	8	0	1
12-DIP-002	8	0	1
12-DIP-003	8	0	1
12-DIP-004	8	0	1
12-DIP-005	8	0	1
12-DIP-006	8	0	1
12-DIP-007	8	0	1
12-DIP-008	8	0	1
12-DIP-009	8	0	1
12-DIP-010	8	0	1
12-DIP-011	8	0	1
12-DIP-012	8	0	1
12-DIP-013	8	2	3
12-DIP-014	8	0	1
12-DIP-015	8	0	1
12-DIP-016	8	0	1
12-DIP-017	8	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
12-MLS-001	8	1	1
12-MLS-002	8	0	1
12-PVC-001	8	0	1
12-PVC-002	8	0	1
12-PVC-003	8	0	1
12-PVC-004	8	0	1
12-PVC-005	8	0	1
14-DIP-001	8	0	1
14-DIP-002	8	0	1
14-DIP-003	8	0	1
14-DIP-004	8	0	1
14-DIP-005	8	0	1
16-ACP-001	3	7	5
16-ACP-002	3	1	1
16-ACP-003	3	0	1
16-ACP-004	3	1	1
16-ACP-005	3	1	1
16-ACP-006	3	0	1
16-ACP-007	3	0	1
16-CIP-001	3	0	1
16-CMLCS-001	8	0	1
16-CMLCS-002	8	0	1
16-CMLCS-003	8	0	1
16-CMLCS-004	8	0	1
16-CMLCS-005	8	0	1
16-CMLCS-006	8	0	1
16-CMLCS-007	8	0	1
16-CMLCS-008	3	0	1
16-CMLCS-009	8	0	1
16-CMLCS-010	8	0	1
16-CMLCS-011	8	0	1
16-CMLCS-012	8	0	1
16-CMLCS-013	8	0	1
16-CMLCS-014	8	1	1
16-CMLCS-015	8	0	1
16-CMLCS-016	3	0	1
16-CMLCS-017	3	0	1
16-CMLCS-018	3	0	1
16-CMLCS-019	3	0	1
16-CMLCS-020	3	0	1
16-CMLCS-021	3	0	1
16-CMLCS-022	3	0	1
16-CMLCS-023	3	0	1
16-CMLCS-024	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
16-CMLCS-025	3	0	1
16-CMLCS-026	3	0	1
16-CMLCS-027	3	0	1
16-DIP-001	3	0	1
16-DIP-002	3	1	1
16-DIP-003	3	0	1
16-DIP-004	3	0	1
16-DIP-005	3	2	3
16-DIP-006	3	0	1
16-DIP-007	3	2	3
16-DIP-008	3	0	1
16-DIP-009	3	0	1
16-DIP-010	3	0	1
16-DIP-011	3	3	3
16-DIP-012	3	0	1
16-DIP-013	3	1	1
16-DIP-014	3	0	1
16-DIP-015	3	1	1
16-DIP-016	3	0	1
16-DIP-017	3	0	1
16-DIP-018	3	1	1
16-DIP-019	3	1	1
16-DIP-020	3	1	1
16-DIP-021	3	0	1
16-DIP-022	3	0	1
16-DIP-023	3	0	1
16-DIP-024	3	0	1
16-DIP-025	3	0	1
16-DIP-026	3	0	1
16-DIP-027	3	0	1
16-DIP-028	3	4	5
16-DIP-029	3	0	1
16-DIP-030	3	2	3
16-DIP-031	3	0	1
16-DIP-032	3	0	1
16-DIP-033	3	2	3
16-DIP-034	3	2	3
16-DIP-035	3	0	1
16-DIP-036	3	0	1
16-DIP-037	3	0	1
16-DIP-038	3	0	1
16-DIP-039	3	0	1
16-DIP-040	3	0	1
16-DIP-041	3	2	3

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
16-DIP-042	3	0	1
16-DIP-043	3	0	1
16-DIP-044	3	0	1
16-DIP-045	3	0	1
16-DIP-046	3	0	1
16-DIP-047	3	0	1
16-DIP-048	3	0	1
16-DIP-049	3	0	1
16-DIP-050	3	0	1
16-DIP-051	3	0	1
16-DIP-052	3	0	1
16-DIP-053	3	0	1
16-DIP-054	3	0	1
16-DIP-055	3	0	1
16-DIP-056	3	0	1
16-DIP-057	3	0	1
16-DIP-058	3	0	1
16-DIP-059	3	0	1
16-DIP-060	3	0	1
16-DIP-061	3	0	1
16-DIP-062	3	0	1
16-DIP-064	3	2	3
16-DIP-065	3	1	1
16-DIP-066	3	4	5
16-DIP-067	3	1	1
16-DIP-068	3	3	3
16-DIP-069	3	1	1
16-DIP-070	3	2	3
16-DIP-071	3	2	3
16-DIP-072	3	0	1
16-DIP-073	3	2	3
16-DIP-074	3	0	1
16-DIP-075	3	0	1
16-DIP-076	3	0	1
16-DIP-077	3	0	1
16-DIP-078	3	2	3
16-DIP-079	3	0	1
16-DIP-080	3	2	3
16-DIP-081	3	0	1
16-DIP-082	3	0	1
16-DIP-083	3	1	1
16-DIP-084	3	1	1
16-DIP-085	3	1	1
16-DIP-086	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
16-DIP-087	3	0	1
16-DIP-088	3	0	1
16-DIP-089	3	2	3
16-DIP-090	3	3	3
16-DIP-091	3	0	1
16-DIP-092	3	0	1
16-DIP-093	3	0	1
16-DIP-094	3	0	1
16-DIP-095	3	0	1
16-DIP-096	3	0	1
16-DIP-097	3	0	1
16-DIP-098	3	0	1
16-DIP-099	3	0	1
16-DIP-100	3	1	1
16-DIP-101	3	0	1
16-DIP-103	3	0	1
16-DIP-104	3	0	1
16-DIP-105	3	2	3
16-DIP-106	3	0	1
16-DIP-107	3	0	1
16-DIP-108	3	0	1
16-DIP-109	3	0	1
16-DIP-110	3	0	1
16-DIP-111	3	0	1
16-DIP-112	3	0	1
16-DIP-113	3	0	1
16-DIP-114	3	2	3
16-DIP-115	3	0	1
16-DIP-116	3	0	1
16-DIP-117	3	0	1
16-DIP-118	3	0	1
16-DIP-119	3	0	1
16-DIP-120	3	0	1
16-DIP-121	3	0	1
16-DIP-122	3	0	1
16-DIP-123	3	2	3
16-DIP-124	3	0	1
16-DIP-125	3	0	1
16-DIP-126	3	1	1
16-DIP-127	3	0	1
16-DIP-128	8	0	1
16-DIP-129	3	0	1
16-DIP-130	3	0	1
16-DIP-131	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
16-DIP-132	3	0	1
16-DIP-133	3	0	1
16-DIP-134	3	0	1
16-DIP-135	3	0	1
16-DIP-136	3	0	1
16-DIP-137	3	0	1
16-DIP-138	3	0	1
16-DIP-139	3	0	1
16-DIP-140	3	0	1
16-DIP-141	3	0	1
16-DIP-142	3	0	1
16-DIP-143	3	0	1
16-DIP-144	3	5	5
16-DIP-145	3	4	5
16-DIP-146	3	1	1
16-DIP-147	3	0	1
16-DIP-148	3	3	3
16-DIP-149	3	1	1
16-DIP-150	3	0	1
16-DIP-151	3	0	1
16-DIP-152	3	0	1
16-DIP-153	8	0	1
16-DIP-154	3	0	1
16-DIP-155	3	1	1
16-DIP-156	3	0	1
16-DIP-157	3	1	1
16-DIP-158	3	0	1
16-DIP-159	3	2	3
16-DIP-160	3	0	1
16-DIP-161	3	0	1
16-DIP-162	3	0	1
16-DIP-163	3	4	5
16-DIP-164	3	1	1
16-DIP-165	3	0	1
16-DIP-166	3	0	1
16-DIP-167	3	0	1
16-DIP-168	3	0	1
16-MLS-001	3	0	1
16-MLS-002	3	2	3
16-MLS-003	3	5	5
16-MLS-004	3	0	1
16-MLS-005	3	10	5
16-MLS-006	3	5	5
16-MLS-007	3	6	5

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
16-MLS-008	3	0	1
16-MLS-009	3	0	1
16-PVC-001	3	0	1
16-PVC-002	8	1	1
16-PVC-003	3	0	1
16-PVC-004	3	2	3
16-PVC-005	3	1	1
16-PVC-006	8	13	5
16-PVC-007	3	0	1
16-PVC-008	8	0	1
16-PVC-009	8	0	1
16-PVC-010	3	0	1
16-PVC-011	3	0	1
16-PVC-012	3	0	1
16-PVC-013	3	1	1
16-PVC-014	3	0	1
18-CMLCS-001	8	0	1
18-CMLCS-002	3	0	1
18-CMLCS-003	3	0	1
18-CMLCS-004	3	0	1
18-CMLCS-005	8	0	1
18-CMLCS-006	8	0	1
18-CMLCS-007	3	0	1
18-CMLCS-008	8	0	1
18-DIP-001	3	0	1
18-DIP-002	3	0	1
18-MLS-001	3	7	5
18-MLS-002	3	6	5
18-MLS-003	3	6	5
18-MLS-004	3	8	5
18-MLS-005	3	0	1
18-MLS-006	3	7	5
18-MLS-007	3	4	5
18-MLS-008	3	6	5
20-DIP-001	8	0	1
20-DIP-002	3	0	1
20-DIP-003	3	0	1
20-DIP-004	3	0	1
20-DIP-005	3	1	1
20-DIP-006	3	1	1
20-DIP-007	3	0	1
20-DIP-008	3	0	1
20-DIP-009	3	0	1
20-MLS-001	3	8	5

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
24-CMLCS-001	8	3	3
24-CMLCS-002	8	0	1
24-CMLCS-003	3	0	1
24-CMLCS-004	3	0	1
24-CMLCS-005	3	0	1
24-CMLCS-006	3	0	1
24-CMLCS-007	3	0	1
24-CMLCS-008	8	0	1
24-CMLCS-009	8	0	1
24-CMLCS-010	3	0	1
24-CMLCS-011	3	0	1
24-CMLCS-012	3	0	1
24-CMLCS-013	3	0	1
24-CMLCS-014	3	0	1
24-CMLCS-015	3	0	1
24-CMLCS-016	3	0	1
24-CMLCS-017	3	0	1
24-CMLCS-018	3	0	1
24-CMLCS-019	3	0	1
24-CMLCS-020	3	0	1
24-CMLCS-021	3	0	1
24-CMLCS-022	3	0	1
24-CMLCS-023	3	0	1
24-CMLCS-024	3	0	1
24-CMLCS-025	3	0	1
24-CMLCS-026	3	0	1
24-CMLCS-027	3	0	1
24-CMLCS-028	3	0	1
24-CMLCS-029	3	0	1
24-CMLCS-030	3	0	1
24-CMLCS-031	3	0	1
24-CMLCS-032	3	0	1
24-CMLCS-033	3	0	1
24-CMLCS-034	3	0	1
24-CMLCS-035	3	0	1
24-CMLCS-036	3	0	1
24-CMLCS-037	3	0	1
24-CMLCS-038	3	0	1
24-CMLCS-039	3	0	1
24-CMLCS-040	3	0	1
24-CMLCS-041	3	0	1
24-CMLCS-042	3	0	1
24-CMLCS-043	3	0	1
24-CMLCS-044	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
24-CMLCS-045	8	0	1
24-CMLCS-046	3	1	1
24-CMLCS-047	8	1	1
24-CMLCS-048	3	3	3
24-CMLCS-049	8	3	3
24-CMLCS-050	8	0	1
24-CMLCS-051	8	0	1
24-CMLCS-052	8	0	1
24-CMLCS-053	8	0	1
24-CMLCS-054	8	0	1
24-CMLCS-055	8	0	1
24-DIP-001	3	0	1
24-DIP-002	3	0	1
24-DIP-003	3	0	1
24-DIP-004	3	0	1
24-DIP-005	3	0	1
24-DIP-006	3	0	1
24-DIP-007	3	0	1
24-DIP-008	3	0	1
24-DIP-009	3	1	1
24-DIP-010	3	0	1
24-DIP-011	3	0	1
24-DIP-012	3	0	1
24-DIP-013	3	0	1
24-DIP-014	3	1	1
24-DIP-015	3	0	1
24-DIP-016	3	0	1
24-DIP-017	3	5	5
24-DIP-018	3	0	1
24-DIP-019	3	3	3
24-DIP-020	3	0	1
24-DIP-021	3	2	3
24-DIP-022	3	0	1
24-DIP-023	3	0	1
24-DIP-024	3	0	1
24-DIP-025	3	0	1
24-DIP-026	3	0	1
24-DIP-027	3	2	3
24-DIP-028	3	2	3
24-DIP-029	3	0	1
24-DIP-030	3	0	1
24-DIP-031	3	0	1
24-MLS-001	3	1	1
24-MLS-002	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
24-MLS-003	3	0	1
30-CMLCS-001	8	0	1
30-CMLCS-002	3	0	1
30-CMLCS-003	3	0	1
30-CMLCS-004	3	0	1
30-CMLCS-005	3	0	1
30-CMLCS-006	3	0	1
30-CMLCS-007	3	0	1
30-CMLCS-008	3	0	1
30-CMLCS-009	3	0	1
30-CMLCS-010	3	0	1
30-CMLCS-011	3	0	1
30-CMLCS-012	3	0	1
30-CMLCS-013	3	0	1
30-CMLCS-014	3	0	1
30-CMLCS-015	3	0	1
30-CMLCS-016	3	0	1
30-CMLCS-017	3	0	1
30-CMLCS-18	3	0	1
30-DIP-001	3	0	1
30-DIP-002	3	0	1
30-DIP-003	3	0	1
30-DIP-004	3	0	1
36-CMLCS-001	8	0	1
36-CMLCS-002	8	0	1
36-CMLCS-003	3	1	1
36-CMLCS-004	3	0	1
36-CMLCS-005	3	0	1
36-CMLCS-006	3	0	1
36-CMLCS-007	3	0	1
36-CMLCS-008	3	0	1
36-CMLCS-009	3	0	1
36-CMLCS-010	3	0	1
36-CMLCS-011	3	0	1
36-CMLCS-012	3	0	1
36-CMLCS-013	3	0	1
36-CMLCS-014	3	0	1
36-CMLCS-015	3	0	1
36-CMLCS-016	3	0	1
36-CMLCS-017	3	0	1
36-CMLCS-018	3	0	1
36-CMLCS-019	3	0	1
36-CMLCS-020	3	0	1
36-CMLCS-021	3	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
36-CMLCS-022	3	0	1
36-CMLCS-023	8	0	1
36-CMLCS-024	8	0	1
36-CMLCS-025	8	0	1
36-CMLCS-026	8	0	1
48-CCP-001	3	0	1
48-CCP-002	3	0	1
48-CCP-003	3	0	1
48-CCP-004	3	0	1
48-CCP-005	3	0	1
48-CCP-006	3	0	1
48-CCP-007	3	0	1
48-CCP-008	3	0	1
48-CCP-009	8	0	1
48-CCP-010	3	0	1
48-CCP-011	3	0	1
6-ACP-001	8	4	5
6-ACP-002	8	0	1
6-DIP-001	8	0	1
8-ACP-001	8	0	1
8-ACP-002	8	0	1
8-ACP-003	8	1	1
8-ACP-004	8	0	1
8-ACP-005	8	0	1
8-ACP-006	8	0	1
8-ACP-007	8	0	1
8-ACP-008	8	0	1
8-ACP-009	8	0	1
8-ACP-010	8	0	1
8-ACP-011	8	0	1
8-ACP-012	8	0	1
8-ACP-013	8	0	1
8-ACP-014	8	0	1
8-ACP-015	8	1	1
8-ACP-016	8	0	1
8-CMLCS-001	8	0	1
8-CMLCS-002	8	0	1
8-DIP-001	8	0	1
8-DIP-002	8	0	1
8-DIP-003	8	0	1
8-DIP-004	8	1	1
8-DIP-005	8	0	1
8-DIP-006	8	0	1
8-MLS-001	8	0	1

Service Connections Score

T-Main Segment	Sub Type	Service Connections	Score
8-MLS-002	8	0	1
8-PVC-001	8	0	1

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Appendix D – Pipe Diameter

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
10-ACP-001	8	10	1
10-ACP-002	8	10	1
10-ACP-003	8	10	1
10-ACP-004	8	10	1
10-ACP-005	8	10	1
10-ACP-006	8	10	1
10-ACP-007	8	10	1
10-ACP-008	8	10	1
10-ACP-009	8	10	1
10-ACP-010	8	10	1
10-ACP-011	8	10	1
10-ACP-012	8	10	1
10-CIP-001	8	10	1
10-CMLCS-001	8	10	1
10-CMLCS-002	8	10	1
10-DIP-001	8	10	1
10-DIP-002	8	10	1
10-DIP-003	8	10	1
10-DIP-004	8	10	1
10-MLS-001	8	10	1
10-PVC-001	8	10	1
12-ACP-001	8	12	1
12-ACP-002	8	12	1
12-ACP-003	8	12	1
12-ACP-004	8	12	1
12-ACP-005	8	12	1
12-CMLCS-001	8	12	1
12-DIP-001	8	12	1
12-DIP-002	8	12	1
12-DIP-003	8	12	1
12-DIP-004	8	12	1
12-DIP-005	8	12	1
12-DIP-006	8	12	1
12-DIP-007	8	12	1
12-DIP-008	8	12	1
12-DIP-009	8	12	1
12-DIP-010	8	12	1
12-DIP-011	8	12	1
12-DIP-012	8	12	1
12-DIP-013	8	12	1
12-DIP-014	8	12	1
12-DIP-015	8	12	1
12-DIP-016	8	12	1
12-DIP-017	8	12	1
12-MLS-001	8	12	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
12-MLS-002	8	12	1
12-PVC-001	8	12	1
12-PVC-002	8	12	1
12-PVC-003	8	12	1
12-PVC-004	8	12	1
12-PVC-005	8	12	1
14-DIP-001	8	14	1
14-DIP-002	8	14	1
14-DIP-003	8	14	1
14-DIP-004	8	14	1
14-DIP-005	8	14	1
16-ACP-001	3	16	1
16-ACP-002	3	16	1
16-ACP-003	3	16	1
16-ACP-004	3	16	1
16-ACP-005	3	16	1
16-ACP-006	3	16	1
16-ACP-007	3	16	1
16-CIP-001	3	16	1
16-CMLCS-001	8	16	1
16-CMLCS-002	8	16	1
16-CMLCS-003	8	16	1
16-CMLCS-004	8	16	1
16-CMLCS-005	8	16	1
16-CMLCS-006	8	16	1
16-CMLCS-007	8	16	1
16-CMLCS-008	3	16	1
16-CMLCS-009	8	16	1
16-CMLCS-010	8	16	1
16-CMLCS-011	8	16	1
16-CMLCS-012	8	16	1
16-CMLCS-013	8	16	1
16-CMLCS-014	8	16	1
16-CMLCS-015	8	16	1
16-CMLCS-016	3	16	1
16-CMLCS-017	3	16	1
16-CMLCS-018	3	16	1
16-CMLCS-019	3	16	1
16-CMLCS-020	3	16	1
16-CMLCS-021	3	16	1
16-CMLCS-022	3	16	1
16-CMLCS-023	3	16	1
16-CMLCS-024	3	16	1
16-CMLCS-025	3	16	1
16-CMLCS-026	3	16	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
16-CMLCS-027	3	16	1
16-DIP-001	3	16	1
16-DIP-002	3	16	1
16-DIP-003	3	16	1
16-DIP-004	3	16	1
16-DIP-005	3	16	1
16-DIP-006	3	16	1
16-DIP-007	3	16	1
16-DIP-008	3	16	1
16-DIP-009	3	16	1
16-DIP-010	3	16	1
16-DIP-011	3	16	1
16-DIP-012	3	16	1
16-DIP-013	3	16	1
16-DIP-014	3	16	1
16-DIP-015	3	16	1
16-DIP-016	3	16	1
16-DIP-017	3	16	1
16-DIP-018	3	16	1
16-DIP-019	3	16	1
16-DIP-020	3	16	1
16-DIP-021	3	16	1
16-DIP-022	3	16	1
16-DIP-023	3	16	1
16-DIP-024	3	16	1
16-DIP-025	3	16	1
16-DIP-026	3	16	1
16-DIP-027	3	16	1
16-DIP-028	3	16	1
16-DIP-029	3	16	1
16-DIP-030	3	16	1
16-DIP-031	3	16	1
16-DIP-032	3	16	1
16-DIP-033	3	16	1
16-DIP-034	3	16	1
16-DIP-035	3	16	1
16-DIP-036	3	16	1
16-DIP-037	3	16	1
16-DIP-038	3	16	1
16-DIP-039	3	16	1
16-DIP-040	3	16	1
16-DIP-041	3	16	1
16-DIP-042	3	16	1
16-DIP-043	3	16	1
16-DIP-044	3	16	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
16-DIP-045	3	16	1
16-DIP-046	3	16	1
16-DIP-047	3	16	1
16-DIP-048	3	16	1
16-DIP-049	3	16	1
16-DIP-050	3	16	1
16-DIP-051	3	16	1
16-DIP-052	3	16	1
16-DIP-053	3	16	1
16-DIP-054	3	16	1
16-DIP-055	3	16	1
16-DIP-056	3	16	1
16-DIP-057	3	16	1
16-DIP-058	3	16	1
16-DIP-059	3	16	1
16-DIP-060	3	16	1
16-DIP-061	3	16	1
16-DIP-062	3	16	1
16-DIP-064	3	16	1
16-DIP-065	3	16	1
16-DIP-066	3	16	1
16-DIP-067	3	16	1
16-DIP-068	3	16	1
16-DIP-069	3	16	1
16-DIP-070	3	16	1
16-DIP-071	3	16	1
16-DIP-072	3	16	1
16-DIP-073	3	16	1
16-DIP-074	3	16	1
16-DIP-075	3	16	1
16-DIP-076	3	16	1
16-DIP-077	3	16	1
16-DIP-078	3	16	1
16-DIP-079	3	16	1
16-DIP-080	3	16	1
16-DIP-081	3	16	1
16-DIP-082	3	16	1
16-DIP-083	3	16	1
16-DIP-084	3	16	1
16-DIP-085	3	16	1
16-DIP-086	3	16	1
16-DIP-087	3	16	1
16-DIP-088	3	16	1
16-DIP-089	3	16	1
16-DIP-090	3	16	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
16-DIP-091	3	16	1
16-DIP-092	3	16	1
16-DIP-093	3	16	1
16-DIP-094	3	16	1
16-DIP-095	3	16	1
16-DIP-096	3	16	1
16-DIP-097	3	16	1
16-DIP-098	3	16	1
16-DIP-099	3	16	1
16-DIP-100	3	16	1
16-DIP-101	3	16	1
16-DIP-103	3	16	1
16-DIP-104	3	16	1
16-DIP-105	3	16	1
16-DIP-106	3	16	1
16-DIP-107	3	16	1
16-DIP-108	3	16	1
16-DIP-109	3	16	1
16-DIP-110	3	16	1
16-DIP-111	3	16	1
16-DIP-112	3	16	1
16-DIP-113	3	16	1
16-DIP-114	3	16	1
16-DIP-115	3	16	1
16-DIP-116	3	16	1
16-DIP-117	3	16	1
16-DIP-118	3	16	1
16-DIP-119	3	16	1
16-DIP-120	3	16	1
16-DIP-121	3	16	1
16-DIP-122	3	16	1
16-DIP-123	3	16	1
16-DIP-124	3	16	1
16-DIP-125	3	16	1
16-DIP-126	3	16	1
16-DIP-127	3	16	1
16-DIP-128	8	16	1
16-DIP-129	3	16	1
16-DIP-130	3	16	1
16-DIP-131	3	16	1
16-DIP-132	3	16	1
16-DIP-133	3	16	1
16-DIP-134	3	16	1
16-DIP-135	3	16	1
16-DIP-136	3	16	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
16-DIP-137	3	16	1
16-DIP-138	3	16	1
16-DIP-139	3	16	1
16-DIP-140	3	16	1
16-DIP-141	3	16	1
16-DIP-142	3	16	1
16-DIP-143	3	16	1
16-DIP-144	3	16	1
16-DIP-145	3	16	1
16-DIP-146	3	16	1
16-DIP-147	3	16	1
16-DIP-148	3	16	1
16-DIP-149	3	16	1
16-DIP-150	3	16	1
16-DIP-151	3	16	1
16-DIP-152	3	16	1
16-DIP-153	8	16	1
16-DIP-154	3	16	1
16-DIP-155	3	16	1
16-DIP-156	3	16	1
16-DIP-157	3	16	1
16-DIP-158	3	16	1
16-DIP-159	3	16	1
16-DIP-160	3	16	1
16-DIP-161	3	16	1
16-DIP-162	3	16	1
16-DIP-163	3	16	1
16-DIP-164	3	16	1
16-DIP-165	3	16	1
16-DIP-166	3	16	1
16-DIP-167	3	16	1
16-DIP-168	3	16	1
16-MLS-001	3	16	1
16-MLS-002	3	16	1
16-MLS-003	3	16	1
16-MLS-004	3	16	1
16-MLS-005	3	16	1
16-MLS-006	3	16	1
16-MLS-007	3	16	1
16-MLS-008	3	16	1
16-MLS-009	3	16	1
16-PVC-001	3	16	1
16-PVC-002	8	16	1
16-PVC-003	3	16	1
16-PVC-004	3	16	1

