

D. M. McCullough

SCHIMPELER CORRADINO ASSOCIATES

GENERAL PLANNING CONSULTANT to the Southern California Rapid Transit District



425 South Main Street

Los Angeles, California 90013

213/972-3244

Associate Consultants:
Barton-Aschman Associates
Deloitte Haskins & Sells
Robert J. Harmon & Associates, Inc.
The Planning Group, Inc.
Cordoba Corporation
Myra L. Frank & Associates
Manuel Padron

29649724

MEMORANDUM

TO: Gary S. Spivack
FROM: Don C. Kelly *Don Kelly*
DATE: August 24, 1988
SUBJECT: Final Technical Memorandum 88.4.5, Metro Rail Before and After Study: Research Design, Methodology, Variables and Data Collection Plan

Enclosed please find six (6) copies of the subject technical memorandum. Also enclosed is a summary of the changes which were made to the Final Draft and final version of this Tech Memo in response to District comments. GPC has attempted to respond to each of the District's concerns. Please note that some questions cannot be answered until this methodology is actually implemented in subsequent Tasks of the Before-and-After Study. If the changes which have been made in the attached document are not sufficient, please provide the specific changes which you desire and they will be made to the document.

Please advise if we can provide any further information on this product.

Enclosures

cc: Anne F. Odell
David L. McCullough

MTA LIBRARY

SCRIPD LIBRARY

SCPTD LIBRARY

RESPONSES TO DISTRICT COMMENTS ON TECHNICAL MEMORANDUM 88.4.5,
BEFORE AND AFTER STUDY METHODOLOGY

Chronology

GPC provided the initial draft of Tech Memo 88.4.5 to the District on March 23, 1988. The District provided comments on this document on March 29, 1988 and a meeting was held between the District and GPC to discuss the Tech Memo and comments on March 30, 1988. GPC provided the final draft of Tech Memo 88.4.5 to the District on April 21, 1988. The District provided comments on this product on May 3, 1988.

Changes Made in Response to Comments

The final version of Tech Memo 88.4.5 is forwarded with this document. The District's comments on the initial and final drafts of Tech Memo 88.4.5 have been addressed as follows:

1. The District requested that the methodology for capitalizing lease rates to property value be explained.

Response: A paragraph was added on page 15 of the Final Draft detailing the methodology to be used.

2. Two additional independent variables, income stream of property sold and foreign ownership, were suggested for inclusion.

Response: GPC researched additional sources of data for these independent variables. Since no source of data was found, they were not included in the revisions made in the Final Draft.

3. Using a formula to weight rehabilitations was suggested by the District.

Response: The hypothesis that rehabilitated age, in addition to absolute age, of a building may affect property value was added in the Final Draft. This may include development of a formula to achieve the best fit of the data on rehabilitation in the predictive equation. The development of a formula to weight rehabilitations is explicitly included in the final version of Tech Memo 88.4.5 (p.18). The actual formula to be developed will be determined and documented in Task 7 of the Before and After Study.

4. The District inquired into the nature of data on parking spaces, particularly off-site parking spaces.

Response: In the 3/30 meeting, GPC explained that the available data reflected on-site parking spaces only. GPC's research into other sources of real estate data was unable to identify a source which would reflect off-site parking spaces. However, it is not expected that this factor would have significant impact on property value, even if it could have been included.

5. The District requested that distance from Metro Rail be used in the pre-Metro Rail control checks.

Response: A paragraph was added on Page 14 of the Final Draft indicating that the requested test would be added.

6. The District requested that the variable Bus Density be further defined.

Response: Determination of an adequate source of data to measure differences in bus service in different locations in the study area has been difficult from the outset. In the 3/30 meeting, it was agreed that this variable would be measured as number of scheduled bus trips on the street fronting the property. The Final Draft was revised to reflect this concurrence (p.18). Subsequent research indicated that passenger counts aggregated by census tract would provide the only reliable source of bus service data. The final version of Tech Memo 88.4.5 was changed to reflect the use of this data source (p.23).

7. The District recommended that the variable Distance from Freeway On-Ramp be changed to Average Distance from Closest On- and Off-Ramps.

Response: The Final Draft was revised to include this change (p.18).

8. The District recommended that the variable Number of Freeway Ramps within 1/4 mile be deleted.

Response: This variable was deleted in the Final Draft.

9. The District recommended that the variable Neighborhood Valance be deleted.

Response: This variable was deleted in the Final Draft.

