Article Title: ARCHIVE | Guidance | Criteria | Governments | U.S. Public Finance: Special Assessment Debt Data: (EDITOR'S NOTE: —This guidance document is no longer current. We moved its contents into "Special Assessment Debt," published April 2, 2018, without any substantive changes.) OVERVIEW AND SCOPE This article is a guidance document. It is related to our criteria "Special Assessment Debt" published on April 2, 2018. It is intended to be read in conjunction with those criteria. For a further explanation of guidance documents please see the description below*. Specifically, this guidance focuses in particular on the financial profile assessment, which accounts for 50% of our weighting in the criteria. The other factors are economic fundamentals, with a 15% weight, and district characteristics, 35%. Additional information about these other factors can be found in the criteria. KEY PUBLICATION INFORMATION Original publication date: April 2, 2018. This article is related to "Special Assessment Debt" published on April 2, 2018. We may revise this guidance from time to time when market dynamics warrant reevaluating the variables we generally use in our financial profile analysis. GUIDANCE Special assessment debt financial profile In the criteria, the initial financial profile assessment for a special assessment transaction is derived from a matrix that compares the structure's "maximum loss to maturity" (MLTM) rate and the concentration of the top 10 assessment payers. This matrix is in tables 2a and 2b of the criteria, and for readers' convenience, it is also included in the appendix to this guidance. Maximum loss to maturity is our estimate of the maximum rate of delinquency which, if it occurred, assuming no remedy or recovery, would still result in full and timely payment of bond debt service in every year through maturity. While it is a conservative estimate of break-even stress, we believe maximum loss to maturity provides a useful basis for comparison among districts and bond structures, and allows us to evaluate taxpayer concentration alongside a standardized metric for break-even stress. The maximum loss to maturity stress test is a useful metric for comparison because it has the ability to incorporate many structural features utilized across an array of special assessment-secured transactions, including: Debt service coverage, Cash flow structure and the ability to adjust revenues, Debt service reserves and other forms of liquidity (collectively, DSR), Lien position, Ability to issue additional debt and the consideration of coverage dilution, Weak-link pools, and Fully or partially cross-collateralized pools. As the maximum loss to maturity stress test is represented as a single number (expressed as a percent of the assessment levy), it can be compared against various characteristics of the tax base, such as taxpayer concentration or the percentage of the assessment levy coming from parcels that are undeveloped, to ascertain the obligation's exposure to potential stress from speculative elements. To determine the initial financial profile assessment, we compare the maximum loss rate against the top 10 taxpayers, the most commonly used metric for concentration, to understand the obligation's ability to withstand the delinquency of those taxpayers. For instance, if the maximum loss percent is greater than the top 10 taxpayers, the transaction can lose those concentrated taxpayers permanently and still provide for the timely payment of debt service through maturity. This exercise can be extended to understand the relationship between the maximum loss rate and other highly concentrated taxpayers, such as the top two, five, or 10, or taxpayers that may carry more speculative elements, such as undeveloped parcels, developer-owners, investment properties, or commercial parcels concentrated within a single industry. Tables 2a and 2b in the criteria compare ranges for maximum loss rates against ranges of top 10 taxpayer concentration as both factors, individually or in combination, may be important to the financial profile credit risk. Independent of concentration, credit risks associated with MLTM rates rise exponentially at lower rates, reflecting greater structural exposure to rising delinquencies. Likewise, as concentration rises, risks to the financial structure are typically accentuated as speculative elements concerning the composition and circumstances specific to those taxpayers are intensified regardless of the maximum loss rate. There are some combinations of weak MLTM and high taxpayer concentration that we believe are inconsistent with high ratings, regardless of the strength of other credit factors. Therefore, in certain cells in table 2b in the criteria, we cap the rating in the 'BBB' or 'BB' category. Calculating maximum loss to maturity In order to calculate this rate of delinquency, we typically assume the full use of the DSR with no replenishment, meaning that taxpayer delinquencies are permanent and no recovery of delinquencies is achieved. We calculate the highest rate of permanent delinquency that can be sustained without a default, which generally means that the DSR is exhausted by the final year of debt service. In addition, we assume a level of coverage on the bonds that reflects our prospective view of

