

Identifying the Obligor for Municipal Securities

April 2024



Executive summary

The complexities of the municipal bond market make it challenging for users of bond data to quickly find what they need when searching in the Municipal Securities Rulemaking Board (MSRB) Electronic Municipal Markets Access (EMMA) system. A single bond issue can have more than one security, and more than one obligor. The obligor and issuer may be different entities, as in the case of so-called conduit issuers. The obligor may be an enterprise fund of a legal entity. The obligation may be restricted to a pledged revenue stream.

This paper considers four possible scenarios that can be found in the municipal marketplace. Analysis was conducted to determine if the web of relationships could be untangled by using data standards and identifiers to allow EMMA users to search by issuer, security, or obligor to find the proverbial “needle in a haystack”. The following real-world examples are used to illustrate how this approach could be employed:

1. Issuer and obligor are the same legal entity. There is more than one security in the issuance.
2. Issuer and obligor are the same. The bond can only be repaid through a specified pledged revenue stream.
3. Issuer and obligor are *different* legal entities. There are multiple distinct obligors, as in the case of a municipal pool program or a joint action agency.
4. Issuer is a legal entity. Obligor is an enterprise fund of a legal entity (but is not a legal entity itself).

To tackle the challenge, we leveraged the characteristics of the Legal Entity Identifier (LEI) to uniquely identify a single entity and the CUSIP (or potentially the Financial Instruments Global Identifier (FIGI)) to unambiguously identify a single security. We combined identifiers with features of the freely available, open eXtensible Business Reporting Language standard (XBRL) that allow two or more pieces of information to be concretely linked.

By establishing relationships, XBRL can enable links between a CUSIP, for example, and an LEI for the issuer and an LEI for the obligor. Furthermore, an enterprise fund of a government entity can also be firmly connected to the government entity through XBRL features. These relationships allow data about the issuer, the obligor, and the security to be easily related and searched upon, in the EMMA system or any other data repository.

The concept of “linking” information is not new to XBRL. It has been used extensively in corporate, banking, and utilities reporting for many years. Applying it to the municipal bond market is a logical next step that is facilitated by implementing requirements of the Financial Data Transparency Act (FDTA) .

Background

Municipal bonds may be issued by a government entity responsible for the bond or by a third party that provides financing services to governments or other nonprofits. Bonds can be backed by the government (legal) entity, by a fund of the government, or by revenue streams from a specific project.

To accurately evaluate the bond and the likelihood of it being paid back, investors need to know the obligor of the bond, i.e. the entity responsible for debt repayment, in addition to the issuer. When third parties issue a bond on behalf of the obligor (the government entity), it can be difficult to identify the underlying obligor. A conduit issuer like the Dormitory Authority of the State of New York (DASNY) for example, issues bonds on behalf of hundreds of governmental and non-profit institutions.

A single bond issue can have multiple obligors. An obligor can have obligations under multiple securities, which may be issued by one or more entities. A single security can have more than one obligor; and there may be different terms in place for one obligor versus a second obligor to

the same security. Finally, any given obligor may not be required to use all of its resources to service one or more of its bonds. Instead, the payment obligation may fall on a specific fund or subunit.

Given the complexity of the way that debt can be structured, the investor needs to have information about the issuer, the obligor, the security, and the relationship between the security and obligor.

Today, the MSRB EMMA system allows users to search on issuer and other characteristics like state or type of municipality, but there is no easy method to search on obligor or security because of the unstructured nature of the data. Investors typically can only identify the underlying obligor by manually reviewing the Official Statement (OS) which is typically lengthy, complex and published in a pdf format..

The FDTA presents an opportunity to resolve this problem.

The Financial Data Transparency Act (FDTA), which was signed into law in December 2022, provides an important opportunity to enable easier, more concrete search capabilities at a granular level through identifiers and standardization of data. The XBRL data standard and the Legal Entity Identifier (LEI) standard can be used together to identify the issuer and obligor responsible for a specific security and associate an identifier for the security and the obligor to facts reported about the security to obligor relationship.

How XBRL works

The XBRL standard renders data unequivocally machine-readable by embedding metadata (information about the fact) into the fact value itself. When the fact is ingested into a data user's system, the metadata provides details about the fact that allows a computer or a human to have a complete understanding of what the fact represents (its semantic meaning).

XBRL also identifies relationships that exist between accounting concepts. For example, XBRL can digitally communicate that an accounting term like Assets is a parent to the accounting term, Current Assets.