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
16-PVC-005	3	16	1
16-PVC-006	8	16	1
16-PVC-007	3	16	1
16-PVC-008	8	16	1
16-PVC-009	8	16	1
16-PVC-010	3	16	1
16-PVC-011	3	16	1
16-PVC-012	3	16	1
16-PVC-013	3	16	1
16-PVC-014	3	16	1
18-CMLCS-001	8	18	2
18-CMLCS-002	3	18	2
18-CMLCS-003	3	18	2
18-CMLCS-004	3	18	2
18-CMLCS-005	8	18	2
18-CMLCS-006	8	18	2
18-CMLCS-007	3	18	2
18-CMLCS-008	8	18	2
18-DIP-001	3	18	2
18-DIP-002	3	18	2
18-MLS-001	3	18	2
18-MLS-002	3	18	2
18-MLS-003	3	18	2
18-MLS-004	3	18	2
18-MLS-005	3	18	2
18-MLS-006	3	18	2
18-MLS-007	3	18	2
18-MLS-008	3	18	2
20-DIP-001	8	20	2
20-DIP-002	3	20	2
20-DIP-003	3	20	2
20-DIP-004	3	20	2
20-DIP-005	3	20	2
20-DIP-006	3	20	2
20-DIP-007	3	20	2
20-DIP-008	3	20	2
20-DIP-009	3	20	2
20-MLS-001	3	20	2
24-CMLCS-001	8	24	3
24-CMLCS-002	8	24	3
24-CMLCS-003	3	24	3
24-CMLCS-004	3	24	3
24-CMLCS-005	3	24	3
24-CMLCS-006	3	24	3
24-CMLCS-007	3	24	3

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
24-CMLCS-008	8	24	3
24-CMLCS-009	8	24	3
24-CMLCS-010	3	24	3
24-CMLCS-011	3	24	3
24-CMLCS-012	3	24	3
24-CMLCS-013	3	24	3
24-CMLCS-014	3	24	3
24-CMLCS-015	3	24	3
24-CMLCS-016	3	24	3
24-CMLCS-017	3	24	3
24-CMLCS-018	3	24	3
24-CMLCS-019	3	24	3
24-CMLCS-020	3	24	3
24-CMLCS-021	3	24	3
24-CMLCS-022	3	24	3
24-CMLCS-023	3	24	3
24-CMLCS-024	3	24	3
24-CMLCS-025	3	24	3
24-CMLCS-026	3	24	3
24-CMLCS-027	3	24	3
24-CMLCS-028	3	24	3
24-CMLCS-029	3	24	3
24-CMLCS-030	3	24	3
24-CMLCS-031	3	24	3
24-CMLCS-032	3	24	3
24-CMLCS-033	3	24	3
24-CMLCS-034	3	24	3
24-CMLCS-035	3	24	3
24-CMLCS-036	3	24	3
24-CMLCS-037	3	24	3
24-CMLCS-038	3	24	3
24-CMLCS-039	3	24	3
24-CMLCS-040	3	24	3
24-CMLCS-041	3	24	3
24-CMLCS-042	3	24	3
24-CMLCS-043	3	24	3
24-CMLCS-044	3	24	3
24-CMLCS-045	8	24	3
24-CMLCS-046	3	24	3
24-CMLCS-047	8	24	3
24-CMLCS-048	3	24	3
24-CMLCS-049	8	24	3
24-CMLCS-050	8	24	3
24-CMLCS-051	8	24	3
24-CMLCS-052	8	24	3

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
24-CMLCS-053	8	24	3
24-CMLCS-054	8	24	3
24-CMLCS-055	8	24	3
24-DIP-001	3	24	3
24-DIP-002	3	24	3
24-DIP-003	3	24	3
24-DIP-004	3	24	3
24-DIP-005	3	24	3
24-DIP-006	3	24	3
24-DIP-007	3	24	3
24-DIP-008	3	24	3
24-DIP-009	3	24	3
24-DIP-010	3	24	3
24-DIP-011	3	24	3
24-DIP-012	3	24	3
24-DIP-013	3	24	3
24-DIP-014	3	24	3
24-DIP-015	3	24	3
24-DIP-016	3	24	3
24-DIP-017	3	24	3
24-DIP-018	3	24	3
24-DIP-019	3	24	3
24-DIP-020	3	24	3
24-DIP-021	3	24	3
24-DIP-022	3	24	3
24-DIP-023	3	24	3
24-DIP-024	3	24	3
24-DIP-025	3	24	3
24-DIP-026	3	24	3
24-DIP-027	3	24	3
24-DIP-028	3	24	3
24-DIP-029	3	24	3
24-DIP-030	3	24	3
24-DIP-031	3	24	3
24-MLS-001	3	24	3
24-MLS-002	3	24	3
24-MLS-003	3	24	3
30-CMLCS-001	8	30	4
30-CMLCS-002	3	30	4
30-CMLCS-003	3	30	4
30-CMLCS-004	3	30	4
30-CMLCS-005	3	30	4
30-CMLCS-006	3	30	4
30-CMLCS-007	3	30	4
30-CMLCS-008	3	30	4

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
30-CMLCS-009	3	30	4
30-CMLCS-010	3	30	4
30-CMLCS-011	3	30	4
30-CMLCS-012	3	30	4
30-CMLCS-013	3	30	4
30-CMLCS-014	3	30	4
30-CMLCS-015	3	30	4
30-CMLCS-016	3	30	4
30-CMLCS-017	3	30	4
30-CMLCS-18	3	30	4
30-DIP-001	3	30	4
30-DIP-002	3	30	4
30-DIP-003	3	30	4
30-DIP-004	3	30	4
36-CMLCS-001	8	36	5
36-CMLCS-002	8	36	5
36-CMLCS-003	3	36	5
36-CMLCS-004	3	36	5
36-CMLCS-005	3	36	5
36-CMLCS-006	3	36	5
36-CMLCS-007	3	36	5
36-CMLCS-008	3	36	5
36-CMLCS-009	3	36	5
36-CMLCS-010	3	36	5
36-CMLCS-011	3	36	5
36-CMLCS-012	3	36	5
36-CMLCS-013	3	36	5
36-CMLCS-014	3	36	5
36-CMLCS-015	3	36	5
36-CMLCS-016	3	36	5
36-CMLCS-017	3	36	5
36-CMLCS-018	3	36	5
36-CMLCS-019	3	36	5
36-CMLCS-020	3	36	5
36-CMLCS-021	3	36	5
36-CMLCS-022	3	36	5
36-CMLCS-023	8	36	5
36-CMLCS-024	8	36	5
36-CMLCS-025	8	36	5
36-CMLCS-026	8	36	5
48-CCP-001	3	48	5
48-CCP-002	3	48	5
48-CCP-003	3	48	5
48-CCP-004	3	48	5
48-CCP-005	3	48	5

Pipe Diameter Score

T-Main Segment	Sub Type	Pipe Diameter	Score
48-CCP-006	3	48	5
48-CCP-007	3	48	5
48-CCP-008	3	48	5
48-CCP-009	8	48	5
48-CCP-010	3	48	5
48-CCP-011	3	48	5
6-ACP-001	8	6	1
6-ACP-002	8	6	1
6-DIP-001	8	6	1
8-ACP-001	8	8	1
8-ACP-002	8	8	1
8-ACP-003	8	8	1
8-ACP-004	8	8	1
8-ACP-005	8	8	1
8-ACP-006	8	8	1
8-ACP-007	8	8	1
8-ACP-008	8	8	1
8-ACP-009	8	8	1
8-ACP-010	8	8	1
8-ACP-011	8	8	1
8-ACP-012	8	8	1
8-ACP-013	8	8	1
8-ACP-014	8	8	1
8-ACP-015	8	8	1
8-ACP-016	8	8	1
8-CMLCS-001	8	8	1
8-CMLCS-002	8	8	1
8-DIP-001	8	8	1
8-DIP-002	8	8	1
8-DIP-003	8	8	1
8-DIP-004	8	8	1
8-DIP-005	8	8	1
8-DIP-006	8	8	1
8-MLS-001	8	8	1
8-MLS-002	8	8	1
8-PVC-001	8	8	1

Appendix E – Street Type

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
10-ACP-001	8	N/A	1
10-ACP-002	8	RESIDENTIAL	2
10-ACP-003	8	COLLECTOR	4
10-ACP-004	8	COLLECTOR	4
10-ACP-005	8	N/A	1
10-ACP-006	8	N/A	1
10-ACP-007	8	RESIDENTIAL	2
10-ACP-008	8	N/A	1
10-ACP-009	8	N/A	1
10-ACP-010	8	N/A	1
10-ACP-011	8	N/A	1
10-ACP-012	8	RESIDENTIAL	2
10-CIP-001	8	ARTERIAL	5
10-CMLCS-001	8	N/A	1
10-CMLCS-002	8	N/A	1
10-DIP-001	8	N/A	1
10-DIP-002	8	RESIDENTIAL	2
10-DIP-003	8	N/A	1
10-DIP-004	8	N/A	1
10-MLS-001	8	COLLECTOR	4
10-PVC-001	8	RESIDENTIAL	2
12-ACP-001	8	RESIDENTIAL	2
12-ACP-002	8	N/A	1
12-ACP-003	8	N/A	1
12-ACP-004	8	RESIDENTIAL	2
12-ACP-005	8	ARTERIAL	5
12-CMLCS-001	8	N/A	1
12-DIP-001	8	N/A	1
12-DIP-002	8	N/A	1
12-DIP-003	8	RESIDENTIAL	2
12-DIP-004	8	COLLECTOR	4
12-DIP-005	8	COLLECTOR	4
12-DIP-006	8	N/A	1
12-DIP-007	8	ARTERIAL	5
12-DIP-008	8	N/A	1
12-DIP-009	8	ARTERIAL	5
12-DIP-010	8	N/A	1
12-DIP-011	8	N/A	1
12-DIP-012	8	N/A	1
12-DIP-013	8	RESIDENTIAL	2
12-DIP-014	8	RESIDENTIAL	2
12-DIP-015	8	N/A	1
12-DIP-016	8	RESIDENTIAL	2
12-DIP-017	8	N/A	1

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
12-MLS-001	8	RESIDENTIAL	2
12-MLS-002	8	N/A	1
12-PVC-001	8	ARTERIAL	5
12-PVC-002	8	COLLECTOR	4
12-PVC-003	8	N/A	1
12-PVC-004	8	N/A	1
12-PVC-005	8	ARTERIAL	5
14-DIP-001	8	N/A	1
14-DIP-002	8	N/A	1
14-DIP-003	8	N/A	1
14-DIP-004	8	N/A	1
14-DIP-005	8	N/A	1
16-ACP-001	3	ARTERIAL	5
16-ACP-002	3	COLLECTOR	4
16-ACP-003	3	ARTERIAL	5
16-ACP-004	3	RESIDENTIAL	2
16-ACP-005	3	RESIDENTIAL	2
16-ACP-006	3	RESIDENTIAL	2
16-ACP-007	3	N/A	1
16-CIP-001	3	RESIDENTIAL	2
16-CMLCS-001	8	N/A	1
16-CMLCS-002	8	N/A	1
16-CMLCS-003	8	N/A	1
16-CMLCS-004	8	N/A	1
16-CMLCS-005	8	N/A	1
16-CMLCS-006	8	N/A	1
16-CMLCS-007	8	N/A	1
16-CMLCS-008	3	COLLECTOR	4
16-CMLCS-009	8	N/A	1
16-CMLCS-010	8	N/A	1
16-CMLCS-011	8	N/A	1
16-CMLCS-012	8	N/A	1
16-CMLCS-013	8	N/A	1
16-CMLCS-014	8	N/A	1
16-CMLCS-015	8	N/A	1
16-CMLCS-016	3	ARTERIAL	5
16-CMLCS-017	3	ARTERIAL	5
16-CMLCS-018	3	N/A	1
16-CMLCS-019	3	ARTERIAL	5
16-CMLCS-020	3	COLLECTOR	4
16-CMLCS-021	3	COLLECTOR	4
16-CMLCS-022	3	N/A	1
16-CMLCS-023	3	COLLECTOR	4
16-CMLCS-024	3	ARTERIAL	5
16-CMLCS-025	3	RESIDENTIAL	2

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
16-CMLCS-026	3	ARTERIAL	5
16-CMLCS-027	3	COLLECTOR	4
16-DIP-001	3	N/A	1
16-DIP-002	3	COLLECTOR	4
16-DIP-003	3	COLLECTOR	4
16-DIP-004	3	N/A	4
16-DIP-005	3	COLLECTOR	4
16-DIP-006	3	COLLECTOR	4
16-DIP-007	3	COLLECTOR	4
16-DIP-008	3	ARTERIAL	5
16-DIP-009	3	ARTERIAL	5
16-DIP-010	3	ARTERIAL	5
16-DIP-011	3	ARTERIAL	5
16-DIP-012	3	ARTERIAL	5
16-DIP-013	3	ARTERIAL	5
16-DIP-014	3	RESIDENTIAL	2
16-DIP-015	3	RESIDENTIAL	2
16-DIP-016	3	RESIDENTIAL	2
16-DIP-017	3	ARTERIAL	5
16-DIP-018	3	ARTERIAL	5
16-DIP-019	3	ARTERIAL	5
16-DIP-020	3	ARTERIAL	5
16-DIP-021	3	RESIDENTIAL	2
16-DIP-022	3	ARTERIAL	5
16-DIP-023	3	COLLECTOR	4
16-DIP-024	3	COLLECTOR	4
16-DIP-025	3	COLLECTOR	4
16-DIP-026	3	COLLECTOR	4
16-DIP-027	3	ARTERIAL	5
16-DIP-028	3	ARTERIAL	5
16-DIP-029	3	ARTERIAL	5
16-DIP-030	3	ARTERIAL	5
16-DIP-031	3	ARTERIAL	5
16-DIP-032	3	ARTERIAL	5
16-DIP-033	3	COLLECTOR	4
16-DIP-034	3	COLLECTOR	4
16-DIP-035	3	COLLECTOR	4
16-DIP-036	3	COLLECTOR	4
16-DIP-037	3	COLLECTOR	4
16-DIP-038	3	COLLECTOR	4
16-DIP-039	3	COLLECTOR	4
16-DIP-040	3	COLLECTOR	4
16-DIP-041	3	COLLECTOR	4
16-DIP-042	3	COLLECTOR	4
16-DIP-043	3	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
16-DIP-044	3	COLLECTOR	4
16-DIP-045	3	COLLECTOR	4
16-DIP-046	3	RESIDENTIAL	2
16-DIP-047	3	RESIDENTIAL	2
16-DIP-048	3	RESIDENTIAL	2
16-DIP-049	3	RESIDENTIAL	2
16-DIP-050	3	RESIDENTIAL	2
16-DIP-051	3	RESIDENTIAL	2
16-DIP-052	3	COLLECTOR	4
16-DIP-053	3	COLLECTOR	4
16-DIP-054	3	COLLECTOR	4
16-DIP-055	3	COLLECTOR	4
16-DIP-056	3	COLLECTOR	4
16-DIP-057	3	COLLECTOR	4
16-DIP-058	3	COLLECTOR	4
16-DIP-059	3	COLLECTOR	4
16-DIP-060	3	COLLECTOR	4
16-DIP-061	3	N/A	1
16-DIP-062	3	RESIDENTIAL	2
16-DIP-064	3	COLLECTOR	4
16-DIP-065	3	COLLECTOR	4
16-DIP-066	3	COLLECTOR	4
16-DIP-067	3	COLLECTOR	4
16-DIP-068	3	COLLECTOR	4
16-DIP-069	3	COLLECTOR	4
16-DIP-070	3	COLLECTOR	4
16-DIP-071	3	COLLECTOR	4
16-DIP-072	3	COLLECTOR	4
16-DIP-073	3	COLLECTOR	4
16-DIP-074	3	COLLECTOR	4
16-DIP-075	3	ARTERIAL	5
16-DIP-076	3	ARTERIAL	5
16-DIP-077	3	ARTERIAL	5
16-DIP-078	3	ARTERIAL	5
16-DIP-079	3	ARTERIAL	5
16-DIP-080	3	ARTERIAL	5
16-DIP-081	3	ARTERIAL	5
16-DIP-082	3	ARTERIAL	5
16-DIP-083	3	ARTERIAL	5
16-DIP-084	3	COLLECTOR	4
16-DIP-085	3	COLLECTOR	4
16-DIP-086	3	N/A	1
16-DIP-087	3	ARTERIAL	5
16-DIP-088	3	N/A	1
16-DIP-089	3	ARTERIAL	5

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
16-DIP-090	3	ARTERIAL	5
16-DIP-091	3	COLLECTOR	4
16-DIP-092	3	ARTERIAL	5
16-DIP-093	3	ARTERIAL	5
16-DIP-094	3	ARTERIAL	5
16-DIP-095	3	ARTERIAL	5
16-DIP-096	3	ARTERIAL	5
16-DIP-097	3	ARTERIAL	5
16-DIP-098	3	ARTERIAL	5
16-DIP-099	3	ARTERIAL	5
16-DIP-100	3	ARTERIAL	5
16-DIP-101	3	N/A	1
16-DIP-103	3	ARTERIAL	5
16-DIP-104	3	ARTERIAL	5
16-DIP-105	3	ARTERIAL	5
16-DIP-106	3	ARTERIAL	5
16-DIP-107	3	ARTERIAL	5
16-DIP-108	3	RESIDENTIAL	2
16-DIP-109	3	RESIDENTIAL	2
16-DIP-110	3	RESIDENTIAL	2
16-DIP-111	3	RESIDENTIAL	2
16-DIP-112	3	RESIDENTIAL	2
16-DIP-113	3	RESIDENTIAL	2
16-DIP-114	3	RESIDENTIAL	2
16-DIP-115	3	RESIDENTIAL	2
16-DIP-116	3	RESIDENTIAL	2
16-DIP-117	3	RESIDENTIAL	2
16-DIP-118	3	ARTERIAL	5
16-DIP-119	3	RESIDENTIAL	2
16-DIP-120	3	RESIDENTIAL	2
16-DIP-121	3	RESIDENTIAL	2
16-DIP-122	3	RESIDENTIAL	2
16-DIP-123	3	ARTERIAL	5
16-DIP-124	3	ARTERIAL	5
16-DIP-125	3	COLLECTOR	4
16-DIP-126	3	N/A	1
16-DIP-127	3	COLLECTOR	4
16-DIP-128	8	N/A	1
16-DIP-129	3	ARTERIAL	5
16-DIP-130	3	N/A	1
16-DIP-131	3	COLLECTOR	4
16-DIP-132	3	COLLECTOR	4
16-DIP-133	3	COLLECTOR	4
16-DIP-134	3	COLLECTOR	4
16-DIP-135	3	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
16-DIP-136	3	COLLECTOR	4
16-DIP-137	3	COLLECTOR	4
16-DIP-138	3	COLLECTOR	4
16-DIP-139	3	COLLECTOR	4
16-DIP-140	3	COLLECTOR	4
16-DIP-141	3	COLLECTOR	4
16-DIP-142	3	COLLECTOR	4
16-DIP-143	3	ARTERIAL	5
16-DIP-144	3	ARTERIAL	5
16-DIP-145	3	ARTERIAL	5
16-DIP-146	3	ARTERIAL	5
16-DIP-147	3	ARTERIAL	5
16-DIP-148	3	ARTERIAL	5
16-DIP-149	3	ARTERIAL	5
16-DIP-150	3	ARTERIAL	5
16-DIP-151	3	RESIDENTIAL	2
16-DIP-152	3	ARTERIAL	5
16-DIP-153	8	N/A	1
16-DIP-154	3	N/A	1
16-DIP-155	3	N/A	1
16-DIP-156	3	N/A	1
16-DIP-157	3	N/A	1
16-DIP-158	3	N/A	1
16-DIP-159	3	RESIDENTIAL	2
16-DIP-160	3	RESIDENTIAL	2
16-DIP-161	3	RESIDENTIAL	2
16-DIP-162	3	RESIDENTIAL	2
16-DIP-163	3	ARTERIAL	5
16-DIP-164	3	RESIDENTIAL	2
16-DIP-165	3	RESIDENTIAL	2
16-DIP-166	3	ARTERIAL	5
16-DIP-167	3	ARTERIAL	5
16-DIP-168	3	ARTERIAL	5
16-MLS-001	3	N/A	1
16-MLS-002	3	N/A	1
16-MLS-003	3	COLLECTOR	4
16-MLS-004	3	COLLECTOR	4
16-MLS-005	3	RESIDENTIAL	2
16-MLS-006	3	RESIDENTIAL	2
16-MLS-007	3	RESIDENTIAL	2
16-MLS-008	3	ARTERIAL	5
16-MLS-009	3	ARTERIAL	5
16-PVC-001	3	COLLECTOR	4
16-PVC-002	8	COLLECTOR	4
16-PVC-003	3	RESIDENTIAL	2

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
16-PVC-004	3	RESIDENTIAL	2
16-PVC-005	3	RESIDENTIAL	2
16-PVC-006	8	RESIDENTIAL	2
16-PVC-007	3	RESIDENTIAL	2
16-PVC-008	8	ARTERIAL	5
16-PVC-009	8	COLLECTOR	4
16-PVC-010	3	N/A	1
16-PVC-011	3	N/A	1
16-PVC-012	3	N/A	1
16-PVC-013	3	COLLECTOR	4
16-PVC-014	3	COLLECTOR	4
18-CMLCS-001	8	N/A	1
18-CMLCS-002	3	ARTERIAL	5
18-CMLCS-003	3	ARTERIAL	5
18-CMLCS-004	3	ARTERIAL	5
18-CMLCS-005	8	N/A	1
18-CMLCS-006	8	N/A	1
18-CMLCS-007	3	ARTERIAL	5
18-CMLCS-008	8	N/A	1
18-DIP-001	3	N/A	1
18-DIP-002	3	COLLECTOR	4
18-MLS-001	3	ARTERIAL	5
18-MLS-002	3	ARTERIAL	5
18-MLS-003	3	ARTERIAL	5
18-MLS-004	3	ARTERIAL	5
18-MLS-005	3	ARTERIAL	5
18-MLS-006	3	ARTERIAL	5
18-MLS-007	3	ARTERIAL	5
18-MLS-008	3	ARTERIAL	5
20-DIP-001	8	N/A	1
20-DIP-002	3	COLLECTOR	4
20-DIP-003	3	COLLECTOR	4
20-DIP-004	3	COLLECTOR	4
20-DIP-005	3	COLLECTOR	4
20-DIP-006	3	COLLECTOR	4
20-DIP-007	3	COLLECTOR	4
20-DIP-008	3	ARTERIAL	5
20-DIP-009	3	ARTERIAL	5
20-MLS-001	3	RESIDENTIAL	2
24-CMLCS-001	8	ARTERIAL	5
24-CMLCS-002	8	N/A	1
24-CMLCS-003	3	ARTERIAL	5
24-CMLCS-004	3	COLLECTOR	4
24-CMLCS-005	3	COLLECTOR	4
24-CMLCS-006	3	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
24-CMLCS-007	3	RESIDENTIAL	2
24-CMLCS-008	8	N/A	1
24-CMLCS-009	8	N/A	1
24-CMLCS-010	3	RESIDENTIAL	2
24-CMLCS-011	3	RESIDENTIAL	2
24-CMLCS-012	3	COLLECTOR	4
24-CMLCS-013	3	ARTERIAL	5
24-CMLCS-014	3	ARTERIAL	5
24-CMLCS-015	3	RESIDENTIAL	2
24-CMLCS-016	3	ARTERIAL	5
24-CMLCS-017	3	ARTERIAL	5
24-CMLCS-018	3	ARTERIAL	5
24-CMLCS-019	3	COLLECTOR	4
24-CMLCS-020	3	COLLECTOR	4
24-CMLCS-021	3	COLLECTOR	4
24-CMLCS-022	3	COLLECTOR	4
24-CMLCS-023	3	COLLECTOR	4
24-CMLCS-024	3	COLLECTOR	4
24-CMLCS-025	3	COLLECTOR	4
24-CMLCS-026	3	ARTERIAL	5
24-CMLCS-027	3	ARTERIAL	5
24-CMLCS-028	3	ARTERIAL	5
24-CMLCS-029	3	COLLECTOR	4
24-CMLCS-030	3	COLLECTOR	4
24-CMLCS-031	3	COLLECTOR	4
24-CMLCS-032	3	ARTERIAL	5
24-CMLCS-033	3	COLLECTOR	4
24-CMLCS-034	3	COLLECTOR	4
24-CMLCS-035	3	COLLECTOR	4
24-CMLCS-036	3	COLLECTOR	4
24-CMLCS-037	3	COLLECTOR	4
24-CMLCS-038	3	COLLECTOR	4
24-CMLCS-039	3	ARTERIAL	5
24-CMLCS-040	3	ARTERIAL	5
24-CMLCS-041	3	ARTERIAL	5
24-CMLCS-042	3	ARTERIAL	5
24-CMLCS-043	3	ARTERIAL	5
24-CMLCS-044	3	ARTERIAL	5
24-CMLCS-045	8	N/A	1
24-CMLCS-046	3	N/A	1
24-CMLCS-047	8	N/A	1
24-CMLCS-048	3	ARTERIAL	5
24-CMLCS-049	8	ARTERIAL	5
24-CMLCS-050	8	ARTERIAL	5
24-CMLCS-051	8	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
24-CMLCS-052	8	COLLECTOR	4
24-CMLCS-053	8	COLLECTOR	4
24-CMLCS-054	8	COLLECTOR	4
24-CMLCS-055	8	RESIDENTIAL	2
24-DIP-001	3	N/A	1
24-DIP-002	3	N/A	1
24-DIP-003	3	N/A	1
24-DIP-004	3	COLLECTOR	4
24-DIP-005	3	ARTERIAL	5
24-DIP-006	3	N/A	1
24-DIP-007	3	N/A	1
24-DIP-008	3	COLLECTOR	4
24-DIP-009	3	COLLECTOR	4
24-DIP-010	3	COLLECTOR	4
24-DIP-011	3	COLLECTOR	4
24-DIP-012	3	COLLECTOR	4
24-DIP-013	3	COLLECTOR	4
24-DIP-014	3	COLLECTOR	4
24-DIP-015	3	ARTERIAL	5
24-DIP-016	3	N/A	1
24-DIP-017	3	RESIDENTIAL	2
24-DIP-018	3	RESIDENTIAL	2
24-DIP-019	3	RESIDENTIAL	2
24-DIP-020	3	ARTERIAL	5
24-DIP-021	3	ARTERIAL	5
24-DIP-022	3	ARTERIAL	5
24-DIP-023	3	ARTERIAL	5
24-DIP-024	3	ARTERIAL	5
24-DIP-025	3	ARTERIAL	5
24-DIP-026	3	ARTERIAL	5
24-DIP-027	3	ARTERIAL	5
24-DIP-028	3	ARTERIAL	5
24-DIP-029	3	ARTERIAL	5
24-DIP-030	3	N/A	1
24-DIP-031	3	ARTERIAL	5
24-MLS-001	3	RESIDENTIAL	2
24-MLS-002	3	N/A	1
24-MLS-003	3	N/A	1
30-CMLCS-001	8	ARTERIAL	5
30-CMLCS-002	3	RESIDENTIAL	2
30-CMLCS-003	3	RESIDENTIAL	2
30-CMLCS-004	3	RESIDENTIAL	2
30-CMLCS-005	3	ARTERIAL	5
30-CMLCS-006	3	COLLECTOR	4
30-CMLCS-007	3	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
30-CMLCS-008	3	COLLECTOR	4
30-CMLCS-009	3	COLLECTOR	4
30-CMLCS-010	3	COLLECTOR	4
30-CMLCS-011	3	ARTERIAL	5
30-CMLCS-012	3	COLLECTOR	4
30-CMLCS-013	3	COLLECTOR	4
30-CMLCS-014	3	COLLECTOR	4
30-CMLCS-015	3	COLLECTOR	4
30-CMLCS-016	3	COLLECTOR	4
30-CMLCS-017	3	COLLECTOR	4
30-CMLCS-18	3	ARTERIAL	5
30-DIP-001	3	N/A	1
30-DIP-002	3	RESIDENTIAL	2
30-DIP-003	3	RESIDENTIAL	2
30-DIP-004	3	RESIDENTIAL	2
36-CMLCS-001	8	N/A	1
36-CMLCS-002	8	N/A	1
36-CMLCS-003	3	ARTERIAL	5
36-CMLCS-004	3	ARTERIAL	5
36-CMLCS-005	3	ARTERIAL	5
36-CMLCS-006	3	ARTERIAL	5
36-CMLCS-007	3	ARTERIAL	5
36-CMLCS-008	3	ARTERIAL	5
36-CMLCS-009	3	ARTERIAL	5
36-CMLCS-010	3	ARTERIAL	5
36-CMLCS-011	3	ARTERIAL	5
36-CMLCS-012	3	ARTERIAL	5
36-CMLCS-013	3	COLLECTOR	4
36-CMLCS-014	3	COLLECTOR	4
36-CMLCS-015	3	COLLECTOR	4
36-CMLCS-016	3	COLLECTOR	4
36-CMLCS-017	3	RESIDENTIAL	2
36-CMLCS-018	3	COLLECTOR	4
36-CMLCS-019	3	COLLECTOR	4
36-CMLCS-020	3	COLLECTOR	4
36-CMLCS-021	3	N/A	1
36-CMLCS-022	3	N/A	1
36-CMLCS-023	8	N/A	1
36-CMLCS-024	8	N/A	1
36-CMLCS-025	8	N/A	1
36-CMLCS-026	8	N/A	1
48-CCP-001	3	COLLECTOR	4
48-CCP-002	3	ARTERIAL	5
48-CCP-003	3	ARTERIAL	5
48-CCP-004	3	COLLECTOR	4

