

**REPORT ON INDEPENDENT EXAMINATION OF MEASURE A  
REVENUE ESTIMATE COMMUNICATIONS**

By: John C. Hueston

Dated: July 31, 2017

TABLE OF CONTENTS

	<u>Page</u>
I. EXECUTIVE SUMMARY .....	1
A. THE MEASURE A FORECASTING ERROR.....	1
B. SANDAG’S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR.....	3
II. OVERVIEW OF EXAMINATION PROCEDURES.....	4
A. SCOPE OF WORK.....	4
B. WITNESSES INTERVIEWED .....	4
C. MATERIALS REVIEWED.....	5
D. ADDITIONAL ISSUE OUTSIDE SCOPE OF WORK: THE TRANSNET SHORTFALL.....	6
III. BACKGROUND .....	6
A. DEFM .....	6
B. TRANSNET.....	7
C. MEASURE A.....	7
IV. THE MEASURE A FORECASTING ERROR.....	7
A. SUMMARY OF FACTS REGARDING THE MEASURE A FORECASTING ERROR.....	8
B. FINDINGS REGARDING THE MEASURE A FORECASTING ERROR .....	25
V. SANDAG’S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR.....	32
A. SUMMARY OF FACTS REGARDING SANDAG’S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR.....	32
B. FINDINGS AND RECOMMENDATIONS REGARDING SANDAG’S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR.....	37

## **I. EXECUTIVE SUMMARY**

In 2016, the Board of Directors of the San Diego Association of Governments (“SANDAG”) endorsed Measure A, which sought to establish a new half-cent sales retail sales tax for the San Diego region. The supporters of Measure A campaigned for its passage with the representation that the additional sales tax would generate roughly \$18 billion in revenue, which would be used for transportation needs throughout the region. The estimates of potential revenue from the passage of Measure A were inflated, a fact that was discovered by the press in October 2016. The following month, Measure A was defeated at the polls.

The SANDAG Board of Directors has commissioned this independent inquiry to determine which individuals within SANDAG knew that the revenue estimates were overstated, when those individuals gained that knowledge, and with whom that information was shared.

### **A. THE MEASURE A FORECASTING ERROR**

SANDAG is the San Diego region’s primary public planning, transportation, and research agency. Since its inception, SANDAG has developed its regionwide plans and projects using its Demographic and Economic Forecasting Model (“DEFM”). DEFM is a computer program that takes local, regional, and national data and generates a comprehensive forecast for the San Diego region. DEFM relies in part on third-party data to produce these forecasts. In 2004, SANDAG staff incorrectly inputted third-party data into DEFM, which caused it to forecast an inflated growth rate for regional income. This inflated regional income forecast led, in turn, to an inflated projection for taxable retail sales in the region. The inflated retail sales projection caused SANDAG to overestimate the projected revenue from the passage of Measure A (the “Measure A forecasting error”).

Approximately every three years, SANDAG uses DEFM to generate a new regional growth forecast, which consists of a regional forecast and a subregional forecast. The regional growth forecast is then used throughout the agency and for many other parts of the Regional Transportation Plan that SANDAG is required by law to adopt every four years. Each new regional growth forecast that SANDAG generates with DEFM is known as a Series. After SANDAG introduced the aggregation error into DEFM in 2004, it was first incorporated into DEFM Series 11, which SANDAG’s Board of Directors adopted on September 8, 2006. During the Series 11 regional growth forecast, no member of SANDAG’s modeling team, which is responsible for updating DEFM, noticed the aggregation error, or realized that it had inflated the growth rates for income and taxable retail sales. Nor did the expert review panel, which reviews certain parts of each DEFM update—including income—notice these problems. Indeed, despite the aggregation error, the income forecast for Series 11 was highly similar to that of Series 10.

After Series 11, a number of important personnel from the modeling team retired, and SANDAG was left with no full-time in-house personnel who could operate DEFM. SANDAG nonetheless decided to use DEFM for the Series 12 regional growth forecast. As with Series 11, no one working on Series 12 noticed that its income and taxable retail sales forecasts were unreasonably inflated. The expert review panel also did not notice. Although the Series 12 income and taxable retail sales forecasts were similar to those of Series 10 and Series 11, Series 12 was

the first Series to be projected 40 years into the future, rather than 20. The Board adopted Series 12 on February 26, 2010.

After Series 12, a lack of expertise with SANDAG caused certain staff members to recommend use of a different forecasting model. Marney Cox, the Chief Economist declined to do so, and SANDAG therefore continued to use DEFM for Series 13.

As with Series 12, no one who worked in-house full-time at SANDAG knew how to operate DEFM for Series 13. When the Series 13 DEFM update was submitted to the expert review panel, they found that the income forecast—which had been inflated by the aggregation error—was unreasonable. So the panel recommended that a part-time staff member adjust the numbers. The staff member did so, which also affected the taxable retail sales forecast, causing both to grow rapidly until 2040 and then level off. As a result, the adjustment did little to diminish the effects of the aggregation error.

After completion of the Series 13 regional forecast, two analysts working on a subsequent subregional forecast realized that the income forecast was too high to be properly allocated. But rather than go back and fix the regional income forecast, they adjusted it again only for the subregional forecast. One of the analysts wrote a set of instructions explaining their modification and asserting that the Series 13 income forecast had “known problems.”

In February 2015, SANDAG hired Dmitry Messen to update the DEFM computer program. As soon as he arrived, Messen decided that he was going to develop a new model, tentatively known as Series 14, rather than update DEFM. Several months later, in July 2015, Chief Economist Cox used the Series 13 taxable retail sales forecast to generate the projected sales tax revenue for Measure A (then known as Quality of Life), a half-cent sales tax ordinance that SANDAG planned to use for future transportation projects. Because of the aggregation error, Cox calculated that Measure A would generate \$18 billion in sales tax revenue over forty years. The next month, SANDAG hired Ray Major as Chief Economist. The plan was for Major to shadow Cox over the next year so that Major could learn how to do the job.

Major’s first important task as Chief Economist was to update the TransNet Plan of Finance. TransNet (also known as “TransNet 2”) was a half-cent sales tax that voters approved in 2004 and which ran from 2008 to 2048. While trying to update the Plan of Finance long-term forecast, Major determined that its revenue projections were unreasonably optimistic. After learning that the long-term forecast was calculated using Series 13’s taxable retail sales projections, Major began working with Messen to determine why. Messen and Major quickly determined that DEFM’s taxable retail sales forecast was based on DEFM’s income forecast, which was also connected to wage growth. Major and Messen then realized that DEFM projected that wages would grow by double the historical average. At this point, Major and Messen both felt that the taxable retail sales and income forecasts were incorrect. Although Major, Messen, and others knew that the taxable retail sales forecast was used in the Plan of Finance, it is likely that none of them realized that Cox had also used it for Measure A.

Major and others who were concerned about the income and taxable retail sales forecasts arranged a meeting with Gary Gallegos, SANDAG’s Executive Director, and Kim Kawada, SANDAG’s Chief Deputy Executive Director, in December 2015. Although the purpose of the

meeting was to discuss Messen's new Series 14 model, the presenters planned to use the problems with Series 13's income and taxable retail sales forecasts as a reason why SANDAG should abandon DEFM. During the meeting, it is very likely that slides were shown demonstrating the unrealistic income and taxable retail sales forecasts under DEFM. At the meeting, Marney Cox vociferously defended the forecasts and ultimately persuaded Gallegos and Kawada that the forecasts were reasonable. By the end of the meeting, the plan was to continue working on Messen's new model, rather than to investigate the income and taxable retail sales numbers, or abandon their use. After the meeting, in early January 2016, Major submitted the Plan of Finance using the Series 13 taxable retail sales forecast. He also learned that Cox had used the taxable retail sales forecast to calculate Measure A. However, Major did not tell Gallegos, Kawada, or others; Major has asserted that he did not speak up because he believed that Gallegos would not have trusted his opinion over Cox's.

SANDAG employees did not begin investigating the Series 13 forecasts again until October 2016. By then, Measure A was already on the November 8, 2016 ballot. After SANDAG received questions from the Voice of San Diego, Major and others renewed their investigation into the income and taxable retail sales forecasts. Although Major had known that Cox had used DEFM to calculate the Measure A revenue forecast, the others had not. However, once they learned this, they all believed that the forecast was wrong.

On October 24, 2016, the Voice of San Diego published two articles suggesting that the Measure A forecast might be overstated. At this point, Gallegos and Kawada began holding daily meetings with Cox, Major, and others. The purpose of these meetings was to discover whether there was an actual error in the Measure A forecast, since Cox still refused to agree that it could be wrong. Gallegos declined to concede an error until either Cox agreed or others discovered the source of the problem. Finally, on November 10, two days after the election at which Measure A failed to pass, staff members discovered the source: the aggregation error that had been introduced during Series 11.

## **B. SANDAG'S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR**

During our investigation into the Measure A forecasting error, we discovered several lapses in judgment in SANDAG's response to the discovery of the forecasting error. Because these flaws were closely related to the subject of our investigation, we have included them in the report.

On October 28, 2016, SANDAG held an executive team meeting, during which John Kirk, SANDAG's General Counsel, advised those in attendance that they should delete draft documents before retaining them for 60 days, otherwise they would need to keep them for two years. Although Kirk was restating SANDAG's publicly-disclosed record retention policy, his reminder, in light of recent press inquiries and anticipated requests for documents, suggested to some employees that they should delete more than just draft documents. As a result, some employees may have deleted non-draft documents related to the forecasting error.

A few days later, on November 1, 2016, Kurt Kroninger, Director of Technical Services at SANDAG, created a folder known as "Hana Tools." He then instructed all SANDAG staff investigating the Measure A forecasting error to store in Hana Tools all the documents they

generated as part of the search. Kroninger believed that all these documents were “drafts” under SANDAG Board policy and California law, and thus could be deleted within sixty days. Thus, Hana Tools was to serve as a central location where these documents could be stored and then mass deleted so they wouldn’t be released as part of a public records request. We believe that Kirk approved this use of Hana Tools. Although we have been informed that none of the documents on Hana Tools were in fact deleted, we lack forensic data to confirm this assertion.

On January 6, 2017, Ron Roberts published an editorial in the Voice of San Diego on the Measure A forecasting error. In it, he stated that SANDAG did not know before the election that DEFM could have caused the Measure A forecast to be overestimated. He also stated that when SANDAG staff became concerned about the Series 13 taxable retail sales forecast a year before the election, they did not realize that this forecast could affect TransNet. The following month, Gallegos sent a letter to the SANDAG Board in which he repeated Roberts’s claim that, a year before the election, SANDAG staff had not realized that the taxable retail forecast could affect TransNet. These cited statements were, at best, insufficiently transparent.

## **II. OVERVIEW OF EXAMINATION PROCEDURES**

### **A. SCOPE OF WORK**

On March 10, 2017, the Executive Committee of the SANDAG Board of Directors voted to form an ad hoc subcommittee to solicit and evaluate proposals from law firms to conduct an independent examination of the agency’s Measure A revenue estimate communications. On March 14, 2017, the subcommittee released a Request for Proposals, in which it identified the relevant scope of work as requesting an outside law firm to perform:

[A]n independent examination of the files, documents, emails, and all other communications related to the error in the forecasting model and determine which individuals knew that the revenue estimate was overstated, when those individuals gained that knowledge, who that information was shared with, and if it was not shared with decision makers, why.

On April 14, 2017, the SANDAG Board of Directors selected John C. Hueston, of Hueston Hennigan LLP, to conduct an independent examination of the agency’s communications regarding the revenue forecast for Measure A and deliver a report to the SANDAG Board of Directors.

### **B. WITNESSES INTERVIEWED**

In connection with our review, we interviewed the following individuals (some of them more than once), either in person or by telephone:

<b>Name</b>	<b>Title at SANDAG</b>
<b>Terry Beckhelm</b>	<b>Former Senior Research Analyst</b>
<b>Kirby Brady</b>	<b>Former Senior Research Analyst</b>
<b>Marney Cox</b>	<b>Former Chief Economist</b>

<b>Clint Daniels</b>	<b>Principal Research Analyst</b>
<b>Daniel Flyte</b>	<b>Senior Research Analyst</b>
<b>Gary Gallegos</b>	<b>Executive Director</b>
<b>David Hicks</b>	<b>Communications Manager</b>
<b>Beth Jarosz</b>	<b>Former Senior Analyst</b>
<b>Kim Kawada</b>	<b>Chief Deputy Executive Director</b>
<b>John Kirk</b>	<b>General Counsel</b>
<b>Kurt Kroninger</b>	<b>Former Director of Technical Services</b>
<b>Ray Major</b>	<b>Chief Economist and Director of Technical Services</b>
<b>Jim Miller</b>	<b>Senior Economist</b>
<b>Dmitry Messen</b>	<b>Senior Regional Models Analyst</b>
<b>Bill Mount</b>	<b>IT Manager</b>
<b>Sanchita Mukherjee</b>	<b>Former Economic Research Analyst</b>
<b>José Nuncio</b>	<b>TransNet Program Director</b>
<b>Ron Roberts</b>	<b>Chairman of the Board</b>
<b>Jeff Tayman</b>	<b>Former Director of Technical Services</b>
<b>Ed Schafer</b>	<b>Former Senior Research Analyst</b>
<b>Peter Stevens</b>	<b>Legal Counsel I</b>
<b>ShelbyTucker</b>	<b>Associate General Counsel</b>

Each witness participated in the interview process on a voluntary basis. Witnesses were free to decline to answer any question, although none ever did. We did not provide witnesses with proposed questions prior to interview.

### **C. MATERIALS REVIEWED**

In addition to witness interviews, we collected and reviewed a broad range of materials during the course of our investigation, including the following:

- Emails and Attachments: We reviewed emails and attachments sent and received between relevant individuals at SANDAG. After reviewing the initial tranche of roughly 2,700 emails released to the Voice of San Diego, we made several more requests. In total, we have received over 50,000 emails from SANDAG, and have reviewed several thousand using targeted keyword searches.