Parent : Child (Presentation) Relationship



XBRL captures mathematical relationships, for example, that Revenue for Transportation Services adds positively into Revenues for Public Works Services.

Mathematical (Calculation) Relationship

200000 - Statement - Activities - Expenses and Revenues for Programs

	Revenue for Airport Services	Cr
+	Revenue for Transportation Services	Cr
+	Revenue for Sanitary Sewer Services	Cr
+	Revenue for Water and Sewer Systems	Cr
+	Revenue for Water Supply Services	Cr
+	Revenue for Storm Sewer Services	Cr
+	Revenue for Sanitation	Cr
	Revenue for Public Works Services	Cr

XBRL can also establish the relationship between a government entity and a fund of the government, such as an enterprise or internal service fund.

XBRL can establish other kinds of relationships depending on reporting needs. To handle the challenge of being able to consistently, unambiguously identify the obligor and the issuer of a particular security, XBRL can establish identifiable relationships to handle the challenges of accurately searching on municipal bond issuances.

Using the LEI together with a unique securities identifier like the CUSIP or the FIGI, the XBRL standard can allow consumers of municipal bond data to unambiguously identify information about the security, the issuer, the obligor, and about the relationship between a security and an obligor.

XBRL and identifiers in practice

Standards and unique identifiers can be used to enable efficient searching for municipal securities information, addressing the four scenarios outlined earlier.

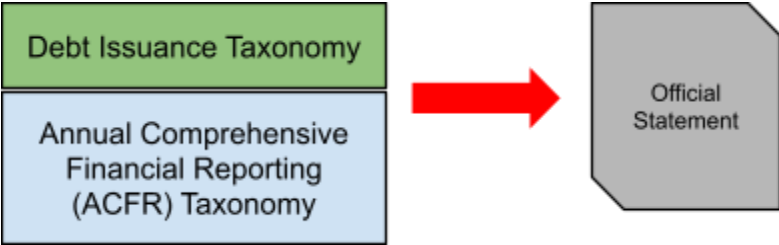
Taxonomy to represent the issuer, obligor and security

An XBRL taxonomy is a digital dictionary composed of terms (or concepts) that is used to report data unambiguously. A Debt Issuance Taxonomy can be created to represent debt issuance-related concepts about the issuer, the obligor, the security, and the relationship between the security and obligor. The table below contains a partial list of the kind of concepts that may be reported in an Official Statement (OS) or other continuing disclosure document about these four areas. Each XBRL concept has an associated definition, data type (for example monetary for Principal Amount, or string for Obligor Name) and potentially other attributes.

Issuer Concepts	Obligor Concepts	Security Concepts	Obligor-Security Relationship Concepts
Issuer Name Issuer Legal Entity Identifier Issuer Address1 Issuer Address2 Issuer City Issuer State Issuer Area Code Issuer Zip Code	Obligor Name Obligor Legal Entity Identifier Obligor Address1 Obligor Address2 Obligor City Obligor State Obligor Area Code Obligor Zip Code	CUSIP Number Financial Instrument Global Identifier (FIGI) Date of Issue Name of Issue Maturity Date Coupon Rate Offering Price Offering Yield Principal Amount Financing Purpose Name of Underwriter Multiple Obligor, Flag Pledged Revenue Stream Pledged Revenue Stream, Flag	Obligor and Security Relationship, Description Obligor Name CUSIP Number Financial Instrument Global Identifier (FIGI) Obligor LEI Obligor Obligations Obligor Covenants

The OS may also contain financial statement data prepared by the issuer, the obligor, or both. An XBRL taxonomy exists to represent government financial statement data, called the Annual Comprehensive Financial Reporting (ACFR) Taxonomy, which can be used in conjunction with the Debt Issuance Taxonomy.

When an issuer prepares the OS in machine-readable format, he or she will be able to access terms from the Debt Issuance Taxonomy and the ACFR Taxonomy within the same reporting application to efficiently prepare the OS. This ensures that data reported in the ACFR is the same data reported in other municipal disclosure reports. This avoids duplication and ensures consistency across reports. As shown in the illustration below, some portions of an OS may be prepared using concepts in the Debt Issuance Taxonomy; and other portions prepared using concepts in the ACFR Taxonomy.