Street Type Score

T-Main Segment	Sub Type	Street Type	Score
48-CCP-005	3	N/A	1
48-CCP-006	3	COLLECTOR	4
48-CCP-007	3	COLLECTOR	4
48-CCP-008	3	N/A	1
48-CCP-009	8	ARTERIAL	5
48-CCP-010	3	ARTERIAL	5
48-CCP-011	3	ARTERIAL	5
6-ACP-001	8	N/A	1
6-ACP-002	8	N/A	1
6-DIP-001	8	N/A	1
8-ACP-001	8	N/A	1
8-ACP-002	8	COLLECTOR	4
8-ACP-003	8	N/A	1
8-ACP-004	8	N/A	1
8-ACP-005	8	N/A	1
8-ACP-006	8	N/A	1
8-ACP-007	8	N/A	1
8-ACP-008	8	N/A	1
8-ACP-009	8	N/A	1
8-ACP-010	8	N/A	1
8-ACP-011	8	N/A	1
8-ACP-012	8	N/A	1
8-ACP-013	8	N/A	1
8-ACP-014	8	RESIDENTIAL	2
8-ACP-015	8	COLLECTOR	4
8-ACP-016	8	N/A	1
8-CMLCS-001	8	N/A	1
8-CMLCS-002	8	N/A	1
8-DIP-001	8	N/A	1
8-DIP-002	8	N/A	1
8-DIP-003	8	N/A	1
8-DIP-004	8	COLLECTOR	4
8-DIP-005	8	N/A	1
8-DIP-006	8	ARTERIAL	5
8-MLS-001	8	N/A	1
8-MLS-002	8	N/A	1
8-PVC-001	8	N/A	1

Appendix F – Segment Length

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
10-ACP-001	8	17.6	1
10-ACP-002	8	197.01	1
10-ACP-003	8	116.45	1
10-ACP-004	8	61.58	1
10-ACP-005	8	17.09	1
10-ACP-006	8	41.32	1
10-ACP-007	8	56.34	1
10-ACP-008	8	80.67	1
10-ACP-009	8	291.09	1
10-ACP-010	8	55.24	1
10-ACP-011	8	37.89	1
10-ACP-012	8	202.2	1
10-CIP-001	8	19.29	1
10-CMLCS-001	8	15.82	1
10-CMLCS-002	8	27.71	1
10-DIP-001	8	38.19	1
10-DIP-002	8	94.52	1
10-DIP-003	8	4.82	1
10-DIP-004	8	7.32	1
10-MLS-001	8	169.02	1
10-PVC-001	8	45.2	1
12-ACP-001	8	328.88	1
12-ACP-002	8	50.7	1
12-ACP-003	8	48.55	1
12-ACP-004	8	140.67	1
12-ACP-005	8	311.12	1
12-CMLCS-001	8	39.75	1
12-DIP-001	8	42.39	1
12-DIP-002	8	126.51	1
12-DIP-003	8	78.63	1
12-DIP-004	8	137.96	1
12-DIP-005	8	118.49	1
12-DIP-006	8	32.52	1
12-DIP-007	8	82.5	1
12-DIP-008	8	8.43	1
12-DIP-009	8	207.89	1
12-DIP-010	8	65.07	1
12-DIP-011	8	125.67	1
12-DIP-012	8	101.09	1
12-DIP-013	8	142.74	1
12-DIP-014	8	185.57	1
12-DIP-015	8	239.58	1
12-DIP-016	8	76.85	1
12-DIP-017	8	20.11	1
12-MLS-001	8	43.08	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
12-MLS-002	8	46.72	1
12-PVC-001	8	96.41	1
12-PVC-002	8	111.65	1
12-PVC-003	8	23.97	1
12-PVC-004	8	96.44	1
12-PVC-005	8	170.13	1
14-DIP-001	8	15.03	1
14-DIP-002	8	15.06	1
14-DIP-003	8	15.06	1
14-DIP-004	8	15.03	1
14-DIP-005	8	15.05	1
16-ACP-001	3	1175.51	3
16-ACP-002	3	578.22	3
16-ACP-003	3	190.87	1
16-ACP-004	3	371.92	1
16-ACP-005	3	371.11	1
16-ACP-006	3	478.47	1
16-ACP-007	3	257.99	1
16-CIP-001	3	120.76	1
16-CMLCS-001	8	22.68	1
16-CMLCS-002	8	15.73	1
16-CMLCS-003	8	15.63	1
16-CMLCS-004	8	15.7	1
16-CMLCS-005	8	22.63	1
16-CMLCS-006	8	22.57	1
16-CMLCS-007	8	22.63	1
16-CMLCS-008	3	529.44	3
16-CMLCS-009	8	22.62	1
16-CMLCS-010	8	22.62	1
16-CMLCS-011	8	17.32	1
16-CMLCS-012	8	122.14	1
16-CMLCS-013	8	534.9	3
16-CMLCS-014	8	63.11	1
16-CMLCS-015	8	15.59	1
16-CMLCS-016	3	16.59	1
16-CMLCS-017	3	17.1	1
16-CMLCS-018	3	6.35	1
16-CMLCS-019	3	3.81	1
16-CMLCS-020	3	11.41	1
16-CMLCS-021	3	935.31	3
16-CMLCS-022	3	49.7	1
16-CMLCS-023	3	130.28	1
16-CMLCS-024	3	613.05	3
16-CMLCS-025	3	265.94	1
16-CMLCS-026	3	41.29	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
16-CMLCS-027	3	5	1
16-DIP-001	3	17.56	1
16-DIP-002	3	656.32	3
16-DIP-003	3	1092.85	3
16-DIP-004	3	444.48	1
16-DIP-005	3	522.58	3
16-DIP-006	3	196.87	1
16-DIP-007	3	439.81	1
16-DIP-008	3	779.86	3
16-DIP-009	3	403.67	1
16-DIP-010	3	65.21	1
16-DIP-011	3	450.43	1
16-DIP-012	3	129.4	1
16-DIP-013	3	610.56	3
16-DIP-014	3	486.78	1
16-DIP-015	3	372.52	1
16-DIP-016	3	136.27	1
16-DIP-017	3	592.59	3
16-DIP-018	3	140.25	1
16-DIP-019	3	323.22	1
16-DIP-020	3	352.09	1
16-DIP-021	3	882.67	3
16-DIP-022	3	102.26	1
16-DIP-023	3	195.74	1
16-DIP-024	3	265.9	1
16-DIP-025	3	225.6	1
16-DIP-026	3	595.25	3
16-DIP-027	3	150.85	1
16-DIP-028	3	585.4	3
16-DIP-029	3	523.89	3
16-DIP-030	3	228.83	1
16-DIP-031	3	416.36	1
16-DIP-032	3	178.59	1
16-DIP-033	3	631.34	3
16-DIP-034	3	431.71	1
16-DIP-035	3	829.5	3
16-DIP-036	3	603.23	3
16-DIP-037	3	1230.31	3
16-DIP-038	3	251.52	1
16-DIP-039	3	1243.75	3
16-DIP-040	3	981.66	3
16-DIP-041	3	868.49	3
16-DIP-042	3	743.21	3
16-DIP-043	3	154.22	1
16-DIP-044	3	567.99	3

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
16-DIP-045	3	528.51	3
16-DIP-046	3	149.64	1
16-DIP-047	3	247.14	1
16-DIP-048	3	167.9	1
16-DIP-049	3	280.52	1
16-DIP-050	3	386.52	1
16-DIP-051	3	395.28	1
16-DIP-052	3	230.75	1
16-DIP-053	3	243.69	1
16-DIP-054	3	127.03	1
16-DIP-055	3	274.25	1
16-DIP-056	3	167.59	1
16-DIP-057	3	101.93	1
16-DIP-058	3	187.84	1
16-DIP-059	3	147.68	1
16-DIP-060	3	351.6	1
16-DIP-061	3	64.54	1
16-DIP-062	3	140.3	1
16-DIP-064	3	334.51	1
16-DIP-065	3	351.06	1
16-DIP-066	3	383.44	1
16-DIP-067	3	279.2	1
16-DIP-068	3	676.44	3
16-DIP-069	3	469.88	1
16-DIP-070	3	191.34	1
16-DIP-071	3	373.36	1
16-DIP-072	3	250.59	1
16-DIP-073	3	338.85	1
16-DIP-074	3	481.87	1
16-DIP-075	3	170.37	1
16-DIP-076	3	132.54	1
16-DIP-077	3	278.46	1
16-DIP-078	3	624.17	3
16-DIP-079	3	208.2	1
16-DIP-080	3	243.43	1
16-DIP-081	3	101.43	1
16-DIP-082	3	443.9	1
16-DIP-083	3	567.39	3
16-DIP-084	3	424.57	1
16-DIP-085	3	462.23	1
16-DIP-086	3	666.48	3
16-DIP-087	3	162.32	1
16-DIP-088	3	95.56	1
16-DIP-089	3	152.89	1
16-DIP-090	3	1191.6	3

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
16-DIP-091	3	959.55	3
16-DIP-092	3	479.95	1
16-DIP-093	3	569.37	3
16-DIP-094	3	621.35	3
16-DIP-095	3	665.19	3
16-DIP-096	3	593.9	3
16-DIP-097	3	219.46	1
16-DIP-098	3	560.6	3
16-DIP-099	3	618.87	3
16-DIP-100	3	333.92	1
16-DIP-101	3	749.28	3
16-DIP-103	3	116.02	1
16-DIP-104	3	627.81	3
16-DIP-105	3	684.87	3
16-DIP-106	3	932.83	3
16-DIP-107	3	1090.47	3
16-DIP-108	3	440.02	1
16-DIP-109	3	303.79	1
16-DIP-110	3	154.2	1
16-DIP-111	3	821.69	3
16-DIP-112	3	519.84	3
16-DIP-113	3	712.48	3
16-DIP-114	3	665.84	3
16-DIP-115	3	94.25	1
16-DIP-116	3	583.18	3
16-DIP-117	3	558.63	3
16-DIP-118	3	230.62	1
16-DIP-119	3	272.48	1
16-DIP-120	3	175.97	1
16-DIP-121	3	379.19	1
16-DIP-122	3	186.9	1
16-DIP-123	3	485.3	1
16-DIP-124	3	482.67	1
16-DIP-125	3	84.02	1
16-DIP-126	3	382.91	1
16-DIP-127	3	22.62	1
16-DIP-128	8	23.6	1
16-DIP-129	3	8.78	1
16-DIP-130	3	35.92	1
16-DIP-131	3	333.16	1
16-DIP-132	3	798.16	3
16-DIP-133	3	453.88	1
16-DIP-134	3	502.49	3
16-DIP-135	3	1088.88	3
16-DIP-136	3	491.73	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
16-DIP-137	3	506.98	3
16-DIP-138	3	127.23	1
16-DIP-139	3	417.29	1
16-DIP-140	3	324.96	1
16-DIP-141	3	523.74	3
16-DIP-142	3	513.54	3
16-DIP-143	3	99.19	1
16-DIP-144	3	286.43	1
16-DIP-145	3	229.14	1
16-DIP-146	3	697.92	3
16-DIP-147	3	800.49	3
16-DIP-148	3	268.91	1
16-DIP-149	3	319.44	1
16-DIP-150	3	280.51	1
16-DIP-151	3	330.41	1
16-DIP-152	3	256.44	1
16-DIP-153	8	30.03	1
16-DIP-154	3	334.71	1
16-DIP-155	3	330	1
16-DIP-156	3	315.46	1
16-DIP-157	3	952.79	3
16-DIP-158	3	341.96	1
16-DIP-159	3	322.89	1
16-DIP-160	3	289.73	1
16-DIP-161	3	299.95	1
16-DIP-162	3	312.08	1
16-DIP-163	3	202.84	1
16-DIP-164	3	368.03	1
16-DIP-165	3	63.84	1
16-DIP-166	3	40.65	1
16-DIP-167	3	85.04	1
16-DIP-168	3	20.42	1
16-MLS-001	3	249.6	1
16-MLS-002	3	496.36	1
16-MLS-003	3	530.56	3
16-MLS-004	3	100.85	1
16-MLS-005	3	1178.99	3
16-MLS-006	3	573.94	3
16-MLS-007	3	399.37	1
16-MLS-008	3	932.95	3
16-MLS-009	3	1366.58	3
16-PVC-001	3	76.25	1
16-PVC-002	8	273.2	1
16-PVC-003	3	337.33	1
16-PVC-004	3	300.47	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
16-PVC-005	3	249.96	1
16-PVC-006	8	729.08	3
16-PVC-007	3	475.43	1
16-PVC-008	8	347.02	1
16-PVC-009	8	228.68	1
16-PVC-010	3	23.35	1
16-PVC-011	3	57.44	1
16-PVC-012	3	9.14	1
16-PVC-013	3	48.24	1
16-PVC-014	3	97.36	1
18-CMLCS-001	8	228.46	1
18-CMLCS-002	3	11.97	1
18-CMLCS-003	3	4210.65	5
18-CMLCS-004	3	1195.15	3
18-CMLCS-005	8	15.12	1
18-CMLCS-006	8	3.34	1
18-CMLCS-007	3	11.32	1
18-CMLCS-008	8	12.24	1
18-DIP-001	3	32.55	1
18-DIP-002	3	69.92	1
18-MLS-001	3	669.81	3
18-MLS-002	3	747.11	3
18-MLS-003	3	832.85	3
18-MLS-004	3	843.97	3
18-MLS-005	3	168.48	1
18-MLS-006	3	947.23	3
18-MLS-007	3	504.81	3
18-MLS-008	3	689.43	3
20-DIP-001	8	56.4	1
20-DIP-002	3	526.22	3
20-DIP-003	3	518.74	3
20-DIP-004	3	466.07	1
20-DIP-005	3	415.47	1
20-DIP-006	3	703.08	3
20-DIP-007	3	60.26	1
20-DIP-008	3	74.18	1
20-DIP-009	3	308.27	1
20-MLS-001	3	661.55	3
24-CMLCS-001	8	398.96	1
24-CMLCS-002	8	929.6	3
24-CMLCS-003	3	300.18	1
24-CMLCS-004	3	2506.38	5
24-CMLCS-005	3	3734.21	5
24-CMLCS-006	3	3967.68	5
24-CMLCS-007	3	704.52	3

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
24-CMLCS-008	8	21.27	1
24-CMLCS-009	8	32.36	1
24-CMLCS-010	3	1272.22	3
24-CMLCS-011	3	3398.89	5
24-CMLCS-012	3	360.54	1
24-CMLCS-013	3	1593.15	3
24-CMLCS-014	3	135.03	1
24-CMLCS-015	3	374.4	1
24-CMLCS-016	3	12.64	1
24-CMLCS-017	3	995.06	3
24-CMLCS-018	3	2981.42	5
24-CMLCS-019	3	2732.08	5
24-CMLCS-020	3	1635.25	3
24-CMLCS-021	3	2339.89	5
24-CMLCS-022	3	3452.17	5
24-CMLCS-023	3	2925.45	5
24-CMLCS-024	3	2349.52	5
24-CMLCS-025	3	2562.5	5
24-CMLCS-026	3	1307.94	3
24-CMLCS-027	3	1142.59	3
24-CMLCS-028	3	202.55	1
24-CMLCS-029	3	2411.51	5
24-CMLCS-030	3	4206.83	5
24-CMLCS-031	3	976.2	3
24-CMLCS-032	3	824.3	3
24-CMLCS-033	3	5350.67	5
24-CMLCS-034	3	2846.56	5
24-CMLCS-035	3	181.32	1
24-CMLCS-036	3	2786.72	5
24-CMLCS-037	3	2402.98	5
24-CMLCS-038	3	2606.71	5
24-CMLCS-039	3	302.07	1
24-CMLCS-040	3	2235.64	5
24-CMLCS-041	3	352.67	1
24-CMLCS-042	3	1285.2	3
24-CMLCS-043	3	2933.65	5
24-CMLCS-044	3	2921.84	5
24-CMLCS-045	8	1039.97	3
24-CMLCS-046	3	894.36	3
24-CMLCS-047	8	25.73	1
24-CMLCS-048	3	8.55	1
24-CMLCS-049	8	95.58	1
24-CMLCS-050	8	453.91	1
24-CMLCS-051	8	154.88	1
24-CMLCS-052	8	7.37	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
24-CMLCS-053	8	50.42	1
24-CMLCS-054	8	127.77	1
24-CMLCS-055	8	49.69	1
24-DIP-001	3	32.54	1
24-DIP-002	3	32.53	1
24-DIP-003	3	26.94	1
24-DIP-004	3	59.56	1
24-DIP-005	3	64.43	1
24-DIP-006	3	35.94	1
24-DIP-007	3	35.93	1
24-DIP-008	3	107.21	1
24-DIP-009	3	518.56	3
24-DIP-010	3	1751.61	3
24-DIP-011	3	272.49	1
24-DIP-012	3	312.06	1
24-DIP-013	3	244.13	1
24-DIP-014	3	611.84	3
24-DIP-015	3	913.13	3
24-DIP-016	3	508.3	3
24-DIP-017	3	518.12	3
24-DIP-018	3	503.03	3
24-DIP-019	3	484.21	1
24-DIP-020	3	80.8	1
24-DIP-021	3	394.06	1
24-DIP-022	3	530.21	3
24-DIP-023	3	350.98	1
24-DIP-024	3	251.98	1
24-DIP-025	3	811.58	3
24-DIP-026	3	910.88	3
24-DIP-027	3	337.55	1
24-DIP-028	3	1382.66	3
24-DIP-029	3	128.64	1
24-DIP-030	3	354.39	1
24-DIP-031	3	223.76	1
24-MLS-001	3	726.97	3
24-MLS-002	3	1221.03	3
24-MLS-003	3	485.42	1
30-CMLCS-001	8	172.94	1
30-CMLCS-002	3	2762.51	5
30-CMLCS-003	3	119.84	1
30-CMLCS-004	3	1098.56	3
30-CMLCS-005	3	105.96	1
30-CMLCS-006	3	4027.93	5
30-CMLCS-007	3	2610.48	5
30-CMLCS-008	3	2723.71	5

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
30-CMLCS-009	3	2886.12	5
30-CMLCS-010	3	1636.59	3
30-CMLCS-011	3	2132.73	5
30-CMLCS-012	3	2094.2	5
30-CMLCS-013	3	123.41	1
30-CMLCS-014	3	2773.58	5
30-CMLCS-015	3	2739.54	5
30-CMLCS-016	3	2118.09	5
30-CMLCS-017	3	274.37	1
30-CMLCS-18	3	11.97	1
30-DIP-001	3	32.52	1
30-DIP-002	3	4.25	1
30-DIP-003	3	7.41	1
30-DIP-004	3	6.19	1
36-CMLCS-001	8	89.78	1
36-CMLCS-002	8	61.09	1
36-CMLCS-003	3	268.51	1
36-CMLCS-004	3	333.61	1
36-CMLCS-005	3	888.51	3
36-CMLCS-006	3	982.44	3
36-CMLCS-007	3	1678.11	3
36-CMLCS-008	3	2235.02	5
36-CMLCS-009	3	753.51	3
36-CMLCS-010	3	567.44	3
36-CMLCS-011	3	1048.21	3
36-CMLCS-012	3	1469.21	3
36-CMLCS-013	3	744.73	3
36-CMLCS-014	3	1036.72	3
36-CMLCS-015	3	1342.11	3
36-CMLCS-016	3	1629.13	3
36-CMLCS-017	3	998.49	3
36-CMLCS-018	3	480.38	1
36-CMLCS-019	3	824.41	3
36-CMLCS-020	3	1199.38	3
36-CMLCS-021	3	170.44	1
36-CMLCS-022	3	168.92	1
36-CMLCS-023	8	6.84	1
36-CMLCS-024	8	69.07	1
36-CMLCS-025	8	235.59	1
36-CMLCS-026	8	220.59	1
48-CCP-001	3	5069.21	5
48-CCP-002	3	5681.46	5
48-CCP-003	3	8726.28	5
48-CCP-004	3	3485.45	5
48-CCP-005	3	403.27	1

Segment Length Score

T-Main Segment	Sub Type	Length (FT)	Score
48-CCP-006	3	798.37	3
48-CCP-007	3	5706.74	5
48-CCP-008	3	80.66	1
48-CCP-009	8	212.4	1
48-CCP-010	3	4791.67	5
48-CCP-011	3	5146.46	5
6-ACP-001	8	255.64	1
6-ACP-002	8	143.92	1
6-DIP-001	8	10.32	1
8-ACP-001	8	35.91	1
8-ACP-002	8	264.2	1
8-ACP-003	8	281.96	1
8-ACP-004	8	22.3	1
8-ACP-005	8	35.32	1
8-ACP-006	8	47.37	1
8-ACP-007	8	41.77	1
8-ACP-008	8	83.15	1
8-ACP-009	8	45.6	1
8-ACP-010	8	20.7	1
8-ACP-011	8	38.98	1
8-ACP-012	8	127.63	1
8-ACP-013	8	63.27	1
8-ACP-014	8	78.83	1
8-ACP-015	8	121.57	1
8-ACP-016	8	21.12	1
8-CMLCS-001	8	10.91	1
8-CMLCS-002	8	53.48	1
8-DIP-001	8	103.46	1
8-DIP-002	8	238.76	1
8-DIP-003	8	15.17	1
8-DIP-004	8	460.86	1
8-DIP-005	8	69.01	1
8-DIP-006	8	592.14	3
8-MLS-001	8	57.53	1
8-MLS-002	8	44.79	1
8-PVC-001	8	137.08	1