- Outlook Meetings and Appointments: We reviewed Outlook meetings and appointments that involved relevant individuals at SANDAG during 2015 and 2016.
- Hana Tools: We reviewed the contents of Hana Tools by doing targeted searches within the stored documents.
- Recent Public Records Act Requests: We reviewed the scope of recent PRA requests to determine whether we should request additional documents.
- Other Materials: We reviewed pertinent news articles and commentary, as well as documents from SANDAG on Measure A, TransNet, DEFM, the Regional Transportation Plan, and the Seven-Point Plan. We also reviewed documents provided to us by witnesses.

**D. ADDITIONAL ISSUE OUTSIDE SCOPE OF WORK: THE TRANSNET SHORTFALL**

In addition to the Measure A forecasting error, news organizations such as the Voice of San Diego have also raised questions about a potential \$17 billion shortfall in TransNet’s revenue forecast, caused in part by rising construction costs that SANDAG may have failed to disclose. A number of witnesses raised this issue as one of significant concern. We have not investigated this issue since it falls outside the scope of our authorized work and because TransNet was calculated using a version of DEFM that did not contain the aggregation error.

**III. BACKGROUND**

This investigation centers on DEFM, the forecasting model that SANDAG used to generate revenue forecasts for TransNet and Measure A, SANDAG’s sales tax ordinances for funding transportation projects.

**A. DEFM**

DEFM is a computer-based forecasting model that SANDAG used from the late 1970s until 2016. DEFM forecasts more than 700 demographic and economic variables, such as population, housing, and labor force projections. DEFM also forecasts future rates of income and taxable retail sales. Fundamentally, DEFM is a series of simultaneous nonlinear structural equations. By feeding national, state, and local data into DEFM, SANDAG produces a forecast for the entire San Diego region. SANDAG historically relied on DEFM to provide the regional growth forecast for SANDAG’s Regional Transportation Plan (“RTP”), which SANDAG is required by law to update every four years. The regional growth forecast consists of both a regional forecast and a subregional forecast.

When conducting a new regional growth forecast, employees from SANDAG’s modeling department would gather and analyze data to update its data sets, reset the equations within DEFM, and then run the model. These “runs” would produce a regional forecast, which the modelers would analyze to ensure the projections were reasonable. After this was done, SANDAG would convene an expert panel, which would provide recommendations on the forecast, including as to

whether certain projections should be adjusted to be more reasonable. Because DEFM produces hundreds of variables, the expert panel would not review the entire forecast—only the most important variables. Their recommendations were also non-binding, as the expert panel did not have authority to veto the forecast.

Once SANDAG finalized DEFM’s regional forecast, it would present it to the SANDAG Board for approval. If the Board approved, SANDAG would then use the regional forecast data to generate a subregional forecast. The subregional forecast is based on the DEFM forecast but generated using different models. The forecasts from DEFM and the subregional models are also used in a number of other models and projections that go into the RTP, such as for transportation and land use. Ultimately, the Board must adopt the finished regional growth forecast, as well as the RTP.

Each time SANDAG updates DEFM for a new regional growth forecast, the update is referred to as a new “Series.” Series 13—the thirteenth DEFM update—was produced for the most recent RTP, which the Board adopted on October 9, 2015. SANDAG uses these Series to conduct a variety of forecasts, including the revenue forecasts for TransNet and Measure A. But although SANDAG updated the DEFM forecast roughly every four years, the actual DEFM computer program has only received a handful of updates since the 1970s, most recently in 2003. At this point, SANDAG no longer uses DEFM and is developing a forecasting model to replace it.

## **B. TRANSNET**

TransNet is a half-cent sales tax that voters approved in 2004 and which runs from 2008 to 2048. TransNet is the continuation of an earlier sales tax that ran from 1988 to 2008. The revenue from TransNet is used to fund a variety of transportation-related projects throughout the San Diego region. SANDAG forecasted that TransNet would generate roughly \$14 billion in revenue over forty years. SANDAG conducted this forecast using data from the DEFM Series 10 forecast. To help plan for current and future TransNet projects, SANDAG produces an annual “TransNet Plan of Finance.” Among other things, the Plan of Finance includes a short- and long-term sales tax revenue forecast. Although the short-term forecast is not calculated using DEFM, the long-term forecast is, at least in part. Ray Major calculated the long-term forecast for the 2015 TransNet Plan of Finance using data from DEFM Series 13’s taxable retail sales forecast.

## **C. MEASURE A**

Measure A was a half-cent sales tax, similar to TransNet, that would have run for forty years and funded transportation-related projects. SANDAG devised Measure A and projected that it would generate roughly \$18 billion in revenue. Marney Cox calculated the Measure A forecast in July of 2015 using data from DEFM Series 13’s taxable retail sales forecast. Measure A failed to pass on November 8, 2016.

## **IV. THE MEASURE A FORECASTING ERROR**

After Measure A failed to pass, SANDAG revealed that it was based on a flawed forecast and would not have generated \$18 billion in revenue. Subsequently, the Voice of San Diego released emails and other documents suggesting that SANDAG employees and executives knew that the Measure A revenue forecast was inaccurate roughly one year before the vote. This section

of the report first details all the relevant facts beginning with the cause of the forecasting error through the present day. Then it presents specific findings identifying who knew that the forecast was inaccurate, when they knew it, and what they did with that information, as well as recommendations on how to prevent the recurrence of similar problems.

**A. SUMMARY OF FACTS REGARDING THE MEASURE A FORECASTING ERROR**

**1. The Source Of The Forecasting Error Is Introduced Into DEFM After Series 10**

In 2003, after SANDAG completed the DEFM Series 10 update, it began looking for a new source for national forecast data, which is one of the drivers of the DEFM forecast. Previously, SANDAG had purchased its national data from IHS Global Insight, but had become concerned about its cost and accuracy. As a result, SANDAG decided in 2004 to use Moody's Economy.com as its national driver. The data that SANDAG acquired from Moody's included both historical data for San Diego as well as future projections for entire United States.

After switching to Moody's, SANDAG staff needed to prepare the data for use in DEFM. While inputting the data into a DEFM worksheet, a SANDAG staff member made what is, essentially, a copy-paste error. The purpose of the DEFM worksheet was to aggregate historical data from various industries in San Diego into DEFM's 50 economic sectors. The copy-paste error affected three of these sectors. In short, a SANDAG employee copied the annual output of one of these aggregated sectors into the annual output of one or more of the several subsectors that comprised it. As one example, the DEFM worksheet properly recorded that the San Diego food manufacturing industry's annual output in 1978 was \$262 million.<sup>1</sup> However, it then recorded that industry's 1979 output as \$3.2 billion. This was the total output for the entire San Diego manufacturing industry—of which food manufacturing was only a subsector. A similar error occurred in the two other sectors.

Because these historical errors compounded into the present day, they affected DEFM's projections. In DEFM, labor productivity, or output, is connected to income, so that if DEFM forecasts increased productivity, it will also forecast increased wages. Similarly, a higher income forecast will also lead to a higher taxable retail sales forecast. As a result, once this data was used in DEFM, it began generating overestimated income and taxable retail sales forecasts, including for Measure A.

SANDAG staff did not discover the source of these overestimated forecasts—the aggregation error—until November 10, 2016.

**2. DEFM Series 11 Is The First To Include The Forecasting Error**

The SANDAG Board adopted the Series 11 regional growth forecast on September 8, 2006. This was the first regional growth forecast to include the aggregation error. Although the error

---

<sup>1</sup> **EXHIBIT 1**—SANDAG, *SR13 TRETTS Model Presentation* (Jan. 2017).

overestimated Series 11's income and taxable retail sales forecast, the SANDAG modeling team never noticed.

Jeff Tayman supervised the Series 11 update as SANDAG's Director of Technical Services (an executive-level position). According to Tayman, he would always check DEFM's income variable when producing a regional growth forecast. Beth Jarosz, who worked with Tayman and later ran the DEFM update process, confirmed that income would have been checked, and said that it also would have been submitted to the expert panel for review. Based on the notes from the Series 11 expert review panel, there is no indication that it found anything wrong with the income forecast.<sup>2</sup> Tayman noted, however, that the taxable retail sales forecast received less scrutiny. Because it was so closely tied to income, if the income forecast was reasonable, then taxable retail sales was assumed to be reasonable as well. Daniel Flyte, a Senior Research Analyst at SANDAG who was present for several regional growth forecasts, said that taxable retail sales would not have been presented to the expert panel.

Witnesses gave a number of explanations for why the aggressive income and taxable retail sales forecasts didn't raise any red flags during Series 11. Multiple witnesses thought it might have been because Series 11 was only a 20-year forecast—whereas Series 12 and 13 were forty-year forecasts—so it wouldn't have been as obvious how optimistic the data was. Jarosz added that the San Diego economy was thriving at this point, which would have made the forecast seem more reasonable. And although he wasn't present during the update, Clint Daniels, Principal Research Analyst at SANDAG, pointed out that SANDAG's income and taxable retail sales forecasts have been fairly consistent from Series 10 through Series 13, even though Series 10 did not include the aggregation error.<sup>3</sup> However, Terry Beckhelm, who was responsible for running DEFM during Series 11, felt that the team overlooked the aggressive forecasts simply because they paid less attention to the regional growth forecast after Series 10. According to Beckhelm, this was because the subregional forecast became much more important than the regional due to a lack of space for the region's population growth.

### **3. SANDAG Loses Staff Expertise On DEFM After Series 11**

Another reason witnesses gave for why the aggressive forecasts were not noticed during Series 11 was because SANDAG was in the midst of losing many of its most valuable DEFM-related employees. Most notably, Tayman and Beckhelm, who were each heavily responsible for producing the regional growth forecast, both retired in 2006. At the time, Tayman had 25 years of forecasting experience at SANDAG, while Beckhelm had over thirty years of forecasting experience at SANDAG and other organizations.

During a DEFM update, Beckhelm would supervise the maintaining and running of the actual DEFM computer program. This was a challenging, time-consuming, and specialized task due to the complexity of the model and the age of the operating system, and Beckhelm was one of

---

<sup>2</sup> **EXHIBIT 2**—SANDAG, *Summary of Expert Review Panel Involvement in SANDAG Regional Growth Forecasts*, at 5-7.

<sup>3</sup> **EXHIBIT 3**—SANDAG, *Taxable Retail Sales Per Capita from series 10 to 13*.

the few employees at SANDAG who knew how to do it. As for Tayman, many witnesses recalled that he was intently focused on ensuring the accuracy of the forecast.

Beckhelm and others recalled that before Beckhelm left, he repeatedly warned SANDAG that continued use of DEFM required SANDAG either: (1) to find someone else who could run it; or (2) to ask Regional Economic Research, Inc. (“RER”), a company that had worked on the DEFM software, to rewrite it. Around this time, however, RER was acquired by another company, Itron, and was no longer willing to work on DEFM. And though in 2008 SANDAG did hire Daniels, who had a background in software development and city planning, Daniels did not have deep experience in demographic and economic forecasting, and had no experience with DEFM.

After Tayman retired, SANDAG initially replaced him with Kevin Murphy, who worked for a similar agency in Seattle. Although Murphy had significant experience with data analysis and modeling, he stayed for less than a year before returning to Washington. After Murphy left, Gallegos promoted Kurt Kroninger, who was then SANDAG’s IT Manager, to Director of Technical Services. Although many witnesses noted that Kroninger was a skilled IT professional, he did not have experience with DEFM or demographic and economic forecasting generally.

#### **4. DEFM’s Aggressive Income Forecast Is Not Questioned During Series 12**

The SANDAG Board adopted the Series 12 regional growth forecast on February 26, 2010. Series 12 was the first forecast that SANDAG included a 40-year projection. Although Gallegos had wanted Tayman to generate a forty-year forecast for previous regional growth forecasts, he had refused, arguing that the data wouldn’t be accurate that far into the future. However, Kroninger agreed to do it for Series 12. Even though Beckhelm had retired, he agreed to continue to work for SANDAG on a part-time basis and run DEFM for Series 12. Beckhelm said that if he hadn’t agreed, SANDAG wouldn’t have been able to complete the forecast using DEFM, since no one else knew how to operate it.

Although the aggregation error was still present in Series 12, and caused DEFM’s income and taxable retail sales forecasts to be overly optimistic, once again no one realized there was a problem. Ed Schafer, who was the project manager for Series 12, said that the income forecast would have been presented to the expert panel. Based on the expert panel’s notes, they did not question the Series 12 income forecast. When asked, Schafer could not explain why no one noticed the aggressive income or taxable retail sales forecasts. As Daniels pointed out, however, the Series 12 income and taxable retail sales forecast was consistent with Series 10—before the aggregation error was introduced.<sup>4</sup> Jarosz, who worked closely with Beckhelm on Series 12, agreed that this would likely have made the Series 12 income forecast appear more reasonable.

That said, a number of witnesses pointed out that three DEFM outputs are, for political reasons, by far the most important: population, housing and jobs. As a result, these outputs would receive much more scrutiny than others, including income. For instance, Kroninger said that during a regional growth forecast, these were the outputs he was concerned about.

---

<sup>4</sup> Compare **EXHIBIT 4**—SANDAG, *Real Income per Capita in 2010 \$ with EXHIBIT 5*—Beth Jarosz, *Series 13 Regional Growth Forecast*, SANDAG, at 10 (Jan. 14, 2013).

A number of witnesses also commented that during the Series 12 update, less time was spent ensuring that the forecasts were accurate. Jarosz said that she felt rushed during the update, and that the team was understaffed. Schafer agreed that after Tayman left, less time was spent checking the reasonableness of DEFM's inputs and outputs, which he felt was due in part to lack of staffing. He said that he spoke to Daniels about this. Flyte said that he would raise the understaffing issues during his annual reviews. He also felt that because Beckhelm was working remotely, the Series 12 update was of a lower quality than past regional growth forecasts. Beckhelm was more explicit: he said that the focus on accuracy disappeared after Tayman left.