coverage, which may correspond to current coverage, the additional bonds test (ABT), or some other level of coverage, taking into account our view of the debt structure, the district's assessment revenue flexibility, annual tax escalators, and the likelihood of additional debt. For instance, when statutes or the debt resolution limits issuers' ability to increase assessments on one property to satisfy a delinquency from another, we typically assume a level of coverage consistent with that limitation rather than a maximum tax rate specified in the rate methodology. In many cases regarding districts with maximum specific assessment rates, stressing at the maximum rate is unattainable unless the issuer is already levying near the maximum rate as annual increases to assessment rates are typically limited. Many California community facilities districts allow for assessments to be increased by up to 10% to account for delinquencies. In these cases, we generally project revenue over the life of the bonds to account for the ability to increase the levy. For most structures secured by assessments from a single district, the calculation of MLTM is relatively straightforward. For pooled districts, the calculation may change somewhat depending on how the issue is structured. In pooled structures, our assumptions are based on the issuer's ability to use available reserves or revenue from one underlying district to correct deficiencies from another. For example, California Marks-Roos structures often limit the ability to use revenue from one underlying district to directly offset a delinquency in another; however, certain features such as overcollateralization at the authority level or pooled reserves that can be used by or replenished from any local district provide a cushion that allows us to treat the underlying districts with some degree of cross-collateralization. Other structures may be treated as weak-link pools, with each local district stressed and evaluated independently. This is typically the case where reserves are held at the local district level (rather than the authority level) and there is no excess coverage at the authority level, with no form of cross-collateralization among local districts. Maximum loss to maturity is in large part a function of time-to-maturity, and increases substantially toward the end of the bonds' life, especially if delinquencies have been modest and the DSR is relatively intact. We address how we account for changes in this and other financial ratios toward the final years of maturity in the financial profile section of the criteria. Figure 1 provides an example of an MLTM calculation for a fairly typical structure with a single district. Determining the MLTM rate requires an iterative calculation to determine the constant stress percentage applied in each year of debt service to equate the DSR balance to $0, or as close to $0, but not below, after the final debt service payment has been made. Figure 1 Maximum Loss To Maturity Example (Single District, 20 Years To Maturity) EXAMPLE STRUCTURE YEAR ANNUAL PLEDGED ASSESSMENT COLLECTIONS ANNUAL DEBT SERVICE MAXIMUM LOSS TO MATURITY RATE ANNUAL LOSS IN REVENUE ASSESSMENT COLLECTIONS AFTER STRESS REMAINING DSR BALANCE 1 $1,000,000 $1,000,000 6.0% (59,958) $940,042 $1,396,854 2 $1,020,000 $1,020,000 6.0% (61,157) $958,843 $1,335,697 3 $1,040,400 $1,040,400 6.0% (62,380) $978,020 $1,273,317 4 $1,061,208 $1,061,208 6.0% (63,627) $997,581 $1,209,690 5 $1,082,432 $1,082,432 6.0% (64,900) $1,017,532 $1,144,790 6 $1,104,081 $1,104,081 6.0% (66,198) $1,037,883 $1,078,592 7 $1,126,162 $1,126,162 6.0% (67,522) $1,058,640 $1,011,070 8 $1,148,686 $1,148,686 6.0% (68,872) $1,079,813 $942,197 9 $1,171,659 $1,171,659 6.0% (70,250) $1,101,410 $871,947 10 $1,195,093 $1,195,093 6.0% (71,655) $1,123,438 $800,293 11 $1,218,994 $1,218,994 6.0% (73,088) $1,145,906 $727,205 12 $1,243,374 $1,243,374 6.0% (74,550) $1,168,825 $652,655 13 $1,268,242 $1,268,242 6.0% (76,041) $1,192,201 $576,614 14 $1,293,607 $1,293,607 6.0% (77,562) $1,216,045 $499,053 15 $1,319,479 $1,319,479 6.0% (79,113) $1,240,366 $419,940 16 $1,345,868 $1,345,868 6.0% (80,695) $1,265,173 $339,245 17 $1,372,786 $1,372,786 6.0% (82,309) $1,290,477 $256,936 18 $1,400,241 $1,400,241 6.0% (83,955) $1,316,286 $172,981 19 $1,428,246 $1,428,246 6.0% (85,634) $1,342,612 $87,347 20 $1,456,811 $1,456,811 6.0% (87,347) $1,369,464 $0 1) Bonds structured for 1.0x coverage of debt service 2) Debt service reserve cash-funded at 100% of MADS 3) Revenues and debt service escalate at 2% annually 4) No ability to raise revenues to cover delinquencies 5) Closed lien, no ability to issue parity debt DSR (100% MADS): $1,456,811 Maximum loss to maturity: 6.0% In cases where debt service varies widely from year to year, complicating the ability to find a simple solution as a result of an ability to replenish prior draws on reserves, we will generally find the maximum stress percentage that allows for the DSR balance to remain above $0 in all years of debt service. When additional bonds may be issued, we will generally perform the stress test at the coverage level included in the ABT. To avoid making assumptions about the potential debt service structure and legal