Appendix G – Crossings

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
10-ACP-001	8	N/A	1
10-ACP-002	8	N/A	1
10-ACP-003	8	N/A	1
10-ACP-004	8	N/A	1
10-ACP-005	8	N/A	1
10-ACP-006	8	N/A	1
10-ACP-007	8	N/A	1
10-ACP-008	8	N/A	1
10-ACP-009	8	N/A	1
10-ACP-010	8	N/A	1
10-ACP-011	8	N/A	1
10-ACP-012	8	N/A	1
10-CIP-001	8	N/A	1
10-CMLCS-001	8	N/A	1
10-CMLCS-002	8	N/A	1
10-DIP-001	8	N/A	1
10-DIP-002	8	N/A	1
10-DIP-003	8	N/A	1
10-DIP-004	8	N/A	1
10-MLS-001	8	N/A	1
10-PVC-001	8	N/A	1
12-ACP-001	8	N/A	1
12-ACP-002	8	N/A	1
12-ACP-003	8	N/A	1
12-ACP-004	8	N/A	1
12-ACP-005	8	N/A	1
12-CMLCS-001	8	N/A	1
12-DIP-001	8	N/A	1
12-DIP-002	8	N/A	1
12-DIP-003	8	N/A	1
12-DIP-004	8	N/A	1
12-DIP-005	8	N/A	1
12-DIP-006	8	N/A	1
12-DIP-007	8	N/A	1
12-DIP-008	8	N/A	1
12-DIP-009	8	N/A	1
12-DIP-010	8	N/A	1
12-DIP-011	8	N/A	1
12-DIP-012	8	N/A	1
12-DIP-013	8	N/A	1
12-DIP-014	8	N/A	1
12-DIP-015	8	N/A	1
12-DIP-016	8	N/A	1
12-DIP-017	8	N/A	1
12-MLS-001	8	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
12-MLS-002	8	N/A	1
12-PVC-001	8	N/A	1
12-PVC-002	8	N/A	1
12-PVC-003	8	N/A	1
12-PVC-004	8	N/A	1
12-PVC-005	8	N/A	1
14-DIP-001	8	N/A	1
14-DIP-002	8	N/A	1
14-DIP-003	8	N/A	1
14-DIP-004	8	N/A	1
14-DIP-005	8	N/A	1
16-ACP-001	3	N/A	1
16-ACP-002	3	N/A	1
16-ACP-003	3	N/A	1
16-ACP-004	3	N/A	1
16-ACP-005	3	N/A	1
16-ACP-006	3	N/A	1
16-ACP-007	3	N/A	1
16-CIP-001	3	N/A	1
16-CMLCS-001	8	N/A	1
16-CMLCS-002	8	N/A	1
16-CMLCS-003	8	N/A	1
16-CMLCS-004	8	N/A	1
16-CMLCS-005	8	N/A	1
16-CMLCS-006	8	N/A	1
16-CMLCS-007	8	N/A	1
16-CMLCS-008	3	N/A	1
16-CMLCS-009	8	N/A	1
16-CMLCS-010	8	N/A	1
16-CMLCS-011	8	N/A	1
16-CMLCS-012	8	N/A	1
16-CMLCS-013	8	N/A	1
16-CMLCS-014	8	N/A	1
16-CMLCS-015	8	N/A	1
16-CMLCS-016	3	N/A	1
16-CMLCS-017	3	N/A	1
16-CMLCS-018	3	N/A	1
16-CMLCS-019	3	N/A	1
16-CMLCS-020	3	N/A	1
16-CMLCS-021	3	N/A	1
16-CMLCS-022	3	N/A	1
16-CMLCS-023	3	N/A	1
16-CMLCS-024	3	N/A	1
16-CMLCS-025	3	N/A	1
16-CMLCS-026	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
16-CMLCS-027	3	N/A	1
16-DIP-001	3	N/A	1
16-DIP-002	3	N/A	1
16-DIP-003	3	N/A	1
16-DIP-004	3	N/A	1
16-DIP-005	3	N/A	1
16-DIP-006	3	N/A	1
16-DIP-007	3	N/A	1
16-DIP-008	3	N/A	1
16-DIP-009	3	N/A	1
16-DIP-010	3	N/A	1
16-DIP-011	3	N/A	1
16-DIP-012	3	YES-CC	5
16-DIP-013	3	N/A	1
16-DIP-014	3	N/A	1
16-DIP-015	3	N/A	1
16-DIP-016	3	N/A	1
16-DIP-017	3	N/A	1
16-DIP-018	3	N/A	1
16-DIP-019	3	N/A	1
16-DIP-020	3	N/A	1
16-DIP-021	3	N/A	1
16-DIP-022	3	N/A	1
16-DIP-023	3	N/A	1
16-DIP-024	3	N/A	1
16-DIP-025	3	YES-CC	5
16-DIP-026	3	N/A	1
16-DIP-027	3	N/A	1
16-DIP-028	3	N/A	1
16-DIP-029	3	N/A	1
16-DIP-030	3	N/A	1
16-DIP-031	3	N/A	1
16-DIP-032	3	N/A	1
16-DIP-033	3	N/A	1
16-DIP-034	3	N/A	1
16-DIP-035	3	YES-CC	5
16-DIP-036	3	YES-CC	5
16-DIP-037	3	N/A	1
16-DIP-038	3	N/A	1
16-DIP-039	3	N/A	1
16-DIP-040	3	N/A	1
16-DIP-041	3	N/A	1
16-DIP-042	3	N/A	1
16-DIP-043	3	N/A	1
16-DIP-044	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
16-DIP-045	3	N/A	1
16-DIP-046	3	N/A	1
16-DIP-047	3	N/A	1
16-DIP-048	3	N/A	1
16-DIP-049	3	N/A	1
16-DIP-050	3	N/A	1
16-DIP-051	3	N/A	1
16-DIP-052	3	N/A	1
16-DIP-053	3	N/A	1
16-DIP-054	3	N/A	1
16-DIP-055	3	N/A	1
16-DIP-056	3	N/A	1
16-DIP-057	3	N/A	1
16-DIP-058	3	N/A	1
16-DIP-059	3	N/A	1
16-DIP-060	3	N/A	1
16-DIP-061	3	N/A	1
16-DIP-062	3	N/A	1
16-DIP-064	3	N/A	1
16-DIP-065	3	N/A	1
16-DIP-066	3	N/A	1
16-DIP-067	3	N/A	1
16-DIP-068	3	N/A	1
16-DIP-069	3	N/A	1
16-DIP-070	3	N/A	1
16-DIP-071	3	N/A	1
16-DIP-072	3	N/A	1
16-DIP-073	3	N/A	1
16-DIP-074	3	N/A	1
16-DIP-075	3	YES-CC	5
16-DIP-076	3	N/A	1
16-DIP-077	3	N/A	1
16-DIP-078	3	N/A	1
16-DIP-079	3	N/A	1
16-DIP-080	3	YES-CC	5
16-DIP-081	3	N/A	1
16-DIP-082	3	N/A	1
16-DIP-083	3	YES-CC	5
16-DIP-084	3	N/A	1
16-DIP-085	3	N/A	1
16-DIP-086	3	N/A	1
16-DIP-087	3	N/A	1
16-DIP-088	3	YES-CC	5
16-DIP-089	3	N/A	1
16-DIP-090	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
16-DIP-091	3	N/A	1
16-DIP-092	3	N/A	1
16-DIP-093	3	N/A	1
16-DIP-094	3	N/A	1
16-DIP-095	3	N/A	1
16-DIP-096	3	N/A	1
16-DIP-097	3	YES-RR	5
16-DIP-098	3	N/A	1
16-DIP-099	3	N/A	1
16-DIP-100	3	N/A	1
16-DIP-101	3	N/A	1
16-DIP-103	3	N/A	1
16-DIP-104	3	N/A	1
16-DIP-105	3	N/A	1
16-DIP-106	3	N/A	1
16-DIP-107	3	N/A	1
16-DIP-108	3	N/A	1
16-DIP-109	3	N/A	1
16-DIP-110	3	N/A	1
16-DIP-111	3	N/A	1
16-DIP-112	3	N/A	1
16-DIP-113	3	N/A	1
16-DIP-114	3	YES-CC	5
16-DIP-115	3	N/A	1
16-DIP-116	3	N/A	1
16-DIP-117	3	N/A	1
16-DIP-118	3	N/A	1
16-DIP-119	3	N/A	1
16-DIP-120	3	N/A	1
16-DIP-121	3	N/A	1
16-DIP-122	3	N/A	1
16-DIP-123	3	N/A	1
16-DIP-124	3	N/A	1
16-DIP-125	3	N/A	1
16-DIP-126	3	N/A	1
16-DIP-127	3	N/A	1
16-DIP-128	8	N/A	1
16-DIP-129	3	N/A	1
16-DIP-130	3	N/A	1
16-DIP-131	3	YES-CC	5
16-DIP-132	3	N/A	1
16-DIP-133	3	N/A	1
16-DIP-134	3	N/A	1
16-DIP-135	3	N/A	1
16-DIP-136	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
16-DIP-137	3	N/A	1
16-DIP-138	3	N/A	1
16-DIP-139	3	N/A	1
16-DIP-140	3	N/A	1
16-DIP-141	3	N/A	1
16-DIP-142	3	N/A	1
16-DIP-143	3	N/A	1
16-DIP-144	3	N/A	1
16-DIP-145	3	N/A	1
16-DIP-146	3	N/A	1
16-DIP-147	3	N/A	1
16-DIP-148	3	N/A	1
16-DIP-149	3	N/A	1
16-DIP-150	3	N/A	1
16-DIP-151	3	N/A	1
16-DIP-152	3	N/A	1
16-DIP-153	8	N/A	1
16-DIP-154	3	N/A	1
16-DIP-155	3	N/A	1
16-DIP-156	3	N/A	1
16-DIP-157	3	N/A	1
16-DIP-158	3	N/A	1
16-DIP-159	3	N/A	1
16-DIP-160	3	N/A	1
16-DIP-161	3	N/A	1
16-DIP-162	3	N/A	1
16-DIP-163	3	N/A	1
16-DIP-164	3	N/A	1
16-DIP-165	3	N/A	1
16-DIP-166	3	N/A	1
16-DIP-167	3	N/A	1
16-DIP-168	3	N/A	1
16-MLS-001	3	N/A	1
16-MLS-002	3	N/A	1
16-MLS-003	3	N/A	1
16-MLS-004	3	N/A	1
16-MLS-005	3	N/A	1
16-MLS-006	3	N/A	1
16-MLS-007	3	N/A	1
16-MLS-008	3	N/A	1
16-MLS-009	3	N/A	1
16-PVC-001	3	N/A	1
16-PVC-002	8	N/A	1
16-PVC-003	3	N/A	1
16-PVC-004	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
16-PVC-005	3	N/A	1
16-PVC-006	8	N/A	1
16-PVC-007	3	N/A	1
16-PVC-008	8	N/A	1
16-PVC-009	8	N/A	1
16-PVC-010	3	N/A	1
16-PVC-011	3	N/A	1
16-PVC-012	3	N/A	1
16-PVC-013	3	N/A	1
16-PVC-014	3	N/A	1
18-CMLCS-001	8	N/A	1
18-CMLCS-002	3	N/A	1
18-CMLCS-003	3	N/A	1
18-CMLCS-004	3	N/A	1
18-CMLCS-005	8	N/A	1
18-CMLCS-006	8	N/A	1
18-CMLCS-007	3	N/A	1
18-CMLCS-008	8	N/A	1
18-DIP-001	3	N/A	1
18-DIP-002	3	N/A	1
18-MLS-001	3	N/A	1
18-MLS-002	3	N/A	1
18-MLS-003	3	N/A	1
18-MLS-004	3	N/A	1
18-MLS-005	3	N/A	1
18-MLS-006	3	N/A	1
18-MLS-007	3	N/A	1
18-MLS-008	3	N/A	1
20-DIP-001	8	N/A	1
20-DIP-002	3	N/A	1
20-DIP-003	3	N/A	1
20-DIP-004	3	N/A	1
20-DIP-005	3	N/A	1
20-DIP-006	3	N/A	1
20-DIP-007	3	N/A	1
20-DIP-008	3	N/A	1
20-DIP-009	3	YES-RR	5
20-MLS-001	3	N/A	1
24-CMLCS-001	8	N/A	1
24-CMLCS-002	8	N/A	1
24-CMLCS-003	3	N/A	1
24-CMLCS-004	3	N/A	1
24-CMLCS-005	3	N/A	1
24-CMLCS-006	3	YES-CC	5
24-CMLCS-007	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
24-CMLCS-008	8	N/A	1
24-CMLCS-009	8	N/A	1
24-CMLCS-010	3	YES-CC	5
24-CMLCS-011	3	YES-CC	5
24-CMLCS-012	3	N/A	1
24-CMLCS-013	3	N/A	1
24-CMLCS-014	3	N/A	1
24-CMLCS-015	3	N/A	1
24-CMLCS-016	3	N/A	1
24-CMLCS-017	3	N/A	1
24-CMLCS-018	3	N/A	1
24-CMLCS-019	3	N/A	1
24-CMLCS-020	3	N/A	1
24-CMLCS-021	3	N/A	1
24-CMLCS-022	3	N/A	1
24-CMLCS-023	3	YES-CC	5
24-CMLCS-024	3	N/A	1
24-CMLCS-025	3	N/A	1
24-CMLCS-026	3	N/A	1
24-CMLCS-027	3	YES-CC	5
24-CMLCS-028	3	N/A	1
24-CMLCS-029	3	N/A	1
24-CMLCS-030	3	YES-CC	5
24-CMLCS-031	3	YES-CC	5
24-CMLCS-032	3	N/A	1
24-CMLCS-033	3	YES-CC	5
24-CMLCS-034	3	N/A	1
24-CMLCS-035	3	N/A	1
24-CMLCS-036	3	N/A	1
24-CMLCS-037	3	YES-CC	5
24-CMLCS-038	3	N/A	1
24-CMLCS-039	3	N/A	1
24-CMLCS-040	3	N/A	1
24-CMLCS-041	3	N/A	1
24-CMLCS-042	3	N/A	1
24-CMLCS-043	3	N/A	1
24-CMLCS-044	3	N/A	1
24-CMLCS-045	8	N/A	1
24-CMLCS-046	3	N/A	1
24-CMLCS-047	8	N/A	1
24-CMLCS-048	3	N/A	1
24-CMLCS-049	8	N/A	1
24-CMLCS-050	8	N/A	1
24-CMLCS-051	8	N/A	1
24-CMLCS-052	8	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
24-CMLCS-053	8	N/A	1
24-CMLCS-054	8	YES-CC	5
24-CMLCS-055	8	YES-CC	5
24-DIP-001	3	N/A	1
24-DIP-002	3	N/A	1
24-DIP-003	3	N/A	1
24-DIP-004	3	N/A	1
24-DIP-005	3	N/A	1
24-DIP-006	3	N/A	1
24-DIP-007	3	N/A	1
24-DIP-008	3	N/A	1
24-DIP-009	3	N/A	1
24-DIP-010	3	N/A	1
24-DIP-011	3	N/A	1
24-DIP-012	3	YES-CC	5
24-DIP-013	3	N/A	1
24-DIP-014	3	N/A	1
24-DIP-015	3	YES-HW	5
24-DIP-016	3	N/A	1
24-DIP-017	3	N/A	1
24-DIP-018	3	N/A	1
24-DIP-019	3	N/A	1
24-DIP-020	3	N/A	1
24-DIP-021	3	N/A	1
24-DIP-022	3	N/A	1
24-DIP-023	3	N/A	1
24-DIP-024	3	YES-CC	5
24-DIP-025	3	N/A	1
24-DIP-026	3	N/A	1
24-DIP-027	3	N/A	1
24-DIP-028	3	N/A	1
24-DIP-029	3	N/A	1
24-DIP-030	3	N/A	1
24-DIP-031	3	N/A	1
24-MLS-001	3	N/A	1
24-MLS-002	3	N/A	1
24-MLS-003	3	N/A	1
30-CMLCS-001	8	N/A	1
30-CMLCS-002	3	YES-CC	5
30-CMLCS-003	3	N/A	1
30-CMLCS-004	3	N/A	1
30-CMLCS-005	3	N/A	1
30-CMLCS-006	3	YES-CC	5
30-CMLCS-007	3	N/A	1
30-CMLCS-008	3	YES-CC	5

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
30-CMLCS-009	3	N/A	1
30-CMLCS-010	3	N/A	1
30-CMLCS-011	3	N/A	1
30-CMLCS-012	3	N/A	1
30-CMLCS-013	3	N/A	1
30-CMLCS-014	3	N/A	1
30-CMLCS-015	3	N/A	1
30-CMLCS-016	3	N/A	1
30-CMLCS-017	3	YES-CC	5
30-CMLCS-18	3	N/A	1
30-DIP-001	3	N/A	1
30-DIP-002	3	N/A	1
30-DIP-003	3	N/A	1
30-DIP-004	3	N/A	1
36-CMLCS-001	8	N/A	1
36-CMLCS-002	8	N/A	1
36-CMLCS-003	3	N/A	1
36-CMLCS-004	3	YES-CC	5
36-CMLCS-005	3	N/A	1
36-CMLCS-006	3	N/A	1
36-CMLCS-007	3	N/A	1
36-CMLCS-008	3	N/A	1
36-CMLCS-009	3	N/A	1
36-CMLCS-010	3	N/A	1
36-CMLCS-011	3	N/A	1
36-CMLCS-012	3	N/A	1
36-CMLCS-013	3	N/A	1
36-CMLCS-014	3	N/A	1
36-CMLCS-015	3	N/A	1
36-CMLCS-016	3	N/A	1
36-CMLCS-017	3	N/A	1
36-CMLCS-018	3	YES-RR	5
36-CMLCS-019	3	N/A	1
36-CMLCS-020	3	N/A	1
36-CMLCS-021	3	N/A	1
36-CMLCS-022	3	N/A	1
36-CMLCS-023	8	N/A	1
36-CMLCS-024	8	N/A	1
36-CMLCS-025	8	N/A	1
36-CMLCS-026	8	N/A	1
48-CCP-001	3	YES-CC	5
48-CCP-002	3	N/A	1
48-CCP-003	3	YES-CC	5
48-CCP-004	3	N/A	1
48-CCP-005	3	N/A	1

Crossings Score

T-Main Segment	Sub Type	Crossings	Score
48-CCP-006	3	YES-HW	5
48-CCP-007	3	YES-RR	5
48-CCP-008	3	N/A	1
48-CCP-009	8	N/A	1
48-CCP-010	3	N/A	1
48-CCP-011	3	N/A	1
6-ACP-001	8	N/A	1
6-ACP-002	8	N/A	1
6-DIP-001	8	N/A	1
8-ACP-001	8	N/A	1
8-ACP-002	8	N/A	1
8-ACP-003	8	N/A	1
8-ACP-004	8	N/A	1
8-ACP-005	8	N/A	1
8-ACP-006	8	N/A	1
8-ACP-007	8	N/A	1
8-ACP-008	8	N/A	1
8-ACP-009	8	N/A	1
8-ACP-010	8	N/A	1
8-ACP-011	8	N/A	1
8-ACP-012	8	N/A	1
8-ACP-013	8	N/A	1
8-ACP-014	8	N/A	1
8-ACP-015	8	N/A	1
8-ACP-016	8	N/A	1
8-CMLCS-001	8	N/A	1
8-CMLCS-002	8	N/A	1
8-DIP-001	8	N/A	1
8-DIP-002	8	N/A	1
8-DIP-003	8	N/A	1
8-DIP-004	8	N/A	1
8-DIP-005	8	N/A	1
8-DIP-006	8	YES-RR	5
8-MLS-001	8	N/A	1
8-MLS-002	8	N/A	1
8-PVC-001	8	N/A	1

Appendix H – Source

Source Score

T-Main Segment	Sub Type	Source	Score
10-ACP-001	8	ARSW	5
10-ACP-002	8	ARSW	5
10-ACP-003	8	ARSW	5
10-ACP-004	8	ARSW	5
10-ACP-005	8	ARSW	5
10-ACP-006	8	ARSW	5
10-ACP-007	8	ARSW	5
10-ACP-008	8	ARSW	5
10-ACP-009	8	ARSW	5
10-ACP-010	8	ARSW	5
10-ACP-011	8	ARSW	5
10-ACP-012	8	ARSW	5
10-CIP-001	8	ARSW	5
10-CMLCS-001	8	ARSW	5
10-CMLCS-002	8	ARSW	5
10-DIP-001	8	ARSW	5
10-DIP-002	8	ARSW	5
10-DIP-003	8	ARSW	5
10-DIP-004	8	ARSW	5
10-MLS-001	8	ARSW	5
10-PVC-001	8	ARSW	5
12-ACP-001	8	ARSW	5
12-ACP-002	8	ARSW	5
12-ACP-003	8	ARSW	5
12-ACP-004	8	ARSW	5
12-ACP-005	8	ARSW	5
12-CMLCS-001	8	ARSW	5
12-DIP-001	8	ARSW	5
12-DIP-002	8	ARSW	5
12-DIP-003	8	ARSW	5
12-DIP-004	8	ARSW	5
12-DIP-005	8	ARSW	5
12-DIP-006	8	ARSW	5
12-DIP-007	8	ARSW	5
12-DIP-008	8	ARSW	5
12-DIP-009	8	ARSW	5
12-DIP-010	8	ARSW	5
12-DIP-011	8	ARSW	5
12-DIP-012	8	ARSW	5
12-DIP-013	8	ARSW	5
12-DIP-014	8	ARSW	5
12-DIP-015	8	ARSW	5
12-DIP-016	8	ARSW	5
12-DIP-017	8	ARSW	5
12-MLS-001	8	ARSW	5