Kroninger claimed that he was not satisfied with Beckhelm working only part-time on DEFM; however, he asserted that the team wasn't yet facing serious staffing problems during Series 12. Yet Kroninger also recalled that he told SANDAG senior executives on multiple occasions that they couldn't retain Beckhelm indefinitely, and would need to fashion a permanent solution. Although Gallegos knew that Beckhelm was continuing to work part-time, he believed that SANDAG was training staff members to replace him.

#### **5. SANDAG'S Staffing Problems Worsen After Series 12**

While working closely with Beckhelm on Series 12, Jarosz had learned how to run DEFM. As a result, Daniels and Kroninger had planned for her to manage the regional growth forecast for Series 13. However, in December 2010, Jarosz moved to Florida for family reasons.

Once Jarosz departed, Kroninger said he frequently expressed to Gallegos and others that SANDAG required more than one person to replace Jarosz. According to Kroninger, he and Daniels tried several times to hire new employees, but were unable to find a satisfactory candidate. Kroninger also said that although Jarosz had been training Kirby Brady, who had come to SANDAG as an intern in 2009, she did not yet have the experience or in-depth knowledge of DEFM to replace Jarosz.

Gallegos denied receiving notice that SANDAG staff lacked expertise regarding DEFM. Gallegos believed that Kroninger felt Brady was ready to replace Jarosz as the person in charge of the regional growth forecast, although he wasn't sure if this meant she was also expected to run DEFM. Gallegos said that he had asked Kroninger whether Brady was ready, and was relying on Kroninger to inform him of issues. Renee Wasmund, who was the Chief Deputy Executive Director at the time, said that she never heard concerns about the regional growth forecast being understaffed. In response, Daniels said that he was certain that Gallegos and Wasmund knew that there were serious issues regarding lack of personnel and expertise on DEFM at the time. But he also said he had reason to believe that some of the concerns he raised to Kroninger were not elevated to Gallegos or his chief deputies—first Wasmund and then later Kim Kawada.

#### **6. SANDAG Continues To Use DEFM For Series 13**

In 2011, Daniels made a strong push for moving away from DEFM. He said this was necessary because Beckhelm would often complain that they didn't have enough people on the team, was increasingly less interested in working part-time, and Jarosz was living in Florida. So Daniels spoke with Gallegos about transitioning from DEFM and instead purchasing a third-party forecasting model, such as REMI, for Series 13. According to Daniels, using REMI would give

them more flexibility to hire an economist or demographer with REMI experience, since the model was broadly used. Daniels said that Gallegos told him to coordinate with Marney Cox, SANDAG's Chief Economist (an executive-level position), to come up with a plan.

Cox had a very long tenure at SANDAG, and witnesses frequently described him as possessing a great deal of influence over staff and other executives. In particular, a number of witnesses commented that Gallegos relied heavily on Cox's opinion, and would often listen to him over others. In addition, a number of witnesses described Cox as having been closely involved with the early development of DEFM, and said he couldn't accept criticism of the model. But while Cox had run DEFM through the 1980s, he had become increasingly less involved with it over the years.

At the meeting with Cox, Daniels said that he told him how understaffed they were on the regional growth forecast, that Beckhelm no longer wanted to work part-time, and that Jarosz was living in Florida.<sup>5</sup> As a result, Daniels said, they should no longer use DEFM. But Cox disagreed. Daniels said that after the meeting, Cox told Gallegos that they shouldn't switch away from DEFM, and Gallegos sided with Cox.

For his part, Cox remembered continuous tension at SANDAG about whether they should abandon DEFM. And he acknowledged that when the issue came up, he would say, in no uncertain terms, that they needed to stick with DEFM, rather than rely on a third-party model that they couldn't control. Similarly, Gallegos said that it was SANDAG's legacy to produce its own model, which it knows and understands. Schafer and Jarosz also recalled the debates over REMI, but explained that switching to it would have presented its own problems, for example it was much less flexible, and so was less capable of being tailored to the San Diego region.

## **7. Jarosz Manages The Series 13 Regional Forecast From Florida**

By 2012, SANDAG had been unable to replace Jarosz and had decided to use DEFM for the Series 13 regional growth forecast, which it needed to complete as part of the latest RTP. As a result, Jarosz ended up in charge of the Series 13 DEFM update even though she was living in Florida and working as a professor at the same time. Jarosz said that although she wanted to run the forecast, she also knew that SANDAG needed her because it had no one else in-house who could do it. Daniels, Schaefer, and Kroninger all agreed that they had no choice but to rely on Jarosz to get the forecast done. Nonetheless, they each expressed discomfort with the situation. Schafer in particular mentioned that one of the big issues with Jarosz in Florida was that there was less collaboration and sharing of information.

Jarosz ended up completing most of the work on the regional forecast independently. She said that during the update, she continued to be concerned about a lack of staffing, particularly for the accuracy checks. Jarosz said that the only people quality-controlling DEFM were her, Beckhelm, and Brady. In comparison, she said that in the past there would have been at least five people working on a regional forecast, which other witnesses confirmed. However, when asked

---

<sup>5</sup> **EXHIBIT 6**—Outlook Appointment from Clint Daniels, Principal Research Analyst, SANDAG, to Kurt Kroninger, Former Director of Technological Services, SANDAG, and Marney Cox, Former Chief Economist, SANDAG (Sept. 7, 2011, 11:00 PST).

about working with Jarosz, Brady said that she had not worked on the Series 13 regional forecast at all, and Beckhelm said that he mostly worked on the subregional forecast.

## 8. Jarosz Adjusts The Series 13 Income Forecast In Response To The Expert Panel's Recommendation

When Jarosz presented the Series 13 regional forecast to the members of the expert panel, they recommended that she adjust the income forecast “to correct for compounding growth in the latter years of the forecast.”<sup>6</sup> Tayman served on the Series 13 expert panel and remembers that the income forecast looked much too aggressive at the time. Jarosz thought that the reason the expert panel became concerned with the Series 13 income forecast (but said nothing about the Series 12 income forecast which was just as optimistic) was because by Series 13 the recession had already lasted for several years.<sup>7</sup> Thus, the forecast may have seemed less reasonable.

In response to the expert panel's recommendation, Jarosz “updated the income model by capping growth rates in output by sector.”<sup>8</sup> In other words, she reduced DEFM's labor productivity forecasts starting at the year 2040. Because productivity affects income, these caps caused the Series 13 income forecast to level off at 2040 as well.<sup>9</sup> They also caused Series 13's taxable retail sales forecast to level off.<sup>10</sup> Jarosz said that the methodology she used was called “trend extrapolation,” and entailed determining the average annual growth rate from the past and applying it to the future. Jarosz couldn't remember why she made the adjustment at the year 2040, but said she would have discussed with the expert panel where to make the adjustment and by how much. Tayman and Jarosz both said that it's common to make adjustments to a forecast so that it will be more reasonable, especially late in a forecast when one may not have time to investigate the source of the problem. Tayman felt, however, that Jarosz should have adjusted the forecast closer to the present date so that it would be closer to the U.S. income forecast.<sup>11</sup> Tayman also said that when such an adjustment is made, it's important to determine why the original forecast was unreasonable.

Jarosz believes that, at the time, she would have considered investigating the source of the aggressive income forecast, but would have been unable to because of inadequate staffing. And she said that she and others would have felt comfortable with the adjustment, since the Series 13 forecast was in line with past income forecasts, including Series 10. Daniels agreed with this point, and also said that updating the DEFM model was extremely time-consuming, since it would frequently break. As a result, if some aspect of the forecast didn't seem like a major problem, they wouldn't investigate it.

---

<sup>6</sup> **EXHIBIT 2**—SANDAG, *supra* note 2, at 11.

<sup>7</sup> **EXHIBIT 5**—Beth Jarosz, *supra* note 4, at 10.

<sup>8</sup> **EXHIBIT 2**—SANDAG, *supra* note 2, at 11; **EXHIBIT 7**—SANDAG, *SD Output per Worker by Industry*.

<sup>9</sup> **EXHIBIT 5**— Beth Jarosz, *supra* note 4, at 10.

<sup>10</sup> *Id.* at 11–12.

<sup>11</sup> *Id.* at 10.

Jarosz said that she would have shown the adjustment to SANDAG executives, including Gallegos and Cox. And in fact, she did create a presentation to the “SANDAG Executive Team,” which contained slides showing how she capped the Series 13 income forecast.<sup>12</sup> Gallegos had no recollection of being shown the adjustment. And Cox, who disagreed with it, said that he didn’t learn about it until later.

### **9. Flyte And Brady Further Adjust The Series 13 Regional Income Forecast For The Subregional Models**

Jarosz severed her relationship with SANDAG in February of 2013. She said that she departed both because she would not be returning to San Diego and because of the staffing and quality control issues on DEFM. Jarosz said she told Gallegos about her concerns during her exit interview.

After Jarosz left, Brady and Flyte were responsible for completing Series 13’s subregional forecast. Beckhelm helped as well, although only part-time. The subregional forecast is based on the DEFM regional forecast data. As Schafer described it, the subregional forecast allocates the results of the regional forecast throughout the many jurisdictions that comprise the region. While working on the subregional forecast, Brady realized that DEFM’s Series 13 regional income forecast—which Jarosz had already adjusted once—was still too high to be properly allocated. She then worked with Flyte, who devised a method of reducing the regional income forecast for use in the subregional forecast. However, neither Brady nor Flyte went back and readjusted the DEFM regional income forecast or investigated why it was so high. As a result, the subregional income forecast was different than the DEFM Series 13 regional income forecast. At Brady’s urging, Flyte later documented what they had done in Confluence, an internal database SANDAG staff uses to store information about SANDAG’s various modeling tools.<sup>13</sup>

On the Confluence page, Flyte wrote:

The [Series 13] income distribution from DEFM has known problems, and is therefore not used as a control. Upon staff review, it was determined that the real household median income target is much higher than would be expected.<sup>14</sup>

Flyte said that when he adjusted the subregional income forecast, he was not aware that Jarosz had already capped the regional income forecast. Although Brady attended the expert panel that recommended that Jarosz adjust the regional income forecast, she had no memory of this recommendation. Flyte claimed that it hadn’t occurred to him to investigate or adjust the regional forecast since neither he nor Brady was responsible for the regional forecast. Nor, he said, would they have known how to do so, since they weren’t competent with DEFM. He also said that they were under a tight deadline to complete the subregional forecast. Brady agreed that they were under a tight deadline, and said that since the regional forecast had already been completed, it was

---

<sup>12</sup> **EXHIBIT 5**—Beth Jarosz, *supra* note 4.

<sup>13</sup> **EXHIBIT 8**—Daniel Flyte, *Income Calibration and Tuning*, SANDAG (Oct. 17, 2014).

<sup>14</sup>*Id.* at 1.

too late go back and fix it. Brady also said that, at this point, they didn't know there was an actual flaw in the regional income forecast.

Although Flyte said that Daniels had instructed them to inspect the subregional income forecast and was aware of the adjustment, Daniels disagreed. Daniels admitted that he was unsure whether he had asked Flyte and Brady to look into the forecast. But he was certain that Flyte and Brady never told him that they had adjusted the subregional income forecast in this manner. Daniels said he didn't learn about it or see the Confluence page until November 2016, when he and others were trying to find the source of the Measure A forecasting error. Daniels said that had he known about the adjustment at the time it was made, he would have made sure that the regional forecast was updated. When asked about the situation, Tayman felt similarly to Daniels: that at this point, the SANDAG team should have gone back and fixed the regional forecast.

Although Cox used the Series 13 regional taxable retail sales forecast—which is directly connected to the regional income forecast—for projects including the TransNet Plan of Finance and the Measure A revenue forecast, no one ever told him that Flyte and Brady readjusted income for the subregional forecast. Flyte said he never told Cox because he didn't know who within SANDAG used the income or taxable retail sales forecasts. Had he known, he said he would have told them what he had done. Flyte also acknowledged that Kroninger was unaware of the adjustment.

#### **10. Cox Calculates The Measure A Revenue Forecast In July 2015**

In January of 2015, Cox emailed Daniels and asked for the taxable retail sales forecast from DEFM Series 13, which Daniels provided.<sup>15</sup> At the time, Daniels did not know why Cox wanted the data, and he never asked. In fact, many witnesses said that Cox was highly independent at SANDAG, such that staff members within SANDAG's modeling group, which was responsible for updating DEFM (among other models), wouldn't necessarily know how or if Cox was using the DEFM forecast data. Cox himself agreed with this. Cox also said, however, that he frequently had difficulty obtaining data from the modeling group. Ray Major, who became Chief Economist after Cox, had the same issue.

Looking back, Daniels now believes that, given the timing of Cox's request, it was likely that he wanted to use this data to calculate the revenue forecast for Measure A, which was then known as "Quality of Life" or "QoL." Cox did ultimately use the Series 13 taxable retail sales forecast to calculate the \$18 billion Measure A revenue forecast, most likely in July of 2015.<sup>16</sup> When asked about it, he said that he was not trying to reach a particular target when he produced the forecast—he just ran the numbers and ended up with \$18 billion. Kawada and Gallegos agreed

---

<sup>15</sup> **EXHIBIT 9**—E-mail from Marney Cox, Former Chief Economist, SANDAG, to Clint Daniels, Principal Research Analyst, SANDAG, at 1 (Jan. 21, 2015, 10:52 PST).

<sup>16</sup> **EXHIBIT 10**—SANDAG, *2015-07 QoL Sales Tax revenue forecasts from Marney - jnu* (Jul. 16, 2015) (stored internally in M:\Planning\Quality of Life Measure\2015 Q of L\2015 QoL Finance\2015-07 QoL Sales Tax revenue forecasts from Marney - jnu.xlsx). Column G shows how Measure A's \$18 billion projected retail sales revenue was calculated. *Id.*

that they didn't have a target revenue goal ahead of time; it was only after Cox conducted the forecast that they started evaluating what projects they could build.