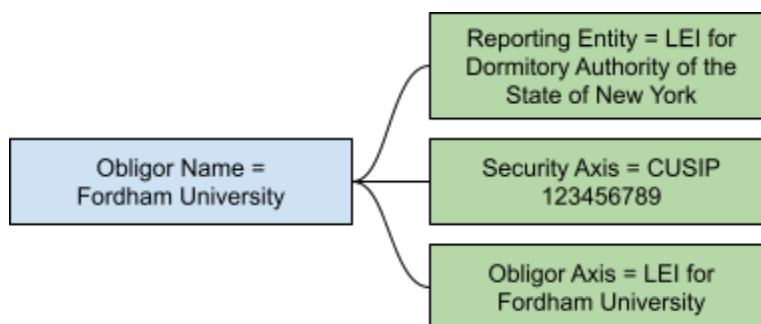
Connecting the obligor-issuer-security

In the reporting framework based on the proposed XBRL Debt Issuance Taxonomy, the issuer, as the legal entity that issues the security and prepares the OS and other disclosures submitted to the EMMA system, will have a Legal Entity Identifier (LEI). The security will have a unique securities identifier which could be a CUSIP (or potentially a Financial Instrument Global

Identifier (FIGI), which is another unique security identifier). The obligor may or may not be a legal entity. If it is a legal entity, it will have an LEI; if it is not, it will only be identified by its name but it can be associated with the LEI of its parent entity.

An XBRL feature called a “dimension” (also known as an axis) is used to further define or dimensionalize a fact and link it to other facts. Dimensions will be used in the Debt Issuance Taxonomy to link the obligor, the security, and the issuer of the municipal bond.

Below is a simple example in which Fordham University is the obligor, however the bond has been issued by a different legal entity, the Dormitory Authority of the State of New York. This illustrates how a fact reported that represents the *Obligor Name* (in the blue box) for the bond is concretely linked to the information in the green boxes: the LEI for the issuer, the CUSIP for the bond, and the LEI for the obligor (Fordham University). Each green box represents an “axis” that further defines the obligor.



This linking approach can be used to manage scenarios with various combinations and types of obligors and securities.

Reporting tools facilitate XBRL preparation

Reporting applications that produce data in structured, machine-readable format efficiently enable the embedding of information about the security, the obligor and the issuer into reported facts, without requiring document preparers to understand the technical aspects of XBRL. Applications already used by government entities today can be configured to allow issuers to identify the security/obligor/issuer relationships at the same time that the document is being prepared.

The scenarios described earlier will be addressed individually in the rest of this paper to demonstrate how data standards and identifiers can be used to solve the identification challenge. Each scenario is accompanied by screenshots of sections of the OS that contain information about the security, the obligor, and the issuer to illustrate how the data and relationships can be defined to facilitate querying and data extraction. Other narrative and quantitative information in the OS can also be linked to concepts in taxonomies specified by the report (a process known as XBRL tagging).

Example 1. Issuer and obligor are the same legal entity. More than one security is issued.

The City of Boston, Massachusetts is both issuer and obligor for a series of bonds.

The image below shows how information about each security in the issuance is reported by embedding (XBRL tagging) information about the security into the fact. There are multiple securities. To report the principal amount of \$33,475,000 for CUSIP 100853J92 will require the City of Boston to associate three pieces of information with the fact: 1) the concept from the Debt Issuance Taxonomy for *Principal Amount* which explains what the fact represents, 2) the *Security Axis* where the member of the Axis is set to CUSIP 100853J92 which explains that the fact is associated with this security, and 3) the LEI for the City of Boston to clarify that the fact is reported by this organization.

By XBRL tagging the fact with these three pieces of information, it is rendered unambiguously machine-readable. To tag the value 17,110,000, which represents Principal Amount for the second security listed on the table, the issuer will use the same tags except that the *Security Axis* will contain the member CUSIP 100853K25 to appropriately represent the security on the second row of the table.

CITY OF BOSTON, MASSACHUSETTS
\$350,000,000
General Obligation Bonds
2023 Series A

Dated: Date of Delivery **Due: November 1, as shown below**

Interest				CUSIP	Interest				CUSIP
Maturity	Amount	Rate	Yield	Number*	Maturity	Amount	Rate	Yield	Number*
2023	\$33,475,000	5.00%	2.65%	100853H78	2033	\$14,690,000	5.00%	2.39%	100853J92
2024	17,110,000	5.00	2.65	100853H86	2034	15,445,000	5.00	2.45**	100853K25
2025	17,995,000	5.00	2.53	100853H94	2035	16,235,000	5.00	2.58**	100853K33

Security [Axis]. Member = CUSIP 100853J92

Principal Amount

Reporting Entity for the instance document = LEI for City of Boston

This next image shows information about the issuer which, in this scenario, is also the obligor. Financial statement data reported here, such as the highlighted fact \$2,795,910 will use the XBRL concept in the ACFR Taxonomy, *Cash and Investments*. The fact is associated with the LEI for the City of Boston to explain that it represents the reporting entity. The two tags (for the concept *Cash and Investments*, and the reporting entity LEI) together confirm what the data represents and who reported it.