Source Score

T-Main Segment	Sub Type	Source	Score
12-MLS-002	8	ARSW	5
12-PVC-001	8	ARSW	5
12-PVC-002	8	ARSW	5
12-PVC-003	8	ARSW	5
12-PVC-004	8	ARSW	5
12-PVC-005	8	ARSW	5
14-DIP-001	8	ARSW	5
14-DIP-002	8	ARSW	5
14-DIP-003	8	ARSW	5
14-DIP-004	8	ARSW	5
14-DIP-005	8	ARSW	5
16-ACP-001	3	N/A	1
16-ACP-002	3	N/A	1
16-ACP-003	3	N/A	1
16-ACP-004	3	N/A	1
16-ACP-005	3	N/A	1
16-ACP-006	3	N/A	1
16-ACP-007	3	N/A	1
16-CIP-001	3	N/A	1
16-CMLCS-001	8	ARSW	5
16-CMLCS-002	8	ARSW	5
16-CMLCS-003	8	ARSW	5
16-CMLCS-004	8	ARSW	5
16-CMLCS-005	8	ARSW	5
16-CMLCS-006	8	ARSW	5
16-CMLCS-007	8	ARSW	5
16-CMLCS-008	3	N/A	1
16-CMLCS-009	8	ARSW	5
16-CMLCS-010	8	ARSW	5
16-CMLCS-011	8	ARSW	5
16-CMLCS-012	8	ARSW	5
16-CMLCS-013	8	ARSW	5
16-CMLCS-014	8	ARSW	5
16-CMLCS-015	8	ARSW	5
16-CMLCS-016	3	N/A	1
16-CMLCS-017	3	N/A	1
16-CMLCS-018	3	N/A	1
16-CMLCS-019	3	N/A	1
16-CMLCS-020	3	N/A	1
16-CMLCS-021	3	N/A	1
16-CMLCS-022	3	N/A	1
16-CMLCS-023	3	N/A	1
16-CMLCS-024	3	N/A	1
16-CMLCS-025	3	N/A	1
16-CMLCS-026	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
16-CMLCS-027	3	N/A	1
16-DIP-001	3	N/A	1
16-DIP-002	3	N/A	1
16-DIP-003	3	N/A	1
16-DIP-004	3	N/A	1
16-DIP-005	3	N/A	1
16-DIP-006	3	N/A	1
16-DIP-007	3	N/A	1
16-DIP-008	3	N/A	1
16-DIP-009	3	N/A	1
16-DIP-010	3	N/A	1
16-DIP-011	3	N/A	1
16-DIP-012	3	N/A	1
16-DIP-013	3	N/A	1
16-DIP-014	3	N/A	1
16-DIP-015	3	N/A	1
16-DIP-016	3	N/A	1
16-DIP-017	3	N/A	1
16-DIP-018	3	N/A	1
16-DIP-019	3	N/A	1
16-DIP-020	3	N/A	1
16-DIP-021	3	ARSW	5
16-DIP-022	3	N/A	1
16-DIP-023	3	N/A	1
16-DIP-024	3	N/A	1
16-DIP-025	3	N/A	1
16-DIP-026	3	N/A	1
16-DIP-027	3	N/A	1
16-DIP-028	3	N/A	1
16-DIP-029	3	N/A	1
16-DIP-030	3	N/A	1
16-DIP-031	3	N/A	1
16-DIP-032	3	N/A	1
16-DIP-033	3	N/A	1
16-DIP-034	3	N/A	1
16-DIP-035	3	N/A	1
16-DIP-036	3	N/A	1
16-DIP-037	3	N/A	1
16-DIP-038	3	N/A	1
16-DIP-039	3	N/A	1
16-DIP-040	3	N/A	1
16-DIP-041	3	N/A	1
16-DIP-042	3	N/A	1
16-DIP-043	3	N/A	1
16-DIP-044	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
16-DIP-045	3	N/A	1
16-DIP-046	3	N/A	1
16-DIP-047	3	N/A	1
16-DIP-048	3	N/A	1
16-DIP-049	3	N/A	1
16-DIP-050	3	N/A	1
16-DIP-051	3	N/A	1
16-DIP-052	3	N/A	1
16-DIP-053	3	N/A	1
16-DIP-054	3	N/A	1
16-DIP-055	3	N/A	1
16-DIP-056	3	N/A	1
16-DIP-057	3	N/A	1
16-DIP-058	3	N/A	1
16-DIP-059	3	N/A	1
16-DIP-060	3	N/A	1
16-DIP-061	3	N/A	1
16-DIP-062	3	N/A	1
16-DIP-064	3	N/A	1
16-DIP-065	3	N/A	1
16-DIP-066	3	N/A	1
16-DIP-067	3	N/A	1
16-DIP-068	3	N/A	1
16-DIP-069	3	N/A	1
16-DIP-070	3	N/A	1
16-DIP-071	3	N/A	1
16-DIP-072	3	N/A	1
16-DIP-073	3	N/A	1
16-DIP-074	3	N/A	1
16-DIP-075	3	N/A	1
16-DIP-076	3	N/A	1
16-DIP-077	3	N/A	1
16-DIP-078	3	N/A	1
16-DIP-079	3	N/A	1
16-DIP-080	3	N/A	1
16-DIP-081	3	N/A	1
16-DIP-082	3	N/A	1
16-DIP-083	3	N/A	1
16-DIP-084	3	N/A	1
16-DIP-085	3	N/A	1
16-DIP-086	3	N/A	1
16-DIP-087	3	N/A	1
16-DIP-088	3	N/A	1
16-DIP-089	3	N/A	1
16-DIP-090	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
16-DIP-091	3	N/A	1
16-DIP-092	3	N/A	1
16-DIP-093	3	N/A	1
16-DIP-094	3	N/A	1
16-DIP-095	3	N/A	1
16-DIP-096	3	N/A	1
16-DIP-097	3	N/A	1
16-DIP-098	3	N/A	1
16-DIP-099	3	N/A	1
16-DIP-100	3	N/A	1
16-DIP-101	3	N/A	1
16-DIP-103	3	N/A	1
16-DIP-104	3	N/A	1
16-DIP-105	3	N/A	1
16-DIP-106	3	N/A	1
16-DIP-107	3	N/A	1
16-DIP-108	3	N/A	1
16-DIP-109	3	N/A	1
16-DIP-110	3	N/A	1
16-DIP-111	3	N/A	1
16-DIP-112	3	N/A	1
16-DIP-113	3	N/A	1
16-DIP-114	3	N/A	1
16-DIP-115	3	N/A	1
16-DIP-116	3	N/A	1
16-DIP-117	3	N/A	1
16-DIP-118	3	N/A	1
16-DIP-119	3	N/A	1
16-DIP-120	3	N/A	1
16-DIP-121	3	N/A	1
16-DIP-122	3	N/A	1
16-DIP-123	3	N/A	1
16-DIP-124	3	N/A	1
16-DIP-125	3	N/A	1
16-DIP-126	3	N/A	1
16-DIP-127	3	N/A	1
16-DIP-128	8	ARSW	5
16-DIP-129	3	N/A	1
16-DIP-130	3	N/A	1
16-DIP-131	3	N/A	1
16-DIP-132	3	N/A	1
16-DIP-133	3	N/A	1
16-DIP-134	3	N/A	1
16-DIP-135	3	N/A	1
16-DIP-136	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
16-DIP-137	3	N/A	1
16-DIP-138	3	N/A	1
16-DIP-139	3	N/A	1
16-DIP-140	3	N/A	1
16-DIP-141	3	N/A	1
16-DIP-142	3	N/A	1
16-DIP-143	3	N/A	1
16-DIP-144	3	N/A	1
16-DIP-145	3	N/A	1
16-DIP-146	3	N/A	1
16-DIP-147	3	N/A	1
16-DIP-148	3	N/A	1
16-DIP-149	3	N/A	1
16-DIP-150	3	N/A	1
16-DIP-151	3	N/A	1
16-DIP-152	3	N/A	1
16-DIP-153	8	ARSW	5
16-DIP-154	3	N/A	1
16-DIP-155	3	N/A	1
16-DIP-156	3	N/A	1
16-DIP-157	3	N/A	1
16-DIP-158	3	N/A	1
16-DIP-159	3	N/A	1
16-DIP-160	3	N/A	1
16-DIP-161	3	N/A	1
16-DIP-162	3	N/A	1
16-DIP-163	3	N/A	1
16-DIP-164	3	N/A	1
16-DIP-165	3	N/A	1
16-DIP-166	3	N/A	1
16-DIP-167	3	N/A	1
16-DIP-168	3	N/A	1
16-MLS-001	3	N/A	1
16-MLS-002	3	N/A	1
16-MLS-003	3	N/A	1
16-MLS-004	3	N/A	1
16-MLS-005	3	N/A	1
16-MLS-006	3	N/A	1
16-MLS-007	3	N/A	1
16-MLS-008	3	N/A	1
16-MLS-009	3	N/A	1
16-PVC-001	3	N/A	1
16-PVC-002	8	ARSW	5
16-PVC-003	3	N/A	1
16-PVC-004	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
16-PVC-005	3	N/A	1
16-PVC-006	8	ARSW	5
16-PVC-007	3	N/A	1
16-PVC-008	8	ARSW	5
16-PVC-009	8	ARSW	5
16-PVC-010	3	N/A	1
16-PVC-011	3	N/A	1
16-PVC-012	3	N/A	1
16-PVC-013	3	N/A	1
16-PVC-014	3	N/A	1
18-CMLCS-001	8	ARSW	5
18-CMLCS-002	3	N/A	1
18-CMLCS-003	3	N/A	1
18-CMLCS-004	3	N/A	1
18-CMLCS-005	8	ARSW	5
18-CMLCS-006	8	ARSW	5
18-CMLCS-007	3	N/A	1
18-CMLCS-008	8	ARSW	5
18-DIP-001	3	N/A	1
18-DIP-002	3	N/A	1
18-MLS-001	3	N/A	1
18-MLS-002	3	N/A	1
18-MLS-003	3	N/A	1
18-MLS-004	3	N/A	1
18-MLS-005	3	N/A	1
18-MLS-006	3	N/A	1
18-MLS-007	3	N/A	1
18-MLS-008	3	N/A	1
20-DIP-001	8	ARSW	5
20-DIP-002	3	N/A	1
20-DIP-003	3	N/A	1
20-DIP-004	3	N/A	1
20-DIP-005	3	N/A	1
20-DIP-006	3	N/A	1
20-DIP-007	3	N/A	1
20-DIP-008	3	N/A	1
20-DIP-009	3	ARSW	5
20-MLS-001	3	N/A	1
24-CMLCS-001	8	ARSW	5
24-CMLCS-002	8	ARSW	5
24-CMLCS-003	3	N/A	1
24-CMLCS-004	3	N/A	1
24-CMLCS-005	3	N/A	1
24-CMLCS-006	3	N/A	1
24-CMLCS-007	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
24-CMLCS-008	8	ARSW	5
24-CMLCS-009	8	ARSW	5
24-CMLCS-010	3	N/A	1
24-CMLCS-011	3	N/A	1
24-CMLCS-012	3	N/A	1
24-CMLCS-013	3	N/A	1
24-CMLCS-014	3	N/A	1
24-CMLCS-015	3	N/A	1
24-CMLCS-016	3	N/A	1
24-CMLCS-017	3	N/A	1
24-CMLCS-018	3	N/A	1
24-CMLCS-019	3	N/A	1
24-CMLCS-020	3	N/A	1
24-CMLCS-021	3	N/A	1
24-CMLCS-022	3	N/A	1
24-CMLCS-023	3	N/A	1
24-CMLCS-024	3	N/A	1
24-CMLCS-025	3	N/A	1
24-CMLCS-026	3	N/A	1
24-CMLCS-027	3	N/A	1
24-CMLCS-028	3	N/A	1
24-CMLCS-029	3	N/A	1
24-CMLCS-030	3	N/A	1
24-CMLCS-031	3	N/A	1
24-CMLCS-032	3	N/A	1
24-CMLCS-033	3	N/A	1
24-CMLCS-034	3	N/A	1
24-CMLCS-035	3	N/A	1
24-CMLCS-036	3	N/A	1
24-CMLCS-037	3	N/A	1
24-CMLCS-038	3	N/A	1
24-CMLCS-039	3	N/A	1
24-CMLCS-040	3	N/A	1
24-CMLCS-041	3	N/A	1
24-CMLCS-042	3	N/A	1
24-CMLCS-043	3	N/A	1
24-CMLCS-044	3	N/A	1
24-CMLCS-045	8	ARSW	5
24-CMLCS-046	3	N/A	1
24-CMLCS-047	8	ARSW	5
24-CMLCS-048	3	N/A	1
24-CMLCS-049	8	ARSW	5
24-CMLCS-050	8	ARSW	5
24-CMLCS-051	8	ARSW	5
24-CMLCS-052	8	ARSW	5

Source Score

T-Main Segment	Sub Type	Source	Score
24-CMLCS-053	8	ARSW	5
24-CMLCS-054	8	ARSW	5
24-CMLCS-055	8	ARSW	5
24-DIP-001	3	N/A	1
24-DIP-002	3	N/A	1
24-DIP-003	3	N/A	1
24-DIP-004	3	N/A	1
24-DIP-005	3	N/A	1
24-DIP-006	3	N/A	1
24-DIP-007	3	N/A	1
24-DIP-008	3	N/A	1
24-DIP-009	3	N/A	1
24-DIP-010	3	N/A	1
24-DIP-011	3	N/A	1
24-DIP-012	3	N/A	1
24-DIP-013	3	N/A	1
24-DIP-014	3	N/A	1
24-DIP-015	3	N/A	1
24-DIP-016	3	N/A	1
24-DIP-017	3	N/A	1
24-DIP-018	3	N/A	1
24-DIP-019	3	N/A	1
24-DIP-020	3	N/A	1
24-DIP-021	3	N/A	1
24-DIP-022	3	N/A	1
24-DIP-023	3	N/A	1
24-DIP-024	3	N/A	1
24-DIP-025	3	N/A	1
24-DIP-026	3	N/A	1
24-DIP-027	3	N/A	1
24-DIP-028	3	N/A	1
24-DIP-029	3	N/A	1
24-DIP-030	3	N/A	1
24-DIP-031	3	N/A	1
24-MLS-001	3	N/A	1
24-MLS-002	3	N/A	1
24-MLS-003	3	N/A	1
30-CMLCS-001	8	ARSW	5
30-CMLCS-002	3	ARSW	5
30-CMLCS-003	3	N/A	1
30-CMLCS-004	3	N/A	1
30-CMLCS-005	3	N/A	1
30-CMLCS-006	3	N/A	1
30-CMLCS-007	3	N/A	1
30-CMLCS-008	3	N/A	1

Source Score

T-Main Segment	Sub Type	Source	Score
30-CMLCS-009	3	N/A	1
30-CMLCS-010	3	N/A	1
30-CMLCS-011	3	N/A	1
30-CMLCS-012	3	N/A	1
30-CMLCS-013	3	N/A	1
30-CMLCS-014	3	N/A	1
30-CMLCS-015	3	N/A	1
30-CMLCS-016	3	N/A	1
30-CMLCS-017	3	N/A	1
30-CMLCS-18	3	N/A	1
30-DIP-001	3	N/A	1
30-DIP-002	3	N/A	1
30-DIP-003	3	N/A	1
30-DIP-004	3	N/A	1
36-CMLCS-001	8	ARSW	5
36-CMLCS-002	8	ARSW	5
36-CMLCS-003	3	N/A	1
36-CMLCS-004	3	N/A	1
36-CMLCS-005	3	N/A	1
36-CMLCS-006	3	N/A	1
36-CMLCS-007	3	N/A	1
36-CMLCS-008	3	N/A	1
36-CMLCS-009	3	N/A	1
36-CMLCS-010	3	N/A	1
36-CMLCS-011	3	N/A	1
36-CMLCS-012	3	N/A	1
36-CMLCS-013	3	N/A	1
36-CMLCS-014	3	N/A	1
36-CMLCS-015	3	N/A	1
36-CMLCS-016	3	N/A	1
36-CMLCS-017	3	N/A	1
36-CMLCS-018	3	N/A	1
36-CMLCS-019	3	N/A	1
36-CMLCS-020	3	N/A	1
36-CMLCS-021	3	N/A	1
36-CMLCS-022	3	N/A	1
36-CMLCS-023	8	ARSW	5
36-CMLCS-024	8	ARSW	5
36-CMLCS-025	8	ARSW	5
36-CMLCS-026	8	ARSW	5
48-CCP-001	3	ARSW	5
48-CCP-002	3	ARSW	5
48-CCP-003	3	ARSW	5
48-CCP-004	3	ARSW	5
48-CCP-005	3	ARSW	5

Source Score

T-Main Segment	Sub Type	Source	Score
48-CCP-006	3	ARSW	5
48-CCP-007	3	ARSW	5
48-CCP-008	3	ARSW	5
48-CCP-009	8	ARSW	5
48-CCP-010	3	ARSW	5
48-CCP-011	3	ARSW	5
6-ACP-001	8	ARSW	5
6-ACP-002	8	ARSW	5
6-DIP-001	8	ARSW	5
8-ACP-001	8	ARSW	5
8-ACP-002	8	ARSW	5
8-ACP-003	8	ARSW	5
8-ACP-004	8	ARSW	5
8-ACP-005	8	ARSW	5
8-ACP-006	8	ARSW	5
8-ACP-007	8	ARSW	5
8-ACP-008	8	ARSW	5
8-ACP-009	8	ARSW	5
8-ACP-010	8	ARSW	5
8-ACP-011	8	ARSW	5
8-ACP-012	8	ARSW	5
8-ACP-013	8	ARSW	5
8-ACP-014	8	ARSW	5
8-ACP-015	8	ARSW	5
8-ACP-016	8	ARSW	5
8-CMLCS-001	8	ARSW	5
8-CMLCS-002	8	ARSW	5
8-DIP-001	8	ARSW	5
8-DIP-002	8	ARSW	5
8-DIP-003	8	ARSW	5
8-DIP-004	8	ARSW	5
8-DIP-005	8	ARSW	5
8-DIP-006	8	ARSW	5
8-MLS-001	8	ARSW	5
8-MLS-002	8	ARSW	5
8-PVC-001	8	ARSW	5

Appendix I – Distribution System Connections

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
10-ACP-001	8	0	1
10-ACP-002	8	0	1
10-ACP-003	8	0	1
10-ACP-004	8	0	1
10-ACP-005	8	0	1
10-ACP-006	8	0	1
10-ACP-007	8	0	1
10-ACP-008	8	0	1
10-ACP-009	8	0	1
10-ACP-010	8	0	1
10-ACP-011	8	0	1
10-ACP-012	8	0	1
10-CIP-001	8	0	1
10-CMLCS-001	8	0	1
10-CMLCS-002	8	0	1
10-DIP-001	8	0	1
10-DIP-002	8	0	1
10-DIP-003	8	0	1
10-DIP-004	8	0	1
10-MLS-001	8	0	1
10-PVC-001	8	0	1
12-ACP-001	8	0	1
12-ACP-002	8	0	1
12-ACP-003	8	0	1
12-ACP-004	8	0	1
12-ACP-005	8	0	1
12-CMLCS-001	8	0	1
12-DIP-001	8	0	1
12-DIP-002	8	0	1
12-DIP-003	8	0	1
12-DIP-004	8	0	1
12-DIP-005	8	0	1
12-DIP-006	8	0	1
12-DIP-007	8	0	1
12-DIP-008	8	0	1
12-DIP-009	8	0	1
12-DIP-010	8	0	1
12-DIP-011	8	0	1
12-DIP-012	8	0	1
12-DIP-013	8	0	1
12-DIP-014	8	0	1
12-DIP-015	8	0	1
12-DIP-016	8	0	1
12-DIP-017	8	0	1

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
12-MLS-001	8	0	1
12-MLS-002	8	0	1
12-PVC-001	8	0	1
12-PVC-002	8	0	1
12-PVC-003	8	0	1
12-PVC-004	8	0	1
12-PVC-005	8	0	1
14-DIP-001	8	0	1
14-DIP-002	8	0	1
14-DIP-003	8	0	1
14-DIP-004	8	0	1
14-DIP-005	8	0	1
16-ACP-001	3	6	5
16-ACP-002	3	4	5
16-ACP-003	3	3	3
16-ACP-004	3	1	3
16-ACP-005	3	0	1
16-ACP-006	3	1	3
16-ACP-007	3	0	1
16-CIP-001	3	1	3
16-CMLCS-001	8	0	1
16-CMLCS-002	8	0	1
16-CMLCS-003	8	0	1
16-CMLCS-004	8	0	1
16-CMLCS-005	8	0	1
16-CMLCS-006	8	0	1
16-CMLCS-007	8	0	1
16-CMLCS-008	3	2	3
16-CMLCS-009	8	0	1
16-CMLCS-010	8	0	1
16-CMLCS-011	8	0	1
16-CMLCS-012	8	0	1
16-CMLCS-013	8	0	1
16-CMLCS-014	8	0	1
16-CMLCS-015	8	0	1
16-CMLCS-016	3	0	1
16-CMLCS-017	3	0	1
16-CMLCS-018	3	0	1
16-CMLCS-019	3	0	1
16-CMLCS-020	3	0	1
16-CMLCS-021	3	1	3
16-CMLCS-022	3	0	1
16-CMLCS-023	3	1	3
16-CMLCS-024	3	0	1

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
16-CMLCS-025	3	2	3
16-CMLCS-026	3	0	1
16-CMLCS-027	3	1	3
16-DIP-001	3	0	1
16-DIP-002	3	0	1
16-DIP-003	3	2	3
16-DIP-004	3	0	1
16-DIP-005	3	0	1
16-DIP-006	3	0	1
16-DIP-007	3	0	1
16-DIP-008	3	0	1
16-DIP-009	3	1	3
16-DIP-010	3	2	3
16-DIP-011	3	0	1
16-DIP-012	3	0	1
16-DIP-013	3	2	3
16-DIP-014	3	2	3
16-DIP-015	3	1	3
16-DIP-016	3	0	1
16-DIP-017	3	3	3
16-DIP-018	3	1	3
16-DIP-019	3	2	3
16-DIP-020	3	1	3
16-DIP-021	3	4	5
16-DIP-022	3	1	3
16-DIP-023	3	0	1
16-DIP-024	3	1	3
16-DIP-025	3	1	3
16-DIP-026	3	0	1
16-DIP-027	3	0	1
16-DIP-028	3	0	1
16-DIP-029	3	0	1
16-DIP-030	3	0	1
16-DIP-031	3	2	3
16-DIP-032	3	2	3
16-DIP-033	3	4	5
16-DIP-034	3	2	3
16-DIP-035	3	4	5
16-DIP-036	3	2	3
16-DIP-037	3	4	5
16-DIP-038	3	4	5
16-DIP-039	3	7	5
16-DIP-040	3	5	5
16-DIP-041	3	3	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
16-DIP-042	3	4	5
16-DIP-043	3	3	3
16-DIP-044	3	1	3
16-DIP-045	3	3	3
16-DIP-046	3	3	3
16-DIP-047	3	3	3
16-DIP-048	3	2	3
16-DIP-049	3	2	3
16-DIP-050	3	2	3
16-DIP-051	3	1	3
16-DIP-052	3	1	3
16-DIP-053	3	2	3
16-DIP-054	3	1	3
16-DIP-055	3	1	3
16-DIP-056	3	1	3
16-DIP-057	3	1	3
16-DIP-058	3	2	3
16-DIP-059	3	3	3
16-DIP-060	3	3	3
16-DIP-061	3	0	1
16-DIP-062	3	2	3
16-DIP-064	3	2	3
16-DIP-065	3	1	3
16-DIP-066	3	1	3
16-DIP-067	3	2	3
16-DIP-068	3	4	5
16-DIP-069	3	1	3
16-DIP-070	3	2	3
16-DIP-071	3	1	3
16-DIP-072	3	3	3
16-DIP-073	3	2	3
16-DIP-074	3	1	3
16-DIP-075	3	0	1
16-DIP-076	3	1	3
16-DIP-077	3	2	3
16-DIP-078	3	2	3
16-DIP-079	3	1	3
16-DIP-080	3	0	1
16-DIP-081	3	0	1
16-DIP-082	3	0	1
16-DIP-083	3	0	1
16-DIP-084	3	0	1
16-DIP-085	3	1	3
16-DIP-086	3	0	1

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
16-DIP-087	3	2	3
16-DIP-088	3	2	3
16-DIP-089	3	0	1
16-DIP-090	3	0	1
16-DIP-091	3	1	3
16-DIP-092	3	0	1
16-DIP-093	3	1	3
16-DIP-094	3	1	3
16-DIP-095	3	2	3
16-DIP-096	3	1	3
16-DIP-097	3	1	3
16-DIP-098	3	1	3
16-DIP-099	3	1	3
16-DIP-100	3	1	3
16-DIP-101	3	4	5
16-DIP-103	3	0	1
16-DIP-104	3	1	3
16-DIP-105	3	2	3
16-DIP-106	3	3	3
16-DIP-107	3	4	5
16-DIP-108	3	2	3
16-DIP-109	3	1	3
16-DIP-110	3	0	1
16-DIP-111	3	1	3
16-DIP-112	3	1	3
16-DIP-113	3	1	3
16-DIP-114	3	1	3
16-DIP-115	3	0	1
16-DIP-116	3	2	3
16-DIP-117	3	2	3
16-DIP-118	3	2	3
16-DIP-119	3	1	3
16-DIP-120	3	2	3
16-DIP-121	3	2	3
16-DIP-122	3	3	3
16-DIP-123	3	3	3
16-DIP-124	3	3	3
16-DIP-125	3	0	1
16-DIP-126	3	1	3
16-DIP-127	3	2	3
16-DIP-128	8	2	3
16-DIP-129	3	0	1
16-DIP-130	3	0	1
16-DIP-131	3	2	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
16-DIP-132	3	1	3
16-DIP-133	3	0	1
16-DIP-134	3	1	3
16-DIP-135	3	1	3
16-DIP-136	3	2	3
16-DIP-137	3	1	3
16-DIP-138	3	0	1
16-DIP-139	3	1	3
16-DIP-140	3	1	3
16-DIP-141	3	0	1
16-DIP-142	3	3	3
16-DIP-143	3	3	3
16-DIP-144	3	2	3
16-DIP-145	3	2	3
16-DIP-146	3	3	3
16-DIP-147	3	4	5
16-DIP-148	3	1	3
16-DIP-149	3	2	3
16-DIP-150	3	2	3
16-DIP-151	3	2	3
16-DIP-152	3	1	3
16-DIP-153	8	0	1
16-DIP-154	3	3	3
16-DIP-155	3	1	3
16-DIP-156	3	0	1
16-DIP-157	3	0	1
16-DIP-158	3	1	3
16-DIP-159	3	0	1
16-DIP-160	3	1	3
16-DIP-161	3	1	3
16-DIP-162	3	1	3
16-DIP-163	3	2	3
16-DIP-164	3	3	3
16-DIP-165	3	2	3
16-DIP-166	3	2	3
16-DIP-167	3	4	5
16-DIP-168	3	0	1
16-MLS-001	3	3	3
16-MLS-002	3	3	3
16-MLS-003	3	1	3
16-MLS-004	3	1	3
16-MLS-005	3	5	5
16-MLS-006	3	4	5
16-MLS-007	3	1	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
16-MLS-008	3	2	3
16-MLS-009	3	2	3
16-PVC-001	3	2	3
16-PVC-002	8	0	1
16-PVC-003	3	4	5
16-PVC-004	3	4	5
16-PVC-005	3	3	3
16-PVC-006	8	2	3
16-PVC-007	3	0	1
16-PVC-008	8	2	3
16-PVC-009	8	2	3
16-PVC-010	3	0	1
16-PVC-011	3	0	1
16-PVC-012	3	0	1
16-PVC-013	3	0	1
16-PVC-014	3	2	3
18-CMLCS-001	8	0	1
18-CMLCS-002	3	0	1
18-CMLCS-003	3	3	3
18-CMLCS-004	3	0	1
18-CMLCS-005	8	0	1
18-CMLCS-006	8	0	1
18-CMLCS-007	3	0	1
18-CMLCS-008	8	0	1
18-DIP-001	3	0	1
18-DIP-002	3	3	3
18-MLS-001	3	1	3
18-MLS-002	3	2	3
18-MLS-003	3	2	3
18-MLS-004	3	2	3
18-MLS-005	3	1	3
18-MLS-006	3	3	3
18-MLS-007	3	2	3
18-MLS-008	3	2	3
20-DIP-001	8	0	1
20-DIP-002	3	2	3
20-DIP-003	3	2	3
20-DIP-004	3	2	3
20-DIP-005	3	1	3
20-DIP-006	3	1	3
20-DIP-007	3	3	3
20-DIP-008	3	2	3
20-DIP-009	3	0	1
20-MLS-001	3	3	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
24-CMLCS-001	8	0	1
24-CMLCS-002	8	0	1
24-CMLCS-003	3	0	1
24-CMLCS-004	3	4	5
24-CMLCS-005	3	6	5
24-CMLCS-006	3	5	5
24-CMLCS-007	3	0	1
24-CMLCS-008	8	0	1
24-CMLCS-009	8	0	1
24-CMLCS-010	3	1	3
24-CMLCS-011	3	6	5
24-CMLCS-012	3	0	1
24-CMLCS-013	3	2	3
24-CMLCS-014	3	0	1
24-CMLCS-015	3	1	3
24-CMLCS-016	3	0	1
24-CMLCS-017	3	3	3
24-CMLCS-018	3	4	5
24-CMLCS-019	3	2	3
24-CMLCS-020	3	3	3
24-CMLCS-021	3	3	3
24-CMLCS-022	3	4	5
24-CMLCS-023	3	7	5
24-CMLCS-024	3	4	5
24-CMLCS-025	3	3	3
24-CMLCS-026	3	1	3
24-CMLCS-027	3	1	3
24-CMLCS-028	3	2	3
24-CMLCS-029	3	5	5
24-CMLCS-030	3	4	5
24-CMLCS-031	3	0	1
24-CMLCS-032	3	2	3
24-CMLCS-033	3	1	3
24-CMLCS-034	3	5	5
24-CMLCS-035	3	0	1
24-CMLCS-036	3	3	3
24-CMLCS-037	3	2	3
24-CMLCS-038	3	0	1
24-CMLCS-039	3	0	1
24-CMLCS-040	3	0	1
24-CMLCS-041	3	0	1
24-CMLCS-042	3	0	1
24-CMLCS-043	3	3	3
24-CMLCS-044	3	2	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
24-CMLCS-045	8	0	1
24-CMLCS-046	3	0	1
24-CMLCS-047	8	0	1
24-CMLCS-048	3	0	1
24-CMLCS-049	8	0	1
24-CMLCS-050	8	0	1
24-CMLCS-051	8	4	5
24-CMLCS-052	8	4	5
24-CMLCS-053	8	6	5
24-CMLCS-054	8	5	5
24-CMLCS-055	8	1	3
24-DIP-001	3	0	1
24-DIP-002	3	0	1
24-DIP-003	3	0	1
24-DIP-004	3	0	1
24-DIP-005	3	0	1
24-DIP-006	3	0	1
24-DIP-007	3	0	1
24-DIP-008	3	1	3
24-DIP-009	3	2	3
24-DIP-010	3	2	3
24-DIP-011	3	3	3
24-DIP-012	3	2	3
24-DIP-013	3	3	3
24-DIP-014	3	2	3
24-DIP-015	3	1	3
24-DIP-016	3	1	3
24-DIP-017	3	2	3
24-DIP-018	3	1	3
24-DIP-019	3	2	3
24-DIP-020	3	4	5
24-DIP-021	3	1	3
24-DIP-022	3	2	3
24-DIP-023	3	2	3
24-DIP-024	3	0	1
24-DIP-025	3	2	3
24-DIP-026	3	6	5
24-DIP-027	3	3	3
24-DIP-028	3	5	5
24-DIP-029	3	4	5
24-DIP-030	3	0	1
24-DIP-031	3	0	1
24-MLS-001	3	4	5
24-MLS-002	3	1	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
24-MLS-003	3	0	1
30-CMLCS-001	8	0	1
30-CMLCS-002	3	0	1
30-CMLCS-003	3	0	1
30-CMLCS-004	3	0	1
30-CMLCS-005	3	1	3
30-CMLCS-006	3	3	3
30-CMLCS-007	3	3	3
30-CMLCS-008	3	1	3
30-CMLCS-009	3	1	3
30-CMLCS-010	3	1	3
30-CMLCS-011	3	3	3
30-CMLCS-012	3	1	3
30-CMLCS-013	3	0	1
30-CMLCS-014	3	0	1
30-CMLCS-015	3	0	1
30-CMLCS-016	3	2	3
30-CMLCS-017	3	0	1
30-CMLCS-18	3	0	1
30-DIP-001	3	0	1
30-DIP-002	3	0	1
30-DIP-003	3	0	1
30-DIP-004	3	0	1
36-CMLCS-001	8	0	1
36-CMLCS-002	8	0	1
36-CMLCS-003	3	1	3
36-CMLCS-004	3	2	3
36-CMLCS-005	3	2	3
36-CMLCS-006	3	1	3
36-CMLCS-007	3	0	1
36-CMLCS-008	3	1	3
36-CMLCS-009	3	1	3
36-CMLCS-010	3	0	1
36-CMLCS-011	3	1	3
36-CMLCS-012	3	1	3
36-CMLCS-013	3	0	1
36-CMLCS-014	3	2	3
36-CMLCS-015	3	1	3
36-CMLCS-016	3	1	3
36-CMLCS-017	3	0	1
36-CMLCS-018	3	0	1
36-CMLCS-019	3	1	3
36-CMLCS-020	3	0	1
36-CMLCS-021	3	0	1