## **11. SANDAG Hires Ray Major And Dmitry Messen**

In February 2015, SANDAG hired Dmitry Messen to modernize the DEFM model. Messen had previously run an economic modeling department at a public agency in Houston. According to Gallegos, the plan was to update SANDAG's forecasting model in time for Series 14. Messen said that from when he was first hired, he believed that DEFM was not an ideal model for San Diego because it was driven by econometrics, rather than demographics. Flyte, who worked closely with Messen, said that he also wanted to make a much simpler model than DEFM, which involved 700 hundred variables, many of which weren't used and only a handful of which were important. As a result, Messen decided to build a totally new, demographically-based model, rather than update DEFM. Messen knew that Cox was heavily invested in DEFM and would not agree with the direction in which he was taking the model, so he shared his ideas very gently in a meeting with Cox and Flyte a few months after Messen began.

In August 2015, SANDAG hired Major to replace Cox as Chief Economist. The plan was for Major to shadow Cox for a period of time so that he could learn how to take over Cox's responsibilities. Major said that from the moment he was hired, he was aware that Gallegos and Cox were concerned about switching to a demographic-based forecasting model and wanted him to be involved in the process.

## **12. SANDAG Staff Conclude That The DEFM Series 13 Taxable Retail Sales Forecast Is Unreasonable**

After Major arrived at SANDAG, his first substantial project was updating the TransNet Plan of Finance for 2015. The Plan of Finance is an annual public report on the TransNet sales tax measure, and contains a short- and long-term forecast of TransNet's revenue collection. The short-term forecast, which only projects five years into the future, is not based on DEFM. However, the long-term forecast is based, at least in part, on DEFM's taxable retail sales forecast, and the further it projects into the future, the more heavily it is affected by that forecast. At first, Major didn't understand how the long-term Plan of Finance forecast was calculated, but he knew it was based on DEFM, so he began looking into the Series 13 taxable retail sales forecast. Once he did so, Major became concerned that it was projecting an unrealistically high level of taxable retail sales revenue. He then asked Messen to look into the problem.

In response, Messen began emailing Major his findings. On November 13, Messen emailed Major a number of graphs demonstrating the connection between the Series 13 taxable retail sales forecast and its wage and income forecasts.<sup>17</sup> On November 20, Messen emailed Major an explanation of how, in the new model he was developing, increased personal money income causes increased taxable retail sales revenue.<sup>18</sup> He further explained that increased income comes

---

<sup>17</sup> **EXHIBIT 11**—E-mail from Dmitry Messen, Senior Regional Models Analyst, SANDAG, to Ray Major, Chief Economist, SANDAG (Nov. 13, 2015, 10:46 PST).

<sup>18</sup> **EXHIBIT 12**—E-mail from Dmitry Messen, Senior Regional Models Analyst, SANDAG, to Ray Major, Chief Economist, SANDAG, at 1 (Nov. 20, 2015, 08:44 PST).

from, among other things, an increase in the average wage. This began a conversation between Major and Messen that concluded with Major realizing that Series 13 was forecasting a wage growth rate of roughly twice the historical average. Major was concerned, and responded first “OMG” and then “WTF” to this information. When asked about the emails, Major said that at this point he was already very uncomfortable with the numbers coming out of DEFM. Messen also acknowledged that the forecast presented a significant discrepancy that he found problematic.

Major and Messen continued to meet to determine, in Major’s words, “how defm calculated series 13 [t]axable retail sales and why it is so aggressive.”<sup>19</sup> Others, including Daniels, Flyte, and Senior Economist Jim Miller became involved in or at least aware of the investigation. By the time that Major emailed Messen and Flyte on November 24, asking them a question regarding the “suspect variables,” Major, Messen, and Flyte each recalled that they already believed that the Series 13 income and taxable retail sales forecasts were unreasonable.<sup>20</sup> Ultimately, Major decided that the aggressive forecasts needed to be shown to SANDAG’s executives, including Gallegos and Kawada. After speaking with Messen, Daniels agreed that the executives needed to be informed, because if DEFM was producing an inaccurate forecast, it could cause a number of problems. But Daniels also felt that this was another opportunity to inform the executives that DEFM was no longer serving SANDAG well.

Thus, after speaking with Kroninger—Daniels’s boss—Daniels emailed Gallegos’s assistant, Tessa Lero, and asked her to set up a meeting in December to update Gallegos and Kawada on Messen’s new model, which Daniels termed “the DEFM re-build.”<sup>21</sup> In the email, Daniels listed Cox as “optional” because he knew that Cox strongly disagreed with the direction in which he and Messen were taking the model. In line with Daniels’s email, most witnesses recalled that the main purpose of the December meeting was to update executives on their progress with the new model, not to simply inform them of DEFM’s aggressive income and taxable retail sales forecasts. Instead, these were to be presented as a reason to abandon DEFM.

### **13. SANDAG Staff Prepare For The DEFM Update Presentation**

In preparation for the meeting with Gallegos and Kawada, Major, Messen, Flyte, Miller, and Daniels held a number of pre-meetings. By this point, Major had spoken with Cox about the aggressive income and taxable retail sales forecasts, and Cox completely disagreed that the forecasts were inaccurate. Major recalled that once Cox confirmed that the equations within DEFM were still correct, Cox asserted unequivocally that the forecast was reasonable. Thus, Major said that if they didn’t come to the meeting with proof, they would not be able to out-argue Cox, given his stature at SANDAG and influence with the other executives.

---

<sup>19</sup> **EXHIBIT 13**—E-mail from Ray Major, Chief Economist, SANDAG, to Dmitry Messen, Senior Regional Models Analyst, SANDAG (Nov. 23, 2015, 07:33 PST).

<sup>20</sup> **EXHIBIT 14**—E-mail from Ray Major, Chief Economist, SANDAG, to Dmitry Messen, Senior Regional Models Analyst, SANDAG, and Daniel Flyte, Senior Research Analyst, SANDAG (Nov. 24, 2015, 06:49 PST).

<sup>21</sup> **EXHIBIT 15**—E-mail from Clint Daniels, Principal Research Analyst, SANDAG, to Tessa Lero, Assistant to Gary Gallegos, SANDAG, and Kurt Kroninger, Former Director of Technical Services, SANDAG (Nov. 30, 2015, 09:23 PST).

Witnesses generally agreed that, during the leadup to the meeting, they believed that the cause of the high income and taxable retail sales forecasts was the data SANDAG had acquired from Moody's Economy.com. The reasons were twofold: first, the Moody's definition of income included non-money sources, such as the value of one's home; and second, DEFM's aggressive wage growth forecast was based on a similarly aggressive Moody's forecast. But regardless of the source of the problem, by this time Major, Messen, Flyte, Kroninger, Daniels, and Miller all admitted that, in one way or another, they believed that the forecasts were wrong. Although none of them knew that Cox had used the taxable retail sales forecast to calculate Measure A's projected revenue, they were all generally aware that this forecast was used in the TransNet Plan of Finance, even though many of them didn't know exactly how.

Witnesses gave similar answers when we asked them how they didn't yet realize that the Measure A forecast was calculated with DEFM. First, although several witnesses had by then already heard of Measure A (or, more accurately, Quality of Life), they were not actively working on it, and so it was not at the forefront of their minds. Second, witnesses generally said that they weren't aware of the actual \$18 billion Measure A revenue forecast until SANDAG announced it in 2016.

#### **14. Daniels And Messen Fail To Persuade Gallegos, Kawada, And Cox That The Income And Taxable Retail Sales Forecasts Are Unreasonable**

The DEFM update presentation took place on December 14, 2015.<sup>22</sup> Gallegos, Kawada, Major, Messen, Daniels, Kroninger, and Cox all attended. Messen and Daniels presented, and Messen developed the slideshow and wrote the notes on the slides. Recollections vary regarding other meeting details.

Daniels showed four particular slides during the meeting:

- (1) "Taxable Retail Sales Per Capita," which shows that Series 13 projects that per capita taxable retail sales revenue will rise far above the historical record of \$18,000 before being capped at around 2040.<sup>23</sup> A note at the bottom reads: "Very hard to explain this one. Must be a drastic increase in income."
- (2) "Total Income Per Capita," which shows income rising far above historical levels before being capped at around 2040.<sup>24</sup> A note at the bottom reads: "Yes, very positive income outlook."
- (3) "Projected TransNet Revenues," which shows that according to the Plan of Finance forecast, by 2048 TransNet will have collected more sales tax revenue in total than it would have even if it collected \$18,000 (the historical record) per person per year.<sup>25</sup>

---

<sup>22</sup> **EXHIBIT 16**—Outlook Appointment from Tessa Lero, Assistant to Gary Gallegos, SANDAG, to Gary Gallegos, Executive Director, SANDAG, et al. (Dec. 14, 2015, 16:00 PST).

<sup>23</sup> **EXHIBIT 17**—SANDAG, *Taxable Retail Sales Per Capita*, at 1 (3 in the original).

<sup>24</sup> *Id.* at 2 (4 in the original).

<sup>25</sup> **EXHIBIT 17**—SANDAG, *supra* note 22, at 3 (14 in the original).

- (4) “Taxable Retail Sales,” which shows that Series 13 forecasts that taxable retail sales revenue will rise far higher than a rate of \$18,000 per person per year.<sup>26</sup>

Daniels recalled that he spent most of the meeting arguing with Cox over whether the forecast shown on the “Taxable Retail Sales Per Capita” slide was reasonable, with Cox arguing that it was. Daniels said that he was trying to persuade Gallegos and the other executives that the data did not support Cox’s argument. Daniels recalled that Cox may have said at this meeting that “I guess I’m just more optimistic about the future of San Diego than you are.” Several others also remember Cox saying something along these lines, although they weren’t sure whether it was at this meeting. In addition, Daniels remembered that they discussed the TransNet Plan of Finance revenue forecast. Most significantly, Daniels specifically remembered that Cox assured those present that he had not used the Series 13 taxable retail sales forecast in the Measure A revenue forecast. Daniels said that because of Cox’s assurance, and because SANDAG was retiring DEFM, they decided at the end of the meeting to stop investigating the Series 13 taxable retail sales and income forecasts and to continue working on Messen’s model.

Kawada recalled that there was actually more than one meeting. She believed that at the December 14, 2015 meeting, the discussion had mainly been about Messen’s new model, and that the aggressive forecast was mentioned only briefly at the end. At this meeting, she remembered there being a heated discussion between Cox and Daniels about Messen’s decision to stop using DEFM, and she also remembered that she and Gallegos interceded and said they wouldn’t yet agree to Messen’s proposed update. Kawada thought that the second meeting took place roughly a month or two later, and that while it was again about Messen’s update—since they hadn’t been able to reach a decision during the first meeting—there was more discussion about the aggressive Series 13 forecast. Kawada recalled seeing the “Taxable Retail Sales Per Capita” slide at the second meeting, and said that Cox argued that it presented a reasonable forecast. Kawada said Cox argued that the growth rate in the slide had occurred before and could occur again, and that it was still early enough in the forecast that others couldn’t prove it wouldn’t happen. She also remembered that they discussed how the aggressive forecasts had been “capped” during Series 13 on the recommendation of the expert panel, which concerned her. Kawada remembered that they discussed how the forecast could affect the Plan of Finance, but she does not recall Measure A ever being mentioned. She did recall Cox saying that he could achieve the same growth forecast without using DEFM, which convinced her that they didn’t need to change the forecast, especially since they were already rebuilding the model. Ultimately, Kawada said, she had felt that she could rely on Cox’s arguments despite the evidence to the contrary, since he had been valuable in explaining economic issues in the past and there was no reason to question him.

Gallegos’s only recollection of the meeting was that it involved a discussion about whether to switch from DEFM’s econometric-driven forecasting model to Messen’s demographic-driven model. He did not remember seeing any of the slides during the meeting, and did not remember the income or taxable retail sales forecasts being discussed. Gallegos did acknowledge that he knew DEFM played a role in calculating the Plan of Finance, but he didn’t know exactly how.

Major recalled that he was disappointed that the meeting was more focused on Messen’s new model than it was about the Series 13 income and taxable retail sales forecasts. He also said

---

<sup>26</sup> *Id.* at 4 (10 in the original).

he wasn't certain which slides were shown, or whether they discussed the taxable retail sales forecast. But he was positive that they discussed the income forecast—albeit in the context of moving away from DEFM. Major disagreed with Kawada that there was a second meeting in the months after December 2015; he said that they didn't meet about the aggressive forecasts again until October 2016. Major also remembered that Cox had said that he could reach the forecast results without using DEFM, but he doesn't remember him ever saying that he didn't use DEFM to calculate the Measure A forecast. Major said that at the end of the meeting, there was essentially a group decision to continue working on Messen's update, and that no order was given to keep investigating the Series 13 forecasts. Finally, Major said it was reasonable that Gallegos might have little recollection of the meeting, as it would not have been a significant event given his other responsibilities.

Kroninger recalled that during the meeting, Cox had argued that the income and taxable retail sales forecasts were reasonable, as was the Plan of Finance, and that the only reason they were aggressive was because they were based on Moody's data—which itself was aggressive. Cox argued that Moody's was a reliable source, so the results of the forecast were sound. Further, Kroninger recalls that Cox argued that he would perform his own quality control on the Plan of Finance, ensuring its accuracy. Kroninger said that Gallegos was confident in Cox and was persuaded by his arguments. As a result, Kroninger said, Gallegos essentially told them to come up with a plan on their own, and did not order them to fix or further investigate the Series 13 forecasts. Kroninger recalled that at the end of the meeting, all present agreed that they should focus on completing the model for the next forecast. He said that this was a reasonable plan, since it would have been unusual to change an already-completed regional growth forecast. However, he also said that this was the first time he was aware of a fundamental DEFM output being called into question.

Messen recalled that at the meeting they did discuss the "Taxable Retail Sales Per Capita," "Total Income Per Capita," and "Taxable Retail Sales" slides. He also said that he asked Cox whether the taxable retail sales forecast could affect the Plan of Finance, and Cox told him that he didn't use DEFM to calculate the Plan of Finance. Messen acknowledged, however, that he couldn't be sure if he had asked Cox about the Plan of Finance or about Measure A. Flyte, who was not at the meeting but was closely involved in preparing for it, said he heard from multiple people afterwards that Cox had said DEFM is not used for any downstream forecast.

