# GIS-based Boundary Planning for School Attendance Areas

ONPASS® is a boundary planning and student demographic software system powered ESRI technology. ONPASS was designed to free planners from time-consuming manual procedures of analyzing planning alternatives and searching through data. In thirty minutes, ONPASS allows you to do what might take two weeks if done manually or with a generic mapping system. But ONPASS isn't just a faster way to count pins or to draw maps. It uses the power of the personal computer to enable you to model boundaries with forecasted enrollment for years into the future, and then devise creative, optimum strategies for dealing with future change—either growth or decline.

## Boundary optimization

At the heart of ONPASS is an algorithm that simultaneously assigns students to all the schools in the district. Given a set of planner-imposed constraints, a student goes to the closest school with the capacity to accommodate him/her. These constraints may include maximum distance to be traveled, street crossing hazards, and adjustments to the capacities of the schools. The benefit to you is the speed at which ONPASS can generate a comprehensive assignment plan, allow you to fully analyze the plan and then to modify any of the parameters and rerun the assignment as a new scenario.

## Multi-layered queries

ONPASS allows you to query your student database to select a subset of the total student group. Queried groups can then be displayed on the map, reported and used by the forecasting software. Subgroups might include special education, minority or non minority, in or out migration, an ethnic group, one grade level or one school.

ONPASS uses a database of student, school and geographic information to allocate students to the closest schools so as to achieve maximum facility utilization, keep the maximum distance traveled within reasonable bounds and develop contiguous attendance areas. Once the boundary assignment plan is generated, ONPASS produces summary reports, a variety of computer maps of student assignments and listings of the students attending each school.

The goal was not just to make the planning process faster and easier, but also to enable the planner to use the full range of his/her creativity to devise optimum solutions to the district's problems. ONPASS is a powerful tool that makes problem-solving faster, easier, and more effective.
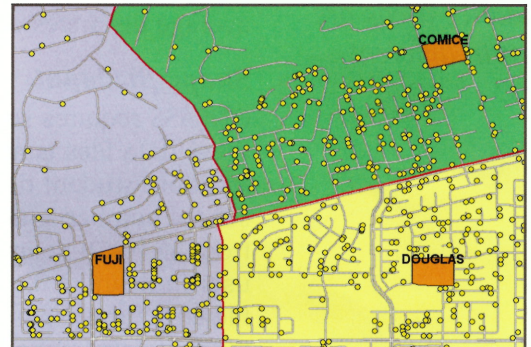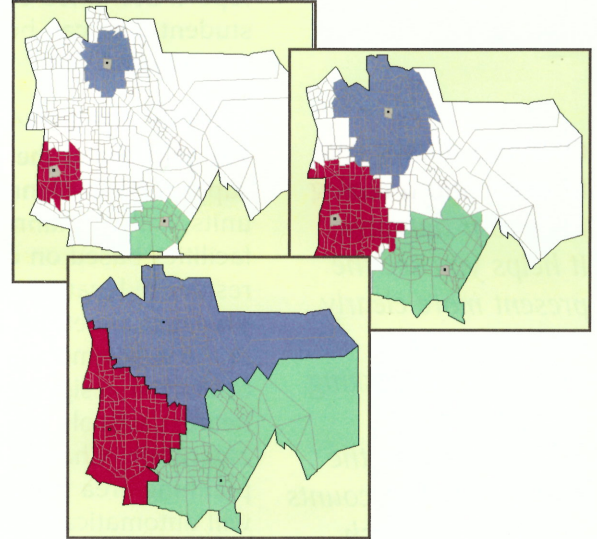
*Students are shown geocoded to the street where they live. School attendance areas are shown in different colors.*

# ONPASS™

*ONPASS allows you to enter into a dialog with your database. It helps you see the present more clearly and gives you a framework for asking those "what if" questions about the future. Student counts are shown in each planning area. School attendance areas are shown in different colors.*

## Scenario management

File names and setup configurations are things of the past. ONPASS is executed without entering file names. The user works within a Base year data directory and multiple scenario directories. Boundaries and student counts from one scenario are compared to other scenarios in an impact report. Scenarios containing forecasted student data can be executed by selecting a forecasted year from the pull-down menu.

## Flexible assignments

The purpose of the planning system is to support the assignment of neighborhood units, called "planning areas," to school facilities based on current and forecasted residence locations of students. More than just a method for tallying the results of the assignment, ONPASS supports the optimized assignment of planning areas to nearest schools based on a shortest path algorithm. Changing the assignment of a planning area from one school to another will automatically alter the enrollments, grade level and ethnic distribution, transfer assignments, transportation cost, and average distances of both affected schools.



*A catalog is used to query students and display map layers. Multiple layers can be displayed on top of one another.*
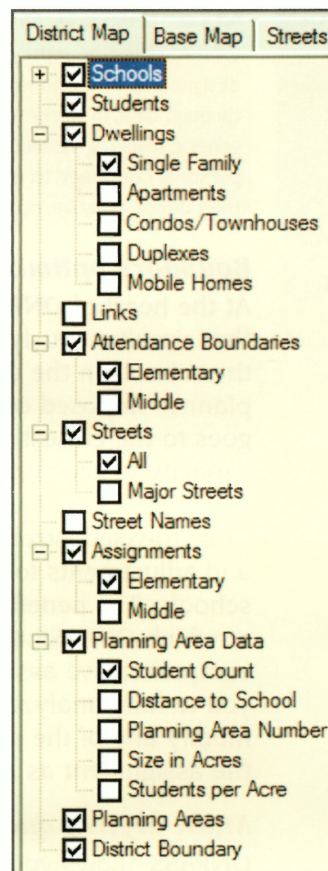
## Shape file input

ONPASS requires several data files in the pupil assignment process. The information in these data files is no different than that required by ESRI's ArcInfo. School facilities by location, student database and a street network are required to run ONPASS. The student's school number, grade level, ethnicity, and address, are required inputs. Student records from an ASCII delimited or ESRI Shapefile can be imported. An import wizard guides the user in defining file formats and an unlimited number of user-defined variables. Multiple file structures from different student information systems can be merged and processed. Students are geocoded to all the streets in the County. An inter-district transfer report lists out-of-district names and counts.

## Model with forecasted data

Any number of scenarios containing forecasted data can be created to reflect future enrollment. By using forecasted data, new attendance boundaries and school capacities, the adequacy of facilities can be studied. New schools can be opened or closed to accommodate growth or decline. After executing FORECAST/DS, forecasted data appears in the pull-down menu allowing the user to select the forecasted year for facilities modeling.

## Parcel database

The County Assessor parcel database provides a valuable addition to working with students, boundaries and streets. Geocoded dwellings can be shown by dwelling type and/or year constructed. Student generation factors are calculated by planning area and aggregated by dwelling type.



*Single family dwellings are shown as red squares. Students are yellow circles.*