features of additional debt, we may adjust current revenues to a degree that results in the ABT coverage level. Analytical judgement will be exercised regarding the decision to stress at the ABT or not depending on other factors related to the likelihood or ability to issue additional debt. When analyzing subordinated liens, we will generally consider all-in coverage in our stress test, which constitutes annual pledged revenue divided by debt service from parity and any superior lien positions. This applies to single districts and pooled structures. In pooled structures with partially or fully cross-collateralized revenues or reserves, we may derive a single MLTM rate to be applied to the entire structure, or we may assume a maximum loss rate for particular districts that differs from the common rate to account for district characteristics that may warrant testing at higher levels of stress, including higher concentrations of undeveloped parcels or higher concentration among taxpayers. In cases where individual stress rates are applied, we may derive a common stress level for the overall rated structure that accounts for the unique stresses applied to individual districts. In weak-link structures, the overall structure's rating would generally reflect that of the weakest district, including its independently evaluated financial profile score. Incorporating recovery Given the baseline and conservative composition of the MLTM rate, qualitative and quantitative factors can be introduced into the analysis to understand the higher degrees of stress a transaction's structure can incur as a result of the ability and likelihood to recover delinquent assessments. The first component considered when assessing the ability to recover delinquent assessments is the maximum loss to assumed recovery (MLTR) period calculation. The concept of the MLTR period is similar to MLTM, except that it assumes that delinquent taxes will be fully recovered through a tax lien sale, foreclosure, or other available remedy after a certain period of time, which may vary from case to case. The time period assumed for recovery is typically based in part on state statutes authorizing certain remedies for delinquent taxes of the type pledged to bondholders, as well as bond covenants related to recovery of delinquent taxes, the types of taxpayers that constitute the taxing base, and other factors that we may deem relevant to recovery analysis. MLTR measures a single cycle of taxpayer loss and recovery. In other words, once the initial unrecoverable period has passed, our analysis assumes that delinquent taxes from prior years are fully recovered in each successive tax year on a rolling basis. Therefore, the greatest risk occurs at the beginning of the transaction's life, if taxpayers become immediately delinquent and remain delinquent. There may be a few years when there is no revenue coming from those taxpayers while recovery is being sought and the DSR covers debt service. Given that time to recovery for most issues is much shorter than time to maturity, an assessment district can always withstand higher delinquencies when recovery is considered than when it is not. Thus, MLTR is always higher than MLTM. We look at the ratio between the two to determine how much additional strength the prospect of recovery adds to the MLTM stress. To assess recovery timelines, we typically use assumptions similar to those for our residential mortgage-backed security sector. For example, see our criteria, "Updated Assumptions For Liquidation Timelines In The U.S. Residential Mortgage Market", published April 13, 2012. We use assumptions reflecting expected timelines for the recovery of delinquent insurance and taxes for mortgaged properties by state following an initial instance of mortgage delinquency. The timelines are adjusted for states or jurisdictions that allow the sale of tax liens, which typically entail much more rapid recovery relative to properties that must go through foreclosure. To account for less than 100% recovery of delinquent assessments, we may extend the time to which recovery can be expected. Although not all properties in an assessment district will have a mortgage or will be a residential property, the timelines provide a proxy to incorporate expected recovery. Furthermore, while municipal foreclosures can differ from mortgage-holder foreclosures in length of time, mortgage foreclosure timelines provide a conservative and viable starting point. Figure 2 depicts the assumptions we typically use for several states covered most frequently. The number of years indicates the period of time for which we assume delinquent assessments occurring at period zero, always calculated on a rolling basis, are likely to remain outstanding. For instance, if the period to assumed recovery is three years, delinquent revenues at period 0 can be recovered in period 4. Figure 2 Assumed Years To Recovery STATE TAX LIEN SALES USED COMMONLY AND IN A TIMELY FASHION ASSUMED YEARS TO RECOVERY IF CAN SELL TAX LIENS ASSUMED YEARS TO RECOVERY THROUGH FORECLOSURE California No N/A 3 Colorado Yes 1 3 Florida Yes 1 5 Illinois Yes 1 4 Maryland Yes 2 4 Michigan No N/A 3 Missouri Yes 1 3 N/A--Not applicable. For the purposes of the MLTR period