This is a straightforward example because the issuer and the obligor are the same. When no obligor identifier is used in the tagging process, the assumption can be made that the issuer and the obligor are the same.

Statement of Net Position
June 30, 2022
(Amounts in thousands)

ASSETS:

Current Assets:

Cash and investments
 Cash and investments held by trustees
 Receivables, net
 Property and other taxes
 Intergovernmental
 Other
 Other assets
 Due from primary government
 Due from component units
 Total current assets

	Primary Government Governmental Activities	Aggregate Discretely Presented Component Units
Cash and Investments	\$ 2,795,910	\$ 175,272
Cash and investments held by trustees	138,243	23,027
Receivables, net		
Property and other taxes	34,156	-
Intergovernmental	125,906	-
Other	18,237	10,659
Other assets	11,848	64,436
Due from primary government	-	1,039
Due from component units	7,168	-
Total current assets	3,131,468	274,433

Cash and Investments

Reporting Entity = LEI for City of Boston

Example 2. Issuer and obligor are the same but the bond can only be repaid through a specified pledged revenue stream.

Salt Lake County, Utah issued Sales Tax Revenue Refunding Bonds which are payable solely from and secured by a pledge of the revenues from the bonds which is explained on the first page of the Official Statement.

The maturity schedule for the bonds shown below illustrates how data about a particular security is XBRL tagged. The fact 1,240,000 is associated with 1) the concept Principal Amount, 2) the reporting entity LEI for Salt Lake County, Utah, and 3) the CUSIP for the specific security. These three pieces of information unequivocally define the fact.

Salt Lake County, Utah

\$20,485,000

Sales Tax Revenue Refunding Bonds, Series 2020B

Dated: Date of Delivery¹

Due: February 1, as shown below

Due February 1	CUSIP® 795685	Principal Amount	Interest Rate	Yield
2021.....	GW0	\$1,240,000	5.00%	0.20%
2022.....	GX8	980,000	5.00	0.23
2023.....	GY6	1,035,000	5.00	0.26

The illustration below shows how to capture information about the obligation to the security. This bond is to be repaid by a pledged revenue stream therefore the issuer (Salt Lake County) would use the Pledged Revenue Axis with the member set to “Salt Lake County Sales Tax Revenue”.

The obligor is the same entity as the issuer, but the payment behind the bonds is restricted to a pledged revenue stream which is described on the cover page of the OS. To ensure that users of the data are aware that a pledged revenue stream has been specified by bond payment, the issuer can embed a boolean tag of Pledged Revenue Stream, Flag, with it set to TRUE. This alerts data users to look for the pledged revenue stream.

By tagging the text that describes what represented the pledged funds with the concepts: 1) Pledged Revenue Stream, Description (which can accommodate a text block data type); 2) Pledged Revenue Stream Axis where member = Salt Lake County Sales Tax Revenue; 3) Security Axis where member = appropriate CUSIP; and 4) the LEI for the issuer/obligor, the relationship between the security, the issuer/obligor, and the pledged revenue stream are unambiguously tied together. This allows users to easily identify data of interest and the appropriate entities involved.



Salt Lake County, Utah

\$20,485,000

Sales Tax Revenue Refunding Bonds, Series 2020B

Pledged Revenue Stream, Flag

The \$20,485,000, Sales Tax Revenue Refunding Bonds, Series 2020B are issued by Salt Lake County, Utah, initially issued, will be in book-entry form, registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York. DTC will act as securities depository for the 2020B Bonds.

Pledged Revenue Stream [Axis], Member = Salt Lake County Sales Tax Revenue

Principal of and interest on the 2020B Bonds (interest payable February 1, 2021) are payable by Zions Bancorporation, National Association, Corporate Trust Department, Salt Lake City, Utah, as Paying Agent, to the registered owners thereof, initially DTC.