When asked about the meeting, Cox recalled that he was deeply opposed to the direction in which Messen was taking the new model. He felt that it was too simplistic, and that they should be updating DEFM rather than creating a new model. Cox didn't recall anyone asking whether the income or taxable retail sales forecasts could affect TransNet or Measure A. And Cox agreed that he would have argued that the forecasts were reasonable at the meeting, and that he could achieve them without using DEFM. He said that he never would have stated that DEFM wasn't used to calculate the Measure A forecast, and that if he said that DEFM wasn't used in the Plan of Finance, he would have only been referring to the short-term Plan of Finance. Like Kawada, Cox also thought that there might have been a second meeting.<sup>27</sup>

---

<sup>27</sup> After the interview, Kawada told us that she had been unable to locate a second meeting on her calendar. We have gone through SANDAG Outlook calendars for January, February, and March of 2016, spoken with the participants of any relevant meeting we found, and could not find a

Major, Flyte, Daniels and others confirmed that, as a result of the meeting, they did not continue investigating the aggressive Series 13 forecasts until October of 2016.

#### **15. Major Uses The Series 13 Taxable Retail Sales Forecast For The 2015 Plan Of Finance**

After the December presentation, Major finished the 2015 Plan of Finance, which was scheduled for Board approval in February 2016.<sup>28</sup> On January 5, 2016, José Nuncio, TransNet Department Director, asked Major whether he had “received the green light to start using the revised TransNet long term forecast?”<sup>29</sup> Major told us that he had been hoping to use Series 14 for the Plan of Finance since he believed the Series 13 taxable sales forecast was unreasonable. But because Series 14 wasn’t ready, he continued to use Series 13. As a result, when Major submitted the Plan of Finance in early 2016, he used the Series 13 taxable retail sales forecast to calculate the Plan of Finance’s long-term forecast.

Major felt that he had no choice. He said that, at this point, he was still heavily relying on Cox to train him as Chief Economist. And he knew that Cox would not agree to change the Plan of Finance forecast since he believed that the Series 13 taxable retail sales forecast was reasonable. According to Major, Cox was not someone he could challenge at SANDAG. Major also said that if he didn’t use Series 13 for the Plan of Finance, he would be calling into question SANDAG’s 2015 RTP—which the Board had approved—since it included the taxable retail sales forecast. When asked why he didn’t speak to Gallegos about this, Major said that he hadn’t yet gained Gallegos’s trust so he wouldn’t have listened to him. Other witnesses stated that it took a long time before Gallegos trusted Major’s opinion.

#### **16. Major Learns That Cox Used The Series 13 Taxable Retail Sales Forecast For Measure A**

On January 8, 2016, Nuncio emailed Major the spreadsheet that Cox used to calculate the Measure A \$18 billion revenue forecast.<sup>30</sup> Major then forwarded it to Cox and asked “[w]hat is

---

second meeting that fit Kawada’s description. Kawada noted that the meeting took place in Conference Room 8B, and that Messen was not present for the second meeting, because he was picking his son up from the airport. Messen said that this event actually occurred on December 20, 2016, so we believe that Kawada was referring to the meeting described in **EXHIBIT 18**, at which Daniels presented Messen’s updated model. **EXHIBIT 18**—SANDAG, *Update on Series 14 Regional Growth Forecast Methods* (Dec. 20, 2016). As for Cox’s recollection of a second meeting, given his description of what occurred after that meeting—namely, a forensic investigation of the Series 13 forecasts—it seems more likely that he was referring to one of the meetings that took place in October 2016.

<sup>28</sup> **EXHIBIT 19**—SANDAG, *Executive Team Meeting Agenda*, at 2 (Jan. 11, 2016).

<sup>29</sup> **EXHIBIT 20**—E-mail from Jose Nuncio, TransNet Program Director, SANDAG, to Ray Major, Chief Economist, SANDAG, at 1 (Jan. 5, 2016, 15:14 PST).

<sup>30</sup> **EXHIBIT 21**—E-mail from Jose Nuncio, TransNet Program Director, SANDAG, to Ray Major, Chief Economist, SANDAG (Jan. 8, 2016, 09:51 PST).

the source of the population and taxable retail[] numbers in this spreadsheet.” Neither Nuncio nor Major could remember exactly why Major had asked for the spreadsheet, but Major said it was probably related to his work on the Plan of Finance. He said it was not related to his investigation of the aggressive Series 13 forecasts in November and December of 2015. Major acknowledged that when he received this document, he understood that Cox had used the Series 13 taxable retail sales forecast to calculate Measure A’s \$18 billion revenue forecast. He said that the reason he was asking Cox for the source of the numbers is because DEFM is “run” more than once during a regional growth forecast—i.e. it generates more than one set of outputs before it is finalized—and Major wanted to know which run Cox used for Measure A. Major said that Cox likely responded to him in person, rather than by email, which was common. Major did not share this spreadsheet with Gallegos, Kawada, Flyte, Daniels, Messen, Miller, or Kroninger, and did not otherwise inform them that Cox had used the Series 13 taxable retail sales forecast for Measure A.

We asked Major why he didn’t tell anyone that Measure A’s \$18 billion revenue projection was based on Series 13’s taxable retail sales forecast, which he believed was unrealistic. In response, Major gave many of the same reasons listed above. He also said that there would have been no benefit to telling Gallegos and Kawada. At this point, he had no data to back up his belief that the forecast was wrong, only his professional opinion. Therefore, according to Major, it wouldn’t have made sense for Gallegos and Kawada to trust him over Cox, since Major had only worked at SANDAG since August, while Cox had worked there for decades.

#### **17. SANDAG Renews Its Investigation Into The Series 13 Forecasts In Response To Questions From The Voice Of San Diego**

On July 8, 2016, the SANDAG Board approved Measure A, placing it on the November 8, 2016 ballot. Three months later, on October 11, 2016, Andrew Keatts, a reporter for the Voice of San Diego, emailed SANDAG a number of questions about a shortfall in TransNet revenue that SANDAG disclosed in a public report.<sup>31</sup> He also asked whether there had been “any significant changes made to the revenue projection model that produced these TransNet 2 expectations, and the model used to produce Measure A’s \$18 billion expectation.”<sup>32</sup>

According to Flyte, at about the time Keatts submitted these questions, Flyte and others renewed their investigation into the source of the aggressive Series 13 forecasts. They began by reviewing their investigation from the previous year. To that end, Messen emailed Major the slides they had created for the presentation in December of 2015.<sup>33</sup> Major also emailed Daniels the spreadsheet that Cox had used to calculate the Measure A revenue forecast.<sup>34</sup> This was when

---

<sup>31</sup> **EXHIBIT 22**—E-mail from Andrew Keatts, Reporter, Voice of San Diego, to David Hicks, Communications Manager, SANDAG (Oct. 11, 2016, 09:30 PST).

<sup>32</sup> *Id.* at 2-3.

<sup>33</sup> **EXHIBIT 23**—E-mail from Dmitry Messen, Senior Regional Models Analyst, SANDAG, to Ray Major, Chief Economist, SANDAG, and Daniel Flyte, Senior Research Analyst, SANDAG (Oct. 18, 2016, 13:30 PST).

<sup>34</sup> **EXHIBIT 24**—E-mail from Ray Major, Chief Economist, SANDAG, to Clint Daniels, Principal Research Analyst, SANDAG (Oct. 18, 2016, 15:25 PST).

Daniels and others learned that Cox had indeed used Series 13's taxable retail sales forecast for Measure A.

Flyte said that by this point, he and others at SANDAG knew the Measure A forecast was wrong. At the time, Flyte felt that SANDAG should simply admit that it was erroneous. Flyte shared this sentiment with Major, but said that Major was still in Cox's shadow and couldn't communicate directly with Kawada and Gallegos. Daniels agreed that by this time they knew there was a problem with the Measure A forecast, even though they didn't know the source. In Daniels's opinion, they had known since December of 2015. When asked about the situation, Major said he was concerned about the Voice of San Diego's questions, because he felt that it was still unknown what had caused the income and taxable retail sales forecasts to be so aggressive. But Major also felt that they couldn't announce that the Measure A forecast was wrong until they knew for sure—and until they knew what the revenue total should have been.

On October 24, 2016, the Voice of San Diego published a pair of articles suggesting that the Measure A forecast might be inflated.<sup>35</sup> Once the articles were published, Gallegos and Kawada began holding daily meetings with Major, Daniels, Flyte, Cox, and Miller, among others, to discover whether there was an error in the forecast. Gallegos said this was because Cox continued to argue that the forecast was optimistic but acceptable, while others were saying it was wrong. Gallegos said that those in the latter camp were still arguing the forecast was wrong because it incorporated Moody's definition of income and its aggressive job growth forecast. But Gallegos said this wasn't enough for him. If the forecast really was wrong, Gallegos wanted to know for sure.

Major recalled that by this point, they were meeting for hours each morning and working all day to find the source of the error. Although he acknowledged that he didn't believe in the forecast, he knew they wouldn't be able to convince Gallegos until they found something conclusive, and would never be able to convince Cox.

Miller, although not as closely involved in the investigation, also believed that DEFM's Series 13 taxable retail sales forecasts were unreasonable. On November 3, 2016, he emailed Sanchita Mukherjee, a former Economic Research Analyst at SANDAG who was then on maternity leave.<sup>36</sup> In the email, Miller wrote that "we are pre-occupied with the recent revelation that our revenue forecasts from DEFM are insanely optimistic (for a few reasons too boring to get

---

<sup>35</sup> **EXHIBIT 25**—Andrew Keatts, *SANDAG's Last Tax Hike Is on Track to Fall Billions Short – and Measure A Could Too*, Voice of San Diego (Oct. 24, 2016), <http://www.voiceofsandiego.org/topics/politics/sandags-last-tax-hike-is-billions-short-and-measure-a-could-be-too/print/>.; **EXHIBIT 26**—Andrew Keatts, *With Measure A, SANDAG Is Counting on San Diegans to Spend Like They've Never Spent Before*, Voice of San Diego (Oct. 24, 2016), <http://www.voiceofsandiego.org/topics/politics/with-measure-a-sandag-is-counting-on-san-diegans-to-spend-like-theyve-never-spent-before/print/>.

<sup>36</sup> **EXHIBIT 27**—E-mail from Jim Miller, Senior Economist, SANDAG, to Sanchita Mukherjee, Former Economic Research Analyst, SANDAG (Nov. 3, 2016, 13:41 PST).

into).<sup>37</sup> Miller added that he was “keeping [his] head down.”<sup>38</sup> Mukherjee responded that she would “keep [her] head down as well.”<sup>39</sup> When asked about the email, Miller said that although they had known the taxable retail sales forecasts were optimistic since December 2015, he hadn’t realized they were “insanely optimistic” until after the Voice of San Diego published its articles in October 2016. He also said that at this point, he still believed that the “reasons” the forecasts were so optimistic was because they were based on Moody’s data. Miller said that by “keeping [his] head down,” he meant that he was not speaking to the press, which he believed was based on advice from SANDAG communications staff. Mukherjee said she had only been minimally involved in the discussions over the aggressive forecasts in 2015, and felt that she couldn’t contribute to solving the problem, which was why she said she would keep her head down too.

## 18. SANDAG Discovers The Source Of The Measure A Forecasting Error

During the daily meeting on the morning of November 8, 2016—election day—Daniels gave a presentation that he believed showed clearly that there was an error in the Measure A forecast. At this point, Daniels and others had realized that the DEFM taxable retail sales forecast was based on DEFM’s labor productivity forecast, since labor productivity affects income which affects taxable retail sales. In Daniels’s presentation, the sixth slide showed the historical growth rate in productivity of the San Diego transportation and warehousing industrial sector, as compared to the United States as a whole.<sup>40</sup> Daniels said that this growth rate couldn’t be correct, since transportation and warehousing is actually a shrinking industry in San Diego. The seventh slide of the presentation was a spreadsheet that showed the numerical growth rate in productivity of that sector, which was so extreme that Daniels and others believed it had been inputted incorrectly.<sup>41</sup> Yet at the same time, the spreadsheet also showed that employment in the industry was actually falling.<sup>42</sup> Daniels said that while this could happen, it would be extremely unlikely.

However, this presentation still did not persuade Cox, who argued at length that the discrepancy between falling job growth and rising productivity could have been caused by the use of drones. Multiple interviewees remembered this happening, and all said it was immediately apparent that this argument was absurd. For example, as Major explained, the data in question was historical, so it would not have incorporated the introduction of drone technology. Nonetheless, Major also said that because Cox was still denying that the forecast was wrong, and because they still hadn’t found the actual source of the error, Gallegos told them to keep searching.

---

<sup>37</sup> **EXHIBIT 27**—E-mail from Jim Miller, *supra* note 35.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> **EXHIBIT 31**—SANDAG, *Labor Productivity*, at 1.

<sup>41</sup> *Id.* at 2. Column AI shows the sector’s rising productivity rate. In fact, the productivity data was not typed in wrong—it was based off the aggregation error introduced during Series 11.

<sup>42</sup> *Id.* Column AQ shows the sector’s falling employment rate. Unlike the productivity data, the falling employment data was accurate. According to Daniels, it had come from a different vendor than Moody’s and was unaffected by the aggregation error.

Two days later, on November 10, 2016, Daniels and Flyte finally discovered the source: the aggregation error that was introduced during Series 11 into Moody’s historical productivity data.

## **B. FINDINGS REGARDING THE MEASURE A FORECASTING ERROR**

The purpose of our investigation was to determine who knew that the Measure A forecast was overstated, when they knew it, and what they did with that information. To that end, this section first presents our findings on those specific questions. Then it presents several instances—before 2015—when SANDAG staff and executives missed opportunities to identify and fix the source of the Measure A forecasting error. Finally, the report provides recommendations to prevent the recurrence of similar problems.