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
36-CMLCS-022	3	0	1
36-CMLCS-023	8	0	1
36-CMLCS-024	8	0	1
36-CMLCS-025	8	0	1
36-CMLCS-026	8	0	1
48-CCP-001	3	0	1
48-CCP-002	3	0	1
48-CCP-003	3	0	1
48-CCP-004	3	0	1
48-CCP-005	3	0	1
48-CCP-006	3	0	1
48-CCP-007	3	0	1
48-CCP-008	3	0	1
48-CCP-009	8	0	1
48-CCP-010	3	1	3
48-CCP-011	3	4	5
6-ACP-001	8	3	3
6-ACP-002	8	3	3
6-DIP-001	8	0	1
8-ACP-001	8	2	3
8-ACP-002	8	2	3
8-ACP-003	8	2	3
8-ACP-004	8	2	3
8-ACP-005	8	2	3
8-ACP-006	8	2	3
8-ACP-007	8	2	3
8-ACP-008	8	2	3
8-ACP-009	8	2	3
8-ACP-010	8	0	1
8-ACP-011	8	2	3
8-ACP-012	8	2	3
8-ACP-013	8	2	3
8-ACP-014	8	0	1
8-ACP-015	8	0	1
8-ACP-016	8	0	1
8-CMLCS-001	8	0	1
8-CMLCS-002	8	2	3
8-DIP-001	8	0	1
8-DIP-002	8	2	3
8-DIP-003	8	2	3
8-DIP-004	8	2	3
8-DIP-005	8	2	3
8-DIP-006	8	2	3
8-MLS-001	8	2	3

Distribution Connections Score

T-Main Segment	Sub Type	Distibution Connections	Score
8-MLS-002	8	2	3
8-PVC-001	8	0	1

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Appendix J – Pipe Age

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
10-ACP-001	8	43	3
10-ACP-002	8	58	3
10-ACP-003	8	45	3
10-ACP-004	8	51	3
10-ACP-005	8	44	3
10-ACP-006	8	44	3
10-ACP-007	8	57	3
10-ACP-008	8	8	1
10-ACP-009	8	66	4
10-ACP-010	8	63	4
10-ACP-011	8	35	2
10-ACP-012	8	48	3
10-CIP-001	8	80	4
10-CMLCS-001	8	14	1
10-CMLCS-002	8	4	1
10-DIP-001	8	4	1
10-DIP-002	8	3	1
10-DIP-003	8	18	1
10-DIP-004	8	28	2
10-MLS-001	8	66	4
10-PVC-001	8	30	2
12-ACP-001	8	80	4
12-ACP-002	8	44	3
12-ACP-003	8	61	4
12-ACP-004	8	70	4
12-ACP-005	8	62	4
12-CMLCS-001	8	18	1
12-DIP-001	8	31	2
12-DIP-002	8	32	2
12-DIP-003	8	7	1
12-DIP-004	8	18	1
12-DIP-005	8	6	1
12-DIP-006	8	9	1
12-DIP-007	8	4	1
12-DIP-008	8	2	1
12-DIP-009	8	55	3
12-DIP-010	8	44	3
12-DIP-011	8	8	1
12-DIP-012	8	18	1
12-DIP-013	8	4	1
12-DIP-014	8	13	1
12-DIP-015	8	13	1
12-DIP-016	8	14	1
12-DIP-017	8	11	1
12-MLS-001	8	59	3

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
12-MLS-002	8	62	4
12-PVC-001	8	25	2
12-PVC-002	8	36	2
12-PVC-003	8	23	2
12-PVC-004	8	21	2
12-PVC-005	8	40	2
14-DIP-001	8	21	2
14-DIP-002	8	21	2
14-DIP-003	8	21	2
14-DIP-004	8	21	2
14-DIP-005	8	21	2
16-ACP-001	3	41	3
16-ACP-002	3	40	2
16-ACP-003	3	40	2
16-ACP-004	3	32	2
16-ACP-005	3	32	2
16-ACP-006	3	32	2
16-ACP-007	3	32	2
16-CIP-001	3	80	4
16-CMLCS-001	8	14	1
16-CMLCS-002	8	14	1
16-CMLCS-003	8	14	1
16-CMLCS-004	8	14	1
16-CMLCS-005	8	14	1
16-CMLCS-006	8	14	1
16-CMLCS-007	8	14	1
16-CMLCS-008	3	18	1
16-CMLCS-009	8	14	1
16-CMLCS-010	8	14	1
16-CMLCS-011	8	4	1
16-CMLCS-012	8	22	2
16-CMLCS-013	8	22	2
16-CMLCS-014	8	22	2
16-CMLCS-015	8	14	1
16-CMLCS-016	3	16	1
16-CMLCS-017	3	16	1
16-CMLCS-018	3	15	1
16-CMLCS-019	3	16	1
16-CMLCS-020	3	25	2
16-CMLCS-021	3	18	1
16-CMLCS-022	3	18	1
16-CMLCS-023	3	18	1
16-CMLCS-024	3	21	2
16-CMLCS-025	3	54	3
16-CMLCS-026	3	16	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
16-CMLCS-027	3	18	1
16-DIP-001	3	32	2
16-DIP-002	3	36	2
16-DIP-003	3	36	2
16-DIP-004	3	22	2
16-DIP-005	3	22	2
16-DIP-006	3	22	2
16-DIP-007	3	36	2
16-DIP-008	3	36	2
16-DIP-009	3	36	2
16-DIP-010	3	36	2
16-DIP-011	3	32	2
16-DIP-012	3	32	2
16-DIP-013	3	32	2
16-DIP-014	3	32	2
16-DIP-015	3	32	2
16-DIP-016	3	32	2
16-DIP-017	3	39	2
16-DIP-018	3	39	2
16-DIP-019	3	39	2
16-DIP-020	3	39	2
16-DIP-021	3	20	1
16-DIP-022	3	15	1
16-DIP-023	3	15	1
16-DIP-024	3	15	1
16-DIP-025	3	15	1
16-DIP-026	3	15	1
16-DIP-027	3	16	1
16-DIP-028	3	16	1
16-DIP-029	3	16	1
16-DIP-030	3	2	1
16-DIP-031	3	26	2
16-DIP-032	3	26	2
16-DIP-033	3	23	2
16-DIP-034	3	23	2
16-DIP-035	3	23	2
16-DIP-036	3	23	2
16-DIP-037	3	23	2
16-DIP-038	3	32	2
16-DIP-039	3	32	2
16-DIP-040	3	32	2
16-DIP-041	3	32	2
16-DIP-042	3	32	2
16-DIP-043	3	32	2
16-DIP-044	3	28	2

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
16-DIP-045	3	28	2
16-DIP-046	3	23	2
16-DIP-047	3	23	2
16-DIP-048	3	23	2
16-DIP-049	3	23	2
16-DIP-050	3	23	2
16-DIP-051	3	23	2
16-DIP-052	3	23	2
16-DIP-053	3	23	2
16-DIP-054	3	23	2
16-DIP-055	3	22	2
16-DIP-056	3	23	2
16-DIP-057	3	23	2
16-DIP-058	3	32	2
16-DIP-059	3	32	2
16-DIP-060	3	32	2
16-DIP-061	3	31	2
16-DIP-062	3	31	2
16-DIP-064	3	11	1
16-DIP-065	3	11	1
16-DIP-066	3	11	1
16-DIP-067	3	11	1
16-DIP-068	3	11	1
16-DIP-069	3	11	1
16-DIP-070	3	11	1
16-DIP-071	3	11	1
16-DIP-072	3	11	1
16-DIP-073	3	11	1
16-DIP-074	3	11	1
16-DIP-075	3	11	1
16-DIP-076	3	11	1
16-DIP-077	3	11	1
16-DIP-078	3	11	1
16-DIP-079	3	11	1
16-DIP-080	3	34	2
16-DIP-081	3	34	2
16-DIP-082	3	34	2
16-DIP-083	3	34	2
16-DIP-084	3	34	2
16-DIP-085	3	34	2
16-DIP-086	3	34	2
16-DIP-087	3	4	1
16-DIP-088	3	32	2
16-DIP-089	3	32	2
16-DIP-090	3	32	2

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
16-DIP-091	3	34	2
16-DIP-092	3	34	2
16-DIP-093	3	34	2
16-DIP-094	3	32	2
16-DIP-095	3	40	2
16-DIP-096	3	40	2
16-DIP-097	3	40	2
16-DIP-098	3	40	2
16-DIP-099	3	40	2
16-DIP-100	3	40	2
16-DIP-101	3	40	2
16-DIP-103	3	16	1
16-DIP-104	3	16	1
16-DIP-105	3	16	1
16-DIP-106	3	16	1
16-DIP-107	3	16	1
16-DIP-108	3	16	1
16-DIP-109	3	32	2
16-DIP-110	3	32	2
16-DIP-111	3	32	2
16-DIP-112	3	32	2
16-DIP-113	3	32	2
16-DIP-114	3	32	2
16-DIP-115	3	32	2
16-DIP-116	3	33	2
16-DIP-117	3	33	2
16-DIP-118	3	37	2
16-DIP-119	3	23	2
16-DIP-120	3	23	2
16-DIP-121	3	23	2
16-DIP-122	3	23	2
16-DIP-123	3	39	2
16-DIP-124	3	39	2
16-DIP-125	3	18	1
16-DIP-126	3	30	2
16-DIP-127	3	23	2
16-DIP-128	8	19	1
16-DIP-129	3	16	1
16-DIP-130	3	24	2
16-DIP-131	3	18	1
16-DIP-132	3	18	1
16-DIP-133	3	18	1
16-DIP-134	3	18	1
16-DIP-135	3	18	1
16-DIP-136	3	18	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
16-DIP-137	3	18	1
16-DIP-138	3	18	1
16-DIP-139	3	18	1
16-DIP-140	3	18	1
16-DIP-141	3	18	1
16-DIP-142	3	18	1
16-DIP-143	3	11	1
16-DIP-144	3	11	1
16-DIP-145	3	11	1
16-DIP-146	3	11	1
16-DIP-147	3	11	1
16-DIP-148	3	11	1
16-DIP-149	3	11	1
16-DIP-150	3	11	1
16-DIP-151	3	13	1
16-DIP-152	3	18	1
16-DIP-153	8	40	2
16-DIP-154	3	4	1
16-DIP-155	3	4	1
16-DIP-156	3	4	1
16-DIP-157	3	4	1
16-DIP-158	3	4	1
16-DIP-159	3	1	1
16-DIP-160	3	1	1
16-DIP-161	3	1	1
16-DIP-162	3	1	1
16-DIP-163	3	5	1
16-DIP-164	3	4	1
16-DIP-165	3	4	1
16-DIP-166	3	39	2
16-DIP-167	3	15	1
16-DIP-168	3	16	1
16-MLS-001	3	62	4
16-MLS-002	3	62	4
16-MLS-003	3	54	3
16-MLS-004	3	54	3
16-MLS-005	3	54	3
16-MLS-006	3	54	3
16-MLS-007	3	54	3
16-MLS-008	3	54	3
16-MLS-009	3	54	3
16-PVC-001	3	55	3
16-PVC-002	8	18	1
16-PVC-003	3	19	1
16-PVC-004	3	19	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
16-PVC-005	3	19	1
16-PVC-006	8	19	1
16-PVC-007	3	32	2
16-PVC-008	8	20	1
16-PVC-009	8	18	1
16-PVC-010	3	21	2
16-PVC-011	3	31	2
16-PVC-012	3	21	2
16-PVC-013	3	18	1
16-PVC-014	3	18	1
18-CMLCS-001	8	19	1
18-CMLCS-002	3	25	2
18-CMLCS-003	3	18	1
18-CMLCS-004	3	18	1
18-CMLCS-005	8	19	1
18-CMLCS-006	8	19	1
18-CMLCS-007	3	24	2
18-CMLCS-008	8	19	1
18-DIP-001	3	24	2
18-DIP-002	3	30	2
18-MLS-001	3	58	3
18-MLS-002	3	50	3
18-MLS-003	3	50	3
18-MLS-004	3	54	3
18-MLS-005	3	54	3
18-MLS-006	3	54	3
18-MLS-007	3	54	3
18-MLS-008	3	54	3
20-DIP-001	8	13	1
20-DIP-002	3	36	2
20-DIP-003	3	36	2
20-DIP-004	3	36	2
20-DIP-005	3	36	2
20-DIP-006	3	37	2
20-DIP-007	3	37	2
20-DIP-008	3	39	2
20-DIP-009	3	34	2
20-MLS-001	3	54	3
24-CMLCS-001	8	24	2
24-CMLCS-002	8	24	2
24-CMLCS-003	3	18	1
24-CMLCS-004	3	18	1
24-CMLCS-005	3	18	1
24-CMLCS-006	3	18	1
24-CMLCS-007	3	18	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
24-CMLCS-008	8	14	1
24-CMLCS-009	8	14	1
24-CMLCS-010	3	18	1
24-CMLCS-011	3	18	1
24-CMLCS-012	3	18	1
24-CMLCS-013	3	18	1
24-CMLCS-014	3	16	1
24-CMLCS-015	3	15	1
24-CMLCS-016	3	25	2
24-CMLCS-017	3	18	1
24-CMLCS-018	3	18	1
24-CMLCS-019	3	18	1
24-CMLCS-020	3	18	1
24-CMLCS-021	3	18	1
24-CMLCS-022	3	18	1
24-CMLCS-023	3	18	1
24-CMLCS-024	3	18	1
24-CMLCS-025	3	18	1
24-CMLCS-026	3	18	1
24-CMLCS-027	3	18	1
24-CMLCS-028	3	18	1
24-CMLCS-029	3	18	1
24-CMLCS-030	3	18	1
24-CMLCS-031	3	18	1
24-CMLCS-032	3	18	1
24-CMLCS-033	3	18	1
24-CMLCS-034	3	18	1
24-CMLCS-035	3	18	1
24-CMLCS-036	3	18	1
24-CMLCS-037	3	18	1
24-CMLCS-038	3	18	1
24-CMLCS-039	3	18	1
24-CMLCS-040	3	18	1
24-CMLCS-041	3	18	1
24-CMLCS-042	3	18	1
24-CMLCS-043	3	18	1
24-CMLCS-044	3	18	1
24-CMLCS-045	8	22	2
24-CMLCS-046	3	21	2
24-CMLCS-047	8	14	1
24-CMLCS-048	3	24	2
24-CMLCS-049	8	19	1
24-CMLCS-050	8	19	1
24-CMLCS-051	8	14	1
24-CMLCS-052	8	14	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
24-CMLCS-053	8	14	1
24-CMLCS-054	8	14	1
24-CMLCS-055	8	4	1
24-DIP-001	3	24	2
24-DIP-002	3	24	2
24-DIP-003	3	24	2
24-DIP-004	3	18	1
24-DIP-005	3	16	1
24-DIP-006	3	24	2
24-DIP-007	3	24	2
24-DIP-008	3	16	1
24-DIP-009	3	37	2
24-DIP-010	3	37	2
24-DIP-011	3	37	2
24-DIP-012	3	37	2
24-DIP-013	3	37	2
24-DIP-014	3	38	2
24-DIP-015	3	22	2
24-DIP-016	3	22	2
24-DIP-017	3	36	2
24-DIP-018	3	36	2
24-DIP-019	3	36	2
24-DIP-020	3	18	1
24-DIP-021	3	18	1
24-DIP-022	3	18	1
24-DIP-023	3	18	1
24-DIP-024	3	18	1
24-DIP-025	3	18	1
24-DIP-026	3	18	1
24-DIP-027	3	18	1
24-DIP-028	3	18	1
24-DIP-029	3	39	2
24-DIP-030	3	18	1
24-DIP-031	3	23	2
24-MLS-001	3	54	3
24-MLS-002	3	54	3
24-MLS-003	3	54	3
30-CMLCS-001	8	24	2
30-CMLCS-002	3	24	2
30-CMLCS-003	3	24	2
30-CMLCS-004	3	24	2
30-CMLCS-005	3	18	1
30-CMLCS-006	3	18	1
30-CMLCS-007	3	18	1
30-CMLCS-008	3	18	1

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
30-CMLCS-009	3	18	1
30-CMLCS-010	3	18	1
30-CMLCS-011	3	18	1
30-CMLCS-012	3	18	1
30-CMLCS-013	3	18	1
30-CMLCS-014	3	18	1
30-CMLCS-015	3	18	1
30-CMLCS-016	3	18	1
30-CMLCS-017	3	18	1
30-CMLCS-18	3	25	2
30-DIP-001	3	24	2
30-DIP-002	3	24	2
30-DIP-003	3	24	2
30-DIP-004	3	32	2
36-CMLCS-001	8	24	2
36-CMLCS-002	8	4	1
36-CMLCS-003	3	16	1
36-CMLCS-004	3	16	1
36-CMLCS-005	3	16	1
36-CMLCS-006	3	16	1
36-CMLCS-007	3	16	1
36-CMLCS-008	3	16	1
36-CMLCS-009	3	20	1
36-CMLCS-010	3	20	1
36-CMLCS-011	3	16	1
36-CMLCS-012	3	16	1
36-CMLCS-013	3	16	1
36-CMLCS-014	3	16	1
36-CMLCS-015	3	16	1
36-CMLCS-016	3	16	1
36-CMLCS-017	3	16	1
36-CMLCS-018	3	16	1
36-CMLCS-019	3	27	2
36-CMLCS-020	3	27	2
36-CMLCS-021	3	19	1
36-CMLCS-022	3	19	1
36-CMLCS-023	8	14	1
36-CMLCS-024	8	14	1
36-CMLCS-025	8	14	1
36-CMLCS-026	8	14	1
48-CCP-001	3	25	2
48-CCP-002	3	25	2
48-CCP-003	3	25	2
48-CCP-004	3	25	2
48-CCP-005	3	25	2

Pipe Age Score

T-Main Segment	Sub Type	Pipe Age	Score
48-CCP-006	3	24	2
48-CCP-007	3	24	2
48-CCP-008	3	24	2
48-CCP-009	8	24	2
48-CCP-010	3	24	2
48-CCP-011	3	24	2
6-ACP-001	8	73	4
6-ACP-002	8	80	4
6-DIP-001	8	14	1
8-ACP-001	8	66	4
8-ACP-002	8	67	4
8-ACP-003	8	48	3
8-ACP-004	8	54	3
8-ACP-005	8	62	4
8-ACP-006	8	64	4
8-ACP-007	8	65	4
8-ACP-008	8	66	4
8-ACP-009	8	72	4
8-ACP-010	8	73	4
8-ACP-011	8	66	4
8-ACP-012	8	62	4
8-ACP-013	8	47	3
8-ACP-014	8	59	3
8-ACP-015	8	74	4
8-ACP-016	8	74	4
8-CMLCS-001	8	21	2
8-CMLCS-002	8	21	2
8-DIP-001	8	73	4
8-DIP-002	8	12	1
8-DIP-003	8	7	1
8-DIP-004	8	4	1
8-DIP-005	8	2	1
8-DIP-006	8	20	1
8-MLS-001	8	65	4
8-MLS-002	8	61	4
8-PVC-001	8	31	2

Appendix K – Pipe Material

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
10-ACP-001	8	AC	4
10-ACP-002	8	AC	4
10-ACP-003	8	AC	4
10-ACP-004	8	AC	4
10-ACP-005	8	AC	4
10-ACP-006	8	AC	4
10-ACP-007	8	AC	4
10-ACP-008	8	AC	4
10-ACP-009	8	AC	4
10-ACP-010	8	AC	4
10-ACP-011	8	AC	4
10-ACP-012	8	AC	4
10-CIP-001	8	CI	5
10-CMLCS-001	8	CMLCS	1
10-CMLCS-002	8	CMLCS	1
10-DIP-001	8	DI	2
10-DIP-002	8	DI	2
10-DIP-003	8	DI	2
10-DIP-004	8	DI	2
10-MLS-001	8	MLS	5
10-PVC-001	8	PVC	3
12-ACP-001	8	AC	4
12-ACP-002	8	AC	4
12-ACP-003	8	AC	4
12-ACP-004	8	AC	4
12-ACP-005	8	AC	4
12-CMLCS-001	8	CMLCS	1
12-DIP-001	8	DI	2
12-DIP-002	8	DI	2
12-DIP-003	8	DI	2
12-DIP-004	8	DI	2
12-DIP-005	8	DI	2
12-DIP-006	8	DI	2
12-DIP-007	8	DI	2
12-DIP-008	8	DI	2
12-DIP-009	8	DI	2
12-DIP-010	8	DI	2
12-DIP-011	8	DI	2
12-DIP-012	8	DI	2
12-DIP-013	8	DI	2
12-DIP-014	8	DI	2
12-DIP-015	8	DI	2
12-DIP-016	8	DI	2
12-DIP-017	8	DI	2
12-MLS-001	8	MLS	5

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
12-MLS-002	8	MLS	5
12-PVC-001	8	PVC	3
12-PVC-002	8	PVC	3
12-PVC-003	8	PVC	3
12-PVC-004	8	PVC	3
12-PVC-005	8	PVC	3
14-DIP-001	8	DI	2
14-DIP-002	8	DI	2
14-DIP-003	8	DI	2
14-DIP-004	8	DI	2
14-DIP-005	8	DI	2
16-ACP-001	3	AC	4
16-ACP-002	3	AC	4
16-ACP-003	3	AC	4
16-ACP-004	3	AC	4
16-ACP-005	3	AC	4
16-ACP-006	3	AC	4
16-ACP-007	3	AC	4
16-CIP-001	3	CI	5
16-CMLCS-001	8	CMLCS	1
16-CMLCS-002	8	CMLCS	1
16-CMLCS-003	8	CMLCS	1
16-CMLCS-004	8	CMLCS	1
16-CMLCS-005	8	CMLCS	1
16-CMLCS-006	8	CMLCS	1
16-CMLCS-007	8	CMLCS	1
16-CMLCS-008	3	CMLCS	1
16-CMLCS-009	8	CMLCS	1
16-CMLCS-010	8	CMLCS	1
16-CMLCS-011	8	CMLCS	1
16-CMLCS-012	8	CMLCS	1
16-CMLCS-013	8	CMLCS	1
16-CMLCS-014	8	CMLCS	1
16-CMLCS-015	8	CMLCS	1
16-CMLCS-016	3	CMLCS	1
16-CMLCS-017	3	CMLCS	1
16-CMLCS-018	3	CMLCS	1
16-CMLCS-019	3	CMLCS	1
16-CMLCS-020	3	CMLCS	1
16-CMLCS-021	3	CMLCS	1
16-CMLCS-022	3	CMLCS	1
16-CMLCS-023	3	CMLCS	1
16-CMLCS-024	3	CMLCS	1
16-CMLCS-025	3	CMLCS	1
16-CMLCS-026	3	CMLCS	1