Security [Axis], Member = CUSIP 795685GW0

The 2020B Bonds are subject to optional redemption prior to maturity. See "THE 2020B BONDS—Redemption"

Pledged Revenue Stream, Description

The 2020B Bonds are being issued for the purpose of refunding certain sales tax revenue bonds previously issued by the County. The 2020B Bonds will be equally and ratably secured under the

Reporting Entity = LEI for Salt Lake County, Utah

The 2020B Bonds are special limited obligations of the County, payable solely from and secured by a pledge of the revenues, moneys, securities and funds pledged therefor in the Indenture. The revenues consist of the Pledged Taxes. No assurance can be given that the Pledged Taxes will remain sufficient for the payment of principal and interest on the 2020B Bonds and the County is limited by Utah law in its ability to increase the rate of such taxes. See "INVESTMENT CONSIDERATIONS IN THE OWNERSHIP OF THE 2020B BONDS" herein. The 2020B Bonds do not constitute general obligation indebtedness or a pledge of the ad valorem taxing power or full faith and credit of the County, and are not obligations of the State of Utah or any other agency or other political subdivision or entity of the State of Utah. The County will not mortgage or grant any security interest in all or any portion of the improvements refinanced with the proceeds of the 2020B Bonds to secure payment of the 2020B Bonds. See "SECURITY AND SOURCES OF PAYMENT" herein.

Example 3. Issuer and obligor are *different* legal entities. There are multiple distinct obligors, as in the case of a municipal pool program or a joint action agency.

Lancaster County Career & Technology Center issued multiple bonds as part of a pooled transaction on behalf of 17 obligors that represent individual school districts. The image below depicts how the securities are rendered machine-readable in XBRL.

The value 530,000 on the left side of the image below, represents Principal Amount and is associated with three pieces of information: 1) the taxonomy concept for *Principal Amount*, 2) the *Security Axis* where the CUSIP is 514041CC4, and 3) the LEI for the issuer, Lancaster County Career & Technology Center.

On the right side of the image the value 1.00% is also associated with three pieces of information: 1) the XBRL taxonomy concept, *Interest Rate*, 2) the *Security Axis* where the CUSIP is 514041CA8, and 3) the LEI for the issuer, Lancaster County Career & Technology Center. Note that there is a different CUSIP assigned to this fact because it is reported for a different security.

Because there is more than one obligor to this issuance, the concept *Multiple Obligors, Flag*, which is a boolean element, is set to TRUE. This alerts data users that there is more than one obligor to the issuance.

\$11,145,000
LANCASTER COUNTY CAREER & TECHNOLOGY CENTER AUTHORITY
GUARANTEED LEASE REVENUE BONDS, SERIES OF 2020
(LANCASTER COUNTY CAREER & TECHNOLOGY CENTER)
Lancaster County, Pennsylvania

Dated: Date of Delivery
Due: February 1, as shown below
Denomination: Integral multiples of \$5,000

Interest Payable: February 1 and August 1
First Interest Payment: August 1, 2020
Form: Book-Entry Only

Maturity Schedule

Year (February 1)	Principal Amount	Interest Rate	Price	CUSIP Numbers ⁽¹⁾
2021	\$ 645,000	1.000%	100.134%	514041 CA8
2022	525,000	2.000	101.759	514041 CB6
2023	530,000	2.000	102.546	514041 CC4

Interest Rate: [Interest Rate]

Principal Amount: [Principal Amount]

Security [Axis], Member = CUSIP 514041CC4

Security [Axis], Member = CUSIP 514041CA8

Reporting Entity = Issuer LEI for Lancaster County Career & Technology Center Authority

Reporting Entity = Issuer LEI for Lancaster County Career & Technology Center Authority

Multiple Obligor, Flag = TRUE

The OS also contains financial statement data reported by each of the 17 obligors. The image below shows part of a revenue statement for Conestoga Valley School District. The fact, 47,410,975, highlighted on the table is represented by the XBRL concept, *Revenues from Local Sources*, which is in the ACFR Taxonomy. It is also tagged with the reporting entity which is the LEI for Conestoga Valley. All 17 obligors are similarly tagged with the data differentiated by the fact that the reporting entity is represented by the individual school district's LEI.

CONESTOGA VALLEY SCHOOL DISTRICT
Comparative Statement of General Fund Financial
Condition for Fiscal Years Ending June 30

	Fiscal Year Ending June 30,				
	2015-16 Audited	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Budgeted
REVENUES					
Local Sources	47,410,975	48,814,620	50,627,988	5,3162,696	54,392,247
State Sources	12,097,091	14,125,633	14,594,679	15,203,176	15,504,778
Federal Sources	2,126,434	3,144,205	2,904,504	2,788,930	1,978,185
Total Revenues	61,634,500	66,084,458	68,127,171	71,154,802	71,875,210

Revenues from Local Sources

Reporting Entity for this portion of the document = LEI (for Conestoga Valley School District)

Financial statement data about the issuer is also similarly tagged as shown below, again by using financial statement concepts found in the ACFR Taxonomy.