calculation, we typically assume that recovery is 100%, and where relevant, that tax lien sales are timely and accomplished in a functioning tax lien sale market. While these assumptions might not always be realized, the purpose of MLTR period calculation is not to estimate an exact recovery amount or timing, or to predict which taxpayers may or may not become delinquent. Rather, the calculation provides additional context to the more conservative MLTM calculation, which assumes no recovery at all. Figure 3 provides an example of the MLTR calculation using the transaction structure in figure 1. Figure 3 Maximum Loss To Assumed Recovery Period Example YEAR ANNUAL PLEDGED ASSESSMENT COLLECTIONS ANNUAL DEBT SERVICE COVERAGE PRIOR TO STRESS ANNUAL LOSS IN REVENUE REMAINING DSR BALANCE 1 $1,000,000 $1,000,000 1.0x (476,020) $980,791 2 $1,020,000 $1,020,000 1.0x (485,540) $495,251 3 $1,040,400 $1,040,400 1.0x (495,251) $0 1) Use transaction features from figure 1 2) Foreclosure is the available recourse for pursuing persistently delinquent parcels 3) The assumed foreclosure liquidation timeline in this district's state is approximately three years 4) Thus, recovery on delinquent assessments are applied in year four, partly replenishing draws on the DSR DSR (100% MADS): $1,456,811 Maximum loss to assumed recovery period: 47.60% As the exercise may be conducted on a rolling basis, table 3 only displays the number of years in which delinquent revenues occurring at the beginning of year 1 are assumed to remain outstanding. When comparing the MLTM in table 1 with the MLTR in table 3 while considering no other qualitative or quantitative factors about the district characteristics, composition of the taxpayers, or other considerations for recovery, it is apparent that the structure can withstand a higher degree of stress. However, when assessing recovery ability, we might consider other factors that can influence recovery timing and success such as assessment payer composition, development status, whether or not delinquent parcel owners have declared bankruptcy, real estate market conditions, foreclosure judicial versus non-judicial foreclosure authority, and historical recovery success. For instance, recovery through successful foreclosure sales may be more difficult for undeveloped parcels relative to developed parcels, or pursuing recovery from a developer who has declared bankruptcy can be complicated by legal stays through the bankruptcy process. In addition, depending on local real estate market conditions, tax liens may go unsold during an auction, as was experienced in several counties in Florida during the 2008 financial crisis. In make-whole plans where participation in the plan is at the discretion of the guarantor, such as participation in Teeter Plans in California, we generally do not give additional recovery credit because the make-whole commitment can be revoked. Additional factors As noted in Table 3 of the criteria, a special assessment transaction may be exposed to credit-linkage risk through providers of DSR fund guarantees such as surety bonds, investment contracts, liquidity facilities, and bank accounts. In assessing the risk of these providers, we typically evaluate management's ability to monitor and manage deteriorating creditworthiness of account and support providers, i.e. through timely replacement of the provider, and our view of the likelihood that the provider's role will be critical to timely payment of debt service. If a special assessment is exposed to a deteriorating account or support provider, and we believe the linkage is important, such as due to loss levels or weak liquidity approaching maximum stress assumptions, the weight we may place on the provider in our analysis increases and could lead to a lower rating on the special assessment transaction than would otherwise be indicated by applying the framework described in chart 1 in the criteria. We generally would not recognize a DSR as being funded at all if it is only conditionally funded, such as a so-called springing DSR. In such cases, this is, in our view, associated with conditions likely to come at a time when the district is least able to afford additional demands on its cash flow. Rarely, a third party such as a city or county provides additional support to a special assessment transaction, such as a debt service make-up provision or replenishment of a DSR. We generally evaluate such support based on its size relative to debt or debt service, length of time, timeliness, legal provisions governing the support, and if applicable, the creditworthiness of the supporting entity. Depending on the nature of the support, we may evaluate it as part of the MLTM stress test, through notching up the indicative special assessment rating, or, if the support is very complete, we may evaluate it through different applicable criteria, such as those governing appropriation-backed obligations or other obligations linked to general creditworthiness. Table 2a Financial Profile Assessment TOP 10 TAXPAYERS (% OF LEVY) MAXIMUM LOSS TO MATURITY (%) >= 40% 35%-40% 30%-35% 25%-30% 20%-25% <=5% Very Strong Very Strong Very Strong Strong/Very Strong Strong 5%-15%

Strong/Very Strong Strong/Very Strong Strong/Very Strong Strong Adequate/Strong 15%-25% Strong Adequate/Strong Adequate/Strong Adequate Weak/Adequate 25%-40% Adequate/Strong Weak/Adequate Weak/Adequate Weak/Adequate Weak >=40% Weak/Adequate Weak Weak Very Weak/Weak Very Weak/Weak Table 2b Financial Profile Assessment TOP 10 TAXPAYERS (% OF LEVY) MAXIMUM LOSS TO MATURITY (%) 15%-20% 10%-15% 5%-10% <=5% <=5% Adequate/Strong Adequate Weak/Adequate Very Weak/Weak 5%-15% Adequate Weak/Adequate Weak/Adequate Very Weak/Weak 15%-25% Weak/Adequate Weak Very Weak/Weak Very Weak'/'BBB' category cap 25%-40% Very Weak/Weak Very Weak/Weak Very Weak'/'BBB' category cap Very Weak/'BB' category cap >=40% Very Weak/'BBB' category cap Very Weak/'BB' category cap Very Weak/'BB' category cap Very Weak/'BB' category cap Related Criteria And Research Related Criteria Special Assessment Debt, April 2, 2018 Related Research Criteria And Guidance: Understanding The Difference, Dec. 15, 2017