### **1. Who Knew That The Measure A Forecast Was Overstated, When Did They Know It, And What Did They Do With That Information?**

#### **(a) Gary Gallegos**

At the December 14, 2015 meeting, Daniels and Messen informed Gallegos that the Series 13 income forecast was unreasonable. And they informed him that the taxable retail sales forecast was unreasonable as well. At this meeting, Cox disagreed with them, and argued to Gallegos and Kawada that the forecasts were reasonable. Although Gallegos does not remember this occurring, it is highly likely that he deferred to Cox despite Daniels’s and Messen’s strong arguments and evidence to the contrary. Gallegos seems to have placed too much trust in Cox over the years, and to have been overly influenced by his opinion, which is likely what happened here as well.

Although Gallegos most likely did not know at this point that the Series 13 forecasts would affect Measure A, he should have known—based on what witnesses have said occurred during the presentation—that these forecasts would affect the TransNet Plan of Finance. Because Gallegos sided with Cox, SANDAG staff stopped investigating the Series 13 income and taxable retail sales forecasts. Had Gallegos not done so, but instead ordered staff to either investigate or stop using these forecasts, it is likely that Major would not have used Series 13 to calculate the Plan of Finance and that the forecasting error would have been discovered sooner. In addition, even though Cox had already calculated the Measure A revenue forecast, it would not have been too late to change it had SANDAG discovered the error sooner.

After the Voice of San Diego articles issued on October 24, 2016, seemingly all of Gallegos’s employees except for Cox were telling him that the Measure A revenue forecast was wrong. Indeed, Ron Roberts, SANDAG Chair, said he received a call from Gallegos after the articles came out—either in late October or early November—in which Gallegos told him that he was concerned that SANDAG’s revenue projections were off. Nonetheless, it seems that Gallegos was unwilling to announce that the Measure A forecast was wrong until Cox agreed or until his team found the source of the error. Gallegos appears to have relied excessively on Cox and erred in not conceding at an earlier stage that there was some sort of error.

(b) Kim Kawada

Kawada, like Gallegos, also learned in December 2015 that the Series 13 income and taxable retail sales forecasts were probably unreasonable. However, like Gallegos, she relied on Cox's arguments despite the persuasive, data-driven evidence to the contrary. Although Kawada most likely did not know at this point that the forecasts could affect Measure A, she did know that they would affect the Plan of Finance. Had Kawada insisted that the forecasts be further investigated or no longer used, it is possible that the effects of the forecasting error could have been prevented—both on the TransNet Plan of Finance and on Measure A.

Also like Gallegos, Kawada should have known that the Measure A forecast was wrong by late October 2016, when Cox was the only person still arguing that it was right. And indeed, Flyte has said that he believes Kawada realized earlier than Gallegos that Cox's arguments were flawed. Much like Gallegos, Kawada was in a difficult situation at this point, but had she convinced Gallegos to reveal that the Measure A forecast was erroneous, SANDAG may not have forfeited as much public trust.

(c) Marney Cox

Although Cox never believed that the Measure A revenue forecast was flawed, and, in fact, still believes it could be right to this day, he bears much of the responsibility for what occurred. When Cox used the Series 13 taxable retail sales forecast to calculate Measure A's projected revenue, most likely in July of 2015, he was unaware of the data error within DEFM that caused the inaccurate forecast. By November and December of 2015, however, Major, Daniels, Flyte, and Messen had informed him that the taxable retail sales forecast was highly unrealistic. Nonetheless, it appears that Cox simply refused to accept that DEFM could be producing an inaccurate number, even though he knew that the DEFM update team had been understaffed and working remotely for years, and knew that Jarosz had capped the Series 13 income forecast because it was too optimistic.

Although we can't be certain what exactly Cox said during the December 14, 2015 meeting, it's clear that he argued against there being any problem with the Series 13 forecasts, despite being presented with compelling historical evidence. Had Cox been more willing to consider whether the forecasts were wrong, and did not argue so stridently against that position, then Gallegos and Kawada might have asked for additional investigation into the forecasts. Further, had Cox mentioned that he had actually used Series 13 to calculate the Measure A forecast, then Gallegos and Kawada may have felt more urgency to investigate Series 13. Several witnesses have said that Cox stated that he didn't use DEFM for Measure A, or didn't use it for the TransNet Plan of Finance. We found Cox to be earnest and forthright in our interviews, and conclude that he did not knowingly make any false representations about his use of DEFM.

Cox's intransigence in October 2016 also seems to have been a large part of the reason why SANDAG did not admit sooner that the Measure A forecast was overstated. In sum, it is apparent that Cox had longstanding and deep credibility at SANDAG. His opinions were accorded great weight and throughout the relevant time periods he passionately defended DEFM and denied that it was problematic. Cox's standing within SANDAG and his fierce defense of DEFM muffled dissenting voices and delayed discovery of the Measure A forecasting error.

(d) Ray Major

By November 2015, Major had concluded that the Series 13 income and taxable retail sales forecasts were incorrect. Although he argued privately with Cox, he did not strongly oppose him during the December 2015 meeting. Major said that there would have been no benefit to doing so, since Cox reacted poorly to being publicly confronted, and Gallegos wouldn't yet have trusted Major's opinion. At this point, however, Major knew that Series 13 was used for the Plan of Finance long-term forecast, so he had an obligation to ensure that that forecast was accurate. Had he joined Daniels and Messen in arguing against Cox, it's possible that Gallegos and Kawada would have been more likely to listen to them. Indeed, Major even complained that he wished Daniels would have focused more on the unrealistic Series 13 forecasts during the meeting, rather than on Messen's model for Series 14. Major had the opportunity to rectify this, and ensure that Gallegos and Kawada understood that the Series 13 taxable retail sales forecast was likely incorrect and would be used in the Plan of Finance. But he did not, and instead submitted the Plan of Finance with a long-term forecast whose results he did not agree with.

In January 2016, Major learned that Cox had indeed used the Series 13 taxable retail sales forecast to calculate Measure A's projected revenue. Although Major felt unable to contradict Cox, and was certain that Gallegos wouldn't listen to him, he also knew that SANDAG was promising the public a revenue forecast that Major believed was highly unrealistic. Thus, he had a responsibility to do what he could to prevent that from happening. Major argued that it would have caused difficulties had SANDAG used something other than the Series 13 taxable retail sales forecast for Measure A, since the Board had already approved Series 13. But those difficulties would surely have been minimal compared to what SANDAG faced after it was revealed that the Measure A forecast was overstated.

(e) Kurt Kroninger

Like Gallegos and Kawada, Kroninger most likely didn't learn that the Series 13 taxable retail sales forecast was used to calculate the Measure A revenue forecast until October of 2016. Nonetheless, he knew or should have known—based on what Daniels told him—that the Series 13 income and taxable retail sales forecasts were unrealistic. And by this point he almost certainly knew that the taxable retail sales forecast was used in the Plan of Finance. At the time, Kroninger was Director of Technical Services at SANDAG, which is an executive-level position. As a result, he stood on equal footing with Cox. We find that he should have used his position to argue to Gallegos and Kawada that the Series 13 forecasts should either not be used in the Plan of Finance, or should be further investigated. Although Kroninger said it would have been unusual to change an already completed regional growth forecast, he also said that this was the first time he had ever seen one of DEFM's outputs called into question.

In addition, Kroninger should have done far more to determine how else Series 13's income and taxable retail sales forecasts were being used, such as in Measure A's revenue projection. For instance, Kroninger repeatedly said that until Major began working on the Plan of Finance, he had no idea that it used DEFM. However, Tayman told us that when he was Director of Technical Services, he was aware of how DEFM's outputs were used within SANDAG, and that this was important information to know. Once Kroninger became Director, he also became responsible for DEFM, and should have made himself aware of who was using its outputs, and how. Had

Kroninger done so, he might have realized that Cox had used Series 13's taxable retail sales forecast for Measure A, and could have alerted Gallegos and Kawada.

By October 2016, Kroninger likely understood that the Measure A revenue forecast was overstated, and played a role in the search for the source of the forecasting error.

(f) Clint Daniels, Daniel Flyte, Dmitry Messen, and Jim Miller

By December 2015, Daniels, Flyte, Messen, and Miller all believed—with varying degrees of confidence—that the Series 13 taxable retail sales and income forecasts were unreasonable, although Miller was much less involved than the others. At that point, they did not know that Cox had used the taxable retail sales forecast to calculate Measure A's projected revenue, but they knew or should have known that Major needed to use it in the Plan of Finance. Although they did attempt to convince Gallegos and Kawada that the Series 13 forecasts were unreasonable, they still could have done more.

Although it's almost certain that Daniels and Messen argued at the December meeting that the Series 13 forecasts were unrealistic, the meeting focused primarily on Messen's Series 14 update. Daniels and Messen should have spent more time on the problems that the unrealistic forecasts themselves presented—and how these problems would affect SANDAG—rather than simply using them as a reason to move away from DEFM. Had they done so, Gallegos and Kawada may have asked them to investigate the forecasts sooner, rather than in October 2016. Daniels and Messen did do this in part, by explaining that the unrealistic forecasts affected the Plan of Finance. But they, like Kroninger, should have investigated how else SANDAG used Series 13's income and taxable retail sales forecasts. In doing so, they may have learned that Cox used Series 13's taxable retail sales forecast to calculate Measure A's revenue forecast. In addition, it appears that SANDAG used Series 13's income forecast in a variety of ways. Daniels and Messen could have used this information to persuade Gallegos and Kawada that Series 13's income and taxable retail sales forecasts either needed to be investigated or abandoned.

Even though Flyte and Miller were not at the presentation, they too should have investigated how SANDAG used Series 13's income and taxable retail sales forecasts. Flyte, in particular, should have done this, since he was well aware that the income forecast was too high—indeed, he had known this since at least 2013. Moreover, Flyte certainly should have shown everyone else the Confluence page he created in which he described Series 13's income forecast as having “known problems.”<sup>43</sup> Although this would not have convinced Cox, it may have persuaded Gallegos and Kawada that the Series 13 income and taxable retail sales forecasts were unreasonable.

By October 2016, Daniels, Flyte, Messen, and Miller were all confident that the Measure A revenue forecast was overestimated. At this point, each of them believed that the Measure A forecast was incorrect, and at least Daniels and Flyte were involved in searching for the source of the problem.

---

<sup>43</sup> **EXHIBIT 8**, *supra* note 13, at 10.

## 2. Missed Opportunities To Identify And Fix The Source Of The Measure A Forecasting Error

### (a) SANDAG Executives Fail to Provide Sufficient Staffing and Expertise for the Series 12 and 13 Regional Growth Forecasts

In the years following 2006, when Tayman, Beckhelm, and a number of other long-term staff members retired, SANDAG was undoubtedly in a difficult position. However, it appears that despite warnings from outgoing staff members, SANDAG executives did not properly prepare for and execute the transition.

Although SANDAG seems to have found an adequate replacement for Tayman in Kevin Murphy, once Murphy left after a year, Gallegos elevated Kroninger to a position for which he did not have the requisite experience. By all accounts, Kroninger is a highly skilled IT professional, but he is not an economist. It is possible that Gallegos did not realize the expertise that was needed to conduct a regional growth forecast, or how closely involved Tayman was in ensuring the forecast's accuracy. In any case, after the promotion, Kroninger was largely uninvolved in the regional growth forecast, beyond ensuring that the population, housing, and jobs outputs were reasonable. Nearly every witness who worked on the regional growth forecast both before and after Tayman left said that, during the latter period, far less time went into checking the accuracy of the forecast as a whole.

When Beckhelm retired, SANDAG could have stopped using DEFM for its regional growth forecasts, since he was seemingly the only person at the agency who knew how to run it. However, it did not do so, likely because Gallegos, Cox, and others felt that it was important for SANDAG to use DEFM. Many witnesses extolled the virtues of DEFM: that it was sophisticated, highly adjustable, and tailored for San Diego. But if SANDAG was going to keep using DEFM—by far its most important forecasting model, since it fed into all the other models—then it needed to ensure that it had sufficient personnel to operate it. SANDAG does not seem to have done so. During Series 12, SANDAG was forced to rely on Beckhelm working part-time from retirement to run DEFM, since seemingly no one else at SANDAG knew how. Similarly, for Series 13, SANDAG was forced to rely on Jarosz, even though she was living in Florida and working another job at the same time.

Although some witnesses, such as Jarosz, felt that the team working on the Series 12 regional growth forecast was understaffed, others felt differently. But nearly all witnesses who were involved with Series 13 agreed that they did not have nearly enough people working on it. Indeed, it seems fairly likely that Jarosz not only ran DEFM on Series 13, but was also almost solely responsible for ensuring the accuracy of the forecast. In comparison, previous forecasts—at least before Series 12—generally had a team of five or more people. Although Jarosz said that Brady and Beckhelm also helped check the accuracy of the Series 13 regional forecast, both recalled that their responsibilities were almost entirely focused on the subregional forecast. The predictable result was that Jarosz did not have enough time to ensure that Series 13 produced a reasonable forecast, and that when problems arose with the income projection, she did not adequately solve them. Similarly, when Flyte and Brady discovered that the Series 13 income projection was too aggressive for the subregional forecast, they too didn't have time—or, possibly,

the expertise—to fix it. This led directly to SANDAG’s overestimation of the Measure A revenue forecast.

It is difficult to say whose fault it was that the team running DEFM became so understaffed. Daniels said that he frequently spoke to Kroninger about the lack of staffing, and Kroninger said he raised the issue on multiple occasions with the executive team. But Gallegos said he was not made aware of the problem at the time. In addition, Cox was highly resistant to moving away from DEFM, even though he was most likely aware of at least some of the staffing problems. But regardless of where the blame lies, SANDAG had an obligation to ensure the reasonableness of its regional growth forecast, which it relies on for the legally-required RTP. By continuing to use DEFM without providing sufficient personnel to update it, SANDAG did not fulfill that obligation.