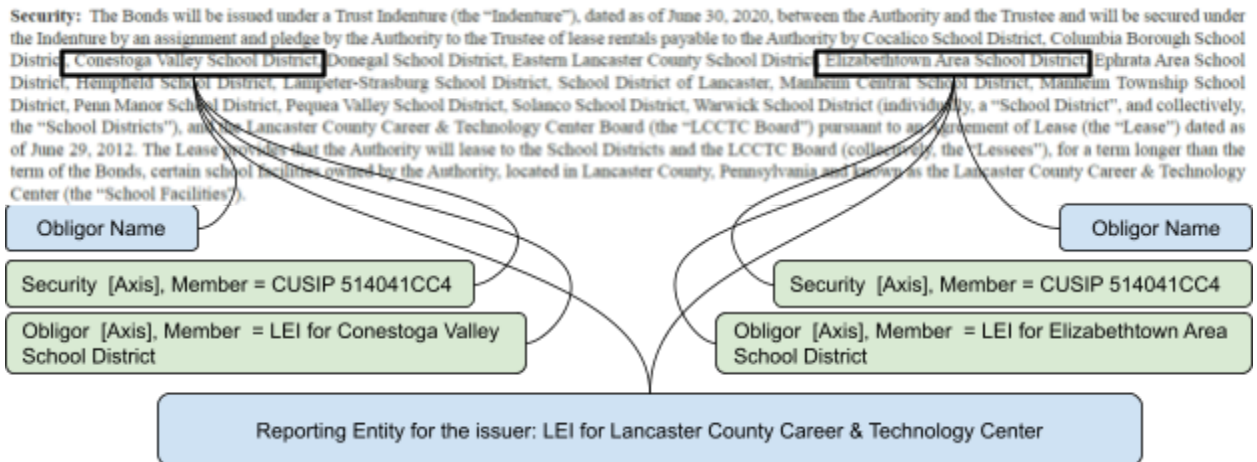
**The Lancaster County Career & Technology Center
Comparative Statement of General Fund Revenues and Expenditures
for Fiscal Years Ending June 30**

	Year Ended June 30,				
	2016	2017	2018	2019	Budget 2020
REVENUES					
Local Sources	\$ 17,121,014	\$ 17,773,545	\$ 19,566,610	\$ 19,796,193	\$ 20,160,502
State Sources	4,044,172	4,259,296	4,384,360	4,551,050	3,207,489
Federal Sources	5,655,435	5,227,840	4,786,603	4,407,229	4,407,229
TOTAL REVENUES	26,820,621	27,260,681	28,737,573	28,756,472	27,775,220

Reporting entity for the instance document = Lancaster County Career & Technology Center LEI

To ensure that the security, obligor, and issuer are inextricably linked, a section in the OS that lists all of the obligors is tagged as shown in the image below. Each obligor is represented by the concept *Obligor Name*, along with the *Obligor Axis* set to the LEI of that obligor, plus the LEI for the issuer, Lancaster County Career & Technology Center, and with the *Security Axis* with the CUSIP set to one of the three CUSIPS in this bond series.

This image shows how two of the 17 listed obligors, Conestoga Valley School District and Elizabethtown Area School District are tagged to capture the connection of the obligor and issuer with the CUSIP 514041CC4.