10. The District recommended that the variable Disposable Income be deleted.

Response: This variable was deleted in the Final Draft.

11. The District requested that the time frames to be used in the study be defined more precisely and the rationale for delineation of time frames (e.g., pre-Metro Rail, pre-funding, etc.) be provided. The District also inquired as to the time frame for the data to be obtained from DAMAR.

Response: Dates were added to the analysis time frames outlined in the Final Draft (p.10). Three paragraphs were added to the Final Draft relating these dates to the key events associated with the development of the Metro Rail system (pp.10-11).

In the Final Draft, the pre-Metro Rail time frame was defined as 1983 and earlier. The answer to the question of the time frame of the data provided by DAMAR could not be answered in the Final Draft since the DAMAR data was not received until June 7, 1988. Analysis of this data after it was received indicated that raw data on property sales was available to the 60's, however, reliable data was available only to 1976. The final version of Tech Memo 88.4.5 was changed to reflect the pre-Metro Rail time frame as 1976 to 1983 (p.11).

Prior to ordering data from DAMAR, GPC researched additional potential sources of real estate data and was unable to identify a source which appeared to be superior to DAMAR.

12. The District inquired as to why data was proposed to be collected on variables known to be multicollinear.

Response: GPC explained in the 3/30 meeting that, even though multicollinear variables were to be examined in the study, it was not known at the outset which of those variables would best explain the observed property values. Therefore, it was proposed that data be collected on each of these variables, that factor analysis be used to identify multicollinear variables and that only the best explanatory variables be used in the development of the predictive equations.

13. The District requested that ratios, percentages and actual values not be used in the same regression equation.

Response: It was agreed in the 3/30 meeting that the variable Floor Area Ratio would be deleted as an independent variable. In the Final Draft, this variable was deleted from section 3.2.1, Site Characteristics, but was inadvertently not deleted from the graphic Figure 3. This was corrected in the final Tech Memo (p.17). In addition, the use of these measures is explicitly disclaimed in the final Tech Memo (p.13).

14. The District requested further explanation of the internal control checks to be used to confirm the veracity of the regression equations developed. The District also requested that the data base be randomly split into two parts for cross validation analysis.

Response: The final version of Tech Memo 88.4.5 was revised to reflect the use of T-tests, F tests, cross-validation checks and outliers analysis to verify the regression equations obtained and check the data used to develop the equations (p.18). The actual application of these tests and the results obtained will be included in the documentation of the equations which are developed in Task 7 of the Before and After Study.

15. The District requested that a "pre-Metro Rail distance to station" analysis be substituted for the proposed "distance to node" analysis as a control check of Metro Rail influence in the pre-Metro Rail predictive equations.

Response: GPC concurred in the use of this test as a substitute for the previously proposed control test. A paragraph was added on page 14 of the Final Draft outlining the District-requested control test.

16. The District requested further explanation of the factor analysis to be conducted.

Response: A paragraph was added on page 12 of the Final Draft which explained the factor analysis to be performed.

17. The District requested that Downtown People Mover not be abbreviated.

Response: The use of the zones in the Downtown People Mover Study to provide aggregations/disaggregations of data was subsequently found to be unnecessary due to the similarity of the Los Angeles Police Department's zone system and was dropped in the final version of Tech Memo 88.4.5.

18. The District pointed out that the Assessor's file contains three sale points for each property.

Response: It was explained in the 3/30 meeting that the benefit assessment data base only contained the most recent sale price for the property since that data was not relevant to the purpose of the benefit assessment data base (i.e., calculation of assessments). This is the reason for the statement that the benefit assessment data base contains only one sales point, which is still true. At the time of the Final Draft, the difference between the Assessors data and the DAMAR data was not known since the DAMAR data was not received until June 7, 1988. Considerable additional analysis has subsequently been performed on the DAMAR sales data which will be explained and documented in Tech Memo 88.4.7.

19. The District recommended additional research on large title companies' data bases as an alternative to DAMAR.

Response: GPC researched additional sources of real estate data and provided the results to the District in a memorandum dated April 8, 1988. No sources were found which appeared to be superior to DAMAR.