(b) Jarosz Inadequately Adjusts the Series 13 Income Forecast and Does Not Investigate the Cause

Although Jarosz may have been doing SANDAG a favor by agreeing to run DEFM for Series 13, and seems to have had little if any support, she likely could have done more to ensure the accuracy of the forecast. When the expert review panel informed Jarosz that the income projection was too aggressive, she had two choices: investigate why it was so aggressive and then fix it, or make a reasonable adjustment. At the time, Jarosz was working almost independently on the Series 13 regional forecast, and was under time pressure to finish it so that SANDAG could produce the subregional forecast. Thus, it is understandable that she did not have the resources to investigate the cause of the aggressive income forecast.

However, multiple witnesses agreed that Jarosz’s actual adjustment to the forecast was inadequate: rather than adjusting income at 2040, she should have done so much earlier, and reduced it further.<sup>44</sup> Jarosz said that she would have discussed her adjustment with the expert panel, and, indeed, the expert panel only recommended that she “adjust[] income to correct for compounding growth *in the latter years* of the forecast.”<sup>45</sup> Nonetheless, had Jarosz adjusted the income forecast to allow for a more reasonable rate of growth, the Measure A revenue forecast may not have been so grossly overstated.

(c) Flyte and Brady Adjust the Series 13 Subregional Income Forecast and Do Not Investigate the Cause

Flyte and Brady also had an opportunity to prevent SANDAG from overstating the Measure A revenue forecast, although it is unclear how at fault they truly were. When Flyte and Brady realized that the Series 13 income forecast could not be reasonably allocated into the subregional models, they decided to adjust the subregional forecast but keep the regional forecast the same.

But multiple witnesses said that this correction was not enough, and that Flyte and Brady should have fixed the regional forecast as well. Flyte and Brady argued, however, that the regional forecast was already complete, and they lacked the time and expertise to fix it, since they needed

---

<sup>44</sup> **EXHIBIT 5**— Beth Jarosz, *supra* note 4, at 10.

<sup>45</sup> **EXHIBIT 2**—SANDAG, *supra* note 2, at 11 (emphasis added).

to finish the subregional forecast and Jarosz had already left. Flyte also said that Daniels was aware of what they had done, which Daniels strongly denies. But regardless of what Daniels knew, Flyte and Brady still should have done more to ensure that the regional forecast was accurate. On the instruction page in which Flyte explained the adjustment, he described the regional forecast as having “known problems.” Thus, he and Brady should have attempted to fix those problems. If they could not do so, they should have at least determined who within SANDAG used the income and taxable retail sales forecasts (as Flyte knew they were connected), and informed them of the problems.

### **3. Recommendations for Best Practices**

#### **(a) Maintain Internal Expertise Over SANDAG’s Forecasting Model**

A large part of the reason why SANDAG overstated the Measure A revenue forecast was because it had few if any in-house employees who understood and could operate DEFM. SANDAG seems to be well aware of this problem, and is correcting it by developing a new, potentially simpler forecasting model. Nonetheless, simply developing a new model is not enough. SANDAG must also ensure that, going forward, it maintains broad employee knowledge over the model, so that if it loses a staff member who previously ran the model, it has others who can take his or her place.

#### **(b) Ensure That SANDAG’s Forecasting Model is Quality-Controlled**

Another reason that SANDAG failed to prevent the Measure A forecasting error was because its Series 12 and 13 regional growth forecasts lacked sufficient quality controls. This appears to have been, first, a staffing problem: SANDAG did not provide enough people, or the right people, to run its forecasts. And it was also likely a problem with DEFM, which SANDAG employees could not adequately quality control both because they did not understand it, and because it produced so many outputs that only a small number could be checked. Therefore, going forward, SANDAG needs to ensure that the team working on its regional growth forecasts has both the knowledge and resources to ensure that the forecasts are reasonable.

#### **(c) Prevent “Siloing” Between Interrelated SANDAG Departments**

Finally, SANDAG must ensure that staff members who should be working together are working together. When staff members became convinced that the Series 13 taxable retail forecast was unrealistic, none of them knew that Cox had used that forecast to calculate the Measure A revenue forecast. Similarly, this was the first time that many of them realized that DEFM was used in the Plan of Finance. Indeed, it appears that the modeling department, which produces SANDAG’s forecasting models, was largely disconnected or siloed from SANDAG employees who used those models—Cox in particular.

Going forward, SANDAG must ensure that its modeling department works closely with the SANDAG employees who use the outputs of those models. That way, if a problem arises with one of those outputs, members of the modeling department will know how the output is being used, enabling them to prevent the production of an unreasonable forecast. SANDAG appears to be taking a step in the right direction by making Major both Chief Economist and Director of

Technical Services, however it must ensure that Major is not overtaxed and can still make certain that SANDAG's regional growth forecasts are accurate.

## **V. SANDAG'S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR**

During our investigation into the Measure A forecasting error, we identified several problems that arose in connection with SANDAG's response to the discovery of the Measure A forecasting error. Because these problems are closely related to our investigation, we have included a factual summary of what occurred as well as findings and recommendations for best practices.

### **A. SUMMARY OF FACTS REGARDING SANDAG'S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR**

#### **1. SANDAG Employees Are Instructed To Delete Draft Documents**

On October 28, 2016, SANDAG staff held an executive team meeting that included Gallegos, Daniels, Major, Kawada, and Cox, as well as John Kirk and Shelby Tucker, SANDAG's General Counsel and Associate General Counsel.<sup>46</sup> The purpose of the meeting was to discuss SANDAG's record retention policy in light of public records requests it had recently received from the Voice of San Diego. Under that policy, preliminary drafts that are not deleted within 60 days must be kept for two years.<sup>47</sup> Although the meeting happened to occur on the day SANDAG received the Voice of San Diego's public records request for all Series 13-related emails, this was a coincidence, as the meeting had been scheduled for that date since October 24, 2016. A number of witnesses agreed that during this meeting, they were instructed to delete documents that did not fall into SANDAG's record retention policy. However, witnesses' recollections varied as to who gave the instruction and what it entailed.

Major said that Kirk had instructed them that if they kept any documents for sixty days, then they would need to keep them for two years. Major recalled that there was a discussion about how they should delete documents that they didn't need, in light of concerns that early versions could be taken out of context. Nonetheless, Major said that they weren't being told to search for documents and get rid of them. However, he also acknowledged that Kirk never instructed them during this meeting not to mass-delete documents, nor did he tell them not to delete documents regarding their investigation into DEFM. As a result of the meeting, Major said that he got rid of draft versions of various documents, as well as old emails, but did not delete anything important.

---

<sup>46</sup> **EXHIBIT 28**—Outlook Appointment from Tessa Lero, Assistant to Gary Gallegos, to Gary Gallegos, Executive Director, SANDAG, et al. (Oct. 28, 2016, 14:30 PST).

<sup>47</sup> **EXHIBIT 29**—SANDAG, *Board Policy No. 015: Records Management*, at 3.1–3.2 (Adopted Jun. 2003) (Amended Jan. 2017), [http://www.sandag.org/organization/about/pubs/policy\\_015.pdf](http://www.sandag.org/organization/about/pubs/policy_015.pdf). Under California law, “[p]reliminary drafts, notes, or interagency or intra-agency memoranda that are not retained by the public agency in the ordinary course of business, if the public interest in withholding those records clearly outweighs the public interest in disclosure.” Cal. Gov't Code § 6254(a).

Kawada also said that the meeting involved a discussion about how draft documents should be deleted according to SANDAG's record retention schedule, so that they wouldn't be misconstrued. However, she couldn't remember if Kirk led the discussion. Gallegos recalled the meeting, and said that during it they had had a general discussion about SANDAG's record retention policy, and draft documents in particular.

We asked Kirk about the meeting, and he confirmed that they discussed how draft documents needed to be deleted within sixty days, otherwise they would have to be kept for two years under SANDAG's record retention policy. He also said that he probably instructed those present that if they had early drafts that they didn't want to be subject to production for a public records request, then they needed to delete them within sixty days.

Daniels recalled the meeting differently than everyone else. He said that during it, Gallegos had instructed them to delete documents every two weeks so that they wouldn't get picked up by a public records request. When asked about the instruction, Daniels agreed that Gallegos may have told them to delete draft documents, rather than all documents. In addition, Daniels said that at one of the daily meetings during their search for the forecasting error, Gallegos told them to stop communicating by email, and to instead use their phones or speak in person. Flyte also recalled this happening.

On October 31, 2016, after Gallegos instructed employees to stop communicating by email, Flyte sent an email to Daniels and Major titled "SR13 DEFM Income Model."<sup>48</sup> In it, he explained some of his latest research on the source of the forecasting error. After receiving this email, Daniels told Flyte to print it out and then delete it. Daniels said he told Flyte to do this in response to Gallegos's instruction. Although Flyte never deleted the email, Daniels said that SANDAG employees did delete emails during this time period.

## **2. SANDAG Employees Are Instructed To Store Documents Related To The Forecasting Error In "Hana Tools"**

On November 1, 2016, Kroninger created a new folder named "Tools" on SANDAG's "Hana" server, which became known as "Hana Tools."<sup>49</sup> On Kroninger's instructions, SANDAG staff who were investigating the forecasting error used this folder, known as "Hana Tools," to store all documents they created as part of their search.

Kroninger said that Hana Tools served a number of purposes. As a central location where staff members could store documents, exchange them, and collaborate, it eliminated the need to use email. And because Kroninger created Hana Tools in an obscure location—SANDAG did not ordinarily use the Hana server for storage—it would enable the team to keep their project confidential. As Kroninger explained, he wanted to limit access to Hana Tools to a small group of staff members, and was concerned about leaks. Further, Kroninger said that Hana Tools could

---

<sup>48</sup> **EXHIBIT 35**--E-mail from Daniel Flyte, Senior Research Analyst, SANDAG, to Clint Daniels, Principal Research Analyst, SANDAG, and Ray Major, Chief Economist and Director of Technical Services, SANDAG, at 1 (Oct. 31, 2016, 12:15 PST).

<sup>49</sup> **EXHIBIT 30**—SANDAG, *Hana Tools*.

not be reached through SANDAG's intranet search function, which SANDAG staff use to search for documents pertaining to a public records request.

Perhaps most importantly, Kroninger believed that all documents created as part of the search for the forecasting error were "draft" or "working" documents, since team members were creating them to solve a problem they didn't yet fully understand. Kroninger said that once they had identified the forecasting error and written a report on it, that report would no longer be a draft document. However, according to Kroninger, everything leading up to the report would be a draft, and therefore could be deleted within sixty days. Thus, Kroninger explained that he created Hana Tools so that all the draft documents it contained could be mass-deleted within the sixty-day time limit. The reason this was necessary, Kroninger said, was so that the team could feel free to brainstorm and trade ideas while searching for the forecasting error. He believed they would feel more constrained if all the documents they created as part of the search were discoverable.

Kroninger said, however, that they did not hide the creation of Hana Tools from the SANDAG legal team. He said he told Kirk that he wanted to create a location where they could store documents used in the search for the forecasting error, and then mass delete them within sixty days. Although Kirk did not remember this specifically, he said that Kroninger's understanding of "drafts" seemed consistent with SANDAG policy and that he probably would have approved the request. Major also believed that Kirk approved the creation of Hana Tools, but insisted that it had to be searchable and discoverable. Kroninger did not recall ever asking Kirk whether Hana Tools needed to be searchable. And although Major believed that Hana Tools was searchable, Bill Mount, SANDAG's IT Manager, said that in fact it was not. However, he said it was reasonable that Major would have believed this, since a search of the intranet reaches Hana data that is not actually stored on the Hana server.

Although Hana Tools was not searchable, Kroninger said that if the team stored any documents on it that were responsive to a discovery or public records request—and those documents were not drafts—SANDAG would have needed to release them. Tucker agreed with this. And she said that regardless of whether Hana Tools was searchable, this shouldn't have affected whether the documents stored on it were released. Tucker explained that when SANDAG receives a public records request, she may do a preliminary search for documents, but she largely relies on SANDAG staff to supply the responsive documents.

Kroninger said he believed that either Gallegos or Kawada knew about Hana Tools and was comfortable with it being a location to store and then mass-delete draft documents. When asked about it, Gallegos said he only learned of Hana Tools recently and had no understanding of its purpose. Kawada also said that she had not heard the name "Hana Tools" until recently, although she remembered that during the search for the forecasting error, Kroninger had told her that he would create a folder that the team could use to share documents. Kawada said she was never told that the purpose of the folder was to defeat public records requests. Major explained that it was common to set up a folder with limited access when a team was working on a project. Mount agreed, but said that normally, even if some users didn't have access to a particular folder, it was always searchable.

As of June 5, 2017, the date we first inspected the contents of Hana Tools, there were 317 files located on it. Although many of the documents were created in 2016 and 2017, many others

date back much further, some to 2006. Kroninger explained that, in addition to documents created as part of their search, they also stored copies of relevant documents that SANDAG employees created in the past. Kroninger said that the original versions of these documents were stored elsewhere, and would not have been deleted.<sup>50</sup>

Although Hana Tools was intended as a way to mass-delete documents, Major and Kroninger said no documents were ever deleted from it. However, according Mount, this cannot be confirmed. Because SANDAG never backed up the Hana Tools folder, it may be impossible to tell whether any documents were ever deleted.

### 3. Ron Roberts And Gary Gallegos Respond To The Measure A Forecasting Error

On January 6, 2017, Ron Roberts published an editorial in the Voice of San Diego. Among other topics, Roberts discussed the Measure A forecasting error.<sup>51</sup> Most notably, Roberts presented the following rhetorical question and answer:

Had SANDAG concluded before the election that there were problems with its model that could have resulted in the \$18 billion Measure A revenue forecast being overestimated?