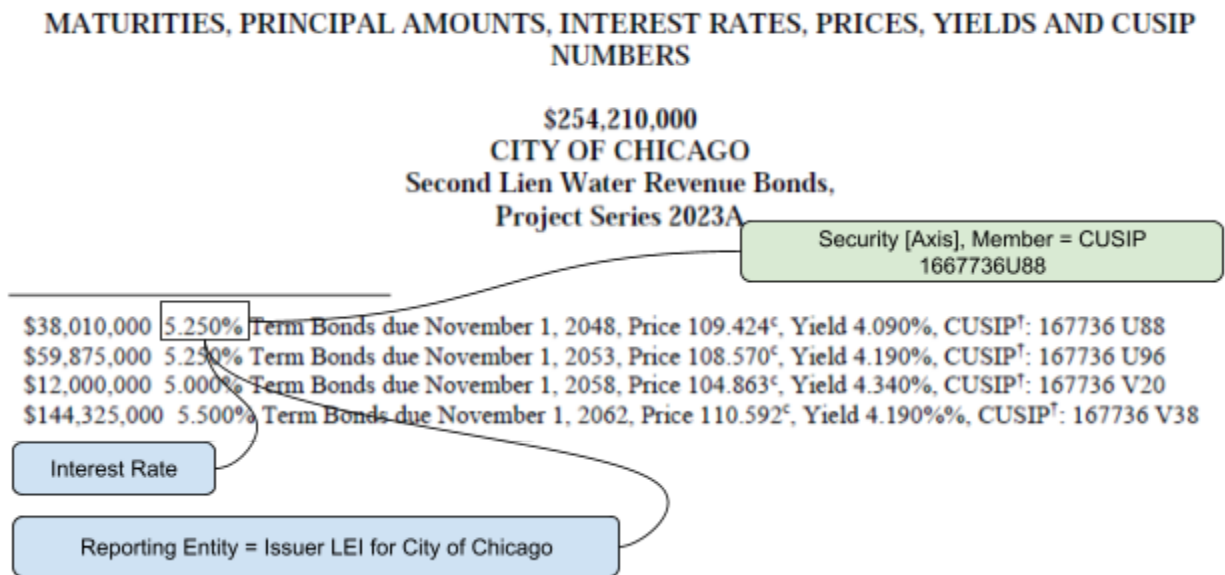


The debt issuance has three securities, therefore the issuer will need to identify multiple securities by associating each obligor name with a combination of the same XBRL tags as noted above for each CUSIP.

Although this scenario represents a complicated situation with multiple securities and multiple obligors, all can be unambiguously defined to allow visitors to EMMA the ability to perform sophisticated queries to pinpoint exactly what they need without manual data extraction and review.

Example 4. Issuer is a legal entity. Obligor is an enterprise fund of a legal entity (but is not a legal entity itself).

In the fourth scenario, the City of Chicago issued a bond series on behalf of the Water Fund, an enterprise fund of the City of Chicago. The image below shows how information about the security is captured for the fact 5.25%, which represents the interest rate for one of the four securities. To capture this fact appropriately requires using the concept, *Interest Rate*, with the LEI for the City of Chicago as the reporting entity, plus the *Security Axis* set to the CUSIP 1667736 U88.

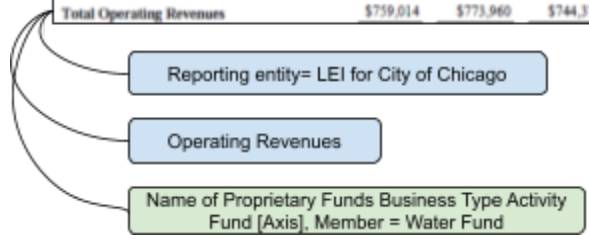


Further in the OS, the City of Chicago Water System financial data is reported as shown on the image below. The values on the bottom row of this statement represent Operating Revenues and are further defined by indicating that the financials are reported by the LEI for the City of Chicago and represent Water Fund by adding the *Name of Proprietary Funds Business Type Activity Fund Axis* as “Water Fund”. Using these three XBRL tags together defines the fact as Operating Revenues for the Water Fund of the City of Chicago.

**Reported in the
Official Statement**

CITY OF CHICAGO WATER SYSTEM Historical and Projected Financial Operations (Dollars in Thousands)⁽¹⁾

	Actual					Projected				
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Operating Revenues										
Water Sales ⁽²⁾⁽³⁾	\$749,847	\$754,751	\$737,866	\$743,771	\$763,802	\$797,144	\$808,994	\$846,096	\$865,078	\$881,227
Less: Provision for doubtful accounts ⁽⁴⁾	(20,203)	(8,205)	(20,370)	(29,461)	(15,212)	(15,516)	(15,827)	(16,143)	(16,466)	(16,795)
Other operating revenues	29,370	27,414	26,882	22,268	27,135	27,135	27,135	27,135	27,135	27,135
Total Operating Revenues	\$759,014	\$773,960	\$744,378	\$736,578	\$775,725	\$808,763	\$820,303	\$857,088	\$875,747	\$891,566



The Operating Revenues concept is drawn from the ACFR Taxonomy whether the issuer is reporting the fact in its OS or its ACFR. The image below shows two separate documents: 1) the OS for the issuance on the top and 2) a partial financial statement from the City of Chicago’s 2021 ACFR, on the bottom.

