SUMMARY OF DUTIES: Analyzes and researches urban and operating problems through the application of statistical concepts and techniques, mathematical models and simulation development programs; prepares and interprets quantitative analyses using a variety of mathematical and statistical methods; may supervise and participate in the work of a small staff engaged in the above work; and does related work.

DISTINGUISHING FEATURES: An Operations and Statistical Research Analyst receives assignments in terms of general objectives of specific research projects and has a wide latitude of independent judgment in determining the approach, the steps to be taken, and the research methodology to be employed. The work of these employees is reviewed in terms of results attained and is utilized in analyzing projects and recommending solutions to problems. An employee in this class is distinguished from employees in other technical and administrative classes by the fact that Operations and Statistical Research Analysts use a variety of advanced mathematical and statistical techniques, including mathematical modeling, in conducting research on a wide variety of problems.

EXAMPLES OF DUTIES: An Operations and Statistical Research Analyst:

- Plans and conducts statistical analyses, research, and other studies;
- Evaluates data to determine that proper mathematical and statistical techniques have been applied in obtaining, compiling and presenting data and that conclusions drawn follow statistically sound techniques;
- Designs sampling plans for research projects to obtain the maximum possible information in the most economical manner;
- Makes recommendations regarding needed changes in existing research, analysis and reporting methodology and the need for investigation, analysis, and reporting in new areas;
- Provides consultive technical assistance to personnel in other offices engaged in developing and conducting statistical research;
- Prepares reports, tabulations, charts, and graphs in order to support recommendations;
- Develops and applies statistical formulae for use in preparing reports;
- Uses computer center facilities for necessary calculations;
- Occasionally instructs personnel assigned to assist in the analysis and compilation of studies and reports;
- Supervises and participates in the work of a small technical staff engaged in the design, development and application of mathematical models used in describing the urban structure, predicting changes, and developing and testing alternative plans;
- Collects and prepares social, economic, land use, and other data for processing by mathematical models;
• Uses operations research methods and techniques to assist in analyzing and testing data collected through the utilization of descriptive statistics, mathematical model development and simulation, correlation and regression analysis, linear programming, and factor analysis;
• Formulates new methods of analysis for planning problems by defining problems, designing approaches to problem solution, and programming problem data for computer processing;
• Defines limits, variables, parameters, and methods, and evaluates factors related to specific research areas;
• Tests mathematical models by processing historical data to see if results obtained are similar to that which actually occurred in the past;
• Debugs programs as necessary;
• Assists supervisors in evaluating consultant’s proposals for the development of mathematical models and simulation techniques;
• Coordinates the interchange of ideas, data, and mathematical models with other municipal and regional planning agencies, local universities, private agencies, and citizens;
• Prepares status reports, technical memoranda, and other reports;

May occasionally be assigned to other duties for training purposes or to meet technological changes or emergencies.

**Qualifications:** An Operations And Statistical Research Analyst must have the following knowledges and abilities:

**A Knowledge of:**
• Advanced statistical techniques and procedures, mathematics as applied to statistics, and the application of statistical techniques in management problems;
• Principles of designing charts, tables, diagrams, and graphs for reporting and recording data, and the principles of statistical report writing;
• Theory and techniques of operations research and related applications such as mathematical model development and simulation, descriptive statistics, correlation and regression analysis, linear programming and factor analysis;
• Principles, techniques and sources of information applicable to the collection, analysis and presentation of social, economic, and physical data;
• Mathematics used to solve statistical problems;
• Socio-economic factors involved in urban planning and urban research;
• Principles and practices of supervision, including labor relations and affirmative action.

**The ability to:**
• Think logically and creatively in approaching research problems;
• Identify new applications and areas of research;
• Plan procedures and techniques for the statistical or mathematical analysis of various problems;
• Plan, organize, and direct the work of a small group of employees;
• Deal tactfully and effectively with subordinates, management, and officials from other governmental agencies;
• Give technical guidance to data processing personnel and to advise other professionals on research techniques and capabilities.
Persons with disabilities may be able to perform the essential duties of this class with reasonable accommodation. Reasonable accommodation will be evaluated on an individual basis and depend, in part, on the specific requirements for the job, the limitations related to the disability, and the ability of the hiring department to accommodate the limitation.

**Minimum Requirements:**

Graduation from a recognized four-year college or university with a degree in mathematics or statistics and two years of full-time paid professional experience in applying statistical or mathematical techniques to research in urban, utility or industrial problems are required. Satisfactory completion of the equivalent of 24 semester units of graduate level work in a curriculum with emphasis on the design and employment of mathematical models, operations research techniques or the application of advanced statistical analyses may be substituted for one year of the required experience.

As provided in Civil Service Commission Rule 2.5 and Section 4.55 of the Administrative Code, this specification is descriptive, explanatory and not restrictive. It is not intended to declare what all the duties, responsibilities and required qualifications of any position shall be.