No – before the election, SANDAG technical staff had not discovered how, or if, the agency’s computer model could have caused an overestimation of the Measure A revenue forecast.<sup>52</sup>

Roberts also made the following statement regarding TransNet:

SANDAG staff recognized more than a year ago that the model’s taxable retail sales estimates appeared aggressive, but it was not immediately clear why. Nor was it clear what, if any, impact that might have on the TransNet revenue estimates.<sup>53</sup>

When asked about the editorial, Roberts said that he took full responsibility for the final draft, but did not write the original and had no personal knowledge of the details. David Hicks, Communications Manager at SANDAG, wrote the original draft of the editorial, and said that, in doing so, he had researched what happened with the Measure A forecasting error. Hicks said the basis for the Measure A question and answer quoted above was that SANDAG staff had not yet discovered the source of the forecasting error before the election, and Cox did not agree that the

---

<sup>50</sup> For instance, **EXHIBIT 5**, Jarosz’s presentation that contained slides on the capped income forecast, was stored on Hana Tools even though Jarosz created it in 2013. We have confirmed that this document was still stored in another location on SANDAG’s system.

<sup>51</sup> **EXHIBIT 32**—Ron Roberts, *SANDAG Can Still Deliver on TransNet Promises*, Voice of San Diego, at 4 (Jan. 6, 2017), <http://www.voiceofsandiego.org/topics/opinion/sandag-can-still-deliver-transnet-promises/>

<sup>52</sup> *Id.* at 5.

<sup>53</sup> *Id.* at 3.

forecast was wrong. As for the statement about TransNet, Hicks said that he had not known that SANDAG staff had raised an issue about the TransNet Plan of Finance during the December 2015 presentation.

One month later, on February 6, 2017, Keatts published an article in the Voice of San Diego, in which he released Major and Messen’s emails from November 2015.<sup>54</sup> In the article, Keatts suggested that Gallegos and Kawada knew as of December 2015 that the Series 13 taxable retail sales forecast would affect TransNet and Measure A.

The following day, Gallegos issued a letter to the SANDAG Board responding to the article.<sup>55</sup> The letter was also sent to SANDAG employees and later released in the Voice of San Diego. In the letter, Gallegos made a number of statements regarding the forecasting error, although the following two caused particular concern among some witnesses. First, he wrote that “[a]t no point did any staff member go to management and connect a concern about taxable retail sales estimates to the forecast for Measure A or raise a concern that the Measure A forecast might be overestimated.”<sup>56</sup> Second, he wrote that during the December 2015 meeting, “[t]here was no connection drawn between [DEFM’s taxable retail sales forecast] and the bigger picture revenue forecast for TransNet or Measure A.”<sup>57</sup>

During the interview, Gallegos told us that Major had worked on the portion of the letter regarding the “bigger picture revenue forecast for TransNet.” Gallegos said that only now does he realize that Major had been working on the Plan of Finance at the time of the December 2015 meeting. When asked about this portion of the letter, Major said that “TransNet” referred to the \$14 billion TransNet revenue forecast calculated in 2004, not the annual Plan of Finance. Hicks, who was also responsible for drafting the letter, agreed with Major.

A number of witnesses were unhappy with SANDAG’s public relations response to the Measure A forecasting error, having found it to be somewhat dishonest. In particular, we showed a number of witnesses Gallegos’s letter, and most agreed that Daniels and Messen had drawn a clear connection between the Series 13 taxable retail sales forecast and the TransNet Plan of Finance.

---

<sup>54</sup> **EXHIBIT 33**—Andrew Keatts, ‘OMG,’ ‘WTF’: *Emails Show SANDAG Knew Forecasts Were Wrong, Went to Voters With False Promise Anyway*, Voice of San Diego, at 1–2 (Feb. 6, 2017), <http://www.voiceofsandiego.org/topics/government/omg-wtf-sandag-knew-its-forecasts-were-wrong-went-to-voters-with-false-promise-anyway-emails-show/>.

<sup>55</sup> **EXHIBIT 34**—Gary Gallegos, *Clarification of Recent Press Reports on Measure A Revenue Forecast*, SANDAG (Feb. 7, 2017), [http://www.voiceofsandiego.org/wp-content/uploads/2017/02/Gallegos\\_Clarification\\_Letter.docx](http://www.voiceofsandiego.org/wp-content/uploads/2017/02/Gallegos_Clarification_Letter.docx).

<sup>56</sup> *Id.* at 1.

<sup>57</sup> *Id.* at 2

**B. FINDINGS AND RECOMMENDATIONS REGARDING SANDAG'S RESPONSE TO THE DISCOVERY OF THE MEASURE A FORECASTING ERROR**

**1. SANDAG Executives and Legal Counsel Should Not Have Instructed Staff to Delete Draft Documents Before the Vote on Measure A**

It is almost certain that on October 28, 2016, SANDAG executives and/or legal counsel instructed employees to delete documents. It is less certain what exactly the instruction entailed, although it is highly likely that Kirk, and possibly Gallegos, instructed employees to delete draft documents so they would not be included in a public records request. Although such an instruction is permissible under California law and SANDAG Board policy, it should not have been given at this time.<sup>58</sup> SANDAG executives knew that the Voice of San Diego was then investigating the Measure A revenue forecast, and they had, at the very least, reason to believe that the forecast was incorrect. Further, they knew or should have known that many of their staff members were certain that the forecast was incorrect. Thus, giving this instruction had a number of negative effects.

(a) Findings

First, perhaps because the agency was already in a panic, several staff members may have misunderstood the instruction and deleted documents that they should have retained. For example, Daniels seems to have believed that they were told to delete all documents every two weeks. He also said that Gallegos told them to “stop talking” and understood this as an instruction that, going forward, if they sent emails about the forecasting problem, they should delete them. Daniels and others were uncomfortable with these instructions, as they felt that SANDAG was attempting to avoid public accountability. Nonetheless, Daniels told Flyte to delete an email (although Flyte did not), and was confident that others deleted emails as well. Tucker, SANDAG’s Associate General Counsel, said that under SANDAG Board policy, sent emails are not draft documents and should not have been deleted. Further, these emails, if they were about official SANDAG business, may well have been subject to public disclosure under the Public Records Act.<sup>59</sup>

Second, deleting documents—even draft documents—at the very moment that SANDAG executives knew the Voice of San Diego was investigating the Measure A forecasting error, and knew there was some basis for the investigation, raises the specter of impropriety. It is reasonable that SANDAG executives and staff would be concerned that draft documents could be misconstrued if released. And it is true that SANDAG constantly receives public records requests and is often the focus of local news stories. Thus, SANDAG should certainly inform its employees of its record retention policy and explain in training sessions when it is appropriate to delete draft

---

<sup>58</sup> *Supra* note 46.

<sup>59</sup> *City of San Jose v. Superior Court*, 2 Cal. 5th 608, 616 (2017) (“Employees’ communications about official agency business may be subject to CPRA regardless of the type of account used in their preparation or transmission.”).

documents. However, in this particular situation, SANDAG should not have done so. The vote on Measure A was a significant event, was less than two weeks away, and SANDAG executives and staff were concerned that the Measure A revenue forecast might have been incorrect. An instruction to delete documents in this setting could easily be construed by employees as a thinly-guised instruction to delete possibly responsive documents.

(b) Recommendation

Going forward, SANDAG legal counsel should hold a regularly-scheduled meeting with executives and staff instructing them on the agency’s record retention policy. Training sessions on SANDAG’s retention policy should not be delayed until after a crisis emerges. That way, SANDAG employees will already be familiar with the policy should any crisis arise in the future, and will know which documents they must preserve, and which they can delete.

**2. SANDAG Executives and Legal Counsel Should Not Have Approved the Creation and Use of Hana Tools**

When Kroninger created Hana Tools on November 1, 2016, he admittedly did so as a way to avoid public records requests. It also seems highly likely that Kirk approved the use of Hana Tools (even if he didn’t know what it was called) as a location to store and then mass delete draft documents created in the search for the forecasting error. Although Kroninger believed that Gallegos or Kawada also approved of using Hana Tools in this manner, we have been unable to confirm this assertion. It is less likely, however, that Kirk, Gallegos, or Kawada knew about the other concerning aspects of Hana Tools: that it was non-searchable, and wasn’t backed up.

(a) Findings

Although SANDAG Board policy does provide that draft documents may be deleted within sixty days, Kroninger’s understanding of the term “draft,” which he seemingly communicated to Kroninger, was extraordinarily expansive. In essence, it included all documents SANDAG employees created in the search for the Measure A error forecasting up until they wrote a final report describing their findings. Although it is possible that all such documents could be deemed drafts, it is also possible that some would not be—or would still be subject to disclosure regardless. Indeed, the relevant law specifically states that draft documents are only exempt from disclosure “provided that the public interest in withholding such records clearly outweighs the public interest in disclosure.”<sup>60</sup> As Kroninger expressed, there was a public interest in withholding the documents within Hana Tools, because this would enable the team searching for the forecasting error to be more unconstrained in trying out ideas that might fail. At the same time, however, there is certainly a strong public interest in knowing more about SANDAG’s response to the Measure A forecasting error. Therefore, Kroninger and Kirk should not have preemptively assumed that all documents within Hana Tools were drafts that were not subject to disclosure.

In addition, there are two other aspects of Hana Tools, that Kirk likely did not know about, and which are also concerning.

---

<sup>60</sup> Cal. Gov’t Code § 6254(a).

First, Hana Tools was hidden on a non-searchable server that SANDAG did not ordinarily use for storage. Although Kroninger said that he was never trying to hide Hana Tools from SANDAG’s legal team, he also said that because he didn’t want its contents to be subject to public records requests, he did not want the location to be searchable. It is possible that in doing this he was mostly concerned about leaks from within SANDAG, and thus wanted to hide the location from most SANDAG employees. However, according to Mount, Kroninger could instead have created a location on SANDAG’s main drive and required certain permissions for employees to use it. This, too, would seem to have solved the problem of leaks. As with the timing of the instruction to delete draft documents, the location of Hana Tools also raises the specter of impropriety.

Second, although several witnesses assured us that no documents were ever deleted from Hana Tools—despite its purpose as a document deletion folder—this cannot be confirmed, as the folder was never backed up. Although there are a number of documents on Hana Tools that SANDAG employees would presumably have deleted if they were going to delete any, it is also possible that some additional documents were deleted. While we don’t have any reason to doubt the honesty of the witnesses who told us no documents were deleted—since they were forthcoming in all other respects—the fact that the drive was never backed up does call this assertion into question.

(b) Recommendation

In the future, if SANDAG chooses to implement a policy whereby it will store and then mass-delete draft documents related to a particular project, it should disclose this policy publicly, much as it has done with other aspects of its record retention policy. Further, the location of this folder must be searchable and disclosed to legal counsel. However, we find such a policy inadvisable, as it would be difficult if not impossible to know, in advance, that every document created for a particular project was both a draft and not subject to disclosure.

**3. SANDAG Executives Should Have Been More Forthcoming in Their Responses to the Measure A Forecasting Error**

After reviewing Roberts’s editorial and Gallegos’s letter to the SANDAG Board, we find that they include several points which are insufficiently transparent.

(a) Findings: Roberts’s Editorial

First, the following statement in Roberts’s editorial was excessively wordsmithed:

Had SANDAG concluded before the election that there were problems with its model that could have resulted in the \$18 billion Measure A revenue forecast being overestimated?

No – before the election, SANDAG technical staff had not discovered how, or if, the agency’s computer model could have caused an overestimation of the Measure A revenue forecast.<sup>61</sup>

Although Gallegos and Cox had not concluded before the election that the Measure A forecast was overestimated, nearly everyone else involved had. Although it’s arguable that these staff members didn’t yet know that there were problems with SANDAG’s model (i.e., DEFM) that could have resulted in an overestimation, they at least believed that DEFM was producing an unrealistic output due to aggressive data from Moody’s. Similarly, even though it’s true that SANDAG staff did not discover the source of the forecasting problem until after the election, the more important point is that, by October 2016, most SANDAG staff involved in the problem believed that the forecast was wrong.

Roberts also stated the following regarding TransNet:

SANDAG staff recognized more than a year ago that the model’s taxable retail sales estimates appeared aggressive, but it was not immediately clear why. Nor was it clear what, if any, impact that might have on the TransNet revenue estimates.<sup>62</sup>

This, too, is not entirely accurate. Although Major and Hicks argued that the 2004 TransNet forecast is somehow different than the TransNet Plan of Finance, that is, at best, true only in the narrowest sense. Like the 2004 TransNet forecast, the TransNet Plan of Finance includes a long-term forecast that projects future revenue from the TransNet sales tax. The reason why Major first became concerned about the Series 13 taxable retail sales forecast was because he was working on the TransNet Plan of Finance—which used that forecast—and strongly believed its long-term revenue estimates were unrealistic.

(b) Findings: Gallegos’s Letter

Gallegos’s letter contains the same wordsmithing issues regarding the TransNet Plan of Finance. In it, he writes that during the December 2015 meeting, “[t]here was no connection drawn between [DEFM’s taxable retail sales forecast] and the bigger picture revenue forecast for TransNet or Measure A.”<sup>63</sup> However, even Gallegos admitted during our interview that he now realizes that Major had been concerned about the effect that DEFM could have on the Plan of Finance.

Gallegos’s statements about Measure A are somewhat murkier, however. Because we can’t be certain whether Cox said during the December 2015 meeting that he did not use DEFM to calculate the Measure A forecast, we also can’t be certain whether staff drew a “connection” between the taxable retail sales forecast and Measure A. The same is true for Gallegos’s statement that “[a]t no point did any staff member go to management and connect a concern about taxable retail sales estimates to the forecast for Measure A or raise a concern that the Measure A forecast

---

<sup>61</sup> Roberts, *supra* note 49, at 5.

<sup>62</sup> *Id.* at 3.

<sup>63</sup> Gallegos, *supra* note 53, at 1

might be overestimated.”<sup>64</sup> If in fact no one brought up Measure A during the December 2015 meeting, then we have seen no indication that staff ever raised any issue regarding the Measure A forecast to Gallegos or Kawada until October 2016.

(c) Recommendation

Going forward, SANDAG should be more transparent in its public relations responses to issues like the Measure A forecasting error. As a government agency, SANDAG has a responsibility to be honest and straightforward with the public. By failing to adequately explain how and why it overestimated the Measure A revenue forecast, SANDAG lost employee morale and forfeited the public’s trust.

---

<sup>64</sup> *Id.* at 2.