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
16-CMLCS-027	3	CMLCS	1
16-DIP-001	3	DI	2
16-DIP-002	3	DI	2
16-DIP-003	3	DI	2
16-DIP-004	3	DI	2
16-DIP-005	3	DI	2
16-DIP-006	3	DI	2
16-DIP-007	3	DI	2
16-DIP-008	3	DI	2
16-DIP-009	3	DI	2
16-DIP-010	3	DI	2
16-DIP-011	3	DI	2
16-DIP-012	3	DI	2
16-DIP-013	3	DI	2
16-DIP-014	3	DI	2
16-DIP-015	3	DI	2
16-DIP-016	3	DI	2
16-DIP-017	3	DI	2
16-DIP-018	3	DI	2
16-DIP-019	3	DI	2
16-DIP-020	3	DI	2
16-DIP-021	3	DI	2
16-DIP-022	3	DI	2
16-DIP-023	3	DI	2
16-DIP-024	3	DI	2
16-DIP-025	3	DI	2
16-DIP-026	3	DI	2
16-DIP-027	3	DI	2
16-DIP-028	3	DI	2
16-DIP-029	3	DI	2
16-DIP-030	3	DI	2
16-DIP-031	3	DI	2
16-DIP-032	3	DI	2
16-DIP-033	3	DI	2
16-DIP-034	3	DI	2
16-DIP-035	3	DI	2
16-DIP-036	3	DI	2
16-DIP-037	3	DI	2
16-DIP-038	3	DI	2
16-DIP-039	3	DI	2
16-DIP-040	3	DI	2
16-DIP-041	3	DI	2
16-DIP-042	3	DI	2
16-DIP-043	3	DI	2
16-DIP-044	3	DI	2

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
16-DIP-045	3	DI	2
16-DIP-046	3	DI	2
16-DIP-047	3	DI	2
16-DIP-048	3	DI	2
16-DIP-049	3	DI	2
16-DIP-050	3	DI	2
16-DIP-051	3	DI	2
16-DIP-052	3	DI	2
16-DIP-053	3	DI	2
16-DIP-054	3	DI	2
16-DIP-055	3	DI	2
16-DIP-056	3	DI	2
16-DIP-057	3	DI	2
16-DIP-058	3	DI	2
16-DIP-059	3	DI	2
16-DIP-060	3	DI	2
16-DIP-061	3	DI	2
16-DIP-062	3	DI	2
16-DIP-064	3	DI	2
16-DIP-065	3	DI	2
16-DIP-066	3	DI	2
16-DIP-067	3	DI	2
16-DIP-068	3	DI	2
16-DIP-069	3	DI	2
16-DIP-070	3	DI	2
16-DIP-071	3	DI	2
16-DIP-072	3	DI	2
16-DIP-073	3	DI	2
16-DIP-074	3	DI	2
16-DIP-075	3	DI	2
16-DIP-076	3	DI	2
16-DIP-077	3	DI	2
16-DIP-078	3	DI	2
16-DIP-079	3	DI	2
16-DIP-080	3	DI	2
16-DIP-081	3	DI	2
16-DIP-082	3	DI	2
16-DIP-083	3	DI	2
16-DIP-084	3	DI	2
16-DIP-085	3	DI	2
16-DIP-086	3	DI	2
16-DIP-087	3	DI	2
16-DIP-088	3	DI	2
16-DIP-089	3	DI	2
16-DIP-090	3	DI	2

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
16-DIP-091	3	DI	2
16-DIP-092	3	DI	2
16-DIP-093	3	DI	2
16-DIP-094	3	DI	2
16-DIP-095	3	DI	2
16-DIP-096	3	DI	2
16-DIP-097	3	DI	2
16-DIP-098	3	DI	2
16-DIP-099	3	DI	2
16-DIP-100	3	DI	2
16-DIP-101	3	DI	2
16-DIP-103	3	DI	2
16-DIP-104	3	DI	2
16-DIP-105	3	DI	2
16-DIP-106	3	DI	2
16-DIP-107	3	DI	2
16-DIP-108	3	DI	2
16-DIP-109	3	DI	2
16-DIP-110	3	DI	2
16-DIP-111	3	DI	2
16-DIP-112	3	DI	2
16-DIP-113	3	DI	2
16-DIP-114	3	DI	2
16-DIP-115	3	DI	2
16-DIP-116	3	DI	2
16-DIP-117	3	DI	2
16-DIP-118	3	DI	2
16-DIP-119	3	DI	2
16-DIP-120	3	DI	2
16-DIP-121	3	DI	2
16-DIP-122	3	DI	2
16-DIP-123	3	DI	2
16-DIP-124	3	DI	2
16-DIP-125	3	DI	2
16-DIP-126	3	DI	2
16-DIP-127	3	DI	2
16-DIP-128	8	DI	2
16-DIP-129	3	DI	2
16-DIP-130	3	DI	2
16-DIP-131	3	DI	2
16-DIP-132	3	DI	2
16-DIP-133	3	DI	2
16-DIP-134	3	DI	2
16-DIP-135	3	DI	2
16-DIP-136	3	DI	2

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
16-DIP-137	3	DI	2
16-DIP-138	3	DI	2
16-DIP-139	3	DI	2
16-DIP-140	3	DI	2
16-DIP-141	3	DI	2
16-DIP-142	3	DI	2
16-DIP-143	3	DI	2
16-DIP-144	3	DI	2
16-DIP-145	3	DI	2
16-DIP-146	3	DI	2
16-DIP-147	3	DI	2
16-DIP-148	3	DI	2
16-DIP-149	3	DI	2
16-DIP-150	3	DI	2
16-DIP-151	3	DI	2
16-DIP-152	3	DI	2
16-DIP-153	8	DI	2
16-DIP-154	3	DI	2
16-DIP-155	3	DI	2
16-DIP-156	3	DI	2
16-DIP-157	3	DI	2
16-DIP-158	3	DI	2
16-DIP-159	3	DI	2
16-DIP-160	3	DI	2
16-DIP-161	3	DI	2
16-DIP-162	3	DI	2
16-DIP-163	3	DI	2
16-DIP-164	3	DI	2
16-DIP-165	3	DI	2
16-DIP-166	3	DI	2
16-DIP-167	3	DI	2
16-DIP-168	3	DI	2
16-MLS-001	3	MLS	5
16-MLS-002	3	MLS	5
16-MLS-003	3	MLS	5
16-MLS-004	3	MLS	5
16-MLS-005	3	MLS	5
16-MLS-006	3	MLS	5
16-MLS-007	3	MLS	5
16-MLS-008	3	MLS	5
16-MLS-009	3	MLS	5
16-PVC-001	3	PVC	3
16-PVC-002	8	PVC	3
16-PVC-003	3	PVC	3
16-PVC-004	3	PVC	3

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
16-PVC-005	3	PVC	3
16-PVC-006	8	PVC	3
16-PVC-007	3	PVC	3
16-PVC-008	8	PVC	3
16-PVC-009	8	PVC	3
16-PVC-010	3	PVC	3
16-PVC-011	3	PVC	3
16-PVC-012	3	PVC	3
16-PVC-013	3	PVC	3
16-PVC-014	3	PVC	3
18-CMLCS-001	8	CMLCS	1
18-CMLCS-002	3	CMLCS	1
18-CMLCS-003	3	CMLCS	1
18-CMLCS-004	3	CMLCS	1
18-CMLCS-005	8	CMLCS	1
18-CMLCS-006	8	CMLCS	1
18-CMLCS-007	3	CMLCS	1
18-CMLCS-008	8	CMLCS	1
18-DIP-001	3	DI	2
18-DIP-002	3	DI	2
18-MLS-001	3	MLS	5
18-MLS-002	3	MLS	5
18-MLS-003	3	MLS	5
18-MLS-004	3	MLS	5
18-MLS-005	3	MLS	5
18-MLS-006	3	MLS	5
18-MLS-007	3	MLS	5
18-MLS-008	3	MLS	5
20-DIP-001	8	DI	2
20-DIP-002	3	DI	2
20-DIP-003	3	DI	2
20-DIP-004	3	DI	2
20-DIP-005	3	DI	2
20-DIP-006	3	DI	2
20-DIP-007	3	DI	2
20-DIP-008	3	DI	2
20-DIP-009	3	DI	2
20-MLS-001	3	MLS	5
24-CMLCS-001	8	CMLCS	1
24-CMLCS-002	8	CMLCS	1
24-CMLCS-003	3	CMLCS	1
24-CMLCS-004	3	CMLCS	1
24-CMLCS-005	3	CMLCS	1
24-CMLCS-006	3	CMLCS	1
24-CMLCS-007	3	CMLCS	1

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
24-CMLCS-008	8	CMLCS	1
24-CMLCS-009	8	CMLCS	1
24-CMLCS-010	3	CMLCS	1
24-CMLCS-011	3	CMLCS	1
24-CMLCS-012	3	CMLCS	1
24-CMLCS-013	3	CMLCS	1
24-CMLCS-014	3	CMLCS	1
24-CMLCS-015	3	CMLCS	1
24-CMLCS-016	3	CMLCS	1
24-CMLCS-017	3	CMLCS	1
24-CMLCS-018	3	CMLCS	1
24-CMLCS-019	3	CMLCS	1
24-CMLCS-020	3	CMLCS	1
24-CMLCS-021	3	CMLCS	1
24-CMLCS-022	3	CMLCS	1
24-CMLCS-023	3	CMLCS	1
24-CMLCS-024	3	CMLCS	1
24-CMLCS-025	3	CMLCS	1
24-CMLCS-026	3	CMLCS	1
24-CMLCS-027	3	CMLCS	1
24-CMLCS-028	3	CMLCS	1
24-CMLCS-029	3	CMLCS	1
24-CMLCS-030	3	CMLCS	1
24-CMLCS-031	3	CMLCS	1
24-CMLCS-032	3	CMLCS	1
24-CMLCS-033	3	CMLCS	1
24-CMLCS-034	3	CMLCS	1
24-CMLCS-035	3	CMLCS	1
24-CMLCS-036	3	CMLCS	1
24-CMLCS-037	3	CMLCS	1
24-CMLCS-038	3	CMLCS	1
24-CMLCS-039	3	CMLCS	1
24-CMLCS-040	3	CMLCS	1
24-CMLCS-041	3	CMLCS	1
24-CMLCS-042	3	CMLCS	1
24-CMLCS-043	3	CMLCS	1
24-CMLCS-044	3	CMLCS	1
24-CMLCS-045	8	CMLCS	1
24-CMLCS-046	3	CMLCS	1
24-CMLCS-047	8	CMLCS	1
24-CMLCS-048	3	CMLCS	1
24-CMLCS-049	8	CMLCS	1
24-CMLCS-050	8	CMLCS	1
24-CMLCS-051	8	CMLCS	1
24-CMLCS-052	8	CMLCS	1

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
24-CMLCS-053	8	CMLCS	1
24-CMLCS-054	8	CMLCS	1
24-CMLCS-055	8	CMLCS	1
24-DIP-001	3	DI	2
24-DIP-002	3	DI	2
24-DIP-003	3	DI	2
24-DIP-004	3	DI	2
24-DIP-005	3	DI	2
24-DIP-006	3	DI	2
24-DIP-007	3	DI	2
24-DIP-008	3	DI	2
24-DIP-009	3	DI	2
24-DIP-010	3	DI	2
24-DIP-011	3	DI	2
24-DIP-012	3	DI	2
24-DIP-013	3	DI	2
24-DIP-014	3	DI	2
24-DIP-015	3	DI	2
24-DIP-016	3	DI	2
24-DIP-017	3	DI	2
24-DIP-018	3	DI	2
24-DIP-019	3	DI	2
24-DIP-020	3	DI	2
24-DIP-021	3	DI	2
24-DIP-022	3	DI	2
24-DIP-023	3	DI	2
24-DIP-024	3	DI	2
24-DIP-025	3	DI	2
24-DIP-026	3	DI	2
24-DIP-027	3	DI	2
24-DIP-028	3	DI	2
24-DIP-029	3	DI	2
24-DIP-030	3	DI	2
24-DIP-031	3	DI	2
24-MLS-001	3	MLS	5
24-MLS-002	3	MLS	5
24-MLS-003	3	MLS	5
30-CMLCS-001	8	CMLCS	1
30-CMLCS-002	3	CMLCS	1
30-CMLCS-003	3	CMLCS	1
30-CMLCS-004	3	CMLCS	1
30-CMLCS-005	3	CMLCS	1
30-CMLCS-006	3	CMLCS	1
30-CMLCS-007	3	CMLCS	1
30-CMLCS-008	3	CMLCS	1

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
30-CMLCS-009	3	CMLCS	1
30-CMLCS-010	3	CMLCS	1
30-CMLCS-011	3	CMLCS	1
30-CMLCS-012	3	CMLCS	1
30-CMLCS-013	3	CMLCS	1
30-CMLCS-014	3	CMLCS	1
30-CMLCS-015	3	CMLCS	1
30-CMLCS-016	3	CMLCS	1
30-CMLCS-017	3	CMLCS	1
30-CMLCS-18	3	CMLCS	1
30-DIP-001	3	DI	2
30-DIP-002	3	DI	2
30-DIP-003	3	DI	2
30-DIP-004	3	DI	2
36-CMLCS-001	8	CMLCS	1
36-CMLCS-002	8	CMLCS	1
36-CMLCS-003	3	CMLCS	1
36-CMLCS-004	3	CMLCS	1
36-CMLCS-005	3	CMLCS	1
36-CMLCS-006	3	CMLCS	1
36-CMLCS-007	3	CMLCS	1
36-CMLCS-008	3	CMLCS	1
36-CMLCS-009	3	CMLCS	1
36-CMLCS-010	3	CMLCS	1
36-CMLCS-011	3	CMLCS	1
36-CMLCS-012	3	CMLCS	1
36-CMLCS-013	3	CMLCS	1
36-CMLCS-014	3	CMLCS	1
36-CMLCS-015	3	CMLCS	1
36-CMLCS-016	3	CMLCS	1
36-CMLCS-017	3	CMLCS	1
36-CMLCS-018	3	CMLCS	1
36-CMLCS-019	3	CMLCS	1
36-CMLCS-020	3	CMLCS	1
36-CMLCS-021	3	CMLCS	1
36-CMLCS-022	3	CMLCS	1
36-CMLCS-023	8	CMLCS	1
36-CMLCS-024	8	CMLCS	1
36-CMLCS-025	8	CMLCS	1
36-CMLCS-026	8	CMLCS	1
48-CCP-001	3	CC	1
48-CCP-002	3	CC	1
48-CCP-003	3	CC	1
48-CCP-004	3	CC	1
48-CCP-005	3	CC	1

Pipe Material Score

T-Main Segment	Sub Type	Material	Score
48-CCP-006	3	CC	1
48-CCP-007	3	CC	1
48-CCP-008	3	CC	1
48-CCP-009	8	CC	1
48-CCP-010	3	CC	1
48-CCP-011	3	CC	1
6-ACP-001	8	AC	4
6-ACP-002	8	AC	4
6-DIP-001	8	DI	2
8-ACP-001	8	AC	4
8-ACP-002	8	AC	4
8-ACP-003	8	AC	4
8-ACP-004	8	AC	4
8-ACP-005	8	AC	4
8-ACP-006	8	AC	4
8-ACP-007	8	AC	4
8-ACP-008	8	AC	4
8-ACP-009	8	AC	4
8-ACP-010	8	AC	4
8-ACP-011	8	AC	4
8-ACP-012	8	AC	4
8-ACP-013	8	AC	4
8-ACP-014	8	AC	4
8-ACP-015	8	AC	4
8-ACP-016	8	AC	4
8-CMLCS-001	8	CMLCS	1
8-CMLCS-002	8	CMLCS	1
8-DIP-001	8	DI	2
8-DIP-002	8	DI	2
8-DIP-003	8	DI	2
8-DIP-004	8	DI	2
8-DIP-005	8	DI	2
8-DIP-006	8	DI	2
8-MLS-001	8	MLS	5
8-MLS-002	8	MLS	5
8-PVC-001	8	PVC	3

Appendix L – Failure Rate (Leaks/Segment)

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
10-ACP-001	8	0	1
10-ACP-002	8	0	1
10-ACP-003	8	0	1
10-ACP-004	8	0	1
10-ACP-005	8	0	1
10-ACP-006	8	0	1
10-ACP-007	8	0	1
10-ACP-008	8	0	1
10-ACP-009	8	0	1
10-ACP-010	8	0	1
10-ACP-011	8	0	1
10-ACP-012	8	0	1
10-CIP-001	8	0	1
10-CMLCS-001	8	0	1
10-CMLCS-002	8	0	1
10-DIP-001	8	0	1
10-DIP-002	8	0	1
10-DIP-003	8	0	1
10-DIP-004	8	0	1
10-MLS-001	8	0	1
10-PVC-001	8	0	1
12-ACP-001	8	0	1
12-ACP-002	8	0	1
12-ACP-003	8	0	1
12-ACP-004	8	0	1
12-ACP-005	8	0	1
12-CMLCS-001	8	0	1
12-DIP-001	8	0	1
12-DIP-002	8	0	1
12-DIP-003	8	0	1
12-DIP-004	8	0	1
12-DIP-005	8	0	1
12-DIP-006	8	0	1
12-DIP-007	8	0	1
12-DIP-008	8	0	1
12-DIP-009	8	0	1
12-DIP-010	8	0	1
12-DIP-011	8	0	1
12-DIP-012	8	0	1
12-DIP-013	8	0	1
12-DIP-014	8	0	1
12-DIP-015	8	0	1
12-DIP-016	8	0	1
12-DIP-017	8	0	1
12-MLS-001	8	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
12-MLS-002	8	0	1
12-PVC-001	8	0	1
12-PVC-002	8	0	1
12-PVC-003	8	0	1
12-PVC-004	8	0	1
12-PVC-005	8	0	1
14-DIP-001	8	0	1
14-DIP-002	8	0	1
14-DIP-003	8	0	1
14-DIP-004	8	0	1
14-DIP-005	8	0	1
16-ACP-001	3	0	1
16-ACP-002	3	0	1
16-ACP-003	3	0	1
16-ACP-004	3	1	3
16-ACP-005	3	0	1
16-ACP-006	3	0	1
16-ACP-007	3	0	1
16-CIP-001	3	0	1
16-CMLCS-001	8	0	1
16-CMLCS-002	8	0	1
16-CMLCS-003	8	0	1
16-CMLCS-004	8	0	1
16-CMLCS-005	8	0	1
16-CMLCS-006	8	0	1
16-CMLCS-007	8	0	1
16-CMLCS-008	3	0	1
16-CMLCS-009	8	0	1
16-CMLCS-010	8	0	1
16-CMLCS-011	8	0	1
16-CMLCS-012	8	0	1
16-CMLCS-013	8	0	1
16-CMLCS-014	8	0	1
16-CMLCS-015	8	0	1
16-CMLCS-016	3	0	1
16-CMLCS-017	3	0	1
16-CMLCS-018	3	0	1
16-CMLCS-019	3	0	1
16-CMLCS-020	3	0	1
16-CMLCS-021	3	0	1
16-CMLCS-022	3	0	1
16-CMLCS-023	3	0	1
16-CMLCS-024	3	0	1
16-CMLCS-025	3	0	1
16-CMLCS-026	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
16-CMLCS-027	3	0	1
16-DIP-001	3	0	1
16-DIP-002	3	0	1
16-DIP-003	3	0	1
16-DIP-004	3	0	1
16-DIP-005	3	0	1
16-DIP-006	3	0	1
16-DIP-007	3	0	1
16-DIP-008	3	0	1
16-DIP-009	3	0	1
16-DIP-010	3	0	1
16-DIP-011	3	0	1
16-DIP-012	3	0	1
16-DIP-013	3	0	1
16-DIP-014	3	0	1
16-DIP-015	3	0	1
16-DIP-016	3	0	1
16-DIP-017	3	0	1
16-DIP-018	3	0	1
16-DIP-019	3	0	1
16-DIP-020	3	0	1
16-DIP-021	3	0	1
16-DIP-022	3	0	1
16-DIP-023	3	0	1
16-DIP-024	3	0	1
16-DIP-025	3	0	1
16-DIP-026	3	0	1
16-DIP-027	3	0	1
16-DIP-028	3	0	1
16-DIP-029	3	0	1
16-DIP-030	3	0	1
16-DIP-031	3	0	1
16-DIP-032	3	0	1
16-DIP-033	3	0	1
16-DIP-034	3	0	1
16-DIP-035	3	0	1
16-DIP-036	3	0	1
16-DIP-037	3	0	1
16-DIP-038	3	0	1
16-DIP-039	3	0	1
16-DIP-040	3	0	1
16-DIP-041	3	0	1
16-DIP-042	3	0	1
16-DIP-043	3	0	1
16-DIP-044	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
16-DIP-045	3	0	1
16-DIP-046	3	0	1
16-DIP-047	3	0	1
16-DIP-048	3	0	1
16-DIP-049	3	0	1
16-DIP-050	3	0	1
16-DIP-051	3	0	1
16-DIP-052	3	0	1
16-DIP-053	3	0	1
16-DIP-054	3	0	1
16-DIP-055	3	0	1
16-DIP-056	3	0	1
16-DIP-057	3	0	1
16-DIP-058	3	0	1
16-DIP-059	3	0	1
16-DIP-060	3	0	1
16-DIP-061	3	0	1
16-DIP-062	3	0	1
16-DIP-064	3	0	1
16-DIP-065	3	0	1
16-DIP-066	3	0	1
16-DIP-067	3	0	1
16-DIP-068	3	0	1
16-DIP-069	3	0	1
16-DIP-070	3	0	1
16-DIP-071	3	0	1
16-DIP-072	3	0	1
16-DIP-073	3	0	1
16-DIP-074	3	0	1
16-DIP-075	3	0	1
16-DIP-076	3	0	1
16-DIP-077	3	0	1
16-DIP-078	3	0	1
16-DIP-079	3	0	1
16-DIP-080	3	0	1
16-DIP-081	3	0	1
16-DIP-082	3	0	1
16-DIP-083	3	0	1
16-DIP-084	3	0	1
16-DIP-085	3	0	1
16-DIP-086	3	0	1
16-DIP-087	3	0	1
16-DIP-088	3	0	1
16-DIP-089	3	0	1
16-DIP-090	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
16-DIP-091	3	0	1
16-DIP-092	3	0	1
16-DIP-093	3	0	1
16-DIP-094	3	0	1
16-DIP-095	3	0	1
16-DIP-096	3	0	1
16-DIP-097	3	0	1
16-DIP-098	3	0	1
16-DIP-099	3	0	1
16-DIP-100	3	0	1
16-DIP-101	3	0	1
16-DIP-103	3	0	1
16-DIP-104	3	0	1
16-DIP-105	3	0	1
16-DIP-106	3	0	1
16-DIP-107	3	0	1
16-DIP-108	3	0	1
16-DIP-109	3	0	1
16-DIP-110	3	0	1
16-DIP-111	3	0	1
16-DIP-112	3	0	1
16-DIP-113	3	0	1
16-DIP-114	3	0	1
16-DIP-115	3	0	1
16-DIP-116	3	0	1
16-DIP-117	3	1	3
16-DIP-118	3	0	1
16-DIP-119	3	0	1
16-DIP-120	3	0	1
16-DIP-121	3	0	1
16-DIP-122	3	0	1
16-DIP-123	3	0	1
16-DIP-124	3	0	1
16-DIP-125	3	0	1
16-DIP-126	3	0	1
16-DIP-127	3	0	1
16-DIP-128	8	0	1
16-DIP-129	3	0	1
16-DIP-130	3	0	1
16-DIP-131	3	0	1
16-DIP-132	3	0	1
16-DIP-133	3	0	1
16-DIP-134	3	0	1
16-DIP-135	3	0	1
16-DIP-136	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
16-DIP-137	3	0	1
16-DIP-138	3	0	1
16-DIP-139	3	0	1
16-DIP-140	3	0	1
16-DIP-141	3	0	1
16-DIP-142	3	0	1
16-DIP-143	3	0	1
16-DIP-144	3	0	1
16-DIP-145	3	0	1
16-DIP-146	3	0	1
16-DIP-147	3	0	1
16-DIP-148	3	0	1
16-DIP-149	3	0	1
16-DIP-150	3	0	1
16-DIP-151	3	0	1
16-DIP-152	3	0	1
16-DIP-153	8	0	1
16-DIP-154	3	0	1
16-DIP-155	3	0	1
16-DIP-156	3	0	1
16-DIP-157	3	0	1
16-DIP-158	3	0	1
16-DIP-159	3	0	1
16-DIP-160	3	0	1
16-DIP-161	3	0	1
16-DIP-162	3	0	1
16-DIP-163	3	0	1
16-DIP-164	3	0	1
16-DIP-165	3	0	1
16-DIP-166	3	0	1
16-DIP-167	3	0	1
16-DIP-168	3	0	1
16-MLS-001	3	0	1
16-MLS-002	3	0	1
16-MLS-003	3	0	1
16-MLS-004	3	0	1
16-MLS-005	3	0	1
16-MLS-006	3	0	1
16-MLS-007	3	0	1
16-MLS-008	3	0	1
16-MLS-009	3	0	1
16-PVC-001	3	0	1
16-PVC-002	8	1	3
16-PVC-003	3	0	1
16-PVC-004	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
16-PVC-005	3	0	1
16-PVC-006	8	0	1
16-PVC-007	3	0	1
16-PVC-008	8	0	1
16-PVC-009	8	0	1
16-PVC-010	3	0	1
16-PVC-011	3	0	1
16-PVC-012	3	0	1
16-PVC-013	3	0	1
16-PVC-014	3	0	1
18-CMLCS-001	8	0	1
18-CMLCS-002	3	0	1
18-CMLCS-003	3	0	1
18-CMLCS-004	3	0	1
18-CMLCS-005	8	0	1
18-CMLCS-006	8	0	1
18-CMLCS-007	3	0	1
18-CMLCS-008	8	0	1
18-DIP-001	3	0	1
18-DIP-002	3	0	1
18-MLS-001	3	0	1
18-MLS-002	3	0	1
18-MLS-003	3	0	1
18-MLS-004	3	0	1
18-MLS-005	3	0	1
18-MLS-006	3	0	1
18-MLS-007	3	0	1
18-MLS-008	3	0	1
20-DIP-001	8	0	1
20-DIP-002	3	0	1
20-DIP-003	3	0	1
20-DIP-004	3	0	1
20-DIP-005	3	0	1
20-DIP-006	3	0	1
20-DIP-007	3	0	1
20-DIP-008	3	0	1
20-DIP-009	3	0	1
20-MLS-001	3	0	1
24-CMLCS-001	8	0	1
24-CMLCS-002	8	0	1
24-CMLCS-003	3	0	1
24-CMLCS-004	3	0	1
24-CMLCS-005	3	0	1
24-CMLCS-006	3	0	1
24-CMLCS-007	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
24-CMLCS-008	8	0	1
24-CMLCS-009	8	0	1
24-CMLCS-010	3	0	1
24-CMLCS-011	3	0	1
24-CMLCS-012	3	0	1
24-CMLCS-013	3	0	1
24-CMLCS-014	3	0	1
24-CMLCS-015	3	0	1
24-CMLCS-016	3	0	1
24-CMLCS-017	3	0	1
24-CMLCS-018	3	0	1
24-CMLCS-019	3	0	1
24-CMLCS-020	3	0	1
24-CMLCS-021	3	0	1
24-CMLCS-022	3	0	1
24-CMLCS-023	3	0	1
24-CMLCS-024	3	0	1
24-CMLCS-025	3	0	1
24-CMLCS-026	3	0	1
24-CMLCS-027	3	0	1
24-CMLCS-028	3	0	1
24-CMLCS-029	3	0	1
24-CMLCS-030	3	0	1
24-CMLCS-031	3	1	3
24-CMLCS-032	3	0	1
24-CMLCS-033	3	0	1
24-CMLCS-034	3	0	1
24-CMLCS-035	3	0	1
24-CMLCS-036	3	0	1
24-CMLCS-037	3	0	1
24-CMLCS-038	3	0	1
24-CMLCS-039	3	0	1
24-CMLCS-040	3	0	1
24-CMLCS-041	3	0	1
24-CMLCS-042	3	0	1
24-CMLCS-043	3	0	1
24-CMLCS-044	3	0	1
24-CMLCS-045	8	0	1
24-CMLCS-046	3	0	1
24-CMLCS-047	8	0	1
24-CMLCS-048	3	0	1
24-CMLCS-049	8	0	1
24-CMLCS-050	8	0	1
24-CMLCS-051	8	0	1
24-CMLCS-052	8	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
24-CMLCS-053	8	0	1
24-CMLCS-054	8	0	1
24-CMLCS-055	8	0	1
24-DIP-001	3	0	1
24-DIP-002	3	0	1
24-DIP-003	3	0	1
24-DIP-004	3	0	1
24-DIP-005	3	0	1
24-DIP-006	3	0	1
24-DIP-007	3	0	1
24-DIP-008	3	0	1
24-DIP-009	3	0	1
24-DIP-010	3	0	1
24-DIP-011	3	0	1
24-DIP-012	3	0	1
24-DIP-013	3	0	1
24-DIP-014	3	0	1
24-DIP-015	3	0	1
24-DIP-016	3	0	1
24-DIP-017	3	0	1
24-DIP-018	3	0	1
24-DIP-019	3	0	1
24-DIP-020	3	0	1
24-DIP-021	3	0	1
24-DIP-022	3	0	1
24-DIP-023	3	0	1
24-DIP-024	3	0	1
24-DIP-025	3	0	1
24-DIP-026	3	0	1
24-DIP-027	3	0	1
24-DIP-028	3	0	1
24-DIP-029	3	0	1
24-DIP-030	3	0	1
24-DIP-031	3	0	1
24-MLS-001	3	0	1
24-MLS-002	3	0	1
24-MLS-003	3	0	1
30-CMLCS-001	8	0	1
30-CMLCS-002	3	0	1
30-CMLCS-003	3	0	1
30-CMLCS-004	3	0	1
30-CMLCS-005	3	0	1
30-CMLCS-006	3	0	1
30-CMLCS-007	3	0	1
30-CMLCS-008	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
30-CMLCS-009	3	0	1
30-CMLCS-010	3	0	1
30-CMLCS-011	3	0	1
30-CMLCS-012	3	0	1
30-CMLCS-013	3	0	1
30-CMLCS-014	3	0	1
30-CMLCS-015	3	0	1
30-CMLCS-016	3	0	1
30-CMLCS-017	3	0	1
30-CMLCS-18	3	0	1
30-DIP-001	3	0	1
30-DIP-002	3	0	1
30-DIP-003	3	0	1
30-DIP-004	3	0	1
36-CMLCS-001	8	0	1
36-CMLCS-002	8	0	1
36-CMLCS-003	3	0	1
36-CMLCS-004	3	0	1
36-CMLCS-005	3	0	1
36-CMLCS-006	3	0	1
36-CMLCS-007	3	0	1
36-CMLCS-008	3	0	1
36-CMLCS-009	3	0	1
36-CMLCS-010	3	0	1
36-CMLCS-011	3	0	1
36-CMLCS-012	3	0	1
36-CMLCS-013	3	0	1
36-CMLCS-014	3	0	1
36-CMLCS-015	3	0	1
36-CMLCS-016	3	0	1
36-CMLCS-017	3	0	1
36-CMLCS-018	3	0	1
36-CMLCS-019	3	0	1
36-CMLCS-020	3	0	1
36-CMLCS-021	3	0	1
36-CMLCS-022	3	0	1
36-CMLCS-023	8	0	1
36-CMLCS-024	8	0	1
36-CMLCS-025	8	0	1
36-CMLCS-026	8	0	1
48-CCP-001	3	0	1
48-CCP-002	3	0	1
48-CCP-003	3	0	1
48-CCP-004	3	0	1
48-CCP-005	3	0	1

