

Integration of Transportation Infrastructure with Town wide Tax Base Maps

Introduction

This is a multi-purpose proposal to develop and expand the transportation related portion of a Town wide Geographic Information System (GIS) for the Town of Burrillville, RI and to develop supporting data for the State Guide Plan Element 155 (Greenspace and Greenways) and related transportation needs at the local level. Under the proposed State Greenspace and Greenway System (RI Division of Planning, November, 1994) the Town will contain a number of greenway features including a bikeway corridor, the North/South Trail Corridor, the Mid-State Greenbelt, and several "natural corridors." As the result of a tax revaluation project the Town has already acquired a large amount of detailed planimetric data which can be configured and expanded to support these transportation related needs.

In April, 1991 the Town contracted for aerial mapping, geodetic surveying and tax mapping. The town was flown at a photographic scale of 1" = 600' and photogrammetric mapping of planimetric detail was conducted at scale of 1" = 100'. The project produced a series of 273 very detailed AutoCAD files that can be used for printing tax assessors plat and lot maps.

The town is in the process of contracting to set up a routine procedure for extracting approximately 6500 parcel boundaries, structure footprints, hydrography and zoning from the 273 files and consolidating them into layers for use in a GIS. Although this will be very useful for tax assessor and certain planning functions, the primary objective is to improve the effectiveness of the Department of Public Works in carrying out its many transportation related functions.

The next major set of needs relate to street centerline, curblines, signs, poles, manholes, topography and other transportation related GIS layers. These will be used by the town's Public Works and Planning department and will be made available to the Division of Planning for Greenway and other transportation planning needs as well.

The GIS would be invaluable to the Town of Burrillville Department of Public Works and is intended to be utilized in the following areas:

- To route and optimize trash removal and recycling operations.
- To route and optimize snow removal operations within the town.
- To prioritize roads which serve as main arteries for entering and leaving town.
- To prioritize roads which lead to critical care services for nursing homes, schools, and fire stations.
- To identify bridges, underground utilities, stormwater management, cross culverts, and roadways.
- To work within a Pavement Management System to increase the Town's effective maintenance of the mentioned transportation related functions.
- To identify ownership of lots when working in or about the Town's right of way.
- To maintain detailed information of all regulatory signs within the town and insure the effective management of the same.

The project process and results will be documented with the production of a comprehensive report that is intended to be distributed state-wide to other Public Works Departments. The report, which will detail the effectiveness of a GIS for transportation related functions, will also be made available to any governmental body with a possible need upon request. Upon completion, Burrillville can serve as a model for the implementation of a GIS to other cities and towns who may be considering such a project.

Scope of Activities

1) CONVERSION OF TRANSPORTATION LAYERS AND DATABASE DEVELOPMENT

A. Extract and consolidate additional layers from AutoCAD files; set up in GIS--the layers to be included are street, road, alley and driveway curblines, signs, utility poles, manholes, hydrants, treelines and miscellaneous features related to transportation planning.

B. Develop street centerline layer and set up for GIS--using the parcel and curpline layers as a backdrop, "conflate" (align) the geography from the latest version of the Census Bureau's TIGER file (TIGER 94); use existing town maps and field checks to confirm street names and address ranges; add turn restrictions and barrier information.

Street centerline are necessary for the Town for use in labeling streets, in holding address ranges and census codes such as census tract and block, and for use by public works for pavement management and similar street related functions. This layer is especially useful for routing applications such as school buses, emergency dispatch, delivery routing, etc. It also is the only way to map street addresses (using a process called address matching).

C. Set up GIS and develop standard map set--the above data layers will be combined with the existing GIS layers to produce a working GIS for the town. All layers will be set up with standard symbology, colors and labeling so that town officials can quickly zoom to the area of interest, add thematic symbology and special labels, and produce useful screen displays and suitable color plots. A series of small special programs will be written to automate the most common GIS functions used by town officials.

2) HARDWARE AND SOFTWARE REQUIREMENTS

The town already has one GIS ready computer in the assessing department, however additional PC's are part of this request and will be assigned to the Department of Public Works and the Planning Department. Other equipment requested consists of a large-format color inkjet plotter and a small color inkjet printer for use in producing hard copy results and expanding GIS technology within the town.

In addition, related software needs consist of at least three copies of GIS software and other related software to accomplish the objectives set out in the project proposal.

3) SUPPLIES AND MISCELLANEOUS

This category is intended to address such requirements as installation, and connection of all hardware and software, including wiring, connecting cables and the like. Additionally, it is intended to provide for necessary supplies which are incidental to the operation of requested hardware, including paper goods, ink cartridges, toner, etc.

4) PREPARE AND PRINT PROJECT REPORT FOR STATE-WIDE DISTRIBUTION

The progress of the project will be documented and the results communicated with a written report. The report will address all transportation issues which are related to the project and will serve as a reference to other similar governmental bodies. This report will show the process of developing a transportation related GIS, and highlight the benefits and effectiveness in using the GIS within the Public Works function. The estimated cost of the report includes the labor required to produce it as well as costs associated with the printing and distribution of the same.

Budget

1. Conversion of transportation layers and database development	\$25,000
2. Hardware and Software requirements	\$15,000
3. Supplies and miscellaneous	\$3,000
4. Prepare and print Report for state-wide distribution	\$2,000
Total Project Cost	<u>\$45,000</u>
50% Match by town	\$22,500
Total request from grant	\$22,500
Total Project Cost	<u>\$45,000</u>