Both documents contain the value 775,725 which was reported for Operating Revenues for the City of Chicago Water Fund in 2021. Leveraging the ACFR and Debt Issuance Taxonomies in the issuer’s financials reduces the reporting burden; it means a single set of financials can be produced in the ACFR, and referenced in the OS. This eliminates the need to re-create the financial statement tables and tagging in the OS.

**City of Chicago
Official Statement**

CITY OF CHICAGO WATER SYSTEM Historical and Projected Financial Operations (Dollars in Thousands)^(b)

	Actual					Projected				
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Operating Revenues										
Water Sales ^{(a)(b)}	\$749,847	\$754,751	\$737,866	\$743,771	\$763,802	\$797,144	\$808,994	\$846,096	\$865,078	\$881,227
Less: Provision for doubtful accounts ^(a)	(20,203)	(8,205)	(20,370)	(29,461)	(15,212)	(15,516)	(15,827)	(16,143)	(16,466)	(16,795)
Other operating revenues	29,370	27,414	26,882	22,268	27,135	27,135	27,135	27,135	27,135	27,135
Total Operating Revenues	\$759,014	\$773,960	\$744,378	\$736,578	\$775,725	\$808,763	\$820,303	\$857,088	\$875,747	\$891,566

Reporting entity= LEI for City of Chicago

Operating Revenues

Name of Proprietary Funds Business Type
Activity Fund [Axis], Member = Water Fund

**Annual Comprehensive Financial
Report, City of Chicago, 2021**

**Exhibit 9
CITY OF CHICAGO, ILLINOIS
STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
PROPRIETARY FUNDS
Year Ended December 31, 2021
(Amounts are in Thousands of Dollars)**

	Business-type Activities - Enterprise Funds					
	Major Funds					
	Water	Sewer	Chicago-Midway International Airport	Chicago-O'Hare International Airport	Chicago Skyway	Total
Operating Revenues:						
Charges for Services - Net of Provision for Doubtful Accounts of \$15,212 for Water and \$12,297 for Sewer	\$ 748,590	\$ 365,217	\$ 138,052	\$ 815,953	\$ -	\$ 2,067,812
Rent	-	-	82,776	296,612	-	379,388
Hilton Revenues	-	-	-	32,587	-	32,587
Other	27,135	1,052	-	-	-	28,187
Total Operating Revenues	775,725	366,269	220,828	1,145,152	-	2,507,974

To link the City of Chicago Water Fund as the obligor with the security requires tagging a fact like obligor name, highlighted on the illustration below, with four XBRL concepts: 1) the concept *Obligor Name*, 2) the *Security Axis* reported as the CUSIP number, 3) the reporting entity set to the LEI for the City of Chicago as the issuer, and 4) the *Obligor Axis* set to Water Fund. These four concepts work together to unambiguously link the obligor, the issuer and the security. As with other examples shown here, because there is more than one security, this combination of tags must also be applied to each of the four CUSIPs included in this issuance.

Flow of Funds

The City maintains the **Water Fund** as a separate fund of the City to, among other things, carry out the provisions of the ordinances authorizing Senior Lien Bonds (but solely with respect to those amounts on deposit in the Senior Lien Rebates Account as described in this Official Statement), the ordinances authorizing Second Lien Bonds (as amended by the Master Indenture), Subordinate Lien Obligations, Commercial Paper Notes and Water System Line of Credit Notes (collectively, "Revenue Bonds"). Gross Revenues of the Water System are credited as they are deposited to the water

Obligor Name

Security [Axis], Member = CUSIP 514041CC4

Obligor [Axis], Member = Water Fund

Reporting Entity = LEI for City of Chicago

The complexity of the last scenario is that the obligor is an enterprise fund of the government entity, and is not a legal entity. By linking the name of the enterprise fund to the LEI of the government entity, the obligor can be clearly defined. Investors, analysts and other governments searching on the enterprise fund, or the security, or the issuing government can perform complex queries to locate exactly what they need.

Conclusion

The ability to combine identifiers for securities and legal entities with a data standard that enables linking, is an effective, efficient strategy to define the complexities of municipal debt issuance. This approach has been used by public companies in disclosures for more than a decade. While municipal market participants often have complicated entity structures, given the presence of various funds and component units, standards and identifiers can be effectively employed to resolve these challenges.

This method will improve the efficiency of information exchange and provide municipal investors, analysts, issuers and obligors with greater flexibility and accessibility to securities related information.