Failure Rate Score

T-Main Segment	Sub Type	Leaks/Segment	Score
48-CCP-006	3	0	1
48-CCP-007	3	0	1
48-CCP-008	3	0	1
48-CCP-009	8	0	1
48-CCP-010	3	0	1
48-CCP-011	3	0	1
6-ACP-001	8	1	3
6-ACP-002	8	0	1
6-DIP-001	8	0	1
8-ACP-001	8	0	1
8-ACP-002	8	0	1
8-ACP-003	8	0	1
8-ACP-004	8	0	1
8-ACP-005	8	0	1
8-ACP-006	8	0	1
8-ACP-007	8	0	1
8-ACP-008	8	0	1
8-ACP-009	8	0	1
8-ACP-010	8	0	1
8-ACP-011	8	0	1
8-ACP-012	8	0	1
8-ACP-013	8	0	1
8-ACP-014	8	0	1
8-ACP-015	8	2	3
8-ACP-016	8	0	1
8-CMLCS-001	8	0	1
8-CMLCS-002	8	0	1
8-DIP-001	8	0	1
8-DIP-002	8	0	1
8-DIP-003	8	0	1
8-DIP-004	8	0	1
8-DIP-005	8	0	1
8-DIP-006	8	0	1
8-MLS-001	8	0	1
8-MLS-002	8	0	1
8-PVC-001	8	0	1

Appendix M – Static Pressure

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
10-ACP-001	8	0	1
10-ACP-002	8	42	1
10-ACP-003	8	57	1
10-ACP-004	8	0	1
10-ACP-005	8	55	1
10-ACP-006	8	56	1
10-ACP-007	8	59	1
10-ACP-008	8	69	3
10-ACP-009	8	37	1
10-ACP-010	8	60	3
10-ACP-011	8	44	1
10-ACP-012	8	52	1
10-CIP-001	8	0	1
10-CMLCS-001	8	69	3
10-CMLCS-002	8	102	5
10-DIP-001	8	61	3
10-DIP-002	8	60	3
10-DIP-003	8	61	3
10-DIP-004	8	68	3
10-MLS-001	8	76	3
10-PVC-001	8	56	1
12-ACP-001	8	0	1
12-ACP-002	8	60	3
12-ACP-003	8	52	1
12-ACP-004	8	71	3
12-ACP-005	8	60	3
12-CMLCS-001	8	55	1
12-DIP-001	8	0	1
12-DIP-002	8	55	1
12-DIP-003	8	0	1
12-DIP-004	8	57	1
12-DIP-005	8	53	1
12-DIP-006	8	60	3
12-DIP-007	8	55	1
12-DIP-008	8	55	1
12-DIP-009	8	47	1
12-DIP-010	8	52	1
12-DIP-011	8	44	1
12-DIP-012	8	43	1
12-DIP-013	8	60	3
12-DIP-014	8	0	1
12-DIP-015	8	67	3
12-DIP-016	8	57	1
12-DIP-017	8	57	1
12-MLS-001	8	69	3

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
12-MLS-002	8	69	3
12-PVC-001	8	69	3
12-PVC-002	8	48	1
12-PVC-003	8	51	1
12-PVC-004	8	63	3
12-PVC-005	8	0	1
14-DIP-001	8	47	1
14-DIP-002	8	47	1
14-DIP-003	8	47	1
14-DIP-004	8	47	1
14-DIP-005	8	47	1
16-ACP-001	3	62	3
16-ACP-002	3	69	3
16-ACP-003	3	69	3
16-ACP-004	3	68	3
16-ACP-005	3	68	3
16-ACP-006	3	68	3
16-ACP-007	3	68	3
16-CIP-001	3	68	3
16-CMLCS-001	8	69	3
16-CMLCS-002	8	69	3
16-CMLCS-003	8	69	3
16-CMLCS-004	8	69	3
16-CMLCS-005	8	69	3
16-CMLCS-006	8	69	3
16-CMLCS-007	8	69	3
16-CMLCS-008	3	43	1
16-CMLCS-009	8	69	3
16-CMLCS-010	8	69	3
16-CMLCS-011	8	102	5
16-CMLCS-012	8	62	3
16-CMLCS-013	8	57	1
16-CMLCS-014	8	62	3
16-CMLCS-015	8	69	3
16-CMLCS-016	3	0	1
16-CMLCS-017	3	0	1
16-CMLCS-018	3	105	5
16-CMLCS-019	3	105	5
16-CMLCS-020	3	120	5
16-CMLCS-021	3	43	1
16-CMLCS-022	3	43	1
16-CMLCS-023	3	43	1
16-CMLCS-024	3	63	3
16-CMLCS-025	3	62	3
16-CMLCS-026	3	58	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
16-CMLCS-027	3	43	1
16-DIP-001	3	68	3
16-DIP-002	3	76	3
16-DIP-003	3	76	3
16-DIP-004	3	76	3
16-DIP-005	3	76	3
16-DIP-006	3	76	3
16-DIP-007	3	76	3
16-DIP-008	3	76	3
16-DIP-009	3	76	3
16-DIP-010	3	76	3
16-DIP-011	3	76	3
16-DIP-012	3	76	3
16-DIP-013	3	76	3
16-DIP-014	3	76	3
16-DIP-015	3	76	3
16-DIP-016	3	76	3
16-DIP-017	3	69	3
16-DIP-018	3	69	3
16-DIP-019	3	69	3
16-DIP-020	3	69	3
16-DIP-021	3	59	1
16-DIP-022	3	68	3
16-DIP-023	3	68	3
16-DIP-024	3	68	3
16-DIP-025	3	68	3
16-DIP-026	3	68	3
16-DIP-027	3	58	1
16-DIP-028	3	58	1
16-DIP-029	3	58	1
16-DIP-030	3	58	1
16-DIP-031	3	51	1
16-DIP-032	3	51	1
16-DIP-033	3	51	1
16-DIP-034	3	51	1
16-DIP-035	3	51	1
16-DIP-036	3	53	1
16-DIP-037	3	53	1
16-DIP-038	3	53	1
16-DIP-039	3	53	1
16-DIP-040	3	53	1
16-DIP-041	3	53	1
16-DIP-042	3	53	1
16-DIP-043	3	53	1
16-DIP-044	3	53	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
16-DIP-045	3	53	1
16-DIP-046	3	60	3
16-DIP-047	3	60	3
16-DIP-048	3	60	3
16-DIP-049	3	60	3
16-DIP-050	3	60	3
16-DIP-051	3	55	1
16-DIP-052	3	55	1
16-DIP-053	3	55	1
16-DIP-054	3	55	1
16-DIP-055	3	55	1
16-DIP-056	3	55	1
16-DIP-057	3	55	1
16-DIP-058	3	0	1
16-DIP-059	3	0	1
16-DIP-060	3	0	1
16-DIP-061	3	0	1
16-DIP-062	3	0	1
16-DIP-064	3	57	1
16-DIP-065	3	57	1
16-DIP-066	3	57	1
16-DIP-067	3	57	1
16-DIP-068	3	57	1
16-DIP-069	3	57	1
16-DIP-070	3	57	1
16-DIP-071	3	57	1
16-DIP-072	3	57	1
16-DIP-073	3	57	1
16-DIP-074	3	57	1
16-DIP-075	3	57	1
16-DIP-076	3	57	1
16-DIP-077	3	57	1
16-DIP-078	3	57	1
16-DIP-079	3	57	1
16-DIP-080	3	76	3
16-DIP-081	3	76	3
16-DIP-082	3	76	3
16-DIP-083	3	76	3
16-DIP-084	3	76	3
16-DIP-085	3	76	3
16-DIP-086	3	76	3
16-DIP-087	3	76	3
16-DIP-088	3	76	3
16-DIP-089	3	76	3
16-DIP-090	3	76	3

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
16-DIP-091	3	76	3
16-DIP-092	3	76	3
16-DIP-093	3	81	5
16-DIP-094	3	81	5
16-DIP-095	3	81	5
16-DIP-096	3	81	5
16-DIP-097	3	81	5
16-DIP-098	3	81	5
16-DIP-099	3	81	5
16-DIP-100	3	81	5
16-DIP-101	3	81	5
16-DIP-103	3	59	1
16-DIP-104	3	59	1
16-DIP-105	3	59	1
16-DIP-106	3	59	1
16-DIP-107	3	59	1
16-DIP-108	3	59	1
16-DIP-109	3	55	1
16-DIP-110	3	55	1
16-DIP-111	3	55	1
16-DIP-112	3	55	1
16-DIP-113	3	55	1
16-DIP-114	3	55	1
16-DIP-115	3	65	3
16-DIP-116	3	65	3
16-DIP-117	3	65	3
16-DIP-118	3	65	3
16-DIP-119	3	55	1
16-DIP-120	3	55	1
16-DIP-121	3	55	1
16-DIP-122	3	55	1
16-DIP-123	3	57	1
16-DIP-124	3	57	1
16-DIP-125	3	57	1
16-DIP-126	3	81	5
16-DIP-127	3	51	1
16-DIP-128	8	58	1
16-DIP-129	3	58	1
16-DIP-130	3	109	5
16-DIP-131	3	57	1
16-DIP-132	3	55	1
16-DIP-133	3	55	1
16-DIP-134	3	55	1
16-DIP-135	3	55	1
16-DIP-136	3	55	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
16-DIP-137	3	55	1
16-DIP-138	3	55	1
16-DIP-139	3	55	1
16-DIP-140	3	55	1
16-DIP-141	3	55	1
16-DIP-142	3	55	1
16-DIP-143	3	62	3
16-DIP-144	3	62	3
16-DIP-145	3	62	3
16-DIP-146	3	62	3
16-DIP-147	3	62	3
16-DIP-148	3	62	3
16-DIP-149	3	62	3
16-DIP-150	3	62	3
16-DIP-151	3	56	1
16-DIP-152	3	61	3
16-DIP-153	8	69	3
16-DIP-154	3	71	3
16-DIP-155	3	71	3
16-DIP-156	3	71	3
16-DIP-157	3	71	3
16-DIP-158	3	71	3
16-DIP-159	3	71	3
16-DIP-160	3	71	3
16-DIP-161	3	71	3
16-DIP-162	3	71	3
16-DIP-163	3	60	3
16-DIP-164	3	12	1
16-DIP-165	3	55	1
16-DIP-166	3	69	3
16-DIP-167	3	59	1
16-DIP-168	3	0	1
16-MLS-001	3	60	3
16-MLS-002	3	60	3
16-MLS-003	3	63	3
16-MLS-004	3	63	3
16-MLS-005	3	63	3
16-MLS-006	3	63	3
16-MLS-007	3	63	3
16-MLS-008	3	63	3
16-MLS-009	3	63	3
16-PVC-001	3	0	1
16-PVC-002	8	0	1
16-PVC-003	3	0	1
16-PVC-004	3	0	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
16-PVC-005	3	0	1
16-PVC-006	8	0	1
16-PVC-007	3	76	3
16-PVC-008	8	53	1
16-PVC-009	8	60	3
16-PVC-010	3	63	3
16-PVC-011	3	0	1
16-PVC-012	3	63	3
16-PVC-013	3	0	1
16-PVC-014	3	60	3
18-CMLCS-001	8	12	1
18-CMLCS-002	3	120	5
18-CMLCS-003	3	63	3
18-CMLCS-004	3	63	3
18-CMLCS-005	8	12	1
18-CMLCS-006	8	12	1
18-CMLCS-007	3	105	5
18-CMLCS-008	8	12	1
18-DIP-001	3	105	5
18-DIP-002	3	55	1
18-MLS-001	3	63	3
18-MLS-002	3	63	3
18-MLS-003	3	63	3
18-MLS-004	3	63	3
18-MLS-005	3	63	3
18-MLS-006	3	63	3
18-MLS-007	3	63	3
18-MLS-008	3	63	3
20-DIP-001	8	105	5
20-DIP-002	3	52	1
20-DIP-003	3	52	1
20-DIP-004	3	52	1
20-DIP-005	3	52	1
20-DIP-006	3	60	3
20-DIP-007	3	60	3
20-DIP-008	3	69	3
20-DIP-009	3	76	3
20-MLS-001	3	63	3
24-CMLCS-001	8	47	1
24-CMLCS-002	8	47	1
24-CMLCS-003	3	57	1
24-CMLCS-004	3	0	1
24-CMLCS-005	3	0	1
24-CMLCS-006	3	12	1
24-CMLCS-007	3	12	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
24-CMLCS-008	8	69	3
24-CMLCS-009	8	69	3
24-CMLCS-010	3	102	5
24-CMLCS-011	3	0	1
24-CMLCS-012	3	0	1
24-CMLCS-013	3	0	1
24-CMLCS-014	3	57	1
24-CMLCS-015	3	52	1
24-CMLCS-016	3	120	5
24-CMLCS-017	3	47	1
24-CMLCS-018	3	47	1
24-CMLCS-019	3	44	1
24-CMLCS-020	3	44	1
24-CMLCS-021	3	53	1
24-CMLCS-022	3	53	1
24-CMLCS-023	3	60	3
24-CMLCS-024	3	60	3
24-CMLCS-025	3	60	3
24-CMLCS-026	3	60	3
24-CMLCS-027	3	60	3
24-CMLCS-028	3	60	3
24-CMLCS-029	3	60	3
24-CMLCS-030	3	61	3
24-CMLCS-031	3	61	3
24-CMLCS-032	3	52	1
24-CMLCS-033	3	52	1
24-CMLCS-034	3	47	1
24-CMLCS-035	3	0	1
24-CMLCS-036	3	0	1
24-CMLCS-037	3	0	1
24-CMLCS-038	3	61	3
24-CMLCS-039	3	61	3
24-CMLCS-040	3	61	3
24-CMLCS-041	3	61	3
24-CMLCS-042	3	61	3
24-CMLCS-043	3	63	3
24-CMLCS-044	3	63	3
24-CMLCS-045	8	62	3
24-CMLCS-046	3	62	3
24-CMLCS-047	8	69	3
24-CMLCS-048	3	47	1
24-CMLCS-049	8	47	1
24-CMLCS-050	8	57	1
24-CMLCS-051	8	0	1
24-CMLCS-052	8	0	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
24-CMLCS-053	8	0	1
24-CMLCS-054	8	12	1
24-CMLCS-055	8	102	5
24-DIP-001	3	105	5
24-DIP-002	3	105	5
24-DIP-003	3	120	5
24-DIP-004	3	57	1
24-DIP-005	3	56	1
24-DIP-006	3	109	5
24-DIP-007	3	109	5
24-DIP-008	3	52	1
24-DIP-009	3	52	1
24-DIP-010	3	52	1
24-DIP-011	3	60	3
24-DIP-012	3	60	3
24-DIP-013	3	60	3
24-DIP-014	3	69	3
24-DIP-015	3	69	3
24-DIP-016	3	69	3
24-DIP-017	3	69	3
24-DIP-018	3	69	3
24-DIP-019	3	69	3
24-DIP-020	3	68	3
24-DIP-021	3	68	3
24-DIP-022	3	68	3
24-DIP-023	3	57	1
24-DIP-024	3	57	1
24-DIP-025	3	57	1
24-DIP-026	3	57	1
24-DIP-027	3	57	1
24-DIP-028	3	57	1
24-DIP-029	3	57	1
24-DIP-030	3	57	1
24-DIP-031	3	55	1
24-MLS-001	3	62	3
24-MLS-002	3	62	3
24-MLS-003	3	62	3
30-CMLCS-001	8	47	1
30-CMLCS-002	3	120	5
30-CMLCS-003	3	120	5
30-CMLCS-004	3	105	5
30-CMLCS-005	3	47	1
30-CMLCS-006	3	47	1
30-CMLCS-007	3	43	1
30-CMLCS-008	3	47	1

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
30-CMLCS-009	3	42	1
30-CMLCS-010	3	42	1
30-CMLCS-011	3	50	1
30-CMLCS-012	3	50	1
30-CMLCS-013	3	60	3
30-CMLCS-014	3	60	3
30-CMLCS-015	3	0	1
30-CMLCS-016	3	0	1
30-CMLCS-017	3	0	1
30-CMLCS-18	3	120	5
30-DIP-001	3	105	5
30-DIP-002	3	120	5
30-DIP-003	3	120	5
30-DIP-004	3	55	1
36-CMLCS-001	8	102	5
36-CMLCS-002	8	102	5
36-CMLCS-003	3	0	1
36-CMLCS-004	3	0	1
36-CMLCS-005	3	0	1
36-CMLCS-006	3	0	1
36-CMLCS-007	3	105	5
36-CMLCS-008	3	105	5
36-CMLCS-009	3	57	1
36-CMLCS-010	3	57	1
36-CMLCS-011	3	57	1
36-CMLCS-012	3	57	1
36-CMLCS-013	3	57	1
36-CMLCS-014	3	56	1
36-CMLCS-015	3	56	1
36-CMLCS-016	3	52	1
36-CMLCS-017	3	52	1
36-CMLCS-018	3	52	1
36-CMLCS-019	3	69	3
36-CMLCS-020	3	69	3
36-CMLCS-021	3	69	3
36-CMLCS-022	3	69	3
36-CMLCS-023	8	69	3
36-CMLCS-024	8	69	3
36-CMLCS-025	8	69	3
36-CMLCS-026	8	69	3
48-CCP-001	3	90	5
48-CCP-002	3	120	5
48-CCP-003	3	120	5
48-CCP-004	3	120	5
48-CCP-005	3	120	5

Static Pressure Score

T-Main Segment	Sub Type	Static Pressure	Score
48-CCP-006	3	120	5
48-CCP-007	3	120	5
48-CCP-008	3	102	5
48-CCP-009	8	105	5
48-CCP-010	3	105	5
48-CCP-011	3	48	1
6-ACP-001	8	0	1
6-ACP-002	8	0	1
6-DIP-001	8	57	1
8-ACP-001	8	0	1
8-ACP-002	8	41	1
8-ACP-003	8	68	3
8-ACP-004	8	81	5
8-ACP-005	8	80	3
8-ACP-006	8	0	1
8-ACP-007	8	62	3
8-ACP-008	8	47	1
8-ACP-009	8	52	1
8-ACP-010	8	0	1
8-ACP-011	8	68	3
8-ACP-012	8	0	1
8-ACP-013	8	0	1
8-ACP-014	8	76	3
8-ACP-015	8	12	1
8-ACP-016	8	12	1
8-CMLCS-001	8	47	1
8-CMLCS-002	8	50	1
8-DIP-001	8	0	1
8-DIP-002	8	0	1
8-DIP-003	8	71	3
8-DIP-004	8	61	3
8-DIP-005	8	57	1
8-DIP-006	8	0	1
8-MLS-001	8	64	3
8-MLS-002	8	0	1
8-PVC-001	8	0	1

Appendix N – Equations

Equation 1. Risk of Failure by Transmission Main Segment

$$ROF_i = LOF_i \text{ x } COF_i$$

ROF_i = *Risk of Failure per Transmission Main Segment "i"*
COF_i = Consequence of Failure for per Transmission Main Segment "i"
LOF_i = Likelihood of Failure for Transmission Main Segment "i"

Equation 2. Likelihood of Failure (LOF) per Transmission Main Segment

$$LOF_i = \frac{\sum LOF\ Criteria\ Score_i}{Max(\sum LOF\ Criteria\ Score)}$$

LOF_i = Likelihood of Failure for Transmission Main Segment "i"
$\sum$LOF Criteria Score$_i$ = Sum of all the LOF Criteria Scores per Transmission Main Segment "i"
Max($\sum$LOF Criteria Score) = Maximum LOF score possible

Equation 3. Consequence of Failure (COF) per Transmission Main Segment

$$COF_i = \frac{\sum COF\ Criteria\ Score_i}{Max(\sum COF\ Criteria\ Score)}$$

COF_i = Consequence of Failure for per Transmission Main Segment "i"
$\sum$COF Criteria Score$_i$ = Sum of all the COF Criteria Scores per Transmission Main Segment "i"
Max($\sum$COF Criteria Score) = Maximum COF score possible