20. The District noted that occupancy rate was not listed as a variable.

Response: In the final version of Tech Memo 88.4.5, office vacancy rate in downtown Los Angeles was added as an independent variable, which is potentially indicative of market conditions in the study area (pp.17 & 20). Since the Final Draft, Black's Guide has been supplanted by the BOMA Office Market Guide as a source of lease rate information. Although Black's Guide has been published since 1984, it has appeared aperiodically while the BOMA Guide has been published since 1985 on a regular schedule. Given the methodology of this study, the regular publishing schedule of the BOMA product makes it a more valuable source of information.

21. The District recommended that a surrogate for neighborhood security, such as crime by police district, be used.

Response: The final version of Tech Memo 88.4.5 has been revised to reflect the use of crime statistics as an independent variable (p.19). At the time of the Final Draft, the source of this information had not been determined.

22. The District recommended that neighborhood valance be deleted as a variable.

Response: This variable was deleted from the Final Draft.

23. The District raised the question as to the non-random nature of the retail sales sample and how a statistically valid analysis is possible for property sales but not retail sales.

Response: Because the identification of the sample of businesses for collection of retail sales involves judgment on the part of the individual choosing the sample, a potentially large sampling error which cannot be measured is introduced. This is a fundamental principle of statistical analysis and the reason why a statistically valid analysis cannot be conducted for retail sales (see attached). The methodology outlined in Tech Memo 88.4.5 to measure property sales values does not rely on judgment since the entire universe of property sales in the study area will be measured and only missing data points will be excluded (this is a function of the data source and not determined by the researcher). The final version of Tech Memo 88.4.5 was revised to reflect the statistical universe for the study of property value (p.16).

24. The District asked how property value for trades would be reflected.

Response: In the 3/30 meeting, GPC explained that the sales prices contained in the DAMAR data base were reportedly reflective of the actual market price. If a property trade was involved, DAMAR had indicated that it conducted staff research to determine the actual market value. Subsequent experience with the data provided by DAMAR on June 7, 1988, indicates that while this may be true for some cases, it was not universally true. The Assessor, on the other hand, individually examines all cases where the reported sale price is not consistent with the previous assessed value for the property, as would be the case with a property trade. In these cases, the Assessor will make an estimate of market value which will form the basis of the new assessed value for the property. As such, it would appear that the assessed value would be the best reflection of market value of properties involved in property trades.

In the analysis of the DAMAR data which GPC conducted, assessed value was used as a benchmark for estimating property value in cases where the DAMAR-reported sale price was incorrect. As a result, it can be expected that trades which were not correctly reflected in the DAMAR data would have been properly adjusted in the calculation of estimated sales price. It is not possible to isolate individual cases of property trades in either case (DAMAR or Assessor).

25. The District requested that Professor Boyce's comments be responded to in Tech Memo 88.4.5.

Response: Professor Boyce made four comments in his letter of April 11. These comments are paraphrased and the responses summarized here:

- A. He was concerned about the representation of market factors in the post-Metro period and the necessity to ensure that these factors are represented in the model. GPC concurs in this concern and believes that the methodology accounts for these factors. Professor Boyce specifically referred to point 2, page 6 of the initial draft. In the Final Draft, this section was expanded from one paragraph to three (p.9),

using the hypothetical example of the influence of interest rates on property value, to more fully explain how the methodology would account for the influence of market factors in the post-Metro Rail period. The precise influence of interest rates on property value will be established and documented in Task 7 of the Before and After Study.

- B. He suggested development of a behavioral rationale to explain correlation between the residual value and distance to Metro Rail. GPC concurs that any such correlation must be related to a logical behavior pattern. The final version of Tech Memo 88.4.5 was revised to reflect this concern (p.9). GPC believes that walking distance from the nearest Metro Rail station provides this rationale and is an appropriate hypothesis with which to enter the analysis. Modifications to this hypothesis will be accomplished and documented in Task 7 of the Study after the correlation which exists is established.
- C. He indicated a likely need to use dummy variables to represent qualitative variables. GPC concurs in this comment as well. The exact variables and format to be used will be determined and documented in Task 7. The final version of Tech Memo 88.4.5 was revised to indicate the potential use of dummy variables in the development of the predictive equations (p.13).
- D. He indicated potential problems in having enough data to achieve statistical significance. GPC has been acutely aware of this problem from the outset of Before and After Study data base development and has consistently worked to maximize the number of data points available for analysis. The final version of Tech Memo 88.4.5 was revised to indicate the possible need to enlarge the geographic areas for which predictive equations are developed in order to achieve statistical significance (pp.5-7).